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

Highlights

- Excellent random and sequential performance
- 8TB capacity point supports traditional IT systems
- Sustained transfer rate up to 255MB/s
- Choice of 12Gb/s SAS or 6Gb/s SATA
- Advanced Format 4Kn and 512e models
- Self-Encrypting Drive (TCG SAS) options
- 5-year limited warranty

Applications & Workloads

- Distributed file systems, like Apache Hadoop®, to support Big Data analytics
- Direct & Network Attached Storage (DAS & NAS)
- RAID arrays

Economics and Access Speed: Key Requirements for Low Capacity HDDs in the Data Center

As the industry evolves to develop purpose-built solutions for growing data storage requirements, IT managers continue to rely on lower capacity drives that are economical to acquire, yet deliver quick and reliable data access for traditional data center applications. Designed to handle workloads up to 550TB per year, Ultrastar® DC HC320* is an 8TB[1] HDD that helps address economic and access requirements of many traditional IT workloads. Low capacity drives also help address architecture limitations. The Ultrastar DC HC320 is designed for traditional storage and server applications as well as distributed and scalable computing, including block and file storage architectures, providing fast 7,200 RPM performance and lower acquisition cost to help ease budget constraints. Ultrastar DC HC320 is offered with either 6Gb/s SATA or 12Gb/s SAS interface in a choice of 512e or 4Kn formats.

Technology Innovation Delivers Efficiency and Performance for Traditional IT Systems

Ultrastar DC HC320 is based on a proven 5-disk air platform design that uses conventional magnetic recording (CMR) technology in a 3.5-inch large form factor. Compared to the prior generation, Ultrastar 7K6000, the DC HC320 delivers 33% more capacity, up to 12% performance boost and uses slightly larger-diameter media. It features a second-generation, dual-stage micro actuator to enhance head positioning accuracy for better drive performance. Write performance gains are also supported by Western Digital's media cache architecture, a disk-based caching technology that provides a large cache area on the disk, which also improves reliability and data integrity during unexpected power loss. Finally, the addition of flash-based non-volatile cache (NVC) on both SATA and SAS models helps improve write performance. The Ultrastar DC HC320 also includes a Rebuild Assist feature, which helps dramatically reduce RAID rebuild times and maintain system performance during the rebuild process. Learn more in our Rebuild Assist technical brief.

Data Security with Trusted Quality, Reliability

Compliance and privacy requirements drive the need for increased data security. Ultrastar DC HC320 helps protect data from unauthorized use by offering security and encryption options. SAS models offer hardware-based encryption options, including a Trusted Computing Group (TCG) Enterprise_A, TCG with FIPS 140–2 certification, Level 2. The Ultrastar DC HC320 extends Western Digital's long-standing tradition of reliability leadership with a 2M-hour MTBF[2] rating and a 5-year limited warranty.

Features & Benefits

	Feature / Function	Benefits
Capacity	• 8TB • Advanced Format	• Lower capacity point for traditional IT workloads and applications • Enables higher capacity and reliability
Performance	• Non-volatile cache (NVC) • Up to 255MB/s transfer rate	• Improved write performance and write splice protection • Up to 12% faster than Ultrastar 7K6000
Reliability	• Dual-stage Micro Actuator • 2M hours MTBF and 0.44% AFR • 5-year limited warranty	• Better head positioning and rotational vibration robustness • One of the highest reliability ratings for air-filled Capacity Enterprise HDDs

*Previously known as Ultrastar 7K8

Specifications

Configuration	SATA Models	SAS Models
Model # / Part #	HUS728T8TALE6L4 / 0B36404 HUS728T8TALN6L4 / 0B36402	HUS728T8TAL5204 / 0B36400 HUS728T8TAL4204 / 0B36399 HUS728T8TAL5201 / 0B36406 HUS728T8TAL4201 / 0B36405 HUS728T8TAL5205 / 0B36412 HUS728T8TAL4205 / 0B36411
Interface	SATA 6Gb/s	SAS 12Gb/s
Capacity[1]	8TB	←
Form Factor	3.5-inch	←
Sector size (bytes)[3]	4Kn: 4096 512e: 512	4Kn: 4096, 4104, 4160, 4224 512e: 512, 520, 528
Max. areal density (Gbits/sq. in., max)	834	←

Performance

	SATA Models	SAS Models
Data buffer (MB)[4]	256	←
Rotational speed (RPM)	7200	←
Latency average (ms)	4.16	←
Interface transfer rate (MB/s, max)	600	1200
Sustained transfer rate[5] (MiB/sec, typ.) (MB/sec, typ.)	Up to 243 Up to 255	← ←
Seek time (read/write, ms, typ.)[6]	8.0 / 8.6	←

Reliability

	SATA Models	SAS Models
Error Rate (non-recoverable bits read)	1 in 10^{15}	←
Load/Unload cycles (at 40°C)	600,000	←
MTBF[2]	2M hours	←
Annual failure rate (AFR)[2]	0.44%	←
Availability (hrs/day x days/wk)	24×7	←
Limited Warranty (yrs)	5	←

Acoustics

	SATA Models	SAS Models
Idle/Operating (Bels, typical)	2.9 / 3.6	←

Power

Requirement	+5V, +12V	←
Operating (W, typical)[7]	8.8	12.8
Idle (W)[8]	7.4	8.4

Physical

z-height (mm, max)	26.1	←
Dimensions (width x depth, mm)	101.6 (+/-0.25) x 147	←
Weight (g, max)	715	←

Environmental (operating)

Ambient Temperature	5°C to 60°C	←
Shock (half-sign wave, 2 ms, G)	70	←
Vibration (G RMS, 5 to 500 Hz)	0.67 (XYZ)	←

Environmental (non-operating)

Ambient Temperature	-40°C to 70°C	←
Shock (half-sign wave, 2 ms, G)	300	←
Vibration (G RMS, 2 to 200 Hz)	1.04 (XYZ)	←

How to Read Model Number

HUS728T8TALE6L4 – 8TB SATA 6Gb/s 512e with Legacy Pin 3 config

H = Western Digital
U = Ultrastar
S = Standard
72 = 7200 RPM
8T = Max capacity in series (8TB)
8T = Capacity of this model (8TB)
A = Generation code
L = 26.1mm z-height
E6 = Interface (512e SATA 6Gb/s)
    N6 = 4Kn SATA 6Gb/s
    42 = 4Kn SAS 12Gb/s, 52 = 512e SAS 12Gb/s)

L = Power Disable Pin 3 status
    (0 = Power Disable Pin 3 support
    L = Legacy Pin 3 config – No Power
    Disable Support)
4 = Data Security Mode
    1 = TCG Encryption (SAS)
    4 = Secure Erase (overwrite only)
    5 = TCG Encryption with FIPS (SAS)

[1] One gigabyte (GB) is equal to 1,000,000,000 bytes (one billion bytes) and one terabyte (TB) is equal to 1,000GB (one trillion bytes) when referring to storage capacity. Accessible capacity will vary from the stated capacity due to formatting and partitioning of the drive, a computers' operating system, and other factors.

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

[3] Advanced Format drive: 4K (4096-byte) physical sec

[4] Portion of buffer capacity used for drive firmware

[5] Projected performance. Actual performance may vary. 1MiB = 1,048,576 bytes (2^{20}), 1MB = 1,000,000 bytes (10^6)

[6] Excludes command overhead

[7] SATA models: 8K Queue Depth = 1 @ 40 IOPS, SAS models: 4K Queue Depth = 4 @ Max IOPS

[8] Idle specification is based on use of Idle_A

Western Digital.