Ultrastar™ A7K2000

3.5-INCH ENTERPRISE HARD DISK DRIVES

HITACHI
Inspire the Next

Shipping the world's first enterprise class, 7200 RPM, 2TB drive for high-capacity nearline environments

Highlights

- Up to 2 terabytes[1] of capacity
- Enhanced Rotational Vibration Safeguard (RVS) for robust performance in multi-drive environments
- 24x7 enterprise-class duty cycle
- Targeted 1.2 million hours MTBF[2]
- 5-year warranty
- 3Gb/s SATA for configuration flexibility

Applications

- Data warehousing & mining
- Disk-to-disk backup & archiving
- Rack mounted RAID arrays
- Network Attached Storage (NAS)
- Cloud storage
- Massive Scale Out (MSO)

2TB, 1TB, and 500GB
7200 RPM | SATA 3Gb/s

Doubling the capacity density

As data center professionals across the globe work to meet growing enterprise needs, they face the dilemma of storing more data in the same footprint while also reducing power and HVAC consumption. The new Ultrastar™ A7K2000 provides twice the data storage capacity of the prior generation Ultrastar A7K1000 drive, and does so using fewer watts. It is now possible to achieve a colossal 1.2 petabytes (PB) in the footprint of a standard 19-inch enterprise storage rack by deploying the 2TB A7K2000 in a stack of ten 4U, 60-bay enclosures.

Combining 7200 RPM performance and granular power control

Operating at 7200 RPM, the Hitachi Ultrastar A7K2000 offers better overall performance than slower-RPM, capacity-oriented drives at impressively low power-consumption rates. When compared to the previous generation Ultrastar A7K1000, the A7K2000 offers up to a 155% improvement in sustained data transfer rate, and a 120% improvement in watts-per-GB. With five Advanced Power Management modes, a 36% reduction in watts during low-RPM idle mode, and using less than 1W during standby/sleep mode, the Ultrastar A7K2000 can help data centers achieve lower AC power and HVAC requirements, freeing up precious headroom for growing enterprise needs.

Enhancing data safety and security

To ensure the utmost in data safety and security, the Ultrastar A7K2000 is also available with a bulk data encryption (BDE) option. When enabled, the Hitachi BDE implementation encrypts all data on the drive using a private security key as it is written to the disk, and then decrypts it with the key as it is retrieved, giving users an extreme level of data protection. Unlike software-based encryption solutions, the Hitachi BDE implementation is hardware-based, so it doesn't slow the system down. This technology also speeds up and simplifies the drive re-deployment and decommissioning process. By deleting the encryption key, the data is rendered unreadable, thereby eliminating the need for time-consuming, multi-pattern data overwrite.

Delivering industry-leading reliability

With a robust fourth-generation mechanical design, Ultrastar A7K2000 is specifically built and tested for the enterprise. The Ultrastar SATA drive family features Hitachi-patented Rotational Vibration Safeguard (RVS) sensor technology, which optimizes drive reliability in multi-drive RAID arrays and rack-mounted systems. Backed by a five-year warranty, the Ultrastar platform has earned Hitachi a reputation among server and storage vendors as a global partner dedicated to delivering the highest quality and reliability in the industry.

Innovation for a more sustainable environment

The Ultrastar A7K2000 demonstrates Hitachi ecological leadership with its halogen-free design and power-efficient operation. Both these features serve to qualify the drive for the Hitachi EcoTrac classification, which identifies products that minimize environmental impact in the areas of product design, manufacturing, operation and disposal.

Specifications

Model(s)		Standard models HUA722020ALA330 HUA722010CLA330 HUA722050CLA330	BDE models HUA722020ALA331 HUA722010CLA331 HUA722050CLA331
Configuration			
Interface		SATA 3Gb/s	
Capacity (GB)[1]		2TB / 1TB / 500	
Sector size (bytes)		512	
Max. areal density (Gbits/sq. in.)	*2TB* *<2TB*	285 352	
Performance			
Data buffer (MB)[3]		32	
Rotational speed (RPM)		7200	
Interface transfer rate (MB/s, max)		300	
Sustained transfer rate (typical, MB/sec)		134	
Seek time (read, typical, ms)[4]	*2TB* *<2TB*	8.2 8.5	
Reliability			
Error rate (non-recoverable, bits read)		1 in 10^{15}	
Load/unload cycles (at 40°C)		300,000	
Availability[2] (hrs/day x days/wk)		24x7	
Targeted MTBF[2] (hrs)		1,200,000	
Warranty (yrs)		5	
Acoustics			
Idle (typical, Bels)	*2TB* *<2TB*	2.9 2.4	
Power			
Requirement		+5 VDC (+/-5%), +12 VDC (+10%/-8%)	
Startup current (max. A)		2.0 (+12V), 1.2 (+5V)	
Read/write (W)	*2TB* *<2TB*	11.1 8.4	
Unload Idle (W)	*2TB* *<2TB*	5.6 3.9	
Power consump. efficiency index (W/GB)		0.0028 / 0.0039 / 0.0078	
Physical size			
z-height (mm)		26.1	
Dimensions (width x depth, mm)		101.6 (+/-0.25) x 147	
Weight (typical, g, max.)	*2TB* *<2TB*	740 680	
Environmental (operating)			
Ambient temperature		5° to 60° C	
Shock (half-sine wave, G)		70	
Vibration, random (G RMS 5 to 500 Hz)		0.67 (XYZ)	
Environmental (non-operating)			
Ambient temperature		-40° to 70° C	
Shock (half-sine wave, G)	*2TB* *<2TB*	300 350	

1 One GB is equal to one billion bytes and one TB equals 1,000 GB (one trillion bytes) when referring to hard drive capacity. Accessible capacity may be less.

2 Intended for use in lower duty cycle environments in the enterprise storage hierarchy, such as RAID and nearline applications. This MTBF target is based on a sample population and is estimated by statistical measurements and acceleration algorithms under nominal operating conditions. MTBF ratings are not intended to predict an individual drive's reliability. MTBF does not constitute a warranty.

3 Portion of buffer capacity used for firmware

4 Excludes command overhead

Hitachi quality and service

Hitachi's Ultrastar A7K2000 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.

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

HUA722020ALA330 = 2TB, 32MB buffer
H = Hitachi
U = Ultrastar
A = Series prefix
72 = 7200 RPM
20 = Full capacity—2TB
20 = Capacity this model, 20 = 2TB
(10 = 1TB, 50 = 500GB)
A = Generation code
L = 26.1mm z-height
A3 = Interface, SATA 3Gb/s
3 = 32MB buffer
0 = No BDE (1 = BDE)

Information and Technical Support

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