Cd-Rom Encyclopedia Article

Cd-Rom

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CD-ROM is an abbreviation of Compact Disk-Read Only **Memory**. A CD-ROM is a type of optical disk, a storage surface to which **data** is written to and read by using a laser, which can store large amounts of data--usually up to 1GB. A single CD-ROM has the storage capacity of 700 floppy disks, enough memory to store about 300,000 pages of text.

CD-ROMs utilize thin glass disks that are 10 inches in diameter. Each disk consists of three layers: a backing layer of polycarbonate plastic, a thin middle layer of aluminum, and an outer coat of an even layer of a polymer that is termed a photoresist or photoresistant layer. The polymer can become soluble when exposed to blue or violet laser light. The selective focusing of the laser on areas of the disks creates depressions, or pits. The pattern of the pits is used to convey data (e.g., the intended information transfer).

To store or read data, the laser of a CD player is scanned along the spiral path of pits, beginning from the centre of the disk and moving outward to end at the outer edge. When the laser passes to the bottom of each pit and is reflected back out by the glass substrate, the frequency of the light is changed in frequency, as compared to light that reflects back from a non-pitted area. This difference can be detected and converted to electrical pulses by a photo-electrical cell in the CD-player.

Like audio CDs, many CD-ROMs come with data already on them. Many computer programs are now supplied by the vendor on CDs. This data is permanent and can be read an infinite number of times. But CD-ROMs cannot be modified. A variant of a CD-ROM is a WORM, which stands for write-once, read-many. Data can be written onto a WORM disk once. Henceforth, the WORM disk behaves the same as a CD-ROM disk. Truly erasable disks exist--these so-called erasable optical (EO) disks are not compatible with CD-ROM systems and require their own type of drive and disk.