Data Sheet

Ultrastar® He8

3.5-Inch Helium Platform Enterprise Hard Disk Drives

Highlights

- Industry's leading 8TB capacity[1] in a standard 3.5-inch form factor
- Industry's best Idle and Active power efficiency (Watts/TB)
- Reliable, field-proven, 2nd generation HelioSeal™ process and 7Stac™ design
- Compared to 6TB air drives
  - » 33% more capacity
  - » 23% lower idle power
  - » 44% more power efficient (Watts/TB)
- SATA 6Gb/s and SAS 12Gb/s
  - » 12Gb/s SAS provides compatibility with next gen data centers
- 2M hours MTBF[2] rating & 5-year limited warranty
- Secure erase & Self-Encrypting Drive (SED) options
- Advanced format 4Kn and 512e models

Applications/Environments

- Enterprise and data center applications where capacity density and power efficiency are paramount
- Cloud & Hyperscale storage
- Massive scale-out High-density data centers (MSO)
- Distributed Files Systems like Ceph™ and Hadoop® to support Big Data Analytics
- RAID arrays
- Video surveillance & content distribution
- Ideal for all mainstream enterprise capacity applications

8TB and 6TB | 7200 RPM
SATA 6Gb/s and SAS 12Gb/s

ADVANCED 4Kn FORMAT | ADVANCED AF FORMAT | EcoTrac

HelioSeal™ Delivers Twice the Capacity Using One-Quarter Less Power

One-third more capacity and 23% lower energy consumption. Available today. That's the power of helium. Delivering the industry's leading capacity at 8TB, Ultrastar He8 is based on the widely accepted and proven HelioSeal™ platform. HelioSeal technology replaces air with helium inside the drive, reducing air turbulence and enabling 7Stac™, a seven-disk design in a traditional 3.5-inch form factor. Ultrastar He8 goes beyond what any air-based HDD can do and seamlessly integrates into virtually any mainstream enterprise environment. Cooler and quieter with industry-leading power efficiency (Watts/TB) and no-compromise performance, the Ultrastar He8 lays the foundation for future growth in massive scale-out environments.

33% more capacity*

23% lower idle power*

44% better Watts/TB*

* vs. 6TB air drives

TCOptimized™ – Increasing Storage Efficiency to Drive Down Data Center TCO

We recognize the growing pressures that data centers face. Volume is expanding, operating costs are rising while budgets remain flat. Lowering the total cost of ownership (TCO) has become the focus of data center architects. Ultrastar He8 provides the best TCO value proposition and delivers greater storage efficiency with breakthroughs in capacity, power efficiency and best-in-class performance. This latest HelioSeal hard drive achieves up to 3X higher random write performance than the prior generation , Ultrastar He6, thanks to HGST media cache architecture, a disk-based caching technology. He8 offers a 12Gb/s SAS (6Gb/s SATA) interface for easy integration into high performance data centers. New features like Rebuild Assist dramatically reduce RAID rebuild times and maintain system performance during the rebuild process. Learn more in our Rebuild Assist technical brief.

Rebuild Assist
Faster RAID recovery while maintaining system performance

Data Security with Industry-Leading Quality and Reliability

Compliance and privacy requirements drive the need for increased data security. Ultrastar He8 offers security and encryption options to protect data from unauthorized use. Instant Secure Erase (ISE) models expedite drive redeployment and retirement. Encryption models protect data with hardware-based encryption, including a Trusted Computing Group (TCG) option with FIPS 140-2 certification, Level 2. The Ultrastar He8 extends HGST's long-standing tradition of reliability leadership with a 2M-hour MTBF rating and a 5-year limited warranty. HGSTs drive reliability and security options also help lower data center TCO.

Instant Secure Erase
Swift and secure drive redeployment

Features and Benefits

	Feature / Function	Benefits
Capacity	8TB and 6TB	8TB provides 33% more capacity than 6TB drives
Power Efficiency	Industry's lowest Watts per terabyte (W/TB)	44% lower idle W/TB than 6TB air drives
Performance	Media cache architecture	Delivers up to 3X better random write performance compared to He6
	Rebuild Assist mode	Dramatically improves RAID recovery time and maintains system performance during recovery
	SATA 6Gb/s & SAS 12Gb/s	Provides compatibility with high-performance data centers
	128MB cache buffer	Improves response time and data management
	Rotational Vibration Safeguard (RVS)	Maintains drive performance in high rotational vibration environments and multi-drive systems
Reliability	2.0M hours MTBF[2]	Industry's highest reliability rating for Capacity Enterprise HDD
	5-year limited warranty	Better Industry's best for enterprise-class hard drives soft error rate for improved reliability and performance
Data Security	Instant Secure Erase	Enables swift and efficient drive redeployment and retirement
	Optional Bulk Data Encryption (SATA) and TCG Enterprise__A (SAS)	Hardware-based encryption protects data from unauthorized use

HGST
a Western Digital company

HGST Quality and Service

HGST's Ultrastar He8 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 and software solutions to help the world harness the power of data.

How to read the Ultrastar model number

HUH7280xxAL4205 = 7200 RPM, xTB, 4Kn SAS 12Gb/s, TCG with FIPS

H = HGST
U = Ultrastar
H = Helium (vs. S for Standard)
72 = 7200 RPM
80 = Full capacity — 8TB (8000GB)
xx = Capacity this model (80 = 8TB, 60 = 6TB)
A = Generation code
L = 26.1mm z-height
42 = Interface, 4Kn SAS 12Gb/s
(52 = 512e SAS 12Gb/s, E6 = 512e SATA 6Gb/s, N6 = 4Kn SATA 6Gb/s)
0 = Reserved
y = Data Security Mode
0 = Instant Secure Erase
1 = Bulk Data Encryption (SATA), TCG SED encryption (SAS)
4 = Secure Erase (overwrite only)
5 = TCG encryption with FIPS (SAS)

Information and Technical Support

www.hgst.com (Main Web site)
www.hgst.com/support (Support Web site)

Program Support

Partners First Program: channelpartners@hgst.com
www.hgst.com/partners (Partners Web site)

Specifications

Model # NOTE: See "How to read the Ultrastar model number" at left for possible values for xx and y	HUH7280xxALN60y HUH7280xxALE60y	HUH7280xxAL420y HUH7280xxAL520y
Configuration		
Interface	SATA 6Gb/s	SAS 12Gb/s
Capacity[1] (GB) at 512 bytes/sector	8TB / 6TB	←
Format[3]: Sector size (bytes)	4Kn: 4096 512e: 512	4Kn: 4096, 4112, 4160, 4224 512e: 512, 520, 528
Max. areal density (Gbits/sq. in)	664 (8TB)	←
Performance		
Data buffer[4] (MB)	128	←
Rotational speed (RPM)	7200	←
Latency average (ms)	4.16	←
Interface transfer rate (MB/s, max)	600	1200
Sustained transfer rate[5] (MiB/s, typical) (MB/s, typical)	 195 (8TB) 205 (8TB)	 ← ←
Seek time[6] (read/write, ms, typical)	8.5 / 9.0	←
Reliability		
Error rate (non-recoverable, bits read)	1 in 10^{15}	←
Load/Unload cycles (at 40° C)	600,000	←
Availability (hrs/day x days/wk)	24x7	←
MTBF[2] (M hours)	2.0	←
Warranty (yrs)	5	←
Acoustics		
Idle/Operating (Bels, typical)	2.0 / 3.6	←
Power		
Requirementy	+5 VDC, +12VDC	←
Operating[7]	7.4W	9.1W
Idle[8] (W)	5.1W	5.7W
Power consumption efficiency at Idle (Watts/TB) (Watts/GB)	 0.64 (8TB) 0.00064 (8TB)	 0.71 (8TB) 0.00071 (8TB)
Physical size		
z-height (mm, max)	26.1	←
Dimensions (width x depth, mm)	101.6 (+/-0.25) x 147	←
Weight (g, max)	650	←
Environmental (operating)		
Ambient temperature	5° to 60° C	←
Shock (half-sine wave 2 ms, G)	70	←
Vibration (G RMS, 5 to 500 Hz)	0.67 (XYZ)	←
Environmental (non-operating)		
Ambient temperature	-40° to 70° C	←
Shock (half-sine wave, 1ms, G)	300(1ms) / 150(11ms)	←
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 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.
[3] Advanced Format drive: 4K (4096-byte) physical sec
[4] Portion of buffer capacity used for drive firmware
[5] MiB/s is 2^{20} bytes, MB/s is 10^6 bytes
[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

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