Highlights

- MLC NAND Flash for ultra-high performance and endurance
- Read-intensive <3DW/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 read endurance enterprise storage
- Enterprise-class servers and high performance computing
- Space and/or power constrained environments
- Online Transaction Processing (OLTP)
- Video pre- and post-production
- Cloud computing

Features & Benefits

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<td>Feature/function</td>
<td>130K / 30K IOPS random R/W</td>
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<td>Feature/function</td>
<td>50K IOPS on 70/30 mix R/W</td>
<td>800GB</td>
<td>Unlimited reads, up to 10.5PB random writes (1920GB)</td>
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Benefits

- 12Gb/s / 6Gb/s Active-Active Dual Port
- Highest write performance with cost improved NAND for high endurance
- Maximum throughput and IOPS for ultra-fast access to data, >100x faster than typical HDD

Maximum Performance, Reliability and Endurance

The Ultrastar SSD1600MR delivers high sequential throughput, up to 1100MB/s read and 700MB/s write (12Gb/s SAS). It also delivers up to 130,000 read and 30,000 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 SSD1600MR 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 SSD1600MR 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 SSD1600MR family achieves an extraordinary 0.35% annual failure rate (AFR) or 2.5 million hour mean-time-between-failure (MTBF). The 1920GB capacity model endures up to 10.5 Petabytes (PB) of random writes over the life of the drive—the equivalent of writing 5.8 Terabytes (TB) per day for five years.

For complete end-to-end data protection and reliability, the Ultrastar SSD1600MR 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 SSD1600MR family is backed by a five year limited warranty, or the maximum Petabytes (PB) written (based on capacity).

The Ultrastar SSD1600MR family endures up to 10.5 Petabytes (PB) of random writes over the life of the drive—the equivalent of writing 5.8 Terabytes (TB) per day for five years. The 0.35% AFR or 2.5 million hour MTBF provides an extraordinary level of reliability for the drive’s entire lifetime.

For more information, visit the HGST website.
### Specifications

#### Model / Part No.
- HUSMR1619ASS234 / 0B32278
- HUSMR1619ASS230 / 0B32213
- HUSMR1619ASS231 / 0B32247
- HUSMR1619ASS235 / 0B32297
- HUSMR1616ASS204 / 0B32263
- HUSMR1616ASS200 / 0B31079
- HUSMR1616ASS201 / 0B32236
- HUSMR1616ASS205 / 0B32285
- HUSMR1610ASS204 / 0B32262
- HUSMR1610ASS200 / 0B31078
- HUSMR1610ASS201 / 0B32235
- HUSMR1610ASS205 / 0B32284
- HUSMR1680ASS204 / 0B32261
- HUSMR1680ASS200 / 0B31077
- HUSMR1680ASS201 / 0B32234
- HUSMR1680ASS205 / 0B32283
- HUSMR1650ASS204 / 0B32259
- HUSMR1650ASS200 / 0B31076
- HUSMR1650ASS201 / 0B32233
- HUSMR1650ASS205 / 0B32282
- HUSMR1640ASS204 / 0B32258
- HUSMR1640ASS200 / 0B31075
- HUSMR1640ASS201 / 0B32232
- HUSMR1640ASS205 / 0B32281
- HUSMR1625ASS204 / 0B32258
- HUSMR1625ASS200 / 0B31074
- HUSMR1625ASS201 / 0B32231
- HUSMR1625ASS205 / 0B32280

#### Configuration
- **Interface**: SAS 12Gb/s
- **Capacity (GB) at 512 bytes/sector**: 1920 / 1600 / 1000 / 800 / 500 / 400 / 250
- **Form factor**: 2.5-inch
- **Flash memory technology**: Multi Level Cell (MLC)
- **Sector size support**: 512, 520, 528, 4K

#### Performance
- **Read throughput (max MB/s, sequential 64K)**: 1100
- **Write throughput (max MB/s, sequential 64K)**: 700
- **Read IOPS (max IOPS, random 4K)**: 130,000
- **Write IOPS (max IOPS, random 4K)**: 30,000

#### Reliability
- **Error rate (non-recoverable bits read)**: 1 in 10¹⁷
- **MTBF (M hours)**: 2.5
- **Annual failure rate* (AFR)**: 0.35%
- **Availability (hrs/day x days/wk)**: 24x7
- **Endurance (max PB, random write)**: 10.5 / 5.8 / 4.8 / 2.4 / 1.46 / 1.2

#### Power
- **Requirement**: +5 VDC (+/-5%) 12 VDC (+/-5%)
- **Operating (W, typical)**: 9.0 and 11.0
- **Idle (W)**: 2.2

#### Physical
- **Height (mm)**: 15.0
- **Dimensions (width x depth, mm)**: 70.1 x 100.6
- **Weight (g. max)**: 187

#### Environmental (operating)
- **Case temperature**: 0º to 70ºC
- **Shock (half-sine wave)**: 1000G (0.5ms)
- **Vibration, random (G RMS)**: 2.16, all axis (5 to 700 Hz)

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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 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.