Subject: Sensitivity of FireWire Interface to Computer Generated EMI/RFI
Posted by earflappin on Thu, 29 Dec 2011 23:14:02 GMT
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First post. Be gentle.... :roll:

There are a number of reports on the Computer Audiophile and other forums which would lead one to conclude the sound quality of some asynchronous USB and FireWire DAC's are compromised to some extent by EMI/RFI generated and modulated by the source computer.

Specifically, users have reported small footprint Linux servers with low noise AES and USB cards yield better sound quality than Mac platforms (even with linear power supplies). Regarding Metric Halo, there is at least one LIO-8 user who has posted he prefers his Bryston BDP-1>AES versus his MacMini>FireWire citing "I hear lower noise floor, more defined bass lines and improved vocal intelligibility with the BDP-1."

Before I frame a couple of questions for BJ, a few comments. First, I realize not all DACs and interfaces (AES/SPDIF, FW, USB) are designed and executed equally. Second, I am innately skeptical of these kinds of posts and appreciate without an absolute reference it is difficult to gauge what they may actually be hearing. Many listeners prefer a DAC output which is colored in some way because they or their systems can't handle the truth.... 8o

But as a LIO-8 owner looking to extract the maximum performance from his DAC these posts raised my intellectual curiosity. So, BJ, could you respond on the following points please:

(1) Under what circumstances, if any, using the FireWire interface would the source computer environment negatively impact the sound quality of the ULN-8/LIO-8 using the master as the reference?

(2) How could, if at all, RFI/EMI generated/modulated by the source computer infiltrate the ULN-8/LIO-8 circuitry via the FireWire interface in such a way to cause a degradation in performance?

(3) Under what circumstances, if any, would the AES interface outperform the FireWire interface on a ULN-8/LIO-8?

(4) Is there support in place to stream audio (not full MIO functionality) to a ULN-8/LIO-8 via FireWire from a Linux platform? Has MH done any testing on a Linux platform, and if so, what were the results?

(5) Is USB inherently more susceptible to EMI/RFI and/or grounding effects than FireWire?

Thanks!

Subject: Re: Sensitivity of FireWire Interface to Computer Generated EMI/RFI
Posted by bj on Fri, 30 Dec 2011 20:57:09 GMT

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Hi,

As you know, we are in the process of relocating the business to Florida at the moment, so, while we will attempt to answer your questions, it is going to take a little while as they are not simple, pro-forma questions.

Best regards,

B.J. Buchalter

Subject: Re: Sensitivity of FireWire Interface to Computer Generated EMI/RFI
Posted by jtwrace on Sun, 01 Jan 2012 01:29:46 GMT
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Look forward to the response. Congrats on moving away from the Northeast too! Where in FL are you going to?

Subject: Re: Sensitivity of FireWire Interface to Computer Generated EMI/RFI
Posted by jtwrace on Fri, 20 Jan 2012 13:22:14 GMT
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bj wrote on Fri, 30 December 2011 15:57Hi,

As you know, we are in the process of relocating the business to Florida at the moment, so, while we will attempt to answer your questions, it is going to take a little while as they are not simple, pro-forma questions.

Best regards,

B.J. Buchalter

Hope you are all enjoying sunny Florida over cold NY by now. :d

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Subject: Re: Sensitivity of FireWire Interface to Computer Generated EMI/RFI
Posted by earflappin on Tue, 31 Jan 2012 16:58:51 GMT
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Any idea when I might see a response to my post?

Subject: Re: Sensitivity of FireWire Interface to Computer Generated EMI/RFI
Posted by jtwrace on Thu, 16 Feb 2012 13:06:20 GMT
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Anyone?

Subject: Re: Sensitivity of FireWire Interface to Computer Generated EMI/RFI
Posted by bj on Tue, 28 Feb 2012 02:31:22 GMT
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First off, let me apologize for how long it took to respond to this.

earflappin wrote on Thu, 29 December 2011 18:14There are a number of reports on the Computer Audiophile and other forums which would lead one to conclude the sound quality of some asynchronous USB and FireWire DAC's are compromised to some extent by EMI/RFI generated and modulated by the source computer.

Anything is possible I suppose.

Quote:
Specifically, users have reported small footprint Linux servers with low noise AES and USB cards yield better sound quality than Mac platforms (even with linear power supplies). Regarding Metric Halo, there is at least one LIO-8 user who has posted he prefers his Bryston BDP-1>AES versus his MacMini>FireWire citing "I hear lower noise floor, more defined bass lines and improved vocal intelligibility with the BDP-1."

Again, anything is possible, but this seems unlikely. If there are grounding issues in his system, there is a possibility that using the balanced interface for AES may break a ground loop and lower the overall noise floor, but it is unlikely that feeding the unit via AES and clocking via AES is going to yield "more defined bass lines and improved vocal intelligibility" over clocking internally and using FireWire.

Quote:
Before I frame a couple of questions for BJ, a few comments. First, I realize not all DACs and interfaces (AES/SPDIF, FW, USB) are designed and executed equally. Second, I am innately skeptical of these kinds of posts and appreciate without an absolute reference it is difficult to gauge what they may actually be hearing. Many listeners prefer a DAC output which is colored in some way because they or their systems can't handle the truth.... 8o

But as a LIO-8 owner looking to extract the maximum performance from his DAC these posts raised my intellectual curiosity. So, BJ, could you respond on the following points please:

(1) Under what circumstances, if any, using the FireWire interface would the source computer environment negatively impact the sound quality of the ULN-8/LIO-8 using the master as the reference?

It is hard to say. The Computer and the Interface share a ground, so it is possible for the computer to inject noise into the ground reference of the audio. OTOH, the line outputs directly connect the ground of the interface and the amp, and the balanced signal then floats over the ground reference. It is certainly much more likely to have an impact if the connection between the interface and the amps are unbalanced. Given that the audiophile community does appear to prefer unbalanced interconnects, this is a possible explanation. We recommend always using balanced connections from the interface to the analog components of the audio system.

Quote:
(2) How could, if at all, RFI/EMI generated/modulated by the source computer infiltrate the ULN-8/LIO-8 circuitry via the FireWire interface in such a way to cause a degradation in performance?

See above.

Quote:
(3) Under what circumstances, if any, would the AES interface outperform the FireWire interface on a ULN-8/LIO-8?

I don't really see how it could, unless the source device was clocked by the ULN-8. That being said, the jitter from recovered clock will have any impact of the sound, and it is definitely not the case that lower jitter automatically means better perceived sound. So there may be some euphonic effect from the jitter spectrum induced by the source device.

Quote:
(4) Is there support in place to stream audio (not full MIO functionality) to a ULN-8/LIO-8 via FireWire from a Linux platform? Has MH done any testing on a Linux platform, and if so, what were the results?

Not at this time.

Quote:
(5) Is USB inherently more susceptible to EMI/RFI and/or grounding effects than FireWire?

I don't see why it would inherently be the case. It all comes down to the implementation. 1394 does support galvanic isolation, but in practice no devices implement it. If it was implemented, it might provide the edge by isolating the grounds of the computer and the audio device. But no audio devices that I know of actually support it (including the MIOs).

Best regards,

B.J. Buchalter

Subject: Re: Sensitivity of FireWire Interface to Computer Generated EMI/RFI
Posted by earflappin on Wed, 21 Mar 2012 02:23:36 GMT
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BJ, many thanks for your response. Looking forward to what you will announce in Germany this week.

Subject: Re: Sensitivity of FireWire Interface to Computer Generated EMI/RFI
Posted by Caiman on Thu, 22 Mar 2012 01:15:06 GMT
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What will he announce in Germany this week? :)