



DISC Blu-ray Technology

A Safe Investment for the Future

Blu-ray Standard

Blu-ray is the next generation optical disc format for high definition video and high density data storage, the form factor of drive and media is identical to the CD/DVD formats. The Blu-ray standard was jointly developed by a group of consumer electronics and PC companies, the Blu-ray Disc Association. Compared to the DVD format the Blu-ray Disc has a 5 times higher density per recording layer. For the initial product release 2 layers are included. 4 and 8 layer versions which equals a max. medium capacity of 200GB are planned by 2008.

Blu-ray drives and media are manufactured by major manufacturers in the optical storage market providing a competitive and multi vendor product offering. The Blu-ray consortium is an open industrial consortium.



Blu-ray Library Technology

For professional archive systems Blu-ray drives and media are used in an automated system which allows random access to large storage capacities. With the 50GB technology the DISC library family has a capacity range from 1TB to 35TB. Data is stored on standard Blu-ray media written in standard UDF format which is compatible with all major operating systems. DISC Blu-ray libraries are read/write compatible with CD- and DVD media.

DISC libraries support offline media management and the smallest footprint per capacity in the industry. Libraries are rack mountable. File systems for DISC libraries support any application and are available with NAS and direct attach (LVD) interface, iSCSI and F/C channel connectivity are further options. The file systems support advanced caching algorithms and media management.

DISC libraries provide highly reliable and permanent mass storage. Usage of standardized drive and media technology from major hardware suppliers ensures competitive and long term technology support.

Blu-ray Drive Technology

First generation Blu-ray drives are PC-type and support single- and dual layer media Blu-ray media with 25 and 50GB capacity, they are read/write compatible with CD- and DVD technologies. Future drive generations will support 100GB and 200GB Blu-ray media and still CD&DVD. Writeable Blu-ray media are sector based and apply defect management as well as advanced error correction. Read/Write transfer rate in the first generation Blu-ray drives is 9MB/s (= 2x Blu-ray speed), the road map includes 18MB/s and 36MB/s transfer rates. Media types ROM, R and Re are supported.

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Blu-ray Media

A Guarantee for your Data

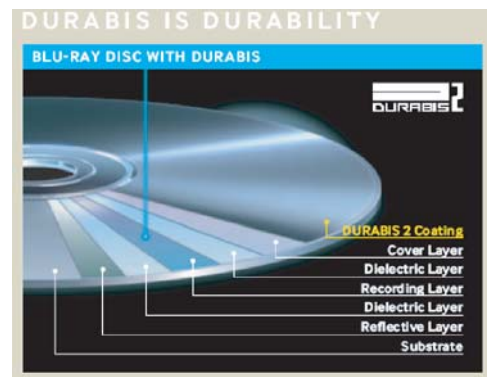


Blu-ray Discs are a major technology step for the optical storage technology. With the market introduction in 2006 the 25GB and 50GB media versions are available in write-once and rewritable format. The Blu-ray laser spot is approximately 80% smaller compared to DVD.

Besides the high data density, the other major technology step for the Blu-ray media is the hard coating which protects the media surface against scratches and contaminants. The example above shows the Blu-ray media layout for TDK media with the Durabis hardcoat:

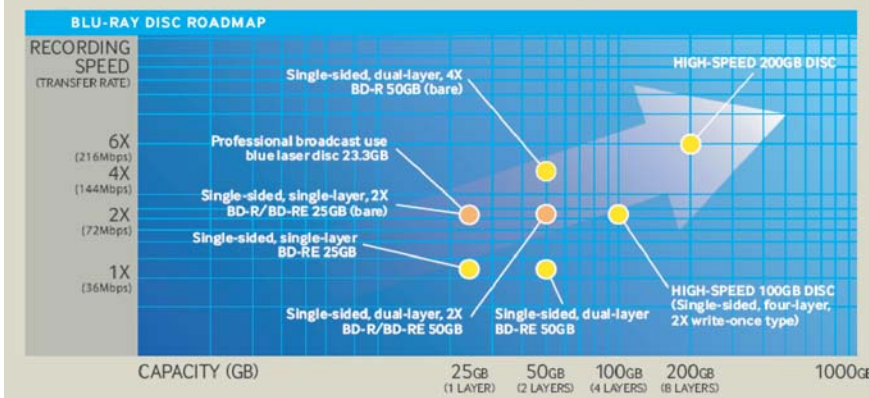
While at market introduction of Blu-ray drives the 25GB and 50GB media are supported, the media roadmap has capacity increases to 100GB and 200GB capacity. All capacities are available with single side media. The increase is achieved by adding recording layers of 25GB capacity each with a total of 8 recording layers for 200GB media. The media roadmap includes support for significant increases in read/write transfer rates up to 27MB/s, a new performance level for optical media.

Blu-ray media provides the opportunity for very economical and secure mass storage with support of all major media vendors. The hard coat media allows eliminating the cartridge used and needed for other optical technologies, adding further to the cost advantages of the Blu-ray technology.



Specifications	BD-R		BD-RE	
	25GB	25GB	25GB	25GB
Type	Write-Once	Write-Once	Rewritable	Rewritable
Layers	Single	Double	Single	Double
Disc Diameter	120mm	120mm	120mm	120mm
Disc Thickness	1.2mm	1.2mm	1.2mm	1.2mm
Laser Wavelength	405nm	405nm	405nm	405nm
Recording Speed	2x(72Mbps)	2x(72Mbps)	2x(72Mbps)	2x(72Mbps)
Hard Coating	Durabis 2	Durabis 2	Durabis 2	Durabis 2

DEFINING THE FUTURE OF RECORDING



Advantages of DISC Blu-ray bare media Technology:

- Blu-ray by design is hardcoat bare media
- Very high scratch resistance
- Conductive surface
- Reduces dust/contamination adherence
- Liquid repellent
- High temperature/humidity resistance
- Bare media/hardcoat implicates cost reduction
- Bare media allows small footprint drive/library design
- Library is 3x smaller compared to 130 mm cartridge library with same capacity

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