TAI 2

Carlos Ovelar
covelar@uca.edu.py
Juan Insfran
Juan_insfr@hotmail.com

UCA - 2004

Índice

Blu-Ray, tecnología de láser azul

Introducción

Blu-Ray, es la tecnología de láser azul que ya empieza a ganar terreno y promete consolidarse en el futuro.

El nuevo formato Blu-Ray ha sido presentado con una unidad de óptimo rendimiento al ofrecer hasta 27 Gb de información equivalentes a 13 horas continuas de reproducción digital, muy superior a los 4,7 Gb o 133 minutos que entregan los lectores y discos de DVD. La calidad en la proyección también promete mejorar ya que podrán conservarse los más altos niveles resolutivos de audio y video sin la limitante del espacio físico de cada disco óptico.

Este estándar de grabación logra conservar grandes volúmenes de datos gracias a una nueva técnica nanométrica que emplea un rayo láser de menor longitud de onda que los actuales y que permite leer mayor superficie, y por ende, mayor densidad de almacenamiento.

La base de este hallazgo es un material bautizado en los círculos científicos como una revolución para la electrónica del futuro; el Nitruro de Galio (GaN), elemento que proyecta un láser de 405 nanómetros, densidad que en el espectro visible adopta un color azul violeta. La marca más pequeña que pueden alcanzar los semiconductores láser en la actualidad emplean un mayor diámetro, 640 y hasta 660 nm.

Como la HDTV esta ganando mucho terreno, la demanda de los consumidores de HDTV que desean grabar estas transmisiones esta aumentando. Blu-ray se diseñado para esta aplicación, permitiendo la grabación directa de MPEG-2 TS (Transport Stream) utilizado por transmisiones digitales, lo cual lo hace altamente compatible con los estándares globales de transmisiones digitales. Esto significa que las transmisiones de HDTV pueden ser grabadas directamente en el disco sin ningún procesamiento extra o perdida de calidad. Para manejar la enorme cantidad de datos requeridos por el HDTV, Blu-ray utiliza velocidades de transferencia de datos de 36Mbps, lo cual es más que suficiente para grabar y reproducir HDTV mientras que se mantiene la calidad de la película original. Además, mediante la utilización de funciones de acceso aleatorio en los discos ópticos es posible reproducir video en un disco mientras simultáneamente se esta grabando video de alta definición.

Blu-ray espera reemplazar los VCRs y las actuales versiones de tecnología de DVD en muy pocos años. Este formato es el que se espera sea el Standard para almacenamientos de datos en la PC y películas de alta definición en el futuro

Diseño y aplicación

La tecnología de "blue-ray" ofrece una amplísima gama de posibilidades para desarrollar en el campo del almacenamiento digital. Un primer mercado a explotar es el de las empresas e instituciones que requieren una reserva de datos a gran escala, prescindiendo de numerosos volúmenes de discos que usualmente se requieren para ese fin.

A su vez los fabricantes de consolas de video, teléfonos móviles, cámaras de fotografía y video, y televisores, entre otras, han empezado a diseñar los nuevos aparatos con esta tecnología láser.

El desarrollo de esta modalidad láser continuará dando que hablar pues diversas compañías ya han patentado aparatos de almacenamiento óptico basados en el láser azul, tal es el caso de la firma Colosal Storage que con la técnica 3D Holographical Disc Drive Storage consigue respaldar hasta dos mil DVD en un solo disco.

Datos técnicos sobre la tecnología Blu-ray Disc

- 27 GB de almacenamiento en una sola cara de un DVD de 12 cm. (próximas versiones podrían llegar a los 50GB usando ambos lados).

- Capacidad de almacenamiento de hasta 20 horas de transmisión de televisión de alta definición y hasta 14 de las transmisiones normales.

- Transferencia de datos en el orden de los 3.8Mbps cuando se intercambia

- Información entre equipos digitales (por ejemplo una cámara de video, incluso en tiempo real).

- Utiliza el estándar de compresión "MPEG-2 Transport Stream", que es compatible con la transmisión digital satelital

- Los discos vienen protegidos por una carcaza de plástico permanente (al estilo disquete o unidad de Zip)

- El desarrollo y las especificaciones pertenecen a un consorcio conformado por nueve compañías: Hitachi, LG, Matsushita, Pioneer, Philips, Samsung, Sharp, Sony y Thomson.

Primeros productos

Sony presentó la primera grabadora de DVD de láser azul que puede almacenar hasta 14 horas de video digital en una sola cara de un DVD de 12 cm.

Sony, el gigante japonés de la electrónica y las comunicaciones, será el primero en presentar un producto de consumo masivo con la nueva tecnología Blu-ray cuando el próximo 10 de abril lance al mercado el BDZ-S77, la primer reproductora/grabadora de DVD de láser azul que almacena hasta 27GB de información, lo que se traduce en dos horas de video digital de alta resolución o hasta 14 horas de grabación en condiciones de menor calidad.

El producto tiene esa fecha de presentación sólo para Japón ya que todavía no hay fecha para el resto del mundo. En cuanto al precio, no será nada barato: sus 3500 dólares son prácticamente 10 veces más que sus similares DVD de tecnología convencional (láser rojo) que rondan los 400. Pero la intención de Sony es preparar el terreno pera la competencia que se viene (especialmente en Japón y Estados Unidos) gracias al avance y difusión de la televisión digital de alta definición (HDTV), por eso el equipo incluye un sintonizador para tal fin.

El BDZ-S77 también reproduce CD's y DVD's en todas sus variantes, se puede conectar a otro similar para hacer copias, puede almacenar hasta

100 discos y memorizar sus "time-code" y tiene entradas analógicas, ópticas y de S-video, entre otras.

Las Preguntas más frecuentes

1. Que es Blu-ray?

Blu-ray, también conocido como Blu-ray Disc (BD) es el nombre del formato de la siguiente generación de discos ópticos. El formato ha sido desarrollado para permitir grabación, regrabación y reproducción de televisión de alta definición (HDTV). Este formato es el que se convertiría en el Standard para el almacenamiento de datos en PC y en el futuro películas de alta definición.

2. Porque el nombre es Blu-ray?

El nombre de Blu-ray se deriva de la tecnología underlying, que utiliza un láser azul-violeta para leer y escribir los datos. El nombre es la combinación de "Blue" y el rayo óptico "Ray". De acuerdo con la Blu-ray Disc Association, la forma de escribir "Blu-ray" no es un error. El carácter "e" es intencionalmente removido porque un termino de uso cotidiano no se puede registrar como una marca.

3. Quien desarrollo Blu-ray?

El formato ha sido desarrollado por Blu-ray Disc Founders (BDF), un grupo de 11 compañías lideres en el mercado de consumo electrónico

Hitachi, Ltd.
LG Electronics Inc.
Matsushita Electric Industrial Co., Ltd.
Mitsubishi Electric Corporation
Pioneer Corporation
Royal Philips Electronics
Samsung Electronics Co., Ltd.
Sharp Corporation
Sony Corporation
TDK Corporation
Thomson Multimedia

En enero de 2004, los dos más grandes productores de PC HP y Dell, fueron aceptados en el grupo para ayudar a desarrollar luego el formato de almacenamiento para PC.
El grupo esta abierto para nuevos fabricantes que quieran ayudar al desarrollo, y para promover y estabilizar al Blu-Ray como el estándar de la industria para el almacenamiento óptico de alta definición.

4. Que formatos de Blu-ray están planeados?

Como los CDs y vds. Convencionales, Blu-Ray planea proveer un variedad de formatos incluyendo los ROM/R/RW. Los siguientes formatos son partes de las especificaciones V1.0 de Blu-Ray

BD-ROM, que es un formato de solo lectura desarrollado para contenidos pre grabados.
BD-R, que es un formato grabable desarrollado para almacenamiento de datos para PC
BD-RW, que es el formato regrabable desarrollado para almacenamiento de datos para PC.
BD-RE, que es el formato regrabable desarrollado para grabaciones HDTV.

5. Que cantidad de Datos se puede grabar en disco de Blu-Ray ?

Single-layer disc se puede grabar 23.3GB, 25GB o 27GB.
Dual-layer disc se puede grabar 46.6GB, 50GB o 54GB.

También se están desarrollando discos de hasta 4 capas llegando a los 100GB,

6. Que cantidad de Video se puede grabar en un disco Blu-Ray?

Más de 2 horas de televisión de alta definición (HDTV) en un disco de 25GB
Como 13 horas de televisión de definición Standard (SDTV) en un disco de 25GB.

7. Que tan rápido se pueden grabar los discos de Blu-ray?

Según las especificaciones de Blu-ray V1.0, la velocidad de 1x requiere una tasa de transferencia de datos de 36Mbps, lo que significa que nos tomara como 1 hora y 33 minutos para grabar 25GB. La asociación de Blu-ray esta actualmente trabajando en la especificación versión 2.0 que podrá soportar velocidades de 2x que lograran partir en la mitad el tiempo de grabación de un disco, en el futuro se espera que se desarrollen velocidades de hasta 8x o mas.

8. Cuales son los codecs de video que soporta Blu-ray?

La asociación Blu-ray Disc Association (BDA) esta aun en el proceso de finalizar la especificación de los BD-ROM pero establecieron que el MPEG-4 AVC High Profile (anteriormente llamado FREext) y el Microsoft's VC-1 video codec (lo propuesto por SMPTE Standard basado en WMV9) serán los que se impondrán.
También incluyen soporte para MPEG-2 para reproducción de grabaciones de HDTV contenidas en los DVDs. El BDA espera que la especificación BD-ROM sera finalizada para fin de año.

9. Cuales son los codecs de audio que soporta Blu-ray?

La Blu-ray Disc Association (BDA) todavía no ha hecho su decisión final acerca de que codec de audio será incluido en la especificación, pero de acuerdo con los técnicos de la BDF, el codec incluido dará una significante mejoría sobre los formatos de audio utilizados en los DVDs. Todavía están actualmente buscando con los codecs de gran avance, estos incluyen codecs que no tienen perdidas.

10. Utilizaran cartuchos los discos de Blu-ray?

No, la Blu-ray Disc Association (BDA) ha desarrollado satisfactoriamente una nueva tecnología de capa dura que lograra que los discos sean mas resistentes a ralladuras y huellas digitales que los actuales discos de DVD (que no requieren cartuchos). Haciendo que el cartucho sea opcional para los fabricantes.

11. Cuado podré comprar mi grabador de discos Blu-ray Disc?

Tendrá que esperar probablemente hasta el 2005-2006 para que los grabadores de discos Blu-ray estén disponibles comúnmente.

12. Cual será el costo de un grabador de discos Blu-ray?

Como es una nueva tecnología, la primera generación de los grabadores Blu-ray serán muy caros, pero los precios ya están empezando a bajar. El Sony BDZ-S77 cuesta actualmente alrededor de los $2,049, mientras que el Panasonic DMR-E700BD cuesta $1,957. Los discos que se necesitan para grabar video de alta definición cuestan alrededor de los 25$ por disco. La explicación de estos altos precios es que estos grabadores están destinados para personas entusiastas y negocios en vez de la gente de consumo masivo.

Según la Blu-ray Disc Association, el costo total de fabricar un disco de Blu-ray no es mucho más costoso que los discos de DVD.

13. Lograra Blu-ray reemplazar el VHS?

Si. Esa es la expectativa. Los grabadores de discos Blu-ray Disc representan el más grande adelanto en tecnología para grabación de video y permite grabaciones de televisión de alta definición. También ofrece muchísimas funciones innovadoras que no son posibles con un tradicional VHS:

- Acceso Aleatorio, saltos instantáneos a cualquier punto del disco
- Búsquedas, Rápida navegación y previsualizar programas grabados en tiempo real.
- Crear listas de reproducción, cambiar el orden de programas grabados y editar videos grabados.
- Automáticamente encuentra espacios vacíos para evitar grabaciones sobre programas previamente grabados
- Grabación y reproducción simultanea (permite Time slip/Chasing playback)
- Mejor interactividad, permite mas avanzados programas y juegos.
- Permite gran ancho de banda, acceso a contenido web, descargar subtítulos y programaciones extras
- Mejor Imagen, permite grabar high-definition television (HDTV)
- Mejor Sonido, permite grabar sonidos surround (Dolby Digital, DTS, etc)

14. Podrá Blu-ray reemplazar el DVD?

Es muy temprano para decir. Al final dependerá de los Estudios de Cine, ya que ellos deciden en que formato lanzan sus películas. Por eso tienen un gran papel en la decisión de que formato se convertirá en el Standard para las películas de alta definición y el sucesor del DVD. Sin embargo, están ganando mucho dinero por las ventas muchos DVDs, por eso no están apurados en adoptar un nuevo formato. Probablemente atajaran la introducción de este formato hasta el 2006-2007, ya que especula que el mercado de DVD seguirá creciendo hasta ese entonces. El único estudio que públicamente soporta cualquier formato basado en blue-láser hasta ahora es Columbia TriStar, quien ha decido que lanzaran sus películas en el formato Blu-ray.

15. Podrá Blu-ray soportar reproducción de DVDs?

Si, muchas compañías líderes en fabricación de unidades ya han demostrado unidades que pueden leer y grabar DVDs y Blu-ray,

16. Que planes hay de Blu-ray para PCs?

Hay planes para unidades de BD-ROM (read-only), BD-R (recordable) and BD-RW (rewritable), y con el soporte de los mas grandes fabricantes de PC HP y DELL, seguro que la nueva tecnología será adoptada en la siguiente generación de formato de discos ópticos para almacenamiento de datos para PC y reemplazara tecnologías como DVD-R, DVD+R, DVD-RW, DVD+RW y DVD-RAM.

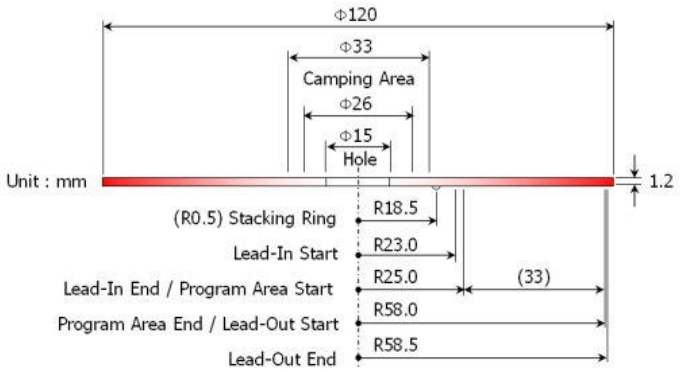
Tabla de Comparación DVD versus BD

Parameters	**BD**	**BD**	**DVD**	**DVD**
Recording capacity	25GB	50GB	4.7GB	9.4GB
Number of layers	single-layer	dual-layer	single-layer	dual-layer
Laser wavelength	405nm	405nm	650nm	650nm
Numerical aperture (NA)	0.85	0.85	0.60	0.60
Protection layer	0.1mm	0.1mm	0.6mm	0.6mm
Data transfer rate	36Mbps	36Mbps	11.08Mbps	11.08Mbps
Video compression	MPEG-2 MPEG-4 AVC VC-1	MPEG-2 MPEG-4 AVC VC-1	MPEG-2	MPEG-2

Tabla de Comparación HD-DVD versus BD

Parameters	**BD**	**BD**	**HD-DVD**	**HD-DVD**
Recording capacity	25GB	50GB	20GB	32GB
Number of layers	single-layer	Dual-layer	single-layer	dual-layer
Laser wavelength	405nm	405nm	405nm	405nm
Numerical aperture (NA)	0.85	0.85	0.65	0.65
Protection layer	0.1mm	0.1mm	0.6mm	0.6mm
Data transfer rate	36Mbps	36Mbps	36Mbps	36Mbps
Video compression	MPEG-2 MPEG-4 AVC VC-1	MPEG-2 MPEG-4 AVC VC-1	MPEG-2 MPEG-4 AVC VC-1	MPEG-2 MPEG-4 AVC VC-1

CD



Program Area : 33 mm

Track Pitch (T_p) : 1.6 μm

Total Number of Track (n) : 20,625

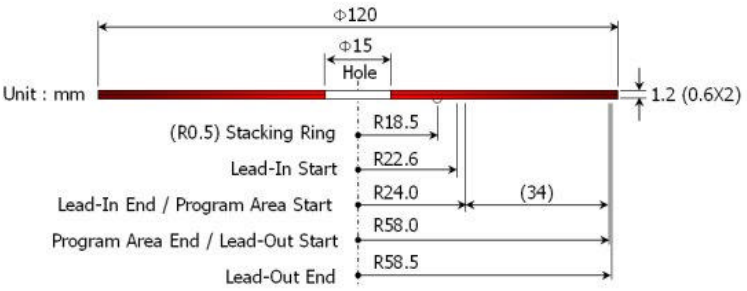
Total Length of Track (T) : 5,378 m

$$n = \frac{33\text{mm}}{1.6\mu\text{m}} = 20{,}625$$ [Total Number of Track in Program Area]

$$\bar{R} = \frac{58-25}{2} + 25 = 41.5\ (\text{mm})$$ [Centroid of Program Area]

$$T = 2\pi \bar{R} n$$ [Total Length of Track in Program Area]

DVD



Program Area : 34 mm

Track Pitch (T_p) : 0.74 μm

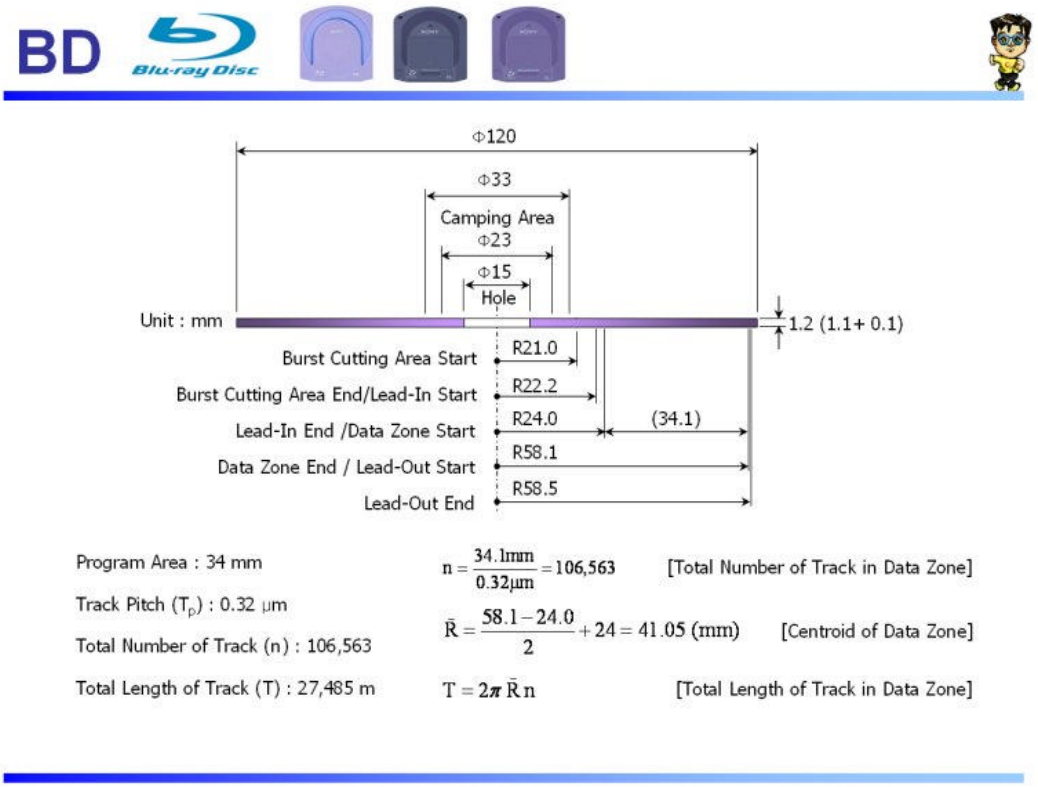
Total Number of Track (n) : 45,946

Total Length of Track (T) : 11,836 m

$$n = \frac{34\text{mm}}{0.74\mu\text{m}} = 45{,}946$$ [Total Number of Track in Program Area]

$$\bar{R} = \frac{58-24}{2} + 24 = 41\ (\text{mm})$$ [Centroid of Program Area]

$$T = 2\pi \bar{R} n$$ [Total Length of Track in Program Area]



Cronología de los últimos Eventos

Los últimos productos

Sep 1, 2004 - Advanced Video Codecs Added to BD-ROM Specification

The Blu-ray Disc Association (BDA) today announced which advanced video codecs will be included in the BD-ROM specification. They had previously stated that they would include at least one advanced video codec, possibly more than one. The advanced video codecs that will be mandatory are MPEG-4 AVC High Profile and Microsoft's VC-1 video codec (the proposed SMPTE standard based on WMV9). "We've been committed to adding advanced codecs to enrich the Blu-ray Disc format," said Blu-ray Disc spokesperson Maureen Weber, general manager of HP's Optical Storage Solutions Business. "We want to offer content providers a variety of compression codecs to suit their various needs."

Read more: Blu-ray Disc Founders

Aug 11, 2004 - Blu-ray Disc Founders Approve BD-ROM Physical Specification

The Blu-ray Disc Founders (BDF) have approved Version 1.0 of the BD-ROM physical-format specification and made it available to disc manufacturers and other interested parties. The BDF approved the BD-ROM physical specification within the general timeframe originally outlined in the BD-ROM development roadmap. The completion of the physical specification is an important step because it provides disc manufacturers with the information they need to prepare their BD-ROM disc production lines. "Blu-ray Disc (BD) is on schedule for companies to introduce BD-

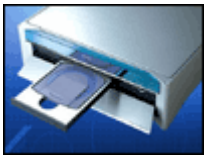
ROM players, drives and prerecorded software to consumers beginning in late 2005," said Maureen Weber, general manager of HP's Optical Storage Solutions Business.

Read more: Blu-ray Disc Founders

Aug 4, 2004 - PlayStation 3 to Feature Blu-ray Disc Technology

Sony has finally confirmed that they will use Blu-ray Disc technology in their next-generation PlayStation 3 (PS3) video game console. What is more surprising is that they also have plans to equip an upcoming version of their PlayStation 2 (PSX) video game console with a Blu-ray Disc player, so that consumers can enjoy both video games and high-definition movies. Sony hopes that the move will help jump-start the market for the new storage format. The announcement came at a press conference held by the Blu-ray Disc Founders (BDF), who also announced that they are in the process of finalizing the read-only version of the Blu-ray Disc format (BD-ROM) which they expect to be finished by September 30, 2004.

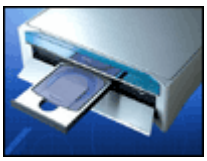
Read more: Kyodo News



Jul 15, 2004 - Philips Develops All-in-one Optical Pick-up Unit

Philips announced that they have developed an optical pick-up unit (OPU) that will be able to read and write CD-R/-RW, DVD+R/+RW and the next-generation optical disc format Blu-ray Disc (BD). With its new OPU81, Philips has created the first important building block of the all-in-one recorder that can record and playback all popular consumer optical formats. By integrating the infrared, red and blue wavelength lasers and single detector into one single OPU concept, Philips has succeeded in developing a flexible triple-writer OPU design in a compact form factor. The OPU81 is designed for mass production and will meet mass consumer price levels. Mass production of the new OPU will start in 2006 when Philips anticipates that the mass-market demand for BD recorders will pick-up.

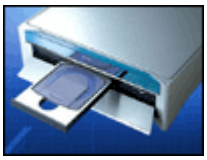
Read more: Philips



Jul 14, 2004 - Sony to Test-Produce Blu-ray Discs in the U.S.

Sony plans to set up test production lines for Blu-ray Discs in the United States this autumn, company officials said Wednesday. The move is aimed at promoting the use of the next-generation discs by U.S. film studios by modifying the production process and product specifications. The trial production facility will be set up in Sony's digital versatile disc plant in Indiana. It will make a single-layer Blu-ray Disc with a storage capacity of 25GB and a 50GB dual-layer type.

Read more: Jiji Press



May 28, 2004 - Panasonic Starts Blu-ray Disc Product Verification Service

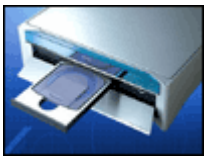
Panasonic today announced that its Format Verification Laboratory has started offering a verification service for Blu-ray Disc blank rewritable media and Blu-ray Disc rewritable recorders. Anticipating a wave of entries of Blu-ray Disc-based products in the coming months, Panasonic has established a laboratory in Osaka to facilitate companies adopting the format and entering the market. For manufacturers, the verification service will ensure consistency with the format, expediting commercialization of Blu-ray Disc-based products. The Blu-ray Disc logo will serve as the proof of compliance to give assurance to consumers. By establishing the laboratory, Panasonic aims to contribute to further developing and popularizing the new standard in the industry and the market.

Read more: Panasonic

May 18, 2004 - Blu-ray Disc Association Announced

In response to growing industry support for the Blu-ray Disc standard, the 13 members of the Blu-ray Disc Founders (BDF) today announced plans to create the Blu-ray Disc Association (BDA). The Blu-ray Disc Founders will be re-incorporated into the BDA and is currently developing the membership application processes and operating procedures. The BDA will be open to companies wishing to participate in the future development of Blu-ray Disc and to help develop, promote and establish the Blu-ray Disc format as an industry standard for high-definition optical storage. Applications will be available in late summer and the first official meeting of the new BDA is planned for this fall.

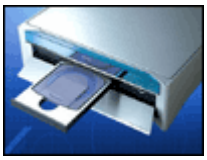
Read more: Blu-ray Disc Founders



May 17, 2004 - Sony Develops Single Optical Head for Blu-ray Disc, DVD and CD

Sony has successfully developed a single three-wavelength optical head, capable of recording and playing next-generation Blu-ray Discs, as well as conventional DVDs and CDs without requiring an extra optical head for backwards compatibility. The technology requires less parts, is cheaper to produce and provides full backwards compatibility with current DVD/CD formats. Sony will target commercializing the newly developed optical head within 2 years, and will positively promote to further technology development. By doing so, in addition to further reducing the number of parts used for achieving smaller size of optical heads, enhancement of productivity and reliability will be achieved.

Read more: Sony



Apr 15, 2004 - Toppan and Sony Successfully Develop 25GB Paper Disc

Toppan Printing and Sony today announced the successful development of a 25GB paper disc based on Blu-ray Disc technology. More details will be announced at the Optical Data Storage 2004 conference to be held from April 18th to April 21st at Monterey, California. Using the disc-structure of Blu-ray Disc technology, the new paper disc has a total weight that is 51% paper. "Using printing technology on paper allows a high level of artistic label printing on the optical disc. Since a

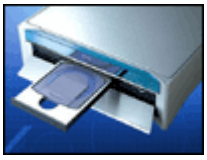
paper disc can be cut by scissors easily, it is simple to preserve data security when disposing of the disc" says Hideaki Kawai, Managing Director of Toppan Printing. The discs should also be cheaper to manufacture and more ecologically friendly. Toppan and Sony will continue development of the disc for practical use.

Read more: Sony

Mar 29, 2004 - Blu-ray Disc Production Costs Comparable to DVD

According to the Blu-ray Disc Founders (BDF), Blu-ray Disc will offer by far the highest capacity of any optical disc storage format ever developed for consumers, and yet the production costs of manufacturing Blu-ray Discs is expected to be comparable to current DVDs when manufactured at mass volumes. "Capacity and cost savings were the major reasons HP and other industry leaders chose to support Blu-ray Disc," said Maureen Weber, general manager of HP's Optical Storage Solutions. "The PC business revolves around volume and cost; and, the fact that the most logical cost choice also offers far better quality - as well as a smooth transition plan that is both forward- and backward-looking - is icing on the cake."

Read more: Blu-ray Disc Founders



Mar 26, 2004 - Sony to Offer 50GB Blu-ray Disc Recorders

Sony has committed itself to shipping second-generation consumer-oriented Blu-ray video recorders by the end of the year, the company said today. The new systems will support single-side, dual-layer rewriteable discs with a total capacity of 50GB. The second-generation machines will also support the so-called BD-ROM format, the Blu-ray equivalent of today's pre-recorded DVDs, Sony said. As yet, the BD-ROM specification remains incomplete, but Sony hopes to have it ready in April. Holding up the final version of the specification is the question of what, if any, copy protection mechanism to mandate. Sony's movie division has said it will release content on BD-ROM in time for the 2005 Christmas sales season.

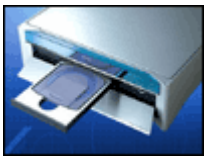
Read more: The Register

Mar 18, 2004 - TDK Joins Blu-ray Disc Founders

The Blu-ray Disc Founders (BDF) today announced the addition of TDK, a leading manufacturer of optical discs, as its newest member. "We are pleased to support the Blu-ray Disc format, since it is the format we believe in.", said Mr. Masatoshi Shikanai, Corporate Officer of TDK. "Our new hard-coat technology is perfect for producing robust, bare Blu-ray discs in a cost-efficient way. It will provide the optical media industry with a disc that can be efficiently produced at a large scale, and it offers the consumer a robust recordable or rewritable disc with the same handling capability as DVD. We are very excited about supporting this format." With the support of TDK, the BDF are broadening their industry support to develop and establish Blu-ray Disc as the next generation optical disc.

Read more: Blu-ray Disc Founders

Mar 9, 2004 - Matsushita to Offer 50GB Blu-ray Disc Recorders in July



Matsushita Electric (Panasonic) today announced that they will release a Blu-ray Disc recorder on the Japanese market in July and thereby become the second manufacturer to offer Blu-ray Disc recorders. The Matsushita Blu-ray Disc recorder uses a two-layer disc structure, which means that a single disc can hold up to 50GB of data, or 4.5 hours of HD video. U.S. consumers still have to wait a while longer for Blu-ray products, but LG Electronics has previously stated that they intend to introduce a Blu-ray Disc recorder with a 200GB hard drive in the U.S. in the third quarter of 2004.

Read more: EE Times

Jan 30, 2004 - HP and Dell Join Blu-ray Disc Founders

HP and Dell, have joined the Blu-ray Disc Founders (BDF), adding support from the world's two largest PC manufacturers to the already broad support from the consumer electronics industry for the Blu-ray Disc format. Dell and HP announced their support for the Blu-ray Disc format at the Consumer Electronics Show in Las Vegas earlier this month and have now formally joined the organization responsible for developing and promoting the revolutionary new format for high-capacity optical discs. With the addition of HP and Dell, a total of twelve BDF members will devote themselves to further technological development at the highest level in the industry, while promoting the Blu-ray Disc formats to benefit related industries worldwide.

Read more: Blu-ray Disc Founders

Jan 8, 2004 - Blu-ray Gains Support from HP and Dell

The Blu-ray Disc Founders (BDF) welcome the support from Hewlett-Packard Company and Dell Inc., the two largest PC manufacturers, underlining the true convergence between consumer electronics and IT industry, enabled by Blu-ray Disc. The support from HP and Dell is an important step in providing the industry and consumers with one format that covers both PC as well as consumer electronics applications. In addition, the Blu-ray Disc Founders are in the process of finalizing the complete format specifications portfolio. The BD-ROM (read-only) format, developed in collaboration with Hollywood studios and the IT industry, is expected to be available early 2004, allowing for BD-ROM products to be available by the end of 2005. The BD-R (recordable) format is expected to be finalized by mid 2004, and the BD-RE (rewritable) format, which is already available, will be further expanded to cover additional requirements of the related industries.

Read more: Blu-ray Disc Founders

Oct 12, 2003 - New Photos from Ceatec Japan 2003

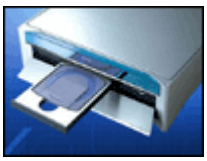
Ceatec Japan 2003 was recently held and showed a lot of promise for the future of Blu-ray (not Bluray, Blueray or Blue-ray). Among the companies showcasing new prototypes at the exhibit were JVC, Panasonic, Pioneer, Sharp and Sony. The Blu-ray Disc Founders are currently working on 2x speed (72Mbps) versions of their Blu-ray disc recorders as well as finalizing the specs for v2.0 of the format which includes support for BD-R (recordable) and BD-ROM (read-only) discs. They plan to have the specification finished by the summer of 2004. Check out the image galleries for some new photos of Blu-ray Disc recorders and media displayed at the trade show.

Read more: Ceatec Japan

May 28, 2003 - Mitsubishi Electric Joins Blu-ray Disc Founders

Mitsubishi Electric Corporation and the existing nine Blu-ray Disc Founders (BDF) today announced that Mitsubishi Electric has become a member company of BDF. Mitsubishi Electric has taken a leading role in the development of optical disc technology in the relevant industries over the years, and has been focusing on blue laser technology as an important element in establishing the next generation high density and high-grade optical disc recording technology. Mitsubishi Electric has studied the BDF's Blu-ray Disc format as one of the most promising candidates in this area, and has contributed to the format's development through technical proposals to the BDF. The BDF members strongly believe that the addition of Mitsubishi Electric to the BDF will further enrich the group's activities.

Read more: Blu-ray Disc Founders



Mar 3, 2003 - Sony Unveils World's First Blu-ray Disc Recorder

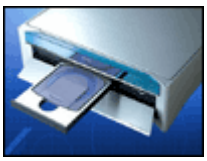
Sony has taken the wraps off the first commercial consumer-use video recorder that uses blue-laser technology. The BDZ-S77 will go on sale in Japan next month. It is based on the Blu-ray optical disc format announced just over a year ago. The nine consumer electronics companies behind it are promoting it as a system for recording high-definition television broadcasts. Sony's first generation recorder will land on Japanese retail shelves on April 10, at a price of $3,800. It looks similar to the prototype Blu-ray player that Sony showed at the Ceatec show in Japan last October. To support the new machine, Sony also announced its first generation Blu-ray media discs with a 23GB capacity will go on sale from April 10 priced at $30.

Read more: Sony Japan

Feb 13, 2003 - The Blu-ray Disc Founders Begin Licensing the Format

Hitachi, Ltd., LG Electronics Inc., Matsushita Electric Industrial Co., Ltd., Pioneer Corporation, Royal Philips Electronics, Samsung Electronics Co. Ltd., Sharp Corporation, Sony Corporation, and Thomson today announced the start of licensing of the rewritable format of "Blu-ray Disc", the large capacity optical disc utilizing blue-violet laser. Licensing will commence as of February 17, 2003. The introduction of products based on "Blu-ray Disc", the first optical disc format capable of recording High Definition broadcasts, will enable the enjoyment of even greater picture quality within the home.

Read more: Blu-ray Disc Founders



Jun 10, 2002 - Blu-ray Disc's Advantages Over DVD

Wired's June issue includes an article which describes the advantages Blu-ray technology has compared to traditional red-laser. To summarize, Blu-ray increases the recording capacity to 27 Gbytes (13 hours of standard

definition TV or two to three hours of HDTV) compared to 4.7 Gbytes recordable with DVD+RW/DVD-RW while still being backward compatible with DVD.

Read more: Wired Magazine

May 20, 2002 - Blu-ray Disc Specification v1.0 Released

The specification for the next generation large capacity optical disc video recording format "Blu-ray Disc" are going to be released on June 14, 2002 in accordance with their joint press conference of February 19, 2002. The nine companies (Hitachi, LG Electronics, Matsushita, Pioneer, Philips, Samsung, Sharp, Sony and Thomson) are releasing the specification to pursue a broad acceptance of the "Blu-ray Disc" format.

Read more: Blu-ray Disc Founders

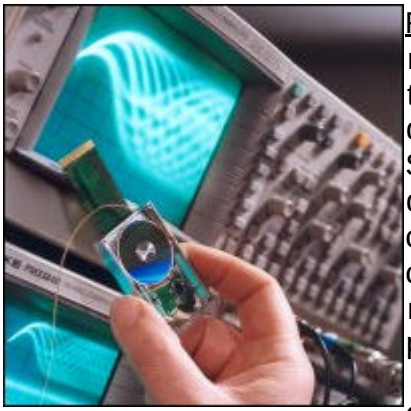
Feb 19, 2002 - Blu-ray Disc Format Announced

Nine leading companies today announced that they have jointly established the basic specifications for a next generation large capacity optical disc video recording format called "Blu-ray Disc". The Blu-ray Disc enables the recording, rewriting and play back of up to 27 gigabytes (GB) of data on a single sided single layer 12cm CD/DVD size disc using a 405nm blue-violet laser. The companies that established the basic specifications for the Blu-ray Disc are: Hitachi Ltd., LG Electronics Inc., Matsushita Electric Industrial Co., Ltd., Pioneer Corporation, Royal Philips Electronics, Samsung Electronics Co. Ltd., Sharp Corporation, Sony Corporation, and Thomson Multimedia.

Read more: Blu-ray Disc Founders

Philips muestra las ventajas de la tecnología de laser azul

Gracias a la tecnología de laser azul, Philips ha logrado construir un disco duro en miniatura -tan sólo 3 centímetros de diámetro- con una capacidad de almacenamiento de 1 GB. La compañía lo dio a conocer ayer, y ya clama sus ventajas para la fotografía digital y los PDA, entre otros dispositivos.



Redacción.- Con el nuevo disco duro en miniatura, Philips ha plasmado su ya conocida tecnología de laser azul en un producto destinado a la electrónica de consumo de masas. Se trata de un disco duro óptico de unas dimensiones sustancialmente pequeñas: 3 centímetros de diámetro, y menos de 1 centímetro de grosor. Sin duda, una relación de medidas mucho más atractiva que la de los populares Microdrive de IBM.

Como señala dcviews.com, los 3 centímetros de

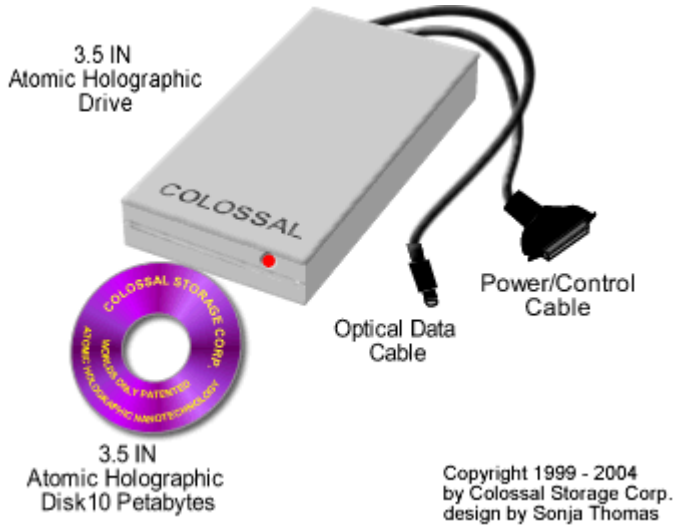
diámetro del nuevo disco duro de Philips acercan este tipo de dispositivos a las necesidades de los aficionados y profesionales de la fotografía digital. El pequeño tamaño de este disco duro se debe, básicamente, a la reducción del sistema de lentes de su objetivo.

Más información acerca de esta noticia:

- Nota de prensa de Philips

Breakthrough Nanotechnology Will Bring 100 Terabyte 3.5-inch Digital Data Storage Disks

August 11, 2004



Have you ever dream of 100 terabyte of data per 3.5-inch disk? New patented innovation nanotechnology from Michael E. Thomas, president of Colossal Storage Corporation, makes it real.

Michael invented and patented the world's first and only concept for non-contact UV photon induced electric field poling of ferroelectric non-linear photonic bandgap crystals, which offers the possibility of controlling and manipulating light within a UV/Deep Blue frequency of 1 nm to 400 nm.

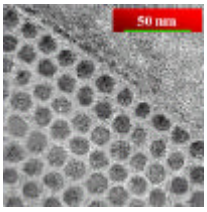
It took him 14 years to find a practical conceptualization that would work to advance the storage industry; 3D Volume Holographic Optical Storage Nanotechnology, for which Michael holds the patents. He was invited to present this fascinating discovery to the National Science Foundation in February 2004.

Search results for *nanotechnology :*

See results as a rss news feed
Add PhysOrg headlines to your site

Page: << **1** 2 3 4 5 6 7 >>

Not-So-Spotty Material Breakthrough, **August 31, 2004:**

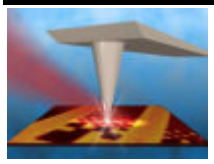


Researchers master self-assembly of novel nanodots

Using pulsed lasers, researchers have **coaxed the metal nickel to self-assemble into arrays of nanodots – each spot a mere seven nanometers** (seven billionths of a meter) across – one-tenth the diameter of existing nanodots.

Because the method works with a variety of materials and may drastically reduce imperfections, the new procedure may also bolster research into extremely hard materials and efforts to develop **ultra-dense computer memory**.

Crystals in Nanofocus, **August 31, 2004:**

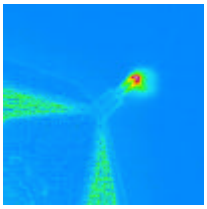


Max Planck Scientists strike new paths in nanoanalysis and data storage with infrared light

Scientists of the Nano-Photonics Group at the Max Planck Institute of Biochemistry have **developed a new infrared-optical nanotechnology based on the excitation of lattice vibrations in polar crystals (phonons)**. The technology, called "phonon photonics", opens up entirely new applications of infrared light: non-destructive chemical and structural analysis of crystals at a resolution better than 1/10000 mm, infrared data storage providing storage densities better than DVD, nanoscopic infrared-sensors or waveguides and switches for the development of future infrared-optical supercomputers. The physicists in Martinsried present their initial studies on silicon carbide crystals in the latest issue of NATURE MATERIALS (Nature Materials, September 2004, published online 1 August 2004).

Nanotoxicology - new branch of learning, **August 30, 2004:** Nanotechnology, the 'science of small things' is set to bring huge advantages in engineering, electronics, medicine and IT-- but the **potential threats to health** that widespread use of nanoparticles could bring need to be scrutinised, says a University of Edinburgh expert in this month's edition of Occupational and Environmental Medicine.

Improved Method for Nanometer-Scale Patterns Writing, **August 30, 2004:**



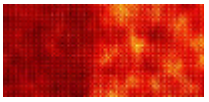
Researchers from the Georgia Institute of Technology and the Naval Research Laboratory (NRL) have developed an improved method for **directly writing nanometer-scale patterns onto a variety of surfaces.** The new writing method, dubbed "thermal dip pen nanolithography," represents **an important extension for dip pen nanolithography (DPN)**, an increasingly popular technique that uses atomic force microscopy (AFM) probes as pens to produce nanometer-scale patterns.

Albany NanoTech Pioneers 193nm Immersion Lithography R&D with ASML, IBM, TEL, AMD and Infineon, **August 26, 2004:**
Albany NanoTech of the University at Albany-State University of New York announced today that its College for Nanoscale Science and Engineering (CSNE) has installed and begun qualifying for 300mm wafers using the world's first 193nm pre-production immersion lithography system.

NanoDynamics Carbon Nanotube Patent: New Processing Method Advances Potential for Commercial Success of Carbon Nanotubes, **August 25, 2004:**
NanoDynamics, a leading nanotechnology organization and manufacturer of superior nanomaterials, announced today it has received a United States Patent, which covers the use of sol-gel processing, a well established methodology commonly used in the ceramics industry, in the production of a variety of useful end products comprised of carbon nanotubes.

The process methodology covered by the NanoDynamics' patent can result in two and three dimensionally ordered arrays of single wall carbon nanotubes, making them much more useful in the production of a wide range of end products. Potential end products include **flat-screen TVs, airplane fuselage structures, water filtration systems, composite panels for automobiles, thermal interfaces for integrated circuits, advanced battery systems and biotech applications such as synthetic membranes and skins**.

INC is the First to Combine Thin Films and Nanotechnology in PV Nanofilms, **August 24, 2004:**
GEMZ Corp., announced today that its subsidiary, International Nanotechnology Corp. (INC) will sample its first consumer product in the fourth quarter of 2004.

New Nanotechnology Discovery Controls Electronic Properties of High-K Oxides, **August 24, 2004:**

Time is fast running out for the semiconductor industry as transistors become ever smaller and their insulating layers of silicon dioxide, already only atoms in thickness, reach maximum shrinkage. In addition, the thinner the silicon layer becomes, the greater the amount of chemical dopants that must be used to maintain electrical contact. And the limit here also is close to being reached.

But a Cornell University researcher has caused an information industry buzz with the discovery that it is **possible to precisely control the electronic properties of a complex oxide material -- a possible replacement for silicon insulators -- at the atomic level**. And this can be done without chemicals. Instead, the dopant is precisely nothing.

In a paper in a recent issue of *Nature* (Aug. 5, 2004), David Muller, associate professor of applied and engineering physics at Cornell, and his collaborator, Harold Hwang of the University of Tokyo, report that by **removing oxygen atoms from layers in thin films of the oxide strontium titanate, they can precisely control the conducting ability of the material by creating empty spaces, or vacancies, that act as electron-donating dopants**. And they have used a scanning transmission electron microscope (STEM) to tell exactly where the missing atoms are in the material.

Energy Technology researchers solve energy and medical problems, **August 23, 2004:**
Argonne's Energy Technology Division (ET) provides **innovative materials and**

engineering solutions to national energy challenges that range from energy production and conservation to transportation. Researchers also find creative ways to re-use and extend the value of their discoveries.

The division's innovation has been recognized in the past two years by three R&D 100 Awards, given annually by R&D Magazine to the world's "100 most technologically significant new products."

Nanocoatings Can Save Energy, Costs, **August 23, 2004:** Argonne's Energy Technology Division (ET) provides innovative materials and engineering solutions to national energy challenges that range from energy production and conservation to transportation.

In 2003, nanostructured carbide-derived carbon (CDC) technology for sliding and rotating equipment received an R&D 100 award. CDC is grown with graphite, diamond, amorphous carbon and carbon "nano-onions" -- small carbon structures with concentric rings, resembling an onion. These components vary from 2 to 10 nanometers in thickness (one nanometer is one-billionth of a meter).

Bibliografía

http://www.quesabesde.com/camdig/noticias_detalle.asp?noticia=436
http://www.xlwebmasters.com/doc3.php?id=922&op=tecnologia&ap=
http://www.blu-ray.com/info/