



Blu-ray VS. HD DVD

Title:

HD DVD versus Blu-ray Disc

Assignment:

White Paper for the reader to learn about the two competing (at the time) disc formats with the ability to record 25-50 Gig of data and play High Definition video and audio.

Context:

Content was on the website of an audio/video custom installation & design firm. Article was written as an introduction to many desirable options for the residential customer and introduce upscale brands while setting the stage for sales development by in-house sales consultants.

There was a need for this article to be more casual in tone and be a fun read - but still provide accurate content that was reflective of industry trends. There wasn't a bias towards one format or the other, more a viewpoint that was formed by looking at all the information, interviews and forming an opinion of the industry direction at large.



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Blu-ray Disc versus HD DVD

Regardless of format, HD DVD or Blu-ray, high-definition DVD is an exciting advancement and is a superior format to the current DVD. With it's recording capability of over 15 Gig, it makes for a very attractive product.

Below is a specification snapshot of the differences between the two formats. HD DVD is being advanced by Toshiba and Blu-ray is being championed by Sony.

Just before negotiations began between the two sides to reach a universal format disc, HD DVD announced the 60 Gig DVD, effectively neutralizing the Blu-ray's major advantage.

To counter HD DVD's larger capacity, Blu-ray's announced that a quad-layer 100GB disc had been developed, and that a new era has arrived.

With 100GB, definitely a new era of data storage has been achieved, and Blu-ray expects to be at the epicenter of it.

Sorting out the discs

HD DVD and Blu-ray systems will play current DVDs, but differ in these ways:

	Current DVD	HD DVD	Blu-ray
DATA CAPACITY (PER LAYER)	4.7 gigabytes	15 gigabytes	25 gigabytes
MAXIMUM IMAGE RESOLUTION (PIXELS)	640 x 480	1920 x 1080	1920 x 1080
THICKNESS OF RECORDED LAYER	0.6 mm	0.6 mm	0.1 mm
KEY PATENT HOLDERS	10 electronics companies and Time Warner	Toshiba, NEC, Time Warner	Sony, Philips, Matsushita, Pioneer
STUDIO BACKERS	All	Warner Bros., Universal, Paramount	Sony, Disney
RETAIL LAUNCH	1997	2005	Spring 2006



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Team Blu-ray

Blu-ray's team manager is Sony and they have drafted some all-star's and have plenty of depth on the bench... Apple, Dell, Hewlett-Packard, Hitachi, Imation Corp., LG Electronics,

Mitsubishi, Matsushita Electric (Panasonic), Pioneer, Philips, Samsung, Sharp, Sony, TDK, Thomson (RCA), Twentieth Century Fox, Columbia Pictures, Disney, Dolby Laboratories, Vivendi, Universal Games, Yamaha, Memorex, Mitsumi, and Konica Minolta. Makes you wonder who's left?



Team HD DVD

While fielding a smaller team, doesn't need as much depth when you've got team manager Toshiba calling the

shots and power hitters from Paramount Pictures, Universal Pictures, Warner Bros., New Line Cinema, and, gulp... the biggest palooka in the league that could hit it out of the park and around the world... Microsoft.

Blu-ray strengths: That's easy, storage size. Even with the 25 Gig disc, compared to HD DVD's 15 Gig, Blu-ray is the more attractive of the two formats, but the recently announced 50 and 100 Gig Disc, makes Blu-ray a format that few will be able to resist. Rewritable BD-RW (BD is Blu-ray Disc) discs, with similar features to Panasonic's current DVD-RAM discs, can play back content while recording to the disc at the same time. Also, Sony owns Columbia Pictures and MGM, which gives it a leg up on releasing movie content.





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The designated hitter that Sony intends to lead off the second inning will be Playstation III with its Blu-ray player. Consider that within a month after release, PS III will achieve a thirty-percent home market share.

Weaknesses: While the current Blu-ray player will not play conventional CD's, no one in retail considers this a real deal breaker. The biggest concern is the movie disc pricing and availability at retail with the belief that this issue will be resolved in later product releases.

HD DVD

Strengths: While the name and the logo make HD DVD more consumer-friendly than Blu-ray, bluntly it's hard to see a 60 Gig disc format competing with a 100 Gig format. In all fairness, HD DVD offers some inherent advantages out of the gate. HD DVD's carry the same basic manufacturing structure as current DVD's, so converting existing DVD manufacturing lines into HD DVD lines has been proposed as simple and cost effective. The announcement made by Mitsumi, is that the HD DVD dye process, enables conventional manufacturing equipment to make HD discs, a capability not possible with Blu-ray technology. This capability has taken team TEAM HD DVD straight to the field for release this summer.

Weaknesses: HD DVD doesn't have the same storage capacity as Blu-ray, but more importantly, doesn't have the line-up and bench depth of Blu-ray. Although, having Microsoft on your team, is like having Bonds, McGwire and Sosa all on steroids... and all on your team. Microsoft advantage aside, HD DVD has one significant advantage: time to market.



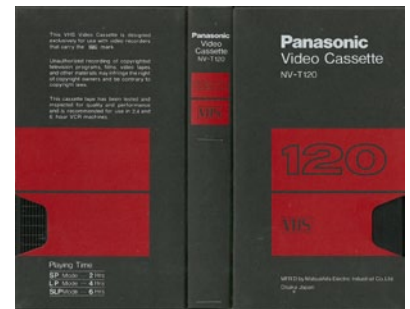


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If HD DVD could attract a few computer manufacturer to offer the HD / 30 Gig drives, they might be able to achieve some momentum, but to sustain it, they need to release some players with very attractive prices for the players and discs.

OLD WARS MAKE FOR NEW ALLIES

Maybe history has taught Sony and Panasonic, (division of Matsushita, the world's largest electronic company) to play well together. The VHS vs. BETAMAX debacle was really between Sony and Matsushita, and they didn't learn there... you could look to the recent market flop of Sony's SACD and Matsushita's DVD Audio. Terrific formats but their incompatibility seriously diminished any significant retail market penetration of either format and the high resolution audio CD format quickly became a format whose time came - and went.



This time around, Matsushita has learned a thing or two, and is sitting beside Sony. Together, Sony, Matsushita, Philips, DELL and HP form a very strong infield. Throw the movie studios in the backfield, and you've got a team that makes it difficult for HD DVD to even get to first base.

IS IT GOOD AS A COASTER?

Executives at Warner Bros., announced their intention to release their movies as HD DVD discs, arguing that the Blu-ray group has not been able to answer concerns about manufacturing costs and the discs' susceptibility to warping and scratching. Blu-ray and its development team recently announced the formulation of a proprietary coating that will protect its sensitive data from insensitive consumers. If you've ever rented DVD's from BlockBusters, you wonder if their customers use DVD discs as frisbees, drink coasters or dog toys.



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DO WE NEED THIS?

The DVD of today, is not a high-definition format. Period. DVD players typically output video in either standard NTSC 480i (852x480 pixels in an interlaced scan format), or with progressive scan; in 480p (852x480 pixels displayed in a progressively scanned format). Regardless, DVD has superior resolution and image quality compared to VHS and standard cable television, but it is still less than half the resolution of HD.



Does the public want a High Definition DVD player? That depends. If you're watching the DVD on a screen over 40" you will. The picture quality between HD and standard DVD is immediately apparent. If you're using a display with a screen size of 60" or larger, you should be camped out - to be first in line. The difference in quality is like watching Jr. Varsity vs. the Pro's. The falling prices of large flat screens makes the interest - a natural.

Why the media coverage over High Definition DVD? At stake is a multibillion dollar market for next-generation DVD's. Americans spent more than \$20 billion buying and renting DVD's last year. But sales of DVD players have slowed.

Consumer electronic companies and entertainment studios need a new product to sustain the meteoric growth of the DVD. Everyone in the industry will benefit: Disc and electronic manufacturers will gain sales, computer manufacturers are anxious to offer 20 - 100 Gig recordable disc drives. The one player who stands to benefit the most are the motion picture studios. High Definition Discs can breathe new sales from older movies and they can, once again, re-package and re-release the same product one more time.





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SPECIFICATIONS

General Specifications - Blu-ray Disc:

Storage Capacity -

Pre-recorded Playback Material (BD-ROM) and Home Recording (BD-R/BD-RE):

Single-layer (25GB)

Dual-layer (50GB)

Quad-layer (100 GB)

Data Transfer Rate: 36 MBPS (Megabits per Second) - This exceeds the 24 MBPS transfer rate used by HDTV broadcasts.

Disc Properties: New format requiring retooling and/or construction of new disc manufacturing and replication plants.

Video Specifications: Compatible with full MPEG2 Encoding, as well as MPEG4.

Audio Specifications: Incorporation of both Dolby Digital Plus and DTS-HD.

General Specifications - HD DVD

Storage Capacity - Pre-recorded playback material (HD-DVD-ROM): Single-layer (15GB) - Dual-layer (30GB)

Storage Capacity - Home Recording (HD DVD-R/HD DVD-Rewritable): Single-layer (20GB) - Dual-Sided Disc (40GB) - Dual Layer (35GB - proposed).

Data Transfer Rate: 36 MBPS (Megabits per Second) - This exceeds the 24 MBPS transfer rate used by HDTV broadcasts.

Disc Properties: Format similar to existing DVD disc structure, requiring minimal upgrading and retooling of existing DVD disc manufacturing and replication plants.

Video Specifications: Compatible with MPEG2 and MPEG4 Encoding.

Audio Specifications: Incorporation of both Dolby Digital Plus and DTS-HD.

Maximum image resolution in pixels

Current DVD: 640x480

HD DVD: 1920x1080

Blu-ray Disc: 1920x1080



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THE TRAIN IS LEAVING THE STATION

“Nobody wants a format war,” said Mr. Zucker, Dell’s technology strategist. “Not the device manufacturers. Not the studios. Not the consumers.” Consumers will delay their purchase if there’s the slightest sense that a new product may be obsolete and yet another victim of a format war, where the loser is the buyer who chose the wrong side.

“The train is going to start leaving the station shortly,” said Josh Petersen, director of strategic alliances for Hewlett-Packard, which backs Blu-ray.

A format war “looks more and more inevitable every day. We’re approaching the point of no return.”

Toshiba’s HD DVD is now available, while Sony’s Blu-ray is scheduled to ship in early October. It is doubtful if any real efforts will be made to negotiate a last-minute deal and agree on common technical standards.

At this point, both Toshiba and Sony have invested years and untold amounts of money in their high definition DVD projects and it is very late in the game to give away any of the technical advances that took their R&D team thousands of man-hours to resolve.



TOSHIBA HD-XA1



SONY BDZ-S77



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CLOSING

Call it what you like: money, ego's or company pride, it all boils down to substantial amounts of capital have been invested in each format and that makes either team reluctant to concede anything.

It is apparent that there are obvious physical differences in the two formats and with product already shipping, it seems that one side will have to make significant concessions to achieve an agreement in the months to come. The two teams are now on the road to the final game, so a settlement at this point is doubtful.

While it is difficult to predict the winner of this highly contested match up, the Blu-ray Disc team has the superior bench and is especially deep in the entertainment sector, and with all of the major studios behind it, has to be the favored team. When you add in the significant household market penetration of the Play Station III, Blu-ray is the odds-on favorite to establish itself as the High Definition Disc player.