

Ultrastar™ 15K450

3.5-INCH ENTERPRISE HARD DISK DRIVES

HITACHI
Inspire the Next

Ultimate performance and reliability for mission-critical 24x7 applications

Highlights

- > Up to 450GB¹ capacity
- > Large 16MB cache size minimizes command overhead
- > Serial Attached SCSI or Fibre Channel interfaces for configuration flexibility
- > Proven perpendicular magnetic recording technology
- > Mature design ensures greater reliability and faster qualification time

Applications/Environments

- > Online transaction processing
- > RAID
- > Storage Area Network (SAN)
- > Network Attached Storage (NAS)
- > Scientific engineering and data analysis



450GB and 300GB | 15,000 RPM
SAS 3Gb/s and FCAL 4Gb/s

Features and Benefits

	Feature / Function	Benefits
Performance	15,000 RPM	Reduced latency for faster access to data
	16MB cache buffer	Optimizes read/write response times
	Rotational Vibration Safeguard (RVS)	Maintains drive performance in high rotational vibration environments and multi-drive systems
	Workload detector technology	Maximizes performance in RAID environments
Reliability	Advanced PMR heads and media	Excellent soft error rate for improved reliability and performance
	End-to-end data protection (ANSI)	Enhanced error detection for optimal data integrity
	TMR head technology	Highly reliable design for high-density storage
	Thermal Fly-height Control (TFC) and adaptive formatting	Better soft error rate for improved reliability and performance
	Head load/unload ramp	Minimizes handling damage during integration
	Fluid Dynamic Bearing (FDB) motor	Improved acoustics and proven reliability
Capacity	450GB and 300GB	Maximum storage in a minimum space
Interfaces	SAS 3Gb/s FCAL 4Gb/s	Ease of integration and configuration flexibility

Ultimate performance meets high capacity

Hitachi's next-generation 3.5-inch 15,000 RPM enterprise class hard drive delivers the performance and reliability required in mission-critical non-stop computing environments. Built upon the mature system architecture and electronics of the prior generation, the Ultrastar™ 15K450 provides spacious capacity up to 450GB, 16MB cache and a choice of Serial Attached SCSI (SAS) 3Gb/s or Fibre Channel Arbitrated Loop (FCAL) 4Gb/s interfaces. These features make the Ultrastar 15K450 the ideal solution for demanding enterprise computing environments like online transaction processing, intensive data analysis and multi-user applications. The mature design of Ultrastar 15K450 helps ensure shorter qualification time.

Highest reliability for demanding environments

Important reliability features come standard in the Ultrastar 15K450. Rotational Vibration Safeguard (RVS) technology ensures drive performance in multi-drive systems where rotational vibration is likely to occur. Hitachi-patented Thermal Fly-height Control (TFC) technology maintains a consistent fly-height during the read/write process ensuring a better soft error rate, while end-to-end data protection enhances error detection for optimal data integrity. Finally, Hitachi offers the only enterprise-class hard drive utilizing a head load/unload ramp to help minimize drive failures as a result of handling during integration.

Proven PMR technology

The Ultrastar 15K450 is the first enterprise-class drive from Hitachi to use Perpendicular Magnetic Recording (PMR) technology. PMR has already been in use across the company's mobile and desktop product lines and has been proven ready for the demanding mission-critical server and storage applications in the enterprise environment.

Specifications

Model(s)	HUS154545VLS300 HUS154530VLS300	HUS154545VLF400 HUS154530VLF400
Configuration		
Interface	SAS 3Gb/s	FCAL 4Gb/s
Capacity (GB) ¹	450 / 300	←
Sector size (variable, Bytes/sector)	512-528 (4 byte incr.)	512-528 (8 byte incr.)
Recording zones	23 / 18	←
Data heads (physical)	8	←
Data disks	4	←
Max. areal density (Gbits/sq. in.)	183 / 137	←
Performance		
Data buffer (MB) ²	16	←
Rotational speed (RPM)	15,000	←
Latency average (ms)	2.0	←
Media transfer rate (Mbits/sec, max)	2090 / 1897	←
Interface transfer rate (MB/sec, max)	300	425
Sustained transfer rate (MB/sec, typ.)	160-100 (zone 0-22) / 135-98 (zone 0-17)	←
Seek time (read, ms, typical) ³	3.6	←
Reliability		
Error rate (non-recoverable, bits read)	1 in 10 ¹⁶	←
Start/stops	50,000	←
Availability (hrs/day x days/wk)	24x7	←
Acoustics		
Idle (Bels)	3.7	←
Power		
Requirement	+5 VDC (+/-5%) +12 VDC (+/-5%)	←
Operating (W, typical)	16.8 / 16.7	17.1 / 17.2
Idle (W)	12.4 / 12.5	12.7
Power consump. efficiency index (W/GB)	0.03 / 0.04	←
Physical size		
z-height (mm)	25.8	←
Dimensions (width x depth, mm)	101.6 x 146.2	←
Weight (g, max.)	750	←
Environmental (operating)		
Ambient temperature	5° to 55° C	←
Shock (half-sine wave)	30G (2ms)	←
Vibration, random (G RMS 5 to 500 Hz)	1.2, all axes	←
Environmental (non-operating)		
Ambient temperature	-40° to 70° C	←
Shock (half-sine wave)	250G (2ms)	←
Vibration, random (G RMS 5 to 500 Hz)	1.04, all axes	←

¹ One GB is equal to one billion bytes when referring to hard drive capacity. Accessible capacity may be less.

² Portion of buffer capacity used for drive firmware

³ Excludes command overhead

Hitachi quality and service

Ultrastar 15K450 extends the company's long-standing tradition of performance and reliability leadership. A balanced combination of new and proven technologies enables high reliability and availability to customer data. Ultrastar product quality, performance, world class technical support and service provides customers with a lower total cost of ownership over previous generations.

Hitachi drives are backed by an array of technical support and services, which may include customer and integration assistance. Hitachi is dedicated to providing a breadth of hard disk drive solutions to satisfy all of today's demanding computing needs.

How to read the Ultrastar model number

HUS154545VLF400 = 450GB, FCAL 4Gb/s
 H = Hitachi
 U = Ultrastar
 S = Standard (vs C for Compact)
 15 = 15,000 RPM
 45 = Full capacity — 450GB
 45 = Capacity this model, 45 = 450GB (30 = 300GB)
 V = Generation code
 L = 25.8mm z-height
 F4 = Interface, F4 = FCAL 4Gb/s (S3 = SAS 3Gb/s)
 0 = Reserved
 0 = Reserved

Information and Technical Support

www.hitachigst.com (Main Web site)
www.hitachigst.com/partners (Partner Web site)

North America

support_usa@hitachigst.com
 Toll free: 1 888 426-5214, Direct: 1 507 322-2370

Asia Pacific

support_ap@hitachigst.com / 65 6840 9595

EMEA and UK

support_uk@hitachigst.com / 44 20 7133 0032

Germany

support_uk@hitachigst.com / 49 6929 993601

Program Support

Partners First™ Program
channelpartners@hitachigst.com

Hitachi Global Storage Technologies trademarks are intended and authorized for use only in countries and jurisdictions in which Hitachi Global Storage Technologies has obtained the rights to use, market and advertise the brand. Contact Hitachi Global Storage Technologies for additional information. Hitachi Global Storage Technologies shall not be liable to third parties for unauthorized use of this document or unauthorized use of its trademarks.

References in this publication to Hitachi Global Storage Technologies' products, programs, or services do not imply that Hitachi Global Storage Technologies intends to make these available in all countries in which it operates.

Product specifications provided are sample specifications and do not constitute a warranty. Information is true as of the date of publication and is subject to change. Actual specifications for unique part numbers may vary. Please visit the Support section of our website, www.hitachigst.com/support, for additional information on product specifications. Photographs may show design models.

© 2009 Hitachi Global Storage Technologies

Hitachi Global Storage Technologies
 3403 Yerba Buena Road
 San Jose, CA 95135 USA

Produced in the United States 4/08, revised 6/09.
 All rights reserved.

Ultrastar™ and Partners First™ are trademarks of Hitachi Global Storage Technologies.