

Sony Begins Sales of Key Components of Blu-Ray Disc Recorder

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Sony today announced the sales of samples of key components corresponding to Blu-ray Disc (hereafter BD) standards. Beginning early part of December this year, samples of the following key components for BD player/recorders, including optical heads and optical related semiconductor devices will be available, thus offering opportunities for manufactures to develop BD related products, as well as supporting to expand the overall BD market.

"Sony has a long history of innovating new technologies that become the industry standard, and with today's announcement, we are confident in the continuation of that tradition," said Dr. Osamu Kumagai of Sony's Device Solutions Company at Microsystems Network Company. "By making available to the industry the key components and technologies of Blu-ray Disc recorder, drive and other BD related products, we expect the Blu-ray Disc market to expand, and thus our consumers will enjoy,



record and experience High Definition contents".

The current maximum capacity for the BD format is 27GB/54GB (one side, single layer and single side, double layer, respectively). The discs are capable of storing Digital High Definition broadcast content for a maximum of 2 hours and 15 minutes/4 hours and 30 minutes, without any compression. Additionally, they are capable of storing full-length feature films, while maintaining the high-quality, utilizing the large storing capacity.

Sony was the first to commercialize a Blu-ray Disc player in April 2003. Since then, Sony has been rapidly developing new products and technologies, including the hybrid-type three wave optical pick-up component for recording and playback of CD, DVD and BD format discs (announced in May 2004); and development and commercialization of BD-ROM* manufacturing equipment (announced in August 2004). Sony is therefore supporting BD standards from various angles.

The physical format of BD-ROM Standards has been established in August 2004.

The announced BD compatible recording/playback optical head, which is composed of blue-violet 405nm laser diode and optical related parts, can be considered as the 'heart' of BD recorder which is capable of writing and reading of data to and from a disc. In addition, the other semiconductor devices are LSIs which control the recording/playback optical head and enables appropriate signal transformation for recording and playback of the disc. By combining the optical head with these LSIs, it facilitates manufactures to develop BD related products.

Main Features

BD Recordable Optical Pick-Up Head [KES-200A]





Compliant with BD standard, this optical head device has a 405nm blueviolet semiconductor laser diode, lens and driving LSIs. It enables precise focusing on the recording side, 0.1mm from the surface of the disc, thus achieving large scale and high density recording/playback. It also conforms to the double-layer recording specification that achieves maximum recording/playback of 50GB.

BD Photodetector IC [CXA2700EM]



This is an IC with BD accepting element incorporated as well as with highly sensitive photo-diode and low noise amplifier corresponding to blue-violet laser. It detects the beam reflected from the disc, originally coming from the semiconductor laser diode, with high sensitivity, and it reads the signals which are the source of images and sounds. This device is already implemented in the recording/playback optical head, KES-200A.



BD Laser diode driver IC [CXA2691ER]



This is a blue-violet semiconductor laser diode driving IC with an implemented write-strategy synthesis circuitry for functions such as controlling the driving of the semiconductor laser with wavelength pulse corresponding to BD standards. This device is already implemented in the recording/playback optical head, KES-200A.

Front End Signal Processing LSI [CXA2686R]

This is an analog front-end signal processing LSI with A/D transformation circuitry and Servo matrix circuitry implemented. The A/D transformation circuitry enables analog signal from the blue-violet laser detection IC to be converted into a digital signal, and the Servo matrix circuitry enables production of the controlling signal to accurately trace the signal of the disc onto the optical head.

BD Digital Signal Encoder/Decoder LSI [CXD9807GG]





When an error data is created at recording/playback timing, it adds error correction signals when recording and at playback, it comes with error correction circuitry. The LSI is capable of dealing with various data processing for recording/playback.

BD Recorder Block Diagram (drive portion) and the positioning of each device



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