



InPhase Technologies

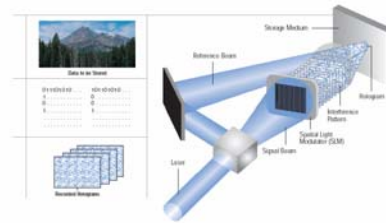
What is Holographic Storage?

Holography breaks through the density limits of conventional storage by going beyond recording only on the surface, to recording through the full depth of the medium. Unlike other technologies that record one data bit at a time, holography records and reads over a million bits of data with a single flash of light. This enables transfer rates significantly higher than current optical storage devices. Combining high storage densities, fast transfer rates, with durable, reliable, low cost media, make holography poised to become a compelling choice for next-generation storage and content distribution needs.

In addition, the flexibility of the technology allows for the development of a wide variety of holographic storage products that range from handheld devices for consumers to storage products for the enterprise. Imagine having 50 hours of high definition video on a single disk, 50,000 songs on a postage stamp, or 500,000 x-rays on a credit card. Holographic storage makes it all possible.

Recording data

Light from a single laser beam is split into two beams, the signal beam (which carries the data) and the reference beam. The hologram is formed where these two beams intersect in the recording medium. The process for encoding data onto the signal beam is accomplished by a device called a spatial light modulator (SLM). The SLM translates the electronic data of 0's and 1's into an optical "checkerboard" pattern of light and dark pixels. The data are arranged in an array or page of over one million bits. The exact number of bits is determined by the pixel count of the SLM.



At the point where the reference beam and the data carrying signal beam intersect, the hologram is recorded in the light sensitive storage medium. A chemical reaction occurs causing the hologram stored. By varying the reference beam angle or media position hundreds of unique holograms are recorded in the same volume of material.

Reading data

In order to read the data, the reference beam deflects off the hologram thus reconstructing the stored information. This hologram is then projected onto a detector that reads the entire data page of over one million bits at once. This parallel read out of data provides holography with its fast transfer rates.

