
Subject: Paris Skins

Posted by [highmtn](#) on Thu, 16 Nov 2006 05:36:26 GMT

[View Forum Message](#) <> [Reply to Message](#)

ownscale" there. Digital Mixer? Dunno if that'd do it -
> I'd have to hear it, try it, etc. Passive summing mixer?
> I dunno how much of that is really snake-oil: I'd have to buy-
> it-try-it, a/b mixes, etc, etc, sell it if I hate it, try
> something else, shitcan it if I hate it.... and I'm kinda tired
> of the whole cycle that I've gotten into lately of tweak,
> remix, find a workaround

Subject: Re: Paris Skins

Posted by [Kim](#) on Thu, 16 Nov 2006 05:51:06 GMT

[View Forum Message](#) <> [Reply to Message](#)

, tweak, remix, try something else,
> tweak/remix, ad nauseum.
>
> I'm NOT being productive, is the point.
>
> So, I have no fucking clue as to where to go next with this, or
> if there's some affordable solution out there somewhere that'll
> get me what I want, which is simply a streamlined, killer-
> sounding, one-box solution. I'm tending to think "not".
>
> NeilThis is a multi-part message in MIME format.

-----=_NextPart_000_001A_01C72138.9B863EA0

Content-Type: text/plain;

charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

Strange....!=20

Does the driver show up with a "!" or a "?" in the device manager ? What =
OS you running?

Rob

"Mike R." <emarenot@yahoo.com> wrote in message =
ne

Subject: Re: Paris Skins / examples

Posted by [Yanoska](#) on Thu, 16 Nov 2006 06:15:52 GMT

[View Forum Message](#) <> [Reply to Message](#)

ws:45840d3c\$1@linux...

Any ideas on why I have to reload my Paris drivers everytime I boot =
the program? I'm running the EDS card on an Asus A7S333, PCI slot 3. =
Vid card is slot one, slot two is blank to make room for the EDS =
daughter card. I did try to reinstall Paris (2.0), but that did not =
seem to fix the problem. =20

Thanks gents.

MR

-----=_NextPart_000_001A_01C72138.9B863EA0

Content-Type: text/html;

charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">

<HTML><HEAD>

<META http-equiv=3DContent-Type content=3D"text/html"; =
charset=3Diso-8859-1">

<META content=3D"MSHTML 6.00.2800.1555" name=3DGENERATOR>

<STYLE></STYLE>

</HEAD>

<BODY bgColor=3D#ffffff>

<DIV>Strange....!! </DIV>

<DIV>Does the driver show up with a "!" or a "?" in =
the device=20

manager ? What OS you running?</DIV>

<DIV> </DIV>

<DIV>Rob</DIV>

<BLOCKQUOTE dir=3Dltr=20

style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =
BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">

<DIV>"Mike R." <A=20

href=3D"mailto:emarenot@yahoo.com">emarenot@yahoo.com> wrote in =
message=20

news:45840d3c\$1@linux...</DIV>

<DIV>Any ideas on why I have to reload my =
Paris=20

drivers everytime I boot the program? I'm running the EDS card =
on an=20

Asus A7S333, PCI slot 3. Vid card is slot one, slot two is blank =
to make=20

room for the EDS daughter card. I did try to reinstall Paris =
(2.0), but=20

that did not seem to fix the problem. </DIV>

<DIV>Thanks gents.</DIV>

<DIV><FONT face=3DArial =

size=3D2>MR</DIV></BLOCKQUOTE></BODY></HTML>

-----=_NextPart_000_001A_01C72138.9B863EA0--Worst case scenario - strategic surgical

editing - to just get the really
noticable squeeks attenuated or removed...wouldn't even dream of a full song
edit as squeaks are part of the playing and I personally think they add
character to the track

DOn

"alex plasko" <alex.plasko@snet.net> wrote in message
news:45842fa9\$1@linux...

> neil,I dont know man .If were not putting fret noise in, to make a sampler
> sound more realistic, were trying to remove it from the real deal for a
> cleaner sound. does it ever end?

> "Neil" <IUOIU@OIU.com> wrote in message news:458374eb\$1@linux...
>>

>> I don't know - maybe that'd work... problem with trying to
>> grab "a" sample of the noise is that that kind of noise isn't
>> consistent at all - it varies in pitch & harmonic content quite
>> a bit from one "squeek" to the next.

>>
>> Neil

>>
>>
>> "alex plasko" <alex.plasko@snet.net> wrote:
>>>neil, how about something like denoiser? if you can get a clean sample of
>>

>>>the fret noise denoiser will wipe it and interpolate signal befor and
>>>after
>>

>>>that spot.sound forge denoiser works pretty good for things of that
>>>nature
>>
>>>. never tried it for fret noise though.

>>>
>>>"Neil" <OIUOIU@OIU.com> wrote in message news:45835bb9\$1@linux...
>>>>

>>>> Manully editing might be the best bet... Don, if you're trying
>>>> a de-esser for that, you might need like 3 or 4 of 'em in a
>>>> row, each centered on different frequencies. Fortunately,
>>>> Spitfish doesn't take up much CPU power (if that's what you're
>>>> using).

>>>>
>>>> Also, you could try re-micing it through your monitors (muting
>>>> the playback on the recording channel) with a dynamic mic
>>>> backed-off a bit from the speakers... whatever you do, don't
>>>> compress when playing back to re-mic if you try this. That'll
>>>> just make the squeak stand out more.
>>>>

```
-----=_NextPart_000_000A_01C72136.265C9220
Content-Type: text/plain;
charset="iso-8859-1"
```

Content-Transfer-Encoding: 7bit

Hey Rob,

Thanks for responding. I should have mentioned: Win98SE... and no, no "!" or "?" shows up in the device manager. In fact, the driver is listed. But, I have to "remove" the bugger before shutting down, so that, when I reboot the computer it see's the driver and loads it. If I don't do this, Paris will not load. I get an error message "error 61d/something." The EDS card is on IRQ3 and shares it only with the APCI thingy. Once I go through this reloading-the-driver-procedure, all is well, Paris runs and is happy.

MR

"Rob Arsenault" <mani1147 AT hotmail.com> wrote in message news:4584659e@linux...

Strange.....!!

Does the driver show up with a "!" or a "?" in the device manager ? What OS you running?

Rob

"Mike R." <emarenot@yahoo.com> wrote in message news:45840d3c\$1@linux...

Any ideas on why I have to reload my Paris drivers everytime I boot the program? I'm running the EDS card on an Asus A7S333, PCI slot 3. Vid card is slot one, slot two is blank to make room for the EDS daughter card. I did try to reinstall Paris (2.0), but that did not seem to fix the problem.

Thanks gents.

MR

-----=_NextPart_000_000A_01C72136.265C9220

Content-Type: text/html;

charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">

<HTML><HEAD>

<META http-equiv=3DContent-Type content=3D"text/html"; charset=3Diso-8859-1">

<META content=3D"MSHTML 6.00.2800.1555" name=3DGENERATOR>

<STYLE></STYLE>

</HEAD>

<BODY bgColor=3D#ffffff>

<DIV>Hey Rob,</DIV>

<DIV>Thanks for responding. I should = have=20

mentioned: Win98SE... and no, no "!" or "?" shows up in the device=20 manager. In fact, the driver is listed. But, I have to = "remove" the=20

bugger before shutting down, so that, when I reboot the computer it = see's the=20

driver and loads it. If I don't do this, Paris will not =

load. I get=20
an error message "error 61d/something." The EDS card is on IRQ3 =
and shares=20
it only with the APCI thingy. Once I go through this=20
reloading-the-driver-procedure, all is well, Paris runs and is=20
happy.</DIV>
<DIV>MR</DIV>
<BLOCKQUOTE dir=3Dltr=20
style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =
BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">
<DIV>"Rob Arsenault" <mani1147 AT hotmail.com> wrote in message =
<A=20
href=3D"news:4584659e@linux">news:4584659e@linux...</DIV>
<DIV>Strange....!! </DIV>
<DIV>Does the driver show up with a "!" or a "?" =
in the=20
device manager ? What OS you running?</DIV>
<DIV> </DIV>
<DIV>Rob</DIV>
<BLOCKQUOTE dir=3Dltr=20
style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =
BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">
<DIV>"Mike R." <<A=20
href=3D"mailto:emarenot@yahoo.com">emarenot@yahoo.com> wrote =
in message=20
news:45840d3c\$1@linux...</DIV>
<DIV>Any ideas on why I have to reload =
my Paris=20
drivers everytime I boot the program? I'm running the EDS card =
on an=20
Asus A7S333, PCI slot 3. Vid card is slot one, slot two is =
blank to=20
make room for the EDS daughter card. I did try to reinstall =
Paris=20
(2.0), but that did not seem to fix the problem. </DIV>
<DIV>Thanks gents.</DIV>
<DIV><FONT face=3DArial=20
size=3D2>MR</DIV></BLOCKQUOTE></BLOCKQUOTE></BODY ></HTML>

-----=_NextPart_000_000A_01C72136.265C9220--how about autotune on those offending
sqweaks.hehehe

"Don Nafe" <dnafe@magma.ca> wrote in message news:45846a94@linux...

- > Worst case scenario - strategic surgical editing - to just get the really
- > noticable squeeks attenuated or removed...wouldn't even dream of a full
- > song edit as squeaks are part of the playing and I personally think they
- > add character to the track
- >
- > DOn

>
>
> "alex plasko" <alex.plasko@snet.net> wrote in message
> news:45842fa9\$1@linux...
>> neil,I dont know man .If were not putting fret noise in, to make a
>> sampler sound more realistic, were trying to remove it from the real deal
>> for a cleaner sound. does it ever end?
>> "Neil" <IUOIU@OIU.com> wrote in message news:458374eb\$1@linux...
>>>
>>> I don't know - maybe that'd work... problem with trying to
>>> grab "a" sample of the noise is that that kind of noise isn't
>>> consistent at all - it varies in pitch & harmonic content quite
>>> a bit from one "squeek" to the next.
>>>
>>> Neil
>>>
>>>
>>> "alex plasko" <alex.plasko@snet.net> wrote:
>>>>neil, how about something like denoiser? if you can get a clean sample
>>>>of
>>>
>>>>the fret noise denoiser will wipe it and interpolate signal befor and
>>>>after
>>>
>>>>that spot.sound forge denoiser works pretty good for things of that
>>>>nature
>>>
>>>>. never tried it for fret noise though.
>>>>
>>>>"Neil" <OIUOIU@OIU.com> wrote in message news:45835bb9\$1@linux...
>>>>>
>>>>> Manully editing might be the best bet... Don, if you're trying
>>>>> a de-esser for that, you might need like 3 or 4 of 'em in a
>>>>> row, each centered on different frequencies. Fortunately,
>>>>> Spitfish doesn't take up much CPU power (if that's what you're
>>>>> using).
>>>>>
>>>>> Also, you could try re-micing it through your monitors (muting
>>>>> the playback on the recording channel) with a dynamic mic
>>>>> backed-off a bit from the speakers... whatever you do, don't
>>>>> compress when playing back to re-mic if you try this. That'll
>>>>> just make the squeak stand out more.
>>>>>
>>>>> Wanna send me a sample of the wav file & I'll see if I can come
>>>>> up with an idea for you?
>>>>>
>>>>> Neil
>>>>>

Then that means I have to start each mix with a preconceived notion, instead of letting the song "mix itself", as it were.... IOW, to me a song should just come together - not necessarily simply/easily, but the song should tell you which

direction to go in, not the other way around.

>Instead of trying this or that voodoo piece of gear, hearing
>what it does, and ditching it if it doesn't do what you want...

I haven't exactly done that, though... I've tried things that
SHOULD get me closer to where I want to be, based on what I've
heard other people say about them.

>Start with what you want. Hear it in your head. Then analyze
>what it is about your final desired sound that equals "killer"
>for you. Is it clean, non-distorted crispness? Is it a type of
distortion? Is it an eq curve, certain frequencies you need to
hear? Is it combinations of instruments that don't step on each
other? Is it stereo wideness?

It's hard to say exactly - it's almost one of those: "I'll
know it when I hear it" kinda things... you know where you dial
something in & just jump out of your chair & say "YEAH! THAT'S
IT RIGHT THERE!" I never have those moments anymore... it's
always: "eh, that's not too bad" or "That's pretty close." or
something like that.

Ultimately, though, what I'm short of mix-wise is a combination
of clarity/power/size. And by "power", I don't mean RMS;
by "size" I don't mean depth or width alone, but a combination
of both. In Paris, I could get the power & size, but not the
clarity; in Cubase I can get the clarity, but I'm coming up
short on the power & size. Summing in Paris helped, but then I
lose some clarity & transparency. Running stems out of Cubase,
then reimporting into a new project to get the final 2-mix
helps too... that way you get a bit more well-defined
soundstage & get to keep the clarity, but this is just another
workaround, really... I still would like to be able to hear the
FINAL 2-track product as I'm mixing, without another step in
between. I was hoping Pulsar could keep me in the digital
domain all the way through the process, but it can't at my
chosen samplerate. Convert everything to 96k then use Pulsar?
Nope, this puts my PC over the top - now I'd be looking at more
money for another upgrade just to see if the experiment would
work. Convert everything to 44.1? Maybe I should... maybe my hi-
rez quest is nothing more than tilting at windmills.

>Record something very simple. For example, just your voice, or
>just your guitar. Can you make just that one track sound like
>you envision

Yes, one track is fine, two is fine, a few is fine, a lot is

even fine... it's the entire mix that I'm not able to get where I want... maybe it's VST EFX vs hardware, maybe it's ITB mixing of any kind vs a console, maybe I really like phasey/smeary analog EQ & just don't know it. Point is, at this stage, I don't KNOW what would get me there! If I did, I'd implement that & be done with dicking around.

I appreciate your input, Jamie... it's just one of those things where I'm 98%-99% there, but that last 1 or 2 percent are the most important ones - like the keystone at the top of an arch... it's only one stone, but without it, all the rest collapse.

Neil"Neil" OIUOIU!OIU.com wrote:

>Convert everything to 96k then use Pulsar?

Forgot to mention: I also don't like the math on this option, either... converting from 88.2k to 96k is like asking the machine: "Please fuck up every 11th sample on each & every one of these pristine, hi-rez tracks I recorded."

Neill found the problem with the Link Send Panning. I had set my pans exactly where I wanted them and THEN clicked on "Link Send Routing Panners to Channel Panner". Guess what? The Send stays CENTERED U N T I L you move the panner. As soon as you move the pan on the audio channel the send pan follows perfectly. So the lesson for me is to enable the LSRPtCP before I set my pans.

I have a lot more to read apparently. That's GOOD. Better that than have a very buggy app. Now I'm back on track.

John

"Neil" <IUI@OIU.com> wrote:

>

>Nah, that # just means 944 more lines of code than v3.1.1.000.

>

>:D

>

>

>"John" <no@no.com> wrote:

>>

>>So I have to wait for 944 upgrades before it gets good? Ouch.

>>

>>"DJ" <nowayjose@dude.net> wrote:

>>>

>>>"Neil" <IUOIU@OIU.com> wrote in message news:4582a485\$1@linux...

>>>> This is why I never get version "point-zero" of ANYTHING. Or at

>>>> least I try to avoid it until I find out from other people if

>>>> it's relatively bug-free.

>>>
>>>AMEN!!!.....v3.1.1.944 here. I'm not going anywhere. Everything works
>>(or
>>>at least everything that I use works)
>>>>
>>>> Sorry to hear this, John.
>>>
>>>Me too.
>>>;o(
>>>
>>>
>>
>Can you reserve an IRQ in the BIOS as a Legacy Device and Turn off PNP in
the BIOS too? Does the manual say if Slot 3 shares with anything else?

"Mike R." <emarenot@yahoo.com> wrote:

>
>
>Hey Rob,
>Thanks for responding. I should have mentioned: Win98SE... and no, no "!"
>or "?" shows up in the device manager. In fact, the driver is listed.
But,
>I have to "remove" the buggger before shutting down, so that, when I reboot
>the computer it see's the driver and loads it. If I don't do this, Paris
>will not load. I get an error message "error 61d/something." The EDS card
>is on IRQ3 and shares it only with the APCI thingy. Once I go through this
>reloading-the-driver-procedure, all is well, Paris runs and is happy.
>MR
> "Rob Arsenault" <mani1147 AT hotmail.com> wrote in message
>news:4584659e@linux...
> Strange....!!
> Does the driver show up with a "!" or a "?" in the device manager ? What
>OS you running?
>
> Rob
> "Mike R." <emarenot@yahoo.com> wrote in message news:45840d3c\$1@linux...
> Any ideas on why I have to reload my Paris drivers everytime I boot
the
>program? I'm running the EDS card on an Asus A7S333, PCI slot 3. Vid card
>is slot one, slot two is blank to make room for the EDS daughter card.
I
>did try to reinstall Paris (2.0), but that did not seem to fix the problem.
> Thanks gents.
> MR
>
>

```

><!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
><HTML><HEAD>
><META http-equiv=3DContent-Type content=3D"text/html; =
>charset=3Diso-8859-1">
><META content=3D"MSHTML 6.00.2800.1555" name=3DGENERATOR>
><STYLE></STYLE>
></HEAD>
><BODY bgColor=3D#ffffff>
><DIV><FONT face=3DArial size=3D2>Hey Rob,</FONT></DIV>
><DIV><FONT face=3DArial size=3D2>Thanks for responding. I should =
>have=20
>mentioned: Win98SE... and no, no "!" or "?" shows up in the device=20
>manager. In fact, the driver is listed. But, I have to =
>"remove" the=20
>bugger before shutting down, so that, when I reboot the computer it =
>see's the=20
>driver and loads it. If I don't do this, Paris will not =
>load. I get=20
>an error message "error 61d/something." The EDS card is on IRQ3 =
>and shares=20
>it only with the APCI thingy. Once I go through this=20
>reloading-the-driver-procedure, all is well, Paris runs and is=20
>happy.</FONT></DIV>
><DIV><FONT face=3DArial size=3D2>MR</FONT></DIV>
><BLOCKQUOTE dir=3Dltr=20
>style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =
>BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">
> <DIV>"Rob Arsenault" <mani1147 AT hotmail.com> wrote in message =
><A=20
> href=3D"news:4584659e@linux">news:4584659e@linux</A>...</DIV>
> <DIV><FONT size=3D2>Strange....!! </FONT></DIV>
> <DIV><FONT size=3D2>Does the driver show up with a "!" or a "?" =
>in the=20
> device manager ? What OS you running?</FONT></DIV>
> <DIV><FONT size=3D2></FONT> </DIV>
> <DIV><FONT size=3D2>Rob</FONT></DIV>
> <BLOCKQUOTE dir=3Dltr=20
> style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =
>BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">
> <DIV>"Mike R." <<A=20
> href=3D"mailto:emarenot@yahoo.com">emarenot@yahoo.com</A>> wrote =
>in message=20
> <A href=3D"news:45840d3c$1@linux">news:45840d3c$1@linux</A>...</DIV>
> <DIV><FONT face=3DArial size=3D2>Any ideas on why I have to reload =
>my Paris=20
> drivers everytime I boot the program? I'm running the EDS card =
>on an=20
> Asus A7S333, PCI slot 3. Vid card is slot one, slot two is =

```

>blank to=20
> make room for the EDS daughter card. I did try to reinstall =
>Paris=20
> (2.0), but that did not seem to fix the problem. </DIV>
> <DIV>Thanks gents.</DIV>
> <DIV><FONT face=3DArial=20
>size=3D2>MR</DIV></BLOCKQUOTE></BLOCKQUOTE></BODY ></HTML>
>
>"Neil" <IUOI@OIU.com> wrote in message news:45842218\$1@linux...
>
> "DJ" <nowayjose@dude.net> wrote:
>
>>but after Neil's experience with Pulsar, I'm gonna have to add
>>an emphatic "IMHO" and also a big, fat "YMMV" to everything I
>>recommend from now on..
>
> After my experience with Pulsar, I'm tempted to sell everything
> except my guitars & Phantom & simply pay someone else to record
> me when I feel like recording my stuff, and just forget all
> about recording any other people. I'm serious - I'm totally in
> a quandary as to what to do right now... I am SO sick &
> tired of trying this & trying that & still NEVER being able to
> get exactly what I want final mix-wise. "Close" isn't cutting
> it for me anymore.
>
> I really don't know where to go at this point, honestly.
> PTHD? Simple one-shot solution... can't really justify the
> expense, though. Analog Mixer? Same thing as PTHD with regard
> to the expense for a good one & I don't see the benefit of
> going "downscale" there. Digital Mixer? Dunno if that'd do it -
> I'd have to hear it, try it, etc. Passive summing mixer?
> I dunno how much of that is really snake-oil: I'd have to buy-
> it-try-it, a/b mixes, etc, etc, sell it if I hate it, try
> something else, shitcan it if I hate it.... and I'm kinda tired
> of the whole cycle that I've gotten into lately of tweak,
> remix, find a workaround, tweak, remix, try something else,
> tweak/remix, ad nauseum.
>
> I'm NOT being productive, is the point.
>
> So, I have no fucking clue as to where to go next with this, or
> if there's some affordable solution out there somewhere that'll
> get me what I want, which is simply a streamlined, killer-
> sounding, one-box solution. I'm tending to think "not".
>
> Neil

Neil,

I'm very happy with the sonic footprint of my DAW. The hoops I jump through are ridiculous and I doubt that at the end of the day, anyone but me would GAF about the subtlety of the differences. There are lots of disadvantages to a multi modular system. I've got so many different things interfacing digitally that if something starts to act up, the probability of me finding it within less than an hour or two are practically nil. I know the system well though and can pretty much troubleshoot it efficiently, but there are lots of potential Gremlins. It takes me about 10 minutes to boot from a dead standstill and get my templates loaded and ready to import files to mix. That's a little slow, but tolerable.....but if something goes wrong, then it's 10 more minutes.etc.that's when I start going postal.

Tonight I started having some stability problems with a project. I got kinda' fatigued and sloppy and made some "not so optimal" edits in Cubase. I think this may have caused some problems when inserting UAD-1 plugins.....I think..... then again, it might be heat. I can walk into my machine room and the temperature is 15 -20 degrees above room temp with the exhaust fans blowing out of 3 x Magmas with 3 x Pulsars, 4 x UAD-1's and 4 x EDS X cards. I had three glitches within about 5 minutes so and these cards are working hard so it could be that after 7 hours, they need a rest. I know I do so we'll see if things behave normally in the morning when the Magma's are cooled down and I am seeing straight.

Cheers,

Deej

.."John" <no@no.com> wrote:

>

>Does the manual say if Slot 3 shares with anything else?

I can't recall - does Win98 have the "system information" applet like XP does? I don't mean the "System" icon where you can get to the Device Manager & whatnot, but the one where you go to your main menu & click on Programs/Accessories/System Tools/ System Information? If it does, then he can open that up & look under "Hardware Resources"/"IRQ's" and it'll give him a list of everything & he can see if anything's conflicting/sharing with Slot 3.

NeilThis is a multi-part message in MIME format.

-----=_NextPart_000_0009_01C721CC.A4CEA6C0

Content-Type: text/plain;

charset="iso-8859-1"

Content-Transfer-Encoding: 7bit

<http://www.gearslutz.com/board/showthread.php?t=93177>

Found this on gearslutz. Weiss has some interesting comments on sampling rate. He seems to feel that 60khz would be the "ideal" rate. His comments on 96k vs 88.2 are also interesting. Apparently, his latest product is an ITB processing unit, like Paris, like the new Fairlight thingy, like Receptor. I never thought of it this way, but he mentions that his ITB product (presumably versus some "native" solution) frees up the developer from being so circumscribed byt the demands of the computer's hardware and softward. That sounds good, but it seems like six of one, half dozen of the other. Whenever I hear about scalable architecture I think Roland or Korg, and how future proof really means one or two years of support/development after then sale (if that) and on to the next thing.
MR

-----=_NextPart_000_0009_01C721CC.A4CEA6C0

Content-Type: text/html;

charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">

<HTML><HEAD>

<META http-equiv=3DContent-Type content=3D"text/html; =

charset=3Diso-8859-1">

<META content=3D"MSHTML 6.00.2800.1555" name=3DGENERATOR>

<STYLE></STYLE>

</HEAD>

<BODY bgColor=3D#ffffff>

<DIV><A=20

href=3D"http://www.gearslutz.com/board/showthread.php?t=3D93177">http://w=

ww.gearslutz.com/board/showthread.php?t=3D93177 </DIV>

<DIV> </DIV>

<DIV>Found this on gearslutz. Weiss =
has some=20

interesting comments on sampling rate. He seems to feel that 60khz =
would=20

be the "ideal" rate. His comments on 96k vs 88.2 are also=20

interesting. Apparently, his latest product is an ITB processing =
unit,=20

like Paris, like the new Fairlight thingy, like Receptor. I never =
thought=20

of it this way, but he mentions that his =

ITB product (presumably=20

versus some "native" solution) frees up the developer from being so=20

circumscribed byt the demands of the computer's hardware and softward. =
That=20

sounds good, but it seems like six of one, half dozen of the =
other. =20

Whenever I hear about scalable architecture I think Roland or Korg, and =

how=20
future proof really means one or two years of support/development after =
then=20
sale (if that) and on to the next thing. </DIV>
<DIV>MR</DIV></BODY></HTML>

-----=_NextPart_000_0009_01C721CC.A4CEA6C0--Thanks Mike, great read. Gonna go post this
link on the 88.2k
thread that DJ started on the Pulsar forum now.

Neil

"Mike R." <emarenot@yahoo.com> wrote:

>
>
><http://www.gearslutz.com/board/showthread.php?t=93177>
>
>Found this on gearslutz. Weiss has some interesting comments on sampling
>rate. He seems to feel that 60khz would be the "ideal" rate. His comments
>on 96k vs 88.2 are also interesting. Apparently, his latest product is
an
>ITB processing unit, like Paris, like the new Fairlight thingy, like
>Receptor. I never thought of it this way, but he mentions that his ITB
>product (presumably versus some "native" solution) frees up the developer
>from being so circumscribed by the demands of the computer's hardware and
>software. That sounds good, but it seems like six of one, half dozen of
the
>other. Whenever I hear about scalable architecture I think Roland or Korg,
>and how future proof really means one or two years of support/development
>after then sale (if that) and on to the next thing.
>MR
>
>
><!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
><HTML><HEAD>
><META http-equiv=3DContent-Type content=3D"text/html; =
>charset=3Diso-8859-1">
><META content=3D"MSHTML 6.00.2800.1555" name=3DGENERATOR>
><STYLE></STYLE>
></HEAD>
><BODY bgColor=3D#ffffff>
><DIV><A=20
>href=3D"http://www.gearslutz.com/board/showthread.php?t=3D93177">[http://w=
>www.gearslutz.com/board/showthread.php?t=93177](http://www.gearslutz.com/board/showthread.php?t=93177)</DIV>

>has some=20

>would=20

>unit,=20

>thought=20

>of it this way, but he mentions that his =

>versus some "native" solution) frees up the developer from being so=20

>circumscribed by the demands of the computer's hardware and software. =

>That=20

>sounds good, but it seems like six of one, half dozen of the =

>Whenever I hear about scalable architecture I think Roland or Korg, and

=

>how=20

>future proof really means one or two years of support/development after

=

>then=20

><DIV>MR</DIV></BODY></HTML>

>

>Neil -

Knowing your music, studio setup, and experience/ability, I think you might consider this advice. You work in a genre that really stresses the core recording resources of a studio, and have been, to an extent, patching together a studio to achieve that sound. But things are not working the way you would like, optimally.

So why not start with a blank slate. Find out what the studios that produce your reference sounds are using to get those sounds and see if you can get a similar subset of gear together to get you in the game.

You might say, "Well, they are using large SSL consoles and racks of vintage preamps and processors and a closet full of expensive mics, and I can't afford that". However, these days, we can buy single channels of Neve, SSL, API, etc., consoles, and software/dsp emulations of virtually every piece of outboard gear ever made. There are a staggering array of mics that are excellent performers for a fraction of the cost of classic German models. And finally, sampling technology has turned live performers into an option and not necessity.

So, I believe the technology is out there to allow you to make your music as you envision it. Just keep in mind that if your current tools

aren't cutting it, then its time to move on to new ones. That's how I arrived to the Paris scene over 5 year ago, and may, someday, move on to who-knows-what.

- Paul Artola

Ellicott City, MarylandIsn't that the one where you attempt a ground invasion of Russia from the west?

- Napoleon Artola

Elba, Maryland

On Sat, 16 Dec 2006 20:50:31 -0800, "J.S." <sonicartproductions@hotmail.com> wrote:

>Neil,

Have you blind tested your 88.2 files vs. 44.1 on your gear? Have you listened to Voxengo's r8brain (or pro)?

Also, I think you should look up a producer or engineer you think is the best in your genre and pick their brains, perhaps even hire them to track/mix a few tunes. You'll probably learn what you want in that scenario. Or, it's possible that they won't get you closer either, in which case your time searching for what works for you won't be wasted in any sense (and I don't think it's wasted in any case). But I think you're close and maybe just need a little time away to clear the air.

Good luck!

Graham

"Neil" <IUOI@OIU.com> wrote:

>

>"Neil" OIUOIU!OIU.com wrote:

>>Convert everything to 96k then use Pulsar?

>

>Forgot to mention: I also don't like the math on this option,

>either... converting from 88.2k to 96k is like asking the

>machine: "Please fuck up every 11th sample on each & every one

>of these pristine, hi-rez tracks I recorded."

>

>Neil <http://www.roughlydrafted.com/RD/Q4.06/6565C879-3C4C-4014-95F0-EF1DF464D378.html>

What do you guys think?

I've never had a problem burning CDs of music I've purchased with iTunes,

or copying those CDs I've burned. I've never had problems converting files and dragging and dropping copies to my non apple mp3 player.

James I think its much ado about nothing. I have a toshiba mp3 player and you cant transfer files to another toshiba. they all have a device specific code tag on every file you load.

doesnt mean a thing if you are dealing with mp3 files to start with. I wouldnt touch a zune either way

"James McCloskey" <excelsm@hotmail.com> wrote in message news:4585a8ff\$1@linux...

>

> <http://www.roughlydrafted.com/RD/Q4.06/6565C879-3C4C-4014-95F0-EF1DF464D378.html>

>

>

> What do you guys think?

>

> I've never had a problem burning CDs of music I've purchased with iTunes,

> or copying those CDs I've burned. I've never had problems converting

> files

> and dragging and dropping copies to my non apple mp3 player.

>

> James

> I have that mobo, and it seems like that slot shares IRQ with another onboard resource.. perhaps USB or onboard sound card. I don't recall, WinXP doesn't care and I use every single slot on my A7s333. I'd move the EDS card down one slot to #4 and see what happens, or if you have good enough airflow and a normal (not stacked/giant fan&heatsink) video card, It should not be an issue at all running it in the 2nd PCI slot.

FWIW, I used 3 EDS cards on that mobo at one time using WinME.

AA

"John" <no@no.com> wrote in message news:4584ae53\$1@linux...

>

> Can you reserve an IRQ in the BIOS as a Legacy Device and Turn off PNP in

> the BIOS too? Does the manual say if Slot 3 shares with anything else?

>

>

>

> "Mike R." <emarenot@yahoo.com> wrote:

>>

>>

>> Hey Rob,

>> Thanks for responding. I should have mentioned: Win98SE... and no, no "!"

>> or "?" shows up in the device manager. In fact, the driver is listed.

> But,

>> I have to "remove" the bugger before shutting down, so that, when I reboot

>>the computer it see's the driver and loads it. If I don't do this, Paris
>>will not load. I get an error message "error 61d/something." The EDS
>>card
>>is on IRQ3 and shares it only with the APCI thingy. Once I go through
>>this
>>reloading-the-driver-procedure, all is well, Paris runs and is happy.
>>MR
>> "Rob Arsenault" <mani1147 AT hotmail.com> wrote in message
>>news:4584659e@linux...
>> Strange....!!
>> Does the driver show up with a "!" or a "?" in the device manager ? What
>>OS you running?
>>
>> Rob
>> "Mike R." <emarenot@yahoo.com> wrote in message
>> news:45840d3c\$1@linux...
>> Any ideas on why I have to reload my Paris drivers everytime I boot
> the
>>program? I'm running the EDS card on an Asus A7S333, PCI slot 3. Vid
>>card
>>is slot one, slot two is blank to make room for the EDS daughter card.
> I
>>did try to reinstall Paris (2.0), but that did not seem to fix the
>>problem.
>> Thanks gents.
>> MR
>>
>>
>><!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
>><HTML><HEAD>
>><META http-equiv=3DContent-Type content=3D"text/html; =
>>charset=3Diso-8859-1">
>><META content=3D"MSHTML 6.00.2800.1555" name=3DGENERATOR>
>><STYLE></STYLE>
>></HEAD>
>><BODY bgColor=3D#ffffff>
>><DIV>Hey Rob,</DIV>
>><DIV>Thanks for responding. I should =
>>have=20
>>mentioned: Win98SE... and no, no "!" or "?" shows up in the device=20
>>manager. In fact, the driver is listed. But, I have to =
>>"remove" the=20
>>bugger before shutting down, so that, when I reboot the computer it =
>>see's the=20
>>driver and loads it. If I don't do this, Paris will not =
>>load. I get=20
>>an error message "error 61d/something." The EDS card is on IRQ3 =
>>and shares=20

>>it only with the APCI thingy. Once I go through this=20
>>reloading-the-driver-procedure, all is well, Paris runs and is=20
>>happy.</DIV>
>><DIV>MR</DIV>
>><BLOCKQUOTE dir=3Dltr=20
>>style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =
>>BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">
>> <DIV>"Rob Arsenault" <mani1147 AT hotmail.com> wrote in message =
>><A=20
>> href=3D"news:4584659e@linux">news:4584659e@linux...</DIV>
>> <DIV>Strange....!! </DIV>
>> <DIV>Does the driver show up with a "!" or a "?" =
>>in the=20
>> device manager ? What OS you running?</DIV>
>> <DIV> </DIV>
>> <DIV>Rob</DIV>
>> <BLOCKQUOTE dir=3Dltr=20
>> style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =
>>BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">
>> <DIV>"Mike R." <<A=20
>> href=3D"mailto:emarenot@yahoo.com">emarenot@yahoo.com> wrote =
>>in message=20
>> news:45840d3c\$1@linux...</DIV>
>> <DIV>Any ideas on why I have to reload =
>>my Paris=20
>> drivers everytime I boot the program? I'm running the EDS card =
>>on an=20
>> Asus A7S333, PCI slot 3. Vid card is slot one, slot two is =
>>blank to=20
>> make room for the EDS daughter card. I did try to reinstall =
>>Paris=20
>> (2.0), but that did not seem to fix the problem. </DIV>
>> <DIV>Thanks gents.</DIV>
>> <DIV><FONT face=3DArial=20
>>size=3D2>MR</DIV></BLOCKQUOTE></BLOCKQUOTE></BODY ></HTML>
>>
>>
>>Paul Artola <artola@comcast.net> wrote:
>>So why not start with a blank slate. Find out what the studios
>>that produce your reference sounds are using to get those
>>sounds and see if you can get a similar subset of gear
>>together to get you in the game.

Well, there ARE no reference sounds, really - I mean, yeah it's
Prog, but I'm not necessarily going for a Rush sound or a Dream
Theater sound or a Yes sound, per se'

>You might say, "Well, they are using large SSL consoles and

>racks of vintage preamps and processors and a closet full of
>expensive mics, and I can't afford that".

I have good signal chain compliment, really. Let me show you something... here's a hi-rez mp3 file of 4 comparison clips from two projects that I did in the same genre... one was done on PTHD, tracked with nothing but the best (by most people's estimation) killer mics & pres - vintage Neve's, Focusrite ISA 110's, API's, Summit tube pres & comps, LA2A's) and mixed through an SSL 4000 series console using EFX like two Lexi 480L's, a couple of AMS reverbs & delays, you get the picture. The other was done here with only my own gear (except their instruments & amps, I mean) & tracked & mixed in CubaseSX. Both projects were done at the same samplerate (88.2k), and the four song clips (two clips from each project) are all final mixes, prior to mastering. Check it out...

<http://www.saqqararecords.com/MiscAudio/PTHD-SSL%20vs%20CubaseSX-ITB.mp3>

Now, it's not the same songs mixed in different platforms in an a/b comparison, but it's close enough in style, and one of the guitar players & the singer appear on both projects... the 1st & 3rd song clips are the PTHD/SSL mixes; two & four are the Cubase/ITB mixes... dare I say the Cubase mixes sound better? Fuller/more well-defined/bigger.

What do you guys think? Yes? No? Am I nuts?

Problem is, I can't get my OWN music to the right degree of this bigger/more well-defined (not exactly like this other stuff in the clips - it's a different style, but you know what I'm getting at, yes?) place of existence in it's own right.

>So, I believe the technology is out there to allow you to make
>your music as you envision it. Just keep in mind that if your
>current tools aren't cutting it, then its time to move on to
>new ones.

EXACTLY! But, to WHAT?????!!!!!!?????

Neill think they should leave the beta tag on them.
:O

"John" <no@no.com> wrote in message news:4582c8fa\$1@linux...
>

> You think they should all rename the .0 releases "The quest for cash"?
>
> hehe"Graham Duncan" <graham@grahamduncan.com> wrote:
>
>Neil,
>
>Have you blind tested your 88.2 files vs. 44.1 on your gear?

Not in the context of individual tracks within an entire song - that would involve retracking an entire piece track by track... something I'm not interested in doing... YET! Simply converting 88.2k tracks to 44.1 wouldn't be a fair test because one would have the extra step of conversion & the other one wouldn't. I have, however, a/b'd 44.1k mixes to 88.2k mixes of the same song & yes, I can hear a difference there if that's what you meant.

>Have you listened to Voxengo's r8brain (or pro)?

Yep, I have r8Brain... I think it's a VERY good samplerate convertor. Don't have the "pro" version, though.

>Also, I think you should look up a producer or engineer you
>think is the best in your genre and pick their brains, perhaps
>even hire them to track/mix a few tunes.

Not a bad idea, but WHO? Maybe it's not the gear, maybe it's the operator (me).

NeilHey Neil

I'm hearing a definite depth / width issue for sure...sonically you've pretty well nailed it but there are some big differences in the soundscape.

Also the other mixes sound a tad warmer for some reason.

Don

"Neil" <IUOIU@OIU.com> wrote in message news:4585cae3\$1@linux...
>
> Paul Artola <artola@comcast.net> wrote:
>>So why not start with a blank slate. Find out what the studios
>>that produce your reference sounds are using to get those
>>sounds and see if you can get a similar subset of gear
>>together to get you in the game.
>
> Well, there ARE no reference sounds, really - I mean, yeah it's

> Prog, but I'm not necessarily going for a Rush sound or a Dream
> Theater sound or a Yes sound, per se'
>
>>You might say, "Well, they are using large SSL consoles and
>>racks of vintage preamps and processors and a closet full of
>>expensive mics, and I can't afford that".
>
> I have good signal chain compliment, really. Let me show you
> something... here's a hi-rez mp3 file of 4 comparison clips from
> two projects that I did in the same genre... one was done on
> PTHD, tracked with nothing but the best (by most people's
> estimation) killer mics & pres - vintage Neve's, Focusrite ISA
> 110's, API's, Summit tube pres & comps, LA2A's) and mixed
> through an SSL 4000 series console using EFX like two Lexi
> 480L's, a couple of AMS reverbs & delays, you get the picture.
> The other was done here with only my own gear (except their
> instruments & amps, I mean) & tracked & mixed in CubaseSX.
> Both projects were done at the same samplerate (88.2k), and
> the four song clips (two clips from each project) are all final
> mixes, prior to mastering. Check it out...
>
> <http://www.sagqararecords.com/MiscAudio/PTHD-SSL%20vs%20CubaseSX-ITB.mp3>
>
>
> Now, it's not the same songs mixed in different platforms in an
> a/b comparson, but it's close enough in style, and one of the
> guitar players & the singer appear on both projects... the 1st
> & 3rd song clips are the PTHD/SSL mixes; two & four are the
> Cubase/ITB mixes... dare I say the Cubase mixes sound better?
> Fuller/more well-defined/bigger.
>
> What do you guys think? Yes? No? Am I nuts?
>
> Problem is, I can't get my OWN music to the right degree of
> this bigger/more well-defined (not exactly like this other
> stuff in the clips - it's a different style, but you know what
> I'm getting at, yes?) place of existence in it's own right.
>
>
>>So, I believe the technology is out there to allow you to make
>>your music as you envision it. Just keep in mind that if your
>>current tools aren't cutting it, then its time to move on to
>>new ones.
>
> EXACTLY! But, to WHAT?????!!!!?????
>
> Neil"Don Nafe" <dnafe@magma.ca> wrote:
>Hey Neil

>
>I'm hearing a definite depth / width issue for sure...sonically you've
>pretty well nailed it but there are some big differences in the soundscape.

Elaborate, please... which ones do you like better - clips 1 &
3 or 2 & 4? Which ones have the better soundscape?

>Also the other mixes sound a tad warmer for some reason.

The PTHD/SSL mixes, you mean?

Neil>Neil" <OUIOUI@OI.com> wrote in message news:4585db10\$1@linux...

>
> "Don Nafe" <dnafe@magma.ca> wrote:
>>Hey Neil
>>

>>I'm hearing a definite depth / width issue for sure...sonically you've
>>pretty well nailed it but there are some big differences in the
>>soundscape.

>
> Elaborate, please... which ones do you like better - clips 1 &
> 3 or 2 & 4? Which ones have the better soundscape?

>
>>Also the other mixes sound a tad warmer for some reason.

>
> The PTHD/SSL mixes, you mean?

>
> Neil

Hey Neil

1 & 2 if I remember were the better mixes at least on my laptop and
headphones (buds)

Sonically 3 & 4 mimic 1 & 2 - the sounds are very similar respectively (1 &
3 / 2 & 4) but there seems to be that "something" that's missing

Now to be fair I too am having a hard time with that "something" and believe
it or not the idea of sitting in with a reputable AE during mixdown is
looking like a necessity and if it's at all possible I will do it this year.

Anyway back to the differences..the instruments in 1 & 2 seem to have more
depth than 3 & 4...and with the additional front to back info I believe you
are able to extend things outward more, which is another area 3 & 4 seem to
be lacking

does any of this make sense?

Don"Don Nafe" <dnafe@magma.ca> wrote:

>Hey Neil

>

>1 & 2 if I remember were the better mixes at least on my

>laptop and headphones (buds).

OK, well #1 is a PTHD/SSL console mix and #2 is a CubaseSX/In-The-Box Native mix.

>Sonically 3 & 4 mimic 1 & 2 - the sounds are very similar

>respectively (1 & 3 / 2 & 4) but there seems to be

>that "something" that's missing.

OK, but here's the BIG difference, IMO... first of all, the reason I put them in the order I did is that the first two are basically rip-roarers all the way through those sections of each song - good comparison there from one to the other... 3 & 4 are back-to-back for the same kind of reason - both of them have softer parts, and I placed the softer parts leading out of one & into the other. Listen to the section from 1:43 in the file to about 2:27... now, the part from 1:43 'til 2:12 is definitely warmer-sounding... almost has a "70's" feel to it in terms of tonality & the way the delay works with the vocals (that was an AMS delay, BTW); I think it has a great feel, but you can also hear the bandwidth limitations of going out of PTHD via analog into the SSL, because as soon as the next clip comes in at 2:13, listen to the "vertical" expand... what I mean is the bandwidth - Don, if you're listening on a laptop & earbuds, I don't know if you can really tell what I'm talking about - listen on your monitors, burn it to a CD & playback over them or something if you really want to see what I'm saying... even on the hi-rez mp3 you can hear the "vertical" expand as the next clip come in at 2:13.

You guys hearing what I'm talking about? Better defined lows & highs... plus cleaner/better resolution all-around?

Anyone? Bueller? lol

Neil

>Now to be fair I too am having a hard time with that "something" and believe

>it or not the idea of sitting in with a reputable AE during mixdown is

>looking like a necessity and if it's at all possible I will do it this year.
>
>Anyway back to the differences..the instruments in 1 & 2 seem to have more

>depth than 3 & 4...and with the additional front to back info I believe
you
>are able to extend things outward more, which is another area 3 & 4 seem
to
>be lacking
>
>does any of this make sense?
>
>Don
>
>Thanks for the responses.
Yah, Win 98 does have a system info applet. My card shares an IRQ with
something called "ACPI IRQ holder for PCI IRQ steering" whatever the F that
means/is. Will shifting the EDS card to a new PCI slot shift the IRQ
assignment? Part of the reason I've not tried a move is that I'm afraid it
will and I'll have to go through a song and dance routine to get the EDS
card on an unpopulated IRQ. Aaron -you've got three EDS cards on that
A7S -pretty amazing. How do you keep it cool in there?
Thanks again for the help all.
MR

"Aaron Allen" <know-spam@not_here.dude> wrote in message
news:4585ca22\$1@linux...
> I have that mobo, and it seems like that slot shares IRQ with another
> onboard resource.. perhaps USB or onboard sound card. I don't recall,
WinXP
> doesn't care and I use every single slot on my A7s333. I'd move the EDS
card
> down one slot to #4 and see what happens, or if you have good enough
airflow
> and a normal (not stacked/giant fan&heatsink) video card, It should not be
> an issue at all running it in the 2nd PCI slot.
> FWIW, I used 3 EDS cards on that mobo at one time using WinME.
>
> AA
>
>
> "John" <no@no.com> wrote in message news:4584ae53\$1@linux...
> >
> > Can you reserve an IRQ in the BIOS as a Legacy Device and Turn off PNP
in
> > the BIOS too? Does the manual say if Slot 3 shares with anything else?
> >

> >
> >
> > "Mike R." <emarenot@yahoo.com> wrote:
> >>
> >>
> >> Hey Rob,
> >> Thanks for responding. I should have mentioned: Win98SE... and no, no
"!"
> >> or "?" shows up in the device manager. In fact, the driver is listed.
> > But,
> >> I have to "remove" the bugger before shutting down, so that, when I
reboot
> >> the computer it see's the driver and loads it. If I don't do this,
Paris
> >> will not load. I get an error message "error 61d/something." The EDS
> >> card
> >> is on IRQ3 and shares it only with the APCI thingy. Once I go through
> >> this
> >> reloading-the-driver-procedure, all is well, Paris runs and is happy.
> >> MR
> >> "Rob Arsenault" <mani1147 AT hotmail.com> wrote in message
> >> news:4584659e@linux...
> >> Strange....!!
> >> Does the driver show up with a "!" or a "?" in the device manager ?
What
> >> OS you running?
> >>
> >> Rob
> >> "Mike R." <emarenot@yahoo.com> wrote in message
> >> news:45840d3c\$1@linux...
> >> Any ideas on why I have to reload my Paris drivers everytime I boot
> > the
> >> program? I'm running the EDS card on an Asus A7S333, PCI slot 3. Vid
> >> card
> >> is slot one, slot two is blank to make room for the EDS daughter card.
> > I
> >> did try to reinstall Paris (2.0), but that did not seem to fix the
> >> problem.
> >> Thanks gents.
> >> MR
> >>
> >>
> >><!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
> >><HTML><HEAD>
> >><META http-equiv=3DContent-Type content=3D"text/html; =
> >> charset=3Diso-8859-1">
> >><META content=3D"MSHTML 6.00.2800.1555" name=3DGENERATOR>
> >><STYLE></STYLE>

```

> >></HEAD>
> >><BODY bgColor=3D#ffffff>
> >><DIV><FONT face=3DArial size=3D2>Hey Rob,</FONT></DIV>
> >><DIV><FONT face=3DArial size=3D2>Thanks for responding. I should =
> >>have=20
> >>mentioned: Win98SE... and no, no "!" or "?" shows up in the device=20
> >>manager. In fact, the driver is listed. But, I have to =
> >>"remove" the=20
> >>bugger before shutting down, so that, when I reboot the computer it =
> >>see's the=20
> >>driver and loads it. If I don't do this, Paris will not =
> >>load. I get=20
> >>an error message "error 61d/something." The EDS card is on IRQ3 =
> >>and shares=20
> >>it only with the APCI thingy. Once I go through this=20
> >>reloading-the-driver-procedure, all is well, Paris runs and is=20
> >>happy.</FONT></DIV>
> >><DIV><FONT face=3DArial size=3D2>MR</FONT></DIV>
> >><BLOCKQUOTE dir=3Dltr=20
> >>style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =
> >>BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">
> >> <DIV>"Rob Arsenault" <mani1147 AT hotmail.com> wrote in message =
> >><A=20
> >> href=3D"news:4584659e@linux">news:4584659e@linux</A>...</DIV>
> >> <DIV><FONT size=3D2>Strange....!! </FONT></DIV>
> >> <DIV><FONT size=3D2>Does the driver show up with a "!" or a "?" =
> >>in the=20
> >> device manager ? What OS you running?</FONT></DIV>
> >> <DIV><FONT size=3D2></FONT> </DIV>
> >> <DIV><FONT size=3D2>Rob</FONT></DIV>
> >> <BLOCKQUOTE dir=3Dltr=20
> >> style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =
> >>BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">
> >> <DIV>"Mike R." <<A=20
> >> href=3D"mailto:emarenot@yahoo.com">emarenot@yahoo.com</A>> wrote =
> >>in message=20
> >> <A href=3D"news:45840d3c$1@linux">news:45840d3c$1@linux</A>...</DIV>
> >> <DIV><FONT face=3DArial size=3D2>Any ideas on why I have to reload =
> >>my Paris=20
> >> drivers everytime I boot the program? I'm running the EDS card =
> >>on an=20
> >> Asus A7S333, PCI slot 3. Vid card is slot one, slot two is =
> >>blank to=20
> >> make room for the EDS daughter card. I did try to reinstall =
> >>Paris=20
> >> (2.0), but that did not seem to fix the problem. </FONT></DIV>
> >> <DIV><FONT face=3DArial size=3D2>Thanks gents.</FONT></DIV>
> >> <DIV><FONT face=3DArial=20

```

> >>size=3D2>MR</DIV></BLOCKQUOTE></BLOCKQUOTE></BODY ></HTML>
> >>
> >>
> >
>

>Hey Neil

I think I'm hearing what you're referring to. Clip 3 from about 1:43 to to 2:12 and the first clip both definately have that 70's sound to 'em -warmer -the sound is "tighter" also. (BTW I love the AMS effect -just the exact right amount -and that guy's got great intonation too...) Clips two and four do seem to expand as you mentioned. I'm hearing lots more high end detail along with a nice rich bottom.

If your comments are meant to suggest, in part, that ITB solutions can generate wonderful stuff relative to great outboard gear (SSL, AMS etc..) I agree. I've not got golden ears, and someone will always be able to hear with more sophistication than I, but I think that at the level you're working the differences in the mixes are a matter of taste. Each one of those mixes sounds great, perhaps for different reasons, but they all sit real well on my eardrums.

Thanks for taking the time to upload them for the comparison. I'm gonna try and put up on my studio monitors tomorrow.

MR

"Neil" <OIUOIU@OIU.com> wrote in message news:4585f40b\$1@linux...

>

> "Don Nafe" <dnafe@magma.ca> wrote:

> >Hey Neil

> >

> >1 & 2 if I remember were the better mixes at least on my

> >laptop and headphones (buds).

>

> OK, well #1 is a PTHD/SSL console mix and #2 is a CubaseSX/In-

> The-Box Native mix.

>

>

> >Sonically 3 & 4 mimic 1 & 2 - the sounds are very similar

> >respectively (1 & 3 / 2 & 4) but there seems to be

> >that "something" that's missing.

>

> OK, but here's the BIG difference, IMO... first of all, the

> reason I put them in the order I did is that the first two are

> basically rip-roarers all the way through those sections of

> each song - good comparison there from one to the other...

> 3 & 4 are back-to-back for the same kind of reason - both of

> them have softer parts, and I placed the softer parts leading

> out of one & into the other. Listen to the section from 1:43 in

> the file to about 2:27... now, the part from 1:43 'til 2:12 is

> definitely warmer-sounding... almost has a "70's" feel to it
 > in terms of tonality & the way the delay works with the vocals
 > (that was an AMS delay, BTW); I think it has a great feel, but
 > you can also hear the bandwidth limitations of going out of
 > PTHD via analog into the SSL, because as soon as the next clip
 > comes in at 2:13, listen to the "vertical" expand... what I
 > mean is the bandwidth - Don, if you're listening on a laptop &
 > earbuds, I don't know if you can really tell what I'm talking
 > about - listen on your monitors, burn it to a CD & playback
 > over them or something if you really want to see what I'm
 > saying... even on the hi-rez mp3 you can hear the "vertical"
 > expand as the next clip come in at 2:13.
 >
 > You guys hearing what I'm talking about? Better defined lows
 > & highs... plus cleaner/better resolution all-around?
 >
 > Anyone? Bueller? lol
 >
 > Neil
 >
 >
 >
 >
 >
 > >Now to be fair I too am having a hard time with that "something" and
 believe
 >
 > >it or not the idea of sitting in with a reputable AE during mixdown is
 > >looking like a necessity and if it's at all possible I will do it this
 year.
 > >
 > >Anyway back to the differences..the instruments in 1 & 2 seem to have
 more
 >
 > >depth than 3 & 4...and with the additional front to back info I believe
 > you
 > >are able to extend things outward more, which is another area 3 & 4 seem
 > to
 > >be lacking
 > >
 > >does any of this make sense?
 > >
 > >Don
 > >
 > >
 > I like your mixes better.....much better. I'd say you're there amigo.
 Stop sweatin' this and go back to making music. For the genre you're working
 with, you've nailed it. You can relax now and stop chasing this (and
 spending money.)

;o)

"Neil" <IUOIU@OIU.com> wrote in message news:4585cae3\$1@linux...

>

> Paul Artola <artola@comcast.net> wrote:

>>So why not start with a blank slate. Find out what the studios

>>that produce your reference sounds are using to get those

>>sounds and see if you can get a similar subset of gear

>>together to get you in the game.

>

> Well, there ARE no reference sounds, really - I mean, yeah it's

> Prog, but I'm not necessarily going for a Rush sound or a Dream

> Theater sound or a Yes sound, per se'

>

>>You might say, "Well, they are using large SSL consoles and

>>racks of vintage preamps and processors and a closet full of

>>expensive mics, and I can't afford that".

>

> I have good signal chain compliment, really. Let me show you

> something... here's a hi-rez mp3 file of 4 comparison clips from

> two projects that I did in the same genre... one was done on

> PTHD, tracked with nothing but the best (by most people's

> estimation) killer mics & pres - vintage Neve's, Focusrite ISA

> 110's, API's, Summit tube pres & comps, LA2A's) and mixed

> through an SSL 4000 series console using EFX like two Lexi

> 480L's, a couple of AMS reverbs & delays, you get the picture.

> The other was done here with only my own gear (except their

> instruments & amps, I mean) & tracked & mixed in CubaseSX.

> Both projects were done at the same samplerate (88.2k), and

> the four song clips (two clips from each project) are all final

> mixes, prior to mastering. Check it out...

>

> <http://www.saqqararecords.com/MiscAudio/PTHD-SSL%20vs%20CubaseSX-ITB.mp3>

>

>

> Now, it's not the same songs mixed in different platforms in an

> a/b comparison, but it's close enough in style, and one of the

> guitar players & the singer appear on both projects... the 1st

> & 3rd song clips are the PTHD/SSL mixes; two & four are the

> Cubase/ITB mixes... dare I say the Cubase mixes sound better?

> Fuller/more well-defined/bigger.

>

> What do you guys think? Yes? No? Am I nuts?

>

> Problem is, I can't get my OWN music to the right degree of

> this bigger/more well-defined (not exactly like this other

> stuff in the clips - it's a different style, but you know what

> I'm getting at, yes?) place of existence in it's own right.
>
>
>>So, I believe the technology is out there to allow you to make
>>your music as you envision it. Just keep in mind that if your
>>current tools aren't cutting it, then its time to move on to
>>new ones.
>
> EXACTLY! But, to WHAT?????!!!!?????
>
> Neil"DJ" <nowayjose@dude.net> wrote:
>I like your mixes better.....much better. I'd say you're
>there amigo.

OK, well they were ALL "my" mixes... the differences were just me doing it on PTHD and an SSL out at Sonic Ranch , vs. me doing it on CubaseSX & mixing ITB here.

>Stop sweatin' this and go back to making music. For the genre
>you're working with, you've nailed it. You can relax now and
>stop chasing this (and spending money.)

OK, you say so; but check this out... here's another set of comparsion clips, back-to-back in one file. Same segment of the same song (my stuff this time) - 3 slightly different versions, neither of which I am 100% happy with (and I'll tell you why later after I hear your feedback) which of the three do you like better, or what kind of comments do you have about each?

<http://saqqararecords.com/MiscAudio/DracoClip-3versions.mp3>

Neil"Mike R." <emarenot@yahoo.com> wrote:
>Hey Neil
>I think I'm hearing what you're referring to. Clip 3 from about 1:43 to
to
>2:12 and the first clip both definately have that 70's sound to
>'em -warmer -the sound is "tighter" also. (BTW I love the AMS effect -just
>the exact right amount -and that guy's got great intonation too...)

Yeah, he did good in that part... he's better with intonation on the softer stuff - it's when he hits it hard that I need to use some Auto-Tune on him... interestingly, though, he doesn't like everything tuned perfectly - he likes a few things to remain slightly off here & there, and he'll actually pick certain specific notes that he likes to remain "off" in pitch sometimes.

>Clips two and four do seem to expand as you mentioned. I'm
>hearing lots more high end detail along with a nice rich
>bottom.

YEPPERS!

>If your comments are meant to suggest, in part, that ITB
>solutions can generate wonderful stuff relative to great
>outboard gear (SSL, AMS etc..) I agree.

Partly, yes, that's part of my intent.

>I think that at the level you're working the differences in
>the mixes are a matter of taste.

The "level" at which I'm working is miles below the level of any number of perhaps a dozen or so guys on this newsgroup, but I get what you're saying... i.e: none of the mixes completely suck, and the differences might be either personal taste preferences, or choices made at the time that happen to be more appropriate to the task at hand. HOWEVER... when I point out what to listen for, you CAN hear the differences I am referring to... THIS was the point - these are the things I'm noticing.

>Thanks for taking the time to upload them for the comparison.
>I'm gonna try and put up on my studio monitors tomorrow.

No Prob.. enjoy! If for no other reason than to learn what "NOT" to do! lol

Neilsoftware can't find hardware.

AA

"J.S." <sonicartproductions@hotmail.com> wrote in message
news:4584ca06\$1@linux...

>

>Hmmm.....mix #2 was my choice. It had more depth and breadth to my ears.followed by #3 which I preferred to #1.#1 seemed a bit less 3D and harder around the edges than 2 or 3. All of the were good mixes. None of them sounded harsh or unpleasant.

Deej

.

"Neil" <OUOIU@OIU.om> wrote in message news:45860fcc\$1@linux...

>

> "DJ" <nowayjose@dude.net> wrote:

>>I like your mixes better.....much better. I'd say you're

>>there amigo.
>
> OK, well they were ALL "my" mixes... the differences were just
> me doing it on PTHD and an SSL out at Sonic Ranch , vs. me
> doing it on CubaseSX & mixing ITB here.
>
>>Stop sweatin' this and go back to making music. For the genre
>>you're working with, you've nailed it. You can relax now and
>>stop chasing this (and spending money.)
>
> OK, you say so; but check this out... here's another set of
> comparsion clips, back-to-back in one file. Same segment of the
> same song (my stuff this time) - 3 slightly different versions,
> neither of which I am 100% happy with (and I'll tell you why
> later after I hear your feedback) which of the three do you
> like better, or what kind of comments do you have about each?
>
> <http://saqqararecords.com/MiscAudio/DracoClip-3versions.mp3>
>
>
> Neil"DJ" <nowayjose@dude.net> wrote:
>Hmmm.....mix #2 was my choice. It had more depth and
>breadth to my ears.followed by #3 which I preferred to
>#1. #1 seemed a bit less 3D and harder around the edges than 2
>or 3. All of the were good mixes. None of them sounded harsh
>or unpleasant.

OK, I'll tell you the differences shortly - I'm hoping to get a few more opinions if anyone's reading. There's no tricks or anything like that... it's just one method vs. another.

Chime in, guys!

NeilANYONE? NO ONE?

"Goran Stojiljkovic" <goran.stojiljkovic@os.t-com.hr> wrote in message news:45813156@linux...

>I would like to run my 3 eds sytem with xp and waves ssl bundle...
> anyone use that combination with no crashes and blue screen.....
>
> please help me to decide..yes or no..it has to be stable because I work
> for money with my Pasis system..
> Splico
>We all,(well nearly all) worked or have worked for Money with our Paris
systems.....most on XP.
When I was using Paris, (on XP), it worked flawlessly with the Waves
platinum bundle....SSI wasn't out then.

--

Martin Harrington

www.lendaneer-sound.com

"Goran Stojiljkovic" <goran.stojiljkovic@os.t-com.hr> wrote in message news:45865732@linux...

> ANYONE? NO ONE?

> "Goran Stojiljkovic" <goran.stojiljkovic@os.t-com.hr> wrote in message > news:45813156@linux...

>>I would like to run my 3 eds sytem with xp and waves ssl bundle...

>> anyone use that combination with no crashes and blue screen.....

>>

>> please help me to decide..yes or no..it has to be stable because I work

>> for money with my Pasis system..

>> Splico

>>

>

>Hmm Neil.... I prefered nr.2, as DeeJ. But my ears have no problems with any of the mixes. All 3 sounded good but in a little different ways. Nr.1 have a little more "tube-old" sound(in my old ears:) but loose something in the bottom, as nr.2. I'm only listening with headphones on my internet machine for the moment, but as allways, it will allways be subjective when we're talking about listening to music.

Erling

"Neil" <OIUIU@OIU.com> skrev i melding news:45863e69\$1@linux...

>

> "DJ" <nowayjose@dude.net> wrote:

>>Hmmmmm.....mix #2 was my choice. It had more depth and

>>breadth to my ears.followed by #3 which I preferred to

>>#1. #1 seemed a bit less 3D and harder around the edges than 2

>>or 3. All of the were good mixes. None of them sounded harsh

>>or unpleasant.

>

> OK, I'll tell you the differences shortly - I'm hoping to get a

> few more opinions if anyone's reading. There's no tricks or

> anything like that... it's just one method vs. another.

>

> Chime in, guys!

>

> Neil#2 is my favourite too. #3 got more detailed keyboards. It lifts the arrangement, but fights a little with the vocal. (At least on my computer-speakers :-).

Bjorn R

"erlilo" <erlilo@nospamonline.no> wrote in message news:45866fcc@linux...

> Hmm Neil.... I preferred nr.2, as DeeJ. But my ears have no problems with any
> of the mixes. All 3 sounded good but in a little different ways. Nr.1 have a
> little more "tube-old" sound(in my old ears:) but loose something in the
> bottom, as nr.2. I'm only listening with headphones on my internet machine
> for the moment, but as allways, it will allways be subjective when we're
> talking about listening to music.

>

> Erling

>

>

> "Neil" <OIUIU@OIU.com> skrev i melding news:45863e69\$1@linux...

> >

> > "DJ" <nowayjose@dude.net> wrote:

> >>Hmmm.....mix #2 was my choice. It had more depth and

> >>breadth to my ears.followed by #3 which I preferred to

> >>#1. #1 seemed a bit less 3D and harder around the edges than 2

> >>or 3. All of the were good mixes. None of them sounded harsh

> >>or unpleasant.

> >

> > OK, I'll tell you the differences shortly - I'm hoping to get a

> > few more opinions if anyone's reading. There's no tricks or

> > anything like that... it's just one method vs. another.

> >

> > Chime in, guys!

> >

> > Neil

>

> "DJ" <nowayjose@dude.net> wrote in message news:45863b07\$1@linux...

> Hmmm.....mix #2 was my choice. It had more depth and breadth to my

> ears.followed by #3 which I preferred to #1.#1 seemed a bit less 3D

> and harder around the edges than 2 or 3. All of the were good mixes. None

> of them sounded harsh or unpleasant.

>

> DeeJ

>

I agree with DJ's accessment of the mixes but I prefer # ...just a personal taste thing here #1 just seemed to fit what my ears like to hear.

DOn

..

> "Neil" <OUOIU@OIU.om> wrote in message news:45860fcc\$1@linux...
>>
>> "DJ" <nowayjose@dude.net> wrote:
>>>I like your mixes better.....much better. I'd say you're
>>>there amigo.
>>
>> OK, well they were ALL "my" mixes... the differences were just
>> me doing it on PTHD and an SSL out at Sonic Ranch , vs. me
>> doing it on CubaseSX & mixing ITB here.
>>
>>>Stop sweatin' this and go back to making music. For the genre
>>>you're working with, you've nailed it. You can relax now and
>>>stop chasing this (and spending money.)
>>
>> OK, you say so; but check this out... here's another set of
>> comparsion clips, back-to-back in one file. Same segment of the
>> same song (my stuff this time) - 3 slightly different versions,
>> neither of which I am 100% happy with (and I'll tell you why
>> later after I hear your feedback) which of the three do you
>> like better, or what kind of comments do you have about each?
>>
>> <http://saqqararecords.com/MiscAudio/DracoClip-3versions.mp3>
>>
>>
>> Neil
>
>You're right Neil

I can definitely hear a difference. in the back to back files now that I
have my ears back.

Don

"Neil" <OIUOIU@OIU.com> wrote in message news:4585f40b\$1@linux...
>
> "Don Nafe" <dnafe@magma.ca> wrote:
>>Hey Neil
>>
>>1 & 2 if I remember were the better mixes at least on my
>>laptop and headphones (buds).
>
> OK, well #1 is a PTHD/SSL console mix and #2 is a CubaseSX/In-
> The-Box Native mix.
>
>
>>Sonically 3 & 4 mimic 1 & 2 - the sounds are very similar
>>respectively (1 & 3 / 2 & 4) but there seems to be

>>that "something" that's missing.

>

> OK, but here's the BIG difference, IMO... first of all, the
> reason I put them in the order I did is that the first two are
> basically rip-roarers all the way through those sections of
> each song - good comparison there from one to the other...
> 3 & 4 are back-to-back for the same kind of reason - both of
> them have softer parts, and I placed the softer parts leading
> out of one & into the other. Listen to the section from 1:43 in
> the file to about 2:27... now, the part from 1:43 'til 2:12 is
> definitely warmer-sounding... almost has a "70's" feel to it
> in terms of tonality & the way the delay works with the vocals
> (that was an AMS delay, BTW); I think it has a great feel, but
> you can also hear the bandwidth limitations of going out of
> PTHD via analog into the SSL, because as soon as the next clip
> comes in at 2:13, listen to the "vertical" expand... what I
> mean is the bandwidth - Don, if you're listening on a laptop &
> earbuds, I don't know if you can really tell what I'm talking
> about - listen on your monitors, burn it to a CD & playback
> over them or something if you really want to see what I'm
> saying... even on the hi-rez mp3 you can hear the "vertical"
> expand as the next clip come in at 2:13.

>

> You guys hearing what I'm talking about? Better defined lows
> & highs... plus cleaner/better resolution all-around?

>

> Anyone? Bueller? lol

>

> Neil

>

>

>

>

>>Now to be fair I too am having a hard time with that "something" and
>>believe

>

>>it or not the idea of sitting in with a reputable AE during mixdown is
>>looking like a necessity and if it's at all possible I will do it this
>>year.

>>

>>Anyway back to the differences..the instruments in 1 & 2 seem to have more

>

>>depth than 3 & 4...and with the additional front to back info I believe

> you

>>are able to extend things outward more, which is another area 3 & 4 seem

> to

>>be lacking

>>

>>does any of this make sense?

>>

>>Don

>>

>>

>Interesting... OK, here's the difference between the three versions - first of all, all three were ITB Native mixes, NOT using stems or anything like that:

* #1 is mixed with a BuzzMaxi limiter across the 2-buss, set to -3db threshold. This one to me is the cleanest of the three versions. If I go much beyond -3 on this particular piece, you can really hear the limiting, so -3 is where it remained. I used UV22hr for dither on this one.

* #2 is the exact same mix, albeit with not one, but THREE BuzzMaxi's in a row strapped across the 2-buss, each set at -1db threshold. This one's still pretty clean, and IMO it provides a bit more power & impact than does mix #1. Again, UV22hr provided the dither algo on this version.

* #3 is with Izotope Ozone strapped across the 2-buss instead of the BuzzMaxi's... in this case, I used a little bit of compression, a little bit of limiting/volume maximization, and a little bit of the stereo spread section (no exciter or anything else), and used the dither algo in Ozone. Now THIS mix to me has more power, impact & depth, but ALSO - you can hear some distortion or distortion-like artifacts... hear it?

IOW, for my taste, I like mix 3 better EXCEPT for the distortion - now, I was being very conservative on compression, limiting & stereo spread, and although Ozone takes a big chunk of CPU cycles, my CPU meter still had some headroom (this project went from 60% to 80% once I strapped Ozone across the mix) so we know it's not glitching artifacts from overload. I don't know why I'm getting the distortion, but if I could get mix 3 without that, THAT'S what I'd be going for.

It's kinda like when I did the summing comparison files on that other song with Native 2-buss, Native Stems & "Summed in Paris" mixes... I liked a combination of certain aspects of the Native Stems mix & the Summed-in-Paris mix, but I can't get all things hitting at once!

NeilThis is what I do... the Fade handles in Nuendo ROCK for this.

David.

Don Nafe wrote:

> Worst case scenario - strategic surgical editing - to just get the really
> noticable squeeks attenuated or removed...wouldn't even dream of a full song
> edit as squeaks are part of the playing and I personally think they add
> character to the track
>
> DOn
>
>
> "alex plasko" <alex.plasko@snet.net> wrote in message
> news:45842fa9\$1@linux...
>
>>neil,I dont know man .If were not putting fret noise in, to make a sampler
>>sound more realistic, were trying to remove it from the real deal for a
>>cleaner sound. does it ever end?
>>"Neil" <IUOIU@OIU.com> wrote in message news:458374eb\$1@linux...
>>
>>>I don't know - maybe that'd work... problem with trying to
>>>grab "a" sample of the noise is that that kind of noise isn't
>>>consistent at all - it varies in pitch & harmonic content quite
>>>a bit from one "squeek" to the next.
>>>
>>>Neil
>>>
>>>
>>>"alex plasko" <alex.plasko@snet.net> wrote:
>>>
>>>>neil, how about something like denoiser? if you can get a clean sample of
>>>
>>>>the fret noise denoiser will wipe it and interpolate signal befor and
>>>>after
>>>
>>>>that spot.sound forge denoiser works pretty good for things of that
>>>>nature
>>>
>>>>. never tried it for fret noise though.
>>>>
>>>>"Neil" <OIUOIU@OIU.com> wrote in message news:45835bb9\$1@linux...
>>>>
>>>>>Manully editing might be the best bet... Don, if you're trying
>>>>>a de-esser for that, you might need like 3 or 4 of 'em in a
>>>>>row, each centered on different frequencies. Fortunately,
>>>>>Spitfish doesn't take up much CPU power (if that's what you're
>>>>>using).
>>>>>
>>>>>Also, you could try re-micing it through your monitors (muting
>>>>>the playback on the recording channel) with a dynamic mic
>>>>>backed-off a bit from the speakers... whatever you do, don't

>>>>>compress when playing back to re-mic if you try this. That'll
>>>>>just make the squeak stand out more.
>>>>>
>>>>>Wanna send me a sample of the wav file & I'll see if I can come
>>>>>up with an idea for you?
>>>>>
>>>>>Neil
>>>>>
>>>>>
>>>>>"Sarah" <sarahjane@sarahtonin.com> wrote:
>>>>>
>>>>>> Are you talking about strings buzzing against frets, or fingers
>>>>>>chirping and squeaking on the string windings? Cuz I've solved the
>>>>>>latter
>>>>>
>>>>>>to my satisfaction by switching to Elixirs. To fix the noise that's
>>>>>>already
>>>>>
>>>>>>there, I'd be inclined to just go in there with a wave editor and
>>>>>>manually
>>>>>
>>>>>>fix the noises one at a time, but then, I'm obsessive. :)
>>>>>>
>>>>>>Sarah
>>>>>>
>>>>>>www.sarahtonin.com
>>>>>>
>>>>>>"Don Nafe" <dnafe@magma.ca> wrote in message news:45834c91@linux...
>>>>>>
>>>>>>>Hi all
>>>>>>>
>>>>>>>>Actually it isn't bad at all but several initial comments on this
>>>>>>>>particular track I'm mixing is there's too much fret noise on the
>>>>>>>>acoustic.
>>>>>>>
>>>>>>>>Most of it is between chords (picking)
>>>>>>>>
>>>>>>>>One thought was using a de-esser...all other's are more than welcome
>>>>>>>>
>>>>>>>>Don
>>>>>>>>
>>>>>>>>
>>>>>>>>
>>>>>
>>
>
>Hey all,

Does anyone know if a new "Journaled" MAC Pro can write to a "Non Journaled" Firewire drive from a G4 running Tiger?

I know for a fact it doesn't work the other way around.

Thanks,

David.EK Sound <askme@nospam.com> wrote:

>Hey all,

>

>Does anyone know if a new "Journaled" MAC Pro can write to a "Non Journaled" Firewire drive from a G4 running Tiger?

>

>I know for a fact it doesn't work the other way around.

>

>Thanks,

>

>David.

I can't give you a definitive answer, because I don't really know. Mac OSX has had Journaling since 10.3, and it runs on a G4. Here is some info on the subject:

<http://docs.info.apple.com/article.html?artnum=107249>

<http://www.hmug.org/HowTos/JFS.html>

http://www.kernelthread.com/mac/osx/arch_fs.html

[http://www.macosxhints.com/article.php?story=200211120022008 6](http://www.macosxhints.com/article.php?story=2002111200220086)

JamesTry this link:

http://search.info.apple.com/?search=Go&lr=lang_en&k word=&type=&newstype=&q=Journaling

"James McCloskey" <excelsm@hotmail.com> wrote:

>

>EK Sound <askme@nospam.com> wrote:

>>Hey all,

>>

>>Does anyone know if a new "Journaled" MAC Pro can write to a "Non Journaled" Firewire drive from a G4 running Tiger?

>>

>>I know for a fact it doesn't work the other way around.

>>

>>Thanks,

>>

>>David.
>
>I can't give you a definitive answer, because I don't really know. Mac
>OSX
>has had Journaling since 10.3, and it runs on a G4. Here is some info on
>the subject:
>
><http://docs.info.apple.com/article.html?artnum=107249>
>
><http://www.hmug.org/HowTos/JFS.html>
>
>http://www.kernelthread.com/mac/osx/arch_fs.html
>
> <http://www.macosxhints.com/article.php?story=2002111200220086>
>
>James
>What exactly IS "journaling"? Not familiar with that term at all.

Neil

"James McCloskey" <excelsm@hotmail.com> wrote:

>
>Try this link:
>
> http://search.info.apple.com/?search=Go&lr=lang_en&keyword=&type=&newstype=&q=Journaling
>
>

>"James McCloskey" <excelsm@hotmail.com> wrote:

>>
>>EK Sound <askme@nospam.com> wrote:
>>>Hey all,
>>>
>>>Does anyone know if a new "Journaled" MAC Pro can write to a "Non
>>>Journaled" Firewire drive from a G4 running Tiger?
>>>
>>>I know for a fact it doesn't work the other way around.
>>>
>>>Thanks,
>>>
>>>David.
>>
>>I can't give you a definitive answer, because I don't really know. Mac
>>OSX
>>has had Journaling since 10.3, and it runs on a G4. Here is some info
>>on
>>the subject:
>>

>><http://docs.info.apple.com/article.html?artnum=107249>
>>
>><http://www.hmug.org/HowTos/JFS.html>
>>
>>http://www.kernelthread.com/mac/osx/arch_fs.html
>>
>> <http://www.macosxhints.com/article.php?story=200211120022008> 6
>>
>>James
>>
>This is a multi-part message in MIME format.

-----=_NextPart_000_002D_01C722AD.4E884AF0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: quoted-printable

Neil,
I haven't had time to listen but just read all the words here.
It sounds to me like you need to let a great mastering engineer
do their magic. That will probably take you to the next level.

Pick the mix that comes closest to your liking. Master to add/subtract
the qualities that aren't quite there. The big boys will make that =
happen.
This happens to me almost every time. =20
Tom

"Don Nafe" <dnafe@magma.ca> wrote in message news:45868c0f@linux...
"DJ" <nowayjose@dude.net> wrote in message [news:45863b07\\$1@linux...](mailto:news:45863b07$1@linux...)
> Hmmmm.....mix #2 was my choice. It had more depth and breadth =
to my=20
> ears.followed by #3 which I preferred to #1.#1 seemed a bit =
less 3D=20
> and harder around the edges than 2 or 3. All of the were good mixes. =
None=20
> of them sounded harsh or unpleasant.
>
> Deej
>

I agree with DJ's accessment of the mixes but I prefer # ...just a =
personal=20
taste thing here #1 just seemed to fit what my ears like to hear.

DOn

.

> "Neil" <OUOIU@OIU.om> wrote in message news:45860fcc\$1@linux...
>>
>> "DJ" <nowayjose@dude.net> wrote:
>>>I like your mixes better.....much better. I'd say you're
>>>there amigo.
>>
>> OK, well they were ALL "my" mixes... the differences were just
>> me doing it on PTHD and an SSL out at Sonic Ranch , vs. me
>> doing it on CubaseSX & mixing ITB here.
>>
>>>Stop sweatin' this and go back to making music. For the genre
>>>you're working with, you've nailed it. You can relax now and
>>>stop chasing this (and spending money.)
>>
>> OK, you say so; but check this out... here's another set of
>> comparsion clips, back-to-back in one file. Same segment of the
>> same song (my stuff this time) - 3 slightly different versions,
>> neither of which I am 100% happy with (and I'll tell you why
>> later after I hear your feedback) which of the three do you
>> like better, or what kind of comments do you have about each?
>>
>> <http://saqqararecords.com/MiscAudio/DracoClip-3versions.mp3>
>>
>>
>> Neil
>
>=20

I choose Polesoft Lockspam to fight spam, and you?

<http://www.polesoft.com/refer.html>

-----=_NextPart_000_002D_01C722AD.4E884AF0

Content-Type: text/html;
charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">

<HTML><HEAD>

<META http-equiv=3DContent-Type content=3D"text/html"; =
charset=3Diso-8859-1">

```

<META content=3D"MSHTML 6.00.2800.1400" name=3DGENERATOR>
<STYLE></STYLE>
</HEAD>
<BODY bgColor=3D#ffffff>
<DIV><FONT face=3DArial size=3D2>Neil,</FONT></DIV>
<DIV><FONT face=3DArial size=3D2>I haven't had time to listen but just =
read all the=20
words here.</FONT></DIV>
<DIV><FONT face=3DArial size=3D2>It sounds to me like you need to let =
a&nbsp;great=20
mastering engineer</FONT></DIV>
<DIV><FONT face=3DArial size=3D2>do their magic.&nbsp; That will =
probably take you=20
to the next level.</FONT></DIV>
<DIV><FONT face=3DArial size=3D2></FONT>&nbsp;</DIV>
<DIV><FONT face=3DArial size=3D2>Pick the mix that comes closest to your =
liking.&nbsp; Master to add/subtract</FONT></DIV>
<DIV><FONT face=3DArial size=3D2>the qualities that aren't quite =
there.&nbsp; The=20
big boys will make that happen.</FONT></DIV>
<DIV><FONT face=3DArial size=3D2>This happens to me almost every =
time.&nbsp;=20
</FONT></DIV>
<DIV><FONT face=3DArial size=3D2>Tom</FONT></DIV>
<DIV><FONT face=3DArial size=3D2></FONT>&nbsp;</DIV>
<DIV><FONT face=3DArial size=3D2></FONT>&nbsp;</DIV>
<DIV>&nbsp;</DIV>
<DIV>&nbsp;</DIV>
<DIV>"Don Nafe" &lt;<A =
href=3D"mailto:dnafe@magma.ca">dnafe@magma.ca</A>&gt; wrote=20
in message <A =
href=3D"news:45868c0f@linux">news:45868c0f@linux</A>...</DIV>
<BLOCKQUOTE=20
style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =
BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">"DJ"=20
&lt;<A href=3D"mailto:nowayjose@dude.net">nowayjose@dude.net</A>&gt; =
wrote in=20
message <A =
href=3D"news:45863b07$1@linux">news:45863b07$1@linux</A>...<BR>&gt;=20
Hmmm.....mix #2 was my choice. It had more depth and breadth =
to my=20
<BR>&gt; ears. ....followed by #3 which I preferred to #1.#1 seemed =
a bit=20
less 3D <BR>&gt; and harder around the edges than 2 or 3. All of the =
were good=20
mixes. None <BR>&gt; of them sounded harsh or =
unpleasant.<BR>&gt;<BR>&gt;=20

```

Deej
>

I agree with DJ's assessment of the mixes but I =
prefer #=20
...just a personal
taste thing here #1 just seemed to fit what my =
ears=20
like to hear.

DOn

.
> "Neil" <<A=20
href=3D"mailto:OUOIU@OIU.om">OUOIU@OIU.om> wrote in message <A=20
=
href=3D"news:45860fcc\$1@linux">news:45860fcc\$1@linux...
>><B=
R>>>=20
"DJ" <<A =
href=3D"mailto:nowayjose@dude.net">nowayjose@dude.net>=20
wrote:
>>>I like your mixes better.....much better. =
I'd say=20
you're
>>>there amigo.
>>
>> OK, well =
they were=20
ALL "my" mixes... the differences were just
>> me doing it on =
PTHD=20
and an SSL out at Sonic Ranch , vs. me
>> doing it on =
CubaseSX &=20
mixing ITB here.
>>
>>>Stop sweatin' this and go =
back to=20
making music. For the genre
>>>you're working with, you've =
nailed=20
it. You can relax now and
>>>stop chasing this (and =
spending=20
money.)
>>
>> OK, you say so; but check this out... =
here's=20
another set of
>> comparsion clips, back-to-back in one file. =
Same=20
segment of the
>> same song (my stuff this time) - 3 slightly =

different versions,
>> neither of which I am 100% happy with =
(and=20
I'll tell you why
>> later after I hear your feedback) which =
of the=20
three do you
>> like better, or what kind of comments do you =
have=20
about each?
>>
>> <A=20
=
href=3D"http://saqqararecords.com/MiscAudio/DracoClip-3versions.mp3">http=
://saqqararecords.com/MiscAudio/DracoClip-3versions.mp3
>><B=
R>>>
>>=20
Neil
>
>

</BLOCKQUOTE>
<DIV>

I choose Polesoft Lockspam to fight spam, =
and=20
you?
<A=20
href=3D"http://www.polesoft.com/refer.html">http://www.polesoft.com/refer=
..html </DIV></BODY ></HTML>

-----=_NextPart_000_002D_01C722AD.4E884AF0--"Neil" <IUOIU@OIU.com> wrote:
>
>What exactly IS "journaling"? Not familiar with that term at all.
>
>Neil
>
From Apple:

"When you enable journaling on a disk, a continuous record of changes to files on the disk is maintained in the journal. If your computer stops because of a power failure or some other issue, the journal is used to restore the disk to a known-good state when the server restarts.

"With journaling turned on, the file system logs transactions as they occur. If the server fails in the middle of an operation, the file system can 'replay' the information in its log and complete the operation when the server restarts."

GeneAlso from Apple:

Backward Compatible

Journaled file system is part of a set of incremental enhancements to the Mac OS Extended file system, and it is backward compatible with the Mac OS Extended file system. Users can read, write, and access journaled Mac OS Extended volumes on computers that do not have a journaling feature.

Most disk utilities designed to work with the Mac OS Extended file system can also be used when journaling is turned on. You should check with your disk utility vendor before using earlier disk utilities with a journaled file system.

James

EK Sound <askme@nospam.com> wrote:
>Hey all,
>
>Does anyone know if a new "Journaled" MAC Pro can write to a "Non
>Journaled" Firewire drive from a G4 running Tiger?
>
>I know for a fact it doesn't work the other way around.
>
>Thanks,
>
>David.I don't know if this will help you or not, there is also Target Disk Mode.

How to use FireWire target disk mode

<http://docs.info.apple.com/article.html?artnum=58583>

More info on Target Disk Mode:

http://search.info.apple.com/?search=Go&lr=lang_en&keyword=&type=&newstype=&q=Firewire%20target%20disk

James

EK Sound <askme@nospam.com> wrote:

>Hey all,

>

>Does anyone know if a new "Journaled" MAC Pro can write to a "Non
>Journaled" Firewire drive from a G4 running Tiger?

>

>I know for a fact it doesn't work the other way around.

>

>Thanks,

>

>David.Neil,

You test confuses the hell out of me. Reason: You have so many variables(plugins on this) another on that ..What gives??

On of all of your test, none have been on equal footing.

How about NO plugins on the master bus? Nothing..Then, render the stereo file and see which sounds best. Your test always seems like you're hiding something from us the listeners and it seems that you're always rigging the test towards Cubase SX.

Being a Nuendo owner and user, there is no way in hell that you, me or anybody is going to get a better mix (ITB) over and SSL summed mix .. The Summing bus in SX/ Nuendo is it's achilles heel and needs to improve big time, especially for mixing aggressive music (Hard Rock /Hip Hop R & B..) You have to really play it safe with the faders (ITB) mixing those genres..

But, when you're mixing a project over 60 tracks with lots of plugs, the mixing buss starts to suffer. Unlike Paris and Pro Tools, which mix summing busses hold's up very well, Nuendo /SX sounds losses it's dept..

What are you going for??

"Neil" <IUOIU@OIU.com> wrote:

>

>Interesting... OK, here's the difference between the three
>versions - first of all, all three were ITB Native mixes, NOT
>using stems or anything like that:
>
>* #1 is mixed with a BuzzMaxi limiter across the 2-buss, set to
>-3db threshold. This one to me is the cleanest of the three
>versions. If I go much beyond -3 on this particular piece, you
>can really hear the limiting, so -3 is where it remained.
>I used UV22hr for dither on this one.
>
>* #2 is the exact same mix, albeit with not one, but THREE
>BuzzMaxi's in a row strapped across the 2-buss, each set at
>-1db threshold. This one's still pretty clean, and IMO it
>provides a bit more power & impact than does mix #1. Again,
>UV22hr provided the dither algo on this version.
>
>* #3 is with Izotope Ozone strapped across the 2-buss instead
>of the BuzzMaxi's... in this case, I used a little bit of
>compression, a little bit of limiting/volume maximization, and
>a little bit of the stereo spread section (no exciter or
>anything else), and used the dither algo in Ozone. Now THIS mix
>to me has more power, impact & depth, but ALSO - you can hear
>some distortion or distortion-like artifacts... hear it?
>
>IOW, for my taste, I like mix 3 better EXCEPT for the
>distortion - now, I was being very conservative on compression,
>limiting & stereo spread, and although Ozone takes a big chunk
>of CPU cycles, my CPU meter still had some headroom (this
>project went from 60% to 80% once I strapped Ozone across the
>mix) so we know it's not glitching artifacts from overload.
>I don't know why I'm getting the distortion, but if I could get
>mix 3 without that, THAT'S what I'd be going for.
>
>It's kinda like when I did the summing comparison files on that
>other song with Native 2-buss, Native Stems & "Summed in Paris"
>mixes... I liked a combination of certain aspects of the Native
>Stems mix & the Summed-in-Paris mix, but I can't get all things
>hitting at once!
>
>NeilThis is a multi-part message in MIME format.

-----=_NextPart_000_003D_01C722A8.F92944F0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: quoted-printable

Good point Tom.

;o)

"Tom Bruhl" <arpeggio@comcast.net> wrote in message =
news:4586e364@linux...

Neil,

I haven't had time to listen but just read all the words here.
It sounds to me like you need to let a great mastering engineer
do their magic. That will probably take you to the next level.

Pick the mix that comes closest to your liking. Master to =
add/subtract
the qualities that aren't quite there. The big boys will make that =
happen.
This happens to me almost every time. =20
Tom

"Don Nafe" <dnafe@magma.ca> wrote in message news:45868c0f@linux...
"DJ" <nowayjose@dude.net> wrote in message news:45863b07\$1@linux...
> Hmmmm.....mix #2 was my choice. It had more depth and =
breadth to my=20
> ears.followed by #3 which I preferred to #1.#1 seemed a bit =
less 3D=20
> and harder around the edges than 2 or 3. All of the were good =
mixes. None=20
> of them sounded harsh or unpleasant.
>
> Deej
>

I agree with DJ's assessment of the mixes but I prefer # ...just a =
personal=20
taste thing here #1 just seemed to fit what my ears like to hear.

DOn

.
> "Neil" <OUOIU@OIU.om> wrote in message news:45860fcc\$1@linux...
>>
>> "DJ" <nowayjose@dude.net> wrote:
>>>I like your mixes better.....much better. I'd say you're
>>>there amigo.
>>

>> OK, well they were ALL "my" mixes... the differences were just
 >> me doing it on PTHD and an SSL out at Sonic Ranch , vs. me
 >> doing it on CubaseSX & mixing ITB here.
 >>
 >>>Stop sweatin' this and go back to making music. For the genre
 >>>you're working with, you've nailed it. You can relax now and
 >>>stop chasing this (and spending money.)
 >>
 >> OK, you say so; but check this out... here's another set of
 >> comparsion clips, back-to-back in one file. Same segment of the
 >> same song (my stuff this time) - 3 slightly different versions,
 >> neither of which I am 100% happy with (and I'll tell you why
 >> later after I hear your feedback) which of the three do you
 >> like better, or what kind of comments do you have about each?
 >>
 >> <http://saqqararecords.com/MiscAudio/DracoClip-3versions.mp3>
 >>
 >>
 >> Neil
 >
 >=20

I choose Polesoft Lockspam to fight spam, and you?

<http://www.polesoft.com/refer.html>

-----=_NextPart_000_003D_01C722A8.F92944F0

Content-Type: text/html;

charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
<HTML><HEAD>
<META http-equiv=3DContent-Type content=3D"text/html; =
charset=3Diso-8859-1">
<META content=3D"MSHTML 6.00.2900.2180" name=3DGENERATOR>
<STYLE></STYLE>
</HEAD>
<BODY bgColor=3D#ffffff>
<DIV><FONT face=3DArial size=3D2>Good point Tom.</FONT></DIV>
<DIV><FONT face=3DArial size=3D2></FONT>&nbsp;</DIV>
<DIV><FONT face=3DArial size=3D2>;o</FONT></DIV>
<DIV><FONT face=3DArial size=3D2></FONT>&nbsp;</DIV>
<BLOCKQUOTE dir=3Dltr=20
style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =
BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">
  <DIV>"Tom Bruhl" &lt;<A=20
```

arpeggio@comcast.net> wrote =
in message=20
news:4586e364@linux...</DIV>
<DIV>Neil,</DIV>
<DIV>I haven't had time to listen but just =
read all=20
the words here.</DIV>
<DIV>It sounds to me like you need to let =
a space;great=20
mastering engineer</DIV>
<DIV>do their magic. space; That will =
probably take you=20
to the next level.</DIV>
<DIV> space;</DIV>
<DIV>Pick the mix that comes closest to =
your=20
liking. space; Master to add/subtract</DIV>
<DIV>the qualities that aren't quite =
there. space; The=20
big boys will make that happen.</DIV>
<DIV>This happens to me almost every =
time. space;=20
</DIV>
<DIV>Tom</DIV>
<DIV> space;</DIV>
<DIV> space;</DIV>
<DIV> space;</DIV>
<DIV> space;</DIV>
<DIV>"Don Nafe" <dnafe@magma.ca>=20
wrote in message <A=20
href="news:45868c0f@linux">news:45868c0f@linux...</DIV>
<BLOCKQUOTE=20
style="padding-right: 0px; padding-left: 5px; margin-left: 5px; =
border-left: 1px solid black; margin-right: 0px;">"DJ"=20
<nowayjose@dude.net> =
wrote in=20
message <A =
href="news:45863b07\$1@linux">news:45863b07\$1@linux...
>=20
Hmmm.....mix #2 was my choice. It had more depth and breadth =
to my=20

> ears.followed by #3 which I preferred to #1.#1 =
seemed a bit=20
less 3D
> and harder around the edges than 2 or 3. All of the =
were=20
good mixes. None
> of them sounded harsh or=20
unpleasant.
>
> DeeJ
>

I agree with DJ's =
accessment=20

of the mixes but I prefer # ...just a personal
taste thing here =
#1 just=20
seemed to fit what my ears like to=20
hear.

DO n

.
> "Neil" <<A=20
href=3D"mailto:OUOIU@OIU.om">OUOIU@OIU.om> wrote in message =
<A=20
=
href=3D"news:45860fcc\$1@linux">news:45860fcc\$1@linux...
>><B=
R>>>=20
"DJ" <<A =
href=3D"mailto:nowayjose@dude.net">nowayjose@dude.net>=20
wrote:
>>>I like your mixes better.....much =
better. I'd=20
say you're
>>>there amigo.
>>
>> OK, =
well they=20
were ALL "my" mixes... the differences were just
>> me =
doing it on=20
PTHD and an SSL out at Sonic Ranch , vs. me
>> doing it on =
CubaseSX=20
& mixing ITB here.
>>
>>>Stop sweatin' this =
and go=20
back to making music. For the genre
>>>you're working =
with,=20
you've nailed it. You can relax now and
>>>stop chasing =
this=20
(and spending money.)
>>
>> OK, you say so; =
but=20
check this out... here's another set of
>> comparsion =
clips,=20
back-to-back in one file. Same segment of the
>> same song =
(my=20
stuff this time) - 3 slightly different versions,
>> =
neither of=20
which I am 100% happy with (and I'll tell you why
>> later =
after I=20
hear your feedback) which of the three do you
>> like =
better, or=20
what kind of comments do you have about =
each?
>>
>><A=20
=
href=3D"http://saqqararecords.com/MiscAudio/DracoClip-3versions.mp3">http=
://saqqararecords.com/MiscAudio/DracoClip-3versions.mp3
>><B=
R>>>
>>=20
Neil
>>
>>

</BLOCKQUOTE>
<DIV>

I choose Polesoft Lockspam to fight spam, =
and=20
you?
<A=20
=

href=3D"http://www.polesoft.com/refer.html">http://www.polesoft.com/refer=
..html </DIV></BLOCKQUOTE ></BODY></HTML>

-----=_NextPart_000_003D_01C722A8.F92944F0--"LaMont" <jjdpro@ameritech.net> wrote:
>

>Neil,

>You test confuses the hell out of me. Reason: You have so many variables(plugins
>on this) another on that ..What gives??

I'm just trying different things on them, Lamont - this wasn't
intended to be a blind a/b test, it's simply a matter of: "here's
what I did, here's what I think about the sound of each one;
what do you guys think?"

>On of all of your test, none have been on equal footing.

>How about NO plugins on the master bus? Nothing..Then, render the stereo
>file and see which sounds best. Your test always seems like you're hiding
>soemthing from us the listeners and it seems that you;re always rigging
the

>test towards Cubase SX.

????? How do you figure? When I did the summing comparisons
They were all the exact same mix, just summed in different ways -
I even said that I liked certain aspects of the summed-in-Paris
mix myself! When I posted the file that had 2 PTHD/SSL mixes & 2
Cubase Mixes, I would've had to have planned on rigging that
comparison well over a year ago & would've had to PURPOSELY do
less than my best efforts on the SSL mixes at the time.

>Being a Neundo owner and user, there is no way in hell that you, me or anybody
>is going to get a better mix (ITB) over and SSL summed mix ..

So what are you saying... that you think the Cubase mixes sound
better and that I must've purposely modified the SSL files to
make them sound worse? Or do you think the Cubase mixes sound
better and you simply refuse to believe what you're hearing?

Or do you disagree & think that the SSL mixes sound better... in
which case, I have no issue with your choice - it would simply
be a matter of personal preference. I'd disagree with you in
this instance because I happen to think the Cubase ones DO sound
better.

Lamont, I'm not "rigging" anything - I have no reason to pimp for
Steinberg or anything like that, nor am I trying to say "my kung-
fu is better" just to defend my gear choice. I'm trying to find
out how to get a certain sound out of it, is all.

Neil, they all sound good to me. I'd be happy to work with that caliber of talent on a regular basis. The best advice in this thread is to send it out to a mastering house. Different set of ears / perspective, and not so attached to it, etc.

>>Neil,

>>You test confuses the hell out of me. Reason: You have so many

>>variables (plugins

>>on this) another on that .. What gives??

>

> I'm just trying different things on them, Lamont - this wasn't

> intended to be a blind a/b test, it's simply a matter of: "here's

> what I did, here's what I think about the sound of each one;

> what do you guys think?"

>

>

>>On all of your test, none have been on equal footing.

>>How about NO plugins on the master bus? Nothing.. Then, render the stereo

>>file and see which sounds best. Your test always seems like you're hiding

>>something from us the listeners and it seems that you're always rigging

> the

>>test towards Cubase SX.

>

> ????? How do you figure? When I did the summing comparisons

> They were all the exact same mix, just summed in different ways -

> I even said that I liked certain aspects of the summed-in-Paris

> mix myself! When I posted the file that had 2 PTHD/SSL mixes & 2

> Cubase Mixes, I would've had to have planned on rigging that

> comparison well over a year ago & would've had to PURPOSELY do

> less than my best efforts on the SSL mixes at the time.

>

>>Being a Neundo owner and user, there is no way in hell that you, me or

>>anybody

>>is going to get a better mix (ITB) over an SSL summed mix ..

>

> So what are you saying... that you think the Cubase mixes sound

> better and that I must've purposely modified the SSL files to

> make them sound worse? Or do you think the Cubase mixes sound

> better and you simply refuse to believe what you're hearing?

>

> Or do you disagree & think that the SSL mixes sound better... in

> which case, I have no issue with your choice - it would simply

> be a matter of personal preference. I'd disagree with you in

> this instance because I happen to think the Cubase ones DO sound

> better.

>

> Lamont, I'm not "rigging" anything - I have no reason to pimp for

> Steinberg or anything like that, nor am I trying to say "my kung-

> fu is better" just to defend my gear choice. I'm trying to find
> out how to get a certain sound out of it, is all.
>
> Neil"I'd disagree with you in this instance because I happen to think the Cubase
ones DO sound better."

Then that SSL Engineer does not know what they are doing with board. There's
no way a mix coming off of that board SSL should sound better than a ITB
Cubase SX mix..

Sorry, that just does not jive. That engineer does not know how to push he
SSL or just not familiar with it.

"Neil" <oiUOIU@OIU.com> wrote:

>
>"LaMont" <jjdpro@ameritech.net> wrote:
>>
>>Neil,
>>You test confuses the hell out of me. Reason: You have so many variables(plugins
>>on this) another on that ..What gives??
>
>I'm just trying different things on them, Lamont - this wasn't
>intended to be a blind a/b test, it's simply a matter of: "here's
>what I did, here's what I think about the sound of each one;
>what do you guys think?"
>
>
>>On of all of your test, none have been on equal footing.
>>How about NO plugins on the master bus? Nothing..Then, render the stereo
>>file and see which sounds best. Your test always seems like you're hiding
>>soemthing from us the listeners and it seems that you;re always rigging
>the
>>test towards Cubase SX.
>
>????? How do you figure? When I did the summing comparisons
>They were all the exact same mix, just summed in different ways -
>I even said that I liked certain aspects of the summed-in-Paris
>mix myself! When I posted the file that had 2 PTHD/SSL mixes & 2
>Cubase Mixes, I would've had to have planned on rigging that
>comparison well over a year ago & would've had to PURPOSELY do
>less than my best efforts on the SSL mixes at the time.
>
>>Being a Neundo owner and user, there is no way in hell that you, me or
anybody
>>is going to get a better mix (ITB) over and SSL summed mix ..
>
>So what are you saying... that you think the Cubase mixes sound

>better and that I must've purposely modified the SSL files to
>make them sound worse? Or do you think the Cubase mixes sound
>better and you simply refuse to believe what you're hearing?
>
>Or do you disagree & think that the SSL mixes sound better... in
>which case, I have no issue with your choice - it would simply
>be a matter of personal preference. I'd disagree with you in
>this instance because I happen to think the Cubase ones DO sound
>better.
>
>Lamont, I'm not "rigging" anything - I have no reason to pimp for
>Steinberg or anything like that, nor am I trying to say "my kung-
>fu is better" just to defend my gear choice. I'm trying to find
>out how to get a certain sound out of it, is all.
>
>Neil"LaMont" <jjdpro@ameritech.net> wrote:
>
>"I'd disagree with you in this instance because I happen to think the Cubase
>ones DO sound better."
>
>Then that SSL Engineer does not know what they are doing with board. There's
>no way a mix coming off of that board SSL should sound better than a ITB
>Cubase SX mix..
>
>Sorry, that just does not jive. That engineer does not know how to push
he
>SSL or just not familiar with it.

You're not really paying attention, are you? It was the same engineer (me). And as far as whether or not I know how to use that particular board, I guess that would be a matter of your opinion. I don't think the SSL mixes are bad ones, I think they came out good; I just think that you can hear more detail in the ITB mixes in the examples I gave, and they have more wideband frequency content from top to bottom.

Anyway, my point of that particular comparison wasn't to say "ITB mixes are better than using a large-format console that costs somewhere in the six-figure range", the point of it was to address a signal-chain suggestion that Paul had... he had suggested perhaps that I needed to pick up a few pieces of killer vintage gear, and I was just demonstrating that I think the various signal chain components that I have here are on par with most anything that can be found in heavy-hitter studios... we used probably around \$100k's worth of mics & pre's on the PTHD/SSL mixes, plus obviously you're looking at another roughly \$100k for that particular console (40-channel E-series, black EQ's, w/G-series Computer & Total Recall package), add in

the PTHD, outboard gear & whatnot, and you end up with somewhere around a quarter-mil's worth of equipment involved in that project. The project done at my place was done with my gear, which certainly doesn't tally up to anywhere remotely close to that cost & none of it bears a "vintage" stamp, but it sounds competitive with the project that used all the heavy-hitter stuff.

NeilThis article is essentially anti-MSoft polemic, which is all fine by me. However, I can confirm that people have brought me files ripped via iTunes that I had to go through all kinds of gyrations to burn to a CD. Usually it was someone at work who wanted a mix of songs they had purchased and songs they had ripped. For me, obviously, any format that won't play on a Debian machine is a non-starter, and iTunes ripped songs are nearly impossible to play on a linux machine. I find any system that refuses to allow me to choose an operating system onerous.

In addition, the article is (typically) wrong about what 'open source' advocates want. There is a wide range of opinions about DRM and free software. Mostly the free software community has no opinion about DRM unless it refuses to allow an opt out option. A user should have the right to get information and play back content on free systems. For example, it was impossible to play DVDs on linux boxes for some time, which free software people found unfair and in the end circumvented. I hope all of the DRM systems that prevent me from choosing how and where I play my chosen music meet a similar fate.

There is a long running discussion about the GPL v. 3 and DRM that is raging in free software land. Unsurprisingly Linus Torvalds and Richard Stallman have been firing back and forth about it. There are a couple of very good articles at Fortune magazine (of all things) about Linus and Richard. Far better than this article.

TCB

"James McCloskey" <excelsm@hotmail.com> wrote:

>

> <http://www.roughlydrafted.com/RD/Q4.06/6565C879-3C4C-4014-95F0-EF1DF464D378.html>

>

>

>What do you guys think?

>

>I've never had a problem burning CDs of music I've purchased with iTunes,
>or copying those CDs I've burned. I've never had problems converting files
>and dragging and dropping copies to my non apple mp3 player.

>

>James

>Sort of like "Dr Watson" was like on the PC

--

Martin Harrington
www.lendaneer-sound.com

"Gene Lennon" <glennon@nospMyrealbox.com> wrote in message
news:4586e48b\$1@linux...

>

> "Neil" <IUOIU@OIU.com> wrote:

>>

>>What exactly IS "journaling"? Not familiar with that term at all.

>>

>>Neil

>>

> From Apple:

>

> "When you enable journaling on a disk, a continuous record of changes to
> files on the disk is maintained in the journal. If your computer stops

> because

> of a power failure or some other issue, the journal is used to restore the
> disk to a known-good state when the server restarts.

>

> "With journaling turned on, the file system logs transactions as they
> occur.

> If the server fails in the middle of an operation, the file system can

> 'replay'

> the information in its log and complete the operation when the server
> restarts."

>

> Genesleeping with fists and i are leaving for redondo beach (and my crazy
sister in a couple of hour; since i won't be near a
computer...okay...my computer with my news reader i'll be off line.
so Merry Christmas to one and all who celebrate this time of the year
for any reason of their own.

ciaoAnother session full of clicking, popping, whistling and hooting from my UAD-1
plugins. Which makes me wonder - If I were to switch to a PC for my Paris
rig, what issues would I have to deal with? Would I have the new UAD-1 FX,
like the Neve EQs? How stable is Paris on a properly set up PC? Does having
a dual processor machine affect Paris performance?

And then, taking it to it's (logical?) extreme - Like switching to Nuendo
- would I be able to stick my Mac? Or would I do better w/ PC? Does Nuendo
have automatic latency compensation? Are you Nuendo folks happy w/ the sound?
Are any of you summing externally?

So many questions.

Thanks! And Happy Holidays to you all!!!

GanttMy Paris rig is pretty darn stable. AMD 2 gig single core Asus S-733 Mobo.
I'm running 3 Uad cards and 6 eds cards okn a Magma.

Never heard a click, whistle, or pop (except the pops that the eds cards
make at boot up)

Rod

"Gantt Kushner" <ganttmann@comcast.net> wrote:

>

>Another session full of clicking, popping, whistling and hooting from my
UAD-1

>plugins. Which makes me wonder - If I were to switch to a PC for my Paris

>rig, what issues would I have to deal with? Would I have the new UAD-1

FX,

>like the Neve EQs? How stable is Paris on a properly set up PC? Does having

>a dual processor machine affect Paris performance?

>

>And then, taking it to it's (logical?) extreme - Like switching to Nuendo

>- would I be able to stick my Mac? Or would I do better w/ PC? Does Nuendo

>have automatic latency compensation? Are you Nuendo folks happy w/ the
sound?

> Are any of you summing externally?

>

>So many questions.

>

>Thanks! And Happy Holidays to you all!!!

>

>GanttGannt, is it possible you have an underpowered power supply for
the task of running the Paris cards plus the UAD's (or that the
PSU may be going bad)? I mean, that's generally the most common
cause of popping & clicking, etc.

OR... is it only popping & clicking at the start of waveforms &
on edits/punches? I recall having a couple of Waves plugins that
did that in Paris - wonder if it might be the same kind of thing
going on? If so, I remedied that by recording a couple seconds
of empty space right before the original waveform actually
started, then automating the mute function so what would happen
is that the pulgin would trigger and pop before the waveform came
in in the silent (and muted) portion & then it would un-mute
right before the waveform actually started. I can't recall what
I did on the edits/punches, though - it may have been a
crossfade thing or I may have had to render/bounce those
portions as a single trackfile.

Just tossing out ideas here... sorry for the redundancy if
you've already checked these things.

Neil

"Gantt Kushner" <ganttmann@comcast.net> wrote:

>

>Another session full of clicking, popping, whistling and hooting from my UAD-1

>plugins. Which makes me wonder - If I were to switch to a PC for my Paris

>rig, what issues would I have to deal with? Would I have the new UAD-1

FX,

>like the Neve EQs? How stable is Paris on a properly set up PC? Does having

>a dual processor machine affect Paris performance?

>

>And then, taking it to it's (logical?) extreme - Like switching to Nuendo

>- would I be able to stick my Mac? Or would I do better w/ PC? Does Nuendo

>have automatic latency compensation? Are you Nuendo folks happy w/ the sound?

> Are any of you summing externally?

>

>So many questions.

>

>Thanks! And Happy Holidays to you all!!!

>

>GanttOh, BTW, having said all that - I think you're a perfect candidate for "conversion", my son lol

Yes, Nuendo (and SX) have latency compensation, and as far as your question about summing externally goes, I've tried this combination recently (mixed in SX, summed in Paris via analog outs - 4 stereo submixes into an 8-in module), and the results don't suck. Not sure if it's exactly the sound I'm looking for, but I did like certain aspects of it - tends to "warm up" the mix a bit & kinda sounded a little smoother than a pure ITB Native mix.

Neil

"Neil" <OIUOIU@OIU.com> wrote:

>

>Gannt, is it possible you have an underpowered power supply for

>the task of running the Paris cards plus the UAD's (or that the

>PSU may be going bad)? I mean, that's generally the most common

>cause of popping & clicking, etc.

>

>OR... is it only popping & clicking at the start of waveforms &

>on edits/punches? I recall having a couple of Waves plugins that

>did that in Paris - wonder if it might be the same kind of thing
>going on? If so, I remedied that by recording a couple seconds
>of empty space right before the original waveform actually
>started, then automating the mute function so what would happen
>is that the pulgin would trigger and pop before the waveform came
>in in the silent (and muted) portion & then it would un-mute
>right before the waveform actually started. I can't recall what
>I did on the edits/punches, though - it may have been a
>crossfade thing or I may have had to render/bounce those
>portions as a single trackfile.
>
>Just tossing out ideas here... sorry for the redundancy if
>you've already checked these things.
>
>Neil
>
>
>
>
>
>"Gantt Kushner" <ganttmann@comcast.net> wrote:
>>
>>Another session full of clicking, popping, whistling and hooting from my
>UAD-1
>>plugins. Which makes me wonder - If I were to switch to a PC for my Paris
>>rig, what issues would I have to deal with? Would I have the new UAD-1
>FX,
>>like the Neve EQs? How stable is Paris on a properly set up PC? Does having
>>a dual processor machine affect Paris performance?
>>
>>And then, taking it to it's (logical?) extreme - Like switching to Nuendo
>>- would I be able to stick my Mac? Or would I do better w/ PC? Does Nuendo
>>have automatic latency compensation? Are you Nuendo folks happy w/ the
>sound?
>> Are any of you summing externally?
>>
>>So many questions.
>>
>>Thanks! And Happy Holidays to you all!!!
>>
>>Gantt
>Hey Neil,

All I'm saying is: All DAW software have their own unique sound. Despite what those lame summing test shows..

PT-HD has a very distinct sound. A very polished sound, with a nice top end, but with full audio spectrum represented. Mixer/Summing buss can be pushed, but you have to watch it.

Nuendo/SX: Has a very Clear, 2 dimension sound, that does not hype the top nor bottom end.

Logic Audio: Very Broad- Aggressive sound, that really works for Rock and R & B/Gospel mixes.

Digital Performer: With their hardware, superb audio quality. Full bodied sound .

Sonar: Very flat sounding. I would say that Sonar is your most vanilla sound DW on the market..

Samplitude : A little less top end than Pro Tools. Full bodied 3d sound..

Paris: Dark sounding in comparison to the the other DAWs. But, has a 3d sound quality that's full bodied.

I feel that you asking SX to be something it's not with some analog summing. Especialy for your genre of music..

"Neil" <IUOIU@OIU.com> wrote:

>

>"Lamont" <jjdpro@ameritech.net> wrote:

>>

>>"I'd disagree with you in this instance because I happen to think the Cubase
>>ones DO sound better."

>>

>>Then that SSL Engineer does not know what they are doing with board. There's
>>no way a mix coming off of that board SSL should sound better than a ITB
>>Cubase SX mix..

>>

>>Sorry, that just does not jive. That engineer does not know how to push
>he

>>SSL or just not familiar with it.

>

>You're not really paying attention, are you? It was the same
>engineer (me). And as far as whether or not I know how to use
>that particular board, I guess that would be a matter of
>your opinion. I don't think the SSL mixes are bad ones, I think
>they came out good; I just think that you can hear more detail
>in the ITB mixes in the examples I gave, and they have more
>wideband frequency content from top to bottom.

>

>Anyway, my point of that particular comparison wasn't to say

>"ITB mixes are better than using a large-format console that
>costs somewhere in the six-figure range", the point of it was to
>address a signal-chain suggestion that Paul had... he had
>suggested perhaps that I needed to pick up a few pieces of
>killer vintage gear, and I was just demonstrating that I think
>the various signal chain components that I have here are on par
>with most anything that can be found in heavy-hitter studios...
>we used probably around \$100k's worth of mics & pre's on the
>PTHD/SSL mixes, plus obviously you're looking at another
>roughly \$100k for that particular console (40-channel E-series,
>black EQ's, w/G-series Computer & Total Recall package), add in
>the PTHD, outboard gear & whatnot, and you end up with
>somewhere around a quarter-mil's worth of equipment involved in
>that project. The project done at my place was done with my
>gear, which certainly doesn't tally up to anywhere remotely
>close to that cost & none of it bears a "vintage" stamp, but it
>sounds competitive with the project that used all the heavy-
>hitter stuff.

>

>Neill too have experienced the pops as a result of plugins...my solution to this
is to take a full song length track, copy it, apply a gain reduction of 90db
and rename it empty audio...then make a copy of it, put it on an open track
and cut and paste all the edits from the offending track onto this track
then move it back to the track where the edits came from...works like a
charm.

That being said I do believe we're probably looking at a hardware issue with
Gantt's set up...and I'm sorry having played with Nuendo and SX they suck
donkey balls...PT Rules.....nuff said!

:-) <- pointing out smiley

DOn

"Neil" <OIUOIU@OIU.com> wrote in message news:4588080a\$1@linux...

>

> Oh, BTW, having said all that - I think you're a perfect
> candidate for "conversion", my son lol
> Yes, Nuendo (and SX) have latency compensation, and as far as
> your question about summing externally goes, I've tried this
> combination recently (mixed in SX, summed in Paris via analog
> outs - 4 stereo submixes into an 8-in module), and the results
> don't suck. Not sure if it's exactly the sound I'm looking for,
> but I did like certain aspects of it - tends to "warm up" the
> mix a bit & kinda sounded a little smoother than a pure ITB
> Native mix.

>

> Neil
>
>
>
> "Neil" <OIUOIU@OIU.com> wrote:
>>
>>Gannt, is it possible you have an underpowered power supply for
>>the task of running the Paris cards plus the UAD's (or that the
>>PSU may be going bad)? I mean, that's generally the most common
>>cause of popping & clicking, etc.
>>
>>OR... is it only popping & clicking at the start of waveforms &
>>on edits/punches? I recall having a couple of Waves plugins that
>>did that in Paris - wonder if it might be the same kind of thing
>>going on? If so, I remedied that by recording a couple seconds
>>of empty space right before the original waveform actually
>>started, then automating the mute function so what would happen
>>is that the plugin would trigger and pop before the waveform came
>>in in the silent (and muted) portion & then it would un-mute
>>right before the waveform actually started. I can't recall what
>>I did on the edits/punches, though - it may have been a
>>crossfade thing or I may have had to render/bounce those
>>portions as a single trackfile.
>>
>>Just tossing out ideas here... sorry for the redundancy if
>>you've already checked these things.
>>
>>Neil
>>
>>
>>
>>
>>"Gantt Kushner" <ganttmann@comcast.net> wrote:
>>>
>>>Another session full of clicking, popping, whistling and hooting from my
>>>UAD-1
>>>plugins. Which makes me wonder - If I were to switch to a PC for my
>>>Paris
>>>rig, what issues would I have to deal with? Would I have the new UAD-1
>>>FX,
>>>like the Neve EQs? How stable is Paris on a properly set up PC? Does
>>>having
>>>a dual processor machine affect Paris performance?
>>>
>>>And then, taking it to it's (logical?) extreme - Like switching to Nuendo
>>>- would I be able to stick my Mac? Or would I do better w/ PC? Does
>>>Nuendo
>>>have automatic latency compensation? Are you Nuendo folks happy w/ the

>>sound?

>>> Are any of you summing externally?

>>>

>>>So many questions.

>>>

>>>Thanks! And Happy Holidays to you all!!!

>>>

>>>Gantt

>>

>Hey Rod,

Side question. I'm running the same mobo and I've been thinking about upping the RAM -what brand are you using?

MR

"Rod Lincoln" <rlincoln@nospam.kc.rr.com> wrote in message news:4587eb20\$1@linux...

>

> My Paris rig is pretty darn stable. AMD 2 gig single core Asus S-733 Mobo.

> I'm running 3 Uad cards and 6 eds cards okn a Magma.

> Never heard a click, whistle, or pop (except the pops that the eds cards make at boot up)

> Rod

> "Gantt Kushner" <ganttmann@comcast.net> wrote:

> >

> >Another session full of clicking, popping, whistling and hooting from my

> UAD-1

> >plugins. Which makes me wonder - If I were to switch to a PC for my Paris

> >rig, what issues would I have to deal with? Would I have the new UAD-1

> FX,

> >like the Neve EQs? How stable is Paris on a properly set up PC? Does having

> >a dual processor machine affect Paris performance?

> >

> >And then, taking it to it's (logical?) extreme - Like switching to Nuendo

> >- would I be able to stick my Mac? Or would I do better w/ PC? Does Nuendo

> >have automatic latency compensation? Are you Nuendo folks happy w/ the

> sound?

> > Are any of you summing externally?

> >

> >So many questions.

> >

> >Thanks! And Happy Holidays to you all!!!

> >

> >Gantt

>Gantt

I'd also suggest checking out the power supply.

But if you're considering a switch to a PC. I've been running Paris, like

Rod, on an Asus A7s333 for a few years now. I'm currently having a problem with the Paris driver, but other than that, that rig has been stable. Though, I don't have an UDA plugs, just Waves stuff, and freebie VST's. Good luck
MR

"Gantt Kushner" <ganttmann@comcast.net> wrote in message
news:4587de86\$1@linux...

>
> Another session full of clicking, popping, whistling and hooting from my UAD-1
> plugins. Which makes me wonder - If I were to switch to a PC for my Paris
> rig, what issues would I have to deal with? Would I have the new UAD-1 FX,
> like the Neve EQs? How stable is Paris on a properly set up PC? Does
having
> a dual processor machine affect Paris performance?
>
> And then, taking it to it's (logical?) extreme - Like switching to Nuendo
> - would I be able to stick my Mac? Or would I do better w/ PC? Does
Nuendo
> have automatic latency compensation? Are you Nuendo folks happy w/ the
sound?
> Are any of you summing externally?
>
> So many questions.
>
> Thanks! And Happy Holidays to you all!!!
>
> GanttThat's interesting - all those DAW sonic interpretations, I
mean... I haven't had a chance to usee all of those, so it's
good information.

I still don't understand why you consider my summing comparisons "lame", however - it was a fair set of tests; the same mix summed in different ways. Not trying to prove a point or to rig it so one sounded any better than the other - in fact, if you recall the thread, different people liked different summed versions for different reasons... there wasn't any one version that stood out as being "the one" that everyone felt sounded better. The only reason I didn't come right out & say right away which version was which is so that I didn't bias anyone's opinion beforehand by mentioning that... NOT to try & "hide" anything or "trick" anyone, as you accused me of

Sheesh!

Neil

"Lamont" <jjdpro@ameritech.net> wrote:

>

>Hey Neil,

>

>All I'm saying is: All DAW software have their own unique sound. Despite
>what those lame summing test shows..

>

>PT-HD has a very distinct sound. A very polished sound, with a nice top
end,

>but with full audio spectrum represented. Mixer/Summing buss can be pushed,
>but you have to watch it.

>

>Nuendo/SX: Has a very Clear, 2 dimension sound, that does not hype the top
>nor bottom end.

>

>Logic Audio: Very Broad- Aggressive sound, that really works for Rock and
>R & B/Gospel mixes.

>

>Digital Performer: With their hardware, superb audio quality. Full bodied
>sound .

>

>Sonar: Very flat sounding. I would say that Sonar is your most vanilla sound
>DW on the market..

>

>Samplitude : A little less top end than Pro Tools. Full bodied 3d sound..

>

>Paris: Dark sounding in comparison to the the other DAWs. But, has a 3d
sound

>quality that's full bodied.

>

>I feel that you asking SX to be something it's not with some analog summing.

>Especially for your genre of music..

>

>

>

>

>"Neil" <IUOIU@OIU.com> wrote:

>>

>>"Lamont" <jjdpro@ameritech.net> wrote:

>>>

>>>"I'd disagree with you in this instance because I happen to think the
Cubase

>>>ones DO sound better."

>>>

>>>Then that SSL Engineer does not know what they are doing with board. There's

>>>no way a mix coming off of that board SSL should sound better than a ITB

>>>Cubase SX mix..
>>>
>>>Sorry, that just does not jive. That engineer does not know how to push
>>he
>>>SSL or just not familiar with it.
>>
>>You're not really paying attention, are you? It was the same
>>engineer (me). And as far as whether or not I know how to use
>>that particular board, I guess that would be a matter of
>>your opinion. I don't think the SSL mixes are bad ones, I think
>>they came out good; I just think that you can hear more detail
>>in the ITB mixes in the examples I gave, and they have more
>>wideband frequency content from top to bottom.
>>
>>Anyway, my point of that particular comparison wasn't to say
>>"ITB mixes are better than using a large-format console that
>>costs somewhere in the six-figure range", the point of it was to
>>address a signal-chain suggestion that Paul had... he had
>>suggested perhaps that I needed to pick up a few pieces of
>>killer vintage gear, and I was just demonstrating that I think
>>the various signal chain components that I have here are on par
>>with most anything that can be found in heavy-hitter studios...
>>we used probably around \$100k's worth of mics & pre's on the
>>PTHD/SSL mixes, plus obviously you're looking at another
>>roughly \$100k for that particular console (40-channel E-series,
>>black EQ's, w/G-series Computer & Total Recall package), add in
>>the PTHD, outboard gear & whatnot, and you end up with
>>somewhere around a quarter-mil's worth of equipment involved in
>>that project. The project done at my place was done with my
>>gear, which certainly doesn't tally up to anywhere remotely
>>close to that cost & none of it bears a "vintage" stamp, but it
>>sounds competitive with the project that used all the heavy-
>>hitter stuff.
>>
>>Neil
>I have sent you round trip tickets to Tijuana. See you in a couple of days.

;oP

"rick" <parnell68@hotmail.com> wrote in message
news:pcafo25786dlglphvtv8b30fu5ub9ogbbd@4ax.com...
> sleeping with fists and i are leaving for redondo beach (and my crazy
> sister in a couple of hour; since i won't be near a
> computer...okay...my computer with my news reader i'll be off line.
> so Merry Christmas to one and all who celebrate this time of the year
> for any reason of their own.
>
> ciaoHi Gantt,

You really should find a way to test the Paris and UAD cards you have in another MAC before you go crazy with upgrades.

Gantt Kushner wrote:

- > Another session full of clicking, popping, whistling and hooting from my UAD-1
- > plugins. Which makes me wonder - If I were to switch to a PC for my Paris
- > rig, what issues would I have to deal with?

Learning a completely different GUI. A separate set of issues than the MAC has.

Would I have the new UAD-1 FX,

- > like the Neve EQs?

Don't know if the new ones will work in Paris on the PC side or not.

They do work in all the other DAWs out there.

How stable is Paris on a properly set up PC?

Rock Solid if it is on older PC hardware from 4 to 6 years ago using Windows 98SE. It will work pretty good with some tweaking on newer hardware on XP.

Does having

- > a dual processor machine affect Paris performance?

No. The current faster processors will allow for Paris to run more native plug ins even if Paris is not using both CPUs.

>

- > And then, taking it to it's (logical?) extreme - Like switching to Nuendo

- > - would I be able to stick my Mac?

For MAC you would need a pre-Intel G5 and a high quality sound interface if you want to use Nuendo. You can use a new Intel based G5 with Cubase 4, Logic and I believe DP also. You would have to sell your UAD cards and get the PCI-e versions or get a PCI to PCI-e expansions chassis for the Intel G5. It does not have any PCI slots. You will also need to check to see if you use any other native plug-ins with Paris to make sure they have Intel Mac support.

Or would I do better w/ PC?

In order for Apple to progress they had to go to PC hardware platform.

To me the main differences are you have a different OS GUI and on the PC side you have better choices with Motherboard and Case configurations which allow for more internal drive and hardware configurations.

otherwise there is very little difference.

Does Nuendo

> have automatic latency compensation?

They were the first and still do it the best.

Are you Nuendo folks happy w/ the sound?

The "sound" is effected more by the audio hardware you have and by how you mix in the program. You have to mix very differently in native systems than you do in Paris.

> Are any of you summing externally?

Allot on people mix on the console like people do with Pro Tools. They are comfortable with it that way and the analog/digital mixer adds it sound to the mix in a way that they like.

Cubase/Nuendo offers allot of flexibility in running ITB only or integrating with a analog outboard system.

>

> So many questions.

>

> Thanks! And Happy Holidays to you all!!!

>

> Gantt

If you only really need what Paris offers along with the UAD then I would just confirm the functionality of the Paris and UAD hardware. If they work fine then check into picking up a used G4 and continue with the way you are working now. Anything else will potentially be a large investment of time and money whether it be PC or MAC.

--

Chris Ludwig

ADK Pro Audio

(859) 635-5762

www.adkproaudio.com

chrisl@adkproaudio.com Hey Neil,

I was not referring to your test as Lame, but rather that popular summing test cd that was sold, that really proved nothing (imho) and BrianT as well. Due to that fact that all software behave differently under different circumstances..

"Neil" <IUOIU@OIU.com> wrote:

>

>That's interesting - all those DAW sonic interpretations, I
>mean... I haven't had a chance to use all of those, so it's
>good information.

>

>I still don't understand why you consider my summing
>comparisons "lame", however - it was a fair set of tests;
>the same mix summed in different ways. Not trying to prove a
>point or to rig it so one sounded any better than the other - in
>fact, if you recall the thread, different people liked different
>summed versions for different reasons... there wasn't any one
>version that stood out as being "the one" that everyone felt
>sounded better. The only reason I didn't come right out & say
>right away which version was which is so that I didn't bias
>anyone's opinion beforehand by mentioning that... NOT to try
>& "hide" anything or "trick" anyone, as you accused me of

>

>Sheesh!

>

>Neil

>

>

>"Lamont" <jjdpro@ameritech.net> wrote:

>>

>>Hey Neil,

>>

>>All I'm saying is: All DAW software have their own unique sound. Despite
>>what those lame summing test shows..

>>

>>PT-HD has a very distinct sound. A very polished sound, with a nice top
>end,

>>but with full audio spectrum represented. Mixer/Summing buss can be pushed,
>>but you have to watch it.

>>

>>Nuendo/SX: Has a very Clear, 2 dimension sound, that does not hype the
top

>>nor bottom end.

>>

>>Logic Audio: Very Broad- Aggressive sound, that really works for Rock and
>>R & B/Gospel mixes.

>>

>>Digital Performer: With their hardware, superb audio quality. Full bodied
>>sound .

>>

>>Sonar: Very flat sounding. I would say that Sonar is your most vanilla
sound

>>DW on the market..

>>
>>Samplitude : A little less top end than Pro Tools. Full bodied 3d sound..
>>
>>Paris: Dark sounding in comparison to the the other DAWs. But, has a 3d
>sound
>>quality that's full bodied.
>>
>>I feel that you asking SX to be something it's not with some analog summing.
>>Especially for your genre of music..
>>
>>
>>
>>
>>"Neil" <IUOIU@OIU.com> wrote:
>>>
>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>
>>>>"I'd disagree with you in this instance because I happen to think the
>Cubase
>>>>ones DO sound better."
>>>>
>>>>Then that SSL Engineer does not know what they are doing with board.
There's
>>>>no way a mix coming off of that board SSL should sound better than a
ITB
>>>>Cubase SX mix..
>>>>
>>>>Sorry, that just does not jive. That engineer does not know how to push
>>>he
>>>>SSL or just not familiar with it.
>>>
>>>You're not really paying attention, are you? It was the same
>>>engineer (me). And as far as whether or not I know how to use
>>>that particular board, I guess that would be a matter of
>>>your opinion. I don't think the SSL mixes are bad ones, I think
>>>they came out good; I just think that you can hear more detail
>>>in the ITB mixes in the examples I gave, and they have more
>>>wideband frequency content from top to bottom.
>>>
>>>Anyway, my point of that particular comparison wasn't to say
>>>"ITB mixes are better than using a large-format console that
>>>costs somewhere in the six-figure range", the point of it was to
>>>address a signal-chain suggestion that Paul had... he had
>>>suggested perhaps that I needed to pick up a few pieces of
>>>killer vintage gear, and I was just demonstrating that I think
>>>the various signal chain components that I have here are on par
>>>with most anything that can be found in heavy-hitter studios...
>>>we used probably around \$100k's worth of mics & pre's on the

>>>PTHD/SSL mixes, plus obviously you're looking at another
>>>roughly \$100k for that particular console (40-channel E-series,
>>>black EQ's, w/G-series Computer & Total Recall package), add in
>>>the PTHD, outboard gear & whatnot, and you end up with
>>>somewhere around a quarter-mil's worth of equipment involved in
>>>that project. The project done at my place was done with my
>>>gear, which certainly doesn't tally up to anywhere remotely
>>>close to that cost & none of it bears a "vintage" stamp, but it
>>>sounds competitive with the project that used all the heavy-
>>>hitter stuff.
>>>
>>>Neil
>>
>Samsung is the recommended, but I'm using Crucial w/o any trouble on two of
these Sis Asus mobos.

www.crucial.com

AA

"Mike R." <emarenot@yahoo.com> wrote in message news:45881dcc@linux...
> Hey Rod,
> Side question. I'm running the same mobo and I've been thinking about
> upping the RAM -what brand are you using?
> MR
> "Rod Lincoln" <rlincoln@nospam.kc.rr.com> wrote in message
> news:4587eb20\$1@linux...
>>
>> My Paris rig is pretty darn stable. AMD 2 gig single core Asus S-733
>> Mobo.
>> I'm running 3 Uad cards and 6 eds cards okn a Magma.
>> Never heard a click, whistle, or pop (except the pops that the eds cards
>> make at boot up)
>> Rod
>> "Gantt Kushner" <ganttmann@comcast.net> wrote:
>> >
>> >Another session full of clicking, popping, whistling and hooting from my
>> UAD-1
>> >plugins. Which makes me wonder - If I were to switch to a PC for my
> Paris
>> >rig, what issues would I have to deal with? Would I have the new UAD-1
>> FX,
>> >like the Neve EQs? How stable is Paris on a properly set up PC? Does
> having
>> >a dual processor machine affect Paris performance?
>> >
>> >And then, taking it to it's (logical?) extreme - Like switching to
>> >Nuendo

>> >- would I be able to stick my Mac? Or would I do better w/ PC? Does
> Nuendo
>> >have automatic latency compensation? Are you Nuendo folks happy w/ the
>> sound?
>> > Are any of you summing externally?
>> >
>> >So many questions.
>> >
>> >Thanks! And Happy Holidays to you all!!!
>> >
>> >Gantt
>>
>
>Merry Christmas to you too Rick! You can always access the web page version
of the paris news group at: <http://webnews.parisnewsgroup.com/>

James

rick <parnell68@hotmail.com> wrote:
>sleeping with fists and i are leaving for redondo beach (and my crazy
>sister in a couple of hour; since i won't be near a
>computer...okay...my computer with my news reader i'll be off line.
>so Merry Christmas to one and all who celebrate this time of the year
>for any reason of their own.
>
>ciaol usually render tracks that have lots of edits before mixing. I've found
the UAD-1 FX to be pretty glitchy around edits. I also always create a second
or two of silence before and after every track that has plugins inserted.
In fact, I discovered that the Lexicon PCM 42 delay plugin needs a full
delays worth of track after the event to function properly.

Anyway, even w/ rendered tracks I'm having problems...

Gantt

"Don Nafe" <dnafe@magma.ca> wrote:
>I too have experienced the pops as a result of plugins...my solution to
this
>is to take a full song length track, copy it, apply a gain reduction of
90db
>and rename it empty audio...then make a copy of it, put it on an open track

>and cut and paste all the edits from the offending track onto this track

>then move it back to the track where the edits came from...works like a

>charm.
>

>That being said I do believe we're probably looking at a hardware issue
with
>Gantt's set up...and I'm sorry having played with Nuendo and SX they suck

>donkey balls...PT Rules.....nuff said!
>
>:-) <- pointing out smiley
>
>DOn
>
>
>"Neil" <OIUOIU@OIU.com> wrote in message news:4588080a\$1@linux...
>>
>> Oh, BTW, having said all that - I think you're a perfect
>> candidate for "conversion", my son lol
>> Yes, Nuendo (and SX) have latency compensation, and as far as
>> your question about summing externally goes, I've tried this
>> combination recently (mixed in SX, summed in Paris via analog
>> outs - 4 stereo submixes into an 8-in module), and the results
>> don't suck. Not sure if it's exactly the sound I'm looking for,
>> but I did like certain aspects of it - tends to "warm up" the
>> mix a bit & kinda sounded a little smoother than a pure ITB
>> Native mix.
>>
>> Neil
>>
>>
>>
>> "Neil" <OIUOIU@OIU.com> wrote:
>>>
>>>Gannt, is it possible you have an underpowered power supply for
>>>the task of running the Paris cards plus the UAD's (or that the
>>>PSU may be going bad)? I mean, that's generally the most common
>>>cause of popping & clicking, etc.
>>>
>>>OR... is it only popping & clicking at the start of waveforms &
>>>on edits/punches? I recall having a couple of Waves plugins that
>>>did that in Paris - wonder if it might be the same kind of thing
>>>going on? If so, I remedied that by recording a couple seconds
>>>of empty space right before the original waveform actually
>>>started, then automating the mute function so what would happen
>>>is that the pulgin would trigger and pop before the waveform came
>>>in in the silent (and muted) portion & then it would un-mute
>>>right before the waveform actually started. I can't recall what
>>>I did on the edits/punches, though - it may have been a
>>>crossfade thing or I may have had to render/bounce those
>>>portions as a single trackfile.
>>>

>>>Just tossing out ideas here... sorry for the redundancy if
>>>you've already checked these things.
>>>
>>>Neil
>>>
>>>
>>>
>>>
>>>"Gantt Kushner" <ganttmann@comcast.net> wrote:
>>>>
>>>>Another session full of clicking, popping, whistling and hooting from
my
>>>UAD-1
>>>>plugins. Which makes me wonder - If I were to switch to a PC for my

>>>>Paris
>>>>rig, what issues would I have to deal with? Would I have the new UAD-1
>>>FX,
>>>>like the Neve EQs? How stable is Paris on a properly set up PC? Does

>>>>having
>>>>a dual processor machine affect Paris performance?
>>>>
>>>>And then, taking it to it's (logical?) extreme - Like switching to Nuendo
>>>>- would I be able to stick my Mac? Or would I do better w/ PC? Does

>>>>Nuendo
>>>>have automatic latency compensation? Are you Nuendo folks happy w/ the
>>>sound?
>>>>Are any of you summing externally?
>>>>
>>>>So many questions.
>>>>
>>>>Thanks! And Happy Holidays to you all!!!
>>>>
>>>>Gantt
>>>
>>
>
>Both of my UAD-1 cards live in my G4. The EDS cards all live in my Magma
13 slot expansion chassis. Is it possible that my G4 doesn't have enough
juice to run 2 UAD-1 cards?

Gantt

"Neil" <OIUOIU@OIU.com> wrote:
>
>Gannt, is it possible you have an underpowered power supply for

>the task of running the Paris cards plus the UAD's (or that the
>PSU may be going bad)? I mean, that's generally the most common
>cause of popping & clicking, etc.
>
>OR... is it only popping & clicking at the start of waveforms &
>on edits/punches? I recall having a couple of Waves plugins that
>did that in Paris - wonder if it might be the same kind of thing
>going on? If so, I remedied that by recording a couple seconds
>of empty space right before the original waveform actually
>started, then automating the mute function so what would happen
>is that the plugin would trigger and pop before the waveform came
>in in the silent (and muted) portion & then it would un-mute
>right before the waveform actually started. I can't recall what
>I did on the edits/punches, though - it may have been a
>crossfade thing or I may have had to render/bounce those
>portions as a single trackfile.
>
>Just tossing out ideas here... sorry for the redundancy if
>you've already checked these things.
>
>Neil
>
>
>
>
>
>"Gantt Kushner" <ganttmann@comcast.net> wrote:
>>
>>Another session full of clicking, popping, whistling and hooting from my
>UAD-1
>>plugins. Which makes me wonder - If I were to switch to a PC for my Paris
>>rig, what issues would I have to deal with? Would I have the new UAD-1
>FX,
>>like the Neve EQs? How stable is Paris on a properly set up PC? Does having
>>a dual processor machine affect Paris performance?
>>
>>And then, taking it to it's (logical?) extreme - Like switching to Nuendo
>>- would I be able to stick my Mac? Or would I do better w/ PC? Does Nuendo
>>have automatic latency compensation? Are you Nuendo folks happy w/ the
>sound?
>> Are any of you summing externally?
>>
>>So many questions.
>>
>>Thanks! And Happy Holidays to you all!!!
>>
>>Gantt
>Either Samsung or Crucial...I don't remember which. I have 1 gig
Rod

"Mike R." <emarenot@yahoo.com> wrote:

>Hey Rod,

>Side question. I'm running the same mobo and I've been thinking about

>upping the RAM -what brand are you using?

>MR

>"Rod Lincoln" <rlincoln@nospam.kc.rr.com> wrote in message

>news:4587eb20\$1@linux...

>>

>> My Paris rig is pretty darn stable. AMD 2 gig single core Asus S-733 Mobo.

>> I'm running 3 Uad cards and 6 eds cards okn a Magma.

>> Never heard a click, whistle, or pop (except the pops that the eds cards

>> make at boot up)

>> Rod

>> "Gantt Kushner" <ganttmann@comcast.net> wrote:

>> >

>> >Another session full of clicking, popping, whistling and hooting from
my

>> UAD-1

>> >plugins. Which makes me wonder - If I were to switch to a PC for my

>Paris

>> >rig, what issues would I have to deal with? Would I have the new UAD-1

>> FX,

>> >like the Neve EQs? How stable is Paris on a properly set up PC? Does

>having

>> >a dual processor machine affect Paris performance?

>> >

>> >And then, taking it to it's (logical?) extreme - Like switching to Nuendo

>> >- would I be able to stick my Mac? Or would I do better w/ PC? Does

>Nuendo

>> >have automatic latency compensation? Are you Nuendo folks happy w/ the

>> sound?

>> > Are any of you summing externally?

>> >

>> >So many questions.

>> >

>> >Thanks! And Happy Holidays to you all!!!

>> >

>> >Gantt

>>

>

>"Gantt Kushner" <ganttmann@comcast.net> wrote in message

news:45884918\$1@linux...

>

> I usually render tracks that have lots of edits before mixing. I've found

> the UAD-1 FX to be pretty glitchy around edits. I also always create a

> second

> or two of silence before and after every track that has plugins inserted.

> In fact, I discovered that the Lexicon PCM 42 delay plugin needs a full

> delays worth of track after the event to function properly.
>
> Anyway, even w/ rendered tracks I'm having problems...
>
> Gantt

That's the final step after all is said and done because I've been know to change things right up until the mix is approved for mastering

Don

>
> "Don Nafe" <dnafe@magma.ca> wrote:
>>I too have experienced the pops as a result of plugins...my solution to
> this
>>is to take a full song length track, copy it, apply a gain reduction of
> 90db
>>and rename it empty audio...then make a copy of it, put it on an open
>>track
>
>>and cut and paste all the edits from the offending track onto this track
>
>>then move it back to the track where the edits came from...works like a
>
>>charm.
>>
>>That being said I do believe we're probably looking at a hardware issue
> with
>>Gantt's set up...and I'm sorry having played with Nuendo and SX they suck
>
>>donkey balls...PT Rules.....nuff said!
>>
>>:-) <- pointing out smiley
>>
>>DOn
>>
>>
>>"Neil" <OIUOIU@OIU.com> wrote in message news:4588080a\$1@linux...
>>>
>>> Oh, BTW, having said all that - I think you're a perfect
>>> candidate for "conversion", my son lol
>>> Yes, Nuendo (and SX) have latency compensation, and as far as
>>> your question about summing externally goes, I've tried this
>>> combination recently (mixed in SX, summed in Paris via analog
>>> outs - 4 stereo submixes into an 8-in module), and the results

>>> don't suck. Not sure if it's exactly the sound I'm looking for,
>>> but I did like certain aspects of it - tends to "warm up" the
>>> mix a bit & kinda sounded a little smoother than a pure ITB
>>> Native mix.
>>>
>>> Neil
>>>
>>>
>>>
>>> "Neil" <OIUOIU@OIU.com> wrote:
>>>>
>>>>Gannt, is it possible you have an underpowered power supply for
>>>>the task of running the Paris cards plus the UAD's (or that the
>>>>PSU may be going bad)? I mean, that's generally the most common
>>>>cause of popping & clicking, etc.
>>>>
>>>>OR... is it only popping & clicking at the start of waveforms &
>>>>on edits/punches? I recall having a couple of Waves plugins that
>>>>did that in Paris - wonder if it might be the same kind of thing
>>>>going on? If so, I remedied that by recording a couple seconds
>>>>of empty space right before the original waveform actually
>>>>started, then automating the mute function so what would happen
>>>>is that the plugin would trigger and pop before the waveform came
>>>>in in the silent (and muted) portion & then it would un-mute
>>>>right before the waveform actually started. I can't recall what
>>>>I did on the edits/punches, though - it may have been a
>>>>crossfade thing or I may have had to render/bounce those
>>>>portions as a single trackfile.
>>>>
>>>>Just tossing out ideas here... sorry for the redundancy if
>>>>you've already checked these things.
>>>>
>>>>Neil
>>>>
>>>>
>>>>
>>>>
>>>>"Gantt Kushner" <ganttmann@comcast.net> wrote:
>>>>>
>>>>>Another session full of clicking, popping, whistling and hooting from
> my
>>>>>UAD-1
>>>>>plugins. Which makes me wonder - If I were to switch to a PC for my
>
>>>>>Paris
>>>>>rig, what issues would I have to deal with? Would I have the new UAD-1
>>>>>FX,
>>>>>like the Neve EQs? How stable is Paris on a properly set up PC? Does

>
>>>>>having
>>>>>a dual processor machine affect Paris performance?
>>>>>
>>>>>And then, taking it to it's (logical?) extreme - Like switching to
>>>>>Nuendo
>>>>>- would I be able to stick my Mac? Or would I do better w/ PC? Does
>
>>>>>Nuendo
>>>>>have automatic latency compensation? Are you Nuendo folks happy w/ the
>>>>>sound?
>>>>> Are any of you summing externally?
>>>>>
>>>>>So many questions.
>>>>>
>>>>>Thanks! And Happy Holidays to you all!!!
>>>>>
>>>>>Gantt
>>>>>
>>>>
>>>
>>
>>
>I'd like to see this proven in a controlled ABY test.

"Lamont" <jjdpro@ameritech.net> wrote:

>
>Hey Neil,
>
>All I'm saying is: All DAW software have their own unique sound. Despite
>what those lame summing test shows..
>
>PT-HD has a very distinct sound. A very polished sound, with a nice top
end,
>but with full audio spectrum represented. Mixer/Summing buss can be pushed,
>but you have to watch it.
>
>Nuendo/SX: Has a very Clear, 2 dimension sound, that does not hype the top
>nor bottom end.
>
>Logic Audio: Very Broad- Aggressive sound, that really works for Rock and
>R & B/Gospel mixes.
>
>Digital Performer: With their hardware, superb audio quality. Full bodied
>sound .
>
>Sonar: Very flat sounding. I would say that Sonar is your most vanilla sound
>DW on the market..
>

>Samplitude : A little less top end than Pro Tools. Full bodied 3d sound..
>
>Paris: Dark sounding in comparison to the the other DAWs. But, has a 3d
sound
>quality that's full bodied.
>
>I feel that you asking SX to be something it's not with some analog summing.
>Especially for your genre of music..
>
>
>
>
>"Neil" <IUOIU@OIU.com> wrote:
>>
>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>
>>>"I'd disagree with you in this instance because I happen to think the
Cubase
>>>ones DO sound better."
>>>
>>>Then that SSL Engineer does not know what they are doing with board. There's
>>>no way a mix coming off of that board SSL should sound better than a ITB
>>>Cubase SX mix..
>>>
>>>Sorry, that just does not jive. That engineer does not know how to push
>>he
>>>SSL or just not familiar with it.
>>
>>You're not really paying attention, are you? It was the same
>>engineer (me). And as far as whether or not I know how to use
>>that particular board, I guess that would be a matter of
>>your opinion. I don't think the SSL mixes are bad ones, I think
>>they came out good; I just think that you can hear more detail
>>in the ITB mixes in the examples I gave, and they have more
>>wideband frequency content from top to bottom.
>>
>>Anyway, my point of that particular comparison wasn't to say
>>"ITB mixes are better than using a large-format console that
>>costs somewhere in the six-figure range", the point of it was to
>>address a signal-chain suggestion that Paul had... he had
>>suggested perhaps that I needed to pick up a few pieces of
>>killer vintage gear, and I was just demonstrating that I think
>>the various signal chain components that I have here are on par
>>with most anything that can be found in heavy-hitter studios...
>>we used probably around \$100k's worth of mics & pre's on the
>>PTHD/SSL mixes, plus obviously you're looking at another
>>roughly \$100k for that particular console (40-channel E-series,
>>black EQ's, w/G-series Computer & Total Recall package), add in

>>the PTHD, outboard gear & whatnot, and you end up with
>>somewhere around a quarter-mil's worth of equipment involved in
>>that project. The project done at my place was done with my
>>gear, which certainly doesn't tally up to anywhere remotely
>>close to that cost & none of it bears a "vintage" stamp, but it
>>sounds competitive with the project that used all the heavy-
>>hitter stuff.

>>

>>Neil

>Hi Gantt....running XP...I don't get clicks or pops with UAD,just weirdness
at crossfade edits....and LATENCY...which I hate dealing with...my one card
rig has been working OK for 6 years,3 years on XP...I am getting Nuendo,just
to see what it's like on PC....zan

"Gantt Kushner" <ganttmann@comcast.net> wrote in message
news:4587de86\$1@linux...

>

> Another session full of clicking, popping, whistling and hooting from my
UAD-1

> plugins. Which makes me wonder - If I were to switch to a PC for my Paris
> rig, what issues would I have to deal with? Would I have the new UAD-1
FX,

> like the Neve EQs? How stable is Paris on a properly set up PC? Does
having

> a dual processor machine affect Paris performance?

>

> And then, taking it to it's (logical?) extreme - Like switching to Nuendo

> - would I be able to stick my Mac? Or would I do better w/ PC? Does
Nuendo

> have automatic latency compensation? Are you Nuendo folks happy w/ the
sound?

> Are any of you summing externally?

>

> So many questions.

>

> Thanks! And Happy Holidays to you all!!!

>

> GanttThe only real test is with the ears and not scopes and graphs.

"TCB" <nobody@ishere.com> wrote:

>

>I'd like to see this proven in a controlled ABY test.

>

>"Lamont" <jjdpro@ameritech.net> wrote:

>>

>>Hey Neil,

>>

>>All I'm saying is: All DAW software have their own unique sound. Despite
>>what those lame summing test shows..

>>
>>PT-HD has a very distinct sound. A very polished sound, with a nice top
>end,
>>but with full audio spectrum represented. Mixer/Summing buss can be pushed,
>>but you have to watch it.
>>
>>Nuendo/SX: Has a very Clear, 2 dimension sound, that does not hype the
top
>>nor bottom end.
>>
>>Logic Audio: Very Broad- Aggressive sound, that really works for Rock and
>>R & B/Gospel mixes.
>>
>>Digital Performer: With their hardware, superb audio quality. Full bodied
>>sound .
>>
>>Sonar: Very flat sounding. I would say that Sonar is your most vanilla
sound
>>DW on the market..
>>
>>Samplitude : A little less top end than Pro Tools. Full bodied 3d sound..
>>
>>Paris: Dark sounding in comparison to the the other DAWs. But, has a 3d
>sound
>>quality that's full bodied.
>>
>>I feel that you asking SX to be something it's not with some analog summing.
>>Especially for your genre of music..
>>
>>
>>
>>
>>"Neil" <IUOIU@OIU.com> wrote:
>>>
>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>
>>>>"I'd disagree with you in this instance because I happen to think the
>Cubase
>>>>ones DO sound better."
>>>>
>>>>Then that SSL Engineer does not know what they are doing with board.
There's
>>>>no way a mix coming off of that board SSL should sound better than a
ITB
>>>>Cubase SX mix..
>>>>
>>>>Sorry, that just does not jive. That engineer does not know how to push
>>>he

>>>>SSL or just not familiar with it.
>>>
>>>You're not really paying attention, are you? It was the same
>>>engineer (me). And as far as whether or not I know how to use
>>>that particular board, I guess that would be a matter of
>>>your opinion. I don't think the SSL mixes are bad ones, I think
>>>they came out good; I just think that you can hear more detail
>>>in the ITB mixes in the examples I gave, and they have more
>>>wideband frequency content from top to bottom.
>>>
>>>Anyway, my point of that particular comparison wasn't to say
>>>"ITB mixes are better than using a large-format console that
>>>costs somewhere in the six-figure range", the point of it was to
>>>address a signal-chain suggestion that Paul had... he had
>>>suggested perhaps that I needed to pick up a few pieces of
>>>killer vintage gear, and I was just demonstrating that I think
>>>the various signal chain components that I have here are on par
>>>with most anything that can be found in heavy-hitter studios...
>>>we used probably around \$100k's worth of mics & pre's on the
>>>PTHD/SSL mixes, plus obviously you're looking at another
>>>roughly \$100k for that particular console (40-channel E-series,
>>>black EQ's, w/G-series Computer & Total Recall package), add in
>>>the PTHD, outboard gear & whatnot, and you end up with
>>>somewhere around a quarter-mil's worth of equipment involved in
>>>that project. The project done at my place was done with my
>>>gear, which certainly doesn't tally up to anywhere remotely
>>>close to that cost & none of it bears a "vintage" stamp, but it
>>>sounds competitive with the project that used all the heavy-
>>>hitter stuff.
>>>
>>>Neil
>>
>Sony BMG Settles Suit Over CDs

<http://apnews.excite.com/article/20061219/D8M44CE00.html>Which is why ABY testing uses expert listeners instead of scopes and graphs.

I'm not saying you're wrong, esp. about ITB vs external summing. One would expect that to sound at least slightly different. But I would be absolutely shocked if anyone could tell in a controlled ABY test whether they were listening to SX, Performer, of Sonar.

"LaMont" <jjdpro@ameritech.net> wrote:

>

>The only real test is with the ears and not scopes and graphs.

>

>"TCB" <nobody@ishere.com> wrote:

>>
>>I'd like to see this proven in a controlled ABY test.
>>
>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>
>>>Hey Neil,
>>>
>>>All I'm saying is: All DAW software have their own unique sound. Despite
>>>what those lame summing test shows..
>>>
>>>PT-HD has a very distinct sound. A very polished sound, with a nice top
>>end,
>>>but with full audio spectrum represented. Mixer/Summing buss can be pushed,
>>>but you have to watch it.
>>>
>>>Nuendo/SX: Has a very Clear, 2 dimension sound, that does not hype the
>top
>>>nor bottom end.
>>>
>>>Logic Audio: Very Broad- Aggressive sound, that really works for Rock
and
>>>R & B/Gospel mixes.
>>>
>>>Digital Performer: With their hardware, superb audio quality. Full bodied
>>>sound .
>>>
>>>Sonar: Very flat sounding. I would say that Sonar is your most vanilla
>sound
>>>DW on the market..
>>>
>>>Samplitude : A little less top end than Pro Tools. Full bodied 3d sound..
>>>
>>>Paris: Dark sounding in comparison to the the other DAWs. But, has a 3d
>>sound
>>>quality that's full bodied.
>>>
>>>I feel that you asking SX to be something it's not with some analog summing.
>>>Especially for your genre of music..
>>>
>>>
>>>
>>>
>>>"Neil" <IUOIU@OIU.com> wrote:
>>>>
>>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>>
>>>>>"I'd disagree with you in this instance because I happen to think the
>>Cubase

>>>>>ones DO sound better."
>>>>>
>>>>>Then that SSL Engineer does not know what they are doing with board.
>There's
>>>>>no way a mix coming off of that board SSL should sound better than a
>ITB
>>>>>Cubase SX mix..
>>>>>
>>>>>Sorry, that just does not jive. That engineer does not know how to push
>>>>he
>>>>>SSL or just not familiar with it.
>>>>
>>>>You're not really paying attention, are you? It was the same
>>>>engineer (me). And as far as whether or not I know how to use
>>>>that particular board, I guess that would be a matter of
>>>>your opinion. I don't think the SSL mixes are bad ones, I think
>>>>they came out good; I just think that you can hear more detail
>>>>in the ITB mixes in the examples I gave, and they have more
>>>>wideband frequency content from top to bottom.
>>>>
>>>>Anyway, my point of that particular comparison wasn't to say
>>>>"ITB mixes are better than using a large-format console that
>>>>costs somewhere in the six-figure range", the point of it was to
>>>>address a signal-chain suggestion that Paul had... he had
>>>>suggested perhaps that I needed to pick up a few pieces of
>>>>killer vintage gear, and I was just demonstrating that I think
>>>>the various signal chain components that I have here are on par
>>>>with most anything that can be found in heavy-hitter studios...
>>>>we used probably around \$100k's worth of mics & pre's on the
>>>>PTHD/SSL mixes, plus obviously you're looking at another
>>>>roughly \$100k for that particular console (40-channel E-series,
>>>>black EQ's, w/G-series Computer & Total Recall package), add in
>>>>the PTHD, outboard gear & whatnot, and you end up with
>>>>somewhere around a quarter-mil's worth of equipment involved in
>>>>that project. The project done at my place was done with my
>>>>gear, which certainly doesn't tally up to anywhere remotely
>>>>close to that cost & none of it bears a "vintage" stamp, but it
>>>>sounds competitive with the project that used all the heavy-
>>>>hitter stuff.
>>>>
>>>>Neil
>>>>
>>>>
>>>>
>"Companies that want to load their CDs with software that limits the ability
to copy music should fully inform consumers about it, not hide it, and make
sure it doesn't inflict security vulnerabilities on computers," California
Attorney General Bill Lockyer said in a statement.

Bizarrely sane and well said for a politician.

TCB

"James McCloskey" <excelsm@hotmail.com> wrote:

>

>Sony BMG Settles Suit Over CDs

>

><http://apnews.excite.com/article/20061219/D8M44CE00.html>If only XP had a journaling fs. In the free software world, there's reiserfs that is designed ground up for journaling and ext3 can be set up for journaling. I've always wanted to mess around with rfs and the file system that SGI released under the GPL (xfs) a while back, but when I'm installing I just say, 'Oh, whatever, I'm in a rush and I'll just use ext3.'

Also, *BSD and Solaris both have very powerful file systems that have all kinds of stuff built in but are a massive PITA to manage. Ironically enough, Exchange 2003 essentially uses a 'journal' like method for maintaining mailboxes and logs, after a crash they can be played back if they are on the disk, but by default installs on (cannot be journaled) NTFS drives. At least they're getting halfway there.

TCB

"Martin Harrington" <lendan@bigpond.net.au> wrote:

>Sort of like "Dr Watson" was like on the PC

>--

>Martin Harrington

>www.lendaneer-sound.com

>

>"Gene Lennon" <glennon@nospMyrealbox.com> wrote in message

>news:4586e48b\$1@linux...

>>

>> "Neil" <IUOIU@OIU.com> wrote:

>>>

>>>What exactly IS "journaling"? Not familiar with that term at all.

>>>

>>>Neil

>>>

>> From Apple:

>>

>> "When you enable journaling on a disk, a continuous record of changes to

>> files on the disk is maintained in the journal. If your computer stops

>> because

>> of a power failure or some other issue, the journal is used to restore the

>> disk to a known-good state when the server restarts.
>>
>> "With journaling turned on, the file system logs transactions as they

>> occur.
>> If the server fails in the middle of an operation, the file system can

>> 'replay'
>> the information in its log and complete the operation when the server

>> restarts."
>>
>> Gene
>
>Thad, your gonna love this one. Sorry I couldn't resist.

<http://www.chron.com/disp/story.mpl/chronicle/4411680.html>

Actually, I'm not sure I believe the assumption of this article.

JamesThad, you really can't hear the difference?? Maybe I own too many software DAWS thru the years.

Starting on Logic Audio 3.0, then to Cakwalk, Pro Tools, DP, Paris,Acid, Neundo, Sonar, samplitude..

I can hear the difERENCE with the same audio interface with the same wav file(s)as oon as I import the file or files.

These days, depending on the genre I'm mising determines which DAW software I'll use.

My circle of engineer and producer buddies all can hear the difference in a second. Just the other day, we were mixing this R&B(ish)Gospel track and somebody said, 'Mont, this is begging for Paris. Another track, the call was for Pro Tools. And another,Nuendo..

I know BrianT feels and hears the same way in different DAW software. It's really obvious..

"TCB" <nobody@ishere.com> wrote:

>
>Which is why ABY testing uses expert listeners instead of scopes and graphs.
>
>
>I'm not saying you're wrong, esp. about ITB vs external summing. One would
>expect that to sound at least slightly different. But I would be absolutely
>shocked if anyone could tell in a controlled ABY test whether they were
listening

>to SX, Performer, of Sonar.
>
>"LaMont" <jjdpro@ameritech.net> wrote:
>>
>>The only real test is with the ears and not scopes and graphs.
>>
>>"TCB" <nobody@ishere.com> wrote:
>>>
>>>I'd like to see this proven in a controlled ABY test.
>>>
>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>
>>>>Hey Neil,
>>>>
>>>>All I'm saying is: All DAW software have their own unique sound. Despite
>>>>what those lame summing test shows..
>>>>
>>>>PT-HD has a very distinct sound. A very polished sound, with a nice top
>>>end,
>>>>but with full audio spectrum represented. Mixer/Summing buss can be pushed,
>>>>but you have to watch it.
>>>>
>>>>Nuendo/SX: Has a very Clear, 2 dimension sound, that does not hype the
>>top
>>>>nor bottom end.
>>>>
>>>>Logic Audio: Very Broad- Aggressive sound, that really works for Rock
>and
>>>>R & B/Gospel mixes.
>>>>
>>>>Digital Performer: With their hardware, superb audio quality. Full bodied
>>>>sound .
>>>>
>>>>Sonar: Very flat sounding. I would say that Sonar is your most vanilla
>>sound
>>>>DW on the market..
>>>>
>>>>Samplitude : A little less top end than Pro Tools. Full bodied 3d sound..
>>>>
>>>>Paris: Dark sounding in comparison to the the other DAWs. But, has a
3d
>>>sound
>>>>quality that's full bodied.
>>>>
>>>>I feel that you asking SX to be something it's not with some analog summing.
>>>>Especially for your genre of music..
>>>>
>>>>

>>>>
>>>>
>>>>"Neil" <IUOIU@OIU.com> wrote:
>>>>>
>>>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>>>
>>>>>>"I'd disagree with you in this instance because I happen to think the
>>>>Cubase
>>>>>>ones DO sound better."
>>>>>>
>>>>>>Then that SSL Engineer does not know what they are doing with board.
>>There's
>>>>>>no way a mix coming off of that board SSL should sound better than
a
>>ITB
>>>>>>Cubase SX mix..
>>>>>>
>>>>>>Sorry, that just does not jive. That engineer does not know how to
push
>>>>>he
>>>>>>SSL or just not familiar with it.
>>>>>
>>>>>You're not really paying attention, are you? It was the same
>>>>>engineer (me). And as far as whether or not I know how to use
>>>>>that particular board, I guess that would be a matter of
>>>>>your opinion. I don't think the SSL mixes are bad ones, I think
>>>>>they came out good; I just think that you can hear more detail
>>>>>in the ITB mixes in the examples I gave, and they have more
>>>>>wideband frequency content from top to bottom.
>>>>>
>>>>>Anyway, my point of that particular comparison wasn't to say
>>>>>"ITB mixes are better than using a large-format console that
>>>>>costs somewhere in the six-figure range", the point of it was to
>>>>>address a signal-chain suggestion that Paul had... he had
>>>>>suggested perhaps that I needed to pick up a few pieces of
>>>>>killer vintage gear, and I was just demonstrating that I think
>>>>>the various signal chain components that I have here are on par
>>>>>with most anything that can be found in heavy-hitter studios...
>>>>>we used probably around \$100k's worth of mics & pre's on the
>>>>>PTHD/SSL mixes, plus obviously you're looking at another
>>>>>roughly \$100k for that particular console (40-channel E-series,
>>>>>black EQ's, w/G-series Computer & Total Recall package), add in
>>>>>the PTHD, outboard gear & whatnot, and you end up with
>>>>>somewhere around a quarter-mil's worth of equipment involved in
>>>>>that project. The project done at my place was done with my
>>>>>gear, which certainly doesn't tally up to anywhere remotely
>>>>>close to that cost & none of it bears a "vintage" stamp, but it
>>>>>sounds competitive with the project that used all the heavy-

>>>>>hitter stuff.

>>>>>

>>>>>Neil

>>>>>

>>>>

>>>

>>

>Deej, you should ask Santa for one of these. You could tell him you'll die if you don't get one;)

Peerless LCT-104 Multi-Screen LCD Desktop Mount

http://www.cdw.com/shop/products/default.aspx?edc=849750&cm_ven=RKG&cm_cat=adwords&cm_pla=Video&cm_ite=p eerless_lct-104They say imitation is the best form of flattery, in this case, this sure sucks for Apple.

Apples intentions have been well established in the industry for some time now. I guess the innovator is always copied. I'm sure in the end they will do fine. They have lost iTV and now iPhone.

<http://blogs.zdnet.com/Berlind/?p=233>

<http://blogs.zdnet.com/BTL/?p=4160>This is a multi-part message in MIME format.

-----=_NextPart_000_0075_01C723A5.F852CB20

Content-Type: text/plain;

charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

I am using a NVidia GeForce 7300GT in a AMD 64X2, 4800.

I am seeing screen resolutions of 1280x1024, 1600x 1024 and 1600x1200 as options on the video card. Do those change when a different monitor = is attached?

Can I use two 20 or 22" widescreen LCDs with native 1680x1050?

<http://www.tigerdirect.com/applications/SearchTools/item-details.asp?EdpN=3D2549197&CatId=3D0>

If not what are my options in the 19" and up flatcsreen LCDs these days? =

I want to use two

but will deal with one at first.

Any deals from those who have been looking would be great!

Thanks,

Tom

I choose Polesoft Lockspam to fight spam, and you?

<http://www.polesoft.com/refer.html>

-----=_NextPart_000_0075_01C723A5.F852CB20

Content-Type: text/html;

charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">

<HTML><HEAD>

<META http-equiv=3DContent-Type content=3D"text/html; =

charset=3Diso-8859-1">

<META content=3D"MSHTML 6.00.2800.1400" name=3DGENERATOR>

<STYLE></STYLE>

</HEAD>

<BODY bgColor=3D#ffffff>

<DIV>I am using a NVidia GeForce 7300GT in a =
AMD 64X2,=20

4800.</DIV>

<DIV> </DIV>

<DIV>I am seeing screen resolutions of =

1280x1024, 1600x=20

1024 and 1600x1200</DIV>

<DIV>as options on the video card. <Do =
those change=20

when a different monitor is attached?</DIV>

<DIV> </DIV>

<DIV>Can I use two 20 or 22" widescreen LCDs =
with native=20

1680x1050?</DIV>

<DIV><A=20

href=3D" [http://www.tigerdirect.com/applications/SearchTools/item-det](http://www.tigerdirect.com/applications/SearchTools/item-details.asp?EdpNo=3D2549197&CatId=3D0)ails.=

asp?EdpNo=3D2549197&CatId=3D0">[http://www.tigerdirect.com/application=](http://www.tigerdirect.com/application=s/SearchTools/item-details.asp?EdpNo=3D2549197&CatId=3D0)

s/SearchTools/item-details.asp?EdpNo=3D2549197&CatId =3D0 </=

DIV>

<DIV> </DIV>

<DIV>If not what are my options in <the =
19" and up=20

flatcsreen LCDs these days? <I want to use two</DIV>

<DIV>but will deal with one at =

first.</DIV>

<DIV> </DIV>

<DIV>Any deals from those who have been =
looking would be=20

great!</DIV>

<DIV>Thanks,</DIV>

<DIV>Tom</DIV>
<DIV> </DIV>
<DIV> </DIV>
<DIV> </DIV>
<DIV>

I choose Polesoft Lockspam to fight spam, =
and=20
you?
<A=20
href=3D"http://www.polesoft.com/refer.html">http://www.polesoft.com/refer=
..html </DIV></BODY ></HTML>

-----=_NextPart_000_0075_01C723A5.F852CB20--"Don Nafe" <dnafe@magma.ca> wrote:
>

>"Gantt Kushner" <ganttmann@comcast.net> wrote in message

>news:45884918\$1@linux...

>>

>> I usually render tracks that have lots of edits before mixing. I've found

>> the UAD-1 FX to be pretty glitchy around edits. I also always create

a

>> second

>> or two of silence before and after every track that has plugins inserted.

>> In fact, I discovered that the Lexicon PCM 42 delay plugin needs a full

>> delays worth of track after the event to function properly.

>>

>> Anyway, even w/ rendered tracks I'm having problems...

>>

>> Gantt

>

>That's the final step after all is said and done because I've been know

to

>change things right up until the mix is approverd for mastering

>

>Don

You can always clone a track, render one & keep the edits
without rendering on the first track just in case (assuming you
have enough track capacity available to do this with - in SX,
and I presume also in Nuendo, you can disable tracks to conserve
CPU usage & that's the prefect time to use that function - on
the "safety" track. copy(ies).

NeilBelieve it or not I think Apple shoud sue them for trademark infringement

I love litigation during the Christmas season

I think they'd have a great case...when was the last time cisco had an "i"
anything

DOn

"James McCloskey" <excelsm@hotmail.com> wrote in message
news:45887b89\$1@linux...

>
> They say imitation is the best form of flattery, in this case, this sure
> sucks
> for Apple.
>
> Apples intentions have been well established in the industry for some time
> now. I guess the innovator is always copied. I'm sure in the end they
> will
> do fine. They have lost iTV and now iPhone.
>
> <http://blogs.zdnet.com/Berlind/?p=233>
>
> <http://blogs.zdnet.com/BTL/?p=4160>Finally!! After al the speculation..Now, If Apple comes out
with Logic pro
8 (Aka) Fianl Cut /Soundtrack Pro 2.0.. Yahoooo

"James McCloskey" <excelsm@hotmail.com> wrote:

>
>They say imitation is the best form of flattery, in this case, this sure
sucks
>for Apple.
>
>Apples intentions have been well established in the industry for some time
>now. I guess the innovator is always copied. I'm sure in the end they
will
>do fine. They have lost iTV and now iPhone.
>
><http://blogs.zdnet.com/Berlind/?p=233>
>
><http://blogs.zdnet.com/BTL/?p=4160>"Gantt Kushner" <ganttmann@comcast.net> wrote:
>
>Both of my UAD-1 cards live in my G4. The EDS cards all live in my Magma
>13 slot expansion chassis. Is it possible that my G4 doesn't have enough
>juice to run 2 UAD-1 cards?

Gantt... I'm not very knowledgeable about Macs, so I can't
really say for sure, but it would seem weird if it doesn't have
enough wattage capacity for just those two cards - if that's
all there are in the 'puter itself.

This would be a moot point if the PSU is going bad, of course.
A couple of thoughts:

1.) Does the Magma leach any power away from the computer at

all? IOW, apart from it's own power supply, does it suck any from the PCI bus just by virtue of the fact that it interfaces with that?

2.) Have you tried using the rig with only ONE UAD card... not necessarily as a practical application since if you have two, you have two for a reason, but I mean just to see if you get rid of the popping, etc. by removing either of the cards? If it's a power-related issue this could be helpful to try in order to troubleshoot.

3.) Do you think it could be ONE of the UAD cards doing this? IOW, could one of 'em be bad? Have you been able to establish that it's, in fact, BOTH of them that are vomiting artifacts?

4.) Have you been able to establish if either your disk streaming capacity is being exceeded, or if your CPU is maxed out? Either one could cause popping/clicking (although the former would more likely cause stuttering & dropouts).

Just trying to maybe narrow things down.

NeilLaMont wrote:

>>Finally!! After al the speculation..Now, If Apple comes out with Logic pro 8 (Aka) Fianl Cut /Soundtrack Pro 2.0.. Yahooo<<

Well who knows LaMont, but I kind of doubt it. Mac World has never been a pro Audio show for Apple. They used to have a booth at NAMM, but they usually just show what they currently have at the time. It will likely be GarageBand 07 at MacWorld. Did you hear something?

The year kicks off with CES in Las Vegas, followed by MacWorld then the NAMM Show. Apple never exhibits at CES, it's kind of a Bill Gates show. Apple usually shows off their new consumer electronics at MW. The new pro audio and pro video products are shown off at NAB in april. However, things are changing at Apple, so you never know.

I think Apple sees SoundTrack as the integrated audio part of FCP, not part of Logic. I think their strategy is, if you want the features of SoundTrack you'll ante up for FCP. Then you'll become an FCP user, or vice versa. I think they will continue to build a tighter integration between Logic and Sound Track. I think your right, from a users point of view, it would be a good thing if they integrated all of SoundTrack features in to logic and improved the usability through the user interface.

Apple needs to make Logic intuitive and easy to use. The Logic, build your

own DAW the way you want, has to be in the back ground. It's great that you can tweak Logic, but it needs to be easy out of the box. It needs to be, within fifteen minutes out of the box, your recording, editing, MIDI and mixing. Nobody wants to read a thick telephone book style manual anymore. They also need to catch up a bit on some of the whiz bang features other DAW softwares have now, like Live and SX 4. They should copy others for once, and also innovate. They really need to make the features so universal that anybody can painlessly switch to logic, or at least be able to jump on it in a pinch and be OK.

A huge mistake was kicking VSTs out. they should have kept VST compatibility. Somebody please correct me if I'm wrong on this one.

In the end, I think Apple will improve Logic and it will be a serious contender in 07.

James I know we disagree here Lamont and that's totally cool, so I won't take this beyond this one response, and this isn't really directed to you, but my general thoughts on the matter.

In Neil's "defense" (not that he needs it), I and others have done this comparison to death and the conclusion I've come to is that people are 80% influenced by a change in environment (e.g. software interface) and 20% ears. Sorry to say it, but the difference in sound between floating point DAWs is far from real. It's just good, albeit unintentional marketing created by users and capitolized by manufacturers. Perceiving a "sound" in DAWs that in actuality process data identically, is a bad reason to pick a DAW, but of course there is nothing wrong with thinking you hear a difference as long as it doesn't become an unwritten law of engineering at large. Preferring to work with one or the other, and "feeling" better about it for whatever reason is a great reason to pick one DAW over another.

There was a recent thread that Nuendo handled gain through groups differently, so I put Nuendo, Sonar 6 (both 32 and 64-bit engines) and Sequoia 8.3 to the test - identical tests, setup to the 1/100th of a dB identically and came up with absolutely no difference, either audible or scientific. To be honest, this was the one test where I could have said, yes there is an understandable difference between DAWs in a simple math function, and the only one in the DAW that actually might make sense, yet even that did not exist. The reason - math is math. You can paint it red, blue, silver or dull grey, but it's still the same math unless the programmer was high or completely incompetent when they wrote the code.

I thought it was entirely possible the original poster had found something different in Nuendo, but when it came down to really understanding and reproducing what happens in DAW summing and gain structures accurately between each DAW, there was none, nada, nil. The assertion was completely squashed. This also showed me how easy it is for a wide range of professionals to misinterpret

digital audio - whether hearing things, or just setting up a test with a single missed variable that completely invalidates the whole process.

If you hear a difference, great. I've thought I heard a difference doing similar comparisons, then changed my perspective (nothing else - not converters, nothing - just reset my expectations, and switched back and forth) and could hear no difference.

Just leave some room for other opinions when you post yours on this subject since it is very obvious that hearing is not as universally objective and identically referenced as everyone might like to believe, and is highly visually and environmentally affected. Some will hear differences in DAWs. There are Cubase SX 3 users claiming Cubase 4 sounds different. Sigh. Then they realize they aren't even using the same project... or at least different EQs, or etc, etc....

Say what you want about published summing tests, but Lynn's tests are as accurate as it gets, and that bears out in the results (all floating point DAWs cancel and sound identical - if you are hearing a difference, you are hearing things that aren't there, or you forgot to align their gain and placement). I've worked with Lynn at least briefly enough to know his attention to detail. In the same way people will disagree about PCs and Macs until neither exists, so will audio engineers disagree about DAWs. This is one debate that will always exist as long as we have different ears, eyes, brains,... and opinions.

What Neil has done is to prove that opinions are always going to differ (i.e. no consensus on the "best" mix of the ones posted). And in truth everyone has a different perception of sound in general - not everyone wants to hear things the same way, so we judge "best" from very different perspectives.

There is no single gold standard. There are variations and mutated combinations, but all are subjective. That in and of itself implies very distinctly that people can and will even perceive the exact same sound differently if presented with any variable that changes the brain's interpretation, even if just a visual distraction. Just change the lights in the room and see if you perceive a song differently played back exactly the same way. Or have a cat run across a desk while listening. Whether you care to admit it or not, it is there, and that is actually the beauty of how our sense interact to create perception.

That may be our undoing with DAW comparison tests, but it's also what keeps music fresh and creative, when we allow it to.

So my suggestion is to use what makes you most creative, even if it's just a "feeling" working with that DAW gives you - be it the workflow, the GUI, or even the name brand reputation. But, as we all know, if you can't make most any material sound good on whatever DAW you choose, the DAW isn't the problem.

Regards,

Dedric

"Neil" <IUOIU@OIU.com> wrote:

>

>That's interesting - all those DAW sonic interpretations, I
>mean... I haven't had a chance to usee all of those, so it's
>good information.

>

>I still don't understand why you consider my summing
>comparisons "lame", however - it was a fair set of tests;
>the same mix summed in different ways. Not trying to prove a
>point or to rig it so one sounded any better than the other - in
>fact, if you recall the thread, different people liked different
>summed versions for different reasons... there wasn't any one
>version that stood out as being "the one" that everyone felt
>sounded better. The only reason I didn't come right out & say
>right away which version was which is so that I didn't bias
>anyone's opinion beforehand by mentioning that... NOT to try
>& "hide" anything or "trick" anyone, as you accused me of

>

>Sheesh!

>

>Neil

>

>

>"Lamont" <jjdpro@ameritech.net> wrote:

>>

>>Hey Neil,

>>

>>All I'm saying is: All DAW software have their own unique sound. Despite
>>what those lame summing test shows..

>>

>>PT-HD has a very distinct sound. A very polished sound, with a nice top
>end,

>>but with full audio spectrum represented. Mixer/Summing buss can be pushed,
>>but you have to watch it.

>>

>>Nuendo/SX: Has a very Clear, 2 dimension sound, that does not hype the
top

>>nor bottom end.

>>

>>Logic Audio: Very Broad- Aggressive sound, that really works for Rock and
>>R & B/Gospel mixes.

>>

>>Digital Performer: With their hardware, superb audio quality. Full bodied
>>sound .

>>

>>Sonar: Very flat sounding. I would say that Sonar is your most vanilla

sound
>>DW on the market..
>>
>>Samplitude : A little less top end than Pro Tools. Full bodied 3d sound..
>>
>>Paris: Dark sounding in comparison to the the other DAWs. But, has a 3d
>sound
>>quality that's full bodied.
>>
>>I feel that you asking SX to be something it's not with some analog summing.
>>Especially for your genre of music..
>>
>>
>>
>>
>>"Neil" <IUOIU@OIU.com> wrote:
>>>
>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>
>>>>"I'd disagree with you in this instance because I happen to think the
>Cubase
>>>>ones DO sound better."
>>>>
>>>>Then that SSL Engineer does not know what they are doing with board.
There's
>>>>no way a mix coming off of that board SSL should sound better than a
ITB
>>>>Cubase SX mix..
>>>>
>>>>Sorry, that just does not jive. That engineer does not know how to push
>>>he
>>>>SSL or just not familiar with it.
>>>
>>>You're not really paying attention, are you? It was the same
>>>engineer (me). And as far as whether or not I know how to use
>>>that particular board, I guess that would be a matter of
>>>your opinion. I don't think the SSL mixes are bad ones, I think
>>>they came out good; I just think that you can hear more detail
>>>in the ITB mixes in the examples I gave, and they have more
>>>wideband frequency content from top to bottom.
>>>
>>>Anyway, my point of that particular comparison wasn't to say
>>>"ITB mixes are better than using a large-format console that
>>>costs somewhere in the six-figure range", the point of it was to
>>>address a signal-chain suggestion that Paul had... he had
>>>suggested perhaps that I needed to pick up a few pieces of
>>>killer vintage gear, and I was just demonstrating that I think
>>>the various signal chain components that I have here are on par

>>>with most anything that can be found in heavy-hitter studios...
>>>we used probably around \$100k's worth of mics & pre's on the
>>>PTHD/SSL mixes, plus obviously you're looking at another
>>>roughly \$100k for that particular console (40-channel E-series,
>>>black EQ's, w/G-series Computer & Total Recall package), add in
>>>the PTHD, outboard gear & whatnot, and you end up with
>>>somewhere around a quarter-mil's worth of equipment involved in
>>>that project. The project done at my place was done with my
>>>gear, which certainly doesn't tally up to anywhere remotely
>>>close to that cost & none of it bears a "vintage" stamp, but it
>>>sounds competitive with the project that used all the heavy-
>>>hitter stuff.

>>>

>>>Neil

>>

>Hi Neil - responses interleaved below...

"Neil" <OIUIU@OIU.com> wrote:

>1.) Does the Magma leach any power away from the computer at
>all? IOW, apart from it's own power supply, does it suck any
>from the PCI bus just by virtue of the fact that it interfaces
>with that?

I don't know the answer to this one. The Magma has a PCI card that interfaces it w/ the computer. I'm sure it draws some power. The Magma itself has it's own power supply.

>

>2.) Have you tried using the rig with only ONE UAD card... not
>necessarily as a practical application since if you have two,
>you have two for a reason, but I mean just to see if you get
>rid of the popping, etc. by removing either of the cards? If
>it's a power-related issue this could be helpful to try in
>order to troubleshoot.

I tried popping one card - the older one - out. It didn't make any strange noises, but the problem is intermittent. I can go hours, even days, without any noises.

>

>3.) Do you think it could be ONE of the UAD cards doing this?
>IOW, could one of 'em be bad? Have you been able to establish
>that it's, in fact, BOTH of them that are vomiting artifacts?

Yes, I do think it might be one card going bad. I ordered a new one from Morgan, but it hasn't arrived yet.

>

>4.) Have you been able to establish if either your disk
>streaming capacity is being exceeded, or if your CPU is maxed
>out? Either one could cause popping/clicking (although the
>former would more likely cause stuttering & dropouts).

Don't know the answer to this either. The problems can occur w/ the UAD-1
CPU meter as low as 40% - 50%. I used to be able to push it to over 70%
with no noises. The screen re-draw would slow down a bit, but it would play.

>
>Just trying to maybe narrow things down.

I appreciate any and all ideas!

Thanks,

GanttThis is a multi-part message in MIME format.

-----=_NextPart_000_0024_01C723D4.9F15E680
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: quoted-printable

The answers you seek probably lie in here:

<http://www.google.com/search?q=3DNVidia+GeForce+7300GT+&sourceid=3Die7&rl=s=3Dcom.microsoft:en-US&ie=3Dutf8&oe=3Dutf8>

AA

"Tom Bruhl" <arpegio@comcast.net> wrote in message =
news:45888485@linux...

I am using a NVidia GeForce 7300GT in a AMD 64X2, 4800.

I am seeing screen resolutions of 1280x1024, 1600x 1024 and 1600x1200
as options on the video card. Do those change when a different =
monitor is attached?

Can I use two 20 or 22" widescreen LCDs with native 1680x1050?

=

<http://www.tigerdirect.com/applications/SearchTools/item-details.asp?EdpN=o=3D2549197&CatId=3D0>

If not what are my options in the 19" and up flatcsreen LCDs these =
days? I want to use two
but will deal with one at first.

Any deals from those who have been looking would be great!

Thanks,
Tom

I choose Polesoft Lockspam to fight spam, and you?

<http://www.polesoft.com/refer.html>

-----=_NextPart_000_0024_01C723D4.9F15E680

Content-Type: text/html;

charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">

<HTML><HEAD>

<META http-equiv=3DContent-Type content=3D"text/html; =
charset=3Diso-8859-1">

<META content=3D"MSHTML 6.00.5730.11" name=3DGENERATOR>

<STYLE></STYLE>

</HEAD>

<BODY bgColor=3D#ffffff>

<DIV>The answers you seek probably lie in=20
here:</DIV>

<DIV> </DIV>

<DIV><A=20

href=3D"

<DIV> </DIV>

<DIV>AA</DIV>

<DIV> </DIV>

<BLOCKQUOTE dir=3Dltr=20

style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =
BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">

<DIV>"Tom Bruhl" <<A=20

href=3D"mailto:arpeggio@comcast.net">arpeggio@comcast.net> wrote =
in message=20

news:45888485@linux...</DIV>

<DIV>I am using a NVidia GeForce 7300GT in =
a AMD 64X2,=20

4800.</DIV>

<DIV> </DIV>

<DIV>I am seeing screen resolutions of =
1280x1024,=20

1600x 1024 and 1600x1200</DIV>

<DIV>as options on the video card. < =

Do those=20
change when a different monitor is attached?</DIV>
<DIV> </DIV>
<DIV>Can I use two 20 or 22" widescreen =
LCDs with=20
native 1680x1050?</DIV>
<DIV><A=20
=
href=3D" http://www.tigerdirect.com/applications/SearchTools/item-det ails.=
asp?EdpNo=3D2549197&CatId=3D0">http://www.tigerdirect.com/application=
s/SearchTools/item-details.asp?EdpNo=3D2549197&CatId =3D0 </=

<DIV>
<DIV> </DIV>
<DIV>If not what are my options =
in </DIV>
<DIV> </DIV>
flatcsreen LCDs these days? </DIV>
<DIV>but will deal with one at =
first.</DIV>
<DIV> </DIV>
<DIV>Any deals from those who have been =
looking would=20
be great!</DIV>
<DIV>Thanks,</DIV>
<DIV>Tom</DIV>
<DIV> </DIV>
<DIV> </DIV>
<DIV> </DIV>
<DIV>

I choose Polesoft Lockspam to fight spam, =
and=20
you?
<A=20
=
href=3D"http://www.polesoft.com/refer.html">http://www.polesoft.com/refer=
..html </DIV></BLOCKQUOTE ></BODY></HTML>

-----= NextPart 000 0024 01C723D4.9F15E680--This is a multi-part message in MIME format.

-----= NextPart 000 0015 01C723E2.6B1A5F60

Content-Type: text/plain;

```
charset="iso-8859-1"
```

Content-Transfer-Encoding: quoted-printable

Thanks Aaron!

This is what I found:

"Dual-Link DVI Support

Able to drive the industry's largest and highest resolution flat-panel = displays up to 2560x1600. Feature on GeForce 7300 GT GPUs only.

Single-Link DVI Support

Able to drive the industry's largest and highest resolution flat-panel = displays up to and including 1900x1200. May vary by model."

nView Multi-Display Technology

The NVIDIA=AE nView=AE hardware and software technology combination = delivers maximum flexibility for multi-display options, and provides = unprecedented end-user control of the desktop experience. NVIDIA GPUs = are enabled to support multi-displays, but graphics cards vary. Please = verify multi-display support in the graphics card before purchasing.

Advanced Display Functionality=20

a.. Dual integrated 400MHz RAMDACs for analog display resolutions up = to and including 2048x1536 at 85Hz=20

b.. Dual-link DVI capability to drive the industry's largest and = highest resolution digital flat panel displays up to 2560x1600¹ *

c.. * 1. SLI support for GeForce 7950 GX2 will be provided through a = future ForceWare driver release.

d.. Integrated HDTV encoder provides analog TV-output = (Component/Composite/S-Video) up to 1080i resolution=20

e.. Full NVIDIA=AE nView=AE multi-display technology capability=20

I do have 512 Meg of memory on the 7300GT. Should I expect this card to = support all widescreen resolutions within 2560x1600?

Man that would be great! When using a 19" VGA and only offered = 1600x1200 max out the VGA output.

Do you think the 2560x1600 is split between two monitors?

Idunno?

Tom

"Aaron Allen" <know-spam@not_here.dude> wrote in message = news:4588e0f1\$1@linux...

The answers you seek probably lie in here:

=

<http://www.google.com/search?q=3DNVidia+GeForce+7300GT+& sourceid=3Die7&rl=s=3Dcom.microsoft:en-US&ie=3Dutf8&oe=3Dutf8>

AA

"Tom Bruhl" <arpeggio@comcast.net> wrote in message =
news:45888485@linux...

I am using a NVidia GeForce 7300GT in a AMD 64X2, 4800.

I am seeing screen resolutions of 1280x1024, 1600x 1024 and =
1600x1200

as options on the video card. Do those change when a different =
monitor is attached?

Can I use two 20 or 22" widescreen LCDs with native 1680x1050?

=

<http://www.tigerdirect.com/applications/SearchTools/item-details.asp?EdpN=o=3D2549197&CatId=3D0>

If not what are my options in the 19" and up flatcsreen LCDs these =
days? I want to use two
but will deal with one at first.

Any deals from those who have been looking would be great!

Thanks,

Tom

I choose Polesoft Lockspam to fight spam, and you?

<http://www.polesoft.com/refer.html>

-----=_NextPart_000_0015_01C723E2.6B1A5F60

Content-Type: text/html;

charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">

<HTML><HEAD>

<META http-equiv=3DContent-Type content=3D"text/html; =
charset=3Diso-8859-1">

<META content=3D"MSHTML 6.00.2800.1400" name=3DGENERATOR>

<STYLE></STYLE>

</HEAD>

<BODY bgColor=3D#ffffff>

<DIV>Thanks Aaron!</DIV>

<DIV>This is what I found:</DIV>

Dual-Link=20
 DVI Support
Able to drive the industry's largest and =
 highest=20
 resolution flat-panel displays up to 2560x1600. <I>Feature on GeForce =
 7300 GT=20
 GPUs only</I>.

<SPAN =
 class=3DadditionalInfoHeader>Single-Link DVI=20
 Support
Able to drive the industry=92s largest and =
 highest=20
 resolution flat-panel displays up to and including 1900x1200. <I>May =
 vary by=20
 model</I>."</DIV>

nView Multi-Display =
 Technology
The NVIDIA=AE=20
 nView=AE hardware and software technology combination delivers maximum =
 flexibility=20
 for multi-display options, and provides unprecedented end-user control =
 of the=20
 desktop experience. <I>NVIDIA GPUs are enabled to support =
 multi-displays, but=20
 graphics cards vary. Please verify multi-display support in the graphics =
 card=20
 before purchasing</I>.</DIV>

Advanced Display Functionality=20

- Dual integrated 400MHz RAMDACs for analog display resolutions up =
 to and=20
 including 2048x1536 at 85Hz=20
- Dual-link DVI capability to drive the industry's largest and =
 highest=20
 resolution digital flat panel displays up to 2560x1600¹=20
 ^{*}
- ^{*}1. <I>SLI support for GeForce 7950 GX2 will be =
 provided=20
 through a future ForceWare driver release.</I>

- Integrated HDTV encoder provides analog TV-output=20
 (Component/Composite/S-Video) up to 1080i resolution=20
- Full NVIDIA=AE nView=AE multi-display technology capability =

</DIV>

 </DIV>

I do have 512 Meg of memory on the =

7300GT. Should I expect this card to support all widescreen=20 resolutions within 2560x1600?</DIV>

<DIV>Man that would be = great! When using a=20 19" VGA and only offered 1600x1200 max out the VGA output.</DIV>

<DIV>Do you think the 2560x1600 = is split between=20 two monitors?</DIV>

<DIV> </DIV>

<DIV>Idunno?</DIV>

<DIV>Tom</DIV>

<DIV> </DIV>

<DIV> </DIV>

<DIV> </DIV>

<DIV> </DIV>

<DIV> </DIV>

<DIV>
 </DIV>

<DIV>
 </DIV>

<DIV> </DIV>

<BLOCKQUOTE dir=3Dltr=20 style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; = BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">

<DIV>"Aaron Allen" <<A=20 = href=3D"mailto:know-spam@not_here.dude">know-spam@not_here.dude> = wrote in=20 message <A = href=3D"news:4588e0f1\$1@linux">news:4588e0f1\$1@linux...</DIV>

<DIV>The answers you seek probably lie in=20 here:</DIV>

<DIV> </DIV>

<DIV><A=20 = href=3D" http://www.google.com/search?q=3DNVidia+GeForce+7300GT+& amp;source= eid=3Die7&rls=3Dcom.microsoft:en-US&ie=3Dutf 8&oe=3Dutf8 ">http= ://www.google.com/search?q=3DNVidia+GeForce+7300GT+&sourceid=3Die7&am= p;rls=3Dcom.microsoft:en-US&ie=3Dutf8&oe=3Du tf8 </DIV>

<DIV> </DIV>

<DIV>AA</DIV>

<DIV> </DIV>

<BLOCKQUOTE dir=3Dltr=20 style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; = BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">

<DIV>"Tom Bruhl" <<A=20 href=3D"mailto:arpeggio@comcast.net">arpeggio@comcast.net> = wrote in=20

-----=_NextPart_000_000B_01C723E3.40E89080
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: quoted-printable

My card has one VGA, one DVI and one S Video connector on it.

I choose Polesoft Lockspam to fight spam, and you?

<http://www.polesoft.com/refer.html>

-----=_NextPart_000_000B_01C723E3.40E89080
Content-Type: text/html;
charset="iso-8859-1"
Content-Transfer-Encoding: quoted-printable

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
<HTML><HEAD>
<META http-equiv=3DContent-Type content=3D"text/html; =
charset=3Diso-8859-1">
<META content=3D"MSHTML 6.00.2800.1400" name=3DGENERATOR>
<STYLE></STYLE>
</HEAD>
<BODY bgColor=3D#ffffff>
<DIV><FONT face=3DArial size=3D2>
<DIV>My card has one VGA, one DVI and one&nbsp;S Video connector&nbsp;on =
it.</FONT></DIV></DIV>
<DIV><FONT size=3D2><BR><BR>I choose Polesoft Lockspam to fight spam, =
and=20
you?<BR><A=20
href=3D"http://www.polesoft.com/refer.html">http://www.polesoft.com/refer=
..html</A>&nbsp;&nbsp;&nbsp;</FONT></DIV></BODY ></HTML>
```

-----=_NextPart_000_000B_01C723E3.40E89080--"Neil" <IUOIU@OIU.com> wrote in message
news:45888685\$1@linux...

```
>
> "Don Nafe" <dnafe@magma.ca> wrote:
>>
>>"Gantt Kushner" <ganttmann@comcast.net> wrote in message
>>news:45884918$1@linux...
>>>
>>> I usually render tracks that have lots of edits before mixing. I've
>>> found
>>> the UAD-1 FX to be pretty glitchy around edits. I also always create
> a
>>> second
>>> or two of silence before and after every track that has plugins
>>> inserted.
```

>>> In fact, I discovered that the Lexicon PCM 42 delay plugin needs a full
>>> delays worth of track after the event to function properly.
>>>
>>> Anyway, even w/ rendered tracks I'm having problems...
>>>
>>> Gantt
>>
>>That's the final step after all is said and done because I've been know
> to
>>change things right up until the mix is approved for mastering
>>
>>Don
>
> You can always clone a track, render one & keep the edits
> without rendering on the first track just in case (assuming you
> have enough track capacity available to do this with - in SX,
> and I presume also in Nuendo, you can disable tracks to conserve
> CPU usage & that's the perfect time to use that function - on
> the "safety" track. copy(ies).
>
> Neil

I'll also use jails for the uncloned / unrendered version of the tracks on
occasion...that's come in handy a number of timesHi Mike,

I have been asked to build another PARIS rig and would love
to know more about your Dual core , what you did and how you got there.
Please let us know how in every detail you were able to get this going.
I will find a way to reward you :)

Thanks Mike :)
Morgan
Eastcoast Music Mall
morganp@ntplx.net

Hi Mike,

Congrats on your hard work . Today I was
doing homework with my son Logan.
His assignment was to define " Hero "
One that acts with courage and bravery despite
overwhelming odds.

Mike - you are now My Hero !!

Respectfully Yours ,

Morgan

Mike P wrote:

> Ok, so it took ten days of total frustration, but I have succeeded!
> My HP dual core is running Paris flawlessly, and it is awesome. This computer
> is blazingly fast. I was processing files in wavelab that would have taken
> 4-5 min on my old cpu, in 52secs. As I have faced every error known to man during this install, and fixed them,
> if anyone has questions, please ask. Thanks to everyone who helped along the way. Gantt...some more responses below.....

"Gantt Kushner" <ganttmann@comcast.net> wrote in message
news:4588d307\$1@linux...

>
> Hi Neil - responses interleaved below...

>
> "Neil" <OIUIU@OIU.com> wrote:

>
>>1.) Does the Magma leach any power away from the computer at
>>all? IOW, apart from it's own power supply, does it suck any
>>from the PCI bus just by virtue of the fact that it interfaces
>>with that?

>
> I don't know the answer to this one. The Magma has a PCI card that
> interfaces
> it w/ the computer. I'm sure it draws some power. The Magma itself has
> it's own power supply.

I doubt it. Magma has it's own PSU. It's possible though that the Magma PSU could be going south and causing trouble.

>>
>>2.) Have you tried using the rig with only ONE UAD card... not
>>necessarily as a practical application since if you have two,
>>you have two for a reason, but I mean just to see if you get
>>rid of the popping, etc. by removing either of the cards? If
>>it's a power-related issue this could be helpful to try in
>>order to troubleshoot.

>
> I tried popping one card - the older one - out. It didn't make any
> strange
> noises, but the problem is intermittent. I can go hours, even days,
> without
> any noises.

>
>>
>>3.) Do you think it could be ONE of the UAD cards doing this?
>>IOW, could one of 'em be bad? Have you been able to establish
>>that it's, in fact, BOTH of them that are vomiting artifacts?
>
> Yes, I do think it might be one card going bad. I ordered a new one from
> Morgan, but it hasn't arrived yet.

I have had two UAD-1 cards die on me since I bought my first one (which still works) in September 2001.

>
>>
>>4.) Have you been able to establish if either your disk
>>streaming capacity is being exceeded, or if your CPU is maxed
>>out? Either one could cause popping/clicking (although the
>>former would more likely cause stuttering & dropouts).
>
> Don't know the answer to this either. The problems can occur w/ the UAD-1
> CPU meter as low as 40% - 50%. I used to be able to push it to over 70%
> with no noises. The screen re-draw would slow down a bit, but it would
> play.

This is sounding more and more like a PCI bus overload, wherein you're just exceeding it's bandwidth. I had this problem in spades when I was mixing RME and UAD-1 PCI cards in a Magma. Problem was solved by using *only* UAD-1 cards in the Magma and getting another Magma for the RME cards.

Deej

>
>>
>>Just trying to maybe narrow things down.
>
> I appreciate any and all ideas!
>
> Thanks,
>
> Gantt
>I'm not convinced I can hear any difference between native systems, with the exception of the last version of ACID I used (way back, I think v. 3) which did sound truly awful. The real test on that one for me was the DAWSUM CD (which I purchased and dutifully scored because I was convinced 'summing' was the real reason PARIS sounded so good) wherein I discovered that I could barely tell one mix from the next even when hearing vastly different systems. Since then I am a skeptic, as opposed to a disbeliever, when I hear that

one piece of software sounds greatly better, or even different, than another. I'm not saying some people can't tell some pieces of software from other pieces of software, I'm just saying I'm skeptical one system is 'bright' or 'sharp' or anything else until someone can produce statistically meaningful results in an ABY test.

One of the great things about that DAWSUM CD is it has let me use the software that I like the most, without worrying too much about the sound. That would be Ableton Live most of the time, with SX as a backup if the editing gets more intense. For me that alone was worth the time I spent on the DAWSUM CD.

TCB

"LaMont" <jjdpro@ameritech.net> wrote:

>
>Thad, you really can't hear the difference?? Maybe I own too many software
>DAWS thru the years.
>
>Starting on Logic Audio 3.0, then to Cakwalk, Pro Tools, DP, Paris,Acid,
>Neundo, Sonar, samplitude..
>
>I can hear the diference with the same audio interface with the same wav
>file(s)as oon as I import the file or files.
>
>These days, depending on the genre I'm mising determines which DAW software
>I'll use.
>My circle of engineer and producer buddies all can hear the difference in
>a second. Just the other day, we were mixing this R&B(ish)Gospel track and
>somebody said, 'Mont, this is begging for Paris. Another track, the call
>was for Pro Tools. And another,Nuendo..
>I know BrianT feels and hears the same way in different DAW software. It's
>really obvious..
>
>

>"TCB" <nobody@ishere.com> wrote:

>>
>>Which is why ABY testing uses expert listeners instead of scopes and graphs.
>>
>>
>>I'm not saying you're wrong, esp. about ITB vs external summing. One would
>>expect that to sound at least slightly different. But I would be absolutely
>>shocked if anyone could tell in a controlled ABY test whether they were
>listening
>>to SX, Performer, of Sonar.
>>

>>"LaMont" <jjdpro@ameritech.net> wrote:

>>>

>>>The only real test is with the ears and not scopes and graphs.
>>>
>>>"TCB" <nobody@ishere.com> wrote:
>>>>
>>>>I'd like to see this proven in a controlled ABY test.
>>>>
>>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>>
>>>>>Hey Neil,
>>>>>
>>>>>All I'm saying is: All DAW software have their own unique sound. Despite
>>>>>what those lame summing test shows..
>>>>>
>>>>>PT-HD has a very distinct sound. A very polished sound, with a nice
top
>>>>>end,
>>>>>but with full audio spectrum represented. Mixer/Summing buss can be
pushed,
>>>>>but you have to watch it.
>>>>>
>>>>>Nuendo/SX: Has a very Clear, 2 dimension sound, that does not hype the
>>>top
>>>>>nor bottom end.
>>>>>
>>>>>Logic Audio: Very Broad- Aggressive sound, that really works for Rock
>>and
>>>>>R & B/Gospel mixes.
>>>>>
>>>>>Digital Performer: With their hardware, superb audio quality. Full bodied
>>>>>sound .
>>>>>
>>>>>Sonar: Very flat sounding. I would say that Sonar is your most vanilla
>>>sound
>>>>>DW on the market..
>>>>>
>>>>>Samplitude : A little less top end than Pro Tools. Full bodied 3d sound..
>>>>>
>>>>>Paris: Dark sounding in comparison to the the other DAWs. But, has a
>3d
>>>>>sound
>>>>>quality that's full bodied.
>>>>>
>>>>>I feel that you asking SX to be something it's not with some analog
summing.
>>>>>Especially for your genre of music..
>>>>>
>>>>>
>>>>>

>>>>>
>>>>>"Neil" <IUOIU@OIU.com> wrote:
>>>>>>
>>>>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>>>>
>>>>>>>"I'd disagree with you in this instance because I happen to think
the
>>>>>Cubase
>>>>>>>ones DO sound better."
>>>>>>>
>>>>>>>Then that SSL Engineer does not know what they are doing with board.
>>>>There's
>>>>>>>no way a mix coming off of that board SSL should sound better than
>a
>>>>ITB
>>>>>>>Cubase SX mix..
>>>>>>>
>>>>>>>Sorry, that just does not jive. That engineer does not know how to
>push
>>>>>>>he
>>>>>>>SSL or just not familiar with it.
>>>>>>>
>>>>>>>You're not really paying attention, are you? It was the same
>>>>>>>engineer (me). And as far as whether or not I know how to use
>>>>>>>that particular board, I guess that would be a matter of
>>>>>>>your opinion. I don't think the SSL mixes are bad ones, I think
>>>>>>>they came out good; I just think that you can hear more detail
>>>>>>>in the ITB mixes in the examples I gave, and they have more
>>>>>>>wideband frequency content from top to bottom.
>>>>>>>
>>>>>>>Anyway, my point of that particular comparison wasn't to say
>>>>>>>"ITB mixes are better than using a large-format console that
>>>>>>>costs somewhere in the six-figure range", the point of it was to
>>>>>>>address a signal-chain suggestion that Paul had... he had
>>>>>>>suggested perhaps that I needed to pick up a few pieces of
>>>>>>>killer vintage gear, and I was just demonstrating that I think
>>>>>>>the various signal chain components that I have here are on par
>>>>>>>with most anything that can be found in heavy-hitter studios...
>>>>>>>we used probably around \$100k's worth of mics & pre's on the
>>>>>>>PTHD/SSL mixes, plus obviously you're looking at another
>>>>>>>roughly \$100k for that particular console (40-channel E-series,
>>>>>>>black EQ's, w/G-series Computer & Total Recall package), add in
>>>>>>>the PTHD, outboard gear & whatnot, and you end up with
>>>>>>>somewhere around a quarter-mil's worth of equipment involved in
>>>>>>>that project. The project done at my place was done with my
>>>>>>>gear, which certainly doesn't tally up to anywhere remotely
>>>>>>>close to that cost & none of it bears a "vintage" stamp, but it
>>>>>>>sounds competitive with the project that used all the heavy-

>>>>>hitter stuff.

>>>>>

>>>>>Neil

>>>>>

>>>>

>>>

>>

>HI Tom,

These monitors will be fine with your card. The 7300GT supports that resolution on both the VGA and DVI connections.I would run both with VGA connections. Having one hooked up DVI and one VGA may make the 2 look very different in brightness and such.

Chris

Tom Bruhl wrote:

> My card has one VGA, one DVI and one S Video connector on it.

>

>

> I choose Polesoft Lockspam to fight spam, and you?

> <http://www.polesoft.com/refer.html>

--

Chris Ludwig

ADK

chrisl@adkproaudio.com <<mailto:chrisl@adkproaudio.com>>

www.adkproaudio.com <<http://www.adkproaudio.com/>>

(859) 635-5762Just a head's up. I've always avoided using the nVidia display manager software, just on the theory that any such stuff would be definition be hinky. On the new machine I have hooked up to my 24" 1920x1600 monitor I decided to try it out. It seems to work very well, with zero processor overhead that I can see. 32 virtual desktops can be defined as well, application constrained or not, and accessed via hotkeys. Nice to see that fancy XP boxes are finally getting a level of window management as good as linux boxes have had for years ;-)

TCBOK, so I've figured out that I can use my Dell keyboard on a Mac G4 Dual system.... what I can't figure out is what keystrokes to get the CD tray to eject, LOL...

so Mac gurus.. how's that happen w/o the eject key (non-Mac keyboard)? using a mac keyboard isn't really optional as I need, for space reasons, to use a KVM and only one keyboard and mouse. This model Mac has no eject on the computer itself.

AAAaron,

If your using OSX,go to the finder under file,you should see eject.

Or you can just drag the icon to the trash and it should eject.

respect
Nappy

"Aaron Allen" <AA@nospam.net> wrote:

>

>OK, so I've figured out that I can use my Dell keyboard on a Mac G4 Dual system....

>what I can't figure out is what keystrokes to get the CD tray to eject, LOL...

>

>so Mac gurus.. how's that happen w/o the eject key (non-Mac keyboard)? using

>a mac keyboard isn't really optional as I need, for space reasons, to use

>a KVM and only one keyboard and mouse. This model Mac has no eject on the >computer itself.

>

>AAGood morning gents,

I finally took another leap and purchased a Lucid WC generator. Have three EDS cards in a 7-slot Magma (with one UAD-1). MEC connected to card A, MEC connected to card B, and 442 connected to card C. Edited the paris.cfg file to use house sync and the two MECs lock up fine to the Lucid. However, the 442 acts as if the WC cable isn't even plugged in. I'm using three separate 75-ohm BNC-BNC cables.

Any thoughts?

Thanks & happy holidays to all!

MarkTry the 442 on card A...

David.

Mark McDermott wrote:

> Good morning gents,

>

> I finally took another leap and purchased a Lucid WC generator. Have three

> EDS cards in a 7-slot Magma (with one UAD-1). MEC connected to card A, MEC

> connected to card B, and 442 connected to card C. Edited the paris.cfg file

> to use house sync and the two MECs lock up fine to the Lucid. However, the

> 442 acts as if the WC cable isn't even plugged in. I'm using three separate

> 75-ohm BNC-BNC cables.

>

> Any thoughts?

>

> Thanks & happy holidays to all!

>
> MarkHey,
Yes the NView stuff works great. just did a 2 card 4 head system hat
works great. Much less clunky and best of all fan less not like the
Matrox crap. The new 8000 series card I setup is real quiet for a gamer
card. The matrox PCI-e card are load as hell.

Chris

TCB wrote:

> Just a head's up. I've always avoided using the nVidia display manager software,
> just on the theory that any such stuff would be definition be hinky. On the
> new machine I have hooked up to my 24" 1920x1600 monitor I decided to try
> it out. It seems to work very well, with zero processor overhead that I can
> see. 32 virtual desktops can be defined as well, application constrained
> or not, and accessed via hotkeys. Nice to see that fancy XP boxes are finally
> getting a level of window management as good as linux boxes have had for
> years ;-)
>
> TCB

--

Chris Ludwig

ADK Pro Audio

(859) 635-5762

www.adkproaudio.com

chrisl@adkproaudio.com>with the exception of the last version of ACID I used (way back, I think
v.

>3) which did sound truly awful.<

Don't hold your breath hoping ACID will sound any better. I DL'ed V6.0 and
it sounds pretty awful too. I'm going to run it using Rewire in cubase SX 3
and lightpipe it to Paris and see if it's the actual ACID audio engine or
the summing. I've got a feeling it's the audio engine..just a
feeling.....because I've also got Vegas here and it sucks too.

;o)

"TCB" <nobody@ishere.com> wrote in message news:45894947\$1@linux...

>
> I'm not convinced I can hear any difference between native systems, with
> the
> exception of the last version of ACID I used (way back, I think v. 3)
> which
> did sound truly awful. The real test on that one for me was the DAWSUM CD
> (which I purchased and dutifully scored because I was convinced 'summing'
> was the real reason PARIS sounded so good) wherein I discovered that I

> could
 > barely tell one mix from the next even when hearing vastly different
 > systems.
 > Since then I am a skeptic, as opposed to a disbeliever, when I hear that
 > one piece of software sounds greatly better, or even different, than
 > another.
 > I'm not saying some people can't tell some pieces of software from other
 > pieces of software, I'm just saying I'm skeptical one system is 'bright'
 > or 'sharp' or anything else until someone can produce statistically
 > meaningful
 > results in an ABY test.
 >
 > One of the great things about that DAWSUM CD is it has let me use the
 > software
 > that I like the most, without worrying too much about the sound. That
 > would
 > be Ableton Live most of the time, with SX as a backup if the editing gets
 > more intense. For me that alone was worth the time I spent on the DAWSUM
 > CD.
 >
 > TCB
 >
 > "LaMont" <jjdpro@ameritech.net> wrote:
 >>
 >>Thad, you really can't hear the difference?? Maybe I own too many software
 >>DAWS thru the years.
 >>
 >>Starting on Logic Audio 3.0, then to Cakwalk, Pro Tools, DP, Paris,Acid,
 >>Neundo, Sonar, samplitude..
 >>
 >>I can hear the diference with the same audio interface with the same wav
 >>file(s)as oon as I import the file or files.
 >>
 >>These days, depending on the genre I'm mising determines which DAW
 >>software
 >>I'll use.
 >>My circle of engineer and producer buddies all can hear the difference in
 >>a second. Just the other day, we were mixing this R&B(ish)Gospel track and
 >>somebody said, 'Mont, this is begging for Paris. Another track, the call
 >>was for Pro Tools. And another,Nuendo..
 >>I know BrianT feels and hears the same way in different DAW software. It's
 >>really obvious..
 >>
 >>
 >>"TCB" <nobody@ishere.com> wrote:
 >>>
 >>>Which is why ABY testing uses expert listeners instead of scopes and
 >>>graphs.

>>>
>>>
>>>I'm not saying you're wrong, esp. about ITB vs external summing. One
>>>would
>>>expect that to sound at least slightly different. But I would be
>>>absolutely
>>>shocked if anyone could tell in a controlled ABY test whether they were
>>listening
>>>to SX, Performer, of Sonar.
>>>
>>>"LaMont" <jjdpro@ameritech.net> wrote:
>>>>
>>>>The only real test is with the ears and not scopes and graphs.
>>>>
>>>>"TCB" <nobody@ishere.com> wrote:
>>>>>
>>>>>I'd like to see this proven in a controlled ABY test.
>>>>>
>>>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>>>
>>>>>>Hey Neil,
>>>>>>
>>>>>>All I'm saying is: All DAW software have their own unique sound.
>>>>>>Despite
>>>>>>what those lame summing test shows..
>>>>>>
>>>>>>PT-HD has a very distinct sound. A very polished sound, with a nice
> top
>>>>>>end,
>>>>>>but with full audio spectrum represented. Mixer/Summing buss can be
> pushed,
>>>>>>but you have to watch it.
>>>>>>
>>>>>>Nuendo/SX: Has a very Clear, 2 dimension sound, that does not hype the
>>>>top
>>>>>>nor bottom end.
>>>>>>
>>>>>>Logic Audio: Very Broad- Aggressive sound, that really works for Rock
>>>>and
>>>>>>R & B/Gospel mixes.
>>>>>>
>>>>>>Digital Performer: With their hardware, superb audio quality. Full
>>>>>>bodied
>>>>>>sound .
>>>>>>
>>>>>>Sonar: Very flat sounding. I would say that Sonar is your most vanilla
>>>>sound
>>>>>>DW on the market..

>>>>>
>>>>>Samplitude : A little less top end than Pro Tools. Full bodied 3d
>>>>>sound..
>>>>>
>>>>>Paris: Dark sounding in comparison to the the other DAWs. But, has a
>>3d
>>>>>sound
>>>>>quality that's full bodied.
>>>>>
>>>>>I feel that you asking SX to be something it's not with some analog
> summing.
>>>>>Especially for your genre of music..
>>>>>
>>>>>
>>>>>
>>>>>
>>>>>"Neil" <IUOIU@OIU.com> wrote:
>>>>>
>>>>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>>>
>>>>>>>"I'd disagree with you in this instance because I happen to think
> the
>>>>>Cubase
>>>>>>>ones DO sound better."
>>>>>>>
>>>>>>>>Then that SSL Engineer does not know what they are doing with board.
>>>>There's
>>>>>>>>no way a mix coming off of that board SSL should sound better than
>>a
>>>>ITB
>>>>>>>>Cubase SX mix..
>>>>>>>
>>>>>>>>Sorry, that just does not jive. That engineer does not know how to
>>push
>>>>>>>he
>>>>>>>>SSL or just not familiar with it.
>>>>>>>
>>>>>>>>You're not really paying attention, are you? It was the same
>>>>>>>>engineer (me). And as far as whether or not I know how to use
>>>>>>>>that particular board, I guess that would be a matter of
>>>>>>>>your opinion. I don't think the SSL mixes are bad ones, I think
>>>>>>>>they came out good; I just think that you can hear more detail
>>>>>>>>in the ITB mixes in the examples I gave, and they have more
>>>>>>>>wideband frequency content from top to bottom.
>>>>>>>
>>>>>>>>Anyway, my point of that particular comparison wasn't to say
>>>>>>>>"ITB mixes are better than using a large-format console that
>>>>>>>>costs somewhere in the six-figure range", the point of it was to

>>>>>>address a signal-chain suggestion that Paul had... he had
>>>>>>suggested perhaps that I needed to pick up a few pieces of
>>>>>>killer vintage gear, and I was just demonstrating that I think
>>>>>>the various signal chain components that I have here are on par
>>>>>>with most anything that can be found in heavy-hitter studios...
>>>>>>we used probably around \$100k's worth of mics & pre's on the
>>>>>>PTHD/SSL mixes, plus obviously you're looking at another
>>>>>>roughly \$100k for that particular console (40-channel E-series,
>>>>>>black EQ's, w/G-series Computer & Total Recall package), add in
>>>>>>the PTHD, outboard gear & whatnot, and you end up with
>>>>>>somewhere around a quarter-mil's worth of equipment involved in
>>>>>>that project. The project done at my place was done with my
>>>>>>gear, which certainly doesn't tally up to anywhere remotely
>>>>>>close to that cost & none of it bears a "vintage" stamp, but it
>>>>>>sounds competitive with the project that used all the heavy-
>>>>>>hitter stuff.

>>>>>>

>>>>>>Neil

>>>>>>

>>>>>

>>>>

>>>

>>

>I'm rooting for Logic audio. I really am. But, that interface and the way
it handles audio, editing audio has to be changed. It need Soundtrac pro's
look. It needs a polished lookink mixer..Not an apogee symphony mixer add-on..
I hae to say this, but they need to the asthetics of Pro Tools & Nuendo/SX.
Simple, elegant, but powerful.

If not, then Logic & DP will be small players for film composers only. Meanwhile,
Pro Tools/SX, Sonar, Samplitude keeps a great divide .. Just having great
midi is not going to cut anymore these days. Nuendo/SX & even Prottools does
more than most user need to compose tier music.

I really do hope somebody at emagic/Apple comes to term with their delima,,
and re-write the entire Logic App from group up like Steingberg did back
in 2000 with Neundo, then SX..

"James McCloskey" <excelsm@hotmail.com> wrote:

>

>LaMont wrote:

>

>>>Finally!! After al the speculation..Now, If Apple comes out with Logic

>pro

>8 (Aka) Fianl Cut /Soundtrack Pro 2.0.. Yahooo<<

>

>Well who knows LaMont, but I kind of doubt it. Mac World has never been

>a pro Audio show for Apple. They used to have a booth at NAMM, but they

>usually just show what they currently have at the time. It will likely
be
>GarageBand 07 at MacWorld. Did you hear something?
>
>The year kicks off with CES in Las Vegas, followed by MacWorld then the
NAMM
>Show. Apple never exhibits at CES, it's kind of a Bill Gates show. Apple
>usually shows off their new consumer electronics at MW. The new pro audio
>and pro video products are shown off at NAB in april. However, things are
>changing at Apple, so you never know.
>
>I think Apple sees SoundTrack as the integrated audio part of FCP, not part
>of Logic. I think their strategy is, if you want the features of SoundTrack
>you'll ante up for FCP. Then you'll become an FCP user, or vice versa.

>I think they will continue to build a tighter integration between Logic
and
>Sound Track. I think your right, from a users point of view, it would be
>a good thing if they integrated all of SoundTrack features in to logic and
>improved the usability through the user interface.
>
>Apple needs to make Logic intuitive and easy to use. The Logic, build your
>own DAW the way you want, has to be in the back ground. It's great that
>you can tweak Logic, but it needs to be easy out of the box. It needs to
>be, within fifteen minutes out of the box, your recording, editing, MIDI
>and mixing. Nobody wants to read a thick telephone book style manual anymore.
> They also need to catch up a bit on some of the whiz bang features other
>DAW softwares have now, like Live and SX 4. They should copy others for
>once, and also innovate. They really need to make the features so universal
>that anybody can painlessly switch to logic, or at least be able to jump
>on it in a pinch and be OK.
>
>A huge mistake was kicking VSTs out. they should have kept VST compatibility.
> Somebody please correct me if I'm wrong on this one.
>
>In the end, I think Apple will improve Logic and it will be a serious contender
>in 07.
>
>James....or card C

;o)

"EK Sound" <askme@nospam.com> wrote in message news:458973cb\$1@linux...
> Try the 442 on card A...
>
> David.
>
> Mark McDermott wrote:

>> Good morning gents,
>>
>> I finally took another leap and purchased a Lucid WC generator. Have
>> three
>> EDS cards in a 7-slot Magma (with one UAD-1). MEC connected to card A,
>> MEC
>> connected to card B, and 442 connected to card C. Edited the paris.cfg
>> file
>> to use house sync and the two MECs lock up fine to the Lucid. However,
>> the
>> 442 acts as if the WC cable isn't even plugged in. I'm using three
>> separate
>> 75-ohm BNC-BNC cables.
>>
>> Any thoughts?
>>
>> Thanks & happy holidays to all!
>>
>> MarkI've been pleasantly surprised. I also wonder if I really need a second big
monitor with the 24" I have now. I might put a 19" to the right of it that
I can switch to my linux box but it might be overkill, esp with where my
speakers are placed.

Anyway, it's worth a look if people are on nVidia cards.

TCB

Chris Ludwig <chrisl@adkproaudio.com> wrote:

>Hey,
>Yes the NView stuff works great. just did a 2 card 4 head system hat
>works great. Much less clunky and best of all fan less not like the
>Matrox crap. The new 8000 series card I setup is real quiet for a gamer

>card. The matrox PCI-e card are load as hell.
>
>Chris
>
>
>TCB wrote:
>> Just a head's up. I've always avoided using the nVidia display manager
software,
>> just on the theory that any such stuff would be definition be hinky. On
the
>> new machine I have hooked up to my 24" 1920x1600 monitor I decided to
try
>> it out. It seems to work very well, with zero processor overhead that
I can
>> see. 32 virtual desktops can be defined as well, application constrained

>> or not, and accessed via hotkeys. Nice to see that fancy XP boxes are finally
>> getting a level of window management as good as linux boxes have had for
>> years ;-)
>>
>> TCB
>
>--
>Chris Ludwig
>
>ADK Pro Audio
>(859) 635-5762
>www.adkproaudio.com
>chrisl@adkproaudio.comHey Dedric and Neil,

I reason I think that the Summing CD test(good intentions) were lame was because.. If a person can;t hear the difference btw a stereo wav file that's in Acid vs Sonar really needs a hearing test.

For reason of my music work, I have to work with different DAWs, so I'm very familiar with their sound qualities. My circle of producers and engineers talk about the daw sonics all the time. It's really no big deal anymore..

The same logic applies when Roger Nichols (a few) years back in his article about master CD's and that he found out that 4 differnt CD burners yeilded differnt sonic results. Sure, he sated that Math is the Math :) but, his and the masering engineers Ears told them soemthing was different. Hummm???

Now, back to DAW sonics. I can hear the difference btw Paris and Nuendo vs Pro Tools, Logic audio.. There is no math to this, this is an ear thing.. You either hear or you don't.. Simple.
But, good ears can hear it. .

I really think the problem is, noone want to no that their money that they've spent on a given DAW, has sonic limitations or shall we say, just different..

I like that they all sound different. It's good to have choice when mixing a song. Some DAWs, depending on the genre will yield better or the desired results and than another.

EX. I would not mix a Acoustic jazz record today with Paris..reason, I'm going for clarity at it's highest level.. For that project, It's either Neundo or Pro Tools and may Samplitude..Why should I fight with Paris's thick, gooy sonics, when I'm going for clarity. Well, Pro Tools and Nuendo/SX has that sound right out the gate.. Which makes my job a lot easier. simple. This is not tosay that I could not get the job done in Paris..i could..But, for that Acoutic Jazz project , the other 2 daws gives me what I'm looking for without even touching an eq..

This is not all about math. As BrianT states: Use you ears..Forget the math..What does knowing the math do for you anyway? Nothing, it just proves that you know the math. Does not tell you diddly about the sonics.. Just ask Roger Nichols..

"Dedric Terry" <d@nospam.net> wrote:

>

>I know we disagree here Lamont and that's totally cool, so I won't take this

>beyond this one response, and this isn't really directed to you, but my general

>thoughts on the matter.

>

>In Neil's "defense" (not that he needs it), I and others have done this comparison

>to death and the conclusion I've come to is that people are 80% influenced

>by a change in environment (e.g. software interface) and 20% ears. Sorry

>to say it, but the difference in sound between floating point DAWs is far

>from real. It's just good, albeit unintentional marketing created by users

>and capitolized by manufacturers. Perceiving a "sound" in DAWs that in actuality

>process data identically, is a bad reason to pick a DAW, but of course there

>is nothing wrong with thinking you hear a difference as long as it doesn't

>become an unwritten law of engineering at large. Preferring to work with

>one or the other, and "feeling" better about it for whatever reason is a

>great reason to pick one DAW over another.

>

>There was a recent thread that Nuendo handled gain through groups differently,

>so I put Nuendo, Sonar 6 (both 32 and 64-bit engines) and Sequoia 8.3 to

>the test - identical tests, setup to the 1/100th of a dB identically and

>came up with absolutely no difference, either audible or scientific. To

>be honest, this was the one test where I could have said, yes there is an

>understandable difference between DAWs in a simple math function, and the

>only one in the DAW that actually might make sense, yet even that did not

>exist. The reason - math is math. You can paint it red, blue, silver or

>dull grey, but it's still the same math unless the programmer was high or

>completely incompetent when they wrote the code.

>

>I thought it was entirely possible the original poster had found something

>different in Nuendo, but when it came down to really understanding and reproducing

>what happens in DAW summing and gain structures accurately between each DAW,

>there was none, nada, nil. The assertion was completely squashed. This also

>showed me how easy it is for a wide range of professionals to misinterpret

>digital audio - whether hearing things, or just setting up a test with a

>single missed variable that completely invalidates the whole process.

>

>If you hear a difference, great. I've thought I heard a difference doing
>similar comparisons, then changed my perspective (nothing else - not converters,
>nothing - just reset my expectations, and switched back and forth) and could
>hear no difference.

>

>Just leave some room for other opinions when you post yours on this subject
>since it is very obvious that hearing is not as universally objective and
>identically referenced as everyone might like to believe, and is highly
visually
>and environmentally affected. Some will hear differences in DAWs. There
>are Cubase SX 3 users claiming Cubase 4 sounds different. Sigh. Then they
>realize they aren't even using the same project... or at least different
>EQs, or etc, etc....

>

>Say what you want about published summing tests, but Lynn's tests are as
>accurate as it gets, and that bears out in the results (all floating point
>DAWs cancel and sound identical - if you are hearing a difference, you are
>hearing things that aren't there, or you forgot to align their gain and
placement).

> I've worked with Lynn at least briefly enough to know his attention to
detail.

> In the same way people will disagree about PCs and Macs until neither exists,
>so will audio engineers disagree about DAWs. This is one debate that will
>always exist as long as we have different ears, eyes, brains,... and opinions.

>

>

>What Neil has done is to prove that opinions are always going to differ
(i.e.
>no consensus on the "best" mix of the ones posted). And in truth everyone
>has a different perception of sound in general - not everyone wants to hear
>things the same way, so we judge "best" from very different perspectives.
> There is no single gold standard. There are variations and mutated combinations,
>but all are subjective. That in and of itself implies very distinctly that
>people can and will even perceive the exact same sound differently if presented
>with any variable that changes the brain's interpretation, even if just
a
>visual distraction. Just change the lights in the room and see if you perceive
>a song differently played back exactly the same way. Or have a cat run
across
>a desk while listening. Whether you care to admit it or not, it is there,
>and that is actually the beauty of how our sense interact to create perception.
> That may be our undoing with DAW comparison tests, but it's also what keeps
>music fresh and creative, when we allow it to.

>

>So my suggestion is to use what makes you most creative, even if it's just
>a "feeling" working with that DAW gives you - be it the workflow, the GUI,
>or even the name brand reputation. But, as we all know, if you can't make
>most any material sound good on whatever DAW you choose, the DAW isn't the

>problem.
>
>Regards,
>Dedric
>
>"Neil" <IUOIU@OIU.com> wrote:
>>
>>That's interesting - all those DAW sonic interpretations, I
>>mean... I haven't had a chance to usee all of those, so it's
>>good information.
>>
>>I still don't understand why you consider my summing
>>comparisons "lame", however - it was a fair set of tests;
>>the same mix summed in different ways. Not trying to prove a
>>point or to rig it so one sounded any better than the other - in
>>fact, if you recall the thread, different people liked different
>>summed versions for different reasons... there wasn't any one
>>version that stood out as being "the one" that everyone felt
>>sounded better. The only reason I didn't come right out & say
>>right away which version was which is so that I didn't bias
>>anyone's opinion beforehand by mentioning that... NOT to try
>>& "hide" anything or "trick" anyone, as you accused me of
>>
>>Sheesh!
>>
>>Neil
>>
>>
>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>
>>>Hey Neil,
>>>
>>>All I'm saying is: All DAW software have their own unique sound. Despite
>>>what those lame summing test shows..
>>>
>>>PT-HD has a very distinct sound. A very polished sound, with a nice top
>>end,
>>>but with full audio spectrum represented. Mixer/Summing buss can be pushed,
>>>but you have to watch it.
>>>
>>>Nuendo/SX: Has a very Clear, 2 dimension sound, that does not hype the
>top
>>>nor bottom end.
>>>
>>>Logic Audio: Very Broad- Aggressive sound, that really works for Rock
>and
>>>R & B/Gospel mixes.
>>>

>>>Digital Performer: With their hardware, superb audio quality. Full bodied
>>>sound .
>>>
>>>Sonar: Very flat sounding. I would say that Sonar is your most vanilla
>sound
>>>DW on the market..
>>>
>>>Samplitude : A little less top end than Pro Tools. Full bodied 3d sound..
>>>
>>>Paris: Dark sounding in comparison to the the other DAWs. But, has a 3d
>>sound
>>>quality that's full bodied.
>>>
>>>I feel that you asking SX to be something it's not with some analog summing.
>>>Especially for your genre of music..
>>>
>>>
>>>
>>>
>>>"Neil" <IUOIU@OIU.com> wrote:
>>>>
>>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>>
>>>>>"I'd disagree with you in this instance because I happen to think the
>>Cubase
>>>>>ones DO sound better."
>>>>>
>>>>>Then that SSL Engineer does not know what they are doing with board.
>There's
>>>>>no way a mix coming off of that board SSL should sound better than a
>ITB
>>>>>Cubase SX mix..
>>>>>
>>>>>Sorry, that just does not jive. That engineer does not know how to push
>>>>he
>>>>>SSL or just not familiar with it.
>>>>
>>>>You're not really paying attention, are you? It was the same
>>>>engineer (me). And as far as whether or not I know how to use
>>>>that particular board, I guess that would be a matter of
>>>>your opinion. I don't think the SSL mixes are bad ones, I think
>>>>they came out good; I just think that you can hear more detail
>>>>in the ITB mixes in the examples I gave, and they have more
>>>>wideband frequency content from top to bottom.
>>>>
>>>>Anyway, my point of that particular comparison wasn't to say
>>>>"ITB mixes are better than using a large-format console that
>>>>costs somewhere in the six-figure range", the point of it was to

>>>>address a signal-chain suggestion that Paul had... he had
>>>>suggested perhaps that I needed to pick up a few pieces of
>>>>killer vintage gear, and I was just demonstrating that I think
>>>>the various signal chain components that I have here are on par
>>>>with most anything that can be found in heavy-hitter studios...
>>>>we used probably around \$100k's worth of mics & pre's on the
>>>>PTHD/SSL mixes, plus obviously you're looking at another
>>>>roughly \$100k for that particular console (40-channel E-series,
>>>>black EQ's, w/G-series Computer & Total Recall package), add in
>>>>the PTHD, outboard gear & whatnot, and you end up with
>>>>somewhere around a quarter-mil's worth of equipment involved in
>>>>that project. The project done at my place was done with my
>>>>gear, which certainly doesn't tally up to anywhere remotely
>>>>close to that cost & none of it bears a "vintage" stamp, but it
>>>>sounds competitive with the project that used all the heavy-
>>>>hitter stuff.
>>>>
>>>>Neil
>>>
>>
>BrianT use to say all the time..Software has a sound. And I agree with him..

"DJ" <nowayjose@dude.net> wrote:

>>with the exception of the last version of ACID I used (way back, I think
v.

>>3) which did sound truly awful.<

>Don't hold your breath hoping ACID will sound any better. I DL'ed V6.0
and

>it sounds pretty awful too. I'm going to run it using Rewire in cubase SX
3

>and lightpipe it to Paris and see if it's the actual ACID audio engine or

>the summing. I've got a feeling it's the audio engine..just a

>feeling.....because I've also got Vegas here and it sucks too.

>

>;o)

>

>"TCB" <nobody@ishere.com> wrote in message news:45894947\$1@linux...

>>

>> I'm not convinced I can hear any difference between native systems, with

>> the

>> exception of the last version of ACID I used (way back, I think v. 3)

>> which

>> did sound truly awful. The real test on that one for me was the DAWSUM
CD

>> (which I purchased and dutifully scored because I was convinced 'summing'
>> was the real reason PARIS sounded so good) wherein I discovered that I

>> could
>> barely tell one mix from the next even when hearing vastly different
>> systems.
>> Since then I am a skeptic, as opposed to a disbeliever, when I hear that
>> one piece of software sounds greatly better, or even different, than
>> another.
>> I'm not saying some people can't tell some pieces of software from other
>> pieces of software, I'm just saying I'm skeptical one system is 'bright'
>> or 'sharp' or anything else until someone can produce statistically
>> meaningful
>> results in an ABY test.
>>
>> One of the great things about that DAWSUM CD is it has let me use the

>> software
>> that I like the most, without worrying too much about the sound. That

>> would
>> be Ableton Live most of the time, with SX as a backup if the editing gets
>> more intense. For me that alone was worth the time I spent on the DAWSUM
>> CD.
>>
>> TCB
>>
>> "LaMont" <jjdpro@ameritech.net> wrote:
>>>
>>>Thad, you really can't hear the difference?? Maybe I own too many software
>>>DAWS thru the years.
>>>
>>>Starting on Logic Audio 3.0, then to Cakwalk, Pro Tools, DP, Paris,Acid,
>>>Neundo, Sonar, samplitude..
>>>
>>>I can hear the difference with the same audio interface with the same wav
>>>file(s)as oon as I import the file or files.
>>>
>>>These days, depending on the genre I'm mising determines which DAW
>>>software
>>>I'll use.
>>>My circle of engineer and producer buddies all can hear the difference
in
>>>a second. Just the other day, we were mixing this R&B(ish)Gospel track
and
>>>somebody said, 'Mont, this is begging for Paris. Another track, the call
>>>was for Pro Tools. And another,Nuendo..
>>>I know BrianT feels and hears the same way in different DAW software.

It's
>>>really obvious..
>>>
>>>
>>>"TCB" <nobody@ishere.com> wrote:
>>>>
>>>>Which is why ABY testing uses expert listeners instead of scopes and

>>>>graphs.
>>>>
>>>>
>>>>I'm not saying you're wrong, esp. about ITB vs external summing. One

>>>>would
>>>>expect that to sound at least slightly different. But I would be
>>>>absolutely
>>>>shocked if anyone could tell in a controlled ABY test whether they were
>>>listening
>>>>to SX, Performer, of Sonar.
>>>>
>>>>"LaMont" <jjdpro@ameritech.net> wrote:
>>>>>
>>>>>The only real test is with the ears and not scopes and graphs.
>>>>>
>>>>>"TCB" <nobody@ishere.com> wrote:
>>>>>>
>>>>>>I'd like to see this proven in a controlled ABY test.
>>>>>>
>>>>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>>>>
>>>>>>>Hey Neil,
>>>>>>>
>>>>>>>All I'm saying is: All DAW software have their own unique sound.
>>>>>>>Despite
>>>>>>>what those lame summing test shows..
>>>>>>>
>>>>>>>PT-HD has a very distinct sound. A very polished sound, with a nice
>> top
>>>>>>>end,
>>>>>>>but with full audio spectrum represented. Mixer/Summing buss can be
>> pushed,
>>>>>>>but you have to watch it.
>>>>>>>
>>>>>>>Nuendo/SX: Has a very Clear, 2 dimension sound, that does not hype
the
>>>>>top
>>>>>>>nor bottom end.
>>>>>>>

>>>>>>Logic Audio: Very Broad- Aggressive sound, that really works for Rock
 >>>>and
 >>>>>>R & B/Gospel mixes.
 >>>>>>
 >>>>>>Digital Performer: With their hardware, superb audio quality. Full

 >>>>>>bodied
 >>>>>>sound .
 >>>>>>
 >>>>>>Sonar: Very flat sounding. I would say that Sonar is your most vanilla
 >>>>>sound
 >>>>>>DW on the market..
 >>>>>>
 >>>>>>Samplitude : A little less top end than Pro Tools. Full bodied 3d

 >>>>>>sound..
 >>>>>>
 >>>>>>Paris: Dark sounding in comparison to the the other DAWs. But, has
 a
 >>>>3d
 >>>>>>sound
 >>>>>>quality that's full bodied.
 >>>>>>
 >>>>>>I feel that you asking SX to be something it's not with some analog
 >> summing.
 >>>>>>Especially for your genre of music..
 >>>>>>
 >>>>>>
 >>>>>>
 >>>>>>
 >>>>>>"Neil" <IUOIU@OIU.com> wrote:
 >>>>>>
 >>>>>>>"Lamont" <jjdpro@ameritech.net> wrote:
 >>>>>>>
 >>>>>>>>"I'd disagree with you in this instance because I happen to think
 >> the
 >>>>>>>Cubase
 >>>>>>>>>ones DO sound better."
 >>>>>>>>
 >>>>>>>>>Then that SSL Engineer does not know what they are doing with board.
 >>>>>>>There's
 >>>>>>>>>no way a mix coming off of that board SSL should sound better than
 >>>>a
 >>>>>>>ITB
 >>>>>>>>>Cubase SX mix..
 >>>>>>>>
 >>>>>>>>>Sorry, that just does not jive. That engineer does not know how
 to

>OK, so I've figured out that I can use my Dell keyboard on a Mac G4 Dual system....
>what I can't figure out is what keystrokes to get the CD tray to eject, LOL...
>
>so Mac gurus.. how's that happen w/o the eject key (non-Mac keyboard)? using
>a mac keyboard isn't really optional as I need, for space reasons, to use
>a KVM and only one keyboard and mouse. This model Mac has no eject on the
>computer itself.
>
>AAI picked up a Colorgraphics Xentera 4 x head the other day. It's an old AGP model and it's rockin' along in my native rig, even sharing IRQ's with the Pulsar cards with no issues at all. I was very surprised at this.....and so now it has been "Borg'ed" into the DAW'ism.

;o)

"TCB" <nobody@ishere.com> wrote in message news:45897d13\$1@linux...

>
> I've been pleasantly surprised. I also wonder if I really need a second
> big
> monitor with the 24" I have now. I might put a 19" to the right of it that
> I can switch to my linux box but it might be overkill, esp with where my
> speakers are placed.
>
> Anyway, it's worth a look if people are on nVidia cards.
>
> TCB
>
> Chris Ludwig <chrisl@adkproaudio.com> wrote:
>>Hey,
>>Yes the NView stuff works great. just did a 2 card 4 head system hat
>>works great. Much less clunky and best of all fan less not like the
>>Matrox crap. The new 8000 series card I setup is real quiet for a gamer
>
>>card. The matrox PCI-e card are load as hell.
>>
>>Chris
>>
>>
>>TCB wrote:
>>> Just a head's up. I've always avoided using the nVidia display manager
> software,
>>> just on the theory that any such stuff would be definition be hinky. On
> the
>>> new machine I have hooked up to my 24" 1920x1600 monitor I decided to
> try
>>> it out. It seems to work very well, with zero processor overhead that

> I can
>>> see. 32 virtual desktops can be defined as well, application constrained
>>> or not, and accessed via hotkeys. Nice to see that fancy XP boxes are
> finally
>>> getting a level of window management as good as linux boxes have had for
>>> years ;-)
>>>
>>> TCB
>>
>>--
>>Chris Ludwig
>>
>>ADK Pro Audio
>>(859) 635-5762
>>www.adkproaudio.com
>>chrisl@adkproaudio.com
>..O'yeah.....and it's got some software that seems to allow you do do just
about anything.

"DJ" <nowayjose@dude.net> wrote in message news:45898ed9@linux...
>I picked up a Colorgraphics Xentera 4 x head the other day. It's an old AGP
>model and it's rockin' along in my native rig, even sharing IRQ's with the
>Pulsar cards with no issues at all. I was very surprised at this.....and
>so now it has been "Borg'ed" into the DAW'ism.
>
> ;o)
>
> "TCB" <nobody@ishere.com> wrote in message news:45897d13\$1@linux...
>>
>> I've been pleasantly surprised. I also wonder if I really need a second
>> big
>> monitor with the 24" I have now. I might put a 19" to the right of it
>> that
>> I can switch to my linux box but it might be overkill, esp with where my
>> speakers are placed.
>>
>> Anyway, it's worth a look if people are on nVidia cards.
>>
>> TCB
>>
>> Chris Ludwig <chrisl@adkproaudio.com> wrote:
>>>Hey,
>>>Yes the NView stuff works great. just did a 2 card 4 head system hat
>>>works great. Much less clunky and best of all fan less not like the
>>>Matrox crap. The new 8000 series card I setup is real quiet for a gamer
>>
>>>card. The matrox PCI-e card are load as hell.

>>>
>>>Chris
>>>
>>>
>>>TCB wrote:
>>>> Just a head's up. I've always avoided using the nVidia display manager
>> software,
>>>> just on the theory that any such stuff would be definition be hinky. On
>> the
>>>> new machine I have hooked up to my 24" 1920x1600 monitor I decided to
>> try
>>>> it out. It seems to work very well, with zero processor overhead that
>> I can
>>>> see. 32 virtual desktops can be defined as well, application
>>>> constrained
>>>> or not, and accessed via hotkeys. Nice to see that fancy XP boxes are
>> finally
>>>> getting a level of window management as good as linux boxes have had
>>>> for
>>>> years ;-)
>>>>
>>>> TCB
>>>
>>>--
>>>Chris Ludwig
>>>
>>>ADK Pro Audio
>>>(859) 635-5762
>>>www.adkproaudio.com
>>>chrisl@adkproaudio.com
>>
>
>I'm so used to putting things in jail in Paris, but haven't found an equivalent
in Logic
- is there one?

George AxonThis is a multi-part message in MIME format.

---=_linux45899547
Content-Type: text/plain
Content-Transfer-Encoding: 7bit

"Mike Mullin" <lunarlordship@sympatico.ca> wrote:
>
>Hi Aaron,
>Email me direct and I'll send you a little desktop app
>called "eject". It works great and can be placed

>to work via the function keys on a Mac.

Is it one of these...?

:D

---=_linux45899547

Content-Type: image/jpeg; name="C:\Documents and Settings\nhenders\Desktop\tn_PaperClip.jpg"

Content-Transfer-Encoding: base64

Content-Disposition: attachment; filename="tn_PaperClip.jpg"

```
/9j/4AAQSkZJRgABAQEASABIAAD/2wBDAAICAglCAQICAglDAglDAwYEAwMD
AwcFBQQGCACJCAGHCAGJCg0LCQoMCggICw8LDA0ODg8OCQsQERAOEQ0ODg7/
2wBDAQIDA wMDAwcEBACOCQgJDg4ODg4ODg4ODg4ODg4ODg4ODg4ODg4ODg4O
Dg4ODg4ODg4ODg4ODg4ODg4ODg7/wAARCACWAJYDASIAAhEBAxEB/8QA
HwAAAQUBAQEBAQEAAAAAAAAAAAECAwQFBgcICQoL/8QAtRAAAgEDAwIEAwUF
BAQAAAF9AQIDAAQRBRIhMUEGE1FhByJxFDKBkaEII0KxwRVS0fAkM2JyggkK
FhcYGRolJicoKSo0NTY3ODk6Q0RFRkdISUpTVFVWV1hZWmNkZWZnaGlqc3R1
dnd4eXqDhIWGh4iJipKTlJWWl5iZmqKjpKWmp6ipqrKztLW2t7i5usLDxMXG
x8jJytLT1NXW19jZ2uHi4+Tl5ufo6erx8vP09fb3+Pn6/8QAHwEAAwEBAQEBA
QEBAQAAAAAAAAECAwQFBgcICQoL/8QAtREAAgECBAQDBAcFBAQAAQJ3AAEC
AxEEBSExBhJBUQdhcRMiMoEIFEKRobHBCSMzUvAVYnLRChYkNOEl8RcYGRom
JygpKjU2Nz5OkNERUZHSElKU1RVVldYWVvpjZGVmZ2hpanN0dXZ3eHl6goOE
hYaHilmKkpOUlZaXmJmaoqOkpaanqKmqsRO0tba3uLm6wsPExcbHyMnK0tPU
1dbX2Nna4uPk5ebn6Onq8vP09fb3+Pn6/9oADAMBAAIRAxEAPwD+f+iiigAo
oooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAK1tD0HWv
E3ie00Xw/pV1rOrXLhLe0s4Gllkb0VVBj/Cs6GGS4vIoIUlyyOERQMkknAFf
0FfDHWx8Lv8AgnD+wB4f+JnjHw9B4o/al8Z2YltbO7Kk2SEBhGvXYiAqXI5d
+M4A2tCZ8MeCf+CX3x+1zw1BrPjN9O8AWcqFhb3kwluzwSi/LgjnO78KxvG
/wDwTq+JPhyye50PxRpOvxRxs0iuGhcsOQqgbgc+5Feb/G/9r/4v/FzxXeV
ivxhezRGUmLSrOcw2lsM8KEXjgcZ5PqSa8h8NfHDxl4Z8S22o6brOo2kyN88
kV6wbHoKq8ewvePO/FXg/wASeCfFUui+J9Jn0nUEz8ky8OMkblYcMuQcMCQc
Hmuar9SjqHgj9qH4XQaLrbxweKlBksr2CNY3eUjnYvRXOAGj+6+BjDBDX53+
P/h74j+HPjq40TX7RoiGJt7lQTFcJnh0Pce3UHggHik11QJ9zhaKKKKkoKKKK
ACiiigAooooAKKKKACiiigAooooA9Z+BUGIT/tg/Dr+23jTSo9dt5rhZcbZF
Rw2w5l+9jb+PAPQ/df8AwUU8fa549/anPEirIPC9lp8dpo65Plog447A5bN
fmNYXs+na3aX9s5juLeZZY2HZIOQa/UjQNT8P/tG/swt4ZvJPL1pbcuHUBpB
gZYqOCzlw34z8y7hkAc0tdCXpqfIYSScniRXZeOvA2v/AA+8e3Oga/beVMnz
QTocxXMZJAKRu6nBHqCCCAQQONqSjrPCnjDVvCWtpd6fKQocMybiOh6j0Nfo
z4e8UeCv2kPhSPDniuGM+IGi2W94+1ZpHA4O4/dm469JOhyT835dV0XhvxNq
fhjX477T53jAI8yMNgOKadhNXOu+KXwq8RfC3xy+m6rC0+mzMx0/UVjljuVG
Mjno65AZeoJHUFsFl6/T3wf448H/AB1+Cp8KeO4455JMRRXryBHWUL8hLHPI
yLk7ZDkHkNuUtn4a+Lfwk1/4UeP30zUVA70uVmNjqAiKLMoPKsOdrkBllycc
ckEE011Qk+jPJ6KKKgoKKKKACiiigAooooAKKKKACiiigAruvAnjzWfAvi+1
1HTLuWBY5VciNyCpB4ZfQj/PtwfFAH6ipceBf2nPg+2m6k0Vp4vRC9vLAgDG
XAHmxDj5jgB4uA4AxxghT88fHvgHX/h548uND122KMvZW9woPI3EeeHQ9x7d
QQQcEEVT8J+L9V8l68l7p0pADAsm4joeo96/QrRfEXgn9pD4SJoHicR/8JUi
n7LcMQjzSYx97+GXp6h8DILY33fm3l2PzKrs/h/beHrr4s6PH4oBlOUtq09u
```

JDH9oAP+r3j7u7pn+tanxK+Gev8Aw18aPp2qwtJZSM32O9VMJMBjl/2XGRuX
tkHkFWPnlJDAG4lqdi9z748d/C1PDqj4n/CMfatDAA1TRANpCjkoyr91hjt6
ZU5Fd54E8f8Agz4x/CxvBvjqFJ4SqPBNdviS2YDCxyvwRjkJKMYGQcKSE+YP
g98b9U8K68lpql351o0Yjb7Q2Y5ox/yzk9sAYPUEDocEe4+OPhta61bn4tfC
WXypkXOoaQfmwcZMbgY4IGFYAA4H3SDspPqifU+ZfjJ8F9e+FfjCbfDLeeG5
pSLO+2dO4jkxwr4/AgZHfHiVfpr8Ovif4f8AHnw1n8l+NrVLrT5l/sd3bXmW
ks+cBJBwxjzjY4wyEDGCor5E+NvwS1T4XeKmvLLzNS8HXcv+gX3DGPI3COQr
xnHIYfK4G4Y5VRpWugT6M8FoooqCgooooAKKKKACiiigAooooAKKKKADqcV9
U+A/hT4y8P8AwksvijpMkOr7Zj9r0SJyJEi5+/jlXlly4zgep3Kvyt0NfQnw
e+Nmr+BvFUMF5MLnS5AI5I5hmN04yjjYyDjr1B5yCAQ0Jn19ofizwT8cvhxP
4X8ZwZvHHkrdXDCOYSDOWSMc7Jl+bbJgggkMCGYN8J/Fj4T678K/H8um34a7
0uVmNhqCxlVmUHoRztcdGUk47Eghj9ieOvBEOtaDH8Ufg8l1k241bS8jJH3v
LkxjuPlkGMjuu3Ca3gzxp4S+LfgBvBPjqBPPjXyYZb7AltXAKiGVjyuOQkvG
OhwMiO99GTtqj8z69++Dnxh1XwP4rt7e4vzHp7L5RaQb02n+Bx3Q8fTqOgxh
/Fn4Qa98M/FMwnt5ZtEeYpBckZ8s8kl+OhlBIPRgDjBVIXx2o1TK3P0Q8ZeA
LLxvAPi8KnTTPFFtGH1HSwwKzIQOf8AaQg4Dd8gHqpNn4ffFDR/EXh+88Ae
PrEyaY8fkXVlfJue0LEHI7tFnBBHzKcMuDjf8jfdX4sa34J8R6cVvJFtYHwk
gO5oIJ5GDwy8nKng5PrivrnXR4e0T4ueEU8aeB3t9J8c6cpmdLcZju1/iK8Z
ZTz8pyRk9cmqT6oT8z5z+OfwlvfhrC6voXnar4NugGhuchzAW5Csy8FSOVc
cEe9fOVfoN8LvJLZ3NhdeCvGlGk9qN0N3YzqJPlycOUDZDxnuh/P+I+PfHX4
BS+DFbxbp4LzqngW6PmMImMjWG44AJ6tGTwrnkH5Xw2C41dXQXtoz5aooooqCg
ooooAKKKKACiiigAooooAKKKKAPdfhF8Y9X8AeJlka5Z7Bh5bl/zlyEjKOO6
/wAsD2I+n/FfgvTPGtufih8KJRY+IYYd2p6XwwlU8FSONyngBhyOM4O01+dd
evfDD4r634B8V2c0Ny32RGwc87QeCCDwykZBB6g9+lUn0YrH2d4F+IXh7x/4
Fm8GeN7SNkRTazxXqkyWuSP3cnILRbgNrdIQCCCFx8j/Gj4L6r8MvFEI3ax
y33hO5lxaXmQ5hJG4RSMoxuxkqWAVwCRghlT6j1/wzpXxN0f/hYnw4aDSvGV
rGJL6wRspOuOSF/jjbvnJGQDngvD4l+KOja7o174C+lul+VYFDDcW10PMktA
SCCO7xZw3HKnDA5xvrRqzJ9D87q+k/2b/Geoaz8ZNP8ADyzysl25+xKDkRy4
zjHcMBtl6HPNeseLf2NtR1OyOv8Awq1y213S5l3R2c0nzbsL8kci5B5JOH2b
RgEk5Nes/sjfsCfGPxD+2f4S1Hx1pMfhHwbpNyt/qF+99DlZrGciNAjN8zHH
XAAyfQGbNDumfNP7TXh9fDXxysvFGildPW/jEzrHgeXLk7h6nnPXtjtXZ/Bj
452gsf8AhG/EoW90u7Vo7uxljDqAV2s6BuCCOGQ8MOD0DCT9t/UNAi/an8Xe
GfDGorqWg6XqjxW0yMGVmBlbaRxjInfD8E8ttdxzwOY5UOVZTgg0Xs7oLXVm
fU3xy+AkPhewbxz4DlOqeC7pvMaGMlZBj2J5aPPGW+ZThWyfmPyp3r7l+Cn
xvktS3hzXl1vLG4G2a0lwUlUjBZAeA2OCOHBz2w/wBoP4O6b4dt7Tx94HgA
8H34Xz4Uct9mlOeQOqoemCThsjoVptJq6C9tGfKdFFFQUFFFFABRRRQAUUUU
AFFFFABRRRQB6f8ADf4k6v4E8V21xb3UiWyvkbTynr9Qe49z7g/XXiPw1oPx
x8MR+JvB9wmhePrSlytHbNt+0DGWMeDnHU47ZJ6bq/Pau98D+PtZ8GeJLS5s
rqSOCKUPhGwyHPVT1BGP89aaYmju7D4sfEP4d+L7mxkubzRtTt2MU7WU7Wzv
jjBx8uOOw5r0G9/bJ+Mt14UudHTxvq1tZTx+XKsEojZlwQV3Lg4lJyO/evYr
rSvAv7Rfw53ILbSfHSwZW4hJA+0Mo4YYx9GT8R0AX4P8ZeC/EHgTtxtcaF4hs
ja3cfKODujmQ5w6N0YHB/EEHBBAeqWgtGZmsa1d6zqLT3DkgnOC2cnuT6mse
iipKJYJ5ba9iulWKSxuGRh2l5r9D/CGoQ+Of2Obyx1AK1pqFq8coYHEVwgOG
XJPXGfchfSvzrr76/Zu0/VdS/Yw+IF8TNJp2j3gljZgTHASozj0z3prcT2Pg
+9tXstXubST78MrI2PUHFVa6HxU/m+PdRlyWDy5BPpXPUhhRRRQAUUUUUAFFF
FABRRRQAUUUUUAFFFFAHYeD/Gop+EfEUN3ZzOsQcMyqxBUg/eX0P+fTH3hZ6l
4K/aF+HEfh7xJJFB4IK/6BqMeN4lIHZDp854DlCCQAA4cIR+b9bug+ldR8Pa
ut1YTMn99M8NTTsJq52nj/4P+OPh3rckGs6RLNp5fbBqVqhkt5uTjDY4PGdr

AN6ivNPs9wZNnkSb/wC7sOa+5vh9+19e6RFBa+KNMh8QW6DBkuGKXAXnKiUZ
znPVgTjgYr37R/2t/gdBcNqs3wbsbjUSxJmDQszN3y/l5z/jVWi+ors+Avg3
+z18Vfjr8SrXw34B8K3eoO8ypc3jxMlvaqTy0j44wMnAyxAOAcV+xH7R2kfD
j9iv/gIPYfs5eG9Sg1v4k+JJUvPEl0pUSjABLSBnYCCKqkn5QeTjJ8g1r/gp
3qPh3wXdad8MfBOmeDtTlhMRv5HE8kakcFVCqNw6jduHtX5YfET4l+JviP45
1DX/ABJq91rOq3kpkuby7ILySH3J7dKTstg1e5wmoXH2rV55xnDNxk1TooqS
gooooAKKKKACiiigAooooAKKKKACiiigAooooAKXJA6mkooAMknnmiiigAoo
ooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiiigAooooAKKKKACiii
gD//2Q==

---=_linux45899547--Gene and Jamie both moved to Logic.

"George Axon" <georgeaxon@rogers.com> wrote:

>

>I'm so used to putting things in jail in Paris, but haven't found an equivalent
>in Logic

>- is there one?

>

>George AxonThat's too bad. I think people have an instinctive thing against the sound
of Live as well, just because it also loops like ACID does. Live sounds like
a properly written native DAW when working with non time stretched tracks.
The sound quality on the stretched audio is amazing, all things considered,
but the non-stretched sound is indistinguishable from SX. Too bad the only
really truly awful sounding app has to bring down a perfectly nice sounding
one.

TCB

"DJ" <nowayjose@dude.net> wrote:

>>with the exception of the last version of ACID I used (way back, I think
v.

>>3) which did sound truly awful.<

>Don't hold your breath hoping ACID will sound any better. I DL'ed V6.0
and

>it sounds pretty awful too. I'm going to run it using Rewire in cubase SX
3

>and lightpipe it to Paris and see if it's the actual ACID audio engine or

>the summing. I've got a feeling it's the audio engine..just a

>feeling.....because I've also got Vegas here and it sucks too.

>

>;0)

>

>"TCB" <nobody@ishere.com> wrote in message news:45894947\$1@linux...

>>

>> I'm not convinced I can hear any difference between native systems, with

>> the

>> exception of the last version of ACID I used (way back, I think v. 3)

>> which

>> did sound truly awful. The real test on that one for me was the DAWSUM CD

>> (which I purchased and dutifully scored because I was convinced 'summing'

>> was the real reason PARIS sounded so good) wherein I discovered that I

>> could

>> barely tell one mix from the next even when hearing vastly different

>> systems.

>> Since then I am a skeptic, as opposed to a disbeliever, when I hear that

>> one piece of software sounds greatly better, or even different, than

>> another.

>> I'm not saying some people can't tell some pieces of software from other

>> pieces of software, I'm just saying I'm skeptical one system is 'bright'

>> or 'sharp' or anything else until someone can produce statistically

>> meaningful

>> results in an ABY test.

>>

>> One of the great things about that DAWSUM CD is it has let me use the

>> software

>> that I like the most, without worrying too much about the sound. That

>> would

>> be Ableton Live most of the time, with SX as a backup if the editing gets

>> more intense. For me that alone was worth the time I spent on the DAWSUM

>> CD.

>>

>> TCB

>>

>> "LaMont" <jjdpro@ameritech.net> wrote:

>>>

>>>Thad, you really can't hear the difference?? Maybe I own too many software

>>>DAWS thru the years.

>>>

>>>Starting on Logic Audio 3.0, then to Cakwalk, Pro Tools, DP, Paris,Acid,

>>>Neundo, Sonar, samplitude..

>>>

>>>I can hear the diference with the same audio interface with the same wav

>>>file(s)as oon as I import the file or files.

>>>

>>>These days, depending on the genre I'm mising determines which DAW

>>>software

>>>I'll use.

>>>My circle of engineer and producer buddies all can hear the difference

in

>>>a second. Just the other day, we were mixing this R&B(ish)Gospel track
and
>>>somebody said, 'Mont, this is begging for Paris. Another track, the call
>>>was for Pro Tools. And another,Nuendo..
>>>I know BrianT feels and hears the same way in different DAW software.
It's
>>>really obvious..
>>>
>>>
>>>"TCB" <nobody@ishere.com> wrote:
>>>>
>>>>Which is why ABY testing uses expert listeners instead of scopes and

>>>>graphs.
>>>>
>>>>
>>>>I'm not saying you're wrong, esp. about ITB vs external summing. One

>>>>would
>>>>expect that to sound at least slightly different. But I would be
>>>>absolutely
>>>>shocked if anyone could tell in a controlled ABY test whether they were
>>>listening
>>>>to SX, Performer, of Sonar.
>>>>
>>>>"LaMont" <jjdpro@ameritech.net> wrote:
>>>>>
>>>>>The only real test is with the ears and not scopes and graphs.
>>>>>
>>>>>"TCB" <nobody@ishere.com> wrote:
>>>>>>
>>>>>>I'd like to see this proven in a controlled ABY test.
>>>>>>
>>>>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>>>>
>>>>>>>Hey Neil,
>>>>>>>
>>>>>>>All I'm saying is: All DAW software have their own unique sound.
>>>>>>>Despite
>>>>>>>what those lame summing test shows..
>>>>>>>
>>>>>>>PT-HD has a very distinct sound. A very polished sound, with a nice
>> top
>>>>>>>end,
>>>>>>>but with full audio spectrum represented. Mixer/Summing buss can be
>> pushed,
>>>>>>>but you have to watch it.
>>>>>>>

>>>>>>Nuendo/SX: Has a very Clear, 2 dimension sound, that does not hype the
>>>>>top
>>>>>>nor bottom end.
>>>>>>
>>>>>>Logic Audio: Very Broad- Aggressive sound, that really works for Rock
>>>>>and
>>>>>>R & B/Gospel mixes.
>>>>>>
>>>>>>Digital Performer: With their hardware, superb audio quality. Full
>>>>>>bodied
>>>>>>sound .
>>>>>>
>>>>>>Sonar: Very flat sounding. I would say that Sonar is your most vanilla
>>>>>sound
>>>>>>DW on the market..
>>>>>>
>>>>>>Samplitude : A little less top end than Pro Tools. Full bodied 3d
>>>>>>sound..
>>>>>>
>>>>>>Paris: Dark sounding in comparison to the the other DAWs. But, has
a
>>>3d
>>>>>sound
>>>>>>quality that's full bodied.
>>>>>>
>>>>>>>I feel that you asking SX to be something it's not with some analog
>> summing.
>>>>>>>Especially for your genre of music..
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>"Neil" <IUOIU@OIU.com> wrote:
>>>>>>>
>>>>>>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>>>>>
>>>>>>>>>"I'd disagree with you in this instance because I happen to think
>> the
>>>>>>>Cubase
>>>>>>>>>ones DO sound better."
>>>>>>>>>
>>>>>>>>>>Then that SSL Engineer does not know what they are doing with board.
>>>>>>>>>There's
>>>>>>>>>>>no way a mix coming off of that board SSL should sound better than
>>>a

differences were subtle. Also, we weren't talking about Acid vs. Sonar specifically. I don't even bother with Acid as a DAW example - it's a loop app. Vegas is a video app that has had life as an audio app to some degree, but iMovie does audio as well, yet that doesn't really put it in the same category as professional DAW apps like Nuendo, PTHD, Sequoia, etc. I use Vegas for video, but not audio.

On Lynn's sampler, Samplitude, Nuendo, Fairlight and the other natives don't sound different and aren't different in the unity gain examples (even the PTHD mix cancels with these). If you hear two files sounding differently that cancel to complete null, an audio difference isn't what you are hearing. When there are differences in non-unity gain mix summing tests, you have an extra variable to account for - how is the gain calculated? Gain is non-linear (power), not adding two numbers together. So how is pan law factored in, and where? Are your faders exactly the same, or 0.001dB variant?

Also if you drop the same stereo file in two different pro audio apps and hear a difference, one of the two apps is defective. There is nothing happening with a stereo file playback when no gain change or plugins are active - just audio streaming to the driver from disk. If you hear a difference there, I would be quickly trying to find out why. Something is wrong.

The point I am making is that these arguments usually come up as blanket statements with no qualification of what exactly sounds different, why it might, or solid well reasoned attempts to find out why, or if there could be a real difference, or just a perceived one.

Usually the "use your ears" comment comes up when there is no technical rebuttal for when the science and good ears agree. Of course "use your ears" first from a creative perspective, but if you are making a technical, scientific statement, then such comments aren't a good foundation to work from. It's a great motto, but a bit of a cop out in a technical discussion.

Regards,
Dedric

"LaMont" <jjdpro@ameriech.net> wrote in message news:45897f73\$1@linux...
>
> Hey Dedric and Neil,
>
> I reason I think that the Summing CD test(good intentions) were lame was
> because.. If a person can;t hear the difference btw a stereo wav file
> that's
> in Acid vs Sonar really needs a hearing test.

>
> For reason of my music work, I have to work with different DAWs, so I'm
> very
> familiar with their sound qualities. My circle of producers and engineers
> talk about the daw sonics all the time. It's really no big deal anymore..
>
> The same logic applies when Roger Nichols (a few) years back in his
> article
> about master CD's and that he found out that 4 differnt CD burners yeilded
> differnt sonic results. Sure, he sated that Math is the Math :) but, his
> and the masering engineers Ears told them soemthing was different.
> Hummm???

>
> Now, back to DAW sonics. I can hear the difference btw Paris and Nuendo vs
> Pro Tools, Logic audio.. There is no math to this, this is an ear
> thing..You
> either hear or you don't.. Simple.
> But, good ears can hear it. .

>
> I really think the problem is, noone want to no that their money that
> they've
> spent on a given DAW, has sonic limitations or shall we say, just
> different..
>
> I like that they all sound different. It's good to have choice when mixing
> a song. Some DAWs, depending on the genre will yield better or the desired
> results and than another.
> EX. I would not mix a Acoustic jazz record today with Paris..reason, I'm
> going for clarity at it's highest level.. For that project, It's either
> Neundo
> or Pro Tools and may Samplitude..Why should I fight with Paris's thick,
> gooy
> sonics, when I'm going for clarity. Well, Pro Tools and Nuendo/SX has that
> sound right out the gate.. Which makes my job a lot easier. simple. This
> is not tosay that I could not get the job done in Paris..i could..But, for
> that Acoutic Jazz project , the other 2 daws gives me what I'm looking
> for
> without even touching an eq..
>
> This is not all about math. As BrianT states: Use you ears..Forget the
> math..What
> does knowing the math do for you anyway? Nothing, it just proves that you
> know the math. Does not tell you diddly about the sonics.. Just ask Roger
> Nichols..
>
>
> "Dedric Terry" <d@nospam.net> wrote:
>>

>>I know we disagree here Lamont and that's totally cool, so I won't take
> this
>>beyond this one response, and this isn't really directed to you, but my
> general
>>thoughts on the matter.
>>
>>In Neil's "defense" (not that he needs it), I and others have done this
> comparison
>>to death and the conclusion I've come to is that people are 80% influenced
>>by a change in environment (e.g. software interface) and 20% ears. Sorry
>>to say it, but the difference in sound between floating point DAWs is far
>>from real. It's just good, albeit unintentional marketing created by
>>users
>>and capitolized by manufacturers. Perceiving a "sound" in DAWs that in
> actuality
>>process data identically, is a bad reason to pick a DAW, but of course
>>there
>>is nothing wrong with thinking you hear a difference as long as it doesn't
>>become an unwritten law of engineering at large. Preferring to work with
>>one or the other, and "feeling" better about it for whatever reason is a
>>great reason to pick one DAW over another.
>>
>>There was a recent thread that Nuendo handled gain through groups
>>differently,
>>so I put Nuendo, Sonar 6 (both 32 and 64-bit engines) and Sequoia 8.3 to
>>the test - identical tests, setup to the 1/100th of a dB identically and
>>came up with absolutely no difference, either audible or scientific. To
>>be honest, this was the one test where I could have said, yes there is an
>>understandable difference between DAWs in a simple math function, and the
>>only one in the DAW that actually might make sense, yet even that did not
>>exist. The reason - math is math. You can paint it red, blue, silver or
>>dull grey, but it's still the same math unless the programmer was high or
>>completely incompetent when they wrote the code.
>>
>>I thought it was entirely possible the original poster had found something
>>different in Nuendo, but when it came down to really understanding and
>>reproducing
>>what happens in DAW summing and gain structures accurately between each
> DAW,
>>there was none, nada, nil. The assertion was completely squashed. This
>>also
>>showed me how easy it is for a wide range of professionals to misinterpret
>>digital audio - whether hearing things, or just setting up a test with a
>>single missed variable that completely invalidates the whole process.
>>
>>If you hear a difference, great. I've thought I heard a difference doing
>>similar comparisons, then changed my perspective (nothing else - not
>>converters,

>>nothing - just reset my expectations, and switched back and forth) and
>>could
>>hear no difference.
>>
>>Just leave some room for other opinions when you post yours on this
>>subject
>>since it is very obvious that hearing is not as universally objective and
>>identically referenced as everyone might like to believe, and is highly
> visually
>>and environmentally affected. Some will hear differences in DAWs. There
>>are Cubase SX 3 users claiming Cubase 4 sounds different. Sigh. Then
>>they
>>realize they aren't even using the same project... or at least different
>>EQs, or etc, etc....
>>
>>Say what you want about published summing tests, but Lynn's tests are as
>>accurate as it gets, and that bears out in the results (all floating point
>>DAWs cancel and sound identical - if you are hearing a difference, you are
>>hearing things that aren't there, or you forgot to align their gain and
> placement).
>> I've worked with Lynn at least briefly enough to know his attention to
> detail.
>> In the same way people will disagree about PCs and Macs until neither
>> exists,
>>so will audio engineers disagree about DAWs. This is one debate that will
>>always exist as long as we have different ears, eyes, brains,... and
>>opinions.
>>
>>
>>What Neil has done is to prove that opinions are always going to differ
> (i.e.
>>no consensus on the "best" mix of the ones posted). And in truth everyone
>>has a different perception of sound in general - not everyone wants to
>>hear
>>things the same way, so we judge "best" from very different perspectives.
>> There is no single gold standard. There are variations and mutated
>> combinations,
>>but all are subjective. That in and of itself implies very distinctly
>>that
>>people can and will even perceive the exact same sound differently if
>>presented
>>with any variable that changes the brain's interpretation, even if just
> a
>>visual distraction. Just change the lights in the room and see if you
>>perceive
>>a song differently played back exactly the same way. Or have a cat run
> across
>>a desk while listening. Whether you care to admit it or not, it is there,

>>and that is actually the beauty of how our sense interact to create
>>perception.
>> That may be our undoing with DAW comparison tests, but it's also what
>> keeps
>>music fresh and creative, when we allow it to.
>>
>>So my suggestion is to use what makes you most creative, even if it's just
>>a "feeling" working with that DAW gives you - be it the workflow, the GUI,
>>or even the name brand reputation. But, as we all know, if you can't make
>>most any material sound good on whatever DAW you choose, the DAW isn't the
>>problem.
>>
>>Regards,
>>Dedric
>>
>>"Neil" <IUOIU@OIU.com> wrote:
>>>
>>>That's interesting - all those DAW sonic interpretations, I
>>>mean... I haven't had a chance to use all of those, so it's
>>>good information.
>>>
>>>I still don't understand why you consider my summing
>>>comparisons "lame", however - it was a fair set of tests;
>>>the same mix summed in different ways. Not trying to prove a
>>>point or to rig it so one sounded any better than the other - in
>>>fact, if you recall the thread, different people liked different
>>>summed versions for different reasons... there wasn't any one
>>>version that stood out as being "the one" that everyone felt
>>>sounded better. The only reason I didn't come right out & say
>>>right away which version was which is so that I didn't bias
>>>anyone's opinion beforehand by mentioning that... NOT to try
>>>& "hide" anything or "trick" anyone, as you accused me of
>>>
>>>Sheesh!
>>>
>>>Neil
>>>
>>>
>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>
>>>>Hey Neil,
>>>>
>>>>All I'm saying is: All DAW software have their own unique sound.
>>>>Despite
>>>>what those lame summing test shows..
>>>>
>>>>PT-HD has a very distinct sound. A very polished sound, with a nice top
>>>>end,

>>>>but with full audio spectrum represented. Mixer/Summing buss can be
>>>>pushed,
>>>>but you have to watch it.
>>>>
>>>>Nuendo/SX: Has a very Clear, 2 dimension sound, that does not hype the
>>top
>>>>nor bottom end.
>>>>
>>>>Logic Audio: Very Broad- Aggressive sound, that really works for Rock
> and
>>>>R & B/Gospel mixes.
>>>>
>>>>Digital Performer: With their hardware, superb audio quality. Full
>>>>bodied
>>>>sound .
>>>>
>>>>Sonar: Very flat sounding. I would say that Sonar is your most vanilla
>>sound
>>>>DW on the market..
>>>>
>>>>Samplitude : A little less top end than Pro Tools. Full bodied 3d
>>>>sound..
>>>>
>>>>Paris: Dark sounding in comparison to the the other DAWs. But, has a 3d
>>sound
>>>>quality that's full bodied.
>>>>
>>>>I feel that you asking SX to be something it's not with some analog
>>>>summing.
>>>>Especially for your genre of music..
>>>>
>>>>
>>>>
>>>>
>>>>"Neil" <IUOIU@OIU.com> wrote:
>>>>>
>>>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>>>
>>>>>>"I'd disagree with you in this instance because I happen to think the
>>>Cubase
>>>>>>ones DO sound better."
>>>>>>
>>>>>>Then that SSL Engineer does not know what they are doing with board.
>>There's
>>>>>>no way a mix coming off of that board SSL should sound better than a
>>ITB
>>>>>>Cubase SX mix..
>>>>>>

submix or do I have to return the verb to two of its own tracks? From what I've read there, the manual doesn't have a real clear answer to the question -though I could have missed something.

Thanks

MR

-----=_NextPart_000_0009_01C72452.A2714940

Content-Type: text/html;

charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">

<HTML><HEAD>

<META http-equiv=3DContent-Type content=3D"text/html; charset=3Diso-8859-1">

<META content=3D"MSHTML 6.00.2800.1555" name=3DGENERATOR>

<STYLE></STYLE>

</HEAD>

<BODY bgColor=3D#ffffff>

<DIV>I've been using ITB verbs and Paris = verbs for most=20

of my work. But recently I hung a TC reverb off on of Paris' = external=20

outs. I set up one of the Aux send/returns to handle the TC. = How do=20

I record the reverberated audio into the submix? Does this happen=20

"automatically" when I create an intelligent submix or do I have to = return the=20

verb to two of its own tracks? From what I've read there, the = manual=20

doesn't have a real clear answer to the question -though I could have = missed=20

something.</DIV>

<DIV>Thanks</DIV>

<DIV>Thanks</DIV>

<DIV>MR</DIV></BODY></HTML>

-----=_NextPart_000_0009_01C72452.A2714940--If you want to print the verb you have to return it to it's own tracks. Instead

of connecting the returns to the aux, connect them to 2 inupts, just like you were were recording something. Hit record, and let the song play out.

Rod

"Mike R." <emarenot@yahoo.com> wrote:

>

>

>I've been using ITB verbs and Paris verbs for most of my work. But recently

>I hung a TC reverb off on of Paris' external outs. I set up one of the

Aux

>send/returns to handle the TC. How do I record the reverberated audio into

>the submix? Does this happen "automatically" when I create an intelligent
>submix or do I have to return the verb to two of its own tracks? From what
>I've read there, the manual doesn't have a real clear answer to the
>question -though I could have missed something.
>Thanks
>MR
>
>
><!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
><HTML><HEAD>
><META http-equiv=3DContent-Type content=3D"text/html; =
>charset=3Diso-8859-1">
><META content=3D"MSHTML 6.00.2800.1555" name=3DGENERATOR>
><STYLE></STYLE>
></HEAD>
><BODY bgColor=3D#ffffff>
><DIV>I've been using ITB verbs and Paris =
>verbs for most=20

>external=20

>How do=20
>I record the reverberated audio into the submix? Does this happen=20
>"automatically" when I create an intelligent submix or do I have to =
>return the=20

>manual=20
>doesn't have a real clear answer to the question -though I could have =
>missed=20
>something.</DIV>
><DIV>Thanks</DIV>
><DIV>MR</DIV></BODY></HTML>
>
>Agreed..
"TCB" <nobody@ishere.com> wrote:
>
>That's too bad. I think people have an instinctive thing against the sound
>of Live as well, just because it also loops like ACID does. Live sounds
like
>a properly written native DAW when working with non time stretched tracks.
>The sound quality on the stretched audio is amazing, all things considered,
>but the non-stretched sound is indistinguishable from SX. Too bad the only
>really truly awful sounding app has to bring down a perfectly nice sounding
>one.
>
>TCB
>
>"DJ" <nowayjose@dude.net> wrote:

>>>with the exception of the last version of ACID I used (way back, I think
>v.
>>>3) which did sound truly awful.<
>>Don't hold your breath hoping ACID will sound any better. I DL'ed V6.0
>and
>>it sounds pretty awful too. I'm going to run it using Rewire in cubase
SX
>3
>>and lightpipe it to Paris and see if it's the actual ACID audio engine
or
>
>>the summing. I've got a feeling it's the audio engine..just a
>>feeling.....because I've also got Vegas here and it sucks too.
>>
>>;o)
>>
>>"TCB" <nobody@ishere.com> wrote in message news:45894947\$1@linux...
>>>
>>> I'm not convinced I can hear any difference between native systems, with
>
>>> the
>>> exception of the last version of ACID I used (way back, I think v. 3)
>
>>> which
>>> did sound truly awful. The real test on that one for me was the DAWSUM
>CD
>>> (which I purchased and dutifully scored because I was convinced 'summing'
>>> was the real reason PARIS sounded so good) wherein I discovered that
I
>
>>> could
>>> barely tell one mix from the next even when hearing vastly different
>>> systems.
>>> Since then I am a skeptic, as opposed to a disbeliever, when I hear that
>>> one piece of software sounds greatly better, or even different, than
>>> another.
>>> I'm not saying some people can't tell some pieces of software from other
>>> pieces of software, I'm just saying I'm skeptical one system is 'bright'
>>> or 'sharp' or anything else until someone can produce statistically
>>> meaningful
>>> results in an ABY test.
>>>
>>> One of the great things about that DAWSUM CD is it has let me use the
>
>>> software
>>> that I like the most, without worrying too much about the sound. That

>
 >>> would
 >>> be Ableton Live most of the time, with SX as a backup if the editing gets
 >>> more intense. For me that alone was worth the time I spent on the DAWSUM
 >>> CD.
 >>>
 >>> TCB
 >>>
 >>> "LaMont" <jjdpro@ameritech.net> wrote:
 >>>>
 >>>>Thad, you really can't hear the difference?? Maybe I own too many software
 >>>>DAWS thru the years.
 >>>>
 >>>>Starting on Logic Audio 3.0, then to Cakwalk, Pro Tools, DP, Paris,Acid,
 >>>>Neundo, Sonar, samplitude..
 >>>>
 >>>>I can hear the diference with the same audio interface with the same
 wav
 >>>>file(s)as oon as I import the file or files.
 >>>>
 >>>>These days, depending on the genre I'm mising determines which DAW
 >>>>software
 >>>>I'll use.
 >>>>My circle of engineer and producer buddies all can hear the difference
 >in
 >>>>a second. Just the other day, we were mixing this R&B(ish)Gospel track
 >and
 >>>>somebody said, 'Mont, this is begging for Paris. Another track, the call
 >>>>was for Pro Tools. And another,Nuendo..
 >>>>I know BrianT feels and hears the same way in different DAW software.
 >It's
 >>>>really obvious..
 >>>>
 >>>>
 >>>>"TCB" <nobody@ishere.com> wrote:
 >>>>>
 >>>>>Which is why ABY testing uses expert listeners instead of scopes and
 >
 >>>>>graphs.
 >>>>>
 >>>>>
 >>>>>I'm not saying you're wrong, esp. about ITB vs external summing. One
 >
 >>>>>would
 >>>>>expect that to sound at least slightly different. But I would be
 >>>>>absolutely
 >>>>>shocked if anyone could tell in a controlled ABY test whether they were

>>>>listening
 >>>>>to SX, Performer, of Sonar.
 >>>>>
 >>>>>"LaMont" <jjdpro@ameritech.net> wrote:
 >>>>>>
 >>>>>>The only real test is with the ears and not scopes and graphs.
 >>>>>>
 >>>>>>"TCB" <nobody@ishere.com> wrote:
 >>>>>>>
 >>>>>>>I'd like to see this proven in a controlled ABY test.
 >>>>>>>
 >>>>>>>"Lamont" <jjdpro@ameritech.net> wrote:
 >>>>>>>>
 >>>>>>>>Hey Neil,
 >>>>>>>>
 >>>>>>>>>All I'm saying is: All DAW software have their own unique sound.

 >>>>>>>>>Despite
 >>>>>>>>>>what those lame summing test shows..
 >>>>>>>>>>
 >>>>>>>>>>>PT-HD has a very distinct sound. A very polished sound, with a nice
 >>> top
 >>>>>>>>>>>end,
 >>>>>>>>>>>>but with full audio spectrum represented. Mixer/Summing buss can
 be
 >>> pushed,
 >>>>>>>>>>>>but you have to watch it.
 >>>>>>>>>>>
 >>>>>>>>>>>>Nuendo/SX: Has a very Clear, 2 dimension sound, that does not hype
 >the
 >>>>>>>>>>top
 >>>>>>>>>>>>nor bottom end.
 >>>>>>>>>>>
 >>>>>>>>>>>>Logic Audio: Very Broad- Aggressive sound, that really works for
 Rock
 >>>>>>>>>>>and
 >>>>>>>>>>>>R & B/Gospel mixes.
 >>>>>>>>>>>>
 >>>>>>>>>>>>>Digital Performer: With their hardware, superb audio quality. Full
 >
 >>>>>>>>>>>>bodied
 >>>>>>>>>>>>sound .
 >>>>>>>>>>>>
 >>>>>>>>>>>>>Sonar: Very flat sounding. I would say that Sonar is your most vanilla
 >>>>>>>>>>>>sound
 >>>>>>>>>>>>>>DW on the market..
 >>>>>>>>>>>>>>
 >>>>>>>>>>>>>>>Samplitude : A little less top end than Pro Tools. Full bodied 3d

>
>>>>>>>sound..
>>>>>>>
>>>>>>>Paris: Dark sounding in comparison to the the other DAWs. But, has
>a
>>>>3d
>>>>>>>sound
>>>>>>>quality that's full bodied.
>>>>>>>
>>>>>>>I feel that you asking SX to be something it's not with some analog
>>> summing.
>>>>>>>Especially for your genre of music..
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>"Neil" <IUOIU@OIU.com> wrote:
>>>>>>>
>>>>>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>>>>
>>>>>>>>"I'd disagree with you in this instance because I happen to think
>>> the
>>>>>>>Cubase
>>>>>>>>ones DO sound better."
>>>>>>>>
>>>>>>>

Subject: Re: Paris Skins / examples 2
Posted by [Yanoska](#) on Thu, 16 Nov 2006 06:17:23 GMT
[View Forum Message](#) <> [Reply to Message](#)

>>>Then that SSL Engineer does not know what they are doing with board.
>>>>>>>There's
>>>>>>>>>no way a mix coming off of that board SSL should sound better than
>>>>a
>>>>>>>ITB
>>>>>>>>>Cubase SX mix..
>>>>>>>>>
>>>>>>>>>Sorry, that just does not jive. That engineer does not know how
>to
>>>>push
>>>>>>>>he
>>>>>>>>>SSL or just not familiar with it.
>>>>>>>>>
>>>>>>>>>You're not really paying attention, are you? It was the same
>>>>>>>>>engineer (me). And as far as whether or not I know how to use
>>>>>>>>>that particular board, I guess that would be a matter of

```
>>>>>>>>>your opinion. I don't think the SSL mixes are bad ones, I think
>>>>>>>>>they came out good; I just think that you can hear more detail
>>>>>>>>>in the ITB mixes in the examples I gave, and they have more
>>>>>>>>>wideband frequency content from top to bottom.
```

[illegible]

>>>>>>>>Anyway, my point of that particular comparison wasn't to say
>>>>>>>>"ITB mixes are better than using a large-format console that
>>>>>>>>costs somewhere in the six-figure range", the point of it was to
>>>>>>>>address a signal-chain suggestion that Paul had... he had
>>>>>>>>suggested perhaps that I needed to pick up a few pieces of
>>>>>>>>killer vintage gear, and I was just demonstrating that I think
>>>>>>>>the various signal chain components that I have here are on par
>>>>>>>>with most anything that can be found in heavy-hitter studios...
>>>>>>>>we used probably around \$100k's worth of mics & pre's on the
>>>>>>>>PTHD/SSL mixes, plus obviously you're looking at another
>>>>>>>>roughly \$100k for that particular console (40-channel E-series,
>>>>>>>>black EQ's, w/G-series Computer & Total Recall package), add in
>>>>>>>>the PTHD, outboard gear & whatnot, and you end up with
>>>>>>>>somewhere around a quarter-mil's worth of equipment involved in
>>>>>>>>that project. The project done at my place was done with my
>>>>>>>>gear, which certainly doesn't tally up to anywhere remotely
>>>>>>>>close to that cost & none of it bears a "vintage" stamp, but it
>>>>>>>>sounds competitive with the project that used all the heavy-
>>>>>>>>hitter stuff.

>>>>>>>

>>>>>>>>Neil

>>>>>>>

>>>>>>>

>>>>>>

>>>>>

>>>>

>>>

>>

»

>Thanks Rod.

Damn, I was living in this fantasy that somehow the aux returns would simply get "mixed in" when I made a submix.

Cheers,

MR

"Rod Lincoln" <rlincoln@nosopam.kc.rr.com> wrote in message news:4589a8db\$1@linux...

 $\succ$

> If you want to print the verb you have to return it to it's own tracks.

Instead

> of connecting the returns to the aux, connect them to 2 inupts, just like

> you were were recording something. Hit record, and let the song play out.

> Rod

> "Mike R." <emarenot@yahoo.com> wrote:

> >

> >

> >I've been using ITB verbs and Paris verbs for most of my work. But recently

> >I hung a TC reverb off on of Paris' external outs. I set up one of the

> Aux

> >send/returns to handle the TC. How do I record the reverberated audio into

> >the submix? Does this happen "automatically" when I create an intelligent

> >submix or do I have to return the verb to two of its own tracks? From what

> >I've read there, the manual doesn't have a real clear answer to the

> >question -though I could have missed something.

> >Thanks

> >MR

> >

> >

> ><!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">

> ><HTML><HEAD>

> ><META http-equiv=3DContent-Type content=3D"text/html; =

> >charset=3Diso-8859-1">

> ><META content=3D"MSHTML 6.00.2800.1555" name=3DGENERATOR>

> ><STYLE></STYLE>

> ></HEAD>

> ><BODY bgColor=3D#ffffff>

> ><DIV>I've been using ITB verbs and Paris =

> >verbs for most=20

> >of my work. But recently I hung a TC reverb off on of Paris' =

> >external=20

> >outs. I set up one of the Aux send/returns to handle the TC. =

> >How do=20

> >I record the reverberated audio into the submix? Does this happen=20

> >"automatically" when I create an intelligent submix or do I have to =

> >return the=20

> >verb to two of its own tracks? From what I've read there, the =

> >manual=20

> >doesn't have a real clear answer to the question -though I could have =

> >missed=20

> >something.</DIV>

> ><DIV>Thanks</DIV>

> ><DIV>MR</DIV></BODY></HTML>

> >

> >

> Well, hey, at least we can agree that Live sounds good.

I'm really psyched for my Live/Scope setup. The Core Duo desktop is set up and running nicely (what a change from a three year old Athlon) so I'll have

gobs of native f/x and instruments, UAD-1 plugs, and Scope synths/effects/mixing. Then I will officially be 100% at fault if I suck ;-)

TCB

"LaMont" <jjdpro@gmail.com> wrote:

>

>Agreed..

>"TCB" <nobody@ishere.com> wrote:

>>

>>That's too bad. I think people have an instinctive thing against the sound

>>of Live as well, just because it also loops like ACID does. Live sounds

>like

>>a properly written native DAW when working with non time stretched tracks.

>>The sound quality on the stretched audio is amazing, all things considered,

>>but the non-stretched sound is indistinguishable from SX. Too bad the only

>>really truly awful sounding app has to bring down a perfectly nice sounding

>>one.

>>

>>TCB

>>

>>"DJ" <nowayjose@dude.net> wrote:

>>>>with the exception of the last version of ACID I used (way back, I think

>>>v.

>>>>3) which did sound truly awful.<

>>>Don't hold your breath hoping ACID will sound any better. I DL'ed V6.0

>>and

>>>it sounds pretty awful too. I'm going to run it using Rewire in cubase

>SX

>>3

>>>and lightpipe it to Paris and see if it's the actual ACID audio engine

>or

>>

>>>the summing. I've got a feeling it's the audio engine..just a

>>>feeling.....because I've also got Vegas here and it sucks too.

>>>

>>>;o)

>>>

>>>"TCB" <nobody@ishere.com> wrote in message news:45894947\$1@linux...

>>>>

>>>> I'm not convinced I can hear any difference between native systems,
with

>>>

>>>> the

>>>> exception of the last version of ACID I used (way back, I think v. 3)

>>>>

>>>> which

>>>> did sound truly awful. The real test on that one for me was the DAWSUM

>>CD
>>>> (which I purchased and dutifully scored because I was convinced 'summing'
>>>> was the real reason PARIS sounded so good) wherein I discovered that
>I
>>
>>>> could
>>>> barely tell one mix from the next even when hearing vastly different
>
>>>> systems.
>>>> Since then I am a skeptic, as opposed to a disbeliever, when I hear
that
>>>> one piece of software sounds greatly better, or even different, than
>
>>>> another.
>>>> I'm not saying some people can't tell some pieces of software from other
>>>> pieces of software, I'm just saying I'm skeptical one system is 'bright'
>>>> or 'sharp' or anything else until someone can produce statistically

>>>> meaningful
>>>> results in an ABY test.
>>>>
>>>> One of the great things about that DAWSUM CD is it has let me use the
>>
>>>> software
>>>> that I like the most, without worrying too much about the sound. That
>>
>>>> would
>>>> be Ableton Live most of the time, with SX as a backup if the editing
>gets
>>>> more intense. For me that alone was worth the time I spent on the DAWSUM
>>>> CD.
>>>>
>>>> TCB
>>>>
>>>> "LaMont" <jjdpro@ameritech.net> wrote:
>>>>>
>>>>>Thad, you really can't hear the difference?? Maybe I own too many software
>>>>>DAWS thru the years.
>>>>>
>>>>>Starting on Logic Audio 3.0, then to Cakwalk, Pro Tools, DP, Paris,Acid,
>>>>>Neundo, Sonar, samplitude..
>>>>>
>>>>>I can hear the diference with the same audio interface with the same
>wav
>>>>>file(s)as oon as I import the file or files.
>>>>>
>>>>>These days, depending on the genre I'm mising determines which DAW
>>>>>software

>>>>>I'll use.
>>>>>My circle of engineer and producer buddies all can hear the difference
>>in
>>>>>a second. Just the other day, we were mixing this R&B(ish)Gospel track
>>and
>>>>>somebody said, 'Mont, this is begging for Paris. Another track, the
call
>>>>>was for Pro Tools. And another,Nuendo..
>>>>>I know BrianT feels and hears the same way in different DAW software.
>>It's
>>>>>really obvious..
>>>>>
>>>>>
>>>>>"TCB" <nobody@ishere.com> wrote:
>>>>>
>>>>>>Which is why ABY testing uses expert listeners instead of scopes and
>>
>>>>>>graphs.
>>>>>>
>>>>>>
>>>>>>I'm not saying you're wrong, esp. about ITB vs external summing. One
>>
>>>>>>would
>>>>>>expect that to sound at least slightly different. But I would be
>>>>>>absolutely
>>>>>>shocked if anyone could tell in a controlled ABY test whether they
were
>>>>>listening
>>>>>>to SX, Performer, of Sonar.
>>>>>>
>>>>>>"LaMont" <jjdpro@ameritech.net> wrote:
>>>>>>
>>>>>>>The only real test is with the ears and not scopes and graphs.
>>>>>>>
>>>>>>>"TCB" <nobody@ishere.com> wrote:
>>>>>>>
>>>>>>>>I'd like to see this proven in a controlled ABY test.
>>>>>>>>
>>>>>>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>>>>>
>>>>>>>>>Hey Neil,
>>>>>>>>>
>>>>>>>>>>All I'm saying is: All DAW software have their own unique sound.
>
>>>>>>>>>Despite
>>>>>>>>>>what those lame summing test shows..
>>>>>>>>>>
>>>>>>>>>>>PT-HD has a very distinct sound. A very polished sound, with a nice

>>>> top
>>>>>>>end,
>>>>>>>but with full audio spectrum represented. Mixer/Summing buss can
>be
>>>> pushed,
>>>>>>>but you have to watch it.
>>>>>>>
>>>>>>>Nuendo/SX: Has a very Clear, 2 dimension sound, that does not hype
>>the
>>>>>>>top
>>>>>>>nor bottom end.
>>>>>>>
>>>>>>>Logic Audio: Very Broad- Aggressive sound, that really works for
>Rock
>>>>>>>and
>>>>>>>R & B/Gospel mixes.
>>>>>>>
>>>>>>>Digital Performer: With their hardware, superb audio quality. Full
>>
>>>>>>>bodied
>>>>>>>sound .
>>>>>>>
>>>>>>>Sonar: Very flat sounding. I would say that Sonar is your most vanilla
>>>>>>>sound
>>>>>>>DW on the market..
>>>>>>>
>>>>>>>Samplitude : A little less top end than Pro Tools. Full bodied 3d
>>
>>>>>>>sound..
>>>>>>>
>>>>>>>Paris: Dark sounding in comparison to the the other DAWs. But, has
>>a
>>>>>>>3d
>>>>>>>sound
>>>>>>>quality that's full bodied.
>>>>>>>
>>>>>>>I feel that you asking SX to be something it's not with some analog
>>>> summing.
>>>>>>>Especially for your genre of music..
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>"Neil" <IUOIU@OIU.com> wrote:
>>>>>>>
>>>>>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>>>>
>>>>>>>>>"I'd disagree with you in this instance because I happen to think

>>>> the
>>>>>>>Cubase
>>>>>>>>>ones DO sound better."
>>>>>>>>>
>>>>>>>>>Then that SSL Engineer does not know what they are doing with
board.
>>>>>>>There's
>>>>>>>>>no way a mix coming off of that board SSL should sound better
than
>>>>>a
>>>>>>>ITB
>>>>>>>>>Cubase SX mix..
>>>>>>>>>
>>>>>>>>>Sorry, that just does not jive. That engineer does not know how
>>to
>>>>>push
>>>>>>>>>he
>>>>>>>>>SSL or just not familiar with it.
>>>>>>>>>
>>>>>>>>>You're not really paying attention, are you? It was the same
>>>>>>>>>engineer (me). And as far as whether or not I know how to use
>>>>>>>>>that particular board, I guess that would be a matter of
>>>>>>>>>your opinion. I don't think the SSL mixes are bad ones, I think
>>>>>>>>>they came out good; I just think that you can hear more detail
>>>>>>>>>in the ITB mixes in the examples I gave, and they have more
>>>>>>>>>wideband frequency content from top to bottom.
>>>>>>>>>
>>>>>>>>>Anyway, my point of that particular comparison wasn't to say
>>>>>>>>>"ITB mixes are better than using a large-format console that
>>>>>>>>>costs somewhere in the six-figure range", the point of it was to
>>>>>>>>>address a signal-chain suggestion that Paul had... he had
>>>>>>>>>suggested perhaps that I needed to pick up a few pieces of
>>>>>>>>>killer vintage gear, and I was just demonstrating that I think
>>>>>>>>>the various signal chain components that I have here are on par
>>>>>>>>>with most anything that can be found in heavy-hitter studios...
>>>>>>>>>we used probably around \$100k's worth of mics & pre's on the
>>>>>>>>>PTHD/SSL mixes, plus obviously you're looking at another
>>>>>>>>>roughly \$100k for that particular console (40-channel E-series,
>>>>>>>>>black EQ's, w/G-series Computer & Total Recall package), add in
>>>>>>>>>the PTHD, outboard gear & whatnot, and you end up with
>>>>>>>>>somewhere around a quarter-mil's worth of equipment involved in
>>>>>>>>>that project. The project done at my place was done with my
>>>>>>>>>gear, which certainly doesn't tally up to anywhere remotely
>>>>>>>>>close to that cost & none of it bears a "vintage" stamp, but it
>>>>>>>>>sounds competitive with the project that used all the heavy-
>>>>>>>>>hitter stuff.
>>>>>>>>>
>>>>>>>>>Neil

>>>>>>>>

>>>>>>>

>>>>>>>

>>>>>>

>>>>>

>>>>

>>>

>>>

>>

>"Mike R." <emarenot@yahoo.com> wrote in message news:4589a9b9@linux...

> Thanks Rod.

> Damn, I was living in this fantasy that somehow the aux returns would

> simply

> get "mixed in" when I made a submix.

> Cheers,

> MR

>

For a second I thought you were going to say you had a fantasy about ID releasing a new version of PAris

Don

> "Rod Lincoln" <rlincoln@nosopam.kc.rr.com> wrote in message

> news:4589a8db\$1@linux...

>>

>> If you want to print the verb you have to return it to it's own tracks.

> Instead

>> of connecting the returns to the aux, connect them to 2 inupts, just like

>> you were were recording something. Hit record, and let the song play out.

>> Rod

>> "Mike R." <emarenot@yahoo.com> wrote:

>> >

>> >

>> >I've been using ITB verbs and Paris verbs for most of my work. But

> recently

>> >I hung a TC reverb off on of Paris' external outs. I set up one of the

>> Aux

>> >send/returns to handle the TC. How do I record the reverberated audio

> into

>> >the submix? Does this happen "automatically" when I create an

>> >intelligent

>> >submix or do I have to return the verb to two of its own tracks? From

> what

>> >I've read there, the manual doesn't have a real clear answer to the

```

>> >question -though I could have missed something.
>> >Thanks
>> >MR
>> >
>> >
>> ><!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
>> ><HTML><HEAD>
>> ><META http-equiv=3DContent-Type content=3D"text/html; =
>> >charset=3Diso-8859-1">
>> ><META content=3D"MSHTML 6.00.2800.1555" name=3DGENERATOR>
>> ><STYLE></STYLE>
>> ></HEAD>
>> ><BODY bgColor=3D#ffffff>
>> ><DIV><FONT face=3DArial size=3D2>I've been using ITB verbs and Paris =
>> >verbs for most=20
>> >of my work. But recently I hung a TC reverb off on of Paris' =
>> >external=20
>> >outs. I set up one of the Aux send/returns to handle the TC. =
>> >How do=20
>> >I record the reverberated audio into the submix? Does this happen=20
>> >"automatically" when I create an intelligent submix or do I have to =
>> >return the=20
>> >verb to two of its own tracks? From what I've read there, the =
>> >manual=20
>> >doesn't have a real clear answer to the question -though I could have =
>> >missed=20
>> >something.</FONT></DIV>
>> ><DIV><FONT face=3DArial size=3D2>Thanks</FONT></DIV>
>> ><DIV><FONT face=3DArial size=3D2>MR</FONT></DIV></BODY></HTML>
>> >
>> >
>>
>
>This is a multi-part message in MIME format.

```

```

-----=_NextPart_000_0064_01C7245E.7BDB16B0
Content-Type: text/plain;
  charset="iso-8859-1"
Content-Transfer-Encoding: quoted-printable

```

Thanks Chris.=20
This graphics stuff is confusing to me.

I have to convert the DVI to VGA because of the 20' length
as I understand. I was going to split it with a Y cable too.
They'll split to a 21"VGA and a 22"LCD. Will that work on=20
the far side of a KVM? I know the resolutions won't match
but I'll only need the VGAs when mixing so I'll adjust the=20

7300 differently for that application. Sooner or later I'll get 4 matching 22" LCDs and quad cards for both comps.

Will this work?

Tom

"Chris Ludwig" <chrisl@adkproaudio.com> wrote in message =
news:45894ef0\$1@linux...

Hi Tom,
These monitors will be fine with your card. The 7300GT supports that=20
resolution on both the VGA and DVI connections.I would run both with =
VGA=20
connections. Having one hooked up DVI and one VGA may make the 2 look=20
very different in brightness and such.
Chris

Tom Bruhl wrote:

> My card has one VGA, one DVI and one S Video connector on it.
>
>
> I choose Polesoft Lockspam to fight spam, and you?
> <http://www.polesoft.com/refer.html> =20

--=20

Chris Ludwig
ADK
chrisl@adkproaudio.com <mailto:chrisl@adkproaudio.com>
www.adkproaudio.com <<http://www.adkproaudio.com/>>
(859) 635-5762

-----=_NextPart_000_0064_01C7245E.7BDB16B0

Content-Type: text/html;
charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
<HTML><HEAD>
<META http-equiv=3DContent-Type content=3D"text/html"; =
charset=3Diso-8859-1">
<META content=3D"MSHTML 6.00.2800.1400" name=3DGENERATOR>
<STYLE></STYLE>
```


connections. Having one hooked up DVI and one VGA may make the 2 =
look=20

very different in brightness and such.
Chris

Tom =
Bruhl=20
wrote:

> My card has one VGA, one DVI and one S Video =
connector on=20
it.
>
>
> I choose Polesoft Lockspam to fight spam, =
and=20
you?
> <A=20
=
href=3D"http://www.polesoft.com/refer.html">http://www.polesoft.com/refer=
..html =20

--
Chris Ludwig
ADK
<A=20
href=3D"mailto:chrisl@adkproaudio.com">chrisl@adkproaudio.com =
<<A=20
=
href=3D"mailto:chrisl@adkproaudio.com">mailto:chrisl@adkproaudio.com&=
gt;
<A=20
href=3D"http://www.adkproaudio.com">www.adkproaudio.com <<A=20
=
href=3D"http://www.adkproaudio.com/">http://www.adkproaudio.com/><=
BR>(859)=20
635-5762</BLOCKQUOTE></BODY></HTML>

-----=_NextPart_000_0064_01C7245E.7BDB16B0--Do you just want to keep some tracks around
without hearing them in the
project?

Or describe what you're after, exactly and I'll see if I have any
suggestions...

Cheers,
-Jamie
www.JamieKrutz.com

George Axon wrote:

> I'm so used to putting things in jail in Paris, but haven't found an equivalent
> in Logic
> - is there one?
>
> George AxonThanks Mike :)

I'll keep you posted on our progress :)

Morgan wrote:

> Hi Mike,
>
> I have been asked to build another PARIS rig and would love
> to know more about your Dual core , what you did and how you got there.
> Please let us know how in every detail you were able to get this going.
> I will find a way to reward you :)
>
> Thanks Mike :)
> Morgan
> Eastcoast Music Mall
> morganp@ntplx.net
>
>
> Hi Mike,
>
> Congrats on your hard work . Today I was
> doing homework with my son Logan.
> His assignment was to define " Hero "
> One that acts with courage and bravery despite
> overwhelming odds.
>
> Mike - you are now My Hero !!
>
> Respectfully Yours ,
>
> Morgan
>
>
> Mike P wrote:
>
> > Ok, so it took ten days of total frustration, but I have succeeded!
> > My HP dual core is running Paris flawlessly, and it is awesome. This
> computer
> > is blazingly fast. I was processing files in wavelab that would have
> taken
> > 4-5 min on my old cpu, in 52secs. As I have faced every error known
> to man during this install, and fixed them,
> > if anyone has questions, please ask. Thanks to everyone who helped
> along the way.
> They will get mixed in. Rod was posting about if you want to print the verbs
to individual tracks. Lots of folks do that to be able to change the verb
level later.

Chuck

"Mike R." <emarenot@yahoo.com> wrote:

>Thanks Rod.

>Damn, I was living in this fantasy that somehow the aux returns would simply

>get "mixed in" when I made a submix.
 >Cheers,
 >MR
 >
 >"Rod Lincoln" <rlincoln@nosopam.kc.rr.com> wrote in message
 >news:4589a8db\$1@linux...
 >>
 >> If you want to print the verb you have to return it to it's own tracks.
 >Instead
 >> of connecting the returns to the aux, connect them to 2 inupts, just like
 >> you were recording something. Hit record, and let the song play out.
 >> Rod
 >> "Mike R." <emarenot@yahoo.com> wrote:
 >> >
 >> >
 >> >I've been using ITB verbs and Paris verbs for most of my work. But
 >recently
 >> >I hung a TC reverb off on of Paris' external outs. I set up one of the
 >> Aux
 >> >send/returns to handle the TC. How do I record the reverberated audio
 >into
 >> >the submix? Does this happen "automatically" when I create an intelligent
 >> >submix or do I have to return the verb to two of its own tracks? From
 >what
 >> >I've read there, the manual doesn't have a real clear answer to the
 >> >question -though I could have missed something.
 >> >Thanks
 >> >MR
 >> >
 >> >
 >> ><!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
 >> ><HTML><HEAD>
 >> ><META http-equiv=3DContent-Type content=3D"text/html; =
 >> >charset=3Diso-8859-1">
 >> ><META content=3D"MSHTML 6.00.2800.1555" name=3DGENERATOR>
 >> ><STYLE></STYLE>
 >> ></HEAD>
 >> ><BODY bgColor=3D#ffffff>
 >> ><DIV>I've been using ITB verbs and Paris
 =
 >> >verbs for most=20
 >> >of my work. But recently I hung a TC reverb off on of Paris' =
 >> >external=20
 >> >outs. I set up one of the Aux send/returns to handle the TC. =
 >> >How do=20
 >> >I record the reverberated audio into the submix? Does this happen=20
 >> >"automatically" when I create an intelligent submix or do I have to =
 >> >return the=20

```

>> >verb to two of its own tracks? From what I've read there, the =
>> >manual=20
>> >doesn't have a real clear answer to the question -though I could have
=
>> >missed=20
>> >something.</FONT></DIV>
>> ><DIV><FONT face=3DArial size=3D2>Thanks</FONT></DIV>
>> ><DIV><FONT face=3DArial size=3D2>MR</FONT></DIV></BODY></HTML>
>> >
>> >
>>
>
>"Mike R." <emarenot@yahoo.com> wrote:
>Damn, I was living in this fantasy that somehow the aux returns would simply
>get "mixed in" when I made a submix.

```

Anything on the Auxes that is active when you bounce or render will be mixed in, just as it sounds on playback. If you want further control of the verbs later in the mix process (EQs, levels etc) then you return the

verbs (sent via Aux) to 2 channels and record the input. Can't remember what, if any, muting of other channels has to happen in order for you to only receive back the wet verb signal...

TedNope, no jails in LogicPro. I just stash clumps of stuff after the song end, though this is clearly not as easy as PARIS jails.

```

>I'm so used to putting things in jail in Paris, but haven't found an equivalent
>in Logic
>- is there one?
>

```

```

>George AxonSee Dedric, everthing is this life is not expalinable. Although we would like
it to be  $2+2=4$ , the rality is that sometimes  $2+2=4.40$ ..Why, becuae the
the math is flawed. Why is the math flawed? Becuase we as humans are flawed.
Say what you will about the metric system, which is a great tool.But, sometimes
working in inches and 16ths, 3/4s works better.

```

When a guy like Roger Nichols bangs his preverbial head around this issue as to why his mix sound different being rendered from different and sometimes the same cd mastering devices is expalinable, however the explanation does not jive with the science.

Are we to believe that the Science we have today about digital audio is the the Last word?? No.. In the future, some new science will come along and either rebuff our current science or enhance it.

We I and other say.. We drop a stereo wav file in a given daw)(unity gain) using the same audio converter...We can hear the difERENCE. And it's sonically obvious..

Lynns test is flawed because of the Roger Nicohls CD mastering problem. Things change when going to render to CD.

Hey some people on this earth can hear and see better than others..That's just a fact

"Dedric Terry" <dedric@echomg.com> wrote:

>Of course Paris sounds different on Lynn's sampler, that was audible, and

>there are technical reasons why Paris will always sound different, but I

>didn't like it better on the sampler CD, to be honest, though the

>differences were subtle. Also, we weren't talking about Acid vs. Sonar

>specifically. I don't even bother with Acid as a DAW example - it's a loop

>app. Vegas is a video app that has had life as an audio app to some degree,

>but iMovie does audio as well, yet that doesn't really put it in the same

>category as professional DAW apps like Nuendo, PTHD, Sequoia, etc. I use

>Vegas for video, but not audio.

>

>On Lynn's sampler, Samplitude, Nuendo, Fairlight and the other natives don't

>sound different and aren't different in the unity gain examples

>(even the PTHD mix cancels with these). If you hear two files sounding

>differently that cancel to complete null, an audio difference isn't what you

>are hearing. When there are differences in non-unity gain mix summing

>tests, you have an extra variable to account for - how is the gain

>calculated? Gain

>is non-linear (power), not adding two numbers together. So how is pan law

>factored in, and where? Are your faders exactly the same, or 0.001dB

>variant?

>

>Also if you drop the same stereo file in two different pro audio apps and

>hear a difference, one of the two apps is defective. There is nothing

>happening with a stereo file playback when no gain change or plugins are

>active - just audio streaming to the driver from disk. If you hear a

>difference there, I would be quickly trying to find out why. Something is

>wrong.
>
>The point I am making is that these arguments usually come up as blanket

>statements with no qualification of what exactly sounds
>different, why it might, or solid well reasoned attempts to find out why,
or
>if there could be a real difference, or just a perceived one.
>
>Usually the "use your ears" comment comes up when there is no technical

>rebuttal for when the science and good
>ears agree. Of course "use your ears" first from a creative perspective,

>but if you are making a technical, scientific statement, then such comments
>aren't a good foundation to work from. It's a great motto, but a bit of
a
>cop out in a technical discussion.
>
>Regards,
>Dedric
>
>"LaMont" <jjdpro@ameriech.net> wrote in message news:45897f73\$1@linux...
>>
>> Hey Dedric and Neil,
>>
>> I reason I think that the Summing CD test(good intentions) were lame was
>> because.. If a person can;t hear the difference btw a stereo wav file

>> that's
>> in Acid vs Sonar really needs a hearing test.
>>
>> For reason of my music work, I have to work with different DAWs, so I'm

>> very
>> familiar with their sound qualities. My circle of producers and engineers
>> talk about the daw sonics all the time. It's really no big deal anymore..
>>
>> The same logic applies when Roger Nichols (a few) years back in his
>> article
>> about master CD's and that he found out that 4 differnt CD burners yeilded
>> differnt sonic results. Sure, he sated that Math is the Math :) but, his
>> and the masering engineers Ears told them soemthing was different.
>> Hummm???
>>
>> Now, back to DAW sonics. I can hear the difference btw Paris and Nuendo
vs
>> Pro Tools, Logic audio.. There is no math to this, this is an ear

>> thing..You
>> either hear or you don't.. Simple.
>> But, good ears can hear it. .
>>
>> I really think the problem is, noone want to no that their money that

>> they've
>> spent on a given DAW, has sonic limitations or shall we say, just
>> different..
>>
>> I like that they all sound different. It's good to have choice when mixing
>> a song. Some DAWs, depending on the genre will yield better or the desired
>> results and than another.
>> EX. I would not mix a Acoustic jazz record today with Paris..reason, I'm
>> going for clarity at it's highest level.. For that project, It's either

>> Neundo
>> or Pro Tools and may Samplitude..Why should I fight with Paris's thick,

>> gooy
>> sonics, when I'm going for clarity. Well, Pro Tools and Nuendo/SX has
that
>> sound right out the gate.. Which makes my job a lot easier. simple. This
>> is not tosay that I could not get the job done in Paris..i could..But,
for
>> that Acoutic Jazz project , the other 2 daws gives me what I'm looking

>> for
>> without even touching an eq..
>>
>> This is not all about math. As BrianT states: Use you ears..Forget the

>> math..What
>> does knowing the math do for you anyway? Nothing, it just proves that
you
>> know the math. Does not tell you diddly about the sonics.. Just ask Roger
>> Nichols..
>>
>>
>> "Dedric Terry" <d@nospam.net> wrote:
>>>
>>>I know we disagree here Lamont and that's totally cool, so I won't take
>> this
>>>beyond this one response, and this isn't really directed to you, but my
>> general
>>>thoughts on the matter.
>>>
>>>In Neil's "defense" (not that he needs it), I and others have done this

>> comparison
>>>to death and the conclusion I've come to is that people are 80% influenced
>>>by a change in environment (e.g. software interface) and 20% ears. Sorry
>>>to say it, but the difference in sound between floating point DAWs is
far
>>>from real. It's just good, albeit unintentional marketing created by

>>>users
>>>and capitolized by manufacturers. Perceiving a "sound" in DAWs that in
>> actuality
>>>process data identically, is a bad reason to pick a DAW, but of course

>>>there
>>>is nothing wrong with thinking you hear a difference as long as it doesn't
>>>become an unwritten law of engineering at large. Preferring to work with
>>>one or the other, and "feeling" better about it for whatever reason is
a
>>>great reason to pick one DAW over another.
>>>
>>>There was a recent thread that Nuendo handled gain through groups
>>>differently,
>>>so I put Nuendo, Sonar 6 (both 32 and 64-bit engines) and Sequoia 8.3
to
>>>the test - identical tests, setup to the 1/100th of a dB identically and
>>>came up with absolutely no difference, either audible or scientific.
To
>>>be honest, this was the one test where I could have said, yes there is
an
>>>understandable difference between DAWs in a simple math function, and
the
>>>only one in the DAW that actually might make sense, yet even that did
not
>>>exist. The reason - math is math. You can paint it red, blue, silver
or
>>>dull grey, but it's still the same math unless the programmer was high
or
>>>completely incompetent when they wrote the code.
>>>
>>>I thought it was entirely possible the original poster had found something
>>>different in Nuendo, but when it came down to really understanding and

>>>reproducing
>>>what happens in DAW summing and gain structures accurately between each
>> DAW,
>>>there was none, nada, nil. The assertion was completely squashed. This

>>>also
>>>showed me how easy it is for a wide range of professionals to misinterpret

>>>digital audio - whether hearing things, or just setting up a test with
a
>>>single missed variable that completely invalidates the whole process.
>>>
>>>If you hear a difference, great. I've thought I heard a difference doing
>>>similar comparisons, then changed my perspective (nothing else - not
>>>converters,
>>>nothing - just reset my expectations, and switched back and forth) and

>>>could
>>>hear no difference.
>>>
>>>Just leave some room for other opinions when you post yours on this
>>>subject
>>>since it is very obvious that hearing is not as universally objective
and
>>>identically referenced as everyone might like to believe, and is highly
>> visually
>>>and environmentally affected. Some will hear differences in DAWs. There
>>>are Cubase SX 3 users claiming Cubase 4 sounds different. Sigh. Then

>>>they
>>>realize they aren't even using the same project... or at least different
>>>EQs, or etc, etc....
>>>
>>>Say what you want about published summing tests, but Lynn's tests are
as
>>>accurate as it gets, and that bears out in the results (all floating point
>>>DAWs cancel and sound identical - if you are hearing a difference, you
are
>>>hearing things that aren't there, or you forgot to align their gain and
>> placement).
>>> I've worked with Lynn at least briefly enough to know his attention to
>> detail.
>>> In the same way people will disagree about PCs and Macs until neither

>>> exists,
>>>so will audio engineers disagree about DAWs. This is one debate that
will
>>>always exist as long as we have different ears, eyes, brains,... and
>>>opinions.
>>>
>>>
>>>What Neil has done is to prove that opinions are always going to differ
>> (i.e.
>>>no consensus on the "best" mix of the ones posted). And in truth everyone
>>>has a different perception of sound in general - not everyone wants to

>>>hear
>>>things the same way, so we judge "best" from very different perspectives.
>>> There is no single gold standard. There are variations and mutated
>>> combinations,
>>>but all are subjective. That in and of itself implies very distinctly

>>>that
>>>people can and will even perceive the exact same sound differently if

>>>presented
>>>with any variable that changes the brain's interpretation, even if just
>> a
>>>visual distraction. Just change the lights in the room and see if you

>>>perceive
>>>a song differently played back exactly the same way. Or have a cat run
>> across
>>>a desk while listening. Whether you care to admit it or not, it is there,
>>>and that is actually the beauty of how our sense interact to create
>>>perception.
>>> That may be our undoing with DAW comparison tests, but it's also what

>>> keeps
>>>music fresh and creative, when we allow it to.
>>>
>>>So my suggestion is to use what makes you most creative, even if it's
just
>>>a "feeling" working with that DAW gives you - be it the workflow, the
GUI,
>>>or even the name brand reputation. But, as we all know, if you can't
make
>>>most any material sound good on whatever DAW you choose, the DAW isn't
the
>>>problem.
>>>
>>>Regards,
>>>Dedric
>>>
>>>"Neil" <IUOIU@OIU.com> wrote:
>>>>
>>>>That's interesting - all those DAW sonic interpretations, I
>>>>mean... I haven't had a chance to usee all of those, so it's
>>>>good information.
>>>>
>>>>I still don't understand why you consider my summing
>>>>comparisons "lame", however - it was a fair set of tests;
>>>>the same mix summed in different ways. Not trying to prove a
>>>>point or to rig it so one sounded any better than the other - in

>>>>fact, if you recall the thread, different people liked different
>>>>summed versions for different reasons... there wasn't any one
>>>>version that stood out as being "the one" that everyone felt
>>>>sounded better. The only reason I didn't come right out & say
>>>>right away which version was which is so that I didn't bias
>>>>anyone's opinion beforehand by mentioning that... NOT to try
>>>>& "hide" anything or "trick" anyone, as you accused me of
>>>>
>>>>Sheesh!
>>>>
>>>>Neil
>>>>
>>>>
>>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>
>>>>>Hey Neil,
>>>>>
>>>>>All I'm saying is: All DAW software have their own unique sound.
>>>>>Despite
>>>>>what those lame summing test shows..
>>>>>
>>>>>PT-HD has a very distinct sound. A very polished sound, with a nice
top
>>>>>end,
>>>>>but with full audio spectrum represented. Mixer/Summing buss can be

>>>>>pushed,
>>>>>but you have to watch it.
>>>>>
>>>>>Nuendo/SX: Has a very Clear, 2 dimension sound, that does not hype the
>>>top
>>>>>nor bottom end.
>>>>>
>>>>>Logic Audio: Very Broad- Aggressive sound, that really works for Rock
>> and
>>>>>R & B/Gospel mixes.
>>>>>
>>>>>Digital Performer: With their hardware, superb audio quality. Full
>>>>>bodied
>>>>>sound .
>>>>>
>>>>>Sonar: Very flat sounding. I would say that Sonar is your most vanilla
>>>sound
>>>>>DW on the market..
>>>>>
>>>>>Samplitude : A little less top end than Pro Tools. Full bodied 3d
>>>>>sound..
>>>>>

>>>>>Paris: Dark sounding in comparison to the the other DAWs. But, has a
3d
>>>>sound
>>>>>quality that's full bodied.
>>>>>
>>>>>I feel that you asking SX to be something it's not with some analog

>>>>>summing.
>>>>>Especially for your genre of music..
>>>>>
>>>>>
>>>>>
>>>>>"Neil" <IUOIU@OIU.com> wrote:
>>>>>
>>>>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>>>>
>>>>>>>"I'd disagree with you in this instance because I happen to think
the
>>>>Cubase
>>>>>>>ones DO sound better."
>>>>>>>
>>>>>>>Then that SSL Engineer does not know what they are doing with board.
>>>There's
>>>>>>>no way a mix coming off of that board SSL should sound better than
a
>>>ITB
>>>>>>>Cubase SX mix..
>>>>>>>
>>>>>>>Sorry, that just does not jive. That engineer does not know how to

>>>>>>>push
>>>>>>>he
>>>>>>>SSL or just not familiar with it.
>>>>>>>
>>>>>>>You're not really paying attention, are you? It was the same
>>>>>>>engineer (me). And as far as whether or not I know how to use
>>>>>>>that particular board, I guess that would be a matter of
>>>>>>>your opinion. I don't think the SSL mixes are bad ones, I think
>>>>>>>they came out good; I just think that you can hear more detail
>>>>>>>in the ITB mixes in the examples I gave, and they have more
>>>>>>>wideband frequency content from top to bottom.
>>>>>>>
>>>>>>>Anyway, my point of that particular comparison wasn't to say
>>>>>>>"ITB mixes are better than using a large-format console that
>>>>>>>costs somewhere in the six-figure range", the point of it was to
>>>>>>>address a signal-chain suggestion that Paul had... he had
>>>>>>>suggested perhaps that I needed to pick up a few pieces of

>>>>>killer vintage gear, and I was just demonstrating that I think
>>>>>the various signal chain components that I have here are on par
>>>>>with most anything that can be found in heavy-hitter studios...
>>>>>we used probably around \$100k's worth of mics & pre's on the
>>>>>PTHD/SSL mixes, plus obviously you're looking at another
>>>>>roughly \$100k for that particular console (40-channel E-series,
>>>>>black EQ's, w/G-series Computer & Total Recall package), add in
>>>>>the PTHD, outboard gear & whatnot, and you end up with
>>>>>somewhere around a quarter-mil's worth of equipment involved in
>>>>>that project. The project done at my place was done with my
>>>>>gear, which certainly doesn't tally up to anywhere remotely
>>>>>close to that cost & none of it bears a "vintage" stamp, but it
>>>>>sounds competitive with the project that used all the heavy-
>>>>>hitter stuff.

>>>>>

>>>>>Neil

>>>>>

>>>>>

>>>>>

>>>>>

>>>>>

>Lol!!! :)

"TCB" <nobody@ishere.com> wrote:

>

>Well, hey, at least we can agree that Live sounds good.

>

>I'm really psyched for my Live/Scope setup. The Core Duo desktop is set
up

>and running nicely (what a change from a three year old Athlon) so I'll
have

>gobs of native f/x and instruments, UAD-1 plugs, and Scope synths/effects/mixing.

>Then I will officially be 100% at fault if I suck ;-)

>

>TCB

>

>"LaMont" <jjdpro@gmail.com> wrote:

>>

>>Agreed..

>>"TCB" <nobody@ishere.com> wrote:

>>>

>>>That's too bad. I think people have an instinctive thing against the sound

>>>of Live as well, just because it also loops like ACID does. Live sounds

>>>like

>>>a properly written native DAW when working with non time stretched tracks.

>>>The sound quality on the stretched audio is amazing, all things considered,

>>>but the non-stretched sound is indistinguishable from SX. Too bad the
only

>>>really truly awful sounding app has to bring down a perfectly nice sounding
>>>one.
>>>
>>>TCB
>>>
>>>"DJ" <nowayjose@dude.net> wrote:
>>>>>with the exception of the last version of ACID I used (way back, I think
>>>>v.
>>>>>3) which did sound truly awful.<
>>>>Don't hold your breath hoping ACID will sound any better. I DL'ed V6.0
>>>>and
>>>>it sounds pretty awful too. I'm going to run it using Rewire in cubase
>>SX
>>>3
>>>>and lightpipe it to Paris and see if it's the actual ACID audio engine
>>or
>>>
>>>>the summing. I've got a feeling it's the audio engine..just a
>>>>feeling.....because I've also got Vegas here and it sucks too.
>>>>
>>>>;o)
>>>>
>>>>"TCB" <nobody@ishere.com> wrote in message news:45894947\$1@linux...
>>>>>
>>>>> I'm not convinced I can hear any difference between native systems,
>>with
>>>
>>>>> the
>>>>> exception of the last version of ACID I used (way back, I think v.
>>>>3)
>>>>
>>>>> which
>>>>> did sound truly awful. The real test on that one for me was the DAWSUM
>>>>CD
>>>>> (which I purchased and dutifully scored because I was convinced 'summing'
>>>>> was the real reason PARIS sounded so good) wherein I discovered that
>>>>I
>>>>
>>>>> could
>>>>> barely tell one mix from the next even when hearing vastly different
>>>>
>>>>> systems.
>>>>> Since then I am a skeptic, as opposed to a disbeliever, when I hear
>>>>that
>>>>> one piece of software sounds greatly better, or even different, than
>>>>
>>>>> another.
>>>>> I'm not saying some people can't tell some pieces of software from

other
 >>>>> pieces of software, I'm just saying I'm skeptical one system is 'bright'
 >>>>> or 'sharp' or anything else until someone can produce statistically
 >
 >>>>> meaningful
 >>>>> results in an ABY test.
 >>>>>
 >>>>> One of the great things about that DAWSUM CD is it has let me use the
 >>>
 >>>>> software
 >>>>> that I like the most, without worrying too much about the sound. That
 >>>
 >>>>> would
 >>>>> be Ableton Live most of the time, with SX as a backup if the editing
 >>gets
 >>>>> more intense. For me that alone was worth the time I spent on the DAWSUM
 >>>>> CD.
 >>>>>
 >>>>> TCB
 >>>>>
 >>>>> "LaMont" <jjdpro@ameritech.net> wrote:
 >>>>>>
 >>>>>>Thad, you really can't hear the difference?? Maybe I own too many software
 >>>>>>DAWS thru the years.
 >>>>>>
 >>>>>>Starting on Logic Audio 3.0, then to Cakwalk, Pro Tools, DP, Paris,Acid,
 >>>>>>Neundo, Sonar, samplitude..
 >>>>>>
 >>>>>>I can hear the diference with the same audio interface with the same
 >>wav
 >>>>>>file(s)as oon as I import the file or files.
 >>>>>>
 >>>>>>These days, depending on the genre I'm mising determines which DAW
 >>>>>>software
 >>>>>>I'll use.
 >>>>>>My circle of engineer and producer buddies all can hear the difference
 >>>in
 >>>>>>a second. Just the other day, we were mixing this R&B(ish)Gospel track
 >>>and
 >>>>>>somebody said, 'Mont, this is begging for Paris. Another track, the
 >call
 >>>>>>was for Pro Tools. And another,Nuendo..
 >>>>>>I know BrianT feels and hears the same way in different DAW software.
 >>>It's
 >>>>>>really obvious..
 >>>>>>
 >>>>>>

>>>>>>"TCB" <nobody@ishere.com> wrote:
>>>>>>
>>>>>>>Which is why ABY testing uses expert listeners instead of scopes and
>>>
>>>>>>>graphs.
>>>>>>>
>>>>>>>
>>>>>>>>I'm not saying you're wrong, esp. about ITB vs external summing. One
>>>
>>>>>>>>would
>>>>>>>>expect that to sound at least slightly different. But I would be
>>>>>>>>absolutely
>>>>>>>>shocked if anyone could tell in a controlled ABY test whether they
>were
>>>>>>>listening
>>>>>>>>to SX, Performer, of Sonar.
>>>>>>>>
>>>>>>>>"LaMont" <jjdpro@ameritech.net> wrote:
>>>>>>>>
>>>>>>>>>The only real test is with the ears and not scopes and graphs.
>>>>>>>>
>>>>>>>>>"TCB" <nobody@ishere.com> wrote:
>>>>>>>>>
>>>>>>>>>>>I'd like to see this proven in a controlled ABY test.
>>>>>>>>>>>
>>>>>>>>>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>>>>>>>>
>>>>>>>>>>>>Hey Neil,
>>>>>>>>>>>>
>>>>>>>>>>>>>All I'm saying is: All DAW software have their own unique sound.
>>
>>>>>>>>>>>>Despite
>>>>>>>>>>>>>what those lame summing test shows..
>>>>>>>>>>>>
>>>>>>>>>>>>>PT-HD has a very distinct sound. A very polished sound, with a
>>nice
>>>>> top
>>>>>>>>>>>>end,
>>>>>>>>>>>>>>>but with full audio spectrum represented. Mixer/Summing buss can
>>be
>>>>> pushed,
>>>>>>>>>>>>>>>but you have to watch it.
>>>>>>>>>>>>
>>>>>>>>>>>>>>>Nuendo/SX: Has a very Clear, 2 dimension sound, that does not hype
>>>the
>>>>>>>>>>>>top
>>>>>>>>>>>>>>>nor bottom end.
>>>>>>>>>>>>>>>

>>>>>>>>>Logic Audio: Very Broad- Aggressive sound, that really works for
>>Rock
>>>>>>>>and
>>>>>>>>>R & B/Gospel mixes.
>>>>>>>>>
>>>>>>>>>Digital Performer: With their hardware, superb audio quality. Full
>>>
>>>>>>>>>bodied
>>>>>>>>>sound .
>>>>>>>>>
>>>>>>>>>Sonar: Very flat sounding. I would say that Sonar is your most
vanilla
>>>>>>>>sound
>>>>>>>>>DW on the market..
>>>>>>>>>
>>>>>>>>>Samplitude : A little less top end than Pro Tools. Full bodied
3d
>>>
>>>>>>>>>sound..
>>>>>>>>>
>>>>>>>>>Paris: Dark sounding in comparison to the the other DAWs. But,
has
>>>a
>>>>>3d
>>>>>>>>sound
>>>>>>>>>quality that's full bodied.
>>>>>>>>>
>>>>>>>>>I feel that you asking SX to be something it's not with some analog
>>>>> summing.
>>>>>>>>>Especially for your genre of music..
>>>>>>>>>
>>>>>>>>>
>>>>>>>>>
>>>>>>>>>
>>>>>>>>>"Neil" <IUOIU@OIU.com> wrote:
>>>>>>>>>
>>>>>>>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>>>>>>
>>>>>>>>>>"I'd disagree with you in this instance because I happen to think
>>>>> the
>>>>>>>>>Cubase
>>>>>>>>>>>ones DO sound better."
>>>>>>>>>>
>>>>>>>>>>>Then that SSL Engineer does not know what they are doing with
>board.
>>>>>>>>>There's
>>>>>>>>>>>>no way a mix coming off of that board SSL should sound better
>than

>>>

>>

> I guess what I'm after is being able to take things out of the audio window and place them back on the arrange page in the place where they originally came from. To keep

track of vocal takes etc. Logic can have as many tracks as you like, you're not limited like PARIS in regular mode. So there's plenty of room in the Arrange window even for tracks you're not using at the moment. You can mute tracks and hide tracks at any time. So I work in the Arrange window and don't need to move tracks in and out. It's a big playground.

For comping takes, Logic works similarly to the PARIS reform mode but without having to switch modes. You can use copies of the same track for each take, cut the takes (regions) with the scissors tool and mute the sections you don't want to use with the mute tool (right click for the tools).

You can use cycle record to have Logic automatically create new copies of the same track as you record multiple takes. Time saver.

Cheers,
-Jamie
www.JamieKrutz.com

George Axon wrote:

> I guess what I'm after is being able to take things out of the audio window
> and place
> them back on the arrange page in the place where they originally came from.
> To keep

> track of vocal takes etc. To settle this, we're gonna have to get you two in the same room with multiple DAWs in a double blind test and see if you can hear a difference between the same exact stereo file playing back through the same monitoring chain from different DAWs.

Cheers,
-Jamie
www.JamieKrutz.com

LaMont wrote:

> See Dedric, everything in this life is not explicable. Although we would like
> it to be $2+2=4$, the reality is that sometimes $2+2=4.40$. Why, because the
> math is flawed. Why is the math flawed? Because we as humans are flawed.
> Say what you will about the metric system, which is a great tool. But, sometimes
> working in inches and 16ths, 3/4s works better.
>

> When a guy like Roger Nichols bangs his preverbal head around this issue
 > as to why his mix sound different being rendered from different and sometimes
 > the same cd mastering devices is expalinable, however the explanation does
 > not jive with the science.
 > Are we to believe that the Science we have today about digital audio is
 > the the Last word?? No.. In the future, some new science will come along
 > and either rebuff our current science or enhance it.
 >
 > We I and other say.. We drop a stereo wav file in a given daw)(unity gain)
 > using the same audio converter...We can hear the diference. And it's sonically
 > obvious..
 >
 > Lynns test is flawed because of the Roger Nicohls CD mastering problem. Things
 > change when going to render to CD.
 >
 > Hey some people on this earth can hear and see better than others..That's
 > just a fact
 >
 > "Dedric Terry" <dedric@echomg.com> wrote:
 >> Of course Paris sounds different on Lynn's sampler, that was audible, and
 >
 >> there are technical reasons why Paris will always sound different, but I
 >
 >> didn't like it better on the sampler CD, to be honest, though the
 >> differences were subtle. Also, we weren't talking about Acid vs. Sonar
 >
 >> specifically. I don't even bother with Acid as a DAW example - it's a loop
 >
 >> app. Vegas is a video app that has had life as an audio app to some degree,
 >
 >> but iMovie does audio as well, yet that doesn't really put it in the same
 >
 >> category as professional DAW apps like Nuendo, PTHD, Sequoia, etc. I use
 >
 >> Vegas for video, but not audio.
 >>
 >> On Lynn's sampler, Samplitude, Nuendo, Fairlight and the other natives don't
 >
 >> sound different and aren't different in the unity gain examples
 >> (even the PTHD mix cancels with these). If you hear two files sounding
 >
 >> differently that cancel to complete null, an audio difference isn't what
 > you
 >> are hearing. When there are differences in non-unity gain mix summing
 >> tests, you have an extra variable to account for - how is the gain
 >> calculated? Gain
 >> is non-linear (power), not adding two numbers together. So how is pan law
 >

>> factored in, and where? Are your faders exactly the same, or 0.001dB
>> variant?
>>
>> Also if you drop the same stereo file in two different pro audio apps and
>
>> hear a difference, one of the two apps is defective. There is nothing
>> happening with a stereo file playback when no gain change or plugins are
>
>> active - just audio streaming to the driver from disk. If you hear a
>> difference there, I would be quickly trying to find out why. Something
> is
>> wrong.
>>
>> The point I am making is that these arguments usually come up as blanket
>
>> statements with no qualification of what exactly sounds
>> different, why it might, or solid well reasoned attempts to find out why,
> or
>> if there could be a real difference, or just a perceived one.
>>
>> Usually the "use your ears" comment comes up when there is no technical
>
>> rebuttal for when the science and good
>> ears agree. Of course "use your ears" first from a creative perspective,
>
>> but if you are making a technical, scientific statement, then such comments
>> aren't a good foundation to work from. It's a great motto, but a bit of
> a
>> cop out in a technical discussion.
>>
>> Regards,
>> Dedic
>>
>> "LaMont" <jjdpro@ameriech.net> wrote in message news:45897f73\$1@linux...
>>> Hey Dedic and Neil,
>>>
>>> I reason I think that the Summing CD test(good intentions) were lame was
>>> because.. If a person can;t hear the difference btw a stereo wav file
>
>>> that's
>>> in Acid vs Sonar really needs a hearing test.
>>>
>>> For reason of my music work, I have to work with different DAWs, so I'm
>
>>> very
>>> familiar with their sound qualities. My circle of producers and engineers
>>> talk about the daw sonics all the time. It's really no big deal anymore..
>>>

>>> The same logic applies when Roger Nichols (a few) years back in his
>>> article
>>> about master CD's and that he found out that 4 different CD burners yielded
>>> different sonic results. Sure, he stated that Math is the Math :) but, his
>>> and the mastering engineers Ears told them something was different.
>>> Hummm???

>>>
>>> Now, back to DAW sonics. I can hear the difference btw Paris and Nuendo
> vs
>>> Pro Tools, Logic audio.. There is no math to this, this is an ear
>>> thing..You
>>> either hear or you don't.. Simple.
>>> But, good ears can hear it. .
>>>
>>> I really think the problem is, noone want to no that their money that
>
>>> they've
>>> spent on a given DAW, has sonic limitations or shall we say, just
>>> different..
>>>
>>> I like that they all sound different. It's good to have choice when mixing
>>> a song. Some DAWs, depending on the genre will yield better or the desired
>>> results and than another.
>>> EX. I would not mix a Acoustic jazz record today with Paris..reason, I'm
>>> going for clarity at it's highest level.. For that project, It's either
>
>>> Nuendo
>>> or Pro Tools and may Samplitude..Why should I fight with Paris's thick,
>
>>> gooy
>>> sonics, when I'm going for clarity. Well, Pro Tools and Nuendo/SX has
> that
>>> sound right out the gate.. Which makes my job a lot easier. simple. This
>>> is not to say that I could not get the job done in Paris..i could..But,
> for
>>> that Acoustic Jazz project , the other 2 daws gives me what I'm looking
>
>>> for
>>> without even touching an eq..
>>>
>>> This is not all about math. As BrianT states: Use you ears..Forget the
>
>>> math..What
>>> does knowing the math do for you anyway? Nothing, it just proves that
> you
>>> know the math. Does not tell you diddly about the sonics.. Just ask Roger
>>> Nichols..
>>>

>>>

>>> "Dedric Terry" <d@nospam.net> wrote:

>>>> I know we disagree here Lamont and that's totally cool, so I won't take

>>> this

>>>> beyond this one response, and this isn't really directed to you, but my

>>> general

>>>> thoughts on the matter.

>>>>

>>>> In Neil's "defense" (not that he needs it), I and others have done this

>>> comparison

>>>> to death and the conclusion I've come to is that people are 80% influenced

>>>> by a change in environment (e.g. software interface) and 20% ears. Sorry

>>>> to say it, but the difference in sound between floating point DAWs is

> far

>>> >from real. It's just good, albeit unintentional marketing created by

>

>>>> users

>>>> and capitolized by manufacturers. Perceiving a "sound" in DAWs that in

>>> actuality

>>>> process data identically, is a bad reason to pick a DAW, but of course

>

>>>> there

>>>> is nothing wrong with thinking you hear a difference as long as it doesn't

>>>> become an unwritten law of engineering at large. Preferring to work with

>>>> one or the other, and "feeling" better about it for whatever reason is

> a

>>>> great reason to pick one DAW over another.

>>>>

>>>> There was a recent thread that Nuendo handled gain through groups

>>>> differently,

>>>> so I put Nuendo, Sonar 6 (both 32 and 64-bit engines) and Sequoia 8.3

> to

>>>> the test - identical tests, setup to the 1/100th of a dB identically and

>>>> came up with absolutely no difference, either audible or scientific.

> To

>>>> be honest, this was the one test where I could have said, yes there is

> an

>>>> understandable difference between DAWs in a simple math function, and

> the

>>>> only one in the DAW that actually might make sense, yet even that did

> not

>>>> exist. The reason - math is math. You can paint it red, blue, silver

> or

>>>> dull grey, but it's still the same math unless the programmer was high

> or

>>>> completely incompetent when they wrote the code.

>>>>

>>>> I thought it was entirely possible the original poster had found something

>>>> different in Nuendo, but when it came down to really understanding and
>
>>>> reproducing
>>>> what happens in DAW summing and gain structures accurately between each
>>> DAW,
>>>> there was none, nada, nil. The assertion was completely squashed. This
>
>>>> also
>>>> showed me how easy it is for a wide range of professionals to misinterpret
>>>> digital audio - whether hearing things, or just setting up a test with
> a
>>>> single missed variable that completely invalidates the whole process.
>>>>
>>>> If you hear a difference, great. I've thought I heard a difference doing
>>>> similar comparisons, then changed my perspective (nothing else - not
>>>> converters,
>>>> nothing - just reset my expectations, and switched back and forth) and
>
>>>> could
>>>> hear no difference.
>>>>
>>>> Just leave some room for other opinions when you post yours on this
>>>> subject
>>>> since it is very obvious that hearing is not as universally objective
> and
>>>> identically referenced as everyone might like to believe, and is highly
>>> visually
>>>> and environmentally affected. Some will hear differences in DAWs. There
>>>> are Cubase SX 3 users claiming Cubase 4 sounds different. Sigh. Then
>
>>>> they
>>>> realize they aren't even using the same project... or at least different
>>>> EQs, or etc, etc....
>>>>
>>>> Say what you want about published summing tests, but Lynn's tests are
> as
>>>> accurate as it gets, and that bears out in the results (all floating point
>>>> DAWs cancel and sound identical - if you are hearing a difference, you
> are
>>>> hearing things that aren't there, or you forgot to align their gain and
>>> placement).
>>>> I've worked with Lynn at least briefly enough to know his attention to
>>> detail.
>>>> In the same way people will disagree about PCs and Macs until neither
>
>>>> exists,
>>>> so will audio engineers disagree about DAWs. This is one debate that
> will

>>>> always exist as long as we have different ears, eyes, brains,... and
>>>> opinions.
>>>>
>>>>
>>>> What Neil has done is to prove that opinions are always going to differ
>>> (i.e.
>>>> no consensus on the "best" mix of the ones posted). And in truth everyone
>>>> has a different perception of sound in general - not everyone wants to
>
>>>> hear
>>>> things the same way, so we judge "best" from very different perspectives.
>>>> There is no single gold standard. There are variations and mutated
>>>> combinations,
>>>> but all are subjective. That in and of itself implies very distinctly
>
>>>> that
>>>> people can and will even perceive the exact same sound differently if
>
>>>> presented
>>>> with any variable that changes the brain's interpretation, even if just
>>> a
>>>> visual distraction. Just change the lights in the room and see if you
>
>>>> perceive
>>>> a song differently played back exactly the same way. Or have a cat run
>>> across
>>>> a desk while listening. Whether you care to admit it or not, it is there,
>>>> and that is actually the beauty of how our sense interact to create
>>>> perception.
>>>> That may be our undoing with DAW comparison tests, but it's also what
>
>>>> keeps
>>>> music fresh and creative, when we allow it to.
>>>>
>>>> So my suggestion is to use what makes you most creative, even if it's
> just
>>>> a "feeling" working with that DAW gives you - be it the workflow, the
> GUI,
>>>> or even the name brand reputation. But, as we all know, if you can't
> make
>>>> most any material sound good on whatever DAW you choose, the DAW isn't
> the
>>>> problem.
>>>>
>>>> Regards,
>>>> Dedric
>>>>
>>>> "Neil" <IUOIU@OIU.com> wrote:

>>>>> That's interesting - all those DAW sonic interpretations, I
>>>>> mean... I haven't had a chance to usee all of those, so it's
>>>>> good information.
>>>>>
>>>>> I still don't understand why you consider my summing
>>>>> comparisons "lame", however - it was a fair set of tests;
>>>>> the same mix summed in different ways. Not trying to prove a
>>>>> point or to rig it so one sounded any better than the other - in
>>>>> fact, if you recall the thread, different people liked different
>>>>> summed versions for different reasons... there wasn't any one
>>>>> version that stood out as being "the one" that everyone felt
>>>>> sounded better. The only reason I didn't come right out & say
>>>>> right away which version was which is so that I didn't bias
>>>>> anyone's opinion beforehand by mentioning that... NOT to try
>>>>> & "hide" anything or "trick" anyone, as you accused me of
>>>>>
>>>>> Sheesh!
>>>>>
>>>>> Neil
>>>>>
>>>>>
>>>>> "Lamont" <jjdpro@ameritech.net> wrote:
>>>>>> Hey Neil,
>>>>>>
>>>>>> All I'm saying is: All DAW software have their own unique sound.
>>>>>> Despite
>>>>>> what those lame summing test shows..
>>>>>>
>>>>>> PT-HD has a very distinct sound. A very polished sound, with a nice
> top
>>>>> end,
>>>>>> but with full audio spectrum represented. Mixer/Summing buss can be
>
>>>>>> pushed,
>>>>>> but you have to watch it.
>>>>>>
>>>>>> Nuendo/SX: Has a very Clear, 2 dimension sound, that does not hype the
>>>> top
>>>>>> nor bottom end.
>>>>>>
>>>>>> Logic Audio: Very Broad- Aggressive sound, that really works for Rock
>>> and
>>>>>> R & B/Gospel mixes.
>>>>>>
>>>>>> Digital Performer: With their hardware, superb audio quality. Full
>>>>>> bodied
>>>>>> sound .
>>>>>>

>>>>> Sonar: Very flat sounding. I would say that Sonar is your most vanilla
>>>> sound
>>>>> DW on the market..
>>>>>
>>>>> Samplitude : A little less top end than Pro Tools. Full bodied 3d
>>>>> sound..
>>>>>
>>>>> Paris: Dark sounding in comparison to the the other DAWs. But, has a
> 3d
>>>>> sound
>>>>> quality that's full bodied.
>>>>>
>>>>> I feel that you asking SX to be something it's not with some analog
>
>>>>> summing.
>>>>> Especialy for your genre of music..
>>>>>
>>>>>
>>>>>
>>>>>
>>>>> "Neil" <IUOIU@OIU.com> wrote:
>>>>>> "Lamont" <jjdpro@ameritech.net> wrote:
>>>>>>> "I'd disagree with you in this instance because I happen to think
> the
>>>>> Cubase
>>>>>>> ones DO sound better."
>>>>>>>
>>>>>>> Then that SSL Engineer does not know what they are doing with board.
>>>> There's
>>>>>>> no way a mix coming off of that board SSL should sound better than
> a
>>>> ITB
>>>>>>> Cubase SX mix..
>>>>>>>
>>>>>>> Sorry, that just does not jive. That engineer does not know how to
>
>>>>>>> push
>>>>>>> he
>>>>>>> SSL or just not familiar with it.
>>>>>> You're not really paying attention, are you? It was the same
>>>>>> engineer (me). And as far as whether or not I know how to use
>>>>>> that particular board, I guess that would be a matter of
>>>>>> your opinion. I don't think the SSL mixes are bad ones, I think
>>>>>> they came out good; I just think that you can hear more detail
>>>>>> in the ITB mixes in the examples I gave, and they have more
>>>>>> wideband frequency content from top to bottom.
>>>>>>
>>>>>>> Anyway, my point of that particular comparison wasn't to say

>>>>>> "ITB mixes are better than using a large-format console that
>>>>>> costs somewhere in the six-figure range", the point of it was to
>>>>>> address a signal-chain suggestion that Paul had... he had
>>>>>> suggested perhaps that I needed to pick up a few pieces of
>>>>>> killer vintage gear, and I was just demonstrating that I think
>>>>>> the various signal chain components that I have here are on par
>>>>>> with most anything that can be found in heavy-hitter studios...
>>>>>> we used probably around \$100k's worth of mics & pre's on the
>>>>>> PTHD/SSL mixes, plus obviously you're looking at another
>>>>>> roughly \$100k for that particular console (40-channel E-series,
>>>>>> black EQ's, w/G-series Computer & Total Recall package), add in
>>>>>> the PTHD, outboard gear & whatnot, and you end up with
>>>>>> somewhere around a quarter-mil's worth of equipment involved in
>>>>>> that project. The project done at my place was done with my
>>>>>> gear, which certainly doesn't tally up to anywhere remotely
>>>>>> close to that cost & none of it bears a "vintage" stamp, but it
>>>>>> sounds competitive with the project that used all the heavy-
>>>>>> hitter stuff.

>>>>>>

>>>>>> Neil

>>

>"LaMont" <jjdpro@ameritech.net> wrote:

>

>Lynns test is flawed because of the Roger Nicohls CD mastering
>problem. Things change when going to render to CD.

I don't know that that makes those tests flawed - you're
talking about another step being inserted into the process.
The additional step of mastering presents a whole different
set of issues unto itself.... doesn't necessarily mean that
tests done on steps involved prior to mastering are
automatically invalid.

>Hey some people on this earth can hear and see better than
>others..That's just a fact

Let's separate the esoteric from the mundane here... I, for
one, am not necessarily interested in only those who can hear
better, I'm interested in those with average hearing
and "untrained" ears, too. Do I have "good ears"? Yeah,
I guess. "Golden Ears"? Probably not. Yet, in the comparison
files I did, I think its all safe to say we were ALL reduced to
an equal footing with those of average hearing & "untrained
ears", simply because they were rendered to an mp3 format,
that's incapable of reproducing the frequency range & fidelity
of the original files... yet EVERYONE heard a difference
between one clip & another. Again, some liked one version or
another for different reasons, but my point is: there was

indeed a perceivable difference between them, even though we were all reduced to a lesser set of capabilities, hearing-wise, than if we all had the original wav files to listen to.

THIS is what I'm talking about - not something that only makes a difference to the "Golden Ears" types, but something that enhances the listening pleasure to everyone, even the average Joe who may listen to it. I don't know that subtle differences between one Native DAW & another - whether they really exist or not - are going to make this kind of level of change in what each contributes to a given mix. I've said before that when it comes to tracking, it's all about the convertors, when it comes to mixing, it's all about the summing... maybe that's too broad of an empirical statement to be 100% accurate, but I think there's a lot of truth to it.

I also don't know that whether two files "null" to 100% or not is the only test of if "a" must therefore sound just like "b"... let's face it, if something nulls, all it means is that every peak is equal in amplitude... but what's going on BELOW the peaks? What does it sound like at 200hz @ 5db down from the peak at that frequency, for example? What is something DOING to the sound at perhaps a lower (but still audible) level, as opposed to at what amplitude is it outputting the sound is something that a null test can't always address, IMO.

So I guess I've made some points supporting both sides of the argument... fight on! lol

Neil"LaMont" <jjdpro@ameritech.net> wrote in message news:4589d1aa\$1@linux...

>

> See Dedric, everthing is this life is not expalinable. Although we would
> like

> it to be $2+2=4$, the rality is that sometimes $2+2=4.40$..Why, becuase the
> the math is flawed. Why is the math flawed? Becuase we as humans are
> flawed.

You can wax philosophical all you want, but I think you would find a strong argument with a lot of very knowledgeable engineers, programmers and mathematicians on that - my college professors in math, engineering and digital signal processing being among those.

Saying that not everything is explainable is saying that software is partly unpredictable and has a mind and behavior of its' own. It doesn't in this case (no neural nets, or ai going on here). Sure, you can program audio processing differently when that is the goal, but you can easily determine

when that happens,
and when it doesn't.

I don't agree that just because a guy is well known that he has the last word on the issue.

I also don't agree with your supposed assessment that we disagree because "some people hear better than others". You have no way of knowing what and how well I hear, or how well, or how biased and subjectively other engineers you quote might hear. When I have more time we'll put this to the test. I'll post something to listen to and we'll find out what is heard and what isn't.

Also, come on, $2+2$ is never 4.40. That's not even in the ballpark of being a logical and reasonable analogy. We might as well claim that blue sounds better than green, or the sun only circles the earth when the man in the moon is making cheddar cheese.

You also threw in Roger Nichols' CD mastering test as a reason to discount Lynn's summing test, but that has nothing to do with pulling files off of the *same* CD, hearing, and watching them cancel to null, so that is a poor argument as well.

Lamont, I've read some very well respected engineers, RN being one of them, claim some absolute crap in this realm, and back it up with highly suspect comparisons. I'm also not the only one who has noticed this, but out of respect we hold our tongues and shake our heads, quietly trying to keep the rest of the audio community from succumbing to audio myths rather than practicing intelligent engineering. I don't know everything - far from it - but I do know what I hear, and how to connect it with what I see and what I do know.

Why do I use scientific comparisons such as phase cancellation and isolating variables to make my comparisons? To rule out perception, visual distraction, and preconceived ideas built by reading newsgroups, articles by "famous" engineers, and peer pressure. I don't disagree that DAWs can be designed to sound differently, but when they aren't, *and* we verify that they aren't, sorry, there is nothing left to be different other than the GUI, marketing and street hype.

Maybe someday I'll win a grammy or write a hit song for a ditzy pop starlet so my opinion will carry some weight. ;-)

In the mean time, just don't believe everything you read, and only half of what you hear.

Dedric

> Say what you will about the metric system, which is a great tool. But,
> sometimes
> working in inches and 16ths, 3/4s works better.
>
> When a guy like Roger Nichols bangs his preverbal head around this issue
> as to why his mix sound different being rendered from different and
> sometimes
> the same cd mastering devices is expalnable, however the explanation does
> not jive with the science.
> Are we to believe that the Science we have today about digital audio is
> the the Last word?? No.. In the future, some new science will come along
> and either rebuff our current science or enhance it.
>
> We I and other say.. We drop a stereo wav file in a given daw)(unity gain)
> using the same audio converter...We can hear the diference. And it's
> sonically
> obvious..
>
> Lynns test is flawed because of the Roger Nichohls CD mastering problem.
> Things
> change when going to render to CD.
>
> Hey some people on this earth can hear and see better than others..That's
> just a fact
>
> "Dedric Terry" <dedric@echomg.com> wrote:
>>Of course Paris sounds different on Lynn's sampler, that was audible, and
>
>>there are technical reasons why Paris will always sound different, but I
>
>>didn't like it better on the sampler CD, to be honest, though the
>>differences were subtle. Also, we weren't talking about Acid vs. Sonar
>
>>specifically. I don't even bother with Acid as a DAW example - it's a
>>loop
>
>>app. Vegas is a video app that has had life as an audio app to some

>>degree,
>
>>but iMovie does audio as well, yet that doesn't really put it in the same
>
>>category as professional DAW apps like Nuendo, PTHD, Sequoia, etc. I use
>
>>Vegas for video, but not audio.
>>
>>On Lynn's sampler, Samplitude, Nuendo, Fairlight and the other natives
>>don't
>
>>sound different and aren't different in the unity gain examples
>>(even the PTHD mix cancels with these). If you hear two files sounding
>
>>differently that cancel to complete null, an audio difference isn't what
> you
>>are hearing. When there are differences in non-unity gain mix summing
>>tests, you have an extra variable to account for - how is the gain
>>calculated? Gain
>>is non-linear (power), not adding two numbers together. So how is pan law
>
>>factored in, and where? Are your faders exactly the same, or 0.001dB
>>variant?
>>
>>Also if you drop the same stereo file in two different pro audio apps and
>
>>hear a difference, one of the two apps is defective. There is nothing
>>happening with a stereo file playback when no gain change or plugins are
>
>>active - just audio streaming to the driver from disk. If you hear a
>>difference there, I would be quickly trying to find out why. Something
> is
>>wrong.
>>
>>The point I am making is that these arguments usually come up as blanket
>
>>statements with no qualification of what exactly sounds
>>different, why it might, or solid well reasoned attempts to find out why,
> or
>>if there could be a real difference, or just a perceived one.
>>
>>Usually the "use your ears" comment comes up when there is no technical
>
>>rebuttal for when the science and good
>>ears agree. Of course "use your ears" first from a creative perspective,
>
>>but if you are making a technical, scientific statement, then such
>>comments

>>aren't a good foundation to work from. It's a great motto, but a bit of
> a
>>cop out in a technical discussion.
>>
>>Regards,
>>Dedric
>>
>>"LaMont" <jjdpro@ameriech.net> wrote in message news:45897f73\$1@linux...
>>>
>>> Hey Dedric and Neil,
>>>
>>> I reason I think that the Summing CD test(good intentions) were lame was
>>> because.. If a person can;t hear the difference btw a stereo wav file
>
>>> that's
>>> in Acid vs Sonar really needs a hearing test.
>>>
>>> For reason of my music work, I have to work with different DAWs, so I'm
>
>>> very
>>> familiar with their sound qualities. My circle of producers and
>>> engineers
>>> talk about the daw sonics all the time. It's really no big deal
>>> anymore..
>>>
>>> The same logic applies when Roger Nichols (a few) years back in his
>>> article
>>> about master CD's and that he found out that 4 differnt CD burners
>>> yeilded
>>> differnt sonic results. Sure, he sated that Math is the Math :) but, his
>>> and the masering engineers Ears told them soemthing was different.
>>> Hummm???
>>>
>>> Now, back to DAW sonics. I can hear the difference btw Paris and Nuendo
> vs
>>> Pro Tools, Logic audio.. There is no math to this, this is an ear
>>> thing..You
>>> either hear or you don't.. Simple.
>>> But, good ears can hear it. .
>>>
>>> I really think the problem is, noone want to no that their money that
>
>>> they've
>>> spent on a given DAW, has sonic limitations or shall we say, just
>>> different..
>>>
>>> I like that they all sound different. It's good to have choice when
>>> mixing

>>> a song. Some DAWs, depending on the genre will yield better or the
>>> desired
>>> results and than another.
>>> EX. I would not mix a Acoustic jazz record today with Paris..reason, I'm
>>> going for clarity at it's highest level.. For that project, It's either
>
>>> Nuendo
>>> or Pro Tools and may Samplitude..Why should I fight with Paris's thick,
>
>>> gooy
>>> sonics, when I'm going for clarity. Well, Pro Tools and Nuendo/SX has
> that
>>> sound right out the gate.. Which makes my job a lot easier. simple. This
>>> is not tosay that I could not get the job done in Paris..i could..But,
> for
>>> that Acoutic Jazz project , the other 2 daws gives me what I'm looking
>
>>> for
>>> without even touching an eq..
>>>
>>> This is not all about math. As BrianT states: Use you ears..Forget the
>
>>> math..What
>>> does knowing the math do for you anyway? Nothing, it just proves that
> you
>>> know the math. Does not tell you diddly about the sonics.. Just ask
>>> Roger
>>> Nichols..
>>>
>>>
>>> "Dedric Terry" <d@nospam.net> wrote:
>>>>
>>>>I know we disagree here Lamont and that's totally cool, so I won't take
>>> this
>>>>beyond this one response, and this isn't really directed to you, but my
>>> general
>>>>thoughts on the matter.
>>>>
>>>>In Neil's "defense" (not that he needs it), I and others have done this
>>> comparison
>>>>to death and the conclusion I've come to is that people are 80%
>>>>influenced
>>>>by a change in environment (e.g. software interface) and 20% ears.
>>>>Sorry
>>>>to say it, but the difference in sound between floating point DAWs is
> far
>>>>from real. It's just good, albeit unintentional marketing created by
>

>>>>users
>>>>and capitalized by manufacturers. Perceiving a "sound" in DAWs that in
>>> actuality
>>>>process data identically, is a bad reason to pick a DAW, but of course
>
>>>>there
>>>>is nothing wrong with thinking you hear a difference as long as it
>>>>doesn't
>>>>become an unwritten law of engineering at large. Preferring to work
>>>>with
>>>>one or the other, and "feeling" better about it for whatever reason is
> a
>>>>great reason to pick one DAW over another.
>>>>
>>>>There was a recent thread that Nuendo handled gain through groups
>>>>differently,
>>>>so I put Nuendo, Sonar 6 (both 32 and 64-bit engines) and Sequoia 8.3
> to
>>>>the test - identical tests, setup to the 1/100th of a dB identically and
>>>>came up with absolutely no difference, either audible or scientific.
> To
>>>>be honest, this was the one test where I could have said, yes there is
> an
>>>>understandable difference between DAWs in a simple math function, and
> the
>>>>only one in the DAW that actually might make sense, yet even that did
> not
>>>>exist. The reason - math is math. You can paint it red, blue, silver
> or
>>>>dull grey, but it's still the same math unless the programmer was high
> or
>>>>completely incompetent when they wrote the code.
>>>>
>>>>I thought it was entirely possible the original poster had found
>>>>something
>>>>different in Nuendo, but when it came down to really understanding and
>
>>>>reproducing
>>>>what happens in DAW summing and gain structures accurately between each
>>> DAW,
>>>>there was none, nada, nil. The assertion was completely squashed. This
>
>>>>also
>>>>showed me how easy it is for a wide range of professionals to
>>>>misinterpret
>>>>digital audio - whether hearing things, or just setting up a test with
> a
>>>>single missed variable that completely invalidates the whole process.

>>>>
>>>>If you hear a difference, great. I've thought I heard a difference
>>>>doing
>>>>similar comparisons, then changed my perspective (nothing else - not
>>>>converters,
>>>>nothing - just reset my expectations, and switched back and forth) and
>
>>>>could
>>>>hear no difference.
>>>>
>>>>Just leave some room for other opinions when you post yours on this
>>>>subject
>>>>since it is very obvious that hearing is not as universally objective
> and
>>>>identically referenced as everyone might like to believe, and is highly
>>> visually
>>>>and environmentally affected. Some will hear differences in DAWs.
>>>>There
>>>>are Cubase SX 3 users claiming Cubase 4 sounds different. Sigh. Then
>
>>>>they
>>>>realize they aren't even using the same project... or at least different
>>>>EQs, or etc, etc....
>>>>
>>>>Say what you want about published summing tests, but Lynn's tests are
> as
>>>>accurate as it gets, and that bears out in the results (all floating
>>>>point
>>>>DAWs cancel and sound identical - if you are hearing a difference, you
> are
>>>>hearing things that aren't there, or you forgot to align their gain and
>>> placement).
>>>> I've worked with Lynn at least briefly enough to know his attention to
>>> detail.
>>>> In the same way people will disagree about PCs and Macs until neither
>
>>>> exists,
>>>>so will audio engineers disagree about DAWs. This is one debate that
> will
>>>>always exist as long as we have different ears, eyes, brains,... and
>>>>opinions.
>>>>
>>>>
>>>>What Neil has done is to prove that opinions are always going to differ
>>> (i.e.
>>>>no consensus on the "best" mix of the ones posted). And in truth
>>>>everyone
>>>>has a different perception of sound in general - not everyone wants to

>
>>>>hear
>>>>things the same way, so we judge "best" from very different
>>>>perspectives.
>>>> There is no single gold standard. There are variations and mutated
>>>> combinations,
>>>>but all are subjective. That in and of itself implies very distinctly
>
>>>>that
>>>>people can and will even perceive the exact same sound differently if
>
>>>>presented
>>>>with any variable that changes the brain's interpretation, even if just
>>> a
>>>>visual distraction. Just change the lights in the room and see if you
>
>>>>perceive
>>>>a song differently played back exactly the same way. Or have a cat run
>>> across
>>>>a desk while listening. Whether you care to admit it or not, it is
>>>>there,
>>>>and that is actually the beauty of how our sense interact to create
>>>>perception.
>>>> That may be our undoing with DAW comparison tests, but it's also what
>
>>>> keeps
>>>>music fresh and creative, when we allow it to.
>>>>
>>>>So my suggestion is to use what makes you most creative, even if it's
> just
>>>>a "feeling" working with that DAW gives you - be it the workflow, the
> GUI,
>>>>or even the name brand reputation. But, as we all know, if you can't
> make
>>>>most any material sound good on whatever DAW you choose, the DAW isn't
> the
>>>>problem.
>>>>
>>>>Regards,
>>>>Dedric
>>>>
>>>>"Neil" <IUOIU@OIU.com> wrote:
>>>>>
>>>>>That's interesting - all those DAW sonic interpretations, I
>>>>>mean... I haven't had a chance to use all of those, so it's
>>>>>good information.
>>>>>
>>>>>I still don't understand why you consider my summing

>>>>>comparisons "lame", however - it was a fair set of tests;
>>>>>the same mix summed in different ways. Not trying to prove a
>>>>>point or to rig it so one sounded any better than the other - in
>>>>>fact, if you recall the thread, different people liked different
>>>>>summed versions for different reasons... there wasn't any one
>>>>>version that stood out as being "the one" that everyone felt
>>>>>sounded better. The only reason I didn't come right out & say
>>>>>right away which version was which is so that I didn't bias
>>>>>anyone's opinion beforehand by mentioning that... NOT to try
>>>>>& "hide" anything or "trick" anyone, as you accused me of
>>>>>
>>>>>Sheesh!
>>>>>
>>>>>Neil
>>>>>
>>>>>
>>>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>>
>>>>>Hey Neil,
>>>>>
>>>>>All I'm saying is: All DAW software have their own unique sound.
>>>>>Despite
>>>>>what those lame summing test shows..
>>>>>
>>>>>PT-HD has a very distinct sound. A very polished sound, with a nice
> top
>>>>>end,
>>>>>but with full audio spectrum represented. Mixer/Summing buss can be
>
>>>>>pushed,
>>>>>but you have to watch it.
>>>>>
>>>>>Nuendo/SX: Has a very Clear, 2 dimension sound, that does not hype the
>>>>top
>>>>>nor bottom end.
>>>>>
>>>>>Logic Audio: Very Broad- Aggressive sound, that really works for Rock
>>> and
>>>>>R & B/Gospel mixes.
>>>>>
>>>>>Digital Performer: With their hardware, superb audio quality. Full
>>>>>bodied
>>>>>sound .
>>>>>
>>>>>Sonar: Very flat sounding. I would say that Sonar is your most vanilla
>>>>sound
>>>>>DW on the market..
>>>>>

>>>>>Samplitude : A little less top end than Pro Tools. Full bodied 3d
>>>>>sound..
>>>>>
>>>>>Paris: Dark sounding in comparison to the the other DAWs. But, has a
> 3d
>>>>>sound
>>>>>quality that's full bodied.
>>>>>
>>>>>I feel that you asking SX to be something it's not with some analog
>
>>>>>summing.
>>>>>Especially for your genre of music..
>>>>>
>>>>>
>>>>>
>>>>>
>>>>>"Neil" <IUOIU@OIU.com> wrote:
>>>>>
>>>>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>>>
>>>>>>>"I'd disagree with you in this instance because I happen to think
> the
>>>>>Cubase
>>>>>>>ones DO sound better."
>>>>>>>
>>>>>>>>Then that SSL Engineer does not know what they are doing with board.
>>>>There's
>>>>>>>>no way a mix coming off of that board SSL should sound better than
> a
>>>>ITB
>>>>>>>>Cubase SX mix..
>>>>>>>>
>>>>>>>>>Sorry, that just does not jive. That engineer does not know how to
>
>>>>>>>>push
>>>>>>>>he
>>>>>>>>>SSL or just not familiar with it.
>>>>>>>>
>>>>>>>>>You're not really paying attention, are you? It was the same
>>>>>>>>>engineer (me). And as far as whether or not I know how to use
>>>>>>>>>that particular board, I guess that would be a matter of
>>>>>>>>>your opinion. I don't think the SSL mixes are bad ones, I think
>>>>>>>>>they came out good; I just think that you can hear more detail
>>>>>>>>>in the ITB mixes in the examples I gave, and they have more
>>>>>>>>>wideband frequency content from top to bottom.
>>>>>>>>
>>>>>>>>>Anyway, my point of that particular comparison wasn't to say
>>>>>>>>>"ITB mixes are better than using a large-format console that

>>>>>>costs somewhere in the six-figure range", the point of it was to
>>>>>>address a signal-chain suggestion that Paul had... he had
>>>>>>suggested perhaps that I needed to pick up a few pieces of
>>>>>>killer vintage gear, and I was just demonstrating that I think
>>>>>>the various signal chain components that I have here are on par
>>>>>>with most anything that can be found in heavy-hitter studios...
>>>>>>we used probably around \$100k's worth of mics & pre's on the
>>>>>>PTHD/SSL mixes, plus obviously you're looking at another
>>>>>>roughly \$100k for that particular console (40-channel E-series,
>>>>>>black EQ's, w/G-series Computer & Total Recall package), add in
>>>>>>the PTHD, outboard gear & whatnot, and you end up with
>>>>>>somewhere around a quarter-mil's worth of equipment involved in
>>>>>>that project. The project done at my place was done with my
>>>>>>gear, which certainly doesn't tally up to anywhere remotely
>>>>>>close to that cost & none of it bears a "vintage" stamp, but it
>>>>>>sounds competitive with the project that used all the heavy-
>>>>>>hitter stuff.

>>>>>>

>>>>>>Neil

>>>>>>

>>>>>

>>>>

>>>

>>

>>

>"Neil" <IUOIU@OIU.com> wrote in message news:4589e206\$1@linux...

> I also don't know that whether two files "null" to 100% or not
> is the only test of if "a" must therefore sound just
> like "b"... let's face it, if something nulls, all it means is
> that every peak is equal in amplitude... but what's going on
> BELOW the peaks? What does it sound like at 200hz @ 5db down
> from the peak at that frequency, for example? What is something

Neil, the digital signal is represented by more than peak amplitude in order to represent modulation, period and phase of the waveform, so phase cancellation has to compare more than peaks. Pull up a 44.1k, 24-bit file in Cool Edit or Audition and zoom - you'll see sample points all along the wave for anything below 20kHz.

All of those sample points have to cancel for a phase invert test to cancel completely.

The point at which we lose any resolution is the last bit, and only when that bit is change.

When comparing two copies of the same file, or identical files, neither with

any gain change,
with one inverted, we aren't changing any bits, unless the audio app is
severely flawed, so
even quantization noise is out. Even in tests in Nuendo changing the gain
of a file and making
up that gain later, and comparing it to a phase inverted copy of that file
shows that only
quantization noise below -144dB remains, and only a few peaks
reach -136dB (which is the point at which we see deviation in the last bit
due to truncation
in the gain change process).

Dedric

> DOING to the sound at perhaps a lower (but still audible)
> level, as opposed to at what amplitude is it outputting the
> sound is something that a null test can't always address, IMO.
>
> So I guess I've made some points supporting both sides of the
> argument... fight on! lol
>
> Neil"Dedric Terry" <dedric@echomg.com> wrote:
>
>"Neil" <IUOIU@OIU.com> wrote in message news:4589e206\$1@linux...
>
>> I also don't know that whether two files "null" to 100% or not
>> is the only test of if "a" must therefore sound just
>> like "b"... let's face it, if something nulls, all it means is
>> that every peak is equal in amplitude... but what's going on
>> BELOW the peaks? What does it sound like at 200hz @ 5db down
>> from the peak at that frequency, for example? What is something
>
>Neil, the digital signal is represented by more than peak amplitude in order

>to
>represent modulation, period and phase of the waveform, so phase
>cancellation
>has to compare more than peaks. Pull up a 44.1k, 24-bit file in Cool Edit

>or Audition
>and zoom - you'll see sample points all along the wave for anything below

>20kHz.
>
>All of those sample points have to cancel for a phase invert test to cancel

>completely.

At 44,1000 sample points per second, I'll bet you can have PLENNNTY of samples that "miss" or don't cancel completely & still get a "null".

What is the sound of one sample clapping?

How about two?

How about twenty seven samples, all roughly evenly-spaced across the course of a second... can you hear that if the difference between those 27 samples is an average of couple of db each?

How far does it go in # of samples per second & difference in db for each one before you can hear it? We don't really know, do we? Who's done that test? No one. Ever.

Neil>

> How far does it go in # of samples per second & difference in
> db for each one before you can hear it? We don't really know,
> do we? Who's done that test? No one. Ever.

Well, that's what the software is doing when adding a phase inverted file to it's original - inverting each word (24 or 16 bit) at each sample point in the audio file, and comparing them to the same sample position in the non-inverted file (e.g. one by one, 44,100 of them every second).

So, yes, we've all done exactly that, everytime we do a phase invert test and bounce the output to 32-bit floating point, or watch it on a realtime analyzer set to read below -144dB, which is the end of where 24-bit can represent. A null is nothing showing up even below that level. If you zoom in on the analyzer you will see single sample peaks on a phase cancellation test difference file, so even if one shows up, you can see it. The tests I did were completely blank down to -200 dB (far below the last bit). It's safe to say there is no difference, even in quantization noise, which by technical rights, is considered below the level of "cancellation" in such tests.

As far as the question of how much, or rather how little change can we hear - that is certainly been debated. But that's where the scientific side comes into play (when our ears mislead us too easily). If you cancel it in software, you probably aren't hearing a difference in

reality. If software math is that unreliable, then you would never be able to recall a mix and run down a "duplicate" - even without random variables such as reverb or delay, it wouldn't sound even close to the same.

Regards,
Dedric

"Nei" <IUOIU@OIU.com> wrote in message news:4589f623\$1@linux...

> At 44,1000 sample points per second, I'll bet you can have
> PLENNNTY of samples that "miss" or don't cancel completely &
> still get a "null".
>
> What is the sound of one sample clapping?
>
> How about two?
>
> How about twenty seven samples, all roughly evenly-spaced
> across the couse of a second... can you hear that if the
> difference between those 27 samples is an average of couple of
> db each?
>
> How far does it go in # of samples per second & difference in
> db for each one before you can hear it? We don't really know,
> do we? Who's done that test? No one. Ever.
>
>
> NeilHey DeeJ,

What were the symptoms of your dying UAD-1 cards?

Thanks!

Gantt

"DJ" <nowayjose@dude.net> wrote:

>I have had two UAD-1 cards die on me since I bought my first one (which

>still works) in September 2001.
>"Gantt Kushner" <ganttmann@comcast.net> wrote:
>
>Hey DeeJ,
>
>What were the symptoms of your dying UAD-1 cards?

Pallor, gasping of breath, thready pulsewave modulation.

:DI'm sorry Dedric, but your statements below are full of hot Scientific hot air balonga..

You should always trust your ears, and not some stupid math. This is music, not a science project..Get the wax out and listen with your ears instead of your scopes and graphs.. And, while your at it, how about acually working with differnt DAW software to actually hear the difference. Your conclusions that it's all "perception" is hoggwash..

And if you read RN's piece on CD mastering, you'd know he was stuck on math as well, seeing as he's an Electical Engineer(EE).Software as a sound.

As far as the question of how much, or rather how little change can we hear - that is certainly been debated. But that's where the scientific side comes into play (when our ears mislead us too easily). If you cancel it in software, you probably aren't hearing a difference in

reality. If software math is that unreliable, then you would never be able to recall a mix and run down a "duplicate" - even without random variables such as reverb or delay, it wouldn't sound even close to the same.

"Dedric Terry" <dedric@echomg.com> wrote:

>>

>> How far does it go in # of samples per second & difference in
>> db for each one before you can hear it? We don't really know,
>> do we? Who's done that test? No one. Ever.

>

>Well, that's what the software is doing when adding a phase inverted file to

>it's original - inverting

>each word (24 or 16 bit) at each sample point in the audio file, and

>comparing them to the same

>sample position in the non-inverted file (e.g. one by one, 44,100 of them

>every second).

>

>So, yes, we've all done exactly that, everytime we do a phase invert test

>and bounce the output to 32-bit

>floating point, or watch it on a realtime analyzer set to read below -144dB,

>which is the end of where 24-bit

>can represent. A null is nothing showing up even below that level. If you

>zoom in on the analyzer you will
>see single sample peaks on a phase cancellation test difference file, so

>even if one shows up, you can see it.
>The tests I did were completely blank down to -200 dB (far below the last

>bit). It's safe to say there is no difference, even in
>quantization noise, which by technical rights, is considered below the level

>of "cancellation" in such tests.
>
>As far as the question of how much, or rather how little change can we
>hear - that is certainly
>been debated. But that's where the scientific side comes into play (when

>our ears mislead us too easily).
>If you cancel it in software, you probably aren't hearing a difference in

>reality. If software math is that
>unreliable, then you would never be able to recall a mix and run down a

>"duplicate" - even without random
>variables such as reverb or delay, it wouldn't sound even close to the same.
>
>Regards,
>Dedric
>
>"Nei" <IUOIU@OIU.com> wrote in message news:4589f623\$1@linux...
>
>> At 44,1000 sample points per second, I'll bet you can have
>> PLENNNNTY of samples that "miss" or don't cancel completely &
>> still get a "null".
>>
>> What is the sound of one sample clapping?
>>
>> How about two?
>>
>> How about twenty seven samples, all roughly evenly-spaced
>> across the course of a second... can you hear that if the
>> difference between those 27 samples is an average of couple of
>> db each?
>>
>> How far does it go in # of samples per second & difference in
>> db for each one before you can hear it? We don't really know,
>> do we? Who's done that test? No one. Ever.
>>
>>
>> Neil

>
>Lamont,

If you had read my post you would know that I do use my ears, and have used pretty much every DAW in this thread. You would also have read that I always recommend ears first, and have in several other threads. My ears are what I base my decisions on exclusively. You obviously don't understand the process of comparative testing or you would have understood (as I stated) that the "scopes and graphs" as you call them, come after the ears to confirm and/or put a clearer face on the "I think it sounds like this" perception. To be clear, since you seem to be missing this point, this "testing" is for the purpose of understanding what's behind the tools we use, and sorting out fact from myth - not for making mixing decisions.

You have offered nothing other than your opinion in broad, emotionally based comments throughout this thread with no specifics to back up your claim. You asserted a technical claim with "use your ears" and "software has a sound" instead of a firm grasp of what is actually being discussed. I and others have proven your blanket suppositions wrong in other situations several times, but it isn't worth rehashing here given the direction and lack of objectivity this discussion is taking. You hear what you hear and that's fine, but I don't appreciate your condescending tone here, so this will be my last post on this topic here. Good luck!

Dedric

"LaMont" <jjdpro@gmail.com> wrote in message news:458a22bc\$1@linux...

>
> I'm sorry Dedric, but your statements below are full of hot Scientific hot
> air balonga..
>
> You should always trust your ears, and not some stupid math. This is
> music,
> not a science project..Get the wax out and listen with your ears instead
> of your scopes and graphs.. And, while your at it, how about actually
> working
> with differnt DAW software to actually hear the difference. Your
> conclusions
> that it's all "perception" is hogwash..
>

> And if you read RN's piece on CD mastering, you'd know he was stuck on
> math
> as well, seeing as he's an Electrical Engineer(EE).Software as a sound.
>
>
> As far as the question of how much, or rather how little change can we
> hear
> - that is certainly
> been debated. But that's where the scientific side comes into play (when
> our ears mislead us too easily).
> If you cancel it in software, you probably aren't hearing a difference in
>
> reality. If software math is that unreliable, then you would never be able
> to recall a mix and run down a "duplicate" - even without random variables
> such as reverb or delay, it wouldn't sound even close to the same.
>
>
>
> "Dedric Terry" <dedric@echomg.com> wrote:
>>>
>>> How far does it go in # of samples per second & difference in
>>> db for each one before you can hear it? We don't really know,
>>> do we? Who's done that test? No one. Ever.
>>
>>Well, that's what the software is doing when adding a phase inverted file
> to
>>it's original - inverting
>>each word (24 or 16 bit) at each sample point in the audio file, and
>>comparing them to the same
>>sample position in the non-inverted file (e.g. one by one, 44,100 of them
>
>>every second).
>>
>>So, yes, we've all done exactly that, everytime we do a phase invert test
>
>>and bounce the output to 32-bit
>>floating point, or watch it on a realtime analyzer set to read
>>below -144dB,
>
>>which is the end of where 24-bit
>>can represent. A null is nothing showing up even below that level. If
> you
>>zoom in on the analyzer you will
>>see single sample peaks on a phase cancellation test difference file, so
>
>>even if one shows up, you can see it.
>>The tests I did were completely blank down to -200 dB (far below the last
>

>>bit). It's safe to say there is no difference, even in
>>quantization noise, which by technical rights, is considered below the
>>level
>
>>of "cancellation" in such tests.
>>
>>As far as the question of how much, or rather how little change can we
>>hear - that is certainly
>>been debated. But that's where the scientific side comes into play (when
>
>>our ears mislead us too easily).
>>If you cancel it in software, you probably aren't hearing a difference in
>
>>reality. If software math is that
>>unreliable, then you would never be able to recall a mix and run down a
>
>>"duplicate" - even without random
>>variables such as reverb or delay, it wouldn't sound even close to the
>>same.
>>
>>Regards,
>>Dedric
>>
>>"Neil" <IUOIU@OIU.com> wrote in message news:4589f623\$1@linux...
>>
>>> At 44,1000 sample points per second, I'll bet you can have
>>> PLENNNNNTY of samples that "miss" or don't cancel completely &
>>> still get a "null".
>>>
>>> What is the sound of one sample clapping?
>>>
>>> How about two?
>>>
>>> How about twenty seven samples, all roughly evenly-spaced
>>> across the course of a second... can you hear that if the
>>> difference between those 27 samples is an average of couple of
>>> db each?
>>>
>>> How far does it go in # of samples per second & difference in
>>> db for each one before you can hear it? We don't really know,
>>> do we? Who's done that test? No one. Ever.
>>>
>>>
>>> Neil
>>
>>
> <http://www.zdnetasia.com/news/hardware/0,39042972,61976567,0 0.htm>

external drives with internal speeds !"Dedric Terry" <dedric@echomg.com> wrote:
>The tests I did were completely blank down to -200 dB (far below the last

>bit). It's safe to say there is no difference, even in
>quantization noise, which by technical rights, is considered below the level

>of "cancellation" in such tests.

I'm not necessarily talking about just the first bit or the last bit, but also everything in between... what happens on bit #12, for example? Everything on bit #12 should be audible, but in an a/b test what if there are differences in what bits #8 through #12 sound like, but the amplitude is still the same on both files at that point, you'll get a null, right? Extrapolate that out somewhat & let's say there are differences in bits #8 through #12 on sample points 3, 17, 1,000, 4,523, 7,560, etc, etc through 43,972... Now this is breaking things down well beyond what I think can be measured, if I'm not mistaken (I don't know of any way we could extract JUST that information from each file & play it back for an a/b test; but would not that be enough to have to "null-able" files that do actually sound somewhat different?

I guess what I'm saying is that since each sample in a musical track or full song file doesn't represent a pure, simple set of content like a sample of a sine wave would - there's a whole world of harmonic structure in each sample of a song file, and I think (although I'll admit - I can't "prove") that there is plenty of room for some variables between the first bit & the last bit while still allowing for a null test to be successful.

No? Am I wacked out of my mind?

NeillIf you think data can't be written consistently, down to the last bit, over and over on a CD you better check to see that your Social Security Number, bank balances, credit card transactions, and paychecks are changing. Because they need to if that's what you believe.

TCB

"LaMont" <jjdpro@ameritech.net> wrote:

>

>See Dedric, everything in this life is not expalinalbe. Although we would like
>it to be $2+2=4$, the rality is that sometimes $2+2=4.40$..Why, becuae the
>the math is flawed. Why is the math flawed? Becuase we as humans are flawed.
>Say what you will about the metric system, which is a great tool.But, sometimes
>working in inches and 16ths, 3/4s works better.

>

>When a guy like Roger Nichols bangs his preverbal head around this issue

>as to why his mix sound different being rendered from different and sometimes

>the same cd mastering devices is expalinable, however the explanation does

>not jive with the science.

>Are we to believe that the Science we have today about digital audio is

>the the Last word?? No.. In the future, some new science will come along

>and either rebuff our current science or enhance it.

>

>We I and other say.. We drop a stereo wav file in a given daw)(unity gain)

>using the same audio converter...We can hear the diference. And it's sonically

>obvious..

>

>Lynns test is flawed because of the Roger Nicohls CD mastering problem.

Things

>change when going to render to CD.

>

>Hey some people on this earth can hear and see better than others..That's

>just a fact

>

>"Dedric Terry" <dedric@echomg.com> wrote:

>>Of course Paris sounds different on Lynn's sampler, that was audible, and

>

>>there are technical reasons why Paris will always sound different, but

I

>

>>didn't like it better on the sampler CD, to be honest, though the

>>differences were subtle. Also, we weren't talking about Acid vs. Sonar

>

>>specifically. I don't even bother with Acid as a DAW example - it's a

loop

>

>>app. Vegas is a video app that has had life as an audio app to some degree,

>

>>but iMovie does audio as well, yet that doesn't really put it in the same

>

>>category as professional DAW apps like Nuendo, PTHD, Sequoia, etc. I use

>

>>Vegas for video, but not audio.

>>

>>On Lynn's sampler, Samplitude, Nuendo, Fairlight and the other natives

don't

>

>>sound different and aren't different in the unity gain examples

>>(even the PTHD mix cancels with these). If you hear two files sounding

>

>>differently that cancel to complete null, an audio difference isn't what

>you

>>are hearing. When there are differences in non-unity gain mix summing

>>tests, you have an extra variable to account for - how is the gain

>>calculated? Gain

>>is non-linear (power), not adding two numbers together. So how is pan law

>

>>factored in, and where? Are your faders exactly the same, or 0.001dB

>>variant?

>>

>>Also if you drop the same stereo file in two different pro audio apps and

>

>>hear a difference, one of the two apps is defective. There is nothing

>>happening with a stereo file playback when no gain change or plugins are

>

>>active - just audio streaming to the driver from disk. If you hear a

>>difference there, I would be quickly trying to find out why. Something

>is

>>wrong.

>>

>>The point I am making is that these arguments usually come up as blanket

>

>>statements with no qualification of what exactly sounds

>>different, why it might, or solid well reasoned attempts to find out why,

>or

>>if there could be a real difference, or just a perceived one.

>>

>>Usually the "use your ears" comment comes up when there is no technical

>

>>rebuttal for when the science and good

>>ears agree. Of course "use your ears" first from a creative perspective,

>

>>but if you are making a technical, scientific statement, then such comments

>>aren't a good foundation to work from. It's a great motto, but a bit of

>a

>>cop out in a technical discussion.

>>

>>Regards,

>>Dedric

>>

>>"LaMont" <jjdpro@ameriech.net> wrote in message news:45897f73\$1@linux...

>>>

>>> Hey Dedric and Neil,

>>>

>>> I reason I think that the Summing CD test(good intentions) were lame

was

>>> because.. If a person can;t hear the difference btw a stereo wav file

>
 >>> that's
 >>> in Acid vs Sonar really needs a hearing test.
 >>>
 >>> For reason of my music work, I have to work with different DAWs, so I'm
 >
 >>> very
 >>> familiar with their sound qualities. My circle of producers and engineers
 >>> talk about the daw sonics all the time. It's really no big deal anymore..
 >>>
 >>> The same logic applies when Roger Nichols (a few) years back in his
 >>> article
 >>> about master CD's and that he found out that 4 differnt CD burners yeilded
 >>> differnt sonic results. Sure, he sated that Math is the Math :) but,
 his
 >>> and the masering engineers Ears told them soemthing was different.
 >>> Hummm???
 >>>
 >>> Now, back to DAW sonics. I can hear the difference btw Paris and Nuendo
 >vs
 >>> Pro Tools, Logic audio.. There is no math to this, this is an ear
 >>> thing..You
 >>> either hear or you don't.. Simple.
 >>> But, good ears can hear it. .
 >>>
 >>> I really think the problem is, noone want to no that their money that
 >
 >>> they've
 >>> spent on a given DAW, has sonic limitations or shall we say, just
 >>> different..
 >>>
 >>> I like that they all sound different. It's good to have choice when mixing
 >>> a song. Some DAWs, depending on the genre will yield better or the desired
 >>> results and than another.
 >>> EX. I would not mix a Acoustic jazz record today with Paris..reason,
 I'm
 >>> going for clarity at it's highest level.. For that project, It's either
 >
 >>> Neundo
 >>> or Pro Tools and may Samplitude..Why should I fight with Paris's thick,
 >
 >>> gooy
 >>> sonics, when I'm going for clarity. Well, Pro Tools and Nuendo/SX has
 >that
 >>> sound right out the gate.. Which makes my job a lot easier. simple. This
 >>> is not tosay that I could not get the job done in Paris..i could..But,
 >for
 >>> that Acoutic Jazz project , the other 2 daws gives me what I'm looking

>
 >>> for
 >>> without even touching an eq..
 >>>
 >>> This is not all about math. As BrianT states: Use you ears..Forget the
 >
 >>> math..What
 >>> does knowing the math do for you anyway? Nothing, it just proves that
 >you
 >>> know the math. Does not tell you diddly about the sonics.. Just ask Roger
 >>> Nichols..
 >>>
 >>>
 >>> "Dedric Terry" <d@nospam.net> wrote:
 >>>>
 >>>>I know we disagree here Lamont and that's totally cool, so I won't take
 >>> this
 >>>>beyond this one response, and this isn't really directed to you, but
 my
 >>> general
 >>>>thoughts on the matter.
 >>>>
 >>>>In Neil's "defense" (not that he needs it), I and others have done this
 >>> comparison
 >>>>to death and the conclusion I've come to is that people are 80% influenced
 >>>>by a change in environment (e.g. software interface) and 20% ears. Sorry
 >>>>to say it, but the difference in sound between floating point DAWs is
 >far
 >>>>from real. It's just good, albeit unintentional marketing created by
 >
 >>>>users
 >>>>and capitolized by manufacturers. Perceiving a "sound" in DAWs that
 in
 >>> actuality
 >>>>process data identically, is a bad reason to pick a DAW, but of course
 >
 >>>>there
 >>>>is nothing wrong with thinking you hear a difference as long as it doesn't
 >>>>become an unwritten law of engineering at large. Preferring to work
 with
 >>>>one or the other, and "feeling" better about it for whatever reason is
 >a
 >>>>great reason to pick one DAW over another.
 >>>>
 >>>>There was a recent thread that Nuendo handled gain through groups
 >>>>differently,
 >>>>so I put Nuendo, Sonar 6 (both 32 and 64-bit engines) and Sequoia 8.3
 >to

>>>>the test - identical tests, setup to the 1/100th of a dB identically
and
>>>>came up with absolutely no difference, either audible or scientific.

>To
>>>>be honest, this was the one test where I could have said, yes there is
>an
>>>>understandable difference between DAWs in a simple math function, and
>the
>>>>only one in the DAW that actually might make sense, yet even that did
>not
>>>>exist. The reason - math is math. You can paint it red, blue, silver
>or
>>>>dull grey, but it's still the same math unless the programmer was high
>or
>>>>completely incompetent when they wrote the code.
>>>>
>>>>I thought it was entirely possible the original poster had found something
>>>>different in Nuendo, but when it came down to really understanding and
>
>>>>reproducing
>>>>what happens in DAW summing and gain structures accurately between each
>>> DAW,
>>>>there was none, nada, nil. The assertion was completely squashed. This
>
>>>>also
>>>>showed me how easy it is for a wide range of professionals to misinterpret
>>>>digital audio - whether hearing things, or just setting up a test with
>a
>>>>single missed variable that completely invalidates the whole process.
>>>>
>>>>If you hear a difference, great. I've thought I heard a difference doing
>>>>similar comparisons, then changed my perspective (nothing else - not

>>>>converters,
>>>>nothing - just reset my expectations, and switched back and forth) and
>
>>>>could
>>>>hear no difference.
>>>>
>>>>Just leave some room for other opinions when you post yours on this
>>>>subject
>>>>since it is very obvious that hearing is not as universally objective
>and
>>>>identically referenced as everyone might like to believe, and is highly
>>> visually
>>>>and environmentally affected. Some will hear differences in DAWs. There
>>>>are Cubase SX 3 users claiming Cubase 4 sounds different. Sigh. Then

>
>>>>they
>>>>realize they aren't even using the same project... or at least different
>>>>EQs, or etc, etc....
>>>>
>>>>Say what you want about published summing tests, but Lynn's tests are
>as
>>>>accurate as it gets, and that bears out in the results (all floating
point
>>>>DAWs cancel and sound identical - if you are hearing a difference, you
>are
>>>>hearing things that aren't there, or you forgot to align their gain and
>>> placement).
>>>> I've worked with Lynn at least briefly enough to know his attention
to
>>> detail.
>>>> In the same way people will disagree about PCs and Macs until neither
>
>>>> exists,
>>>>so will audio engineers disagree about DAWs. This is one debate that
>will
>>>>always exist as long as we have different ears, eyes, brains,... and

>>>>opinions.
>>>>
>>>>
>>>>What Neil has done is to prove that opinions are always going to differ
>>> (i.e.
>>>>no consensus on the "best" mix of the ones posted). And in truth everyone
>>>>has a different perception of sound in general - not everyone wants to
>
>>>>hear
>>>>things the same way, so we judge "best" from very different perspectives.
>>>> There is no single gold standard. There are variations and mutated

>>>> combinations,
>>>>but all are subjective. That in and of itself implies very distinctly
>
>>>>that
>>>>people can and will even perceive the exact same sound differently if
>
>>>>presented
>>>>with any variable that changes the brain's interpretation, even if just
>>> a
>>>>visual distraction. Just change the lights in the room and see if you
>
>>>>perceive
>>>>a song differently played back exactly the same way. Or have a cat run

>>> across
>>>>a desk while listening. Whether you care to admit it or not, it is there,
>>>>and that is actually the beauty of how our sense interact to create
>>>>perception.
>>>> That may be our undoing with DAW comparison tests, but it's also what
>
>>>> keeps
>>>>music fresh and creative, when we allow it to.
>>>>
>>>>So my suggestion is to use what makes you most creative, even if it's
>just
>>>>a "feeling" working with that DAW gives you - be it the workflow, the
>GUI,
>>>>or even the name brand reputation. But, as we all know, if you can't
>make
>>>>most any material sound good on whatever DAW you choose, the DAW isn't
>the
>>>>problem.
>>>>
>>>>Regards,
>>>>Dedric
>>>>
>>>>"Neil" <IUOIU@OIU.com> wrote:
>>>>>
>>>>>That's interesting - all those DAW sonic interpretations, I
>>>>>mean... I haven't had a chance to usee all of those, so it's
>>>>>good information.
>>>>>
>>>>>I still don't understand why you consider my summing
>>>>>comparisons "lame", however - it was a fair set of tests;
>>>>>the same mix summed in different ways. Not trying to prove a
>>>>>point or to rig it so one sounded any better than the other - in
>>>>>fact, if you recall the thread, different people liked different
>>>>>summed versions for different reasons... there wasn't any one
>>>>>version that stood out as being "the one" that everyone felt
>>>>>sounded better. The only reason I didn't come right out & say
>>>>>right away which version was which is so that I didn't bias
>>>>>anyone's opinion beforehand by mentioning that... NOT to try
>>>>>& "hide" anything or "trick" anyone, as you accused me of
>>>>>
>>>>>Sheesh!
>>>>>
>>>>>Neil
>>>>>
>>>>>
>>>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>>>
>>>>>>Hey Neil,

>>>>>
>>>>>All I'm saying is: All DAW software have their own unique sound.
>>>>>Despite
>>>>>what those lame summing test shows..
>>>>>
>>>>>PT-HD has a very distinct sound. A very polished sound, with a nice
>top
>>>>>end,
>>>>>but with full audio spectrum represented. Mixer/Summing buss can be
>
>>>>>pushed,
>>>>>but you have to watch it.
>>>>>
>>>>>Nuendo/SX: Has a very Clear, 2 dimension sound, that does not hype
the
>>>>>top
>>>>>nor bottom end.
>>>>>
>>>>>Logic Audio: Very Broad- Aggressive sound, that really works for Rock
>>> and
>>>>>R & B/Gospel mixes.
>>>>>
>>>>>Digital Performer: With their hardware, superb audio quality. Full

>>>>>bodied
>>>>>sound .
>>>>>
>>>>>Sonar: Very flat sounding. I would say that Sonar is your most vanilla
>>>>sound
>>>>>DW on the market..
>>>>>
>>>>>Samplitude : A little less top end than Pro Tools. Full bodied 3d
>>>>>sound..
>>>>>
>>>>>Paris: Dark sounding in comparison to the the other DAWs. But, has
a
>3d
>>>>>sound
>>>>>quality that's full bodied.
>>>>>
>>>>>I feel that you asking SX to be something it's not with some analog
>
>>>>>summing.
>>>>>Especially for your genre of music..
>>>>>
>>>>>
>>>>>
>>>>>

>>>>>>"Neil" <IUOIU@OIU.com> wrote:
>>>>>>
>>>>>>>"Lamont" <jjdpro@ameritech.net> wrote:
>>>>>>>
>>>>>>>>"I'd disagree with you in this instance because I happen to think
>the
>>>>>>>Cubase
>>>>>>>>ones DO sound better."
>>>>>>>>
>>>>>>>>>Then that SSL Engineer does not know what they are doing with board.
>>>>>>>>There's
>>>>>>>>>no way a mix coming off of that board SSL should sound better than
>a
>>>>>>>>ITB
>>>>>>>>>Cubase SX mix..
>>>>>>>>>
>>>>>>>>>>Sorry, that just does not jive. That engineer does not know how to
>
>>>>>>>>>push
>>>>>>>>>he
>>>>>>>>>>SSL or just not familiar with it.
>>>>>>>>>
>>>>>>>>>>You're not really paying attention, are you? It was the same
>>>>>>>>>>engineer (me). And as far as whether or not I know how to use
>>>>>>>>>>that particular board, I guess that would be a matter of
>>>>>>>>>>your opinion. I don't think the SSL mixes are bad ones, I think
>>>>>>>>>>they came out good; I just think that you can hear more detail
>>>>>>>>>>in the ITB mixes in the examples I gave, and they have more
>>>>>>>>>>wideband frequency content from top to bottom.
>>>>>>>>>>
>>>>>>>>>>>Anyway, my point of that particular comparison wasn't to say
>>>>>>>>>>>"ITB mixes are better than using a large-format console that
>>>>>>>>>>>costs somewhere in the six-figure range", the point of it was to
>>>>>>>>>>>address a signal-chain suggestion that Paul had... he had
>>>>>>>>>>>suggested perhaps that I needed to pick up a few pieces of
>>>>>>>>>>>killer vintage gear, and I was just demonstrating that I think
>>>>>>>>>>>the various signal chain components that I have here are on par
>>>>>>>>>>>with most anything that can be found in heavy-hitter studios...
>>>>>>>>>>>we used probably around \$100k's worth of mics & pre's on the
>>>>>>>>>>>PTHD/SSL mixes, plus obviously you're looking at another
>>>>>>>>>>>roughly \$100k for that particular console (40-channel E-series,
>>>>>>>>>>>black EQ's, w/G-series Computer & Total Recall package), add in
>>>>>>>>>>>the PTHD, outboard gear & whatnot, and you end up with
>>>>>>>>>>>somewhere around a quarter-mil's worth of equipment involved in
>>>>>>>>>>>that project. The project done at my place was done with my
>>>>>>>>>>>gear, which certainly doesn't tally up to anywhere remotely
>>>>>>>>>>>close to that cost & none of it bears a "vintage" stamp, but it
>>>>>>>>>>>sounds competitive with the project that used all the heavy-

>>>>>>hitter stuff.

>>>>>>

>>>>>>Neil

>>>>>>

>>>>>

>>>>

>>>

>>

>>

>HI John,

They have been available for months now. SIIG and Adaptec both make express and PCMCIA cards and people like Granite Digital, Lacie all make drives and enclosures with e-sata. One of the main motherboards we use has an E-Sata port on it. Having the ability to do 2 60mb/s+ 400GB drives on a laptop is quite nice. Some of the controller will allow for Raid 1and 0 setups too. They aren't much more than Firewire/USB options.

Chris

John wrote:

> <http://www.zdnetasia.com/news/hardware/0,39042972,61976567,0 0.htm>

>

>external drives with internal speeds !

>

>

--

Chris Ludwig

ADK

chrisl@adkproaudio.com <<mailto:chrisl@adkproaudio.com>>

www.adkproaudio.com <<http://www.adkproaudio.com/>>

(859) 635-5762One of them created annoying bursts of noise in the monitors so I had to fire it. The other one just didn't show up for work one day.

;o)

"Neil" <IUOIU@OIU.com> wrote in message news:458a08d6\$1@linux...

>

> "Gantt Kushner" <ganttmann@comcast.net> wrote:

>>

>>Hey DeeJ,

>>

>>What were the symptoms of your dying UAD-1 cards?

>

> Pallor, gasping of breath, thready pulswave modulation.

>

> :D

>Because digital audio is simply individual amplitude samples taken at regular increments, if two tracks (sets of sample numbers) cancel out completely they are, by definition, identical at every sample point.

Simple as that.

The music we hear is recreated from the sample point numbers when they are converted back to analog. As we know, sound carried through the air is an analog phenomenon.

The world of harmonic structure we hear comes from the combination of waveforms at different frequencies used in the music. The ability of a series of simple amplitude samples to accurately recreate such combined frequency information is determined by the frequency of the regular increments - the sample rate - how often an amplitude measurement is recorded.

Nyquist suggests using at least 2x the highest frequency you want to reproduce. But as long as the systems you are comparing are using the same sample rate, that part of the equation is removed as a variable.

The quality of the A to D and D to A converters plays a part in what we hear, but those stages can be removed as variables depending on what and how you test - for example by comparing the same digital file bounced digitally from different DAWs.

Cheers,

-Jamie

www.JamieKrutz.com

Neil wrote:

> "Dedric Terry" <dedric@echomg.com> wrote:

>> The tests I did were completely blank down to -200 dB (far below the last

>

>> bit). It's safe to say there is no difference, even in

>> quantization noise, which by technical rights, is considered below the level

>

>> of "cancellation" in such tests.

>

> I'm not necessarily talking about just the first bit or the

> last bit, but also everything in between... what happens on bit

> #12, for example? Everything on bit #12 should be audible, but

> in an a/b test what if there are differences in what bits #8

> through #12 sound like, but the amplitude is still the same on

> both files at that point, you'll get a null, right? Extrapolate
 > that out somewhat & let's say there are differences in bits #8
 > through #12 on sample points 3, 17, 1,000, 4,523, 7,560, etc,
 > etc through 43,972... Now this is breaking things down well
 > beyond what I think can be measured, if I'm not mistaken (I
 > don't know of any way we could extract JUST that information
 > from each file & play it back for an a/b test; but would not
 > that be enough to have to "null-able" files that do actually
 > sound somewhat different?
 >
 > I guess what I'm saying is that since each sample in a musical
 > track or full song file doesn't represent a pure, simple set of
 > content like a sample of a sine wave would - there's a whole
 > world of harmonic structure in each sample of a song file, and
 > I think (although I'll admit - I can't "prove") that there is
 > plenty of room for some variables between the first bit & the
 > last bit while still allowing for a null test to be successful.
 >
 > No? Am I wacked out of my mind?
 >
 > Neil
 >
 >http://www.nbc.com/Saturday_Night_Live/uncensored.shtml Annoying bursts of noise is exactly
 what's happening! How did you figure
 out whci card was bad?

Gantt

"DJ" <nowayjose@dude.net> wrote:
 >One of them created annoying bursts of noise in the monitors so I had to
 >fire it. The other one just didn't show up for work one day.
 >
 >;o)
 >
 >
 >"Neil" <IUOIU@OIU.com> wrote in message news:458a08d6\$1@linux...
 >>
 >> "Gantt Kushner" <ganttmann@comcast.net> wrote:
 >>>
 >>>Hey DeeJ,
 >>>
 >>>What were the symptoms of your dying UAD-1 cards?
 >>
 >> Pallor, gasping of breath, thready pulsewave modulation.
 >>
 >> :D
 >>

>

>Sounds like Justin is trying to toughen up his image a bit...or trying to be relevant

DOn

"James McCloskey" <excelsm@hotmail.com> wrote in message
news:458aefa2\$1@linux...

>

> http://www.nbc.com/Saturday_Night_Live/uncensored.shtmlI'm always the last to know. :-(

Chris Ludwig <chrisl@adkproaudio.com> wrote:

>Hi John,

>They have been available for months now. SiIG and Adaptec both make
>express and PCMCIA cards and people like Granite Digital, Lacie all make

>drives and enclosures with e-sata. One of the main motherboards we use
>has an E-Sata port on it. Having the ability to do 2 60mb/s+ 400GB
>drives on a laptop is quite nice. Some of the controller will allow for

>Raid 1and 0 setups too. They aren't much more than Firewire/USB options.

>

>Chris

>

>

>John wrote:

>

>> http://www.zdnetasia.com/news/hardware/0,39042972,61976567,0_0.htm

>>

>>external drives with internal speeds !

>>

>>

>

>--

>Chris Ludwig

>ADK

>chrisl@adkproaudio.com <mailto:chrisl@adkproaudio.com>

>www.adkproaudio.com <<http://www.adkproaudio.com/>>

>(859) 635-5762.....this is one of the things that makes America a shining beacon of
hope in an otherwise.....awwww.....nevermind.

;o)

"James McCloskey" <excelsm@hotmail.com> wrote in message
news:458aefa2\$1@linux...

>

> http://www.nbc.com/Saturday_Night_Live/uncensored.shtmlThis is a multi-part message in MIME format.

-----=_NextPart_000_00CC_01C7252D.8FEF7720

Content-Type: text/plain;

charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

I hope you're not doing a passive Y split. Look for a VGA splitter on =
google, something like=20

<http://www.pcmall.com/pcmall/shop/detail~dpno~767745.asp>

They're cheap and OH so worth it

AA

"Tom Bruhl" <arpeggio@comcast.net> wrote in message =
news:4589ba0a\$1@linux...

Thanks Chris.=20

This graphics stuff is confusing to me.

I have to convert the DVI to VGA because of the 20' length
as I understand. I was going to split it with a Y cable too.
They'll split to a 21"VGA and a 22"LCD. Will that work on=20
the far side of a KVM? I know the resolutions won't match
but I'll only need the VGAs when mixing so I'll adjust the=20
7300 differently for that application. Sooner or later I'll get
4 matching 22" LCDs and quad cards for both comps.

Will this work?

Tom

"Chris Ludwig" <chrisl@adkproaudio.com> wrote in message =
news:45894ef0\$1@linux...

Hi Tom,

These monitors will be fine with your card. The 7300GT supports that =

resolution on both the VGA and DVI connections.I would run both with =
VGA=20

connections. Having one hooked up DVI and one VGA may make the 2 =
look=20

very different in brightness and such.

Chris

Tom Bruhl wrote:

> My card has one VGA, one DVI and one S Video connector on it.
>
>
> I choose Polesoft Lockspam to fight spam, and you?
> <http://www.polesoft.com/refer.html> =20

--=20

Chris Ludwig

ADK

chrisl@adkproaudio.com <<mailto:chrisl@adkproaudio.com>>

www.adkproaudio.com <<http://www.adkproaudio.com/>>

(859) 635-5762

-----=_NextPart_000_00CC_01C7252D.8FEF7720

Content-Type: text/html;

charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">

<HTML><HEAD>

<META http-equiv=3DContent-Type content=3D"text/html; =
charset=3Diso-8859-1">

<META content=3D"MSHTML 6.00.5730.11" name=3DGENERATOR>

<STYLE></STYLE>

</HEAD>

<BODY bgColor=3D#ffffff>

<DIV>I hope you're not doing a passive Y =
split. Look=20

for a VGA splitter on google, something like </DIV>

<DIV> </DIV>

<DIV><A=20

href=3D"http://www.pcmall.com/pcmall/shop/detail~dpno~767745.asp">[http://=](http://www.pcmall.com/pcmall/shop/detail~dpno~767745.asp)
www.pcmall.com/pcmall/shop/detail~dpno~767745.asp</DIV>

<DIV> </DIV>

<DIV>They're cheap and OH so worth =
it</DIV>

<DIV> </DIV>

<DIV>AA</DIV>

<BLOCKQUOTE dir=3Dltr=20

style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =
BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">

<DIV>"Tom Bruhl" <<A=20

href=3D"mailto:arpegio@comcast.net">arpegio@comcast.net> wrote =
in message=20

connections. Having one hooked up DVI and one VGA may make the 2 =
 look=20
 very different in brightness and such.
Chris

Tom =
 Bruhl=20
 wrote:

> My card has one VGA, one DVI and one S Video =
 connector on=20
 it.
>
>
> I choose Polesoft Lockspam to fight =
 spam, and=20
 you?
> <A=20
 =
 href=3D"http://www.polesoft.com/refer.html">http://www.polesoft.com/refer=
 ..html =20

--
Chris Ludwig
ADK
<A=20
 href=3D"mailto:chrisl@adkproaudio.com">chrisl@adkproaudio.com =
 <<A=20
 =
 href=3D"mailto:chrisl@adkproaudio.com">mailto:chrisl@adkproaudio.com&=
 gt;
<A=20
 href=3D"http://www.adkproaudio.com">www.adkproaudio.com <<A=20
 =
 href=3D"http://www.adkproaudio.com/">http://www.adkproaudio.com/><=
 BR>(859)=20
 635-5762</BLOCKQUOTE></BLOCKQUOTE></BODY></HTML>

-----=_NextPart_000_00CC_01C7252D.8FEF7720--I pulled the cards and then tested them one
 by one. It was a PITA. Sorry
 you're having this grief.

;o(

"Gantt Kushner" <ganttmann@comcast.net> wrote in message
 news:458af983\$1@linux...

>
 > Annoying bursts of noise is exactly what's happening! How did you figure
 > out whci card was bad?
 >
 > Gantt
 >
 > "DJ" <nowayjose@dude.net> wrote:
 >>One of them created annoying bursts of noise in the monitors so I had to
 >
 >>fire it. The other one just didn't show up for work one day.
 >>
 >>;o)
 >>
 >>
 >>"Neil" <IUOIU@OIU.com> wrote in message news:458a08d6\$1@linux...
 >>>

>>> "Gantt Kushner" <ganttmann@comcast.net> wrote:
>>>>
>>>>Hey Deej,
>>>>
>>>>What were the symptoms of your dying UAD-1 cards?
>>>
>>> Pallor, gasping of breath, thready pulswave modulation.
>>>
>>> :D
>>>
>>
>>
>I think the broadcast version is funnier...

GrahamHi Neil,

Jamie is right. And you aren't wacked out - you are thinking this through in a reasonable manner, but coming to the wrong conclusion - easy to do given how confusing digital audio can be. Each word represents an amplitude point on a single curve that is changing over time, and can vary with a speed up to the Nyquist frequency (as Jamie described). The complex harmonic content we hear is actually the frequency modulation of a single waveform, that over a small amount of time creates the sound we translate - we don't really hear a single sample at a time, but thousands of samples at a time (1 sample alone could at most represent a single positive or negative peak of a 22,050Hz waveform).

If one bit doesn't cancel, esp. if it's a higher order bit than number 24, you may hear, and will see that easily, and the higher the bit in the dynamic range (higher order) the more audible the difference. Since each bit is 6dB of dynamic range, you can extrapolate how "loud" that bit's impact will be if there is a variation.

Now, obviously if we are talking about 1 sample in a 44.1k rate song, then it simply be a click (only audible if it's a high enough order bit) instead of an obvious musical difference, but that should never happen in a phase cancellation test between identical files higher than bit 24, unless there are clock sync problems, driver issues, or the DAW is an early alpha version. :-)

By definition of what DAWs do during playback and record, every audio stream has the same point in time (judged by the timeline)

played back sample accurately, one word at a time, at whatever sample rate we are using. A phase cancellation test uses that fact to compare two audio files word for word (and hence bit for bit since each bit of a 24-bit word would be at the same bit slot in each 24-bit word). Assuming they are aligned to the same start point, sample accurately, and both are the same set of sample words at each sample point, bit for bit, and one is phase inverted, they will cancel through all 24 bits. For two files to cancel completely for the duration of the file, each and every bit in each word must be the exact opposite of that same bit position in a word at the same sample point. This is why zooming in on an FFT of the full difference file is valuable as it can show any differences in the lower order bits that wouldn't be audible. So even if there is no audible difference, the visual followup will show if the two files truly cancel even at levels below hearing, or outside of a frequency change that we will perceive.

When they don't cancel, usually there will be way more than 1 bit difference - it's usually one or more bits in the words for thousands of samples. From a musical standpoint this is usually in a frequency range (low freq, or high freq most often) - that will show up as the difference between them, and that usually happens due to some form of processing difference between the files, such as EQ, compression, frequency dependant gain changes, etc. That is what I believe you are thinking through, but when talking about straight summing with no gain change (or known equal gain changes), we are only looking at linear, one for one comparisons between the two files' frequency representations.

Regards,
Dedric

> Neil wrote:
>> "Dedric Terry" <dedric@echomg.com> wrote:
>>> The tests I did were completely blank down to -200 dB (far below the
>>> last
>>
>>> bit). It's safe to say there is no difference, even in
>>> quantization noise, which by technical rights, is considered below the
>>> level
>>
>>> of "cancellation" in such tests.
>>
>> I'm not necessarily talking about just the first bit or the
>> last bit, but also everything in between... what happens on bit
>> #12, for example? Everything on bit #12 should be audible, but
>> in an a/b test what if there are differences in what bits #8

>> through #12 sound like, but the amplitude is still the same on
 >> both files at that point, you'll get a null, right? Extrapolate
 >> that out somewhat & let's say there are differences in bits #8
 >> through #12 on sample points 3, 17, 1,000, 4,523, 7,560, etc,
 >> etc through 43,972... Now this is breaking things down well
 >> beyond what I think can be measured, if I'm not mistaken (I
 >> don't know of any way we could extract JUST that information
 >> from each file & play it back for an a/b test; but would not
 >> that be enough to have to "null-able" files that do actually
 >> sound somewhat different?
 >>
 >> I guess what I'm saying is that since each sample in a musical
 >> track or full song file doesn't represent a pure, simple set of
 >> content like a sample of a sine wave would - there's a whole
 >> world of harmonic structure in each sample of a song file, and
 >> I think (although I'll admit - I can't "prove") that there is
 >> plenty of room for some variables between the first bit & the
 >> last bit while still allowing for a null test to be successful.
 >>
 >> No? Am I wacked out of my mind?
 >>
 >> Neil
 >> For those of you who will be voting for the 49th annual Grammys, please give
 a listen to, and consider Guy Clark's "Workbench Songs" for Best
 Contemporary Folk/Americana Album (Category 68 in Field 14 - Folk). Edited
 and mixed entirely in PARIS.

THANK YOU,
 ChrisDedric - first of all, great explanation - esp. your 2nd
 paragraph. Next, let's take a look at something in the form of
 the best "graph" I can do in this NG's format... let's assume
 that each dot in the simple graph below is a sample point on a
 segment of a waveform, and let's further assume that each "I"
 below represents four bits (I don't want to make it too
 vertically large, for ease of reading) - so we're dealing with
 a 16-bit wav file, with the 5th "dot" from the start point on
 the left being a full-amplitude, zero-db-line 16 bit sample.

Now.... really, all I have to do to get a "null" is to have the
 amplitude match at each "dot" on the waveform, yes? This, of
 course, is a very simplistic graphic example, so bear with
 me... but if I have each "dot" matching in amplitude &
 therefore can get a null, what about the bits & content thereof
 in between the extremes between the maxes & zero-line
 crossings? Are you saying that there can be no variables in
 sound between those sections that would still result in a null?
 What about all the "I"s that represent bits in between the
 maxes & the minimums?

```

      .
     .I.
    .III. What about the stuff in here?
   .IIII. ....or in here????
  ..IIIIII.
-----
      .IIIIII.
     .IIII. Again, what about this region?
    .III. ... or this region?
     .I.
      .

```

NeilThis is a multi-part message in MIME format.

```

-----=_NextPart_000_005B_01C7256C.C32E5E00
Content-Type: text/plain;
  charset="iso-8859-1"
Content-Transfer-Encoding: quoted-printable

```

Thanks Aaron,
 Will this work on the backside of a KVM? I can't put it in front.
 I guess if it needed to be in front of the KVM I could just get a=20
 single output jobbie and split it at the other side. Do those exist?

"Aaron Allen" <know-spam@not_here.dude> wrote in message =
 news:458b23a2@linux...

I hope you're not doing a passive Y split. Look for a VGA splitter on =
 google, something like=20

<http://www.pcmall.com/pcmall/shop/detail~dpno~767745.asp>

They're cheap and OH so worth it

AA

"Tom Bruhl" <arpeggio@comcast.net> wrote in message =
 news:4589ba0a\$1@linux...

Thanks Chris.=20

This graphics stuff is confusing to me.

I have to convert the DVI to VGA because of the 20' length
 as I understand. I was going to split it with a Y cable too.
 They'll split to a 21"VGA and a 22"LCD. Will that work on=20
 the far side of a KVM? I know the resolutions won't match
 but I'll only need the VGAs when mixing so I'll adjust the=20
 7300 differently for that application. Sooner or later I'll get
 4 matching 22" LCDs and quad cards for both comps.

Will this work?

Tom

"Chris Ludwig" <chrisl@adkproaudio.com> wrote in message =
news:45894ef0\$1@linux...

Hi Tom,

These monitors will be fine with your card. The 7300GT supports =
that=20

resolution on both the VGA and DVI connections. I would run both =
with VGA=20

connections. Having one hooked up DVI and one VGA may make the 2 =
look=20

very different in brightness and such.

Chris

Tom Bruhl wrote:

> My card has one VGA, one DVI and one S Video connector on it.

>

>

> I choose Polesoft Lockspam to fight spam, and you?

> <http://www.polesoft.com/refer.html> =20

--=20

Chris Ludwig

ADK

chrisl@adkproaudio.com <mailto:chrisl@adkproaudio.com>

www.adkproaudio.com <http://www.adkproaudio.com/>

(859) 635-5762

-----=_NextPart_000_005B_01C7256C.C32E5E00

Content-Type: text/html;

charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">

<HTML><HEAD>

<META http-equiv=3DContent-Type content=3D"text/html"; =
charset=3Diso-8859-1">

<META content=3D"MSHTML 6.00.2800.1400" name=3DGENERATOR>

<STYLE></STYLE>

</HEAD>

```

<BODY bgColor=#ffffff>
<DIV><FONT face=Arial size=2>Thanks Aaron,</FONT></DIV>
<DIV><FONT face=Arial size=2>Will this work on the backside of a =
KVM?&nbsp;I=20
can't put it in front.</FONT></DIV>
<DIV><FONT face=Arial size=2>I guess if it needed to be in front of =
the=20
KVM&nbsp;I could just get a </FONT></DIV>
<DIV><FONT face=Arial size=2>single output </FONT><FONT face=Arial =
size=2>jobbie=20
and split it at the other side.&nbsp;Do those exist?</FONT></DIV>
<DIV><FONT face=Arial size=2></FONT>&nbsp;</DIV>
<BLOCKQUOTE dir=ltr=20
style="PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =
BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">
  <DIV>"Aaron Allen" &lt;<A=20
  =
href="mailto:know-spam@not_here.dude">know-spam@not_here.dude</A>&gt; =
wrote in=20
  message <A =
href="news:458b23a2@linux">news:458b23a2@linux</A>...</DIV>
  <DIV><FONT face=Arial size=2>I hope you're not doing a passive Y =
split. Look=20
  for&nbsp;a VGA splitter on google, something like </FONT></DIV>
  <DIV><FONT face=Arial size=2></FONT>&nbsp;</DIV>
  <DIV><FONT face=Arial size=2><A=20
  =
href="http://www.pcmall.com/pcmall/shop/detail~dpno~767745.asp">http://=
www.pcmall.com/pcmall/shop/detail~dpno~767745.asp</A></FONT ></DIV>
  <DIV><FONT face=Arial size=2></FONT>&nbsp;</DIV>
  <DIV><FONT face=Arial size=2>They're cheap and OH so worth =
it</FONT></DIV>
  <DIV><FONT face=Arial size=2></FONT>&nbsp;</DIV>
  <DIV><FONT face=Arial size=2>AA</FONT></DIV>
  <BLOCKQUOTE dir=ltr=20
  style="PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =
  BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">
    <DIV>"Tom Bruhl" &lt;<A=20
    href="mailto:arpeggio@comcast.net">arpeggio@comcast.net</A>&gt; =
wrote in=20
    message <A =
href="news:4589ba0a$1@linux">news:4589ba0a$1@linux</A>...</DIV>
    <DIV><FONT face=Arial size=2>Thanks Chris.&nbsp;</FONT></DIV>
    <DIV><FONT face=Arial size=2>This graphics stuff is confusing to =
me.</FONT></DIV>
    <DIV><FONT face=Arial size=2></FONT>&nbsp;</DIV>
    <DIV><FONT face=Arial size=2>I have to convert the DVI to VGA =

```

because of the=20

20' length

<DIV>as I understand. I was going =
to split it=20

with a Y cable too.</DIV>

<DIV>They'll split to <FONT =
face=3DArial=20

size=3D2>a 21"VGA and a 22"LCD. Will that work on =

</DIV>

<DIV>the far side of a KVM? I know =
the=20

resolutions won't match</DIV>

<DIV>but I'll only need the VGAs when =
mixing so I'll=20

adjust the </DIV>

<DIV>7300 differently for that = application. =20

Sooner or later I'll get</DIV>

<DIV>4 matching 22" LCDs and quad cards =
for both=20

comps.</DIV>

<DIV> </DIV>

<DIV>Will this work?</DIV>

<DIV>Tom</DIV>

<DIV> </DIV>

<DIV> </DIV>

<DIV> </DIV>

<DIV> </DIV>

<DIV> </DIV>

<BLOCKQUOTE=20

```
style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =  
BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">
```

<DIV>"Chris Ludwig" <<A=20

$$=$$

href=3D"mailto:chrisl@adkproaudio.com">chrisl@adkproaudio.com> =
wrote=20

in message <A=20

$$=$$

href=3D"news:45894ef0\$1@linux">news:45894ef0\$1@linux...</DIV>HI=20

Tom,
These monitors will be fine with your card. The 7300GT = supports=20

that
resolution on both the VGA and DVI connections.I would =
run both=20

with VGA connections. Having one hooked up DVI and one VGA may = make=20

the 2 look
very different in brightness and=20

such.
Chris

Tom Bruhl wrote:

> My card has =

one=20
 VGA, one DVI and one S Video connector on =
 it.
>
>
> I=20
 choose Polesoft Lockspam to fight spam, and you?
> <A=20
 =
 href=3D"http://www.polesoft.com/refer.html">http://www.polesoft.com/refer=
 ..html =20

--
Chris Ludwig
ADK
<A=20
 href=3D"mailto:chrisl@adkproaudio.com">chrisl@adkproaudio.com =
 <<A=20
 =
 href=3D"mailto:chrisl@adkproaudio.com">mailto:chrisl@adkproaudio.com&=
 gt;
<A=20
 href=3D"http://www.adkproaudio.com">www.adkproaudio.com <<A =
 =
 href=3D"http://www.adkproaudio.com/">http://www.adkproaudio.com/><=
 BR>(859)=20
 635-5762</BLOCKQUOTE></BLOCKQUOTE></BLOCKQUOTE></BODY></HTML >

-----=_NextPart_000_005B_01C7256C.C32E5E00--Neil,

Actually what you are showing with the I's is the power of the waveform
 (area under the curve),
 not the bits. Only the curve itself is the actual amplitude of the wave.
 The amplitude as represented in
 16 bit words would be shown on the y-axis as 65535 steps, and only represent
 the vertical dimension, or amplitude of a specific
 point in time, not the area under it. The x-axis is of course time - one dot
 per sample point,
 each sample point is represented one 16-bit word, stored at that point in
 time. Each word is used to define where
 on the y-axis (how far from 0 volts amplitude) that dot appears - 0000 0000
 0000 0000 of course would be the
 0 amplitude point. An amplitude of 0 volts would equate to a dB power
 of -infinity in the digital realm if
 we have an infinite number of bits to subdivide the y axis with, but in
 reality 0 is effectively -144dB for 24-bit audio
 and -96dB for 16 bit.

Since we work with levels in dB in a DAW we start to think of waveforms as
 being defined by that quantity, but
 when the y axis is in dB, it's really telling us the power of that signal
 around a point in time (area under the curve
 over an average distance), not the amplitude.

There aren't additional points or content beneath the outline you drew.
 It's a bit non-intuitive,

but think of audio as only existing as a function of a change in time and the concept makes more sense.
Regardless of how complex the actual music is, there is still only a single waveform that reaches our ears from a single source - e.g. a single amplitude point at a given point in time.
What we "hear" is how that waveform changes up and down, over a certain time period.

Regards,
Dedric

"Neil" <IUOIU@OIU.com> wrote in message news:458b75af\$1@linux...

>
> Dedric - first of all, great explanation - esp. your 2nd
> paragraph. Next, let's take a look at something in the form of
> the best "graph" I can do in this NG's format... let's assume
> that each dot in the simple graph below is a sample point on a
> segment of a waveform, and let's further assume that each "I"
> below represents four bits (I don't want to make it too
> vertically large, for ease of reading) - so we're dealing with
> a 16-bit wav file, with the 5th "dot" from the start point on
> the left being a full-amplitude, zero-db-line 16 bit sample.
>
> Now.... really, all I have to do to get a "null" is to have the
> amplitude match at each "dot" on the waveform, yes? This, of
> course, is a very simplistic graphic example, so bear with
> me... but if I have each "dot" matching in amplitude &
> therefore can get a null, what about the bits & content thereof
> in between the extremes between the maxes & zero-line
> crossings? Are you saying that there can be no variables in
> sound between those sections that would still result in a null?
> What about all the "I"'s that represent bits in between the
> maxes & the minimums?
>
>
> .
> . I .
> . I I I . What about the stuff in here?
> . I I I I Ior in here????
> . I I I I I I I .
> -----
> . I I I I I I I .
> . I I I I I . Again, what about this region?
> . I I I or this region?
> . I .
> .
>
> NeilThis is a multi-part message in MIME format.

-----=_NextPart_000_0029_01C725B4.83F4FBC0

Content-Type: text/plain;
charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

.....Yeahhh, you're talking about beacon, I'm talking about =
Christmassoup.....;o)

http://www.metacafe.com/watch/315622/happy_new_year/ =20

Erling

"DJ" <nowayjose@dude.net> skrev i melding news:458b1dd0@linux...

>this is one of the things that makes America a shining beacon =
of=20

> hope in an otherwise.....awwww.....nevermind.

>=20

> ;o)

>=20

>=20

> "James McCloskey" <excelsm@hotmail.com> wrote in message=20

> news:458aefa2\$1@linux...

>>

>> http://www.nbc.com/Saturday_Night_Live/uncensored.shtml=20

>=20

>

-----=_NextPart_000_0029_01C725B4.83F4FBC0

Content-Type: text/html;
charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">

<HTML><HEAD>

<META http-equiv=3DContent-Type content=3D"text/html; =
charset=3Diso-8859-1">

<META content=3D"MSHTML 6.00.2900.3020" name=3DGENERATOR>

<STYLE></STYLE>

</HEAD>

<BODY>

<DIV>....Yeahhh, you're talking about =
beacon, I'm=20

talking about Christmassoup.....;o)</DIV>

<DIV> </DIV>

<DIV>

<DIV><A =

href=3D"http://www.metacafe.com/watch/315622/happy_new_year/"><FONT=20
face=3DArial=20

size=3D2>http://www.metacafe.com/watch/315622/happy_new_year/<=
FONT=20
face=3DArial size=3D2> </DIV>
<DIV> </DIV>
<DIV><FONT face=3DArial =
size=3D2>Erling</DIV>
<DIV> </DIV>
<DIV> </DIV></DIV>
<DIV>"DJ" <<A=20
href=3D"mailto:nowayjose@dude.net"><FONT face=3DArial=20
size=3D2>nowayjose@dude.net> =
skrev i melding=20
<FONT face=3DArial=20
size=3D2>news:458b1dd0@linux<FONT face=3DArial=20
size=3D2>...</DIV>>this =
is one of the=20
things that makes America a shining beacon of
> hope in an=20
otherwise.....awwww.....nevermind.
>
> ;o)
> =

>=20

> "James McCloskey" <<A =
href=3D"mailto:excelsm@hotmail.com"><FONT=20
face=3DArial size=3D2>excelsm@hotmail.com<FONT face=3DArial =
size=3D2>>=20
wrote in message
> <FONT =
face=3DArial size=3D2>news:458aefa2\$1@linux<FONT face=3DArial =
size=3D2>...
>>
>> <A=20
href=3D"http://www.nbc.com/Saturday_Night_Live/uncensored.shtml"><FONT =
face=3DArial=20
size=3D2>http://www.nbc.com/Saturday_Night_Live/uncensored.shtml< /=
A><FONT=20
face=3DArial size=3D2>
>
></BODY></HTML>

-----=_NextPart_000_0029_01C725B4.83F4FBC0--wouldn't be so bad if it was actually funny

PS. Why do people link to stuff they find offensive? :P

"James McCloskey" <excelsm@hotmail.com> wrote in message
news:458aefa2\$1@linux...

>

> http://www.nbc.com/Saturday_Night_Live/uncensored.shtmlGreetings :)

Special for the PARIS community going on now !
UAD-1 DSP cards - Ends Dec 31

<https://my.uaudio.com/store/>

\$ 295 on project pak
\$ 595 on Flexi - Pak
\$ 999 on Ultra pak
\$ 895 on EXPERT Pak PCI-E \$ 750 voucher included
\$ 395 on EXPRESS Pak PCI-E \$ 100 voucher included

<http://www.uaudio.com/products/digital/expertpak/demo.html>

As always - trades are always welcome !

Morgan
Eastcoast Music Mall
800-901-2001
morganp@ntplx.netOkay...
I guess what I'm saying is this:

-Is it possible that diferent DAW manufactuers "code" their app differently for sound results.

I the answer is yes, then,the real task is to discover or rather un-cover what's say: Motu's vision of summing, versus Digidesign, versus Steinberg and so on..

What's under the hood. To me and others,when Digi re-coded their summing engine, it was obvious that Pro Tools has an obvious top end (8k-10k) bump. Where as Steinberg's summing is very neutral.

"Dedric Terry" <dedric@echomg.com> wrote:

>Hi Neil,

>

>Jamie is right. And you aren't wacked out - you are thinking this through

>in a reasonable manner, but coming to the wrong

>conclusion - easy to do given how confusing digital audio can be. Each word

>represents an amplitude

>point on a single curve that is changing over time, and can vary with a

>speed up to the Nyquist frequency (as Jamie described).

>The complex harmonic content we hear is actually the frequency modulation of

>a single waveform,

>that over a small amount of time creates the sound we translate - we don't

>really hear a single sample at a time,

>but thousands of samples at a time (1 sample alone could at most represent a

>single positive or negative peak
>of a 22,050Hz waveform).
>
>If one bit doesn't cancel, esp. if it's a higher order bit than number 24,

>you may hear, and will see that easily,
>and the higher the bit in the dynamic range (higher order) the more audible

>the difference.
>Since each bit is 6dB of dynamic range, you can extrapolate how "loud" that

>bit's impact will be
>if there is a variation.
>
>Now, obviously if we are talking about 1 sample in a 44.1k rate song, then

>it simply be a
>click (only audible if it's a high enough order bit) instead of an obvious

>musical difference, but that should never
>happen in a phase cancellation test between identical files higher than
bit
>24, unless there are clock sync problems,
>driver issues, or the DAW is an early alpha version. :-)
>
>By definition of what DAWs do during playback and record, every audio stream

>has the same point in time (judged by the timeline)
>played back sample accurately, one word at a time, at whatever sample rate

>we are using. A phase cancellation test uses that
>fact to compare two audio files word for word (and hence bit for bit since

>each bit of a 24-bit word would
>be at the same bit slot in each 24-bit word). Assuming they are aligned
to
>the same start point, sample
>accurately, and both are the same set of sample words at each sample point,

>bit for bit, and one is phase inverted,
>they will cancel through all 24 bits. For two files to cancel completely

>for the duration of the file, each and every bit in each word
>must be the exact opposite of that same bit position in a word at the same

>sample point. This is why zooming in on an FFT
>of the full difference file is valuable as it can show any differences in

>the lower order bits that wouldn't be audible. So even if
>there is no audible difference, the visual followup will show if the two

>files truly cancel even a levels below hearing, or
>outside of a frequency change that we will perceive.
>

>When they don't cancel, usually there will be way more than 1 bit
>difference - it's usually one or more bits in the words for
>thousands of samples. From a musical standpoint this is usually in a
>frequency range (low freq, or high freq most often) - that will
>show up as the difference between them, and that usually happens due to
some
>form of processing difference between the files,
>such as EQ, compression, frequency dependant gain changes, etc. That is
what
>I believe you are thinking through, but when
>talking about straight summing with no gain change (or known equal gain

>changes), we are only looking at linear, one for one
>comparisons between the two files' frequency representations.
>

>Regards,
>Dedric
>

>> Neil wrote:
>>> "Dedric Terry" <dedric@echomg.com> wrote:
>>>> The tests I did were completely blank down to -200 dB (far below the

>>>> last
>>>>
>>>> bit). It's safe to say there is no difference, even in
>>>> quantization noise, which by technical rights, is considered below the

>>>> level
>>>>
>>>> of "cancellation" in such tests.
>>>>
>>>> I'm not necessarily talking about just the first bit or the
>>>> last bit, but also everything in between... what happens on bit
>>>> #12, for example? Everything on bit #12 should be audible, but
>>>> in an a/b test what if there are differences in what bits #8
>>>> through #12 sound like, but the amplitude is still the same on
>>>> both files at that point, you'll get a null, right? Extrapolate
>>>> that out somewhat & let's say there are differences in bits #8
>>>> through #12 on sample points 3, 17, 1,000, 4,523, 7,560, etc,
>>>> etc through 43,972... Now this is breaking things down well
>>>> beyond what I think can be measured, if I'm not mistaken (I
>>>> don't know of any way we could extract JUST that information

>>> from each file & play it back for an a/b test; but would not
>>> that be enough to have to "null-able" files that do actually
>>> sound somewhat different?
>>>
>>> I guess what I'm saying is that since each sample in a musical
>>> track or full song file doesn't represent a pure, simple set of
>>> content like a sample of a sine wave would - there's a whole
>>> world of harmonic structure in each sample of a song file, and
>>> I think (although I'll admit - I can't "prove") that there is
>>> plenty of room for some variables between the first bit & the
>>> last bit while still allowing for a null test to be successful.
>>>
>>> No? Am I wacked out of my mind?
>>>
>>> Neil
>>>
>Thanks for sharing..
Actually, I thought it was funny.
You see when I happen to stop by one of these genre songs
on the radio I always put my own lyrics to them.
Usually they are very similar to what you hear on that clip.
It is the only thing that makes that style of music enjoyable for me.

humming.... it's my d*ck in a box....Mmmmm Mmmmm girl.....

--

Thanks,

BrandonNeil,

You're using an analog waveform that is leading you to think incorrectly
about sampling. This is (very roughly) how it would look if you're working
with 16 bit samples.

```
0101010101010101
0101010111011101
0101110111010101
0101111111010100
0101110101111101
0111011101111101
0111110101110101
0100010111000100
0100011101010101
0001011100010101
0000010111111100
0001000001010111
0100000111110101
0111011101010000
0101011101000000
```

0101011111000101
0101010101010101

The easiest way to think of how the sampler works is that it looks at the incoming voltage to the converter and asks 'Is this in the top or bottom half of the possible amplitudes I can measure.' If it's in the top half it writes a 1, if it's in the bottom half, it writes a zero. The next bit asks, 'Now that I know which half of my measurable voltage I'm looking at, is the voltage in the top half of that half or the bottom half?' That's bit number two. Then it's on to, 'Now that I know what quarter it's in, is it in the top or bottom half of that quarter?' And so on sixteen times giving it a resolution of 2 to the sixteenth power.

In other words, asking if the bits under the sample would sound is like asking how the road would drive if it were 30 feet underground.

Now then, to get back to the original argument, people like me (and I think Dedric but I'll let him speak for himself) get a little hacked off when someone says, 'you have to use your ears' when it's possible using various computer tools to check exactly how many of those samples match in two given files. The nulling trick is just a very easy way to get a quick read on one aspect, which is to answer the question 'do these two files match?' But there are others and I've used them. And the sameness between properly written (by which I mean lacking in serious bugs) audio applications is startling and their differences so minor that other errors (analog cables, dust on the speaker cone, humidity and temperature in the room) are far more likely to cause a difference.

Personally I think this all stems from romanticism about music and the purity of art. I have yet to hear someone tell me they need financial calculations down to 25 decimal points. They need them done to (at most) five decimal points because the smallest commonly used financial divisor is the basis point, or one one hundredth of a penny. So internally you calculate to five decimal places and round up or down from there and get on with your life. As geeky as finance guys can get, nobody ever says, 'You know, Thad, that last basis point just isn't really punchy enough for this deal. LBO guys need really punchy returns, so can you run that calculation out a few more bits to get a punchier basis point?' Scientists are also extremely careful to keep 'false precision' out of their calculations, so if one instrument will measure to four decimal points and the others will measure to 12 they understand that everything the higher resolution instruments measure beyond four accurate decimal points is worthless. They usually won't even record the data to be sure they don't claim greater precision than they have, because that's considered a horribly embarrassing junior high school mistake. But musicians and audio engineers think that just because the data is sound data somehow it enters a nebulous zone where that last one hundredth of a penny can be punchier. Hey, if it gets you through the day, that's fine by me, but there are things about digital audio that can be proven true or false

using the data. For things that can't be proven true or false with the data itself there is ABY testing, which is a controlled way to use the most precise audio measuring instruments available (our ears, at least until bats will wear headphones) to see if things sound different. When it's not in the data, and it's not in the ABY, I say it doesn't exist.

TCB

"Neil" <IUOIU@OIU.com> wrote:

>
>Dedric - first of all, great explanation - esp. your 2nd
>paragraph. Next, let's take a look at something in the form of
>the best "graph" I can do in this NG's format... let's assume
>that each dot in the simple graph below is a sample point on a
>segment of a waveform, and let's futher assume that each "I"
>below represents four bits (I don't want to make it too
>vertically large, for ease of reading) - so we're dealing with
>a 16-bit wav file, with the 5th "dot" from the start point on
>the left being a full-amplitude, zero-db-line 16 bit sample.
>
>Now.... really, all I have to do to get a "null" is to have the
>amplitude match at each "dot" on the waveform, yes? This, of
>course, is a very simplistic graphic example, so bear with
>me... but if I have each "dot" matching in amplitude &
>therefore can get a null, what about the bits & content thereof
>in between the extremes between the maxes & zero-line
>crossings? Are you saying that there can be no variables in
>sound between those sections that would still result in a null?
>What about all the "I"'s that represent bits in between the
>maxes & the minimums?
>
>
> .
> . I .
> . I I I . What about the stuff in here?
> . I I I I Ior in here????
> . I I I I I I I .
>-----
> . I I I I I I I .
> . I I I I I . Again, what about this region?
> . I I I or this region?
> . I .
> .
>
>NeilThad, I assume that you ar ereferring to me (using your ears).

Look, I think we are talking about two differnt things here:

1) Digital data

2) Software (DAWS) coding

You and Dedric have been concentrating on the laws of Digital audio. That's fine. But, I'm talking about the Software that we use to decode our digital audio.

Like my previous post states, are we saying that DAW software can't be written for certain sonic results?

"TCB" <nobody@ishere.com> wrote:

>

>Neil,

>

>You're using an analog waveform that is leading you to think incorrectly
>about sampling. This is (very roughly) how it would look if you're working
>with 16 bit samples.

>

>0101010101010101

>0101010111011101

>0101110111010101

>0101111111010100

>0101110101111101

>0111011101111101

>0111110101110101

>0100010111000100

>0100011101010101

>0001011100010101

>0000010111111100

>0001000001010111

>0100000111110101

>0111011101010000

>0101011101000000

>0101011111000101

>0101010101010101

>

>The easiest way to think of how the sampler works is that it looks at the
>incoming voltage to the converter and asks 'Is this in the top or bottom
>half of the possible amplitudes I can measure.' If it's in the top half
it

>writes a 1, if it's in the bottom half, it writes a zero. The next bit asks,

>'Now that I know which half of my measurable voltage I'm looking at, is
the

>voltage in the top half of that half or the bottom half?' That's bit number

>two. Then it's on to, 'Now that I know what quarter it's in, is it in the

>top or bottom half of that quarter?' And so on sixteen times giving it a
resolution

>of 2 to the sixteenth power.

>

>In other words, asking if the bits under the sample would sound is like asking

>how the road would drive if it were 30 feet underground.

>

>Now then, to get back to the original argument, people like me (and I think

>Dedric but I'll let him speak for himself) get a little hacked off when someone

>says, 'you have to use your ears' when it's possible using various computer

>tools to check exactly how many of those samples match in two given files.

>The nulling trick is just a very easy way to get a quick read on one aspect,

>which is to answer the question 'do these two files match?' But there are

>others and I've used them. And the sameness between properly written (by

>which I mean lacking in serious bugs) audio applications is startling and

>their differences so minor that other errors (analog cables, dust on the

>speaker cone, humidity and temperature in the room) are far more likely to

>cause a difference.

>

>Personally I think this all stems from romanticism about music and the purity

>of art. I have yet to hear someone tell me they need financial calculations

>down to 25 decimal points. They need them done to (at most) five decimal

>points because the smallest commonly used financial divisor is the basis

>point, or one one hundredth of a penny. So internally you calculate to five

>decimal places and round up or down from there and get on with your life.

>As geeky as finance guys can get, nobody ever says, 'You know, Thad, that

>last basis point just isn't really punchy enough for this deal. LBO guys

>need really punchy returns, so can you run that calculation out a few more

>bits to get a punchier basis point?' Scientists are also extremely careful

>to keep 'false precision' out of their calculations, so if one instrument

>will measure to four decimal points and the others will measure to 12 they

>understand that everything the higher resolution instruments measure beyond

>four accurate decimal points is worthless. They usually won't even record

>the data to be sure they don't claim greater precision than they have, because

>that's considered a horribly embarrassing junior high school mistake. But

>musicians and audio engineers think that just because the data is sound

data

>somehow it enters a nebulous zone where that last one hundredth of a penny

>can be punchier. Hey, if it gets you through the day, that's fine by me,

>but there are things about digital audio that can be proven true or false

>using the data. For things that can't be proven true or false with the data

>itself there is ABY testing, which is a controlled way to use the most precise

>audio measuring instruments available (our ears, at least until bats will

>wear headphones) to see if things sound different. When it's not in the

data,

>and it's not in the ABY, I say it doesn't exist.

>

>TCB
>
>"Neil" <IUOIU@OIU.com> wrote:
>>
>>Dedric - first of all, great explanation - esp. your 2nd
>>paragraph. Next, let's take a look at something in the form of
>>the best "graph" I can do in this NG's format... let's assume
>>that each dot in the simple graph below is a sample point on a
>>segment of a waveform, and let's futher assume that each "I"
>>below represents four bits (I don't want to make it too
>>vertically large, for ease of reading) - so we're dealing with
>>a 16-bit wav file, with the 5th "dot" from the start point on
>>the left being a full-amplitude, zero-db-line 16 bit sample.
>>
>>Now.... really, all I have to do to get a "null" is to have the
>>amplitude match at each "dot" on the waveform, yes? This, of
>>course, is a very simplistic graphic example, so bear with
>>me... but if I have each "dot" matching in amplitude &
>>therefore can get a null, what about the bits & content thereof
>>in between the extremes between the maxes & zero-line
>>crossings? Are you saying that there can be no variables in
>>sound between those sections that would still result in a null?
>>What about all the "I"'s that represent bits in between the
>>maxes & the minimums?
>>
>> .
>> . I .
>> . I I I . What about the stuff in here?
>> . I I I I Ior in here???
>> . I I I I I I I .
>>-----
>> . I I I I I I I .
>> . I I I I I . Again, what about this region?
>> . I I I or this region?
>> . I .
>> .
>>
>>Neil
>"LaMont" <jjdpro@ameritech.net> wrote in message news:458be8d5\$1@linux...
>
> Okay...
> I guess what I'm saying is this:
>
> -Is it possible that diferent DAW manufactuers "code" their app
> differently
> for sound results.

Of course it is *possible* to do this, but only if the DAW has a specific

sound shaping purpose beyond normal summing/mixing. Users talk about wanting developers to add a "Neve sound" or "API sound" option to summing engines, but that's really impractical given the amount of dsp required to make a decent emulation (with convolution, dynamic EQ functions, etc). For sake of not eating up all cpu processing, that could likely only surface as is a built in EQ, which no one wants universally in summing, and anyone can add at will already.

So it hasn't happened yet and isn't likely to as it detours from the basic tenant of audio recording - recreate what comes in as accurately as possible.

What Digi did in recoding their summing engine was try to recover some of the damage done by the 24-bit buss in Mix systems. Motorola 56k dsps are 24-bit fixed point chips and I think the new generation (321?) still is, but they use double words now for 48-bits). And though plugins could process at 48-bit by doubling up and using upper and lower 24-bit words for 48-bit outputs, the buss between chips was 24-bits, so they had to dither to 24-bits after every plugin. The mixer (if I recall correctly) also had a 24-bit buss, so what Digi did is to add a dither stage to the mixer to prevent this constant truncation of data. 24-bits isn't enough to cover summing for more than a few tracks without losing information in the 16-bit world, and in the 24-bit world some information will be lost, at least at the lowest levels.

Adding a dither stage (though I think they did more than that - perhaps implement a 48-bit double word stage as well), simply smoothed over the truncation that was happening, but it didn't solve the problem, so with HD they went to a double-word path - throughout I believe, including the path between chips. I believe the chips are still 24-bit, but by doubling up the processing (yes at a cost of twice the overhead), they get a 48-bit engine. This not only provided better headroom, but greater resolution. Higher bit depths subdivide the amplitude with greater resolution, and that's really where we get the definition of dynamic range - by lowering the signal to quantization noise ratio.

With DAWs that use 32-bit floating point math all the way through, the only reason for altering the summing is by error, and that's an error that would actually be hard to make and get past a very basic alpha stage of testing. There is a small difference in fixed point math and floating point math, or at least a theoretical difference in how it affects audio

in certain cases, but not necessarily in the result for calculating gain in either for the same audio file. Where any differences might show up is complicated, and I believe only appear at levels below 24-bit (or in headroom with tracks pushed beyond 0dBFS), or when/if there are any differences in where each amplitude level is quantized.

Obviously there can be differences if the DAW has to use varying bit depths throughout a single summing path to accommodate hardware as well as software summing, since there may be truncation or rounding along the way, but that impacts the lowest bit level, and hence - spatial reproduction, reverb tails perhaps, and "depth", not the levels most music so the differences are most often more subtle than not. But most modern DAWs have eliminated those "rough edges" in the math by increasing the bit depth to accommodate normal summing required for mixing audio.

So with Lynn's unity gain summing test (A files on the CD I believe), DAWs were never asked to sum beyond 24-bits, at least not on the upper end of the dynamic range, so everything that could represent 24-bits accurately would cancel. The only ones that didn't were ones that had a different bit depth and/or gain structure whether hybrid or native (e.g. Paris' subtracting 20dB from tracks and adding it to the buss). In this case, PTHD cancelled (when I tested it) with Nuendo, Samplitude, Logic, etc because the impact of the 48-bit fixed vs. 32-bit float wasn't a factor.

When trying other tests, even when adding and subtracting gain, Nuendo, Sequoia and Sonar cancel - both audibly and visually at inaudible levels, which only proves that one isn't making an error when calculating basic gain. Since a dB is well defined, and the math to add gain is simple, they shouldn't. The fact that they all use 32-bit float all the way through eliminates a difference in data structure as well, and this just verifies that. There was a time that supposedly Logic (v3, v4?) was partly 24-bit, or so the rumor went, but it's 32-bit float all the way through now just as Sonar, Nuendo/Cubase, Samplitude/Sequoia, DP, Audition (I presume at least). I don't know what Acid or Live use. Saw promotes a fixed point engine, but I don't know if it is still 24-bit, or now 48 bit. That was an intentional choice by the developer, but he's the only one I know of that stuck with 24-bit for summing intentionally, esp. after the Digi Mix system mixer incident.

Long answer, but to sum up, it is certainly physically *possible* for a developer to code something differently intentionally, but not in reality likely since it would be breaking some basic fixed point or floating point math rules. Where the differences really showed up in the past is with PT Mix systems where the limitation was really

significant - e.g. 24 bit with truncation at several stages.

That really isn't such an issue anymore. Given the differences in workflow, missing something in workflow or layout differences is easy enough to do (e.g. Sonar doesn't have group and busses the way Nuendo does, as it's outputs are actually driver outputs, not software busses, so in Sonar, busses are actually outputs, and sub busses are actually busses in Nuendo. There are no, or at least I haven't found the equivalent of a Nuendo group in Sonar - that affects the results of some tests (though not basic summing) if not taken into account, but when taken into account, they work exactly the same way).

So at least when talking about apps with 32-bit float all the way through, it's safe to say (since it has been proven) that summing isn't different unless there is an error somewhere, or variation in how the user duplicates the same mix in two different apps.

Imho, that's actually a very good thing - approaching a more consistent basis for recording and mixing from which users can make all of the decisions as to how the final product will sound and not be required to decide when purchasing a pricey console, and have to focus their business on clients who want "that sound". I believe we are actually closer to the pure definition of recording now than we once were.

Regards,
Dedric

>
> I the answer is yes, then, the real task is to discover or rather un-cover
> what's say: Motu's vision of summing, versus Digidesign, versus Steinberg
> and so on..
>
> What's under the hood. To me and others, when Digi re-coded their summing
> engine, it was obvious that Pro Tools has an obvious top end (8k-10k)
> bump.
> Where as Steinberg's summing is very neutral.
>
> "Dedric Terry" <dedric@echomg.com> wrote:
>> Hi Neil,
>>
>> Jamie is right. And you aren't wacked out - you are thinking this through
>
>> in a reasonable manner, but coming to the wrong
>> conclusion - easy to do given how confusing digital audio can be. Each

> word
>>represents an amplitude
>>point on a single curve that is changing over time, and can vary with a
>
>>speed up to the Nyquist frequency (as Jamie described).
>>The complex harmonic content we hear is actually the frequency modulation
> of
>>a single waveform,
>>that over a small amount of time creates the sound we translate - we don't
>
>>really hear a single sample at a time,
>>but thousands of samples at a time (1 sample alone could at most represent
> a
>>single positive or negative peak
>>of a 22,050Hz waveform).
>>
>>If one bit doesn't cancel, esp. if it's a higher order bit than number 24,
>
>>you may hear, and will see that easily,
>>and the higher the bit in the dynamic range (higher order) the more
>>audible
>
>>the difference.
>>Since each bit is 6dB of dynamic range, you can extrapolate how "loud"
>>that
>
>>bit's impact will be
>>if there is a variation.
>>
>>Now, obviously if we are talking about 1 sample in a 44.1k rate song, then
>
>>it simply be a
>>click (only audible if it's a high enough order bit) instead of an obvious
>
>>musical difference, but that should never
>>happen in a phase cancellation test between identical files higher than
> bit
>>24, unless there are clock sync problems,
>>driver issues, or the DAW is an early alpha version. :-)
>>
>>By definition of what DAWs do during playback and record, every audio
>>stream
>
>>has the same point in time (judged by the timeline)
>>played back sample accurately, one word at a time, at whatever sample
>>rate
>
>>we are using. A phase cancellation test uses that

>>fact to compare two audio files word for word (and hence bit for bit since
>
>>each bit of a 24-bit word would
>>be at the same bit slot in each 24-bit word). Assuming they are aligned
> to
>>the same start point, sample
>>accurately, and both are the same set of sample words at each sample
>>point,
>
>>bit for bit, and one is phase inverted,
>>they will cancel through all 24 bits. For two files to cancel completely
>
>>for the duration of the file, each and every bit in each word
>>must be the exact opposite of that same bit position in a word at the same
>
>>sample point. This is why zooming in on an FFT
>>of the full difference file is valuable as it can show any differences in
>
>>the lower order bits that wouldn't be audible. So even if
>>there is no audible difference, the visual followup will show if the two
>
>>files truly cancel even a levels below hearing, or
>>outside of a frequency change that we will perceive.
>>
>>When they don't cancel, usually there will be way more than 1 bit
>>difference - it's usually one or more bits in the words for
>>thousands of samples. From a musical standpoint this is usually in a
>>frequency range (low freq, or high freq most often) - that will
>>show up as the difference between them, and that usually happens due to
> some
>>form of processing difference between the files,
>>such as EQ, compression, frequency dependant gain changes, etc. That is
> what
>>I believe you are thinking through, but when
>>talking about straight summing with no gain change (or known equal gain
>
>>changes), we are only looking at linear, one for one
>>comparisons between the two files' frequency representations.
>>
>>Regards,
>>Dedric
>>
>>> Neil wrote:
>>>> "Dedric Terry" <dedric@echomg.com> wrote:
>>>>> The tests I did were completely blank down to -200 dB (far below the
>
>>>>> last
>>>>>

>>>>> bit). It's safe to say there is no difference, even in
>>>>> quantization noise, which by technical rights, is considered below the
>
>>>>> level
>>>>>
>>>>> of "cancellation" in such tests.
>>>>>
>>>>> I'm not necessarily talking about just the first bit or the
>>>>> last bit, but also everything in between... what happens on bit
>>>>> #12, for example? Everything on bit #12 should be audible, but
>>>>> in an a/b test what if there are differences in what bits #8
>>>>> through #12 sound like, but the amplitude is still the same on
>>>>> both files at that point, you'll get a null, right? Extrapolate
>>>>> that out somewhat & let's say there are differences in bits #8
>>>>> through #12 on sample points 3, 17, 1,000, 4,523, 7,560, etc,
>>>>> etc through 43,972... Now this is breaking things down well
>>>>> beyond what I think can be measured, if I'm not mistaken (I
>>>>> don't know of any way we could extract JUST that information
>>>>> from each file & play it back for an a/b test; but would not
>>>>> that be enough to have to "null-able" files that do actually
>>>>> sound somewhat different?
>>>>>
>>>>> I guess what I'm saying is that since each sample in a musical
>>>>> track or full song file doesn't represent a pure, simple set of
>>>>> content like a sample of a sine wave would - there's a whole
>>>>> world of harmonic structure in each sample of a song file, and
>>>>> I think (although I'll admit - I can't "prove") that there is
>>>>> plenty of room for some variables between the first bit & the
>>>>> last bit while still allowing for a null test to be successful.
>>>>>
>>>>> No? Am I wacked out of my mind?
>>>>>
>>>>> Neil
>>>>>
>>
>> You see when I happen to stop by one of these genre songs
> on the radio I always put my own lyrics to them.<

Hehehe.....I do this too.....and dude, you don't even want to
know...some of the old Stones songs worked great for this since you can
never understand WTF Mick is singing anyway.

;o)

"Brandon" <a@a.com> wrote in message news:458bf54c@linux...
> Thanks for sharing..
> Actually, I thought it was funny.
> You see when I happen to stop by one of these genre songs

> on the radio I always put my own lyrics to them.
> Usually they are very similar to what you hear on that clip.
> It is the only thing that makes that style of music enjoyable for me.
>
> humming.... it's my d*ck in a box....Mmmmm Mmmmm girl.....
> --
> Thanks,
>
> Brandon
>
>Cmon...how can you resist?
One I absolutely can not resist...

Would you _____ if I asked you to _____?
Would you _____ if I asked you to _____?
Would you _____ ?
On your _____ ?
Would you _____ my _____ tonite?
You can _____ baby?

The possibilities are endless!!!

--

Thanks,

BrandonThis is a multi-part message in MIME format.

-----=_NextPart_000_0023_01C725B3.EDA78160
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: quoted-printable

I'm not getting the visual you have in mind.. diagram it?

AA

"Tom Bruhl" <arpeggio@comcast.net> wrote in message =
news:458b7f6f@linux...

Thanks Aaron,

Will this work on the backside of a KVM? I can't put it in front.

I guess if it needed to be in front of the KVM I could just get a=20
single output jobbie and split it at the other side. Do those exist?

"Aaron Allen" <know-spam@not_here.dude> wrote in message =
news:458b23a2@linux...

I hope you're not doing a passive Y split. Look for a VGA splitter =
on google, something like=20

<http://www.pcmall.com/pcmall/shop/detail~dpno~767745.asp>

They're cheap and OH so worth it

AA

"Tom Bruhl" <arpeggio@comcast.net> wrote in message =
news:4589ba0a\$1@linux...

Thanks Chris.=20

This graphics stuff is confusing to me.

I have to convert the DVI to VGA because of the 20' length
as I understand. I was going to split it with a Y cable too.
They'll split to a 21"VGA and a 22"LCD. Will that work on=20
the far side of a KVM? I know the resolutions won't match
but I'll only need the VGAs when mixing so I'll adjust the=20
7300 differently for that application. Sooner or later I'll get
4 matching 22" LCDs and quad cards for both comps.

Will this work?

Tom

"Chris Ludwig" <chrisl@adkproaudio.com> wrote in message =
news:45894ef0\$1@linux...

Hi Tom,

These monitors will be fine with your card. The 7300GT supports =
that=20

resolution on both the VGA and DVI connections.I would run both =
with VGA=20

connections. Having one hooked up DVI and one VGA may make the 2 =
look=20

very different in brightness and such.

Chris

Tom Bruhl wrote:

> My card has one VGA, one DVI and one S Video connector on it.

>

>

> I choose Polesoft Lockspam to fight spam, and you?

> <http://www.polesoft.com/refer.html> =20

--=20

Chris Ludwig

ADK

chrisl@adkproaudio.com <mailto:chrisl@adkproaudio.com>

www.adkproaudio.com <http://www.adkproaudio.com/>

(859) 635-5762

-----=_NextPart_000_0023_01C725B3.EDA78160

Content-Type: text/html;

charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">

<HTML><HEAD>

<META http-equiv=3DContent-Type content=3D"text/html; =

charset=3Diso-8859-1">

<META content=3D"MSHTML 6.00.5730.11" name=3DGENERATOR>

<STYLE></STYLE>

</HEAD>

<BODY bgColor=3D#ffffff>

<DIV>I'm not getting the visual you =
have in mind..=20

diagram it?</DIV>

<DIV> </DIV>

<DIV>AA</DIV>

<BLOCKQUOTE dir=3Dltr=20

style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =
BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">

<DIV>"Tom Bruhl" <<A=20

href=3D"mailto:arpeggio@comcast.net">arpeggio@comcast.net> wrote =
in message=20

news:458b7f6f@linux...</DIV>

<DIV>Thanks Aaron,</DIV>

<DIV>Will this work on the backside of a =
KVM? </DIV>

can't put it in front.</DIV>

<DIV>I guess if it needed to be in front =
of the=20

KVM </DIV>

<DIV>single output <FONT =
face=3DArial=20

size=3D2>jobbie and split it at the other side. </DIV>
exist?</DIV>

<DIV> </DIV>

<BLOCKQUOTE dir=3Dltr=20

style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =
BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">

<DIV>"Aaron Allen" <<A=20

=

href=3D"mailto:know-spam@not_here.dude">know-spam@not_here.dude> =
wrote=20
in message <A =
href=3D"news:458b23a2@linux">news:458b23a2@linux...</DIV>
<DIV>I hope you're not doing a passive Y =
split. Look=20
for a VGA splitter on google, something like </DIV>
<DIV> </DIV>
<DIV><A=20
=
href=3D"http://www.pcmall.com/pcmall/shop/detail~dpno~767745.asp">http://=
www.pcmall.com/pcmall/shop/detail~dpno~767745.asp</DIV>
<DIV> </DIV>
<DIV>They're cheap and OH so worth =
it</DIV>
<DIV> </DIV>
<DIV>AA</DIV>
<BLOCKQUOTE dir=3Dltr=20
style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =
BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">
<DIV>"Tom Bruhl" <<A=20
href=3D"mailto:arpegio@comcast.net">arpegio@comcast.net> =
wrote in=20
message <A =
href=3D"news:4589ba0a\$1@linux">news:4589ba0a\$1@linux...</DIV>
<DIV>Thanks Chris. </DIV>
<DIV>This graphics stuff is confusing =
to=20
me.</DIV>
<DIV> </DIV>
<DIV>I have to convert the DVI to VGA =
because of=20
the 20' length</DIV>
<DIV>as I understand. I was =
going to split=20
it with a Y cable too.</DIV>
<DIV>They'll split to <FONT =
face=3DArial=20
size=3D2>a 21"VGA and a 22"LCD. Will that work on =
</DIV>
<DIV>the far side of a KVM? I =
know the=20
resolutions won't match</DIV>
<DIV>but I'll only need the VGAs when =
mixing so=20
I'll adjust the </DIV>
<DIV>7300 differently for that =
application. =20

Sooner or later I'll get

4 matching 22" LCDs and quad = cards for both

comps.

Will this work?

Tom

QUOTE=

style="PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">

<DIV>"Chris Ludwig" <

=

href="mailto:chrisl@adkproaudio.com">chrisl@adkproaudio.com>

wrote in message <

=

href="news:45894ef0\$1@linux">news:45894ef0\$1@linux...</DIV>HI

Tom,
These monitors will be fine with your card. The 7300GT = supports

that
resolution on both the VGA and DVI connections.I would = run both

with VGA
connections. Having one hooked up DVI and one VGA = may make

the 2 look
very different in brightness and

such.
Chris

Tom Bruhl wrote:

> My card = has one

VGA, one DVI and one S Video connector on = it.
>
>
> I

choose Polesoft Lockspam to fight spam, and you?
> <

=

href="http://www.polesoft.com/refer.html">http://www.polesoft.com/refer= ..html =

--
Chris Ludwig
ADK
<

=

href="mailto:chrisl@adkproaudio.com">chrisl@adkproaudio.com <<A =

=

href="mailto:chrisl@adkproaudio.com">mailto:chrisl@adkproaudio.com&= >
<

href="http://www.adkproaudio.com">www.adkproaudio.com = <<

=

href="http://www.adkproaudio.com/">http://www.adkproaudio.com/><=

BR>(859)=20

=

635-5762</BLOCKQUOTE></BLOCKQUOTE></BLOCKQUOTE></BLOCKQUOTE>
></BODY></HTML>=
>

-----=_NextPart_000_0023_01C725B3.EDA78160--Actually, I wasn't referring specifically to you, I hear similar things all the time all over the place. The first time I went through this on this forum a couple of years ago was the Great CD Burning Speed Debate. In that one Derek and I came up with about a gazillion ways to show that you could rip-burn-rip-burn over and over again at all kinds of different speeds and wind up with exactly the same data or audio CD. And I mean the same as in I slurped the whole audio file *as a string* into perl and checked the samples. Having done that, and thereby proven beyond a shadow of a doubt, I was told, roughly, that clearly I couldn't hear well enough for these esoteric discussions. 'Use your ears, dude.'

So, it is possible to write a DAW with a filter on the master bus? Yes, of course it is. Why anyone would want to do such a thing is beyond me since there are conventions that are pretty much constant throughout the digital audio world about how signals should be mixed together. So if DAW X is a little more present in the second to the top octave (I think you mentioned one being so) I would call that either a bug or mistaken perception. If I could do the export file, flip polarity trick and the files didn't null I'd say, 'Interesting, let's be sure my test is good. Is there an EQ on a track in one mix and not the other? Is there a group track that is doubling the guitars in one mix and not the other?' If, on the other hand, the tracks did null I'd say, 'Hmmmmmm, maybe I'm hearing a difference where there isn't one.'

Lastly, and this is just a quirk for me, I find it odd that musicians and audio engineers are so disinterested in taking seriously expert opinion. This is rampant in the audiophile world where off the record the engineers themselves will tell you they're not sure the \$3k speaker cables they used to hook up their new speaker line makes any difference. But with Neil, for example, his mixes are 20 times better than mine for that kind of music. If he gave me advice and opinion I would take it very seriously. But for some reason when people like me and Dedric, who have developed extensive knowledge into how computers work, are very often brushed off very quickly. Dedric isn't even a jerk about, while I'm a jerk about it only sometimes, so I find that reaction to be, well, odd. But like I said, whatever gets ya through the day, I'm not looking for converts and nobody is paying me to post here.

TCB

"LaMont" <jjdpro@ameritech.net> wrote:

>

>Thad, I assume that you are referring to me (using your ears).

>

>Look, I think we are talking about two different things here:

>

>1) Digital data

>

>2) Software (DAWS) coding

>

>You and Dedric have been concentrating on the laws of Digital audio. That's

>fine. But, I'm talking about the Software that we use to decode our digital

>audio.

>

>Like my previous post states, are we saying that DAW software can't be written

>for certain sonic results?

>

>

>"TCB" <nobody@ishere.com> wrote:

>>

>>Neil,

>>

>>You're using an analog waveform that is leading you to think incorrectly

>>about sampling. This is (very roughly) how it would look if you're working

>>with 16 bit samples.

>>

>>0101010101010101

>>0101010111011101

>>0101110111010101

>>0101111111010100

>>0101110101111101

>>0111011101111101

>>0111110101110101

>>0100010111000100

>>0100011101010101

>>0001011100010101

>>0000010111111100

>>0001000001010111

>>0100000111110101

>>0111011101010000

>>0101011101000000

>>0101011111000101

>>0101010101010101

>>

>>The easiest way to think of how the sampler works is that it looks at the

>>incoming voltage to the converter and asks 'Is this in the top or bottom

>>half of the possible amplitudes I can measure.' If it's in the top half

>it

>>writes a 1, if it's in the bottom half, it writes a zero. The next bit

asks,
>>'Now that I know which half of my measurable voltage I'm looking at, is
>the
>>voltage in the top half of that half or the bottom half?' That's bit number
>>two. Then it's on to, 'Now that I know what quarter it's it, is it in the
>>top or bottom half of that quarter?' And so on sixteen times giving it a
>resolution
>>of 2 to the sixteenth power.
>>
>>In other words, asking if the bits under the sample would sound is like
>asking
>>how the road would drive if it were 30 feet underground.
>>
>>Now then, to get back to the original argument, people like me (and I think
>>Dedric but I'll let him speak for himself) get a little hacked off when
>someone
>>says, 'you have to use your ears' when it's possible using various computer
>>tools to check exactly how many of those samples match in two given files.
>>The nulling trick is just a very easy way to get a quick read on one aspect,
>>which is to answer the question 'do these two files match?' But there are
>>others and I've used them. And the sameness between properly written (by
>>which I mean lacking in serious bugs) audio applications is startling and
>>their differences so minor that other errors (analog cables, dust on the
>>speaker cone, humidity and temperature in the room) are far more likely
>to
>>cause a difference.
>>
>>Personally I think this all stems from romanticism about music and the
purity
>>of art. I have yet to hear someone tell me they need financial calculations
>>down to 25 decimal points. They need them done to (at most) five decimal
>>points because the smallest commonly used financial divisor is the basis
>>point, or one one hundredth of a penny. So internally you calculate to
five
>>decimal places and round up or down from there and get on with your life.
>>As geeky as finance guys can get, nobody ever says, 'You know, Thad, that
>>last basis point just isn't really punchy enough for this deal. LBO guys
>>need really punchy returns, so can you run that calculation out a few more
>>bits to get a punchier basis point?' Scientists are also extremely careful
>>to keep 'false precision' out of their calculations, so if one instrument
>>will measure to four decimal points and the others will measure to 12 they
>>understand that everything the higher resolution instruments measure beyond
>>four accurate decimal points is worthless. They usually won't even record
>>the data to be sure they don't claim greater precision than they have,
because
>>that's considered a horribly embarrassing junior high school mistake. But
>>musicians and audio engineers think that just because the data is sound
>data

>>somehow it enters a nebulous zone where that last one hundredth of a penny
>>can be punchier. Hey, if it gets you through the day, that's fine by me,
>>but there are things about digital audio that can be proven true or false
>>using the data. For things that can't be proven true or false with the
data
>>itself there is ABY testing, which is a controlled way to use the most
precise
>>audio measuring instruments available (our ears, at least until bats will
>>wear headphones) to see if things sound different. When it's not in the
>data,
>>and it's not in the ABY, I say it doesn't exist.
>>
>>TCB
>>
>>"Neil" <IUOIU@OIU.com> wrote:
>>>
>>>Dedric - first of all, great explanation - esp. your 2nd
>>>paragraph. Next, let's take a look at something in the form of
>>>the best "graph" I can do in this NG's format... let's assume
>>>that each dot in the simple graph below is a sample point on a
>>>segment of a waveform, and let's further assume that each "I"
>>>below represents four bits (I don't want to make it too
>>>vertically large, for ease of reading) - so we're dealing with
>>>a 16-bit wav file, with the 5th "dot" from the start point on
>>>the left being a full-amplitude, zero-db-line 16 bit sample.
>>>
>>>Now.... really, all I have to do to get a "null" is to have the
>>>amplitude match at each "dot" on the waveform, yes? This, of
>>>course, is a very simplistic graphic example, so bear with
>>>me... but if I have each "dot" matching in amplitude &
>>>therefore can get a null, what about the bits & content thereof
>>>in between the extremes between the maxes & zero-line
>>>crossings? Are you saying that there can be no variables in
>>>sound between those sections that would still result in a null?
>>>What about all the "I"'s that represent bits in between the
>>>maxes & the minimums?
>>>
>>> .
>>> .I.
>>> .III. What about the stuff in here?
>>> .IIIII.or in here????
>>>.IIIIIII.
>>>-----
>>> .IIIIIII.
>>> .IIIII. Again, what about this region?
>>> .III. ... or this region?
>>> .I.
>>> .

>>>

>>>Neil

>>

>I'd say this is a pretty common phenomena..... or the link below wouldn't exist.

<http://www.kissthisguy.com/>

FWIW, I found it funny, but a warning would've been appreciated since I had a 5 year old running around behind me.

AA

"DJ" <nowayjose@dude.net> wrote in message news:458c0305@linux...

>> You see when I happen to stop by one of these genre songs

>> on the radio I always put my own lyrics to them.<

>

> Hehehe.....I do this too.....and dude, you don't even want to

> know...some of the old Stones songs worked great for this since you can

> never understand WTF Mick is singing anyway.

>

> ;o)

>

> "Brandon" <a@a.com> wrote in message news:458bf54c@linux...

>> Thanks for sharing..

>> Actually, I thought it was funny.

>> You see when I happen to stop by one of these genre songs

>> on the radio I always put my own lyrics to them.

>> Usually they are very similar to what you hear on that clip.

>> It is the only thing that makes that style of music enjoyable for me.

>>

>> humming.... it's my d*ck in a box....Mmmmm Mmmmm girl.....

>> --

>> Thanks,

>>

>> Brandon

>>

>>

>

>This is a multi-part message in MIME format.

-----=_NextPart_000_004D_01C725C1.88C360D0

Content-Type: text/plain;

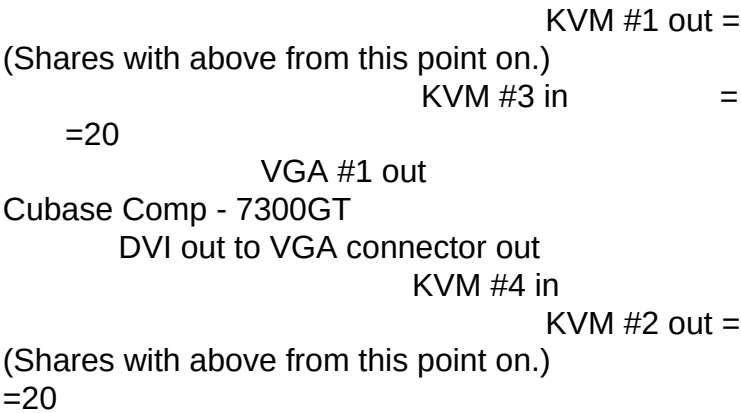
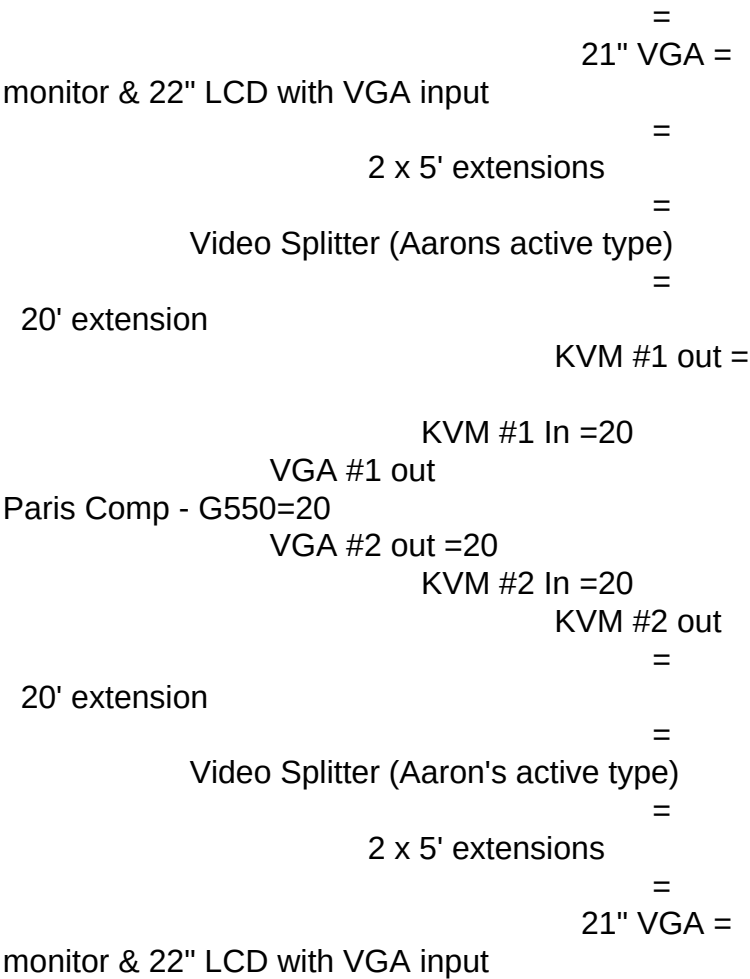
charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

Okay Aaron I hope I get this right.

The first diagram is what I think might not work due to the position of the splitter. I'm afraid it won't amplify the signal if placed at the end of the line. If I'm wrong then that's great! You'll want to widen your view for this one.

Example 1:



=20

OR:

Example 2:

=

=

21" VGA monitor & 22" LCD with VGA input

=

=

2 x 5' extensions

=

Passive Video Splitter (Y =

cable)

=

20' extension

=

KVM #1 out=20

KVM =

#1 In =20

Video amplifier (Like =
splitter in example 1 with only one output)=20

VGA #1 out

Paris Comp - G550=20

VGA #2 out=20

Video amplifier (Like =
splitter in example 1 with only one output)

KVM =

#2 In =20

=

KVM #2 out=20

=

20' extension

=

Passive Video Splitter (Y =

cable)

=

=

2 x 5' extensions

=

=

21" VGA monitor & 22" LCD with VGA input

=

KVM #1 out (Shares with above from this point on.)

KVM =

#3 in

=20

Video amplifier (Like =
 splitter in example 1 with only one output)
 VGA #1 out
 Cubase Comp - 7300GT
 DVI out to VGA connector out=20
 Video amplifier (Like =
 splitter in example 1 with only one output)
 KVM =
 #4 in
 =
 KVM #2 out (Shares with above from this point on.)

"Aaron Allen" <know-spam@not_here.dude> wrote in message =
news:458c050f@linux...

I'm not getting the visual you have in mind.. diagram it?

AA

"Tom Bruhl" <arpeggio@comcast.net> wrote in message =
news:458b7f6f@linux...

Thanks Aaron,

Will this work on the backside of a KVM? I can't put it in front.

I guess if it needed to be in front of the KVM I could just get a=20
single output jobbie and split it at the other side. Do those =
exist?

"Aaron Allen" <know-spam@not_here.dude> wrote in message =
news:458b23a2@linux...

I hope you're not doing a passive Y split. Look for a VGA splitter =
on google, something like=20

<http://www.pcmall.com/pcmall/shop/detail~dpno~767745.asp>

They're cheap and OH so worth it

AA

"Tom Bruhl" <arpeggio@comcast.net> wrote in message =
news:4589ba0a\$1@linux...

Thanks Chris.=20

This graphics stuff is confusing to me.

I have to convert the DVI to VGA because of the 20' length
as I understand. I was going to split it with a Y cable too.
They'll split to a 21"VGA and a 22"LCD. Will that work on=20
the far side of a KVM? I know the resolutions won't match
but I'll only need the VGAs when mixing so I'll adjust the=20
7300 differently for that application. Sooner or later I'll get
4 matching 22" LCDs and quad cards for both comps.

Will this work?

Tom

"Chris Ludwig" <chrisl@adkproaudio.com> wrote in message =
news:45894ef0\$1@linux...

Hi Tom,

These monitors will be fine with your card. The 7300GT =
supports that=20
resolution on both the VGA and DVI connections.I would run =
both with VGA=20
connections. Having one hooked up DVI and one VGA may make the =
2 look=20
very different in brightness and such.
Chris

Tom Bruhl wrote:

> My card has one VGA, one DVI and one S Video connector on =
it.
>
>
> I choose Polesoft Lockspam to fight spam, and you?
> <http://www.polesoft.com/refer.html> =20

--=20

Chris Ludwig

ADK

chrisl@adkproaudio.com <<mailto:chrisl@adkproaudio.com>>

www.adkproaudio.com <<http://www.adkproaudio.com/>>

(859) 635-5762

-----=_NextPart_000_004D_01C725C1.88C360D0

Content-Type: text/html;

charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
<HTML><HEAD>
<META http-equiv=3DContent-Type content=3D"text/html"; =
charset=3Diso-8859-1">
<META content=3D"MSHTML 6.00.2800.1400" name=3DGENERATOR>
<STYLE></STYLE>
</HEAD>
<BODY bgColor=3D#ffffff>
<DIV><FONT face=3DArial size=3D2>Okay Aaron I hope I get this =
right.</FONT></DIV>
<DIV>&nbsp;</DIV>
<DIV><FONT face=3DArial size=3D2>The first diagram is what I think might =
not work=20
due to the position of the splitter.&nbsp;</DIV> I'm afraid it won't amplify =
the=20
signal if</FONT></DIV>
<DIV><FONT face=3DArial size=3D2>placed at the end of the line.&nbsp;</DIV> If =
```

then that's great! You'll want to widen your view for this=20 one.</DIV>

<DIV><U>Example 1:</U></DIV>

<DIV> </DIV>

[illegible]

<DIV><FONT face=3DArial=20

[illegible]

<DIV><FONT face=3DArial=20

[illegible]

<DIV><FONT face=3DArial=20

Page 280 of 623 ---- Generated from The PARIS Forums

[illegible]

[illegible]

mind.. diagram it?

AA

Tom Bruhl" <A=20
arpeggio@comcast.net> =
wrote in=20
message <A =
<news:458b7f6f@linux>>...</DIV>
Thanks Aaron,</DIV>
Will this work on the backside of a =
KVM? =20
I can't put it in front.</DIV>
I guess if it needed to be in front =
of the=20
KVM I could just get a </DIV>
single output <FONT =
face=3DArial=20
size=3D2>jobbie and split it at the other side. Do those=20
exist?</DIV>
 </DIV>
Aaron Allen" <A=20
=
know-spam@not_here.dude>=20
wrote in message <A=20
<news:458b23a2@linux>>...</DIV>
I hope you're not doing a passive =
Y split.=20
Look for a VGA splitter on google, something like =
</DIV>
 </DIV>
<A=20
=
<http://www.pcmall.com/pcmall/shop/detail~dpno~767745.asp>>http://=
www.pcmall.com/pcmall/shop/detail~dpno~767745.asp</DIV>
 </DIV>
They're cheap and OH so worth =
it</DIV>
 </DIV>
AA</DIV>
 </DIV>
PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =
BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">

<DIV>"Tom Bruhl" <<A=20
href=3D"mailto:arpeggio@comcast.net">arpeggio@comcast.net> =
wrote in=20
message <A=20
=
href=3D"news:4589ba0a\$1@linux">news:4589ba0a\$1@linux...</DIV>
<DIV>Thanks =
Chris. </DIV>
<DIV>This graphics stuff is =
confusing to=20
me.</DIV>
<DIV> </DIV>
<DIV>I have to convert the DVI to =
VGA because of=20
the 20' length</DIV>
<DIV>as I understand. I was =
going to split=20
it with a Y cable too.</DIV>
<DIV>They'll split to <FONT =
face=3DArial=20
size=3D2>a 21"VGA and a 22"LCD. Will that work on =
</DIV>
<DIV>the far side of a KVM? I =
know the=20
resolutions won't match</DIV>
<DIV>but I'll only need the VGAs =
when mixing so=20
I'll adjust the </DIV>
<DIV>7300 differently for that=20
application. Sooner or later I'll get</DIV>
<DIV>4 matching 22" LCDs and quad =
cards for both=20
comps.</DIV>
<DIV> </DIV>
<DIV>Will this work?</DIV>
<DIV>Tom</DIV>
<DIV> </DIV>
<DIV> </DIV>
<DIV> </DIV>
<DIV> </DIV>
<DIV> </DIV>
<DIV> </DIV>
<BLOCKQUOTE=20
style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: =
5px; BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">
<DIV>"Chris Ludwig" <<A=20
=
href=3D"mailto:chrisl@adkproaudio.com">chrisl@adkproaudio.com>=20

wrote in message <A=20
=
href=3D"news:45894ef0\$1@linux">news:45894ef0\$1@linux...</DIV>HI=20
Tom,
These monitors will be fine with your card. The 7300GT =

supports that
resolution on both the VGA and DVI =
connections.I=20
would run both with VGA
connections. Having one hooked up =
DVI and=20
one VGA may make the 2 look
very different in brightness =
and=20
such.
Chris

Tom Bruhl wrote:

> My card =
has one=20
VGA, one DVI and one S Video connector on =
it.
>
>
>=20
I choose Polesoft Lockspam to fight spam, and you?
> <A=20
=
href=3D"http://www.polesoft.com/refer.html">http://www.polesoft.com/refer=
..html =20

--
Chris Ludwig
ADK
<A=20
=
href=3D"mailto:chrisl@adkproaudio.com">chrisl@adkproaudio.com <<A =
=
href=3D"mailto:chrisl@adkproaudio.com">mailto:chrisl@adkproaudio.com&=
gt;
<A=20
href=3D"http://www.adkproaudio.com">www.adkproaudio.com =
<<A=20
=
href=3D"http://www.adkproaudio.com/">http://www.adkproaudio.com/><=
BR>(859)=20
=
635-5762</BLOCKQUOTE></BLOCKQUOTE></BLOCKQUOTE></BLOCKQUOTE
></BLOCKQUOTE>=
</BODY></HTML>

-----=_NextPart_000_004D_01C725C1.88C360D0--Congrats, Chris! (and I hate you--I would kill
to
do a Guy Clark record--I am such a fan...:))

"Chris Latham" <latham_c@bellsouth.net> wrote:
>For those of you who will be voting for the 49th annual Grammys, please
give
>a listen to, and consider Guy Clark's "Workbench Songs" for Best
>Contemporary Folk/Americana Album (Catagory 68 in Field 14 - Folk). Edited

>and mixed entirely in PARIS.

>
>THANK YOU,
>Chris
>
>I have to say that is the best Guy Clark CD I've ever heard. I'm no longer a member of NARAS, but I've been telling everyone who will listen to go and buy the CD. Great work.

David

>
> For those of you who will be voting for the 49th annual Grammys, please
> give
> a listen to, and consider Guy Clark's "Workbench Songs" for Best
> Contemporary Folk/Americana Album (Category 68 in Field 14 - Folk).
> Edited
> and mixed entirely in PARIS.

>
> THANK YOU,
> ChrisThad,
I think your points are valid. However I think the reason most Recording engineers don't like to talk Audio science, is because of the "unexplainable" anomalies that occur with sound. Matters not if it's digital or analog, but rather how does it sound..

We need factions like AES who discuss such theoretical and new ideas and advancements in audio reproduction. However, once the science down, then comes the art of it all.. Music is still the reason for what we are discussing. Music is emotional, yet is a science as well.

For your camp to continue to de-value the human side (use your ears) of the equation is not right as well.

I think both sides are right, but the science campers cannot speak to a guy who's main tool is his "ears" and not a scope.

"TCB" <nobody@ishere.com> wrote:

>
>Actually, I wasn't referring specifically to you, I hear similar things all
>the time all over the place. The first time I went through this on this forum
>a couple of years ago was the Great CD Burning Speed Debate. In that one
>Derek and I came up with about a gazillion ways to show that you could rip-burn-rip-burn
>over and over again at all kinds of different speeds and wind up with exactly
>the same data or audio CD. And I mean the same as in I slurped the whole
>audio file *as a string* into perl and checked the samples. Having done

that,
>and thereby proven beyond a shadow of a doubt, I was told, roughly, that
>clearly I couldn't hear well enough for these esoteric discussions. 'Use
>your ears, dude.'
>
>So, it is possible to write a DAW with a filter on the master bus? Yes,
of
>course it is. Why anyone would want to do such a thing is beyond me since
>there are conventions that are pretty much constant throughout the digital
>audio world about how signals should be mixed together. So if DAW X is a
>little more present in the second to the top octave (I think you mentioned
>one being so) I would call that either a bug or mistaken perception. If
I
>could do the export file, flip polarity trick and the files didn't null
I'd
>say, 'Interesting, let's be sure my test is good. Is there an EQ on a track
>in one mix and not the other? Is there a group track that is doubling the
>guitars in one mix and not the other?' If, on the other hand, the tracks
>did null I'd say, 'Hmmmmmm, maybe I'm hearing a difference where there isn't
>one.'
>
>Lastly, and this is just a quirk for me, I find it odd that musicians and
>audio engineers are so disinterested in taking seriously expert opinion.
>This is rampant in the audiophile world where off the record the engineers
>themselves will tell you they're not sure the \$3k speaker cables they used
>to hook up their new speaker line makes any difference. But with Neil, for
>example, his mixes are 20 times better than mine for that kind of music.
>If he gave me advice and opinion I would take it very seriously. But for
>some reason when people like me and Dedric, who have developed extensive
>knowledge into how computers work, are very often brushed off very quickly.
>Dedric isn't even a jerk about, while I'm a jerk about it only sometimes,
>so I find that reaction to be, well, odd. But like I said, whatever gets
>ya through the day, I'm not looking for converts and nobody is paying me
>to post here.
>
>TCB
>
>"LaMont" <jjdpro@ameritech.net> wrote:
>>
>>Thad, I assume that you are referring to me (using your ears).
>>
>>Look, I think we are talking about two different things here:
>>
>>1) Digital data
>>
>>2) Software (DAWS) coding
>>
>>You and Dedric have been concentrating on the laws of Digital audio. That's

>>fine. But, I'm talking about the Software that we use to decode our digital
>>audio.
>>
>>Like my previous post states, are we saying that DAW software can't be
written
>>for certain sonic results?
>>
>>
>>"TCB" <nobody@ishere.com> wrote:
>>>
>>>Neil,
>>>
>>>You're using an analog waveform that is leading you to think incorrectly
>>>about sampling. This is (very roughly) how it would look if you're working
>>>with 16 bit samples.
>>>
>>>0101010101010101
>>>0101010111011101
>>>0101110111010101
>>>0101111111010100
>>>0101110101111101
>>>0111011101111101
>>>0111110101110101
>>>0100010111000100
>>>0100011101010101
>>>0001011100010101
>>>0000010111111100
>>>0001000001010111
>>>0100000111110101
>>>0111011101010000
>>>0101011101000000
>>>0101011111000101
>>>0101010101010101
>>>
>>>The easiest way to think of how the sampler works is that it looks at
the
>>>incoming voltage to the converter and asks 'Is this in the top or bottom
>>>half of the possible amplitudes I can measure.' If it's in the top half
>>it
>>>writes a 1, if it's in the bottom half, it writes a zero. The next bit
>asks,
>>>'Now that I know which half of my measurable voltage I'm looking at, is
>>the
>>>voltage in the top half of that half or the bottom half?' That's bit number
>>>two. Then it's on to, 'Now that I know what quarter it's in, is it in
the
>>>top or bottom half of that quarter?' And so on sixteen time giving it
a

>>resolution
>>>of 2 to the sixteenth power.
>>>
>>>In other words, asking if the bits under the sample would sound is like
>>asking
>>>how the road would drive if it were 30 feet underground.
>>>
>>>Now then, to get back to the original argument, people like me (and I think
think
>>>Dedric but I'll let him speak for himself) get a little hacked off when
>>someone
>>>says, 'you have to use your ears' when it's possible using various computer
>>>tools to check exactly how many of those samples match in two given files.
>>>The nulling trick is just a very easy way to get a quick read on one aspect,
>>>which is to answer the question 'do these two files match?' But there
are
>>>others and I've used them. And the sameness between properly written (by
>>>which I mean lacking in serious bugs) audio applications is startling
and
>>>their differences so minor that other errors (analog cables, dust on the
>>>speaker cone, humidity and temperature in the room) are far more likely
>>to
>>>cause a difference.
>>>
>>>Personally I think this all stems from romanticism about music and the
>purity
>>>of art. I have yet to hear someone tell me they need financial calculations
>>>down to 25 decimal points. They need them done to (at most) five decimal
>>>points because the smallest commonly used financial divisor is the basis
>>>point, or one one hundredth of a penny. So internally you calculate to
>five
>>>decimal places and round up or down from there and get on with your life.
>>>As geeky as finance guys can get, nobody ever says, 'You know, Thad, that
>>>last basis point just isn't really punchy enough for this deal. LBO guys
>>>need really punchy returns, so can you run that calculation out a few
more
>>>bits to get a punchier basis point?' Scientists are also extremely careful
>>>to keep 'false precision' out of their calculations, so if one instrument
>>>will measure to four decimal points and the others will measure to 12
they
>>>understand that everything the higher resolution instruments measure beyond
>>>four accurate decimal points is worthless. They usually won't even record
>>>the data to be sure they don't claim greater precision than they have,
>because
>>>that's considered a horribly embarrassing junior high school mistake.
But
>>>musicians and audio engineers think that just because the data is sound
>>data

>>>somehow it enters a nebulous zone where that last one hundredth of a penny
>>>can be punchier. Hey, if it gets you through the day, that's fine by me,
>>>but there are things about digital audio that can be proven true or false
>>>using the data. For things that can't be proven true or false with the
>data
>>>itself there is ABY testing, which is a controlled way to use the most
>precise
>>>audio measuring instruments available (our ears, at least until bats will
>>>wear headphones) to see if things sound different. When it's not in the
>>data,
>>>and it's not in the ABY, I say it doesn't exist.
>>>
>>>TCB
>>>
>>>"Neil" <IUOIU@OIU.com> wrote:
>>>>
>>>>Dedric - first of all, great explanation - esp. your 2nd
>>>>paragraph. Next, let's take a look at something in the form of
>>>>the best "graph" I can do in this NG's format... let's assume
>>>>that each dot in the simple graph below is a sample point on a
>>>>segment of a waveform, and let's futher assume that each "I"
>>>>below represents four bits (I don't want to make it too
>>>>vertically large, for ease of reading) - so we're dealing with
>>>>a 16-bit wav file, with the 5th "dot" from the start point on
>>>>the left being a full-amplitude, zero-db-line 16 bit sample.
>>>>
>>>>Now.... really, all I have to do to get a "null" is to have the
>>>>amplitude match at each "dot" on the waveform, yes? This, of
>>>>course, is a very simplistic graphic example, so bear with
>>>>me... but if I have each "dot" matching in amplitude &
>>>>therefore can get a null, what about the bits & content thereof
>>>>in between the extremes between the maxes & zero-line
>>>>crossings? Are you saying that there can be no variables in
>>>>sound between those sections that would still result in a null?
>>>>What about all the "I"'s that represent bits in between the
>>>>maxes & the minimums?
>>>>
>>>> .
>>>> .I.
>>>> .III. What about the stuff in here?
>>>> .IIIII.or in here????
>>>>.IIIIIII.
>>>>-----
>>>> .IIIIIII.
>>>> .IIIII. Again, what about this region?
>>>> .III. ... or this region?
>>>> .I.
>>>> .

>>>>

>>>>Neil

>>>

>>

>"TCB" <nobody@ishere.com> wrote:

>Lastly, and this is just a quirk for me, I find it odd that musicians and

>audio engineers are so disinterested in taking seriously expert opinion.

>This is rampant in the audiophile world where off the record the engineers

>themselves will tell you they're not sure the \$3k speaker cables they used

>to hook up their new speaker line makes any difference. But with Neil, for

>example, his mixes are 20 times better than mine for that kind of music.

>If he gave me advice and opinion I would take it very seriously. But for

>some reason when people like me and Dedric, who have developed extensive

>knowledge into how computers work, are very often brushed off very quickly.

>Dedric isn't even a jerk about, while I'm a jerk about it only sometimes,

>so I find that reaction to be, well, odd. But like I said, whatever gets

>ya through the day, I'm not looking for converts and nobody is paying me

>to post here.

First of all, thanks for the compliment, and secondly, I hope I

haven't come across as one of those who brushes off the facts

stated by those more knowledgeable than I with regard to the

technical aspects of all this stuff - I guess I'm part of the

"Use your ears, but also pay attention to the data" crowd.

I'm the first one to acknowledge that I don't understand some of

of the more technical elements of the digiworld, and it appears

that my interpretations of how certain things work in the

digital realm are/were flawed... so, despite the fact that

you're not paid to post here, I thank you & Dedric & others for

getting into the detail you have... some of it's over my head,

admittedly, but you've explained it clearly enough to where

I "get it" a little bit better.

NeilDedric good post..

However, I have PT-M-Powered/M-audio 410 interface for my laptop and it has

that same sound (no eq, zero fader) that HD does. I know their use the same

48 bit fix mixer. I load up the same file in Nuendo (no eq, zero fader)..results.

different sonic character.

PT having a top end touch..Nuendo, nice smooth(flat) sound. And I'm just

taking about a stereo wav file nulled with no eq..nothing ..zilch..nada..

Now, there are devices (keyboards, dum machines) on the market today that

have a Master Buss Compressor and EQ set to on with the top end notched up.

Why? because it gives their product an competitive advantageover the competition..

Ex: Yahama's Motif ES, Akai's MPC 1000, 2500, Roland's Fantom.

So, why wouldn't a DAW manufacturer code in an extra (ooommf) to make their DAW sound better. Especially, given the "I hate Digital Summing" crowd? And, If I'm a DAW manufacturer, what would give my product a sonic edge over the competition?

We live in the "louder is better" audio world these days, so a DAW that can catch my attention 'sonically" will probably will get the sell. That's what happened to me back in 1997 when I heard Paris. I was floored!!! Still to this day, nothing has floored me like that "Road House Blues Demo" I heard on Paris.

Was it the hardware ? was it the software. I remember talking with Edmund at the 2000 winter Namm, and told me that he & Steve set out to reproduce the sonics of big buck analog board (eq's) and all.. And, summing was a big big issue for them because they (ID) thought that nobody has gotten it(summing) right. And by right, they meant, behaved like a console with a wide lane for all of those tracks..

"Dedric Terry" <dedric@echomg.com> wrote:

>"LaMont" <jjdpro@ameritech.net> wrote in message news:458be8d5\$1@linux...

>>

>> Okay...

>> I guess what I'm saying is this:

>>

>> -Is it possible that different DAW manufacturers "code" their app

>> differently

>> for sound results.

>

>Of course it is *possible* to do this, but only if the DAW has a specific

>sound shaping purpose

>beyond normal summing/mixing. Users talk about wanting developers to add a

>"Neve sound" or "API sound" option to summing engines,

>but that's really impractical given the amount of dsp required to make a

>decent emulation (with convolution, dynamic EQ functions,

>etc). For sake of not eating up all cpu processing, that could likely only

>surface as is a built in EQ, which

>no one wants universally in summing, and anyone can add at will already.

>

>So it hasn't happened yet and isn't likely to as it detours from the basic

>tenant of audio recording - recreate what comes in as

>accurately as possible.
>
>What Digi did in recoding their summing engine was try to recover some
>of the damage done by the 24-bit buss in Mix systems. Motorola 56k dsps
are
>24-bit fixed point chips and I think
>the new generation (321?) still is, but they use double words now for
>48-bits). And though plugins could process at 48-bit by
>doubling up and using upper and lower 24-bit words for 48-bit outputs, the

>buss
>between chips was 24-bits, so they had to dither to 24-bits after every

>plugin. The mixer (if I recall correctly) also
>had a 24-bit buss, so what Digi did is to add a dither stage to the mixer
to
>prevent this
>constant truncation of data. 24-bits isn't enough to cover summing for
more
>than a few tracks without
>losing information in the 16-bit world, and in the 24-bit world some
>information will be lost, at least at the lowest levels.
>
>Adding a dither stage (though I think they did more than that - perhaps

>implement a 48-bit double word stage as well),
>simply smoothed over the truncation that was happening, but it didn't solve

>the problem, so with HD
>they went to a double-word path - throughout I believe, including the path

>between chips. I believe the chips
>are still 24-bit, but by doubling up the processing (yes at a cost of twice

>the overhead), they get a 48-bit engine.
>This not only provided better headroom, but greater resolution. Higher
bit
>depths subdivide the amplitude with greater resolution, and that's
>really where we get the definition of dynamic range - by lowering the signal

>to quantization noise ratio.
>
>With DAWs that use 32-bit floating point math all the way through, the only

>reason for altering the summing
>is by error, and that's an error that would actually be hard to make and
get
>past a very basic alpha stage of testing.

>There is a small difference in fixed point math and floating point math,
or
>at least a theoretical difference in how it affects audio
>in certain cases, but not necessarily in the result for calculating gain
in
>either for the same audio file. Where any differences might show up is

>complicated, and I believe only appear at levels below 24-bit (or in
>headroom with tracks pushed beyond 0dBFS), or when/if
>there are any differences in where each amplitude level is quantized.
>
>Obviously there can be differences if the DAW has to use varying bit depths

>throughout a single summing path to accommodate hardware
>as well as software summing, since there may be truncation or rounding along

>the way, but that impacts the lowest bit
>level, and hence - spatial reproduction, reverb tails perhaps, and "depth",

>not the levels most music so the differences are most
>often more subtle than not. But most modern DAWs have eliminated those

>"rough edges" in the math by increasing the bit depth to accommodate normal

>summing required for mixing audio.
>
>So with Lynn's unity gain summing test (A files on the CD I believe), DAWs

>were never asked to sum beyond 24-bits,
>at least not on the upper end of the dynamic range, so everything that could

>represent 24-bits accurately would cancel. The only ones
>that didn't were ones that had a different bit depth and/or gain structure

>whether hybrid or native
>(e.g. Paris' subtracting 20dB from tracks and adding it to the buss). In

>this case, PTHD cancelled (when I tested it) with
>Nuendo, Samplitude, Logic, etc because the impact of the 48-bit fixed vs.

>32-bit float wasn't a factor.
>
>When trying other tests, even when adding and subtracting gain, Nuendo,

>Sequoia and Sonar cancel - both audibly and
>visually at inaudible levels, which only proves that one isn't making an

>error when calculating basic gain. Since a dB is well defined,

>and the math to add gain is simple, they shouldn't. The fact that they
all
>use 32-bit float all the way through eliminates a difference
>in data structure as well, and this just verifies that. There was a time

>that supposedly Logic (v3, v4?) was partly 24-bit, or so the rumor went,
>but it's 32-bit float all the way through now just as Sonar, Nuendo/Cubase,

>Samplitude/Sequoia, DP, Audition (I presume at least).
>I don't know what Acid or Live use. Saw promotes a fixed point engine,
but
>I don't know if it is still 24-bit, or now 48 bit.
>That was an intentional choice by the developer, but he's the only one I

>know of that stuck with 24-bit for summing
>intentionally, esp. after the Digi Mix system mixer incident.
>
>Long answer, but to sum up, it is certainly physically *possible* for a

>developer to code something differently intentionally, but not
>in reality likely since it would be breaking some basic fixed point or
>floating point math rules. Where the differences really
>showed up in the past is with PT Mix systems where the limitation was really

>significant - e.g. 24 bit with truncation at several stages.
>
>That really isn't such an issue anymore. Given the differences in workflow,

>missing something in workflow or layout differences
>is easy enough to do (e.g. Sonar doesn't have group and busses the way
>Nuendo does, as it's outputs are actually driver outputs,
>not software busses, so in Sonar, busses are actually outputs, and sub
>busses are actually busses in Nuendo. There are no,
>or at least I haven't found the equivalent of a Nuendo group in Sonar -
that
>affects the results of some tests (though not basic
>summing) if not taken into account, but when taken into account, they work

>exactly the same way).
>
>So at least when talking about apps with 32-bit float all the way through,

>it's safe to say (since it has been proven) that summing isn't different

>unless
>there is an error somewhere, or variation in how the user duplicates the

>same mix in two different apps.

>

>Imho, that's actually a very good thing - approaching a more consistent

>basis for recording and mixing from which users can make all

>of the decisions as to how the final product will sound and not be required

>to decide when purchasing a pricey console, and have to

>focus their business on clients who want "that sound". I believe we are

>actually closer to the pure definition of recording now than

>we once were.

>

>Regards,

>Dedric

>

>

>>

>> I the answer is yes, then,the real task is to discover or rather un-cover

>> what's say: Motu's vision of summing, versus Digidesign, versus Steinberg

>> and so on..

>>

>> What's under the hood. To me and others,when Digi re-coded their summing

>> engine, it was obvious that Pro Tools has an obvious top end (8k-10k)

>> bump.

>> Where as Steinberg's summing is very neutral.

>>

>> "Dedric Terry" <dedric@echomg.com> wrote:

>>>Hi Neil,

>>>

>>>Jamie is right. And you aren't wacked out - you are thinking this through

>>

>>>in a reasonable manner, but coming to the wrong

>>>conclusion - easy to do given how confusing digital audio can be. Each

>> word

>>>represents an amplitude

>>>point on a single curve that is changing over time, and can vary with

a

>>

>>>speed up to the Nyquist frequency (as Jamie described).

>>>The complex harmonic content we hear is actually the frequency modulation

>> of

>>>a single waveform,

>>>that over a small amount of time creates the sound we translate - we don't

>>

>>>really hear a single sample at a time,

>>>but thousands of samples at a time (1 sample alone could at most represent

>> a

>>>single positive or negative peak
>>>of a 22,050Hz waveform).
>>>
>>>If one bit doesn't cancel, esp. if it's a higher order bit than number
24,
>>
>>>you may hear, and will see that easily,
>>>and the higher the bit in the dynamic range (higher order) the more
>>>audible
>>
>>>the difference.
>>>Since each bit is 6dB of dynamic range, you can extrapolate how "loud"

>>>that
>>
>>>bit's impact will be
>>>if there is a variation.
>>>
>>>Now, obviously if we are talking about 1 sample in a 44.1k rate song,
then
>>
>>>it simply be a
>>>click (only audible if it's a high enough order bit) instead of an obvious
>>
>>>musical difference, but that should never
>>>happen in a phase cancellation test between identical files higher than
>> bit
>>>24, unless there are clock sync problems,
>>>driver issues, or the DAW is an early alpha version. :-)
>>>
>>>By definition of what DAWs do during playback and record, every audio

>>>stream
>>
>>>has the same point in time (judged by the timeline)
>>>played back sample accurately, one word at a time, at whatever sample

>>>rate
>>
>>>we are using. A phase cancellation test uses that
>>>fact to compare two audio files word for word (and hence bit for bit since
>>
>>>each bit of a 24-bit word would
>>>be at the same bit slot in each 24-bit word). Assuming they are aligned
>> to
>>>the same start point, sample
>>>accurately, and both are the same set of sample words at each sample
>>>point,

>>
>>>bit for bit, and one is phase inverted,
>>>they will cancel through all 24 bits. For two files to cancel completely
>>
>>>for the duration of the file, each and every bit in each word
>>>must be the exact opposite of that same bit position in a word at the
same
>>
>>>sample point. This is why zooming in on an FFT
>>>of the full difference file is valuable as it can show any differences
in
>>
>>>the lower order bits that wouldn't be audible. So even if
>>>there is no audible difference, the visual followup will show if the two
>>
>>>files truly cancel even a levels below hearing, or
>>>outside of a frequency change that we will perceive.
>>>
>>>When they don't cancel, usually there will be way more than 1 bit
>>>difference - it's usually one or more bits in the words for
>>>thousands of samples. From a musical standpoint this is usually in a
>>>frequency range (low freq, or high freq most often) - that will
>>>show up as the difference between them, and that usually happens due to
>> some
>>>form of processing difference between the files,
>>>such as EQ, compression, frequency dependant gain changes, etc. That is
>> what
>>>I believe you are thinking through, but when
>>>talking about straight summing with no gain change (or known equal gain
>>
>>>changes), we are only looking at linear, one for one
>>>comparisons between the two files' frequency representations.
>>>
>>>Regards,
>>>Dedric
>>>
>>>> Neil wrote:
>>>>> "Dedric Terry" <dedric@echomg.com> wrote:
>>>>>> The tests I did were completely blank down to -200 dB (far below the
>>
>>>>>> last
>>>>>>
>>>>>> bit). It's safe to say there is no difference, even in
>>>>>> quantization noise, which by technical rights, is considered below
the
>>
>>>>>> level
>>>>>>

>>>>> of "cancellation" in such tests.
>>>>>
>>>>> I'm not necessarily talking about just the first bit or the
>>>>> last bit, but also everything in between... what happens on bit
>>>>> #12, for example? Everything on bit #12 should be audible, but
>>>>> in an a/b test what if there are differences in what bits #8
>>>>> through #12 sound like, but the amplitude is still the same on
>>>>> both files at that point, you'll get a null, right? Extrapolate
>>>>> that out somewhat & let's say there are differences in bits #8
>>>>> through #12 on sample points 3, 17, 1,000, 4,523, 7,560, etc,
>>>>> etc through 43,972... Now this is breaking things down well
>>>>> beyond what I think can be measured, if I'm not mistaken (I
>>>>> don't know of any way we could extract JUST that information
>>>>> from each file & play it back for an a/b test; but would not
>>>>> that be enough to have to "null-able" files that do actually
>>>>> sound somewhat different?
>>>>>
>>>>> I guess what I'm saying is that since each sample in a musical
>>>>> track or full song file doesn't represent a pure, simple set of
>>>>> content like a sample of a sine wave would - there's a whole
>>>>> world of harmonic structure in each sample of a song file, and
>>>>> I think (although I'll admit - I can't "prove") that there is
>>>>> plenty of room for some variables between the first bit & the
>>>>> last bit while still allowing for a null test to be successful.
>>>>>
>>>>> No? Am I wacked out of my mind?
>>>>>
>>>>> Neil
>>>>>
>>>
>>
>
>.....It seems you all have forgot to talk about the difference with listening
from different monitors, with different "room problems", that is summing the
results to our ears as a last instance.....

Erling

"LaMont" <jjdpro@ameritech.net> skrev i melding news:458c0fc6\$1@linux...
>
> Thad,
> I think your points are valid. However I think the reason most Recording
> engineers don't like to talk Audio science, is because of the
> "unexplainable"
> anomalies that occur with sound. Matters not if it's digital or analog,
> but rather how does it sound..
>

> We need factions like AES who discuss such theoretical and new ideas and
> advancements in audio reproduction. However, once the science down, then
> comes the art of it all.. Music is still the reason for what we are
> discussing.
> Music is emotional, yet is a science as well.
>
> For your camp to continue to de-value the human side (use your ears) of
> the
> equation is not right as well.
>
> I think both sides are right, but the science campers cannot speak to a
> guy
> who's main tool is his "ears" and not a scope.
>
>
> "TCB" <nobody@ishere.com> wrote:
>>
>>Actually, I wasn't referring specifically to you, I hear similar things
> all
>>the time all over the place. The first time I went through this on this
> forum
>>a couple of years ago was the Great CD Burning Speed Debate. In that one
>>Derek and I came up with about a gazillion ways to show that you could
>>rip-burn-rip-burn
>>over and over again at all kinds of different speeds and wind up with
>>exactly
>>the same data or audio CD. And I mean the same as in I slurped the whole
>>audio file *as a string* into perl and checked the samples. Having done
> that,
>>and thereby proven beyond a shadow of a doubt, I was told, roughly, that
>>clearly I couldn't hear well enough for these esoteric discussions. 'Use
>>your ears, dude.'
>>
>>So, it is possible to write a DAW with a filter on the master bus? Yes,
> of
>>course it is. Why anyone would want to do such a thing is beyond me since
>>there are conventions that are pretty much constant throughout the digital
>>audio world about how signals should be mixed together. So if DAW X is a
>>little more present in the second to the top octave (I think you mentioned
>>one being so) I would call that either a bug or mistaken perception. If
> I
>>could do the export file, flip polarity trick and the files didn't null
> I'd
>>say, 'Interesting, let's be sure my test is good. Is there an EQ on a
>>track
>>in one mix and not the other? Is there a group track that is doubling the
>>guitars in one mix and not the other?' If, on the other hand, the tracks
>>did null I'd say, 'Hmmmmmm, maybe I'm hearing a difference where there

>>isn't
>>one.'
>>
>>Lastly, and this is just a quirk for me, I find it odd that musicians and
>>audio engineers are so disinterested in taking seriously expert opinion.
>>This is rampant in the audiophile world where off the record the engineers
>>themselves will tell you they're not sure the \$3k speaker cables they used
>>to hook up their new speaker line makes any difference. But with Neil, for
>>example, his mixes are 20 times better than mine for that kind of music.
>>If he gave me advice and opinion I would take it very seriously. But for
>>some reason when people like me and Dedric, who have developed extensive
>>knowledge into how computers work, are very often brushed off very
>>quickly.
>>Dedric isn't even a jerk about, while I'm a jerk about it only sometimes,
>>so I find that reaction to be, well, odd. But like I said, whatever gets
>>ya through the day, I'm not looking for converts and nobody is paying me
>>to post here.
>>
>>TCB
>>
>>"LaMont" <jjdpro@ameritech.net> wrote:
>>>
>>>Thad, I assume that you are referring to me (using your ears).
>>>
>>>Look, I think we are talking about two different things here:
>>>
>>>1) Digital data
>>>
>>>2) Software (DAWS) coding
>>>
>>>You and Dedric have been concentrating on the laws of Digital audio.
>>>That's
>>>fine. But, I'm talking about the Software that we use to decode our
>>>digital
>>>audio.
>>>
>>>Like my previous post states, are we saying that DAW software can't be
> written
>>>for certain sonic results?
>>>
>>>
>>>"TCB" <nobody@ishere.com> wrote:
>>>>
>>>>Neil,
>>>>
>>>>You're using an analog waveform that is leading you to think incorrectly
>>>>about sampling. This is (very roughly) how it would look if you're
>>>>working

```

>>>>with 16 bit samples.
>>>>
>>>>0101010101010101
>>>>0101010111011101
>>>>0101110111010101
>>>>0101111111010100
>>>>0101110101111101
>>>>0111011101111101
>>>>0111110101110101
>>>>0100010111000100
>>>>0100011101010101
>>>>0001011100010101
>>>>0000010111111100
>>>>0001000001010111
>>>>0100000111110101
>>>>0111011101010000
>>>>0101011101000000
>>>>0101011111000101
>>>>0101010101010101
>>>>
>>>>The easiest way to think of how the sampler works is that it looks at
> the
>>>>incoming voltage to the converter and asks 'Is this in the top or bottom
>>>>half of the possible amplitudes I can measure.' If it's in the top half
>>>>it
>>>>writes a 1, if it's in the bottom half, it writes a zero. The next bit
>>asks,
>>>>'Now that I know which half of my measurable voltage I'm looking at, is
>>>>the
>>>>voltage in the top half of that half or the bottom half?' That's bit
>>>>number
>>>>two. Then it's on to, 'Now that I know what quarter it's it, is it in
> the
>>>>top or bottom half of that quarter?' And so on sixteen time giving it
> a
>>>>resolution
>>>>of 2 to the sixteenth power.
>>>>
>>>>In other words, asking if the bits under the sample would sound is like
>>>>asking
>>>>how the road would drive if it were 30 feet underground.
>>>>
>>>>Now then, to get back to the original argument, people like me (and I
> think
>>>>Dedric but I'll let him speak for himself) get a little hacked off when
>>>>someone
>>>>says, 'you have to use your ears' when it's possible using various
>>>>computer

```

>>>>tools to check exactly how many of those samples match in two given
>>>>files.
>>>>The nulling trick is just a very easy wa

Subject: Re: Paris Skins / examples 3
Posted by [Yanoska](#) on Thu, 16 Nov 2006 06:18:40 GMT
[View Forum Message](#) <> [Reply to Message](#)

y to get a quick read on one
>>>>aspect,
>>>>which is to answer the question 'do these two files match?' But there
> are
>>>>others and I've used them. And the sameness between properly written (by
>>>>which I mean lacking in serious bugs) audio applications is startling
> and
>>>>their differences so minor that other errors (analog cables, dust on the
>>>>speaker cone, humidity and temperature in the room) are far more likely
>>>>to
>>>>cause a difference.
>>>>
>>>>Personally I think this all stems from romanticism about music and the
>>purity
>>>>of art. I have yet to hear someone tell me they need financial
>>>>calculations
>>>>down to 25 decimal points. They need them done to (at most) five decimal
>>>>points because the smallest commonly used financial divisor is the basis
>>>>point, or one one hundredth of a penny. So internally you calculate to
>>five
>>>>decimal places and round up or down from there and get on with your
>>>>life.
>>>>As geeky as finance guys can get, nobody ever says, 'You know, Thad,
>>>>that
>>>>last basis point just isn't really punchy enough for this deal. LBO guys
>>>>need really punchy returns, so can you run that calculation out a few
> more
>>>>bits to get a punchier basis point?' Scientists are also extremely
>>>>careful
>>>>to keep 'false precision' out of their calculations, so if one
>>>>instrument
>>>>will measure to four decimal points and the others will measure to 12
> they
>>>>understand that everything the higher resolution instruments measure
>>>>beyond
>>>>four accurate decimal points is worthless. They usually won't even
>>>>record
>>>>the data to be sure they don't claim greater precision than they have,
>>because

>>>>that's considered a horribly embarrassing junior high school mistake.
> But
>>>>musicians and audio engineers think that just because the data is sound
>>>data
>>>>somehow it enters a nebulous zone where that last one hundredth of a
>>>>penny
>>>>can be punchier. Hey, if it gets you through the day, that's fine by me,
>>>>but there are things about digital audio that can be proven true or
>>>>>false
>>>>using the data. For things that can't be proven true or false with the
>>data
>>>>itself there is ABY testing, which is a controlled way to use the most
>>precise
>>>>audio measuring instruments available (our ears, at least until bats
>>>>will
>>>>wear headphones) to see if things sound different. When it's not in the
>>>data,
>>>>and it's not in the ABY, I say it doesn't exist.
>>>>
>>>>TCB
>>>>
>>>>"Neil" <IUOIU@OIU.com> wrote:
>>>>>
>>>>>Dedric - first of all, great explanation - esp. your 2nd
>>>>>paragraph. Next, let's take a look at something in the form of
>>>>>the best "graph" I can do in this NG's format... let's assume
>>>>>that each dot in the simple graph below is a sample point on a
>>>>>segment of a waveform, and let's futher assume that each "I"
>>>>>below represents four bits (I don't want to make it too
>>>>>vertically large, for ease of reading) - so we're dealing with
>>>>>a 16-bit wav file, with the 5th "dot" from the start point on
>>>>>the left being a full-amplitude, zero-db-line 16 bit sample.
>>>>>
>>>>>Now.... really, all I have to do to get a "null" is to have the
>>>>>amplitude match at each "dot" on the waveform, yes? This, of
>>>>>course, is a very simplistic graphic example, so bear with
>>>>>me... but if I have each "dot" matching in amplitude &
>>>>>therefore can get a null, what about the bits & content thereof
>>>>>in between the extremes between the maxes & zero-line
>>>>>crossings? Are you saying that there can be no variables in
>>>>>sound between those sections that would still result in a null?
>>>>>What about all the "I"'s that represent bits in between the
>>>>>maxes & the minimums?
>>>>>
>>>>> .
>>>>> . I .
>>>>> . I I I . What about the stuff in here?
>>>>> . I I I I Ior in here????

>> discussing.
>> Music is emotional, yet is a science as well.
>>
>> For your camp to continue to de-value the human side (use your ears) of
>> the
>> equation is not right as well.
>>
>> I think both sides are right, but the science campers cannot speak to a
>> guy
>> who's main tool is his "ears" and not a scope.
>>
>>
>> "TCB" <nobody@ishere.com> wrote:
>>> Actually, I wasn't referring specifically to you, I hear similar things
>> all
>>> the time all over the place. The first time I went through this on this
>> forum
>>> a couple of years ago was the Great CD Burning Speed Debate. In that one
>>> Derek and I came up with about a gazillion ways to show that you could
>>> rip-burn-rip-burn
>>> over and over again at all kinds of different speeds and wind up with
>>> exactly
>>> the same data or audio CD. And I mean the same as in I slurped the whole
>>> audio file *as a string* into perl and checked the samples. Having done
>> that,
>>> and thereby proven beyond a shadow of a doubt, I was told, roughly, that
>>> clearly I couldn't hear well enough for these esoteric discussions. 'Use
>>> your ears, dude.'
>>>
>>> So, it is possible to write a DAW with a filter on the master bus? Yes,
>> of
>>> course it is. Why anyone would want to do such a thing is beyond me since
>>> there are conventions that are pretty much constant throughout the digital
>>> audio world about how signals should be mixed together. So if DAW X is a
>>> little more present in the second to the top octave (I think you mentioned
>>> one being so) I would call that either a bug or mistaken perception. If
>> I
>>> could do the export file, flip polarity trick and the files didn't null
>> I'd
>>> say, 'Interesting, let's be sure my test is good. Is there an EQ on a
>>> track
>>> in one mix and not the other? Is there a group track that is doubling the
>>> guitars in one mix and not the other?' If, on the other hand, the tracks
>>> did null I'd say, 'Hmmmmmm, maybe I'm hearing a difference where there
>>> isn't
>>> one.'
>>>
>>> Lastly, and this is just a quirk for me, I find it odd that musicians and

>>> audio engineers are so disinterested in taking seriously expert opinion.
>>> This is rampant in the audiophile world where off the record the engineers
>>> themselves will tell you they're not sure the \$3k speaker cables they used
>>> to hook up their new speaker line makes any difference. But with Neil, for
>>> example, his mixes are 20 times better than mine for that kind of music.
>>> If he gave me advice and opinion I would take it very seriously. But for
>>> some reason when people like me and Dedric, who have developed extensive
>>> knowledge into how computers work, are very often brushed off very
>>> quickly.
>>> Dedric isn't even a jerk about, while I'm a jerk about it only sometimes,
>>> so I find that reaction to be, well, odd. But like I said, whatever gets
>>> ya through the day, I'm not looking for converts and nobody is paying me
>>> to post here.
>>>
>>> TCB
>>>
>>> "LaMont" <jjdpro@ameritech.net> wrote:
>>>> Thad, I assume that you ar ereferring to me (using your ears).
>>>>
>>>> Look, I think we are talking about two differnt things here:
>>>>
>>>> 1) Digital data
>>>>
>>>> 2) Software (DAWS) coding
>>>>
>>>> You and Dedric have been concentrating on the laws of Digital audio.
>>>> That's
>>>> fine. But, I'm talking about the Software that we use to decode our
>>>> digital
>>>> audio.
>>>>
>>>> Like my previous post states, are we saying that DAW software can't be
>> written
>>>> for certain sonic results?
>>>>
>>>>
>>>> "TCB" <nobody@ishere.com> wrote:
>>>>> Neil,
>>>>>
>>>>> You're using an analog waveform that is leading you to think incorrectly
>>>>> about sampling. This is (very roughly) how it would look if you're
>>>>> working
>>>>> with 16 bit samples.
>>>>>
>>>>> 0101010101010101
>>>>> 0101010111011101
>>>>> 0101110111010101
>>>>> 0101111111010100

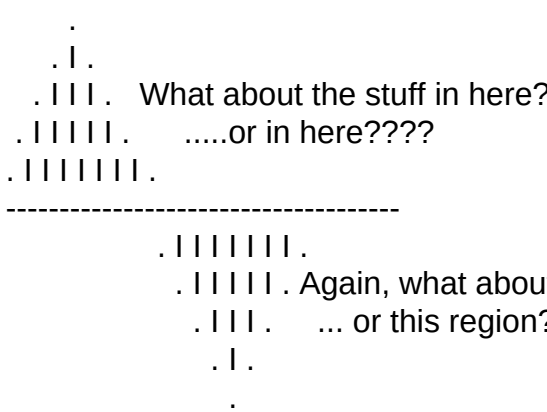
```

>>>>> 0101110101111101
>>>>> 0111011101111101
>>>>> 0111110101110101
>>>>> 0100010111000100
>>>>> 0100011101010101
>>>>> 0001011100010101
>>>>> 0000010111111100
>>>>> 0001000001010111
>>>>> 0100000111110101
>>>>> 0111011101010000
>>>>> 0101011101000000
>>>>> 0101011111000101
>>>>> 0101010101010101
>>>>>
>>>>> The easiest way to think of how the sampler works is that it looks at
>> the
>>>>> incoming voltage to the converter and asks 'Is this in the top or bottom
>>>>> half of the possible amplitudes I can measure.' If it's in the top half
>>>>> it
>>>>> writes a 1, if it's in the bottom half, it writes a zero. The next bit
>>> asks,
>>>>> 'Now that I know which half of my measurable voltage I'm looking at, is
>>>>> the
>>>>> voltage in the top half of that half or the bottom half?' That's bit
>>>>> number
>>>>> two. Then it's on to, 'Now that I know what quarter it's in, is it in
>> the
>>>>> top or bottom half of that quarter?' And so on sixteen times giving it
>> a
>>>>> resolution
>>>>> of 2 to the sixteenth power.
>>>>>
>>>>> In other words, asking if the bits under the sample would sound is like
>>>>> asking
>>>>> how the road would drive if it were 30 feet underground.
>>>>>
>>>>> Now then, to get back to the original argument, people like me (and I
>> think
>>>>> Dedric but I'll let him speak for himself) get a little hacked off when
>>>>> someone
>>>>> says, 'you have to use your ears' when it's possible using various
>>>>> computer
>>>>> tools to check exactly how many of those samples match in two given
>>>>> files.
>>>>> The nulling trick is just a very easy way to get a quick read on one
>>>>> aspect,
>>>>> which is to answer the question 'do these two files match?' But there
>> are

```

>>>>> others and I've used them. And the sameness between properly written (by
>>>>> which I mean lacking in serious bugs) audio applications is startling
>> and
>>>>> their differences so minor that other errors (analog cables, dust on the
>>>>> speaker cone, humidity and temperature in the room) are far more likely
>>>> to
>>>>> cause a difference.
>>>>>
>>>>> Personally I think this all stems from romanticism about music and the
>>> purity
>>>>> of art. I have yet to hear someone tell me they need financial
>>>>> calculations
>>>>> down to 25 decimal points. They need them done to (at most) five decimal
>>>>> points because the smallest commonly used financial divisor is the basis
>>>>> point, or one one hundredth of a penny. So internally you calculate to
>>> five
>>>>> decimal places and round up or down from there and get on with your
>>>>> life.
>>>>> As geeky as finance guys can get, nobody ever says, 'You know, Thad,
>>>>> that
>>>>> last basis point just isn't really punchy enough for this deal. LBO guys
>>>>> need really punchy returns, so can you run that calculation out a few
>> more
>>>>> bits to get a punchier basis point?' Scientists are also extremely
>>>>> careful
>>>>> to keep 'false precision' out of their calculations, so if one
>>>>> instrument
>>>>> will measure to four decimal points and the others will measure to 12
>> they
>>>>> understand that everything the higher resolution instruments measure
>>>>> beyond
>>>>> four accurate decimal points is worthless. They usually won't even
>>>>> record
>>>>> the data to be sure they don't claim greater precision than they have,
>>> because
>>>>> that's considered a horribly embarrassing junior high school mistake.
>> But
>>>>> musicians and audio engineers think that just because the data is sound
>>>> data
>>>>> somehow it enters a nebulous zone where that last one hundredth of a
>>>>> penny
>>>>> can be punchier. Hey, if it gets you through the day, that's fine by me,
>>>>> but there are things about digital audio that can be proven true or
>>>>> false
>>>>> using the data. For things that can't be proven true or false with the
>>> data
>>>>> itself there is ABY testing, which is a controlled way to use the most
>>> precise

>>>>> audio measuring instruments available (our ears, at least until bats
>>>>> will
>>>>> wear headphones) to see if things sound different. When it's not in the
>>>>> data,
>>>>> and it's not in the ABY, I say it doesn't exist.
>>>>>
>>>>> TCB
>>>>>
>>>>> "Neil" <IUOIU@OIU.com> wrote:
>>>>>> Dedric - first of all, great explanation - esp. your 2nd
>>>>>> paragraph. Next, let's take a look at something in the form of
>>>>>> the best "graph" I can do in this NG's format... let's assume
>>>>>> that each dot in the simple graph below is a sample point on a
>>>>>> segment of a waveform, and let's futher assume that each "I"
>>>>>> below represents four bits (I don't want to make it too
>>>>>> vertically large, for ease of reading) - so we're dealing with
>>>>>> a 16-bit wav file, with the 5th "dot" from the start point on
>>>>>> the left being a full-amplitude, zero-db-line 16 bit sample.
>>>>>>
>>>>>> Now.... really, all I have to do to get a "null" is to have the
>>>>>> amplitude match at each "dot" on the waveform, yes? This, of
>>>>>> course, is a very simplistic graphic example, so bear with
>>>>>> me... but if I have each "dot" matching in amplitude &
>>>>>> therefore can get a null, what about the bits & content thereof
>>>>>> in between the extremes between the maxes & zero-line
>>>>>> crossings? Are you saying that there can be no variables in
>>>>>> sound between those sections that would still result in a null?
>>>>>> What about all the "I"'s that represent bits in between the
>>>>>> maxes & the minimums?
>>>>>>
>>>>>> .
>>>>>> . I .
>>>>>> . I I I . What about the stuff in here?
>>>>>> . I I I I Ior in here???



>>>>>> . I I I I I I I .
>>>>>> . I I I I I . Again, what about this region?
>>>>>> . I I I or this region?
>>>>>> . I .
>>>>>> .
>>>>>>
>>>>>> Neil
>

>First of all, I don't represent a 'camp.' Second, music is emotional for us,
not the computer. The computer doesn't care if it's calculating reverb tails
or running SQL queries. So there are some things about digital audio that
we can say are true or false absolutely, or to a certain predictable degree

of error. To argue against those things with the 'use your ears' argument is as useful as arguing about gravity, and whether you believe in gravity or not you still ain't gonna fall up when you jump off the park bench. For the rest, I've never said here or anywhere that ears shouldn't be used, but only that claims should be backed up by repeatable, statistically significant results in careful tests. So 'everybody who can hear will hear this' doesn't cut it for me. 'We did this test under these conditions and these were the results' does.

TCB

"LaMont" <jjdpro@ameritech.net> wrote:

>

>Thad,

>I think your points are valid. However I think the reason most Recording
>engineers don't like to talk Audio science, is because of the "unexplainable"
>anomalies that occur with sound. Matters not if it's digital or analog,
>but rather how does it sound..

>

>We need factions like AES who discuss such theoretical and new ideas and
>advancements in audio reproduction. However, once the science down, then
>comes the art of it all.. Music is still the reason for what we are discussing.
>Music is emotional, yet is a science as well.

>

>For your camp to continue to de-value the human side (use your ears) of the
>equation is not right as well.

>

>I think both sides are right, but the science campers cannot speak to a
guy
>who's main tool is his "ears" and not a scope.

>

>

>"TCB" <nobody@ishere.com> wrote:

>>

>>Actually, I wasn't referring specifically to you, I hear similar things
>all

>>the time all over the place. The first time I went through this on this
>forum

>>a couple of years ago was the Great CD Burning Speed Debate. In that one
>>Derek and I came up with about a gazillion ways to show that you could
rip-burn-rip-burn

>>over and over again at all kinds of different speeds and wind up with exactly
>>the same data or audio CD. And I mean the same as in I slurped the whole
>>audio file *as a string* into perl and checked the samples. Having done
>that,

>>and thereby proven beyond a shadow of a doubt, I was told, roughly, that
>>clearly I couldn't hear well enough for these esoteric discussions. 'Use

>>your ears, dude.'

>>

>>So, it is possible to write a DAW with a filter on the master bus? Yes,

>of

>>course it is. Why anyone would want to do such a thing is beyond me since

>>there are conventions that are pretty much constant throughout the digital

>>audio world about how signals should be mixed together. So if DAW X is

a

>>little more present in the second to the top octave (I think you mentioned

>>one being so) I would call that either a bug or mistaken perception. If

>I

>>could do the export file, flip polarity trick and the files didn't null

>I'd

>>say, 'Interesting, let's be sure my test is good. Is there an EQ on a track

>>in one mix and not the other? Is there a group track that is doubling the

>>guitars in one mix and not the other?' If, on the other hand, the tracks

>>did null I'd say, 'Hmmmmmm, maybe I'm hearing a difference where there

isn't

>>one.'

>>

>>Lastly, and this is just a quirk for me, I find it odd that musicians and

>>audio engineers are so disinterested in taking seriously expert opinion.

>>This is rampant in the audiophile world where off the record the engineers

>>themselves will tell you they're not sure the \$3k speaker cables they used

>>to hook up their new speaker line makes any difference. But with Neil,

for

>>example, his mixes are 20 times better than mine for that kind of music.

>>If he gave me advice and opinion I would take it very seriously. But for

>>some reason when people like me and Dedric, who have developed extensive

>>knowledge into how computers work, are very often brushed off very quickly.

>>Dedric isn't even a jerk about, while I'm a jerk about it only sometimes,

>>so I find that reaction to be, well, odd. But like I said, whatever gets

>>ya through the day, I'm not looking for converts and nobody is paying me

>>to post here.

>>

>>TCB

>>

>>"LaMont" <jjdpro@ameritech.net> wrote:

>>>

>>>Thad, I assume that you are referring to me (using your ears).

>>>

>>>Look, I think we are talking about two different things here:

>>>

>>>1) Digital data

>>>

>>>2) Software (DAWS) coding

>>>

>>>You and Dedric have been concentrating on the laws of Digital audio.

That's

>>>fine. But, I'm talking about the Software that we use to decode our digital
>>>audio.

>>>

>>>Like my previous post states, are we saying that DAW software can't be
>written

>>>for certain sonic results?

>>>

>>>

>>>"TCB" <nobody@ishere.com> wrote:

>>>>

>>>>Neil,

>>>>

>>>>You're using an analog waveform that is leading you to think incorrectly
>>>>about sampling. This is (very roughly) how it would look if you're working
>>>>with 16 bit samples.

>>>>

>>>>0101010101010101

>>>>0101010111011101

>>>>0101110111010101

>>>>0101111111010100

>>>>0101110101111101

>>>>0111011101111101

>>>>0111110101110101

>>>>0100010111000100

>>>>0100011101010101

>>>>0001011100010101

>>>>0000010111111100

>>>>0001000001010111

>>>>0100000111110101

>>>>0111011101010000

>>>>0101011101000000

>>>>0101011111000101

>>>>0101010101010101

>>>>

>>>>The easiest way to think of how the sampler works is that it looks at
>the

>>>>incoming voltage to the converter and asks 'Is this in the top or bottom
>>>>half of the possible amplitudes I can measure.' If it's in the top half
>>>>it

>>>>writes a 1, if it's in the bottom half, it writes a zero. The next bit
>>asks,

>>>>'Now that I know which half of my measurable voltage I'm looking at,
is

>>>>the

>>>>voltage in the top half of that half or the bottom half?' That's bit
number

>>>>two. Then it's on to, 'Now that I know what quarter it's it, is it in

>the
>>>>top or bottom half of that quarter?' And so on sixteen time giving it
>a
>>>resolution
>>>>of 2 to the sixteenth power.
>>>>
>>>>In other words, asking if the bits under the sample would sound is like
>>>asking
>>>>how the road would drive if it were 30 feet underground.
>>>>
>>>>Now then, to get back to the original argument, people like me (and I
>think
>>>>Dedric but I'll let him speak for himself) get a little hacked off when
>>>someone
>>>>says, 'you have to use your ears' when it's possible using various computer
>>>>tools to check exactly how many of those samples match in two given files.
>>>>The nulling trick is just a very easy way to get a quick read on one
>aspect,
>>>>which is to answer the question 'do these two files match?' But there
>are
>>>>others and I've used them. And the sameness between properly written
>(by
>>>>which I mean lacking in serious bugs) audio applications is startling
>and
>>>>their differences so minor that other errors (analog cables, dust on
>the
>>>>speaker cone, humidity and temperature in the room) are far more likely
>>>to
>>>>cause a difference.
>>>>
>>>>Personally I think this all stems from romanticism about music and the
>>purity
>>>>of art. I have yet to hear someone tell me they need financial calculations
>>>>down to 25 decimal points. They need them done to (at most) five decimal
>>>>points because the smallest commonly used financial divisor is the basis
>>>>point, or one one hundredth of a penny. So internally you calculate to
>>five
>>>>decimal places and round up or down from there and get on with your life.
>>>>As geeky as finance guys can get, nobody ever says, 'You know, Thad,
>that
>>>>last basis point just isn't really punchy enough for this deal. LBO guys
>>>>need really punchy returns, so can you run that calculation out a few
>more
>>>>bits to get a punchier basis point?' Scientists are also extremely careful
>>>>to keep 'false precision' out of their calculations, so if one instrument
>>>>will measure to four decimal points and the others will measure to 12
>they
>>>>understand that everything the higher resolution instruments measure

beyond
 >>>>four accurate decimal points is worthless. They usually won't even record
 >>>>the data to be sure they don't claim greater precision than they have,
 >>because
 >>>>that's considered a horribly embarrassing junior high school mistake.
 >But
 >>>>musicians and audio engineers think that just because the data is sound
 >>>data
 >>>>somehow it enters a nebulous zone where that last one hundredth of a
 penny
 >>>>can be punchier. Hey, if it gets you through the day, that's fine by
 me,
 >>>>but there are things about digital audio that can be proven true or false
 >>>>using the data. For things that can't be proven true or false with the
 >>data
 >>>>itself there is ABY testing, which is a controlled way to use the most
 >>precise
 >>>>audio measuring instruments available (our ears, at least until bats
 will
 >>>>wear headphones) to see if things sound different. When it's not in the
 >>>data,
 >>>>and it's not in the ABY, I say it doesn't exist.
 >>>>
 >>>>TCB
 >>>>
 >>>>"Neil" <IUOIU@OIU.com> wrote:
 >>>>>
 >>>>>Dedric - first of all, great explanation - esp. your 2nd
 >>>>>paragraph. Next, let's take a look at something in the form of
 >>>>>the best "graph" I can do in this NG's format... let's assume
 >>>>>that each dot in the simple graph below is a sample point on a
 >>>>>segment of a waveform, and let's futher assume that each "I"
 >>>>>below represents four bits (I don't want to make it too
 >>>>>vertically large, for ease of reading) - so we're dealing with
 >>>>>a 16-bit wav file, with the 5th "dot" from the start point on
 >>>>>the left being a full-amplitude, zero-db-line 16 bit sample.
 >>>>>
 >>>>>Now.... really, all I have to do to get a "null" is to have the
 >>>>>amplitude match at each "dot" on the waveform, yes? This, of
 >>>>>course, is a very simplistic graphic example, so bear with
 >>>>>me... but if I have each "dot" matching in amplitude &
 >>>>>therefore can get a null, what about the bits & content thereof
 >>>>>in between the extremes between the maxes & zero-line
 >>>>>crossings? Are you saying that there can be no variables in
 >>>>>sound between those sections that would still result in a null?
 >>>>>What about all the "I"'s that represent bits in between the
 >>>>>maxes & the minimums?
 >>>>>

```

>>>>> .
>>>>> .I.
>>>>> .III. What about the stuff in here?
>>>>> .IIII. ....or in here???
>>>>>.IIIIII.
>>>>>-----
>>>>> .IIIIII.
>>>>> .IIII. Again, what about this region?
>>>>> .III. ... or this region?
>>>>> .I.
>>>>> .
>>>>>
>>>>>Neil
>>>>
>>>
>>
>"TCB" <nobody@ishere.com> wrote:

```

"As geeky as finance guys can get, nobody ever says, 'You know, Thad, that last basis point just isn't really punchy enough for this deal. LBO guys need really punchy returns, so can you run that calculation out a few more bits to get a punchier basis point?'"

Don't be so sure. A long, long time ago I wrote some "summing" code for a general ledger. One of the outputs of the system was an income statement.

A long discussion ensued, amongst some very bright people, about where to do the rounding. There were many camps.

Were we to round the individual transactions within a GL number, and sum these?

Were we to sum the individual transactions unrounded, then round the total of the GL number?

Were we to sum the unrounded GL numbers associated with a specific income statement line, then round that total?

People are funny.

Chuck"j to the c r o n" <fu@hydrorecords.com> wrote:

>wouldn't be so bad if it was actually funny

>

>PS. Why do people link to stuff they find offensive? :P

I was curious what other people think. It doesn't matter if it's funny to an adult, my concern is the kids that saw this, it was on regular television.

Where do we draw the line? Where are our standards?

There are many different subjects that could offend many different kinds of people. It shouldn't matter if it's funny or not, it should matter if it is appropriate. The schmucks that run the entertainment business seem to want to twist and pervert everything. I know that this wasn't pointed directly at Christmas, but, can't they just leave Christmas alone?

Nobody wants a moderator, or somebody to stomp on their freedom of speech, but what about decency standards? With out them a lot of people could be offended, including the Schmucks that run the entertainment business.

Just my thoughts. Maybe not so appropriate for this NG.

James

>
>"James McCloskey" <excelsm@hotmail.com> wrote in message
>news:458aefa2\$1@linux...
>>
>> http://www.nbc.com/Saturday_Night_Live/uncensored.shtml
>
>Tom Bruhl GOOOODDDDD.....KVM BBBBBAAAAADDDDDDD

Tom Bruhl wrote:

> Okay Aaron I hope I get this right.
>
> The first diagram is what I think might not work due to the position of
> the splitter. I'm afraid it won't amplify the signal if
> placed at the end of the line. If I'm wrong then that's great! You'll
> want to widen your view for this one.

>
> _Example 1:_

>
>
>
>
> VGA monitor & 22" LCD with VGA input 21"
> x 5' extensions 2
> Splitter (Aarons active type) Video
> extension 20'
> KVM #1 out
> KVM #1 In
> VGA #1 out

```

> Paris Comp - G550
>             VGA #2 out
>             KVM #2 In
>             KVM #2 out
>             20'
> extension
>
> Splitter (Aaron's active type)
>
> x 5' extensions
>
> 21" VGA monitor & 22" LCD with VGA input
>
>
>
>             KVM #1 out
> (Shares with above from this point on.)
>             KVM
> #3 in
>             VGA #1 out
> Cubase Comp - 7300GT
>             DVI out to VGA connector out
>             KVM #4 in
>             KVM #2 out
> (Shares with above from this point on.)
>
>
>
>             OR:
> _Example 2:_
>
>
>             21"
> VGA monitor & 22" LCD with VGA input
>
> 2 x 5' extensions
>
> Passive Video Splitter (Y cable)
>
> 20' extension
>
>             KVM #1 out
>
>             KVM
> #1 In
>
>             Video amplifier (Like
> splitter in example 1 with only one output)
>             VGA #1 out
> Paris Comp - G550
>             VGA #2 out

```


[illegible]

"Aaron Allen" <know-spam@not_here.dude
<mailto:know-spam@not_here.dude>> wrote in message
news:458c050f@linux...
I'm not getting the visual you have in mind.. diagram it?

AA

"Tom Bruhl" <arpeggio@comcast.net <mailto:arpeggio@comcast.net>>
wrote in message news:458b7f6f@linux...
Thanks Aaron,
Will this work on the backside of a KVM? I can't put it in front.
I guess if it needed to be in front of the KVM I could just get a
single output jobbie and split it at the other side. Do those
exist?

"Aaron Allen" <know-spam@not_here.dude
<mailto:know-spam@not_here.dude>> wrote in message
news:458b23a2@linux...
I hope you're not doing a passive Y split. Look for a VGA
splitter on google, something like

<http://www.pcmall.com/pcmall/shop/detail~dpno~767745.asp>

They're cheap and OH so worth it

> > I choose Polesoft Lockspam to fight spam, and you?
> > <http://www.polesoft.com/refer.html>
>
>
>
> --
> Chris Ludwig
> ADK
> chrisl@adkproaudio.com
> <<mailto:chrisl@adkproaudio.com>>
> <<mailto:chrisl@adkproaudio.com>>
> www.adkproaudio.com <<http://www.adkproaudio.com>>
> <<http://www.adkproaudio.com/>>
> (859) 635-5762

--
Chris Ludwig

ADK Pro Audio
(859) 635-5762
www.adkproaudio.com

chrisl@adkproaudio.com But were the totals warm and punchy? If so, then you did the summing right.

Seriously, though, it can matter when this kind of rounding takes place. A lot of times it's getting statements from custodial banks to match what's internal, and they might round differently than the logic of the internal database. And if you're running, say, \$19 billion plus those rounding errors can add up to more than the cost of a smoothie or two. Still, in contrast to audio people the finance types are interested in managing inevitable imprecision instead of finding precision where there really is none. At least usually they are . . .

TCB

"chuck duffy" <c@c.com> wrote:

>
> "TCB" <nobody@ishere.com> wrote:
>
> "As geeky as finance guys can get, nobody ever says, 'You know, Thad, that
> last basis point just isn't really punchy enough for this deal. LBO guys
> need really punchy returns, so can you run that calculation out a few more
> bits to get a punchier basis point?'"
>
> Don't be so sure. A long, long time ago I wrote some "summing" code for
> a general ledger. One of the outputs of the system was an income statement.
>
>

>A long discussion ensued, amongst some very bright people, about where to
>do the rounding. There were many camps.
>
>Were we to round the individual transactions within a GL number, and sum
>these?
>
>Were we to sum the individual transactions unrounded, then round the total
>of the GL number?
>
>Were we to sum the unrounded GL numbers associated with a specific income
>statement line, then round that total?
>
>People are funny.
>
>Chuck
>
>This is a multi-part message in MIME format.

-----=_NextPart_000_0009_01C725E2.462A6A90
Content-Type: multipart/alternative;
boundary="-----=_NextPart_001_000A_01C725E2.462A6A90"

-----=_NextPart_001_000A_01C725E2.462A6A90
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: quoted-printable

Hi Chris,
My dual KVM works great as is. Is the dual monitor idea so bad? How =
else will I be able to sit=20
in my sweet spot and bounce between 2 and maybe even three comps with =
one mouse/keyboard?

They make quad KVMs. I might end up with that in the end. 3 comps each =
with 4 head cards,=20
four monitors, one keyboard/mouse.=20
Why is the KVM soooooo Baaaad? How else can I achieve this?

This other scenario would be even more complex than described in the =
diagram below.
The ultimate setup would have two QWERTY keyboards/mice with KVM sharing =
with Paris/Cubase=20
and Cubase independently.

The room as it relates to the photo:
My MIDI setup mimics what is shown to left of the
mixing position here except there's a desk spot for legs on the right =

along
with a controller. I'd like a 2 x 22" LCD widescreens, QWERTY & mouse=20
there along with the KVM QWERTY/mouse in the center as shown for Paris
and mixdown work.

What would you suggest?

Getting more confused by the minute...
Tom

"Chris Ludwig" <chrisl@adkproaudio.com> wrote in message =
news:458c3c62\$1@linux...
Tom Bruhl GOOOODDDDD.....KVM BBBBBAAAAADDDDDDD

Tom Bruhl wrote:
> Okay Aaron I hope I get this right.
> =20
> The first diagram is what I think might not work due to the position =
of=20
> the splitter. I'm afraid it won't amplify the signal if
> placed at the end of the line. If I'm wrong then that's great! =
You'll=20
> want to widen your view for this one.
> =20
> _Example 1:_
> =20
> =20
> =
21" =

> VGA monitor & 22" LCD with VGA input
> =
2=20
> x 5' extensions
> =
Video=20
> Splitter (Aarons active type)
> =
20'=20
> extension

```

> KVM #1 =
out
> KVM #1 In=20
> VGA #1 out
> Paris Comp - G550=20
> VGA #2 out =20
> KVM #2 In=20
> KVM #2 =
out
> =
20'=20
> extension
> =
Video=20
> Splitter (Aaron's active type)
> =
2=20
> x 5' extensions
> =
=20
> 21" VGA monitor & 22" LCD with VGA input
> =20
> =20
> =20
> KVM #1 =
out=20
> (Shares with above from this point on.)
> KVM=20
> #3 in =20
> VGA #1 out
> Cubase Comp - 7300GT
> DVI out to VGA connector out
> KVM #4 in
> KVM #2 =
out=20
> (Shares with above from this point on.)
> =20
> =20
> OR:
> _Example 2:_
> =20
> =
> =
21"=20
> VGA monitor & 22" LCD with VGA input
> =
=20
=20

```

> 2 x 5' extensions
 > =
 =20
 > Passive Video Splitter (Y cable)
 > =
 =20
 > 20' extension
 > =
 =20
 > KVM #1 out
 > =
 KVM=20
 > #1 In=20
 > Video amplifier (Like =
 > splitter in example 1 with only one output)
 > VGA #1 out
 > Paris Comp - G550=20
 > VGA #2 out
 > Video amplifier (Like =
 > splitter in example 1 with only one output)
 > =20
 > KVM #2 In=20
 > =
 =20
 > KVM #2 out
 > =
 =20
 > 20' extension
 > =
 =20
 > Passive Video Splitter (Y cable)
 > =
 =
 2=20
 > x 5' extensions
 > =
 =20
 > 21" VGA =
 > monitor & 22" LCD with VGA input
 > =20
 > =20
 > =20
 > =
 =20
 > KVM #1 out (Shares with above from this point on.)

[illegible]

> =20
> =20
> =20
> =20
> =20
> =20
> "Aaron Allen" <know-spam@not_here.dude
> <mailto:know-spam@not_here.dude>> wrote in message
> news:458c050f@linux...
> I'm not getting the visual you have in mind.. diagram it?
> =20
> AA
> =20
> "Tom Bruhl" <arpegio@comcast.net =
<mailto:arpegio@comcast.net>>
> wrote in message news:458b7f6f@linux...
> Thanks Aaron,
> Will this work on the backside of a KVM? I can't put it in =
front.
> I guess if it needed to be in front of the KVM I could just =
get a
> single output jobbie and split it at the other side. Do =
those
> exist?
> =20
> =20
> "Aaron Allen" <know-spam@not_here.dude
> <mailto:know-spam@not_here.dude>> wrote in message
> news:458b23a2@linux...
> I hope you're not doing a passive Y split. Look for a =
VGA
> splitter on google, something like
> =20
> <http://www.pcmall.com/pcmall/shop/detail~dpno~767745.asp>
> =20
> They're cheap and OH so worth it
> =20
> AA
> =20
> "Tom Bruhl" <arpegio@comcast.net
> <mailto:arpegio@comcast.net>> wrote in message
> news:4589ba0a\$1@linux...
> Thanks Chris.=20
> This graphics stuff is confusing to me.
> =20
> I have to convert the DVI to VGA because of the 20' =
length
> as I understand. I was going to split it with a Y =

>=20
> --=20
> Chris Ludwig
> ADK
> chrisl@adkproaudio.com
> <mailto:chrisl@adkproaudio.com>
> <mailto:chrisl@adkproaudio.com>
> www.adkproaudio.com <http://www.adkproaudio.com>
> <http://www.adkproaudio.com/>
> (859) 635-5762

--=20
Chris Ludwig

ADK Pro Audio
(859) 635-5762
www.adkproaudio.com
chrisl@adkproaudio.com

-----=_NextPart_001_000A_01C725E2.462A6A90

Content-Type: text/html;
charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
<HTML><HEAD>
<META http-equiv=3DContent-Type content=3D"text/html; =
charset=3Diso-8859-1">
<META content=3D"MSHTML 6.00.2800.1400" name=3DGENERATOR>
<STYLE></STYLE>
</HEAD>
<BODY bgColor=3D#ffffff>
<DIV><FONT face=3DArial size=3D2>Hi Chris,</FONT></DIV>
<DIV><FONT face=3DArial size=3D2>My dual KVM works great as is.&nbsp; Is =
the dual=20
monitor idea&nbsp;so bad?&nbsp; How else will I be able to sit =
</FONT></DIV>
<DIV><FONT face=3DArial size=3D2>in my sweet spot </FONT><FONT =
face=3DArial size=3D2>and=20
bounce between 2 and maybe even three&nbsp;comps with one=20
mouse/keyboard?</FONT></DIV>
<DIV><FONT face=3DArial size=3D2></FONT>&nbsp;</DIV>
<DIV><FONT face=3DArial size=3D2>They make quad KVMs.&nbsp; I might end =
up with that=20
in the end.&nbsp;&nbsp;3 comps each with 4 head cards, </FONT></DIV>
<DIV><FONT face=3DArial size=3D2>four monitors, one </FONT><FONT =
face=3DArial=20
size=3D2>keyboard/mouse.</FONT>&nbsp;</DIV>
<DIV><FONT face=3DArial size=3D2>Why is the KVM =
```

soooooo Baaaaa? How else=20
can I achieve this?</DIV>
<DIV> </DIV>
<DIV>This other scenario would be even more =
complex than=20
described in the diagram below.</DIV>
<DIV>The ultimate setup would have two =
QWERTY=20
keyboards/mice with KVM sharing with Paris/Cubase </DIV>
<DIV>and Cubase independently.</DIV>
<DIV> </DIV>
<DIV>The room as it relates to the =
photo:</DIV>
<DIV>My MIDI setup mimics what is shown =
to left of=20
the</DIV>
<DIV>mixing position here except there's a =
desk spot for=20
legs on the right along</DIV>
<DIV>with a controller. I'd like a 2 x =
22" LCD=20
widescreens, QWERTY & mouse =
</DIV>
<DIV>there along with the =
KVM QWERTY/mouse in the=20
center as shown for Paris</DIV>
<DIV>and mixdown work.</DIV>
<DIV> </DIV>
<DIV>What would you suggest?</DIV>
<DIV> </DIV>
<DIV>Getting more confused by the =
minute...</DIV>
<DIV>Tom</DIV>
<DIV> </DIV>
<DIV> </DIV>
<DIV> </DIV>
<DIV> </DIV>
<DIV> </DIV>
<DIV> </DIV>
<DIV> </DIV>
<BLOCKQUOTE=20
style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =
BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">
<DIV>"Chris Ludwig" <<A=20
href=3D"mailto:chrisl@adkproaudio.com">chrisl@adkproaudio.com> =
wrote in=20
message <A =
href=3D"news:458c3c62\$1@linux">news:458c3c62\$1@linux...</DIV>Tom=20
Bruhl GOOOODDDDD....KVM BBBBBAAAAADDDDDDD

Tom

wrote:
> Okay Aaron I hope I get this right.
> =

> The=20
first diagram is what I think might not work due to the position of =

>=20
the splitter. I'm afraid it won't amplify the signal if
> =
placed=20
at the end of the line. If I'm wrong then that's great! =
You'll=20

1: _>>> <>>>=20
=

21"
> VGA monitor & 22" LCD with VGA=20
=

2 > x 5' = 20

[illegible]

```
=  
out<BR>&gt;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&a mp&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&n=  
bsp&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&n bsp&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&n b=  
sp&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbs p&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&n s=  
p&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbs p&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbs p=  
&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbs ;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbs :=  
&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbs &nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbs &  
nbsp&nbsp;&nbsp;&nbsp;&nbsp;&=20  
20' <BR>&gt;=20
```

[illegible]
$$2 \times 5 = 20$$
[illegible][illegible]

[illegible]

[illegible]

[illegible]

[illegible]

GzVoI00BGj9/HT17IEB/HUJ8IESAIEF7Gj98HT1+Hzt3IkWEJkmOIkuIH0qN IkqLGEKBIUSDI0aE
IEiDHkaDIEB/I0yMJVORJFWXI1eWJFqTI1mRI1iTJFuWJVuUIISSJ1KSJISQ
IICMIU6JHE2JHU2F
IE6GIk+KI1CLJVKNHICKHU+JJFGMHU+JIIONJludLF+iJluaKVyeJVqcl1mX
JFSTJFqYJV+ZKVuV
KleXK16gKGCgl1qZJVqZKWCjKF+fJFeYJliXJlqZKlueJVmUllaQlleWKfMv JliXKViaJFCTKVmd
K2CiKV2cK2CcKWGhKWCiK2CiK2KiJGCdKV6dKVmYKVmYJlqeLF+hJ12cJlqV
J1yXLF2gJ1iaJlqZ
J1uZH1mTLGCbLmGYJl6VJl+ZKV2VJ1yXKl6eKWimLWimKKGKcHliSJlqZJl2d
llaVH1OOIVKVKFSX
KlaZLVyfKGChJludJVOXKFeZKViaJ1aYK1uaLVuZK1uXJFmUKFyXI1OSI1eV
Kl6dKmGhKWKgJmOh
JGOhK2CfKWGfK2aiK2ekK2OhJl2dllqXKFqYLVmWJ1mTJ1uWKV+eKl2fJ1uZ
K2CfK1qZKlOUJFOa
JFGYIU6VJFGZJ1afKFefJFadl1OeJFOgJVVWgJVSdJU6YJk2TIICSJFSYJVVWZ
JVVWZlICVikGDJzh8
ljR8JDuCJDeAJTd/IzaBJzyHKkSPKkORJj6JKDuBKjV3JjNqlzJhJTFdKDNb
KDRXKDRRKDJGKjE9
Ji8zKCsvlicpICUmICUmlygplSYnHiQiHiUhlSgjlilKISUjICcilSgjlSgk HyYhHyQgHCMfHCib
ExgRFBgRFhkSERcPERUOEhQNEhUPEhUPDxMMDxMMDhILDhILEBQNDhELCw4J
DhAKDQ4JCgsGCgsG
CgsGDQ4JDA0IDA4HMURbLU6XK0Z/IzM+ERcQEhMOBAIBAQBAAAABQABDAwJ
GyEaHSEYFBOTeBkR
DRALEBUOFhkRjJAKJCojEBUOEhgQFRQNGxkSlYkKkRBJ3NvLqyXIJaDKpJ0
HodiFjYfFRQOHCQd
JzU2LkdSJDQ7ICKkFx4ZDhQMCgYDHCYjKVp5KGqsK2qqKGimKGGILVimMFin
MFepL1SnLlanLVel
LIWiMVSILFakLFWiLVShL1OhMFSiLiKhLVGgLL1ShLFOgLIKhK1KfK1OdK1Kf
K1GgLIKgLIKdLICd
LFCeLk+fJk2Zl2ZFICo9Mki8OIRbRXGTRmyES1xcT1tRTVIQS1hPQ0xBICcc
GTRkIEB9JUaBHUB6
H0N9Hz9+IkSAIUGAHZ98HUB+IDx1Gzx3JEaHlikeGJEqLJEmNHkmFHUiDIUGA
Hj6AikWDGkn8JEyH
Jk+QI0+SKFaYH1eSJlqUJlqVH1iRj1qRJFaQJFSQI1qVJF6YJl2YJVqVJVVWU
I0yMJE2NI0+MKFKP
IkuMIUyHIVGNH1CMJE+PKVmdKWSnKGOMl2GhJV+gJluaKFyXKI+aJF2XlilW
JFmYJFyZJl6cllaV
IlmYKGCgl1qZJ1eWKfick1meJliXllaRI1mSJliWJleZJFaZJlmal1OSKFyX KWGfKF+fKWGhKV+i
KF6dK16gLGQjK2CcJF6YKFiXKV2cKV2cKF6dKFyXJVeVKVuaJlual1eWJFiX
JlqYJF2XJF+aJlyT
K12TKV6UJlyVK12dLGKILGupLWmfKV6UJVVWUKVWYI1KUI1SQJlWUJFCNJlGR
JVVUJludJFmYH1SS
J1OWKVeZJlmaJFiXIVeVKVmYKVawJ1aVJFKOJVGOJIKVLF+hLWSkLGilK2il
KmWjKWGhKmKiLGej
KmijKWGhI1uYJFuaJFyVJVmTJlqVJV2aL16eLWGhKGGfKFyUJ1iSJlOXJVGZ
JFGVI06THIGXI1Wc
J1OfJFOglFSglVagHVifJ1igKFidIFOWik+TJVSWJlaaKVKZHUSEIDyEJDuC ITd9JjZ/JziDKT2K
JjqHJjyFJDyFK0GMKT6EJjZ2JzFtJTFiJTVcJjRaJTRXKDRRKzRIJy88KS82 JCorlyknHyYilCcJ

HyYilCcjlikkHyYhlyollSgjllyollSgkliYkHyYiHSQfJCsmliklISgjllicj Gh8aFBkUExcQEhUP
DxQODhMMERQOEhMOEBMNDhILDxMMDhILDxQNDBILDhELDhELDhAKDQ4JDA0I
CAsGCQwHCgsGCgsG
BAYCLT5GLk+UKkeELDZIERgSCA4IAAYCBQcGDhILGB8WHycgFBsVEBQNExr
HSUeExQQEBQNFxcQ
GRwVFRcQGBUOH8XKjUxLVdULpGCL5uDJpmFLZB7GEVBGy8nFBOTJC4sLT1D
LzY9Jzg2HCYmEBkR
CQ4FBQIDBAICAAAAAABCwsEIT1ILWehJ2isJ2elKWOKK1mkLVimMFmmMVap
MIWoMFekK1akKIWj
KIWjK1ShK1ShLFWiLVShLVGgLFogKIOgLIKHLFCfLFCfK1KfKIOfK1KfKFGd
LVCgK1CcKU2cLEyZ
HjqFli9DOEtJO152P1zSFBLSU9ERk9IQExFNkU9JScgDA0Iijt0I0KDIEB/ HUN/IUZ+JUeDIEF+
H0B9JESFHD99IUN8IEmJlkyQHEWFIEWJIEOGIkWDIj54HDlyI0F/Hz99HEmE
H1SMIVKOHE2J11GT
I1eWJFiTJVmUJVqVJVaQJVeRKfYwJVqVIF2WJF+al12XI16cl1qZJ1mXI1eS
IU+LI0mKJE2KJE6L
JIKPJFiXKF6hLmipKWioJmelKWGi1WUJVMXKF2cJlqYJ1uaKV6gKWGfJFmY
J1iaKmCfilM YJVVU
JleZJ1mYJFWRI1WPJ1eWJVIZJ1WZK1ieKFWZJVeWLFycK2GgJmGfJ1+fK2Kk
LGCgLFygKmCjKWCg
KF6XKFyWJl2YJl6cKlyalliWKFeWJVqZKFqYJFuWl1uYJ1uWlImMJ1yRJFeN
JVmLKVuSKVmYJ12g
KmanLWyqKWWaJlqU11GSJlaVKFiXHISskFSRKU+QI06NJFKTJFOSJVSJWJVOV
J1aYKlidKViaK1ea
JVOUJlaVLFmZKFayIVOSJWUKV2cK2GkJmKjKmelLmqnKWSiKWGHLGSKKWak
KWakKWKGJlqYJVeR
J1eWJ1mTKFiXJl2fJWCeKmCZl1uSllIRKlmYJ1WaH1KdHICXI1CXJFCYI1Gc
JFSfH1Kdl1WgJ1Sd
J1SZJFeeJFmgJlulJ1ulllefJFGYJkeMITuAljV5lziDlZqBJzyCJjyDKkCL KT6LLUKRKD6GKDuB
KDd6JTNUlS5fJzFeJzRaJjRVKTVSKDRIKzl+Ji0yISksJS4ulyoqISUjHCMf HCMfHyYiHyYiHyYi
HiUhHyYiHyYiSgjlCcjlyclliklISgjlSgklCcjJS0nHyMfFBkUDhMNFbgR ExcQERQOFBgRExcQ
ERINDxIMEBQNDxMMDhELDBILCRAJCw4JCAsGCQwHCwwHCQwHBwoGCAsGBggF
CAoGAwUBKDY+NFOd
KkqLJDVLDxEOEBILEBQNGh4YGh8YERcQliggFxsWDhMMFB0UJTInGB0WDxUN
EhQMfXQRHSIfMD5D
MGfKkPqIKrqZKMeilYJIGjcrGSMbGh4UICUfPExTL0NKICoqHSIbEhgQBgcE
BAIBAQAIAAAAAAgAA
AAABAAIAAwUBGBUMMEA/MWKNKWmqKmisKGWjKmCjLlmmMlasNFapL1ajLFel
LISjLIOiLlOI LVOi
LVShLVShLFOgKIOgLVGgMFKgLFCELFCELVKfKIGeLFGeKVCdK1CdLE6bKFGe
KkuaJUOPITlhMktR
QVhjTltpRIVXQEtNMj05MTsyNTszHR4XCQwHIkF8IUGAG0GBJESBI0SCHkeC
HEN4Hz9+H0N/GT14
I0qNjK+RIkyPJUqOHkeEHkWEH0uLHEF+IUR7HER8IUaCJIGQIVCPI1OPIVKO
G06MIlWWI1eaJFiX
JliSIVWPJlqZl2WI1yZJF+YI1yWI1yWJFyZJV2WJF+YJFqTHU+LIE2IJU+L
JVGOJISQJ1eTJmGa
K2SiKGSIKGekJVyeJVyeIFyZJFicllmYllqZJGCdJV+gJ2CjJ16eJVeWlIST JFaZJlmaJFOSJlOO

JVaQKFeZJFeYJ1iaJFadKFmcKI6eK2KkKI+hIFmYJmKjKmGjKI+eKV6dJl6c
H1mUIVeQIF2WJ1+d
JVqcKVeckVqdJ1uaJFqYJlualqXJlqVKV+YJVVaPKVSLK1iOJlMQJFuWJl+i
LGiqL2qmKWGYJIKP
JVSTKVOWJ1CRJICNH1CMJIKPIkuMJFKTIICUJU6QJVVUJVaZKFidJVeakFaa
JlWXJFmaJ1iaJleZ
JVizJFiXJl2fKWokJ2OkKGWIK2OjKGChJl6eJ2KgJ2WIKmKiKFycJVmUI1OP
JFSQJliWJluaKF6h
JV6iJVqVJ1aVJISWJ1KXKVWdJFGZI1CYI1CYIIGZH1SeIFKeJFakH1WfJFSY
JVOXJlqeKI+pJl6k
JFiiJVifiU+RHzt+JTV5JDV6Izl/JjyDKj6GLD2JLD6MLUOOKkGJJj2BIDd0 IzRrIS5fJzJdJTFW
JDFRKJNPKTNHKDM9Ji41JCwwlyssliknICQiICQiHCEiHSQgHiUhHyYhICci ICcjHCMfHyYhISgj
HyYhICcjJCgmliklHiUhICcjISgjHCICfBoWFBkSExcQExQPEhMOExcQFhcQ
FxUQERQODhELDXMM
Cg0IDhELDhILDRAKBwoGCg0ICg0ICwwHBwgFCAsGCQwHCg0ICAoGBgUCIS81
NlqgMFefJ0FyDxQR
EhEMERCQHClZGh8YFxoTIScgGyMcEhUPExcQFBkQEBILGBkSKjAtK09NK4J1
MKaPLJaMKI10FnJS
GT4rGh8YHyEZGR8YFRsUGRwUISsjDxUNCAwGAwYCBQABAAAAAABAgABBAAA
AQABCQwHGyIYKCog
HiQbHB0RHyYhLFZxLGupK2SnKWWnK2KmLFupLVWoLlalLVanLlalLFSjLISj
LIOiLVKhKVkfKIOg
KIOgLIOfL1GfLFGdK1GaKIGeKU+eLFCeLFCbK0+dLE+YLFgdk0ycK0ycJ0eQ
KD9iQ05LRIZiMj5l
JS4qHicdJSwgNDouKSchDQ4JJEaCIEN6IUSCHUSDHUiEIEJ8Gj13IkOBH0B9
IkiIU6OIU2QG0mN
I06OIkuLJUyPIk2MI06OIEaGIEeEKFOOIIOPiIKRI1KUJlaSH1CMJFKTI1iZ JVmYIICMJleTIlmY
HFuVJluWJV+ZI1yZIVyVII6aJFqYJFaQIEuCHkmFJE2KI1GPI1OPJVaQIliW
JV2dJWGjKGGkKWKI
J2Wnll6gKV+iJV6hJl2gllaVKlycJ1yeJF6YIVSLIIGQIVWUIFaVI1WPI1KL J1WTJlWXJISQJFWP
JFOVLfYgKmCfJl6fLGOMKVyfLF6eK2KeKWCGJV6hKFyaJlaSJVmUI12XJF6V
Kl6WKF2cJF+dKF+f
LF+hllmYJlaVKFqZJVycLGGdLGScJlyTJFmPJ1mXKWKIKmqoMGmkKVqUllGQ
KVSTIICSJ1GVKE+N
JE6KJU2OJ1KSikuMIUqLI02KJFGRKVecJ1aYJVeWKliaKVecJlidJFeel1WZ IFeZJ1+gKmGkJ2OI
JGGjJmOhKmKjK2CiJl6fKWKmKmSlJWCel1iXJ1aPJ1OQJISWKFqhKFuiKFue
JFqYHISSJFCTJ1CX
I1Gcl1Kalk+WH0+TI1CXJVGeJFGeIFagJlWiKVOhIk6WKVigKmCkJ16kl1mh JlqkJ1SYIkKDITd6
Izd6Izl6JTUCJTUCkD2JK0GMKUCNKUKPKD+MJzuDJjVyli9lJS9fKTFYJzBS
KTROJzJEJzJAJiw0
lysvJi0tJikqJSgmHiMfGSleGSleGyleHiUgHiUgHiUgHCMfHiUgHiUgHCMf HyYiHiUgHiUgHiUg
HyYhHSQgHyYiICuHFBsVEhMQFBgRExQPExQPEhMODxIMDxQNEBQNERINDhAK
DxELCw4JDhELDRAK
DBILBw0HCg0ICg0ICwwHCAoGCAoGBwgFCAoGBgcEAgAAGCQgOl6fM1+nLveO
CxseFxfkQExcQHClb
JC8mJSSkHiQeHiUcEhgQERUOHR4XLjs8M1pdLo+AJr2jI7uSlbeJFWFCGSMc
GB0YHB0XFfwVGBsU
ExkRFRgTExcQCAgGAAIBAgAAAAIAAAIAAAAAAAAAAAwUDFxfkRJCgelykgFxsW

ERINDhAJEBILDA0I
CxIlIzpELWidJGitJmWjKmWjLFukK1SILVeILFeLL1WkLIOiLVKhLFGgLVCG LIKgLVS hKIGeLFCe
K0+eKIGeKVKeJ1CcKk6aK0+dK1CcLE6bKU2aKU2ZJU6YKU2aKkyZLEyLL0R7
li9bIStDHio5li46
JDFCII8+EhgUIEB+IEJ8Hkd/IUaFhKSBHUB2HEGBGj55ikWDG0mNJk+QIk2G
HkuIHUuLH06QIU2Q
J06RIUeIHkiIIKRIICRIIKRJVVUJISSJFGMHICMJVeVKFmVJFSQJFSTI1iX I12UlluYJFmYIFqV
I12XIlUvII6XH1aNIeYDJUyKI0uMJVCKJVC PJFKOJ1WRKImYKF2cKWCgKFyg
L2KkKWCjJGGjJGCh
Jl+il1ucIIaUJ1qcl1eVHICMI1GPJFGRJ1aYJVS WJISQJlWUJVeWI1SWJU2O I1CQJ12cl1yZJVuZ
KmCkKI6iLGSiJ2CeLGGjLF+hI1eVKFOTKvmVJlmaJlmaJFuWKI6YKI6dJVyc I1qdJ1yeI1ITK16V
LGSeKWWfKmeeLGScK1uSJ1eWLWGLK2WmKmSfJFWPJICUJFKWJ1GUJk+QJVKs
JE+OIk2MKVCTKFGT
JUmpIVCPJVSTJISYJleal1eallqbIFiXI1ecKFqfJ1ecJFqdJmGfK2OjKGGk J2GiJWKfll+cIIqZ
I1ucKVyfJ16glluYJVaSIFGKJ1WRJ1ecJ16gJl2fJVaYH1KRIVWPJVKXKFGe
J1GfJFCcJE2XIEuY
IFCdJ1OgJlGfIFKeJVOeIIWcJlmaK1yfKV+jJFuhJ1qhI1WZIOKKIzp+JDI/ JTqFJz2GIzyDJjyF
K0GKLEKMLEKMKt+JJT6FDyAKDI6Jy9qli5fJfYKDFSKzJJJS87Jy82JSsu JiotJSoqlSYnIScl
GyMgGyQfGCIbGiEdHilgHCMfHSQfHiUgHSQfHiUgHSQfHSQfHiUgHCMfHiUg
HSQfHSQfHyYilSgk
HSIfFBkSExQQEBMNDxQOExcQFRMOEHQNDxMMDxQNDhELEBILDhAKDxMMDRAK
DxELEBILCA4ICgOI
Cw4JDA0ICAoGBQYDBQYDAwMBAAAAAgAAFBgXN1uYL1ykNI6eEx8sFhUOFRsU
HiUclysjJC4olCkk
HycgExUOKDw0KnJoLqOSK7yhJ7+ZHpxuFkktHCcdGh0WGh0WGRwVGBsRGR4X
Fx8XCAwGAwUBBAAA
AAABAAAAAIBAgAAAQIBDhAJHSMaJSojHyYaEhgMBgsHCAsGCgwGCgsGBwgF
BQsGFhUPCwwEGSYi
L1x7KWmqJmSnKmWjKI2gL1WkMfalL1WkL1SjLVKkLFGjLFGjLFGgLVKhLVKh
KIGeJ1KeJ1CdK0+e
LFCbLVCZKFCZK0+aKU6dKk+YK0+dKU2aJ06aKk2dK0uaKUaWJkaVJ0OWK0KU
KkSUK0iaJUCPFRsp
G0J8HkSBIUWBIkaCHD57ID13Gjt2HUaBHU2MI06NH06JHkqJJEmJI02RG0+Q
IkuMIEWJHUSEI1GP
I1WTIVaRJFSTIVOSJ1KRH0+OI1WUIlaUIlaRJFaUKFyXKFyWHliSIFmWJVmX
JVuZllyWJFiWJFKO
HkqBI0yJl0yJIU+LH1CMIVKOIIaRJFaUJFmaKFqZlImaJ12cLF+hKWGiJGCi KV+iJ16hH1udKF6h
JVqcJFKQJVSTIk6RI1GTJVS WHFGQI0+GJICNIIOVI1aXJFOVJVeWI1eWI1eV
Jl2dKFqZKI2fKGCE
JWOeJ1uZJFOSJ1SUJ1aYJlqZJVmYKFmcJFqYJV2aJlmaKlmcJVeVJ1eWKI6d
L2elLmiiKWehJ2Wf
KV+WJ1yXLWSmKmekJV2WIk6LJk+QKIGXJE2OI0yOI02QJIGRJICNIICOIU6O
Kk+TJ1CRIIKRJIKV
JVWUH1KRJISYJlmcI FibJlqfJVmdJ16gKmGjK2OkI2CeI2CeJmChJF6fJVqc JF2hIV2fJFiXJFaQ
IISOJFOSKViaJFufJVyil1ecI1OSJVC PJVOVJVSdIVOflIKdJVGZI02aI02e JU+gl1KfHVWfJFKd
IIGYJ1ScI1ifJ1ugKV2hJlyglIaaJUqTJT+HKTmBJjl/lzqBJzuDKz2FJj2E JECJkkKLKD2JJz2E
JT1/JDp9JzqAKDh8JTBsljJeJjRNKjJAKSw6JSsvJCSqlygqJigqJiotlCUm HyMhHSEfHSQfHiUg
HSQfHCMeHCMfHSQfGyleHyYhHCMfHyYhHyYhHiUgHCMfHyYhICcilCUHISUj

ICUhGx8ZERQOERQO
FBgREBMNERQOEBMNDRAKEBILEhQNERMMDhELDhELCxEKBw0HCg0ICg0ICAsG
CgsGDA0ICwwHBQYD
AQIBAAAAAAAAAAAAAAAAADRIMOI2MLVmlM2KiEyQ7ExkNGBsUHiQbLTQuLT07
JjQ1JjAqEQ8NIF9I
K8WhJp57GH5aFzkjHB0WHyMaGh0WExwUGBkSHCIZFhkSCQwHAwMBAAAAAAB
AAAAAABAQIBBAQC
FBgRISUbKC4iHSQZCxEKCA4IBgwGBwgFCAoGCAoGCgsGCQwHBQsGCQwHBwoE
BAIBDxQNI0NOKWSc
KGOmKGOhK2GkLVikNVWnL1ShKIWjLFGjLFCfLVOiLFKhK1GgK1KfK1CdKk6d
Kk6dKk6dKU6aK0+a
Kk6aLU+cLE6bKk6aK02aK02aK02aLE6cLk2dLUuZKEmYKEuaKEyYKEqdKEuc
HzBrJEaAH0N9HUZ/
G0SDIEB+lj54IkSAJ02OJVCPI0yNHUaDHEGBKEyOIUyRIkyPIUqKHEeCJE+P
JIOTJFSTI1OSIICO
JE+KI1CJHleQH1eSllaRIFaUI1iXJFmYI1uYI1eVJlqVJ1yXI1qVII2bI1OS G0d9JUyEIk2IIU6J
I1CLJFKOIISTH1WUJFOVJFSTKvmVKFmcJl+dKWGiKGChKGKjJl2gJFual1qd
H1qbI1GPJU+MH1CM
I06OJFOVH1CPIU2Kik2MJISSiIKRJ1iaJlqZJlaVKViXI1uYKFqYKlidKVug KF6hJ1mTlk+IJ1WR
KlqWJVmTJVqVJVmXJ1ual1ucFiXKFqYKVmYKI2UKWOaLGagMGmkKmekK2eh
Jl+ZJV6YK2OkK2ak
JliSJFCNJVCQJU6OI1GTJVSJWJFKUJU+TJ1KSI1KRIICRJVOYIFOWJISSJFST
JleZJVWUJVWRJIWU
KVIDJFaalFiZKV6gJ16gKWGHJV2aJl2fJ12gJl2gJlygJl2hJFycJFiSJVOP JVORJFeYI1yfJV2j
I1iXH1KQIiKR11KUJVKZJ1OfJlKeI1CdH0+cJlGfI1CdI1KfI1KgJ1OgKVaf JVGZI1GWl1ecJl2g
Jl2gJ1aeJ0mQKUCHIzqBJT2CKTyCKjyEJjyDJyFKkCJKT+HKD6HJTyAJDqC IzH+Jzp5JDd2ljd3
IjRsJzNgKjNPJDA8JC0wJy4xJCotligqJCKqJCKqICYkHiUgHSQfHiUgHCMf HiUgGyleGiEdGyQf
HiUgGiEdGB8bHCMfHSQfHCMfHyYhHCMfHSQfHyYhHyQgHyQgGB0YEBQQERQO
ERINDhELDhELDXMM
DhILDhAKDxELDXELDXELDRAKDRAKCQwHCQwHDRAKCg0ICAoGBgcEBQYDBAUD
AQIBAAAAAAAAAQIB
AAAAAABWOGViCL1mnM2GmHC9MExoRFBkUGh8YJjAuLTg6MEFBjZMsFRgT
GzspHVhAHikfHx0Y
HClbGRwXFhcQGh0VFxwVCxELBggFAQABAAAAAIAAAAAAABBAIBBwoDERMM
ICMZKCsgFBgRERUO
DhILBwoGBwoGBwgFDQ4JCAoGCwwHCgsGBwgFBgcEBgcECw4JGh0RGx4XEA4G
HCgnLI2EKGqsH2Kj
KF+iKVuiLVWkLFSIMFSiMFSiLFKhJIGfKVKfK1KfKk+cKk6cKk+eKE2cKU2a
KU2ZK02aLE6bLE6b
K1CcLE6bLE6bKU2aKU2aKk2XKkyZKkyZK0qZLEqdLkyaKU2ZLkubIEeEHUN/
IEiDG0SEIUGCIEJ8
HkyJHU2PIkiIH0GAH0N/I0SEIkqLHkuOIUqJI0OBJUqKJ1GOJVVORIVGQI02K
H02NJFOVIFaUIVWP
IISOIViTJFmYI1iXIlqbJFmYI1mXJlqYHVYVJF6YHVGMGER9Hk2EJE+GG0qF
IEyDJFWPJISSH1OU
I1SXG1KUIIWWJFaVKFudKV6dKF+iJWGii1+gJl+iH1uYI1WYKVWYJFGRHk+L
H02KJ1KSJFWXH0+R
Ik6RJUySI1CQKFmVKVuZl1eWJVmYKVuZlIqXJFqYI1ucJV2aJVyXJlqUI1uU

KFycJ1mYJ1OWJFaU
JFaVJleZIViTJVqVKlqZKmCZKmKZLGSeK2ehLWikK2akJl6cKV6ZK2OhJV+W
llaVIU+TIU+UJVOY
J1WaKVacIU+QI0+SKVCTJE6RJIKVJVOYI1WYJ1WZK1eaKFicK1ufJ1WWJFKT
JlidJ1meKVqdKVyf
LF6jKV+eJl6cJ1aYK1idJl2hJ2OI12XJFaUH1COI1OSJVeWklqeKVuiHVSU
IVGQI06OJFKQKFeZ
JVaeIVOfHIGcHIGcIFKeHk6bI06ZH1KgJFSkKlaiKFidI1WcJlOaJVmeJl6l JImcJU6PKEGJJjyF
K0GHJDucJD6GJT2GKj2GKD6HJkWMJ0WLKkCGJzyCljp8Izd6JTZ7IzR1JTRx
JDJnJTJaKDNKLC8/
Jy41Jy4xKS8yJSsslikpJCKqlyclHCMfGyldHCMGieGiedGB8bGiedGyle GyQfGiedGiedGR0b
Gh4cHCEeHiMfHiMfICciCciHiUgGx8dHCEaEBMNEBMNDxMMDxMMDhELDhAK
DxELDRACKw4JDhAK
CwwHCAoGCwwHCQwHCw4JDhELCw4JCwwHBAQCAQIBAQIBAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAABAQC
OVN0NlyqN2GnIDhZExcQFhkRGRwUKjMsLjo9N0RNJi0pGBwXGyldlyQfHClb
Gx8ZGh8YHyQYEHgQ
CgoHBAQCAIAAAAAAAGAAAAABAgABBQoGFxoTHCIZGB0SEhQNHb4WliUbDQ4J
CwwHCAoGCAoGCAsG
DQwHDQ4JDAWJBgcEBwgFBwoEFRcQICMZICkeFBgRGhoSExcQERUNGCCcJ1FI
KmelKWWpLGKhKFyg
K1WjLIKjMVSILFGgLVKhLFGgLFGgK0+eKk6dKk6dJ0yZK02aLU6YK02aLk6b
LU+cK1CcK02aKU2Z
KE2aKU2aKUyDJ0uYK0uaLkubKUuYKkuVJ0mWJ0uYJEmJlkOBIUaDHUSDHUCA
JUiiHHkeIHEWGIUaF
GkOAJUeDlkaHHkellUqKHkeCHkmFJE6KIVGNII COJFKQI1GSJFaVJVeWIVWU
JlaSKFmVJlaVllaV
l1yZllqZIFiXJlyakFyaJF+aIFKJHkd/IUqGG02GI06JIUyDI1GNII CSJFKW J1SYIVKVJ1WWJFaV
JlaaKV2hJl6eJV2eJl6fJV2eIFuchFWWSKFOTJE+OH02MHEqKI1CQI1WUIIST
JFKUIVKUiiCUJ1WX
KVmYJFiXJVmXKFiXJVmYJFudKFicI1qciVeVI1mSLGCfKmOeJ1+WJlyVKFiX
H1SSJIWUJ1SUI1WT
J1yXLWGblGKaK2WfKWoeLWeiLmigK1+ZKI+aK2WgJ1uZJlSWJlSWJlmcJFid
KFqhHU2RIUmNJVCQ
lkyPI0qNJFGVI1GVJFKWII SXJFKWKFecl1ecKFayKFGTJ1OWJFmaJ1+gJl6e
JV6cJl6eJVuZJFuW
JF2aJmChKmGkJFmYIVKOJE6LI1GSI1eaJluil1mdl1OSI0yMik2MJIGWKFWWe J1WgJFSfilGelIGf
H0+cJFCcl1CXJlGfJVajJlihJFeeJFSYJFaZJlygKV2ilU6TJUOKJz2EJzqD JT+EJkKFKUSMKkKL
KEOLKkOLKkGJJkCFJjuBKtp+Jjh7JDh7Jjd7JDZ0IzVoJTJcKDJMJJA8Ji8y JC0vJC4sJC0tJi8x
JiwwJCKqJCcoHSIfGR8dHCMfGyleHSQfHCMfGyleGiEdGiEdHCMfHCMfHCEe
Gx8dGx8dHCMfHSQf
HSQfHyQgHyYhHCMfHSMdFxoTDhELDXMMDxMMDhILCw4JCxEKDRAKDQ4JDA0I
CwwHCg0IDA0ICgsG
Cg0ICAsGCAsGBgcEAwMBAA
AwABNEtjN1+rNmKo
JUNpEhUPFhsPFh4TKi8oMDs3KzUwMkRHMUNPGR4ZFR4WGylYHiUcFxoSDBEK
AAABAgABBAAAAAAAAA
AAAABAMAEBMNJSkflJUpLzYrHSEYEBILCg0IBAUDCwwHCAoGDQ4JBgcECwwH

DA0IBggGBQYDBgoE
DhELHR4XlyUdGB0WfX0UJCKiJC4iLDEqExkRDhMNBQoDFRQNNVNiLmOYK2ep
JmSkJWGjKFSHLVgi
MFSIJ1KeLFChLE+gKk2dKEuaLE6cK02aLE+ZLE+ZLE6bLU2aK02aKU2aKU2Z
LE6bKU2aJ0uYLEyb
LE6cK0uaLkqYJkqWJ0uYKEuVJ0qTJUaEHUV9IEd/GUR/GkCAHUGDHkaJHEWE
GkODG0SEIUmkI0uP
G0qMHEaFJlaSH1WUIISOI1WTIISTJVVUIFaVISSJVOPJFKOJVqZI1mXJVMX
JlqYJF6YI1yZllqZ
JV+ZJWCZIVSLIEuCKEyJI0yOIkuLIU+HIVCJIVOSJFKWJFWYIVKUIFSVJFST H1STIllicl1+gIlyd
JF2a1uaJVmYJFKOJVCPU6LlkyJIEmGI0uGJVCLIU6JIEqGIk2MJIKVJ1WW
JFaVJVVeWJ1WWJ1eW
JludJV2elluYH1WTI1GNK1mVJVMtJV2WKF6WJlyTJluWJWGaj2GYJleQI1GN
JVuUJ1+WLV+ZK1yW
KmCZLGagK2aiJV+ZKGGcJl6eJlmcKlqeKFWdJ1WXJVVUIlaVJIGRHkelIU6O
JEyQJU+UJISYKVWY
KFSXJVaZi1OXJISZIIaaJFSYIFGVJFaZKF6hJFueJV2eJFuaJVmdl1qVJlud KV+iKWKll1qdJFaV
IICRIIGT11WYJFueIIuellaVH1CMIU2KJk+RJVKaJFOgJFSfJVGdJE+dIE6c I1KfIVOfJVCeIFGc
JFmgJV2jl1ifKFecLVqiJlyglFaXHUSeJjyDKD6GKUCHK0GJKkCKJUKMLUiQ
KkaRK0GLLkOKLEKF
Jjx9JTD6KTh7KDh2JTDwJzZtJTNIJTFQJjA8JzAzJCotKS0rly0rliorliot JSsuJCKqlScIHyMh
GiEdGR8dGh4cHCEeHCEeHCMfHCMfHiQeGR0bGR0bGx8dHSIfHiMfHCMfHSQf
HyYhHiUgHyYqgGB8b
GiEdGR4ZEhUPEBILCw4JDRAKCA4IDRAKDA0IDhAKCg0ICAsGCw4JDQ4JBwgF
BgCEBwgFBAQCAQIB
AAQIBAgAAAAAALEJRNWct
NmKqJkp4FBgWfX4V
FhwTLDYyOIFhQGR/QmiAKzxAGB4VFhkRDxQNBwoGBQMCAAIAAAAAAAAAAAAAIA
CwsIIcIbMzYqMjYr
MDcrLDAIGB4VDRALDBILDxMMBQYDBAQCCAoGCgsGCAoGBQYDBggFCgsGFxkR
HiUcICYdHRwWHB0W
Ji0kNTw0MDQuJCgeHyMZGBoSDAsGCQwHCxAHFRgNGCMfL1V5LWuuKWSnJ2Gi
J1qdLISjLfkHLE+f
K06eLFCeLk6dMVCdLU2aKk6cJ02cKU2ZLU2aLE6cKU2cKEyYLEyZKkyZJ0uY
KEuVJ0uXKU2ZKkuV
LEmZK0mXKUmSJ0mWiuUaDH0Z+IkF8IkF8GT16IEOGHkeIGkaAHEWEJUqOIkmN
HkmMHEmFJFaUJlqY
lleWllaVJlaVIVWUJFiXI1eSJVCPi1GSJFaUJVuZJlqYJF6YIlyWI12XJF2a JFyZJmCaHISKHUiD
H02KHE6IHEuLJk6PIIOMJlaVJIWXXFaXJFGRIFSVI1SXlleYJVeWH1WWHV2d
JF6fJF2aIfiZJliX
JVVRI1GSJE2KikiJHkiIIUyLH06OH0yPI0uPIU+RKFiXKFmVJliXI1WYJVqc KVuaJFiXJFmYJVeV
IICMJ1WNJleQKFmTJliOJlWJKI6YKWKdKF+fJFqTllaQKFyWJl6VKF2TJleT
KVuVK2WfKmScK12c
LmSjJF2a1qVJVuZJl6cKlueJVqcKlidK1iYI1KRJICTJE6RI1GVJVifKVme JVeajlaaJISYJlea
JVWZJIWdIFaXIFyZKmkJLGGjKGGcKGCEJ1ufJVufJl2hKGOMJl2hKFaaKFOS
JE+OJFGVI1mdll6g
I1mcIISTHkyJlkuLJOYIFWfJlWiJISfHEyZlkydH1GdIFWfIlGeHVGdIlSd JVegJlygKFygJVeg
JlqmKVaaKillzyDJzmBJDp9JDyAK0GJK0OMLESPKEeSJkeRjkGMKECFJz2D

JTyAJTt8JjZ6Jzd4
JDZvJTJmJS9XJzJEJS4yJiwwJCkqlyoqJisrJCouJCouJSsvJCkqISgjHiUg HCMfHiUhGyEbGR4Z
HSMdGh4cHCEeHCICHSMDGR0bHB8dHyMfHSIfHCEeHyYhHSQfHiUgHyYhHiUg
HCMfHSQfEBQQEBMN
DxELDhELDxMMcW4JCQwHCA4ICw4JCwwHCwwHCAsGBwoGBQYDBAUDAAAAAAAAA
AAAAAAAAAwMBAAAA
AAIAJTc+NmGqN2OtLFGCGRka
HB0WFhcQPIVWOFdk
KTc0GyYcFRcQDxIMAAIAAgAAAAABAAAAAwEAAQMCFxcQKS8kNzoxOT41MjYq
HSMaJSYcLC0cR0AI
GBcMDxIMDhILBQYDBAQCBACBAQCBGcEERUOHilYICQbICMZGBoSICccMDYr
OUE2LjUsICQdKCoj
HSEYKi8oICYfDASGBAoFBgoEBAMDBAUDCxEKKEZTLmqgJ2GnK2KkKFygKIKc
LVKeLVGfKk6cKU2a
K02aLEyZLE6cJ0uaKEyYLEyZK02aJ0yZJ0uXK0uYLU2aKkyZKkyZJUmVJ0uX
JUmVK0mXK0eVKkmU
JkiVIEaGGkN+JEGCHzp6FTI2HkGFIESFHkeCJUuLJE6RH0yOHkWFHkmEIU2K
JFOSI1eVIViTi1eW
JVVUI1SQIIRIICRJlaVJFmaJ1yXKVuZKlyaJV+ZII6aI12XI1uUJVKNHUmC JEqLIICMHU+JI0+M
KFOSJFaVJliXH1aYI1WUHIKTIISYJVmdl1iXI1eVilyWIF2eH1qbJVeWJlma IFmZJ12cJVazHU+R
JU+SJE2NI0+MJVOPI1aXJVOXJ1aYIlaVK1iYKFqZJVqZI1qZJVmYJliWHIWO
JISMJliMI1mQI1eP
JFSQJFeOJlyVLGGgJ1+dJVmUKFqUKI6YI1qVJliWJ1eTKFyXLGOflmSdKI6Y
KlycLFqfKVmdKFyg
JVmdKFqfKVmeJVeallaZKFqZJ1aYJlaaJIOXI1KUJFeYJ1igJFmhl1SXI1GS
IU+TI06TKVmeKWCg
K2KmJVygJludJ16eJmGkJV+ILGSIJmCaJVmXJFSTH1KQIVKUJVazZJVqcl1qd
J1aYIICRIkuNI06T
I1WgJlulVmjH1Gdlk2bH0+dJVKgIVOfIlKdJlGdJFWdJVecJlmgKFWdJ1Sd LFihJkqQlJh7IjR3
JTd6JDqAJzmBKD6FKUWLKEOOKkaQKkePKkaLJD+AJj18Jzl6JDI5Jzp5Jjh4
JzRrKDNblzFDJi85
Jy4xJC0vlykqJisrJCkqJCorJi0tJSspJCsmICchHCMfHCMfGyleHCMfGh8a Gh8aGh8aGx8dGB8b
HSMdGyEbGh4cHSIfHCEeHCEeGyleHiUgHiUgICcilSYiHSQfHyYgFx0XDxIM
DxELDxMMEBILDxEL
DhILCQwHCwwHDxELDRAKCAsgBgcEBAUDAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AQIBAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAIBAAIAHioqOWGkNWGpLICKFxkeGBoSGBsUJC0k
GCEYEhILDAoHBwcB
AAIBAwIBAAIAAwABDQ0LHiUcMTgsPUI2Nz4yNTktliQcFvgTLzAfgm81mYtD
YIYmGRgLCaOGBAQC
BQYDBAQCBQYDGBoSJiogHB8XKCsgHyEYJSshLzYrNDouJi0hGBsUHilZligg
LjYsMTMpKy8KEBcO
AwcBBwUEBAYEBAUDBgYECggGBgcAGywqLV6ELGWpK12iJ1meKIOaKlGeKk+e
K1CfK0+dKEyYKU2Z
KkyZKkyZLU2aKkyZJ0uXKEqXKEqXKkyZK0uYLUqVJ0mWKEmSI0iRKiVJkiV
JkiVJESRIKGDHEN9
IkGDID+DIKWEHECCIEWJlkuNIUuOHUuPHkyMGkmJHUqGI0mJJE2NJFKTJleR
IISOHISPHFOMI1KL

H1aPIlyWJFuWllyWJVycJlyJv2aJGCdIlyWlIKJHkqBIEmIJU+MI1GNH1CM I1OSIlaVJVqZIFaV
JFWYIFaVHFSVJIOaJISYIFmZIFucl1ucl1iXIFiXJVeVllaVI1iZI1aXIFOW JFWYI1aXJ1eWIU+Q
lkqLJ1WZJlmcJVIZIFaVKlqel1qZJFaUJliXllaVJISQJISMJlWLJlWOJISV I1GTJFWOKVqTJ16Z
JVuUIIGQI1qVKFyUJVuUI1iTJ1uWLWCck2OhKWKdLVybKlecLFedK1eaKlec
JVOXIIOVJVOVKViX
JliXI1WYHICSJ1WXK1efJFaZlOWI1SXJ1ugJFmgJFaaJ1WXJVKWJ1yeKGWj
J12gKmkJjGCkl1+m
KWKmJ2OnJ2OIJliWJVORJFKQIVGQI1WYI1OXJVOYJ1WZJVOUH02NI02RJVKa
JVqkIVukIVailk+c
IE6bI1KfHIGfJVKiKFWjJlOcJISZl1qgJFejJFmjJVeIH0uQITx+IDV1IjR1 JDI5Ijh5ITmCJzyJ
KT+JJkOKKECJKECFK0GDKD6BKT2AJjt6Jjt6Jzt4JtdwJzdmJzJUJi8+JS4y JSsuJSssISoqJCsq
JSOrJCorKCkuJCKqlCYkHiUgHCMfGSEfGiMfGiEcGR0bGB4cGiEdGiEdHiUg
GiEdFh0YGh8aGx8d
HCEeHiMfHCMfHSQfHSQfHiUgHSIfHyQgHSQfGR4ZDxQODxELEBILDhELDhAK
EBAKDRAKCAsGCQwH
CAoGBwgFBgcEAQIBAAA
AAAAAAAAAAAAAAAAA
AAAAAAAAAAAAIAAgAAGyliOGCgLV6mLFWWICc0Iy0hGSIYBQgDBwgFBQgDAwIB
AgAAAAIAAQIBBwgF
HCMYPUAzO0I0NjgtLS4nKy0fSEQndWo0TEMdGBgRRUEkNzQXAQcDCAYFAQMC
BQYDEBILEBILGx0V
LTakJCgflyceLjlnLzYrN0I1ISubGRsTISofKzImMDQpLTQpGiEXDQ0KCggF
AwUDCAsHDQwGBQwG
BAUDBAYCBQcDawMBBgIAERcQJk1fLGSkKGChKV2dKVacK0+dLU2gKk2dKU2c
J0yYJ0yYLEyZKkyZ
JkqWKEqXK0uYJ0uXKEyYKUmWKkmUH0qTKEuVJUeUKUiUKEmSJEWPlijyGHUN/
HUaGHUaJH0eLlKCG
HkWFHkqKIUyRH02NIkuMIUqLH06OIiKRJFSTIVGQI1GPH1OOI1OSJVORI1CL
JFSQJVmYKVuZII2W
IF6bJluaKV6dJGCdJF2aH1GJIUqCIUiFJE6LIICOI1CLI1SOJFeYIlibJFaV KFiXI1uYHlyYlmd
JFaaH1aYJFueI1qcHFKTHIGQJFWXJlmcJlmaJFOVIU+UJlaaJFGVJ1WZHVSW
H06SI1SXI1mclFeZ
IFmZJFmaJVmYIVWTIFaXJVZi1GNJVOLJFKOJlOOJ1SUI1OSJVmUllqXJlqY
I1WPiVKLJFqTJWCV
IlqRJliSJ1yXKWKdK2CcJmCaKF2cJ1WXKVaWKISXKISYJ1aYJ1SYI1WZJlaa
KFSXJVaZJISWIVCS
KVecK1qfJVmdJ1iaJFWYKFqfFicJFWXJIKVK1yfKV6gJ1+gKGChKV+iKWKI
KmOmJ2SiJWGeJliW
J1aVJVWZJFmgI1WeJ1aeJVeal1aXI1KUJk6SJ1OcKFSgKFmhJVynJVejiFCd JFKiIFSjJVOjISg
I1aiJlikJFeel1ifJVujJVymIVGQlKGCTV9IjV7JDiAJzeAJjI9lzmCJT+H KD6GLUGJJz2DJDx8
JDt4JTp5Jjx/Jjp9Jzl5KTh2JjZqJjVYJjJBjI8zJCwwJi0tJS4xJi8xlyss IysuJSsuJCKqJigq
HyYiGh0cGx8dHCMegEdGyleGyleGh8aGh4cHSEeHCEbHCicGh8aGB8aGiEc
GyEbHCEbHyYhGyQf
GiEdHiMfHiMfGx8dHSIfGx8ZERcQDhILCw4JDhILEBQNCQwHCg0ICgsGCgsG
BwgFBAQCAQIBAAAA
AA
AAAAAAAAAAAAAAAAAQIB
AAIAFBsYNI+bMV2pL1+fHTJIHyYbGh8YAQMCAAAAAAAAAAwIBBQQDBgcECwwH

CQwHISMbMTMpJSoe
KioZVkoaa18sjX03koI1ODIZGBwXBgwGAwIDAQMCCgwGGBsRJSkfExUOCwwH
BwoGGRsTMDQoNDgs
MDQpHyIYmKQxLjgsPEhBMDcxJyYeEBILBwgFBQYDERMMMDxQNCRAHCg4HCAsH
CwoGBAUDAgMBAQMC
BwYDBggDBgUDCAUCITU9L2GTKGSmJI2fK1qdKIKcMU+eKU2ZJ0yZJk2aKE2Z
K02aKEyZJ0uYKUuY
JEiUJkuXJ0uYJ0qUKEmTJkeRJkmTJ0iSKUOOITuDGCIVJkWGIEOGHUaGG0SF
HkSIUuPH02NI06O
I0yOHUaJHk2NIU6OI1GSIVOSIHKRIVGQH06OHk+OIU+LJISSJFiWJFmUKIqZ
IlyTJF2XJVyXI1yZ
JI+dHVGMHUmCIEiDIUqKI1GPHU6KHVKQIFaXIImYIISTi1SWKFqZKVqdKI6e
JFmYIImcIImfIFeb
G1CPIIGTIISTJFmaJludHVCTG1CUJlidJVOXJFGRI1WYH1OUJVaZI1fi1md JVmYI1iZKFecJVIZ
JVaZJVSWI KOJVSNI1GNJFKUIICSik+PJleTK2CfJFualVWQJVWRJ1uWJFyV
JV2WJlyVJmCaKmOh
KF2YI1qVKViXKFiXKImcKVaaKFScKFWdJVOXKVWdJIWdILOVJ1OWI1SWJFOV
IlaZJVufJ1ugJFqd
JVeaj1SciU6SIIcSHISVI1qdJ1meJVKWI1GVJVecKV2iJVueKlueJViZJVqc LF6IJF2nKF6iJlyg
JFqeJleaJIOTI1GTI1GWJVGDJE6cl06cJFailFiJISkJOjJVOKIFSgIVag KFegJIWdJ1mgKIql
J1mnJIWeJkWJlp6JDh7KTp/JTqAJDI/KDqCKT+GJ0KJKT+HKT6EKzyBKDp7 Jzd7KDI+Jzx8Ijt5
ITdzJTRsJzJcKDRIJDA3JSsxKS8yly4sJy4wJi8xJi8yJzAzJi8vJiwwJiss ICYkHCMfGx8dGx4d
GR8dGyleGyldGh8aHSMdGx8dGh4cHCICHCICGB0YGYeEaGyEaGB4XGR0YHyQe
HiMfGyleHCMfHCEe
HiMfGyldFhsUDRIMCg0ICw4JCw4JCg0ICw4JCQwHCgsGBQYDAQIBAAAAA
AAAAA
AAAAA
AAAAA
AAAAAgABDxMQOF2P
MV2mNWOMHzRPHCIZEhgRAAIBAwMBCAsGCwwHDRALERUODRAKCRAJEBAJFxoS
Q0EigG83aVcoYFUI
HiETFhsXEBcTDhANCgsGFhcQEBMNEBILICUeKi4iCw4JCg0IDhILDA0IHymZ
FxoTLC4kOT8zQExD
LC8oHSQZCgsGBwUEBAoFCA4HDxELDXELDBAJDA0IDAsGCgwGBgUDAwUDBAMD
BggFCACDBgYEAwUD
BAAAAGABFyEhLVd6KWOKKFyAKVqTKFSXK02aK06eKkuaKICZKUuYLEuaK0uY
J0mWJ0mWK0uYKUqU
JkiVJ0iRJ0iRJEeRI0OQIz2HGCIVITVYHkSAIKiIHkaJHEWII0uPHkyQIk6R I0qNH0eLHUilHUqM
H06OIVGQJFSTH1COH1COIVCSHU+LHFKNi1WUJ1eWKFmVJlqVII2WJVqZIlUy
JFqYHVGMHkqElkWD
IEmJJFCNH02MJFCNI1SWJFidIlaVIVWTIFucIFyZJFuellqXIVWTI1iZIlmf J1ecHk2NJFeYJFyc
IlqbH1OUi1OXJVeEJIWdIVCSI1SQJFKUI1iXJleaJVecJFic1iXJVqZKFWZ JFeYJVSTI1GNJISQ
JFKOJFKTH06SJVOVKFaXKVuaJVeVJFWRJFuWKlyWKVyTIlqRI1qVKWGHKF6d
J1mYJ1qcJ1WXJIWX
KledL1ufM1mgLVegKleckFeZJ1WaH0+TJVGUJIOXKVOWJVVUJFicJI2hIlib
KFicJVaZJFSYIFOW
J1qcJlyfH1mdl1WYI1GVJVKZI1WYI1OXKFOYKFecKmOnL2uwKWWnJmKkJI2f
IFiZIIWWJIKVJ1GW
I1KZH1GYH0yUJEuXIIgeJFejl1emJVWII1KfJ1KeKFSdIFSbJVSdLFmiLFuk

K1WZJkWGJDI5IzR5
Jjd9Jjd8JTh8JTqAKD6EKT+JKUCNJT2HKD6AJzh9KTI6KtT7JDI5ITd4JDh0
JDZIJDNJRJTBGJy05
JzAzly4tJC4sKS8xLC8zJS4wJC0vJi8yJzAzJy4uJy4uJCKqHiUgHSQfGyle HCEeHSEfGiEdFR0X
GR4XHClbHiMfGh4cHSMdHSMdGB4XGR8YGylZGh8YGB4XHSIcGh8aGiEdHyYh
GyldGyEbFhwWDxQO
DRAKCw4JCw4JCg0ICwwHBwgFBAUDAwMBAQIBAAAAAAAAAAAAAAAAAAAAAQB
AAAAAAAAAAAAAAAAAAAA
AAAQBAGAACgsG
O1qGMFqoNmOoljIZ
FhsUDxQNDA0IDxMMDxQNDxMMEBUPGyIYExoRBwoEDA4HERgQJycWLS4aHSEY
DhcVCA4KBQsGFhUP
JCUaJi8hFxsRBwoGBgoEEBAKDxMMDhELExoRExcQCAoGICQaNjouLjAmHiIZ
DREOBwUEBQcDDg0H
EBMNDBANDhELDA0IDRAKCAoGCgoHCQwHBgwGCwwHBQcDAwMBAwUDBQQDBgQD
AAIBAAIBCGYDCgYC
EBQMJKRQKV+SJ12WJluWJVSWKIGZLE2dKUuYKE2aKkmYKUixJUqXKEiVLUmX
I0iUJkmSJ0iRJUqT
I0aQIzuFFydbHTdYKmcFHKWFGj9/IUSDIOuMJE6RHEqOIUuPHkaKH0mOHkuN
IUqMIU6OHUyMIU6O
Hk2NHIGQHk6QIIOMHliSIFaVJleTlImUI1mXIFmWJFiXliWi1GNIkqFIESA IEaGIIGQHk6GJFKO
JISWJ1WZIFOWJVaYJVycl1qZJVqZG1aW1WTJFWXIlmcH1qbH1OUJVaYJl2g
J1yeH1KVHVKVllmd
I1WclU6TH06QIIOPi1iXJFeYI1aXl1iZJlmcJVeallmaJliWJIGQIIOMIVWQ I1GSJICNVSTJFKW
JliWJFuWH1STI1WTJ1uVJV+ZJl6cJV+ZKGGcJmGaKmcZJv6cKlmcJ1GUllOW
KVaeK1ugNVqhOlmh
LFicJ1WZJ1SYKFKWJU+TKFSXI1SWI1OSJVSWI1mcl1mcJ1iallCSJVOXJ1aY
KVyeK1+j11ugJ1ec
J1WZJFWYJFKXJE6WJISYJlmaJFydK2eoK2msIF2eKV+eJVOVHFCRJFaZKleg
JlKfI0+cHUuXIIOb
JlWiJFaiJ1ajJlekIVofllKdKVWeJlOcJ1afJ1eiJ1mgH0iJHzd3IzR1Jzd7 JDJ7IzZ8JDd7KzuD
KjyEKDyEJz2EJDx+lzp5ITh3JTh3Jl1JjdsITNiJTNZJjBEJCSzJi0yJi0t JS0rJy4wlysvJSsu
lyssJS8xJi8vJy4wlyksJi0tlykqISgmISgjHSQfGyleHiUgHSQfHCEeGh4c FxwXGR8YGyEaGh8a
GyEbGR4ZGR8YGyEaGh8YGH8YHCIZGx8ZGR8YGH8aGyEbHCMeGyldGyEaExcQ
DRAKBwoGCQwHCwwH
BwgFBwgFBAQCAA
AAAAAAAAAAAAAAAAAAAA
AAAQBAAAABwcBO1J1NF2uN2Wu
ITtdGB4VDxMMDhAK
FhkRExkRExcQEBQNJCsgGBsTCAoGCgoHEXgRGBwXCw4JDg0IDRAKHR4XLC0h
KisilSMbGB8WExUN
DA0IFBkQCxEKCAoGDRAKEhgQERUOBgcEDBILERCpDgwJCAYFCAcDDQwHDxIM
EBILDBEKERUOEBAK
Bw0HCwwHCw0GCAoGCAsGEBILDAKJBAMEBAIBAQBQYDCgsGBAQCAAAAAQMC
BggFBAQCBwMAGyww
K1qBJmGfKlyWKluULFCWKkyZKkyZLUybKUuYJ0uXJkqWJkiVKkaUKkeSKUiT
KEWQID6EGCdaldDa
LF+IQYOoHkWFHkKEI0aKlkqOJEyQlkqLIkaHHkeIHUqMHUiLIUuOIk2NGUiK

HUyMH0uLHEuLH1KR
IlmUIVuV1iIXJVmUJFiTJFeYI1iTI1uSH1KMHUqGI0WBikSAI02KI02KJE2K
JFKOHIKTH0+RH1CP
l1eaH1eYJFiWllqXlilWIVOSJVecHVWWHFaTHlaVJVyeKFygHIOWIICVKFec
JFmg1mdJFaZl1KU
JIKVH1WWJVIZJVIZJFeYJleaKVidJFeYIVCPJVCQIVKOIVOSJVGUKVKPKFaU
J1qdl1aVH1OUJ16g
JFudJlyak2OdKmSfKGGfJF+YJ2CeKWGiJVmdJ1ecJ1afJVaeKVacKlaeM1if
PlmhMVWbJ1SZ1Wc
IFGVJFWYllaZJFWXKFeZl1mcKFecKFwZIVOSJFKUJVSclVCSJ1SYJFaZl1ec
H1KYJIWdH0+TGkyO
IVGQJIGRIICSJFKWK2apNn7DKGerJFaaJVCVJFadl1Wgl1Kflk6alk6aJFOh JFinJFSkHIWhJFai
K1egKVWeJ1WgKFahJFafJlmgJkySJT9+HjVyljR1JDR4JTD6JDV6JjmCKj2G JzqDJjqCKTp/Jzd1
JDVsljNqITJnJDJkZzJdTTPJTBBJi41IyoqlsolykqJCKqJissJSslyss Ji0tJi0tJi4sJSss
Jy4uJCsqliooligmlSgjHyYgHSQfHSQfGiEdHSQfHSMdGh8aGh4cGR0bHClc
GR4ZGyEaGh4YGyEa
GyEaGR8YGh8YGB0WGiEYGR8YHCibHSMcHSMcGyEaFRoTDxELCAsGBwoGBgcE
BAUDAwMBAAAAAQIB
AA
AAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAAAAQIBAAACAgAAM0ldNmCtN2WvKENsDhELCw4J
DQ4JCQwHDBILERUO
DhILDhILDg4LBQcEBwgFBwoECwgGFRUQlioMDloKSojHB8YMDMbNTlaDQ4J
DhILERQOGh8YDQ4J
CAoGDhAKGx4WDxMMBwgFExkRGylYEhQNCw0GBgUDCwwHCg0IGRgSDBILDREK
DA0IDhAKDxEKDg4L
DA4HBAYCAAIABAIABQIABAYDBAMDAwMBBwoEAWIBAQIBAwUBBAUDBgQDBgAB
AgMBERgQJkVgJF6Y
KV+YKF2cLVaeK06YLEyZKEyYKkuVKkmVJ0iSKkiRJ0qUJ0WOIz2HFylZHTVW
L2OKQ4WvQoqxG0SE
IUmNI02SH0+RH0uKHkWFIOaKHUeMHEmLG0iKHEeKHUaJHUiLH06QH02NI1CQ
JlaVIFmWJFiXl1eW
J1iUKViXlImYJFiTik2IIEmIG0SDHUB+JEqKH02Mik6LJE+OH06OHUyMHk+O
I1GTJVOXKVWJ1eW
l1eVlleSHVWWJFaaJFKTIISTIlmaJVyeJVealISYHIOXJFSYJ1SZJISYJFOV
JFWYIFWZJISYJVeal
JVealJVaZJleaJlmcJFWYI1CUiICSJISSJFKOI1KRI1WUJVycJVuZl1GPJ1uZ
KGWiJmOgJmCaKGGc
JWWfKGSKGGfJVueJVealJFidJVaeJFadlISaJFaaJ1SYKFSXLIOdLFabJVGU
JFGWJVKZJVecJVeal
JIOXJVmdlIWcKVWdJVCVilOWJlmcJ1af11WYJFGWJlWdl1WZIFSbJFGYJUyS
H0+RI1ecJ1ecJE+U
H1KVK2eoNnO2IF2hJVegJFikl1ailVOglk+dJlGfJlek1emlFSjl1Wjl1Oe JVVgl1mhJlahJVOe
JIOYJlCUJkCFJDI/ITd9ljh+Jzd/lzZ8ITI+Jz2FKT+HJzqDIzh3HjNqHy9i lJfBly9blzJhljNI
JzFWKzBCJy83lioulisqligqICcnlyUmllykqISsrICoqlyoqJCKqKCKrJSor JCKqlklHiUhGyle
HSQfHyYgHSIfGx8dGh8aGR8dGiEeGB8aHSMcHSMdGR0bGx8dFx0XGh4YGx8Z
GB4XGB4XGB4XGR8Y
Fx0XGB8ZHClbGR0XGR4XGh8YFhkSDxELDA0IBAUDBwgFBAQCAAAAAQIBAAAA

AAAAAAAAAAAAAAAAAAAA
AA
AAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAQABAQIAJzIGNI+pOWWvKkl5DRALBw0GCQwHCRAJDxUO
FxoSEhQNDxMMCAgG
AwYCDQ0KICMYKy8kJCshHSEaMSseU0skb1wvt5g+m3oxKhwPCw0LExcQHiYa
Cg0ICwoGCgsGBggF
CwwHDA0IFhkRDxQNEhQNDhAKCw4JFhkRCw4JEBACw4JDhILDRAKCw0GBQcF
AAABAAAAAgAABQMC
BwsFBAMDBQYDAwICAwICBAIBBQYDAwUDAwUDBAIBHDkmNoNoAwUABwMAExUM
JUBOIluQJGCdJmGf
KVqdLk6XLkqYKUixKEiVKEmTJ0iSKEWQID6FEilZHTRZL2WLSletRoq1Roax
I0qNI06OI02QHUqN
GEWIGkSJlkmPHEuNHEqOG0mNHkaLH0eLJ06SI02QHVKRllaVH1iVJFqYJ1ia
H1iXllqXKFqZJFiW
JE2NJEyNI0yNHkeGHUaFIEmIEmGI06NI06OH0yOKFWVHISTHlaXHISVJFaV
HlaVHVVaVJ1aVJVS
JVec1aXJFWXI1qdG1iYJVaZJFWYI1WYH06SIk6RJVKWJVVaYJVaZJVecJFaa I1SXJlmcilleYI1iZ
J1yellaZHIOWH1WUllKRIU+LI1GPKFaaJVqZJV+ZKWKgJmOhKmWjKmmmJmeg
KGahJmegJGWe1eV
JFKXJFadIFOZHlKYI1KaJFOcKVaeJVeeJ1WaKVOcMVmeKIOUJISYKFyhJFqe
JVKWJVWZI1WZille
JFadJlifJVufKFuiJFmgIFadJFeeJVeel1adJFidJISYIk+UJ1ecJ1qdlFOW JE6SJFWYKFidLVqj
K2Ovll2sH1emIVSiIFkeIFOhJ1eoJVeOJVmmJFmjJ1miJFmgKlekJ1mllFag HEqRJUGEJz2AJjx/
JDI/lzR6KDR6KDV5JjN1JDNxJTzuJDvqJzNsl5jli9gJTJhJzJdJy9cJjJW KDJMJC46lykvJy4u
JSsslyksJCKqlicpJCKqJSorJCKqJCKqJCKqISgmHSQIHiUhHCMfHSQfGiEd
GyleHCMGR4ZGx8d
Gx8dGR8YGBwaFx4aGyleHCibGyEaGh8aGR0bGR8YFxsWGh8YGB0WExoUFBsV
GB0WFhsUGB4XHCEa
GyEYGR4XExoRDhAKCAoGAwUDAwMBAAAAAAAAAAAAAAAAAAAAAAAAAAAAAQIB
AAAAAAAAAAAAAAAAAQIB
AQIBAA
AAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAgAAlI83OGGnNGCoLFGCDRAPCQ0GDA0IDRAKDhMMDxMMCAoGAQMC
CAsGDhAJKSkfKCog
KygfQDwhSz0hknw5wZU0sYczyKVKqI81PTAPDAwKERgQEBUPCwwHCgsGDQwH
DA0IBgcEDA0IEBIL
Cw4JCwwHDw0LCg0IBwoGCw0JEBILERUNBQYDBQcDAAAAGBUNUEgpTUMpEhEM
ExkVDxITAwUDCAUC
BwoECgsGBgcEAwMBAQABBAIBBgUCFycYJEw0FhsXICYqIC5AITJVG0BsJFaK
KmKZKWWfKlycKVCW
KUiTKEmTIUmSJUWSITyKFyheHjRXK2KLQlasRYqzQ4mwQ4qvIkyRI02QI0iM
IUWLH0eMHEmMIUuQ
I02RIUuQJEeqQHkiNH0yPJEyQJVGUJVeWHleUHliTl1eWJVmYIFiXH1qbl1iX
H0yOG0qKHU6KHk2I
IUuIlkyJHUiBH0V/IEmlIkyQKFWVI1aXIFaXlleWJliXJVIZIWWHlaVHIGQ I1aXKFuillmdH1iY
IFiblibIFOXJ1WZJ1WXHk2PIU6SJE+UI1GVJVaZJISZJVWZJFidI1WUI1OP KFiXK1ufJlealVeV
HFSPH06QJVGUJ1mYJVMXHISTJV+gJ2OIJGGjJ12cKWGHl2CeJWSHKGKdH1eW

Page 368 of 623 ---- Generated from The PARIS Forums

H0eKGShIIdpbMWSI
P4WuRoizPoWxLmySI0dmLVdxHkeIH0mOHU2RH1OZIFOXIFGVI1KUJVWIIICS
H1KYIU6VI1GTJVqh
IImdH1mTIlmUH1iVKFmcl1mcHFWUHkyJlkeGIEaGG0R8HEF/HESBHUF+HT95
HkF/HUaGHE2MHFGP
IiWWJVSIIOVHIOSSH1STH1OUIFGUJVZlImdl1ygl1mcJFicJF2gJV6iJVme
IFOWH1KVIVKVIVKV
JFGVI1GWJFSYJlaaH1WZl1OXJVqclFOWI1GSJFSTJlmcJFWYJFGYIFGUI1GN
IISOIueIWGkiGaj
HI+ZIVWUHIWXJViZIVWUIVKUH1SXHVmcHVyfHIWXIiWcJVifH1OZI1CdJFOc JFadI1ifl1uhKlef
K1aiJVWgJFeeJVecJlGWJVKZJVaeJVegJVegKlefJVKXIk+UJIocJlOa1GW JlaaJVqhH1WcIIKW
KFidJVWZIFGUI1OXI1ScIVSiJVinJlmlIVSiJlSkJlSkH1aiVmoKFmmJ16p JmCnLV2iJVeaJV2e
KWenL2yyKWCKHTIIHSg0JC1NICpVly9fljdrITl5JTt+JTZ6JDNxIjBulS9o IS9fJTFelzJhJzJa
Jy9JJJE7Iy0vJC0tJCKqlygqliknlyoqlScpJCKqJCKqISgkligmllygplikl HyYiHSQfGiEdHCMe
GB8aGiEcFh0YGB8bHCEeHCMfGyleGiEdGR0bGB0YFhwWFhwWGiEYGH8YFwxV
Gh8YHSMcGylZFRsU
FBgRFhkSFxwVGB0WFRoTEhUPExcQDhELBgcEBAUDAAAAAAAAAQIBAAAAAQIB
AQIBAAAAAQIBAAAA
AA
AAAAAAAAAAAAAAAAAAAA
AAAAAAAAAwMBAQIBAQIBAAAAAAAAAAAAAAAAAAAAAgAAAAAAAAIAExgTOImM
MVmeMVmSERwmCw0G
DQ4JDQ4JDRAKEBQNCQwHDA0ICA0GBggDBgoEDg4LPTkiMCoZExoUDhIQBwkl
BggDLmxNGTUgCggF
DxELEBILDg4LCggGCAsGDAwKCgoHCQsKCwsICAsFBwgFBAAAAAODUgiHpR
r6BgjX5FXIEtMjAe
GhkOCAcEAAAAAIBAAIAHyINoJxda10sFxIKDxMMGx0cliouJTZMJJEJoJUR0
IkV5Hz53Hj1wlz5x
Iz5xHzxxlj1wlTxuGzxsHjtsHD1uGDdoHjdpIU2BKGCXH16YGj52HDpeLWWM
QoSsRYexQoSsMwMn
HUJfMFVxMmKDHTx0IEB/IEmJH0yOHk2PJFGVKISdKleflicIFSVI1SXX16l IFyjlF6clFeZl1qc
IFmYHleUHK+NGUV+HEF+IUKIEOBHT95Gzx3GT57ID+AI0OBIEeEI0+SIICV
Hk+SIU+RIIWWI1SW
JFSTH1KRH1GTIFWYI1mdIFyfl1mcIIOVIIKWl1mdlleYHICSlk+UJFOVI1CU IICVKVKZI1WcJFad
JFSYIU+UJFKXJlqelFqdl1SXIFOWJFicKfaalVqgIFiXIIKRHK2NJFqeh16h HI6bHleUI1aXJVWZ
I1SWI0+SHUuQHEyTIFicHWWIHVmbHISbIFOXIFOXI1KfKFahJFafJV2kl12j I1WeIVagJFahJICY
JEURIUuTH0+XI0+XJFOcl1Gcl1CYI02VI02QKVSZK1ugIFWZl1GWik+UJFKX Ilaal1ifJVeil1Oe
JVOeJFakJFinl1emJFWil1CeJFSkIVemHVikHlihJl6JlykJVeeJlyfKmOn LGmvLXGzKGamH02K
GDRglCk2ISxLIChQJCxOly5OKDNbJDNIJDZ0JzqAKjh9KDZ2JjVtly9kZzNg JzFQJSw6ligqHyYi
ISUjHyUjHiYjJCSqlyoqJCKqJisrligmlCcjlklHSMhHyMhICUhHiUgHyYh HCMfGB8bGR4ZGh8a
GB8bGR0bHCEeHSQfGB8bGh8aHiQdHCIBGB4XGR4XGB0WfhsUGB0WGR4XFwxV
FBkSEXURFhkSFhks
ERQODhILBggFBAQCAQIBAQIBAQIBAQIBAQIBAQIBAAAAAQIBAwMBAQIBAQIB
AQIBAQIBAAAAAAA
AAAAAAAAAQIBAAAAAAAQIBAQIBAAAAAAAQIBAAAAAAAQIBAAAAAAAQIBAAAAAAA
AAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAQIBAAAAAAAABAAAAAQIADhILN1R7LFKTNFiQEh4r
CggECgwGCwwHCQwH

DxMMCw4JCQwHDhAKBwoGCAgGHCEWEhcTBACGBgcEBgwGDxALFBgRL1c/FSYW
DAgFCwsIDhAJDhIL
EQ0KCwwHCgwGDg0HCAsGBgcEAQIBAQAblh8RWE8yjYZUdGk7npJWhHNAFW1F
GBcMEQ4KBgYEAwMB
AQABAWEADg4HFRgNFxoZlyoyJjZIJT1qJUF4IkN5KER6I0B1lj51lz51IT9y IEBYHj5wGz1wGjxx
HjxvHjxuHDprGTdoltXvI0F6I0+DJ1ySG0R3GT5kLWSLQISpR4mzRoWwMmWS
IkRoLVdxNmB+LFh1
GzVoHDpqIDxyHjxvGztxHz5zJEN4KEqGIk+KHkt/MGCfLWWILGWOJWSk2JGi
IlibHIOSHE2JG0OA
HUB+HUWCG0B+HT14HT13HEOCIUmEHkSBG0SGHk2PIICSIU+THU2PHkyQIFGU
HVKVIU+RIU+RI1aX
IlaZHlicl16hJlqfJFaZH1SXH1SXGk2QIVKVJVKWIFGVI1GWIIOWJ1SYJFKW I1GVJFidllmfl1WZ
JlaaKFidJVKZilicIV2fKFeZIIOVJlmaJFuaGIOQI1iXJVmdl1mdIFaXHVOS JFCYIFCXHE+XH1Kb
I1WcJFaaHlqdlFSbJVScH1KWJFWdKfegJ1akl1qlfFmfJVeeJFmjJVShlk2Y
JkuUJUyUHK6WIFOC
Ik+WJVJGZJE2Xlk6WI1KaJFadllf1ecJISYI1GVJFGYLVqikFefl1WgJlmo I1aJjVajl1WjIVSn
IVWkJFOhJlerJlqpJFiiJFejJVegJVmeJl6fK2OkLmuxMnG4LGqqIVOKGUJ2 HD91GjdsHjBNICIP
ICpVISxRIS1OIS1KIS9IJTFOKDRXJzZgJzVnKDRnKDVbKTFGJS44JSsulSYo HyUjISUjIScllign
JCorlicoJCoolyknICYkGiEeHCMfGyleHCEeGx8dGyleHiUgGyleHCMfGx8d HiMfHSQfGx8dGh4c
GyleGyldGB0YGR0XGiEYGYEaFBsVFx0XFxsWGBsUFRoTFBkSFxwVGBkSERIN
CwsIBQYDAQIBAAAA
AAAAAAAAABAUDAwMBAQIBAwMBBAQCAQIBAQIBAQIBAAAAAAAAAQIBAAAAAAAA
AAAAAAAAAQIBAwMB
AAAAAQIBAQIBAQIBAAAAAAAAAAAAAAAAAAAAAAAAAQIBAwMBAAAAAAAAAAAA
AAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAABBQABAAAACAsFNUpkLEyKNFaMFyc3DAsGDQwGCwwH
CQwHExcQFBgRExcQ
EhQNCQwHBAYEFCETCRQJDhELDhMMDhILERUOHilZDQwHDBILCAsHCAsGDg0H
EBcODhELCgsGCgoH
EA0JBwoEAAYDAgAALCoYdXFFc181kX5JRTkdgXlHe2g1oYxPq51ePz8cAgAA
CwgEEExQSHCIglyoy
JjdQJ0BrKEZ6J0V+I0J9I0N1I0N1IEF7H0F5H0F3Iz95Ij50HDxvlz5wIT9v GzxtIDtuIDxyI0d+
KVAPMGGeJ2WgKGGcHj1wGTpcLGSKRISuRIImwPoWxNGuSJ1t7MFI7M2aEM2GA
MGOEGzluGDhtlThw
HzpxHjtwITtxHzt0GDhqHzlnKkt8PmyhPXmxOHiwNm2IK2CiKFyaJlaVG0qK
HkqKIEmJGkn8HT95
IUCCH0OMHEyLHUmCHEeDIICUIU6SIIICRHk6Qik6RIE2UIk2SIk+UI1WZIIICU JFWYHlicl1ecJ1yj
JFueJl2fIFOXIU6TH02RIICSIk+UHK2RIICVI1CVJFGYJFGWIICUJVazKF6h JVmelladllWcJlif
KV2iJFqeJVOXIk2NI1WYJVIZG06MHIKNIFaVJlmcJISYHUyQIk+clVail1Wh I1KaHFSZIFSbl1Wc
J1ScJVSdIIWcl1ehIVagJlmoJVajJVegI1iglIKdlkyZI0iUI0iRJEuTik2Y Hk2Xlk+Xlk2YIkuW
I0+aJ1eiJ1qmlVukH1miH1WdJFSYIFWZIFaeJlekKVimKFekJVShIVWhJVIn J1mqJluulFinJ1mn
KFqmJlefJISZJ1qdLGOOnK2qWLnC3LGmvl1OSGkV+Hz55JEmGJUyPIUGCID90
HipaJctVJC5Zli5V
IS1QlyxRJS5OJTBCJi83JC0xJCszKS8yJiwwJCKqlicoJCgrIScpJCsqlygq JSksJSssHyUjHiUh
HSQgHSQgGyleGyleGiEcHCICGR4ZHCMMeGyldGyleGx8dGh4cHCICHSQfHyQg
HSIfGiEdGyldGR8Y
GBwXGB0WFhwWExoUFxsWFBgRFBgRFxoTERQODg4LBwgFAQIBAQIBAwMBAAAA
AQIBAwMBAAAAAQIB

AQIBAAAAAQIBAwMBAAAAAAAAAAAAAAAAAQIBAAAAAAAAAAAAAAAAAQIBAAAAAA
AAAAAAAAAQIBAQIB
AQIBAAAAAAAAAAAAAAAAAAAAAAAAAQIBAQIBAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAA
AAAAAAIAAgAAAAABQMBM0NTLUqCM1OFHS9CDAsGDg0HCwwHCw4JERUOEBQN
CgsGBwgFCgoDCggE
MnBMHDgiEhQQDg0HCggGHTQgXJp7EBkNDxELCgoHDg0ICgsGCw4JDAoHDA4H
CAshCgsGBQcFBAIB
AwEAHiMYSEQtVkwvgnVEaVo2iINsDw5APjcaHx0NFRQOGiEeJSs0LDhPKk Jr
KUd7JUeAI0WBIUN8
IkB5I0B1JUF6IkF2IENzi0F0ID1yIDxyHDtuGDtrGzpsIT5zJkuDJ1iRKgKc LWmjL2SmKFWZI0qQ
FjFrHTdZLmSIQIWpP4avRYivLGySK16COnaWP3qeNmyOM2eFN3OYHz1vIDt0
IT12HDI1Gj pzHjx1
ITtyGzpolj5sJkd3LveLO2+INnitQXeuP3myPnu2NW6oK1+eKVqTK1eUI02Q
I0uPJEqQlkmMG0iE
HU2MI1SWH1KVH0+RI0+SHkyQI1CVI1CVIk2SJFaZJFidIFOWJFqdlFibIFWZ
I1mcH1aYIFGUlk6R
Ik6RJU+UJ06UIk6RI1CXGU+VI1CXIFOXH1aYHFOVIFGVKVaeJVeeKFegJ1me
IISYJVecl1qgJV2k
JFidJFidllKWJFKWJ1qcHFSTHFCRJFGYJFKdIVajJFilJFKdJFGZH1WdJVOe
HIGcH1WcKFefJFWd
J1aeKFWilFagH1miJFiil1KZI0yXH06YH1CbllCbJk+ZI1CYH0yXI0yYIE+Z I1We1ejlVmhJlul
JVqiJFejJVajJ1ajJFmhJVqkJFmoJFill1WhJ1ilKFusJFqtJVeoj1mnJ1ym IVehJFeeKVyfkWGi
K2iuM220MG2wJFiXG0GBGj57G0eBJVGUJFKKJEEAJkR9I0OAGy1hISxVHi1U
li5SJC9UJS5OIzJN
JTJGKS83JCwwli0rJCsnlCcllCYkISclliknJCsqJi0tlicoHyckliklHCMf GyleHCMfGiEeHiUg
HSQfGyleGh8aGB0YHiMfHiMfHSIfHSIfHCEeHCEeGyleHSIfHyUfGiEcGh8a
Gx8ZGh8YFhsUFxwV
FwxVFxwVFBgREhQNDQ4JBAUDAAAAAAAAAAAAAAAAAQIBAwMBAwMBAAAAAQIB
AQIBAQIBAQIBAQIB
AwMBAQIBAQIBAQIBAwMBAAAAAAAAAQIBAQIBAAAAAAAAAAAAAAAAAAAA
AQIBAQIBAAAAAA
AQIBAAAAAAAAAQIBAA
AAAAAAAAAQIBAAIA
AQIBAgAALjxCLEd8ME1+ITVPCAOGDA0ICAOGCAoGBgcEBwgFAwMBCgsGDg4L
DREKGSIWGCMZEBIL
EBAKDRAKEx4RITojEhcODw0KCg0IBwoGDg0IDA0ICwsIBAYDDAwKBggDBAUD
BQUAAAAAHhwTf3FI
m4RWk4xNTksoLTAdGBsWFBsdlig0KDVQJT5oJkN4JkR9I0N8JEN7Iz94IEF3
IUN3IEN3H0BzJT96
ID91IT5wID1vHjxsHDtrID1yJkuCLF2ZKGWiKWmjLGWjJFaZJUyYJEEQJUKM
FjBvHDRcMWOHP4Sn
RYexSlizMm2VKI+BONabQn2jOHCUNW2RP3WXQHGXHDxylj10Hj91HDxxlj1w
HTHjHzdTJTpgJT5p
JT1qlDdVJURsl1CAKlyON2uiP3mzP4O4Q4XAQH24P3y3N3SwKV6dKFaUJVCP
JFGWIFadHlachVWX
HIWXIISXH1GTHVKRI1GTJFmaJVqclFWYH1eZllydl1ucl1qeH1eZHE6QIU2Q
I06TIU6TIk+TIU6S

I1CVI1CUH1KWJIOaKVaeIFOZHk+TJIOaJlilfISdHICXIIaallaaKFqhKFui I1mhIleelFOZI1uh
IVyil1ecH1KYIFoeI1ehJFmjHlagJFKdH1KbJFWdJFOcJVGdJISfJFafI1if JFafJVifJFahI1ec
I1CXIkuVJE+UIkqTikuVJU6YIk2YJ0yYIkyUHkuWJ1SiJVell1ehIlefIVag I1ejJFuml1ejJVel
I1inJlurJFurJFilJFifJFyVJF2xKF2uIVmmKV2nJFillFagJVmYKV2cKmao LmywLW6wl1uYGkZ/
Fzp0HUOAJU+Llkd7HkJwHD91IkF6JUSFJkiEGy9jHS1YJy1WJi1SKi9QKjJR
KS9TJy5HJi42JS4x
JiwwJCorJSorJCKqJJSknHiMfHyQgHyMhHyMhHyQgGiEdGyldGyldHCMfHSQf
HCMfHSQfHyYhHiMf
Gx8dHCEeHSIfHCEeHSIfHSIfHCEeGB8bHSMdHyUfGyldGyEaFxsWFBkSFxwV
ExcQEhgQDxMMCAoG
AwMBAQIBAAAAAIAAQIBAQIBAQIBAwMBAQIBAQIBAQIBAAAAAQIBAAAAAAA
AAAAAQIBAAAAQIB
AwMBAAAAAAAAAAAAAAAAAAAAAAAAAAQIBAQIBAQIBAQIBAAAAAAAAAAAA
AAAAAAAAAAAAAAAA
AQIBAAAAAAAAAAAAAAAAAQIBAAAAAQIBAQIBAAAAAAAAAAAAAAAAAQIBAAAB
AAIAAQABAgABJTAz
L0V5MEp9Kj5gCAsHCAsGCAoGCAoGDhAKFhgREhQNEhQNDhAJBQYDKVM4K2VK
DAsGDg4LDw4JDg0I
DQkGDQsKCA0JCAwGCAsGCQwHDw4ICQwHDQ4JCw4JBwoGCAgGBQMCAAABDw4I
VVIwRUMnGBkSGx8i
HSgvJzZRJD5mIEV2IOd+KEF/IUJ4IOF6IkF3IUN3IEN3H0N3JkR4Hj9yJEN1 Iz91ID5wGztulj12
JE2FKV2dKWeiLGmmLmWnLFigKk6aK0yWJkmTJUaPJUCPGy5uHjVfMmKKP4Op
SleyQYasNmyTMWGH
PnSbQHuhN2+TOm2UPXKYOHOUNGyQJDluITloHjVkJHjdiIDZZIjVSJjlbJzdW
JDdOIDI+Jy41Iz5m
IkN5JkZ7JUd5JE1+KFWFL2OVNnGmO3mxQ4C8Q4O+QYO4QHu2LWyyqJ12hKV2i
JVyfJVuellmchVeZ
I1GVIFaXKFudJ1iaJVVWZl1qelFqdl1mdH1edHEuPIU2QHkyQHU2RJ1GWIk+U
H1KVI1GVJVGUIk6R
Jk+WIk+WGU6SIk+UJIWdl1ehIFOcJVeelFqdlV6kJl6kKF+jlleel1ecl1md IFadJFadJ1WgllGe
IVagJFahIFKZHIGVJFGYIIObJFCcJFCcJVSdJFWdJFOglISdJFSfl1KfIFsb
Hk6WHk6VHIGXHU+W
H06YIU6VIUuTHkuWH0qXH0+XJFWdJ1ilJlekJVelJFakJlipJlurl1qpJ1uq J1qrlluuJVysIVys
IFqtJFqtlluslI2sKF+pJV2ol1qelFeZl1qcK2WmLWmxMGqyJFiWiEmBHD14 HDx9lkyJl0h8HTtp
HjpoHz1vH0BzJUV+IUWGGJUmDGzJmISxVJC1TIZBTljFMJjJPJzFLJy9EK86
JjAyJC4wJC0wJi0t
Ji0tlyknHCMfFh0ZFh0YFR0XFR8ZGB8bGiEdHCMfGB8bGiEcFx4YGIEcFh0Y
GyldGyEbHCICGyEb
HCICGB0YHSMdHiQeGiEdHCICHCICGilbGR8YGR4XFhkSERcQCw0JAwUDAQIB
AAAAAAAAAQIBAAAA
AQIBAQIBAAAAAQIBAwMBAAAAAAwMBAwMBAQIBAQIBAQIBAwMBAQIBAQIBAwMB
AwMBAQIBAQIBAQIB
AQIBAAAAAAAAAQIBAwMBAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAQIBAAAA
AAAAAQIBAQIBAAAA
AAAAAQIBAAAAAQIBAQIBAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAABAQIAAAAAAQAB
ISgmNEh7LUI6MkRp
CQ4KBwoGCAoGCgsGEhQNFxkRExUOCg0IDQsIDhQMGSEXFSQWDhAKDA0ICw0G
BAwHCw4JDA0IDA4H

DREKDRMPDxQODBMLDBILEBILCRAJCQwHAWUABQYDCAYFEBQNFR4iHCY2JjhV
Jj9qKkJ4JUV+JkaA
JkZ7IEF3H0F5Ij95Iz53I0N4H0B2IkByIkBzlz1zHjpuHjxvIUN3KFSMKI+a L2enMG2sKWWmLFmh
KIKcKk6aJkuYJkiVJ0eQJUaQJkSRGi9tHTZbNWCiQ4KsP4avQISvLmySMGCF
P3SaOXSaPHCTMWqM
PnGYPHGXNW2SNm2SITdjiTZgljdgIzVWKDRILDhOJDVLJzQ+JTA0HikmKDE7
Jj9pJ0J1JkVtK0x8
I0I+IUh7IUZ3JEp6Jk9/KleKNWmgOXaxQYC8QoTAQoW8Pnm0NnGtLWimJV+g
JFudJ2CkII6gJV6h
JluiHlucIFyZI1uhJ1aeG0mNIUuQI06TH06SH1CTJFCTJFGWIU+UIU6THU2R
JUuRIU6TJE+UJU+U
IU6TIIISaJVegJ1meJVufJ1+IJV+ml1+ol12kJFmgJFqeH1WdHVOZH1KbIE+Z
H02VIIIGYH1GYH1GY
H1KbIIKdJFKdIE2YIk6ZJFOcI1KZI1KZIIISfJFSfIIKdH1CbIFKZI1ScI1Sc I1ScIFaeJVKaH06Y
IE+ZI1GcI1OeJFWiJFarJFinJVmmJ1ajI1ekH1ioJFmpJlipJ1ytJFytJVys J1ysJ1ytKV6uJ12q
JF+pJlykJ1meKlqZKGGkLWeuMWitJFqYGkn7GDVoGjJkHjhmJENxIkdzIjpw
IT1zHTHgKUFgJ0yA
IkR9I0eJJkuHHjZmHxyYIjBWly9SJDBPJjJQJjNKJTA/KC45JSszJi0yJS4x JCwwJCorISkmGyQf
GiEdGR4ZGB0YFhwWFBsVFhwWGB4XGyEaFx0XHCibHCibFwxXFBwWGR8YGB0Y
Gh8aHCICgYebGh8a
GyEbGR8YGR8YHCibGB0WExgRExcQCw4JBAUDAQIBAAAAAAAAAAAAAQAIBAwMB
AAAAAQIBAQIBAQIB
AwMBAQIBAwMBAwMBAwMBAQIBAAAAAAAAAAQIBAAAAAAAAAwMBAwMBAAAAAQIB
AQIBAQIBAQIBAwMB
AQIBAQIBAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAQIBAAAAAQIBAAAAAQIB
AQIBAAAAAAAAAAAA
AAAAAQIBAQIBAAAAAQIBAAAAAAIAAAAAAwICAgAAGyEbNktwMkd7
MEpzChISDg4HDg0I
CAsFDhAKERQOCQwHCgwGCw0GDA0IERELDw4JDxELCQwHBgwGCw4JEBMNERcP
DxMMDRIMDhELDRAK
CRAJDBAJDA0ICw0GEBILExgTICclJCw1KjIUKkFxFJUF4I0V/H0R8Ij53JD51 IkF2IkF6IkF6Hj91
JT92Iz5xIT9yFzXuGTluGjpwIUB2KIOLLGGdL2mqLG2vLGOOnLFmhKlGeK0+d
K0ycLk2ZLkqYJ0mW
KEmSKUaRJUKMHjBwGjVdLmCFQoKoQYavP4WuL2uTNGKHOXKUN2+TNGuQNWqQ
NGyQLmaK0m+VOHCV
O22UJjZXJTVUIzNGJzM/KjZAJDM+JzM5ISwuHigoJiwwJzJBjKfZITdVEhwW
GiQhHzQ+J0JeJ0t0
KEuAJUp+J0yAJUZ8JUx/JFOBLGCSNW+IOXatOniwOHi3OHiyNnetNXCuKmKi
JFqdJlyfJ1+IKFqI
JFadIIcVIUyRIkuVIE2UIICUI1GVJE+UIE2UHkyRJE6SIICVH1CTHk2RI1CU IICVH1KYHISbJFee
HlqdJFufJl6kJWGNkmGnKf6il1adIFCYJFKil1ShIIgeJFCcIIcBhIGZH1Gd JVGeH06YI1KfJVOj
IVOGH1KdIIObJVSdKFSgJ1OfG1GYHFKYJFOaI1ScI1ehJImJVIkIVmjJlef I1ehIfeJlFeJlVag
JlWiKVmqJVajl1aiVWhJFakKFuqKF2tII2tIVysJ1ysLGK2KGC0JV+uJmGs I1+mIISXJ1iaKmGj
LGqtLGuxKV2dHEF2EzFhFy5mGy1UHiQvlikXIDFNGzdoIzxnKENrK0x0Jkdz
Kk+DI0uMJEuPJUyK
HzhrIS1ZICxaly9WJjFTJjJRKDFNJjFAJy83JSsxJzAzJi8xJi8xJSssICcj HSQfHSQfHCEeGh4c
GB0YGR4ZF0XGR8YGR8YFxsWGBwXF0XF0XGR4XGh8YGyEaGyMcGSEaGSEa
GyEaGyEYGx8ZGR4X

FhsUEBUPCg0IAwUDAQIBAQIBAAAAAQIBAwMBAAAAAAAwMBAQIBAAAAAQIB
AAAAAAAQIBAwMB
AwMBAQIBAAAAAAAwMBAwMBAAAAAwMBAwMBAQIBAQIBAAAAAQIBAQIBAAAA
AQIBAAAAAA
AQIBAAAAAAQIBAAAAAQIBAQIBAAAA
AAAAAAAQIBAAAA
AAAAAAAQIBAAAAAAAgAAAwMBAAAAEBcRM0VoMEV5M1B3DxUZCggG
CwsIBQcECAoGCgoH
BwgFCAsFDA0ICAsGDxIMDxIMDRAKCxEKDxQNEBQNERMMDhMMDxMMDA4HBw0H
BgwGDA4HDQ0KEgxT
ICclJC46KjIXKEBtJUF6KEWAJER+JEB5Jj55Hz50ID9yIUBzIUB2Ij51Hj9y Gz1yGztuHjtsJT xv
JUR2LVS NKV6ZLmamLmqskmKoK1aiKFGdKE+cKE2aKE2aL0ydLk2ZLUqVKUiT
JkeRJEWOI0GNGzBx
GTNeM2CKQ4OrRoaxRYSvMm2VMmSLPXSNm6XMmqOOXGVOG2SOWyRLGqNN3WY
OnGWN2+TJDM+JzE4
JC41KjI7KTA4JzE4ISwuHyYiHygrJC8uKTVPKkZ8HjNJCxALEBEIFRgNGBoR
FyEaHSosJDIJKUVn
K0I6JEp/JkqBH0d7IkV6JEt8KE2FLlyYM3CnNnaxP3+7QH+7PHq4OXSVLGmm
JVyeKFWZLVaeJFKd
IFKZJVSdIFKZHIGXH1CUH02SI1CVJ1GWJFGVIVKVIk2SJE6TJFGVHISYJ1mg
I1igl1uhl12jJ2Gn
JV+IJ1+IH1WcIFCYJE6cJFGHlk+dIFCdIFCdIE+ZH0+XikuVI06ZJE6cJFOg IFOhIIgfH0+dG06c
IIgeKFKgJVGZIFCYI1WeIFsGj1iIJimHVWgG1WeH1KbII SfI1qII FijIFKe JVKfJIOglISfJISf
IFWhH1ShIVSIJlusKI2uJ1yvJ12xJ2C0J2OzJ1+sJ16pJVifJlmaK2CiLmiv L223KWOkIEuCFi5e
FSpVHC1YGC09ly1AJDI/IyswHzJKJzxmiDtaJD1iJThKKUloKU17KUuFJEmN
I0yNHDdzHy9aljJZ
JSxZJTFQJzFQKTFJJzA+Jy82Ji0yJi8zJi8yJi8xlikpHCMfHSQfICciHSQf HCEeGx8dHSIfGyEb
Gh8aGB4XGBwXFhsUGR4XFhsUFhsUFhsUGB0WGiEYFRsUEhgRFBkSGRwVFBkS
FxoTDhILBAYDAAAA
AAAAAwMBAAAAAAAQIBAwMBAwMBAAAAAQIBAQIBAQIBAQIBAQIBAAAAAwMB
AwMBBAUDAQIBAAAA
AAAAAwMBAwMBAQIBBAQCAwMBAQIBAQIBAAAAAQIBAQIBAAAAAQIBAAAAAA
AAAAAA
AAAAAQIBAAAAAAQIBAQIBAAAAAQIBAQIBAAAAAAQIBAQIB
AQIBAAAAAAQIB
AQIBAAAAAAAgAAAAAAAgAADhMMNUpnLUR2MkhqERgYCwoFDQ0KBQcECAoG
CAoGCgsGCwwHDg4L
CQwHCw4JEBILERUOERcPEBUOEhgQERcTEBUPCw4JDg0IDA4KFBkSlyclIS04
KTVUKj1oKER6JkeC
JUaBJkKAJkJ+IUN8H0R4Hz5zHz5zIEByI0Fzlz91HztvGzprHjxsHUB1J1SP
KI6dLGSKMGOMLVqi
KlafJVGdK0+dLk2dKUqZKU2cJ0uYK02aJ0uWKEqXK0eVJkmTJEeRJkaPITJu
GTBcLV6HQoGrQoeu
QYWwNm6YLWWKOXeaO3WaNm6SO2+SN22PN2+TNGyRM2uQM2iNNm6SMW6RJTAy
JS4xKzM3JjA3Ji0y
Jy4uHyYkliKnly0rJi8yLDhYKkd9GDBBDxUODhILEhQQEhcSEBUOExUOExcQ
FBsSHCMfHSszJDIO
KEpyJkt9JEmAJ0h+JEN1Ikd5J0+DKFaOLmadN3arOHq1OX63O323M3WyLmup

MWemllaaJFSYJFSY
I1GWI1KZKFKaIlCVJVOYI1CVJIGWJFGWIk+UJFaa1ifK1qilVyiJl6lJmCm JV+Il1qgllSdlFOe
HU6YIk6ZJ02cJk6dJE2ZIE6bHUuYJU6ZJVGZI02aH1OfIlGeIE+ZIE6bHU+b IFKeHlKeHlSeIFWf
JFSfJ1mlIVmk1iil1OeIlSfIFagJFahllSfJFaiJVell1ekH1ail1ShJFCd JVKgH1Kgl1OjJVap
IVqtJV2wKGCxJ2CzJl+uJWGsJFyjJ1qdK2CiLWmuK2yyK2OkIVKMGj52GDFm
FylOHCg0ICcvliw/
IzVWHy9AlCggJi8ylzlgI0Z7GThlIDBRlZpsJkl+JEaAJk2RJICMITpzli1b JC5ZJTUFUJS5TKDJR
KTNHKDA8KS82Jy41JzAzJzAwJSsslicoISUjICciHyYhHSQfHSQfGyleHCMf
GB8bGh8aGR4ZHCib
HCEaGB0WFBKSEhcSFhkUFhkUGBsWFxoTFhkSEhUPDxMMcW4JBQcEAQIBAAAA
AAAAAQIBAQIBAAAA
AQIBAAAAAAAAAQIBAAAAAAAAAAAAAAAAAQIBAQIBAAAAAAAAAwMBAwMBAQIBAQIB
AwMBAAAAAAAAAAAA
AQIBAQIBAQIBAQIBAAAAAAAAAQIBAQIBAAAAAAAAAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAQIBAAAA
AQIBAAAAAAAAAAAAAAAAAAAAAAAAAQIBAQIBAAAAAAAAAAAAAAAAAQIBAQIBAAAA
AQIBAQIBAAAAAIB
AQIBAQIBAgAACw0GNEVbLUBwMT5cExoaCggEDw0KCAsGDA4HCg4HDBAJCw0J
Bw0GCA4IDhMNERQO
EBMNDhILDhILDxMMcW4JDhILExgRISQIJCs4JjhVKUFyJkV9JkqEJUmfJUeB
I0Z9JUeAJUV/J0R/
IUJ4Hz12Iz51Jz54IjxyHzprITxulUV5LVeULGGgKWSiKWWnLFujKlGeK06e Kk2eLkyfK0qZLE6c
KU2cKk6cJkqXL06aKUyWJ0uRKUiTikaRJUWSJkOSHTF0GTJdLF2DQIKoRoWw
QYOWNXCYOWqQP3Wf
OnOaOm+UNm+ROXGVN2qMOHCUNGUSOW2VM2qPPHGWOnKWJjAyKTE6JJE1JzIx
JC8uHyYilygkICks
li0rKzE4LjpeJUF/FSY5FRgNERMMDhQMExoRGR8WExgREhUPERUOFBsRFBkQ
ERgQFwxXHCckJTM8
J0VcJkl0lkqAJEmBJUiBIEV8JEd7K1CJklUULmiiOHKxO3e2QH27NHSvMG6p
LWWJkFudJVmdK16l
J1mgJVSdJVScJ1ScKFwJdJFadlleeKFmhJVqil1+IJl6IJF6klImfHVCYIFoe I1GclE2VHEqSlkmW
lkiWIEqVHkiTIEuYJVOeJE6cJE2eIlGfI06cJE+dIlGfHIKeH1SeH1KdJFSf IICbl1CdKlajJVKf
IFoeIlKdI1GclFGcH1OfIVWhIVOfJVeJkFuql1WmH1KjJFinJVVWJjVmmJlim KFusKGCzJmKyll+u
JVyp1qklFadJGChLmytM3G1LGOMGkmEGDp0FjNmEzFbljpilJjTHyTAHS9V
HzRIGyxAHyosFwxV
JTNFIkB5Gz5vIEJvGz50HTVkiDxqIESAKUuNLEyOlj53li5fJDFZKDJWJjJV
KTRQKTJFKjA7KS82
Jy41Jy4zJS4wJCorlSYnliYkHyYiHCMfHiUgHSQfFx4aHCMfGyleGB8aGyEb
GyEaGB4XGB4XGB4X
GBwXFxsWFhkUFxoTFBgRExcQDhILCgsGAwMBAAAAAAAAAAAAAAAAAAAAAwMB
AQIBAAAAAAAAAAAA
AQIBAAAAAAAAAAAAAAAAAAAAAAAAAQIBAwMBAQIBAQIBAQIBAQIBAQIBAAAA
AQIBAQIBAAAAAQIB
AQIBAAAAAAAAAAAAAQIBAAAAAAAAAAAAAAAAAAAAAAAAAQIBAQIBAAAAAAAAAAAA
AAAAAAAAAAAAAQIB
AAAQIBAQIBAQIBAQIBAQIBAQIB
AAIBAgAAQIBAAAA
CAcDND9OLj9oLz9VGiMmBQYDDQ0KCg0ICgsGERMMERUOCw0JDA4HDhELDBIL

DREKDhMJCA4HCxAL
GBoXHycklyoyLDdRKD5sJkZ+KEqGJkmHI0eDlkd7I0Z/JEWAikN+IUN8H0R7
IEN4JUN3GjpvHzxu
IT10JkZ/KFSRKWOkLGipLGWpLFujKlegK1KfK06eLU6eKk6cKEyZKEyZKkmY
KUuYJkuYK0qZKEqX
K0qZKEqXKEiRJkeQI0OOIUOOGTJyGjBaLV2EOX+nQoWsRYWzL2+YL2eNPXie
O3SbOG2TN2yRN22U
M2iNOHCUOnKWOW2VMmiPNG6TNW2RN2qPKzU3KzM3JzAzli0sHyYkICyKlicp
ligrJC4wKTA4MEBs
KUZ8EB8IEBQMEBILEBQNEhoQFRsUFx8XExkRGiEXHCMAgX4Yli4iGiccExoR
EhkRFxkRGyldHSsv
JDIKJkhnKE5+KU6GJ0uFJEeAH0R8JkqBJU6GIOMLmyiNXqzOHY2M3WyNnGv
MnGvMmqkK2KlI1md
JViflFuiJl2jJl2jJlmgJFqjJVymJ1milVehllGeJFOhHVKfllCbKE+cHkyY H0yXHEuVIEyXH0yX
JFGeJFCdH0+c1lCgllGeH0+cJFGeJ1OgJFOhIFWiFWiJVSijVKfJ1ShJVKf l1KgJlmoJFmol1mm
IFagIFWiHVCeIE6cJFOhJFKiJlGmJleslFmtJFmslFmpJFurKF+wKF+wJlur J1qmJlahLF6lL2mt
Nna4NXW3JVMuFzxxGjVrHTp4FzBbHyk0li46JDZkGzhtGzhrGC1LISw0Ji07
FyY4lkr4HzxoITRE
ljdvKUeAIDtuIS9GKD1iKkqOJk+OIT99HytZJfBjDBVJjJVKDROKDFEKzE8 Jy41Jy41Jy41Jiww
likplCUmlyclHyYiHSQfHiUgHSQfHCMfHSQfGyleGyldGB8aGR4ZGyEaFx0X
GB4XGh4YGBwXFhsU
FwxVExkRCAsGAwMBAAAAAQIBAwMBAAAAAQIBAQIBAAAAAQIBAAAAAAAAAAAA
AAAAAQIBAAAAAA
AAAAAQIBAQIBAAAAAQIBAwMBBAUDAwMBAwMBBAQCAQIBAQIBAAAAAAAAAAAA
AQIBAAAAAAAAAAAA
AAAAAAAAAQIBAQIBAQIBAQIBAwMBAQIBAQIBAQIBAAAAAAAAAAAAAQIB
AwMBAAAAAAAAAQIB
AQIBAAAAAAAAAQIBAQIBAwMBAQIBAQIBAwMBAQIBAQIBAQIBAAIAAgAAAAAA
AAAAAwlBLjpBKT9i
Lz9VGyYpBQgDCgsGBgcEDQsKFRUQDA4HBwoEDQwHCw0GCxAHDhILFhwWICcn
JC41JjA8KDhSJKRw
JEWAikWDJEiEUWCikJ/IEJ8H0N6IEF3JkZ7JkN7JD92ID1yHjtwIT10HkeA
L1mWK2WmLGqqK2ap
KVumMFWhK0+eK1CfKk6dLFGdKU2aLk2dK0uaK0uYLEyVKkqXLUyYKUmWKUmW
J0mWKEqXKUWTK0SR
JUaPJEONHTB1GS9ZLFuCQICoQISvQISwOHCZNWqPPnieOXSaMmuNN2+TNWmR
OGuQOHCUNXOWOG2S
OWuSN26TNm2SLmaKM2SGLDU8KzM3KTAwHyYkHiUjISYnJCKqJC0vJy4xLTI/
MUh3J0Z2EBkdERIN
DxMMDhQODRAKCxEKDxUNERUOEbgSHSicExsRK0wzliYvEBQNERIQFBsRFhgP
FBcOFhUOGh0WGiQh
ITA7JEBXKk1zJ06BI0mDIEmBIEN3IUZ6Ik6CKImPLmKaNm+qN3i1M3SzN3e2
N3S3N3S1L3CxJV+g
JVuf12jKmKol1+li1ejJVelJ1WlJFKjIVKiJFGfJFGeH0+dH02ZIk+cJVaj JVOjJlSk1ShJVaj
JVmmiVajJFikJFiklVajl1ioJVuuJ12wJlusJ1uoJVeJjFejJFejJVelJVmo l1inJFilJ1qpJVml
JVajJFanJVeoJVinJFmpJluxJV2xJl6vKVysJ12qJFynJFqiKmGILGmsN3a6
MXe4KGCgHkqBGzdu
GjNulT12GjxpGTBIGB8aljBOHDluIT10HjxsHTRKJDM6JzFCJUR2I0d+HjBK lzl1KD9pK02KIUZ9

Page 377 of 623 ---- Generated from The PARIS Forums

N26TOG+UOHGSJjEt
HyYkICUmISgolikpJCorlykqly4tJzEzLzdILkmDIT9pEBcRDxEKDxIMDhIL Cg0IDQ4JDhILCxIL
DBILDRAKCwwHDQ4JDhAKEBILDhILERUOEhgQERcPEhgQERUOEBCPEhgQFxoU
HCMYFhwTExoRExoR
GB8WGygpJDIGLEpvJ0yAJEuDJEqEJUmfJUeBJEd+IUR0I0p9NmmkPX68PoPB
OH2/Nnm8MHS3L2is
LWWmK2KiJ16iLmGoKmGIKmKpKmWoK2epLmivL2atMWitLmqSL2mqLmisMWuy
L2uwL22xLm2xMW2y
M2+0M3C2MXC0MnG1MnO3MnO1MHG1N3a6MXe4MnW1OHi5N3W2OHa3NnW0N3e4
NXa4MXS0NXW0MXSv
MnGwMnGwLnSxMnaxL3S0L3CtMminIVCPHEN9HkSBJ1WTLWCcHUyCHEF2KEh1
Jz5eHzZbGz50HjIq
GjhpJkJO8G2mNHChJ0ZtJENwIkFdID9jHDhplITNSK0h9GzVRJTRSIkN5JTdl
LEeBKU2TJKWCIS1e
JjNWKDNVJzVWKDJMJi8+KS86KjA4Ji8zJi8xJCkqliklICYkISclISclHiUh ISgjHiUgHSQfHSQf
HSQgHCEeGR4ZGx8dGR4ZGh8YGB4XFx0XGR0XFhsUFxoSDhELAAAAAAAAAAQIB
AQIBAAAAAQIBAQIB
AAAAAQIBAwMBAAAAAQIBAQIBBAQCBAQCawMBAQIBAAAAAAAAAAAAAAAAAAAA
AQIBAQIBAAAAAAAA
AAAAAAAAAAAAAAAAAQIBAwMBAQIBAAAAAQIBAQIBAAAAAQIBAQIBAAAAAQIBAQIB
AAAAAAAAAAAAAAAA
AAAAAAAAAQIBAwMBAwMBAwMBAQIBAQIBAgAAAwIBAwUBAgMBAwMBAAABAAIA
AgABAwABAAAAAAAA
AAAAAQIBAQIBAwMBAAABAwIBAwIBAAIBGyleLjpOKDNCfBsXBQUADAgFEBcQ
HigpJzBDJTFUJjVn
IzhvIjxylDx2IDx4IDx4Ij95I0B6JkZ7JEN1JER5J0eAIER7JD94Hz12IEV5 KE+NMGalMGqsMWit
L2GtKVimKIKhL1GfLVGfKICfKk+eLE+fLE+fLk+fLU6eLE6cK02aJ0yYKUuY
KUuYKEuVKEuUKUqU
KEeSJkeQlkaRKEeSKUiUJ0eUJUiSKEiPKUqPIESKGzdwLFV9PX+nP4GnQX+o
KGGKJExoLVd0J1V0
JktoK1RzKVh0JVNyOG6QOXaZNm+WPHOYO3aZNGWSOGqUN3CSNnOZM3CWJIJ0
ICYkHyUjligmlygp
ligqJCorJC0tJC4wJi8yMjtPLkqEJDxiEhMODREKDxQODRAKCQ4KCw4JCAsG
CRAJBw4ICRAJDhIL
ChAJCg0IDBILDRAKDQ4JDhAKDhELERcPExcQEhkREhgREBcQFRsUFx4VHSQZ
HCMaGiEYFhwSFhgR
FBkSFx8chi0zJj5UJkpyJk6CI0h/IUZ+JUaBJkmAlk+IK1qTNmSeNm+qNH0t
NXKuNnOwNXGwMG+u
MW6tMW+wMG2qLGupL2qoLmqnMGipLGOjL2eLLWGgKmGdJWCcK1+ZLF2ZJluW
KFuSKluVJVeRKVeT
IISKJVGJJIGLJVOPiIONIE6FJVCHJU+JJE+FI02GI02JikuHJk+HJE2FI0mD
JUmfIEmFIEaAIUqG
Ik2GHUmCJEh/K1KQKFIXIkaHKliUJlqNH0h7O2GTO2+eOXGaOm+aKVKCFDvm
HDxxKliQP3uwNnel
JFN4IERqIElWHTpXHjthHzx2ID1yHDFHGYldLDhFJEd8GzLqJkV9KFCUKEiA IjZJS9XKDZXJjRV
KTFJJi07Ji41KTA1JCwwlSkqJSsplScIIscIIligmISgkICcjlikkHSQfHSQf HSQfHSQfGiEdGx8d
Gx8dHCicGyEaF4YGB4XGx8ZFhsUGBsUDhILAQIBAAAAAQIBAQIBAQIBAQIB
AQIBAAAAAAAAAAAA

BAQCAQIBAAAAAQIBAQIBAAAAAAAAAAAAAAAAAQIBAQIBAQIBAAAAAAAAAAAAAAAAAA
AQIBAwMBAAAAAwMB
AQIBAAAAAQIBAQIBAQIBAQIBAAAAAAAAAAAAAAAAAQIBAQIBAQIBAAAAAQIBAQIB
AQIBAwMBAQIBAQIB
AAAAAAAAAAQIBAwMBAQIBAQABAAIBAAIBAAAAAAAAAAAAAAAAAwMBAQABAwMBAAIA
AAAAAAAAAAQIBBAIC
AQIBAAABAwIBAQIAAAABFBgRLzY9Jy49HiUIHCMrlxEljVXIztoIDpwlDxz IT54HDx6Hz17Hzx7
ID+AIUeHJFGRL16hL2CjHUaDHT12IUB5IUN9KVKTmWSmLGmmNGiqNmOnNFyk
NVSjNIKjMVGgLL1Gf
L1GfLFGgLVCGlICeLE6cLU+cLICdKEyZKEyZKEyZK0uYJEqTKEuVKUqUKEmT
KEmTJEeRKUWTJkWQ
J0iRJUeOKkqTKUiTKEmTKEqRKkmPKIWNPNylQYOWPH+qPn6oNGqWLLuBMFV4
KU5xL1d3MVV0J09r
K1d1Mlt9LVh2L157OHGSNGmOOW6UN2yRNW2RNW6PJ1JyLFNsliYklScIIISYn
lyknJCkqlysuJC4w
JC0tJy4xMDtVLU2HIThWERMMDhILDhELDxELCxEKDBILDhELDhELBwwIDRAL
DAwJCA0JDRAKDBIL
DBILDhILDhILDRAKDhELDhAKDRALEBUPDxQOERcQERQOERcPFBkSGRwVHiQd
LTc2JDAvHSQfGB0R
FRUMFRoTGCQiHSsuHzRJKEZyJU+DIICMIEmGJUaEI0+SI1GTJU+JlkqAIUR5
IUd8H0d9I0d7IUZ6
H0B1JEF7IUN8HUJ8H0R8H0F5Ij56HT14Gjx2I0B/IUN/Gzx3Ij19H0B9HEN9
HUCAIEB+IEB+IUSD
JUaEHkSAI0SEHkGBJUSGJUeJJkmJI0iHIUaFI0eJI0eJIUaFIUSCJkqGHEWC
I0iAJ0qDHUaBJUqG
K1aVik2IHE2LGkR1G0BsGzIjJ9kLFuFLI2LLFmEIUp6KVKANmuZNxOfLWeO
JIFxLVd/KIGCJE11
IT5kID5sGT14I0N8EBwoGhwUJDZJKEiBIDtsJkZ7Kk+TJUeBli9bKDRYJDNW
JDNRJzJEJi42JC0w
JS4wlykslykqJCSqlygplygplyknISgklCcjlCciHiUgHiUgHCMfHSQfHCMf HSQfFx4ZGiEcFx4Z
FR0XGR8YF0XFBkSGRwVDhELAAAAAAAAAAQIBAAAAAQIBAAAAAAAAAAQIBAQIB
AQIBAQIBAAAAAA
AAAQIBAQIBAQIBAQIBAQIBAQIB
AQIBAAAAAAAAAQIB
AQIBAAAAAwMBAAAAAQIBAQIBAQIBAAAAAAAAAQIBAAAAAQIBAAAAAAAAAQIB
AwMBAAAAAQIBAQIB
AAIBAAAAAwMBAwMBAAAAAQIBAwMBAwIBAAIAAQIBAAAAAAAAAAAAABAACAQAB
AQIBAwMBAAUAAQIB
BAMABQIAFBkVJjE/JDNSIDVeJDtuljx4ITI5JDt4Ij54HDx2HUB6JESFJk2Q
JISZLV+oMmq0OHK9
PXvDNXW9H1WZJVCQLWOiMGyxMG6yN2OpNF2jMFekNlahNFShMVOhLIKgLVGf
L1GeLVGfLFCeLU+d
LICdLE6bK02aK02aKEqXKUuYKUuYKEqXKkmUJkmTJkmTJUiSKEmSKkiRJUaQ
JEaNJUaPJ0aRKUaR
LEqTKEmSJ0uRJUeONmmbQYOpPYCrPoGsQYOnQIOqO3ulJ1uEKVd2K1I4KVFz
J1V0LFx5MIZ1M1I4
LWCAL1t3LFZzPG6PO3OXNH0ZJFR7MFZ1MmF+HyYiliklligmlyoqlykqlior JTA vJzEzKjAzMT1b
LEyKGzJIDRIIDhELERMMEExUODxUNEBcODxMMDhAKDRAKEBILDxELDxELCw4J

CRAJCxEKCw4JCw4J
Cw4JDxMMDxELERMMDRAKCA4IDhILDhELDxMMExcQExUOExgPGB0WHSMdKtAt
Kzc1ISsoGR4XFxoS
DxUNExUNFxoYGygqJzdIK0d4J1CQMGKhNWinNGmoJ1iRID94JD92HD14IUR9
IUR4Iz1zJT91JUF4
ID9yIkN0IOF0Hzprlj1vITxnIT5qIUJuJT5oJT1IIDxgJjtgJzxhJTtWJDpY Iz1XJDxTIzpSlzhQ
IjVMHjVGITNGITNFHzJAHS89Hi46HSs4HCo2GicxGicvFSQrGiYrKEBoIkeL
HD57H0N/GTI6IUqH
H0R4HkBrHz1mITxuGz52J0V5JEZ/IkV5JUt3LFZ+JIN5IOFXJ0VIKIF6JEt+ JER8HEF1KkV1IkJr
IkV1IkN0Hzprl0V3IUh2JTtiJ0Z2Kk6UK0yLizNfKDNdJjRaJTTRTJzFCJiw1 ly0vlyssJCkqJCsq
IyoqJCkqlygpISclliklyoIIcCiHiUgGyleHSQfHSQfHSQfFx4ZGiEc GB8aFx4YFhwWFhwW
FBkUGBsUDA4KAQIBAQIBAAAAAQIBAQIBAAAAAAAAAAAAAAAAAAAAAAAAAQIBAQIBAAAA
AAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAAAAAAAQIBAQIBAQIBAQIBAwMBAwMBAwMBAQIBAQIBAQIB
AQIBAAAAAAAAAQIB
AQIBAwMBBAQCAwMBAAAAAQIBAwMBAAAAAQIBAQIBAwMBAQIBAQIBAAAAAQIB
AQIBAwIBAgAAAAIA
AAIAAAAAAIBAAAAAQIAAIBBAMDAQIBAAAAAQIBAgAAAgEAAAIBBQIACAsF
FBUXligzHyxLHdzk
IjlxIDp1Ijx6IDx4IT12Hzp2IEB9JE6LI1GVKVafLmawMWy3NHS+NnjCMHO9 LnC3L3C2K2qxK26z
L3i6MGqxL1ilLVGgL1GfN1KhMVWeMVaiMVSfL1KdMFGbM06dM1GeLICeK0+d
K02aK02aKkyZKUuY
KUuYKEqXKkqXKEiVKEiVKEiVKEiVJkeQJEaNJ0eQJ0eQJ0aNKEOPI0KMJkiP
J0mQK02UKUuSK06T
Lk+ULFCWL1eYMFmWMFyZMGOaNGmdO3KhPHeiOHWeOnihO3miN3mfOHwBmWOK
NGSKMV+EKE5vKlh3
MGDNWOILp8MmJ/M1x8M2mKHiYjISgkligmICkpIorJi0tJi8vJjAyKjM2 MkNmLU6JHS49DxEK
DA4KEgxPEhgQFBgRERMMDhILDxQNDxMMEBUODRILCg4HCA4ICxEKDRAKDxEL
EBILDRAKCRAJBw0H
Cw4JDBILChELCxEKCxEKCRAJCA4IDhELDBILEBEMehUPERgPFBkQJCgkNzw7
MTM0licgERgPDxAH
DQsEEExQPL0d2JU6OIkB5IEV5Ikd5Hz1sKEeEGTZaHCoxGSYtFSEkFyEeEx0c
ExweEBcWFBsYExsZ
ExkVFBsVERURERcPDhQQDxIMDhILDhIPERALDhILCw4JCw4JDQ0GDRAGDg4H
DAsGDQwGDA0ECgsD
BwcBBwcBBwcBCAoCCAoCCAqCBQMBAwIAAAAAEBEIKkJmJUyUHT59IkaCHT95
JUyPGz1yHjhGzle
Jj9pIUN3IUB1IUB1GkBVlj1wl0N1IT9xJj1nKEyARHixJIGMIU2EH0d2ITZW LEhzIkd4ID9aJDIP
KEZsKkRxJDdHLEdvJE+UJUqHHDBeJzJZJzJcKDRSJzA+Jiw0JC0vJi0tJCkq
JCKqJCorJCkqlygp
ISclISgkICcjHyYhISgjlCciHCMfHCMeGyleGx8dHSMcHCICGyEbGyEaGB4X
GB4XFxsWFhkSDQ0K
AwMBAAAAAQIBAQIBAAAAAAAAAAAAAAAAAAAAAAAAAQIBAQIBAAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAA
AQIBAAAAAQIBAAAAAAAAAAAAAAAAAQIBAwMBAAAAAQIBAQIBAAAAAQIBAQIB
AQIBAwMBAAAAAwMB
BAQCAwMBAQIBAQIBAAAAAAAAAQIBAwMBAwMBAQIBAQIBAwMBAQIBAQIBAQIB
AQIBAQIAAgAAAwIB

AQIBAAAAAAAAAaAgAABQABAgAAAgAABQUADRALGR4jHyw/IDRXJDpsJD12JT58
IT15ITt2IDt3HT14
IEF+IUfJIOYJ16oLWyzMXO9NXW9Nna+M3O9NXO9MG+2L3G7Mna9N3zCM3e9
LHC1Kna1Nny8OHS7
L1qmK1KfKU6dKVCdL1GeK1CcLVCaMFGbL0+dKU2ZKk6cKU2aLUybK0qZK0qZ
KUuYKUuYKUuWKEmT
KEeSKEeSJkaTJ0aRJkaPJ0eOKkmQKEeOJ0aMIkSLJ0WLKkiOJ0uRJ02TK0+V
LVGXJ1GVKVCWK1CZ
LFGaKE+XLE2XLE2WKE2WLVCaLIOXLISVLViTMF+VNGWVP3KgQ3qkPX2jN3CX
OG+UPn+kO22UN2KF
NWKBPHTOYOmHyckIScllyknlI0qJC4sJy4wJy4wJi8vLDM4MkVwKkyFGSYw
ERUODxQODhMMcg0I
DxELExMMDxMMFBgRFhkREBUODRMNERQODhILDBILCg0IDhELDhILCxEKcxEK
DRAKDQ4JCg0ICA4I
CRAJCw4JDhMMDhELDRAKDRAKDRAKcXELCA4KDxMMGB4VJi4oMjk2lykhEBUP
CwwHDREKGBwXNE6E
JE+PH0F5IEN6IkF3GjVoJUWMGzJTEhQNDQsEBAYCBAMABgUDBAYCCwgECgYD
BQcBCAcDBwYDBgYE
BQYDBwoEBQcDCAcEBAYCBAYDBgsEBAYDBQYDAgMBBAQCDAgFAwYCBgUDBQQD
BQQDBAUDAwUBAwMB
BAQCAwICBAQCAQIBBQABBQMDfxcPLUd0JE6TJUSBJkeHHz98JEyQIEB/HDdq
ID5sIUbulz9ziEJ2
HD91IkJ0IkJ0HUB1K1aOVJfXKmWaR4fCNGWgKI2TJFiCHDVfKEKAK0dyJC4o
Lzg/K0ZvJk+AJDtb
K0RxKE2WJEqKHfKJi1fKjJZKTNNKDE7Ji0ylysvJiwwJSksJCKqJiotlygp ISclISgkICcjlikl
ISgkHyYhHiUgHSQfHSQfHcMfGx8dHClcGh8aGR8YGR8YGR8YFxfXwVFhkS
Dg4LAWMBAQIBAwMB
AAAAAAAAAAAAAAAAAQIBAwMBAwMBAwMBAAAAAQIBAAAAAAAAAQIBAwMBAQIBAQIB
AQIBAwMBAQIBAwMB
AQIBAQIBAQIBAQIBAQIBAQIBAQIBAwMBAwMBAQIBAwMBAwMBAQIB
AwMBAwMBAQIBAQIB
AQIBAQIBAQIBAQIBAwMBAwMBAwMBAQIBAAAAAIBAAIBAAIBAQIBAgAA
AwIBAwMBAAAAABAAA
BwQBBggDDhgTHCYxJC5LJDVhlz10Hz94HDx7IT15Ij54ITt5ID96I0aFJU+S
K1qiL2OuMGqyNnK8
M3K6MXC3Mm+7MnK6M2+3MnK6Nne9PHu/PXvCOXrAOXzCNnvCMXi6K3K5LHC1
N329PYC+NG2xKISi
J0yYKk6aK0+eKk6cKEyZKU2ZK06YLk6bL02bLkyaK0mXKkqXKUqUKEmTKEmT
JkeRJ0aRJUWOJUWM
IOWMJ0WOKUWPJkaNJ0aNKUWPKUOOJ0aNJ0iNKEqRKUqTKk2WKk+YJk2TKkiR
KkmPJkWGIkWEIkGF
JkGHJkOKJkeMKUiKJT7ITdzHTR0GzNyHTNqJDtxJUUh/KU6MMVCLLveMMmaU
O2yXO3GaRHyp4Gp
ICcnICYkISgmIiorJS4uJi8vJi8vKjI0LjM+Mkh2J0h+Ex8kFh0UGh8YFxfwV GRwVFBkQDhILDhIL
EBILDQ4JEBQNERUOEhQNDxMMERUOEUBUOEUBUODBILDBILDhELEBILEBILDxEL
DhAKCw4JDRAKDRAK
Cg0IDRAKDBILCw4JDQ4JEhILDRAKCAshDg4LERMMEhgQDhMMcg4HEBILHiQi
LFGKJE6LJkN5JEd+

JkN4GzdoJkeHGC9MEBcPBwoDAwIBCAYFBgUDBQoDBAUDBwcFAwUDBwYDBgYB
AQABBwYDBgUCBgUC
BQcBAAIACAQDBwMBBQIACAUCBwMBAAUAAAIABQABBAQCAwUDBgCEBAUDBgCE
AwMBAwMBBAQCAAAA
BAIBAwIBBAUDFxoVME1+IkyUH0GAIUaFIEB9JkySIEWEHjpoHjxmHz5qHkNv
HkNzHj1ylz91JUF3
GDhuQnu0c8fwKGulSoa/MGKYKI2UKI2UJkeCJ0h+JkRpHiwtLD5QKk+AL1mK
JkFpJkV6KIGVJUuF
IjJeKTJZJzNWKTBJJSw1JCowJCwwJSsulyksJCsqJSsqJCKqligmlilCcj ICcjISgkHSQfHSQf
HSQfHSQfHSQfHCMfGiEdGh8aGR8YGyEaGB4XGB4XFRoTExcQCgsGAwMBAQIB
AAAAAQIBAQIBAQIB
AwMBAwMBAQIBAQIBAQIBAQIBAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAwMBAQIB
AQIBAAAAAQIBAQIB
AQIBAAAAAQIBAAAAAAQIBAwMBAQIBAAAAAQIBAAAAAQIBAwMBAQIBAAAA
AAAAAQIBAAAAAQIB
AQIBAwMBAQIBAQIBAQIBAQIBAwMBAwMBBAUDAQIBAAIAAgEAAgEABQMCDQOL
FBwilCtAITNaITpu
Iz56lj1+IT59HT55ITx4HT14HT17IUaKIk2SKImhK2OtMGU1MGy3Lmq1MWy2
MGy0LWyzL3C3NHS8
Nne9M3e9N3rANHi/NnnAN3m/NXm9M3m7NXu4M3e7NHe9Nni+LnC3LXW6N3+9
O3u9KF+hJEuRJ0qT
KUuYJkuXJ0yYKEyXKUuYKUuYK0mXK0qWKkmUKEmTKEmTKkmUKEeSJ0OPJ0eQ
J0aNNkWNJEONJUWO
KkePKUeQJ0aRJUeOJUeOKkuUK0yWJ0iRI0GFHzh2HDJpljhsKUd4K1CCM1qK
NlqKOVmLMU9+JTxr
Hi5hJjpuJUF7JD+AITdzGi9hHjJmKDx5IDt8ljh+ljp6HTI5ITt5Jz57JEGA KUmBlygplSgolCkp
lisqJC0tJC4wJjAyKTI0LDVAMkh6KEV4EyAfFx4VHB8YGR8YGB8ZlyooKTMu
HSQfGB0XFRgTEhUP
EBILEBILDBILERcPEBUOFBgRERUOEbQNDxMMExcQEBQNERMMDhAKCA4IDhMM
DhILCw4JCRAJCRAJ
CQ4KCQwHDxEKDRALDRALDQ4JDQ4JDBAJDxELDRAKCG0IJCouNFWXKEmOJUR8
JEh/J0R3HzlpJ0mL
FCpGERcPBwoGAwMBBwoGCAsFBggFCw0JBggGCgoHDg0IDhANEBoVCA4IEBQX
FBgRDREPFxseDREO
GiksGCQjEhgUJDE8ExkZGCIfHSg0EBQMhCMYHSQZERcPGh8YFBkSFBsSGiEX
DxQNFx0TFxwVDxMM
GBsUME5/I0+XikSFJEmFIUN/JU+TIEWEHztnlzpKHtZpIUBwID1kHDBKljle Iz53GzdwSHmypez3
PoKvVJHIK2UKWCVJ1SNJU2BIT5klz1rIDITKDxXNF2SKIODJ0JqLUyBKFCU
J0yJHTZgJzJZJjJV
KTBElioulysvJy4xJy4wlyktlyoqJikqlyknISgkISgkICcjISgkIklHyYh HiUgHiUgHCMfGiEd
HCMfGB8bHSQfGilbGilbGyEaGR8YDxQODRAKBgcEAQIBAAAAAQIBAQIBAAAA
AQIBAQIBAAAAAA
AQIBAAAAAQIBAAAAAQIBAQIBAAAAAAQIBAAAAAQIBAAAAAA
AAAAAwMBAQIBAQIB
AwMBAQIBAwMBAQIBAQIBAQIBAQIBAQIBAAAAAAQIBAwMBAwMBAQIBAAAA
AQIBAQIBAwMBAQIB
AwMBAwMBAQIBAQIBAAAAAgAABAIBBwgFERQVGyYyIDJPJTPlJT14Ij58ID58
IDx6IDp4Hzt3Gjp4

Page 383 of 623 ---- Generated from The PARIS Forums

KE6UIUSCGTljITZbJTpjIThbHy46LzIPJlQlz1mlj10o7fE/v3/jai1dbLb RoizGjx2K1OHJ0x4
IDthJEV1JEaALluOMFaBJzxMER0XGCUsmFadJk2LljVIJjJXKTJTKC86JCww JSsuJyovJCorlykq
lykqJCKqJCKqligmJCsnlyomlCcjlCcjlCcjlHiUhHiUgHCMfHSQfHSQfGh8a FBkUDhMNDhILEBEM
DxALDQ4JDA0IBQYDAQIBAAAAAwMBAQIBAAAAAQIBAQIBAAAAAQIBAAAAAwMB
AAAAAAAAAAAAAQIB
AQIBAwMBAAAAAABAIBAAAAAIAAQIAAQIABAQCAQIBAQIBAAIBBAIBAwIB
AQIBAgMBAIAAAIA
AAABBAABAgMBAAMBAQIBAgAAAwIBAwMBAAMBAwIBAAIAAwIABgMBCgoDEhQQ
HiQvITBOJDdoJ0F4
I0B/lj6BjKb/Hz17lj58Hz99IkKHJk6SKISdK1+sLWm4L2q3M3C8MW66K2ix K2awKWavJmixL2+4
N3W9M3q/M3q9Mnm8M3a8M3a8M3e9Nna7N3e8N3e8OHe7M3q6M3W7MG+zMG6y
N3e5OXu8NXW3MHS2
LXm2MHGzMW+yLG2zMG+1N3W2OHw4M3C2LW6yN3e4Mne3LWEOJk6PHz98IDp5
KT+FJj+MJUOPI0GN
JUOPJ0eQKEeOJUOPJEWPKOPJ0OPJUKMKEeOI0WMJEWOHjqEHTt8J0qDMmOV
QnOoTIWzXpjHZaPP
cK/Wd7LdbanWcavTeLLbaajPYpe6N2mKRmuHV4SaaqPBRXWIGjFjljVgFzNk
IDNkJjRmKDI1Jjh7
ljFgHCY6JC8uJDEqIS8lJC8mJS0nlikpJysuJCouJS4wJC0vJS4xJzAzJzAy MjITL0iHJDtcEhgR
Fx0UGh8YGR4ZGR0XHSMaJSshLDErKzlsGh8aHSEYGx4XGyIYGyEYGiEYGiEY
GylZHSMaHSMaHCIZ
Gh8YFh0UEhgQDxQNDxELDXELEBQNFBgRExcQFBcOERUOERUOEhQNERMMDhMM
DhELDQ4JDhAKCxA
DRILFBoOLDxSLFiglUeBJUeAKkqDiz53ITl0KUqPDx8wDAwFExURFx0kDRAK
DxMMBwgFDREKQC0G
DBEKExEMDQ0GFhgMEBILDhAEDRMNDA0IEBIHDhELEhILFhkRDxQKDhMMGBUQ
EBQNEREKDRAKGRwV
Fx8WEBEMFxfRFRMOERMQUODBEHFhwTERUODxELHB8dNFWsJE2YKUmNJEeL
I0GFKIGXIUqJGThl
ITRWJEFhKUIsKD9bljRRJTNFK0JtGDhuX4Wuz/r6TY+xL1uQKVmEJkR9J0d5
IEJmKER1Kk2GNmCX
K0thFRwcCw4JCgoDHCutLVieJ02NHZVnKDNaJzRLJCszlyssJC0tJiwwlykq lykqJCorJi0qJiss
JCKqligmISgklyomlikkHyYhHiUgHyYhHiUgGyleGyleFBsVERcPDRAKDxA
DxMMDhELDRAKCw4J
BgCEAwMBAAAAAQIBAQIBAAAAAQAQIBAQIBAAAAAQIBAAAAAQIBAQIB
AQIBAAAAAQAQIB
AAAAAQAQIBAAABAAABAQIBAAAAAIBAAIAAwICBAIBAwMBAAABAQABAQIB
AgMBAwEAAIAAAIB
AQIBBAUDAQIBAQIAAwIABAIBAQYACAoGGBodISs+IDJZJjtwKkF+JUSFJEGC
I0CBHxz7HDx7JECD
JkeMKFKaJlujL2avMG64Lm64L2q3MG24Lmu2K2eyK2auLGiwL3C3MXi9NnvB
N3zCNm/MHi9M3a8
MHW4MnW7M3a8M3i7MXW4MHG3MXK2OHq7Ony9M3i7MHG1NW+zN3e5NHY8M3W3
PHm9M3e9Mm62M3G1
MnG1Mm+1M3K2L3C2L260L3CyMGyxMHGzMXKzL2mqJVCQHzt5HzdyHjl1Hzx9
IkCHKUSMKEKNKEWQ
JUWOI0ONJkKOJkGQJ0aNJEKOJD6JMFwTPGujRHmuSYOzTY68VpbBZaTQbK3V
bKnUZaDJYJnATYKp

T4arUYepP3GYMFI7ToKIPWufMVWBR3eUPGWFHzVnJDhsJDRjJDRjJTJfHidC
GSEmHiMcLDQrLTk1
LTo0Lzw2LDg0LzozlikpJCsqJCorJS4wJS4wJS8xJS4wKjl1LjtZL0yKljVN GRkRGBoSFBsSFxsW
GBwXGRwVGh8YHilZGyEYGB8ZGyEYHB8XGRwXGyEYGylZGylZGiEYHCIZHCIZ
GyEYHCIZHSQbHCma
GiEYGyEYGR4XERcQDxMMEBILDhELEBQNERUOExUOFrcQERUODxMMEBILFRQO
DxIMDhILFBkQLj9h
MFekJkeCJUaBJ0WFIUB1lj53J0mLDx4pDg0HEBILERgSGylgExkSHR8hFx0X
FRcUHilgGRsTIDA+
GScvGBsaJzVMGCEYlis4Hi1HHSEfMFNzGCcpJDM2L05pGB0YLUxiHzpSGhoS
ISgfHSMaGCEYISUe
GRoTHCcbJS0mJiwwHCEaGBsTERgQGxwdOFOTJU2RJEeGJUuLJkGCLVOZJk6S
HTtpHzZUJT1eLUdi
M1B2KEhrKUdnJkVzlz5xN16OS4utJViGLFGDN2CPK1iHJEyCJUUh9JUUh8MFR6
Iz1MDhILDhILExUR
EBElHyUpL1adKIGVHzlpLjZdJjFIJCwwlyssJC0tJS4wJSssJSorJCkqlyoq JSgpJSgpJSknlCcJ
ISgklCcJlCcJHiUhHSQgHyYhGiEdGB0YEBQQDhILDhILERINDhMMDBILCRAJ
CQwHBgcEBAQCAAAA
AgAAAAAAAAAAAAAAAAAQIBAQIBAAAAAAAAAQIBAAAAAQIBAAAAAQIBAQIBAwMB
AQIBAAAAQABAAIA
AQIAAAAAAAAAABAwICBAIBBQMCAGaABQMBBAUDAwMBAwMBAQABAQABAQIABAQC
AAAAAQABAAABAwEA
CAoCDBAOGyAqJC5LlZzhJj55KEOFIUGGIUKEHz99lkF8Hz5/lkGFKUmSKVKe
LlqmMGWwLmmzL2mx
L2e0LWizK2eyNGmyMGquLGeVJ2StM3W7N3/COX/COX7AN3y+M3q9M3a8MXO7
L3G7MnK6LXG2LXK1
MHS3MnG3MHG3MXW3NXm6M3a8Mm+1MG6yM3K2Mna6MXO1NXK1N3y6Mnu4MXe4
N3i7NnO2MXK0LXG0
L3O2Nne6M3S4Onq8Mm+yNm6yMXCXLWmuJ1SZIUN/HDhxHDduHzdylz5+KUGK
J0CNikSLikKMJUCL
JkKLKEOKIDyIJUiHToe4YqLXZKHfZKDTZaTQZ6TPaaLNVpbBRXqpQnijOXSa
OWuaPHCePnSePXKY
R4auVZrEPnGbNV6IN1uElzVUligzHy46ISo/FR8mGR4ZHSIXHyUYlysJkYt
LTk1NkVJOUpMM0dC
MEI+KC0slyoqJC0tliotJS4wJS4wJzAzKzI5Mj9hMEyFGys7EhQMFBgRGB4V
GRwVHB0WHB8YFxsW
GB0WGH8YGh4YGSEaGyEaGh8YGh8YGyEYGH8YGiEYGylZHCIZHCIZHSMaHCIZ
HiQbHCIZHiQbGiEY
HiUcHSQbGR4XFxwVERcPEBQNDhELDRAKDhELEBQNExUOEUBUODhILDxEKDxMM
MkVwM1ikKUmdKkeE
KUIkKb2lj54J0mLER0nDxEIDRIIlyoyHyY0GylYKS45ExgWHSMhJyo7FwxV Kz5bGilyHCgklzIX
EhUUIioVfyQ1HiQeLEhQEYldljAqJDw/FBsVJzk7GicqHiQeHyYdGB4XHCIC
ExoRExoRGR8WHSIj
UVCEFRgffBcOEhcOGIEfMleYIUyRKEiFKUyKI0KDKVOYI02QHj5rljlaJDIZ ITNBKTxMJlJNld8
JEZzJEJyJUI9MIWKp2SRNWOPKleQLVqNKIN3HzQ+Fx4eGRwVERMMEBUOFxkR
FxxQEhQLGyEjMVif
K1CUJjpuJjNbJzBDJC0vJS4uJC8uJC0vJSsuJSksJiotJCsqKCoqJikqJSsp IyknISgklCcJlkl
HyYiHyYiGylDFhwWEhcSEhQQEhUPEBQNDhILDhAKDxEldhAKDQ4JBwgFBAQC

JzAzKjE2KzI6MkVwKUZ7GicqEhQNDBEKEhMODBILDxELDXMMDhILERUOFBkS
ExkNGRwVFXwVGR4Z
GR4XGh8YGH8YHSlbHSMcGyIZHSMaGyEYGYEaGR8YHCIZGh8YHCIZHCIZGh8Y
FBgRERUODhMMEhgQ
FxoSHilZHClbGBwXFxoTExcQEBEMDhILHSEeN1GMJIOYIUv/KUmDKkyFI0J3
KUOBj0iDEhseDhAJ
GylYGx4XFBkSExwUExcQGB0WFX8XHyeYICcjICUmISYfHiUgHiQdGSEaGiEY
ExgTEhcSEhUPEXQQ
ExgTOUZMGyQxGhsUGR0XJi8ySlpzFR0oGRwVHyQgHSQbICyflCQbJTAsNkdq
HSZGDg0HISMInVab
Jk2TKUmKKkuQJESFKVGvKISXHz1vlzVZJDdZKDpXKTIUMElzIkJrlz9uKUvW
I0NsL054LkliHCou
EhkRDhILDhMNEhUPEhcOEhgRExcQERURExgTExcQExUNGx8dOFiWJk+ZIUB1
Ji5QJy41JC0vJC0v
JSsuJSssJiotJiotJSorJCKqligmligmligmlknlyknlyknISgkHSQfFwx FBkUERcQEhQQEhUP
EBQNEBQNDhELdhQNChELCRAJCxEKCAsgBQYDAwMBAAAAAQIBAQIBAAAAAQIB
AQIBAQIBAQIBAwMB
AwMBAQIBAQIBAwMBAwMBAwMBAwMBAQIBAAIBAwEABAIBAQAABAAIBAAAAAgAA
BAUDEBUSdhUXDxMW
ERMWFxkgHiUzIDBKljlz97I0OBIUKEID+BHzp6lj15Gzh2IEB+KUyQK1KY
LI2mMGKsMmSwLmKv
K1+sK1mkKVeijVmjKlynKmOtL2y1LnC3Mna8Nni+Nne9M3a8Mne6Mne6MHS3
MXK2NnO3LnK3NXK4
MG2zLGatMGSpMGuvLW6yLmywLmuxLGeVLmuuNW6wMm2xLWqwLGitMG2wLWyyw
LGuxLmuxMW60NG+y
MnCzLXG0MnO1N3S4N3K3NnS7N3zCOH3DMm+yMmKbK05zHTNBFB4gCxALEBcQ
JkRRNXCjLXS9LG63
KmuVLWuuLGqtJl+jl02QIUN9JEmAIEJ8HT12HDZvITI7Iz5+HjyCHTp9Ij56 ITx+GzZ7HTZ2KD93
Mk58O12ONF6QKlqQKE18KE15J0I7HTZgLEVYRXqhNGiQK1h9O2J/KFRyT4ep
QmmUFBsiFxoTGh8Y
HCEaHcMYGCIWGB4XGRwVHyMaHiQbGB4VCw4JDxELFRUQJi0tly4sJS4wJi0y
JzA0KTEzKTE0Kjl7
MkV1KUV2GiQkDAwJCQ0GEhILDxQKFhcQFRwTFRcQligrHh4kDxELCRALDQ4J
ERUNEXgRFhsUGh4Y
Gx8ZGR8YGR8YGiEYHiQbHh8ZHB8ZGyEYHSMaGyIZGiEYGR4XFBgREBILGCEV
GCEVDhILHSEYJS4I
HycgGRwXFXsWFB0WFRsUHyMhOFaULFSYK0eCKkqELEyFJj55KUaJIEZ7DxkY
DRAKFhkSFh0UGxkV
JDUrYpyPHjoyHyMZLztFaY28Lz9yGB0WJSsjLTQxJScgGCEVLjUzOE1iJDE1
HSMaHCYjZYXFKDyE
liUjJisnQIR6aYLVIShOlikeLjo0NEBDJCoolyghMUI/P1KDJjJWJC0vICo1
L1WVHUmOJkmOLE6Q
JEWFKU6XJIKPlj1vJTIZJzIYIzlcKDtmJT5oJz9nKkVzLUI0LEFWGyYjFhMM
DxMMFxQOEhQNEBEM
FBcSFBcSExQQERQOEhgQExcQGBcRExQQHB8ZNVeWJIOYJkF9Ji5LJC0wJS4w
JSsulyksJSorJSor
lykqJCorJCKqJCKqJCKqligmllyknligmlISgkGyleFhsXFhkUFRgTERUREhcS ExcQDhILDxMMERIN
DxMMDhELdhELdhELCwwHBwgFBAUDAQIBAQIBAAAAAAAAAAAAAAAAAAAAAQIBAwMB

AwMBAQIBAQIBAQIB
BAQCAQIBAQIBAwMBAwMBAwICAIAAAIAAQIBBAIBCwwHHCMsJTFUJzloKUB6
KUZ+JUR8JkWCkUaD
KUaBJESFID+AGzt1IDx1ljx4JUKDJ06SLlujMGSpMGWuJ1+rKVunK1ejJ1ei KIWhL1ajK1qjLl+n
LGauMnK6MXW8N3jANXa8OHS7L3S3MXS6MHO4Lm2xMG2zL2uzMW2yMG2wMG6y
M3G0NXC1LW60Lmiv
KV6IJ16iKmaqL2uwNnC0L26yLGuvL22xNXS4NnW5M3K2Lm+1MXC2MnO1MnG1
MnO1K2+yLnG7MXW8
L3a9N3bANnW0LWKPI0FYGicqExkSDhAKERAffxcPDAsGBwwECwgCGB8dM2B+
NXq8L3bAMnG4LWmx
LmqSK2epJFudl02KJUaBJkZ+ITtyHjZmGzNqITt6ITx+ITuAHzp7HTI5HTt8 JT1/IDR3Hi1VIThU
KD9yFi1YJEV2NmiXJkR1JkJZRnuhPGqVM1aCQWN/NmSAU4+tRHSbFxoFhws
ERUNEBQNEhgQFhwW
GB4VEhMOGhsUFhsUGB0WGB0WDhQMFBcOJy4uJS4xJy4uJTAvtKI1KTA3KzM2
LDQ+MUD5JkvtFR8Z
CQwHDg4MDhMMERMQFhoRFBkSFBsRJC0xHyloGhsUGiMZGSEXGBkSExcQDhIL
Cw0JDxIMExcQGBsU
GyEYGyEaHCEaHCIZGh8YGh8YGIEYGyIZGR4XEhgQDhELFhwTExoRExURJioo
JCooGR4ZGhsUFx0X
GBoXFxsRICKpL1iZKVWYKEiAKEiFJkuDIkB5KUaJJER8DhgWDhAKFBsVGyEa
HSEYKzcxQWBmIDAx
Ji0kLjo+PVJ8JDNOJzliqJS8pLTczKzo1KzMuJzQtN0RKMz9CIS0ILzMvLTRA
M0BJMUVAJjlsMTg2
NUJXKjM2Jy0mJy4qJTIoP2RgJz8yLDMsLj88PIRcQIVmM0ZiLFabJEQKkyO
KE6OIUSCKVCTIk6R
HjVYKTxZJjpVKTIIdJxjKkBsLkhsJD9OFyEeExMMDhELExcQExQPFhsUFBgR
FBgRExcQExgPERUO
EBMNEBUOFRUQFfxkRExQQGR0YNVaQKVOCJ0V+Jy9EJC4wJS4uJi8xJCwwliot
JS4uJC4slisqJCor
JSoqJCooJCooJCoolikIHSQfGR8YFBsVFxwVFBkSEhQQFBgRExcQDhILEBMN
EBMNDxALDxALDg4L
DhAKCgwGBgcEAwICAwABAwUAAAAAAAAAAAAAAAAAIAAAAAAwICAQMCAwICAAIB
AAAAAwMBAAIBAQIB
AQIBBQABAAIABwUACgoHGh8IITJlJzdkDX2Hjh0ITZwLUmEJk+HJ1CNJ0qK JkJ+lzp3ljt5Hz2A
lkeLLVScMmCsL2WpLWOnL1yqLFmiK1mkKFegKISdLVaeLFihKV6oK2SuL223
MHG4OHa9OHbANHbB
LXS9K3S9Mm+1LWi1K2ixLGquLmmxLWmxLWyyMW2vMWywnm+zM3C2L3C0L3C2
MXO7MG+zLGeqKV+n
LmOsMm+1OHw5M3a2Mna4MXW3M3S1NnG2M3K2MHG1Mm+1Lm+1M3HAMnG+MnK6
MWemJ092HjNDGiMm
ERINDwwEDw0GDA4HDhAJDxELDg0HBwoGBw0HCgwGCgYDDxEKJUBGNXOIMnve
M3e+Lm2zLmqvK2qu
KGSIKlaTJ0mFHD93Hz1wHTZoHDJeITJkIDhzlzx+HzuAIT9HTp4GiITHyMh li5LJEI1KVuSHkSB
NluNJ0VvLkJnSXyjQGyaLVN6PGJ6RHuVZp/DQ3GZFBYeGB4VEhgQEBQNFRoT
FhwTGx4XGB0WDRAK
FRcQHCMYHSQbHCIZDQ4JKTEJJC0wJzAyJjAyJzA0KjE2KjM2LTdFK0Z/JkFm
FR4VBAoFDAKJDxQK
DhULFBkQExcQFhoRkTA1GBweGBBoSHCQdHiYfHCQZHSQbGyIZHCIZGyEYFhKS

EhQNDhAKDhELERQO
ExcQGBsUHB8XGyEYGH8YGYEYFhsUFBgRERUOEbQNFRgTJCgkLjMtFhwWGBsT
GB0WFxsXFhkRJSsz
O1uhJ1CRK0h+K0iDK0qHJEB3KkqLIUJ4DhUXDxAHGBwXHSIfICchGyEYLTs0
WKmelkcsLjlsLTcz
lykiliggHClbGClab7ezQo9vli0kMTkvLjs1HCQdKTEoGRoPM2xcSbikHTgh
LDMwMDYUkC8jKTEs
Gh0VJDIsTLuzI3JRLTIsLzs1HSgjExoRIC0xK1eal0qQK06OLE+PJ0eFKU2Y KVKUIjxsJzlaJz5c
JkFcKUVdJzdCEh0aDhAJDhAKEhcOFBkQDxMMEBILFBkSDxUPFRURERUOEhMO
ERALERUOERQOEbIL
DxEIFREHGB0WO1qTKlafKUeAJys9JS8tJS4wlysuJC0vJS4wJSssJCorJiss JisrJSorJSOqJCkq
JSspHyYiGB8bFB0WGB4XFBsVFBkUEhcSFhkSFBgRDxMMDhILERQODhILDA4K
DhELCw4JBwoGCgsG
BAQCAQIBAAABAQABAwABAgAAAAIAAAIAAQIBAgABAAIBAwMBAQIAAAIAAAIB
AgAAAwlBBwgFFRod
JC1CJDVfJjt1ITx4Hzl0HDZvHzRxJDI5LUuMLE6LJ0yJJEeGJUSFJkqQMFuh
MGWuLmawK2CoKl+n
KlujKVihLVehK1egK1egKVihKlylMGKuLWiyMW21M3K4N3S4Nna7MXG7K2Wm
KFSJJEt0H0IsJE55
K1iRKV+jLGOpKWeqNG2xL22xL26yL3CxNXK1M3S2MnO3NXW6NHm8MXi7Lm+1
KF2kJ1WaKmGkLWmu
M3G0LnK0L3S0NnO1MnS8M3e+OHRDMnS+MW2vKVeKID5ZGskwEhkXEBEIDAoD
CwwEDg4LDA0IDBEL
DBELEA4LCgsGCw0JGRwUFxkREBILDA4KCAsFCgoDGCibMFIzNHu+NnjDMG+1
LWYwLm2sLmytJFuW
IUR9JD9yHjxuGzLqHjdhHzVjITRIJjt1ITl+lJZ5IC1jGSYulTdeITVyIDt3 JT92ljxlEBgfKjk7
S3yjO3GYJ0t0NVI4U4ysbKnSNld+FhYXEBgMExcQFRcQEBEMFx0UFR8YICQb
IjEiITgeDhIPCw4M
ExgPEBILKjI0Ji8yJzAzKTE1KjE2KTE0KjM2LjpMLkiAKTxeEBcOBgsEDhAK
DhILExUOEhUPEhcO
GB0WKjE4FR4WGx0VGBsTFBcSGyEYHCMaHiUcliggKTAnKC8mGx8ZFxsWHSIb
GR0XERQODxIMDRAK
EhUPFxoTGRwVHB8YGRwUGh0WGh0XGBsWFxwVFBsSFB0TFR0TEExcQFhkUFBkQ
KjE+NVqhJICNJEd+
KEmHJkqBlj90K0mHiz9zERgWDhAHFB0TJCoiKzIsHCEalTUtOpWDFkElHiUg
HiIYGx8aGyMcGBsW
HR8bMINMIE00GSEXGxwVGx8ZHiQdHSIbGx8ZHS4qIEQ2JTAoJCcgJCgmHSQg
HiQeKi8uHiQeGSwl
GSkeHCEaGR0YGRkWExsRIjA5LlaglkmNJE2PKFGTJ0mFJU+XJE6SHj9vK0Be
L0VdlzA4DxoSCw0G
Dw4JDhELDhQMFRcQFBgRDBAJDAsGDBEKEBQNExUMFhgPDRIMDhMNDhELDxUO
DhILHykpM0xIHSSz
N1WGLFikI0J3Iyo3KC0tJiwwJiwwJi0tJi0tJCotJSksJissJisrJCkqJSOq JCoolikkGiEcFRwZ
GB0YFwVExoUEXgTFBkSFBkSExcQExcQDxMMDxMMEBQNDhELDhELDRAKCAsg
BwoGBAUDAQIBBAQC
AQIBAQIBAwICAAABAAAAAwMBAQIBAQIBAAIAAAAAAgABCgYDEhcTHyo6IDNZ
Izhwljp1HzZzHjZx
Ijd0ITp4J0eLLFWHmWOvNWazOGmxMWSsLWGsNWKuNmavMGWuLWGsLVyIKlmi

KFmhLFejKlijJ1mi
L2KpL2StMGqxMG2zMW60MXK4M3G1NnC0Nm+zLmKmFDJRDBobDREOFRQOFBsR
FRoTHCYjKERbK1mV
IVukKmGnMW2yLXGzMXK4OXm7Nni+M3W9LnG2KGSoJVecJlCYJlKaJlijLGau
KmetMWesMm+1MnK9
NnTBL3K3LWeiKFF2HDZFFR8hDhAKDgwECAsFCA0FERMMExgTHyMfFygRDQ0K
DxELDhAKDhELEBQN
JCshHB8YDxALEREKDBAJCw4JExMMcGwGDA0EHZQ3N26bMXi/LGuyLGWoKmmn
K2eoLV2dJ0qDHzzx
ljlolTlpHz1sHjxsGS9ZIS1SHTJgHjJvHitXJUNvlj58HjRwIC1iHCIDHiAj KTIESH2cQXGbl0V3
QGmNbKzRVZLBFCe0GB0SEBQNfHkRGB4VFRwTDhELHB8XGh0WExwUHjEfJywa
YmI9SIA2HR0UJzAz
KTI1JS4xJzA0KjE2KzM2LDM4LjpRKkd8ITZOEBUOCggGEBAKDRAKExUNFhUO
ERQOGhwYMDdFJys4
GxwXEhQNDBELGR4XGx8aHCEbHyQeMzgyISgiHSMcHCMaJC4iKTAplykiHClb
FhsUFhwTExcQDXMM
ERMMDxQOEhUPGxwVGh0WFhsUGR8WGiEXExkRFhkRGRoTFBoOKDZIMV6mIEmF
JkiCJkuLKUmDID5w
KkqJID9rEhUWERMMEhgQFR4WDxELISQfJDIZFhUPMTg/FBkUHycKJi8yFhUT
MD1CFhkXlyknlyky
Gh4cGhwbGh8aM0JDERcTKjExISMmHh0XNT1AGBoXKjEvHCEiHR4XLTU3FwxX
Lzk1JTlrJjcyEx4R
Fx8XFxkRJC46LliJkqMJK6PKFCRJ0aHLU2UKU+QJURIHy41DhIPDAwFDA4H
DRAKDRIMDBILDxMM
EBQMEhMQCwgGAAIAEg4MExcQERINDhMNDhQMEBILEBQNEBUOGBwXRGSGQG6I
HSoyPVV7LVWfJUBz
Iyozy0vJysuKcSvJSorlykqJSsuJCorlykqJCsqJisslygpligmGiEdFx4a Gh4cGB0YFBsVFx0X
FhoVFBkSFBkSEhQQEhQQEBMNDhELDXQNDhMMDhELDHILCw4JBwoGBQYDAQIB
AwMBAAAAAQIAAQIA
AQIBAwIBAQAIAAgMBBwcBDxEPHyUxJDJTIJhqJjp2Izd0IDlyHDZvITh1
JEeGKlecK2GpNmm3
NWY6NHC+M2u3MGqyNWm0MGazLWWvLWKpKI+nLV6sKWCqK2OtKmKsK2KoMWmw
M220M2+3NXX1MHK0
M3S2MXC0NnC0M2uyNGmyMWmzIkeEDRMTERMIExkRHyUfKzQyFyEZFxsRHSIb
Hy82J01tL2CaMGiv
MHG1M3K6L2yyJl+pKFSgJlOaJlIdJl2jK2auMG+1NXa8M3a8M3XALW+6LGeq
LFmMIUBbGiWzFhsX
EA4HDAoECggFDhELCAsHEhMOEBILEhUWJStoGh5TEBUOfxcPEBULEhILFRQN
DBIMGBsTERIPEBEM
DhAKEBQNERUOFBcOEhQNDA0ICgYDEhgQLUtaNG6oLm63KWquLGWpK2WmJ2Sh
H1OOIOB1IjdlIDts
I0R1IDpqGSpNHyk9ICxEHjFXLE9/IEB/IDd0HDBsHy1SHitKKDxqR3maSIKp
UYi1ZaLLXJfCIDVQ
FhcQFwVEBMNExcQEhQMDhILDRAKHSQZISYfVVI4YmFEZ2tMY2BAExkNBQMC
KTE1KTI0LDQ2KTI1
JzA0KjI2KzI3Mj9YKkd8ITNFDhMMCggFDxELDxIMDhMMEBUPEhgMGx4YLzZL
HyY1GB0WFBgRERgQ
HCIZHiYbHCQZICcelysjICyfhCMAhCIZJi0kLTYvGyldGR8YGylZGh8YHSMa

GyIYGx4WFhkSExUO
ERMMDQ4JCw0JERINFxkRExUOEhkRExgRExQLKTpWL1mnJEmFK0eBKkqDKkqE
ID5wKkqLGDlhDhIP
DxIMExUNlykiCwfFhkRGCIaDhMNGR4ZEBILFhoVFBkUDxUNFwxVDhQNFBSV
FxrRHh8YM0s1GzEX
ExUREhQMGBcRFRcQFhsUExoREBcTEkSFxcPFxQRExUNGRUSJTQIJ0AoHD8I
GzkaFBsVExUOIi45
KlegIOiMJE6RJVCQJUihLFGVJE+PFCY5DQ4FDg0ICxALDg4LDhELDxMMDhIL
DhAJDxMMEhQNBgcE
CAwGEhcOERELEBILDxMMERUOFBkSFxsRFRcQGBsTMEFDMTpALz0/PVvyVKFGd
JT xvJC0xJy8tJy4w
JSsulyksJSsuJi0tJSorJCkqJSorJCooHyYiFx4ZFx4ZFh0YGB4XFxwVFBkS
EhcSFBkSEhgQFBkS
FBcSExURDxEoEBEMEBQNDhELDRAKDhELDhAKCw0GBQcDAQIBAgABAQIBAAIB
AAIBAQIBAAIABAQC
DQ0KGiEpJS1PITVpljt0HzdyGzVuHTRpljlvIT59KE2RLVikMmSzM266M3G7
M2u3Nmql1NWqzNWm0
LmayM2u1NWi1L2iyL2mxMGi0K2e0LmqyMm21MnG4MHK8MXS6NXi4M3S4NXC1
Mm+1M220Mmy0MWuz
L2qyMWuzMG+1LFSYGSAPKDg5ITlrN0hFKzg5Gh8aFRwTHiUgGyEbGRwRJDZB
LV+mKVIDlIGYJFaa
J1qhLV+qNWyzN3a6NHi+MXi/NHe9MnO3MWisKk9+GjZJEyEiERQODAsGDAoE
DBAJDREKGRwVExcQ
ExUOExUODhAJDhMJDhQOFrgfFhkYGBorFhkRExkSEhQNERELEREKDhILDhMN
FxoSEhQNFhgRExoR
EhkRExkRCxEKDA4HDAsgCGYDgywoNWOIM3O9K220LGatKWKIK2OkJ1mYIOZ9
IDtslONwIT9uGzdj
HCxQICk8lyoyL0dtljt5Hzh2HzdylzRpJz5xLE1+R3ifVlatYJm7WZS6Q2+b ExstEBULDxIMDREK
EA4LBAYECw4JU1Y7bnJOPUEyRUo4OUIxJSkgDg8OBACDBgYEKjE4KjI0KzM1
KT11JjE1KTM3LTM6
MD5aLUR6Hi48DhILDawFChELDhELERMMEBUODxMMGx4YLjROFx8jGB4VHSIX
GSIWlyceHCMaGiEY
HyYdHiQdHSQbHiUaHCMYICYdlykhHiQdGyEYGyEYGB0WGH8YGB4XFxsWGB4V
GB4VFX0UGB0WDxQO
ExcQDhELDAwJDg0IEBQNHBsQMT9iLlimlkiCJEWAJEmBJ0iDIjtuK0qMGjVV
DhUMFxQODxELGylZ
JzUrExgREBilexURFBgRFxkWfx0XFxoVGh0XGhwYExQPExcQFhkRFhwSGCMV
FIETERINDBELEBQN
FBgRFBkSMiEcgzcoYiodFkQFhUTFxQPEBAKDRALDxMMDw4JERMMEExUODxEI
ITA8LVmiHkeIJEyQ
KFGTHkeEKIKWJ1CSFyg7DxEICw4JDhAKEhQMDg4LDhQMDxALDxQKDxQNERMQ
ExcQEhQNEhQNGB4X
FRwXGR4XGB4UExcQCgsGAAUBCG0INUA6RlRQ2d5NIqSLVGgJTttJC0xly0v
Jy4wJSsuJCotJiww
JSsslyoqJCkqJSsoqlygpHCMfGB8aFh0ZFxsZGB0YFx0XFxsWFRoTFRoTExgR
EBUPEhUPExUREBIP
EhMQDxIMDhILDhELDxELDQ4JCgwGBwoEAQABAAAAAIAAAIABwQBDQwHGBwe
IC1FITVjlzh1ldz

HDRuHzZwIThwJT97KEiMLlefNWmyNm27M2u4Mmq3Mmq2MWq0MGqyL2ezL2uz
L223MnC6L223MW66
MXC9NHS/NW+7MXG8Mna9N3e/NHS+NHS8MHK6MW+zL2yyL2qyM221M221M220
Lm+zM3G1MG6yM3K2
NWqvHixIKjAtlCoiHSIbFhwSExoRFhsUGh0XGSEXFRgMHSkuJIGLKV2hMGuv
OXa7OXm+NnnAOXzD
OnzCMHS2LGSbKUloHS89FBwaDw4JDgsECwsEFBkSExoUDhELExoREhgQEBeO
ExgRFRoTFxcQGBor
Fx0UExgPEhgMGSEXDxALEXINEBUODhILEhQNEBQNDBELDA4HEhQJExQPERIN
GhoREBILFRQNEBQM
DhAKDA0ICg4HCwcCDhMMK0JLNnOkLnK3LmmtKWGnKGOhLI+iKFiUJEh8I0Bs
ID9mGzhhIC9Nlys7
ITRaJTp3NVSKPmqeQ3umSIKtTImxTo60Vo22VI60W420TXunFSA6CAsFEhMO
FhgREBIJAwUDEhEM
MTgrLDYsJS8jGyEaGBsWCw0GBAUDBQMCAQABKjE4KT11Kj12Kj12KTE1KzM3
MDY+MEFiK0N1Gy0w
DhQMBQcECRALEhQMfX0XERgPEBQMgh4cKzBIFBgXHSQZHSQZGSEXHCEaExgR
ERUOGBSUGyEYGyEY
HiQbHSIbHSMdGyIZGyEYHCIZGh8YGB0Wgh8YGBwXGh4YFxsWGR4XGB8WFh0U
FBsVFhwWFhsUEBIL
Cg0IFBsSEBcOM0ZrK1ihKEiCKkqEJkqGJ0uCljpnKUiKHZNOGyMcFBgRPETV
P1hyOFFqNldpOF1r
QmFyPmJ4QmZ8O2R5QWyDQGyASHKNPF5sDxUPDQ4JDRAKDAsgDxALFhkREBMN
FhkRExgRGxwRlkQu
9suz55ZzRyALFhwSGhsQExoRKnVMFTQZICcelSgdExkRDQ0GJzNGMVemIUSI
Jk6PJU+SJUqKKVKU
I1GTFSk/Dw4JCw4JEA4LEBEIERMMDxELDxMMERQODhILDRAKEhMKHSQgNEpi
KkRUHiQeGBorCA4L
BgYEAQAAAAQIBAgAADQ0KGilfCw4JL0RgMVillDljJCoyKC0tJiotJiotJSor JSorlykqlykqlik
HyYkGB4cGiEdF4ZFwxXGh8aFhsXFBsVFBkSFBsSFBkSFBkSERcQEhUPExcQ
ERQOEIPDxEUERUO
DhILDhELDhAKCgwGBwgFAQACAgAABgcEFBkblyxBJDVflzhyITh1HjZxHDNu
IDZyKECCKEiPJ1GW
LlynMGOzMm24LGmvL2iyM2mxL2StMWmzNWy2Mm24MG28M2+7MHS7N3nCon7J
PYbSP4PNO3/DPII
On7JMHK9NHHK8NHS8L2y1L2q3L2u4K3G0MnG1MXC0MnG1MnO1LnK0MnG1M3C2
MG+2NnW/KlaelCc7
ISogGB8WFxoTEhoOExMMGRYRGh0bli83OWKWO3y/On3DN4DHMn7EMXu+NXSz
LmCQJUJbGyouDxcR
DQkEDxEHExcQDxMMFhkSFxoSICcbGilYFBkQFhcQERcPFhkUGBwSGR4SFhsU
GR4XEhgQExcQERcP
EBQMfXoSfHkREBILDA4KDhELDhAKExkRHiggLDg0N0hKLDk4DhELEBILDhIL
FBcODxUNDBELCw4J
Dg4LCw0GCwgCEyAeMFI0LG6qK2ytL2utJmOgKmajJ16hI0yEJUBulDijHzhd
HCxQJ0FjP2+fUoy1
WJK7VZK6T42wTI60TYyzSoyzT4q1Toy3VpLBHDhaCAsFDxQNFBgRDAsGBAIB
DxMMF8XEBUPCwwH
BgUCAwABAIBAQAABAAAAQIBKzM3KT11LDM6KTE1Kj11LDM4LTM+MERmJ0Jw

HCYnFBkSCxEKFRQN
JSomQ1dkOUVIJJEtKC1GJytVGh8YGyEaGh8YFxoVFBsSFBgRCw4JDhELDhIL
DhILEBQNExcQGBwX
GB8ZGyEaHcMaGylZGyEYGR4XGh0WHB4WGRoTGR4XFx0XFxsWGBsUFhsUERUO
DQwHDgsHEXkREhQQ
M012KFahKUV/MEyFI0qCI0Z/ljlvKEiJHzddli0IDhELHSQfLkM8R2NtQ2x9 RWh+PWR7O15tP1pp
O1ZkNIJaOIFVN01WOFJYJjMvDQ4JBQMDDAAUBEQ4KGCATFBsSliYiHiglHyEY
kEgv9rac04xiQCQT
HClbHSQXGIEYLIUxIDcdISkbGyYYGRsPCgsDJjRGMVajIESFMVGSLU6TJUML
LE6VKFGSFitEDRIH
DA0LCw4JDBEKcxALExMMDhILDxEIERcPGh8aJikiLzYxLTk9MT04JTAuFRsU
ERcMDhELCAoGAgAA
AAABAAABAAIAAAAMEJWLVOdlzZcly4yJysuKSswJSorJSOqJisrJCkqJSor
ISYnGx4dGyleGiEd
FRwZGR4ZGh4cGBwaFBowFRoTFBsSFBkSEhcSFRoTFhkSEBQNEBMNERQODxEO
DhILDhILDhELDRAK
BwsFCAsGFBcSHig5JTFWJzhwlzdzHzVsIDVvHjVylz5+J0eLK1OdNGOvLmiw
LmayMWi0LWiyL2iy
Mmm1MGU1MGy3Mmq3Mm+7MnK9L2+8OHfCQIPNTZriUKDnSo3QLmOTJ0VbljE3
IjtCNWqVOYHGM3rJ
NnK8NnG5M3C2MWixL2qyMm62MHG4MHG4LW+2MXC2M3K4Nne9MHe+MnW/M3PC
JIWeITFVJCoZJy4z
MTpFO01mPWKJPXGnPH7EPoXRPH/GNHu+MW6sKld8HDhIGSMkEBQMDgwFEA4I
DhILDxELExcQFBgR
GBwSEBUPICYdlismHyYkGBwXEhoQFhkRGBgREhUPFBOTEBILFhgPEhgQDxMM
EhgQFhcQERUNFhcQ
EhQNExUODxEKJCSIPVFSMEJHKTUzIC0mHCMefRcQEBQNEBQNEhMOExcQChEL
EhILGBsTeXMMBQoD
BwMBEQ4GLk5IMnGvLG2uMGmtK2KmKmKiLmCfJ1GNlj1vHjpeHjRXNvt6WZK2
TY+xSletSoevUYmy
TouzTYy0S423UI65UpLCVYy7HjBCDxMMEBILDQ4JCQsKDxELFRcQGRkRDhAK
AAAAAwEAAIBAQA
AAAAAAABAAIAKJE5Kj1KjM2Kj1JzE4KzI3LzY+LEVyJj9pGSMgHCMYGCla
GiEXIykgOEdMMkFD
LTIDLzFoKTBkKDC5Gx8ZFxwVExoRFhwTGB4VDhELEBAKDQ0KDA4KCQ0GCxEK
DQ4JEBILEhUPEBUP
FhsUFxoSFxoSGR4XGB0WGR4XGh8YGh0WGBsWFhoVExgRDhELBgUDCwoGDhEL
FhkSNFB+KFWdKed/
KEI/LEmEJEd+ITyLEuPlztcFx4VBwoGAAACwoFHCYelismJCslGiYeGiMY
GRwUFhkOFxkQEHQN
FRUMEhQNExgPERUOBwoEFBUTHR4XFilSGB0WHB8XGiMUlilaMS4bWjYhRSgY
liUZHlQWHSMWGB4S
GhoRGiITGx8VFx0TEhUPCw0GKDpHMVehIUmEKIGPKVGSKUiKK1OXK1SWGC5J
DA4HDhAKDxEKDxEL
CxEKDRAKEBILGylYlysJkTArLDU3MUZPOVN0M05nKTU4FhsXFBgRExcQCRAJ
AwABAQIBBQMBAgMB
BAIBKtTQKISZJjhXJiw1ly0rJSsuJCsqJS0rJCsqJissISYnGyEfGx8dGCEd Gh0cFxsWGB8ZGB0Y
FhoYEH4TFRoTEkSFBgRFhkSFRoTERUREhUPEhIQERQODxQNDxIMDxELDhIL

GBkXISg1ljJTlzhp
ljpwIDVvHzRrIDNpITp4JkWLLISaMmKuMGsYmWyMWOyLmq1LGmyM2y2MWy3
NW+6M2+9MHG4MXG8
NnC+N3S/On7IRo7cT53iVJrXQnqnKE1kHy41FBkUDxMMGRoPExUNERUOITQ5
NGelOHZANnrENXO9
OHG4LGevKmGnKF+jMWevMXK4M3W7Nna+NnO5K2Sul1iilVifMV+sOWy3ToLA
UovHRoLKRIfUQYfU
OYHLNnm9MWibJktoHS82Fx0bFhgRFBMHDxEKExMMDxUOFBgRExcQEx0SFBOT
GR8WHB8YHSQZLTkz
T3OPQGInKz1PFBkSFhkSFhUPFhkRlikelyogFBkSFxkQGBoSERCPEhQNExpP
ExUOFxkRGx4WFhkR
GR4XHiQdERgSDxEKGBsRGBsUExcQExkSExcQEBQMEQ0KDg0HCw0GDA4HFRgT
FiUpKD9YMFaELWef
NGquMmmLTmmnLWSmKGKjKWCGKI6dLImRHEV0FzJYNIZuWpCwUI+2UpO4U5W6
W5e+Wpa/VZS/VpW8
UomwOFx0Hyk0ExkRHSEYFx0UDxALExMMFhgRFxoSHRwWExUOAAAAAQIBAQIB
AQIBAQIBAAAAAAA
KTI1KjM2KTE1KTA1JC8yLDQ3MThEL0V3JDxkDxcRDhQMEBcQFhkRHilZHCib
HCQZKzM9KCxNJixK
JS4qHSMaGR4XKzMIHyYdGh0WDA0IDhAKCRAJCxALCw0JCA4IDxMMDhMMDxEL
DhAKCw4JEBAKDhIL
DxUOExcQGBoSGRwUGBsUFBsVFxwVExoRDBAJBgUDDhAKDxUNGRwXN1WHK1WZ
KEd/K0iDJkmCHEV7
HjlrLU2RHZlbFwxVBAQCAQIBAAIAAAAAAaAABwMDDQkGCwwHCgsGCAwGCgoH
CQsECAsFCwoGDQsG
BwgFBggGBwoDEBQMDhAHEhQJDRIEQ4KEg8LFBgRDxUNDxELEBAJFRMOEBEI
EQ0KCg0ICRAJDxQN
ERINEA4LBwoCJjhKLlagl0eDLk+UJ0yQJEiEKFCUJIKVGS9NDhAJDQ4JEBIL
Dg0IDREOGyEYJCoI
JisnKzY4MkhaO1qBNImFLEJaKjQ4Lzo8ExsVFhgPDRIMBgwIBQQDAQIBAAIB
BAUDCwwHQGx5KVKU
KDdSJyszJS0rJSssJCorlykqJCsqICyKgiEdHCMfGB8aGSEaFRwZFwxXGB4c
FxoZFxsZExoXFRoT
ExkVFBUExcVEhkVERgQEhMQEhEMEBILFxQNExoUHiYvJDBOHZVjJTh0HDVw
HTRpHTRpHDdyK06O
KFScLF6qMmazMWWzMmSwK2OwMGSxM2q2MGy3L2+6MW++NG6+MW27MG24OG+/
PHrCRISr4zZRozO
Nm6gKU1kljI5EhcTFxUQHB8YGx4WExkRHCQdICceFhgPFxoSExUOHSwpL1l3
MXWzN3nENHK8Lmq3
JmGrLV+kJVqhJFWYKlmeKFqILGCqN2yxSofLUpXSSlvKQojLOYTNO37IONWx
LI2LJT1THy0sFx0X
GhsQFRUMExUMFx4VGyEYFx0TFR0SExcQExgRFhwSHiMYICUeHyEZFx0SGx4S
UHOAR4CiV4myMU9j
FxoSHCMYHSEaHSEaHSQZHCIZHSEYGhwUGBwSFBkSGBwSFxoSGhoRGxwXGB0W
Gh0XDhQMDxELDQ4J
DhAKEREKEhQMEBILDA4HDw4IEg4KGB8aDxIMHiQbNVyDOWigOXCyNnG5Mm6z
L2isLmipK2epNW2t
NGyqMWmplMakJmCaK1+ZKI2UJEp/GjhXL0tfOWR7RHCMRnaTRHCNPGF/MUxf

KDg7ISgmHB8eHSMa
HiYbGiEYGB0WDhILFhwTEExkRFBsSFBsSExUOAQIBAAAAAQIBAAAAAAAAAQIB
AAAAKTi0KTI1KzM3
JzAzJjEzKTE0MDhJL0R4JjxaDhELDRAKGyIZGR4XFR0XExkRFBkSLDNBJi1T
HiEzHCQZGB4VIR8a
NkMvIisgHB8dGBkSDxgRDxUOCQ4GCA4IDg0IDRAKEBAKCRAJDhELDw4JDw4J
ChAJDRILDRAKDREK
DxMMDxMMDhILERUOEhcOCw4JBAYEDA0IDxEKHR8bOViolFSVJEZ/J0eEIUI/
JEN4IjhsLU2RHDNM
DRUJDhELDRALCRAJEBEMHS4dFSYWlighlCoilSYiGyUeHyQdJC4slSYilism
FBoWJCslGx4XJi8y
MkVhLTIKEBQNly4tNUphLT5MISgkJTAsO1JyLkdglC4tlygqPFZ3MU9tGiYr
EhQMERcPHiQeGRwV
IzdRKIWjIkeEKK+Mlk2NJkmHKVCULFOZHTNRCaWGDg4LExcQGyIYICggKTQw
L0JTM1BxN1I/M1J2
MkNZly88IyksKTQwLTk9GyEaExUNCRAJDhAKAwEAAQUBAwABAAMBAAIAIDA8
M1CPKTdQJi8zJS0r
JCsQJCsQJCsQHyUjGR8dGyleGB8bFx4aGx8aGBwaGBsaFwxXFoxYGRwaFB0V
ExgREhcSEBoUExoU
ExUREBQNERUNFBkSHCIqIS1JITRfIDNvHDNuGTNRHDJplzdzlj+AKUuSLlek
MmGvLmayKmKvL2Gt
MGOWL2WyMmq2L2u2Lmq3MWu4MGy6KWu2MG+8OHXAO3zNP4DNO369K2CNKUhc
ITE0ExkVEREKDhMI
HyUeKzc1M0JEKjUxJCsqMj49Ji4rLjw/QIVYICoqEREKDg0HGyYnNVp7NXWy
MnbCMW66LWizLWSt
JVeIN261QX7DRITGRILLQITON3zCN3e8MWmjKE1rHzU9HCYmExoRDhEHGBUM
GhoSHB8YGR0YHSQY
SmVyNIh0ITE6FRsUHR0UGBsTGyEaGyEYGR8YGSEfNkVHME9fSnmXToaoO117
HiMdGx8ZHiMYFhK
ExUNOVNWITH6gMIJ0GyAmExINHylYGH4YExQQIEAiJV4wFR0SEhILDxALEBAK
EhQMEBEIDQsEEExcQ
FRcQHyYkKEJZNVuKMWieKkuBMViDN3u8OHw5Mm+1K2iuNGqxMmywMGmtMm2s
LmmnMGapN2mrMWiq
LmSjLVuZKVqUJVMXJFGMHjpoHi9LzFKITFKITFEIjJFJTNALDY6LztFKzdB
HSQfISgdHiMcGx4X
ERUOFBsSFhkSGBsTFx0TExcQAwmBAQIBAAAAAAAAAwMBAAAAAAAAAKjI2KzM3
KTE1KjI0JzEzJzAz
LjhJL0Z4IzZOCQwHEBAKGiEXHCUBGylZFxoSICMhMTNYJzBkGRsdFBkQGyQa
PEpDKDQmICYdGSIY
GCEXGh8YGR4XGh0WFBkUFBsVFhcQDRALCxlLCg4HCwwHCxEKDRAKEA4LDhAN
DxELDREKCg4HDA0I
CwsIDQ0KDA0IBgcEDg0HCw0GHSQgNFirJVKSJUibJ0mCKUaBlkF6IjhsKk2N
FCK/Cw0GFhwTDhQN
Fx0bICcjMHJWHE8qExUOGR4XISgfGR8WliofOkNKJCsnM0FAHCEbO0FCliYi
QWCBQ3SsO2OLDRkU
O1NqSHqxQGubESIIOUIVTHiwQnOfFy43LjxCSXqtQnmoJ0JRAQUBBgsEGR8Y
NUA9K0BILVShHkeC
JFGKJU6PJkeHK0+VJ1GZHzZXExUNDxEOFhsUFBsSISsjOUpgNIRzME9qJztQ

Jy04JCorTUheV1Jt
KjhDJJezFhwWERUNDBEKCQwICggFBQcFCgYDBQcDBglAGyMpLUqCKzdOJC41
JiotlykqJCSqIScl
GiEeGR8dGiEdF4aGB8bFxsZFRwXFhoYFhsUGh0bFxoYFhwWFBkVFxoTEBco
EBcQFBkUHSAllixE
HjNeHzhrHzNvGjJrHDJrHzJuHTp4IkuNLIKdLFqILWKqL1+qMGGvKWGtK2ax
LWe2L2u4Mm24K2q2
L2y1MGU2L2u4MXO/N3vLOHzLN3a6NFuLIj5RHCKpGBkUFBgMEBgMGRwSEhMO
ExoRMzo4JzItly0r
O0IGMT1ALzg2MkFCJTU+Qk1KJDM5GB8bPE1NGCQpKS4pKjk8MFFrPXGoNnK4
MGU4NnS7OoHHN3/J
OHjAOG6yLI2IkJUGyouFhoWEA4IERAHGBsRHB8VGRsTMUJBNEpiR2yIOFp2
JDM6N1FLUYacO2WD
FhkXGh0VGx4UFBsSLTg0PmJyR3WVT36iUlesT3yiUneZHzJCHBoaHCICFBcS
ERcQERAHS21qbbjg
bLPtKk1tDhILFBsSGiEYFhwTGioYK05Hy0cHR0UEBIJDxAHGR4XlyUoKzZF
P1+HOGGYPWeiPXC+
OHG5N3G1MnS+Mna9L2mqMI+YJk9/KEVmlzpSHjZDIzU+ITi8HjM9IzhCLENY
K0xtJ1CBKVSOKFGR
JlaNK1iOKIWNIEZ2ITlaKDZNJzILJTpHKTILLjxNKzxFLTtAlisqExgRGBkS GBcRFxkRFxoSFxoT
GhsUGx4WGRwUBQYDAAAAAQIBAwMBAQIBAAAAAQIBKTE1KzM3KTi1KTEzJzAz
KTExMDxNMUUh6Hi5E
CgsGEhILGBsTGR8YFhsUEhkQlyoqMTRZJCIBLzIALjxGli0IRFZRIZImJi0k
GyIYGB0WFB0TFxsW
GBsWFhwSExoRExsRGhkTGh0VFBsSERUODhELDhILDxEKDw4IDgwLDA0IDBAJ
DhELCgsGCwwHCw0G
BwoEGBUNEBAJHycrL1mVI0yNKUmCJEmAJUeDJUB5Ij1wKU6OEyU4DA4HDhEL
GxwdO0tXMkNLLkVJ
li8nICYfHyYglikkExgTFhwTJi0KERINJDoqHzgiNEk9MUo4NE5aTHigOmB6
DhQQMUBFQ22QP2eG
EBoVJzIxQGSATHCPFB8clCkKp1tzQGZ+FigmEhAODhIPICYdHCMekZ9hKISd
IUaDK1GSKk2RJkiK
J1CSKFKcljpiFhsUBwgFCAsFAAIAGhscNUZeJzA0HiYjKjM6KzQylyoyrpW4
2dbnLkVdly4sGBwX
ERcPDhMMCw4JDQwGCgwGBwgFBgoEBAYCGiMjMEFxDKVJJC8zJysulykslyks
ISYnHCIGiEdFRwZ
GB8bGiEdFhsbFBsYFhwaFxsZEhkXFRwXFhsXEhkTExgRGh8eliw+IjRbITZq HzlwGjJvITJuHi9q
JDI2JEqLLVegLmOsLmOuLFynKF6mJ1+rMWOTL2ayLGeyMmq2MGi1L2m2LWm2
MWy3Lm++NXnMNX3N
N3W8L1uLJEBrFycmFhkRDhIGEhQLEBAKFRcQExoRGh8YGyEYFkQExkVFBco
EhgrlyogJzIqRVla
Ktk2LzYzNURJNkdPSmV9MkRMKzU0KTUvLDMzJzI1JURgM3G1MnrEOXW8NWij
LVJ1ITZAGSMgFxoP
GRgNEREKfhgPEhcOGhkTPFdXOVRrIS0zRWFjWlqoTYSpuYeeKURSDg4Lly4I
HSkgGBwSGB0SFBsS
PFhaUX6jU4euToSnQ2WDLEBHKjY6HCMfGyldJ0UsIC8gJCgfGBwSligaFxrG
LUA3LkIHGCQgGB0W
GBgRERMMGBsPFhUPEgwlGhsUly4tLkJWMkt1O2eYOG+vNnG0OXG1O261N2uv

MWeqNGywNWy0L12Z
Jj1glzl5HygrKjEvKzU5Kjk8LDICKTxFJjhDKDY8JTAzHScnHyYbHykmJThB KEJkJkt8KFajJISM
JlWJJ06BJT9oJzdRJThlJTpMKDtNLD1ILTxEKTI1GilbFxoTFxoTGB0WGYEY
Gx4XHCIZICYdHCIZ
BgCEAQIBAQIBAQIBAAAAQIBAQIBKTEzKTI1KjI1KTE0KjM2KTExMDxSLUR6
Gyo6Dg4HERMMGR0T
GB0WExkRFhwTJi8zJyxKMUBbNIKAOlMDIzs+QU9DJS0hHiQeGB8ZHCQZHCMA
Fx8XExgPJjM2Pilo
KDs/HywqGh4cEhMOEhcOExgRGBwXGBsWFhwTExUOEhQMERMMDQ4JBwoGCg0l
BwoGBgcECxEKDhAH
Jyw6MF2eJEuJKkmBJkqBJEiEIEJ2Jz50K06MDyMvDAwFFhwTFBkSDxgQFBgR
ExgPFhMOJCoglyok
HilZFBsSExcQFBsSFxQRMFc/LXVGK1A5OoFWHCcWLjc5li8olSgfJCcgJzAz Ji0pJC4oICkfJS4u
JC4wlykhHygeKcSVHSotHB8YJSsjIS0IGSEXBwcBLkBDKFWelkeGK0+RKFCR
JkmJKVCTKFWelJtl
ExgRCg0lCAsFAAAAExcWM0JfliozyFFJhoCaLjtTMDZAZWuAilG+HjtJli4o
GiEYEBcPDxALEBEM
DAoHCAoGCgsGCggFBQcEGx8dLj1jLDhJKSsxJckqJCorligqlicoGh8eGiEd
GB8aFx4aFBsZGB0Y
FhsXFhwaFh0ZERcXGB0YFBkSGyEfJzNWljdvIDp2HzdyHDRrHTNqljd0J0WD
LFWXNGCpL2StLGOp
J12IJ1qmLF6qNGGuLWWxLmazKmaxK2eyK2azKmi3MGU/MnPJNHTDMm+yKlyG
Hz9PGygpFRgTGBUN
HCEWFxoTGR4XFBkUFx0XGyQfGR4XDxALCg0IFxwVFxwVlykhJCoilSgilikk
FwxXKTArly0nPVJa
MD9MLTtBKTtGLENYMVJ6OmykOnO3NG6tLV+JJkZcGzA1GiEdFhgMFxQNERUN
EBUOERcQExoRGhsU
ExkRGRsTQV1dVIWcOWWBExgULTkyMEVDKDC5HyMcGh0VHR0VGx0VJTUwOVJi
IzI1PFNUTX6SRXCP
IjE8GR4ZFxoTExUOJD8iLVcxJU8zJEEwHiMdHB8XGR4XGh4UHBkRGhgOFxgN
FhUOFrIMHiMdISkt
MEJPO12APWmcQnGyP3W4OnK2OnKxPW+yOm2uOGuqNGmoMWyqL2isL16hHzxi
HiYqISceMkFFJjVA
KjQvly4tHykhHiMcHyUfJC0kji4nlysoICkkHyYhExoRHiMYLzxFJ0h0Jkl0 KleHJVSNJFKKKVGH
J0Z2JD1XJjILLjtOLjtOMT1KJjE1JS8pHSIbHCIZHSMaHyMcHCIZHiUcISYf
HyUcCAsHBAUDAQIB
AwMBBAQCAwMBBAQCKji0KTI0KTE0KjE2KTE0KjM1MT1ZKkr3Dx8oDhAGEBQN
Gh8YGYEaFBkQFxoT
KSsxKzRAQF6OPXGhPmycNFNzMjwwHCCYGR4XDxMMDhELCw4JDA0ICgsGlyol
QIZdSmt/UneZS2+P
OVdtJztCGSQhExoUFBgRGR0TFhwTFhwTGRwVFhkSEBUPDhILBwgFCACeEBMN
DxAHLTVMLFmeIEmB
JEmAJUqCKUqFJUB5Kj56LEyNEyluCAcDGB4VGR4XExgPGx8VGx8VQ21YITww
JSomlyokGx8aJSsk
LTk8Ji8rLDYyFxoXLzUyFRwXOkpfOIN+KD1KExUNNERVNI2ILUxkGSQfMURM
PmKOMIB0GicjKzc/
RmqWM1yLEycpCw0GEBILHCMYHyYgLkJnKIOfiUaCI06OJE2OJkqGJkySKFSd
JD9nExkSDQ4JCwsl

AAAAExgTMUdjlCw9Z2R8ydnmJERWKjAzLzdKJzxNLjpDJS8pGB8ZExgREBQN
CRILBAoECggECgsG
BgCECAQDExoUMT9eKTdJly00IyoqlyoqlSgoHyUjGyleGiEdFx4aGB8bGRwb
FRwZFxsZEhkXFhwW
FxsXFhgVERURKjE/ITp8GzZyGzZsJt5JEaHLFmhM2qzMWmzLV+qKF2kLVqj
JlmlKl6oLGOvKmKv
LGSwLWS0K2axLmexNGu8Mm/CLnPCMm6zJ1eHITtMGCMgFhgPEBILEhcOGyMW
GyEYHR4YHB8XICch
FwxVNERDM0pOJDevJCsnFB4THyMcICYfKTMuHiggly4mJDAqlyolMzk7Jzc/
LURcKkptMlyOOnC3
O37FNnW0LVh/HTc/GiEdFhkRFhgPGBorehcODRILDA4HERMMFRINEA4LEBUO
FRcQFhwTFhwTDhIL
JC0kLUA/Kjc9DxUNPFRTT4KINVt1li4tHSQbHSMaMz89UXWUS32iGi03JSgc
KU88S4x0HCYAKS4n
ICMeHiYaHiQdGx8iGh0WGYEaGiATHx0UGhoRERcMFhoVHSYpLz5ROFV8NmSg
OG+xQHK7OnC1OnSz
OnC0OHCwOW2wN2mrOGapOGenOWqqOWytPGurNI+jJj1xICQiHSMcHSMcICYf
JCKiMDUvHScfli0v
LD1SLTxXKjM/HSQkHiMkGBsaExUNERINDxMMICggNVZxi0l+LlmKLlqXK1CN
JFGGKVKLKk+Blz5k
JzIOLEFKLD1ILDQ4JjEtJCsmHyQdliYdlyceISceISceJSkgISgfDhELAwMB
AwMBBAQCAAAAAQIB
AwMBKTE1JzIxKzQ2KTE1KzM2LDQ4Mz9fKENzEB4kEBEIGRwUN0M+Ljk7HyYg
MDo1LTU3MjtaNlKF
OGCPQ26kP3OeJT83HygdEhkTCg0ICAoGCAYFCACeBggFBQcBCwkCHyMcGYEa
JS8tMURHQV1nSWH7
RGWAO1hwMkdXISwvGB8dFBgRExQLFhcMERMMDRAKEBMNGilYExUNLj9cL1aa
JkmCJ0qDJEuDKEqE
JEF2JkB7K02HEB4mCw0GDQ4JHyAeJzlwLTg/KDpAPYBbESsVFxcPGRwVDxMM
HSMcLTs4HSMdJzlu
GhoXLDYxHB4gR2yUP3SoOV2BDhIRQV1+PXapPG2TExoWQ1l0QXerPG+ZDxod
OEtDQXOqRHinGzi9
CAQBBwoEHIMcOUA/LUdyJlOclkaCKEySKU+QJkmJJEqQJlWeJT9oFwxVCw0G
CAgGAGAAEHQQMkdh
IzE+KjM6PVJiJjY+KjM1LThHLTIALDQ9li4pGR0XFRUQERUNDBELCAwGAwUD
BggDBQcECAQDEhQQ
LjxYKDNJJS44lCgqligrHiUIGSleGB8aGB8bGB8bGR4ZFhwWFxsXFxoYFhwW
FBsVFhsUGh4cHicv
ljRbHjh0l0OALFabNmgyNm+3MGauLV+oKlijKlujKI2pLWGuL2StLmWuLWWv
KGctK2KyL2i3KWq6
Lmu+L2SsJ1F/ITINGyUmDxQNERAHEhcOGRwUFhwTFRsUFxoSGylyFhwTHCIZ
FwxVJCgfHyolJDAo
IScgli4mHSQfKTEoFBsRHiQeMTs5MkJOL0VNL0hhNlmFNWunPHe9N3e/L2Wf
l0tmITM2HCEbGRwR
GBwNHB4WFBwRFBsSGB0WEhMOExUREhgQHilYEhMQCAsGEhEMDxELDhMMEhcS
FBkQGH0VTXB3S4Kn
Old0ISsqOFNTRGd9Ffx4hGh4YHyYhHC0gNGRLN3VaPXtcHjkhUJ5rJ1Y4FyEV
HSIbGyldGx4WGx4X

GR8WFxkQHylXGBsWHCMhlzNEL0pyOV+TPGelM12XOmyiOGyxN2WqMWisMmmr
MWeqN2qqOGuqNWun
OGmoM2inOWqlO2ihOmekPGSkM1GPIzFDHykhISgdGyEYISsqK0hoMk14MU2A
M1WPNV6iN1+dMFWV
LVCHL1SNMIGMGSY6Fx0RFxoSFBgRizAoKURgKUVqK12NKlyTKIaOK1KLLVWK
LFSJKkhyKD5XLTxN
JDQ3ISsqJzMvlykiliYdlikeICkflikglyofJCshDxIMAwMBAwMBAQIBAQIB AQIBAwMBJzA0KTE0
KTI1KjI1KTE0JzMyMkFiK0FwHScODRIIGh0WPUxQN0IMJDEtQE1WNUZOMUJp
Q2OfSni0QXOqPGeS
LkpFJC4iCxALCQKIBAoEBAoFBAYDBggFBQcEBggFFhsPBgcEAgAACQwEISMb
JSojJzMtMUJEOVFe
SWR8RmyMQGJ+M0xcHTEzEhsYEBQNEExgRHB8YExgTMUZrLFaZJEh/LEl/LEmE
JUqCJUNzI0V+JUyK
CxkhCw0GCggEJS4qKzxCJjQ6JjM3FxsXLDEqJjEsJi4nEhgQFhkSICccERMM
KUs5HjokOF1IIIQ3
O1ItTHqhKEZNDhAKOU1cR3qcMlViERcQNEFHUHWXNI1wEBgSJDUzRGulNV1u
GSleGh4YFx0XHyUe
Hx8XLUhxJVKZI0SCKEuPKU+PJkiKJ02OKlefij1oEBQQCw4JBwgFAQABDhAK
L0FJISotHyYkKjI0
LDY1Iy4rJiwwMTtCJzQ8JCsmGB4XDhQODhQMDxALCAgGBwoGBQcDBgcEBAYD
EBMNMj1XKDVLJzA4
JCcslicpGx8hGx8dGB0YFRwXFBsZFh0ZFh0ZFRwXFhoVFxsWHyUnHixIHjRm
Izl8lz+EK1meNGit
MWivMWKqKVuiKVuiK12kKmCoK2OtKmKvJ2OuKmKsLF+sL2KyLWW2KmW3LF6n
JEt+HDVJGSliExQQ
DxlHDxcMGhwUFRwTGSEXFxsWHSQbExoRJjAkHCEbHCoeHyQgKTMqHSUeJi8m
HSMcKC8mICUeGiUb
MDs3JzY4Lz5PMkxsMmCUOXK2Pn/FOXs2J1mDJENXITM2liklICccGyIYGIEW
HSMhlypAHR8qExkN
FRsUEhKRgh8YHicdHilZGBorFxfGRFfxkRFBcoERQODhQODhILExQPHSicOFJa
VlerRGyMGh8kFxoP
HioeGy4gHSEYJUstJGc4KWFAJkU3JDoxKC8+GigYGBBoSGx4XFhwTGBoOFBcM
Gx4UHCImKzxKMIR1
L1SMMLiRMVqRK0dsICs2ISgmGBwXICYfLUVTK0lwLEx2LVqNMGCdNWmlNGmo
NGWgNWShN2GhOWKc
OWKcN1+dPGOGKj9xJigpHiggHSEYHcMYNDtBKkdoMIJ/MlaQNViQM1OQLE+I
LFSLLFaQKUI7HS1D
EhoYExgPGh0WERUOGiEXMDtGKkJhLLaLLFaSKlaOKIOQJ1GHKVCJKIWNKU9/
K0BIKzI+JzIxKzUz
IlysoHygelikdlyofJSwgJCKiJCshERcQAAIBAAAAAAAwMBAwMBAwMBKTI1
JzAzJzAzKTI1KTA1
JzI1MUNKJzxIGB8dEhkQERgPGyIZICKkICYfNUBBN0hHNktUQmSATW+TTX6y
SoCtMk5XMT8/EBUO
CQ0GDRAKEBILCRAJCw0LBwoGDQ4JN0VJEhweBAQCCwwHFBsVExkRFhwSFxoV
CAYBCgsGICwkLj0+
N0hQPFZkSWF3PFdmDRQSCw0GGh0XOEx6K1eal0iAKkmBLUqFJUqBI0FxKUeA
JkuJDhkgDQwGGBsT
ExoREhQMFhUODBILExkRHSEaGBsTFxkRDg4LDxEKBwoGERIPI0szGkYilkoy

IVUwGiQcHiUgERgQ
FBoWGh4ZGR4XERINFRwTGR0YERgUDRIMDxQOFBoTGBkSExgPDxELFxwXERsW
CwwHEREKM0x311CY
JEOEKeySJk+QlkiLEyQK1egJEBsExgTCw0GCggEAAAABwoEKjMxGSleHSEf
MDc8Ljc+JSssKCsv
LDk/KDQ+IConGR4XDhQOEUBODhILCgwGCAoGBQYDAwMBAQMCDxIMMDtVJTRK
JzA4HyQlGIlfGyle
GCEdFR8YGB0YFBsVFRwXGiEWGx4dHyk6ljJeljd2HTx+HUB6HTt6Hz99LVue
LmSoKF2kKlyjJl6k
KGKoLmOqK2OpKWSuKGWuLGKvMGazKWe2KmGnJE17HDRIGiloFhgRDxQJDhIL
FRcQFBOTGR4XFRsU
JCoiGR0XJCwgHiUcJi8rHSckJTAoICYoLTczlighKzMuHCMalCoiMzs7JTAz
Mj5SMkxsOGacPHbB
PH3FNW+pLFV0JD5NKzxCNUVMLzs6Lzk3JjlmKTAkGR4XGB4UliQnJCpTGh4t
GyIYGh0VGx4WFhgR
HB8YHyQeFxfwVHB8YHSEYHyMZFx0UDxUODgsGKzcxVoWkUYepT3uVHicq
liUZIFaylFo4ICQa
Kjl2FSEdGBsUHR0eHR0ZGB4UFxUMFBcOERUOHSEflzNAMEtxLVCHM1qWO1+Z
PVyVSm6bR22cNE1s
PE1SNURJExQPHRwRGyEUHRwRlyceNE5cNFihJURxJT9kMFCALImRMI2aNi2Z
OGGeNGGaOF6XOlAM
JzhOICUHERUODw4JEBILGBsUMTQzNT5BNENTNExtLVODL1aPL1iRK0RvExkf
EA0HCgwFDAsGCQwH
DxELERcPLzs/NVaDM1yYMIqYLVuXNVmWL1qRL1mVMliWL12bMFuWKT9rJi8v
LTY0JCspKS4nJi0i
lyghJCogJCKiKTAIFxwVAAIBAQBAAAAAwMBAQIBAQIBKS82KjM1JzAzKTI1
Kjl1LDU8MkNtJDpd
Gh8eGiEWHScfJDMwISgolismFwxVFxwVHSMclSogHCYeLjo9N1ZhNUtKN0ZI
likkFx0XDxUOEhMO
BxEJDBAJCwoFDRAKMz9CEhwWBQMBJzl1PIRsAwoFCg0IExgRBQwKCwkCHyld
ISsjGxwVHB8XFhkr
GiEdChELCQwIGCibNVCCLIWZJUH/KEI/LUmEJ0iDJT5yLEqDI0yEFCQpDBAJ
BQMBCAcEAwYCB AUD
AQUBBAMDawMBBQcDAwUBAQMCCwgGCggGBwgFCAUCBwcGBwMCBwYDCAsGBAIB
BwoCDRALCxEKcggf
DQ0KDBANExQqERgSERURDxQOFhsXFhkSFxoTFxsZFhoWFBgRCgsGExMMNU57
KFOfJEOEKFCUJICT
I0yLK0yRKfahIUJyERgWCwwHBAQCAAAABgUDlykhGCQdHCMfLTc5LzIAJS4x
JjA3MDc+KjM6ICkp
GR8YExgPDxMMDRIMBwoGBwgFBgcEBQMCAQABBwwELzIPJTJNly82GSEfGx8d
Fx8cGCibGB8aGB0W
Gx4dHiQvICxNHjRmITi9HTp9HD14IT2CJkaHKIWVKI6iKmCjLGOnJ16kK2Cn
LWKpL2KpLGOpLWSt
MGmzMG64LW26J1WTHDZNGCEhDxMMExcLFhoRHCIZFhsUFRwTGiATHSueHiQb
Ji4nHyUeKjQsJjAq
KjUuJjQuOURBICcjLTg0GyUdLTQsKzlsLzs6L0BKM1N1NmemOXbBQXzCNGOa
KktjJ1ENEdUPFRi
M0tZM0ZOMz08LTg0HyMfICchJCoiHyYdHyUcICYdHSQXHikaFx4YFwxVFhwT

EhkRFBkSFRcQDxMM
EBQNGB0WHR4XHilbFhkRGiEWEBUOERUOJTYuQFZjGilflighlScIFx4SFxoT
GB4VGh8aGh0WGRwS
FRQIEBILExwZlis4KkRmK1GGLVaVM1qWLIGFRGSWVn6oRm2VOEpWVXiFU3ui
LjlsJCY7MTw4NUJD
ly4xLC8oLD9CDxALlysgO1FpPVyPOVyRMkx8KDIcLUJeMIJ6OFyVNF6YNV6Y
L0NxFhoVGRwRERIJ
DQ0LDhAKDQwGGh0WoeJCMTxHMDIELz5LMk5wM0hyEhoeDQsGDAwJCg4HDg0I
Bw0HBQcFDhAHMkdP
L1uQLlyULFuRMFqUNI2ZNWkaO2ihOmacNVmCL0pjJzdEJSspLDMwJi0qKC0o
ISYflyghJi0iJCog
JS0iGB0WAAIBAQIBAQAwmBAQIBAQIBKzM2JJE0KTI1JzI0KS82KzQ/LkNt
JDpVHikfJTEIKTMu
OEhPLjk1SoptIVovHClblighGylYEBQNEhQMFxcQGBwXHiUgHykhKjAtJC0t JjluHSgjDxALLU5
OmFaCAUCCAcDBQsFHilgIDEvCgsGDxEKQVFdFCleJCUxOFRxFCgxDXlWDxQO
BQUAAAMBCgwGCw0G
HClgNISSKVOWikZ9JUiBK0iFKEiAljxzLkiHJUeADxgbCwoGDRALErcQGR4X
GB0WGH0WHyMaFB0W
Ji4nFh0YHCEbHSQbGx8ZJy8oHCMfGh0bICUfJSskFhoVlykhliYiGB0WHiUg
GyEbLjg3GiEdHSMc
ICchGR8YFx0XHSEeGB0WGH4YGR8YGx4XGx8dEBMNDxMMNk5+Jk+ZI0WBI0+S
JU+SKE2NKEuPJ1af
I0d1FR4bCAsGBAUDAQABAgAAHiMdGyldGyEbKzU5LjpDli8yLzIKKTM3Jy8t
ICkkGSEXEBQMEBMN
DAwJDAsGBwoEAwUABgUDCgwGGBsbLDRVJTFQISg1GyleGB8bGyEbGh0XHyEk
litAHjNdHzl1HDx3
IDp4Gzt6IUKeJIGWkl+mMmmtMWmwL2aqK2KIJ2KIKl+mLWCnKmKoLGauK2ev
LGmyMGmzMG2zM3G7
LGWpJE2AEyQ3GBsaGBsRGSEXFhkSHSUaHCYflyokHiYjKzlyLzk7JzEvJDAo
PUtIHycKjUulCci
Mj05IS0IMTk5MkJTMIJ6O2qqN3nCMXO1KIWBHjlfJDE1N0RMMEVnKzs4OFJg
MENQM0JEMjw/KTIw
Ji0pJJEolIS0glikjISogJzAnlisglCUeHB8XHSMaGyEYFhsUGBsTGBsTFxoV
HCggLTc1OUhMKzw6
GBsUGRoTGBUTGH4UExcQDA4HCwsEERELFBcOGRkWfHuoGRsTExUMExgPGx8a
ICw5KUVqLIWIL1qU
MlmaMICIO1yPUXqrVYSwaJfEPWGBQVZdS26JL0BdOEZYMDk7KjAtPVNcLUNL
PFNXN1ZoJS82OUIW
HicqJik1Jy9ELTBINUVrOFmMOFmOMIB6KT1fJDZQMU9tN12PNVF/FRshDw0G
Cw4JDRALDhAKDA0I
CQsEKCsnO0dVNTIJKzEuMTk0HiQiBggCBgcEDAsGCgsGBw0HBwcFAgAAFRcQ
OFR2KleSKE6JLIOH
L012LUNfLDtJKjQ4HiglExcQFBgRHyYdllicJcilyomKS4nlicglykhJCsg JSwglyogGh8YAAIB
AwMBAQIBAwmBAAAAAAAAALTE5KzQ3KTE0JDAvKjMxLDhBLEJwJTxOHiggHyUe
LjQ2M0xcLT5GMFIV
HjkmLzo8M0tZHiUgJDAqlJzHSIclikjGSEaFx8XFxkYGH8aGh4cHyUcJCor OETHLkZbHCUoEBgS
Cw0GDAsGBgcABgoECQwHHB8ZEhcSPU56ltz0brbpZaHSUoywECO7CgYDCAsH
BwsFHycqM1aYK1KV

J0d/JUmAJ0iDJUeAlj1vKkaFJUz8CBITCAoGEBQMExgPJi8rGiEdICkfLTk4
ExQQDAoHGhkYQV90
HDQ1Cw0GDAwJFh0UGRwVli0IL0BFFhsXO0xWJjM7EhAOCgoDQExXSWyMGSMg
Cw0JEhQQGRwXExkV
ERINGRoVGB0YJzJAHyQ4HCEaERQOEhUPNU6BJk+ZJ0mDI1CQJk+RKE2NK0uN
LFedKUd4GB8bBwsF
AQIAAAAAAgMBGiEdFBwWGR0YJTAuLDg/JCsplyomly8rHCMeHygjFxoXDBIL
BgsHBAQCDAkFDAwF
FhkYHyg7IjFUJDRgITNali1HISUtGx8dHSEfISgxJTFUIThuljx6Hjh0Itt2 HDt4I06NLVykL2St
MGyxMm+1M26yMWuyMWitK2SoJ2KILGOnK2iuKWiuLmmxLGuyKWu0MWy0L260
MXK4N3S/MHK9MGi6
LFqfIUdzljZLHykuGx4WJzAnMT08JC8rJjQuO0dBGyQfKjYtJzAnKS8sNT04
Ji8xNEdYNFaGN22w
L3S9L2mqKElXHC46lCoqLDU3LztANKVVNUxcLUNSJc41JS8pLTcyHycglygk
JzMtLDYyKjMsKTAp
KTArlY8pIScgHyUeHCMYGH8YGR0TFBsSGh8YGBwXGiEYIyofO0VFLjg2ICgl
JSsjHCIZGh0WExcQ
GRkRGRkREhQNEhEIEBIHEBAJFhkRICYqIC04JkRgLIWGM1uUPI6bMU9/M0hf
TmZ8UnmVXluzZJvC
Y5i7VoWpSmuEICgxHh4WLkBALkNdOE9kji8yGRwSPIZeLj5TICYSnkZSMD9S
MjhCICEfJCYpKjBA
MDJTLTNcMUZxOmOUPWSbQWKXP1eEN0ZpJzJJMz9QHycrEBEIDAwJDxEKDxEL
Cw4JCAcEEExMMNkVO
M0JcL0FSLztICQwIBQcECggFDAoHCA0FDw4lCwgGDQsGHiYbM0ZXHzhJlisz
ICYoHiMdHSIXGR8V
HCEWFBgREhUPHSUeliYkJCKlHyQgKS4pJSsjJCogJi0iJSwgJSshKC8klSce
BAYDBAQCAQIBAQIB
AAAAAAAKj1Ji8yKTE0JzEzJzAyLDhJKUNSHCw9FhkRFhkSICciLDs9MEZO
NEISICciLjUzLDc5
HyYhNkZSK0JNJS8tN01nljA2Jis+SWiWLUyEISxBJS00liorKjMxKzo9Jzpl MkrVnKzBLTIICov
ExoaExoWDQwGFw8Selmx3fv81/r7uPL4idv0FkFaCAgCCAsGCAsFISs2L1me
JlGMJEZ4lkd/JkaD
K0qClz1rKUmdIUR0DBMPCgwGExQLGRwaP1NfFSEkQFBXQl5tFwxVERUNHh8Z
Pk5VKTMxEhUPFBcS
HSQfFBgRMTs9OkdPGR0XRFhIHy4xGB4VGRQQHCEbKjQyHygjFxsXHiMdFR4b
liggGSleKzUxHyc4
YoflOl6xERYdERMMExcQM06GJE2XK02KJlGRJk+QJE6LJUiNLiiKEZ6EhkZ
BgoEAgMBAQIBAAIA
GR4XFwVFhwWKC8vKTEzlikjliYqISsqHCYfGyldGh0VDAsGDA4HEhgRGyYy
JTFWljZkJDZpHzNn
ljNdJDJTIilCISk0lytCITNhJTp3JT9+Hzp6Gzt5KkeKL1aaMWuvNXC4MG+2
MnG1MXKzMW6xMW2v
L2uwMG+uMG2wMG2wL22wL2uwMWuvMmqxLmmxMGqyLmu0Mm2xLWqwMmyzK2Wt
L2y1MXO/MHfBMnK8
LV2hKEpyEhwjLzYwHCYelSogKjYwMDkyLzYuKjQ2L0VXM1yMQHG3PXS/LGGd
HkNgGSwxHilgJSoj
KjQwMUBCKjI0MT0/L0NKLjtASWV4U4eoOWJ9LD1BR26BM1FhlzEyKC8rHyYg
HCEaKC0mKzcuJi4o

HR0VHCIZGx8ZHCIZGh4YGx4YHSMalykgHSYbExoRFhgPERUNGRwUGR8WFxkR
FBsSFBcMFhMMGBor
HiUjKj5TNVuKLMGYNI+jMlqYMVSKNIWBR3GSUnimGio8GBsMGiEXM0U+TGR6
OEpWQldbQVIslysu
KS4pMkFGKjIBMUJMM0NQKjAyJSg6N0dONURUKzA7HRkbJCQhKi86Hh8eL0FO
PFZ8OlulPF6UQWCT
PlyOQluORFuPQVyOQGGRPVuNOU97LjdLFxsXFhgRERQOEBAJFRQNCw0GAwUD
JC0kPVx9OU+Blio9
BwoEBQYDCASHDw4JCQwIEhQNDRAKFBgRGCATGBsUEhcOGRoPGx0RHSEYHCEa
GCEXHSEYFBkUFRoT
ICkfJSgmlicjHSQfKS4pJCogJCsglykgJCogJCogJi4jligfBQcEAQIBAAAA AAAAAAAAAAAAAAKTA3
Ji8yJi8yJi8zJzAyLDhOKD9pGCMvEBILExUNDhQNEhMKGBsTGR4ZFwxVGR4X
HilbJCoikjQwJzlu
KTMuLz5GJS4wJSpcXKbpJWG2KCpbM0NZK0JcLztFL0JTHSMdlykhly4sHykq
Kzk8LD5HMUNUMUdb
JDNEQFJmbpWgoMXJweHireHuFDQ8BgUDCgsGBwoDJJA8M1qfJEyHIkV5JUmA
JUiBI0t/IDtmK0iF
Hj9yCRAOCgsGERUNExgPKTArFx0XISgjJDAqGhwUFx8glScylC40Gx4eHSMc
KCSnHCEeExgRHB4a
JS0mExwUJCslHCUali0wK0lfPlttKkxeEhwbliggJjluHiMfNDo8LTtBNuDY Mz9WND50LzdtGB8I
DxMMFBcSM1CKJE2XJ0uHLVSXJU6Pjk+QikiOJ1afJEd+GiMjBwgFAQIBAAAA
AQIBERgQFwxVERsW
HyckHiMfICYfICUnHSMhFx8XGB0YFh0ZHiYvJTFLJDZdJDdnIDNjHDFciDNe
Hy5eHy1dHi5YHzFf
HjNqHTp4HDd5Hzt3ID+AKVOWKI+mNnC0PXq+P4TCOn64Oni5MnCzL2yvN3K1
NnW0MnS2Mni1MHGz
MW6xNGywMGmtKmepK2apLmWsL2euLWewKmauLWiyLGWvKGSolWStL2y3MHK8
M3bAOHjFNnnIL2yv
KFOEKD5XGiloJjAuMUhgNI+TP3e+PHm+MmOTGzpLGiUmHCMYJCYfLDMtMEE+
NUNHNEJKNu1aO1xu
KD1GMD9AMEJFLDg3LTw3PI52NE9eNIVnUXuZJThGMkFCSXOOPWF5Ljg/JjEs
PVhrNIJhHikrISuc
ISsjJSknliggK0AsIDEgERcQGBgQERUOFRQNDA4HGBUMERcMISgoJ0BOM1h/
NFyQNGGeMmKnK1KQ
MFWCTW2XW4OoQ3GYN1hrTHKKUXSPISxBCgsGDw4JLTUwNUhQISgmNEA6NIFk
GB0jJC8tPFhyKTZK
LTc2MDc3KTExiCMnHyMcJzAyKzVEEQ8JOKxUPFuROIOFPI+SQF+UQmCQQVuM
QVuMRV2OQF2JRI6P
QWKSPWCJTGGHZHCUgneOQSwuGx4WJy4IEBMNEBMNDhAJBwcFDhAHPFVmMU+A
BwoOBwYDBwMCBw4I
EA4HERMMGBoSExgPHSYcEhoQFxsRFxsRFBkSGRsTGylXHiYGYMYGB4VFBsS
GyEYICchlicjHyYh
likkKS4pJCogJCsglykgJS0iJSshJi4jligfBggFAQIBAAAAAAAAAAAAAAAAAAAA JzA4KjI2JzAzJC0x
JS4xKzdLJj1dERwbCg4HDhELEBQNEhQNHYqgMjw+HykmEhkRERMqFhIPIRsd
JCYpHSEfHyMhJS0n
lixUXq7wJFCnICA4MkJSLUIkNEBLNUtYHCciOERRIjQ2Gh0VISkmGB0WliYi
KzlyJTc6Izc+KDxR
LkhoKU9qM1JfGygpDBILCgYDDAoEKzVGLlibJUqCIkh4JEh/JkiBI0I+ITlp KUeFGj1uChEPBwgF

ExcQGIEcNUZFGCIbMz1AMUpVHSg0dqreINTwhHxH0NjJS4qOVBZGiEdERcQ
Mz9CNkRRHCEeQ1pq
HSUpMIJ6itL0sfL3ZrPuDh4xPE1SJz1CICUeNTtBN0RZNUVXND5UKzpIJJE0
HyMhCxILExgUNVWO
JVCVJ0yJKIGUKIGUJUmPJEEkLFecIER4EhwbCgYDBAIBAAAAAAAEhUPGh8Y
FBcSHyMfGiQdGR4Z
HCEeHilgICgtJDJJITZcHzRIIDFjITNhHzFfHy1YHy5dHi1cGi5iHTNnIDZy HDdyHDdzGjx5JEmN
KF+jL260NXX4Onq9O3u4PXy3PX+7Onq1N3K1Nna1OHq1PHm9Nnm5MnO1L22x
L3CyMGyuMG2wLWuu
K2msKWeqKmSql2avLWeuK2axK2awLmOqLGKqLmmxMXC3NnG6N3W9N3nEN3e/
O3zJOoDQN4DOMXC3
OG+2OHO4LFuKJDxJFyMiEhgQGx4UHCEbHCYelzEwJTg4JzMyLTs+Mjs+O0tS
THSMSnqVGyoulSce
MUJENU5fUH6eVYiyOmJ8JjY5KzlvLDY0N05RSnmMHZQ6KUIAZKnEa7PmP2qO
GyMgHygeJCsmlysj
IkElHjlcHh8ZFhcMERMMICMhJjJAL1F2N2OZN2qqOGy0KlqZNVeRSGyfVn6j
W4ita6HHYZPAapO8
P1x7FRgTRFNxLTJJPQ0VrFxoZGyEULTQ8LzdnGhwqMjtHPFVtKTBjLDRFKDg5
licoFh0RLjQ2FhkY
HyQeQVp/PV2PMkt4GRsdPVFqP2KXQI+UQFySQV+PRF+SQmGPQmKLQWGWJRlyl
TF2AXGF5jXyExrCm
6d7W993Jm19SNywoMTkvHiggFRINFXcQDhAJBwQFHyQdICgsBQYDAwUDCgsG
DhAJDQ4JFxrGBoS
Ki8oFx0THBsVGRoTFxoSFxoSGBsUGiEWHR8bHSEYGBsTEwUHyQdJCojlyol
HyYhJy8oJi4oligf
JCsgJCoglysglyogJi4jligfBQcEAAAAAAAAAAAAAAAAAAAAAAJy4zJzAzJjAy Ji8yKC8vLjVFJTVH
EhgYChAJDQ4JDBEHHiIzIlysoKTEsJTAoERMQJG01FpdFEGcsDz0XESEQERoR
ExQQGBgeN0RzISdQ
GiMZKTMylNElaMk5nLkhQlyolN0IRIzAuJzluPFNoHSkoOUVSJDM1lyclPUll Mjldly4yM0BJJjI5
MUBFGSleCw4JExgPKThTK1ielkuDIkSAJkaDKEiAJUh/HjhoL0mLIT5qCAwN
BwoEEExUMHCibLkBA
ERcTKzIsGiYfGiUwfrLd7Pz9wuz2Fz9UICYfITEyExkRFx0UKjMxHiomFx0U IzMuFBgRizNEi67D
1O7vTYSVDxghlysjFBsVLDMtND9ANj5BN0BHMzpAMDg6LjY4FB4YDA4HFhoY
NVWSKFGTJUIGKVKU
JE+OJUqOJkeMLFmiIEByEhcVAwUBBAQCAQIBAAIAEBMNFBsSDg4LExoRGylD
HycrJjFDJDNDWJDdo
HzVjHTNhlC9eIDBXHTBWHCzZIC5eHTJmGDVxHTH3Gzh0HDp0I0aFKlWamGiv
M3C2MnG1OHl5O368
PoK9PHy5Oni3PXq+O3u7OHl3OXe4M3W3OHw2OHa3O3m7OXe4NnaxMnGwNG6t
LmqSKWWpKWWpKWSn
L2atL2avKWSsK2auLGatK2WtLWWvL2qyMW66NW+7Lm64NHbBOXzPOoDINXWv
LVd5HjM9FyleExUN
GxoPHiIYICceKjc2PF9uRW2SS4KnS4WsPFxzLDQ4LTs4JzMyJTArM0tTOFNf
MEhWQV1nUnydS36d
QWmAKjpAJzArKTMuJjluKTQtLjc1MTgyKGpGH1k+OFFQJDUzliggHyQdHiEW
GylVGBsUHB8eJTU+
MVBqN12RM2SkNmu0OGSINWCYPmyaT4GrVoauXJW8V4uzX5C0UnueQ2F3S2yF
MkZSSldgQ15sXJC+

OIJ/FBQbHR8fJikxKC8+MDRcJCIBJi8yKC0tJysuMjVEDxELMjk2licjPIVx GiM5KiwwQmKUO2GV
PF6PP1mJPmCMOI6PQ2GQSWeRSGaQR2eMSI2DSVI4bmF3pYqMxrSp28q52MSk
/v309PTv9O7g0KSM
ZDs0likkJiogFhcQExcQExUOCAgGDQwHDgwHCAcEBggGDxEKDxEKDhELFBkS
IScgHSIbGRoTGRwU
Fx0UFBsRFhkRFhcQHSEYHSIXHSQYFhwTFBoTJCoiJCKlJCgmHSEfLTlrKS4n
ICceJCogJCogJSwg
JSshJSshJSwgCw4JAAAAAAAAAAAAAAAAAAAAAAJjAyJSszly4wJy82KDVJJjhV
IjZRJDVMICxBliw3
HCUoGR4eGyQfExsVFx0UEg4KJ5RNGN5yFeR0Fd5vFsxmE7dZfZxHE1QhFxQP
ExkRExkRERUNFxoS
HClcHygeHSEYGiMXHSQfISkmKTMuIS0nMEZOJTEwHSQxYIfSOVWhJi5QVWit
HSFDGBwSFx0TGRwV
EhsSKj9dLFabl0d+I0R6JkZ+KEuAJ0d8ITdpKUmKHj1kChELCAoGFxgRJCKi
HCibExUOFBgREBEM
FBgRKjltV2ZfOlpmEX0XExUNEBILFhsUlykilicgGyEaGBsWGBsUEhoUHB4W
lyknMERAHCghHSIb
Fh0YFhoVICMhJC0kly8rli0pJS8tlisqlyomHyMhEBUPHSEfMlaQlkuVJkqE KE+SJEyNI0uMlkaM
KledHzplDhMQBwYDBQMDAgMBAAABWwoEFRoTGyQkJS9DITFVHzVjljVmHDJe
HjNeITFdli5aITBa
HS5WHDJeGzZrHDxyHDp0Hdt4lj6BKIGUKmOnMWy0M220M2+xMGyuM3GyOHi3
N3q4Oni5OHi5N3m6
O3u9QH69OH67OoC9PIG/Q4PFQIDDOXq9O3a5N3K0Nm6yMWisLWSnKmOnKV+n
K2CoJmWsLW22LW6y
Ik2bMUKvK0SqMGOWLG63NW+9LW+4NnK4NGaaKEheGysyHCEeFxsRHB8VHyQY
HSgeICkelisgJi0k
MUI/RG58VlqsQ2eCMEIUMUNIJDUyKzYyMEFBShCKToGjTIWnVIGnNVBkJzc4
MkFGKjM2Ljc1Kjg1
Kzk2LTcyJzQrli4mJS4lloily0hHiQblCcbHyUcliklly82MEhkN2OROWyn N26wN2mrPWqjNVWF
HSo0JTAvQFpiWYwKvIamTXKPUHmXMEtfO1NbLkldKzQ2RWN4IS45HCMYQVBa
MkVcKjVELTRMJCw8
JCgwHR4cMDU6lykyHROuXiOliJM0x+GhYcMDMrISYiP1yCNImNOImFPI+U
P2CTRGORS2aTTWeQ
TWmTUWeKUWOCW2N2gmxxqJKC1MzB3M+6/frz////8O3n3M+96+ff7OXZ4drA
2byblIpJOisqHB8Y
FxoSFxUQFxoSExMMcGwGCQsECgoHDhAKew8NERMMEhQNGiEXLjYsFRoTGhwU
FBsSFx0UGBsRGBoS
ExUOGx4WHyMZHCMYGB0WGB4XJSskJCgmlyclHiUgLTlrJCoilCceJCogligf
lykglykgJSshJSwg
DRAKAAAAAAAAAAAAAAAAAAAAAAKy4zlyoyKjA7JjVGJEFzIkBzI0F0IT5wlTps IztoIjIITJVJDNO
li9GHio7GicuHS8pGkQoFVMpFnIxFZpDGbxVGdppE4I0DwwHDhELEBcQDhQO
Cw4JDA0IDBELHiQb
ExkRERcQHyeYJC8mHSMaGR8WICcbGyAybJrhLEeVISYnJiw0MDpIKTU4JDAV
HCQdFwxVMERmK1ac
HUZ5JEZ6JkZ+H0d9J0Z+HTVIKEeNIThiFBgRFhwTJSOqJzI1KzM3JzQ4KTEEx
KTAwKzM2KTU4JTVA
JjI4Ji4rLzo8LztFLDxNLUBSLT1TLz9ULkJbMEBaMEReNEZfNkVfLDRLJDE1
Mz9RLz5PLTdALzIC

LTICN0JYSktwNDxjLDhOLTZCKTtIJTAslikpM1SRJUqOJUeBJE2PJUuMI0uM
JEmJJ1WZGjJXDA4K
AwYCAgAABAUACQ4MGyglwJFVITJkHHzRoITRIHzFglJJeIDFdHjBZHSxZHTJd
GTNmHzl3ITt6Hxz7
Gz5+IUqMKVvjMWy0OHO8MnCOmmmtMW2vMnGyNnSzOni3Onq3N3e2NXa4N3e5
N3i7O3/AQoXEQ4bC
QYbCQYHBP4LBP4LAPX27OXa3NXK0L3CyLG2xMGuzLWiyK2awMWuzMnG3L3C2
LW+2LGWvM2S7L2C3
MGU1LWmmKFV7ITxLFyUkEhkQGRgNGx4WHyYbFhkRCRAJDREOFxkRGx4XJy8o
KTArJDAoHCQHlKvL
RWmHOIFmKjg/LTo7Ljg3Ljo9OIRfSnOOK0lbLT8/MTIBMT08Kzg3LTw3LDcz
LTU5JCwwKC0IJisn
JjEsly4IKS4nJy4qJDA2LERZNI6GNGqbMnGvN2+/K1aVKDtSJisxKjo3XX6O
QmJ/DA0LDxMHFwxV
PU9UP1x0LDc+QFZoJzRDNEZGNFJoICsyTmV3LTdOKzBHHIMxISMohCEbLzdf
FxseHyQdPVN2O1yR
JTFZGh4cRWeTQWemOWKTM1eGNUdwNElPmOVomSWQ2iVRmiPUG6OWGyKYHOO
dnmNin1/sZ2QvKiU
2sWx8OfZ1sSp7evk4t/Q9PLr+/v74dXK08exw7GR5uDT0sWi18ixvYdlcEY9
Ly0jGBoRExMMGBgQ
FxQOGBgRHBwYEBILDg4HDhQMERUOHYeyGH0VFxoTGh0VGh0VFxoSGBsTGRwU
FBgRFRcQGx4WHyMa
Gh8YFRoThyUeJisnlyomHSQfICciKi8oICcelikgJCogISgdlicglykgKC4j Ji0iDhILAAAAAAA
AAAAAAAAAAAAAAJi42JTA+KDM/KDvJJ9yJ0J7IUR5H0N3I0J3IkF2IkBzIDxy HjhrIDtsHzInITf
HjRbHzBTJCxPICdDlyY6Gy0wFTkjFScYEBILCwwHDRAGERMMcxAHDxQNChEL
BwwIDA0LCRAHGBwa
MThTERURHSEaERgSGh4cP0pylihGHCMaISgdKTKyJC8rli8oHSUeGR4XJ0Zv
KFWZIUUV5IkN5KUWA
J0R/JUR8GzVnKkqMHZleHSIfJS0mLzg/JjlxJzM5LDU8LDY6JzAwJy8sMDpB
MDtKKzE8DxMQIScl
Mj1ILTxlJLDdDLzhEMT1PMkRiKDpIKjZDLTdfMT1OISw0DRlIJi4sLztCICgt GB8aJC4sOTpehp7i
OVSilSk+JTQ7Ljg/ly4rJjEwKFGRIkuIKUF3Kk2NI0yNIkuKJEaHKVKZFixl DxUNDA0LGR4oHy5E
ljNclTNmHTFkhJfHjGjFjHC5fHyxdHC1UHi5ZHzJjHTd1Gz98G0B9Gz5+IUaF
KVawMGWtNXO6N3a6
NXW3NXW3NXW3NXW3MHe2Nne6OXm8N3e4Nna1N3a1Oni5Nnq7On+9Q4PBRITE
SonESY/HT07KSIZF
RofDQ4LBN3i7OHl7NXi7L3O2LHG0LnS1NHe9MnW/M3W/MXXBM3O9LXGzK2ec
JEhnGys2ERwZDxQK
ERQJHBwYJCKvFhoVHCMaICggGR0XHyMcLjluICkkGyleHykhJTArQltmSnaT
RHeWUlrS3uiljdA
KzUwJjEtJTEtLkY6N2dTKTo4MUBCLjo9JDEvJS8plysoJDEqLDEwKjlyJjAu KjY1Kzg+MUleNFuC
NWiaM2ymNXK2NnG6NG+xMmyuNGitLlyaKEvtlCw5ISYfKSooJisnGR0TGylY
GR4ZKzgyQVpzHSYu
TWFuLT5QJzVCMjxYJSk3ISYnlyQjLzZGEhIUJCsmPFI/NVqQFRw3li0vPWug
M2ahMliRNISDOWKX
OWKXO2SUPWSbPmWVRmuYS2uTWXGLbHqRhYWWppqdy7+0zr6s7OLW1sas6uPT
6ure3NTD9/j57uzh
9PDr8vDt2DLB+Pf15uPb8fPwyrmg1cawxbSU0cGgxaF7m2pYTUIQKSojERAL

Hh4VLzk9MkpmOU50
JDJJMiwrGhkTFxwVHSUaGx4YHB8XGx4UGRwSFhkRGBsTGRsTGB0SDhILGBwS
Gh0VFBsSEhgQHyYd
licjlyolGyldJS0nJy0mlyoglyogligflykgJCoglyogJSshJi0iExcQAQIB AAAAAAAAAAAAAAQIB
JTFEKDRDJzE9JDBEJDxpHTlnHDpqljhqHzpsljtvITxuIT9xIT5zIUB1Hj91 I0B1Ij51Hj1wlD9r
IDxqljppqITVoHjJbHi9SHS1MHSg9GB8rEhkbEBMUDBELDhAHCgsDCw0EEA4G
FhcQJi42CxILHSEf
DhELGR8WDREKDBAJGh8YFBoTFhkUFhsUEBkRFhgRGyEaLkp7JICUIkN5JEV7
J0V+JkV9JUN3Hzdn
JkeFHz1cHyYgJy4qKTM1HSckICclKzMzlyssCw4MCQ4GGRoVNDtCizE3Fx0X
Hy0jMjIAJi8yHSMd
GR8YEhkTFBcOGB0WHSEeGyEaLTU+KjE5GSMgJzAwKjM1DBANBgoEDhILKzQ3
Q0t5KjZjLTI/KzNB
KzI3ISsjJC8uLFOMIkR9JTheKEJ4I0iEIUiAHDlwKEuLGytFlyw5HzBTITNh IDJhHi9fIC9eHy5e
HTBbGS1cHS1aGi5iGzZmHD54IECFIEaGIUqJJIKVKmCkNXK2NXO6NXK0MnG1
N3W0NnazMHa0N3S3
N3S2MXKzNHOyM3KzMHK0OXa5Pnm8OXm4OXq3Pn24P4G9R4fCT47KVZbTWprT
UZjPTpTNSpHMQYbC
OH24Nny8OHe7N3e8M3q9MnnCM3e+Mm6rJVeGHDIRFiYqDxcREhQLFRcQExgP
ExoRERgPICMvliZP
GSEaISkhISUhJCSllCoilysjJC0kli0ILjluKjltLDs2N05RNIBbNEVNLEFF JC8tLDczLjo2LTg6
Lks/LIIGKTU5KzU5JC8yJzAyKTMuJzAwKzE8LD1GLUZXQWaORXGIOM6qOXa3
NXK1MWuyMm2sMmyu
L2ypLm6pMW+pNm6uMmywLWmqMGKpLlaNIzpWGx8hJCgmLTBDJipLKzI/Plh0
KThTJzA4HiMdlSUj
LzllDhESJC8uOFiCLISKFBcpKzIDPW+nPGamM1OPK1aCNmGZNWGXOMkbPWSZ
QWKSSGOPUWILY26C
dYCQk46ZtqSg1ca60sSx9erk5de/8/Dm2c658O7o8u7r6uPY/////4+DR5eHZ 8O/p18+97erm19XD
19LA+/z68O7o3M+5u5983dXGvqV1z72cvohidF5mV2yHRIJINUpnN1iIMFuS
L1mTMIKOSVBwQ0ZA
JiOpKC4rJSskFx0UGx8VGBwSGx4WGRwVHh4WGBgRDxELFxkQGBsTDxMMEhgQ
HyYdJSomJCKlHCQd
Jy4qIScglykhJSshlykgligflikelyogJSshJi0iExoRAAAAAQIBAQBAAAA AAAAAIS5CJTA/JzZU
LIGIKlySJ1GHJ0qBJENzHjxrlThqJDpsHzxoHzprHDprHjpolDxqJD1xHEFz ID9yIEF3JEB3KEF6
IT54JEB5ID9ylj1wlDdmITRfljNdHzBMHio/GCQwFxseDxQREBMNDxEIDRII
HB4WEBILJCKiBgwl
Cw0GHCQZDxQODhILERgPDg0IBwwEGBsaLU2FI02QI0N4H0R7IUN8JkJ8Ij90
HTNIKEeJHTRSHiQd
JSspLTQ0LDM4KjE5KjlylicpDRAKBwoGDRILKTArKTI0Ljc5Lzc7LDU3ICYo
LDICKEJaJD1XHzVD
KERhJ0dmFCQpLTM1LTU/MDhBMDdCKjM2GSMgCgoHHilbJC8rJy4xISkqJy4w
lysuJJAulSsjJC0t
JkF0IThuITdeHjlqHjhzHzlpHTFaJDhsHio/JTFEHjJbHjFcGS1cHC5aGS5U GixbGC1YGjFIHjVy
Hj5/IUiFH0eKJFCTLF6nMm23NHS8Onq8OHm2NXW3M3a2N3i1Mnm1N3a1NnS1
NnS1L3S0MHK0NXC1
MnOyO3S2OXa4NXa4PHm7QHu5PX24QYXASY3HVZXPWqDUXKLYVpzWUJTPTJLL
RYnDO32+NHRBNnrE
O3e+NW+pl1V6GjVBFR4bExUMEhQMHR4XFhkRGyIYFygRGBsRGB8WFB4TliYd

ICkfJSskly4IKjEs
Jy8pHysjKjEqJTErJC8rlyokLTk1JzMvli8KCOoMTc5Kzg5JjUyJjYxKTAr ISoglightlyomKTEs
JS8pLDMxJzY5KTtNOVd7P22hP3a4N3S3NnO2MGqsLGiqMGyuMXKvMm2sMm+u
NG6tNHGtNHGrOG2t
LmupL22nNG+tMGmtNWamOGSgNmGZKT54KS1bLzNcLC9TICikLTdGDhIPKjAz
NVmINlaPERMiLOFL
OmirOWSiM1aMOmCPOmSgNWSbLmCfOV2XQWSTUmqtZHWTEnqQIYaNs5iavqKS
28mz0sCg9+7i2c+v
7Org3dfF9PTv8e7r8/Hr8PHr1864/P373NPA3dnM8PDp0Mmy5uPc3NfK0825 6ObeySGl9Pbz6+jk
zsOkuZ5xyb6hw66Rw5ZoyZNdn2xXUWh+TW+TN1uNLleKNViOMluXM1uaKkqC
JjE/KjAtJjAqJzAr
HiMcFx0UGRwUHR8XHR8XGRwUERMMDhAKFhgRGhwUEBQNFRoTligglygkICUh
HiQdKS4pligglykh
JSshJSshlykglyoflyogJCogKC4jGB0WAAAAAAAAAAAAAAAAAAQIBJTBBLEFm
LVSHLFqWKISdLFed
NVqjL1ajLFedL1iYLVeTKleNJ0p+lJ1vHztpGzxtHjxulDtsHz5xIj53Ij56 IkF6ID53HD5zITty
JEN1HD90Hj91IT10Ijx3Izp0IDlrIDZkHhJdHDFRHytlHCo8Fx4nFhwaEhsT CA4KCQ4FExkNDQ4J
DBQIDxMMBwoGCggFGB0dMIGMJk2LJEB3IUB7IkN+IEV5HjpoHzRiJ0aHG9E
GiMXHiggJi4oGCIf
GSUhJy4wICoqICchCRAKGR4XlysoHSQfDREOICUhKzU0HSYhKz5LJUdvKVB7
JVN8Jk2AIUd3FSYs
KjMxHycpDBELKSsrKjQ4HiwtEhgRlicjLDQ2JC0tCQ4KDxMQly0rKjE2ICgg licpJUBzGjRmITVj
HjdqHTJmHC1Vly9NHi1VHys+ly9CGS9SITBUHixXHCxWGY5eHDduHz17GkGF
IEmKJFKTJ16iMGuv
N3S4Pn7BPH+9N3q3Nne0O3u2Onm4Pn7BNnm5OHi5Oni5NXi4Nna1NnSzNnSz
NnSzNnW0N3a1OXe4
OXe4OXe4O3q5QIG/QIPBQonDUZPNVJrTXaPcbrDIJarjUpnZP4XINnazK2KR
IUZkHS05FRwcFBkQ
FRgNFBsSFh4TIScelicgHSUaGCEXGR4XHyUclScglScgHyUeICyDHyUeHSQb
HygeJSsjKi8oJDAo
Mj0/OFJdNVZmMUhOJDEtly8rKjcxKjc2JTEtHSIbKjs+KTM1Hygjlyogly0r
IjQ9LEpmNmGMMWmg
M2+0MHG3L2apMWWqL26tN3CrLnSxNnWwOXSVnNcVNHCVLm2qMW2qMmqoNW2r
NWqpMGaINgikMFeH
Iz1fJzRULDJWMEZyPF6UNGGZMEt9NFB8N1iLMlaHEXclLz9QPGelN2CcMliH
NV6PPGWgOmOgOmSg
PWaaPGqZQmqPkYmTv7GwvrSI2szE17+p6N7O2cio7uve29K38/Tx4t7R8PHr
9fLw7u3n7u3p3NbF
+/n63dnM7ezh4NzP0cy52dblzcSu3+Ha3NrL2dG+4uTYzcSt5N7QzsSs0cuy 8/Ly1ci2yruatZ96
4dvOzL2d3MSowH9TclpdR2uJQ2KGLVKEMVeLKViLMlyUMVqRKDtdJS8tJDAq
ly4qJS0nGRwXGx0V
GRwUGh0VGRsTDxELDRAKGRkRFxkRDxMMGh8YJCojISYiHSMdliggJy0mJSsj
JCogligflykgJCog
lykgISkelyogKC8kHCIZAAAAAQIBAAAAAAAAAAAAAAK0t9JleQK1SVLFKYLFKc
LFOZLFKcLIKdKVod
L1WfLVehJ1mIMV6mMVyfMVydK12XLGCYJFOGIEp+IOF0Hj9yID5wIDxyHztx
HjpuIDx2Gj52H0F5
IUN8H0N/JEWAIUR9IEN6HT95JUF9Iz94HTx0HjhmlDVgHjNZHi9SFypBGCQx

FRshDxQRCw4JBggC
CAYBHB4gM1OMI0Z9JD9yJ0R/IkF8GzpqJTFUIzVbI0F6FS04IClaHiUgJS4w ly4sJiwwJS4wly8r
ly4rlygkJCgmJS0rHiglDhILFBsVLTU3HB8dIS0oljtPJzIOHzZHITVKITRE Ex0bKTE0licpChAJ
ISgjKTI0LDI1KzE0li4tJC8uJS4xGBwXFRgTKjEsJjAyGB4VHSQgHztpITNa IzBLHzJdHi5ZHi1P
Hy1JIDBPHCK4JSw6HytOHypYGDNoGz52IESAJUiHJk2VJVqhM2uyNnS7QIHE
QITFRIPCP369P369
Onq9N3i7OHi5Oni5OHizNXi1OXm4OXm7O3m7OXm4OHi3Mni1N3a1MXO1MnW1
N3a1O3m4OXu8Nny8
PH++RITCSYzJX6DZbazkfMDwj9H1bqzSNmqNlj5TITI3IC4tFRsUGR0TFx0U
GB4VGSEXHB8ZGyld
HSMdlS0sHigoHSMcHClcHyQdlyoeISkhHSQbHSQZHSQbGSEXHiUclSkhIC0j
JTEpMDg4Lj0/HS8p
lyolHioplyoolS0IKzw5HiQiDxEHLjU1KDZDJ0NWL1xNGCVMGapL2yyLGiw
NGirMW2vMm2sMG2s
NXKvOne0O3izNHawNHSxOXGtL22nNG+qMHCpLmynM2aiLFuPK016JTdUJDE8
KCKuGhsULDI9ND9s
NE2AOFyVN2WfNmagOmSfO2OjOGGbMlaOOV6UNWCeOGSaPGWcP2WZOE95JztQ
Q2WBSXiWSHuZUG6O
poNp+/Xf5dS47+7f5Ne/8/Dp7ufc8O3m6uje5uPV8/Hr39vI8e7ozsWu7evk 2tjF4d3Q7uvk1s67
7Ork1tC94eLZ3tvM2NC92tfJyL+i3trNzsmzzcOs5OPfx76l8Ozi6OXZ4+DO tJx5xq+P9PPx29i+
x6Fwqm1SWmJ1RGeHNVaDMFaELIWGMlmQNFuQK1CBIStCKTArJzArly4qlScg
GBsTFhgRGhwUFBgR
DxELDw4JFhUPFhgPEBQMHSQBIScglikjHSUeJy4IJS0iJSsjJCsgligfligf lyofligflysgJCoi
KTAIHuYUcAQIBAAAAAAAwMBBAQCLVeRLFWXK1GXK1KWKIGXK1SWKFKWLFGe
LIODMFKfMFKgKVKe
K1KfK1ShMFekLlukMV6mMmSrN2uwNGqtMWioM2ejLI+YI1GJI0h6IkBzHjtw GjtXHzt1IDx2IUB5
H0R4I0R/I0V+IEaAI0eDJUeBJUeDIUV/IkJ7IUB5Gzt0HDIsIDVjITJbHCpO HSIAGSQsHCg3KENz
GzhhljRblztrHjZlITVYIzJQljJTJTpIGSAqFBkQFSEXJSknJS0rJTAsISwu JS4uJS4uKzM1KzE0
KzEzKzM1KS8xJzAyKTI1HigoGB8bICUhlYkICcilCchHyYglSgoKTE0Ji8y IC0rJTAvKS4zJy82
KTE6JDA3Ji0yJS4xJS00JC0wli0sliotGR0fFx4hHzFVHChEJSw5JSxMHypJ Hi5IHytAHipHHic9
HzFOHDdsIEB+HkWFH0+OJ1ufL2mxOHa+Pn/FSI7MRlvGRorERobCQoHAQn/B
QX++OH24O3u+QXq+
OXi3OHe2One4NH0yOHSzN3a1N3W2OHe2M3a2NXi4OXe4M3m2OXm7Onq5PHq8
P3q9PYC+Q4rFUpnU
YaTadbDQZ5KeRI5hLURKKUIUM1hhLVFaITMwICkkJCslGiEYHiUalCYfHCMY
JzMtSGylS32fS3iY
HjU7MD9BOLDpJzICIScgJzAyKjg+HyckligfJi8rJjEsJjlsKz82HCgfFhkR FRoTGx4XExgPHB8X
GR0TMDpBli8zGCYqO1yJLmOfLmisMGeuL2apMGipL2mqMW2vMG+wN3SwNnWw
NHKwOH0vN3WzNXWw
N3a1OHe2OnSuMGupM2GVLVSCJjpdICk2HilgLy5CFhYWLTM1MURIM09wOmGW
NmOcPmKhOl+gOV6Z
OGCZOmGYO2CbQmOdR2OcYWubg3ycamaUNVSKPlIGS1hzJCUqNkdJR2+GS3WW
SnSbb2Rq28ah7+zf
39S+6uPU186w8vDp1s226ejc19PB5+LW0s234t3M4N7P1M+97Onl19LA7erk 2tbG4t/T1tPA0ciy
5uTdyMCo19LA2dPCycOr8O/vy8Gr4NrN5N/TzsWv/P3+5t7Swa6MqIZV39jE
1dCw08Wgw4leglxW
RWZ/P2KFK1GBLVKENFeNLVaOMlaTKD1oJi8xli0pKC0oIyomGylYGBoSGBsT
ExUOERELDHLELMMM

EBQNFBkSICYflicjlykilykiKzArJCwgJSshJCoglykgJiskJSojlyogJCsh JS0iKzEmliYdAAIB
AwMBBwgFDhAKCwwHLU+RLk+UKk+TLIGVLICXKICWK1GXLfKcKk+cLVKfLIOf
LVKeLVKeKlSeK1Wf
L1ehL1mjM1ymNmKrNmOvOWSxOWayOGu2OW22N3K3O3K0OXCvM2ymJ12VIIKJ
HUd+HUB2ID9yHDxx
HztyIUB5Ij56IkF6IEB9JEd+IkV+JEaCIEOBH0N9H0N9Gzt5Ij53IjtuHjRm HjFhHy9OIzFKIjFP
ITFSIDFKli8+JDBDIjJYHCIBHSc4ISs+JSxCJDFHizNMKDJMJzNNJjJPIzJN
JjVQJTNRJTNRJjRS
JjNTJjJVKDVYIzNXITNZJDVeJjdhIzReJTdeITVeIDVbJDZfIjVgHjNdIDVb IzReJDVfJTVjJDRj
IDNjHTVIGzJmIjhlzppHjIwID1vlz10IjppIz9rIT12IT9xHCpVHSIGHjBe HztvIESAIkyQJ1WZ
LGSqNnS7PH/DRibMSY/NSY/HVJfOU5XPUJHOUI/JS4fER4XESYPDP4C+N3y6
Onq5OHu5Pnu9M3m2
MHa0M3SzNXO0MnGyMXCvMnOwN3SxOHw3One7O3m7O3i9OXe2Pn68QIC8R3mj
MlxuKUFHLkVLMFVf
IjhCMEhHPWZ1M1tsHzI3GyMcHCIZHilbGiEWGiMZGh8YHCEaHyckQ2F2Tomw
PGiDGicoIy4qPFdl
PmByHi8gSYyPYqPZQ3ObHywvIckkIConJzQrIkQqly0hGhwUGhwUlyghGyYp
K0JaMIWENGegMmWn
LWGgMGquL2quLmqvK2ytN22xOXSwMXKvMnGwMXKvNHKwNHKxMnKuO3O3NXaz
OHOU2qmLIIGJ0No
HCs/IB4kJS00HCUoGR4XNFV1MFGFEhAdNEdWOWqpOGGhPV+ZOF+WN2GZPmGX
OmGWQ2SaTWiWZ3CV
gnqPvZ2c49LK/vbz2L/CWFCaKVCJRmCGRE9kHCEiPIdnQ2+IR3CTS2qJknBZ
8u/W1cuz3NjB08iw
4tzO3NXG3NXE6OXe1NK+7evl1tPC7Ork2tXH4NzPz8iy2dLF0cu3zsew3tvP 0cy53trN4NzU4N/T
6ufk0MOT8u7r7Ojg29bO+Pn6wbWV4t3M3dXMwrWa1cSutIxd2Mqqx55fyoU6
r3VLXF5uQGwGN1h/
LVODJ1SEllaNM1aMKEt7KzBIJi4oJC8nKCspICyGx4WGRwUFhUPEBAKDRAK
DxALERQOGB0Wlykh
HyYgHSQfICchKi8qJCogJSshKC4jlykglikgJSshJSshJi0iJi0iIiYdGBsU CwwHDA0IDhAKDQ4J
DA0ILk6PK06SKk2SKk6ULU6XLU+WKIGVK1GXK1CdLVKfLFGelVKeKIKcKlaf
KlafL1ikNVqmMV2m
NWCpOGKvOWSxN2GvN2KvNGWxNme0PW22P3K5Qne9Q3q+Qn3AP3u7QHe2OnSu
M2ihKFIPik2EHER3
GT52HDxyGztxGj52IUB5I0B6Hz97IkSAIUN9I0V/IUWBIUaCH0N9H0B2Ij9x HzhqHjFcljVbHjJS
HjFXGjFdljhmITdplDZoljhqITZsJjpuITtyJDx3JDt6JDt4ITx4Ij58JD9/ IT59IkB+IOF/IkKA
IkKDIEB/IEB+I0KEIkeGJUWDJEaCJUeJikWJikWJJEaHHkKEIkeEJUmpJE2P
JE6RJU6QJU6QJk+R
J06RJE+OJIOTJFKTJVCQKFKVIVKVH1KWGkiMGTVwlz56HkeIJFGVL2KpNHS8
On/FP4LJQ4fGRYnD
R4vEUJPLU5LOXJbQWJnQWJrRUo/KSYrGRofDQ4C+OHe2M3a2O3e7O3i8Onq5
N3a1NXSszNXKzM3Cz
M3GyMm+uNXSvOHwXNHKxMnSxNnWvMXKzOHu5PH++PnWwH0NiIDY+K0NLO2p5
QXKFMINIFSEiJC0t
HCKlGx4WGiEXJDEqMkpSGScqLkZJOMB4RG2IRXiXSniYS3aaO2J5EBMSGiMX
GigWKXZPKHpfFG00s
LkpKK0VLHyYiloiISUbJy8pHSQfIC4vKUJTLFJ5MmWYNWqpM264MnC6L2qy
MmuvL22wLm+xNHCv

NHGuMnCXMW+wL26sNnCvLnKvMHOzNnO1NXKvOGmhK1SFJ0hvITFKHSMoICMk
Jy49FhMONU9dOGGW
HyxOISkuO2ihNWKfNFKBPFyONmOcNmKXPmKaQmWZR2uXWHCWdXyYoZChx7Kw
49jR++/r/f7//f/+
/vf089PEIXSEKEd/NFWFU2qGMztJlJaqQmV1QnCNQ3OTXF5qwaJ17uzc0cKe
4d7PzsSk29bAzMSj
4+DRzMOm5uPX39zS1M686+jg0Mq24N/S3NXH7Ozl4NrN2NLD5d/Y0MW19ff0
29fL8e/s6+rf0saw
9vj1tJ946ObWwa6SrlhO+fv67Ork+vj3zL6o0cKi3cSfwp1ruYlbg11QTGN8 R2SBLIKAJ1F/LVGF
K1KDLFOGKEBwHyoxly4llyomJiknHSIbFxoSEBILDQ4JDQ4JDxELDXMMHCIZ
JSskiSgiFxF4ZHycg
KC8mJSshJi0iJCshJS0iJi4jKC4jJCogHyMaFRcQDxELDQ4JDQ4JCwwHDxEL
Cw4JCw4JNU2RME+T
K0+RJ0+QKVCUKIKWK1KWK1CZLFOXLVKbK1KaLVSaLFabLlagKIWhK1ihMlun
Ml6nMmGqN2KvOWOW
NWKvMmGvMmKuOmSxOmWyN2SwN2SxOme0Omi2Pm+5RHjBRoDFRoTGTyfNTIXJ
QoLAQX68O3ayM2ii
K1aQlKp+IUZ6H0B6Gjt2HTx0IUB2IEF7H0V//IEaGI0eDJEiEIkiJITx1Izx1 HDxyHzl0IDhzlzp3
ITt3JD97ID53IkJ7IDx6JUF/IkJ7IEB5JUSBHkF/IkWEJUaEI0SCJUeDJE0E I0GEJEWFIkOBIUGC
JESFJUaGJkeHJkiEI0iEIEaGJEeMJUmLH0iJH0qNKE2LJEmNIkaMJUaLJkmN
JICNKFCMJEU0JE2M
Jk6SH02NJE+OIk6RJE+PHEeKJU+ULWOnN3W9Q4bNQ4jPQYnLPYXCRIfGSibD
SYjCUJDIWJbOX57T
YqHTaKfcXJvQU5PMT0/HRofDPX68NXi2N3e5OnW4OHa3NXi2NXW2N3S1OHO2
MnCzM3KzN3SxNnOv
L2+qMnOtMnSxNnKxO3i0MnWrNHSxO3u7SYnEU5LCS4GpMlt7HTRFOVBZRWD+
IDI5ExcQHcYelJez
L0RNPWGAR3KRN195S36dO2eCM0pOKDs7I0k2H0EpLFg6KV00G0UilEkpGioZ
FxoTFxwQHIERKCKi
HykmJjhFLFF1M2OXLmqnNXC1NXK4L2yyMGqsLm2qMm6wL26tMG6vMG2wL22u
L2mqMWyqL26sL22w
M3KxLW+sM2aiMVODJ0FgJTITGiAnFh0dJzNCFRsoHiQiQGmZLVOIGx4sQmGG
OWqINf2SNVmLOmKb
PmWcQGyhrm+hSmuZV22Ra3aVjYWbuaOn3c/L9+vp/v36//7//7//Pjy6MjH z4yfvGWlt2R826ye
W1iBJ0Z+PvmFT2B8ligxM0JGP2qARXCMSmmJfWJX8enN2tC11s6208Wl08y1
4+DT0s236uff18+9
6eni3tvP7+zo5eHX7e3r7Onl3djM9fb02NK/8vb0xrqf5+LW493QwK2N8e/t qpxc4+DOwrCXu6F9
+fv7y7qk29bB//7//P37//f//5OTY5+fbyruWv6BvsHFLZllbQWWAOFqALFJ+ LVKCMFWGNFeNLE+I
ITRRJCsmlysoJSgmHyYgFxoSDhAJDQ4JDQ4JERMMERUOISYflygkISgjGB0Y
Ji0kJS0iJCogJi0i
KS8kJSshICccFxoUDhILDRAKDQ4JDQ4JDA0IDA0ICwwHDA0ICgsGBAUDK06O
LE6QLIGRL0+RLU6T
Kk6UK0+VLVCZK1SWK1KYK1KaLiGaLVGcMVOgLIWiL1ehMFqkMI+oNGKrN2Kr
N2GuNGGuNmOwO2Ox
OGKwN2KvNWKuNGGtOWOxOmKwOGKwOGWyNWazOGm1PW64R3S9RnvBQ33CRn3J
R4DKRn/HQnvDPnm/
OXS2NGurK1ualUyHHUV9I0h8Hz94IUB7H0N/G0R9GzIqITdrHzlvHDdyITxv IjdvIDpxHjtwHjpw
HzpzIjzIDhzHjIwIDtyIDlyHjp0IDp1ITt2IDt3Ij51Ij15IT15IEB5HD14 H0B9IUF/Ij+AlkKD

IkGCIUSCIEiDIkeDIkeGI0mJJ1CJJUuLKEuPJUyKJk+HJU+MI1GPJ1CQI06N
H02KIU+RI1KRI1SO
IlaRIVGQIFaVRIHFRY/SP4nMOoLCon6/Nnm5OXu8O32+O369QX/BS4fGUY7I
WZnSYKHXYaDVYaDV
WJvSUJbMRovGPoK9N3m0NnS1NnO0NnazOHWyNnO0N3CyOHGzMXCXL26tNHGu
Mm+tMHGuNXOyNXCy
OHw4NXmzNXazOXS2MXCuMW+wOXe2One0MmqxNWihQGqRPm2LNWB7L09mKDg+
R2BxSniVQG2EOmB4
QWV4HskuGiYcLnA0FkMaJVk3FC8XHy4eFB4TGRkRGRYQHB0XGiMfITA3Kkho
LVyPLWWfNmyzM3C2
LGmvL2utLmytK2yqMGypNW2tMG2sLWypLGyqMWywLGqtMm+yMW2yL2yqLWGg
KIB8HzhSJZPHyg1
ExURlys0KjtSEA0JOFFVsNmyvGDNbJz1WO26nOGWiMI2SOWWYOmWaO2meQm6j
SGyWU2iSXGmLeGyG
oYePzbay5t/U/PPT////+/7+//799+fm3bG/unWfmU+Th0WDgkd/ul6RzKaB 7ceXuJ+ZOEh8KUZ8
RFuAQk9iliQnN1VdQ2qGRW+OTI5wro1m8/HmzsGk5ePZ1MOu7+3n3NPB8O3p
5+Td6eXb9PXw5ODV
9vXz4NzP8/Tx1c+29PPy5eHT3d7I29PDrlDc8/Lss6B+493P2dHDzb6o+Pj4 zr+f3NK4x7aGtZFR
9PXuU////////8vPt2tfJza6P2s2v0KuDlmlWTI1zP2SAM1F7LFGALFGDMVWN M1aOKEZ2Iyo4Ji4j
JCojIismGR0XDw4JDhAJDg4LDxMMExcQHYYdlykiHiUgFwxXKC8mJy0mJi0i
JSshGR4XERUODhEL
Cw4JDRAKCw4JDhAKEBILDhAKCAoGBAQCAAAAAAABQYDLE2MK06OLk6QK06S
KU2TJ06SKVCULk6V
K1GXLVGXKk+YKICZKVGaLFKcL1WfNFmjN1yoMI6qNF+rNV+rMmCsMWGtNWKu
N2KvOGOWOGSuOGOt
OGOtNWctOmSyOGKxMWCvNGKxM2WxOWSyNmSzNWSwOWe1PGm2PGm2Omu4O228
PnDBQ3bFRHrHQ33J
P3vFOHO8OHC7NWmxL1+kJVSTHkqEHD54IEV8IEV8IUeBIEd/JUeAlkqAJU6O
KFKPJ1WRK1aWLFqd
LVqfM12jNGKnMGSpLWSoMWivOG6zN3C3OXs8OXW/PHXDP3fIP3vIP3vIP3vL
PHfFPnbGQHfFPHbB
OHO/OHXANnW/OHXAoxC9MnG+NG68Om27Om27M227NWY4OG22M2u4OW68Mm23
N2y1MWuyNmyzOm24
OXs5PHS7M3C2M3G0M3S2MnO3M3S4One7N3i7O324QYO+So3EV5fRZqXca6zh
Z6vdYKDYT5PNSIfG
PX27N3e0N3S1NnW0MXWwMXKvNXKvMW6tMG2sMW6tL2yqMm+tNW+uNXCyOG6y
OXW0MHSyLXOWM3Kz
MG+zK2+xL26yMG+1LmuxL2quUo3EebbojsruXZ/HPXuoJVByGiUoICglJy4I IDgkljsqHSQfGiQY
IjSlGyQYGRoTHCIZGRsTGx4dGicqKD5XLVKCM2GdN2uwMmq2LGq0LWqwL2eu
MGaqLWOnJmKkMGSo
KmWjLGmmK2qoLGupLGupL2eoKmOhKFuSLFGAIDITGicxly88EhUWHSMhMkZo
Gyg8FBwaN22kMWGe
ITZUNmGRLGmnM2aiNGWbOGacQ2ifRWqbUGqTZG2Tcm2QiXaKr5Kbz7m96tva /e/s+/38////////
/vTz4sbNx4mpo1mahUWNdD6Lj2uXnIGVwa6ZybaRz7eK1LaHyqOI266beHCJ
IUR7KkZ3T2CDMz1M
JC8tOV9xQWqHP2yLc2Ff4dOt7und29O+8+/q4N3O8vPt1dC69vj208+29/b1 2NLB7fDkw7Se0ryh
9/v61s+4///+29nH9fT03NC+3tvK6une0L2f4uDMt51hzLyUzLmPu6R24tjC wrCKspds+vv3//3/
/v384t3R8/Tv+/798fPsxaqMdlZWQmF6P1t/Kk53KICALFKCKIODFLSLJDdd JCKlJCsIlyolHSQf

DxALCg0IDhAKERcPFx0UHyYdlikjHiQeHSMcJSsjHiMcExoRDxMMcW4JDA0I
CwwHDQ4JDQ4JDRAK
CwwHBwgFAwMBAAAAAABQYDBQYDDQ4JKUuNKkqLKEuJK0yLK02PJ0uRLE2S
LE2SK1CUKk+TJkqQ
JU2RJE6TKE+VK1KaMVmjMV2INF2mNF2mNI6mN12mNI2nNWGpNmKqNGGtMmCs
NmGuOWOwMWGtMmGv
NWKvN2KwMmK0MmGvMWGzMWoyMmKzMGOzM2K2M2S4NWS1M2W0MGOzM2W7M2W7
M2a6Mma6Nme9N2m/
N2vCO27IPXLIPHTIO3LLN3XNOnTOPnTPPXfRNXP00XbRPHfUP3fRPHXSPHTU
PXfRP3fWO3XVP3nb
PnjbQHbbP3LRPm3JOGjAMmK0NF6qM1qkMVehMFefMVWgNVWINVmnNWCuM2G1
N2G9NmTCMWTIMmTL
MWLEMWHBMGG/NGC+MI+6MV+7M2O7MmG1NmO1MmC0L12zMF+uNV6vNV+0OGK0
OGKxN2ayNWizPGiy
NmSuMmGqMGCsNWuyMW2vL2utMXCvN3q4QIS+T5DGYJ/TUpTOSlvKQ4DConq1
NXK1MHGzNXW2Onm4
One0Mm+tLmqsmWyoMGypLWyqMW2vMnCxM3S1M3S1L26yMmyzLWqtLmuxL2uz
L2q0L2uzLWmuLWSn
J1+mJlulJ1akJ1afMWGIQ3O3YJnPVZjLNxi1K2SfHz1mHCs6HCMfGhsQGR0T
GRoTFxoSGh4ZGyYn
LT5RM050NWKaNWyzN3G8MW27Mm+1LWqwMWuyL2quLWSqKmOnLGKIK2OkKmGk
L2SsKmaoLmWoMWmq
K2Wgl0B/JDhrHzBTGylrJck1EA0JKDxJKIB8ERleKEBVN262JE+GJ0h0LWKh
KmGdNmWINWSkQGSW
UGuYaHaahn+eolmZuJukzru36dnb8Obk/vr4////+/7+///+fX16MjOyYyp p12aiUSUdjmnDk2P
k3aXsZ+cvbOZ08Wc2MydvKaTqpWXcU6GfISOIFaAz5GT3bekTFR/GkFxNFF4
UI54Kiw2LT1AOmV8
P2mHUmmBI3RX9/Tiyr2a6urawa6M6uLRwa6U39PDy7ihybaW9vj21tO97+vo
wrCQ9/j55uTU6eba
4t3lyr2azb6eqYFKz8WlwKx+wbCN39rAr5Ru1siyt6KDuKWYyb6hrZRvw7WQ //7/9PTt2NTC
//7+///+5N/OrYhyW1hIR2WANVR4Kk97LFN+K1KALFSJJ0I9liw+Jiooligh HCMfDRIMCQwHEBAJ
CxEKFBsSHiUclighGR0YFBkSERUODhELDBAJDhELDXELEBILDxELDhAKCwwH
AwMBAAAAAQIBBAQC
BwgFCwwHEBILDhAKDA0IKkqHKUumHLEmMLUqNLkyLLU2MK02PLE2SKU6SJk2T
I0WMJUOKKKWNKEiV
J0uYLFCfM1ajL1SgL1WfLlejK1SgL1ShMlunMF+oN2CqNF+rNmCtOF6rNGGu
MWOvNGKxN2GwOWSy
NmOwMWSxNWWzNme0Nwa1M2i4Om4OWi5O2u5OWy4Om28PG3AP3DDPW/AO3C+
OWu/OGe/N2nANmjB
L1qmK0uNJER8Jz50KT51LkJ8KUiFLE6VNleqNmC2MmC8NmTDOGTFOGTfNmO9
KIGZJDxrHS1DEh4o
EBkdERUYDhESDxIRDA4QDBAPDhARDRASCxEREbMVExgbFRkeFBwIGiQ0IC1H
IzZhKUR/LIGiMVq1
NI6+N1+7MI24MV+2MF+zNV+1NmC1LWCxNV2wNF6wMV+wOWCwMWWwNGWyMmOs
NGCpL1unL1mnLlqm
KVqiLVmiLliiMV+kOmywO3CwN2+vNXCyMG6yM3G0OH5NnO2LnCyMXKzN3Oy
N3OyNHCvMm6rNXCr
MG6pMGypMW+wNW+zMW2yLmyvLmywLGuxKmuxLm2zLGuyKGSsJ1+mJVqil1ad

JFafJVaelleeJlih
MGGpRXO9WI/IZ6LVVpjNOXy5L3O2MXG+K2qxLWGbIUfKHiYxKzdBNEpkNIN5
SXKVN05jJTpEMkxr
MV+NMGOIMGquNm65L2StJU6LLFaQLWOiL2aoKmanLmmnMGenLGSILGWjLGSi
LWCjkGKjLFyglIaX
KEt/MFSEK06DFBokOFmBL2WoJkyGLFWNLFuaK1maLI+YMGZOZOGuYP22ZdXiR
zcG+4tjY9Onp/vXy
/P36/f/+f////////fj08drg2aq9wXalniSapl+In1p1ajuNfV6Vo5Cdw7Wf 0sWh2M+hyb2dtKib
f26ScFqbY0WXgVGYP3eevl2esHCGnl6FylqQplmLKkVzIEJvPVd5R1NmlyYq
NVFbP2eBQGqiZmNq
z7CJ7+7f0ceb1ce0ya6K6effyb2e9Pbz2dC68/Dp4NjC4NbAzMOfwal5x7qS u55p1syxxLaOxraX
zbqjsZZ12NPAsJVvy8GnvamMwbKV5N7RsqGD4N/S0seynGw43dq6//7//f78 5uLU5+PZ////+/76
2s21iWZftI94P2F9K0x4K05+K1CALFJ+LISKJDpmlygpJCojGx8ZERcQDRAL
DhILEBMNFhkSFhwT
ExcQDhELEBILEBILDhAKDhAJDxEKDhAKCw4JBAYDAQIBAQBQMCBwgFDQ4J
DxELERMMEBILDA0I
DA0ICwwHKUmKKEiGKkqJKkiGLEiHLkmLKkqLK06MLEyNGzllGyc6GiUyJzZU
HzZgGyxRHjBWljto
ljFVlzlRj0eFKUmQK1CZLVGcLlSeM1iiMVqnMFypNV2qNV+rMWOqNmGvOWOy
OGKxM2WxNmSzOGi2
Omm1O2y4O2y5P228PnG9PnG/QHPBQ3jBR3zFSX3KSn7LS3zJQnjFOXHBN2m/
HDtsHiYrGyleHSEY
Fx0UFhkNEhMOExUOFhkRFRwZFx4hGiQpHCkxHCcyGSQRhkbDhELEREKERga
FiA1GihEGytPHYtS
IShXGipXHShcHCdbGiddHShhGypjIS5kiTFkHixcHCxQFSY9Fh8sFBofExog
HyY0IzVcKUeQMFew
MV+1MV+zMI+yLV+wL1+wLl6vMF6vMV6vNI+wNGKwMWGtMl6rL1uoLIqnMFmm
LFikL1ikL1ehMVeh
MVqiL12iNF2jNVupL2GtMWGtNF2nL1yhMF2ILGCIL2GoLWSmLmqSLmqSLWqo
K2imMGioKmaqMG2z
Lm20LmmxLWevKGqXMGqyKGKpK12kIVqgKVWhKFWdIFicJFqiLGGpLmWpOHK2
YZvQe7nildP0otz2
fcDpS5LJMXa2MXC0L2yyMWy0OW2xNWWfPmaLPVx1Jj5NLT1DGiYfDgwhN0VC
Qlhnly4tNEZJL0pi
MVeDNV+fJkt2L013L2SgLWeoMGenLWeoL2WoLGOILGGjK2CfLWOiKWCgLV6h
LmGkM2KiM2OgL1+e
KleNLVqTLliVK1qZKISROV2OQVd6IS4+Rmh/SXugSnyhgXd969Su/////Pv9 8t/d6MPQ0p2xv3qk
qV2fjkuWfD2Td0SMg1ySl4Gav66jz72czMCh0MalxryisaOgkoeZaVSPYkad a0Wci1easlaqs4ak
mmKSelOYXzuQXDiohmGFuYqN7MWkb2iEIUJzKURySF97Oj9RKSSrPlxsPmWB
SmelhmlU7eXE28+x
3NK00cCX1sehybaKzrilz8Gawal01s2vxrWM2dK8xbOTy72nyLyjxrSc2dPD rJlr19LAwrWZ2NHC
1tG/u6qR7erkuKGCz8Go2s68s5Vr2M24s5Bmq4RF9PPo/f//+/z6397M9vj1 ///9/juyLGaa1Jg
Q2J7PFh6Kkt7KIF/LFGBLVKDK06CIC9FJSckFh0UFhgPERQOChMMDxALExIN
EhILEBILEBQMEBIL
ExUMFRQNHSQfJjU8DhQYAAQIBBgUCCwsIDw4JDxELDhILFRINEBAKDQ4JCw4J
CQwHCgwGBAIBMIz6
MVR8MFaEK1KFK0+GKU2HKUyKLUuMKE2NHjRXGRogGhwfLjU9HykuISYoHycr
ICoqlSotlSgxJjNK

HjRSIzhhlLUNyK0d4J0t5LEp+KEp+LEuDLkuDKUt/KE2BKkyALEyBK0yCJ0yD
LE+IL1CLMVWPM1eQ
M1yTLIyUNWKbOWWhOmekPWunQHCqQnOvPm+wPGurMmGYKFONJTZZHyk5HipB
Hi1JIC9OIDBRHzFS
HC1PHStHGyc2FR8rGB8mFB0hFBwjGB8oGyY2ICxYHShhIClnISVglCJPGyRE
ICBAHSA5Gx8+IR5C
HiBGHR5JHh5SHRpRGhpZHRxhHR1kHiFwGyV3GyV3GCJtGydgStTGCIZGylr
JTVkLkubOGK4MF60
LluuMV6vLVyqKVupL1yqNF6tMV+sNV2pL1unMlmmNVmnMVemK1akLlekLFej
LlejLlagLFWiK1Wf
KIKWlj53HzhrJDtxlZtrHTJglZrMkUKAKUuSKlWaLFyhLV+fKmGjL2WfLmmn
LmuxL2yyKGOrgKGG
KFymJljl1WeJFWdJlijK1qnL2GtLWmuM3S1NnW0SlnBQoS/aKPWfL7sot32 tOr3is7zUpfGNG+t
LV2UNWOKPI53JTpDJDC3KTQ2LTtAOFBYNEpTHSMIERIPKjYvNEpTQl1sQGF1
N1BbHCYrNEJPNUdb
MIJ0LV+ZL2OiK2KkLGcKMWSmLmGjLi6iLi2gLfueJ16ZJVmXLFicLImYM16Z
NFqTKVCJJER2KVGf
KFOSHk+NMVmNZW6NQEheljI0SHaNQ3abWnmZooRy+PXr9ff0sH2NikSHi1eV
p4ijsZ+tva6xxL+u
0s2s2NGq0cemxbqmvK6itpKNck2NXD2gZj2chE+co3Wotlesn2aagFKdYT+e
SC6XTzmZZIKUmYiX
rpqNXLclw6qRv46SwZ6RRFV+lj1vK0lzRlp0Ky88Lj8/PmF3QGWDVV91n3IN
4NSmzq133c6qyrOM
18utv6mFz8OowbCRyruygbuit6F9zcGovKWF5+TdycKu3dnN3dbHysKr39zQ
rZRv493PzbygwKyP
zb6jrldc1smxsJRouKV2zsSkqZBlwbCD/f76////9vTt5uLU/f////7/7+vc qol4WFlxQWB/L093
MU+AMVGBLVSAMVKEJ0BrICYqFRwTDxQNDxIMDhILEhILEBQMERIJCA4HEXMM
GRwaJi41Lz5XKztf
NEhtHiY5FxQLFBgRERcPEXUOFBcODhELCQ0GCwwHCgwGBAoFDw0HDxQNBwoG
O11vN1dtOVtyNFpy
MFtyM1p2NFI8NFuCMVmHK1R8JERbIDRAGylqHB8pHh4rTIVhJTE/KThTMUpu
IT9uJkJzME2HmleY
L1qVLVmWMFmZMFaWLLaXLFeXK1SULVaVL1aULVOUKIKTKFKPKIOQK1GRLIGR
LFGOKIGPL1SRL1WQ
M1uUNF+XNWOZOGWYOWaZNmSXLV2OK1F9I0RwITNmHCZSHSZGHYVJHyVEISdG
lidTISRaliVklips
litulStnHydiISlfiShhHiReHB5aHR9XHBpOGx0+HR01HRk2HB0zHhw6HRk7
HxIBGhdCGx0+Ghpl
HRdGGRZNGRdQFxFxZNGhdYFxFhFRRiFxFjGRhgFx9kHCdpHSdYISk8JDVhKkqJ
K1SgLL1utL1mqMlqp
LVqoL1qoL1qoMlyqMlyqL1mnLVajLFakLFakL1ajLIWiLFSeLIWdLVaeLlag
L1WbNWOKRnqqRYCv
ToS3TIO2OnKfLU54HDNUHC1QJDRvKUiKLIWYMVeeLVmdKlqeKVihKFmhJVeg
JVeJjVqil1mhKmKp
MmiwMW60Nna3PHy5Ony3QIS+N3exOn6zNXSkT4azZqXMI9HtmtLnZp24SnCI
MEIZKzk8LDo/JjY5
LD5HMUJKO05RJC8uLDYxMUBFN0xmKkFZPIJfLkBKLztCMEFAJjZIJCxiN0dZ
KzpCJS4xOURSKUVw

LVybKVuZKlueKliZK1iYKliaL1ieK1mcJ1mYJ1eTLiVNFyVOFaGLUp9JD1w ITZWL1aPKISRJ0+L
R2CUBHKNNDtSLUJJS3WWSHWabnSJxaKD/v3/8fDwzMGt1cqy39i+3NjBycK2
qJ6njqfc1uaZ02g
Z0eieU2buHqdvJKnrIcqlF+Ye0yhYDyjRiecSi6bYk6YjYScopeWwbOXuaqS
m4mPeGSIW0OJakWK
hlGD4aqcm4eKLEV1IzxoO1B5QlFmIscrO1BYQWOBPWWEXVJXzLKC0MGXwad3
wq+EuZxu0cOnwKuM
3NfEvq2P5NzOyL6k2dG+2c6/x7OT2tXHyLqb8e/pxbSV0MCfvqmKu6F90cmv
pYBR1Mitx7qdwLOV
5d3NuaeF393OybWUtJNd7fDk//7+//7/7uzg7+3m//+/z42824iWliS2J7 P118L017K1J9LFGA
Kk9/K1CBIjJLFxsRDRAKERALExEMDBEHEhQMGRgSISktLDIMMEFiMuT0NFCI
ICw/PEDXKDBHFhgP
FxxGRghkTExMMDhILDg0ICQsECwoFDgwHBgMBBAYBDAsGDw0KNVtsMltsNVtx
OFxyNFxtOlXuPFxw
OVx0N11zNFxzOF52OFx0M09jLUZZIzZGISw8ISY0HiQvJCs4IzJQLkqENF2h
NWKnm1+IOmOpNWGn
NGCmNWGPnWGPnMkqMGOqLWOnN2KrOGOtN2OrNmStMWotN2OtMGKsMWGtOGKw
OGKwN2SwNGWxNGWy
OGa0Pmu3QG64Pm+8Nm23Nmi4Fy1fGx4xGR4wHRsuGRwrHRszHhs8HRhAGhhE
GhZLGxdMGRhJGxpB
Hx49Hh5DFxw8HRw/HB1PICNZICxdli9gJDNqHzZwJTIBKD6HNUiRKUCNKUKP
Lj+QKzyMKT2KlzeE
HzR6ITB4ISx0GSZwFx9iFhVeFxVYHBpXHyFjHChWHio5ITJbKkaRNFqtMlut
NVqpL1qoL1qoL1qo
L1mnL1uoLlimK1aiLlejK1aiK1KfKlOfLVKfMFKgLVKfLFWdLFCbO2ytWpnO T4/EVI6+VI6+SIOy
N22jL2GQJ0hyJDIXGCpPIThuKk2LLVWWL1ebKFWeklijKlujK2OqL2mxMXC0
NnW0N3a1OHi1N3ax
OXmzN3q3NXWwNnOqPnWkPXCbQG+ST32XSm6JPFZyPlpuNk9gOU9XOVFZNUhQ
IzA0lyssNDw+lyUe
HBsQNke8MUJHMUNLMkdXNU5fOFRePFImMEVMljFCJC1mJzIMli1bli5vMVKC
LlmQL2OeL2KeL2Cj
KV2dLlyALViXLIiVLVaWKVmVLVuZLFqdMF6aK1qQMIJ/K0JfGyEjJj1PLFaZ
LFCSJU6NT2iWY2qJ
KjFBOFJaQ3SSTHaZgXF24M6y////2svDiFyOf1yphWmvhGKshVeli1ihmXOt
pYK7mmupgk2ddEWo
oGeVcTKGUjWfX0qgfXCfpZmduq6dvrKZrKCTjoKWYEqsUTqTWD2VeU6Wm2eN
toSYqW6JoWmK0KWe
bWqAI0R0IkBvQ1d6OUNUJTAvoFZqPWV/Qlx+eFIJ4dWpw7KN28601sq31sy0
1sizxrSS1MaswKmH
6eLWuKF82Myyr49lybOQxbGRwauJxrSutJhu3drNwbOR0smy1M+5wa+P4N7P
sJRq29K32cu1uJhm
6ubZsYpS1L2R+/38//7++/z46OXT+fznz/f//+PfsyrKadGFuR2GCM097Kk96 MVN+LVF/LVCEKUV2
HCMoDxMMDxUNFxoSHyYmLDZFLT5iKDdVHCQmHyQeKi8oOUleN1B6PFCEKDNP
GRwRGxwRFhgRDxEL
DQwHFRMOL0A6P2F4P2eHKUJYEhQaBgYBCAwGNI9tOF5xN1pyNlxzOVx0PV10
PGBzNi9xO19yPF51
OmB4NI51OmF0OF52MFRqMVNqK0xkJOFRHyc3Gx8uHR88JzJcMVaHMI+YNI6e
M2GiNmGINWGnNGOo

MmKnMGKpMmSrNGapOGSqNmKrOGOtMmSrNmStNGOvL2OuMWGtMWGtMWCuMF+u
MF+uMGCsMWCuNGCv
MmG1Nme2LFWdFSJUGx42HiVBICVDHSIQICIXHCtbHCreHiZcHiRaGx9RGR5R
HR5LHR9HICZUICpa
KTt5L0+eNIKpOIGzLEcVmKc1Lz+9Kze5Mz+9OUG8NTy6KDChKiuaLjGsKzKp
LjSsMj+wLz6pMUKm
Mk2sME6mLkiYGzV8GSRmGh5hHyInIC1UJUB5MFqtMVqtMFipMlinL1iK1Wj
MFekLlimMFmmLVan
KVSilIKhKIGeK1CdK1CdLU+cK1CdLE+ZL1CaKU6aOmpUI6/TlrBTYu+Rn+v
P3ekQHsINmOWJ0x1
NluMLE96GSxPKDxqKk2EMFmaLmSsMG64OHq7PH27On28OHY2MXi0N3q4O3u7
L3KtNnSyNHKpOm+a
QW2PN1VpJjtdL0BFP1xpSnCGVHyXQmh+LUJKKjg+MkFLOVRIQGJ5MUdQLTpD
LDdCJC4sPFImOExY
HSIblifJzlwLjc+HCMhAwEAKjlyNVJ4L1qVHdaBlkCGOGenMGqILWahMGOf
OWafMmemMWKILFqY
KliZM12dLVqTK1F9Hz1hHy9AHCcpHB4aFx0TGBsTGBkUMkxOLFazJ1GNK1CN
WGqWU2F3Hic0RmNx
RnOYT3OPn31k+vbq9vb4xaaztYitroa5m2esf0ukbT6kWTamUC6iTTGgTzug c16cq5Kay7GVwric
zL2isJ+fgHCQVUSRQTGVRzWeXj+ZjGCar4WhtoufIWGNcUSMUTKTSjOPUDWM
o3qO1bSdSleBIUN1
L0dtSll3LjI/MT1CRF12PmJ+RVVrrnnIN8OvVwamC3dK3u6N52cu1v6uKzL2i uqR/yreTv6mHuaR8
08q0saB95+PVxLid4tvNzMCnxK6L3tTDu5x07ezgw6uK1LyZw7eUt4dM4dvN
tYxVyraM4NjGwaBr
2te0+v7+//7/9fPs5eLL/f////////f71yKKNaGBxO1p/KEt2K0x8KU9/LU1/ M0+CIjRYHSIcHCMe
LkFTL0BiO02AKztaGx4WFRUMExUMFNgx8VPExeOlaUJzRXGhwUGhgQDhEL
Dw4IFhgPP2RyT5TD
SpLFT5HFUI/EOL6PDxAWBgDOV1wOF9yOV9yPV10PF91OV91OWJ0O2F0OmB3
OmB3OmJ3OmB4OmJ3
OmF4OV93OmB4PGB2NVt1M1ZuKktelzxNGyc7GB8xHyVAITBLHjZXITpkJTtu
Iz10Iz1Jz15KUWA
K0iDLK2KL1GTMFOXMFmYNFudOF2kOF6nMF2jMF+nMF+oNGCpNWGqNGGtNmOv
OWWvMGKuJUIGK0Fv
J0eFME+aME6pLUiqL0utMEapNVW1NVG3NE6xMkuuPlmzN1aqOVCoL0qiL0Wj
LTynLDmIKTGIllyKb
JBydlhuYlhqMJCAnJiSWKcWIKCanJiSdGRV0JiCJkyWrKiWrLiatOjO0LCep KB+hKiKkJyinMTey
LUCvK0qoJ0iRHi5mlz1uM1OeL1eqLlmlLVimLVajLIWiLFWiL1OhLIWiMFek L1ShK1KfLVKfLVKe
LE6bLU2aK0uYKU2YJE6WKU2ZKUuYN12hZaTVarDdaazdYJ7POXGeNmiSO22X
NGKQLI2ILluOLVCA
JkV3K1SNMF+YNmObM2CPLVyHO22jNna4OHvBN3+/L3GuNGKQqNsvO155MUIW
LURIMUZNRI1tSWH7
N1BjPIRjPFhiP2N2RWiAR2h5P1prK0VIKztMli5IKTJFQVhoO1d0L0VULT5C ligmiCchLT1ILFF8
NV+WK0JfHilbMEJTNVOFM2mILlaFOF6LLWGbJ1WNKU+EHTBCHSYhJj5NMVF+
Lkx8IDpbGiw6Exsh
Cw4MCgoDCAoCEhcOGhsUGR0TGBsWFRgNHSUeMk97KIWPKFCMK1WMX2uPS1Js
LTQ/Q2uFQnGUZ26D
uJZ3/f//6ubje0qJZTykcFeqloWvppitvbSzxr6uy76mw7ejq6KdkISykwqP IWOBUjGXTc+eYjeX
hlydpoCmrlChmF2Re1OcVjucOieTOjCbUkqWcGmTcmeQllqYalaGtoufplmL

N1B6JEFzM1B3R09n
JyszOE1WO199O197WU1Xzq9+z8GdxK2I2Muzxrqb5uLYyb2k6eTYyr2g4uLR
xbSY1smxzcGoyK+L
7OfgvaF44dzHr4pa1sqsv6SAwqV2zMCnt4tQ49vFz76byK2A2tK9sYJC2s2o wZpkxaBf8PDh/v7+
///+9vbo8+zc6NS04a2NvXRTbVdePI57L1F3LEx5Lk1/LVCAKk9+Kkl6lCg5 ly4mLj5aJTl2PU5v
ISMkEhQLERMMExQPDw4JEREKKC0mQleALzlhHBsVFhgRDQ4JFhQPOVdZUZTC
TlzBSlu9T4q6Toy3
Vo28Jj9fDAgDOF50OWBzOWBzNI5zNI90OmJ3PGJ4O2R2M2F1O2F5P2J6O196
OmJ5PGR5PGR5OmN4
OGN6OWV5OWV5OV14OmF4NlpwMUXkN1Z2MVF5L0lvLEdvK0hrKEBmljljHTNf
Gy5eHitcHCpdHCdb
GSRZHyhclCheGyhgGidgGSVfHilmGidkGSpiGSpmGy1tHC5sHS9mHChPFhcx
GRs4NkmiMD61Lzqy
NTu1Mj6pNUCWJy6iJy2kji2aJCSXMTGmKzKpKyyqKymnKCKiJyGkJB6hGBRu
JR6JJR6jLyypKy6d
LC+ZMDGjLSqqLiuvMDO4MS66MzG/MSu1LiynS23OTS6NTG6KyiwlSexLSy2
JiuzJCqoMTKuNUCq
K0WMKkeEMFinL1eoMFWkKIWjLFWiLISjKVGg1CgM1KhLVGgMVGgLU+dK0+d
LE6cKU2ZKICZKE+X
Kk2WKUuYJ0uaKkmYK0qWZZvVfL3udbbocbPkUpbGLmmYK1WAMlyCNGeSMV+N
NViEI0hxOFJzKjY+
KTMvly0nIscgKC8vKDpDLk1lOmibQHq0M2eZM12FJEJeQ1dmQEhSSk1MU1NR
OT42Ky0IPEINT2x6
RWI2PF5sPFdIN1NiR2Z9Nk1yHiRaJy9BJTAsKi8oNEZOKjtELUZWM0txN2Sc
LWeoM2amMFiGM0db
Jy5dLIOXKVWeJjyCKTltKkV4KU2HLICKIDdQDxMMEhMKExoUDhIPCAoGBgYB
BwcBAwUABgYEDQsI
FhkSHSiXHiIYGCEVFRwTGBgQJCspLIGBJVCKJk+HOFaPYG+RND5UMT5HRnCO
R26WdWZw1r6k/f//
2dLNwLCgxLyuw7qvt7SunZGkg2+ZblOaXj+hUTKhXjKfiEubypujtYmen22c
kFSTd0ufUTWaOSKZ
OS6iNzSaSEWWYlqYiYaba2KMcWmaQT6QQzqRUT+ShliO5bWifnSFJ0Z2JkVy
P1I7OEVVJS4xPFVm
OF97PFh5gWBQ7N/F0cau3M63zsKi2siu5+PV5t/P6uPZv6eD49vPtJFi5eDP tZJj2MasuqR/yq6F
2824vZ9v4t/Ov55y2MGawaV7wpFU1MSkuohG2cai18iq2cul9/ru7uXO7eDL 4sei0qJ1wXtXrXBQ
n3BWj21meWxxWGH5QGN5Old4Kkl2Kkx5Kk96LE6ALEyBJjdgJSsuP05pOkt3
JzNHEXMMFRIMFhkR
GB0WEBQNDxEIGRkRPU1aMzxpHBwUEBQNEA0JJjMpT5CxRoy/Sli4Sou5Tly9
Roa2SYWyQnCbdhEd
M2B2OV91N2B1NGByO2J1QGR3O2R2O2V4O2N4O2N4OmJ3OmN4OGR2PGN6PWN5
OmJ8PWR7P2V9O2N6
PGR7PWZ7PGd4OmV8Q22LPgyJPGF9OWF7NWF4NWF6NmB+NF16NV18MFt5Llp8
Llh7LFd9NFyEMGCH
NmGK0mOPM16IOV6PNFiIM1aFNFSENISFNFGCLEx5MEdxKkRtKT5kJzd7JjKM
lyqLICiFISVyiCVd
GR9oGBpBOT5jPEyASViHKjRyJy6WKSudKyuhKSajKcmjJiKgJSWMMzCRLjGR
LjCnMja9Ki6INjS8
NDW/NjvDMDG4JCKeLCqoMCmLLSynHB2QKSuSNUGUPk+VOUuIKjdwly5rJzNp

KThnN01wRWeKKk+h
LlanMlanLVWmLVKhLVGiLk6hME6hK06eKVGgKk6fLEyfKk+eK06eLU+dMFCf
LFCfK0+eLFCfK1Od
LlidL1iXO2ibfbTqdLTpcrPmbq/gTY68LWeUK1iHN16JOV+GN1uBNV2BLUFI JSkfJSshli0kJi0k
lykiJCwdlyUdJSskJzk7LUtfNWOSRXChRld6RWN5Rk1URUHEQUVDODcwQ1BW
SFVdPUNGRl2HPmCr
KD+MKC9kliiCizA+JCszJSo+KCsvLDM4L0NdLIWAN1aMOGmpMWWkNGOjljdh
JzNXLEuALVaWKECF
HSJglCN2lylhJjNKKICszERURCw0GCAsHCgwGBgoECwoFBwcFBwoECAcEBAYE
BwwEFhsUliYdliMe
HCIZGR0XGR4XFhsPKzdALVKLKUuEkk+HQV+PUmmFKjNFMU1WP22USW2UgmVd
7+PK/f73qomYakCc
ZEGockiigE+elmero3mvpXytnWediVCXc0ahcEKfpWKFViONozCkST2ZZFia
bGSYgH2YcGSPUUmW
MjiaOjKYQTWbW0GVg2GRroaeqXyVjVqLkFyTy6WiYGOFIERyK0p4SIl8MjZF
Ljw/PVpyOV56SFiv
oX5W8OnUxaeH5d/Rv6d+6ePZw6qF3tbAx7CQ0MKj2c24x7OO5+DSwaF54dnH
u45k1L+bv6B2xqFt
z7qWwZti5N7H3M2u7OvY8uvb6tnA59nB27SOyYhjsXBjp2pKmm1ViGhbf3Bu
d3t+cXqFZXSFW22A
TGR6P194PVt6M094I0l1LFF9ME15ME2CKEd0JjE/RFVxPIGBISMofXgNFBsR
DhMMHSYcHCIZDxiM
EhlLMTk7MUFIGRoYDxELFRMJOldeSZC9RIm6Ro23P4KzOWyZS4ayMI+SS3mo
GidBPGJ6N193PWB4
OmN1PGV3P2J6PGN6OGR4PGR8QGZ9PmZ7PGN6PGR8QGZ+PGR7OGV7PmR8O2d+
QGd+PmZ7Omh8OWd7
OmZ6PmR7OmJ6QGZ9PGR7OGV8OWZ8O2R5PWR7OmJ6P2V9PWV6OmR3O2N6PWR7
OGB3O2N6QGZ+O2R/
OWR6PGJ6O2N9NmJ9OWWAOmZ/O2eIO2aJOmeLPWWNOmSLNWOKNmGKNF+PNWOT
OGaVNmSXOGGKL05y
Xle6XpC3HzlJKC9QKTVsKjp7LD2BLj2KLTmMM0F6UGl9VGp7JjNdLjiKJixj
LjCUM0G6N0jBLkGw
KDtyLUV+OU+fJC55KTVrly5hQIN/OFViMUFILTlQKThnMj6DNUGSKDp6QGGP
O1+YNI6cPWCEo1+Y
N1uVOVuVOFqUN1mTNVerNViQOFmPNViOMIWLNVaMN1WGMFB6LEtvK0JjKUFW
KTxKLjtEJTg4JC4s
R2FydrfncrXrbLDhaK/cR4u5NWYbM2CPNF2IKUNcLTc2JSsjJi0kJy4IJCsh JSsjJC0kJS4llysj
JCsllyghligfJCKlNzw7PUdMQ1hoPEpiU3agMk1ITWBvWYyrTnWRNk2MJjaZ Hi1vJDNSJDI/MjQ4
KC0tJC8xNU54K06TKTmAjZVpLT50KziBKdyTJDeQJiptJChEKTFJK0RzJjhx
IS1QHiUtHiQpISQl
ICYdHSMaDRAKBwgFCgsGCAoGCAoGBgcEBwgFCAoGBwgFBQYDBwgFGRwVlykg
ISceGyEYFwVHR4X
Gh0WHB8TMUJaMVKPKU6LKkyGSGKNT158ly87P15xQW2PSGF7nXpe/vz19O/t
sYafml6bjVSme0+p
a0usWDSnPyufOimiPi6jRDibXUyYlnGQtJOQpJCadWeUW0mYPDabNjCaRTOh
XTyefleVpH+eqoCc
ImGPFVORaUqVX0SSZ1OWhHCVzLSixaegRFiBlj9xOk95T1IsKSw1OkxUPV55
OF98Y1xlwqJ68O7f

08Wq6uPW0Lyc4tzMv6WB5+DRvZty4dfBwKN91r+fzreazrON4tvN2Men8u/m
7OHN8evZ4NO23sOe
2bCLwodep2pKqGhMm25WlmpehmZpdm12dXWAdHmFbHiCZHKDT2d9TGR6PV1x
N1pyOI14PF14NVtz
MU5IL0dtL0x4K0x4MEx/Kkl5JzteRFN3OkZtHyEaFhUPGSEXGiEWFhcSHCIz
DRAKDxEKJy0mNEVi
FBYbEhAKGh0VR32NSlu9Soi5Roi6RYW3NF2MQnSZQGqXSHaiLkJjNWJ4PGJ6
QWN6OmN4N2N3P2J6
P2J6PWR7PWV8OGV7Omd9O2Z9PGR7O2Z8O2Z8PWV9QGiAO2h/OWZ8PWh+QWh/
QmmaOmd9O2h/PmZ9
QGh/Pml/PmZ+PWaAPWh+P2h9Pml/P2eBPWh+P2h9P2d+PGd+PmZ9QWh/P2d+
O2h+QGI+PmZ9O2d7
PWZ7OmZ6OGZ6PWV8OGN6OGR2NmV5N2R6OmN9OGN+PmeEOGWPKIKOKUiTK0WZ
LkmLO2aNTYqxNWqH
JkFaJ0RkK0VpKURoJEJiJz5fME10U4SrZqHFLVx2NVR5SXYMISTMUydLEGO
MEZ6TGijJ0NgNIV/
MEIzOVJ3JTxVV3GWNE6TLTmUKiyQliSLICN8JCpeKjFBLTc5LTc5Kzg5Lzg6
LDY1KzU0LDU3LDUz
LDQ0KzMzKjMxLDUzLDUzKjEvKjltJzltJjEsKTArLC8oLDEqKjEoKzApKTAr KTArKSsrPFJha6LH
jMTja6/ga6/gY6HJQHupOWGGJjQ9Ji0hJzAnJi8mJzAnJi0kji0kji0mJCoi JCoiJi8mKC4jJS0i
JCgkNTsvLC8oPDwxQE5mMUpdL0NcY4utc7TfaqTaNvIZOU2fOIFyP2yMN2GH
LjdDKzVDPWuZM2OL
LUIkMFh/J3ivH3W/JGSuHkePIzNuJSpQJypOJypMJic+IyUvICQiHyMaHyEZ HyYbICgdliYcCg0I
CAoGCAoGBQYDBwgFBwgFBQYDBAUDBAQCBQYDCwwHGh0WlykgISceHCIZGR4X
HSEYHR8XGRwUHCEa
MUIqKVOQLU2LKK2BUmqLQIFslzI9Q2mBPGqMWVdrup13//7/3tLVa0KNUEOn
WkqhllWqkouhiYGg
hH2cfXOZYleUU0yYPzOZhU+Kkg2FSy6hbEOdk2ecqoOponSalV2TgVKXZESY
TTmRXUyUdGiVjYOT
rKSWt66Tpp2YgmmTtoGYooiROEt2Jj9yQFZ5RElcJzAzPFVlPI51RF19f2Zg 3cij2MWq1cao0MGI
28u03tXB3tO/8O7k6OXT9Pbs7uLQ8OfZ3cur4MKg166JypFruXhTqGhGoWIN
m29Yi2lcmndnfGx2
dnN/Z3KBYnGEXm5/VWh9TmN7RGF0QI93P153OFx3NiZuMlFoNFBkLEdVL0FN
MkJOMkJOMkZgLEd1
Kkt7LEx5KUZO0BmO1J8MTtXHRsSEBEMFBkSICYdExgTERUOFxkQDhILlygh
OEdIGBoFEBAJIi4i
TYakSla+R4a1R4W4S4q5S4e4OXCfQmeYQnCbO09xPWR7PmR8PWN7PmV8QGR8
PWN7N2N6P2V8PWV8
OmV7PWV9PmeBPWV9Pml/P2d/PWaAQ2qBPWh+P2t/O2h+PGI/PmmAP2qAQGH/
P2qBQGiAPml/Qmma
QWiEP2uEQWp/PGmAPWmEPmmAPmmAPWmAP2qBQGiAQWmAQWmAQGH/PWmAP2iC
P2d+PWI9PWh/QGH/
P2h9P2Z9P2d/PWmAOMd+PGh8PmZ+P2x9O2d+PmOBOGGBOV2GOFP/NVp2M1t1
NWF4NV54NFhzL1dv
MIJoM05mMExgKEFSNE9mO2R/OF98MIZ0THuTO2SJFyo8GSEfFh0ZLDRHPU9z
KD9fO1ZqQFp0PWF0
Lj5YKjNaLDNSKzRILDVALTY4MDcxMTgyLzYzLTYvMDcyLzUyLjUwLTUwLTQx
KzMuKTMuKjQvKzYv

MDcxLzYwLDMuLDIvLTmWkZeuKzlvKzUxJDIsLTQvKjQsKjQsKzMuJzMsJi4o
Lzc5QIRZO1ZiOVZi
OVJYMKvILTc1KzlpJzAnJzAnKTApKzlrJzAnKS4nKi8oJy0mKC8mJS0mJC0k KJEllikkMDguLzEs
NzWzLTQuKy8qMT5HJDE0NkVHRWBvMU6IJDWFLi9qli5LJC8uliYkNEFKJzc4
JS4gJy0dKjk7JlZs
llx5H0pcJ0JOlysvGiQYHSQbICUZHyaICQaHiQbICydlSYaICcbHygdJCge
Cg0IBgcEBgcEBAUD
BAUDBQYDBAUDBAQCAQIBBQYDDA0IGh0WJCCogISceGyEYGH8YHilZGR4XHCEW
Gx4UIConME97KICL
JkmHNVGGUGmJNEJfLjpBQ2iGP2eNaFId2sOm////0MK+iGiSb1ikaFelcWKK Tj2iQzqgSzWfXDqg
cUWZiWKbr3mfxJSVq2qCgkyXcUedWzubXEWXXEyWdGeci4SXppubo5uWo5eS
g3aRdF6Rb1iScVOT
j2emy6rD8uHcjHONMkBzKURsT1x3OjxJLzw7PlttO115SV94l3Jf8OHF6dvD 7N/D3tCu7tm87dGx
6cCg16aByllmuXpZp2dJo2tTnW5blGxkiGhofGtydXB8dXSHA3GGY2+AX2t/
W2d7TWJ4SF94QF2
PFx1PV12O1pzOFZxNfNrME9fMkdXNEZTOUIWRE1fQ1VmSF1zSF14PVd8Mk92
KkRxMEh1K0l1LUdw
L0NoO1B7LDRLGhoRDQ4JDxELEBILGBsTHyEYDAoHDxALICccNkdiFfxwhDg0H
JTIqSYWqQoO0Q4Ox
PoGwP4OwR3uyQXKjO2+cQnemOE90QGR8PWN7OmJ6PWN7PmR8P2V9OWV+PWaA
OWV8PWV9QWeBPmeB
P2eBRGqCRWiDQmmFO2h/PWmARWuDRWmEP2qFQWyHQ2uFP2uCCGuCRWuDQmqC
RGyEQ2uFQWqEQWyD
P2yFP2uGQWqEP2uEP2uEQmqEQmqCQGuCP2qAQmx/PmmAPmuEPWqAQGH/PmqD
OmmCO2h+PWqAO2d+
P2d+PGiBPml/QWh/OWH/PWqAP2qAQWmAQ2mBPGp8P2qBQmiAOmd+OmeAP2h9
P2d/QGiAOmZ/O2R+
PGR5OGF2NI51OmF4PGN6OWR6PWh/LIFflz1UGzpnGis4NUJQN1BoOk9gOUIQ
NEZGLjk1MDowLTgx
Mjk2Mjk0LzgxLzYxLjc1LDYyLTg0LzcyLjg0Ljg0Ljg0LTczLjg0Ljg0LTcz LDYyLTcyLTYvLTUw
LjUzLjUzLjUyLjcwLDcwKjQvLzYxKTQtKjMsLjMtKTUsJzUrLTlrKzApJi4j KSsKi0qKi8oKzEm
KTApJy4qLDMqLDEqKzApJi4nJS0mJy8oJi4nJy8oKS4pKC8mKC8mJy8pJjAq
OkA2Mzo0MTQoJSKf
HyldJisklikeICgaJCSnJTBCJipTMDdgLz9YGieEHiQdHCQdICUeIS0gHyMZ
JCMYHB8XHR8Xlike
lyghHiUcHyYdHyYdlCceIScgHyccICcblScglScgHyYdlCceCw4JBAUDBAUD
BgCEBAQCBAQCBAQC
BAUDBAQCAwMBCwwHGRwVligfISceHCIZGB0WHSEYHSMaGx8ZGH8YHR4XJzlx
MISEKU6OJEZ/OlaE
V2aHKzNKNuXVPmiGQGSDf2NX8OXQ/Pz8o3mefUagjWKqmXCpXyqoXqhjmKU
g1GRfE2XZ0WZVj2U
ZzyJpW+DclSldW6Vkomao5qXpZ2ShXuKgW+UbFWPYESPaoYQimecspi41cDM
7NjM69Ko57iB+Pbi
59bYdWKDJj1xNElOS1VuJy42OEpUPVx1PFt0UF91IG9gsHlarHZapHplp31p onZpl21qjm5phHJx
f3Z6eXeHenqFcnWIZ3GAZG+DV2mAS2V6SmF3SF94Plx3PFx1OFt2PFlxOFVs
M1JoNU1iMkVSLDxH
Mj5QPEdcOU1hPFBpQ1p7Qlh/PVaANImCMVSDLE6CK01/Kk9/JUR0K0NyLUZ1
KkRtKURrN0x9KjBF

FBgRCg4HCwsICwoGDAsGEBILDA0IERELiggNkdqGBwpDwwFIS4nRIKjP4Cv
QICuQn6sP3uqPnSo
Q3ikQX2pQ4CyLERmP2N7PGR8O2N7O2N7OGR7PGd+QGR/PWaBP2V9QWd/P2qB
P2iCPmqDQmqEQGmD
Q2yGP2uEQmqCP2yDPm2GRWyJQmulPmqFQG2GQG2DRm6GRG2IQW2IQmuGQmuF
P26HQm6HQm6HP2yF
Q2yGQ2uFQmuFQ2yGQ2yGQm2ERG6BQWyCQGyDQm2EQWmBP2uEOWqCPmyBP2uC
Q2mBQGuBQGuBQmp/
P2t/P2iCOmd9PGI/PmmAQWmBPWh/PWI9QGd+P2I8PWh+P2eBPmZ9PWh+OmZ9
OmV8PWV9OmZ9PmWB
PWh/QWeBPmeCPmR8O2iBJ0lxHzxjJTdAMTs3LDg0LzYzLTYvLjUzMjo6LzYz
Mzo4LjgzMD02Kzgy
Ljo0LDkzLjgzLjY2NDs2Mjk3MTg2Mjk3Lzg2Ljc1Ljc1Lzk1Lzk1Ljg0LDYy LTczKzUwLDQvLjUy
LzcyLTYvNDQ0MDcyLjcwLDMuLDMuLDUuLjUvLTIsKTMvJzIpLTlqLDMsKTMr
LTlrLDEqKzQoLDMo
KzlpKzApKTEoKTEoKzMqKTApJzAnKjEoKi8qKzApJS8jKS0iMTQwLzEsO0I5
KS4mJSsjJCshJSsj
JS8jJCsgJywgJCshJSojLzMvJC0pHSUaHyMZGx4WHSQYHiQdHCMYICYdlScg
Jy8tLDc5IScgIScg
ISYflyghlCcelSceliYdICYfHyYdISceHicdCw4JBAQCBAQCBAUDAwMBBAQC
BAQCBAQCAwMBBAUD
CwwHGBsTJCogJSshHyUcGyEYHCMYHilZHSIbHyMaHilYHh8TLT1ILIOMJkeC
JEV7SluEVI9+KDBA
O1loPGiJUWR7oYBn/Pnu+vn1slCWg0+gak6jXUegXkaaYUqYcF+XeWuTiXyT
nZXNzSRrZmMupSB
imyHZ10OWkKObk6ReUyPIGqYvZ+X387b8ebo6dvJ6tGR57Nt5Lhy59Ce7dO3 /P77///+yq+tS0lu
Iz5wN05zNUBaJzEvNVJJePVx1RI12Zm2Ae3eFeHqFdXeHcHOGbHODZ3KGZm2G
YmmCWGeAT2R8UGF4
SI96PF12Plt4PFt2NVtzOFdtO1RsNIFpN05eL0VULUBNLz5PNkddNUpkMkxs
MU9zNVB2NIN/M1GA
MU9+KUx8Kkp8J0I7J0p6Lkx9K0x8LU56K1B7J0I9J0JwKkRtMENTkKbN0017
KTBjFBgRDA4HCwwH
CAgGBwgFDhILFhgRExMMIikkOUI3Gh0vDgsEHioiRH6fPHuqPHqmOnalN3Gh
NWyzQnmjS4W1QXur
JTZMPmR8OmV8O2Z9QGZ+QGZ+PGd+PWaAOmaBQGiAPmmAPmuBQWmDQWqEQmqE
QGuCQWyDQW2EQW2E
Qm6FRG2HQ26JP2uGQm6HQ2+IQm6FQm2IQW2IPW6GQm6HQm+IOm+HRG2IQ2+I
Qm6JQm2IRGyGRW2H
QWyHQWyHQ2+IRW2FRW2HQGyFQ2+IQ2uFQGyDQG2GRW2FRm2ERmyEPWuFQG2E
QWqFQGmDQ2mBPmuB
PWuARm2EQ2qBP2qAPWh/PmmAPmp+PGI/P2d+PmZ9PmZ+Pmd8QGd+PmZ+Omd9
P2eBOMJ6LIZwMFRw
N1Z3Nlp5IUJrHzprJzU7LzcyMjg1LzcyMTk0MTk5Ljo2MDw6MTs6MTs3Lzk1
MDk3Ljg0MT03MDs3
Ljk1Lzk1Mjw4MDo2MTs3MDo2MT04MTg1Mjg1MTc0Mzc0MDc0Ljo0LTcyLzcy
MDYzMDc1LTY0LTYv
LTQxKzUwLjgvKzUsKzQtLjUvKzQtKzYvLjMsLzQuKzMuLTQsLDMqLjMsLTER
KzQoKjlpKzMqKjlp

JzElKzIpKTAnKjEoKjMnKTApJjEpKTArcKC8mJi4oly0nKTAnLDErli4mJisk ly4gJSshJCslJi0h
lysJJS0iJSwgJi0iKzApJS4IJy4IlikgJCKiJCcglikgHyYdMjhCLDZHHyUf HygeJCgelSgflCce
likglikglyogISYflyghlCceCw4JAwMBBAQCBAUDAwMBBAQCBAQCBAQCBAQC
AwMBCwwHGBsTlykg
JSshligfHCIZHyMZHSQZHSEaHiUaICQaHB8ZHSIXMUZbK0uKKEV9Kkd6VWao
SINvKzI/QmJ2PWeJ
XmZ0u514/v7+5N/knoiepZqnmpCfmpKcmpWbiH6Uf3OJcGWKY0+JYkmNaUWJ
n2SBsHyJupOy1MPO
6tnk/O/w+vLq+vru//7/////8evh6da5+/zz+fr4+vj3/O7m78Op6qWJxY+D YGJ7KERvJz5tN01u
KTRGMTpAOVJpRlx1SmB5QlxxQ2FySI96TF54PVx0PFx0O1x1PVx1PVIzOVhz
NFRsOVJqNVBkMU5g
M0hZMEJTLTD5QL0VXMktiLkpmMkxsNFR8LFJ+LVODMVKCLFF9JIB7J0t5K0p7
LEp6KU56JUx6KUx8
Kk97K1B7LU98ME59Kk58Lk9/K02BJ0h5KER1LEJxLkNsNEp8KjRTGBgRDA4H
DxMMDREKCQwHEXMM
GxwVExMMLTY0NUx+GSAXdgwEHCEaRXmVOHenO3OIPXOGPG+ZOWaVN2KLrNGY
S2yVISU2P2V8QmV9
OmZ9O2eAP2eBPWh/PWh/P2aCP2iCQWmBQ2uFQ2qGQmmFQ2uFQW2GP26HRW2H
RW6IPmyGQ26Jrm2J
Q26JQm2IQm2IQ26JQm6JQW+JQXCJRHCHQnCLP3GNSHGPQm6JRnCORHCNqw6H
Rm+JRG+KQW2IQm2I
R2+JQ22LRG2HRm+JP26HqM6FSG6IRW2FP2uEQW6HQW6FP2yFQWyHQWyDQWyC
PGuCQGuCP2t9PWqA
P2uEPWmAOMh8O2iBO2iBO2h+O2h+QWd/PmaAPWh/P2d+PmZ9PWV9OWR7O2B8
NmJ9QGmENWalG0h8
IDxzJjU/Lzo2Ljk1Lzo2MD01Mjk2Kzs0NDw+Lzs3Mz05MTs3Lzg2NkE7NTw6
MTk8MTs3MDs3NDs4
NDs5Mzo3MD02MD04Ljg2MD01Mzo3Mjc2MTgzMTk0Lzk1Lzg2MDc0MTg1Lzg2
LzcyMjc2LzcyLzYu
MTgyMDgzLjUvMDcxLTUsMDcxLjUvLjUtLDMsLDYtKzlrKzlrLDMqKjEqKTAp KjEqJzAnKzlpKjEo
KjEoLDArLDEqJjEpKC8mJjEpKTArcKy8rJi4nJS4IJisnJi4oJzElly8jJy4I JS0iliwgJC0kJS0n
ly4IKcsnJiskJSgiJi0hlikgISUelCgdHiUcLztAKzIKlicjCgdHyYdHiYb IScelikglisgJS0i
JCsgJCsflykgCQwHAAAAAqIBBAQCAqIBAwMBAwMBAqIBAwMBAwMBAwMBCAoGFxoS
JSshJSshlCYdHSMa
HyMcHSQbHiQbHSMaGyEaHiUaHSMaJiskLkhnlUV/Jkh8Mkp/X2qJPuIcKzID
PmZ+OmODcWdw0LKP
/v3/49jRIGKMd1Kec06ah1aZjmGbo3+nsZOwybTA383Y6trc8+vi9vbo/P74 /////7//f//+/7+
//7////+/vr3/fXw9eTV6bqm4KKE0pV+wll4qn12IH+FdXKDV2eBO1F4JDxp MEZuOERnlSctLkFE
NldwMIh3KEhgLk5INFdyOFduOFNqMk1gLElWMj9SMD1LMDpIMT9QMkRVNkpj
NUxpMExuMk92NVOC
M1GBLIN8Kk9+ME5+K0t4KEx6J015KEx6Kkx5Kkx5LUx9K055K0p7Jkt3K0t4
MEt9KUx8LUx9LEt8
J015Lkx9MUt7MUt0LEVILj5YLTIKzQ3NUNQMT9jFxfgTDhAKGhsULSsgNTEg
NjMkHh4VFxcQO0pa
LkuDGSM7Dw0GEhILP2JxPHWnPHGgQHGCpGuXOWmQRmuNU3WXTGKAGhweNmR4
PmZ9P2d/QGWBp2iC
PmqBRWuCRWmEPmqDQGuGQ2yJQGylQ2yHQm6HRG2IQW2JQ2+IRW6JQG6IQ2+K
R3GMQG6IQ2+KSXCO

K0p8LUx9KEt7LEp7
MUt7LUt7K0l6LEd1L0ZqKkRcLD5RKDpIJzU7JjAuKzApKC4jJSwgJSwgJy4h Ji0kji4jKS4mKzAo
KzApJS8jMTs3PU+ClilEGhoRHB4WJCcdKScZGBORFxUMLTtAMIB+M02HICtL
DxEKCAwGFxoSRGRz
RnSgRnGVSmuVUnGSZHydVFX5GBkaCA4IP2V/QGeDNGR5JEJPIzZGKTILKDtL
Kz1PKD1TKUBYMevc
LkdeLktiMk5nNVRuNldyPVx3RGN/QWaCQWqHRGyMSHCQSHKRQnORRXKRR3ST
R3WQR3WPRnOSRHKS
QnSQQ3OORnKPQnKNQnKPR3KRR3KRQ3KQQ3KQRnKPSnSPRnCOShKQRXKRRnGQ
RHCNQXGMRnONR3CO
Qm6LQ2+KRHGKQ2+GRm+KQm6LPWyJQm6LQW6FQW6FQG2GQG2GQWyDQmqBPWYA
RWuDP2uEPWqBPmma
P2iCPGmAOMP/OWH/QGMEP2qFQ2uFRG2IP2mMIUiAHD5zKTU5MTs3Mjo6Mzs9
Mz07ND46Mz05NT48
ND07Mzs7ND46Mz05Mzs7NDw8Mzw6Mz05NUA7MT84Mj05Mz05Mzw6Nz48NTw6
Mjs5Mjk3NTO6NDs5
LTg0MDo1Mzo1NTk1NDs2Mzs2Mzs2MDkyMDcxLzkwMDcvLzYuMDcvMzoyMTgy
MDcvMDcvLzUtLDQr
LjUtLjUvLTUsLzYwLjUvLjUvLTQuLDMtKzlrKjEqKzlsLDEqKzlpKjEmKTAn KzlrKTApKjlpJjAk
KjEoKC8mKi8oKi8oKS4nJy4lJCshlyoglyoflyogJi0kJy4lJi0kJy4lJSsj ISYflykgJCoilyki
Mz1LJzdIIccjJSojlikglikglikgISgflCkfHygeHygeISogCw0LAgAA AAIBBAMDAAAAAIB
AwMBAwUAAAAAIBBgYEEhgQJS0iKi4jHyccHiQblCcciSubHyUeHiIYISub ICceISYfligflCUe
ISQaLEBPLIKNM06GKICAWmiHYGJ2KzdBPF1vPWGAUmJ8oXlI8N7I9+nc+efZ
9N3D78ux8MG15qiT
5aOJ1piCx49/t4J2p3t2nHV3k3mBi3+lfXylcnmMZXXKkVWuDSWJ7QWB4OVx3
N1t3M1lxM1VsOINr
MklhLDxNNj1UN0NWOURaPEhkMEpwJkV1Kkt3MFCAMFOCLIOCLVSCK1GBKE18
KIB8KU97JU7KE99
Kk97K016KU56KU17KU6LEp6J0t5KUx3K0t4LEt8KU7KEI6LEI3MkpyLkhp
Kj5ZLDpLKjY/KTM3
LDExLTAsKS4nKS8kJSshJSshJS0iJi0klloiJS8jJS8jJi4nlyokJy4lJy4l JS8jKTAIji4jMjg6
PIF8NEp4HR8iFxnFhoRExcQEhQMjy8sOVF3NEuEMU2DIDBPDw4JDBEKCw0G
HiggR2p6UHSbWXid
YnqbUV51CIIEhILCw4JQWh/PWaAPGN1ITZLKERpIEFoHTxhlzpSljdNIjVM JjVLJTdJlzhIJTdJ
KThOKjpQKD1TKj5TKkJXLUVaMElgLktiM1BnM1VsNII0OV93PWN7Q2mBRG2I
Q26NRXGORnSPQXOU
RXaURHWTQXWRQnaQRHSRRXKRRnOSRHSPRXOOSXSQR3OQRHGQRnGQRHKPRXGN
QnKPQnCNQ2+MRXGO
QW+MRnGNRW+NP26MQXCJQ2+KQ2+IQW6FQW2IQ2yHRGyGQ2+IRW2FQWYcQGyA
QmuAQmuAPWqAPWiD
P2iFPmqBP2mHP2iFQmuGO2iHHkmEH0B6KDc+MTs5MTO8Mjs9Mzs7ND48Mjw6
NT09NUA+M0A9NUE8
Mz46Nka9ND07Nj06NTw5NTs4Mj05NTw5NTw5NTw5Nj06Mjw4Lzs3MDw4MTs5
Mjw4Mjk2NDO3MTg1
MDc0NDO3NTs4LTgxLzgxMTgyMzKxMjcxMDYuLjgvLDgvMDcxLjUvMDcxMDUv
LTQsLjUtLDMsLDQr
KzlrLDMsLDMsLTQsLDMsLTQsKTArKzArLjMsKzlrKjEsKjEsKzlrJS4lJi8m KTApKTEoJi8mKS4n
Ki8oKi8oKC8mJCshJCshJCkiJSojJSsjJy4lJi0kJCshlyoglyoglikgIScg JSwgMT1HJzLHiYj

ISgdICydligflykglyogISgfiSgfligkykgJCogDBEKAAIAAwICAQIBAQIB AAIABAABAwABBgIC
AQIABwgFExcQKS8klysjGyUelCQaICcelSUcHyUcHiQdlyYglycelCkelSgf IScelCUZJSkgMUdj
LICKK0+MMICFW2eHSE5kLjpHQGB5PWB7WGt7nn53vY6Cu4p5vYh3ulZ6rISB
qYSGIn6HjHuLfXiO
dHaLanONXG+JV2qFUGaBRWN+O117Nlt5Oll1NVNyMVBmNExhL0FTLD5ONURZ
O0ZgNUpnNkpsOE95
NVF/NFKDMIKEK099Kk+ALFGDK1F9K1B/Kkx+LEx+LE19K016LUx8K0I5KU4
Kkx5Kkx5KUp6K0p6
K0p6Kkp3KUh2K0dyK0ZqMEViMUBZLDhJKDY+LDU3LTQvKjEsJSojKCshJSwg
JSwgKi4jKS4mKS4n
LDEpJiskJy0mJy4IJS4IJI4jJi0kKC0IJy4IKi8oKS0iKC8jly8jJy0mKjAl MTgyQFJ5NFGGM0Fx
GCEpGRKRHB0WMDY5OE95MUyEM02CNkyHKDJXDhAKCg0IEBEICw4JliQYNUE/
P0xQMjc2GRoTEREL
DAwJCg0IQmh/PWiDN2F0HDRIK1WRJlidl1uYJ1yeJlqUI1mRI1WMJICEJk9/ JE97JEpxJEJnIT1e
HzlVlzlSJzhOJTdJlThJlzdMJlLKTPRKTxTKj9XLkNaK0ZaKUlgMU1mM1Nq
M1NrNVhzOFx3PWN9
P2qFQm6JRnCORnCRRXOTRHSUSHOSRnaTRXeTSXWSSXORRnKOQnSQRXONRXKM
RnKMS3CNR3OKQ3GM
RXCPQnCNQW+JPm6IQ2+KRm+JPW2HOM2JRG+GQm6FQWuJQW2GP2yDP22HP2uE
P2qBQ2qGPWmEPm2G
PmqBQG2GOWiLIEqDIEV2KjY5MD04MDw6Mz08NT0/Mjw+Mjw6ND48NEA+NEA7
NEA7NUA7NUA7Mjs5
MTw4NUA7Mz05Mjs5Mjw6ND07NUA7Mj05MTw4Mjw4Mz46Lzk0Mjw3NDw3Mjo1
MTk0Mjo1Mzs2MToz
MDkyMzo0MTozLTgxLzgxMDcxMTgyLTcuMDcxLzYwMTgyLzYwLjUvLzYwLjUt
LDQrLTUsLTQsKzlr
LjUtLTQsLDMsKTApKzMqLzQuKjEqKzMqKTApKzlrKTEoJzAnKzMqJS4IKjEo
KjEoKzApKS4nJi0k
Ji4jJS0iKC0IKC8mJy4IKjEoJy4IJCshlCcelSgflyogJCKiJSshN0FMLjpL ICcjlyofliYdligf
JCoglikglikglikgISgflykgISceDRAKAAMCBggDBwcFBACDBgcEBQYDBQcF
BwgFBwoGCw4JERMM
FxoSFxoTFRcQDhgOExQPERUOFxcQGiQYIikeICccJCoglykhISgdICcelCQa
ly0nMk1zKFGSLE+P
NFKHUIt8Nz9SNEZOQ2J7T2iBb3WKfHqKd3mJdXWGANGEZmyHXGmCUGWCTGOB
Q2J9QmF9PV55NIh0
M1RuM1JpNFBkM0ZcLz1TMkJUNEvgNUpmOkxwN0x1ME95MICAMIKELIGBKU6A
Kk19LUx+KkyAKUmB
K1B8K1J9LVB7KU56LE57Kkt8Kkt8KE14KU55Kkx5LU16L0x4L0p1LElyLEZq
L0JeLTxPLDICLDc5
MDQ3LDExKi8qKS8kji0hKC4iKC8jji0kKC4jKC0IKS4mJi4jJS0iKC0IKS4m Ji4iJS0iKC8mKS4m
KC0IKC4jKC4jJi4jJS8jJi4nKC8mJi0iKS8kji0kJCoglygcKTAAnOk9uM0x/ MU+BLUp4NEZrKTVI
MzxHN0xxNEyBLk1+NEuHJzZgDxEODgwJDw4IDA4KEA4LEBIJEBULDg0IDxEK
CQ0GDQwHDA0IQGaA
PmqDN11zHzNNJVOPiVWUJlqVK1uaJ1yeJFudl12eJGGfJmSkJWOmI2OmJ2On
JmKfJmCal1yZllmU
JFmPI1WJI1CCHUx5IUVRH0BnHjpcITdSHjVNITZLKDpMJzpMJjtNJjpPKDxR
KUBSKUNWLEdaMEtf
M0xjMIFoNVVsOVhxPF96PGR+Q2mDRW6JRHCNQQXKQQ3SSRnOSSHSQRXWSSHSQ

SHKRQnORQnKPQHKO
QXCJRHCMQnCNRW6JRM6IQG6LQG+IQW2IQWuJQGqIQ2yGQmqEP2uCOMuCQWqF
QmyKQWqHQm6LOGaM
HkqElkV5LDg8Mjw6MT07NDw8N0BANUA+NkE+NkA9Mz89NUA9NUA9NT48ND07
Mz07MT07NUA9Mjw6
NTw5NUA7ND46Mz46Lzs5Mz07Mzw6Mjs5NDk4NDs5MTs3MDo2Mjo1Mjk0MToz
LzozMjk0MjkzMDky
LzgxMDkyMjkzMTgyLjUtLzYwMDcxLzYwMDcxLzYwLzYwLTQsLDMqMTcv
LjUvKjEqKTAplDMs
KzlrKTEoKzlpJzElKjMnJzAnKzMqKzMqKTImlJzElKzlpKTAAnJy4IKjEoKTAAnJCoiJCshJS0iJi0k
Ji0kJSsjKC8mJi0kJS0ilykgJCsglyoflyofJCgkMzIDGyQnFwxVfxwVFhkS FxoSFhkRFBgRExcQ
ExcQEBQNFRcQExUOEhILDBILDxIMEBILCw4JDxAHDw4IDg0HCA0FDxEHCGwG
Dg0HDg4HCw0GDQ0G
DA4HCREHDxEIEhAKFBkQHyYblSgflyoeJSkgISgflyogHyYdlycdLDY1MVWG
KU+PLU+JM1GBO09y
KjZDok1cQF9+O1I4MUppOI4OFI0OVh0NVVtNIztN1FsN05mNktiMkNZLj5U
LTpSMD9aNERkMERI
MEpqMEhuMEx6LE1+KUx8Mk6BLEI/KUh9KEt7Jkt6MFB8KUx8KE1+K0t9Kkt8
K0p6K0x2KU5+KU5+
MU5/L017LUI6K0d4LUhXLUVmLD5WLj1LLDlCLDU8LTM1LTETLC8oKC8mKC8k
KS8kKi8nLDEqKi8o
KC8mKi8oKS4nJy4Ijy8pKi8oJisnKS4nJzAnJC8mJS0mJC0kJC4iJS4IJS8jJC4iJS0iKC0IJisk
JSkgJCkdlycdHyYbHiQbHyQdHyYhISsoli0wJzVCM0p0M0uALUt8LEI8JTFL
GRwVEhgMlighN01q
MEyENU6HKDtmEBESEBAJDA0IDxEKDhELEA4LEBAJEBAKBggGBwoGDgwJCw0G
PGaEPGeFN11sHTVR
I1KUHIGPllaVJlaVIFaXI1eallqbJF6fKGChJmKkJGOjJGSiJmOlJWGIl2CiKGaoJ2ipJWeoJmip
IWioJmeol2OmJGGj16clFmWH1aPJFSKI1GDIUp7I0RwIT5IjxeJDIWlzdSJDdPJtdMJjhLJDhN
KDpPJzxRJ9QLERXLkZdMUhgLU1kL09ILINrMlhwOlX4OmJ6PGiDQ2qGQm2M
RnGNRnKPR3KRR3KO
RnKORXOQRXOORXKMq2+MQG+IQW6FQG2GQW6HQW6HP2uHP22JPm2EP2yDQ2+M
OGWPHkeGIUN1MDk8
Mjw6MT08ND49NkE+NEA7NkE+NUA+NEA+Mj88NkE+N0E+ND48NUA9Mjw6Mz07
NkA9Nj07Nz48ND07
Mz07Mjs5Mz07Mjw6Mjw6Njw5Mzk2Mjk2Mzo3MDo2Ljg0Mjk2Mjo1LjgzMjkz MjcxMzgyNTg0Mzgy
MDcxLDUuMTgwMDcxLTQsLTQsMDcxLzYwLTQuKjEsLDErLzMvMDUvKzlrKjlp
KzlrKjEsKzlrKjEo
KzMqKzlrLDMsKzMqKTEoKjlpJy8oKS4nJy4Iji4Jy4Ijy4IKC4jKC4jJy4Iji0kJCshKC8k
KC0IJiskJCoglykgJCsgligfJisnLzk4EhkREhQMDxIMDxMMDxMMDhILDxQN
DxQNDxQNDhILDhIL
DhELEBAJDBELERUNEBEIDxMMFB4YHiQiGyUlGicpHigzIS03li8zJjI5JzVC
JjdNKDZPJzhOLTVM
JTITGB4gGx8VlikgJCoilicglykglysgJCcglywflycdMDxGLFaQK1GMMVCI OVJ/OD9eJS42L0FN
L0JUJzIMKjxRLT1TNUBUNEBbOENZNRjNURnM0tsL0xzL0x4LEp6LU1/MU+E
Kk2CK06DKUt/J0x8
KU17KE1/Kk19K0t9Lk1/LEx+Jkp+KUt9K0p6KE19K0p8KU6K0t4LEVyMENT
LUJfLT5TLTxKLDg/
LTY4LTQxLTQvLzQuLjMsLjMsKjEoKjAlKjAlKzAoKjEqKzlrKzArKzlrJjEpJzElKC8kKzApJy8o

JzAnKzApJi8mKTAnKS4mKC0IJiskJSojJCogJCgeJScfliYdHyMaHCIZHyUe HyckICgsJTE4IzNF
IThOljxZlZ9gl0BnJUNvKER1J0V5LEd9L0p7LEp7JztkFBkUGhoRFBsSERUN
KzU3M02AMUyEKTxs
ERMVDhAHDA4KdHELDg0IDRALDAwJDAsGCw0GCg0ICA4IDhAKPGaEP2uEL1hp
GTZXIVOSI1SWJISY
l1SXIFOXJISZI1ea1qcJVmdJVmeJlqfIV2f11ucllibJFueKmGkJmKkl2Gj JmOll2GjJGCnJGCM
J2GnJ2KlJ2OIJWGlJGGnI1+jJ1+ml1yglFqdJFueJludH1eWG1OOIICHik2D H0h7IUNwIUFIITpa
IzISITZMJzZMJTDmJDDHlJlJDTMLDpQLUFQJENTKURYLUldNUxkNk9nNVJp
NVVtNFhzOGB6PGR+
PGh/QWqEQ2yHQ26JQm6HQ3CJQ3CJQ26JR3GMQ22LQWuJQW6NNGSOHUiLIEV2
LT07MT08MTs9MT08
Mj88NUA9NUE/Mj49NEA+NUA9N0E+Nz48ND07NUE8M0A7ND48NkA9Mj49NDw8
NDw8NDw8NTw6NTw6
Mjw4NDs4NDs1Mzo0Mjs0MTozMTk0MTk0Mjo1LzcyMDkyMjkzMDcxMTgyMTgz
MzczMTYwMDcxLjUv
LzYxLjUtLDQrLTQsLTQuLTQsLjUvLTQsLDMuLTQuLDMqLDMqLTIsKzIsKjEq
LDErLjMsKzlpLDEq
KjEsJy8pKzlrKTApKS4nKC8mKjEmKTAnJy4lJCoilyogKC4jJi4iJS0hlysg JCogJiskKS4nKC0m
lykiJCshJSojJi40mJ0/EhQVCgoHDA0IDA0IDA0ICgsGCgsGCAoGCAoGBwgF
BwgFBwgFBwcGBAcD
BggFCwcEEhcSOUpzITJJN1F5LVKbKEZ3HCw+GiMmGyEjlCgtKj5ZMISUKEB7
GiUpLUZzKjVEGB0W
GyMYIyokJSojlykglyofJCkilykhlSgdICgdMEhbLISPK1CJkICFL0dvJzJJ KDNFLz1ZNERkNEtw
MU12NVN8M1SBMVSDK1OHLIGGLFOEKFGCJkt9KUt9Kkt8KEt7J0x9KUUp7K0p7
KEt7KUx8KEt/KEp8
LE1+KUx8KEp3JkVyKENzKUR0JztdMDtPLjELjo+Lzc5KjMxKzQtLzQuLjMt
MDQuLzQsLjMtLTQu
LjUvLzYwMDQxLDQvKzMuLDMtLTIsLjMtLDMsKjlpLTlrKTApKTEoKzlrKTAp Ji4nJi0kJCogJScf
liYcICQaliYcHyUcHyYhHykqly4yljJEJlRJTpaljgtIT5klkFol0RuIkRx I0N4IkNzJUR1I0Fz
JEN1Jkr0JENxI0R0K0Z0LUD5M0I7Iik/FhgPEhUPFhMNFRgNJCgfOUtyLEyE
JT9wEhQZDQwHDQ0K
EREKCw4JCw0JDhAJCw4JDhANDQ4JCw4JDBAJPmmEP2uGMVJIHjRXH02RH02R
I02QJVKXJFWXI1WY
IFebl1iflligHlaglFadH1mdH1eZHledIFyflFqeJVyiJF2h11+hIF2hIF+f IF2jl12klFyJF6k
IV2glFyeJlqfllqblIbllISXIVKVlIKWH1SY11WZJ1Sch1eb1lqellibllmc IFeZH1WWHVKQI0+M
IEuElkqAHUZ6H0Zxlz9oIT5dHDhVJzdrJjZlJThIJTdTJKTIMKDpMJzpMKD1O
KkJSKENSMEhbMUle
Mk5iMIBmOFNqOFdwOFx4P2J9P2V/PmWBPmylMmOOHUqNikd4Lzs6NT5ANT09
NUA+NT5ANj5ANke/
Mj49NUA+NkJANKBANj5ANT09Nka9OUNANz4+Nzw8NT48Mz07NT48NDs7NDw8
Mzs7NTw6MDk3MDc3
Mjk3Mzo4Mjg1Mzk2Mjk0MTozMDs0MTozMDkyLTYvMDkyMjo1MjkzMDcxLzgx
LzYwLzYxLzYuljYs
MDcvLjUtKzMqLDMsLTgsLDMsKjEsLTlrLTQrLTIsLDErKzlpLDEqKjEoKjEo KjEoKzlpKjEoJzAn
Ji8mKjEsJi8mJS8jJzAnKi8oJSsjJCoiKC4jJy0mJiskJi0iKS8kKS4mJi0k JSsjJCoilioiJCog
JCsIND1IDA8UAgMBAwUBBAUDAwMBBQYDBQYDBAQCBACBAQCBwBwFBQYDBQYD
BgCEBgCEBwUAFBkV
NE1/HjBUNFKBHTJQDRMNDgwHDAsGCwsECAYBEREFHyYmMUdzKEJ5JkJ8LzIL

KzMzGBkSJCcgKC0l
lykiJSwgJSsjJC4ilykilykhKS0iNVF1LVeTLk6AK02BMVeIOmacN2mfN2ig NGifMmCZMlyTMImQ
LVeOKVKKKVGFKFGEJ06BLE2DK06DKVCDLU+BLU+BJkp+Lkt+K0l6KUZ0KENq
Jz5cLztRKzdElzAz
JCspKzY8KTxnli9DLTUsMzc0KjQwLTcuLTQvKTUsLTcuLTYvMDcxLjUvLzUy
LjUwLTQuLzYwLjQx
LjYxMDcxLjMtLDMsKjEqKzAoKi4jlloeJSkflycdICgdICUeliYilCgqIC8x JTQ/JjhNIjIXIj5g
JD9IJURtJkZzIkZ0JUZZ2IkZ0IUR0I0N1JEN1JUR2JUJZ3IkZ0JEZzK011LU56 MFR6M1t/Nl98OmV8
Omh9K0x0LEN1L0FyGh8rEhkQGx0VHSAUERUOGyMYOkpkMU2GKkF3ExYeDAsG
DhAKCw4JDRAKExMM
DREKCw4JEBILDhAJEhILDg4MQmmGQmyKKkthHTVdHEeDHUaGHUGDHUWJGz16
HDFDITVFIDdNIzxc
I0dvJk+AJISQlIiWKlycJF2gJV+mJF6kJmSnJWWoJGOplWGkJV+IJI2oJV+m H1+iJ2OpIV+kJ2Cj
I1+hI1ucl1mcIFWZHVCTHICSI02VIkuSHUuQHkyRHk6WHU+RHk2RHk6VHIKT
HIGVH1KVHFKWI1Wc
H1OZJFOaIFOXIVKVIU6OGkeDHEWAIEh+H0Z3IUBuITxkiDtaJDtXIDdJljdI
IzVHKDpDJDhEJjpG
JjtLT5MKkNPL0VXMkhcN05mOV2GJUuMikV8MD05ND46Nj5ANz5CN0BCNUE/
M0A9NUE/N0FBNkJA
Nj4+NkA9NUE/NkE/NDw8Nz4+Mj86NT48NT48Nz06Mjo6Mjw4NT43MT04MD02
Njg7Mzk2MDkyMjo1
NDs1Mjg1MDgzMDowMDcyMTgyMDcxMDcxMDcxLzYwLjUtMDcxMDcxLDMuLDMt
LTQvMDcxLTQsLTIs
LjMsKzYqKzQtLjluKjEqKTMqLDErLTERKjEqKi8oKTApKTEoKjEoLDMqKjEm
KjEmJzAnKS4mKS4m
Jy4IKC8mJi0kKC8klyogJS0hJSshJiskJS0iJi0kKS4nKC8mJSwgJCogJSsk JCshJCoiNj5HDxIT
CAcEBAUDBAQCByEBggDBgcEBggDBQcDBQYDBwgFBwgFBQcEBAUDBQYDBQYD
ERUUNU2CLIKdHStQ
Cw0GDg0HGB0WGBsWJCKiKTMMyEREKCwkDGiMfNICFKEKHKzZKMT08ISsoFwxV
JS8jJSskJiomJCsh
KC8jJSskJCogICceLzY0OlqHLIKNKK+HM1yTSIK8QoC4Pn2zOXOpOGmkM2KZ
L1qUL1qSLlaSLIWO
LFGKNKVKKK1GGLk6AL0x4KkRmKT1XKDhJKDU9KjM2Ji8rKS0oJSshlikglyoe
KSohJCgeLDM6Kj1o
JTVPLjUvMDc0MDcyLTUwLjYxLzcyLzYzMDgzMTgyLzYxLjQxLzYxLjQsLTQr
KTApKC0gKSskISkd
lyghlicglionIS4sJzQ+JjhNKUBcKUJnJkNrKEZ2I0V5JUI3JkmAlkZ9IUZ6 IkZ6IkV5I0N1I0R1
Jkd3IkI0KE12L1J6L1B4MIN4NFh2MVdxNVZuNFdsMldmO1hqNFdjNFVIO1ps
OmRzPGh6ME92KER1
Kz1rFR0gEhcOExcQFhQPERMMGx8VOEpiKkqCLEF2GBohDA4HDRALCw4JDhMM
FhkSDQ0KDhAKDhAK
DQ4JDxEKDhAKRGmHQmyKJ0lBlzdlJEqLG0mFHUaFFkOFGjlqCxELDxAEDxEK
ERUNFBkUERUSGBsa
HykpJjs+IjFIzDdIThKJUNaJkhsi011I1B/JFSLJlqVKF+hJ2WIJWOjH2Gk IWGmJGCnl16oIFyj
IFicISYJFSYI1KZG06Wlk+XHEyTH0+TH0+TG0uSHEyQHkuOH0mOHUuPGkmN
G0uPIUuQHkqPIkyU
H1CUIU6SHUaJHkyTHk+TG06UHUuQIk+THkyQG0qMHEqJIEWBHEB7IUN3IEJ0
Hz1rljxIIdpfJTXY

KjpUJDdPK0JcOI6HI02SIEN4Lzk9NT5ANj5BNj5BNj5BND9AMz0/NEBANEA+
NUI/Nj5AN0BAOEFD
NkA9Mz07NT0/OEA+NUA+Mz08Mz07MD04MTs3Mz05NDw+MDc3NTg3NTs4Mjk2
Lzg2LzkwMjKzMjcx
MzKxMDoxMDoxMTgwMDUvLzYwLzQuLDErKzItLzQuLjQsMDcvLTQuLDMsKjQs
LDMtLTQsKzIsKy8r
KzArLDQrKjMnKjEoLTQrJjEoJjAkKTImKzMqKzIrKTApJzAnKjIpJzAnJjAk JS8jJS8jJzAnJy0m
KzApKS4nKS4nKS4mJiskJi0kKS4nKS4pJy4lJSshJSsoJJS0iJCoiJi0kNEFF
DxQRBQMCBggDBQYD
BgECaWGDAGCAUCBwoEBQgDBwQBCAcDBAYDCggECACDBQYDExQSNVGGIz1z
BgoJDw4IFBkQHjYf
ExUNNUA7SmVyEBcVDA4HBwwEKzU/LUmDKThJMzs9KTU0IisgJSskJSshJi4j Ji0kJSsjJi4jJy4l
JSsklioiMD0+NFqMK1CNJk+COmugRojBRIfFPHY3P3mzPW+nOGGYNFIELUtw
KkFdKDhLKDU/JjQz
JjAuKC0oJiskJi0hJCsglyofJS0hKC8jKS4mKC0IKi8oKC4jJSsoJliofKjQ4 KUJnJzdSLzYwLzcy
LTUwLzY0MTYwLzYuLTlrLDInKzEmKCokKSskJSsoJJS4qJDAvJjU8JjpKJ0Je J0ZnKEttJ0x4J0t/
KU6FK02HLE2IJU6GJk1+I02BIUuBJkyBH0h5I0h6JEt5KVB7LFV8KIV3LVZ1
MlhyNVhwNFRqNINl
M1FgNIFNU5ZL0tTLkpRLEhQMEpVM1FZO1hOI1pOVxqPFpwOVxqOFtqNUxu
J0N0Lz5tGR4jExUN
DA4HERUOERMMHSEYMUIIKkd/LUR4FB0mDQ0GCw4JDA4HDA4KDxEKDA4HDxEK
DxEIEhQNDRALCQwH
PmiGP2uHJEVbHxulUuPGkilHUWIHEWGGThmCxELExgRGB0YHSQgKjQyKzUz
ISkmGRwVMUVFNfte
NGBjL1RSKDs7IS0oGyYhISoqJTY7JDtDJTIGJzxJlZlHHj1QHT5ZIkNkJEt2 Ik1+Ik6CJE6KI02Q
H06SHIGVHIGcl1GcKFWdl1KfHVCbIk+WikuVH02Ulk2SH02SHkuOHUeMGEaL
HUiQHEiNI0aLH0SO
HUeMHUeMHkuNHUqNHEmMI0uPHUmOHkuNIU2QHUqNHU2MG0qKIkqOH0qNH0mO
IUiMHUOAGUJ/JUV6
NVqHH02RJEZzMD05NUA+NT5ANKBANKBANEBAMz0/Mz0/NEA+NEA+NUA+ND9A
NT09NT5BNDw8MDs3
Nj06MT07Nj5AMTs6Mzo4Njs7Mjs5Mjw4NDs5Mzo3Mjk2Mjk0Mjg1MTgyMTk0
LjcwLjcwMDcxLjcw
LzYuLzUtLzYuLjUtLTlrLDMsLDMtKzlrLDMtLjUvLTQsKTlrKzMuLTQuLTQu KJEqKTEoLDMsKzlr
KJEqJTAoKzlrKjEoKjEoLTlrKzArKi8qKjEgKjlpJS4IKS4mKS4mKTAnKTAn Jy4lJi0kji0kji0k
JC0kJSsjlyghKSskLC8oKS8kJCwglisgJi0iKC8mJi8mMT1HDRMTBAIBDQwG
DQwHCQwIEhEHJjE0
QmF0RXiRP2mHlj1JCRAMBgYBDQsIAwgEBgUDEhgQNK2EEyE+CQwEEhILEBUP
BggDBAYCGBgQLDMs
ExcQDQ4JBw0HEhkTMEZyLTIPMzw/KjAtJi4nJy8oKS8kJS8jJS0mJiomJi0i Ji4jJCslKC8jlike
NEZQQmujPGaeQWuYRXGYOI5+LklhLT5LLjtELjY6LDEwKSspKi4jKS0hJi0h
KC8kJCshKS8kKjAl
JC4iJS0iKy8kKC4jKC4jKS4mJi4jKC0IJCoiJCoiSofKzQ2KEFrKDdbLzMv LC8rKSskJS0nJS0m
JS0rJTM5JzlHJzxXK0VpMU15MFCKVCJK1aQLVeULmZMleYLFWSKFOTKISQ
KIOMKE+HKk+DJUp6
K016J092JUxwL1NxMlt2OI59NI52OV1zOFttNlXrN1psO1pqNlhmMFhiMldh NVhkN1pnNIlkOFtn
OFtpN1lnN1hmM1hnNFloNVpkNVhlnIhmOVVkpPFdmQVtnMU1pKkNwK0FwHSAu
EBQMfHuoFRcQERMM

ICYdNUpwMEmCLUR6ER4pDAsGCg4HCQwIDQ4JDQ4JEBILEBILERINFxUQEREL
Dg0HPmmHPGqGI0JW
I0F0HEuPIEmKHKWEGUGFGjkhFB4XCw4JExkRHSMaGiQdGyUiHScfHSIcLkVI
PXWBP32HMmJiJzQy
HSglHR8hJDE5LEBBJz9ALEFEL0RLLERMK0hNMkxTMU1ULU1XMEtaME5YLUIR
LkRTJkQJlzxNIThO
IzIUHxzZH9pJEh2JE2AJ02LJk2LJVKSHk6PH02THk6ZHkqXG0WSHEaPHkeP
GUaOGkSJG0KJG0OI
G0SMIUmNG0KJGkOFF0aIHUeMGkSDHkaLG0SFHkmFI0qSGkaFGUWDHkWEGkOC
IUR4N1uHH0yTJkRw
Mjs9NUA+Mz08NUA+Mjw6Mjw7N0FBNkE/NEA7Nka9NUA+OD5ANz4+Mj49NUA9
ND0/MT07ND07NDw8
Mzw6ND03NDs4MD04LJo4LTk4LJkyMDc0MTgyMTgzMDcyLjUyMDkyMDcyMDcx
LjgvLTQsLjQsLTQs
LTUsLzQsLjUtLzMvLTQrLDMtLDMtKjEqKjEsKzIsKzIsKjEsKTAkJjAqKjEs Ki8qKzIsJy8oKzAp
KzApKzApKzIpJy8oJi4nJzAnKTEoKzMqKi8oKTAkJy4IKTAnKTAnJi0iKC4j KC4jJi4jJCshJS0i
Jy4IJS0jJS0iJi4iJi4jJCogJi4jJy4IMz1LDRASBQYDBWYDCwoFFBcMRWZ3
XpvEX6XXWqLTXaTY
YKDYSHegEx4oBwUABQcFBgMBEBcRL0h1DRUiEBEIDhMMDRALCgsGBgYEDA0I
GBkSCwwHDA4HCg0I
DxMML0RjKThTMzxCLDEwKTEoKjEoKi8oKzMqKzIpJy4IKjEmKC8kKTAnKTAn
KC8mKi8oNUNCMTs9
KTMxJCsnJyggKiokKS0hKi4jKi8nKzIpKzApKi8oKS4nKzApJS4IJzAnKjEo KC8mJi8mKjEoKzEm
Ji4jJzElJi4jly0hJi4jJi0kJy0mJCoiKzM1KUNwKDpZLzs+MUxuK094KVKD LFSJL1iXLFybK1qf
LVqilFqfLlqeL1igMVmeLliVLVeTMVeQLIKGJ055LkRmJjtRHZM/HCGtJC0x JjY9HiQilCchLzgx
OIFSNFdkOVtpNVhqNVppNVxpOmBwP2N2QGF1PF5wOF1sOFtnNVhmN1ppNlln
NIIdnNIVIMU9fNE5c
L0tTL0VNKj9CKzo8KTY1JC8tIConIC0IKjpAK0RvKkRxICtGERcMFxkRExUO
EhQLKjg7L0d3LEV6
MUZ8FiQzDgwHDQ0LCQ4GDA4HEBMNCA4IDhQMEExcQEhQNDhAJCgoHQWqHPWqD
HjxNJkN7I0yOHkmM
GEeJH0eLID5slzhBCAsGBgcECxEKDA4KCwsEGilbLUhUNWduQHqFPnWBMVpi
LEhSKUZaKUZhHSgz
Jzc5JDUzJDEvly8qHzArITItIzQxJzg2Ljw/Lz5GLkNKLEVLL0dPL0IQL0xY
M09XN1RbM1RaMFBa
LU1XKk1aLUxbLKISKEJPHzZEHTNBGjNGIjhTIThbHztpH0N3I0h/HEWFFHUCE
HECGHUSNG0aOGkWN
HUaOHkiNHEWNGUSGGkCGIUCKHj+EHEGFGEGDGz6CIECBHj5/JER5N1qGHkyT
JEBvMTg4ND49ND0/
NT1ANT5ANUA+N0JANKE/ND49NEA7Mz08LTYvLzUyMTUyLzgxLzYxLzcyNDs1
LTctMDcvLjUvMDow
MDcxLzYxMzgyMTgwMTgyMzoyLjcwLzkwLzgxLjguLzYuLzUtLjUtLzUtLzUt LTQsLjUtLzUtLTQs
LTQsKTQoKTMrKjEqKTEoLDErKjEqKjEqKjEsLDMtJjEpKjIpKjEoLDMsKTir
Ki8qKTApKC8mKC8m
Jy4IKC8mJy4IKTAnLDEpKi8oKi8oKjEoJzAnJS4Ily0hJS8jJC4iJCoiJCsh JS8jJS4IJCslJSsj
JCoiKC8mJi0hlysjKC8mND1IERQTAQMCDQkGDREKSmV0YqDQU5biU5jHV5rL
Vp7MXJzNWqDYPXOc
AgwOBwYDAQUBEhMUNUVuChEZCREHDhAHDRAKBwoGCACDDRACQwICgoDCQ4K

DA4HDREKK0NiLTtZ
NTxDLjU1KjQsLjQsKzIsLDAsLDEqKzImLTQpLDEqLTlRljMsLDMoli4mKC8j JzAnKi8nJy8oLDEq
KjEoJjEpKjEqLTlRlTlRKTApJTAoJy8oLDEpKTEoKjAlKjAlLDEpLTlqKC8m JC0kJC8mJi8mJy0m
Ji4nKi8oJS4lJS0ilykgKzlvMUFqKTxZMUNQM2GkLWCnMGGPmI+oLV6mLI6i
LlyAL1qRNFmLM1OA
MUxyLkZdLEBMLDxHLj0/LT0+MUBBMDw2JyggPVNgHzM1JDAqPmJ6His1MTYp
PVBJPV1nNlllNVZj
N1ZjM1RhM1JfNVBeMk1cMUxbMUtXM0pTNEhPL0RLLD9CKjo7Jjc0JjEvlikn
HyMfFx0UFxwVFX0U
GR0TGB4UGiIYHcMeISsjLD1BKD5qJEBsLD5IFx0kFRUMehILHiUcLUVmJUF4
HCxDLz9QHCC8EQ4K
DQ4JCAoGCAsGDxIMDAwJEhEMExMMEBAJDQ4JBwoGQGmJOWiBHjhPIUF6H0iL
G0iKfKB8HECCHThq
JEVmcBMRBQoDBgwGCgwGFx8gJkFVL16RNGSKPHOGSICQMm2EJ1Z9KlyGOnKf
IUZkLFJtMlhwMFdu
MFZrMFpoOVxrOllkNVdbLUpPJERDJzw8ljzHjAqHiojHSkoJTArlzUyJjo8 LkNEMehLM09WNldg
M1hiMVVgLEpSKURMKEBIKD9DKjs/Jjc9JDY8Jjc3ITI3IzI3JDI8IJE8ITVF HzFDHzVTJDliIT1p
IDtsHDlyIDx2IT99HUOAHUGDID+DHTyCGj2BJEF7NveHH02RJEbPMtk7Mzw/
NEBAMj49NEA+N0BC
NT5BNkBAM0A9Mjw3LkBKLE57LU5+K0x4K0twJkdoK0ZIKj9cKD9XKDIQJjIL
JThGKzdBKDY8LDY6
KTi1ly4tJTAuJS4uJTArlJjEsJTAoKTIImKS4nJy4IKTAnKjEoKC0IKC4jKC4j KS8kKi4iJSwglyof
KC4iKy8kKy4mJi0iJi0iJy4IKzAoKTAnKC8kKi4jKTAnKTAnKi8oKTAnKC8m KS4mKzApKi8oJS4l
KTAnKTAnKC4jKC4jKC8kJS0iJi0kKy4lJi0kKiskJy4lJCshKC8kKC8mJy4l Jy4lJi0kJSsjJSsj
JisnJCshNT1FDxIRAwUDDAKFJTEwYJS/WpLCVpHFPWeUXpXCSoKwUYKvXJnO
XZfRHDNPBAIBBQcD
ERIPNEd4DxgnCQ0GDw4JCw0JBQUAHcMeICcjCQwHDAsGDw4JDxEKEhUPMkd1
LDtWMjPCLzQzLDUu
LjUvKjltLTIsLjQsLTUsKzMqLzUtLDERLTQsLjMsMTYwLDMsLjMsKjEqLDEq LTQpKjlpKi8oKjEo
LDMqLDEqKjlpKTMqKjMnKzApJjAkLTMoKzMqJzIqKi8qLDEqKjEmKS8jJzAn
KzAoKC8mKC8mJS4l
Ji0kJKciKjEuL0JnKDxcMj5HK1aNK1WSJ0ZzKEBVJjtLLjtEKzg5JDAqJC4o ISgilikglyoeKTAj
KzlnMTkvMEE2Mj86JTAoJi4oO05RQ2J5lisqNOVEND5FJy0mKtk3L0VOLz8/
L0FGMT5DLTs+KTY1
JzMvJC0pHSYhGyMcGyEYGB0WGB0WGB0WHCIzISsjlDEqJjcyLEI+LkdDMktO
NFRROFpdO2FIQGlS
Q2x6S3WDO197IzppJTxmLD9qJjhflCk2liszKz9fKENzKkv1IC9FMD5ZICtG
Dg0HCQwHDREKGBsR
IyUdEBILEBILCw4JCQwHCg4HBwgFQ2iGOGR7HTZPIUN9Hk2RGDIpGSAIsSxH
HjZlJUVjBgoLCAoG
CwwHCAoGM01sJlMpkFqJLF2GOG6PN2+MHFN9IFOBi1aDI1eAJ1h/I1V/IFR+
I1eBKfMCKFuEKFeE
KlmHLWGMNmuRQnyUP3CDOGN6M2BxM1xoOV5tM1hmLVVfLU9XM01UMEpSL01U
MU5RL0xQL0pNJ0JA
Izk5JjY3Jy3JDMxljEtIC8rljAqJTluLT0+Lz9Cli8olighlConHCgkFyMc Fx4ZGCEdER0cFhkY
GyEjHDBFKU+QH0eKHD6AGTt9JEN7MviiI0+SJT9IMDw2Mz08NUE/Mjw+Mjw+
NkBANKBANKE/Lzs5
Mzk2NEdeMWS0LmSsLmOsMF+tKF+pLF6nLFuoKVSZJ1SZK1ugJ1OWKIOSK1WR

LVOTKIKOKFGKIkUd
J0yEJ0p/JkV6KUI2KU2p2JkVzKERvJENrJ0VqK0VnKERhI0BZJD1WJjtTJTps
JTpLJDdHJzRDKDQ+
IjA2IjE0Iy8ulisuJS4wlIorIConJCsmJCSlHCcilysjlykhlyghlyghlCce HyccICgdHyYbliYc
ISUblCcbICcbICccHiUaHSQZICccJCKiJS0iKC8mJi4nJzAnJzAnJy4IjI4j Jy0mJCojJi8mMz5J
DxIUBAYCBQMBQVtpW5XEU424W5K/RnuqTn+tRnWdVly3UZPHVZnOMV6IBwcF
BgYBDxMMNUp+FSZK
DA4FEA4LCAoGAgAABAUDBAQCBAQCBwoGDxALDA4FLC42LkeFJDhSM0BELTc2
LjYsLDYtLTUwLzYu
LTQrLDMtLjUvLTQsLTUUsLTQsLDMtLTQuLDQrLDMtLjYsLTlrKjEsLDErLDEq KJEsKzlrKzlrLDMo
LDMsKjEqKTApKTAAnLTlqKjEoLDEqLjQsLjMsKi8nKTAIKi4rKi8oKC8kKjAl KTAAnlysJCoIKTlr
MURIKTtfMD0+Jkt3KEiAGyY2Gx0MGyEUHiUYHiYaJi4jJi0kICceGyMYIlykg KS4mLTYvLjgzLjo4
ND48KS0oHSQZliYdlykgGRkRICMYKC8mHyMaHCQZlysgKzInISMCHyMZGyMY
GSIYHSMaICggITlq
KkA8NUtJNU1MNIFPNVZXOFxgP2pzRHSAS3mHUICRUoSTU4qcVY2jWpOqX5ax
YZi2YJy3ZqHATYWs
FypQJC85Jj1nlz1rJUBrIkNvJD5vKj9xKUFXJkNxJz96FyhGDA4HlycdOEM9
QIFVQk1PEBQTDA0I
CwsJDA0ICQ4GCwslOmQEN192GTdPJEiEHE6QGjZhICAmHys+HjpmIEFdBQsH
BwoGBggFFyEeK1R/
JVIGJluHKVuHJFSEJliHIIR+IVN/JVSBIIZ/IVV+IISAIVaCJV2FJ1uFJVuJ G0x8I1SHHFeOLWeU
T4SmQ3uZO3CVP3CTP3SVQneUQneWQ3aVRHqXRX2aRnuYSHyVRnePSXaORHGE
OF9tL01VK0RJK0JG
Kj9CKz9AKDs8JDQ0JDixJDAtFx4ZCRAHlys0U4jLQ4LBPHm2MVmSN1qSQm2m
IztRCggCGSIIKFGS
IkyUGz+FGTyAKEV4MleIk6WlztjMjs5NUA9NkBAND9ANT1ANT0/NDw+ND0/
Mjw7NT05Lz9YKE2R
Jk2QKE6JUp1K099LE+DLEuAKENrM1eIKVaRKfOLK1WRKVSTJICMKIGKLVOU
KVKSJICNKE+NKU6L
IUZ9KEuJJ0yKLk+OJkuHI0uGJ0mDJUqCI0uBI0d+IEh+JEqEJUuAJUp+J0eB
KUiaJUR5JEN4IKR2
JEV2J0V2J0N0JkRulz1jKUJnKUNwJ0BrJD5mKD5IJTteJjpcKDxcKDpZKDhZ
JzIYKDpXKDISKTtO
KzIKLDdDKzdAJTE4JSknJSskJiskKS0oKS4nKC8mJy8oKTEoJi4jJSshJC8n
Mz5NDBISAwUBCwoG
TXGHWo/BVly3VYi4R4OyRYOxSYKyTla2TY7BUZLFOWmTBwYJBQMCEXINNUT9
JUKBDg8UDxEICQwl
BAYDBQMBAUCBwgFDxEKDA4HEXoRM0I1KkaLKjIXMjxDLjY2LjUvLzYwMDcx
LjUvLDQrLjUsLTQs
LTcuKzUsLTlrMDUtMDYUtlIsMDctLDErKzlpLTlrKzMqKzlrLTQsMDUtLzEt LDEqKTMrJzlpKTAp
KS4pKjEqLTlrLTlrKjEqLDEqKi8oJTAoKS8kKC8mKC8mLC8nKi8oJjAkJCoi LTlrL0BkJjplTg/
L0t5KkyGHsk+Gh0RGyMcGSIWGiEXligflykgISgdHiYbISgflyogJiskHCYe HB8XGiEYKzApHyYY
liYfFR0THiYJi8mHB8XHh8YGH0XLTQrPFFJPFVQV9iQGBlQmJqQmlyRnF7
T32KVIOsv4SWVlib
WpCjZpyybKS9bKrFa6rHa6zKbq7Pd7HTb7HTYaPBXp+8ZKHAZqHAYKG/ZqXC
TYizFyxWJDE8lzh
IDtmJT1IjtlKD1oJTtnlzxmJTxrJTxviDJPDQ0KMzwwSFVdOkRJjy4wEBIP
DhAHDA0ICAsHBggF

DA0IQWyHOI50HzVTHkqKHkyRHUmJFjVmlz97HT1qH0NdAwUDAwUDBQABICgt
KFeBJ1mFIVGBIIC
l1aDlleDJVWAJFKCIIIAKViFJliEI1iEJluJKlyJJFmGJVqGHE57JFSEI1eK
NWqYTYSkQneWOW+R
O3CPP3KTPnKVQneYRXqZQnuZRICdSoSiTIOiToSIUoaoVoWkSHOKOFZiLkRJ
LD9BLD9CLkJHMEVM
NUtVO1dINIZiljQxFx4UKDI+V5HbTJXVR4TKPHW5KUV7MUVtNEpXDA4HGigs
J1OWIUyRGkCBHD2C
Kkl6MViIJEuXljlEiNT05NT5AND0/NkBANT5AND49MT08M0A9Lzs5Mzw1Lj5Y
J0qPHz99JDM5Ljky
HSMdEBMNExQQIyolICcjMz9CLkNLKD4/N0dcMUpaLDg/OIBsMVNVKUhCMExn
L0tnMktcMkdjOFqA
J0tqK011Mlh/MUppNFB8L1J7L093MVd+MEx1LUNgMUp1J0dxJ0Z0J0d0J0dx
KUVwKkV1KUZ5I0V5
LUJ5J0JwKkNyL0RvLEZzJkF4KEN8KEBwLENpLUV0J0R5LEV1LEN0KEBxKkBy
K0VyKURtMUNrMEFr
KUBhJCspJCoiJiskJy0mKC8mKTAnJjAkKTAnJy4lJi0kZjlpNj5MDhQWBQYD
DAgDTmt+WI26V4az
UX+wS4CwVpPCT46+QX2vTYi7U5DHNfQBCgYECaUCDhILNEI0K0+VITpuCxER
DgwFDA0IDQ4JDxEK
DRAKCASeXUOMkRiK0uMK0WEKThXMz0/LjY5LjUtMDcxLzYwMDUvMDcxLTYv
MjgwLjUtLzYwMTUx
LTQsLjUsLzUtLjQsLDQrLTUsLzYuLjUtLTQsLTUsLjYsLjUtKjEsKzIsKjEs LDMtLDMtKzIsLDMS
LTQsLDMsKzIrKjEqKjEqLDMoKzIsKC8kKS8kZjZAnJi4nlyogLDMsMENkljlt LTdALUx5JU2DHyxE
GiATGiEYHcMYGiIYHiUcHSQbICydlSceligfHiQbFRoTCw4JEBULGB4XJi8m
Hh4WGx4XJi0kLzkv
ND07HyMZliYdLDUuXoGAbZyrYputap61bKW8bqvEdLLOeLHPdLLSdLTVdrXX
ebjadbnbdLnZdLXV
c7TUcrLTcbHScbHScLDRbq/PYKDBX567Yp6+Yp6+Yp+9YKG/TYqwGjZnJjhf ljlelTdeJDhhJjlk
JD9lJUhuLVN6NWCIN2uTNWCDDhIWfHuoFBgRDRACGSGDA0IDQ4JCQwHCAsG
Cg0IDA0IQW2INVtx
HjJUIUuQIVCSI1WYG0eGHkuNHjpj0hmBwoGCwwEBgUDCggELk5s11eJIIOB
IISAI1eBIIWDI1SC
JFWDI1eBJlyGJ16KJV2LJVuJKImGJ1mDI1eBGEp3IVCDHVkin2iYT4GhQHGP
N2uON22ON22OO3CP
O3GSQXSWQneYQXuZRX6hSoOITIWmUoerVoeoS3KINExTKTc2JTMwJzY2LDs+
L0JHOFBcQWBxOFpr
JTUyGyIYli0xXlrlUJHNPHOuQGuvK0dzJy9COkREExcQHy46KIGVIkyQHUKC
Gj6Alkd5KleKJ0yY
JDIeNTs9Mzw/ND0/NT5ANj4+NT09Mz08ND49MTs6Mzs2Lj1YI0yOIUV/Kzpc
MDwzBwsFBQYDCA0F
BAYCBAIBICYdGSEXli0gLzk4MT1AHyMfMjtBlzM0GRwXJS8pMz1AFBwWDhUL
NE5UNURGN1BhNI15
Hy40ICclO05gN05ZOlpXNFFdFfxwXJy0mNkdHLz1ALDw6M0RDIzAuISksNUxc
Kjc9Lz1CJzk8Lj8/
JC8yJDI4LDIHKDhDKDdBMDxDJTU4MUJMLDdGLDhMKThJJzICJjZDKzdILTpi
MEJgKjxWlysoJi4j
Jy4IKzApKi8oKC8mLDUpKTAIji0kKjEoKzQoMz1LDBIUBQYDBAIBNkpRXYy8

S4GrTYCrS3moUoKz
RXyrQ3yvToS7TYfAGy9JBAYCBgUCDREONEZ1K0qQK1GXJEB3Ex8rDhMQDRMM
DxEoEBUPICgtK0Bp
L0qPKEiJKUOCJzIYMjtBLzc6MjKxMjYyLjgvMjkzMTk0MDgzMDcyMDcxMTgy
MjcxMDcvMDcvMDUv
LzQuLjUtLzYuLTQuLzYuLjUvLzUtLjUtLTQsLTQuLDMtKzIsLTQsLzYuLjUv LDMtLTQuLDMtKzlr
KzlrKzMqLDMqKjEsKjEoKi8nJy8oKTApKC8mKTArMkZmJzxqLTdAM097J02H
HjNLFx0THCMYHSQZ
GylZICceHSQbICydlSgflkglikgHB8XDxQNKc8kLTctNUQ8N0hAKTMqKjEm N0I/JjluKjAkQFU+
cqyvhMjngsPlg8LmgMHmfsDmfl7kfb7hflZferzedbrad7fXdrXXdbXWdbXW c7TUcrPTcrHTcbHS
cbHSc7HScLDRYqDBYZ26Y5+8YZ68YZ68Y6C/VI6yFTRhHTNWJTxfKUVqMFR6
MlyCMWSEnmqNPG+R
PG+UO3aXNGelDhUfDhAJCw4JCg0IDhELEhQNDhAKBggFBggFCgsGCgsGRG+K
MVZpITZUJFCTIIOV
I1aXG0iKGUuEGjtlJ1B7IDpPEBoZDBEKfXkYK0xzlleGIIWDI1aDJVeDI1SC I1SCJlmHJl2Hllyl
Jl2JJlmGKlyGJlqEJFeEKFeEHUt4JVSHIWMpGybSoKgO3WRNmuMOGUkOG2M
PG+QOXGPQXSSRHeW
RHmaQ32aR4CgS4SIUlapToOiQml9LERHljAqIS0kly8pJzMwLTw/Nk1VPFto
M1JflzUzGyUdGyEZ
HCYoFiloFx8jFBkcFx0bGR0YHSQbERoOHjA+JlOaHUuQHkODIUGCKEI5K1aH
JU2WljhbMzw/Mzw/
ND0/Mz08NT09NT0/Mzw+MTs6MTs6Mzg3Kj5ZIEaGJEeGSHWUPmdvBgshCg0I
EBcQCQsKBQMCKzUs
FBsVHB8ZJy8pLjo9LztFNUVXIDivEhMKJSgpJTEwAgMBDRAKMUVGJi4oJikn
MUBJFCMqFx4ZLjo+
JzcyM0pOKEBDBgYEEhMKHiUaGiUbHCMaLDMoFRsUERURLjw/HSMaISofICUe
lysJBaOFFhkOlsg
HiUgly0hISYaBQcDlicbDA4HEBULFfxkRGRwSCgwGEhQLGyUeMkNgLDhaHyck
JCshJy4lJy8oKzAp
Ji8mKTImLDMqKi8nJi8mKzQoMz9MDhQUBAcDBgcEGyleWhuiUoSzSHupR3ip
QHWkQ3elR3uyTla+
O2uaDA8VBgUCBAUDEBILNElzJUmpKkuQKEySLU2UK0B4li9GLTM+JDtbLUyJ
KkmNKkiJK0qHJEWD
KDpbMjw/Mzs+MTgyMDc0LTczMDc0MDc0Mjo1Mzo0MTgwMTgwMjgwMTgyMDcx
MTgyMTgzMDcxMTgy
LjUwMDcxLzYwMDUvLjUvLTQuLzYwLTQuLDMsLTQsLjUtLTQuKzIsKzIsKzIs KzlrKjEqKjEqLjMs
KTArKTAkKzlpKTApKS4nJy4lKS4pMkdjJj1sKzdBNEx5LFGPITdSGB8WHiUa
ICydlHiUcHyYdHyUc
ISceICcelykhJi0klSgiFR0XLjcwNEA+N0ZIPE5ROEM2MTcsLzYsLDcqN0w8 WnpjisbYgMPqf8Lj
gcLlfcDifb7gfb3gf7zgfLveebvddbnbebrbeLnadrXXdrXXdrbXdbXWdLTV c7LUdLLTcbHSc7HS
YqLDXp65Y5+8X566XZ65ZJ66Xpu5T4SmToShUlemUYinT4mnSYilRoOiSIKh
S4GfToKgS4elQXmd
DhgpDBEHEBILDA0IDhAKDxELCw4JCQwHCg0IDQ4JDA0IQGyIke9kIThbH1KV
H1STH1OOHEiGHUiB
lj1ILVR9JIOCKVN+JE5wJFBzH1N8JIOAJ1WFJVeGI1aEI1IEJFuGJVuJJ1yK
JFqHJ1uEJ12HIFqG
IVqFI1mDJlaBHkl1JU6BI02DPXCaSYOgOnOROW+QN2qHPGyMOG2MPXCPQXOU
Q3aVQ3uZRX6cR4Cf

TISjTYanSYCfOmV2J0JCHi4mHicglSoiJTEpLDk4NktROiViMk1ZJDQ1ICcg
Fx4UDxEKDQ0GCQ4H
CAgGCg4HEBgOEhUPFhgRIDREIFOXHkqPHUGDHZ+AKEd1K1SHJE6THzZUMTk5
Mjw7ND49Mzw+Mzs9
Mzs9Mjs9MTs6MD04Lzg2LUFbJEaHKEuJda3bYpitBg0LGBwXGR8YBAoFBwoG
RFVVGyYhGRwUHScf
LDs8KTtGNVR7LExWli0pli0IJTErBQQFDRMMMkZHIS0IKjEsND5FGCMmligr
LjxHLj88M0tTJz9H
BwgFGBsTGB4UFR0SFxkQKzUslikjGCQcJzMvGiEXHSIbFxoSGSEXDA0IExkR
HCQdlyoQLDI5likl
AQUBGRwUDxELEExkREBMNExcQCA4ICAwGHCQhLkNfJzITJCsniyogJi4jJi8m
JzAnJzAnJi8mKTA
KC8mJi4nKjlpMz5NDhMVAwUBCAgGCwsELzY0U3yhT4OzSHysR3qtRnqrRoS5
QXGmEyQwBQUABgcE
BQMCERMMNElyJEiTKUqPKU2YJD12ER0IEhQNERELEExkRJS87MEp/KUeFK0iF
LEaEKzdbNTxDMDs9
LjgzLjk1LzgxMDkyLzcyMDgzMjk0MjkzMDcyMzk2MTgzMDcxMDcyMTgzMDcx
MTgyLzYxLjUvLjUv
MTYwMDUvMDcxMDcxMDcvLjUtLjUtLzQuLTQuLjUtLTUsLTUsLTQsKjEqLDMs
KTEoKzlrLDMqKzIn
KjEoKjEoKTAnKzApMUZglj1vKDQ+NUx2LIGRKT5cGSIYISgdlyghJCoilCce IScelykgISgfJC0k
LjUtKjEsGB0WMjs0OEZKNkdPMkdQNkk+OEc5NUU5N0g/SF5LX4RxicbZhcjq
hsPqhcljgsLlgMDi
f7/igL3hf7zgfLveebncerrdd7jZeLbXdrbXdLfWc7TUc7LUc7PUcrHTcrHT cLPSZaXGXp65XZ67
XZ65Yp+9YZ68ZJ+9aaTDY6K/YqG9ZqHAYaC+X6G7YKG8W6G+X6C7ZaO/Y6XB
V5S6FB44DhAHDxEK
DhAKDQ4JDQ4JDA0ICQwHCQwHCg0IDBILPmiGI0pclz5mIVWUIVWQHVaPGUml
G0SBIkNqI1B9IFF/
IISFilleIVWGIvACIIISDJ1SDI1WEIIWDJVqGJI2JJFmFKFmHJVIFJluHKVuF KFqEJ1qDIFaAlla
GkRvFzpqJU+FAQ3eftYKeQW+JOWuFOGiFPGeLPW2NPm+SQHKTRHeWRHmWSX6b
ToKgTYKjToanSX6a
OGJyKEFDHy0oHScfISggJzApLzs5OEtQOFJdMEITJjc3HygiGSIWDBELCAsG
BQsGBgwGCRMLEhoQ
ExoRGRwRITpLI1KaI0uPIECFhkCCKkp0LVOIJEuRITZTMD02MDw4MDw6Mzw+
Mzs9Mzs7MTs5Mjw6
Mjw7MDk3LD1aHkGFJUmdDq7XW5GkDRcSEhwWDREOAuUDCwsIRVpiJzMvKTAt
LTxEKdk+KjZAMVV+
L1NIJklfJDAsKTMvBwcFDgwJNIFklV16NGN8PWSAEBSfJC4wL0NSKkZSL1Fo
LEdWBw0HGR8YJDAo
KjY0KjY5Kzc1JTAsli8IKDg6ICkfKzM3KjY6JTEtDhELGxwVHcMaHiQiLjQ7 Jy8tCasGHilYEBQM
DhMMERcPEXgRFhkSERUNHSUeL0RhKTtYJi0pKC8kKC8kji8mJzAnKTApKTAp
KjEsLDEqKjEqKTAp
Mz9RDxMWBQcBCAcEBwYDDAoElionQI11S3GfSXaISHSjMU5sFCAhDgsEDAKF
BAoFBQMDDxELNkh2
LEiWJkmSKkOFDxYdCxAGCw4JEA4NCw4JDBEEKDVGL0mLK0iDKkKEKTpdMTIC
MT09MTc0Mjk0Lzkw
MDkyMjo1Mjk3Mzo3MDgzLjYxMDgzMjk0Mzo0Mjk0MTgzMTgyLzYwLzYxMDcx
LDMtLzYwMTYwMTgy

LTQuLTQsLjUtLjUtLjMtLTQuLjUtLjUtLDMsLTQsKzlrLDMtKzMqLTlrKjEo KJEmKTAnKC8mJSsj
KjEoMUVeJD1wJzM+MkxyK1GRKkFiGilbSgfJi0kJy4lJCoilgfiJi0iJSsj JS0mLzYwKTlwFB0V
LTcyOUZHMKVCMERFM01HNUtAOIBBRFtLRWRQcKKejtDuh8boiMPphsPng8Ln
fcDje7/hfL/ifr7h
fb3ffLvdervebjaerfadrfXcrfWdLTUdrTUdLTUc7PUdbPTcrPTZqbHXp66 X567Y5+8ZJ+9Yp6+
XJ27YZ68ZZ68ZJ67YZy7X567YZ66Y5y6Xp65YZ66X566YKK+V5e8ER88DhAH
CxEKCw4JDRAKDhAK
Dw4JDg0IDA0ICxEKDRMMQ2qGJ0dZJj9qJFaQlIOPH1SSGUmLHEh/JUlxJVJ/
H09/JVKCJFOBIFOB
l1fJVeGJVIFi1aDJFWDI1SCJVaEJliCJlmcJFiBJFiBI1eAJ1mDKluCJFmAJFV+GERvHk6BJF6P
QHaYSX6YNmmFN2iFN2eGN2mK0m6HPnGQQXWRRXqWRn2XSIKaS4KcTYOhToWk
R3uXN2BxKUNGIDAq
HikglSkhKTEqMj47OktPN01YL0VNJjc4HyskGCEYCxELBwsFBwoGCQ0GDRAL
ExgTExoRFxwQJzxU
JFKXHkiNID6EIUGCKU11JIKGIkmRlZTMDg4MDw7LTk3MTw4MTs3Mjs5Lzk3
MTs5MD04Ljg2KUFe
HECCKk+Hc7HXWY6jCQ0LCA4GDREKBggGDQwHPHfLj89Ljo+Lz5PKDpFKDpN
NV9/KVVbK0RkLDIM
LzpJAwgGDA4HNFFjM2WMKI19N2+TEshJy4xMEVWJEddMFRzKUJTCQwIHCIZ
L0FBLkFSL05oMUNP
JDEvKjMsKzk8li0kLjg6MT5HKTUzExoRHiUaJy8tIScrHyonJC8nCA0JHSQZ
ERcQEhcOEhsSFB0T
GBsWGB0WHSgjLERmJjtWJCsnKC8kJC0kly0nKTArlDEqJzAnKzlrLjUtLTQs
LTQuNkNYDhUXBQcD
BwYDAQMCAwUDBgoEEhILICUfGyUiGB0YDAwFBgoEawUDCwoGCAsFAwUDDw4I
NEdyK0mSL1CVHzFa
Dg0HDg4HBggFBwgFCRAJDg0HHCEeL0t5JkiEK0GCJzdYMTtCLztAMzk7Mzo1
Mjk3Ljg0MTg2MTg2
MTg1LzgxMDkyMDs0Mjo1Mjo1Mjo1MTgzMzo0MTgyMDcyMDcyLzYuLjUvLzYw
LjUvLzYwLjUtLzYu
LTQuLjQsLTQuLDMtLjUvLTQuLjUvLTQuLDMtKjEqLTlrKzApKzlpKS4nJy4l
JCoIKTAnNUVdKD5x
KjZAMkxsLFWWKkdqHSMdJCshJy4lJzAnlioilCceJSshJSsjKjEqLDMtJCKi DxEKJC0kNkQ9NEE+
MDw7QGRoUoKQOFZNT3BdZpmVisijiMzxiMjghsbohsPqhclmgsLjgMHigMHi fr/hfb3ffLvderb
e7rcebjadrfXdrfXeLbWd7XVdrTUdbXVc7PTdrTUaKjMW526ZJ+9ZZ+8YZ68
Yp6+Yp67Yp67ZJ28
ZJ67ZJ67Y5y4Yp65XZ25YZ24ZJ66YZ66Xp+6XZ2/FihIEhAKDhELCw4JDRAK
DhELDhELDRAKDQ4J
DhAKDhELPml/JD5TJUBByH1WQH1SSllaRG0yKHkuCJEIvKIN7JVJ9JVWALVKE
J1WFKFeEKfQJJ1qH
JFiCIWDHE99IFF/I1Z/JFeAJVZ9IVR7H1Z7IIV7J1V8JIZ9Ik96HEVzJ1aK IlmKQXOUSXqRNmqD
NGeEN2eGNWiFom2LOHCMO3OQQHaSQ3yVRICbRYCbS4SiTYSIRXmVN15wKENH
IDESHikglSohKTAq
Mj05OEVHNuDMlKFFJTU0HyoIFx4YCxiLCA4HBAsFDA0IEBILEhUPFhcQEBgM
KD1YI1CYH0iLID6C
IECBJUx1JFGKHUmOJzhRNDg0Ljg6Ljo4MDw2Lzk0MDk3MD05MTs5Lzk3Lzcy
LUBhHj6ALE+IdLPV
WlmbAAUCCQ0GFBsRBwoGCwgGSmBpli8tlioikTExMj5IJjZMNFZ5JkiWKDpZ

MEBWLD1GAQUFDRIM
N1JpM2OIKVFxOGmMExsilykqLURUL09nNFh4KUFRBggCHiQdME9cIT1XI0FT
LUFQHy8wKTMuMT1A
LTc5Mj88LDw6JzQwLCcjJCKiKjlyJjAqISsjKTArDxIMISUcDhQMFRoTICgg HCcdFx0UGyIZICcn
LEJrJDhaJCsnJCshJi8mJzErKi8qLDEqKjlpKzlrLDMsLjQsMDcxM0JcDBIW
AwEABwgFCg0ICgsG
BwkIDg0HDAsGCAsGBwsFCAoGDAsGBwoGBwgFBwUEAwUBDw4INEhtJ0mQLE2W
GidGCw0GCwslBgE
EBMNCA0FDA4HGRwXM0d1JkWHJkV9KjpbLjpBLjo/MDg4MDg4MDk3Ljk1MDo2
Mjk2Lzk1Mjo1NDs4
MTk5Mzo3MDgzMTk0MDgzMzo0NDs2ND03Mjk0MDcxMTgyMjk0MDcyMTgyLjUt
LzYuLjUtLjQsLTQs
KzIsLTQuLDMtLTQuLDMtKzlrKzlrKzApKC0oKTApLDEqKjEoJC0klyogNUVa
K0R0JzNBNk1sK1CU
MEpzHiQeJi4jJS4lKzMqJS4lIiggJCshlykhKTEoKTApIScgERINISgfM0Q+ Mj9AMDw7N2Bji9H0
bKrGf73PkNTxjc7yisvrisvtiMjqhMflhMPog8TngcLlgMHjfr/hfr7ggb3g fbzdfLvdernbebj
d7fXeLbWd7XVdrTUdbXVc7PTdbXWa6vPXZ67X567YZ68Yp+9YZ68YZ66YqC6
ZZ67YJ64Xp66YJ65
XZ25X563X5y6ZJ27Y566YJ65YZ/AGjNUEQ4KEBILEBILDRAKCRAJDBILDhIL
Cw4JCQwICw0JO2aB
HztLJkZzI1SQI1eSH1aPHVCTIEuBKEpyIE96lIJ9JFN+IISAKVeHJVmJJFqH JVuJKFqJJ1eHIVN9
IIF+IIV+IIaAJFV8JIZ9IIV8JFV+Jld+IFZ9IVB3GUNuIIFi1yHQ3WaRnqU NWqCOGiFNGiGNm2I
P2yLPXGNPXKOQXaTQneWRX6cSoOiUIWnTYamRXiTNV9uKENHIDEuHykilioh
JzEpLjo2NEJAM0JE
LDs9JDIvHigiFh0WDBELBQwGBAoGCgoHEBUOERgQExoRERcMKkJhJ1CaHkaK
HT6DIEOBKU11J1KK
H0iJKDpPNTw2MTw4MD04Mjo6NDs5Mzo3Lzk1LTc1Ljg3LjUyKT1gHD6AKE6J
eLfaUoCSAAIBDwwl
Ji8rCRILExcXTWFtHSEeligJC8tJjg+FRwiOFR9JD1OJzpMJTA+KzM2BAUD
DBANM1NqOGeKMFI+
LVqACxUdHCEeMEBWM01tM1V6JDILBQoCGh4ULkFJJdxQJzpDLEBPJzI2HiYj
M0JGMDw/Lzw9MUBC
Kzc7FhoYGh0XJTAoJC4iJCoiJy0mCw0JICccEhkRDhELDXMMHCibly0hFx8X JissLEJqJjhJCSn
KC8kji8mKTApKjEoKzApKzMqKzlrLDMsLTlrLjUtNURhDRQWBQMBBAYEBggD
BwoEBgcEBwgFBwoG
BAoEBQYDCAgGBQsGBwgFCAcEAQMCBAUDDA4HMkZuK0eRL06VHjBZCw0GDQ4J
CwgGCQwHCwwHCg0I
HSQfMEI7KkSDJ0GAKDdaLjxBMTs9MDw2Mzo4MTs3Lzs3MDk3NDs5MT04MTg1
NDk4Mjs5MT04MD02
Mz05Mjk2MDcxMjk0Mjg1MTg1LzgxMzo1MTgzMDcyMTgyMDcvLjUtLzYuMTcv
LzYuLzYuLjUtKzlr
LDMsKzIsKzIsKzlrLTlrKC0oJzAnLDEqKjEmJi8mJCsgMUNVJUR0KDVEOExs
MICWN0I3IScgJS0h
KTEoJjEoJi8mICYfJS0iJy4IJzAnKzMqJi8mERQOJS4IOkILMEFAMDw/NFdY kdbxldf0kdP1ktDy
j9Dtic3wjMrriMjqh8fphsXphcbog8TmgsPlfsHjgMDigcDifL3ffLvdeLrc ernbe7naeLjZdbbW
drbWdrbWdbTWdbXWb63TY5+/Yp+9YJ+7YaC8Y566ZaC4Y6G7Y566YJ64YZ66
Y564YJ68XZ25WZu4
ZJ28Y525Y5+8X5/AGjtdCAoGDBEKDRAKCw4JCwwHCw0GDA4HCw4JEhgRGSQa

OGN6HDhLJUz8I1WT
JFSTJFOSJIGRIUZ4JEhwik54JFOAIVB+I1SCJlaGJliHI1qFIVqFJImGJFeA H1N9IFJ8J1aAJFeA
HVR7JIZ9IIV8JleAIIh/IFd/IEEx2GUd0IliFJImHRXiXQniUOWmDOGqEN2qH
OWyJOWyJPHCJQHSQ
RHiUR3yZTYCgUYOjTYWITYWmRHiTNV1uJ0NHIDEsICkiISkgJi8oLTk0MUE/
MEFAKzo4JDAthScg
FRwWDBELBgsGBwoFDAsGEBEMExcQFBsSEBcOLkVpJ1OclkaMIT+CIkKAMU94
J1GLIUuPJDDHMjs5
MTs6MDs3MDk3MDg4Lzg2Lzg2MDc3MTg1LDUuKT1fHDp7M1SOdbPZTomcLEdL
S2t6U4GWV42eZp21
WISUKDw+NIZbPWt5SHaKPnGJOHCaJT9WOF51OVZiO1hdLEFCMkhHLUhZOWOJ
L2SLNFt9HDZFJ0JN
JjtWLkdmNFh3L05eHiomKjs2JzU7JTtJJTpELEVQGSYpGCIBLjxGNUdZLkpS
L05bMkJSDhIPGBsR
JzItIysjJzAnISsjCAcDHuYcFBgREhQNEBQNHSMcGx4WDhMMli0sMEFrJzla
Ji4oKTAnKS4nKi8o
KjEqKzItKjEsLDMtLDYtMTgwLjYxN0ddDxQbBgUCBgCEBAQCAQIBAgMBBAQC
BQcFBwcFDAsGCAsF
BQoGBwoEAWUDBQYDAwUDDQ0KM0VsMEqVLUySJUR8DxccCRAEDhAJDQ0KDA4H
ERMHLztMLEqDK0aH
I0GEKDpeMzIDLzs+MTs5MTw4Mzs7Mjs5Mjs5MTs5Mzo4NDs5MDk3ND07MTs3
MTs5MT04Nj06MTs3
MTg1ND03Mjk3NDg1Mzo1MDgzMjg1MTUyMzgwMjgwLzYxMDUvMDUvLjUtLTQs
LzYuLzYwKzIsLDMt
KzlrLDMtKzlrLDEqJy8oJzAnJjAkliofL0FNKUR3JzNGNk9nKVKRL0x4Iyol Iy0hJzlpJzIqJi4n
ICggly0hJzAnLTQuLjk1JzErEhMOIzImM0pLMEA/Lj9BNlhCj9HtlNX1kdLy kdLyj9Dxj83ui8zs
icrqicfoiMjqimfph8T0hMPngsLlgcHjgMDifr7fe73be7vce7rce7rcebrb ebjaeLbXeLbXebTV
drbXcLHOY6G7Xp+8XKG7X6K7Yp+7Zp67Zp+6Y564YJ65X566ZJ66Y5y4Xp27
YJ27XJ27Y5+8YJ65
Y6TCJ0ZnBgYGDQ4JERINFxwXHywpJT8+MIJXOV9pN2d3PXGFOGB6IDVLJkma
HVKQJFOSIVGQHIGQ
G0NvIEhvJE52KFF8JVR/J1aDKViGJVqHKFaGJFuGIVV/IIN8I1R9IVJ7I1Z/ IIZ/JliCJliEHIV/
JFR/I1N6IIV8H0hwG0RyHISDJViFQHiWRXeSNmiDNWqDNWmFNmmHOWyJQHOR
QneWRHyZR32ZSIGi
TISkToelT4WmRHeTNF1sJ0JFIDArHiggICgiJC8pLT04NEZGNEZFLTW8JTEu
HSYgFBsVCxELBgwG
BwgFCAsGCw4JERUNFhgRFBcOKkRoJFGYIUaKlj6BJUSBLU51J1KMIkyPljZG
MTw4Lzs6MDs3MDk3
MDk3Lzg2Lzg2MDg4LDYyKzUxKj5gHTp4N12Kc6/PaqvJc7DOca7RcK7Pbq7P
cq7PbKrGa6rlcqzO
dq3ObqvPUJO+M3enOV5tS2h1UW14TWRtS2dwRmNqQWFrQmZ4QHaeKmuiLnix
L322JlqEMGODPXaX
P32mQIGvPXOcKVBpMmF+MWWDMmiRLWWMJI2CJkBXN11zRXOOO2WFLlp8IT1I
LUhbKk5gMVIqNV5z
LENOKjk8KztBHjY6Izw+JDMwMDw2FwxXHyEYJTAVK0JtlzZclyolJS4IKS4n
KTApKjEqLTQuLTQu
LDMtKzUsLzYuMDgzOEheEBUcBQMBAwMBBQYDBAYDBwgFBwgFBQcEBgcEBgUD
CAcECggFBAMDCwcE

BAYCBwMCCwwHNEdoKkmNLUyOK02PJTpvExogEBMIEBILFhkRJDZDKkZ8K0KB
KDtmKkByJzldMDxJ
MT1HMDk7Mjw6MTs5Mzw6Lzg2Mz07NT48Mjs5Mzs7Mjo6NTw6NDs5Mjs5MTs5
MTs3MTs3NDs5NDs7
Nzs4Mjg1Mzk2NTs4MDcyMDcyLzYwLTyvLjUvLzYuLzYuLjUtLTQuLTQuKzlr
KzMqKjEqKzlrKTAp
KS4nKi8oKTApJy4IJSshMD1LKEF0JTNMM0xIKk2RMkt+lismKC8kJTEpKTUs KzIslykilyogJi4j
LDUuMj49Ljo5EhkTJzAnNkhLL0JALjxBOFRbkNPqldf1k9TykdLykNHxkNDx jM3tisvri8nqh8jo
icfoh8bohMTmgsLlgsLlgcHjfr/hfL7cfLzdfLvdfLvde7jbfLjbebbZeLbX erbXdrbXcrLSYqG9
YJ+8XqC+X6C7Yp+9Y6C8YaC8YZ68Yp28Yp28ZZ+8X524YJ27YJ68ZJ28YZ24
ZJ66aKPAR3qZOV5s
PWp0P29/QXaHRHuQRHySRXmSRHaRQXaSRXaUNV5zHzNNJUqGHE+OI1KRllKR
IISSh9sIElWIE51
IIF7KFeEJ1iGKVuHLFuKJ1mLKFqKIFaAI1Z/JVR7IIF4J1mDJVmCI1iEJVZ/ I1V6I1R6JVD8JFN9
H0hvGkdxIFWBjVYEQ3iVQnaPNWeCN2GDNGeDOWuFPXCPQ3WRQnWUQXuYQ3qU
RoCdSIGiTYSkTYak
RHeSM1xrJkJEIDAqHykhISgjJjAqMUA+OUxPN0tOMEFAJTMwHSchFBsWDBIL
Bg0GBQYECg0IDhMM
EBUOFhgRFxoSLEVqJFGYHkWFikCDI0OAK1B0J1GLikmMJzIHMD02MDk3MD02
Lzk1Ljg2Ljk1Ljc1
LzY0LjQxKzlvKj5hGzh0OI+Qea/WcqnJb6rHb6rJbqfGc6nJcKfJcKrLcKnH dKvlb6rJZabES4u1
MHSiO15pSGFnSmBpS2NrSGdtRGJnRI1jPltnQHahKGqmL3e3KnStJ2SWL2ue
MHGeLnOnL3isMnys
NnutN3itL3apMnWpNnmnMXmqNXqmNHanKW6iKWyiI2aZKHKmNYK8L4S8LoG4
LHexKWiZQnifY5zB
YqXJXaDMJUFPJjAqJi8mKjEqLDc+KUBwlzdZJC0pKTEoJy8oKTApKjEqLDMt
LTQuLTQuLTcuMTgw
LjYxN0ZgERYdBgUCBgECwwHDA0ICAYFDAoHBwgFBwsFBwoGBAUDBgUDAwUD
BQYDBQcDBgYEDg0I
NEhtFydBKtILLU2RLEaANKkGAJT1qJTpgKUFvKEKAJkSCJz96FhwnLDxYKTti
MT1HLztCMzw6NDw8
Mjw7NDw8Mzs7Mjw6Mzw6ND07MTs5Mzw6Mzw6NTw6Mzs7Mzw6Mzo4MT04MTs5
NDw8NDs5MD04MT04
Njo2MzczMjk2LzYzMTUvLzctMDcvMDcyMTgyLzYuLjYsLTQsKzlrLDMsKzlr KjEqKi8oJy0mJi4n
Jy4IlykgLzxFJ0N0JTRKM0hfJ02OLk1/IiknJi4iJzQqKTQtKzQtJy4IJS0i Ji0kKzMuMDw6KTK2
HSUiJCKiNUNAMkNAL0BCM1FWj9HqmNr1k9XyktPxktPzktLzj8/wjs7xjMzu isvrispicfohsfn
hsbog8LmgsLlgcHjf7/gfb3efLzefLvde7jbe7jberfaeLfZebbZebjbc7LU YaHBYZ+/YaC+YaC+
Yp+9YJ+7Y6C8ZJ+9XZ68X568Zp+9Y5+8Yp+9X566Xp66Xp66X566XZ24X6G/
ZaXGaKXEZaO/Y6LA
ZKDAY5+/Zp+/Y5+8Xp+6X566NI1wHjNOI02GIIONIIIGQI1KUIISTHDpqJUIx H092H1F7I1aEI1eG
KFmHKVmKKFiJKViGJFmFJFeEJlFeJFeEJ12HIVd8IFN5IFN5H1V6I1N6JFR7 IJ5HklwG0IzIlqH
M22NRHmTP3GNOWWBOmSEOGekPGmIPW2NPG+OPnSRQXqYRnyYR36YS4GdTYWj
ToakQ3iTMIxrJkBD
IC4rHighICkiJzMvNEVEPINYO1JYMURFJTQxHSchFBsVDBELBwwGCggFCAoG
DhELERcPEXkRFxwV
LEdvJk+WikkDIz6AJEWAL1F2J1CJJEiKJTdEMTs3LTk1Lzo2Ljk1Ljk1Ljk1 LTg0KzYyLjg0LTlx
KD5IFjhyPmOUbarNa6PEbKTCbaTEbKXDbKTCbKXEaqXCaqbBcKbGc6rLZabC
SYiyLnOgPV5rQV9i

R15iR2VnRmJqRVxlQFphP1lgOXacJGaiJWOlNasJ2KRKmosKWiULnCiMXWI
NXakMXaqMnamNXip
MXmqNnqqNHioLXWmL3OkLHKjK22hI2aZKXSsLH+2L3+8InmzLHevJXWoPoGs
bKfNYafLYZ3FHjQ+
HSQbICgdJDAkKztBI0ByJDZdJy8sKTApKjEsLTQuLDMtKzItLjUvLDMtLDYt
MTgwMTk0OUljDhUb
BQMBBwoGCQwHBwoGCAoGBwgFBwgFBgcECwwHBAUDBQQDBQMCAwEABgIBBQMB
Cw0GNEdsJ0F4KEV6
KkiOK0iLKUWPKEaMKUaJJUSBJT99KD9+KkJ9JD92KEJ5KDhcMT1EMz1GNDw/
NDw+MDw7Nj09Nz48
NUA9Mz07Mz07Mjw7Nj09Nz48Nj07ND07NUA9NT48Mjs5MT04NTw6Mzw6NDs7
NDk4Mzs2MD01Mjk3
MTg1MDoxMTgyMTgyMDcxLzYuLTQsKzlrLDMsLDMtKjEsKzIsKjEsKi8oKTA
JS4IJCshlikeMD1C
J0ZzJTRKNUIYK1SRLk+FlyssJy4IKTMqKjYsLDguJjAqJC8nJS4ILDMSLjo0
JjQuGiQcHSQbNUNA
L0A+KkFEPGBnktHpm9z1ltjzINXyldTyktPzkNDxkM7wi8zsi8zsjMrrisjp hsfnhcbmhsXnhMPI
hMLlgMDhgL/hgb3gfbzee7rce7rcerfaebjaebbZebbZdLPVYKLBZKDAY6C/ YJ+8X567Yp+9Yp+9
Y6C8Xp+6YJ+7YZ66XZ65X567X566ZZ67YJ27YZ66Y526ZZ69ZZ68YJ65XJ24
Y5+8Zp+9ZJ+/Y569
ZJ+9Y6C/ZJ+9OlXuHjJNJE6KJFKOH0+OH1GTH1KQGDhiJk93Ik96JFGAJFOB
JFOBJISEIVWEIleE
IIWDIFWCI1aDKluKJViGJFqEI1Z9IVd8JVJ9IVJ5JVR7JFN4I1R6HklwG0t2
IVqDKF6FQneUQXCO
OWaENmSDNWOCNWV/PG2LQXOPQXOOQ3uXRHqXR32ZTIShT4inToanQnmUMltp
JT5AHy0qHychHykh
JzQuN0hIQVhgPVRbMUVHJjQxHSYgExoUCw4LBgwGCAsHCAoGDxELERcQEhgQ
FRsUL0hyJk2VikGC
JUGGJEZ/MIN4KU6MI0eJJTVAND03MD02Lzk1Lzo2KzczKjY0LTc1LTczLzUy
KjlyJz1kGTZ0O2GV
ZaPDZpy8Y525ZJ64YZ24Y5y6Y5q2Ypu3ZJq6YZq5a6XGbabFR4mwMHOofQF1q
RI5mSV5nRV5kRBo
Q15iQllkPVdfQHWWhKGSeHVCOLnmuJ2OQKWaULmyaLHCgLnGILnOeLXGhLXSh
LnWkM3KnNHmlNXaq
Lm6jK6fKWudKWqcJWidKnWtKIC0Jny2IXizLXWuK3OkOH2mY6PGYKbGW57B
Gi86HiUcHicdJTIn
LDhBJz91JTliJi0qKTApKi8oKC8rLDMtKjEsLTQuLTYvLzkwMTgwMzs2OEdl
DBMaAgMABAYDBwsF
BQcEBQgDBggDBwgFCAgGBgcEBQcFJCoiLj04Ljc5Ljw/DxQOCggFMEViJkiP
JkeMLEeKJESCK0WG
J0KDJE0EKEN8KUR+KEZ/J0N9KUR+KEWAKT1mLztFNDxFMz08NT48MT08Nj09
NDw8Nke/Nke/NUA+
Mz08NDw8Nj07Mjw6Mjw7ND07Mz07NT48Nj07NTw6Mz08Mzw6ND03NDs4MD02
Ljg0MDgzMDkyMjk0
MjkzMDcxLjUtLjUtKzlrLTIsLzQuKzArKi8qKi8oKzApKTAJS4IJS0ilCcc Ljo/K0Z2JTVOMkhX
LVOTLVCHly4yJzAnJzMnLDgVLDgVJTAoly4mJi4oLDMtLzs0LDcwHSUeHicd
MURCLkFEL0NPL1Jd
kMzgnt/2mdv1mNj0I9b0k9TyktPzktDxj8/wjM3ti8zsisvriMnphsfhnsTI hMPlhMPlgsHjg7/i

K4G6LYK6IHvKnSoKW6iQoCsZKTFZaXJXpm8Gy05HSQbICyFJDEmKzhBlz5x
JDhbJi0qKTImLDEq
KTArlTQuLzYwLzYuLzgxMjk0Mjk0LjgzOEdpDxcdAwUABwcFCgsGCQwHBQcE
CwwHBgcEBQYDCwoG
BwgFBggGBgYBBwQBBwQBBQMBCAgGICQbHCQZMT1EO1t9OFeBOliBNld+NVh7
N1h/NVV/N1Z3OFR4
MFF2M1N1N1N1OFJ0M0NYNDw8N0FBNkBAOEfBN0FBNkJCOEJCNEBAOEJC
OEJCNkE/NEA+NUA+
Mz08NDw8Mzs7NT09ND48Mz07Mjs5MTo4Mzw6Mjw4LjgzMjo1MTg1LzgxMTgw
LzYuLzYwLTQuLjMt
LDEqLDMqKi8oKTAnKTAnJy4IJC0kKy4IISUcLTg6LEd1KTdVM0JMK1KQKIOM
Hy8yKDAiKjQrKTQt
KzQtKjlpJS0iJy4IKTlrLT02KjYyHScfHSUaM0I/MUNDMUNGKEBGgr7LoOL2 ndzzm9z1mdv1ltf0
INXyk9TyktPzkNHxj9Dwjc/tisvriMnph8johsfng8TjgcLjgMHifr/gfr7f fb3ffbzee7rcervc
ebnaerrbebbaz6PEYac8ZaO/ZqG9ZKG7YaC8YZ68X567XJ24XJ26XZ68Y566
X6C3Xp64Yp65Xp+2
X567X522Y564Ypy4X524X5y6YJ65Xp65X524Ypy4YZ68Y5+8Yp67KkxeljdV
JE6LIVCJIE6KH1OO
HEmAGzdiJFN6i1J5K1WAK1WDJlWCJFiBJ1mDJ1aEJVSBjFN9JliCKV2HKV2H
LGCKK2GGK16EKV2G
Jl2CKmCFK2GFKVuAHE9xJlyDKWOPOXGSTYGaRHSROm2JPm6LQG+NOGaAOGqE
PGulQnCNSHWVS36d
P3OPMF99SoGiToWmQnWQMFZlzs+Hy0mHSYflScgKjMsOkxOQVxpOFJdLEBB
li8qGyMcERgRCxAK
CA4HBAoFBwoGDxELDxUPEBUPGBwXK0NyJEGLiZ6AJEaHI0Z6MIF2KE2NKUaB
LTo/MDs3LDg0KzUz
LzYzLzYzLjUzLjUyLDQvKjltLDMxJzxmFzZuLWGgOovBMoS4MoW7MoO4MH+z
J3qvH3GnHVqTImKb
G2WhM360ZJ/AQIONM3GePFxmRI5mPVphQlxkQV1kR15kP1tjP1pmN3WhJnOo
LXy1KXS0HVR7J1yM
L26jMW2gMHGiLnKiLXKmLnKiNHeiLnWkK3KhLnCiLG6gLnKgKW2aKGeeJGaZ
KXWtJH+0LYC4Inmz
KXWnKHCgQX+oZ6XFZKbKXJe6Gig0HyYaICyFJDEmKjdAJEB5IThiKTAtKTEo
KzlrKjEsLTQvMDcx
MDcvMTgyMjk0Mzo1Mz05NkdqDRQcAgMABQQDCwwHCQwHBwgFCggFBwgFBwoE
CAoGBgcEBQYDBQYD
AAIBBAUDAwYCBwcGGBwSGx8VKTMqOUNIOURMNUBCN0BCNkBAN0BDNUFBMz0/
Nz1DNT5BNT5AOT5A
NT1ANEJBN0JDO0REOUJEOUJEND9ANEJBN0NDO0VFOERCN0NBNkJAOENAN0/
NkE+NT48Nka9Mj88
Mjw6Lzs3MDw6MTs6Mjo6Mzw6Mjk2Mjo1Mjk2MTg1LzcyMDoxLzctLDQrKzlr
LjMtKzArKzApKTAp
KTApJy4IJS0iJCoilykgISUbLDU3K0RzKDhTNERLMIOQMFWsIDI7KC4jKjlp LDYsKzUsJzlpysj
Ji8mKTMrLj80LDYxlykhGSIYMkNAL0FJLkFJJdw/fLa+o+X2nt30nN32mdv1 mdn1ltf0k9XzktPz
k9HykdDwkM/ujM3tisvricnricnrfng8Tmg8HjgsHigL/gfr3ffbzeffrd frrdebbnaerrbe7jc
aqTGYqG9ZaO9aKG/ZqC7Y566Y5+8Yp+7ZZ65ZJ66X567ZJ66Yp+5YJ+3Xp64
X524XJ24XJ26YZ64
Yp65Yp67X524YZu3Y566YJ65Yp67Y5+8ZJ66ZZ67JkZWIThZJU+MJVCLiICM

lIKOGkiAHz5fJ1J4
J1F5KVS AKIR/IIF8I1N+H1N9I1N+JIB+JVB8KVV/KlqBK FuCJluCJI2FI1+G KV6FKI2EJI+CKWCB
Klx+Ik91J12HKmKLP HGST4GXPXSIPGuI QG6LO3CIOGW DOWmGP22JP2+PRnWT
SX2XP3SRP3uYT4an
TYSkQHONL1Rilzo9Hy0nHiUglScfKjMtO05RQF5qN1RdKDw+IC0nGB8YDxUO
CRAJBgwGBQoFBw0H
DxELEBcQDxUOGB8bKD9zJUKJJ0GGIUelJUN3MIV4KUyKI0Z7KjY5Njo3Mjg6
Ljg0LTczLzQ0LTlx
KjQwKjQvJzArJjEslz1mGTRwLmSjN4jCLIC7MYK6M4S8MoK6KX6xJX2zLoC1
K4G6JXiWPIW9YZ+/
OoCpNHKeQV5qQV9nQF9IRV9qRF9rRV9mS15mPl1qNnelKnOoLXuzLHaqJWap
L2qUNXSjL3GjMXSo
LXOkL3WmMHsKM3OkMnamLHSIL3SgLG+jKG2hLG6gKWYhIGecKnixKH62J3+1
IHvJXWoLHChQn+m
ZaXGZKfJVpa7GysyHSMaHCQdJC4iKDY+I0F6HzlpJzAwLDEqKi8qKzUsLjUv
MDcxMDcvMDcvMjk0
NDs4N0BAOUt0DhMeAgMABAcDCwwHCAsGCgsGCAoGCgsGCgsGBQYDBAUDBAUD
BAUDBAICBggDAQUB
BgUDEhUPGBsTKzMqO0VFOUJFN0JDN0FBOEFDN0FGOkBGNkNHN0JDNUJDOEJH
OEFINKFDOENENkNH
OEBFN0BDO0REPUNFOkJFNEFCMkNAN0VEN0JEOERENEI/MkNANENANUA+Nj4+
N0A/NEA+Mjw+NUA+
NT48Mzo3Mzo3NDs4Mzg3Mjc2LTcyMjk0Mzo0LDUuLzQuLTIsKTlrLTQuKjlp
KTApJy8oJi8mJzAn
Ji0kJCshlikeLDY1K0Z0JDIZMUBFMVSRLIWTITE+Ji4iKzMqKzcuLDYtJy0m JS4Iji8mKzIsLTs4
Kzc1HykhGiIYMUI/MENLLEJKljpCdqy3qun3oeH2nN/1mtz2ndv2mdrzltn0 k9XyldTyktPzkNHx
jc7ui8zsicrqiMnph8jog8flgcXigcLhgcDhf7/hfr3ff7vefLvde7rcfbnc e7rcZqjHZJ+9aKHA
ZKG9YaG7Yp+7ZJ+/Yp+7ZZ+6Yp+5XZ65Y5+8YZ+5X5+5YZ64YJ65YJ65YZu3
Xpy3ZJ64Y523XZ24
Ypy4YJ64YJ64YJ64X566ZJ+7ZJ66IUBPIzxhl1GPH02KIU+LJFKOHUh7JUNh KE94J1F5IIN8IIF7
IVB6I1B7IVB7Ik96IIB5I1F6JFJ7JVR/J1eCJImCJFqBK2CHLmGIKmCFKF6C KI+BKI19Ik90JI2H
J2WLPnOSS36XPHGHOM2DQ2+KPG6IMmaCOMqHOGuHQHGPRniURnqURoCcSYej
T4emToSkP3CJMFNg
Jdk8ICsnHiYfICkgLDUvPFBSQV9rNIJbJzw9HioIFR0WDRMMBw0HBgsGBgcE
CAsGERMMEhkREBUO
Gh0cLEF5ITuDIz+EIEWEIEJ0NFN4JE2KJkV3LDU4LDYyMDc1LjUyLzYzLzY0
LjUyKjQwKjQwJTAr
JzEvJ0BrGTJtO2OSR4SjPH6bPn6aQn6bQICYQnyaQn6cOX2eKHasJHOuPYm/
Yp/DPX6sMXCdQF1q
RWFrQmFuRmFtRmFtR2JwR2FvQ190O3qqLnWuMoC6MXqvKGmVMXCdNXeoNXip
NHquMnqrNHmpNXeo
NHeINHimMHWiLnOgLXCkKHChJ2yZJ2mdJGOYK3OpKn21LH+2JHevI3SoK2+f
SX+na6TIZKfJW5m3
GykwHiIYGyIZJC4iJzc/JER5HjpmJjEtLDMoLDMqKzUsLjcwLjcwLjcwLjcw Mjk0MTk0NDw+Nk95
EBQdAwYABggDBwcFAQMCBQYDCAoGBQYDBQYDBgcECAoGBQYDAQUBBQMDCAcE
BwcFBQYDERcQFhwT
LDYsoEZFOUJEokRJN0VJN0NGO0NIO0NIOkNFN0RFOENJOKNLOENJNkNHOUNI
OkRJOKJHNkJFO0RH

OENFOENEO0RHN0JDN0NDO0NFOERCOERENkRDNUJDOUNDOUJANke+NkNANke/
Nke/Nj4+Mjo6Mjo6
Mjs5MT04Lzo2Lzk0MzczMzgyLjcwLTQuLjIsLTIsLTQuKzlrKjEqJy8oKTEo Ji8mJy4lJSsjlCYd
KzU0K0Z2JDhaMUBFLVKPLFORlJRCJi8hKjQrKTYrKzUsKjEqJC8mJi8mLTQu
LDg0KjUxHiggGiEY
MkE+LkJJLEJKHzc/a6Gpqr3oeL1nt71nN31ndz1mtv0mNr1ltf0ldXxktPx kdLyj9DwjtDui83r
icrqIMnpiMbnhcfIgsTjf8Dhf7/hgb3ggLzfe7rcfrrdfLvdfLvdaanJZaC/ YqG9YqG9ZaC8X6C7
Zp+9ZJ+7Yp+5X5+5XZ+6Yp+7Y6C6Xp65X524YZ24XJy3Xpy3Wpy2X524Yp65
YZ24Y525YJ64Xp64
ZJ+7ZZ67Z566Y566Hj5JkNlIKOJFGKJFGMJFGMHUd4KEdqJU93JIJ6I1N6 I1J5I1J8I1B7Ik96
I095JFB6IE95JVV8KImAJ1iBJImAJ1qBK1yDLV+EKVyCLF6DLWCEKVp7Jk9z
K1+KJ2OJQHOSTX2T
P3CIPmylQG6LPG2FN2WBNmiCPGuIqNGPRneVSHyYSYGfTYWIUlenTISjPnCH
LIJdJT07Hy0mHice
ICcgLDcvPFNTQGfM1JbJzs8HskIFBsVDRILCA0HBgwGBwoFCAoGDxIMEhkR
DhULFR8eKER+ID6F
I0KGHz+AHzprM1N1KEmHJkF4LTQ0LzUyLjUzMDU0MDc1LjUyKTMuKzlvKzlv
JTErKzMzJUBrGjZt
OVV2UXJ6UG93VXF5VG93T3B8R4ajUZatUpOoK3inKnauRI2+YaHCOX2oLmqU
P1tlQl5mRI1oRI1m
Ql5nQV1mRFtkRV5uOHenKHOqK362KXOpJV+MKmWUL3KmMnSoMHanMXilM3ej
NHelMHSiMHGiKm6e
K2+dK2+fLXCkKGydJWealV+UJnGoKXy0Ln+2J3avJ3SoKW+gR4GoaqPHaaXK
XZe5GicxHB4aHyUe
JC4iKDU/JUF4ljxlJjEtKzQoLjYsLjgvLjcwMDcyMjk2Mzo3Mz05Nj06NT09 NEx0DhMfAwUAAwYC
AwEAAQIBAgMBBAYCAgMBBgCwGCQwHBQcEAWUDBgCEBAQCAwUDBAUDERgP
FhwTLDUuOkIKOKRJ
PUVKOkdLOkNKO0RLOEZKNkVHN0RKOUNNO0RMOUZMOEVLPEVNOKVLOURKO0ZI
O0hMOERHN0RFO0ZI
OURGOENEOkVGOKZGO0ZHOKVHOENEOEREOURBNUA+NEA+OENAOUJAOEI/NT48
ND46Mz05Mz05Mjw4
Mjw3Mjc2Mjc2Mjk2MDcvLzYsLjUsKzIsKzIsKTArJS0mJi8mJSsjJSsjJCKi ICYdKzU0LEd3JDZa
LjpBLFKNLVOTIjVHKDAIjZlpKTYrJzMrKTMrly4mlysjKzIsLTg0KzcxHici GB4XM0A7LkJJLkNL
lThAZZqegu73pOL2n971nd72nN32mtv0mdv1mtr2l9fzk9TxktPxkNHujtDu js3si8zsisvrh8jo
h8blhcPjg8HjgsHigcDhf77ffb3fgbzde7vcfLzebarNZKHAYaO9YqK8Z5/A ZaC8Y6C8YJ+8ZJ65
YZ+5XZ67YZ64X524ZJ66Y525Yp23Xp22Yp23YJ63XJy3Xp66Ypy4YJ65YZ24
Ypy4ZJ66Y566aJ67
Z5+8ljtMLEZzHk+LIE6KIICMIOMHEZ2KUlsJk93JFB4I1J5IVB6IIF8JE58 I095JVB3JE92JIF4
JIV8J1h/KFh/JImAl1I+KVp/LFI/LFuALFyDKVyCLFt6Jk9zKV+KKWOKQHWS
T32SPnGJOm2LPG6J
OGuDomaCOmqEP2yLQnCQQXeUSH2aS3+fToOkUYenTISiPW6ELFBZlZg4Hysk
HicelCcgKzYwO1RU
P2BtMVBcJjo8HskjFBsVDBEKCA0HBgwGBQcDBgwGEhQNFxkREBgMHCMjLUR/
JkKLID6BIC5mKjhe
MIR3JkqEJkF0JzMtLTUwLzYxLTUwLTQxLDQvKzMuLDMwLDMxKjltKTMjJD9q
FTdrMk9rTWZsUWHS
UWpwTmtuR2t1PYSnTpm3V52yKHymJXuuQ4/AZqLCON6pL22TQV1nRF5kRmBj
R11IRF5lPlxfQVpd

QV1mOHilJnGIK3yzKHCmllyIJF+OLW+hMHOnK3KILnSIL3ChMXKjLHCeKW6c
LW+hLXGfK3CeKXGi
KG2hJmidl2GXKHOqJXqyKH21J3ewKHaoJWyfQH+mZaXGa6fPWZW4GSgyGh8Y
ICkfliwgKjdAJkF6
IztoJzIwLTQsLjMsMDcvLTQuMjk0Mjg1ND03OTs8NT48NT0/Mkp3DhUdAwIA
BAICBAUDBAMDBQQD
BAQCAQIBBQcDBQcDBAUBBQYDCggFBQMBBwoDBgcEBgUDFxsRFBsRKzUsQEtN
OkdNPudMPUdMOUZO
OUZMOEdMokdNOEZOOudPO0ZOPEISO0ZTPEZRPEIPO0hOPEdPOUhKO0dKPUhO
O0INokdLOKVHOUZH
N0RIOkVHOUGRN0JDN0JDN0NDNkJCNUFBNkJCOEJCN0JANj4+NDw8NDs5Mzo4
Mjc2NDw3Mjk2MDc0
MTk0MTgyLDUuKtIrKjEsKjEqKTApJy0mJi0kji4jlikglykgIcccJjEtLUd0 JjheLTo/LIKNK1OU
HzRJKTAlJjImKjYsJzMrKTMrJTAoJS4IKzIsLjk1LTkzlyoIFhwWMT05LkJJ LkNLIThAXI6Sre73
p+T2oeH2nuD1nt/2nN32m9v2m9z1mdn1ltjzINXyktPxxNHxjc/tjM7siszq hsfnicXmhCpJgcLh
gsHigcDhf77fgL3egL3efbzdgLzfca/QY6LAZKS/ZqG9ZKDAZqG9Z5+8Yp+7 YZ66Y566Y5+8Y566
Yp65XZ63X563Yp61X522Yp23Yp61Xp22ZJ66YJ63YJ64YZ66YZ66ZKG9ZaC8
Z6C9ZaC8ITZGLUH2
JE+OIk2MIICMI1SOH0Z0J0hpJU93JIB4KVN7JVN8JFF8Ik98I093JE91I011 J1B3KFV7KFp/JVh+
J1qAKFp/KFp/JVI9Jlp+KFp/J1t/K1t4I01vKV+KKWOKR3aURnyUPW6GPW6F
Om+IOWmDOGOBN2eE
PWYJQnGPQXeTSHyYTH+fUISkUIWnSoKgOmuCKk5WljU0HikjHiQcICYeKjYx
PVNZPmJyMU9cJjk8
HSgjFBsVDBELBwwHBwsGBwgFBwoGDRMMDxgREBIJGyQkKEiBKEaMij54HiY7
LzhDNVR4JUqKJEB0
KzM1KzUsLzUyKzlvKTMvLDQvLDUuLDQvKjltKzApJjEvJz5tGDhuNIVxT2t0
TGluU2x1WHF5VnJ/
Q4irU563VZ6zLoGwKn2yRpPFZqLDPYCVN3ScRWRvR2VtSWdsSWvtSmRvR2Nq
SWFpQGJxOXyqKXas
LYC3KnOmJGGPKWaULnKjL3eoLXWmL3alL3alMHemL3OjKnGgKm+aKmyZKW2a
JWuaJGiYI2WYH2GW
J3WrJ321JXyyJXiWKhWpJWucQX6lZaXIZKbKXJW5GCKxGh8YHycglisgKzk/ JUF4IztoJjEtLDQR
MDYuLTUsMjKxMTgyMTk0MDgzNTs4Mj05Mjw+MUx+HjRNGiEdGh0XHCIZHiUa
ICcclikgJCoiKTAp
KzQtLjUyMTs3ND48M0BENENIKzo9KTQwKTQtHiUgLDUuPktPOEpNPEIRPkhS
PEpSO0hROkdQPUhQ
OkZTOEdQOkdQO0hROkdQOUZPOUhRO0IRO0hROkdNO0INO0hOPUhOPUhOO0hM
P0hLOUZKPEdJO0ZH
N0RFNUFEN0JEOENENUNCM0FANEI/NUI/MT05MTw4MD02Mjk2MTg2Mzo4MD02
MTk0MTgzMDcxKzQt
LDMsLDMqKjlpKTApJy0mJSsjJi0klikglyofISgcJzArKkRtJjhfkjg7K06H KVCUIDhMKTAnJzAn
KzUsKjYtKzUsJTAoJC0kKTMrLjo0LDczly0nFRsUMDs3LkNLLkNKIjIAUYKG
s/H4q+b3pOL2oOP2
oeD2n972nN32nN31mtr2ltjzINXyk9TykdLwj9DtjtDuiszqicfoh8XmhMXl gsPlhcLjg8DhgL/g
f77ffL7cfbzdgLzfc7HSZKHAZAo/ZqG9X6C+ZaC8Zp+8ZJ66Yp67Xp66YJ65 ZJ27Yp67YJ64YZ62
ZJ65YJ63YZy2YZy2XZ20ZJ65YJ64YZ64Y564Y566ZaC8ZKG9ZaO/aKC9IDVH
KUh6Ik6LJE6LJVCL
JFOMI0hzKUprH051KFF5LVJ7J1F5JVF7IE96Ik52Ik91Ikt2H051KVZ8LFuA JFp+KFp/LFiAJld+

JVh6JFI7Klp8LVx9KVd1I05wKmKLJ2WKQ3SSRXiPPm2GPm2GO2uFOWeBN2SD
N2iFPgyGQ3GOQneR
Q3uXR3+dTIOhUYenTIOhOWqAKUtTITQyHSghHSQdHyYfKjUyPIRePV9zMU9c
JTg6HSciFRsUCxEL
CAshCAsGCQsHBwwGEBQMFxoTDRIIHSYpK0uEJEWKljxylykxLjlEMI6JkuL
I0JwKzEzMzkxLjUv
KjUuLDYxMDcyLzYwLDQvKjltKi8qKjMxJz1wGjdwNIJtVW51T21vVXB4WHN3
V3J9R4mwWJ+5Wp6y
Ln+XLn+2TZbKYqDBPICtN3GWQmJqRWRqSWVtSGRtRmVrSWNuSGJoQWZ0PH+u
MHmuMoC2K3OkImGJ
KmqTNHWjNHurL3ipMnipNHeoNHeoMnamLXeiJnGdKG2aK22fJ2ucJmeYJ2SW
IV+TKXewJnq0Jn6y
JXiwK3SpJmqXP3+kZaXJZ6fKW5O3GCgvHyUelCchJC0kKzpCJEN4JD1oJzlu
LzYsMDYUljgvLTYv
LjkyLjk1MTw4LTw3MT02MT08MEt8KUuEKTU4LjgvLjgvMjo1MDo1Mz05NUE8
NUI/OEZDOUIIOkpJ
OktLO01QOkxRPUtTQEpPPktROkdLOUhKPEtUPEpSPUpTP0tWPUIUPEhTN0hS
OkhVPEhTOkhVO0dV
PEhWPUpTOKISOUtTO0pPPEISP0IUQEpUPktRPUpSPUpTPUhOPkhNPkIPO0dK
PEpJO0IIOkZJPEDJ
OkVGOEZFOUVDOEREOERENkJCOEJCN0JAND07Ljg0MTg1Mzo3MTk0MDcyLzcy
LzYwLzQuLTQuKjEq
KzlrJy8oKTApJy4lJi0klykgHiUaKTArl0dvlzhjJzU7LVCHKIKWlzxQJi8m KTMqLTctKjYtKzUs
KTEoJi8mLDYtLjo0Kzcxly4mFwxVLzs1L0RMLkNklzhATXp/te/3sOn4qeT3 o+T2oeH2ouD1nd72
nd72nNz2mtr2lft0k9TyktPxkNHuj9Dwi83riMnph8joiMbnhsXnh8PmhMHi gcDhgMDhfb/dfLzd
f77gdrTUZ6LBZqPCZaLBX6C7Y6C8ZJ+7YZ+5YZ68ZJ+/Y566YJ27YZ26YJ63
YZ64Y566YZ24YJq2
Ypy2YJ63Y564YJ63ZJ64ZJ65XqC6ZqG9aqC9aKK9Y6O9ITNFKkl+IVOKI1OK
I1CJIIcMIUJuKEhv
Jk93KVJ6J1F5IIF4I095I095Jk93I051Ikx0I093KFR8J1Z9KFh/Jld9KFd8 KVh9J1d5JII7Klt8
K1l4J1Nxlk5xKI6HLWSLQXSSRXeNPWuFO2iGOmyHPG+HQQW6NPnONQHeRR3uV
S4CaSoKfUIWkUlem
UYmoSoKgOWh+KUpQITQwHCggHCueICcgKzc1P1dfP2JzME5aJTc4HighFBoU
DBALCAsHCAoGBgcE
CA0JEBcOExkSDBMJICgtKkqHikiJIUF6ICc7MjxLMVJ5IUmkKUFyJzlwLDcw
LzYxLDUuLTUwLjUy
LTQuKTMrKTApKi8oJjEzlxwHjdwQFdvWW93WXD6UnF3VXN2SHN8R4u2XqK/
XqG3Ln+XL4K3UJnO
YJ/DOn+rM3CTQI9mSWJoRmBmRWJnR2JmR2FoSF5mQmVyOXuwK3WuLX22Jm6k
I16HLmiVN3eoN32t
MHqpMnmoMXWIMnanMnanMHSkLnKiLXKgLW+hKW2eJ2qfJWOYHI2RKXaxKHq1
J3+zJXiwKnSoJ2yZ
QoKnZqbJaajMVpCuGSoulCkeHycglisgKzpCIUJ4lJtmJzluLDMsLzYwLjcw LDYxLzk0Lzk3MDo4
NT48Mz46NT09MUp8KUaBKTM3MTgzMTs6ND48ND48N0JAOUNDOUJEO0RGPUZJ
P0dMOKhMOUhJPETN
PUpSQk1TPk5VPkpVQExZP0pXPUIXOUtXO01ZPEtbPEXZO0tXPEtbOkpXOkpX
PEIXPEpXPU1ZPEXZ
OkxYOUpUP0IUPEhWPKlWQE1WPktUPkpVPktUPkxUPklROkhMOKILOUhJOKZJ

PUZJOURFNkNEOUND
OEJCOUNDOENAOURBOKVCOEI/Mzw6MDg4MTs5Mjk2MDcyLzcyMDcyMDUvLjUt
LDMtKzIsJy8oJzAn
lysJJSsJliggHiQbKC8rMkhulDImJjM7LVCEK1OXJj9ZJzQpJzMrLDgvKjYt JzlqJzAnJC4iKjQs
Lzs1KzCwly4mFRsULTkwMEVMLkNKIzhAR3N4tu/3tOr4rub3peT2ouP2oeL1
oN/2nt71nN32m9z1
mdn1ldbzk9TykdLwj9DwjM7sicrqi8rpi8foh8bohMTmg8HjhMHggL/gf77d fL7cfb7fdLXVaaHC
ZqPCY6K/YqK8Y6C8Y6G7YqC6X567Yp+9ZZ66ZJ67W5y5WZy2X524XZ24Xpy3
XZu2XZy1X522Y523
YJ65YJ64Yp+5YKC6ZKG9ZaC8ZaO9ZaO9IzVHK06FH1KJIVGHI1CLIIKGKJ9I
I0xrJVB2J1F5KFB6
JVJ9I056JU96J053IktxIUtzJE92KVZ8J1V8KId8JVZ7JII9KIh7LVh+KId8 Kft7KIt6I1JxHE5z
KF+JMWSOSNaTRHKNPWmFOWeBO2mDPW2HO3CMQ3OORHiUSnyYS4KcSoShUoan
UomnU4moSoOgNmd7
KEdNITItHskgHSQcICggLTk2QVpjQGN0MUxYJTY2HSggFBoTDBALBwsGBwgG
BwoFCgoIERUNEhgR
DhMJiikyLE+NHkeGI0eJGTFWLjpDNIJ7JUuLJEBsKzlvJzMrMDcxLzYuLjUw
LDMwKTlrLDMsKzlr
KTApKjM2IztrGjZtPVx1VXaFVXuESm90U3B2S3J/R4y1XaXAWaC6K36xLYO2
UZrOXp/CNH2uNXGW
RGJsRWFoR2FkRGBnRmBmS2JmT2lwSmt8On6uKnauJ3y0I2+hI1yHLWeUL3Gj
L3eoLnipLneoMHKk
L3KmLHKjLXGiLXGhLnaiMXOhLnOfJWqeIF+YHI2RJnmuKn21KX62JXivJ3en
I2mZRoGnZqbGZKbk
W5S4Gy02HycgHycgISogLDpEJUJ8JT1sJzMvLjUtMTgyLjcwLzgxMDkyMjo1
NDs4Njs6NUA+NkJC
Mki7JUUV/KjU7LjkyMTs3Mzw6NkA9OENAOEJCokVGOENFOERHPUpOQEIQPUpo
PktRPEhTPEXtN01W
PUtYQUxaPkpYOkxZN0pbPUpfP0teOkpaO0tYO01aOkxZOkxYPE5WOk5aOkxe
OkpcN0pZOEtYPktZ
PUtYPEXZPEXYPktUQE1WP0tWPUptQEtrPUpQPEpSPUpSPkdOPkZLPUZIOEZF
O0ZIOURFO0dHOERE
NUE/NkJAOENAND49NT48MD08Mjw7ND03LjcwLTkwLTyVkJEsLDMtKjEsJy8o
JjAkJC4iJCoilykh
ISYfJy8pL0ZqIdPoJzQ8LICCK1WaKEBhJzYqJTIqKTUsJzMrly8nJjAkJi4j KTMrLTkzKjYtJS0m
ExkSLDgsMEdLLkNKJDICP2ltufD4t+r4sOf3qOX3o+T2o+P1n+H2nt71n932 ndz1m9v2mdn1INXz
ktPxkNHxkM/ui83ricvpicjnisbnhsXnhcHhgcDffMHef77ffb/dfMDdc7XW Z6HDZ6LBYqK8YaG7
YKC6YaC4Y6C6YJ65Yp67ZZ+8YJ63X5y6YZZ6Y5y4Xp22X522X563XZ20Xp22
YJ64Y525YZ66ZZ65
Zp+6aKK9ZqC7aKK9aqC8ljRJJ0+DIIGKI1CJIU6JH1GJHzxiJEIsJ092KVJ5 JFB4IIF8Ik96Ik91
Ik1zJExzJ09vKVJ3KVv4JIV6JVZ7JVh6JII9Jlh9KFd8KFd8LFh7LVh6J1N1 IIBzKI2EMmKMqXST
QXOIOMEAO2iBOmmCN2uEPG2FQXGMQ3WQRHuVSiGaS4OgTYakToilUYqoSYSh
NWZ7JkVKIDAsHSYf
HiYcISkhLjs4QVtjQmFzL0tUJDQ0HCYgFBsUDBIMCAsHBwoGBwsGCQ4IDxQN
ExoREBULiozKk2N
IkeGJEWDIEN8Jz1gMU95JUmlJUBrJjIsLTUwLTQxLTUwLDQvLTQuLTQsLDMt
KjEsJy8oKTI0ITtp
GzhvTWaAV3mAVXZ7UXN4VHJ6TXSCQoyyYafCWaG5LnyyLXy1UZzPW57BNn+w

M2+UP2RtRGBoS2Bn
R19nRWJnSGVqTWlyRm99OYCxJXWxJXuzI2yfl1qFKmmSLXOkNHmqK3upMn2q
MHemLXWmLXOkL3Oj
LHChM3OkMHqIM3enKmucl2KXIGCVKnyxKn+2K4CzJnmwKnesI2aZSYCnaKbH
ZqnMWZS3Fyo1ICYf
HiYflikgLTpIJUV+ITxuJjEvLTyVLTcyMTg1Mjg1Mzk2NDs2Mjw4Mj44N0E+
NEBAMUp9JUeAKjU8
Lzk0Mjo1Lzs3Nke/N0FBNEBAN0RFOkVHO0ZIPkIRP0hQPUxRP0xUP0pVPkxZ
OUtYP0tdOEtYOk5d
Pk5gPU1fRVJiQU5jPU9hP09hQVFjPIFjP1FjPIBhRFNjRFBjQFJkPFJkQFJm
QFNIQldoQVZnRFZo
SFhqQIRmQVRmQIRmQVNIRFZnRVdoQ1ZlQ1ZlQVFhQIFhQ1BgQVFePU9XQ1FZ
QExXPEpOPEhLO0pM
OkZJPEhINURGMjw7NDo3LzYxLTcuLDUuLDMtLjMsLDEqKC8mKTAlly0hlSog
likglCceJy4IM0Zn
IzlrIzA7MFGFL1adKURfKjYvKTcwKjYtJzlpJjlqJy8oJSsjKTEoKzcxKjYy li8nFBoTKjYsMUZN
LkBKkDpFO2VpvPD5vOv4tOr2sOf3quX2pub0oOP2ouP2nt71nN31mtv0l9fz ldbzk9TykdLwkNDs
js3si83rh8rohsfnh8Xmh8PjhMHgg8Dff8HehMDffb/debjaZ6K/Y6O9ZaO9 ZaC8XZ65YaG7YqC6
XZ25X566YJ64X563Xpu5WZu1XJ22Xp22XZ63Yp23Y523X563Xp64YJ64ZJ65
ZZ+6ZKG5aaS8aaO/
ZqO9aaK9ljVHJk6EI1CLJIKKIk+IHU6EGjdbJktuJE11J1B3JFF3I1F6IU11 JVB3JE92I0xzJk1x
KIB3KIV7IIN4J1Z7K1d6KIZ5JFd3JIZ4K1Z2J1h3K1V3JlByJVF0JVuALF+F
P3OPQXCHOGV8OmaB
O2eCN2mDP22JQHKOQXWPRnuXTToCcUYSjToelUlimVlysSoanNmd8JERJHy8r
HSUfHCblbiggLjo2
Q11mQmF0MEtUizQyHCYfFBsUDRILCAoGBggGCAsGCw4JDxMMExoRDhULIy82
KUyMI0SEJD9/HDx6
JD1nLU98lkqLIT5kKjlrLTQsLDMuKzMuLTUwLTQuKzlrKjEsKjEsJzAnJzIx JT1qHDluTGuEWnqB
WnF6W3R7XHV4UXeFRY+1XqrEV6C6LX6yKn+3UpzOXp2/NnywNm6SQmRsRmNq
RV9IRWFpRmJpSWVu
T2x0RnB/N4CwJHOuKnq1KGuhJViFKmeUM3WmLXiqMnqqNHurNXqmMXahMHem
KXWfL3ChMXinLnek
M3elKmyelmSZI2SVK36xLIC5KX61JHevK3asl2aZRoOnZqbHZ6flV5WzGC0z
HiUcHiUcCceKDpH
JUeAITxuJjEvLjUtLDYxLzk1Mjg1Mzo4Mjs5MT04Mz07Nke8N0FBMkyCJkiB
LDc9Mjo1MD02MTs5
ND49NUFBOENEN0RFO0ZIOkdLPuHOPEIRPkxUQUpxPExdQ1VpSFlySFx3RI12
RV54SF14SGF6SGN7
RV95R2J6S2V6RWN4SGB3S2J7SGF6SGF6TWN+TWZ/S2V6T2R6SWF4RVx0RFlx
Q1RsP09IPE5iOEpc
OEdXNEVNMUFIMD1CLjo+KjY5JzI0JjAyliotlCgqHygjGClfHyYhGyMcGB4X
GRsXExgUHCEePEhG
NEA+Lzk3LTQxLzYUuLTQuLjUvKzltKzlrKTEoJi8mJy0mJy0mlykhlikeJS0m L0ZIJDxslS84MVWB
K1acKUVnLDg0LD82JzctKjQsKjQsJzAnlyogJS4IKzgyJzYuJDAqFBoWJjMp
NEIMLUJKJjtFOMNm
te/3wu75vOv4tOr4quf2qOf1puX3p+T3ot/2n932m9z1I9n0mNj0INPxnNHu j9DtjtDui8zsjMrr
jcnqisbhn8Pjg8HhgcHif7/ggb7dfb/derjZZKDBYqG9ZKG9ZKG7ZZ67Yp+5 YZ64YZu3Yp65Xp64
XZ63XZq4XJy3XJy3Wp62X522Ypy2X524Xp65YJ65YJ63Yp+5ZqC7ZaK8ZqO9

Y6O9Z6XAa6XBJzVM
J02HI02KJVCHJVCKIU2EGDNZKE51IUp1JU13JE92JVB3Jk54JU93JVB3Jk93
J0x1KFF4KVd+J1Z9
KVd+KVZ7KfV6Jld2J1V4LFZ2IIZ2Klh3JIFvJFBzJFd+LWCCQHKNP2yDOGR9
N2Z/OGd+OGiCPWyF
PHCJP3aQRnuVTICZU4WgUoikToilU46rS4enNGZ8JUVIHy8rHSYfHSIblScg
LTk4Q1xnQGN0MEtV
IzQ0HCYgFBsUDRELBwsGBgcECAsFDQ4JExUOFhwTEBgMJTE7KUqJI0SEIj58
Hjl1KD1nL054JEiK
HzpgKjEsMDUvLjUvKjMsKzQtLDMtLDMsLDMtKjEsJS4IjzAzIz1uIDlrT2qC
VnyAWHN7W3Z+XHZ3
V3uLSZC5YqzGV6K7Kn+yLYK6WaDRW5m5NX6uNm+QRGRuRmJpRmJkSmRqTGRs
SmRwTm10Rm1/PH+w
J3KuKXq2JmyiJVqGLWmWOHyqNH6uN3+tO3+vN3upNHuoLninMnmoLnWkL3aj
LHWiMXakKGydl2SZ
ImWYlX6zK4C3Jn2zJnavK3asl2eXSYSmZqbHZ6fKVpSyFi0zHSYcHiUclSgf JjIHikZ9JUBuKTIw
LDUuLzcyMjk2MD02MD04Mjs5MTs6Nj4+ND45NkBAM0yFKUmDKDc6MD01Mjs5
NT48Mz07N0JDOENF
O0ZHOERHPedNPUhOPUpTPk1SOkpXOEhdLThELjo9Ljc6LDc+KzU5Ji8yly0v lisqlisulisulyoq
liklHykmHSQiHiYjHCYjGyMgFx8cFx0XFRgTERUREBcRDRIMDhELDA0IDA4H
DhAJCgoDDAgFCACe
BgUCCAUCcGyDBwQBawEAAwUBCAUCBgUCBQMBAQIAAgAABQUAAAIBBwIBEREL
N0I8MT07MDk3MTg1
NDkzLjcwKjMsLTQuLDMtKjEqKTApKTAJi0klyghlSceJy8oMEZnITpsly85
NFaBKVacKEVoMD83
LD02KzgyJzMrKzUsKjcsly0hJi8mLDgyJzQwJTAoFwVJTEpNEINLUJKKD9H
OmBktu31xe75vOv4
s+r4ruj3ruf2qOX2ouL0n971nt30n932mtr2ltf0k9TyINPxINPxdDwjcjr jcnqjMjpiMbnhcPj
gsHggL/efb3ef7zdfL3ed7jZaaHDZKG7Y6C/ZJ+9Yp+9YZ+5YZ+5YJ65YJ27 XJy3XJ22W5u2Xpy3
YJy3XJ22Xpy1YJq2X524YJ65YJ65Zp67YqC6YaG7ZqG9aKPCZ6XAaKbBaKbC
JDdOJU+JI02GIk2D
I06HIEqAHjVYLE91I011Jk91J1B2JIF3JU50JE11Ikx0I01wlktvJ1B0K1Z8 JIZ9JVZ9JFJ5KFR8
JIV6KIR8KVR6J1Z7KfV6JE5wJIN4IIB3LV1/QHSOOWqCNWN/NWN9N2R9O2eC
P2uGQHCLQHWRRXqU
TICZUoWhUlelUilIWy6tTlamNGV5JUJFIC8pHSYfHSQcISghLzs4QFhjP2N3
L05bJDY3HicgFRsU
DBELBwoGBwoFCAoGDRALExUOFxoSEhQLJTE+KEuJJUiGIT99HzlI1K0BmM1B3
KEuJITtgLDErLDMs
KzlrKzlrLTQuKzlsKzlrKjEsJi4nJi4jJjE1ljxyHjlrR2N2WHR8WHN7Wnh/ X3h7Vn6NSJK4aa7J
WKG+K36xMYS6XqbXV5m4Nn+vNG2PRWVvR2RrR2VoR2VqR2NqSGRuVG96SG+C
QIO1MX+4NofBKncI
JFqELGuWN36qOIGxNn+wNoCuNn6qNH6rNYGuNoCwNHurNHimLXahMHWjKm6f
ImSXImSZLn+2KYG1
Jn6yJHeuKHWplGWVTYWnaKfKZ6jNWZW1FCozHiYfICceISgfKD1KIkZ9Jj5t
JzIxMDcyMTg1MD02
MD02MD04Mz07NUA9N0A/NUE8NT1ANE6EK0eGJjU4Mjs0Mzs7Nj09ND49OUJE
OUJFPEVHOKVHPUhO
P0pSPEISPkpXOk1cMT1EBAUDBQUACAgCCAgCCwoFCQwHCQwHCw0GERAHDxAH

DhMJCREHCAFCgwG
Cw0GBwoEBwoECw0GCw0GCgsGBwgFBggFBgoEBwsFBwgFCAoGBQcFBAgGBQcD
BwoEBAYDBAYDBgcE
BwgFBgcEBggFBQcEAWUDBAYDBAYEBAYBAwUBCAcDAAIBDhAKOkM9Mz05Mjo1
MDgzLzYxLjcwLjUv
LjUtLDMtKzIsKjEqJzAnJCshJCshlykgJSsjMUdoJUBzly86M1N7LFedK0ds Mkl8M0M9KzczJjMr
KzcuM0M9ly0nJzAnLjkyJzUvJzIqFhoVlzAmMklNLEJLKD9HOV9htuzyxe/5 vuv3tur4ser4q+n2
p+f3peT2pOL2oN/2nd72mdv1mdn1ltbyltTyldPxj9Dwjc/tjMvqicjnhjsjm hMbjgcPigMLhfb/d
fbzdfbzdebbbaZKPBY6O9ZKG9ZJ+9Y5+8YJ65YJ64Y525YZZ26Xpu5Xpy3X522
Xpy3YJu1Ypy2X563
X522ZJ64ZJ+7YZ66ZZ+6YaC8YaC8ZaO9ZKPAZKPBZqXCZqbBJDhSjk+HJ0+F
lkyClk2IGEV5HzpZ
Kk9zJE1yJU10J1B2JlJ1JE11JU52JlBzlkxuI01sKIN4LFV7J1V8JVN6JlJ1 J1N2J1N2KVV4JlFz
KVNzKVR0JEIsKIR3IVJzLI57QnGFO2h/NWN4NWF4NmJ5Omd+OmiCOWuFPHKJ
RHaRRnyYSYOgUoak
U4ejVo6tTlahM2FzJUFDIC8oHiYfHiUclikiLzs1RFpkP2N3MU5bJDY2HSYg
FBsSDBEKBwsFCAoG
CgsGDhELERUOFx0TExUMJjJAJkmHlkeDlj56IDt3JkNmLE52ikiCITtdLTlr KjQsKjEqKjEqLDMt
KjEsKzlrKjEqJi4nJi4jKTI5IDpxHzprTGV2X3h7W3d7XXmBYnqBWICPR5S6 aq/KWJ67Ln+zL4S6
YKnZVZa4OH2vNGyQRmVzSGRuSGRrRmNqSmRsUGdzVnB8S3SGPoe4L4K6Noi+
MHOnKVuFLm2YNnur
N4CwNICwNX6uNoCuPYSzKm+aHk1mMmmQN4CwNHuoL3enKG2aJmmaJGeYLYC1
KoK2KX61JXivKXSo
H2SUTYWnaKbJZKfOVpKxGCKxHyQdHCMalSogKz1PIUZ+JEBvKjM1MDcyLTcz
LTc1MDo2Mz07ND48
Mjw7Mz08NUA9N0BDMU2DKUeFJzQ4Mzo0MT04Nj07NT5AN0BCOKNFPEVIO0hM
PEIPQE1WO0tbOkpa
PU9gMDxDCwoGBwgFAwgECAcDBgoEAAIAAQIBAAIBAAAAAaGAAAwIBAAAAAIB
AAAAAaGAAABAIB
DQwHDQ4JCQwHCQwHCgsGCgsGCAoGBwCFCAoGCAoGDQwGBwoGCQwICQwHDhMM
ERcQERcQDhMMDREK
BQYDCAUCCAcDBwCFBgcECAgGBwCFawMBCw0JQEetEMjw6Lzk0LjgzLjYxMTgy
MjYwLDMtKzlrLDMs
JzAnJi8mJC0kikglysgKC8kMkhilkJ0Hyw7NFZ3LVeaLUI1MEA/MD88Kzgy KjYtLjgvKzkyJS0n
JCslLDgxKjYvJjlrFhoWli0kMUhJK0RKK0BINlxgtevxx/H6we35u+r5sur4 ruj2qOf1qOX3o+H1
oOD1nd72m9z1l9n0ltbyldTyINPxpj9Dwjs3sjczri8rphsjmhMbjhcPjgsHg fr7ff7zdfLzZeLfZ
ZaPDY6LAX6C7Y566Yp67X524X563YZ24Xpu5W5u3W5u2Xp22X5u2X5m1YZy2
X522X522Y564YqC6
YZ+5Zp+6ZqG9ZaO/aaXAaKbBaQXEBKXDaqjDJzxaJVCHJE6EIUyDI0yJHUR5
Iz5dJE1xl0xxJE1x
J1B2JlB4JU51Jk92Jk91I0tsI0xwKFJ6JIN5JVN6KFN6KFN1J1J0KFN1J1J4 KE9zKFNxKlhxI0lp
KFF5IVd8MmB/Qm6FO2R+NGF3NI52NI95N2N8OmiCPW2HP3KIQ3eQRn2XTYOg
UYekUYekVY2sSYKf
NF5tJD8+Hi4mHiYeHiUdlSkhMT04RI1nQmR3Mk1YJTU2HicgExoTCxEKCAsg
CAoGCgsIDhILERcP
FBkSERUNJzRDKEmHI0eDjkr9Iz56KERmLU56lkmGljlcLDEqLDMsKzlrKjEq
KTMrKjEqKTApy8o
Ji4nJS0iKjM6ITxuljqTWZ3Wnl5Wnp9ZX2EZHX/XoaUSpa9bLDMVp+8L4O3

L4a+Zq3dU5S2MICt
NnGSR2h2SmZuTGRsSmdsSWZtT2t0V3J9T3iKPoe4LoO4LoW7J22iJViGMGyZ
PYKvPYGxN4GuNoOw
MnqqKmWPFJFZzLlInHURVOnyiMn+rNHuoL3OhKWudJmmaMYG7LX+6K324J3ew
K3SpHmGSSIWmZqXI
ZqfMWJGsFScrGx8ZHCMaIcCoikD1PIUeBJUR0KzMzLTcyLDczLjc1Lzk3MTs6
Mjo6Mjs9ND49NUA9
NT5ELUiBJ0aDKTU5MTg1Mjw4ND07NT5ANUBBOENEOKRJO0ZMO0IRPEtVPk5a
P01aQFJjMj5ICAgG
CwsICw0JDhMNERcPDhIPCQ4KBw0HCQ4FEBILERQODxQOERMMDhMMcRAJCw4J
DBAJERMMDRAKCxAL
Bw0HCAsGBwoGCAsGBwoGBQYDBwgFCg0IExUOGyEYHygelysjJCslJC0pKjQw
MT08JTQxGiMfCgwG
CAgCBgMEBwYDAQMCCAcECAsGPUIDNkFCLzk3MDo1MDcyMTgwLjUvLTQuKzIs
KzIsKTApJy8olysj
JCoIJCoIJy4IMkZfI0R1Hy8+N1V5LledLUh2Kzo1LTg0KTUsLTkwKjUuKTYr lysjJisnLTcyLDgy
JTIqFhwWlysjL0ZJLURILUFIMVZbrujtyPL6xOz5vOv4ter4sen3reb1quT3 p+T3pOD2oN30m9z1
mNr1ldf0INXyk9LwINDxj83ui8zsicrqh8joh8XmhsLlhL/gf7zderrberrb eLfZZaPEZJ+7YZ68
XZ25YJy5Yzu3Ypy4YZ24XZq4X5m2Xpi0Xpy1XJm3YJq2YJy3X522X522YJ64
YqC6YZ+5Zp67ZaK6
ZKO7Z6XBbKXEbabCbabCbKfEJj9fIU+GIU6DHUyCI0yEIUN1KD9fJktvI01v JE1xJU9yJE91JU51
JE5xI05uI01vIk1vKVJ4KFR3I1F4JIF3KE9zKE9zJVF0JVF0KFBwK1d0KFdx
IUhmKVN2JFh8MV6B
Qm6HO2F5MI5yOF92NmF4OGR7Omh9OWqCPW+LRHSPSHqVS4GdT4aIVlenWY6w
SICcMltnIzs7Hywl
HSUcHSQbISkiMT06R2BqQmZ2MU5YJTY0HicgFBoSDBAKCAgFCAgFCAoGDRAK
DxQNExgREhQMjzZH
KEmHJkiCI0OAlj15KkJkMU15JUiHITZWKjEoLjUsLDMsKjEqJzIqKjEqKTEo Jy8oJi4nJCshJzQ3
ITtrHThpP11zT2t0Y3mDZn+CZ35+XYeWSZW8b7PQU569L4S4MYjAa6/gU5S2
Nn+vOm+QSWpySWIs
TmhvT2tzTGtyUW52UXB4SHGGPq8LIO6LoW+Jm6kIVaCLWyYO4KzMoKuOIS0
LXKfI1R5MHOYOISx
OHYqGjRALFFvN4GxNnqoMHSiJm6aJWqXL4G2LIC7LX24JXivK3OoH2KTSseo
aqXJa6rOVotIDU6
Jy8oHSYcICggJztQIUeBJUVyJzMyLjUwLDYyLjg2MT04MDo5MTs5NT09NkE/
NEE+M0BGMUqDKUiF
JzY5LTczMTs3NUA9NT5AN0JDOENEPEdJO0ZMokISokxYOEtaQk9fQVRqM0NP
BQcEDhELHCEaKzcX
LTc2JzIqGiEWJCSiMENBO1ZIOftzNlxzM1FnLEZNJzQyHCIZDxUNDhQOEhcS
ERUOEhQNCgsGCg4H
CA4HCg4HCwwHDRALFwxVHycgGR4XFxoTICYfJTEtITAtHSknGSleGiMZMkND
MEJHEBcTCAcDBQYD
CggFBwsFBggDNkI9PUhKMjw7NDs4NDo3MDkyLTYvLjUtKzIsKC8rKTArkTEo
JCshJSsjlighJCKi
NEVgJkZ4ICw+NIB2MVmjLUI1li0kKjEoKzUsKzYvKjcxKTUuJC0kKTAnLjox LDgyJTlrFhwWISog
NEhJLEFJLD1ILVNVruXqyfP6xO35v+z4uer4ten4ruf2quX3qOT3o+H2n971 nN32mtr2mNj0ltby
INPxj9Dwjc7uisvriMnpiMfphcTmgMDhfr/hfLvaerrberfaeLXZZaPDYZ+5 YJ27YZ26Wpq1W5i2
Wpq2W5u2W5u2XZu2X5u2X5q0WZm0X5m1X5u2W5y1Xpy3YJ65YZ66YJ+7Y6G7

ZKK8ZKS/ZaXAZ6XA
ZqXCZ6bDbKrGJ0FjIkuHI0mDIEyDIUyCGkJzJEBiKEx0I0xyIktvJE1zIk10 IktyIkxvIk5wlkxv
I0puJ09xLVV3KIN3J1FzJU5tJk5uKFJsJFNsJVBuKVJ2KFJ0KEZmKVfzKIZ5
MF56OWqCNWB3M2Bx
NFxzMI14N2J5OWV+PGiDO22IPnOPRXmVS4CcS4WgUilIiWY2sR4GbMFtmiIzo4
HSkjHCUcHCQcISkj
Mj87SGBrRGZ4MExVJjUzHycgFBOTCxAJBwgGBwgFBwoEDRALEXUOFhkSFxcP
KDhKJ0iGJkeCJkZ+
H0B2KUNILUt1JUiGJDhTLDEqKzIwKzlrKjEqJzIqKjEqKjlpKTApKTApJS0i KDM9GzhrJT9wQGJ0
PF9qUG99V3d6Y3+FyIqZRpe/cLbSU569Moe8NozEbLPjU5S1MYKyOnCSTWt2
SWluVWtzVm12UG55
TW95V3qCTXuSOoa7LoS8L4fCHmedIViCL26ZO4OxPYa3LGuWLGONPICrOoGz
MHqplFN1HDQ9ITZG
P3upMHqILHOiKGycI2icLYC4KoC5LX61JXuuLXmsJ2iZVlyucKbLaqnNVpKy HTU9JTErHiYflykh
KTtQlkd/J0VxJTAYLTQxMDc1MDk3MD04Lzs5Mz46Nka9N0JAN0JAND5FLEeA
JEWfJzM5LTcyLjg2
Mz08Nke/OEFDOENFPEdJPUhOO0IWOUxZN0xdP09hRFduNEZTBAsGDQ4JEhQN
ERURExoRICkeMkA/
OlZwPWqOSX2IQXefRHOgPXCbNWaIL1RsLkJOJjEtGB0WExUOFhoRDxMMcGsG
CwwHCAsGBw0HEBQN
HB8XHSQZHCMaLTk4NEZQNEpZOE5dOlJgOlVmNVRqME9llisulSsoOExNEh0a
BQcDBAoFBAUDBgIB
MDgzPEDIM0A9Ljg2MTg4LzcyLjUvKzQtKjMsKzIsJy8oKjEqKC8mJCoilygh JCshMUNcJ0d/Hyw/
N1RzLVqiME1+Jy8oKTMrkZQtJzQqKjkuKzQtJS0mJi8mLDczLDgyJTErGB4X
ISkhNkVHLEFFK0BI
LE9Vq9/jyfP6xO74wuv4uer3ruj2qOf1q+X3ouP2oOD1n932nN32mdn1mdb0
mdTzmNPYldHxkm3s
i8nqicfoicXmiMLlg8Dhfbzee7rbd7fXebbUd7TXZaPDYp65YJy3YJq2Wpu0
XZm0XZm2VZmzU5ex
WpizW5m0VpqyWZqzX5q0X5q0XJ22YJ64Yp65Yp+7Y6C8ZaK8ZqO9ZKS/aKbB
a6XBaafDaKfEbqnG
KUNsI0yEIkiCIeyDIUyFIUVuJ0ZhJEtvl0lwJUUpwJkxzJU51IUpXlUpvJktv JUhsI0lwJVByJIFz
KFJ1JfByKFBwLVBwKVfTKVNsKFFwKIR0K1Z0JkxsJIR3Kld9N2KAQG2DOGZ7
NGJ2NmR4N2Z9O2iB
PWYFOW2JQXePSHQVTX+aUlehTlahUoikWY+rRX+ZLIhklTg3HCkhHCQbHSQb
JC4iNENASmJuQ2Z5
MExVJjYzHyggExsTCw4JBgsGCAoGCAgGDRILDhQMFRoTFhoRKTtOKUeFJEWA
JER+ID9yJ0NgKkl3
KUmGIzhQKjMnKjEsKzlrKjEqKTApJy8oKTApKTApKS4nJSsjJzJAHjxulUBu
V258WHR8dZKWkqWh
X3p+UIOYS5zEcjbVVKC/NivBNZDIbLTjTo+xOIK1PnGTU253T251T21zU291
Vm94VXV9WnqCV4GU
Pou9LYS/N47KJ3KhllDLm2WOIS0L3KeLGOMQoi2PIW1OYSxMHGWHENVHzIB
Hy4wO2eIMnysK3Kh
KnCal2qdLIK1KXyzKXm0J3yvMnerJGeXVIywZKTFa6fIV5CuFSUoGiEYHSMc
liggKj1PH0F7KUNs
KzMzLDYyMDcyMTg1MD05Mjw7NDw8Mjw7NT0/NkE/NT5JKUmDIUGCKTM3Ljg0
MD02MT08NkBAOkJF

PENKO0hQPEhTO0paOk1aPIBhQINrP1pyMERRBwgFDg4LDxMMFhgRli0INkNE
N1RmOV18O2GFOMOI
PGGIN2CFPGSEOGGGMld4M1JpMERQJzQtGyEaExgTEhUPBQcECAsGBwoGEBMN
GSEXHCibiS0INkVG
M0VILZ5AMz89NkJCENFN0ZLOUIQPE9hPI53KT5PFyEaOEdIEhkVBggFBgUC
AAAAKjMsPUpLO0JA
Mzw6MDo2NDoyMTgyLzYwLjUvKTApKTApJi4nKC8mJCoilScglykhMkVXKkv+
HitDNFBsLVmhLUt8
Ki8qKTMqKTMrJzlpLDQrKjQsly4lICoiLjkyKzQtJjEpGR4XHicdMkNFLEFJ LURKK0IOpdreyfT5
wuv4vez5tOr2sOf3qOX2pOL2oOD1nd72ndv2mtr2l9fzktTykdLykM/uj3s isjpisbnhsXng8Hj
gMDhfb3ee7vcebfXdrTUc7LUdbPUYaLAXZu2XZy1WpqxVZiyXJi1VpezVZay XJizXZezXJizVZiy
W5i2X5mzW5uyXZ20XJ20YZ64ZJ66ZJ65aK68ZqO9ZqS/ZqbBa6XBa6nEbKrG
cKvIKkRxlUyCJEyC
lkyCI02GHkNuJkdjKUxxl0lw0lwJE1yIktyl0tyJEpxJUhsJEdpJEhnKVBv JIBwJFByl05wJk9t
JU9pJIBsLVI7Klt8L1h4Mvt5JIJwKI58J15/OGuHRnONPWqBOmp/PW2CPm2E
PW6GPnCLQnSQSHqW
SX+bTISjT4imSoShT4alWY2tRX6ZK1VfHzU2HCghHCQZHSUbJCsmM0NASWdw
Q2Z7MUtTJzYzICkh
ExkRCw4JCAoGBgYDCAgGDBILDhMMExgREhcOLT1SJUKBIkN+JUF/IT10J0Rf
Kkp3JkiClzZNKTA
KzArKTApKTApKTApJy8oJy8oJi4oJy0mJi0kJTVAGjhtJEBvVnB8ZICEZICE
kZ6mxsnOmK20TImo
drzXXKfJN5HEOpLMcLjjTY6wNYOzP3KTUG16UG93Vm93UXB2UXN4WnZ/YH6G
U4GWRJDCK4O/Mozl
K3OkIFR9MHGeNHijK1iDPleyOYe3PYSzPoW2MnOVHENUJkVNH9y8wKEpdNnqo
J2+fl2qdKWufKIG1
JHevKHWwKH2wK3ioI16NT4epXqPDZ6fIVo2sFiUpGylZGyQalioiKTtQID96 JDpmKjEvLjYxLjcw
MDc0Mzo4NDs5NT48Mj49Mj49NkBANj9KKkiBIUGCKTU5LjkyNDs7MD88M0FA
O0RHOkVNOEZTNkZW
PExcOk5dPVVjQ1RsQFp0L0ZWBAoEDhAKExcQICggMz46OEpWMk9mL1BoM01o
LUJXN1RgSG6GLk1j
MEhVNFJoM0tgNEVKLzs6JisnGB8ZEBgOAwgDBwgFERMMFfxkRGiEYJjlrNkM+
LTg0LDYxMDw6Ljs8
NEJBN0hNNEpZNVBjMklZN0IROIVtKz1NFx0XNEA7BgwIAwMBAwMBJCslO0pL
Nj4+Mzw6Mjk2Mzo0
LzgxMTgyLTQuKjEqJy8oKS4nKC8mJSsjlykiISYfL0FOJ0J7HStCNE9nL1uj LUx8li0IJTAnJTAn
KTEoly4lJzIqJC0kJC0kKTQtKjYsJzlpGB0WHCUBM0VFKz9GK0JIJUNKI8/V v/D4ten3sen3ruf2
quP3oeH2n971nN31m9v2mNj0INXzkdLykdDwjsztiMnphsfnhcTmgsLjfr/g f7zdfbrbeLjZebfX
c7LUcrDRb6/Qca/QX6HAWZm1V5izW5eyWpazVpezW5eyXJexWpmyWpixV5ax
VpezVpezXZayXZu0
YZ20YZ20YJ63Xp66X566Y6K6ZKO7Z6XAZqXCbaXDbqjEb6vGbq3FKEd0I0t/
KEuCIkuDik2GHEJq
JkZkJktvJ0lxJ0pwJkxzlkpxl0lwJUpuJUhqI0ZoJEInJk5wJk5wJk5wKE1w Kk9sJ01oI05rLVt5
K1p5J1VzMVp0KFFwKl1/KluBO22IQ3GLOWI+O2I+PmqDPmqFPmyIP2+MQXWO
QXmRSX6aTYOgUYej
S4OhT4amV5CwRnyaK1JeHjQyGScgGilaHCMali0INENASWZwQmV4MEIQIzIt
HCQdEBQNCAoGBwcf
CggFCwwHDRIMERcQFBsSFhoRLDxSJUCAJER9JER+ITxzKURfK0p6JUeDIjRH

KC0IKTAnKjlpKTAp
Jy8oJy8oKTA rJi4oJSskJSsjJTJBHjlrJkBoWHB8aX+GaoWlaYOEg5GZv8LP q7q/T32JTZCzQpvR
OpbOcLrlSo2wOle7O3OITXB3T3B4VG94V3J6WnZ6W3eAYH2IT4SaSZXHL4TB
M4vlJ2yglLZ/L26Z
LF2EOX+tOoe4O4a0O4S0OoO0MXOgJFBeLk1YITtCMlBaPn2nKG+cK2uZKW2d
LoC1JH2xKXyzLH+v
M3qnI1qFVYenYKLBXaPDVYyrFiUpGR4XHSYcJC0kKzxPIT94IzllKJeuLzYw
LjcwMDgzMjk3Mzo4
ND07Mz07ND49NUE/Mz9JKkqEJESBJz1lLjgzMjo6ND49N0BCOkNFOkRJOkZR
O0hYQU9hPU1iN1Jj
QVVuR114N0pbBggFDxIMGB0WJJEoKzk2MkFCNURGNENMLDg8LkNHSXSTYprL
NViAMERTMEFBNUdK
Lj8/LDg2LjMsHSYcFBwRBQsGDA0IFxkQGBsTJy8oLT02KTMxKTApKzlrKzYv
Ljk1NEJBPExTOVFm
NII5NFh0MkphNkZNOlNkGSoulScgGiQdBwgFAwUBICYfNUZFMj88NTw5Mjk2
NDs1LzgxMTgzLTQu
LTQuJy8oKi8oJy4lJi0kJCojSgdLUJLJ0Z+HzBJNE1lL1miLEl/liklly0h JC0kJzAnJzIqKTUS
JS0mJC0kLTyVJzQqKTMrHSMcHcMaM0ZELD1DLENHIT1GiMHJs+34qOX2o+H1
ouD1oN32nN32mtr2
ldbzldP0kdHyjc7uisvrjMjrh8bog8PlgcLjgb7ffLvdebjadrXXdLTVb7HS bq7Pba7Oa6vMaqrK
bqrKZKDAWpe1VpezVZayWpaxVZaxWpazXJWzXJayWZeyVpeyXZezXJi1Wpiz
VZmzWpu0W5uyXZy1
YJ65YaC8ZaK8ZaO9aKbBZqbBbanEbKrFb6vGcavHJkd3lEuCJEmAl0uBIUt/
IENnKUhmK0tyJ0hv
JklvJUUpwJElvJUhuKEhrKEdoJEVmJ0ZpKU1wKE1wJ09xl05wJ05sKk1qKk5t
MFh4LFh1K1d0L1t2
KlJyLFt8KVx+Pm6IQXKFN2d8OWZ/OWeBN2qCPmyGQG6LP3OPQnaSSHyWTYKe
UYWhUYOgU4WIVo6t
QHuwKU5YHzMwGiQfGSiYGyQZli0jNUNBSmVwRGZ3MEdLIC4pGB8YDhILBgoF
CQsIBwoECAsGDxQN
ERUOFBsSExgPLDpQJEB8l0N7JER9IkBzK0RfK0d4JkWCljJDKTAIKTImKTEo
KTApJy8oJy8oJy8p
JCsmJSskJi0kJzZBHDhpKj5sV3J6Z4SFaYSLZ4aJaYWJZJGIYKnPZqGuNWNw
N22UQl/Me8TwSout
O4S+RHWOWHR9VXF5WnJ5WXZ8WXmBXnyEaX2JWIWcRpXHK4fCMYfFJG6ilVmB
JFJ5P3imOoa7NoO2
Poi1OX+zNYKvNnmkQGd1Jj1EMFNiMmeEOHujJ2yXLGmaKGqcL4C0L4K1L4G2
K36wMXinJ2mWUoqt
ZaDEYqLGVlqsGCUoGR8VHikfli0kKz1NIEJ2JTxmJzMvLTQvMTgyMDc0MTg2
MT04Mjw6ND49ND49
NUI/NUJKKUmDI0R/KjM2Ljg0MTs6ND49NkFDN0FGO0ZMO0dSPktZP09gP1Nn
P1RpQldyRV97OE5i
BwoGEhUPGylZICggJS0mKjUuJjlrli8oLTYvLzk1Jzg2ChIYGx4cMT08KTYw Ljg2MDk3KzUsJJEo
ICggFwxVDRALDREKFBkQHCUbLTYvIS4mISsjJS4llyokKTA rLDQvJC4oHyUf
lisuNklaOluCMVBx
MEZYOEZONUpRDhURKC8mCRAJAgMBHSMcNUVENUI/Mz05Mjk2MTgzMTgyLzYx
LjUvLDMtLDMsJSsk
Jy4llykhliggISucLD1KKEd/HzFLMUxgL1qqKEl/ICsmJCshJS4lJi8mJzIq KTQtJTAoJSsjLTQs

JzMsJzErHSMdGyEYNEdFL0FELUJFHziBebO7qOf3nt71m9z1mtr2mNj0k9Ty k9Hyc7ui8vtiMfr
h8bohMTmgMHjf7/hfr3fe7rcd7jZdLTVcrLTb6/Qbq7Pa6vMaavKaqnHaajG ZqjGaKfFYJ+8WZa0
VpezWZa0VZayVJWxU5SwV5OxWpSwU5awVZayXZe0XJi1V5i0Wpe1X5i0W5uy
Wpu0Ypy4ZZ67aZ+8
Z6C9ZaTBaKbBbafDbqrFcKvlcqVJKkp8lUqCI0iAlkmBlkyAHkFhJkdjJkppq JUhqJklrJkpsJEdr
JEdpJkVmJUvKJEZlIElnKE1qKkxrKk1wJktuJUtrJUpoJ0xpKIV3MFX4LVx4 KFlzKVJxLVh4LVt6
QW2GQG+GomZ/N2R7OGh9PGyBQG2EPW2HQW+PRXWSRnyUTIKaU4WgSoGbToSh
Vo6sQHmSKExUIDlv
HScfGyMcHCQbJCsmN0dESWZyRWV1LURHICsnF4WDBALBggGBQcEBwoGCAsG
DRILEBQMFBgREhcO
KThOJEF7I0F6I0J9IEByK0RfLU4J0eAIDBBKC8kJy8oJi8mJy8oJy8oJy8o Jy8oJS0nJSskJCoI
KDVEGTZrJj9qV3N7aYSFb4eLb4qNaYaHY5euTZ7JfcjTpy3OHSSMlt1X46u
R4erOY3FRXuTWnd9
XHV9XXN9XXiAXnyDXn6FZIKJWoaiSZjLJ3ezLX69LHGIHElrKFd8O4e3OYW7
OYa3NYayNn+wPH+x
LGKGGs40IS4kNINgM3ejLHOgJmual2eUJmmZLnuxKn+yMIO7K36xL3eoJmuY
T4msYZ/AXqHDUoer
GSYpHSQZHycglloiJjpKIUR5ljxIKTMvLjUvMTgyLzYzMTg2MTo4Mjw6ND49
Mz89NUE/N0JIK0mC
I0OAJzI2Lzk0Mjo6Mj49NkFCOKNLOkVQOEpuOU1cO1BhPIZpQVtyRlt4TWGB
P1JpCg0IFBkQHcMY
HCibHSUeHiYfFhsUFBsSJC0kERMQCwwHFBsSBAgBExUOljsjHCYeHiUglSgi
lysJHysfHB8YDA0L
ExkRFhkSJTEpISsjGh8YHiUaHiMcliofICkeFBsSCgwGAwIBAAABBAUDKzY4
NIRoNEIZLkE/OkhM
GyQkGyIYDhcPAwMBGyEaOkhHOENAMjw6Mz05LzYxMTgyLzYxLjUvLjUvKzlr
KS4nJSsjlyogIScg
HyQYKjtDJKd9HzJKMUpbLlqeKEt/HykpliofJS4lJS4lJC8nKTQtly4mJCoI LDMSjJEsJC4oGSEa
Gh8YM0RDMkFFLkNGHjhAb6iyn+D2I9n0ltXzkdLwj9DwjM3tisvriMjqhcTo hMHmf7/hfb3feLrc
eLjbeLbXdlPvcbsHsbq/Qa6zNa6vMa6nJZqbGZaXFZ6bEZA TCY6TCZKPBXJ67
VJazVpezXZe0WZWY
VpWyVpWyW5WyWZWwVpWwWpazWZa0W5eyWZa0Xpi1YZi0X5uyXZy1Ypy4ZJ+7
YqK8ZaO9ZqTAZqXC
Z6bDaqnGbKzHb6/KI0h3lUp7l0t/HkqAl0qCHDddKEVIJklrJkhnJkhnJ0pq JUlpI0dmIkdkIEVi
IkdkJUhoJkxnKE1qKU1wJkpqJUloJkhnKU5pL1p4L1p1L1l3LVpzKVNwKFR2
K1V3PWuFPGyGOGRI/
NmR5OGd7PWmAPGuEO26EP3KLQnaSQ3mVTIKaUIWcRH6aSYSiVo6tQXmVKU9X
ljg2ITEqlCwnlCsJ
JTErOUIISGVyRWRYLkRFICskFx0VCxAJCAoGBgcEBwgFCwsIDBEKEBQNExkR
FhkSKzIPJEB5lj95
JUJ8IEFxKkJfLEp6J0eBHi4/KC8mKzApJS0mJi4nKTApJy8oJi4nJCslJSsj ISgfJDRGHDduKUNn
XXV8bYWJa4eLblePcliMZ5myT6LHfsTfU6bMPJfNOYq3Pm2BL1JkO3ShRnKJ
XX2EYXmAYXWBY3yD
Yn2FZICJYoSKW4ynS5nOKXa2OJLRJWmZFTpYM2+ZP4a8NYa3OYq3PIW2Nn6q
LGqPOHGTL1JgKD1B
QWJzP3+pNHimLG2fKGqXJmuYMn2zL4KyL4K0LH6wLHemKWuYT4irY5+/Xp/B
UoerGSYpHCIZICgg
ICggKDtNlKR9IDtjKzltLzYwLjcwLjUyMTg2Mjk3Mzw6NUA+NkBANKJANUJI LEyGJ0eEJzE4Lzk1

Mjw6ND48NUFBOURMOUVSOUTYO01ePIFnQFdsR1t1RI56SmWEOINqCQ4KFhkR
GR8WGR4XGB0WEhUP
DA4KCREHGSEXBQMBCBQsFQFRVFBsdAwUBlikeFhwSGB4UHSkdHyUeICyDHSQZ
DhMNGh8YExQPLTcy
EhoUFhgRExkRFxoSGBsTHCIZGR4XEhgQDhAJBwYDAAAACwkDNUZDOUhKKzo7
MEJCKjQ4DxMQFhwW
AQMCGBWXPkIKOEFBM0A9Mz07Mzk2MTgyMTgyMDcxLTQuKzIsKTApJy4Ilikg
liggHiUcKzIDJ0h+
HzNOLkdYLFmZKE1/ICkplikgJC0klysjJC8nJzMrly4lHiYfJzIqJjlrJTAn GiEYGH8YM0NCMD5D
MENGHjhBY5ymmdv1kdLyj8/wi8zsisvrh8jqhcbpgcHjf7/ifrvfeLndebja dbXWdLPVcLHRcK7P
ca3ObarNaanJa6fHZaXFYqTDZKTEYaPCYqDAX5+/X5+/W526VpezVZayU5Sw
U5SuU5SuV5OxV5Ox
WpSxWpOuW5SwW5SwXJazW5eyVJazVZiyXJqzXJu0YZ24YZ+5ZKG5Zak8Y6O9
aqbBbafDb6nFcKzH
dK7KJkV9IUI/Ikp+IEh8IkI8GDdWJERil0VkJEInIkZlJUznJEdnIkZlJEdi IkVgIENgKkRoJUzn
I0hmJklpI0dnJkZkJKvjJUloK1Z2KIlzM1I4LFZzJ09rKIRxKlZzP2uGPW2C NWR7NWR9N2Z/N2h/
N2qAOWyCPnGJQXWPRHuRSOKYUlehUlehVI2rXJe0RICZLVhjKUZJKj0+Jjc0
JDErKzcyO01PSWRv
RGJtLkNDICokFBsSCg0IBAYDBgcEBwgFCQwIDxQNEBMNExkRERcQLj1WIT94
ID53JEN7JENZLUVh
K0I6I0OAIDA+KS4mJy4lJy8oJS0mJCslJS0mJS0mJCslJSslJCgdJjVGGjZn JkNkXHd/blWJa4aL
bYmRbliMbpq3VqLKgcfiUZ7FM5DLPpbWgMPqQHUPK1RoKkNPSmRwY4GIZX6F
YX2DYYKLY4SMYoaO
YZOuSjZQLiIOPTRHVeAlkxuNXOgQlq7PYu7PYu5P4i3LnKZL2WKOYCrIUIV
KTUvNk5WQoCsOH2p
K22aJGSSJWWTK3mvNoCxN4S3MHmuKXGiKWaUUYitX5u+WJ3CUIsnGCQpGR4X
HygelioiKT1SIEF7
IDpiKzIsLjUtLTyVlZyZMjk3Mzo4ND07NkE/OEFBNEE+NUNLKUmHJ0iDKZi5
Ljc1Lzs5NUA9NEFC
OEdMOUdUO0tcP09kQFVqQFtuSF55R2N9T2uIQ1tyDxEPFhoVFRsUEhkRERcL
DRALBgwGAwUDDAwJ
AgMBAwABBwcGBQQDCg0IGiEYDRIMExoRGSiYFh0ZISYfHyYdDBILFxmVFBgR
Ljg2CA0JDA0ICQ4K
DA0IDhQqIykiJy4lICYfFRoTDQ4JBAQCAAAAJSojMz89JzYuLDgvLTW9DxUN
Fh0UBAYDEhUPP0pL
OkRENkE/Mzs7NTs4MTgyMDcxLjUvLTQuKTArkJEqlysjISgfHyYdHyUcLDg/
Kkh8IzNUL0VXLFqY
JU2DHiYqISgflloiHiYflysjJzIqJi8mHygeJzIqJlIqly4IGyEYGH8YNEI/ MUBCL0JFHjdDWYyZ
INb0i8zuhsnshcjrhcogsPmfsHjfb3ffLveerncdrbZdbXXc7LUcbHSba7P a6vMbKrKZ6niZKbF
Z6PDZqLCYaHBYKDAXp6+YJ6+XZ68XJ68WZu5VZOxVJOWUZOWVJOWVpKwWZOW
VJOtVJOtVJOtUJKv
VJKwV5azWpSwV5axVJexW5myWpizX5u2Y562ZKG7ZaK8ZaS8a6a/a6jBbKvD
bqzHdq3KJEl6lkh9
Ikd/IEmBIkh9GTdWKEZiJkZki0RIKEdoKEVmjURII0VkieVilEVgIEVilkNf IUNiIEJhI0JjJUFj
JUBfIT1aJkNjKk9tKU5sLFBzJkppKkdnJktpJE5oOmV8N2Z6NI5zN111NV54
OGB3O2Z9OWeBPWuF
QnCLR3iRSH6WTIScUlemW4+wYZi3RISgMF5rLk1VLkZKKDw+JjQxLTg2O09R
R2NtQV5pLkJCHykh

FhwTCw4JAwgECwwHCAsFDRAKERcPEhUPFBsRFhwTLz5XIkB5I0N4JUV9I0Jy
L0ZeK0I5I0N8IS84
KC0IJTElJy8oJS0mJS0mJi8mJS4IJC0kJS0ilysgJThGGzZrL0NoXnl9a4aL bYmNb4yQb4uUZp69
V6TLg8niSzzCNlzMq5bVhcjvSYqvQY7AOGt8K01dPlloY3yFaYWMY4SNalaS
bYqUZJWxTZ7VMJDP
MoTEHEpvlWCNXOfQIm8PlzAQ4zBN3umHUbpLFt3O4KuI0tdLDMtL0ZKOH2j
NXukLG2ZHmGNJWGV
J3mrL32wNX6zK3WpKG+eK2iVVYquXJ27VZq/UYSmGScrGiIYHCUBJS0mLEFS
H0F5JjtlKtIrKtIr
LjUvMDc0Lzk3MDo4Mzw6ND0/NkE/Mjw+NUJLLUuKKEqEKTI5MDo2Mjw7Mz1A
NkRIOEdJPE1SOK1a
PVFIQVdrRV1zSWJ7SmaAUm6LQI93DBANGxoUGh8YEh0VDhQQCxEBwoEAWIB
AQIBBAIBAWIBAAIA
AAIBCwoGCAwGCw0JEBQNFhwTGB8Wly0hIScgDRILGyIYDxUOLzk4BQQDAwUD
BQcEAWeACQwHMz43
Lz06LDg0JC4oEhgRCAsGAwMBHSEYKtIrJzAnJTAoMjs5DhELFBsSCAsFCwwH
PEhIOUVFOUA/Nj09
Mzo4MTgyLjQsKzlrLTQuLTQuJy8oJi8mlikgHyYdHiUcKzk8Kkh8JTVWLkRT LFeWJkyBICgsISgf
ISkhlykhJCoiKTEolisgISgfJzIqJzIqJC8mHiMcFwVM0A9MUJBMUJEHDVB TX+Nj9LzhMfqgMTn
gcLngcHjf7/iervfebrbd7fadLPZdLHUcbLTbq/QbK3ObKnMZ6fIZaXGZaXG YqLCYaHBYKDAXZ++
Wp67Wp67YJ27X5q5XZu5Vpi2VpKwVJOWUJKvVJCTVpCtWJCuWpGuVZGuUpCt
V5GuWZKwWpSxWZOu
WpaxVZiyV5izVZe0XJq1XZ61YaC4ZKG5ZaO9aKS/ajjDbanEaqzGbq7JIEI3 Ikh9IEh8I0x/H0h5
GzVSJ0dlIEVjJ0ZkJURIJ0RnJERjI0NhiUNIh0NiJENhJURgIkJhHkFhJUNj Iz9cJT1elzpYI0Nh
KEXrJU5nKE1qI0tmJElNJUpuKIFwNWN4N2J4L1xyMfTxM1x2MI14NmJ5MmN6
OWeBO2yEP3ONRniT
TYCZTYekVY2qYJe5QoOgLItpLk5XLuhMKj9BJzU0Ljs5PE9TRWFrP1tmLD9A
HScgFBsSCw4HBwgF
CAgGCQKIDA0IEhkQExsREhgQFBsRK0JaJEKAJUN3J0R6IkNzMURgK0Z5JER9
IS45JS8jJy8ply4m
Ji4oJS0nlysjJy4llykilykhISkeJTdJGDVoLEZoYHh/a4WHblePbomPbouP a6HBWKnPhcvjRpzE
N5POR57chsnrQoSpRjXPTn+YYH6GPFxmJ0NMTmh0boWTboyYb46YZJu3TJ3Y
OYzPLFuPJIR3GkRn
M2aTPIW1Poq8QI/AKWGGI0tcJ1d0N3qjIJJYJiooN0ZHTIOaMHqILm+blmeS
JmeTKXisMn2wNoCz
KnesLXajLm6XUoutXZi7Wpi7TIKghCUoGCEXHCYeJC0kLDtMIkR4Ij1Ijy8s
LDYsLzYxLzY0LTc1
Mjs5Mzs7MT8/Mz0/N0JANEFKKEeJKUiMLTY9MT03ND0/Nj9CN0FGOUZOOKIZ
OE5iNIFkQVptSF55
RmN7TWWBWHKSQ197CxIPGR0TGilbHiUcFwVEREKDAsGBAIBAAAAAIBAAAA
AAIAAAAAAAACAYB
Dg0HERgPHB8YISsjKTMrISgfDhELHSIcEhUPMkNAAwgFAQABBwQBAAABBQMC
NEA6OVJiNkIMMDc0
GSccehUPCQwHHSMclykhlikely8pKjYwCxEKERcQBwgFCAgGOEQ8OERENT48
Mjw4NDs1LDYxLjcw
KjMsKzQtLDMtJy8pJSskJCoilSgfHiYaKjg7KUd4ITZUKz9LLVaVikuDGykt HychJSsjIScglysj
KTAply0hHCUaKTApJjEoJS4IGilbFRwTL0A9MD9ALEJAJDpER3WBhczvgMHm
fb/le7zhfb7hernc

eLfddrXXc7PVcbLTcK/TaKzPa6rOaanKZqbHY6bIY6PEYqLDX5+/XJ68W527
XJ27W5y7XJy4WZq4
Vpi2VJi3WZe1UpOvS5KtU4+sVJCTUpCtVZCrU4+sUZCqT4+rTpGqU5KsU5Gu
VZSxV5OxVJazVpey
XZiyW5uyXZ20Y564ZqC7ZqO9Z6XAbKbCbqjEbKrFa6zIJEI6JEI7JEp6JUqB IEV2HzZSJehiJERj
IkJhJENhiURhIkFiJkNjiORgHUJdIEBfJkFdI0FfIUFGlkJgIEFZIT1ZlJtV J0NgKk9tJlBpKU5p
KUtjJEdkJO9vLFV0OWR6NGF3LltxLltxMV10NF92PmJ6OWV8NWh+Om2FQnKN
SHiTS3+YToajVY2q
XJe4RYGfL1IkLU9VLkIOKj9AJzYzLjw5PE9TRGBpPVhhKz09HSYfFB0SCQwH
BgECgwGBQYDBw0H
FBgREBUOERUOFxcPLz5XJEB8IkV6JUeAJkV2LkVdKEd1J0R6Iy44KC4jKTAn
JS8jJC4iJC0klysj
Jy4IJSsklighliggJzIMGjVIL0VnX3h8aYSIbliMcYuRbYqNb6XFVajOg8vj SZ3GO5XTSZ/dh87r
PoOnR5XQU4GbZoeQZYiPR2JmJkBlOFJewHiHalqWXo2oQZDCL26gM2iWH2CO
HUhpLGiSO4CtL3Ke
N3imHlBrM2uMK2OMMV9+Jk1XKENASWZrSoKgNHieMHOaK2qWKmyZMHYvM3+y
NoCxLHiqMXWjMm+X
UYmpXpe5Vpa5Rn6bGCQjFx0UIScgJC8mKTtNikB5JEFkKjEuKjQrLTYvLzg2
MT04MDk3Mjw6Mz0/
Nj1AN0JANUJLKKqLJUeJJzQ8Lzs1Mzw+NT1AOkFKOURPOEhUPU1dQ1NpRVlZ
SF94S2R+Tm2IT3KS
QI9+DhESGx8VHClbHyYdGyYcGR4XFxwVFR4VFBkSGh8aFSEeFSMfGSUkGyon
IDArly8ulzApJzEr
KjYtKjQvlygkDhQNGCEXDRIIOUtLDRMVAgABBAICAwMBAAAAFhsUPVhpN1Vw
NEJKJzMtGClaFx0U
GiMZGylZGylZJTERJC8nCg0IDxMMBQcDBgcENT43NkJCMjs5NDs4Mzo0KzYv
LjUvLzYuKzlrJS0m
JCojJCojlykhHyYdHCQZLDU4LEh5JDhYLkBML1aUKUuEHCKwHyccllykiHiYf ISkhJy8oISkhGiMZ
Jy8oJzlqJi4nGilbFhwSMT89MD9BMEREJTxEPGp2fsbofL7gd7vddrrcd7fa c7XXcrLZbrHUbq/Q
bK3Oa6vMZqjJZ6flZqbJYATGXaLCXp6/X568XJ27W527Wpy6WZq4V5e1VJa0
VJa1XJW0V5S0U5W0
VpKxUpGuUZCqVo+tVY6sU5CqUY+sT5CqU4+sVY+qVZKsVY+sTpCsU5GuV5Ox
WpOuXJawW5qzXZu0
Ypy2YJ64YaG7ZqS/aKbCa6nEbqrFcazJIUd3IkI6HUh8Ikp+HEFzHDhQIUZj IkNkJURiJERiH0Ri
IEFiJUJiJURiJUNhI0FhID5ilj5glz9glj5flkFbIT1ZHztVJUNjKU5sJlBq KE1oKEpilkhjI1Fv
KIVyOmJ6OGF2L1pwL1tyMV10M192OWF5OGV8OGh9PGuEQ3CJRXXWQSn6XTToSh
WlyqWZW4PH6YMFhl
L05WL0IOKj9AKTY0Ljs5PVBTRF5mPFZdKTo5HSUfFB0SCQwHBQYDBggDBQcD
DQ4JEXQPEhkQEBkR
ERQOLzY7LDpWKT1xIUB5JD9yLkRhJ0h5JkV3liszJSojJS0mJi4nJSsjJi0k JCSllyokJCoilCce
ISceKTtQHjZmM0ZnXnZ9Z4CHaoaKco2Rb4uPbKbHVqnPg8niSp3KPJnYUKTj
jc/qPIOnR5vUVIOb
Z4eTZ4uUcl2VZISKW3mANIZeQF9vXpO2Vq/sLIK7MoO7G1uLH051MG+gOom5
N4y4KGyUMFduQYCq
LnmlNHaeOX+oKlhtQGmDPIGuNHefLXGZKWitMGyZN36qNX+wMH6vK3WmMHWWh
L2+VU4eoXJW3VpS3
RX2aFSMkFwxVlighJTAoKzxPJEF7JD9nKTEsKzUsKzYvLjc1Mzo4MD04Mj88
Nj5ANj5BOENANUBL

KkqLKEiKKjI7MTg1NDw+Mz9CNkRIN0ZPPUpaQ09iRFZqQVtySGJ8UmmFT26K
VHiZRmKEDxETHiYb
lykglysjJS0nLz06MUhTMVFO2F7Q3WWRYsvTlu6RYGwQXCYQGWM1d1MEla
Ljg3KzUzKzcuJDAq
FhkUHCmaERcQKzY4HjM9AAAAAwIBAwEAAAAAAABFxfwVL0NDMUJEJTErGB0Y
FxoSEhgRFx0UGylZ
JTErGB8ZBw0HDBILawUBBQYDNka4N0FBND07Mzs2MT0zLTYvLTQsKjEqJi4n
KTAnJi0kJCoiligg
ICYfHiQbKTM1KUh1JjhZLTxJKVOPKUyFHyo1lyogISkhHSUeHycgJy8oISkh
GCEYJS4IJTAoJi4o
GB8aEhkQMEA6MD9BMUJEJDICMmFqd73ec7bbcbPac7Pab7LVb7HTbK/Sa6vQ
aqrOZafIY6XGYKXF
YqLDYqHEX5/BXZ6+Wpy7W5y7WZq4Vpi2VJa0VJa0UpSyUZK0U5K0VZGwT5Gw
T5GwVJCUUZCtU5Cq
U4+tU4+tU4+sVl6sU42qUo6rU46pUY+sU4+sVpCtUpCtWJKtVZKsUZWtWpmy
Wpq1Xpy1Ypy2Yp+5
YqG9ZqTAa6fCbanEcarIIUh2Gkh3I0h8Ikt7HERwljPRIUZhJEZeJUNfIkRj IERkIEViJkVhJ0Jh
J0Fglj5alkFbJUJdJT9cJT9cIT5WlzxWJT5YJUJiJ05sKE5pK05rKEpilkhj JIJwLFh1NWJ7NWF1
MlpxM1tzMFx1LF52NWJ7NmV+OWZ/OGuBOM+FPnaOSn2WUISeVlynV5SyQXyV
MVIIMU9YL0IPKj0/
JzYzMD07PIFUQ15mOVRaJTg1HCUEFBsSCQwHawUCBQYDBAUDDhAKEhgQEhoQ
ExwUEBcPly0rLTdA
JzpSKTxnKtTiMURaKUh2J0N0HiovJCshJCslJy0mJCojJCKlJSsklyokJSsj IScglCYdKDtSHTZo
MUdoW3F7YX2DZ4OJclqQbouQaqbGVKnNfMXfSJ3LPZraUqjkkdDoO4GISJ7V
WYidboqXc42YcYuW
eJSddpWdcJOcXYOHQ2x9PnShPJPYQJ/IG1iJGklqM2qXP4i7PY/AKGeQRHqc
K2qTLGuWMXiIM3ql
HFJpKIVsNX2kL3iaL3CZLGyVNG2aMHqpLXqqK3upKHWkLXOeLnCUUlioV5K0
UJG2RXuYFSEKGR8W
lioilzAmKzxOI0N7JD1qKTEsLDYtKzYvLzk1Lzg2MTk5Mz07Nj5ALz8/OENA
MkFLJ0qKKUmKKzM8
Ljo4ND0/N0JDOEZKOKhVOUtcOFFiPFdrQ1x1SGZ8SmqHUXCQWXqcSWmMERcX
lisgJCslJC8nJzIt
NEVEMkZSNUpfNVBpOVt8OI6CNIV1QWKCOlyBLFBqMUxbM0tZLj5ELTg0LTcy
KTMuEhkVGRwUHiUc
GB0WQVxrBAcHAAIAAwABAQIAAgAAAQABBAIBCA4IChAJBQwGDhELDxQOExgP
GR8YKTMrERgQDhMM
CA4IAwUBAwMBMjKxOENAND07NDw3LzgxLTYvLjUvKi8oKC8mKjEoJSsjJSsj
ligglCYfHSMaJTAv
MEI0lzZYKjhCLFGKJ0mCIS04JjAkISkhHSYclCkfKTApIikjGCEYISogJzEI JS0mGyEbEBcOMD83
Lz8/LkE/JjICMF1odLXZbrHWbK3Sba3Saq3QaKnOZabLZajKZqbJYqXHYqLD
XqDBX5/AXZ7AW5y+
V5u8WJm6Vpi3VJa1UpSzUpSzUZOyT5GwTo+XT5CxS46sSY2rTo2sT4+sS46r
Uo6rUo6sUlyqUYuo
UoyqVI6rUY2rT42qU4yqU4+sVpCtTpCsUpGrVZKsVJOtW5SwWpizXJqzYZu1
ZJ64YJ+7YKG8aqbB
banEaqvHIEd4IEd6IkZ6I0t/IUNwJDIRKEdhJkVhI0RgJURgIkJgH0JfJEJe JUJdI0Rci0BZJEBY
JT5YI0JcJEFaIUBUJT9WIzpqJ0dfJUopKk1oKk1qJUdfJUpnKIFwMII2NWJ5 MI1zLFtvL1xyM1t1

NV55NmJ7NmV+OmaBP2yDQXCHPHaOSH6WTYOdTomkVI2rQHmQMVplME9YLkhp
Kj1AJyY1MEA9PVJV
QV1mNIBYIzMwHCUBFBwRCQwGBAQCBQYDBQcFDBEKcXILEBcQGBsUERQOKTIO
JjA3LzZGKDthJjlb
MkZaK0l6KENzIS4sJi0hJSskJSskJisnJSomJCojJCoilJgghyUcKTpR GjZnL0doV3B5X3h/
Zn+HboiNa4ePa6fHVKTId8DZRZ3NPJzeVq7olNHpOoCnU6HeXoqhczGZdZOb
eJKdeZSfeZeheJun
f6Cqd6nGPHuYGEJgPXenJmCNGUtyHElqJU5yOnCXJVN6PIKrL3qnKGeQKWcJ
MHGYKF6CLGSBOHuj
NXibMHOaLWYULWYUL3ilLnipMHqpLXWIMXOeNW+UVIenVZCyTo6zRHeWGSMk
Gx4WICoilC4kKTxO
lkn5lztjJzErKzUsLDQvLjg0Lzk4Mzs7Mzs7NT5ANj5BO0JANkJPJUuLJUqK KjU8Lz06Mz0/NEJB
N0RKPUhYOkpbOFFiPFVsRF13SGN7TmulWXOTZX6iTgqJFBgXly0hJDAqJTEr
KzUzLTW9Kjo3LDYx
LjUzJTAuJS8tOEJCLTk8MUBJLDo9Ljo4NUBBM0FAKj0/LTo5KjYvEh0VFBgR
lighEBQNL0NDKUhw
AAACAgaAAAAIAAAABBAAAAAAABwcFCACEDAwJCA4IDRMNExgPJS0iHCQdDhEL
EBILCAoGBAUDAwMB
LTQsOENAND07Nj06MDkyLDUuKzIsLDEqKS4nJSsjlykhlyogICceHiUcHSQb
JjAuLkdxJDhaKDg+
LU+JKkyGJDA9JS8jHicdHCUaHygeJi4nISgiGB0WHSQbJjAklyokHSMcExkR
MDw1Lj8/Lj89KDpC
M1tnbbHUbK3SaarPZqfMaanOYqXJY6XJYaTGY6PGX6LEX5/CXJ/BXZ2/WZu6
WZq5VJi5VJW3U5S1
UpO0UZKzUJKxT5GwTo+wS42rSY2tS4usS4qrTYqpTo6qTY2qTo2qTo2qUYqq
UYuoSlqnSoqmTluo
S4unUlypUY2qTY2pTo6qT4+rU5KsVZKsVpOtW5WyY5m0YZu1X522Yp65ZaC8
aaXAbKjDbavHIEI5
HUd4I0d7HkqAGz9oJjpPJkdfJENhJkNjJUNhJ0VjlkJgIkFfJUJdIUJaIT9a JUFZJj9Zlj9cIT1Z
JEBXJD1Wiz1UPWN9RXOOKIFqLk1nK0VdJ0pIKIVzKldwNGF3M19zNVxuM1ty
M1x2NF96OWF5OWR7
OGaAOmuDQ2+IRXOOSHqVR4KbTliJUIqoP3aNMItmME9ZLkIPKj9AKTg2MEA9
PFNWQF5nM05Wly8r
HCQcExsRCQ0GBQYDBAUDBAYDDRALDhQMERgQExoRERkPKzQ2Jy4zJjI8KDxw
JDphL0daKkd8Jz91
ICsuJi0kJSojJCojJCKlJCKllykhISgflCcelSgdKTPQGDRIMEloVm51 XXR9ZH+Da4SLZ4aK
aaXGV6DDdLrUQJvMPp/iWrHoldTnNX2ITqTgZpCldpWfdZSed5OhdpekeJym fZ6pgJ+qfrjcWLHp
M3+yMmWCI0dhHkdqJkRaDBMPGR8dOmaCOoOvL3ejLnOgKW2VMGySNWuWNHWZ
NnqgNHeaMHSXK2uR
KGuSLHejLXanL3moLXSjLHOObM3CVVlemUI+xTY2yQ3aVIC40GyEalyokli4p LT5UIkF2IzlcJS8p
KjQsMDcxLjYxLTc1MTk5NTw8NEBAOUFDokFANT9NjkqMJkmJKjM6Mzw6ND0/
N0FGN0RKOEhUOkxd
PINkPVVqRV53UGWCTm2JU3KSZYCKUW6LEBcVJi8mKjQyJDMwKzczJzUvIDAn
HSUeGB0WDxUNFBkS
Ym1uKTQ2HicdIScgJi0kLTg0NEBAMT1AMUJALzk3GSEaFhwTFBwWISsjDhAJ
Q1xsJ0ZVAAACAAIA
BAABAgMBAQABCggFCAGHBQsFCRAJDxUPICccISgfDxUPDhELDQ4JBgcEBAIB
AQIBKzApOENAMz05

Mjo1LzgxLjUvKzIsLDEqJSskJSsjJSsjISgflCceICceHCMali4rLUhwJTlb KDY8LFKHKUuHij/
HyccHCQZHCuAHicdlloiHycgGB0WHiUcISgiISkhHCMaExcQLzs1MUJCLj88
KzxAMFheaQ/QZqnQ
ZqfOYqXMY6bLYKTGYaXHX6LEYKDDWp7BWJ3AWJu+Wpm8Vpe5VZe2U5S2UpO1
UZK0T5CyT5CxTY6v
TY6vS4ytSlupRomrSomrS4eqRYimS42pT4yrTouqUlyrUoqqT4uoTlimT4im T4upToypTo2qToqn
UlqnVluqVI2rVY+sVpCrVpGsWpSxXZayXZiyW5qzYZ24Z5+8aKS/ZqbBbajF
IUh5H0R2H0Z5HUh7
Hz1nJjtTJkRgJUNhJUNhJUJiKEZkJURiI0JgJ0JhJT9clj5aIEBYI0BZIT9a Ij5aJUBUKTxTKDxR
KkdiNFI1K09pJ05IJ0ZaKEpkKVfLVdxMV9zMlxuM1hrM1pxNfpyMI51NWF4
OGN5O2d+O2mDPW6G
RHKNS3mUS4CaToaiToelPHKHMIldjME5VLklOKz0/KTc0Lz88PFBUPVikMEIT
IC0oHSQcERoRBgwG
BQYDBggDBQYDDg4LDxQNDxUNGBsTERcQJCsqJSsqKjNFKztnKDpeM0VWLEh5
J0FylCoqJCcojlikj
JCshlykhlykhISgflkgHyYdHiMcISYfKjpTHTZjM0IIUWtuVXB4XXp9Y3+D Y4SJYJ6/Upy+brfP
QJvMQaDjXrbtldXkN32mWKjlapGld5igeZukfZmoe5ynfp+qqgCve6Gvgbjd YbruVr3uVLTvG1R3
KEpdJktaJDdAHzM1On2hNHuoLHGeKW6ZLHGcLGmWKWiRNm+WN3qeL3aZL3CV
M2uULGuWLnWkL3al
MXilKnOgL3WeM3GUUYaUourS4eqR32ZLUVSHzAtISsjJDAKjtUHj1wljla JjEpKjEqLDMtLDUu
Lzk1MTk5ND07NT5ANEFcoENAMD5JJEemNJUiHKzQ7Mj05Mz0/NENHN0RMOUdU
OkxdQFJmQldsR2B5
S2eEUm+NWHeWYOKIVnCQEHkXlyokKjY0Jzg2Kjg1JzMvHSMdGBsUDhMMDA0I
BAICDQ0LDhMNEkS
Fx4VlikjLjoZNUhGME5LL0RILz06Gh8aGB4VERcQISceli0kCBELPF9rNFhu
DBQSBAABAAAAA
AwUBBggFAwgEDxQOIScelikgFBsSDxMMDxQOBAYDBQYDBAIBAQBICUeOUVA
Mjw3Mjk0LTYvLjUv
KzApKS4nJSsjJSsjlykhHiUcHyYdHSUaGyIYJy8pL0VnJTIZJDE0MFCCLEyG
IDA+HCMYGilYGiY
HCUblisgJCoigr4XHCMaHycgISkhHCMaEBQNLjkyMkNFLDw6LTw+L1RdZarK
YKbJY6XJXaPGXaHH
X5/GW5/FVp7AWJu+VJm7Vzi7VZe5VJS3UZS3UZK0TpG0T5GzT5CxTY6vTlyt
SousS4utSYmrRoeo
RoaqR4erRYWpQYWISYuoTYqpTYqpToqpS4inTlqnT4mnTYmmSommS4qnTluo
SlikTlimToqoT4up
UlypUo2oVpCrU5KsV5axVpixW5myXpy1Xp64YKC6ZKS/ZKbCI0I1UH5IUd3 Ikh9ID9jKEBVJ0Rf
JkRkIENeJkRgJkVgJENeJkFcKD9dJz9blz1ZJT5XJUBUJEBYIj5YIj5TJjtQ IZpQJURiLEdmMUtm
KktiJ0NWKkxmLVJwMFZwNV10LFtsMVltMlpxNlx0M1tzNGB3N2J4OGV7OmiC
PG2EQHCLRHIS36X
T4SgSoShOG6DL1ZhMExUL0dMKj09JzUxMD06OU5QOIZfLUZNICwkHiUdDxgR
AwcFBAQCBwgFBgcE
DQ4JERUODRMMDxcMExoWMT1OKDVGMDpMKjpeKTxZNERQKkh0JkRuIConJSsh
lysgJCKllygkJSoj
licglykgISgdHiUaISceLDxVIDhINETjTmhvU293WHZ5Wnd6Wn6EWJ6/Tpi5 Z7DIP53OQqHkZ7zx
mNXkN32mWaznbZeque5qngqCrg5+ugqOthqihai0hKWYhbzhY8DsXb3wTa/u
GFSCJFJ1LmR9LIFg
RXOHNH6uNHmL3ObK2uZKGuWKmqTJmeQKm+UM3aZNnOZLW6XKmuQL2uVMHWg

MHskLXiLnOhNXef
NHGUU4akUYmpSYWoSoKaPGFuL0hHHSkgJDEmKTtOHZ1wHzpZJi8mKjEqKjEq
LTcuLzYzMDk3MDw6
ND0/NkFCO0M/MEFLJk+RIkeGKTU5MT05NkBAOURGOEVNOUZUO0tdO1BIQFht
RWB4TGIFTXGQW3qZ
YYaoUXCRDxYYIi0IjzYzKzg5LTs+LTw9IS0nFR0SDxMMcAsGAAUCBQYDCg4H
ERUNHB8XKTMrMENG
MkhRNIJSMklZLz5AHSYhGyEYGB8WFRsUlyolly4mCwwHJzc5PF1vLkZTHigp
ExkVFBUTFhsUligg
JS8jISgfDhUQDxMMEBILBggGBgcECaEBAIAAGh8YMz46Lzk0MDcxLjgv
KzlrKC8mJy4Ijy4I
JSsjliggHSQbHyUcHiUaHSEYli4mMUZIJdhYly4xMU9/J0yDIS4+HSQYHCQZ
GylZHCUBICkflCce
FhwWHSMaHCuaHCQdHCMaEhcOLTkwMkNFKzg3Lj89LFFWW6HBXp7FXZ7FWJ7E
WJvDWJrCUpi+UZi9
UZa6TpS4T5S2TJGzTpCyTI6zTY6zTI2yS4yxS42vSYqsSliqR4epR4erRoag
RYWpQ4SpRISoQ4GI
QIGiSYinTImoSYmmTluoSIilToilTYelSlikSYilTlimSommTliiSYmmS4qn S4qnSoqmSo2mTI+o
U5CqWZKtX5WvXpWwW5qzW5y1YJ64ZaO9aKbCI0NwI0V5IkI3IUp7HkbfLUJX
JkVgJkVjJEVhl0Nh
JkRiJkFcJUFZIOBZJD5YJkBXJD5TJz5UJ0FYJD5VJzxRKDtSiztPjKrbKklk KEIgJ0heKENXKktn
JIFuLFRvNIi0NFhuMFdtMIhwnIi0N111M2B2NmN5OGR7PWqAOmuDP3CIQXWP
RXuYSOocSISiOGyB
MFNfL0tTMedLkIjw7JjQvLzW4OU1PO1RbLkRKHiojGyUbEBUOBgcEAwUDBAUD
BQgDDRALEBQNDxMM
DxQOFxwVM0NbJjpaKTIUKjpgKDpZNEZYJkV6IkBpICkkJCshJCojligg lyogIscglSYfICyD
ICcelikgLDtUHjRgNEtjTGZsUWpwV3FxW3R4W3qFVJi5SZCyaq/HRp7SSKLI
ab7wmtbkM36iYbLp
dJmqfp+sgKOugaWuiaE0jK63jqy5iaq4gsHjZ8LvXsHwULdsGVOBI1Z6OHSg
P4GnSlauNHqkOX2o
MHijKGqXLGySMnKYKWeNLnGTNXibNHOZMHCWL2uQMgySL3SfLHCgL3ajMHOf
NXWZMm+QUoilT4io
SISjSYGfQmlyLklGHioilzEnKTtNIz5xJTpXJy8oKjEqLjUtLTUwLzg2Lzk4 MTs6NUA+OEFDN0JA
Mz9MJkmOIESAKjU7Mzw6Mz89NkRINKNJOUZUO0thPFFoPVhsRGF5TWqHUHKR
WnudZYmsUXOVfx4c
JzMtLzo8MEBHLT5GMUNPLkJOIjQ2GiYfFRwTEBQNDxUOFxwVICceJzcyLkdS
L0hfLEJWM0ZXNkhV
MD5IHyyGhSEYFR0XGB0WFhkRHyYdJjAqFhkRDBIMHCUIJDA2KjY5Kzc2JTAs
HiggFBkSDxIMERQO
DxIMBQcEAAIAAQUBBQYDAQIBAgAAGRwUND02Lzk1MDcxLjMskjEsKzAoJisk
likglCceHyYdHiUc
HSQbGylZGh0Wli0kNklIjXli8zME1+JkuCIDA8HSgZHyUeHicdGyUeICsg
GiQYGRsXGyMcGyEa
GiYHSMcDhQOLDYtL0JAJDUyLDw6L1BWVZq9VZnEUZi+UJa6UpS5TZK5T5S4
SpG1S5C2SY60R4yy
SlyyRoqWRyquRlmsRYesRYesQ4esRIWpRISpQIOmQIOmP4KIPYCjQYKIP4Cj
Q36gPX6eQ4akRoun
SoemSoqnSommTlakTIWITIWR4ajTYekTYekR4ejSoajTliiTYmmTlqnUlqn S4unU42qUpGrVpGs

V5SuXpiyYJu1ZZy3Zp+8aKPCHEV0IUV5lkd5lkd+HzxZKkBQI0NbJENhJERi JkVfJUFeIj9clkBW
JkBXKUJYJT5SJzxSKT1SJUBUJUBUKTxOKDtNIztPJ0ZgJ0hkKkljJ0hfJUFY
KEtoKE5pMFNrNFpw
MFIqL1VqL1ZsLVdxLVpxMI10NWF4N2N6Omd+PmuEQG+IRnSORXqWS4OcSYOg
Nmp+MFBcMktTL0dJ
Kjs5JTMslTtk2OExNOVNZK0JFICsjHCMaDxUOBgoEAwUDBAUDCAoGDhQMERcM
DxUNDhMMGyEaMkNg
JjthKjpeKzthKTtVM0ZVKkl6JkNrHiUjISgfJCKiJCoilkgISgfISgfICYf ISgfHiUcliggLTtW
HzRiNEpiRWBgUGdrT2puU25xV3h9U5K0RounX6vAPprQRKHlb8LylNHgLnul
YrXqdZyth6Kuj6q5
jqu4jqy5j7C7kLC9jrG/icXmacPxYsbwUrHpG058JFN6NnWfOn6uLnamMHik
N32mMXWdLWmTJ2iR
KmiQJWOJM3OXOHmbNnSXMg+SLG6QKWqPL3ShK22aLHGdLnGdM3aZOHSUVoml
ToamR4CjToSgRWx1
KUVCIC0jJTIRKTxOIT9vljVJSskKTAnKjlpLzYuMTk0Lzk1Mjs5Mjw7ND49 N0M+Mj5IJUmLI0Z/
KTQ2Mjs5Mj0/M0BBN0VNOUhYOkpfPFJmQFIsR2J6SmqHVHWRX32fZ4qqU3eX
Fx0fJzMtKtC6LjtE
KzxFL0RNLUhULktYMUxaL0ZRMEFJLUJDL0ZKM0pVM0lbL0hfLUZXLERMK0JG
MEFGLDk6GSMbGSIY
GilbFBkUFBgREBQNFxwVISYiISgdExoRDxMMDhMJDBAJDBILDxQNEgxPERMM
DQ4JCAcEAwMBBAUD
BgUDBQMCAwICAAAERcPMDoxLjkyLTQsLDEqJi4nKC8mJSsjlCceHyYdlCce
HSQbHCMaHSMaGSEX
HykhMUdhJDtbJC8zMVB8KkuGKDZIGiMYliggHCQdHycglykhli0kFhwWFR0X
GB0WGiiYGSiYDhMN
JzAnLkE+JDUyMT08LkpTT5S2TpO9TJG6So+1S4+1S461SYu1RYqwRouxSlqx
R4auRIWSP4aqQoar
RoWrPoKoP4KmQ4OoQYKnPoGIP4CIPYCKP4CkOH2gOn2hPnygOnycO3qbQoOk
SleoR4ekSIWkSlek
SoakR4aIRlAkR4SjTIWjTYSjQ4WjR4ajRoaiSYiiSlmjSoilSYmlUlyqUY6o U5KsVJOtW5SwXpez
YJq0X563X6C7HEd1G0VwHEZxH0Z3HzlTKj9RJEJZJEJYJkNcJUFeJUBflj5Y
IUBUI0FTI0BUIz1S
Jz5QJz5PIz1OJDtRKDtNKz5LJT1KJ0RdJ0ljJkhgJEddIkBXKEtoJ0xql1JJs MVdtLFVmMVRpMIZs
MVIWm1tzOF52NWB3NWF6OmZ9QWmDQW6HSnSPRHiSSn+ZRoKfMmV5Lk9WM0xR
MUVIKTk3JC8qLDgz
OEpMOFBYKkJFJC4mGylZDhMMBwsFBggFBQYDBwgFDRALEBMNEBMNDhELGB4X
MkRiJTpjKTtfKz1j
Kj1UMkVSKUI2J0JnHiUjISkelykglicgISgfICceHyYdHyYdHyYdHcMaICgg LztWIDVfMEhbQ15b
S2JITGVrT2lvVnd8UI20SoyoYajAQ5jRQJ/hcsTykc/gL3ujZLbqd5+wh6Wx jqy7k6++lbPAIbfE
IbbGI7bGkc3saMTtacvxV7ftGFKAKVqAMHOaOXynLnSfLnOgM3aeLG+ULGmU
KmiQL2uQI2SGLXCS
NniYNXWWMHOVLm2QL2qPL3SfLXCbLnOeM3OdM3aZO3OUWImkTISkQn2hTISf
RXB3JEM/ICsmJjlr
LDxNJD5vljdSJSskJi0kKTAnLTQsLzgxLjgzMDk3NDw+Mj49OEFAMz5KKE2R
KkqEKTm1Lzs3NDw+
ND9ANERLNUVVN0pcO1RIQlptS2F6UGqGV3SUWX6fZYitVXicFCAhHSMaISgd
HiggJzEvly0nFR8Z
HilgHyQIIConICclHiMkHSQgGylgGyleFh0ZFhoYJzArKTc0JzIwli4mKC8k HSibGiEYGB8WFBsS

ExkRDxMMcw0JEBUOEBCqFhwWFRwTERgPEhgQEBMNCAsgBAYDBQYDBAQCBAUD
AAIBAQBIBAQBIBQMD
AQIBDhILLjUtlJcwKzlrLDMqJy8oJS4llysjlikglCceHiUcHCMaHCIZGh8Y GB0WHiciM0hdJTxa
HyosNFN0KUuElzJDIoiJC8mHyYgGh8YKzUsNEQ+EBouFhsUFBotFh0UGCEY
DhMNJy4ILka8JjYx
Mj49LEIOSI2xSY64SIy3RoyzSYu2R4mzRlizQoWsQoeuQoWsQIOqRISqPoOp
QYOpQoKoPoCmOn+j
Pn+kP4CIPYCKPYCKPH+jPn6jN3yfOHueOnugOnqfNXmZQYGHSoalQoWjQ4Ok
QISiQYShRIOiQ4Oh
RoOiRIOiQoSiRoOiRIShRoShRYWhSlajTIWjSlilTluoS4ymTY6oVY+sWZKt W5SwXJizX522Y525
HUZ1H0R2IUR5IUR5HzZOKj9RIUFZIONaJkRWJEBXJkZJj5UJj5UJkBXJEBX
JT9WJz5QJj5SjzXR
KjxRJzxNJhKKDhJL0dcKkhmlkZglkVbJkBXKktnJkxnmFNrMIZrLIVnLIRq LIRqMVhuM1pxM1ty
MF1zM2B2N2R6PWaAPGqEQ2+MRHaSSXuWR3+cLI5xLEtQMEINMUZJKTk3li4m
KjYvN0ILNk9bKD9G
li4mGyMYDhMMBwoGBgcEBQYDBgcEDhAKDxIMDhILDxEKFxwXMkVmJjtmKjxj
KT1mKTtVMkVUKUh6
Jz9nHycklioflScglCYfICcelCcelCYfICceHSQbGylZIScgKjtSlzdZLkNa LkdSMEpWLkpUMkxX
M1BcLFhzMFd0PWuLRZbNSKHeccLyifZMHuibLrteJ+xiKm0kLG/l7PDnLjG nr3Nob7PmLrKldDt
bMvxbM7vVbfpFlidJlt9Lm+WOH2mM3afLm+bSletPH+jKGWQNGuSLnCuLGqP
NHGWN3aXOHOUOW2V
M2qPK2aLLGuWKm+aL3WeNXedNHmdPnaXVomkSYOgQXyeT4agRXB3Iz8+Hyol
JTAnLDtJJTttJThV
lysjJi0kKTApKzIsLDUuLzozMD02MD05ND1ANKBAMz5KLU+RJEeAKTM1MT04
Mzw/Mz1AN0RMO0dU
OkpbPFJmQFhvSGF7TWuGU3KSV4GdZluxVHebGB4fHSEYHiggJi8rJC4sCAwK
BwYDBwoEBwoGDBAJ
BgoECQ0GDA4HDxEODxIMCAsGCg0IJS0mKjc2JTMylzErJCSlICUeGSEXGSIY
EBUSERcQERcPDxQN
CRAJDREKCQ0GCAsGBwgFBAYDBggFAwUDBQQDBwgFBQYDBAUDBAQCBAUDAwMB
BAIBBgUCDRALLjQs
MDcxKjEqKTAnJS4llysjlSgflSgflCceHSQbGiEYGH8YGB0WGH0VHycgNUdY
Jz5aHSgqNIJzK0+G
Hy9BJi4jLjoxJC4oGyQZN0Y+Kz03FwxVGB0WGSiYGR4XGR4XDBELLisglJ85
JTIuLTs4LUIJSouw
R466RYy2Roq1Rom2Q4mwQYewRYWvQYavP4SqPYOpQ4OpQIKoQIKqO4GoPYCK
PYCKO4CkOn+jOn2h
On2hPH2iOXygOXyfQHucO3ucOXqeOXeaQX6fSYWkRIShQYOjRYOhQ4OgRoWi
QoKgRYOhQIKgQIGh
QIKfRYShSiSiRYWiR4ajS4WjTliilSoilTYypS4unUI6rUJGrVJSsVJexXJq1 XZu2HkNzIEV1IKR2
H0R0HC9GKT1SikBWJkRWJENXJEBTKEFXJj1VKEBQK0FQKj5TKD1TJj5Ulj5T
JD1RJjtQJUBOJjtI
JjlHKKrbJ0VhJUVDJ0NaJ0BVKEpkJkpkMIJqM1ZrMVBoL1NoLIRqM1dtMllr
MFhvMlpyN190OmF4
OmN9O2aBOWiFP3GNRniTP3mWKVhoLUdOL0VKL0VIKTY0ICghKzMsOEIJN1Bc
JkBGJjAoGyQaCxEK
CgsGBgcEBQYDBgoEDRILCRAJChAJCQ0GGyldMUdpJTtnKDxlKD1jKTpRMUNP
KUH5KT5jHiUgHyYd

HyYdHiYfHycgHiYfIscglCceHiUcGiEYIScgKjpVITZcLFiCKmmUK2WRJWSP
ImOOJmSSJGSTJGOU
KGugL4G8MljEXqjhgr7XNnylabnseJ+xi6q1I7PDnLXGn73Lo8LTpcLUnL3N k9Pua8zxetfzYb7p
LXSbPHeYQoGoR4m0LnOfKmmUXJ7GT5S7IlyIMmaTNG+XLWuTN3KYRYChN3KT
M2mQLmGIJld9K2WR
L3KeNXihN3edNXqePXWWVlikRX6cQnmeUoWgRm16ljo7HykhlSsjKzphJt5r
IzhWlysgJi4jKC8m
KjEsLDMtLTcuLTgxLTcyMTw4ND46MUBFLVKSJUWCJzI1MD02Mz07NUBCN0JI
NkVpNklaN1BjPldu
RmB6TmqHU3KSWn2cZ4ytW36fERsiHB8ZHCgkIConJTAvlzA0IS45JDZEIjxL
JENRIkFRJT1TJjtL
JzxMJTpEJDY+JTI2KTMyIzAulSsolCciGyEaFhoVExoRExoRERUNEhQLDBAJ
DxEKDREKDA4HBwsF
BwoGCAoGAQMcbQcDAwUBBQcDBQMBBQMBAIAAQIBAAAABAQCBAYDBAYDHCEa
LjQsKzIsKi8oJy4l
KC8mlykhHyYdHiUcHSQbHCMAgiEYGR4XGB0WGRwVICYdM0VWKT1dlCgsMU5s
KkqCGyxAGyIYMTw1
ICwkHioeNkM5li8oExcQGB0WGCEYgh8YGR4XDBELHSYcLj83JDIsL0A6K0dH
SYqrR4+8Rlu3RYi2
Rou0RImwQYavRlawQYasQIOqPoOpQYOpPoKoQIKoPYGnPIGIQIGmOn+jOX6i
OX6hPX6iPX2iOXyg
NnycO3yfOXqeOHqaN3iaPnygRYKjRoOfQ4ChRIKgPYGcQ4KfRoCdSIogP4Gf
QIGhQYKeP4GeP4Ge
QIKfQ4KfSYShSoakR4ejTlimTYmnT4uoTY6oUpGrVJOtWZWYXJi1IUvzIUZ1
I0d1IEV0Gi5DKD1T
JUBUKEFXJj5aJT9WJj5UJT1TKD9RKT5PKT5PKT5PKEBQJzxUKD5XKD1SKT5O
JzpKJztLJ0NaJUvD
J0VbJkJViz9SJUpHJUljL1BoMFRqL1NIKIFnLFNpMFZrLFVrLIZtMlpxMF1z
NWB2NmJ5OGR9N2qC
QnOMTX2YQneULVVmLkdKMEVIMedFJTYwHCUBKzIqOEIIN1NcJUFFKjYvlioi
DRALCAoGBggDBgcE
BwoGCw4JBgsHBw0HDA4HHCMemEdmJz1kKTthKDthKzpNMEJKKEZ3KjxjHiUg
HiQelikgHiYfHycg
HycglCYfIcCeHiUcHCMalykhLjtZHjRXK1OCKmGWII+RJGCUImGWI2meJ26p
InSrKHmwKHuwJX+7
V5/cfLHSN3umZrfdp56viqq3lbTEnbjJpMHTp8fZpsbYnL/RkNLuaMrwedjx XrrpLG2SPXCSPnmc
RHugJl6EI1N+NW2WMMWPJU58JVR7KVyAJVZ8OGuQQ4GfOXuaKI6CKIx+LF9/
NGyQMnKYOHieOHWe
OnecPnSVUoaiQXqcPnWfT4SjRnB9ITg1HicclCsgKzphJt5oIzVPliglyog JSskKi8qKzIsLTQu
LTYvMTozMzo4MD04Ljw/NFWSJkiCJJE0MTg1MDw7NUFBN0NGNkVOOEhYPU9h
RFVrSI96UmmHV3aW
Wn+hZ4iuao+2R2V6RFpjPFVbPVdaQFtnRmFvSmR1SWt9SW2ASGqBTnGJTHCG
SmyDS2qCSmh9SGd4
R2JwRF1oQ11oP1lhPVRYO1ZWovRUovBTN1BWMkxUNUxSOE1RNUhLMEVIM0RJ
LEBBKzs8Kzc1JjMv
JTErJJAqKTArlikJCYfHyYgJCslJCojJi0kJS0mKTAplZyULtQsKzMqJi0k Ji0kji0ilyogI Sce
HyUcHSMaGyEYGieYGR4XGB4VFhsUHiQbNUVWkj5elScqNExoLEuAljJFGiMX
Jy0mHCQdGyQZGh8Y

GiEYExcQF4VGh8YF0XFwVCQ4KGylZKTkxHy4nMD03LERHRYmpR4+9Rou3
RYi2Roq1SlizRlax
Q4WvRIawQoSuQYOpQYOpP4OpPYGnQICmO4CkO4CkPn+kPH+jOX6hOn2gOXyg
PHyhPHqeN3qePnmf
O3ieNHeaOnqbPoCgPoCePn+fQoCePoCcPYGcP3+bRICdQYCCRX+dQYCdPYKf
Q4KfQ4KfRIOfRIOg
Q4OgSoSjQ4WiRoajTlimSoqnTlypUY+sV5SuWZeyGj9wHERyJER2JENzHC5B
KkBVJkFVJEBXJ0BV
JUBUJT5SJz5PKT5PKD1OJz5PKD1OKDtLJzpMJjtQKTxTKDtNJThGJTIGKkRc
KEZdJ0VbJEJUIz9S
JUdfJEhfK1BILVNKKIJfK09mLIJoMVVrM1VxMVVxMltwMF5wMV50OmB4OGN6
OmZ9PGuGCqnOMOW6L
KE9eLkdHMKREMUCITQrGSEYKjArN0hHN1NhJT8+JzMrIscgCAsGBAYDAwUB
BwgFCAgGCwwHCAsh
Bw0GDg0IHSEfMkZnKz1kKjpgKDxfLTtMMUNLKEZ3KjpeHiYfHSQbHyYdHSUe
HiYfHycgHyUeHiUc
GylZGh8YIScgMDxOljVNPGKGPHKZOnKXN3CXN3WeNHmiPHymPIOrPYi1So69
Q5HAY6fXa6jHNHWj
Zq/kc5anhKWYkLHBmrfpcDTqsnagsreoMDUkNLuZsfvasLuVK7hKm2UOGqP
Om+UQHGXl1B1H0hz
M2uPK16CGUJqJFByNWqIOM+QPXWTQXubOXsVM2CDOGB/Nlt5LGB9Nm6SOXac
N3ScPnmcPXWTUISg
PXiZPXWftYakRXJ8HjQxHCUaIckfLjIFKDtMjZzMICYfliggJi0kKC0oKTArlDMtLTQuMDcxMjg1
MTY1Ljo+LFCNI0R/JjEwLzk0MDk3ND48NURGNkZNEhUOU5ePFNoRF13R2WA
UG+PVX6cYoiaq5G6
eJ/JfKnTe67Vg7LegrPbgrLdhbLdhrTdhbPcg7Hag7HagazVfqzTgKnSfqXM e6PLeZ/HdZvDb5fB
apS5aZG2ZY+0ZlexYYKpW4CiT3ibUnaXU3CRUmyJSWWBS2KAQ115Q1pzQVJq
PE9gPE1VP0xSO0dK
OkVGNkJCN0JANKE+ND46MTs2LDYtLDUuKjEqKTEoJS0iJS0ilikglykgICce
HSQbHCMaHCIZGR4X
GR4XGB0WFx0UFx0TGSiWNkRRK0BdHiYoNkxoK0yCITNGExsRFBgRGx4XFBsS
DhILFBsSDxQOFx4V
GiEYFhwWFxwVDRALGiEXJDEpHskhLTkwLUFBR4eoSJC+R4u5RYq2RIm1Roe1
Q4eyQYWwQYWwQIWv
Q4OuPoSrPoSrO4GpPoCmOoGmPX+lPn6kOn+lOICjO36iOXygOHqgOnqiN3qd
PHmaN3icPHWcPXie
RH+hRH+gQH+hP4CgP3+cQH+cQ32bQn6cQn6bQ3+dPn6ePX+cP3+cQH+bRICd
QoGdRoCfRYOhSYWi
SIShSliITluoT4upUo6sVJOwUpauHEBvHERyIUJzIUBuHzJEL0ZeKkRcJUFY Jz9WlZ1MJj1JJztL
KzxJLT1IKzxHJDtDKjtEKztGKz1GKztGJTpDJzIBJhAKkBUKENXJkJVJUFU
J0FUJ0RdJUVdLVFj
L1RjK0xjL09ILIJoLIRpMldqL1RsL1dxMltwLV5wOV92OGB4PmR+O2h/PWYf
OmyHKUxZLUJFMEA/
MURAli8oGR4XJi8nN0ICOIRhKj8+ly4IGSEXCAwGBQcEAwMBBAMDBQMCCgsG
BggFBAoECAcEHSMh
LUVmKT5jKDpgKDxfLDpLM0NQKEd5JjlbGiUbHCUaHSUeHSQbHiUcHSQbICYf
HCMaHCMaFwxVHCic
LDICKDRDTXGQUYWoToSiToelT4mmWYurV4+wW5SyZJu5baDCcqJJerPWZJu3

MXajW6XabY6ff56s
iKu6kbPBn77PpsbYqMrcnL/UkdXsVrLjPYrQVKzfJmqNOWqQOWuSOW6TIE1z
IkZuOG2TM2ePFT5m
JIN5RHyhQIKjPXqbQnqfNnGULFt8L1t3MVR0MFd5MFyCNGyVM3KYOHaZOHSS
TYOgPneZPHOYToah
Q3B8HzlwHCQZHCMaLTIDKD1iJjNHHiQdICcelikgJC0kJy8oKjEqKzlrLDMS
MDUvMTUxLzk7KE2E
JEV7JDAsLDYxLzc5MTs5NUJDOURMO0dSOUxdPFBpRFI2RmJ8TG6KXnubY4Sk
ao+2dZrCe6TKeqjT
ga/Xgq7cgKzYhq3Yha7Xha7ahazXgarVganSfkOfaTPe6Hldp3DcZi+cJW8 a5G6ao2zZ4qrYoeo
YX+oYHqfW3iYVHCTUWyPSmeGTWOBRI56RVh1RFhyQVnNqk5hPEpcPktUO0IN
NkVHOEREN0JAND07
NDs4MDcyLjUvKzlpKS4nKi8oJSskJSsjJCoilykhlSgfHicdHicdHSQbGiEY Gh8YGh8YFhsUExoR
GBsWGx4XM0JMKj5ZHyUnNExoKkuBHjNEFRcQERcPExoREhgQDhlLFBsSEhgQ
FR4VFR4VFxsWFhsU
DRIMGB4VJC8mHiQdlzAmKzw6S4ekSZK9Rlq9RYq2Qoq2QomzQlexP4ezQYay
P4ayP4OvN4OrPYOs
OYGoO4GpOoGmO4GoOoCoO4GpOH+kOn+jO36iNnuhOXygO3ugNXqdOHmbN3ia
O3mcQH+hPX+fPn2f
OX6cPX2cPHybO32cO32aQX2aPX2aOH2ZOn2aQn6cPH6bO36bQYCdRICdQoOf
R4OhRoWiRYejSoil
SoqnT46rT4+rVpOtlT10IEFxI0R0HzprJTIGME1ZLUhXKkdPLUdVLEZULkRR
LEBMK0FOKUNOKUJV
J0JWKENXJ0NaI0NZIz5WJkBXJz1LJzZAKEJZKEdil0deJEVhJ0VhJkZeKEZd
MIBkL1BjLk5iKE9h
LFFmMFNoMIVqMFZrLIZtMVdxNV5wN111OGB4MmB6NWR9PWIDOWR/KEpVLEJA
LkE6MEM8HywiFRwT
JzAnOEVBPFfHJTk2HSMaEBcOBQcECAoGAQMCBAIBAwUDBQcDBQQDAwUDAwYC
HyYkM0VjJzpgKTxZ
JzxaLDhCMEFJKEd4KTxZHCUBHyQdlCYfHSMaHCIZGyEYGR4XFxwVFhwTFBkS
GB0WLTy5Jjl+SW6K
TYCeS4CaSiCdToOgT4SmUilUoyqV5GwZZi3aJ+/dq3OWZCrLHSfS5zOZYSS
eJWigqO1jKu9lbbG
ocHVqcTWI7rNh9DtXLrlasHxTa3el2WJNWOKOGiQM2uQGkttG0RuOW+WL2aN
GD5qIVJ3PnmfQYKI
QX+jQn+IO3SbLF+FLV+BLF6ALI2CLF2CLI+GNGmPOG6XOWuSSoKgP3abPXSe
ToWkRWt5HC8vGB4V
Gh0VKjpAKz1jIzNBGylZHyYdlScgJSshJCogKC8mJi4nKjEsLTUsLzYwLjY4 KkyGJ0R6Ki4rLDYs
LTczMTs6MUA9NkRBN0VNN0IaO05kQFVqSWB5UGqHWXWVZIOkZYyybpi+d6DI
e6XMhKvWgazXga3a
hqzbhqzag6zXhKzVhKrUg6jQfaTPfKHJeZ7Fdpq+d5W6bpG3a42wZ4qqY4am
XoCIWHqeVHWWUWyP
TmmMSGWERmB9SF16QFdzQFRtQVJoPE9hO0paPUptOKILNkNENUE/NEE+ND49
Mjs5LzgxLjUvLDMt
KjEsJy0mJy4IJI0klykhlCggHicdHCYehYyDHiUcHCIZGh8YGR4XGR4XFx0U
ExoRExgPGB8WM0BG
Lj5XHSYmMkhgLE1+HzJEEBQNERUOExgPEBQNEhQNExcQDxIMFhsUGB0WExkS
FBkSDBELEhgRJC4i

GSiYIyogJDMrSYGdR5PFR43ARlu6QYu4Q4m3Qoi2QYi0PoazP4ezP4awPoWx
PISxO4OvO4SwPYOu
PIOtO4OrO4OrPIKrPIGqO4GpOoOoOn+oOn+oO36mOn2lOnyiO32jPYCjQIKj
On+jOoCkPX6jPX6i
PH+iPH+iOn+gPoGfQIGiPn+jQIGiQIGhQIOhQIKiQYKiQIOgRIOiQYWjQYil S4qnTYypTlypTY+r
VZGuI0JyJ0N0IUJyGzpjJ0BOMIBaKkVULEVWMEZVMUdWMUUhYLUVSLkRTMERR
L0VSMUVRL0RUMkZV
LUdVKKrULURPLkRNKkRUJkpfKUtjJ0pgJ0VhJ0NgJ0NbKUJYMk1hK01gKE9h
Kk5ILk5IMVBmMIJp
MFNtMVVxM1ZxNFh2NVI0OF51N2B7OGF8OmZ/NGB3KkdPMj9AMj86L0A4ICoi
FRsUJC0kMz05NEhP
GiYgDxQNCQ0GCggEBwYDAAIBBAYCBgcEAQMCAwEABQcBBQMBHyckLURhKD1j
KTtaJtYKzhGMEBQ
KUd4JjhSGyMcHiQbGyIXGR8WFx0UFBsSExkRExkREhgQEhgQGB0WKzM3JJE/
R26KRX2bSXqYRXqZ
Sn+bUX+gUYKhToWlUoupXpCwZJa2aZ/AUoqnN3GhR5DAWXuHa4mWdZWnfZyt
h6m3jrLJkrXNiK7F
hMPrS6HTTJ7ZQJPNOH20OXyqN3yuOn6tlWKSHlmLNnanNHCjIFCGJlyPNnCG
N3CiNm6gNW2fNGiY
MWKPNGSMMWOKMWKIM2GMNGKKNGKHNMLOmeLRnWTNmaHNWOITHiUOmFuFSUi
ERQOEBcOKjQ4MD5d
JTA+HCIZHSQbHSYciSogICkfly0hJi0kKS4nLDMsKjEqJzMyK0p7J0Zvlyoo Ki4rKjQvLzYzLTk4
ND49NkJFNEdUOUtdQFNkP1tvSmN8UG+LVnqZZ4iqbZK4dvpDeaPLe6XSgarV
f6rVfqvVfqvVf6jT
e6bReaXQfqLLeqDleJvDc5jAcJW7b4+0aluxZoetYIGkW36fV3eZUHKUTGuN
SmaHRGF+Q113QFly
PVVxOIFpPk9IPExdOUtYOUhSOUZMN0RFNkE+ND48ND07MT04MTg1LDQvKzlr
KTEoKS4pJi0klykh
lykhligglSgflCceHcMaHCIZHCIZGh8YGR4XFxwVGB0WGB0WFhkSFBkSGBkS
Mj5FLT9WHyYhN0ld
LEmBIDFHEBQMEBQMDhQMDBILDxMMEBUODBILEhkRFhwTEhgQEhcOCw4JCA4I
ERcPCA4ICA4IEBMN
HysrIDU7IDY8HjQ6HTM5ljc9Hzk+ITY8HjQ8IDY+IDU+ljdBlzdEJDhFlzdE IjZDIzpGITtHITxJ
JUFNJUFpJkJKUVTJ0ZUJkVUKEdXKkpcKUtdK01fLk9iLk5kLFNoLINrMIVw
NFdyM1lxM1t1NI95
OmF9OWV+OGiCOmyHPW+JQHcNRnSUQ3aVQXmXSHuaRX6cRYGfTISiTYaoToir
To2vU4+yHEFuIEJv
lONwHDZeNFI6OXCVM2F7MFFpJ0JRK0FKLD1GKjs/LDs+Kzo8KTK6LDg7Kzo7
Kjk8LDs8Kzo7Jzc4
JjYxJzc4LT5GLUFIKEBDKjtdKjIBJT0/JTtAJz9CJTW+Jjs+KD1CJjtEJztC JzIBKDpCKzxCJzw+
KDpCKDpAKjxAJzxBJTk7Jjk5ljc3li4pHioiHykhHiggFRwTDhILFBcOEhgQ
DhgOBQsFAQYAAQIB
BAIBAQIBAQAQcAAgABAQIBAgAAAAABBQIAHyYkM0FkKzpdLD1aKj1aJzQ+
LDxHK0ZtITFDExwT
Fx0TEBUPEBUPEXkREXkRERcPEhgQEhgQEBUPGR4XKjU3JjM3Jzo+LEBBLUBD
Kj9CLUBDKj9CLD1D
Kj9CLEFKLUFNLENML0VUKUBJJtFJz1LLzk4MDw/OENELjg6Nj5AOEJHOEVN
O0xWOU5IKkhfKEdj

JkddK0thLUtbMk1hL01jGy44GyouM01ZLEVQGCijJTI2L0dULURPMEZPLUVN
LkVLL0RILkNGLENH
LUJKLkVLMEdLNEIMM0pQNExUNUxPGygpIikjO01NN1JQDBgTBwYDCAwGJz11
LT1WJji9Gh8YHSMc
HyUeHygeHicdlSgfJCoiJSsjJC8nJi4iJzQwKkl5J0VrICcjJSskJjEpLTYv LDczMT07Mj9ANUNL
N0ZWOUtfPFRrRFp1SWWBT3SQXH+ealiqb5S2cpq9d53JeKHLeKLNeqPLeqLK
fKDLfJ7KepvHd5rC
dpi8c5O6b5C3aoyvZoepX4SIXn+iWXmbVHWWUm+PUGqHR2WAQWB4QVI1PFZz
O1FrOIHpOkxgN0dX
O0dUPEZQO0VKNkFCNT5AMz08MDk3Ljg0LjYxKzQtKzIsKTAJy0mJCojJCoi
ICgglSkhHycgGylZ
HSQZHSEYGYSEXHCQZHCIZGB0WFhsUFBsSFBsSFx0UFhkRGBgQLj0/Kj1UHSMh
NUpbK0t9IDREEBIL
DA4HCg4HCg4HDhELEBILDhAJEhQMDhQMDhILDBAJCAsGBw0HBw4IBw4IBw0H
CxELEhgMFx0RGBsT
GBoSFBsSExoRExoRFxkQEhcOEexcQFBcOFhgPExUNEhQLERQJDxiHERIJDg4H
DQ0GDxAHDQ4FDAwF
DQwGCgwFCw0EDAwFDAwFCwsEDQ0GDhAHDhAHDhAKDw4JEBAKEBAKDhAKDhEL
DxiMDxiMERMQDxQR
EhgUFBOWFhoYGBsaGR8dGCIfGiMjHyUnISsrIS8wlzM0KDg6Kz9AK0JFHkNu
Hz1sHkJwHTpZExkZ
Fx4aGiEdGR8YExoRERkPEhcOEhUKERcLEBQMERMKDxQJEhILERMKEhgMFBkQ
ERUODxMMEBUOERgP
FhgRFBgRFhkSFhkSExsPEhoOExgPExsRExoRFBgREhgQERcPERcPExkRFBgR
EhUPFBkQERcPExcQ
FBgRExoRFBgRDhIREBgSDhcVDxcRDhgTDRgVEhgUFBOWERoXFBsXERsZERsa
ERgaFBwaFR0bFR4f
FSlhEx4jFR0gFBwfFyEeGilkly88K0BeJztdKjtUKDhKISsrKTU0Lz9UISsw
EBQNEhgQEBCNEExUO
ExcQEhcOERUOExcQERUODhELGBsUKTM1JjE0JTAJzAwJzA0KTM3JTAzJC8u
ISwvlCwrlorlyks
ISksliszHy4wliovISgoICglGyUIHSUiGSQhHCYjGyMgHCUgGiYiHSckHSUi HiYjHiUhGyleHSMc
Gx4dGyEbGh8aHCibGB8eGiEhHCicHCMfGCEdGyQfGyQfGyMgGyMgHCMfGyle
GyQfHiciHyckHigl
ISclliKlIS0oli0rli0qly8rKjEulisqGyUiGiMfHSQfKzY4LzxKJDE5FRoT GR4XHCIZHSMaHiIZ
HiQbISceISceISyJfJSkgJzMvKER1IzpkHyMhlyghKCokJy8oJzMsLjo0MD04
ND5BNkNMMkRWOUxj
PIJrRlx3S2WBUnGSWnyhXYWmao2ua5G4cpW8cpe+dZa9dZe7dpe+c5O7b4+3
ao+1a42waYmvZoeq
YoKkYHyeV3eYWHOWU26RTGmKR2SBQ197SF97QIZxPFNrN01IOElhOEpeOUhY
N0ZQOURMOUBHOUFD
ND49Mjw7MTk5LTcyLTcuLTQsKjlpKC8mKC8mJiomJCoilScgHSUeHSUeHSUe
GylZGyEYGR4XGSEX
GSEXGB4Vfx0UFhwTFBsSExoRExoREBcOExUOMDs9Lz9QGylgM0NTK0Z0Jz1b
JjM3IS4yli8yJTAz
JC8yISsrICkpISsoHiglHyckHygjHSYhHygjHCYfISgiJS4IJTlrLjw5MUZJ NEpSMUpQMkxPMkhQ
MERQM0ISL0dPMEdQLkZOMUpQMUIRLUdOJ0NHKz8/LD0/Kzo8Kzo7Kzs8KDs5
KDs5KDs5Jzg2Jjc0

FRcQExcQERUNKjMxMj1IHCUoKzY4LDxNKThOLTtMLTIILTtMLjxNLjpJ LDIHLjpHLTIGLzpG
LzpGLztFLTIDKzdAKzY9LDc9KDC6JzY8KTU4Jz11KjQ4JDIZljAvKTA1JS8x JC8uJC8tly4rlion
ISsoly0rJC8rly0vly0rJC8rIConlConlSsoHykmHyollionISgmISgmHykm HigIHiglHiglCkp
liknHiglHykmHygolikpISsoli0qJCsqlikplSsolSsolooli0qlysolysol IS0oJjEtli8tly4s
ly0rJjAuJDMwJzU2LDc5HjpoHj5rHz9xI0FxlkN0IUN1HEFylkN0HEFzIEV2 IUZ4HUR5IEV2IUZ3
I0h4I0h5JEh8IkI8IkV5IERyHD5rHDIsHThqlz5pHDprHDIsIDtuHDIsGzxt Hz1wHzxxH0BwH0Nx
IkN0G0BxH0JyG0ByGUB0I0B1JEB0ID9vlz9uIUBuG0BxHz5xIT9xIT9xIkBy JD9xIkBylj1vJj9y
lj9xIkFxlkBzlj90ID9yJD9xKENrJ0BrKD9pJz9IjKBoJTxmKT1gKz1cKTpR MDpMKzhGLTtGLDdD
LTIDLdG/IscIJS8tMDpDHCYjCw4JDxMMERMMERUNERUNDxMMDhELEBQNERUN
EBQMDxMMDbILDhEL
DxEKExUNDhMMDhELEBAKEBEIDxIMDhELDxEIDBEKDRMMDhILEBIJDhAKDxQK
CQ4KDxELEBAJDxEL
DhELDREKDhAKDREKDxELDhAKDRAKCxEKDhAKDhAKDhILDhELCQwHCw0JDhAK
DA0IDA4KDhELDRAK
DRAKChAJDA4HDQ4JDRAKDhILDA4HDREKDBEHdHILCQ4KCA4ICw4JCw0JDBAJ
DhILDhAHDBEHdxEK
DhAJDhELEBIJDhILDhILFhgPFhgPExgPFBsSFBkSFhsUFRoTFBsSGBwXfX0U
HCMfMUJdJTVIFRoT
Fh4THSEYGYMYHSQZICceJCojKi8oLTQuLDYyMTg2Lzs+NUFMOKVaOEExIOIRw
OV56QGeER2mKR2qK
SmmJSmiHTGiFSmaDSGJ/TV9+S2J+Q195SF55QFIZO1ZvPIVtOVJqOVBlO0tg
MkleN0dcMkVXL0NS
MkJPMj1INz5EMz0/MDs9Lzk7Lzk3LjYxLDUuLTlrKTAnKC8kJSskJSsklicg ISYfICUeICYfHiUc
HiUcGiEYGR4XGB4XfX0XGB0WFRoTFRoTEhcSExoRFBgRFBgRfHgRFRcQEBQN
EBUODBILDRQKEBIL
KC8vMz5JGSliERUNGBsTFxwVFxwVFx0UFx0UFxwVFx0XGR8YFxsWFhoVFhoV
GR0XGB4XGB8ZFx4Z
Fx4ZFh0YFR0XGh8aGR4ZHCibGR4ZGx4dHSQfHCYeHSQfHSQgHCQhGyQfHCMe
GyleHSUiHSgjHCci
HykmHikkISolHyckISgklyknlionISsolSsrHigoHykmlConISgmlyoolikn lysoJCsqliSsolSso
ICkplikpliknISsolSgmlyoolCgllSgjlCcilCkkHicilikHyckICkpHigl ICciHSYhICciHiYj
ICciHiciHDtrID5sIUfQJEFzJENzH0R0IENzIEN3IkR2IkD4Jkh8JEI9IUp9 IEmBJEt8JEh8I0h6
JEp/JEd7IEV3IEJ0I0B1H0B1JUBylz9uI0FzID9yIUBzHkN0H0R1I0N7IUN1 H0V1IUZ2HEV0IEJ0
H0BzHUN0I0F0JEN0HkNvIT9ylz9IJEfZIkFxlkN0IkFxEJyJlURvI0B1H0Bw IUBwlz5xI0FzIUBz
JEJyIUBZIT9ylz9uJ0JqJj9pKT5nKj5hKjxbKTpRLTtMKzxFLTIILTIDMThI KTIHLjhBKjg/Hyck
IS0oLTIDISsrGR4ZGiEcGEaHCMeGyldGB8aGB8bGyldFx4ZHCQdGiEcHCib
HCEaGiEdGiEdGiEc
GB8aGh4cGSMbGh8aGB8aGiEcGh4cGyEbGB8bFR4bFx4ZGh0bGR4ZFR4WFR8Z
GBwXGx8ZFx0XFxwX
GB0YFx8XGR4XGR0XFxwXFx0XFBkUFB0VFxwVGR4XFRsUExgTFhwWFBwWExoU
FBkUFBsVFRsUFhsU
GBsWFhwWFBsVFxsWGR8YFRwXFhwWFhwWFx0XGR0YFxwXFx4ZFx4ZGh0cHCic
HSIfHyUfHiciGyUi
HiYjICYkICclISgmlyoqJSssliotJjAyJjEzIzEyJzQ4KDQ6JzQ3LzhEKjE9 ly0vISwuly4wJC8x
JjE1JTA0JDI4IjE9IzFDJDNJJzRJThalztjJkFvKEd5PV+QVn6oRnqIN2+I NnClOnWoOnqtQX6w
Q3ywQXywQHmrO3OjN3CeOGycNwaYmMCTLVqKJ1aDLFaBJ095KEx1KkhyKkVs
K0ZmKUFek0BeKT5Z
KDxRJztLJlJKTdEKjY/JzY8JzU7JjE1JzAzJDAvly8rISsolSsoliknly0n ly0nICclISgiHyYg

HyYgHSQfGyMcGiEYGiEYGR0XGh4YGR0XGBwXGBwXFx0XFhwWFBsVFBkUExoR
EBQQJTA rMTtCICst
Gh8YGx4YGH8aFh0YFwxVFhsUFBsSEhgQEhkQEBcOEhcOEhQMEhcOEBQMEBQM
DRAKEBILEBILEBIL
DBAJCg0ICQ0GDxEKCwwHCRAJDxEKCxEKCAHCAJCA4HDhAJCwwHDRAKDREK
DBEKEBILDBILCxIL
DRIMDhELDRALDxIMDRIMDxMMEBQNERQOERQODxQOERcQDxMQEBQQEBIPExkS
FhoVFBkWFxsZGBwX
Fx4YGBwaGBwaGilbGyEaHCICHCMeHCYfHiUgHyckISgjlCciliYilSgjlygk ICglligmllyooAAA=

-----=_NextPart_000_0009_01C725E2.462A6A90--Lamont - what is the output chain you are using for each app when comparing the file in Nuendo vs ProTools? On the same PC, I presume (and is this PT HD or M-Powered?)? Since these can't use the same output driver, you would have to depend on the D/A being the same, but clocking will be different unless you have a master clock, and both interfaces are locking with the same accuracy. This was one of the issues that came up at Lynn Fuston's D/A converter shootout - when do you lock to external clock and incur the resulting jitter, and when do you trust the internal clock - and if you do lock externally, how good is the PLL in the slave device? These issues can cause audible changes in the top end that have nothing to do with the software itself. If you say that PTHD through the same converter output as Nuendo (via? RME? Lynx?) using the same master clock, sounds different playing a single audio file, then I take your word for it. I can't tell you why that is happening - only that an audible difference really shouldn't happen due to the software alone - not with a single audio file, esp. since I've heard and seen PTHD audio cancel with native DAWs. Just passing a single 16 or 24 bit track down the buss to the output driver should be, and usually is, completely transparent, bit for bit.

The same audio file played through the same converters should only sound different if something in the chain is different - be it clocking, gain or some degree of unintended, errant dsp processing. Every DAW should pass a single audio file without altering a single bit. That's a basic level of accuracy we should always expect of any DAW. If that accuracy isn't there, you can be sure a heavy mix will be altered in ways you didn't intend, even though you would end up mixing with that factor in place (e.g. you still mix for what

you want to hear regardless of what the platform does to each audio track or channel).

In fact you should be able to send a stereo audio track out SPDIF or lightpipe to another DAW, record it bring the recorded file back in, line them up to the first bit, and have them cancel on and inverted phase test. I did this with Nuendo and Cubase 4 on separate machines just to be sure my master clocking and slave sync was accurate - it worked perfectly.

Also be sure there isn't a variation in the gain even by 0.1 dB between the two. There shouldn't and I wouldn't expect there to be one. Also could PT be set for a different pan law? Shouldn't make a difference even if comparing two mono panned files to their stereo interleaved equivalent, but for sake of completeness it's worth checking as well. A variation in the output chain, be it drivers, audio card card, or converters would be the most likely culprit here.

The reason DAW manufacturers wouldn't add any sonic "character" intentionally is that the ultimate goal from day one with recording has been to accurately reproduce what we hear. We developed a musical penchant for sonic character because the hardware just wasn't accurate, and what it did often sent us down new creative paths - even if by force - and we decided it was preferred that way.

Your point about what goes into the feature presets to sell synths is right for sure, but synths are about character and getting that "perfect piano" or crystal clear bell pad, or fat punchy bass without spending a mint on development, adding 50G onboard sample libraries, or costing \$15k, so what they lack in actual synthesis capabilities, they make up with EQ and effects on the output. That's been the case for years, at least since we had effects on synths at least. But even with modern synths such as the Fantom, Tritons, etc, which are great synths all around, of course the coolest, widest and biggest patches will make the biggest impression - so in come the EQs, limiters, comps, reverbs, chorus, etc. The best way to find out if a synth is really good is to bypass all effects and see what happens. Most are pretty good these days, but about half the time, there are presets that fall

completely flat in fx bypass.

DAWs aren't designed to put a sonic fingerprint on a sound the way synths are - they are designed to *not* add anything - to pass through what we create as users, with no alteration (or as little as possible) beyond what we add with intentional processing (EQ, comps, etc). Developers would find no pride in hearing that their DAW sounds anything different than whatever is being played back in it, and the concept is contrary to what AES and IEEE proceedings on the issue propose in general digital audio discussions, white papers, etc.

What ID ended up doing with Paris (at least from what I gather per Chuck's findings - so correct me if I'm missing part of the equation Chuck), is drop the track gain by 20dB or so, then added it back at the master buss to create the effect of headroom (probably because the master buss is really summing on the card, and they have more headroom there than on the tracks where native plugins might be used). I don't know if Paris passed 32-bit float files to the EDS card, but sort of doubt it. I think Chuck has clarified this at one point, but don't recall the answer.

Also what Paris did is use a greater bit depth on the hardware than ProTools did - at the time PT was just bring Mix+ systems to market, or they had been out for a year or two (if I have my timeline right) - they were 24-bit fixed all the way through. Logic and Cubase were native DAWs, but native was still too slow to compete with hardware hybrids. Paris trumped them all by running 32-bit float natively (not new really, but better than sticking to 24-bit) and 56 or so bits in hardware instead of going to Motorola DSPs at 24. The onboard effects were also a step up from anything out there, so the demo did sound good. I don't recall which, but one of the demos, imho, wasn't so good (some sloppy production and vocals in spots, IIRC), so I only listened to it once. ;-)

Coupled with the gain drop and buss makeup, this all gave it a "headroom" no one else had. With very nice onboard effects, Paris jumped ahead of anything else out there easily, and still respectably holds its' own today in that department.

Most demos I hear (when I listen to them) vary in quality, usually not so

great in some area. But if a demo does sound great, then it at least says that the product is capable of at least that level of performance, and it can only help improve a prospective buyer's impression of it.

Regards,
Dedric

"LaMont " <jjdpro@ameritech.net> wrote in message news:458c14c0\$1@linux...

>
> Dedric good post..
>
> However, I have PT-M-Powered/M-audio 410 interface for my laptop and it
> has
> that same sound (no eq, zero fader) that HD does. I know their use the
> same
> 48 bit fix mixer. I load up the same file in Nuendo (no eq, zero
> fader)..results.
> different sonic character.
>
> PT having a top end touch..Nuendo, nice smooth(flat) sound. And I'm just
> taking about a stereo wav file nulled with no eq..nothing ..zilch..nada..
>
> Now, there are devices (keyboards, dum machines) on the market today that
> have a Master Buss Compressor and EQ set to on with the top end notched
> up.
> Why? because it gives their product an competitive advantageover the
> competition..
> Ex: Yahama's Motif ES, Akai's MPC 1000, 2500, Roland's Fantom.
>
> So, why would'nt a DAW manufactuer code in an extra (ooommf) to make their
> DAW sound better. Especially, given the "I hate Digital Summing" crowd?
> And,
> If I'm a DAW manufactuer, what would give my product a sonic edge over the
> competition?
>
> We live in the "louder is better" audio world these days, so a DAW that
> can
> catch my attention 'sonically" will probaly will get the sell. That's what
> happend to me back in 1997 when I heard Paris. I was floored!!! Still to
> this day, nothing has floored me like that "Road House Blues Demo" I heard
> on Paris.
>
> Was it the hardware ? was it the software. I remember talking with Edmund
> at the 2000 winter Namm, and told me that he & Steve set out to reproduce
> the sonics of big buck analog board (eq's) and all.. And, summing was a
> big
> big issue for them because they (ID) thought that nobody has gotten

> it(summing)
> right. And by right, they meant, behaved like a console with a wide lane
> for all of those tracks..
>
>
>
>
> "Dedric Terry" <dedric@echomg.com> wrote:
>>"LaMont" <jjdpro@ameritech.net> wrote in message news:458be8d5\$1@linux...
>>>
>>> Okay...
>>> I guess what I'm saying is this:
>>>
>>> -Is it possible that diferent DAW manufactuers "code" their app
>>> differently
>>> for sound results.
>>
>>Of course it is *possible* to do this, but only if the DAW has a specific
>
>>sound shaping purpose
>>beyond normal summing/mixing. Users talk about wanting developers to add
> a
>>"Neve sound" or "API sound" option to summing engines,
>>but that's really impractical given the amount of dsp required to make a
>
>>decent emulation (with convolution, dynamic EQ functions,
>>etc). For sake of not eating up all cpu processing, that could likely
>>only
>
>>surface as is a built in EQ, which
>>no one wants universally in summing, and anyone can add at will already.
>>
>>So it hasn't happened yet and isn't likely to as it detours from the basic
>
>>tenant of audio recording - recreate what comes in as
>>accurately as possible.
>>
>>What Digi did in recoding their summing engine was try to recover some
>>of the damage done by the 24-bit buss in Mix systems. Motorola 56k dsps
> are
>>24-bit fixed point chips and I think
>>the new generation (321?) still is, but they use double words now for
>>48-bits). And though plugins could process at 48-bit by
>>doubling up and using upper and lower 24-bit words for 48-bit outputs, the
>
>>buss
>>between chips was 24-bits, so they had to dither to 24-bits after every
>

>>plugin. The mixer (if I recall correctly) also
>>had a 24-bit buss, so what Digi did is to add a dither stage to the mixer
> to
>>prevent this
>>constant tru

Subject: Re: Paris Skins / examples 4
Posted by [Yanoska](#) on Thu, 16 Nov 2006 06:19:48 GMT
[View Forum Message](#) <> [Reply to Message](#)

ncation of data. 24-bits isn't enough to cover summing for
> more
>>than a few tracks without
>>losing information in the 16-bit world, and in the 24-bit world some
>>information will be lost, at least at the lowest levels.
>>
>>Adding a dither stage (though I think they did more than that - perhaps
>
>>implement a 48-bit double word stage as well),
>>simply smoothed over the truncation that was happening, but it didn't
>>solve
>
>>the problem, so with HD
>>they went to a double-word path - throughout I believe, including the path
>
>>between chips. I believe the chips
>>are still 24-bit, but by doubling up the processing (yes at a cost of
>>twice
>
>>the overhead), they get a 48-bit engine.
>>This not only provided better headroom, but greater resolution. Higher
> bit
>>depths subdivide the amplitude with greater resolution, and that's
>>really where we get the definition of dynamic range - by lowering the
>>signal
>
>>to quantization noise ratio.
>>
>>With DAWs that use 32-bit floating point math all the way through, the
>>only
>
>>reason for altering the summing
>>is by error, and that's an error that would actually be hard to make and
> get
>>past a very basic alpha stage of testing.
>>There is a small difference in fixed point math and floating point math,
> or

>>at least a theoretical difference in how it affects audio
>>in certain cases, but not necessarily in the result for calculating gain
> in
>>either for the same audio file. Where any differences might show up is
>
>>complicated, and I believe only appear at levels below 24-bit (or in
>>headroom with tracks pushed beyond 0dBFS), or when/if
>>there are any differences in where each amplitude level is quantized.
>>
>>Obviously there can be differences if the DAW has to use varying bit
>>depths
>
>>throughout a single summing path to accommodate hardware
>>as well as software summing, since there may be truncation or rounding
>>along
>
>>the way, but that impacts the lowest bit
>>level, and hence - spatial reproduction, reverb tails perhaps, and
>>"depth",
>
>>not the levels most music so the differences are most
>>often more subtle than not. But most modern DAWs have eliminated those
>
>>"rough edges" in the math by increasing the bit depth to accommodate normal
>
>>summing required for mixing audio.
>>
>>So with Lynn's unity gain summing test (A files on the CD I believe), DAWs
>
>>were never asked to sum beyond 24-bits,
>>at least not on the upper end of the dynamic range, so everything that
>>could
>
>>represent 24-bits accurately would cancel. The only ones
>>that didn't were ones that had a different bit depth and/or gain structure
>
>>whether hybrid or native
>>(e.g. Paris' subtracting 20dB from tracks and adding it to the buss). In
>
>>this case, PTHD cancelled (when I tested it) with
>>Nuendo, Samplitude, Logic, etc because the impact of the 48-bit fixed vs.
>
>>32-bit float wasn't a factor.
>>
>>When trying other tests, even when adding and subtracting gain, Nuendo,
>
>>Sequoia and Sonar cancel - both audibly and
>>visually at inaudible levels, which only proves that one isn't making an

>
>>error when calculating basic gain. Since a dB is well defined,
>>and the math to add gain is simple, they shouldn't. The fact that they
> all
>>use 32-bit float all the way through eliminates a difference
>>in data structure as well, and this just verifies that. There was a time
>
>>that supposedly Logic (v3, v4?) was partly 24-bit, or so the rumor went,
>>but it's 32-bit float all the way through now just as Sonar,
>>Nuendo/Cubase,
>
>>Samplitude/Sequoia, DP, Audition (I presume at least).
>>I don't know what Acid or Live use. Saw promotes a fixed point engine,
> but
>>I don't know if it is still 24-bit, or now 48 bit.
>>That was an intentional choice by the developer, but he's the only one I
>
>>know of that stuck with 24-bit for summing
>>intentionally, esp. after the Digi Mix system mixer incident.
>>
>>Long answer, but to sum up, it is certainly physically *possible* for a
>
>>developer to code something differently intentionally, but not
>>in reality likely since it would be breaking some basic fixed point or
>>floating point math rules. Where the differences really
>>showed up in the past is with PT Mix systems where the limitation was
>>really
>
>>significant - e.g. 24 bit with truncation at several stages.
>>
>>That really isn't such an issue anymore. Given the differences in
>>workflow,
>
>>missing something in workflow or layout differences
>>is easy enough to do (e.g. Sonar doesn't have group and busses the way
>>Nuendo does, as it's outputs are actually driver outputs,
>>not software busses, so in Sonar, busses are actually outputs, and sub
>>busses are actually busses in Nuendo. There are no,
>>or at least I haven't found the equivalent of a Nuendo group in Sonar -
> that
>>affects the results of some tests (though not basic
>>summing) if not taken into account, but when taken into account, they work
>
>>exactly the same way).
>>
>>So at least when talking about apps with 32-bit float all the way through,
>
>>it's safe to say (since it has been proven) that summing isn't different

>
 >>unless
 >>there is an error somewhere, or variation in how the user duplicates the
 >
 >>same mix in two different apps.
 >>
 >>Imho, that's actually a very good thing - approaching a more consistent
 >
 >>basis for recording and mixing from which users can make all
 >>of the decisions as to how the final product will sound and not be
 >>required
 >
 >>to decide when purchasing a pricey console, and have to
 >>focus their business on clients who want "that sound". I believe we are
 >
 >>actually closer to the pure definition of recording now than
 >>we once were.
 >>
 >>Regards,
 >>Dedric
 >>
 >>
 >>>
 >>> I the answer is yes, then,the real task is to discover or rather
 >>> un-cover
 >>> what's say: Motu's vision of summing, versus Digidesign, versus
 >>> Steinberg
 >>> and so on..
 >>>
 >>> What's under the hood. To me and others,when Digi re-coded their summing
 >>> engine, it was obvious that Pro Tools has an obvious top end (8k-10k)
 >
 >>> bump.
 >>> Where as Steinberg's summing is very neutral.
 >>>
 >>> "Dedric Terry" <dedric@echomg.com> wrote:
 >>>>Hi Neil,
 >>>>
 >>>>Jamie is right. And you aren't wacked out - you are thinking this
 >>>>through
 >>>
 >>>>in a reasonable manner, but coming to the wrong
 >>>>conclusion - easy to do given how confusing digital audio can be. Each
 >>> word
 >>>>represents an amplitude
 >>>>point on a single curve that is changing over time, and can vary with
 > a
 >>>

>>>>speed up to the Nyquist frequency (as Jamie described).
>>>>The complex harmonic content we hear is actually the frequency
>>>>modulation
>>> of
>>>>a single waveform,
>>>>that over a small amount of time creates the sound we translate - we
>>>>don't
>>>
>>>>really hear a single sample at a time,
>>>>but thousands of samples at a time (1 sample alone could at most
>>>>represent
>>> a
>>>>single positive or negative peak
>>>>of a 22,050Hz waveform).
>>>>
>>>>If one bit doesn't cancel, esp. if it's a higher order bit than number
> 24,
>>>
>>>>you may hear, and will see that easily,
>>>>and the higher the bit in the dynamic range (higher order) the more
>>>>audible
>>>
>>>>the difference.
>>>>Since each bit is 6dB of dynamic range, you can extrapolate how "loud"
>
>>>>that
>>>
>>>>bit's impact will be
>>>>if there is a variation.
>>>>
>>>>Now, obviously if we are talking about 1 sample in a 44.1k rate song,
> then
>>>
>>>>it simply be a
>>>>click (only audible if it's a high enough order bit) instead of an
>>>>obvious
>>>
>>>>musical difference, but that should never
>>>>happen in a phase cancellation test between identical files higher than
>>> bit
>>>>24, unless there are clock sync problems,
>>>>driver issues, or the DAW is an early alpha version. :-)
>>>>
>>>>By definition of what DAWs do during playback and record, every audio
>
>>>>stream
>>>
>>>>has the same point in time (judged by the timeline)

>>>>played back sample accurately, one word at a time, at whatever sample
>
>>>>rate
>>>
>>>>we are using. A phase cancellation test uses that
>>>>fact to compare two audio files word for word (and hence bit for bit
>>>>since
>>>
>>>>each bit of a 24-bit word would
>>>>be at the same bit slot in each 24-bit word). Assuming they are aligned
>>> to
>>>>the same start point, sample
>>>>accurately, and both are the same set of sample words at each sample
>>>>point,
>>>
>>>>bit for bit, and one is phase inverted,
>>>>they will cancel through all 24 bits. For two files to cancel
>>>>completely
>>>
>>>>for the duration of the file, each and every bit in each word
>>>>must be the exact opposite of that same bit position in a word at the
> same
>>>
>>>>sample point. This is why zooming in on an FFT
>>>>of the full difference file is valuable as it can show any differences
> in
>>>
>>>>the lower order bits that wouldn't be audible. So even if
>>>>there is no audible difference, the visual followup will show if the two
>>>
>>>>files truly cancel even a levels below hearing, or
>>>>outside of a frequency change that we will perceive.
>>>>
>>>>When they don't cancel, usually there will be way more than 1 bit
>>>>difference - it's usually one or more bits in the words for
>>>>thousands of samples. From a musical standpoint this is usually in a
>>>>frequency range (low freq, or high freq most often) - that will
>>>>show up as the difference between them, and that usually happens due to
>>> some
>>>>form of processing difference between the files,
>>>>such as EQ, compression, frequency dependant gain changes, etc. That is
>>> what
>>>>I believe you are thinking through, but when
>>>>talking about straight summing with no gain change (or known equal gain
>>>
>>>>changes), we are only looking at linear, one for one
>>>>comparisons between the two files' frequency representations.
>>>>

>>>>Regards,
>>>>Dedric
>>>>
>>>>> Neil wrote:
>>>>>> "Dedric Terry" <dedric@echomg.com> wrote:
>>>>>>> The tests I did were completely blank down to -200 dB (far below the
>>>>>>>
>>>>>>> last
>>>>>>>
>>>>>>> bit). It's safe to say there is no difference, even in
>>>>>>> quantization noise, which by technical rights, is considered below
> the
>>>>>>>
>>>>>>> level
>>>>>>>
>>>>>>> of "cancellation" in such tests.
>>>>>>>
>>>>>>> I'm not necessarily talking about just the first bit or the
>>>>>>> last bit, but also everything in between... what happens on bit
>>>>>>> #12, for example? Everything on bit #12 should be audible, but
>>>>>>> in an a/b test what if there are differences in what bits #8
>>>>>>> through #12 sound like, but the amplitude is still the same on
>>>>>>> both files at that point, you'll get a null, right? Extrapolate
>>>>>>> that out somewhat & let's say there are differences in bits #8
>>>>>>> through #12 on sample points 3, 17, 1,000, 4,523, 7,560, etc,
>>>>>>> etc through 43,972... Now this is breaking things down well
>>>>>>> beyond what I think can be measured, if I'm not mistaken (I
>>>>>>> don't know of any way we could extract JUST that information
>>>>>>> from each file & play it back for an a/b test; but would not
>>>>>>> that be enough to have to "null-able" files that do actually
>>>>>>> sound somewhat different?
>>>>>>>
>>>>>>> I guess what I'm saying is that since each sample in a musical
>>>>>>> track or full song file doesn't represent a pure, simple set of
>>>>>>> content like a sample of a sine wave would - there's a whole
>>>>>>> world of harmonic structure in each sample of a song file, and
>>>>>>> I think (although I'll admit - I can't "prove") that there is
>>>>>>> plenty of room for some variables between the first bit & the
>>>>>>> last bit while still allowing for a null test to be successful.
>>>>>>>
>>>>>>> No? Am I wacked out of my mind?
>>>>>>>
>>>>>>> Neil
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>
>>>>>>>

>Awesome Chris. Congratulats on the nomination. Wish I was a big enough cat to vote.
MR

"Chris Latham" <latham_c@bellsouth.net> wrote in message
news:458b70fc@linux...

> For those of you who will be voting for the 49th annual Grammys, please give

> a listen to, and consider Guy Clark's "Workbench Songs" for Best

> Contemporary Folk/Americana Album (Catagory 68 in Field 14 - Folk).

Edited

> and mixed entirely in PARIS.

>

> THANK YOU,

> Chris

>

>This is a multi-part message in MIME format.

-----=_NextPart_000_0014_01C725FA.9A559460

Content-Type: text/plain;

charset="iso-8859-1"

Content-Transfer-Encoding: 7bit

I've got a Mac G4 (OSX 10.4) and a PC running Windows 98SE and Paris. I want to be able to move .wav files made on the G4 over to Paris, and from Paris back over to the Mac --if I want to apply FX there that I cannot in Paris. As I understand it, the G4 has an ethernet card built in. I assume that I have to get a NIC card for the PC. Do I need to get some sort of software for each machine so that the PC will see the Mac and vice versa? This is totally new territory. I wish it was as simple as plugging in a cable between two boxes, but I fear it is not...

Thanks much,

MR

-----=_NextPart_000_0014_01C725FA.9A559460

Content-Type: text/html;

charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">

<HTML><HEAD>

<META http-equiv=3DContent-Type content=3D"text/html; charset=3Diso-8859-1">

<META content=3D"MSHTML 6.00.2800.1555" name=3DGENERATOR>

<STYLE></STYLE>

</HEAD>

<BODY bgColor=3D#ffffff>

<DIV>I've got a Mac G4 (OSX 10.4) and a PC =

running=20
Windows 98SE and Paris. I want to be able to move .wav files made =
on the=20
G4 over to Paris, and from Paris back over to the Mac --if I want to =
apply FX=20
there that I cannot in Paris. As I understand it, the G4 has an =
ethernet=20
card built in. I assume that I have to get a NIC card for the PC. =
Do I=20
need to get some sort of software for each machine so that the PC will =
see the=20
Mac and vice versa? This is totally new territory. I wish it =
was as=20
simple as plugging in a cable between two boxes, but I fear it is=20
not...</DIV>
<DIV>Thanks much,</DIV>
<DIV>MR</DIV></BODY></HTML>

-----=_NextPart_000_0014_01C725FA.9A559460--This is a multi-part message in MIME format.

-----=_NextPart_000_0023_01C7268C.A5A724E0

Content-Type: text/plain;

charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

I think it is....

Most PC's these days have built in Ethernet cards, and windows has a =
network setup wizard that will run you through the process.

easy....really.

--=20

Martin Harrington

www.lendaneer-sound.com

"Mike R." <emarenot@yahoo.com> wrote in message =
news:458c6d36\$1@linux...

I've got a Mac G4 (OSX 10.4) and a PC running Windows 98SE and Paris. =
I want to be able to move .wav files made on the G4 over to Paris, and =
from Paris back over to the Mac --if I want to apply FX there that I =
cannot in Paris. As I understand it, the G4 has an ethernet card built =
in. I assume that I have to get a NIC card for the PC. Do I need to get =
some sort of software for each machine so that the PC will see the Mac =
and vice versa? This is totally new territory. I wish it was as simple =
as plugging in a cable between two boxes, but I fear it is not...

Thanks much,

MR

-----=_NextPart_000_0023_01C7268C.A5A724E0

Content-Type: text/html;

charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
<HTML><HEAD>
<META http-equiv=3DContent-Type content=3D"text/html"; =
charset=3Diso-8859-1">
<META content=3D"MSHTML 6.00.5730.11" name=3DGENERATOR>
<STYLE></STYLE>
</HEAD>
<BODY bgColor=3D#ffffff>
<DIV><FONT size=3D2>I think it is....</FONT></DIV>
<DIV><FONT size=3D2>Most PC's these days have built in Ethernet cards, =
and windows=20
has a network setup wizard that will run you through the =
process.</FONT></DIV>
<DIV><FONT size=3D2>easy....really.</FONT><BR>-- <BR>Martin =
Harrington<BR><A=20
href=3D"http://www.lendaneer-sound.com">www.lendaneer-sound.com</A><BR></=
DIV>
<BLOCKQUOTE dir=3Dltr=20
style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =
BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">
  <DIV>"Mike R." &lt;<A=20
    href=3D"mailto:emarenot@yahoo.com">emarenot@yahoo.com</A>&gt; wrote in =
message=20
    <A href=3D"news:458c6d36$1@linux">news:458c6d36$1@linux</A>...</DIV>
    <DIV><FONT face=3DArial size=3D2>I've got a Mac G4 (OSX 10.4) and a PC =
running=20
    Windows 98SE and Paris.&nbsp; I want to be able to move .wav files =
made on the=20
    G4 over to Paris, and from Paris back over to the Mac --if I want to =
apply FX=20
    there that I cannot in Paris.&nbsp; As I understand it, the G4 has an =
ethernet=20
    card built in.&nbsp; I assume that I have to get a NIC card for the =
PC. Do I=20
    need to get some sort of software for each machine so that the PC will =
see the=20
    Mac and vice versa?&nbsp; This is totally new territory.&nbsp; I wish =
it was=20
    as simple as plugging in a cable between two boxes, but I fear it is=20
    not...</FONT></DIV>
    <DIV><FONT face=3DArial size=3D2>Thanks much,</FONT></DIV>
    <DIV><FONT face=3DArial =
size=3D2>MR</FONT></DIV></BLOCKQUOTE></BODY></HTML>
```

-----=_NextPart_000_0023_01C7268C.A5A724E0--Dedric, my simple test is simple..
Using the same audio interface, with the same stereo file..null-ed to zero..No

eq, for fx. Master fader on zero..

Nuendo, Pro-Tools -Mpowered(native)... yields a sonic difference that I have referenced before.. The sound coming from PT-M has a nice top end , where as Neundo has a nice flatter sound quality.
Same audio interface. M-audio 410..Using Mackies & Blue-Sky pro monitors..

Same test at the big room..PT-HD & Neundo Logic Audio(macG5-Dual) Using the 192 interface.

Same results..But adding Logic audio's sound ..(Broad, thick)

Somethings going on.

Chucks post about how paris handles audio is a theory..Only Edmund can truly give us the goods on what's really what..

I disagree that manufactuers don;t set out o put a sonic print on their products. I think they do.

I have been fortunate to work on some digital mixers and I can tell you that each one has their own sound. The Sony Dmx-100 was modeled after SSL 4000g (like it's Big Brother).And you what? That board (Dmx-100) sound very warm and it's eq tries to behave and sound just like an SSL.. Unlike he Yamaha Dm2000(version 1.x) which has a very Clean, neutral sound..However, some complained that it was tooo Vanila and thus, Yamaha add a version 2.0 which added Vintage type Eq's, modeled analog input gain saturation fx too give the user a choice Btw Clean and Neutral vs sonic Character.

So, if digital conoles can be given a sonic character, why not a software mixer?

The truth is, there are some folks who want a neutral mixer and then there are others who want a sonic footprint imparted. and these can be coded in the digital realm.

The apllies with the manufactuers. They too have their vision on what They think and want their product to sound.

I love reading on gearslutz the posts from Plugin developers and their interpretations and opinions about what makes their Neve 1073 Eq better and what goes into making their version sound like it does.. Each Developer has a different vision as to what the Neve 1073 should sound like. And yet they all sound good , but slightly different.

You stated that you use Vegas. Well as you know, Vegas has a very generic sound..Just plain and simple. But, i bet you can tell the difference on your system when you play that same file in Neundo (No, fx, eq, null-edzerro)..
???

"Dedric Terry" <dedric@echomg.com> wrote:

>Lamont - what is the output chain you are using for each app when comparing

>the file in Nuendo

>vs ProTools? On the same PC, I presume (and is this PT HD or M-Powered?)?

>Since these can't use the same output driver, you would have to depend on

>the D/A being

>the same, but clocking will be different unless you have a master clock,
>and

>both interfaces

>are locking with the same accuracy. This was one of the issues that came
>up

>at Lynn Fuston's

>D/A converter shootout - when do you lock to external clock and incur the

>resulting jitter,

>and when do you trust the internal clock - and if you do lock externally,

>how good is the PLL

>in the slave device? These issues can cause audible changes in the top
>end

>that have nothing to do

>with the software itself. If you say that PTHD through the same converter

>output as Nuendo (via? RME?

>Lynx?) using the same master clock, sounds different playing a single audio

>file, then I take your word

>for it. I can't tell you why that is happening - only that an audible

>difference really shouldn't happen due

>to the software alone - not with a single audio file, esp. since I've heard

>and seen PTHD audio cancel with

>native DAWs. Just passing a single 16 or 24 bit track down the buss to
>the

>output driver should

>be, and usually is, completely transparent, bit for bit.

>

>The same audio file played through the same converters should only sound

>different if something in

>the chain is different - be it clocking, gain or some degree of unintended,

>errant dsp processing. Every DAW should

>pass a single audio file without altering a single bit. That's a basic level

>of accuracy we should always

>expect of any DAW. If that accuracy isn't there, you can be sure a heavy

>mix will be altered in ways you

>didn't intend, even though you would end up mixing with that factor in place

>(e.g. you still mix for what

>you want to hear regardless of what the platform does to each audio track

or

>channel).

>

>In fact you should be able to send a stereo audio track out SPDIF or

>lightpipe to another DAW, record it

>bring the recorded file back in, line them up to the first bit, and have

>them cancel on and inverted phase

>test. I did this with Nuendo and Cubase 4 on separate machines just to

be

>sure my master clocking and

>slave sync was accurate - it worked perfectly.

>

>Also be sure there isn't a variation in the gain even by 0.1 dB between

the

>two. There shouldn't

>and I wouldn't expect there to be one. Also could PT be set for a different

>pan law? Shouldn't make a

>difference even if comparing two mono panned files to their stereo

>interleaved equivalent, but for sake

>of completeness it's worth checking as well. A variation in the output

>chain, be it drivers, audio card

>card, or converters would be the most likely culprit here.

>

>The reason DAW manufacturers wouldn't add any sonic "character"

>intentionally is that the

>ultimate goal from day one with recording has been to accurately reproduce

>what we hear.

>We developed a musical penchant for sonic character because the hardware

>just wasn't accurate,

>and what it did often sent us down new creative paths - even if by force

-

>and we decided it was

>preferred that way.

>

>Your point about what goes into the feature presets to sell synths is right

>for sure, but synths are about
>character and getting that "perfect piano" or crystal clear bell pad, or
fat
>punchy bass without spending
>a mint on development, adding 50G onboard sample libraries, or costing \$15k,

>so what they
>lack in actual synthesis capabilities, they make up with EQ and effects
on
>the output. That's been the case
>for years, at least since we had effects on synths at least. But even with

>modern synths such as the Fantom,
>Tritons, etc, which are great synths all around, of course the coolest,

>widest and biggest patches
>will make the biggest impression - so in come the EQs, limiters, comps,

>reverbs, chorus, etc. The best
>way to find out if a synth is really good is to bypass all effects and see

>what happens. Most are pretty
>good these days, but about half the time, there are presets that fall
>completely flat in fx bypass.
>
>DAWs aren't designed to put a sonic fingerprint on a sound the way synths

>are - they are designed
>to *not* add anything - to pass through what we create as users, with no

>alteration (or as little as possible)
>beyond what we add with intentional processing (EQ, comps, etc). Developers

>would find no pride
>in hearing that their DAW sounds anything different than whatever is being

>played back in it,
>and the concept is contrary to what AES and IEEE proceedings on the issue

>propose in general
>digital audio discussions, white papers, etc.
>
>What ID ended up doing with Paris (at least from what I gather per Chuck's

>findings - so correct me if I'm missing part of the equation Chuck),
>is drop the track gain by 20dB or so, then added it back at the master buss

>to create the effect of headroom (probably

>because the master buss is really summing on the card, and they have more
>headroom there than on the tracks
>where native plugins might be used). I don't know if Paris passed 32-bit
>float files to the EDS card, but sort of
>doubt it. I think Chuck has clarified this at one point, but don't recall
>the answer.
>
>Also what Paris did is use a greater bit depth on the hardware than ProTools
>did - at the time PT was just
>bring Mix+ systems to market, or they had been out for a year or two (if
I
>have my timeline right) - they
>were 24-bit fixed all the way through. Logic and Cubase were native DAWs,
>but native was still too slow
>to compete with hardware hybrids. Paris trumped them all by running 32-bit
>float natively (not new really, but
>better than sticking to 24-bit) and 56 or so bits in hardware instead of
>going to Motorola DSPs at 24.
>The onboard effects were also a step up from anything out there, so the
demo
>did sound good.
>I don't recall which, but one of the demos, imho, wasn't so good (some
>sloppy production and
>vocals in spots, IIRC), so I only listened to it once. ;-)
>
>Coupled with the gain drop and buss makeup, this all gave it a "headroom"
no
>one else had. With very nice
>onboard effects, Paris jumped ahead of anything else out there easily, and
>still respectably holds its' own today
>in that department.
>
>Most demos I hear (when I listen to them) vary in quality, usually not so
>great in some area. But if a demo does
>sound great, then it at least says that the product is capable of at least
>that level of performance, and it can
>only help improve a prospective buyer's impression of it.
>

>Regards,
>Dedric
>
>"LaMont " <jjdpro@ameritech.net> wrote in message news:458c14c0\$1@linux...
>>
>> Dedric good post..
>>
>> However, I have PT-M-Powered/M-audio 410 interface for my laptop and it

>> has
>> that same sound (no eq, zero fader) that HD does. I know their use the

>> same
>> 48 bit fix mixer. I load up the same file in Nuendo (no eq, zero
>> fader)..results.
>> different sonic character.
>>
>> PT having a top end touch..Nuendo, nice smooth(flat) sound. And I'm just
>> taking about a stereo wav file nulled with no eq..nothing ..zilch..nada..
>>
>> Now, there are devices (keyboards, dum machines) on the market today that
>> have a Master Buss Compressor and EQ set to on with the top end notched

>> up.
>> Why? because it gives their product an competitive advantageover the
>> competition..
>> Ex: Yahama's Motif ES, Akai's MPC 1000, 2500, Roland's Fantom.
>>
>> So, why would'nt a DAW manufactuer code in an extra (ooommf) to make their
>> DAW sound better. Especially, given the "I hate Digital Summing" crowd?

>> And,
>> If I'm a DAW manufactuer, what would give my product a sonic edge over
the
>> competition?
>>
>> We live in the "louder is better" audio world these days, so a DAW that

>> can
>> catch my attention 'sonically" will probaly will get the sell. That's
what
>> happend to me back in 1997 when I heard Paris. I was floored!!! Still
to
>> this day, nothing has floored me like that "Road House Blues Demo" I heard
>> on Paris.
>>
>> Was it the hardware ? was it the software. I remember talking with Edmund
>> at the 2000 winter Namm, and told me that he & Steve set out to reproduce

>> the sonics of big buck analog board (eq's) and all.. And, summing was
a
>> big
>> big issue for them because they (ID) thought that nobody has gotten
>> it(summing)
>> right. And by right, they meant, behaved like a console with a wide lane
>> for all of those tracks..
>>
>>
>>
>>
>> "Dedric Terry" <dedric@echomg.com> wrote:
>>>"LaMont" <jjdpro@ameritech.net> wrote in message news:458be8d5\$1@linux...
>>>>
>>>> Okay...
>>>> I guess what I'm saying is this:
>>>>
>>>> -Is it possible that diferent DAW manufactuers "code" their app
>>>> differently
>>>> for sound results.
>>>
>>>>Of course it is *possible* to do this, but only if the DAW has a specific
>>
>>>>sound shaping purpose
>>>>beyond normal summing/mixing. Users talk about wanting developers to
add
>> a
>>>>"Neve sound" or "API sound" option to summing engines,
>>>>but that's really impractical given the amount of dsp required to make
a
>>
>>>>decent emulation (with convolution, dynamic EQ functions,
>>>>etc). For sake of not eating up all cpu processing, that could likely
>>>>only
>>
>>>>surface as is a built in EQ, which
>>>>no one wants universally in summing, and anyone can add at will already.
>>>>
>>>>So it hasn't happened yet and isn't likely to as it detours from the basic
>>
>>>>tenant of audio recording - recreate what comes in as
>>>>accurately as possible.
>>>>
>>>>What Digi did in recoding their summing engine was try to recover some
>>>>of the damage done by the 24-bit buss in Mix systems. Motorola 56k dsps
>> are
>>>>24-bit fixed point chips and I think

>>>the new generation (321?) still is, but they use double words now for
>>>48-bits). And though plugins could process at 48-bit by
>>>doubling up and using upper and lower 24-bit words for 48-bit outputs,
the
>>
>>>buss
>>>between chips was 24-bits, so they had to dither to 24-bits after every
>>
>>>plugin. The mixer (if I recall correctly) also
>>>had a 24-bit buss, so what Digi did is to add a dither stage to the mixer
>> to
>>>prevent this
>>>constant truncation of data. 24-bits isn't enough to cover summing for
>> more
>>>than a few tracks without
>>>losing information in the 16-bit world, and in the 24-bit world some
>>>information will be lost, at least at the lowest levels.
>>>
>>>Adding a dither stage (though I think they did more than that - perhaps
>>
>>>implement a 48-bit double word stage as well),
>>>simply smoothed over the truncation that was happening, but it didn't

>>>solve
>>
>>>the problem, so with HD
>>>they went to a double-word path - throughout I believe, including the
path
>>
>>>between chips. I believe the chips
>>>are still 24-bit, but by doubling up the processing (yes at a cost of

>>>twice
>>
>>>the overhead), they get a 48-bit engine.
>>>This not only provided better headroom, but greater resolution. Higher
>> bit
>>>depths subdivide the amplitude with greater resolution, and that's
>>>really where we get the definition of dynamic range - by lowering the

>>>signal
>>
>>>to quantization noise ratio.
>>>
>>>With DAWs that use 32-bit floating point math all the way through, the

>>>only
>>

>>>reason for altering the summing
>>>is by error, and that's an error that would actually be hard to make and
>> get
>>>past a very basic alpha stage of testing.
>>>There is a small difference in fixed point math and floating point math,
>> or
>>>at least a theoretical difference in how it affects audio
>>>in certain cases, but not necessarily in the result for calculating gain
>> in
>>>either for the same audio file. Where any differences might show up is
>>
>>>complicated, and I believe only appear at levels below 24-bit (or in
>>>headroom with tracks pushed beyond 0dBFS), or when/if
>>>there are any differences in where each amplitude level is quantized.
>>>
>>>Obviously there can be differences if the DAW has to use varying bit
>>>depths
>>
>>>throughout a single summing path to accomodate hardware
>>>as well as software summing, since there may be truncation or rounding

>>>along
>>
>>>the way, but that impacts the lowest bit
>>>level, and hence - spacial reproduction, reverb tails perhaps, and
>>>"depth",
>>
>>>not the levels most music so the differences are most
>>>often more subtle than not. But most modern DAWs have eliminated those
>>
>>>"rough edges" in the math by increasing the bit depth to accomodate normal
>>
>>>summing required for mixing audio.
>>>
>>>So with Lynn's unity gain summing test (A files on the CD I believe),
DAWs
>>
>>>were never asked to sum beyond 24-bits,
>>>at least not on the upper end of the dynamic range, so everything that

>>>could
>>
>>>represent 24-bits accurately would cancel. The only ones
>>>that didn't were ones that had a different bit depth and/or gain structure
>>
>>>whether hybrid or native
>>>(e.g. Paris' subtracting 20dB from tracks and adding it to the buss).
In

>>
>>>this case, PTHD cancelled (when I tested it) with
>>>Nuendo, Samplitude, Logic, etc because the impact of the 48-bit fixed
vs.
>>
>>>32-bit float wasn't a factor.
>>>
>>>When trying other tests, even when adding and subtracting gain, Nuendo,
>>
>>>Sequoia and Sonar cancel - both audibly and
>>>visually at inaudible levels, which only proves that one isn't making
an
>>
>>>error when calculating basic gain. Since a dB is well defined,
>>>and the math to add gain is simple, they shouldn't. The fact that they
>> all
>>>use 32-bit float all the way through eliminates a difference
>>>in data structure as well, and this just verifies that. There was a time
>>
>>>that supposedly Logic (v3, v4?) was partly 24-bit, or so the rumor went,
>>>but it's 32-bit float all the way through now just as Sonar,
>>>Nuendo/Cubase,
>>
>>>Samplitude/Sequoia, DP, Audition (I presume at least).
>>>I don't know what Acid or Live use. Saw promotes a fixed point engine,
>> but
>>>I don't know if it is still 24-bit, or now 48 bit.
>>>That was an intentional choice by the developer, but he's the only one
I
>>
>>>know of that stuck with 24-bit for summing
>>>intentionally, esp. after the Digi Mix system mixer incident.
>>>
>>>Long answer, but to sum up, it is certainly physically *possible* for
a
>>
>>>developer to code something differently intentionally, but not
>>>in reality likely since it would be breaking some basic fixed point or
>>>floating point math rules. Where the differences really
>>>showed up in the past is with PT Mix systems where the limitation was

>>>really
>>
>>>significant - e.g. 24 bit with truncation at several stages.
>>>
>>>That really isn't such an issue anymore. Given the differences in
>>>workflow,
>>

>>>missing something in workflow or layout differences
>>>is easy enough to do (e.g. Sonar doesn't have group and busses the way
>>>Nuendo does, as it's outputs are actually driver outputs,
>>>not software busses, so in Sonar, busses are actually outputs, and sub
>>>busses are actually busses in Nuendo. There are no,
>>>or at least I haven't found the equivalent of a Nuendo group in Sonar
-
>> that
>>>affects the results of some tests (though not basic
>>>summing) if not taken into account, but when taken into account, they
work
>>
>>>exactly the same way).
>>>
>>>So at least when talking about apps with 32-bit float all the way through,
>>
>>>it's safe to say (since it has been proven) that summing isn't different
>>
>>>unless
>>>there is an error somewhere, or variation in how the user duplicates the
>>
>>>same mix in two different apps.
>>>
>>>Imho, that's actually a very good thing - approaching a more consistent
>>
>>>basis for recording and mixing from which users can make all
>>>of the decisions as to how the final product will sound and not be
>>>required
>>
>>>to decide when purchasing a pricey console, and have to
>>>focus their business on clients who want "that sound". I believe we are
>>
>>>actually closer to the pure definition of recording now than
>>>we once were.
>>>
>>>Regards,
>>>Dedric
>>>
>>>
>>>> I the answer is yes, then,the real task is to discover or rather
>>>> un-cover
>>>> what's say: Motu's vision of summing, versus Digidesign, versus
>>>> Steinberg
>>>> and so on..
>>>>
>>>> What's under the hood. To me and others,when Digi re-coded their summing
>>>> engine, it was obvious that Pro Tools has an obvious top end (8k-10k)

>>
>>>> bump.
>>>> Where as Steinberg's summing is very neutral.
>>>>
>>>> "Dedric Terry" <dedric@echomg.com> wrote:
>>>>>Hi Neil,
>>>>>
>>>>>Jamie is right. And you aren't wacked out - you are thinking this
>>>>>through
>>>>>
>>>>>in a reasonable manner, but coming to the wrong
>>>>>conclusion - easy to do given how confusing digital audio can be. Each
>>>> word
>>>>>represents an amplitude
>>>>>point on a single curve that is changing over time, and can vary with
>> a
>>>>>
>>>>>speed up to the Nyquist frequency (as Jamie described).
>>>>>The complex harmonic content we hear is actually the frequency
>>>>>modulation
>>>> of
>>>>>a single waveform,
>>>>>that over a small amount of time creates the sound we translate - we

>>>>>don't
>>>>>
>>>>>really hear a single sample at a time,
>>>>>but thousands of samples at a time (1 sample alone could at most
>>>>>represent
>>>> a
>>>>>single positive or negative peak
>>>>>of a 22,050Hz waveform).
>>>>>
>>>>>If one bit doesn't cancel, esp. if it's a higher order bit than number
>> 24,
>>>>>
>>>>>you may hear, and will see that easily,
>>>>>and the higher the bit in the dynamic range (higher order) the more
>>>>>audible
>>>>>
>>>>>the difference.
>>>>>Since each bit is 6dB of dynamic range, you can extrapolate how "loud"
>>
>>>>>that
>>>>>
>>>>>bit's impact will be
>>>>>if there is a variation.
>>>>>

>>>>>Now, obviously if we are talking about 1 sample in a 44.1k rate song,
>> then
>>>>>
>>>>>it simply be a
>>>>>click (only audible if it's a high enough order bit) instead of an
>>>>>obvious
>>>>>
>>>>>musical difference, but that should never
>>>>>happen in a phase cancellation test between identical files higher than
>>>> bit
>>>>>24, unless there are clock sync problems,
>>>>>driver issues, or the DAW is an early alpha version. :-)
>>>>>
>>>>>By definition of what DAWs do during playback and record, every audio
>>
>>>>>stream
>>>>>
>>>>>has the same point in time (judged by the timeline)
>>>>>played back sample accurately, one word at a time, at whatever sample
>>
>>>>>rate
>>>>>
>>>>>we are using. A phase cancellation test uses that
>>>>>fact to compare two audio files word for word (and hence bit for bit

>>>>>since
>>>>>
>>>>>each bit of a 24-bit word would
>>>>>be at the same bit slot in each 24-bit word). Assuming they are aligned
>>>> to
>>>>>the same start point, sample
>>>>>accurately, and both are the same set of sample words at each sample
>>>>>point,
>>>>>
>>>>>bit for bit, and one is phase inverted,
>>>>>they will cancel through all 24 bits. For two files to cancel
>>>>>completely
>>>>>
>>>>>for the duration of the file, each and every bit in each word
>>>>>must be the exact opposite of that same bit position in a word at the
>> same
>>>>>
>>>>>sample point. This is why zooming in on an FFT
>>>>>of the full difference file is valuable as it can show any differences
>> in
>>>>>
>>>>>the lower order bits that wouldn't be audible. So even if
>>>>>there is no audible difference, the visual followup will show if the

two
>>>>
>>>>>files truly cancel even a levels below hearing, or
>>>>>outside of a frequency change that we will perceive.
>>>>>
>>>>>When they don't cancel, usually there will be way more than 1 bit
>>>>>difference - it's usually one or more bits in the words for
>>>>>thousands of samples. From a musical standpoint this is usually in
a
>>>>>frequency range (low freq, or high freq most often) - that will
>>>>>show up as the difference between them, and that usually happens due
to
>>>> some
>>>>>form of processing difference between the files,
>>>>>such as EQ, compression, frequency dependant gain changes, etc. That
is
>>>> what
>>>>>I believe you are thinking through, but when
>>>>>talking about straight summing with no gain change (or known equal gain
>>>>>
>>>>>changes), we are only looking at linear, one for one
>>>>>comparisons between the two files' frequency representations.
>>>>>
>>>>>Regards,
>>>>>Dedric
>>>>>
>>>>>> Neil wrote:
>>>>>>> "Dedric Terry" <dedric@echomg.com> wrote:
>>>>>>>> The tests I did were completely blank down to -200 dB (far below
the
>>>>>
>>>>>>>> last
>>>>>>>>
>>>>>>>> bit). It's safe to say there is no difference, even in
>>>>>>>> quantization noise, which by technical rights, is considered below
>> the
>>>>>
>>>>>>>> level
>>>>>>>>
>>>>>>>> of "cancellation" in such tests.
>>>>>>>>
>>>>>>>> I'm not necessarily talking about just the first bit or the
>>>>>>>> last bit, but also everything in between... what happens on bit
>>>>>>>> #12, for example? Everything on bit #12 should be audible, but
>>>>>>>> in an a/b test what if there are differences in what bits #8
>>>>>>>> through #12 sound like, but the amplitude is still the same on
>>>>>>>> both files at that point, you'll get a null, right? Extrapolate
>>>>>>>> that out somewhat & let's say there are differences in bits #8

>>>>>> through #12 on sample points 3, 17, 1,000, 4,523, 7,560, etc,
>>>>>> etc through 43,972... Now this is breaking things down well
>>>>>> beyond what I think can be measured, if I'm not mistaken (I
>>>>>> dn't know of any way we could extract JUST that information
>>>>>> from each file & play it back for an a/b test; but would not
>>>>>> that be enough to have to "null-able" files that do actually
>>>>>> sound somewhat different?

>>>>>>

>>>>>> I guess what I'm saying is that since each sample in a musical
>>>>>> track or full song file doesn't represent a pure, simple set of
>>>>>> content like a sample of a sine wave would - there's a whole
>>>>>> world of harmonic structure in each sample of a song file, and
>>>>>> I think (although I'll admit - I can't "prove") that there is
>>>>>> plenty of room for some variables between the first bit & the
>>>>>> last bit while still allowing for a null test to be successful.

>>>>>>

>>>>>> No? Am I wacked out of my mind?

>>>>>>

>>>>>> Neil

>>>>>>

>>>>>

>>>>

>>>

>>>

>>

>

>Best of luck to you guys. Guy Clark has been getting lots of airplay on our
local NPR affiliate here. I've been so busy that it's been like my life's
background music lately and I don't know if it's your new project, but I've
been enjoying it.

Merry Christmas,

Deej

"Chris Latham" <latham_c@bellsouth.net> wrote in message
news:458b70fc@linux...

> For those of you who will be voting for the 49th annual Grammys, please
> give a listen to, and consider Guy Clark's "Workbench Songs" for Best
> Contemporary Folk/Americana Album (Catagory 68 in Field 14 - Folk).
> Edited and mixed entirely in PARIS.

>

> THANK YOU,

> Chris

>Hi Mike,

This is relatively easy to do. You will need an Ethernet network card in

the PC and a Category 5 Ethernet "crossover" cable.

Install the card in the PC, install the drivers as per the instructions that came with the card, and Windows will automatically install file and printer sharing services. Connect the crossover cable to the modular (RJ45) jack on each machine.

On the Mac, you must use the Network system preferences control to enable Windows file sharing.

Assign the Mac an IP address of 192.168.0.1 and the PC an address of 192.168.0.2. Set the network (subnet) mask value to 255.255.0.0 on each machine.

Apple has instructions on how to do this on their web site and it can be easily located.

Also, have you considered using an external storage device, such as a USB flash drive or external hard drive, to move the files back and forth? This may be much simpler and quicker if you're not into doing the network thing.

Hope this helps. Peace & happy holidays!

Mark

"Mike R." <emarenot@yahoo.com> wrote:

>
>

>I've got a Mac G4 (OSX 10.4) and a PC running Windows 98SE and Paris. I
>want to be able to move .wav files made on the G4 over to Paris, and from
>Paris back over to the Mac --if I want to apply FX there that I cannot in
>Paris. As I understand it, the G4 has an ethernet card built in. I assume
>that I have to get a NIC card for the PC. Do I need to get some sort of
>software for each machine so that the PC will see the Mac and vice versa?
>This is totally new territory. I wish it was as simple as plugging in a
>cable between two boxes, but I fear it is not...

>Thanks much,

>MR

>
>

><!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">

><HTML><HEAD>

><META http-equiv=3DContent-Type content=3D"text/html; =

>charset=3Diso-8859-1">

><META content=3D"MSHTML 6.00.2800.1555" name=3DGENERATOR>

><STYLE></STYLE>

></HEAD>

><BODY bgColor=3D#ffffff>

><DIV>I've got a Mac G4 (OSX 10.4) and a PC =
>running=20
>Windows 98SE and Paris. I want to be able to move .wav files made =
>on the=20
>G4 over to Paris, and from Paris back over to the Mac --if I want to =
>apply FX=20
>there that I cannot in Paris. As I understand it, the G4 has an =
>ethernet=20
>card built in. I assume that I have to get a NIC card for the PC. =
>Do I=20
>need to get some sort of software for each machine so that the PC will =
>see the=20
>Mac and vice versa? This is totally new territory. I wish it =
>was as=20
>simple as plugging in a cable between two boxes, but I fear it is=20
>not...</DIV>

><DIV>Thanks much,</DIV>
><DIV>MR</DIV></BODY></HTML>
>

>I can't tell you why you hear ProTools differently than Nuendo using a
single file.
There isn't any voodoo in the software, or hidden character enhancing dsp.
I'll see if
I can round up an M-Powered system to compare with next month.

For reference, everytime I open Sequoia I think I might hear a broader,
clean,
and almost flat (spectrum, not depth) sound, but I don't - it's the same as
Nuendo, fwiw.
Also I don't think what I was referring to was a theory from Chuck - I
believe that was what he
discovered in the code.

Digital mixers all have different preamps and converters. Unless you are
bypassing every
EQ and converter and going digital in and out to the same converter when
comparing, it would be hard
to say the mix engine itself sounds different than another mixer, but taken
as a whole, then
certainly they may very well sound different. In addition, hardware digital
mixers may use a variety of different paths between the I/O, channel
processing, and summing,
though most are pretty much software mixers on a single chip or set of dsps
similar to ProTools,
with I/O and a hardware surface attached.

I know it may be hard to separate the mix engine as software in either a
native DAW

or a digital mixer, from the hardware that translates the audio to something we hear,
but that's what is required when comparing summing. The hardware can significantly change
what we hear, so comparing digital mixers really isn't of as much interest as comparing native
DAWs in that respect - unless you are looking to buy one of course.

Even though I know you think manufacturers are trying to add something to give them an edge, I am 100%
sure that isn't the case - rather they are trying to add or change as little as possible in order to give
them the edge. Their end of digital audio isn't about recreating the past, but improving upon it.
As we've discussed and agreed before, the obsession with recreating "vintage" technology is as much
fad as it is a valuable creative asset. There is no reason we shouldn't have far superior hardware and software EQs and comps
than 20, 30 or 40 years ago. No reason at all, other than market demand, but the majority of software, and new
hardware gear on the market has a vintage marketing tagline with it. Companies will sell any bill of
goods if customers will buy it.

There's nothing unique about the summing in Nuendo, Cubase, Sequoia/Samp, or Sonar, and it's pretty safe to include Logic and DP in that list as well.
One of the reasons I test
these things is to be sure my DAW isn't doing something wrong, or something I don't know about.

Vegas - I use it for video conversions and have never done any critical listening tests with it. What I have heard
briefly didn't sound any different. It certainly looks plain vanilla though. What you are describing is exactly
what I would say about the GUIs of each of those apps, not that it means anything. Just interesting.

That's one reason I listen eyes closed and double check with phase cancellation tests and FFTs - I am
influenced creatively by the GUI to some degree. I actually like Cubase 4's GUI better than Nuendo 3.2,
though there are only slight visual differences (some workflow differences are a definite improvement for me though).

ProTools' GUI always made me want to write one dimensional soundtracks in mono for public utilities, accounting offices
or the IRS while reading my discreet systems analysis textbook - it was also grey. ;-)

Regards,
Dedric

"LaMont" <jjdpro@ameritech.net> wrote in message news:458c82fd\$1@linux...

>
> Dedric, my simple test is simple..
> Using the same audio interface, with the same stereo file..null-ed to
> zero..No
> eq, for fx. Master fader on zero..
>
> Nuendo, Pro-Tools -Mpowered(native)... yields a sonic difference that I
> have
> referenced before.. The sound coming from PT-M has a nice top end , where
> as Neundo has a nice flatter sound quality.
> Same audio interface. M-audio 410..Using Mackies & Blue-Sky pro monitors..
>
> Same test at the big room..PT-HD & Neundo Logic Audio(macG5-Dual) Using
> the
> 192 interface.
> Same results..But adding Logic audio's sound ..(Broad, thick)
>
> Somethings going on.
>
> Chucks post about how paris handles audio is a theory..Only Edmund can
> truly
> give us the goods on what's really what..
>
> I disagree that manufactuers don;t set out o put a sonic print on their
> products.
> I think they do.
>
> I have been fortunate to work on some digital mixers and I can tell you
> that
> each one has their own sound. The Sony Dmx-100 was modeled after SSL 4000g
> (like it's Big Brother).And you what? That board (Dmx-100) sound very warm
> and it's eq tries to behave and sound just like an SSL.. Unlike he Yamaha
> Dm2000(version 1.x) which has a very Clean, neutral sound..However, some
> complained that it was tooo Vanila and thus, Yamaha add a version 2.0
> which
> added Vintage type Eq's, modeled analog input gain saturation fx too give
> the user a choice Btw Clean and Neutral vs sonic Character.
>
> So, if digital conoles can be given a sonic character, why not a software
> mixer?
> The truth is, there are some folks who want a neutral mixer and then there
> are others who want a sonic footprint imparted. and these can be coded in
> the digital realm.

> The applies with the manufacturers. They too have their vision on what They
> think and want their product to sound.
>
> I love reading on gearslutz the posts from Plugin developers and their
> interpretations
> and opinions about what makes their Neve 1073 Eq better and what goes into
> making their version sound like it does.. Each Developer has a different
> vision as to what the Neve 1073 should sound like. And yet they all sound
> good , but slightly different.
>
> You stated that you use Vegas. Well as you know, Vegas has a very generic
> sound..Just plain and simple. But, i bet you can tell the difference on
> your system when you play that same file in Nuendo (No, fx, eq,
> null-edzerro)..
> ???
>
>
> "Dedric Terry" <dedric@echomg.com> wrote:
>>Lamont - what is the output chain you are using for each app when
>>comparing
>
>>the file in Nuendo
>>vs ProTools? On the same PC, I presume (and is this PT HD or M-Powered?)?
>>Since these can't use the same output driver, you would have to depend on
>
>>the D/A being
>>the same, but clocking will be different unless you have a master clock,
> and
>>both interfaces
>>are locking with the same accuracy. This was one of the issues that came
> up
>>at Lynn Fuston's
>>D/A converter shootout - when do you lock to external clock and incur the
>
>>resulting jitter,
>>and when do you trust the internal clock - and if you do lock externally,
>
>>how good is the PLL
>>in the slave device? These issues can cause audible changes in the top
> end
>>that have nothing to do
>>with the software itself. If you say that PTHD through the same converter
>
>>output as Nuendo (via? RME?
>>Lynx?) using the same master clock, sounds different playing a single
>>audio
>
>>file, then I take your word

>>for it. I can't tell you why that is happening - only that an audible
>>difference really shouldn't happen due
>>to the software alone - not with a single audio file, esp. since I've
>>heard
>
>>and seen PTHD audio cancel with
>>native DAWs. Just passing a single 16 or 24 bit track down the buss to
> the
>>output driver should
>>be, and usually is, completely transparent, bit for bit.
>>
>>The same audio file played through the same converters should only sound
>
>>different if something in
>>the chain is different - be it clocking, gain or some degree of
>>unintended,
>
>>errant dsp processing. Every DAW should
>>pass a single audio file without altering a single bit. That's a basic
>>level
>
>>of accuracy we should always
>>expect of any DAW. If that accuracy isn't there, you can be sure a heavy
>
>>mix will be altered in ways you
>>didn't intend, even though you would end up mixing with that factor in
>>place
>
>>(e.g. you still mix for what
>>you want to hear regardless of what the platform does to each audio track
> or
>>channel).
>>
>>In fact you should be able to send a stereo audio track out SPDIF or
>>lightpipe to another DAW, record it
>>bring the recorded file back in, line them up to the first bit, and have
>
>>them cancel on and inverted phase
>>test. I did this with Nuendo and Cubase 4 on separate machines just to
> be
>>sure my master clocking and
>>slave sync was accurate - it worked perfectly.
>>
>>Also be sure there isn't a variation in the gain even by 0.1 dB between
> the
>>two. There shouldn't
>>and I wouldn't expect there to be one. Also could PT be set for a
>>different

>
>>pan law? Shouldn't make a
>>difference even if comparing two mono panned files to their stereo
>>interleaved equivalent, but for sake
>>of completeness it's worth checking as well. A variation in the output
>
>>chain, be it drivers, audio card
>>card, or converters would be the most likely culprit here.
>>
>>The reason DAW manufacturers wouldn't add any sonic "character"
>>intentionally is that the
>>ultimate goal from day one with recording has been to accurately reproduce
>
>>what we hear.
>>We developed a musical penchant for sonic character because the hardware
>
>>just wasn't accurate,
>>and what it did often sent us down new creative paths - even if by force
> -
>>and we decided it was
>>preferred that way.
>>
>>Your point about what goes into the feature presets to sell synths is
>>right
>
>>for sure, but synths are about
>>character and getting that "perfect piano" or crystal clear bell pad, or
> fat
>>punchy bass without spending
>>a mint on development, adding 50G onboard sample libraries, or costing
>>\$15k,
>
>>so what they
>>lack in actual synthesis capabilities, they make up with EQ and effects
> on
>>the output. That's been the case
>>for years, at least since we had effects on synths at least. But even
>>with
>
>>modern synths such as the Fantom,
>>Tritons, etc, which are great synths all around, of course the coolest,
>
>>widest and biggest patches
>>will make the biggest impression - so in come the EQs, limiters, comps,
>
>>reverbs, chorus, etc. The best
>>way to find out if a synth is really good is to bypass all effects and see
>

>>what happens. Most are pretty
>>good these days, but about half the time, there are presets that fall
>>completely flat in fx bypass.
>>
>>DAWs aren't designed to put a sonic fingerprint on a sound the way synths
>
>>are - they are designed
>>to *not* add anything - to pass through what we create as users, with no
>
>>alteration (or as little as possible)
>>beyond what we add with intentional processing (EQ, comps, etc).
>>Developers
>
>>would find no pride
>>in hearing that their DAW sounds anything different than whatever is being
>
>>played back in it,
>>and the concept is contrary to what AES and IEEE proceedings on the issue
>
>>propose in general
>>digital audio discussions, white papers, etc.
>>
>>What ID ended up doing with Paris (at least from what I gather per Chuck's
>
>>findings - so correct me if I'm missing part of the equation Chuck),
>>is drop the track gain by 20dB or so, then added it back at the master
>>buss
>
>>to create the effect of headroom (probably
>>because the master buss is really summing on the card, and they have more
>
>>headroom there than on the tracks
>>where native plugins might be used). I don't know if Paris passed 32-bit
>
>>float files to the EDS card, but sort of
>>doubt it. I think Chuck has clarified this at one point, but don't recall
>
>>the answer.
>>
>>Also what Paris did is use a greater bit depth on the hardware than
>>ProTools
>
>>did - at the time PT was just
>>bring Mix+ systems to market, or they had been out for a year or two (if
> I
>>have my timeline right) - they
>>were 24-bit fixed all the way through. Logic and Cubase were native DAWs,
>

>>but native was still too slow
>>to compete with hardware hybrids. Paris trumped them all by running
>>32-bit
>
>>float natively (not new really, but
>>better than sticking to 24-bit) and 56 or so bits in hardware instead of
>
>>going to Motorola DSPs at 24.
>>The onboard effects were also a step up from anything out there, so the
> demo
>>did sound good.
>>I don't recall which, but one of the demos, imho, wasn't so good (some
>>sloppy production and
>>vocals in spots, IIRC), so I only listened to it once. ;-)
>>
>>Coupled with the gain drop and buss makeup, this all gave it a "headroom"
> no
>>one else had. With very nice
>>onboard effects, Paris jumped ahead of anything else out there easily, and
>
>>still respectably holds its' own today
>>in that department.
>>
>>Most demos I hear (when I listen to them) vary in quality, usually not so
>
>>great in some area. But if a demo does
>>sound great, then it at least says that the product is capable of at
>>least
>
>>that level of performance, and it can
>>only help improve a prospective buyer's impression of it.
>>
>>Regards,
>>Dedric
>>
>>"LaMont " <jjdpro@ameritech.net> wrote in message news:458c14c0\$1@linux...
>>>
>>> Dedric good post..
>>>
>>> However, I have PT-M-Powered/M-audio 410 interface for my laptop and it
>
>>> has
>>> that same sound (no eq, zero fader) that HD does. I know their use the
>
>>> same
>>> 48 bit fix mixer. I load up the same file in Nuendo (no eq, zero
>>> fader)..results.
>>> different sonic character.

>>>
>>> PT having a top end touch..Nuendo, nice smooth(flat) sound. And I'm just
>>> taking about a stereo wav file nulled with no eq..nothing
>>> ..zilch..nada..
>>>
>>> Now, there are devices (keyboards, dum machines) on the market today
>>> that
>>> have a Master Buss Compressor and EQ set to on with the top end notched
>
>>> up.
>>> Why? because it gives their product an competitive advantageover the
>>> competition..
>>> Ex: Yahama's Motif ES, Akai's MPC 1000, 2500, Roland's Fantom.
>>>
>>> So, why would'nt a DAW manufactuer code in an extra (ooommf) to make
>>> their
>>> DAW sound better. Especially, given the "I hate Digtal Summing" crowd?
>
>>> And,
>>> If I'm a DAW manufactuer, what would give my product a sonic edge over
> the
>>> competition?
>>>
>>> We live in the "louder is better" audio world these days, so a DAW that
>
>>> can
>>> catch my attention 'sonically" will probaly will get the sell. That's
> what
>>> happend to me back in 1997 when I heard Paris. I was floored!!! Still
> to
>>> this day, nothing has floored me like that "Road House Blues Demo" I
>>> heard
>>> on Paris.
>>>
>>> Was it the hardware ? was it the software. I remember talking with
>>> Edmund
>>> at the 2000 winter Namm, and told me that he & Steve set out to
>>> reproduce
>>> the sonics of big buck analog board (eq's) and all.. And, summing was
> a
>>> big
>>> big issue for them because they (ID) thought that nobody has gotten
>>> it(summing)
>>> right. And by right, they meant, behaved like a console with a wide lane
>>> for all of those tracks..
>>>
>>>
>>>

>>>
>>> "Dedric Terry" <dedric@echomg.com> wrote:
>>>>"LaMont" <jjdpro@ameritech.net> wrote in message
>>>>news:458be8d5\$1@linux...
>>>>>
>>>>> Okay...
>>>>> I guess what I'm saying is this:
>>>>>
>>>>> -Is it possible that diferent DAW manufactuers "code" their app
>>>>> differently
>>>>> for sound results.
>>>>>
>>>>>Of course it is *possible* to do this, but only if the DAW has a
>>>>>specific
>>>>>
>>>>>sound shaping purpose
>>>>>beyond normal summing/mixing. Users talk about wanting developers to
> add
>>> a
>>>>"Neve sound" or "API sound" option to summing engines,
>>>>but that's really impractical given the amount of dsp required to make
> a
>>>>
>>>>decent emulation (with convolution, dynamic EQ functions,
>>>>etc). For sake of not eating up all cpu processing, that could likely
>
>>>>only
>>>>
>>>>surface as is a built in EQ, which
>>>>no one wants universally in summing, and anyone can add at will already.
>>>>>
>>>>>So it hasn't happened yet and isn't likely to as it detours from the
>>>>>basic
>>>>>
>>>>>tenant of audio recording - recreate what comes in as
>>>>>accurately as possible.
>>>>>
>>>>>What Digi did in recoding their summing engine was try to recover some
>>>>>of the damage done by the 24-bit buss in Mix systems. Motorola 56k dsps
>>>> are
>>>>>24-bit fixed point chips and I think
>>>>>the new generation (321?) still is, but they use double words now for
>>>>>48-bits). And though plugins could process at 48-bit by
>>>>>doubling up and using upper and lower 24-bit words for 48-bit outputs,
> the
>>>>>
>>>>>buss
>>>>>between chips was 24-bits, so they had to dither to 24-bits after every

>>>
>>>>plugin. The mixer (if I recall correctly) also
>>>>had a 24-bit buss, so what Digi did is to add a dither stage to the
>>>>mixer
>>> to
>>>>prevent this
>>>>constant truncation of data. 24-bits isn't enough to cover summing for
>>> more
>>>>than a few tracks without
>>>>losing information in the 16-bit world, and in the 24-bit world some
>>>>information will be lost, at least at the lowest levels.
>>>>
>>>>Adding a dither stage (though I think they did more than that - perhaps
>>>>
>>>>implement a 48-bit double word stage as well),
>>>>simply smoothed over the truncation that was happening, but it didn't
>
>>>>solve
>>>>
>>>>the problem, so with HD
>>>>they went to a double-word path - throughout I believe, including the
> path
>>>>
>>>>between chips. I believe the chips
>>>>are still 24-bit, but by doubling up the processing (yes at a cost of
>
>>>>twice
>>>>
>>>>the overhead), they get a 48-bit engine.
>>>>This not only provided better headroom, but greater resolution. Higher
>>> bit
>>>>depths subdivide the amplitude with greater resolution, and that's
>>>>really where we get the definition of dynamic range - by lowering the
>
>>>>signal
>>>>
>>>>to quantization noise ratio.
>>>>
>>>>With DAWs that use 32-bit floating point math all the way through, the
>
>>>>only
>>>>
>>>>reason for altering the summing
>>>>is by error, and that's an error that would actually be hard to make and
>>> get
>>>>past a very basic alpha stage of testing.
>>>>There is a small difference in fixed point math and floating point math,
>>> or

>>>>at least a theoretical difference in how it affects audio
>>>>in certain cases, but not necessarily in the result for calculating gain
>>> in
>>>>either for the same audio file. Where any differences might show up is
>>>
>>>>complicated, and I believe only appear at levels below 24-bit (or in
>>>>headroom with tracks pushed beyond 0dBFS), or when/if
>>>>there are any differences in where each amplitude level is quantized.
>>>>
>>>>Obviously there can be differences if the DAW has to use varying bit
>>>>depths
>>>
>>>>throughout a single summing path to accommodate hardware
>>>>as well as software summing, since there may be truncation or rounding
>
>>>>along
>>>
>>>>the way, but that impacts the lowest bit
>>>>level, and hence - spatial reproduction, reverb tails perhaps, and
>>>>"depth",
>>>
>>>>not the levels most music so the differences are most
>>>>often more subtle than not. But most modern DAWs have eliminated those
>>>
>>>>"rough edges" in the math by increasing the bit depth to accommodate
>>>>normal
>>>
>>>>summing required for mixing audio.
>>>>
>>>>So with Lynn's unity gain summing test (A files on the CD I believe),
> DAWs
>>>
>>>>were never asked to sum beyond 24-bits,
>>>>at least not on the upper end of the dynamic range, so everything that
>
>>>>could
>>>
>>>>represent 24-bits accurately would cancel. The only ones
>>>>that didn't were ones that had a different bit depth and/or gain
>>>>structure
>>>
>>>>whether hybrid or native
>>>>(e.g. Paris' subtracting 20dB from tracks and adding it to the buss).
> In
>>>
>>>>this case, PTHD cancelled (when I tested it) with
>>>>Nuendo, Samplitude, Logic, etc because the impact of the 48-bit fixed
> vs.

>>>
>>>>32-bit float wasn't a factor.
>>>>
>>>>When trying other tests, even when adding and subtracting gain, Nuendo,
>>>
>>>>Sequoia and Sonar cancel - both audibly and
>>>>visually at inaudible levels, which only proves that one isn't making
> an
>>>
>>>>error when calculating basic gain. Since a dB is well defined,
>>>>and the math to add gain is simple, they shouldn't. The fact that they
>>> all
>>>>use 32-bit float all the way through eliminates a difference
>>>>in data structure as well, and this just verifies that. There was a
>>>>time
>>>
>>>>that supposedly Logic (v3, v4?) was partly 24-bit, or so the rumor went,
>>>>but it's 32-bit float all the way through now just as Sonar,
>>>>Nuendo/Cubase,
>>>
>>>>Samplitude/Sequoia, DP, Audition (I presume at least).
>>>>I don't know what Acid or Live use. Saw promotes a fixed point engine,
>>> but
>>>>I don't know if it is still 24-bit, or now 48 bit.
>>>>That was an intentional choice by the developer, but he's the only one
> I
>>>
>>>>know of that stuck with 24-bit for summing
>>>>intentionally, esp. after the Digi Mix system mixer incident.
>>>>
>>>>Long answer, but to sum up, it is certainly physically *possible* for
> a
>>>
>>>>developer to code something differently intentionally, but not
>>>>in reality likely since it would be breaking some basic fixed point or
>>>>floating point math rules. Where the differences really
>>>>showed up in the past is with PT Mix systems where the limitation was
>
>>>>really
>>>
>>>>significant - e.g. 24 bit with truncation at several stages.
>>>>
>>>>That really isn't such an issue anymore. Given the differences in
>>>>workflow,
>>>
>>>>missing something in workflow or layout differences
>>>>is easy enough to do (e.g. Sonar doesn't have group and busses the way
>>>>Nuendo does, as it's outputs are actually driver outputs,

>>>>not software busses, so in Sonar, busses are actually outputs, and sub
>>>>busses are actually busses in Nuendo. There are no,
>>>>or at least I haven't found the equivalent of a Nuendo group in Sonar
> -
>>> that
>>>>affects the results of some tests (though not basic
>>>>summing) if not taken into account, but when taken into account, they
> work
>>>
>>>>exactly the same way).
>>>>
>>>>So at least when talking about apps with 32-bit float all the way
>>>>through,
>>>
>>>>it's safe to say (since it has been proven) that summing isn't different
>>>
>>>>unless
>>>>there is an error somewhere, or variation in how the user duplicates the
>>>
>>>>same mix in two different apps.
>>>>
>>>>Imho, that's actually a very good thing - approaching a more consistent
>>>
>>>>basis for recording and mixing from which users can make all
>>>>of the decisions as to how the final product will sound and not be
>>>>required
>>>
>>>>to decide when purchasing a pricey console, and have to
>>>>focus their business on clients who want "that sound". I believe we are
>>>
>>>>actually closer to the pure definition of recording now than
>>>>we once were.
>>>>
>>>>Regards,
>>>>Dedric
>>>>
>>>>
>>>>>
>>>>> I the answer is yes, then,the real task is to discover or rather
>>>>> un-cover
>>>>> what's say: Motu's vision of summing, versus Digidesign, versus
>>>>> Steinberg
>>>>> and so on..
>>>>>
>>>>> What's under the hood. To me and others,when Digi re-coded their
>>>>> summing
>>>>> engine, it was obvious that Pro Tools has an obvious top end (8k-10k)
>>>>>

>>>>> bump.
>>>>> Where as Steinberg's summing is very neutral.
>>>>>
>>>>> "Dedric Terry" <dedric@echomg.com> wrote:
>>>>>>Hi Neil,
>>>>>>
>>>>>>Jamie is right. And you aren't wacked out - you are thinking this
>>>>>>through
>>>>>>
>>>>>>in a reasonable manner, but coming to the wrong
>>>>>>conclusion - easy to do given how confusing digital audio can be.
>>>>>>Each
>>>>> word
>>>>>>represents an amplitude
>>>>>>point on a single curve that is changing over time, and can vary with
>>> a
>>>>>>
>>>>>>speed up to the Nyquist frequency (as Jamie described).
>>>>>>The complex harmonic content we hear is actually the frequency
>>>>>>modulation
>>>>> of
>>>>>>a single waveform,
>>>>>>that over a small amount of time creates the sound we translate - we
>
>>>>>>don't
>>>>>>
>>>>>>really hear a single sample at a time,
>>>>>>but thousands of samples at a time (1 sample alone could at most
>>>>>>represent
>>>>> a
>>>>>>single positive or negative peak
>>>>>>of a 22,050Hz waveform).
>>>>>>
>>>>>>If one bit doesn't cancel, esp. if it's a higher order bit than number
>>> 24,
>>>>>>
>>>>>>you may hear, and will see that easily,
>>>>>>and the higher the bit in the dynamic range (higher order) the more
>>>>>>audible
>>>>>>
>>>>>>the difference.
>>>>>>Since each bit is 6dB of dynamic range, you can extrapolate how "loud"
>>>
>>>>>>that
>>>>>>
>>>>>>bit's impact will be
>>>>>>if there is a variation.
>>>>>>

>>>>>Now, obviously if we are talking about 1 sample in a 44.1k rate song,
>>> then
>>>>>
>>>>>it simply be a
>>>>>click (only audible if it's a high enough order bit) instead of an
>>>>>obvious
>>>>>
>>>>>musical difference, but that should never
>>>>>happen in a phase cancellation test between identical files higher
>>>>>than
>>>>> bit
>>>>>24, unless there are clock sync problems,
>>>>>driver issues, or the DAW is an early alpha version. :-)
>>>>>
>>>>>By definition of what DAWs do during playback and record, every audio
>>>
>>>>>stream
>>>>>
>>>>>has the same point in time (judged by the timeline)
>>>>>played back sample accurately, one word at a time, at whatever sample
>>>
>>>>>rate
>>>>>
>>>>>we are using. A phase cancellation test uses that
>>>>>fact to compare two audio files word for word (and hence bit for bit
>
>>>>>since
>>>>>
>>>>>each bit of a 24-bit word would
>>>>>be at the same bit slot in each 24-bit word). Assuming they are
>>>>>aligned
>>>>> to
>>>>>the same start point, sample
>>>>>accurately, and both are the same set of sample words at each sample
>>>>>point,
>>>>>
>>>>>bit for bit, and one is phase inverted,
>>>>>they will cancel through all 24 bits. For two files to cancel
>>>>>completely
>>>>>
>>>>>for the duration of the file, each and every bit in each word
>>>>>must be the exact opposite of that same bit position in a word at the
>>> same
>>>>>
>>>>>sample point. This is why zooming in on an FFT
>>>>>of the full difference file is valuable as it can show any differences
>>> in
>>>>>

>>>>>the lower order bits that wouldn't be audible. So even if
>>>>>there is no audible difference, the visual followup will show if the
> two
>>>>>
>>>>>files truly cancel even a levels below hearing, or
>>>>>outside of a frequency change that we will perceive.
>>>>>
>>>>>When they don't cancel, usually there will be way more than 1 bit
>>>>>difference - it's usually one or more bits in the words for
>>>>>thousands of samples. From a musical standpoint this is usually in
> a
>>>>>frequency range (low freq, or high freq most often) - that will
>>>>>show up as the difference between them, and that usually happens due
> to
>>>>> some
>>>>>form of processing difference between the files,
>>>>>such as EQ, compression, frequency dependant gain changes, etc. That
> is
>>>>> what
>>>>>I believe you are thinking through, but when
>>>>>talking about straight summing with no gain change (or known equal
>>>>>gain
>>>>>
>>>>>changes), we are only looking at linear, one for one
>>>>>comparisons between the two files' frequency representations.
>>>>>
>>>>>Regards,
>>>>>Dedric
>>>>>
>>>>>> Neil wrote:
>>>>>>> "Dedric Terry" <dedric@echomg.com> wrote:
>>>>>>>> The tests I did were completely blank down to -200 dB (far below
> the
>>>>>
>>>>>>> last
>>>>>>>>
>>>>>>>> bit). It's safe to say there is no difference, even in
>>>>>>>> quantization noise, which by technical rights, is considered below
>>> the
>>>>>
>>>>>>>> level
>>>>>>>>
>>>>>>>> of "cancellation" in such tests.
>>>>>>>>
>>>>>>>> I'm not necessarily talking about just the first bit or the
>>>>>>>> last bit, but also everything in between... what happens on bit
>>>>>>>> #12, for example? Everything on bit #12 should be audible, but
>>>>>>>> in an a/b test what if there are differences in what bits #8

```
>>>>>>> through #12 sound like, but the amplitude is still the same on
>>>>>>> both files at that point, you'll get a null, right? Extrapolate
>>>>>>> that out somewhat & let's say there are differences in bits #8
>>>>>>> through #12 on sample points 3, 17, 1,000, 4,523, 7,560, etc,
>>>>>>> etc through 43,972... Now this is breaking things down well
>>>>>>> beyond what I think can be measured, if I'm not mistaken (I
>>>>>>> don't know of any way we could extract JUST that information
>>>>>>> from each file & play it back for an a/b test; but would not
>>>>>>> that be enough to have to "null-able" files that do actually
>>>>>>> sound somewhat different?
```

>>>>>>>

```
>>>>>>> I guess what I'm saying is that since each sample in a musical
>>>>>>> track or full song file doesn't represent a pure, simple set of
>>>>>>> content like a sample of a sine wave would - there's a whole
>>>>>>> world of harmonic structure in each sample of a song file, and
>>>>>>> I think (although I'll admit - I can't "prove") that there is
>>>>>>> plenty of room for some variables between the first bit & the
>>>>>>> last bit while still allowing for a null test to be successful.
```

>>>>>>>

>>>>>> No? Am I wacked out of my mind?

>>>>>>>

>>>>>>> Neil

>>>>>>>

>>>>>>

>>>>>

>>>>

>>>>

>>>

>>

>>

>"James McCloskey" <excelsm@hotmail.com> wrote in message
news:458c31f7\$1@linux...

 $\triangleright$

> "j to the c r o n" <fu@hydrorecords.com> wrote:

>>wouldn't be so bad if it was actually funny

>>

>>PS. Why do people link to stuff they find offensive? :P

 $\succ$

> I was curious what other people think. It doesn't matter if it's funny to

> an adult, my concern is the kids that saw this, it was on regular

> television.

> Where do we draw the line? Where are our standards?

 $\triangleright$

- > There are many different subjects that could offend many different kinds

> of people. It shouldn't matter if it's funny or not, it should matter if

> it is appropriate. The schmucks that run the entertainment business seem

> to want to twist and pervert everything. I know that this wasn't pointed

> directly at Christmas, but, can't they just leave Christmas alone?

>
> Nobody wants a moderator, or somebody to stomp on their freedom of speech,
> but what about decency standards? With out them a lot of people could be
> offended, including the Schmucks that run the entertainment business.
>
> Just my thoughts. Maybe not so appropriate for this NG.

Fair enough. Luckily SNL is on pretty late and they've been pushing the limits for years. I remember maybe 15 years ago I checked it out and there was some chick with her legs in the sky and some dude was simulating boning her. Honestly I think if something crosses the line and its funny its more appropriate than being offensive and not funny.

Have you noticed that mainstream movies have started to include explicit sex? I'm afraid thats the direction things are headed. Even viagra commercials are offensive... "4 hour erection" Just what I want to hear when I'm watching football with my family on Thanksgiving.

I hate how everything is perverted but thats the way the pop culture works. I've actually researched the subject... check out this book called Media Virus "Hidden Agendas in Popular Culture" by Douglas Rushkoff (the same dude that did the Frontline "The Persuaders" on PBS)Hi Tom,
Sorry you took the post too serious. I was just amused by the complicated setup. I think you've been drinking from DJ bottle...)
I think it would be cooler if you had separate monitors for everything. It'd be like a spaceship.

Chris

Tom Bruhl wrote:

> Hi Chris,
> My dual KVM works great as is. Is the dual monitor idea so bad? How
> else will I be able to sit
> in my sweet spot and bounce between 2 and maybe even three comps with
> one mouse/keyboard?
>
> They make quad KVMs. I might end up with that in the end. 3 comps
> each with 4 head cards,
> four monitors, one keyboard/mouse.
> Why is the KVM soooooo Baaaad? How else can I achieve this?
>
> This other scenario would be even more complex than described in the
> diagram below.
> The ultimate setup would have two QWERTY keyboards/mice with KVM
> sharing with Paris/Cubase

> and Cubase independently.

>

> The room as it relates to the photo:

> My MIDI setup mimics what is shown to left of the

> mixing position here except there's a desk spot for legs on the right

> along

> with a controller. I'd like a 2 x 22" LCD widescreens, QWERTY & mouse

> there along with the KVM QWERTY/mouse in the center as shown for Paris

> and mixdown work.

>

> What would you suggest?

>

> Getting more confused by the minute...

> Tom

>

>

>

>

>

>

>

>

> "Chris Ludwig" <chrisl@adkproaudio.com

> <mailto:chrisl@adkproaudio.com>> wrote in message

> news:458c3c62\$1@linux...

> Tom Bruhl GOOOODDDD.....KVM BBBBBAAAAADDDDDDD

>

>

>

>

> Tom Bruhl wrote:

> > Okay Aaron I hope I get this right.

> >

> > The first diagram is what I think might not work due to the

> position of

> > the splitter. I'm afraid it won't amplify the signal if

> > placed at the end of the line. If I'm wrong then that's great!

> You'll

> > want to widen your view for this one.

> >

> > _Example 1:_

> >

> >

> >

> 21"

> > VGA monitor & 22" LCD with VGA input

> >

> 2

> > x 5' extensions

```

> >
> Video
> > Splitter (Aarons active type)
> >
> 20'
> > extension
> >
> KVM #1 out
> > KVM #1 In
> > VGA #1 out
> > Paris Comp - G550
> > VGA #2 out
> > KVM #2 In
> >
> KVM #2 out
> >
> 20'
> > extension
> >
> Video
> > Splitter (Aaron's active type)
> >
> 2
> > x 5' extensions
> >
>
> > 21" VGA monitor & 22" LCD with VGA input
> >
> >
> >
> > KVM
> #1 out
> > (Shares with above from this point on.)
> > KVM
> > #3 in
> > VGA #1 out
> > Cubase Comp - 7300GT
> > DVI out to VGA connector out
> > KVM #4 in
> > KVM
> #2 out
> > (Shares with above from this point on.)
> >
> >
> > OR:
> > _Example 2:_
> >
> >

```


> 21"
 > > VGA monitor & 22" LCD with VGA input
 > >

 >
 > > 2 x 5' extensions
 > >
 >
 > > Passive Video Splitter (Y cable)
 > >
 >
 > > 20' extension
 > >
 >
 > > KVM #1 out
 > >
 > KVM
 > > #1 In
 > > Video amplifier
 > (Like
 > > splitter in example 1 with only one output)
 > > VGA #1 out
 > > Paris Comp - G550
 > > VGA #2 out
 > > Video amplifier
 > (Like
 > > splitter in example 1 with only one output)
 > >
 > > KVM #2 In
 > >
 >
 > > KVM #2 out
 > >
 >
 > > 20' extension
 > >
 >
 > > Passive Video Splitter (Y cable)
 > >

 > 2
 > > x 5' extensions
 > >
 >
 > > 21"
 > VGA
 > > monitor & 22" LCD with VGA input

> >
> >
> >
> >
> >
> >
> >
> >
> >
> >
> >
> >
> >
> >
> > "Aaron Allen" <know-spam@not_here.dude
> <mailto:know-spam@not_here.dude>
> > <mailto:know-spam@not_here.dude>> wrote in message
> > news:458c050f@linux...
> > I'm not getting the visual you have in mind.. diagram it?
> >
> > AA
> >
> > "Tom Bruhl" <arpeggio@comcast.net
> <mailto:arpeggio@comcast.net> <mailto:arpeggio@comcast.net>>
> > wrote in message news:458b7f6f@linux...
> > Thanks Aaron,
> > Will this work on the backside of a KVM? I can't put it
> in front.
> > I guess if it needed to be in front of the KVM I could
> just get a
> > single output jobbie and split it at the other side. Do
> those
> > exist?
> >
> >
> > "Aaron Allen" <know-spam@not_here.dude
> <mailto:know-spam@not_here.dude>
> > <mailto:know-spam@not_here.dude>> wrote in message
> > news:458b23a2@linux...
> > I hope you're not doing a passive Y split. Look for
> a VGA
> > splitter on google, something like
> >
> >
> <http://www.pcmall.com/pcmall/shop/detail~dpno~767745.asp
> <http://www.pcmall.com/pcmall/shop/detail%7Edpno%7E767745.asp>
> >
> > They're cheap and OH so worth it
> >
> > AA

> >
> > "Tom Bruhl" <arpegio@comcast.net
> <mailto:arpegio@comcast.net>
> > <mailto:arpegio@comcast.net>> wrote in message
> > news:4589ba0a\$1@linux...
> > Thanks Chris.
> > This graphics stuff is confusing to me.
> >
> > I have to convert the DVI to VGA because of the
> 20' length
> > as I understand. I was going to split it with a
> Y cable
> > too.
> > They'll split to a 21"VGA and a 22"LCD. Will
> that work on
> > the far side of a KVM? I know the resolutions
> won't match
> > but I'll only need the VGAs when mixing so I'll
> adjust the
> > 7300 differently for that application. Sooner
> or later
> > I'll get
> > 4 matching 22" LCDs and quad cards for both comps.
> >
> > Will this work?
> > Tom
> >
> >
> >
> >
> >
> >
> >
> >
> >
> > "Chris Ludwig" <chrisl@adkproaudio.com
> <mailto:chrisl@adkproaudio.com>
> > <mailto:chrisl@adkproaudio.com>> wrote in
> message
> > news:45894ef0\$1@linux...
> > HI Tom,
> > These monitors will be fine with your card. The
> > 7300GT supports that
> > resolution on both the VGA and DVI connections.I
> > would run both with VGA
> > connections. Having one hooked up DVI and
> one VGA
> > may make the 2 look
> > very different in brightness and such.
> > Chris

> >
> >
> > Tom Bruhl wrote:
> >
> > > My card has one VGA, one DVI and one S Video
> > connector on it.
> > >
> > >
> > > I choose Polesoft Lockspam to fight spam,
> and you?
> > > <http://www.polesoft.com/refer.html>

> >
> > --
> > Chris Ludwig
> > ADK
> > chrisl@adkproaudio.com
> <<mailto:chrisl@adkproaudio.com>>
> > <<mailto:chrisl@adkproaudio.com>>
> > <<mailto:chrisl@adkproaudio.com>>
> > www.adkproaudio.com
> <<http://www.adkproaudio.com>> <<http://www.adkproaudio.com>>
> > <<http://www.adkproaudio.com/>>
> > (859) 635-5762

> >
> --
> Chris Ludwig
>
> ADK Pro Audio
> (859) 635-5762
> www.adkproaudio.com <<http://www.adkproaudio.com>>
> chrisl@adkproaudio.com <<mailto:chrisl@adkproaudio.com>>
>
>

> -----
>

--
Chris Ludwig
ADK
chrisl@adkproaudio.com <<mailto:chrisl@adkproaudio.com>>
www.adkproaudio.com <<http://www.adkproaudio.com/>>
(859) 635-5762Dedric, check out this post from our dear friend Fredo: Neundo Moderator:
Explaining how Steingberg's audio engine works. Note the trade-offs..Meaning,
Steinberg's way of coding an audio-engine 32bit float is different than say
Magix Samplitude:

Fredo

Administrative Moderator

Joined: 29 Dec 2004

Posts: 4213

Location: Belgium

Posted: Fri Dec 08, 2006 2:33 pm Post subject:

I think I see where the problem is.

In my scenario's I don't have any track that goes over 0dBfs, but I have always lowered one channel to compensate with another.

So, I never went over the 0dB fs limit.

Here's the explanation:

As soon as you go over 0dB, technically you are entering the domain of distortion.

In a 32bit FP mixer, that is not the case since there is unlimited headroom.

Now follow me step by step please - read this slow and make sure you understand

-

At the end of each "stage", there is an adder (a big calculator) which adds all the numbers from the individual tracks that are routed to this "adder".

The numbers are kept in the 80-bit registers and then brought back to 32bit float.

This process of bringing back the numbers from 80-bit (and more) to 32bit is kept to an absolute minimum.

This adding/bringing back to 32bit is done at 3 places: After a plugin slot (VST-specs for all plugin manufacturers) - Group Tracks and Master Tracks.

Now, as soon as you boost the volume above 0dB, you get more than 32bits.

Stay below 0dB and you will stay below 32 bits.

When the adders dump their results, the numbers are brought back from any number of bits (say 60bit) to 32 bit float.

These numbers are simply truncated which results in distortion; that's the noise/residue you find way down low.

There is an algorithm that protects us from additive errors - so these errors can never come into the audible range.

So, as soon as you go over 0dB, you will see these kind of artifacts.

It is debatable if this needs to be dithered or not. The problem -still is- that it is very difficult to dither in a Floating Point environment.

Fact remains that the error shouldn't be bigger than 2 to 3 LSB's.

Is this a problem?

In real world applications: NO.

In scientific -unrealistic- tests (forcing the error): YES.

The alternative is having a Fixed point mixer, where you already would be in trouble as soon as you boost one channel over 0dBfs. (or merge two files that are @ 0dB)

Also, this problem will be pretty much gone as soon as we switch to the 64 bit engine.

For the record, the test where Jake hears "music" as residue must be flawed. You should hear noise/distortion from square waves.

HTH

Fredo

"Dedric Terry" <dedric@echomg.com> wrote:

>I can't tell you why you hear ProTools differently than Nuendo using a
>single file.

>There isn't any voodoo in the software, or hidden character enhancing dsp.

>I'll see if

>I can round up an M-Powered system to compare with next month.

>

>For reference, everytime I open Sequoia I think I might hear a broader,

>clean,

>and almost flat (spectrum, not depth) sound, but I don't - it's the same
as

>Nuendo, fwiw.

>Also I don't think what I was referring to was a theory from Chuck - I

>believe that was what he

>discovered in the code.

>

>Digital mixers all have different preamps and converters. Unless you are

>bypassing every

>EQ and converter and going digital in and out to the same converter when

>comparing, it would be hard
>to say the mix engine itself sounds different than another mixer, but taken

>as a whole, then
>certainly they may very well sound different. In addition, hardware digital
>mixers may use a variety of different paths between the I/O, channel
>processing, and summing,
>though most are pretty much software mixers on a single chip or set of dsps

>similar to ProTools,
>with I/O and a hardware surface attached.
>
>I know it may be hard to separate the mix engine as software in either a

>native DAW
>or a digital mixer, from the hardware that translates the audio to something

>we hear,
>but that's what is required when comparing summing. The hardware can
>significantly change
>what we hear, so comparing digital mixers really isn't of as much interest

>as comparing native
>DAWs in that respect - unless you are looking to buy one of course.
>
>Even though I know you think manufacturers are trying to add something to

>give them an edge, I am 100%
>sure that isn't the case - rather they are trying to add or change as little

>as possible in order to give
>them the edge. Their end of digital audio isn't about recreating the past,

>but improving upon it.
>As we've discussed and agreed before, the obsession with recreating
>"vintage" technology is as much
>fad as it is a valuable creative asset. There is no reason we shouldn't

>have far superior hardware and software EQs and comps
>than 20, 30 or 40 years ago. No reason at all, other than market demand,

>but the majority of software, and new
>hardware gear on the market has a vintage marketing tagline with it.
>Companies will sell any bill of
>goods if customers will buy it.
>
>There's nothing unique about the summing in Nuendo, Cubase, Sequoia/Samp,
>or Sonar, and it's pretty safe to include Logic and DP in that list as well.

>One of the reasons I test
>these things is to be sure my DAW isn't doing something wrong, or something

>I don't know about.
>
>Vegas - I use it for video conversions and have never done any critical

>listening tests with it. What I have heard
>briefly didn't sound any different. It certainly looks plain vanilla
>though. What you are describing is exactly
>what I would say about the GUIs of each of those apps, not that it means

>anything. Just interesting.
>
>That's one reason I listen eyes closed and double check with phase
>cancellation tests and FFTs - I am
>influenced creatively by the GUI to some degree. I actually like Cubase
4's
>GUI better than Nuendo 3.2,
>though there are only slight visual differences (some workflow differences

>are a definite improvement for me though).
>
>ProTools' GUI always made me want to write one dimensional soundtracks in

>mono for public utilities, accounting offices
>or the IRS while reading my discreet systems analysis textbook - it was
also
>grey. ;-)
>
>Regards,
>Dedric
>
>"LaMont" <jjdpro@ameritech.net> wrote in message news:458c82fd\$1@linux...
>>
>> Dedric, my simple test is simple..
>> Using the same audio interface, with the same stereo file..null-ed to

>> zero..No
>> eq, for fx. Master fader on zero..
>>
>> Nuendo, Pro-Tools -Mpowered(native)... yields a sonic difference that
I
>> have
>> referenced before.. The sound coming from PT-M has a nice top end , where
>> as Neundo has a nice flatter sound quality.
>> Same audio interface. M-audio 410..Using Mackies & Blue-Sky pro monitors..

>>
>> Same test at the big room..PT-HD & Neundo Logic Audio(macG5-Dual) Using

>> the
>> 192 interface.
>> Same results..But adding Logic audio's sound ..(Broad, thick)
>>
>> Somethings going on.
>>
>> Chucks post about how paris handles audio is a theory..Only Edmund can

>> truly
>> give us the goods on what's really what..
>>
>> I disagree that manufactuers don;t set out o put a sonic print on their

>> products.
>> I think they do.
>>
>> I have been fortunate to work on some digital mixers and I can tell you

>> that
>> each one has their own sound. The Sony Dmx-100 was modeled after SSL 4000g
>> (like it's Big Brother).And you what? That board (Dmx-100) sound very
warm
>> and it's eq tries to behave and sound just like an SSL.. Unlike he Yamaha
>> Dm2000(version 1.x) which has a very Clean, neutral sound..However, some
>> complained that it was tooo Vanila and thus, Yamaha add a version 2.0

>> which
>> added Vintage type Eq's, modeled analog input gain saturation fx too give
>> the user a choice Btw Clean and Neutral vs sonic Character.
>>
>> So, if digital conoles can be given a sonic character, why not a software
>> mixer?
>> The truth is, there are some folks who want a neutral mixer and then there
>> are others who want a sonic footprint imparted. and these can be coded
in
>> the digital realm.
>> The apllies with the manufactuers. They too have their vision on what
They
>> think and want their product to sound.
>>
>> I love reading on gearslutz the posts from Plugin developers and their

>> interpretations
>> and opinions about what makes their Neve 1073 Eq better and what goes
into

>> making their version sound like it does.. Each Developer has a different
>> vision as to what the Neve 1073 should sound like. And yet they all sound
>> good , but slightly different.
>>
>> You stated that you use Vegas. Well as you know, Vegas has a very generic
>> sound..Just plain and simple. But, i bet you can tell the difference
on
>> your system when you play that same file in Nuendo (No, fx, eq,
>> null-edzerro)..
>> ???
>>
>>
>> "Dedric Terry" <dedric@echomg.com> wrote:
>>>Lamont - what is the output chain you are using for each app when
>>>comparing
>>
>>>the file in Nuendo
>>>vs ProTools? On the same PC, I presume (and is this PT HD or M-Powered?)?
>>>Since these can't use the same output driver, you would have to depend
on
>>
>>>the D/A being
>>>the same, but clocking will be different unless you have a master clock,
>> and
>>>both interfaces
>>>are locking with the same accuracy. This was one of the issues that came
>> up
>>>at Lynn Fuston's
>>>D/A converter shootout - when do you lock to external clock and incur
the
>>
>>>resulting jitter,
>>>and when do you trust the internal clock - and if you do lock externally,
>>
>>>how good is the PLL
>>>in the slave device? These issues can cause audible changes in the top
>> end
>>>that have nothing to do
>>>with the software itself. If you say that PTHD through the same converter
>>
>>>output as Nuendo (via? RME?
>>>Lynx?) using the same master clock, sounds different playing a single
>>>audio
>>
>>>file, then I take your word
>>>for it. I can't tell you why that is happening - only that an audible
>>>difference really shouldn't happen due

>>>to the software alone - not with a single audio file, esp. since I've

>>>heard

>>

>>>and seen PTHD audio cancel with

>>>native DAWs. Just passing a single 16 or 24 bit track down the buss

to

>> the

>>>output driver should

>>>be, and usually is, completely transparent, bit for bit.

>>>

>>>The same audio file played through the same converters should only sound

>>

>>>different if something in

>>>the chain is different - be it clocking, gain or some degree of

>>>unintended,

>>

>>>errant dsp processing. Every DAW should

>>>pass a single audio file without altering a single bit. That's a basic

>>>level

>>

>>>of accuracy we should always

>>>expect of any DAW. If that accuracy isn't there, you can be sure a heavy

>>

>>>mix will be altered in ways you

>>>didn't intend, even though you would end up mixing with that factor in

>>>place

>>

>>>(e.g. you still mix for what

>>>you want to hear regardless of what the platform does to each audio track

>> or

>>>channel).

>>>

>>>In fact you should be able to send a stereo audio track out SPDIF or

>>>lightpipe to another DAW, record it

>>>bring the recorded file back in, line them up to the first bit, and have

>>

>>>them cancel on and inverted phase

>>>test. I did this with Nuendo and Cubase 4 on separate machines just to

>> be

>>>sure my master clocking and

>>>slave sync was accurate - it worked perfectly.

>>>

>>>Also be sure there isn't a variation in the gain even by 0.1 dB between

>> the

>>>two. There shouldn't

>>>and I wouldn't expect there to be one. Also could PT be set for a
>>>different
>>
>>>pan law? Shouldn't make a
>>>difference even if comparing two mono panned files to their stereo
>>>interleaved equivalent, but for sake
>>>of completeness it's worth checking as well. A variation in the output
>>
>>>chain, be it drivers, audio card
>>>card, or converters would be the most likely culprit here.
>>>
>>>The reason DAW manufacturers wouldn't add any sonic "character"
>>>intentionally is that the
>>>ultimate goal from day one with recording has been to accurately reproduce
>>
>>>what we hear.
>>>We developed a musical penchant for sonic character because the hardware
>>
>>>just wasn't accurate,
>>>and what it did often sent us down new creative paths - even if by force
>> -
>>>and we decided it was
>>>preferred that way.
>>>
>>>Your point about what goes into the feature presets to sell synths is

>>>right
>>
>>>for sure, but synths are about
>>>character and getting that "perfect piano" or crystal clear bell pad,
or
>> fat
>>>punchy bass without spending
>>>a mint on development, adding 50G onboard sample libraries, or costing

>>>\$15k,
>>
>>>so what they
>>>lack in actual synthesis capabilities, they make up with EQ and effects
>> on
>>>the output. That's been the case
>>>for years, at least since we had effects on synths at least. But even

>>>with
>>
>>>modern synths such as the Fantom,
>>>Tritons, etc, which are great synths all around, of course the coolest,
>>

>>>widest and biggest patches
>>>will make the biggest impression - so in come the EQs, limiters, comps,
>>
>>>reverbs, chorus, etc. The best
>>>way to find out if a synth is really good is to bypass all effects and
see
>>
>>>what happens. Most are pretty
>>>good these days, but about half the time, there are presets that fall
>>>completely flat in fx bypass.
>>>
>>>DAWs aren't designed to put a sonic fingerprint on a sound the way synths
>>
>>>are - they are designed
>>>to *not* add anything - to pass through what we create as users, with
no
>>
>>>alteration (or as little as possible)
>>>beyond what we add with intentional processing (EQ, comps, etc).
>>>Developers
>>
>>>would find no pride
>>>in hearing that their DAW sounds anything different than whatever is being
>>
>>>played back in it,
>>>and the concept is contrary to what AES and IEEE proceedings on the issue
>>
>>>propose in general
>>>digital audio discussions, white papers, etc.
>>>
>>>What ID ended up doing with Paris (at least from what I gather per Chuck's
>>
>>>findings - so correct me if I'm missing part of the equation Chuck),
>>>is drop the track gain by 20dB or so, then added it back at the master

>>>buss
>>
>>>to create the effect of headroom (probably
>>>because the master buss is really summing on the card, and they have more
>>
>>>headroom there than on the tracks
>>>where native plugins might be used). I don't know if Paris passed 32-bit
>>
>>>float files to the EDS card, but sort of
>>>doubt it. I think Chuck has clarified this at one point, but don't recall
>>
>>>the answer.
>>>

>>>Also what Paris did is use a greater bit depth on the hardware than
>>>ProTools
>>
>>>did - at the time PT was just
>>>bring Mix+ systems to market, or they had been out for a year or two (if
>> I
>>>have my timeline right) - they
>>>were 24-bit fixed all the way through. Logic and Cubase were native DAWs,
>>
>>>but native was still too slow
>>>to compete with hardware hybrids. Paris trumped them all by running
>>>32-bit
>>
>>>float natively (not new really, but
>>>better than sticking to 24-bit) and 56 or so bits in hardware instead
of
>>
>>>going to Motorola DSPs at 24.
>>>The onboard effects were also a step up from anything out there, so the
>> demo
>>>did sound good.
>>>I don't recall which, but one of the demos, imho, wasn't so good (some
>>>sloppy production and
>>>vocals in spots, IIRC), so I only listened to it once. ;-)
>>>
>>>Coupled with the gain drop and buss makeup, this all gave it a "headroom"
>> no
>>>one else had. With very nice
>>>onboard effects, Paris jumped ahead of anything else out there easily,
and
>>
>>>still respectably holds its' own today
>>>in that department.
>>>
>>>Most demos I hear (when I listen to them) vary in quality, usually not
so
>>
>>>great in some area. But if a demo does
>>>sound great, then it at least says that the product is capable of at

>>>least
>>
>>>that level of performance, and it can
>>>only help improve a prospective buyer's impression of it.
>>>
>>>Regards,
>>>Dedric
>>>

>>>"LaMont " <jjdpro@ameritech.net> wrote in message news:458c14c0\$1@linux...
>>>>
>>>> Dedric good post..
>>>>
>>>> However, I have PT-M-Powered/M-audio 410 interface for my laptop and
it
>>
>>>> has
>>>> that same sound (no eq, zero fader) that HD does. I know their use the
>>
>>>> same
>>>> 48 bit fix mixer. I load up the same file in Nuendo (no eq, zero
>>>> fader)..results.
>>>> different sonic character.
>>>>
>>>> PT having a top end touch..Nuendo, nice smooth(flat) sound. And I'm
just
>>>> taking about a stereo wav file nulled with no eq..nothing
>>>> ..zilch..nada..
>>>>
>>>> Now, there are devices (keyboards, dum machines) on the market today

>>>> that
>>>> have a Master Buss Compressor and EQ set to on with the top end notched
>>
>>>> up.
>>>> Why? because it gives their product an competitive advantageover the
>>>> competition..
>>>> Ex: Yahama's Motif ES, Akai's MPC 1000, 2500, Roland's Fantom.
>>>>
>>>> So, why would'nt a DAW manufactuer code in an extra (ooommf) to make

>>>> their
>>>> DAW sound better. Especially, given the "I hate Digtal Summing" crowd?
>>
>>>> And,
>>>> If I'm a DAW manufactuer, what would give my product a sonic edge over
>> the
>>>> competition?
>>>>
>>>> We live in the "louder is better" audio world these days, so a DAW that
>>
>>>> can
>>>> catch my attention 'sonically" will probaly will get the sell. That's
>> what
>>>> happend to me back in 1997 when I heard Paris. I was floored!!! Still
>> to
>>>> this day, nothing has floored me like that "Road House Blues Demo" I

>>>> heard
 >>>> on Paris.
 >>>>
 >>>> Was it the hardware ? was it the software. I remember talking with
 >>>> Edmund
 >>>> at the 2000 winter Namm, and told me that he & Steve set out to
 >>>> reproduce
 >>>> the sonics of big buck analog board (eq's) and all.. And, summing was
 >> a
 >>>> big
 >>>> big issue for them because they (ID) thought that nobody has gotten
 >>>> it(summing)
 >>>> right. And by right, they meant, behaved like a console with a wide
 lane
 >>>> for all of those tracks..
 >>>>
 >>>>
 >>>>
 >>>>
 >>>> "Dedric Terry" <dedric@echomg.com> wrote:
 >>>>>"LaMont" <jjdpro@ameritech.net> wrote in message
 >>>>>news:458be8d5\$1@linux...
 >>>>>>
 >>>>>> Okay...
 >>>>>> I guess what I'm saying is this:
 >>>>>>
 >>>>>> -Is it possible that diferent DAW manufactuers "code" their app
 >>>>>> differently
 >>>>>> for sound results.
 >>>>>>
 >>>>>>Of course it is *possible* to do this, but only if the DAW has a
 >>>>>>specific
 >>>>>>
 >>>>>>sound shaping purpose
 >>>>>>beyond normal summing/mixing. Users talk about wanting developers to
 >> add
 >>>> a
 >>>>>"Neve sound" or "API sound" option to summing engines,
 >>>>>but that's really impractical given the amount of dsp required to make
 >> a
 >>>>
 >>>>>decent emulation (with convolution, dynamic EQ functions,
 >>>>>etc). For sake of not eating up all cpu processing, that could likely
 >>
 >>>>>only
 >>>>
 >>>>>surface as is a built in EQ, which

>>>>>no one wants universally in summing, and anyone can add at will already.
>>>>>
>>>>>So it hasn't happened yet and isn't likely to as it detours from the

>>>>>basic
>>>>>
>>>>>tenant of audio recording - recreate what comes in as
>>>>>accurately as possible.
>>>>>
>>>>>What Digi did in recoding their summing engine was try to recover some
>>>>>of the damage done by the 24-bit buss in Mix systems. Motorola 56k dsps
>>>>> are
>>>>>24-bit fixed point chips and I think
>>>>>the new generation (321?) still is, but they use double words now for
>>>>>48-bits). And though plugins could process at 48-bit by
>>>>>doubling up and using upper and lower 24-bit words for 48-bit outputs,
>> the
>>>>>
>>>>>buss
>>>>>between chips was 24-bits, so they had to dither to 24-bits after every
>>>>>
>>>>>plugin. The mixer (if I recall correctly) also
>>>>>had a 24-bit buss, so what Digi did is to add a dither stage to the

>>>>>mixer
>>>>> to
>>>>>prevent this
>>>>>constant truncation of data. 24-bits isn't enough to cover summing
for
>>>>> more
>>>>>than a few tracks without
>>>>>losing information in the 16-bit world, and in the 24-bit world some
>>>>>information will be lost, at least at the lowest levels.
>>>>>
>>>>>Adding a dither stage (though I think they did more than that - perhaps
>>>>>
>>>>>implement a 48-bit double word stage as well),
>>>>>simply smoothed over the truncation that was happening, but it didn't
>>
>>>>>solve
>>>>>
>>>>>the problem, so with HD
>>>>>they went to a double-word path - throughout I believe, including the
>> path
>>>>>
>>>>>between chips. I believe the chips
>>>>>are still 24-bit, but by doubling up the processing (yes at a cost of
>>

>>>>>twice
>>>>
>>>>>the overhead), they get a 48-bit engine.
>>>>>This not only provided better headroom, but greater resolution. Higher
>>>> bit
>>>>>depths subdivide the amplitude with greater resolution, and that's
>>>>>really where we get the definition of dynamic range - by lowering the
>>
>>>>>signal
>>>>
>>>>>to quantization noise ratio.
>>>>>
>>>>>With DAWs that use 32-bit floating point math all the way through, the
>>
>>>>>only
>>>>
>>>>>reason for altering the summing
>>>>>is by error, and that's an error that would actually be hard to make
and
>>>> get
>>>>>past a very basic alpha stage of testing.
>>>>>There is a small difference in fixed point math and floating point math,
>>>> or
>>>>>at least a theoretical difference in how it affects audio
>>>>>in certain cases, but not necessarily in the result for calculating
gain
>>>> in
>>>>>either for the same audio file. Where any differences might show up
is
>>>>
>>>>>complicated, and I believe only appear at levels below 24-bit (or in
>>>>>headroom with tracks pushed beyond 0dBFS), or when/if
>>>>>there are any differences in where each amplitude level is quantized.
>>>>>
>>>>>Obviously there can be differences if the DAW has to use varying bit
>>>>>depths
>>>>
>>>>>throughout a single summing path to accomodate hardware
>>>>>as well as software summing, since there may be truncation or rounding
>>
>>>>>along
>>>>
>>>>>the way, but that impacts the lowest bit
>>>>>level, and hence - spacial reproduction, reverb tails perhaps, and
>>>>>"depth",
>>>>
>>>>>not the levels most music so the differences are most
>>>>>often more subtle than not. But most modern DAWs have eliminated those

>>>>
>>>>>"rough edges" in the math by increasing the bit depth to accomodate

>>>>>normal
>>>>
>>>>>summing required for mixing audio.
>>>>>
>>>>>So with Lynn's unity gain summing test (A files on the CD I believe),
>> DAWs
>>>>
>>>>>were never asked to sum beyond 24-bits,
>>>>>at least not on the upper end of the dynamic range, so everything that
>>
>>>>>could
>>>>
>>>>>represent 24-bits accurately would cancel. The only ones
>>>>>that didn't were ones that had a different bit depth and/or gain
>>>>>structure
>>>>
>>>>>whether hybrid or native
>>>>>(e.g. Paris' subtracting 20dB from tracks and adding it to the buss).
>> In
>>>>
>>>>>this case, PTHD cancelled (when I tested it) with
>>>>>Nuendo, Samplitude, Logic, etc because the impact of the 48-bit fixed
>> vs.
>>>>
>>>>>32-bit float wasn't a factor.
>>>>>
>>>>>When trying other tests, even when adding and subtracting gain, Nuendo,
>>>>
>>>>>Sequoia and Sonar cancel - both audibly and
>>>>>visually at inaudible levels, which only proves that one isn't making
>> an
>>>>
>>>>>error when calculating basic gain. Since a dB is well defined,
>>>>>and the math to add gain is simple, they shouldn't. The fact that they
>>>> all
>>>>>use 32-bit float all the way through eliminates a difference
>>>>>in data structure as well, and this just verifies that. There was a

>>>>>time
>>>>
>>>>>that supposedly Logic (v3, v4?) was partly 24-bit, or so the rumor went,
>>>>>but it's 32-bit float all the way through now just as Sonar,
>>>>>Nuendo/Cubase,
>>>>
>>>>>Samplitude/Sequoia, DP, Audition (I presume at least).

>>>>>I don't know what Acid or Live use. Saw promotes a fixed point engine,
>>>> but
>>>>>I don't know if it is still 24-bit, or now 48 bit.
>>>>>That was an intentional choice by the developer, but he's the only one
>> I
>>>>
>>>>>know of that stuck with 24-bit for summing
>>>>>intentionally, esp. after the Digi Mix system mixer incident.
>>>>>
>>>>>Long answer, but to sum up, it is certainly physically *possible* for
>> a
>>>>
>>>>>developer to code something differently intentionally, but not
>>>>>in reality likely since it would be breaking some basic fixed point
or
>>>>>floating point math rules. Where the differences really
>>>>>showed up in the past is with PT Mix systems where the limitation was
>>
>>>>>really
>>>>
>>>>>significant - e.g. 24 bit with truncation at several stages.
>>>>>
>>>>>That really isn't such an issue anymore. Given the differences in
>>>>>workflow,
>>>>
>>>>>missing something in workflow or layout differences
>>>>>is easy enough to do (e.g. Sonar doesn't have group and busses the way
>>>>>Nuendo does, as it's outputs are actually driver outputs,
>>>>>not software busses, so in Sonar, busses are actually outputs, and sub
>>>>>busses are actually busses in Nuendo. There are no,
>>>>>or at least I haven't found the equivalent of a Nuendo group in Sonar
>> -
>>>> that
>>>>>affects the results of some tests (though not basic
>>>>>summing) if not taken into account, but when taken into account, they
>> work
>>>>
>>>>>exactly the same way).
>>>>>
>>>>>So at least when talking about apps with 32-bit float all the way
>>>>>through,
>>>>
>>>>>it's safe to say (since it has been proven) that summing isn't different
>>>>
>>>>>unless
>>>>>there is an error somewhere, or variation in how the user duplicates
the
>>>>

>>>>>same mix in two different apps.
>>>>>
>>>>>Imho, that's actually a very good thing - approaching a more consistent
>>>>>
>>>>>basis for recording and mixing from which users can make all
>>>>>of the decisions as to how the final product will sound and not be
>>>>>required
>>>>>
>>>>>to decide when purchasing a pricey console, and have to
>>>>>focus their business on clients who want "that sound". I believe we
are
>>>>>
>>>>>actually closer to the pure definition of recording now than
>>>>>we once were.
>>>>>
>>>>>Regards,
>>>>>Dedric
>>>>>
>>>>>
>>>>>>
>>>>>> I the answer is yes, then,the real task is to discover or rather
>>>>>> un-cover
>>>>>> what's say: Motu's vision of summing, versus Digidesign, versus
>>>>>> Steinberg
>>>>>> and so on..
>>>>>>
>>>>>> What's under the hood. To me and others,when Digi re-coded their
>>>>>> summing
>>>>>> engine, it was obvious that Pro Tools has an obvious top end (8k-10k)
>>>>>
>>>>>> bump.
>>>>>> Where as Steinberg's summing is very neutral.
>>>>>>
>>>>>> "Dedric Terry" <dedric@echomg.com> wrote:
>>>>>>>Hi Neil,
>>>>>>>
>>>>>>>Jamie is right. And you aren't wacked out - you are thinking this
>>>>>>>through
>>>>>>>
>>>>>>>in a reasonable manner, but coming to the wrong
>>>>>>>conclusion - easy to do given how confusing digital audio can be.

>>>>>>>Each
>>>>>>> word
>>>>>>>represents an amplitude
>>>>>>>point on a single curve that is changing over time, and can vary with
>>>>> a
>>>>>>>

>>>>>>speed up to the Nyquist frequency (as Jamie described).
>>>>>>The complex harmonic content we hear is actually the frequency
>>>>>>modulation
>>>>>> of
>>>>>>a single waveform,
>>>>>>that over a small amount of time creates the sound we translate -
we
>>
>>>>>>don't
>>>>>>
>>>>>>really hear a single sample at a time,
>>>>>>but thousands of samples at a time (1 sample alone could at most
>>>>>>represent
>>>>>> a
>>>>>>single positive or negative peak
>>>>>>of a 22,050Hz waveform).
>>>>>>
>>>>>>If one bit doesn't cancel, esp. if it's a higher order bit than number
>>>> 24,
>>>>>>
>>>>>>you may hear, and will see that easily,
>>>>>>and the higher the bit in the dynamic range (higher order) the more
>>>>>>audible
>>>>>>
>>>>>>the difference.
>>>>>>Since each bit is 6dB of dynamic range, you can extrapolate how "loud"
>>>>
>>>>>>that
>>>>>>
>>>>>>bit's impact will be
>>>>>>if there is a variation.
>>>>>>
>>>>>>Now, obviously if we are talking about 1 sample in a 44.1k rate song,
>>>> then
>>>>>>
>>>>>>it simply be a
>>>>>>click (only audible if it's a high enough order bit) instead of an
>>>>>>obvious
>>>>>>
>>>>>>musical difference, but that should never
>>>>>>happen in a phase cancellation test between identical files higher

>>>>>>than
>>>>>> bit
>>>>>>24, unless there are clock sync problems,
>>>>>>driver issues, or the DAW is an early alpha version. :-)
>>>>>>
>>>>>>By definition of what DAWs do during playback and record, every audio

```

>>>>
>>>>>>stream
>>>>>>
>>>>>>has the same point in time (judged by the timeline)
>>>>>>played back sample accurately, one word at a time, at whatever sample
>>>>
>>>>>>rate
>>>>>>
>>>>>>we are using. A phase cancellation test uses that
>>>>>>fact to compare two audio files word for word (and hence bit for bit
>>
>>>>>>since
>>>>>>
>>>>>>each bit of a 24-bit word would
>>>>>>be at the same bit slot in each 24-bit word). Assuming they are
>>>>>>aligned
>>>>>> to
>>>>>>the same start point, sample
>>>>>>accurately, and both are the same set of sample words at each sample
>>>>>>point,
>>>>>>
>>>>>>bit for bit, and one is phase inverted,
>>>>>>they will cancel through all 24 bits. For two files to cancel
>>>>>>completely
>>>>>>
>>>>>>for the duration of the file, each and every bit in each word
>>>>>>must be the exact opposite of that same bit position in a word at
the
>>>> same
>>>>>>
>>>>>>sample point. This is why zooming in on an FFT
>>>>>>of the full difference file is valuable as it can show any differences
>>>> in
>>>>>>
>>>>>>the lower order bits that wouldn't be audible. So even if
>>>>>>there is no audible difference, the visual followup will show if the
>> two
>>>>>>
>>>>>>files truly cancel even a levels below hearing, or
>>>>>>outside of a frequency change that we will perceive.
>>>>>>
>>>>>>When they don't cancel, usually there will be way more than 1 bit
>>>>>>difference - it's usually one or more bits in the words for
>>>>>>thousands of samples. From a musical standpoint this is usually in
>> a
>>>>>>frequency range (low freq, or high freq most often) - that will
>>>>>>show up as the difference between them, and that usually happens due
>> to

```

>>>>> some
 >>>>>> form of processing difference between the files,
 >>>>>> such as EQ, compression, frequency dependant gain changes, etc. That
 >> is
 >>>>> what
 >>>>>> I believe you are thinking through, but when
 >>>>>> talking about straight summing with no gain change (or known equal

 >>>>>> gain
 >>>>>>
 >>>>>> changes), we are only looking at linear, one for one
 >>>>>> comparisons between the two files' frequency representations.
 >>>>>>
 >>>>>> Regards,
 >>>>>> Dedric
 >>>>>>
 >>>>>>> Neil wrote:
 >>>>>>>> "Dedric Terry" <dedric@echomg.com> wrote:
 >>>>>>>>> The tests I did were completely blank down to -200 dB (far below
 >> the
 >>>>>>
 >>>>>>>>> last
 >>>>>>>>>
 >>>>>>>>> bit). It's safe to say there is no difference, even in
 >>>>>>>>> quantization noise, which by technical rights, is considered below
 >>>> the
 >>>>>>
 >>>>>>>>> level
 >>>>>>>>>
 >>>>>>>>> of "cancellation" in such tests.
 >>>>>>>>>
 >>>>>>>>> I'm not necessarily talking about just the first bit or the
 >>>>>>>>> last bit, but also everything in between... what happens on bit
 >>>>>>>>> #12, for example? Everything on bit #12 should be audible, but
 >>>>>>>>> in an a/b test what if there are differences in what bits #8
 >>>>>>>>> through #12 sound like, but the amplitude is still the same on
 >>>>>>>>> both files at that point, you'll get a null, right? Extrapolate
 >>>>>>>>> that out somewhat & let's say there are differences in bits #8
 >>>>>>>>> through #12 on sample points 3, 17, 1,000, 4,523, 7,560, etc,
 >>>>>>>>> etc through 43,972... Now this is breaking things down well
 >>>>>>>>> beyond what I think can be measured, if I'm not mistaken (I
 >>>>>>>>> don't know of any way we could extract JUST that information
 >>>>>>>>> from each file & play it back for an a/b test; but would not
 >>>>>>>>> that be enough to have to "null-able" files that do actually
 >>>>>>>>> sound somewhat different?
 >>>>>>>>>
 >>>>>>>>> I guess what I'm saying is that since each sample in a musical
 >>>>>>>>> track or full song file doesn't represent a pure, simple set of

>>>>>>> content like a sample of a sine wave would - there's a whole
>>>>>>> world of harmonic structure in each sample of a song file, and
>>>>>>> I think (although I'll admit - I can't "prove") that there is
>>>>>>> plenty of room for some variables between the first bit & the
>>>>>>> last bit while still allowing for a null test to be successful.

>>>>>>>

>>>>>>> No? Am I wacked out of my mind?

>>>>>>>

>>>>>>> Neil

>>>>>>>

>>>>>>>

>>>>>>

>>>>>

>>>>>

>>>>

>>>

>>>

>>

>

>This is a multi-part message in MIME format.

-----=_NextPart_000_009A_01C72636.981EBFF0

Content-Type: text/plain;

charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

So I gave Chris a little Christmas chuckle did I?

I'm glad I could be of service!

"Chris Ludwig" <chrisl@adkproaudio.com> wrote in message =
news:458cc07c\$1@linux...

Hi Tom,

Sorry you took the post too serious. I was just amused by the=20
complicated setup. I think you've been drinking from DJ bottle...)

I think it would be cooler if you had separate monitors for =
everything.=20

It'd be like a spaceship.

Chris

Tom Bruhl wrote:

> Hi Chris,

> My dual KVM works great as is. Is the dual monitor idea so bad? =

How=20

- > else will I be able to sit
- > in my sweet spot and bounce between 2 and maybe even three comps =

with=20

- > one mouse/keyboard?
- > =20
- > They make quad KVMs. I might end up with that in the end. 3 comps=20
- > each with 4 head cards,
- > four monitors, one keyboard/mouse.=20
- > Why is the KVM soooooo Baaaad? How else can I achieve this?
- > =20
- > This other scenario would be even more complex than described in the =

> diagram below.

- > The ultimate setup would have two QWERTY keyboards/mice with KVM=20
- > sharing with Paris/Cubase
- > and Cubase independently.
- > =20
- > The room as it relates to the photo:
- > My MIDI setup mimics what is shown to left of the
- > mixing position here except there's a desk spot for legs on the =

right=20

- > along
- > with a controller. I'd like a 2 x 22" LCD widescreens, QWERTY & =

mouse

- > there along with the KVM QWERTY/mouse in the center as shown for =

Paris

- > and mixdown work.
- > =20
- > What would you suggest?
- > =20
- > Getting more confused by the minute...
- > Tom
- > =20
- > =20
- > =20
- > =20
- > =20
- > =20
- > =20

- >
- > "Chris Ludwig" <chrisl@adkproaudio.com
- > <mailto:chrisl@adkproaudio.com>> wrote in message
- > news:458c3c62\$1@linux...
- > Tom Bruhl GOOOODDDD.....KVM BBBBAAAAADDDDDDD

- >
- >
- >
- >

> Tom Bruhl wrote:
 > > Okay Aaron I hope I get this right.
 > >=20
 > > The first diagram is what I think might not work due to the
 > position of
 > > the splitter. I'm afraid it won't amplify the signal if
 > > placed at the end of the line. If I'm wrong then that's =
 great!=20
 > You'll
 > > want to widen your view for this one.
 > >=20
 > > _Example 1:_
 > >=20
 > >=20
 > > =
 > =
 =20
 > 21"
 > > VGA monitor & 22" LCD with VGA input
 > > =
 > =20
 > 2
 > > x 5' extensions
 > > =
 > =20
 > Video
 > > Splitter (Aarons active type)
 > > =
 > =20
 > 20'
 > > extension
 > > =20
 > KVM #1 out
 > > KVM #1 In
 > > VGA #1 out
 > > Paris Comp - G550
 > > VGA #2 out=20
 > > KVM #2 In
 > > =20
 > KVM #2 out
 > > =
 > =20
 > 20'
 > > extension
 > > =
 > =20
 > Video
 > > Splitter (Aaron's active type)


```

> >                                     =
>                                     =20
> 2
> > x 5' extensions
> >                                     =
>                                     =
=20
>
> > 21" VGA monitor & 22" LCD with VGA input
> >=20
> >=20
> >=20
> >                                     =
KVM
> #1 out
> > (Shares with above from this point on.)
> >                                     KVM
> > #3 in                                     =20
> >                                     VGA #1 out
> > Cubase Comp - 7300GT
> > DVI out to VGA connector out
> >                                     KVM #4 in
> >                                     =
KVM
> #2 out
> > (Shares with above from this point on.)
> >=20
> >                                     =20
> > OR:
> > _Example 2:_
> >=20
> >                                     =
>                                     =
>                                     =20
> 21"
> > VGA monitor & 22" LCD with VGA input
> >                                     =
>                                     =
>                                     =20
>
> > 2 x 5' extensions
> >                                     =
>                                     =20
>
> > Passive Video Splitter (Y cable)
> >                                     =
>                                     =20
>

```

```

> > 20' extension
> >
> =20
>
> > KVM #1 out
> >
> =20
> KVM
> > #1 In
> > Video amplifier
> (Like
> > splitter in example 1 with only one output)
> > VGA #1 out
> > Paris Comp - G550
> > VGA #2 out
> > Video amplifier
> (Like
> > splitter in example 1 with only one output)
> >
> =20
> > KVM #2 In
> >
> =20
>
> > KVM #2 out
> >
> =20
>
> > 20' extension
> >
> =20
>
> > Passive Video Splitter (Y cable)
> >
> =20
> 2
> > x 5' extensions
> >
> =20
>
> >
> =20
21"
> VGA
> > monitor & 22" LCD with VGA input
> >=20
> >=20
> >=20

```



```

> >=20
> >=20
> >=20
> >=20
> >=20
> >=20
> >=20
> >=20
> >=20
> >=20
> >=20
> >=20
> >=20
> >=20
> >=20
> >
> > "Aaron Allen" <know-spam@not_here.dude
> <mailto:know-spam@not_here.dude>
> > <mailto:know-spam@not_here.dude>> wrote in message
> > news:458c050f@linux...
> > I'm not getting the visual you have in mind.. diagram it?
> > =20
> > AA
> >
> > "Tom Bruhl" <arpeggio@comcast.net
> <mailto:arpeggio@comcast.net> <mailto:arpeggio@comcast.net>>
> > wrote in message news:458b7f6f@linux...
> > Thanks Aaron,
> > Will this work on the backside of a KVM? I can't put =
it
> in front.
> > I guess if it needed to be in front of the KVM I could
> just get a
> > single output jobbie and split it at the other side. =
Do
> those
> > exist?
> > =20
> >
> > "Aaron Allen" <know-spam@not_here.dude
> <mailto:know-spam@not_here.dude>
> > <mailto:know-spam@not_here.dude>> wrote in message
> > news:458b23a2@linux...
> > I hope you're not doing a passive Y split. Look =
for
> a VGA
> > splitter on google, something like
> > =20
> > =20

```

> <http://www.pcmall.com/pcmall/shop/detail~dpno~767745.asp>
 > < <http://www.pcmall.com/pcmall/shop/detail%7Edpno%7E767745.asp>>
 > > =20
 > > They're cheap and OH so worth it
 > > =20
 > > AA
 > >
 > > "Tom Bruhl" <arpegio@comcast.net
 > <mailto:arpegio@comcast.net>
 > > <mailto:arpegio@comcast.net>> wrote in message
 > > news:4589ba0a\$1@linux...
 > > Thanks Chris.
 > > This graphics stuff is confusing to me.
 > > =20
 > > I have to convert the DVI to VGA because of =
 the
 > 20' length
 > > as I understand. I was going to split it with =
 a
 > Y cable
 > > too.
 > > They'll split to a 21"VGA and a 22"LCD. Will
 > that work on
 > > the far side of a KVM? I know the resolutions
 > won't match
 > > but I'll only need the VGAs when mixing so =
 I'll
 > adjust the
 > > 7300 differently for that application. Sooner
 > or later
 > > I'll get
 > > 4 matching 22" LCDs and quad cards for both =
 comps.
 > > =20
 > > Will this work?
 > > Tom
 > > =20
 > > =20
 > > =20
 > > =20
 > > =20
 > > =20
 > > =20
 > >
 > > "Chris Ludwig" <chrisl@adkproaudio.com
 > <mailto:chrisl@adkproaudio.com>
 > > <mailto:chrisl@adkproaudio.com>> wrote in
 > message
 > > news:45894ef0\$1@linux...

> > HI Tom,
 > > These monitors will be fine with your =
 card. The
 > > 7300GT supports that
 > > resolution on both the VGA and DVI =
 connections.I
 > > would run both with VGA
 > > connections. Having one hooked up DVI and
 > one VGA
 > > may make the 2 look
 > > very different in brightness and such.
 > > Chris
 > >
 > >
 > > Tom Bruhl wrote:
 > >
 > > > My card has one VGA, one DVI and one S =
 Video
 > > connector on it.
 > > >
 > > >
 > > > I choose Polesoft Lockspam to fight =
 spam,
 > and you?
 > > > <http://www.polesoft.com/refer.html>=20
 > >
 > >
 > > --
 > > Chris Ludwig
 > > ADK
 > > chrisl@adkproaudio.com
 > <<mailto:chrisl@adkproaudio.com>>
 > > <<mailto:chrisl@adkproaudio.com>>
 > > <<mailto:chrisl@adkproaudio.com>>
 > > www.adkproaudio.com
 > <<http://www.adkproaudio.com>> <<http://www.adkproaudio.com>>
 > > <<http://www.adkproaudio.com/>>
 > > (859) 635-5762
 >
 > --=20
 > Chris Ludwig
 >
 > ADK Pro Audio
 > (859) 635-5762
 > www.adkproaudio.com <<http://www.adkproaudio.com>>
 > chrisl@adkproaudio.com <<mailto:chrisl@adkproaudio.com>>
 >
 >

> =

>

--=20

Chris Ludwig

ADK

chrisl@adkproaudio.com <mailto:chrisl@adkproaudio.com>

www.adkproaudio.com <http://www.adkproaudio.com/>

(859) 635-5762

-----=_NextPart_000_009A_01C72636.981EBFF0

Content-Type: text/html;

charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">

<HTML><HEAD>

<META http-equiv=3DContent-Type content=3D"text/html; =
charset=3Diso-8859-1">

<META content=3D"MSHTML 6.00.2800.1400" name=3DGENERATOR>

<STYLE></STYLE>

</HEAD>

<BODY bgColor=3D#ffffff>

<DIV>So I gave Chris a little Christmas =
chuckle did=20

I?</DIV>

<DIV> </DIV>

<DIV>I'm glad I could be of =
service!</DIV>

<DIV> </DIV>

<DIV> </DIV>

<BLOCKQUOTE=20

style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =
BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">

<DIV>"Chris Ludwig" <<A=20

href=3D"mailto:chrisl@adkproaudio.com">chrisl@adkproaudio.com> =
wrote in=20

message <A =

href=3D"news:458cc07c\$1@linux">news:458cc07c\$1@linux...</DIV>Hi=20

Tom,
Sorry you took the post too serious. I was just amused by the=20

complicated setup. I think you've been drinking from DJ =
bottle...)
I=20

think it would be cooler if you had separate monitors for everything. =

It'd=20

be like a spaceship.

Chris

Tom Bruhl =
wrote:

>=20

Hi Chris,
> My dual KVM works great as is. Is the dual =
monitor=20

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

-----=_NextPart_000_009A_01C72636.981EBFF0--This is a multi-part message in MIME format.

Content-Transfer-Encoding: quoted-printable

Hurry up and wait.

Now, Cubase 4 ? ? ? Should I wait?

Naw, well maybe . . .

NOT!

<http://www.polesoft.com/refer.html>

Content-Type: text/html;

Content-Transfer-Encoding: quoted-printable

<HTML><HEAD>

<META content=3D"MSHTML 6.00.2800.1400" name=3DGENERATOR>

</HEAD>

<DIV>I got things really cooking here with =
my new rig=20

<DIV>Creamware folks are on vacation =
from today=20

<DIV>I picked a great day to install the Pro =
card . . =20

<DIV> </DIV>

<DIV> </DIV>

<DIV> </DIV>

[illegible]

Naw, well maybe . . .</DIV>
<DIV> </DIV>
<DIV> </DIV>
<DIV>NOT!</DIV>
<DIV>

I choose Polesoft Lockspam to fight spam, =
and=20
you?
<A=20
href=3D"http://www.polesoft.com/refer.html">http://www.polesoft.com/refer=
..html </DIV></BODY ></HTML>

-----=_NextPart_000_00A5_01C72637.1A3D4BF0--Thanks guys, I'll try this when I get back from vacation for the holiday.

Peace and Joy,
AAHey Mike! On the Mac, go to help on the menu bar at the top and type in "networking" or "networking a PC and a Mac". It should all be there, just scroll down for the answers.

James

"Mike R." <emarenot@yahoo.com> wrote:

>
>
>I've got a Mac G4 (OSX 10.4) and a PC running Windows 98SE and Paris. I
>want to be able to move .wav files made on the G4 over to Paris, and from
>Paris back over to the Mac --if I want to apply FX there that I cannot in
>Paris. As I understand it, the G4 has an ethernet card built in. I assume
>that I have to get a NIC card for the PC. Do I need to get some sort of
>software for each machine so that the PC will see the Mac and vice versa?
>This is totally new territory. I wish it was as simple as plugging in a
>cable between two boxes, but I fear it is not..
>Thanks much,
>MR
>
>
><!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
><HTML><HEAD>
><META http-equiv=3DContent-Type content=3D"text/html; =
>charset=3Diso-8859-1">
><META content=3D"MSHTML 6.00.2800.1555" name=3DGENERATOR>
><STYLE></STYLE>
></HEAD>
><BODY bgColor=3D#ffffff>
><DIV>I've got a Mac G4 (OSX 10.4) and a PC =
>running=20

>on the=20
>G4 over to Paris, and from Paris back over to the Mac --if I want to =

>apply FX=20

>ethernet=20

>Do I=20

>need to get some sort of software for each machine so that the PC will =

>see the=20

>was as=20

>simple as plugging in a cable between two boxes, but I fear it is=20

>not...</DIV>

><DIV>Thanks much,</DIV>

><DIV>MR</DIV></BODY></HTML>

>

>Here's a new AMP that's coming out. They have video demos of different styles.

I think they're in the ball park with that Pantera, Zakk Wylde triple rectum

fryer sound, if your in to that sort of thing. There's some good sounds,

blues and clean etc., but then again, I'm a drummer, what the heck do I know!!!

;)

<http://www.the-valve.com/videos.html>

<http://www.the-valve.com/>

James"TCB" <nobody@ishere.com> wrote:

>

>That's too bad. I think people have an instinctive thing against the sound

>of Live as well, just because it also loops like ACID does. Live sounds

like

>a properly written native DAW when working with non time stretched tracks.

>The sound quality on the stretched audio is amazing, all things considered,

>but the non-stretched sound is indistinguishable from SX. Too bad the only

>really truly awful sounding app has to bring down a perfectly nice sounding

>one.

>

>TCB

I'm a recent convert to Live 6 after testing its audio engine. I had also been under the impression it would affect the quality of my mixdowns but am happy to see thats not the case. Great program although I still use SX3 for some midi editing recording. This is a multi-part message in MIME format.

-----=_NextPart_000_039F_01C72653.C1A67080

Content-Type: text/plain;

charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

So, do you have it there and you are having problems with it?=20

Deej

"Tom Bruhl" <arpeggio@comcast.net> wrote in message =
news:458cd310@linux...

I got things really cooking here with my new rig except the
Creamware folks are on vacation from today until 1/2/07.=20
I picked a great day to install the Pro card . . .

Hurry up and wait.

Now, Cubase 4 ? ? ? Should I wait?

Naw, well maybe . . .

NOT!

I choose Polesoft Lockspam to fight spam, and you?

<http://www.polesoft.com/refer.html>

-----=_NextPart_000_039F_01C72653.C1A67080

Content-Type: text/html;

charset="iso-8859-1"

Content-Transfer-Encoding: quoted-printable

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">

<HTML><HEAD>

<META http-equiv=3DContent-Type content=3D"text/html; =
charset=3Diso-8859-1">

<META content=3D"MSHTML 6.00.2900.2180" name=3DGENERATOR>

<STYLE></STYLE>

</HEAD>

<BODY bgColor=3D#ffffff>

<DIV>So, do you have it there and you are =
having=20

problems with it? </DIV>

<DIV> </DIV>

<DIV>Deej</DIV>

<BLOCKQUOTE dir=3Dltr=20

style=3D"PADDING-RIGHT: 0px; PADDING-LEFT: 5px; MARGIN-LEFT: 5px; =
BORDER-LEFT: #000000 2px solid; MARGIN-RIGHT: 0px">

<DIV>"Tom Bruhl" <<A=20

href=3D"mailto:arpeggio@comcast.net">arpeggio@comcast.net> wrote =
in message=20

news:458cd310@linux...</DIV>

<DIV>I got things really cooking here with =
my new rig=20

assume

```
> >that I have to get a NIC card for the PC. Do I need to get some sort of
> >software for each machine so that the PC will see the Mac and vice versa?
> >This is totally new territory. I wish it was as simple as plugging in a
> >cable between two boxes, but I fear it is not...
> >Thanks much,
> >MR
> >
> >
> ><!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
> ><HTML><HEAD>
> ><META http-equiv=3DContent-Type content=3D"text/html; =
> >charset=3Diso-8859-1">
> ><META content=3D"MSHTML 6.00.2800.1555" name=3DGENERATOR>
> ><STYLE></STYLE>
> ></HEAD>
> ><BODY bgColor=3D#ffffff>
> ><DIV><FONT face=3DArial size=3D2>I've got a Mac G4 (OSX 10.4) and a PC =
> >running=20
> >Windows 98SE and Paris. I want to be able to move .wav files made =
> >on the=20
> >G4 over to Paris, and from Paris back over to the Mac --if I want to =
> >apply FX=20
> >there that I cannot in Paris. As I understand it, the G4 has an =
> >ethernet=20
> >card built in. I assume that I have to get a NIC card for the PC. =
> >Do I=20
> >need to get some sort of software for each machine so that the PC will =
> >see the=20
> >Mac and vice versa? This is totally new territory. I wish it =
> >was as=20
> >simple as plugging in a cable between two boxes, but I fear it is=20
> >not...</FONT></DIV>
> ><DIV><FONT face=3DArial size=3D2>Thanks much,</FONT></DIV>
> ><DIV><FONT face=3DArial size=3D2>MR</FONT></DIV></BODY></HTML>
> >
> >
>Hi Lamont,
```

I've posted this several times in the past, but here's the scoop. Edmund did not write the summing code. It's deep within the DSP code running on the ESP2 chips. It was written by some very talented guys at Ensoniq. I really dig everything that Edmund and Stephen did, but the summing just isn't part of it.

The stuff I posted is not really a theory. The PARIS mix engine source code is freely available for download. Anyone with a little time, patience and the ESP2 patent can clearly see what is going on. It's only a couple hundred

lines of code.

Chuck

"Dedric Terry" <dedric@echomg.com> wrote:

>I can't tell you why you hear ProTools differently than Nuendo using a
>single file.

>There isn't any voodoo in the software, or hidden character enhancing dsp.

>I'll see if

>I can round up an M-Powered system to compare with next month.

>

>For reference, everytime I open Sequoia I think I might hear a broader,

>clean,

>and almost flat (spectrum, not depth) sound, but I don't - it's the same
as

>Nuendo, fwiw.

>Also I don't think what I was referring to was a theory from Chuck - I

>believe that was what he

>discovered in the code.

>

>Digital mixers all have different preamps and converters. Unless you are

>bypassing every

>EQ and converter and going digital in and out to the same converter when

>comparing, it would be hard

>to say the mix engine itself sounds different than another mixer, but taken

>as a whole, then

>certainly they may very well sound different. In addition, hardware digital

>mixers may use a variety of different paths between the I/O, channel

>processing, and summing,

>though most are pretty much software mixers on a single chip or set of dsps

>similar to ProTools,

>with I/O and a hardware surface attached.

>

>I know it may be hard to separate the mix engine as software in either a

>native DAW

>or a digital mixer, from the hardware that translates the audio to something

>we hear,

>but that's what is required when comparing summing. The hardware can

>significantly change

>what we hear, so comparing digital mixers really isn't of as much interest

>as comparing native

>DAWs in that respect - unless you are looking to buy one of course.

>

>Even though I know you think manufacturers are trying to add something to

>give them an edge, I am 100%

>sure that isn't the case - rather they are trying to add or change as little

>as possible in order to give

>them the edge. Their end of digital audio isn't about recreating the past,

>but improving upon it.

>As we've discussed and agreed before, the obsession with recreating

>"vintage" technology is as much

>fad as it is a valuable creative asset. There is no reason we shouldn't

>have far superior hardware and software EQs and comps

>than 20, 30 or 40 years ago. No reason at all, other than market demand,

>but the majority of software, and new

>hardware gear on the market has a vintage marketing tagline with it.

>Companies will sell any bill of

>goods if customers will buy it.

>

>There's nothing unique about the summing in Nuendo, Cubase, Sequoia/Samp,

>or Sonar, and it's pretty safe to include Logic and DP in that list as well.

>One of the reasons I test

>these things is to be sure my DAW isn't doing something wrong, or something

>I don't know about.

>

>Vegas - I use it for video conversions and have never done any critical

>listening tests with it. What I have heard

>briefly didn't sound any different. It certainly looks plain vanilla

>though. What you are describing is exactly

>what I would say about the GUIs of each of those apps, not that it means

>anything. Just interesting.

>

>That's one reason I listen eyes closed and double check with phase

>cancellation tests and FFTs - I am

>influenced creatively by the GUI to some degree. I actually like Cubase

4's

>GUI better than Nuendo 3.2,

>though there are only slight visual differences (some workflow differences
>are a definite improvement for me though).
>
>ProTools' GUI always made me want to write one dimensional soundtracks in

>mono for public utilities, accounting offices
>or the IRS while reading my discreet systems analysis textbook - it was
also
>grey. ;-)
>
>Regards,
>Dedric
>
>"LaMont" <jjdpro@ameritech.net> wrote in message news:458c82fd\$1@linux...
>>
>> Dedric, my simple test is simple..
>> Using the same audio interface, with the same stereo file..null-ed to

>> zero..No
>> eq, for fx. Master fader on zero..
>>
>> Nuendo, Pro-Tools -Mpowered(native)... yields a sonic difference that
I
>> have
>> referenced before.. The sound coming from PT-M has a nice top end , where
>> as Neundo has a nice flatter sound quality.
>> Same audio interface. M-audio 410..Using Mackies & Blue-Sky pro monitors..
>>
>> Same test at the big room..PT-HD & Neundo Logic Audio(macG5-Dual) Using

>> the
>> 192 interface.
>> Same results..But adding Logic audio's sound ..(Broad, thick)
>>
>> Somethings going on.
>>
>> Chucks post about how paris handles audio is a theory..Only Edmund can

>> truly
>> give us the goods on what's really what..
>>
>> I disagree that manufactuers don;t set out o put a sonic print on their

>> products.
>> I think they do.
>>
>> I have been fortunate to work on some digital mixers and I can tell you

>> that
>> each one has their own sound. The Sony Dmx-100 was modeled after SSL 4000g
>> (like it's Big Brother).And you what? That board (Dmx-100) sound very
warm
>> and it's eq tries to behave and sound just like an SSL.. Unlike he Yamaha
>> Dm2000(version 1.x) which has a very Clean, neutral sound..However, some
>> complained that it was tooo Vanila and thus, Yamaha add a version 2.0

>> which
>> added Vintage type Eq's, modeled analog input gain saturation fx too give
>> the user a choice Btw Clean and Neutral vs sonic Character.
>>
>> So, if digital conoles can be given a sonic character, why not a software
>> mixer?
>> The truth is, there are some folks who want a neutral mixer and then there
>> are others who want a sonic footprint imparted. and these can be coded
in
>> the digital realm.
>> The appllies with the manufactuers. They too have their vision on what
They
>> think and want their product to sound.
>>
>> I love reading on gearslutz the posts from Plugin developers and their

>> interpretations
>> and opinions about what makes their Neve 1073 Eq better and what goes
into
>> making their version sound like it does.. Each Developer has a different
>> vision as to what the Neve 1073 should sound like. And yet they all sound
>> good , but slightly different.
>>
>> You stated that you use Vegas. Well as you know, Vegas has a very generic
>> sound..Just plain and simple. But, i bet you can tell the difference
on
>> your system when you play that same file in Nuendo (No, fx, eq,
>> null-edzerro)..
>> ???
>>
>>
>> "Dedric Terry" <dedric@echomg.com> wrote:
>>>Lamont - what is the output chain you are using for each app when
>>>comparing
>>
>>>the file in Nuendo
>>>vs ProTools? On the same PC, I presume (and is this PT HD or M-Powered?)?
>>>Since these can't use the same output driver, you would have to depend
on

>>
>>>the D/A being
>>>the same, but clocking will be different unless you have a master clock,
>> and
>>>both interfaces
>>>are locking with the same accuracy. This was one of the issues that came
>> up
>>>at Lynn Fuston's
>>>D/A converter shootout - when do you lock to external clock and incur
the
>>
>>>resulting jitter,
>>>and when do you trust the internal clock - and if you do lock externally,
>>
>>>how good is the PLL
>>>in the slave device? These issues can cause audible changes in the top
>> end
>>>that have nothing to do
>>>with the software itself. If you say that PTHD through the same converter
>>
>>>output as Nuendo (via? RME?
>>>Lynx?) using the same master clock, sounds different playing a single

>>>audio
>>
>>>file, then I take your word
>>>for it. I can't tell you why that is happening - only that an audible
>>>difference really shouldn't happen due
>>>to the software alone - not with a single audio file, esp. since I've

>>>heard
>>
>>>and seen PTHD audio cancel with
>>>native DAWs. Just passing a single 16 or 24 bit track down the buss
to
>> the
>>>output driver should
>>>be, and usually is, completely transparent, bit for bit.
>>>
>>>The same audio file played through the same converters should only sound
>>
>>>different if something in
>>>the chain is different - be it clocking, gain or some degree of
>>>unintended,
>>
>>>errant dsp processing. Every DAW should
>>>pass a single audio file without altering a single bit. That's a basic

>>>level
>>
>>>of accuracy we should always
>>>expect of any DAW. If that accuracy isn't there, you can be sure a heavy
>>
>>>mix will be altered in ways you
>>>didn't intend, even though you would end up mixing with that factor in

>>>place
>>
>>>(e.g. you still mix for what
>>>you want to hear regardless of what the platform does to each audio track
>> or
>>>channel).
>>>
>>>In fact you should be able to send a stereo audio track out SPDIF or
>>>lightpipe to another DAW, record it
>>>bring the recorded file back in, line them up to the first bit, and have
>>
>>>them cancel on and inverted phase
>>>test. I did this with Nuendo and Cubase 4 on separate machines just to
>> be
>>>sure my master clocking and
>>>slave sync was accurate - it worked perfectly.
>>>
>>>Also be sure there isn't a variation in the gain even by 0.1 dB between
>> the
>>>two. There shouldn't
>>>and I wouldn't expect there to be one. Also could PT be set for a
>>>different
>>
>>>pan law? Shouldn't make a
>>>difference even if comparing two mono panned files to their stereo
>>>interleaved equivalent, but for sake
>>>of completeness it's worth checking as well. A variation in the output
>>
>>>chain, be it drivers, audio card
>>>card, or converters would be the most likely culprit here.
>>>
>>>The reason DAW manufacturers wouldn't add any sonic "character"
>>>intentionally is that the
>>>ultimate goal from day one with recording has been to accurately reproduce
>>
>>>what we hear.
>>>We developed a musical penchant for sonic character because the hardware
>>
>>>just wasn't accurate,
>>>and what it did often sent us down new creative paths - even if by force

>> -
>>>and we decided it was
>>>preferred that way.
>>>
>>>Your point about what goes into the feature presets to sell synths is

>>>right
>>
>>>for sure, but synths are about
>>>character and getting that "perfect piano" or crystal clear bell pad,
or
>> fat
>>>punchy bass without spending
>>>a mint on development, adding 50G onboard sample libraries, or costing

>>>\$15k,
>>
>>>so what they
>>>lack in actual synthesis capabilities, they make up with EQ and effects
>> on
>>>the output. That's been the case
>>>for years, at least since we had effects on synths at least. But even

>>>with
>>
>>>modern synths such as the Fantom,
>>>Tritons, etc, which are great synths all around, of course the coolest,
>>
>>>widest and biggest patches
>>>will make the biggest impression - so in come the EQs, limiters, comps,
>>
>>>reverbs, chorus, etc. The best
>>>way to find out if a synth is really good is to bypass all effects and
see
>>
>>>what happens. Most are pretty
>>>good these days, but about half the time, there are presets that fall
>>>completely flat in fx bypass.
>>>
>>>DAWs aren't designed to put a sonic fingerprint on a sound the way synths
>>
>>>are - they are designed
>>>to *not* add anything - to pass through what we create as users, with
no
>>
>>>alteration (or as little as possible)
>>>beyond what we add with intentional processing (EQ, comps, etc).
>>>Developers

>>
>>>would find no pride
>>>in hearing that their DAW sounds anything different than whatever is being
>>
>>>played back in it,
>>>and the concept is contrary to what AES and IEEE proceedings on the issue
>>
>>>propose in general
>>>digital audio discussions, white papers, etc.
>>>
>>>What ID ended up doing with Paris (at least from what I gather per Chuck's
>>
>>>findings - so correct me if I'm missing part of the equation Chuck),
>>>is drop the track gain by 20dB or so, then added it back at the master

>>>buss
>>
>>>to create the effect of headroom (probably
>>>because the master buss is really summing on the card, and they have more
>>
>>>headroom there than on the tracks
>>>where native plugins might be used). I don't know if Paris passed 32-bit
>>
>>>float files to the EDS card, but sort of
>>>doubt it. I think Chuck has clarified this at one point, but don't recall
>>
>>>the answer.
>>>
>>>Also what Paris did is use a greater bit depth on the hardware than
>>>ProTools
>>
>>>did - at the time PT was just
>>>bring Mix+ systems to market, or they had been out for a year or two (if
>> I
>>>have my timeline right) - they
>>>were 24-bit fixed all the way through. Logic and Cubase were native DAWs,
>>
>>>but native was still too slow
>>>to compete with hardware hybrids. Paris trumped them all by running
>>>32-bit
>>
>>>float natively (not new really, but
>>>better than sticking to 24-bit) and 56 or so bits in hardware instead
of
>>
>>>going to Motorola DSPs at 24.
>>>The onboard effects were also a step up from anything out there, so the
>> demo

>>>did sound good.
>>>I don't recall which, but one of the demos, imho, wasn't so good (some
>>>sloppy production and
>>>vocals in spots, IIRC), so I only listened to it once. ;-)
>>>
>>>Coupled with the gain drop and buss makeup, this all gave it a "headroom"
>> no
>>>one else had. With very nice
>>>onboard effects, Paris jumped ahead of anything else out there easily,
and
>>
>>>still respectably holds its' own today
>>>in that department.
>>>
>>>Most demos I hear (when I listen to them) vary in quality, usually not
so
>>
>>>great in some area. But if a demo does
>>>sound great, then it at least says that the product is capable of at

>>>least
>>
>>>that level of performance, and it can
>>>only help improve a prospective buyer's impression of it.
>>>
>>>Regards,
>>>Dedric
>>>
>>>"LaMont " <jjdpro@ameritech.net> wrote in message news:458c14c0\$1@linux...
>>>>
>>>> Dedric good post..
>>>>
>>>> However, I have PT-M-Powered/M-audio 410 interface for my laptop and
it
>>
>>>> has
>>>> that same sound (no eq, zero fader) that HD does. I know their use the
>>
>>>> same
>>>> 48 bit fix mixer. I load up the same file in Nuendo (no eq, zero
>>>> fader)..results.
>>>> different sonic character.
>>>>
>>>> PT having a top end touch..Nuendo, nice smooth(flat) sound. And I'm
just
>>>> taking about a stereo wav file nulled with no eq..nothing
>>>> ..zilch..nada..
>>>>

>>>> Now, there are devices (keyboards, drum machines) on the market today

>>>> that

>>>> have a Master Buss Compressor and EQ set to on with the top end notched

>>

>>>> up.

>>>> Why? because it gives their product an competitive advantage over the

>>>> competition..

>>>> Ex: Yamaha's Motif ES, Akai's MPC 1000, 2500, Roland's Fantom.

>>>>

>>>> So, why would'nt a DAW manufacturer code in an extra (ooomf) to make

>>>> their

>>>> DAW sound better. Especially, given the "I hate Digital Summing" crowd?

>>

>>>> And,

>>>> If I'm a DAW manufacturer, what would give my product a sonic edge over

>> the

>>>> competition?

>>>>

>>>> We live in the "louder is better" audio world these days, so a DAW that

>>

>>>> can

>>>> catch my attention 'sonically" will probably will get the sell. That's

>> what

>>>> happened to me back in 1997 when I heard Paris. I was floored!!! Still

>> to

>>>> this day, nothing has floored me like that "Road House Blues Demo" I

>>>> heard

>>>> on Paris.

>>>>

>>>> Was it the hardware ? was it the software. I remember talking with

>>>> Edmund

>>>> at the 2000 winter Namm, and told me that he & Steve set out to

>>>> reproduce

>>>> the sonics of big buck analog board (eq's) and all.. And, summing was

>> a

>>>> big

>>>> big issue for them because they (ID) thought that nobody has gotten

>>>> it(summing)

>>>> right. And by right, they meant, behaved like a console with a wide

lane

>>>> for all of those tracks..

>>>>

>>>>

>>>>

>>>>

>>>> "Dedric Terry" <dedric@echomg.com> wrote:
>>>>>"LaMont" <jjdpro@ameritech.net> wrote in message
>>>>>news:458be8d5\$1@linux...
>>>>>>
>>>>>> Okay...
>>>>>> I guess what I'm saying is this:
>>>>>>
>>>>>> -Is it possible that diferent DAW manufactuers "code" their app
>>>>>> differently
>>>>>> for sound results.
>>>>>>
>>>>>>Of course it is *possible* to do this, but only if the DAW has a
>>>>>>specific
>>>>>>
>>>>>>sound shaping purpose
>>>>>>beyond normal summing/mixing. Users talk about wanting developers to
>> add
>>>> a
>>>>>"Neve sound" or "API sound" option to summing engines,
>>>>>but that's really impractical given the amount of dsp required to make
>> a
>>>>>
>>>>>decent emulation (with convolution, dynamic EQ functions,
>>>>>etc). For sake of not eating up all cpu processing, that could likely
>>
>>>>>only
>>>>>
>>>>>surface as is a built in EQ, which
>>>>>no one wants universally in summing, and anyone can add at will already.
>>>>>
>>>>>So it hasn't happened yet and isn't likely to as it detours from the

>>>>>basic
>>>>>
>>>>>tenant of audio recording - recreate what comes in as
>>>>>accurately as possible.
>>>>>
>>>>>What Digi did in recoding their summing engine was try to recover some
>>>>>of the damage done by the 24-bit buss in Mix systems. Motorola 56k dsps
>>>> are
>>>>>24-bit fixed point chips and I think
>>>>>the new generation (321?) still is, but they use double words now for
>>>>>48-bits). And though plugins could process at 48-bit by
>>>>>doubling up and using upper and lower 24-bit words for 48-bit outputs,
>> the
>>>>>
>>>>>buss
>>>>>between chips was 24-bits, so they had to dither to 24-bits after every

>>>>
>>>>>plugin. The mixer (if I recall correctly) also
>>>>>had a 24-bit buss, so what Digi did is to add a dither stage to the

>>>>>mixer
>>>> to
>>>>>prevent this
>>>>>constant truncation of data. 24-bits isn't enough to cover summing
for
>>>> more
>>>>>than a few tracks without
>>>>>losing information in the 16-bit world, and in the 24-bit world some
>>>>>information will be lost, at least at the lowest levels.
>>>>>
>>>>>Adding a dither stage (though I think they did more than that - perhaps
>>>>
>>>>>implement a 48-bit double word stage as well),
>>>>>simply smoothed over the truncation that was happening, but it didn't
>>
>>>>>solve
>>>>
>>>>>the problem, so with HD
>>>>>they went to a double-word path - throughout I believe, including the
>> path
>>>>
>>>>>between chips. I believe the chips
>>>>>are still 24-bit, but by doubling up the processing (yes at a cost of
>>
>>>>>twice
>>>>
>>>>>the overhead), they get a 48-bit engine.
>>>>>This not only provided better headroom, but greater resolution. Higher
>>>> bit
>>>>>depths subdivide the amplitude with greater resolution, and that's
>>>>>really where we get the definition of dynamic range - by lowering the
>>
>>>>>signal
>>>>
>>>>>to quantization noise ratio.
>>>>>
>>>>>With DAWs that use 32-bit floating point math all the way through, the
>>
>>>>>only
>>>>
>>>>>reason for altering the summing
>>>>>is by error, and that's an error that would actually be hard to make
and
>>>> get

>>>>>past a very basic alpha stage of testing.
>>>>>There is a small difference in fixed point math and floating point math,
>>>> or
>>>>>at least a theoretical difference in how it affects audio
>>>>>in certain cases, but not necessarily in the result for calculating
gain
>>>> in
>>>>>either for the same audio file. Where any differences might show up
is
>>>>
>>>>>complicated, and I believe only appear at levels below 24-bit (or in
>>>>>headroom with tracks pushed beyond 0dBFS), or when/if
>>>>>there are any differences in where each amplitude level is quantized.
>>>>>
>>>>>Obviously there can be differences if the DAW has to use varying bit
>>>>>depths
>>>>
>>>>>throughout a single summing path to accomodate hardware
>>>>>as well as software summing, since there may be truncation or rounding
>>
>>>>>along
>>>>
>>>>>the way, but that impacts the lowest bit
>>>>>level, and hence - spacial reproduction, reverb tails perhaps, and
>>>>>"depth",
>>>>
>>>>>not the levels most music so the differences are most
>>>>>often more subtle than not. But most modern DAWs have eliminated those
>>>>
>>>>>"rough edges" in the math by increasing the bit depth to accomodate

>>>>>normal
>>>>
>>>>>summing required for mixing audio.
>>>>>
>>>>>So with Lynn's unity gain summing test (A files on the CD I believe),
>> DAWs
>>>>
>>>>>were never asked to sum beyond 24-bits,
>>>>>at least not on the upper end of the dynamic range, so everything that
>>
>>>>>could
>>>>
>>>>>represent 24-bits accurately would cancel. The only ones
>>>>>that didn't were ones that had a different bit depth and/or gain
>>>>>structure
>>>>
>>>>>whether hybrid or native

>>>>>(e.g. Paris' subtracting 20dB from tracks and adding it to the buss).
>> In
>>>>>
>>>>>this case, PTHD cancelled (when I tested it) with
>>>>>Nuendo, Samplitude, Logic, etc because the impact of the 48-bit fixed
>> vs.
>>>>>
>>>>>32-bit float wasn't a factor.
>>>>>
>>>>>When trying other tests, even when adding and subtracting gain, Nuendo,
>>>>>
>>>>>Sequoia and Sonar cancel - both audibly and
>>>>>visually at inaudible levels, which only proves that one isn't making
>> an
>>>>>
>>>>>error when calculating basic gain. Since a dB is well defined,
>>>>>and the math to add gain is simple, they shouldn't. The fact that they
>>>>> all
>>>>>use 32-bit float all the way through eliminates a difference
>>>>>in data structure as well, and this just verifies that. There was a

>>>>>time
>>>>>
>>>>>that supposedly Logic (v3, v4?) was partly 24-bit, or so the rumor went,
>>>>>but it's 32-bit float all the way through now just as Sonar,
>>>>>Nuendo/Cubase,
>>>>>
>>>>>Samplitude/Sequoia, DP, Audition (I presume at least).
>>>>>I don't know what Acid or Live use. Saw promotes a fixed point engine,
>>>>> but
>>>>>I don't know if it is still 24-bit, or now 48 bit.
>>>>>That was an intentional choice by the developer, but he's the only one
>> I
>>>>>
>>>>>know of that stuck with 24-bit for summing
>>>>>intentionally, esp. after the Digi Mix system mixer incident.
>>>>>
>>>>>Long answer, but to sum up, it is certainly physically *possible* for
>> a
>>>>>
>>>>>developer to code something differently intentionally, but not
>>>>>in reality likely since it would be breaking some basic fixed point
or
>>>>>floating point math rules. Where the differences really
>>>>>showed up in the past is with PT Mix systems where the limitation was
>>
>>>>>really
>>>>>

>>>>>significant - e.g. 24 bit with truncation at several stages.
>>>>>
>>>>>That really isn't such an issue anymore. Given the differences in
>>>>>workflow,
>>>>>
>>>>>missing something in workflow or layout differences
>>>>>is easy enough to do (e.g. Sonar doesn't have group and busses the way
>>>>>Nuendo does, as it's outputs are actually driver outputs,
>>>>>not software busses, so in Sonar, busses are actually outputs, and sub
>>>>>busses are actually busses in Nuendo. There are no,
>>>>>or at least I haven't found the equivalent of a Nuendo group in Sonar
>> -
>>>> that
>>>>>affects the results of some tests (though not basic
>>>>>summing) if not taken into account, but when taken into account, they
>> work
>>>>>
>>>>>exactly the same way).
>>>>>
>>>>>So at least when talking about apps with 32-bit float all the way
>>>>>through,
>>>>>
>>>>>it's safe to say (since it has been proven) that summing isn't different
>>>>>
>>>>>unless
>>>>>there is an error somewhere, or variation in how the user duplicates
the
>>>>>
>>>>>same mix in two different apps.
>>>>>
>>>>>Imho, that's actually a very good thing - approaching a more consistent
>>>>>
>>>>>basis for recording and mixing from which users can make all
>>>>>of the decisions as to how the final product will sound and not be
>>>>>required
>>>>>
>>>>>to decide when purchasing a pricey console, and have to
>>>>>focus their business on clients who want "that sound". I believe we
are
>>>>>
>>>>>actually closer to the pure definition of recording now than
>>>>>we once were.
>>>>>
>>>>>Regards,
>>>>>Dedric
>>>>>
>>>>>
>>>>>>

>>>>> I the answer is yes, then,the real task is to discover or rather
 >>>>> un-cover
 >>>>> what's say: Motu's vision of summing, versus Digidesign, versus
 >>>>> Steinberg
 >>>>> and so on..
 >>>>>
 >>>>> What's under the hood. To me and others,when Digi re-coded their
 >>>>> summing
 >>>>> engine, it was obvious that Pro Tools has an obvious top end (8k-10k)
 >>>>>
 >>>>> bump.
 >>>>> Where as Steinberg's summing is very neutral.
 >>>>>
 >>>>> "Dedric Terry" <dedric@echomg.com> wrote:
 >>>>>>Hi Neil,
 >>>>>>
 >>>>>>Jamie is right. And you aren't wacked out - you are thinking this
 >>>>>>through
 >>>>>>
 >>>>>>in a reasonable manner, but coming to the wrong
 >>>>>>conclusion - easy to do given how confusing digital audio can be.

>>>>>>Each
 >>>>>> word
 >>>>>>represents an amplitude
 >>>>>>point on a single curve that is changing over time, and can vary with
 >>>>>> a
 >>>>>>
 >>>>>>speed up to the Nyquist frequency (as Jamie described).
 >>>>>>The complex harmonic content we hear is actually the frequency
 >>>>>>modulation
 >>>>>> of
 >>>>>>a single waveform,
 >>>>>>that over a small amount of time creates the sound we translate -
 we
 >>
 >>>>>>don't
 >>>>>>
 >>>>>>really hear a single sample at a time,
 >>>>>>but thousands of samples at a time (1 sample alone could at most
 >>>>>>represent
 >>>>>> a
 >>>>>>single positive or negative peak
 >>>>>>of a 22,050Hz waveform).
 >>>>>>
 >>>>>>If one bit doesn't cancel, esp. if it's a higher order bit than number
 >>>>>> 24,
 >>>>>>

>>>>>>you may hear, and will see that easily,
 >>>>>>and the higher the bit in the dynamic range (higher order) the more
 >>>>>>audible
 >>>>>>
 >>>>>>the difference.
 >>>>>>Since each bit is 6dB of dynamic range, you can extrapolate how "loud"
 >>>>>>
 >>>>>>that
 >>>>>>
 >>>>>>bit's impact will be
 >>>>>>if there is a variation.
 >>>>>>
 >>>>>>Now, obviously if we are talking about 1 sample in a 44.1k rate song,
 >>>> then
 >>>>>>
 >>>>>>it simply be a
 >>>>>>click (only audible if it's a high enough order bit) instead of an
 >>>>>>obvious
 >>>>>>
 >>>>>>musical difference, but that should never
 >>>>>>happen in a phase cancellation test between identical files higher

 >>>>>>than
 >>>>>> bit
 >>>>>>24, unless there are clock sync problems,
 >>>>>>driver issues, or the DAW is an early alpha version. :-)
 >>>>>>
 >>>>>>By definition of what DAWs do during playback and record, every audio
 >>>>>>
 >>>>>>stream
 >>>>>>
 >>>>>>has the same point in time (judged by the timeline)
 >>>>>>played back sample accurately, one word at a time, at whatever sample
 >>>>>>
 >>>>>>rate
 >>>>>>
 >>>>>>we are using. A phase cancellation test uses that
 >>>>>>fact to compare two audio files word for word (and hence bit for bit
 >>>>>>
 >>>>>>since
 >>>>>>
 >>>>>>each bit of a 24-bit word would
 >>>>>>be at the same bit slot in each 24-bit word). Assuming they are
 >>>>>>aligned
 >>>>>> to
 >>>>>>the same start point, sample
 >>>>>>accurately, and both are the same set of sample words at each sample
 >>>>>>point,

>>>>>>
 >>>>>>bit for bit, and one is phase inverted,
 >>>>>>they will cancel through all 24 bits. For two files to cancel
 >>>>>>completely
 >>>>>>
 >>>>>>for the duration of the file, each and every bit in each word
 >>>>>>must be the exact opposite of that same bit position in a word at
 the
 >>>> same
 >>>>>>
 >>>>>>sample point. This is why zooming in on an FFT
 >>>>>>of the full difference file is valuable as it can show any differences
 >>>> in
 >>>>>>
 >>>>>>the lower order bits that wouldn't be audible. So even if
 >>>>>>there is no audible difference, the visual followup will show if the
 >> two
 >>>>>>
 >>>>>>files truly cancel even a levels below hearing, or
 >>>>>>outside of a frequency change that we will perceive.
 >>>>>>
 >>>>>>When they don't cancel, usually there will be way more than 1 bit
 >>>>>>difference - it's usually one or more bits in the words for
 >>>>>>thousands of samples. From a musical standpoint this is usually in
 >> a
 >>>>>>frequency range (low freq, or high freq most often) - that will
 >>>>>>show up as the difference between them, and that usually happens due
 >> to
 >>>>>> some
 >>>>>>form of processing difference between the files,
 >>>>>>such as EQ, compression, frequency dependant gain changes, etc. That
 >> is
 >>>>>> what
 >>>>>>I believe you are thinking through, but when
 >>>>>>talking about straight summing with no gain change (or known equal

 >>>>>>gain
 >>>>>>
 >>>>>>changes), we are only looking at linear, one for one
 >>>>>>comparisons between the two files' frequency representations.
 >>>>>>
 >>>>>>Regards,
 >>>>>>Dedric
 >>>>>>
 >>>>>>> Neil wrote:
 >>>>>>>> "Dedric Terry" <dedric@echomg.com> wrote:
 >>>>>>>>> The tests I did were completely blank down to -200 dB (far below
 >> the

may choose to implement accumulators in CPU registers . This is most likely what Fredo calls an adder, I think.

It's possible that developers of other products don't do this, but the tradeoff would be increased CPU and FPU utilization.

Fredo said there are three points where truncation occurs. In Paris, at least to my understanding there are many more than that.

You're not supposed to be able to hear this truncation distortion, but how the hell knows, and that's not math :-)

Chuck

"LaMONT" <jjdpro@ameritech.net> wrote:

>

>Dedric, check out this post from our dear friend Fredo: Neundo Moderator:

>Explaining how Steingberg's audio engine works. Note the trade-offs..Meaning,

>Steinberg's way of coding an audio-engine 32bit float is different than

say

>Magix Samplitude:

>

>Fredo

>Administrative Moderator

>

>

>Joined: 29 Dec 2004

>Posts: 4213

>Location: Belgium

> Posted: Fri Dec 08, 2006 2:33 pm Post subject:

>

> -----

>

>I think I see where the problem is.

>In my scenario's I don't have any track that goes over 0dBfs, but I have

>always lowered one channel to compensate with another.

>So, I never went over the 0dB fs limit.

>

>Here's the explanation:

>

>As soon as you go over 0dB, technically you are entering the domain of distortion.

>

>In a 32bit FP mixer, that is not the case since there is unlimited headroom.

>

>

>Now follow me step by step please - read this slow and make sure you understand

>-
>
>At the end of each "stage", there is an adder (a big calculator) which adds
>all the numbers from the individual tracks that are routed to this "adder".
>
>The numbers are kept in the 80-bit registers and then brought back to 32bit
>float.
>This process of bringing back the numbers from 80-bit (and more) to 32bit
>is kept to an absolute minimum.
>This adding/bringing back to 32bit is done at 3 places: After a plugin slot
>(VST-specs for all plugin manufacturers) - Group Tracks and Master Tracks.
>
>
>Now, as soon as you boost the volume above 0dB, you get more than 32bits.
>Stay below 0dB and you will stay below 32 bits.
>When the adders dump their results, the numbers are brought back from any
>number of bits (say 60bit) to 32 bit float.
>These numbers are simply truncated which results in distortion; that's the
>noise/residue you find way down low.
>There is an algorithm that protects us from additive errors - so these
errors
>can never come into the audible range.
>So, as soon as you go over 0dB, you will see these kind of artifacts.
>
>It is debatable if this needs to be dithered or not. The problem -still
is-
>that it is very difficult to dither in a Floating Point environment.
>Fact remains that the error shouldn't be bigger than 2 to 3 LSB's.
>
>Is this a problem?
>In real world applications: NO.
>In scientific -unrealistic- tests (forcing the error): YES.
>
>The alternative is having a Fixed point mixer, where you already would be
>in trouble as soon as you boost one channel over 0dBfs. (or merge two files
>that are @ 0dB)
>Also, this problem will be pretty much gone as soon as we switch to the
64
>bit engine.
>
>
>For the record, the test where Jake hears "music" as residue must be flawed.
>You should hear noise/distortion from square waves.
>
>HTH
>
>Fredo
>

>
>
>
>
>
>"Dedric Terry" <dedric@echomg.com> wrote:
>>I can't tell you why you hear ProTools differently than Nuendo using a

>>single file.
>>There isn't any voodoo in the software, or hidden character enhancing dsp.
>
>>I'll see if
>>I can round up an M-Powered system to compare with next month.
>>
>>For reference, everytime I open Sequoia I think I might hear a broader,
>
>>clean,
>>and almost flat (spectrum, not depth) sound, but I don't - it's the same
>as
>>Nuendo, fwiw.
>>Also I don't think what I was referring to was a theory from Chuck - I
>
>>believe that was what he
>>discovered in the code.
>>
>>Digital mixers all have different preamps and converters. Unless you are
>
>>bypassing every
>>EQ and converter and going digital in and out to the same converter when
>
>>comparing, it would be hard
>>to say the mix engine itself sounds different than another mixer, but taken
>
>>as a whole, then
>>certainly they may very well sound different. In addition, hardware digital
>>mixers may use a variety of different paths between the I/O, channel
>>processing, and summing,
>>though most are pretty much software mixers on a single chip or set of
dsps
>
>>similar to ProTools,
>>with I/O and a hardware surface attached.
>>
>>I know it may be hard to separate the mix engine as software in either
a
>
>>native DAW
>>or a digital mixer, from the hardware that translates the audio to something
>

>>we hear,
>>but that's what is required when comparing summing. The hardware can
>>significantly change
>>what we hear, so comparing digital mixers really isn't of as much interest
>
>>as comparing native
>>DAWs in that respect - unless you are looking to buy one of course.
>>
>>Even though I know you think manufacturers are trying to add something
to
>
>>give them an edge, I am 100%
>>sure that isn't the case - rather they are trying to add or change as little
>
>>as possible in order to give
>>them the edge. Their end of digital audio isn't about recreating the past,
>
>>but improving upon it.
>>As we've discussed and agreed before, the obsession with recreating
>>"vintage" technology is as much
>>fad as it is a valuable creative asset. There is no reason we shouldn't
>
>>have far superior hardware and software EQs and comps
>>than 20, 30 or 40 years ago. No reason at all, other than market demand,
>
>>but the majority of software, and new
>>hardware gear on the market has a vintage marketing tagline with it.
>>Companies will sell any bill of
>>goods if customers will buy it.
>>
>>There's nothing unique about the summing in Nuendo, Cubase, Sequoia/Samp,
>>or Sonar, and it's pretty safe to include Logic and DP in that list as
well.
>
>>One of the reasons I test
>>these things is to be sure my DAW isn't doing something wrong, or something
>
>>I don't know about.
>>
>>Vegas - I use it for video conversions and have never done any critical
>
>>listening tests with it. What I have heard
>>briefly didn't sound any different. It certainly looks plain vanilla
>>though. What you are describing is exactly
>>what I would say about the GUIs of each of those apps, not that it means
>
>>anything. Just interesting.
>>

>>That's one reason I listen eyes closed and double check with phase
 >>cancellation tests and FFTs - I am
 >>influenced creatively by the GUI to some degree. I actually like Cubase
 >4's
 >>GUI better than Nuendo 3.2,
 >>though there are only slight visual differences (some workflow differences
 >
 >>are a definite improvement for me though).
 >>
 >>ProTools' GUI always made me want to write one dimensional soundtracks
 in
 >
 >>mono for public utilities, accounting offices
 >>or the IRS while reading my discreet systems analysis textbook - it was
 >also
 >>grey. ;-)
 >>
 >>Regards,
 >>Dedric
 >>
 >>"LaMont" <jjdpro@ameritech.net> wrote in message news:458c82fd\$1@linux...
 >>>
 >>> Dedric, my simple test is simple..
 >>> Using the same audio interface, with the same stereo file..null-ed to
 >
 >>> zero..No
 >>> eq, for fx. Master fader on zero..
 >>>
 >>> Nuendo, Pro-Tools -Mpowered(native)... yields a sonic difference that
 >I
 >>> have
 >>> referenced before.. The sound coming from PT-M has a nice top end , where
 >>> as Neundo has a nice flatter sound quality.
 >>> Same audio interface. M-audio 410..Using Mackies & Blue-Sky pro monitors..
 >>>
 >>> Same test at the big room..PT-HD & Neundo Logic Audio(macG5-Dual) Using
 >
 >>> the
 >>> 192 interface.
 >>> Same results..But adding Logic audio's sound ..(Broad, thick)
 >>>
 >>> Somethings going on.
 >>>
 >>> Chucks post about how paris handles audio is a theory..Only Edmund can
 >
 >>> truly
 >>> give us the goods on what's really what..
 >>>

>>> I disagree that manufacturers don;t set out o put a sonic print on their
>
>>> products.
>>> I think they do.
>>>
>>> I have been fortunate to work on some digital mixers and I can tell you
>
>>> that
>>> each one has their own sound. The Sony Dmx-100 was modeled after SSL
4000g
>>> (like it's Big Brother).And you what? That board (Dmx-100) sound very
>warm
>>> and it's eq tries to behave and sound just like an SSL.. Unlike he Yamaha
>>> Dm2000(version 1.x) which has a very Clean, neutral sound..However, some
>>> complained that it was tooo Vanila and thus, Yamaha add a version 2.0
>
>>> which
>>> added Vintage type Eq's, modeled analog input gain saturation fx too
give
>>> the user a choice Btw Clean and Neutral vs sonic Character.
>>>
>>> So, if digital conoles can be given a sonic character, why not a software
>>> mixer?
>>> The truth is, there are some folks who want a neutral mixer and then
there
>>> are others who want a sonic footprint imparted. and these can be coded
>in
>>> the digital realm.
>>> The appllies with the manufactuers. They too have their vision on what
>They
>>> think and want their product to sound.
>>>
>>> I love reading on gearslutz the posts from Plugin developers and their
>
>>> interpretations
>>> and opinions about what makes their Neve 1073 Eq better and what goes
>into
>>> making their version sound like it does.. Each Developer has a different
>>> vision as to what the Neve 1073 should sound like. And yet they all sound
>>> good , but slightly different.
>>>
>>> You stated that you use Vegas. Well as you know, Vegas has a very generic
>>> sound..Just plain and simple. But, i bet you can tell the difference
>on
>>> your system when you play that same file in Neundo (No, fx, eq,
>>> null-edzerro)..
>>> ???
>>>

>>>
>>> "Dedric Terry" <dedric@echomg.com> wrote:
>>>>Lamont - what is the output chain you are using for each app when
>>>>comparing
>>>
>>>>the file in Nuendo
>>>>vs ProTools? On the same PC, I presume (and is this PT HD or M-Powered?)?
>>>>Since these can't use the same output driver, you would have to depend
>on
>>>
>>>>the D/A being
>>>>the same, but clocking will be different unless you have a master clock,
>>> and
>>>>both interfaces
>>>>are locking with the same accuracy. This was one of the issues that
came
>>> up
>>>>at Lynn Fuston's
>>>>D/A converter shootout - when do you lock to external clock and incur
>the
>>>
>>>>resulting jitter,
>>>>and when do you trust the internal clock - and if you do lock externally,
>>>
>>>>how good is the PLL
>>>>in the slave device? These issues can cause audible changes in the top
>>> end
>>>>that have nothing to do
>>>>with the software itself. If you say that PTHD through the same converter
>>>
>>>>output as Nuendo (via? RME?
>>>>Lynx?) using the same master clock, sounds different playing a single
>
>>>>audio
>>>
>>>>file, then I take your word
>>>>for it. I can't tell you why that is happening - only that an audible
>>>>difference really shouldn't happen due
>>>>to the software alone - not with a single audio file, esp. since I've
>
>>>>heard
>>>
>>>>and seen PTHD audio cancel with
>>>>native DAWs. Just passing a single 16 or 24 bit track down the buss
>to
>>> the
>>>>output driver should
>>>>be, and usually is, completely transparent, bit for bit.

>>>>
>>>>The same audio file played through the same converters should only sound
>>>
>>>>different if something in
>>>>the chain is different - be it clocking, gain or some degree of
>>>>unintended,
>>>
>>>>errant dsp processing. Every DAW should
>>>>pass a single audio file without altering a single bit. That's a basic
>
>>>>level
>>>
>>>>of accuracy we should always
>>>>expect of any DAW. If that accuracy isn't there, you can be sure a heavy
>>>
>>>>mix will be altered in ways you
>>>>didn't intend, even though you would end up mixing with that factor in
>
>>>>place
>>>
>>>>(e.g. you still mix for what
>>>>you want to hear regardless of what the platform does to each audio track
>>> or
>>>>channel).
>>>>
>>>>In fact you should be able to send a stereo audio track out SPDIF or
>>>>lightpipe to another DAW, record it
>>>>bring the recorded file back in, line them up to the first bit, and have
>>>
>>>>them cancel on and inverted phase
>>>>test. I did this with Nuendo and Cubase 4 on separate machines just
to
>>> be
>>>>sure my master clocking and
>>>>slave sync was accurate - it worked perfectly.
>>>>
>>>>Also be sure there isn't a variation in the gain even by 0.1 dB between
>>> the
>>>>two. There shouldn't
>>>>and I wouldn't expect there to be one. Also could PT be set for a
>>>>different
>>>
>>>>pan law? Shouldn't make a
>>>>difference even if comparing two mono panned files to their stereo
>>>>interleaved equivalent, but for sake
>>>>of completeness it's worth checking as well. A variation in the output
>>>
>>>>chain, be it drivers, audio card

>>>>card, or converters would be the most likely culprit here.
>>>>
>>>>The reason DAW manufacturers wouldn't add any sonic "character"
>>>>intentionally is that the
>>>>ultimate goal from day one with recording has been to accurately reproduce
>>>>
>>>>what we hear.
>>>>We developed a musical penchant for sonic character because the hardware
>>>>
>>>>just wasn't accurate,
>>>>and what it did often sent us down new creative paths - even if by force
>>>> -
>>>>and we decided it was
>>>>preferred that way.
>>>>
>>>>Your point about what goes into the feature presets to sell synths is
>>>>
>>>>right
>>>>
>>>>for sure, but synths are about
>>>>character and getting that "perfect piano" or crystal clear bell pad,
>>>>or
>>>>fat
>>>>punchy bass without spending
>>>>a mint on development, adding 50G onboard sample libraries, or costing
>>>>
>>>>\$15k,
>>>>
>>>>so what they
>>>>lack in actual synthesis capabilities, they make up with EQ and effects
>>>>on
>>>>the output. That's been the case
>>>>for years, at least since we had effects on synths at least. But even
>>>>
>>>>with
>>>>
>>>>modern synths such as the Fantom,
>>>>Tritons, etc, which are great synths all around, of course the coolest,
>>>>
>>>>widest and biggest patches
>>>>will make the biggest impression - so in come the EQs, limiters, comps,
>>>>
>>>>reverbs, chorus, etc. The best
>>>>way to find out if a synth is really good is to bypass all effects and
>>>>see
>>>>
>>>>what happens. Most are pretty
>>>>good these days, but about half the time, there are presets that fall

>>>>completely flat in fx bypass.
>>>>
>>>>DAWs aren't designed to put a sonic fingerprint on a sound the way synths
>>>>
>>>>are - they are designed
>>>>to *not* add anything - to pass through what we create as users, with
>no
>>>>
>>>>alteration (or as little as possible)
>>>>beyond what we add with intentional processing (EQ, comps, etc).
>>>>Developers
>>>>
>>>>would find no pride
>>>>in hearing that their DAW sounds anything different than whatever is
being
>>>>
>>>>played back in it,
>>>>and the concept is contrary to what AES and IEEE proceedings on the issue
>>>>
>>>>propose in general
>>>>digital audio discussions, white papers, etc.
>>>>
>>>>What ID ended up doing with Paris (at least from what I gather per Chuck's
>>>>
>>>>findings - so correct me if I'm missing part of the equation Chuck),
>>>>is drop the track gain by 20dB or so, then added it back at the master
>
>>>>buss
>>>>
>>>>to create the effect of headroom (probably
>>>>because the master buss is really summing on the card, and they have
more
>>>>
>>>>headroom there than on the tracks
>>>>where native plugins might be used). I don't know if Paris passed 32-bit
>>>>
>>>>float files to the EDS card, but sort of
>>>>doubt it. I think Chuck has clarified this at one point, but don't recall
>>>>
>>>>the answer.
>>>>
>>>>Also what Paris did is use a greater bit depth on the hardware than
>>>>ProTools
>>>>
>>>>did - at the time PT was just
>>>>bring Mix+ systems to market, or they had been out for a year or two
(if
>>>> I

>>>>have my timeline right) - they
>>>>were 24-bit fixed all the way through. Logic and Cubase were native
DAWs,
>>>
>>>>but native was still too slow
>>>>to compete with hardware hybrids. Paris trumped them all by running

>>>>32-bit
>>>
>>>>float natively (not new really, but
>>>>better than sticking to 24-bit) and 56 or so bits in hardware instead
>of
>>>
>>>>going to Motorola DSPs at 24.
>>>>The onboard effects were also a step up from anything out there, so the
>>> demo
>>>>did sound good.
>>>>I don't recall which, but one of the demos, imho, wasn't so good (some
>>>>sloppy production and
>>>>vocals in spots, IIRC), so I only listened to it once. ;-)
>>>>
>>>>Coupled with the gain drop and buss makeup, this all gave it a "headroom"
>>> no
>>>>one else had. With very nice
>>>>onboard effects, Paris jumped ahead of anything else out there easily,
>and
>>>
>>>>still respectably holds its' own today
>>>>in that department.

Subject: Re: Paris Skins / examples 4
Posted by [highmtn](#) on Thu, 16 Nov 2006 07:28:03 GMT
[View Forum Message](#) <> [Reply to Message](#)

r />
>>>>
>>>>"LaMont " <jjdpro@ameritech.net> wrote in message news:458c14c0\$1@linux...
>>>>>
>>>>> Dedric good post..
>>>>>
>>>>> However, I have PT-M-Powered/M-audio 410 interface for my laptop and
>it
>>>
>>>>> has
>>>>> that same sound (no eq, zero fader) that HD does. I know their use
the
>>>

>>>>> same
>>>>> 48 bit fix mixer. I load up the same file in Nuendo (no eq, zero
>>>>> fader)..results.
>>>>> different sonic character.
>>>>>
>>>>> PT having a top end touch..Nuendo, nice smooth(flat) sound. And I'm
>just
>>>>> taking about a stereo wav file nulled with no eq..nothing
>>>>> ..zilch..nada..
>>>>>
>>>>> Now, there are devices (keyboards, dum machines) on the market today
>
>>>>> that
>>>>> have a Master Buss Compressor and EQ set to on with the top end notched
>>>
>>>>> up.
>>>>> Why? because it gives their product an competitive advantageover the
>>>>> competition..
>>>>> Ex: Yahama's Motif ES, Akai's MPC 1000, 2500, Roland's Fantom.
>>>>>
>>>>> So, why would'nt a DAW manufactuer code in an extra (ooommf) to make
>
>>>>> their
>>>>> DAW sound better. Especially, given the "I hate Digtal Summing" crowd?
>>>
>>>>> And,
>>>>> If I'm a DAW manufactuer, what would give my product a sonic edge over
>>> the
>>>>> competition?
>>>>>
>>>>> We live in the "louder is better" audio world these days, so a DAW
that
>>>
>>>>> can
>>>>> catch my attention 'sonically" will probaly will get the sell. That's
>>> what
>>>>> happend to me back in 1997 when I heard Paris. I was floored!!! Still
>>> to
>>>>> this day, nothing has floored me like that "Road House Blues Demo"
I
>
>>>>> heard
>>>

Subject: Re: Paris Skins / examples 4
Posted by [Dale](#) on Thu, 16 Nov 2006 10:05:25 GMT

t;"LaMont" <jjdpro@ameritech.net> wrote in message
>>>>>>news:458be8d5\$1@linux...
>>>>>>
>>>>>> Okay...
>>>>>> I guess what I'm saying is this:
>>>>>>
>>>>>> -Is it possible that diferent DAW manufactuers "code" their app
>>>>>> differently
>>>>>> for sound results.
>>>>>>
>>>>>>Of course it is *possible* to do this, but only if the DAW has a
>>>>>>specific
>>>>>>
>>>>>>sound shaping purpose
>>>>>>beyond normal summing/mixing. Users talk about wanting developers
to
>>> add
>>>>> a
>>>>>>"Neve sound" or "API sound" option to summing engines,
>>>>>>but that's really impractical given the amount of dsp required to make
>>> a
>>>>>>
>>>>>>decent emulation (with convolution, dynamic EQ functions,
>>>>>>etc). For sake of not eating up all cpu processing, that could likely
>>>
>>>>>>only
>>>>>>
>>>>>>surface as is a built in EQ, which
>>>>>>no one wants universally in summing, and anyone can add at will already.
>>>>>>
>>>>>>So it hasn't happened yet and isn't likely to as it detours from the
>
>>>>>>basic
>>>>>>
>>>>>>tenant of audio recording - recreate what comes in as
>>>>>>accurately as possible.
>>>>>>
>>>>>>What Digi did in recoding their summing engine was try to recover some
>>>>>>of the damage done by the 24-bit buss in Mix systems. Motorola 56k
dsps
>>>>> are
>>>>>>24-bit fixed point chips and I think
>>>>>>the new generation (321?) still is, but they use double words now for
>>>>>>48-bits). And though plugins could process at 48-bit by
>>>>>>doubling up and using upper and lower 24-bit words for 48-bit outputs,
>>> the
>>>>>>

>>>>>buss
>>>>>between chips was 24-bits, so they had to dither to 24-bits after every
>>>>>
>>>>>plugin. The mixer (if I recall correctly) also
>>>>>had a 24-bit buss, so what Digi did is to add a dither stage to the
>
>>>>>mixer
>>>>> to
>>>>>prevent this
>>>>>constant truncation o

Subject: Re: Paris Skins / examples 4
Posted by [John \[1\]](#) on Thu, 16 Nov 2006 12:01:52 GMT
[View Forum Message](#) <> [Reply to Message](#)

f data. 24-bits isn't enough to cover summing
>for
>>>>> more
>>>>>than a few tracks without
>>>>>losing information in the 16-bit world, and in the 24-bit world some
>>>>>information will be lost, at least at the lowest levels.

Subject: Re: Paris Skins / examples 4
Posted by [highmtn](#) on Fri, 17 Nov 2006 05:04:22 GMT
[View Forum Message](#) <> [Reply to Message](#)

OCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0=20
> Transitional//EN">
><HTML><HEAD>
><META=20
> http-equiv=3D3DContent-Type content=3D3D"text/html";=20
> =3D
> charset=3D3Diso-8859-1">
><META =
> content=3D3D"MSHTML=20
> 6.00.2900.2180"=20
> =
> name=3D3DGENERATOR>
><STYLE></STYLE>
></HEA=
> D>
><BODY=20
> bgcolor=3D3D#ffffff>
><DIV><FONT face=3D3DArial =
> size=3D3D2>So,=20
> do you have it there and you are =
> =3D
>having=3D20
>problems with it?=20
> </DIV>
><DIV><FONT face=3D3DArial=20
> size=3D3D2> </DIV>
><DIV><FONT =
> face=3D3DArial=20
> size=3D3D2>Deej</DIV>
><BLOCKQUOTE=20
> dir=3D3Dltr=3D20
>style=3D3D"PADDING-RIGHT: 0px; PADDING-LEFT: =
> 5px;=20

> MARGIN-LEFT: 5px; =3D
>BORDER-LEFT: #000000 2px solid; =
>MARGIN-RIGHT:=20

> href=3D3D"<A=20

> =

>href=3D'mailto:arpegio@comcast.net">arpegio@comcast.net</A'>mailto:arpegi=
>o@comcast.net">arpegio@comcast.net</A>>=20

> =

>href=3D'news:458cd310@linux">news:458cd310@linux...</DIV'>news:458cd3=
>10@linux">news:458cd310@linux...</DIV>
>&nbs=
>p;=20

> <DIV>I got things really =
>cooking here=20

>face=3D3DArial=20

> size=3D3D2>Creamware folks are on vacation =3D
>from=20

> <DIV>I picked a great day =
>to install=20

>face=3D3DArial=20

><DIV><FONT=20

> face=3D3DArial size=3D3D2>Hurry up and=20

>face=3D3DArial=20

><DIV><FONT=20

> face=3D3DArial size=3D3D2>Now, Cubase 4 ? ? ? Should =

>face=3D3DArial=20

> size=3D3D2>&
