



6TB and 4TB | 7200 RPM | 12Gb/s SAS or 6Gb/s SATA

## 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. Ultrastar® DC HC310\* is a low-capacity HDD, with 6TB and 4TB offerings, that helps address economic and access requirements of many traditional IT workloads. Low capacity drives also help address architecture limitations. Part of our mid-capacity DC HC300 series, the Ultrastar DC HC310 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 HC310 is offered with either 6Gb/s SATA or 12Gb/s SAS interface in a 512e format. A 512n option is also available on 4TB models to support legacy systems with native 512-byte block sizes.

## Technology Innovation Delivers Efficiency and Performance for Traditional and Legacy Systems

Ultrastar DC HC310 is based on a new 4-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 HC310 delivers a 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 HC310 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 HC310 helps protect data from unauthorized use by offering security and encryption options. Both SAS and SATA models offer hardware-based encryption options, which includes both Sanitize Crypto Scramble / Erase functionality and TCG encryption (Trusted Computing Group, Enterprise SSC). Additionally, SAS SED is also offered as a FIPS 140-2 Level 2 certified model. The Ultrastar DC HC310 extends Western Digital's long-standing tradition of reliability leadership with a 2M-hour MTBF<sup>2</sup> rating and a 5-year limited warranty.

### Highlights

- Excellent random and sequential performance
- 6TB and 4TB capacity points support traditional IT systems
- Sustained transfer rate up to 255MB/s (512e/4Kn models); 233MB/s (512n models)
- Choice of 12Gb/s SAS or 6Gb/s SATA
- Advanced Format 512e<sup>9</sup> models up to 6TB; 512n formatting available on 4TB to support legacy systems
- Self-Encrypting Drive 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
- Legacy applications requiring 512n format (4TB)

### Features & Benefits

	Feature / Function	Benefits
Capacity	<ul style="list-style-type: none"> <li>• 6TB &amp; 4TB</li> <li>• Advanced Format up to 6TB</li> <li>• 512n format available on 4TB</li> </ul>	<ul style="list-style-type: none"> <li>• Lower capacity points needed for traditional IT workloads and applications</li> <li>• Enables higher capacities and reliability</li> <li>• Compatibility with legacy systems</li> </ul>
Performance	<ul style="list-style-type: none"> <li>• Non-volatile cache (NVC)</li> <li>• Up to 255MB/s transfer rate (512e/4Kn); 233MB/s transfer rate (512n)</li> </ul>	<ul style="list-style-type: none"> <li>• Improved write performance and write splice protection</li> <li>• 12% faster than prior generation</li> </ul>
Reliability	<ul style="list-style-type: none"> <li>• Dual-stage Micro Actuator</li> <li>• 2M hours MTBF and 0.44% AFR</li> <li>• 5-year limited warranty</li> </ul>	<ul style="list-style-type: none"> <li>• Better head positioning and rotational vibration robustness</li> <li>• One of the highest reliability ratings for air-filled Capacity Enterprise HDDs</li> </ul>

\*Previously known as Ultrastar 7K8

## Specifications

Configuration	SATA Models	SAS Models
<b>Model #</b>	HUS726TxTAL6yz HUS726T4TALA6yz	HUS726TxTAL52yz HUS726T4TALS2yz
<b>Interface</b>	SATA 6Gb/s	SAS 12Gb/s
<b>Capacity<sup>1</sup></b>	6TB / 4TB	←
<b>Form Factor</b>	3.5-inch	←
<b>Sector size (bytes)<sup>3</sup></b>	4Kn: 4096 512n*/512e: 512	4Kn: 4096, 4104, 4160, 4224 512n*/512e: 512, 520, 528
<b>Max. areal density (Gbits/sq. in., max)</b>	512e/4Kn: 782, 696 (4TB) 512n*: 753	← ←
<b>Performance</b>		
<b>Data buffer (MB)<sup>4</sup></b>	256	←
<b>Rotational speed (RPM)</b>	7200	←
<b>Latency average (ms)</b>	4.16	←
<b>Interface transfer rate (MB/s, max)</b>	600	1200
<b>Sustained transfer rate<sup>5</sup> (MiB/sec, typ.) (MB/sec, typ.)</b>	512e/4Kn: Up to 243 512n*: 222 512e/4Kn: Up to 255 512n*: 233	← ←
<b>Reliability</b>		
<b>Error Rate (non-recoverable bits read)</b>	1 in 10 <sup>15</sup>	←
<b>Load/Unload cycles (at 40°C)</b>	600,000	←
<b>MTBF<sup>2</sup></b>	2M hours	←
<b>Annual failure rate (AFR)<sup>2</sup></b>	0.44%	←
<b>Availability (hrs/day x days/wk)</b>	24x7	←
<b>Limited Warranty (yrs)</b>	5	←

<sup>1</sup> One megabyte (MB) is equal to one million bytes, one gigabyte (GB) is equal to 1,000MB (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, system software, and other factors.  
<sup>2</sup> 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.

<sup>3</sup> Advanced Format drive: 4K (4096-byte) physical sector  
<sup>4</sup> Portion of buffer capacity used for drive firmware  
<sup>5</sup> 1MiB = 1,048,576 bytes (220), 1MB = 1,000,000 bytes (106)  
<sup>6</sup> Excludes command overhead  
<sup>7</sup> SATA models: 8K Queue Depth = 1 @ 40 IOPS, SAS models: 4K Queue Depth = 4 @ Max IOPS  
<sup>8</sup> Idle specification is based on use of Idle\_A  
<sup>9</sup> 512e models can be converted to 4Kn format and vice versa.

	SATA Models	SAS Models
<b>Acoustics</b>		
<b>Idle/Operating (Bels, typical)</b>	2.9 / 3.6	←
<b>Power</b>		
<b>Requirement</b>	+5V, +12V	←
<b>Operating (W, typical)<sup>7</sup></b>	7.0	12.1
<b>Idle (W)<sup>8</sup></b>	5.9	7.0
<b>Physical</b>		
<b>z-height (mm, max)</b>	26.1	←
<b>Dimensions (width x depth, mm)</b>	101.6 (+/-0.25) x 147	←
<b>Weight (g, max)</b>	715	←
<b>Environmental (operating)</b>		
<b>Ambient Temperature</b>	5°C to 60°C	←
<b>Shock (half-sign wave, 2 ms, G)</b>	70	←
<b>Vibration (G RMS, 5 to 500 Hz)</b>	0.67 (XYZ)	←
<b>Environmental (non-operating)</b>		
<b>Ambient Temperature</b>	-40°C to 70°C	←
<b>Shock (half-sign wave, 2 ms, G)</b>	300	←
<b>Vibration (G RMS, 2 to 200 Hz)</b>	1.04 (XYZ)	←

NOTE: See "How to Read Model Number" below for possible values of x, y and z in model numbers.

### How to Read the Ultrastar Model Number

HUS726TxTAL6yz = xTB SATA 6Gb/s 512e

H = Western Digital  
U = Ultrastar  
S = Standard  
72 = 7200 RPM  
6T = Max capacity in series (6TB)  
xT = Capacity of this model (6T = 6TB, 4T = 4TB)  
A = Generation code  
L = 26.1mm z-height  
E6<sup>9</sup> = Interface (512e SATA 6Gb/s) (A6\* = 512n SATA 6Gb/s, S2\* = 512n SAS 12Gb/s, 52<sup>9</sup> = 512e SAS 12Gb/s)

y = Power Disable Pin 3 status (0 = Power Disable Pin 3 support, L = Legacy Pin 3 config - No Power Disable Support)  
z = Data Security Mode (1 = SED\*\* : Self Encrypting Drive. TCG-Enterprise and Sanitize Crypto Scramble / Erase. 4 = Base (SE)\*\* : No Encryption. Sanitize Overwrite only. 5 = SED-FIPS: SED w/ certification (SAS only).

\* Available on 4TB capacities

\*\* ATA Security Feature Set comes standard on SATA