

# Ultrastar™ 15K600

## 3.5-INCH ENTERPRISE HARD DISK DRIVES

**HITACHI**  
Inspire the Next

The all-in-one enterprise drive delivers performance and capacity in one package

### Highlights

- > 600GB<sup>1</sup> capacity will store most everything
- > Spinning at 15,000 RPM for mission critical performance
- > FCAL & SAS interfaces for reliable data throughput
- > Advanced Power Management optimizes power consumption
- > Largest 64MB cache buffer in the industry
- > Self-encrypting models conform to TCG's Enterprise specification

### Applications/Environments

- > Business & online transaction processing
- > Internet, file sharing and email
- > Decision support & RAID
- > NAS, SAN and enterprise-class servers
- > High performance computing and other applications requiring 24x7 availability



600GB | 15,000 RPM  
6Gb/s SAS & 4Gb/s FCAL



### Features and Benefits

	Feature / Function	Benefits
<b>Return on Investment</b>	Advanced Power Management	Lowers power consumption and saves cooling cost
	Trusted Computing Group Enterprise encryption	Reduces drive retirement cost
<b>Performance</b>	15,000 RPM	High performance for mission critical applications
	64 MB 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
<b>Reliability</b>	4Gb/s FCAL & 6Gb/s SAS	Fast and reliable interfaces for enterprise-class applications
	Reverse concatenation	Improves signal processing
	Repeatable Run Out (RRO) fields	Reduction in RRO lowers risk of data squeeze and write inhibit rate
	End-to-end data protection (ANSI)	Enhances error detection for optimal data integrity
	Head load/unload ramp	Minimizes handling damage during integration
	Fluid Dynamic Bearing (FDB) Motor	Improves acoustics & proven reliability

### All-in-one storage solution

The latest addition to the Hitachi portfolio combines ultimate performance with high capacity in the same drive. The Ultrastar™ 15K600 can store up to 600GB of data while spinning at 15,000 RPM. That amounts to a capacity growth of 33% over its predecessor to keep pace with digital data growth and improve space efficiency in today's data centers. At the same time, sequential performance increased by 23% compared to prior generation to keep data moving faster. The 64MB cache buffer is the largest in the industry in its class and the 15K600 is designed for Hitachi reliability. The 6Gb/s Serial Attached SCSI (SAS) and 4Gb/s Fibre Channel Arbitrated Loop (FCAL) interfaces support the reliability required in the most demanding enterprise computing environments like on-line transaction processing, intensive data analysis, multi-user applications and data warehousing.

### Friends of the earth

Compared to its predecessor, power usage is reduced by up to 31% to help reduce the cooling requirements in data centers. In addition, Advanced Power Management feature enables multiple idle modes in order to optimize power usage and save even more on energy costs. The 15K600 also saves money because the larger capacity enables higher data storage density in the current footprint without further expansion of the data center. These eco-friendly features qualify the 15K600 for the EcoTrac classification.

### Compromise nothing

The Ultrastar 15K600 self-encrypting models conform to the Trusted Computing Group's Enterprise A Security Subsystem Class encryption specification. Now, customers can reduce costs associated with drive retirement and extend drive life by enabling repurposing of drives.

## Specifications

Model(s)	HUS156060VLS600 HUS156060VLS601 HUS156060VLF400 HUS156060VLF401	HUS156045VLS600 HUS156045VLS601 HUS156045VLF400 HUS156045VLF401	HUS156030VLS600 HUS156030VLS601 HUS156030VLF400 HUS156030VLF401
Interface	6Gb/s SAS / 4Gb/s FCAL	←	←
Capacity (GB) <sup>1</sup>	600	450	300
Data heads (physical)	8	6	4
Data Disks	4	3	2
<b>Performance</b>			
Data buffer (MB) <sup>2</sup>	64	←	←
Rotational speed (RPM)	15,000	←	←
Latency average (ms)	2.0	←	←
Interface transfer rate (MB/sec, max)	600 / 400	←	←
Sustained transfer rate (MB/sec, typ.)	198 to 119	←	←
Seek time (read, ms, typical) <sup>3</sup>	3.4	←	←
<b>Reliability</b>			
Error rate (non-recoverable, bits read)	1 in 10 <sup>16</sup>	←	←
MTBF <sup>4</sup> (M hours)	1.6	←	←
Availability (hrs/day x days/wk)	24x7	←	←
<b>Acoustics</b>			
Idle (Bels)	3.7	←	←
<b>Power</b>			
Requirement	+5 VDC (+/-5%) +12 VDC (+/-5%)	←	←
Operating, (W, typical)	16.6	14.4	13.2
Unload idle (W)	10.7	9.2	7.7
<b>Physical size</b>			
z-height (mm)	25.8	←	←
Dimensions (width x depth, mm)	101.6 x 146.2	←	←
Weight (g, max)	750	←	←
<b>Environmental (operating)</b>			
Ambient temperature	5° to 55° C	←	←
Shock (half-sine wave)	30G (2ms)	←	←
Vibration (5 to 500 Hz)	1.5G, all axes	←	←
<b>Environmental (non-operating)</b>			
Ambient temperature	-40° to 70° C	←	←
Shock (half-sine wave)	250G (2ms)	←	←
Vibration (5 to 500 Hz)	2.0G, all axes	←	←

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

<sup>2</sup> Portion of buffer capacity used for drive firmware

<sup>3</sup> Excludes command overhead

<sup>4</sup> MTBF target is based on a sample population and is estimated by statistical measurements and acceleration algorithms under median operating conditions. MTBF ratings are not intended to predict an individual drive's reliability. MTBF does not constitute a warranty.

## Hitachi quality and service

Hitachi's Ultrastar 15K600 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.

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

HUS156060VLS600 = 600GB, SAS 6Gb/s

H = Hitachi

U = Ultrastar

S = Standard (vs C for Compact)

15 = 15,000 RPM

60 = Full capacity — 600GB

60 = Capacity this model, 60 = 600GB

(45 = 450GB, 30 = 300GB)

V = Generation code

L = 25.8mm z-height

S6 = Interface, SAS 6Gb/s (F4 = FCAL 4Gb/s)

0 = Reserved

0 = Reserved (1 = TCG encryption)

## Information and Technical Support

[www.hitachigst.com](http://www.hitachigst.com) (Main Web site)

[www.hitachigst.com/partners](http://www.hitachigst.com/partners) (Partner Web site)

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## Program Support

Partners First™ Program

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The EcoTrac symbol identifies Hitachi hard drives that deliver on the principles of lower operating costs, safer product disposal and a more sustainable environment.

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