Hitachi's New 15K RPM Enterprise Hard Drive

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Hitachi Global Storage Technologies today announced that it has begun shipping Ultrastar 15K147 hard drives with Serial Attached SCSI (SAS) and 4 Gb/s Fibre Channel (4GFC) interfaces. SAS is a next-generation serial interface designed to extend the capabilities of today's parallel SCSI drives and provide users with improved performance, system design flexibility and product reliability. Hitachi will be first in the industry to ship 4GFC drives, which are expected to benefit enterprise server and storage customers who require the fastest, most reliable hard drives available today.

The Ultrastar 15K147 is Hitachi's highest-performer, delivering average seek times as fast as 3.3 ms, average latency of 2 ms and as much as 33 percent more I/Os per second compared to 10,000 RPM products. The Ultrastar's performance characteristics allow customers to access their data more quickly and efficiently. The drive is ideally suited for use in mission-critical enterprise computing environments, such as online transaction processing, data analysis and other multi-user applications.

The new drives are available in 36, 73 and 147 GB capacities and feature large, 16 MB cache sizes to minimize command overhead and improve average read/write response times. Hitachi will continue to offer the Ultrastar 15K147 with Ultra320 SCSI for customers using parallel-based storage systems.

Enterprise Interface Breakthroughs

A key benefit of SAS is that it can coexist with Serial ATA (SATA) within a single storage enclosure, using common backplanes, connectors and cabling. This will enable IT managers to deploy systems that use a combination of SAS drives to provide the highest levels of system performance and SATA drives as a low-cost-per-gigabyte solution for nearline storage, disk-to-disk backup and other low-I/O applications. This allows for a great deal of flexibility in designing disk arrays and other storage systems that provide exactly what the application requires for the least cost and maximum return on investment.

SAS supports data transfer rates of up to 3 Gb/s and full duplex, point-to-point connections so that each drive has a dedicated connection to the host. While parallel SCSI limited users to 15 drives per controller, SAS architecture supports up to 16,384 connections for much greater scalability.

4GFC hard drives have been designed for use in storage area networking, file sharing, workgroup and scientific/engineering environments. The interface standard allows for a data transfer rate of up to 400 MB/s half-duplex and up to 800 MB/s full-duplex, per port. The higher performance 4GFC interface is fully backward compatible with 2 Gb/s and 1 Gb/s hardware and has all of the same robust enterprise features as its predecessors, at twice the data transfer rate performance.

"Hitachi has been at the forefront of SAS and 4 Gb/s Fibre Channel development and has been testing and demonstrating prototype drives at numerous industry events in the past year," said Manjeshwar Bhat, general manager , Enterprise HDD Business Unit, Hitachi Global Storage Technologies. "Hitachi has completed extensive interoperability testing with critical system component suppliers to help ensure a smooth technology transition, with streamlined product qualifications and overall customer satisfaction."

The Ultrastar 15K147 is built on a mature design platform to ensure greater reliability. Several Ultrastar 15K147 design attributes combine to protect customer data, including Rotational Vibration Safeguard (RVS) technology. RVS is used to protect drive performance in high rotational vibration environments, primarily in multi-drive configurations. Fluid dynamic bearing (FDB) motors deliver a low acoustic rating and improved data integrity. Hitachi also offers the only 3.5-inch enterprise-class hard drive utilizing a head load/unload ramp, which minimizes integration induced drive damage.

Hitachi's Ultrastar 15K147 drives meet the Restriction of Hazardous Substances (RoHS) compliance directive recently issued by the European Union (EU). The EU directive requires electronics manufacturers to significantly reduce lead and other selected content from their products by August 2006. Hitachi recently announced that all Hitachi hard drive products introduced in 2005 and beyond will be RoHS compliant.

Hitachi will begin shipping Ultrastar 15K147 drives with SAS and 4GFC interfaces this month and will be in full volume production by the end of July.

Technical Specifications Ultrastar 15K147

-- 147 / 73 / 36 GB (GB equals one billion bytes when referring to hard drive capacity; accessible capacity may be less)
-- 1" in height
-- 15,000 rpm
-- 61.7 billion bits per square inch maximum areal density
-- 5 / 3 / 2 glass disk platter(s)
-- 10 / 5 / 3 GMR recording head(s)
-- 250 G/ 2 ms non-operating shock,
-- 15 G/ 11 ms operating shock

-- 2 ms average latency

-- 3.7 / 3.6 / 3.3 ms average seek time

-- 1,129 Mb/s maximum internal transfer rate

-- 93.3 MB/s maximum sustained data transfer rate

-- Ultra 320 SCSI, SAS and 4GFC

-- 758 / 741/ 736 weight in grams

-- 3.5 Bels typical idle acoustics

-- 4.6 Bels typical operating acoustics

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