Ultrastar® SSD1600MM

Highlight
- MLC NAND Flash for ultra-high performance and endurance
- Mainstream endurance 10DW/D for 5 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)
- Video pre- and post-production
- Financial and e-commerce
- Database analytics

Features & Benefits

<table>
<thead>
<tr>
<th>Feature/function</th>
<th>Performance</th>
<th>Power</th>
<th>Capacity</th>
<th>Reliability</th>
<th>Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAS 12Gb/s</td>
<td>9.0 and 11.0 Watt options</td>
<td>1600GB</td>
<td>130K IOPS</td>
<td>0.35% AFR (2.5M hours MTBF)</td>
<td>HDD architecture commonality</td>
</tr>
<tr>
<td>MLC NAND Flash memory</td>
<td>800GB</td>
<td>100K IOPS</td>
<td>110K IOPS</td>
<td>1E-17 bit error rate</td>
<td>Systems integration and test lab</td>
</tr>
<tr>
<td>1100MB/s / 765MB/s sequential R/W</td>
<td>400GB</td>
<td>T10 end-to-end data protection</td>
<td>Exclusive-OR (XOR) NAND</td>
<td>Compatibility with Ultrastar SAS HDDs</td>
<td></td>
</tr>
<tr>
<td>130K / 100X IOPS random R/W</td>
<td>200GB</td>
<td>Power loss data management</td>
<td>Unlimited reads, up to 29.2PB random writes (1600GB)</td>
<td>Extensive interoperability and compliance testing</td>
<td></td>
</tr>
<tr>
<td>110K IOPS on 70/30 mix R/W</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Maximum Performance, Reliability and Endurance

The Ultrastar SSD1600MM delivers high sequential throughput, up to 1100MB/s read and 765MB/s write (12Gb/s SAS). It also delivers up to 130,000 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 SSD1600MM 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.

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® SSD1600MM 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.

HGST Quality and Service

HGST’s Ultrastar SSD1600MM 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.

1600GB, 800GB, 400GB and 200GB
MLC | 2.5-inch SFF | SAS 12Gb/s
Specifications

Model / Part No.
HUSMM1616ASS204 / 0B32167
HUSMM1616ASS200 / 0B31068
HUSMM1616ASS201 / 0B33143
HUSMM1616ASS205 / 0B32188
HUSMM1680ASS204 / 0B32166
HUSMM1680ASS200 / 0B31067
HUSMM1680ASS201 / 0B32146
HUSMM1680ASS205 / 0B32187
HUSMM1640ASS204 / 0B32165
HUSMM1640ASS200 / 0B31066
HUSMM1640ASS201 / 0B32145
HUSMM1640ASS205 / 0B32186
HUSMM1620ASS204 / 0B32164
HUSMM1620ASS200 / 0B31065
HUSMM1620ASS201 / 0B32144
HUSMM1620ASS205 / 0B32185

Configuration
Interface
SAS 12Gb/s

Capacity (GB) at 512 bytes/sector
1600 / 800 / 400 / 200

Form factor
2.5-inch

Flash memory technology
Multi Level Cell (MLC)

Sector size support
512, 520, 528, 4K

Power
Requirement
+12 VDC (+/-5%)

Operating (W, typical)
9.0 and 11.0

Idle (W)
2.2

Physical
z-height (mm)
70.1 x 100.6

Dimensions (width x depth, mm)
187

Environmental (operating)
Case temperature
0º to 70ºC

Shock (half-sine wave)
1000G (0.5ms)
500G (2ms)

Vibration, random (G RMS)
2.16, all axis (5 to 700 Hz)

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.

MTBF and AFR targets are based on a sample population and are estimated by statistical measurements and acceleration algorithms under median operating conditions. MTBF and AFR ratings do not predict an individual drive’s reliability and do not constitute a warranty.

How to Read the Ultrastar Model Number
HUSMM1616ASS200  =  1600GB, SAS 12Gb/s
H = HGST
U = Ultrastar
S = Standard
MM = Multi level cell, mainstream endurance
16 = Full initial capacity (1600GB)
16 = Capacity of this model (19 = 1920GB, 16 = 1600GB, 80 = 800GB, 40 = 400GB, etc.)
A = Generation code
S = Small form factor (vs. L for Large FF)
52 = Interface, SAS 12Gb/s
O = Standard (3 = 3DW/D)
O = Crypto sanitize
(1 = TCG encryption, 4 = No encryption, 5 = TCG + FIPS certified encryption)

© 2015 HGST, Inc., 3403 Yerba Buena Road, San Jose, CA 95135 USA. Produced in the United States 4/15, revised 8/15. All rights reserved.

Ultrastar is a registered trademark of HGST, Inc. and its affiliates in the United States and/or other countries.

HGST trademarks are intended and authorized for use only in countries and jurisdictions in which HGST has obtained the rights to use, market and advertise the brand. Contact HGST for additional information. HGST shall not be liable to third parties for unauthorized use of this document or unauthorized use of its trademarks.

References in this publication to HGST’s products, programs or services do not imply that HGST intends to make these available in all countries in which it operates.

Product specifications provided are sample specifications and do not constitute a warranty. Information is true as of the date of publication and is subject to change. Actual specifications for unique part numbers may vary.

Please visit the Support section of our website www.hgst.com/support for additional information on product specifications. Photographs may show design models.

Information & Technical Support
www.hgst.com
www.hgst.com/support

Partners First Program
channelpartners@hgst.com
www.hgst.com/partners

PART NUMBER: HUSMM1616ASS200-0B32167

References in this publication to HGST’s products, programs or services do not imply that HGST intends to make these available in all countries in which it operates.

Product specifications provided are sample specifications and do not constitute a warranty. Information is true as of the date of publication and is subject to change. Actual specifications for unique part numbers may vary.

Please visit the Support section of our website www.hgst.com/support for additional information on product specifications. Photographs may show design models.

Information & Technical Support
www.hgst.com
www.hgst.com/support

Partners First Program
channelpartners@hgst.com
www.hgst.com/partners

SET 8/15

INPUTS

DS22-EN-US-0815-04