

# After the format war

**Nadya Anscombe** talks to David Bunzel, president of the Optical Storage Technology Association, about the aftermath of the Blu-ray/high-definition-DVD format war and future technologies in the optical data-storage market

## What are the current technology trends in the optical data-storage industry?

As with many high-tech industries, the optical data-storage market can be divided into three types of technologies: existing mainstream (CD, DVD); emerging (Blu-ray, ultra-density optical (UDO) systems) and future technologies (such as holographic data storage and two-photon three-dimensional (3D) storage).

As capacity increases, the technology challenges become greater, so new technologies are taking longer to come to market. After many years of promises, holographic data storage, in the shape of a product from US company, InPhase, should be coming onto the market this year, and it will be interesting to see how this product fares in this competitive market. Clearly there is demand for a product with such high storage capacities and retrieval data rates, but the question is how big is that market?

I am also impressed with results from research into two-photon 3D data storage, but achieving these results in optimal conditions in the lab is different to achieving them in real applications.

Although these technologies are fascinating and exciting, we must not forget that Blu-ray is only just starting out on its journey in the market and that current technologies can also give us the huge data capacities that some applications need. For example, 'juke-box' style data-storage systems can use existing technologies, such as DVDs or Blu-ray disks, and multiply their storage capacity by simply using many disks. Juke-box systems of up to 2,000 disks, or over 9 Tbytes, exist today.

## Is the Blu-ray market growing at the expected rate?

It is difficult to tell what is happening in the Blu-ray market at the moment because the competition with high-definition (HD) DVD has only recently been won. The market needs time to readjust. Up until now, growth has been slower than hoped because manufacturers were more focused on winning the format battle than developing the market. Resources that could have been invested in promoting high-capacity storage to customers were invested in securing the



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support of content providers, especially in the film and entertainment business. Companies can now feel confident about incorporating a Blu-ray drive into their systems, and we should see the market accelerate as companies start to include this technology into their long-term plans.

Blu-ray has proved to be quite successful in the entertainment market, with Sony's PlayStation 3 already shipping more than 8 million systems on a global basis. When factoring in Blu-ray drives that were sold with PCs and consumer players, the Blu-ray installed base exceeds 10 million units, according to the Santa Clara Consulting Group. This presents a solid foundation of hardware as leverage for developing a market for commercial Blu-ray storage products.

It will be interesting to see how sales in recordable Blu-ray disks will grow over the coming years. Although growth rates will be significant because it is starting from nothing, I think initially the recordable Blu-ray disk will have more commercial applications than consumer applications. After all, 50 Gbyte is a lot for one person to need to record.

## What are the main drivers for growth in the optical data-storage industry?

One of the main advantages optical disk storage has over traditional

magnetic-disk-based storage is its energy efficiency. Because an optical disk does not need to be constantly spinning, there is no need for energy-hungry cooling systems. It is this energy efficiency that makes it particularly attractive to large data centres that could save a lot of money on their energy bills. I have a feeling we will be seeing companies replacing a growing percentage of their traditional hard-disk drives with Blu-ray-based juke-box systems in their data centres in the future. Some optical storage technologies are also write-once technologies, which can be an important aspect of secure archival record keeping.

Between 2006 and 2010, storage-media growth is expected to be 35% per year, and information generated will grow by 57% per year. Although hard-disk drives will continue to be appropriate for many applications, the growth in storage requirements for digital data will continue to support growth in optical storage. Market drivers for archival storage, where high capacity optical can play a role, include the healthcare, financial, government and legal sectors, as well as digital asset management and video production for broadcast and publication applications.

Media revenues for optical storage are projected to exceed \$30 billion per year by 2010, according to GlobalSources, with only 4% of that comprised of holographic storage.

## What are the main challenges faced by the optical data-storage industry today?

We need more vendors in the Blu-ray market, but entry into this market is difficult because of the current pricing structure. The Blu-ray/HD-DVD format war brought prices down much faster than manufacturers expected or wanted. Although this has been good for the consumer, it means companies do not have as much chance of getting a return on their investment. The industry needs to get Blu-ray to the point where it is a reasonable business proposition again, and this will encourage more players to enter. This will then encourage the market to grow at a healthy rate.

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