Ultrastar® He6

Key Advantages/Highlights

- World's first helium-filled hard drive
- Industry-first 6TB capacity[1] in a standard 3.5-inch form factor
- HelioSeal® process and 7Stac™ design are keys to hermetically sealed drive with higher capacity
- TCOptimized™ design delivers on key elements of data center TCO: capacity, power, cooling and storage density
- SAS & SATA 6Gb/s models for configuration flexibility
- Self-Encrypting Drive (SED) options for HDD-level data security

Applications/Environments

- High-density data centers
- Massive scale-out data centers
- Containerized data centers
- Nearline storage applications
- Bulk storage
- Enterprise and data center applications where density and capacity are paramount

Innovation for Next-generation, High-density Data Centers

HGST delivers the world's first hermetically sealed, helium hard drive, the Ultrastar® He6 for massive scale-out environments. Why does helium make a difference? Helium has only one-seventh the density of air. Replacing air with helium inside a hard drive dramatically reduces the turbulence caused by the spinning disks, cuts power consumption and results in a lower temperature within the disk drive.

The reduction in turbulence for the spinning disk allows HGST to deliver a seven-disk design in a traditional 3.5-inch form factor. In addition to being the world's first helium-filled hard drive, HGST Ultrastar He6 is also the first hard drive in the industry to offer a 6-terabyte capacity. This design provides a 50% capacity gain and still reduces the energy needed to run the drive by up to 23%.

TCOptimized™ – Driving Down Data Center TCO with Helium

The amount of data that companies need to store is growing exponentially, but IT budgets remain flat. With 6TB, a low 5.3 idle watts, a reduced weight of 640g, and running at 4-5°C cooler, the new Ultrastar He6 lowers data center total cost of ownership (TCO) on virtually every level. Key TCO benefits when compared to a typical 3.5-inch, five-platter, air-filled 4TB drive* include:

50% MORE CAPACITY*

23% LOWER IDLE POWER*

Technology Innovations Make it Happen

Through HGST's innovative and patented HelioSeal process, the Ultrastar He6 drive is the industry's first hermetically sealed helium-filled HDD that can be cost-effectively manufactured in high volume. This unique sealed-drive platform provides a path for higher capacity storage for decades to come while significantly lowering customer total cost of ownership (TCO). The inherent benefits of helium enable HGST's new 7Stac disk design with 6TB, making it the world's highest capacity HDD with the best TCO for cloud storage, massive scale-out environments, disk-to-disk backup, and replicated or RAID environments.

HGST Quality and Service

HGST's Ultrastar He6 extends the company's long-standing tradition of performance and capacity leadership. The proven drive design enables high reliability and availability to customer data. Ultrastar quality, performance and world class technical support and service provides customers with a lower total cost of ownership over previous generations.

HGST drives are backed by an array of technical support and services, which may include customer and integration assistance. HGST is dedicated to providing a complete portfolio of HDD/SSD solutions to satisfy today's monumental computing needs.

49% BETTER WATTS/TB*

30% QUIETER OPERATION*

4°C COOLER OPERATION*

50g LIGHTER WEIGHT*

Features & Benefits

Feature / Function		Benefits
Capacity	• 6TB	• Highest enterprise capacity hard drive available in an industry-standard 3.5-inch form factor
TCO	• HelioSeal Platform	• Delivers 50% higher capacity with 23% lower power, 30% quieter, 4°C cooler and 50g lighter weight
Performance	• 7200 RPM • Rotational Vibration Safeguard (RVS)	• High performance for business critical applications • Maintains drive performance in high rotational vibration environments and multi-drive systems
Reliability	• 2.5M hours MTBF[2] and 0.35% AFR[2] • Thermal Fly-height Control (TFC) with internal thermal sensor • Head load/unload • SMART command transport	• Industry's highest reliability rating for Capacity Enterprise hard drives • Better soft error rate for improved reliability and performance • Protects disk during non-operation • Adaptive error correction
Power	• Improved Watts per gigabyte (W/GB)	• 49% lower W/GB than 4TB air-filled drives
Acoustics	• 2.0 Bels (Idle)	• 30% quieter operation than 5-platter, 4TB 3.5-inch air-filled drives
Security	• Optional Bulk Data Encryption (SATA) and TCG Enterprise_A (SAS)	• Encrypt private data, providing security and easy redeployment

*MEASUREMENTS SHOWN REFLECT IMPROVEMENTS WHEN COMPARING SATA MODELS OF A 4TB ULTRASTAR 7K4000 AND 6TB ULTRASTAR HE6

Ultrastar® He6

Specifications

Model/Part No.	HUS726060ALA640 / 0F18335 HUS726060ALA641 / 0F20572	HUS726060ALS640 / 0F18370 HUS726060ALS641 / 0F20577
Configuration		
Interface	SATA 6Gb/s	SAS 6Gb/s
Capacity[1] (GB) at 512 bytes/sector	6TB	←
Form factor	3.5-inch	←
Sector size[3] (bytes)	512n	512 / 520 / 528
Max. areal density (Gbits/sq. in.)	544	←
Performance		
Data buffer[4] (MB)	64	←
Rotational speed (RPM)	7200	←
Interface transfer rate (MB/s, max)	600	←
Sustained transfer rate[5] (MB/s, typical)	177	←
Seek time[6] (read, ms, typical)	8.5	←
Reliability		
Error rate (non-recoverable, bits read)	1 in 10^{15}	←
Load/Unload cycles (at 40ºC)	600,000	←
Availability (hrs/day x days/wk)	24x7	←
MTBF[2] (M hours)	2.5	←
Annualized Failure Rate[2] (AFR)	0.35%	←
Warranty (yrs)	5	←
Acoustics		
Idle (Bels, typical)	2.0	←

Power		
Requirement	+5 VDC (+/-5%) +12VDC (+/-5%)	←
Startup current (A, max)	7.0	8.8
Read/write[7] (W)	5.0	5.5
Idle[8] (W, avg)	3.7	4.1
Physical size		
z-height (mm)	26.1	←
Dimensions (width x depth, mm)	101.6 (+/-0.25) x 147	←
Weight (g, max)	650	←
Environmental (Operating)		
Ambient temperature	5º to 60º C	←
Shock (half-sine wave 2 ms, G)	70	←
Vibration (G RMS 5 to 500 Hz)	0.67 (XYZ)	←
Environmental (Non-Operating)		
Ambient temperature	-40º to 70º C	←
Shock (half-sine wave, 1ms, G)	300	←
Random vibration (G RMS 5 to 500 Hz)	1.04 (XYZ)	←

[1] One MB is equal to one million bytes, one GB is equal to one billion bytes and one TB equals 1,000GB (one trillion bytes) when referring to hard drive capacity. Accessible capacity will vary from the stated capacity due to formatting and partitioning of the hard drive, the computer's operating system, and other factors.

[2] MTBF and AFR targets are based on a sample population and are estimated by statistical measurements and acceleration algorithms under median operating conditions. MTBF and AFR ratings do not predict an individual drive's reliability and do not constitute a warranty.

[3] 512n = 512-byte native physical sectors

[4] Portion of buffer capacity used for firmware

[5] MB/s based on 1,000,000 bytes per second

[6] Excludes command overhead

[7] SATA models: 8K Queue Depth = 1, SAS models: 4K Queue Depth = 4

[8] Idle specification is based on use of Idle_A.

How to read the Ultrastar model number

HUS726060ALA640 = 6TB, SATA 6Gb/s, 64MB buffer
H = HGST
U = Ultrastar
S = Standard
72 = 7200 RPM
60 = Full capacity — 6TB
60 = Capacity this model, 60 = 6TB
A = Generation code
L = 26.1mm z-height
A6 = Interface, SATA 6Gb/s, 512n (S6 = SAS 512n)
4 = 64MB buffer
0 = No encryption (1 = encryption)

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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.hgst.com/support, for additional information on product specifications. Photographs may show design models.

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