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LS-120 Technology

A white paper provided by Imation and Compaq

What is LS-120 Technology?

Laser Servo 120 MB Technology, commonly called LS-120 technology, is an enhancement of diskette technology. It sets new standards in diskette performance and functionality, providing 120 MB of usable (formatted) capacity in a design that is both familiar and easy to use.

LS-120 technology storage systems consist of a drive, diskettes and accompanying firmware and interfaces. LS-120 diskettes are the same size and shape as conventional 3.5" diskettes, and LS-120 drives are backward-compatible with existing IBM-formatted HD (1.44 MB) and DD (720 KB) and Macintosh-formatted HD (1.4 MB) diskettes. LS-120 diskettes and drives use advanced technology to offer significant improvements in both capacity and speed over today's standard HD diskette technology.

How does LS-120 technology work?

In many ways, LS-120 technology works like conventional diskette technology, storing data in magnetic tracks on the diskette. As its name implies, however, LS-120 technology uses a laser to read servo tracks on the diskette. During manufacture, a unique, precise servo pattern is permanently laser-etched into the media of LS-120 diskettes. When an LS-120 diskette is inserted into an LS-120 drive, the drive's optical sensor emits a laser beam that locates the optical servo tracks, and uses this information to position the read/write head. Because of this extremely precise positioning, LS-120 technology can read and write 2490 data tracks per inch, compared with just 135 tracks per inch for conventional HD diskettes.

LS-120 drives feature a dual-gap head that allows them to read and write LS-120 diskettes as well as conventional 3.5" HD

and DD diskettes. The drive also spins at a higher speed than conventional diskette technology, providing faster access to data and up to five times faster data transfer.

To support high data density, LS-120 diskettes use higher-coercivity metal particle (MP) pigment and advanced dual-layer coating technology. To ensure consistent head-to-tape contact, the magnetic media is coated onto a thin (.0025 inch, compared with .003 inches for conventional HD diskettes) polyethylene terephthalate (PET) substrate. LS-120 diskettes also feature precision-engineered components, such as the metal shutter and hub, for greater reliability. Protection for the media is provided by the sturdy molded ABS plastic shell. All LS-120 diskettes are factory formatted to save user time and ensure consistent formatting for data exchange.



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How does LS-120 technology compare to today's HD diskette standard?

Basically, LS-120 technology is the next step in diskette storage. It offers higher capacity, faster data transfer and backward-compatibility, making it the logical choice for personal high-capacity removable storage.

Specifications	LS-120	Standard HD
Formatted Capacity	120 MB	1.44 MB
Transfer Rate (max. sustained)	565 KB/sec	62 KB/sec
Average Seek Time	70 msec	84 msec
Track Density	2490 tpi	135 tpi
Number of Tracks	1736 x 2 sides	80 x 2 sides
Disk Rotational Speed	720 rpm	300 rpm
Power Consumption	+5V, 1.5W	+5V, 1.2W

How can a user identify LS-120 drives and diskettes?

All LS-120 drives and diskettes display the circle-pyramid logo that identifies laser servo technology.

Also, the write-protect tab on LS-120 diskettes is located on the opposite side from conventional diskettes, to help differentiate the product and protect the user's data. For example, if an LS-120 diskette is accidentally inserted into a conventional 3.5" diskette drive, the drive will sense the diskette as "write-protected" and will not write to it. Additionally, 3M brand LS-120 diskettes from Imation have a unique design, featuring a golden-colored shutter and hub.



Does LS-120 technology have industry support?

Yes. LS-120 technology is a joint development of industry leaders Imation, formerly a 3M Company, Compaq and MKE, and O.R. Technology. Other OEMs are currently evaluating the technology.

Does LS-120 technology have a planned migration path?

Yes. The LS-120 technology platform has the potential for providing even higher capacities in the same form factor.



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Oakdale, MN 55128-3414
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