

Re: Currently–Available Highest–Quality Linear PCM Video?

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- *From:* "Radium" <glucegen1@xxxxxxxxxx>
 - *Date:* 19 Oct 2006 10:59:18 –0700
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Bob Myers wrote:

"Radium" <glucegen1@xxxxxxxxxx> wrote in message
news:1161215134.919468.300660@xx

Note that the sentence "there is uncompressed PCM for video" does not equate to "all digital video is PCM" or "PCM is required for high–quality digital video."

I am well aware of that. Most digital video uses — MPEG–layer or some other form of compression — not linear PCM. I don't know why?

PCM is simply one possible encoding and transmission scheme, nothing more – and it is not the one used in most digital video systems.

Why isn't linear–PCM used in video?

Why do you think it should be?

The same reason audio CDs used linear–PCM video instead of compressed MP3s. MP3 and other compressed formats are inferior in quality to the uncompressed linear–PCM.

Just as linear–PCM audio is better than MP3s, linear–PCM video is better than MPEG video, VC–1 — or other compressed — video.

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IMHO, VC-1 is even worse than MPEG

What advantage would it bring?

It wouldn't have those nasty "jaggies" associated with VC-1 or other compressed video

What costs (either in actual \$ costs or performance) would using linear PCM require?

I agree, linear-PCM video would be more expensive but it wouldn't have those annoying artifacts that occur in compressed video formats.

The lasers required would have to be of shorter wavelength than those used in the writing and reading of conventional DVDs. The wavelength should be 400 nm since that's the "sweet spot" between the advantages of short wavelengths [i.e. less physical space on disc required] and the hazards of ionizing UV radiation. 400 nm is around the shortest wavelength of non-ionizing UV light.

In addition, the disc would have to be somewhat bigger --- around the size of 33-speed phonos --- to accommodate the large data size required for linear-PCM video.

I really don't see this as a major hurdle. What makes it so difficult for the digital video industries to design the above [i.e. 400 nm recording/playback lasers, optical discs the size of 33-speed phonos, and uncompressed linear-PCM video]?

1920 pixels/line x 1080 lines/frame x 30 frames/sec (it's interlaced)

Note that if you work the units out as well, it comes out in terms of pixels/second, exactly as it should.

Are you sure that isn't that the bit-rate? There is a world of difference between bit-rate and sample-rate.

How many bits do you think are contained within each "pixel"? What do you think the word "pixel" means, and how is it distinguished from "sample" in the context of digital imaging?

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A "pixel" is *definitely* digital. A "sample" can be analog or digital.

For example, CD audio has a sample rate of 44,100 hz but a bit rate of 1,411,200 bps.

If you divide 1,411,200 by 44,100, what number do you get?

32

What is the significance of this number?

The bit–rate divided by the sample–rate. What else?

It can be; it simply doesn't HAVE to be, so there is no need to be dragging that question in at this point.

Linear–PCM doesn't have to be used but what harm is caused by using it?

Answer the above questions, and then you'll have your own answer to this one.

Why are you so hung up on "linear PCM" as opposed to any of several hundred (at least) other possible encoding schemes?

Because — as I said before — I don't like the annoying artifacts that occur in compressed video formats. Those nasty pixelations associated with VC–1 — and other compressed — video just make me gag.

<http://en.wikipedia.org/wiki/VC1>

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Bob M.

The only compressions I am okay with are WMA[^] and the *real* WMV I described in the following threads:

1.

http://groups.google.com/group/microsoft.public.windowsmedia.encoder/browse_frm/thread/dd9df62843465f22/4416

2.

http://groups.google.com/group/comp.compression/browse_frm/thread/1c55187121d61df4/afc33183826a2396?lnk=st

The *real* WMV should have the sampling rates and progressive resolution [pixel X pixel] of the best quality video signal currently existing. In addition, the WMV's sample rates and pixelXpixel format should be exactly the same as the linear–PCM signal it was prior to compression. As for the color–depth [in "bit–resolution"], decrease it all you want and I still won't mind. In fact I am interested in seeing how a movie would look if the WMV's color–depth is reduced so much that the file–size is just 1–bit [regardless of how long the movie is]. But don't you dare decrease the pixel resolution or sample rate, do so and you'll find my vomit all around the room.

[^]The WMA should be monoaural and its sample rate should at least 44.1 khz which should also be the same sample rate of the signal when it was in linear–PCM prior to compression. I don't mind if the WMA's bit–resolution is compressed so much that the file size falls to just 1–bit [no matter how long the audio is]. Just keep it monoaural and don't change the sample rate.

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