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® DC SS200® solid state drive (SSD) is a 12Gb/s SAS Enterprise SSD 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. Western Digital 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.

Delivering High Capacity, High Performance SAS SSD with Cost-Effectiveness and Data Reliability

Ultrastar DC SS200 SSDs integrate Western Digital 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, DC SS200 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 DC 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 a 5-year limited warranty.

Proven Provider of Enterprise-Grade SSD Products

Ultrastar SSDs leverage decades of proven enterprise storage expertise in Serial Attached SCSI (SAS) design, reliability, firmware, customer qualification and system integration to this key member of the Ultrastar line-up.

The Ultrastar DC SS200 SAS SSD is protected 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.

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 reads
- 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

*Previously known as Ultrastar SS200*
### Features & Benefits

<table>
<thead>
<tr>
<th>Feature</th>
<th>Performance</th>
<th>Capacity &amp; Endurance</th>
<th>Reliability</th>
<th>Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase application performance</td>
<td>• Up to 1800MB/s Read &amp; 1000MB/s Write Bandwidth</td>
<td>• 400GB to 7.68TB capacities</td>
<td>• UBER of &lt; 1 in 10^17</td>
<td>SAS 12Gb/s</td>
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<tr>
<td>and reduce storage system bottlenecks</td>
<td>• Up to 250K Read IOPS (4K)</td>
<td>• Endurance-optimized or Capacity-optimized options</td>
<td>• AFR 0.35%</td>
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<td>• Guardian Technology</td>
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<td>Increase application performance</td>
<td>Broad portfolio offering that is optimized to offer most value based on workload requirements</td>
<td>Enterprise-grade reliability helps reduce service incidents to help lower support costs</td>
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<td>and reduce storage system bottlenecks</td>
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### Specifications

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Base Model</th>
<th>Interface</th>
<th>Form Factor</th>
<th>Flash Memory Technology</th>
<th>Capacity¹</th>
<th>Endurance (Drive writes per day)²</th>
<th>Performance³</th>
<th>Reliability</th>
<th>Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 DW/D</td>
<td>Ultrastar DC SS200</td>
<td>SAS 12Gb/s</td>
<td>2.5-inch</td>
<td>15nm MLC NAND</td>
<td>3.27TB, 1.6TB, 800GB, 400GB</td>
<td>3,154,000</td>
<td>1800</td>
<td>250,000</td>
<td>SAS 12Gb/s</td>
</tr>
<tr>
<td>1 DW/D</td>
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<td></td>
<td>7.68TB, 3.84TB, 1.96TB, 960GB, 480GB</td>
<td>1,626,000</td>
<td>1000</td>
<td>37,000</td>
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### Ultrastar Quality and Reliability

Ultrastar DC SS200 SAS 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. 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. Western Digital provides 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 DC SS200 product page on our website, www.westerndigital.com

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1 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.

2 Endurance rating based on DW/D using 4KiB random write workload over 5 years. Performance will vary by capacity point, or with the changes in usable capacity. Consult product manual for further details. All performance measurements are in full sustained mode and are peak values. Preliminary and subject to change.

3 Average R/W Latency at 4KiB QD=1

4 MTBF and AFR rating do not predict an individual drive’s reliability and do not constitute a warranty.

5 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.