



# Ultrastar® SS200

## Highlights

- Enterprise-grade 12Gb/s SAS SSD; backward compatible with 6Gb/s SAS
- Capacity points: 400GB to 7.68TB in 2.5-inch drive form factor
- Maximum read throughput up to 1,800MB/s
- Up to 250,000 4KiB IOPS in random reads
- Up to 1,000MB/s sequential writes
- Endurance of 3 or 1 random drive writes per day (DW/D) for 5 years
- Instant Secure Erase (ISE) & Self-Encrypting Drive (SED) options including TCG Enterprise
- 5-year limited warranty

## Mixed Use Applications & Workloads (400GB - 3.2TB)

- Online Transaction Processing (OLTP) Databases
- Financial Transactions
- E-Commerce
- E-Mail / Messaging / Collaboration
- Virtual Environments

## Read-intensive Workloads (480GB - 7.68TB)

- ERP, CRM, and Data Warehouse
- Video Streaming, Video-on-Demand
- File Servers
- Database Analytics



7.68TB, 3.84TB, 1.92TB, 960GB, 480GB | 1DW/D  
 3.2TB, 1.6TB, 800TB, 400TB | 3DW/D  
 2.5-inch SFF | SAS 12Gb/s

## Easily Scale Enterprise Flash Storage with Workload-Optimized SAS SSDs

Leveraging widely deployed SAS storage infrastructure to scale out enterprise flash is critical for budget-conscious data centers trying to keep pace with an ever increasing volume and velocity of data generated daily. The Ultrastar® SS200 solid state drive (SSD) is a 12Gb/s SAS Enterprise SSD from HGST that helps transform hybrid and all-flash data centers by scaling flash storage capacities using workload-optimized solutions to deliver exceptional value.

Data center managers can target performance acceleration of mixed-use application workloads such as Online Transaction Processing (OLTP) or push the capacity envelope on read-intensive workloads like data warehousing and corporate file servers. HGST continues to build on its strong tradition of leading-edge SAS SSD products to deliver more capacity, improved performance and continued emphasis on reliability to enable universal flash adoption in enterprise storage.

## HGST Delivers High Capacity, High Performance SAS SSD with Cost-Effectiveness and Data Reliability

Ultrastar SS200 SSDs integrate SanDisk-brand 15nm NAND and the enterprise-tested Guardian Technology™ platform to deliver enterprise-grade reliability, endurance and performance. Delivering up to 1,800MB/s and 250,000 4KiB IOPS read performance combined with exceptional write performance, the drive enables valuable application acceleration without compromise. With significantly improved performance consistency and associated Quality of Service (QoS) metrics, this generation of SAS SSDs can help meet stringent enterprise application service level agreements (SLAs).

Available in capacity points from 400GB to 7.68TB, Ultrastar SS200 SSDs also offer a choice of endurance options of either 3 random drive writes per day (DW/D) for mixed-use workloads or 1 random DW/D for read-intensive workloads. All drives support the DW/D endurance rating over HGST's 5-year warranty.

## Proven Provider of Enterprise-Grade SSD Products

HGST leverages decades of proven enterprise storage expertise in Serial Attached SCSI (SAS) design, reliability, firmware, customer qualification and system integration to this newest addition to the Ultrastar line-up.

The Ultrastar SS200 SSD is powered by the Guardian Technology™ platform, a comprehensive suite of enterprise features comprised of FlashGuard™, DataGuard™ and EverGuard™ technologies.

- **FlashGuard** technology combines aggregated flash management and advanced signal processing to reliably extract significantly more life from commercial-grade MLC flash for read-intensive application workloads.
- **DataGuard** technology features full data path protection, to help safeguard user data from corruption along all data paths in the SSD.
- **EverGuard** technology helps protect against loss of user data in the event of unexpected power interruptions using a third-generation backup power circuit design and high reliability discrete capacitors.



# Ultrastar® SS200

## Features & Benefits

	Performance	Capacity & Endurance	Reliability	Integration
<b>Feature</b>	<ul style="list-style-type: none"> <li>Up to 1800MB/s Read &amp; 1000MB/s Write Bandwidth</li> <li>Up to 250K Read IOPS (4K)</li> </ul>	<ul style="list-style-type: none"> <li>400GB to 7.68TB capacities</li> <li>Endurance-optimized or Capacity-optimized options</li> </ul>	<ul style="list-style-type: none"> <li>UBER of &lt; 1 in 10<sup>17</sup></li> <li>AFR 0.35%</li> <li>Guardian Technology</li> </ul>	<ul style="list-style-type: none"> <li>SAS 12Gb/s</li> </ul>
<b>Benefit</b>	Increase application performance and reduce storage system bottlenecks	Broad portfolio offering that is optimized to offer most value based on workload requirements	Enterprise-grade reliability helps reduce service incidents to help lower support costs	Wide industry adoption for easy and reliable scale out flash storage

## Specifications

### Configuration

Base Model	Ultrastar SS200	
Interface	SAS 12Gb/s	
Form Factor	2.5-inch	
Capacity <sup>1</sup>	3.2TB, 1.6TB, 800GB, 400GB	7.68TB, 3.84TB, 1.92TB, 960GB, 480GB
Endurance (Drive writes per day) <sup>2</sup>	3	1

### Performance<sup>3</sup>

Sequential Read (max MB/s, 128KiB)	1,800	
Sequential Write (max MB/s, 128KiB)	1,000	
Random Read (max IOPS, 4KiB)	250,000	
Random Write (max IOPS, 4KiB)	86,000	37,000
Mixed Random Read/Write (max IOPS 70%R/30%W, 4KiB)	154,000	90,000
Latency <sup>4</sup> (µs)	100	

### Reliability

Error Rate in bits read	< 1 in 10 <sup>17</sup>
MTBF <sup>5</sup>	2.5M hours
Annual failure rate <sup>5</sup> (AFR)	0.35%
Limited warranty <sup>6</sup>	5 years
Data Retention	3-month at 40°C

### Power

Requirement (DC +/- 5%)	5V & 12V
Operating (W, typical)	9 or 11 (configurable)
Idle (W)	3.8 to 4.3

### Physical

z-height (mm)	15
Dimensions (width x depth, mm)	69.85 x 100.45
Weight / without bracket (g, max)	200

### Environmental

Case Temperature	0°C to 70°C
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## HGST Quality and Reliability

The HGST Ultrastar SS200 SSD extends the company's long-standing tradition of performance and reliability leadership. A balanced combination of new and proven technologies helps enable high reliability and availability to customer data. HGST Ultrastar drives are backed by a 5-year limited warranty and 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.

## Model and Part Numbers

For a complete list of available models and part numbers, please visit the Ultrastar SS200 product page on our website, [www.hgst.com](http://www.hgst.com), and refer to the PN Selector tab.

<sup>1</sup> One terabyte (TB) is equal to 1,000GB (one trillion bytes) when referring to solid-state 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.

<sup>2</sup> Endurance rating based on DW/D using 4KiB random write workload over 5 years

<sup>3</sup> Performance will vary by capacity point, or with the changes in useable capacity. Consult product manual for further details. All performance measurements are in full sustained mode and are peak values. Preliminary and subject to change.

<sup>4</sup> Average R/W Latency at 4KiB QD=1

<sup>5</sup> MTBF and AFR targets are based on a sample population and are estimated by statistical measurement and acceleration algorithms under median operating conditions. MTBF and AFR rating do not predict an individual drive's reliability and do not constitute a warranty.

<sup>6</sup> The warranty for the product will expire on the earlier of (i) the date when the flash media has reached one-percent (1%) of its remaining life or (ii) the expiration of the time period associated with the Product.