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The High Definition Frontier, Part 3 5/2007

by A. Grimani

As I write this, it's been almost a year to the day that I first got my hands on an HD DVD player. I remember the circumstances well. They didn't involve anything as dramatic as a fist-fight for the last unit on the shelf or a manager chasing me around the parking lot because his store had accidentally sold me a player before release day! However, I certainly shared a similar exhilaration when I approached the sealed box of my player, cutting tool in hand. Since that day, I have been enjoying some gorgeous HD pictures, mind-blowing lossless sound, and truly next-generation interactivity. On the first anniversary of HD DVD, I thought it would be fun to reminisce a bit and surmise about what the future holds for HD DVD and Blu-ray Disc.

Gen 1 vs. Gen 2 vs. Next Gen

When we first began to configure HD players, we discovered that they would only output 1080i video at 30 frames (60 fields) per second. This was somewhat disappointing because - and it holds true to this day - the overwhelming majority of HD DVD and Blu-ray discs contained 1080p at 24 fps. As it turned out, the decoder chips of the day would only support 1080i, so manufacturers who wanted a "1080p" output had to add a de-interlacing function to turn 1080i back into 1080p. Most of us, however, preferred to ignore this internal de-interlacing and feed the 1080i signal to an external video processor. If the de-interlacing was performed correctly, it was possible to reconstitute the original 1080p, 24fps content on the disc. Things became much less complex, though, when players began to offer "real" 1080p output at either the native 24 fps or 2-3 frame rate multiplied to 60 fps, which is more widely accepted by current displays. In the future, we hope to see widespread 24 fps output to displays that refresh the image at an even multiple of 24, such as 48, 72, or even 120 Hz.

Flipping over to the audio side, the first-generation players indoctrinated us to the concept of compressed audio formats like Dolby Digital Plus and Dolby TrueHD being decoded in the player rather than the A/V controller. Taking advantage of HDMI's ability to carry uncompressed PCM audio, the players decoded all forms of compressed audio into a multi-channel PCM stream. This stream could be read by existing HDMI 1.1 A/V controllers. Some Blu-ray titles already contained PCM soundtracks that could sent directly to the controller. For S/PDIF coaxial and optical connections, the PCM

stream was re-compressed to Dolby Digital or DTS in real time to fit within S/PDIF's bandwidth restraints. Subsequent advances in audio decoding have been slow to develop, however. Most notably, we're only just beginning to see products that decode DTS-HD High Resolution and Master Audio. As time progresses, we're looking forward to both players and A/V controllers that support all the latest audio formats.

A Big Surprise

Perhaps the biggest surprise of the year has been the Xbox 360 and the PS3. No longer are gaming consoles the scourge of the A/V world. The latest offerings from Microsoft and Sony may have a few shortcomings in the HD DVD and Blu-ray department, but it's impossible to deny that these two multi-media systems are substantial over-achievers. They offer high-quality A/V performance that is arguably on par with standalone players. They also have full web access for interactivity and updates, which, amazingly, is lacking on some very notable standalone players. If you also consider the fact that the Xbox 360 and PS3 play HD games, stream music and pictures over a network, and download HD video, you're dealing with a truly unbeatable value for anyone who is tentative about taking the HD plunge.

HDMI 1.3

HDMI 1.3, the latest version of HDMI, seems to be inseparably linked to HD players in everyone's mind, so here's a quick word about it. *People, you do not need HDMI 1.3 to enjoy the capabilities of HD DVD and Blu-ray!* Over and over I hear people say that they're waiting for HDMI 1.3 in order to do something or other for HD DVD and Blu-ray. It's simply not necessary. HDMI 1.1 will support 1080p video up to 60 fps and uncompressed multi-channel PCM audio. What more do you need?

That being said, take note of two things. First, some manufacturers chose not to make their HDMI 1.1 components compatible with 1080p video. There's no limitation within the HDMI 1.1 spec itself, it's just a decision made by manufacturers. You need to be careful not to put one of these components in a system that is otherwise compatible with 1080p. Second, software and hardware of the future may support features like Deep Color that actually *do* require HDMI 1.3, but nothing does now. Don't use that as an excuse for sitting on the sidelines.

The High Definition Frontier

I calibrate hundreds of high-end home theaters for various custom installation firms. It's really a fun job; I get to see past all the hype to what is actually being installed in the field. Guess what? It's been a year now, and I'm not seeing enough HD players out there! Come on, what's the deal? For under \$1,000 you can get truly impressive HD that will show off all your expensive video display hardware. If you're afraid the new formats might fail, use an Xbox 360 or PS3. If not, buy the best HD player you can find. Don't let the occasional playback glitches be an excuse, either. The majority of problems you will have can be simply solved by carefully cleaning discs before playing

them or disconnecting/reconnecting power to the players if they lock up. Employ a convenient method to the switch power on/off, and you're good to go. The time is now! Let's get out there on the HD frontier and ride off into the sunset!

This article is based on a column published by A. Grimani in Residential Systems magazine May 2007. Chase Walton contributed to this article.