Ultrastar® SSD800MH

Highlights

- MLC NAND Flash for ultra-high performance and endurance
- Endurance: 25 drive writes per day (DW/D) for five years
- Best IOPS/Watt for reduced TCO
- 12Gb/s SAS interface for maximum throughput
- Advanced power loss data management technology
- Self-encrypting models conform to TCG's Enterprise specification

Applications/Environments

- Ultra-high performance tier-0 enterprise storage
- Enterprise-class servers and high performance computing
- Space and/or power constrained environments
- Online Transaction Processing (OLTP)
- Financial and e-commerce
- Database analytics

800GB, 400GB and 200GB | MLC
2.5-inch SFF | SAS 12Gb/s

HGST Enterprise Storage Experience

HGST leverages decades of proven enterprise storage expertise in Serial Attached SCSI (SAS) design, reliability, firmware, customer qualification and system integration to the Ultrastar® SSD800MH solid-state drive (SSD) family. The synergistic relationship between HGST's throughput-enhancing SSDs and traditional HDDs provides cost effective, end-to-end enterprise-class storage solutions, delivering reliability, compatibility, capacity, cost and system performance. This combination makes HGST a leading SSD/HDD provider with the experience and technology needed to meet escalating reliability, endurance and performance in the most demanding enterprise environments.

Maximum Performance, Reliability and Endurance

The Ultrastar SSD800MH delivers high sequential throughput, up to 1200MB/s read and 750MB/s write (12Gb/s SAS). The Ultrastar SSD800MH also delivers up to 145,000 read and 100,000 write IOPS, reaching speeds >100 times faster than HDDs and double the speed of current 6Gb/s SSDs, allowing rapid access to "hot" enterprise data for improved productivity and operational efficiency. The Ultrastar SSD800MH family offers significant value in terms of IOPS per Watt, while reducing total cost of ownership (TCO) through low power consumption, efficient cooling and reduced space requirements.

The Ultrastar SSD800MH family combines enterprise-grade MLC NAND flash memory, advanced endurance management firmware and power loss data management techniques to extend reliability, endurance, and sustained performance over the life of the SSD. The Ultrastar SSD800MH family achieves an extraordinary 0.44% annual failure rate (AFR) or two million hour mean-time-between-failure (MTBF). The 800GB capacity model endures up to 36.5 Petabytes (PB) of random writes over the life of the drive—the equivalent of writing 20 Terabytes (TB) per day for five years.

For complete end-to-end data protection and reliability, the Ultrastar SSD800MH family incorporates the T10 Data Integrity Field (DIF) standard, extended error correction code (ECC), Exclusive-OR (XOR) parity to protect against flash die failure, parity-checked internal data paths without an external write cache, and an exclusive power loss data management feature that does not require supercapacitors. The Ultrastar SSD800MH family is backed by a five year limited warranty, or the maximum Petabytes (PB) written (based on capacity).

HGST Quality and Service

HGST's Ultrastar SSD800MH family extends the company's long-standing tradition of performance and reliability leadership. A balanced combination of new and proven technologies enables high reliability and availability to customer data.

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 SSD/HDD solutions to satisfy today's monumental computing needs.

Features & Benefits

	Performance	Power	Capacity	Reliability	Integration
Feature/function	• SAS 12Gb/s • MLC NAND flash memory • 1200MB/s / 750MB/s sequential R/W • 145K / 100K IOPS random R/W • 120K IOPS on 70/30 mix R/W	9.0 and 11.0 Watt options	• 800GB • 400GB • 200GB	• 0.44% AFR (2M hours MTBF) • 1E-17 bit error rate • T10 end-to-end data protection • Exclusive-OR (XOR) NAND • Power loss data management • Unlimited reads, up to 36.5PB random writes (800GB)	• HDD architecture commonality • Systems integration and test lab
Benefit	• 6Gb/s Active-Active Dual Port or 12Gb/s Single/ Dual port for enhanced reliability • Highest write performance and endurance • Maximum throughput and IOPS for ultra-fast access to data; >100x faster than typical HDD	Improved performance with higher power option	More capacity for less space and power	• Reduced field replacement effort • Enhanced error detection and correction for optimal data integrity • Protection against flash die failure • Assures data integrity during power failure • Maximum endurance over the life of SSD	• Compatibility with Ultrastar SAS HDDs • Extensive interoperability and compliance testing

Ultrastar® SSD800MH

Specifications

Model / Part No.	HUSMH8080ASS200 / 0B28630 HUSMH8040ASS200 / 0B28629 HUSMH8020ASS200 / 0B28628 HUSMH8080ASS201 / 0B28633 HUSMH8040ASS201 / 0B28632 HUSMH8020ASS201 / 0B28631 HUSMH8080ASS204 / 0B30068 HUSMH8040ASS204 / 0B30067 HUSMH8020ASS204 / 0B30066 HUSMH8080ASS205 / 0B30189 HUSMH8040ASS205 / 0B30188 HUSMH8020ASS205 / 0B30187
Configuration	
Interface	SAS 12Gb/s
Capacity (GB[1]) at 512 bytes/sector	800 / 400 / 200
Form factor	2.5-inch
Flash memory technology	Multi Level Cell (MLC)
Performance	
Read throughput (max MB/s, sequential 64K)	1200
Write throughput (max MB/s, sequential 64K)	750
Read IOPS (max IOPS, random 4K)	145,000
Write IOPS (max IOPS, random 4K)	100,000
Reliability	
Error rate (non-recoverable, bits read)	1 in 10^{17}
MTBF[2] (M hours)	2.0
Availability (hrs/day x days/wk)	24x7
Endurance (max PB[1], random write)	36.5 / 18.3 / 9.1

Power	
Requirement	+5 VDC (+/-5%) +12VDC (+/-5%)
Operating (W)	9.0 and 11.0
Idle (W)	2.2 / 2.1 / 2.1
Physical	
z-height (mm, max)	15.0
Dimensions (width x depth, mm)	70.1 x 100.6
Weight (g, typical)	164
Environmental (operating)	
Ambient temperature	0° to 60° C
Shock (half-sine wave)	1000G (0.5ms) 500G (2ms)
Vibration, random (G RMS)	2.16, all axes (5 to 700 Hz)

[1] One gigabyte (GB) is equal to one billion bytes, one terabyte (TB) is equal to 1,000GB (one trillion bytes), and one petabyte (PB) is equal to 1,000TB (one quadrillion bytes) when referring to solid-state drive or hard drive capacity. Accessible capacity will vary from the stated capacity due to formatting and partitioning of the 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 nominal operating conditions. MTBF ratings are not intended to predict an individual drive's reliability. MTBF does not constitute a warranty.

How to Read the Ultrastar Model Number

HUSMH8080ASS200 = 800GB, SAS 12Gb/s

H = HGST
U = Ultrastar
S = Standard
MH = Multi level cell, high endurance (25DW/D)
80 = Full capacity (800GB)
80 = Capacity of this model (80 = 800GB, 40 = 400GB, 20 = 200GB)
A = Generation code
S = Small form factor (vs. L for Large FF)
S2 = Interface, SAS 12Gb/s
0 = Reserved
0 = Crypto sanitize (1 = TCG encryption, 4 = No encryption, 5 = TCG + FIPS certified encryption)

Information & Technical Support
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Partners First Program
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