Enterprise Turbo SSHD

Data Sheet

Accelerate Access to Your Most Critical Data With the World's Fastest Hard Drive

- Best economic combination of performance, endurance and capacity—best $/IOPS enterprise hard disk drive (HDD)
- Meets mission-critical demands for performance, scalability, flexibility and high-density storage in a 2.5-inch form factor
- Up to 3× increase in random performance over today's 15K-RPM HDD
- Automatically caches hot data to flash and absorbs write intensity by only promoting hot data—extending NAND life
- Addresses storage tiering performance bottlenecks by caching at the I/O level
- Preserves full storage capacity and gains top performance without de-stroking
- Low power consumption to improve power and cooling efficiencies
- Nonvolatile cache (NVC) to enable faster write response time and help ensure data integrity during unexpected power loss
- Protection Information (PI) to help protect against inadvertent data change[1]
- Automatic management of cached data to provide simple implementation and compatibility with today's enterprise drives
- Self-Encrypting Drive (SED) models with Instant Secure Erase feature to help protect data at rest and provide for easy drive retirement or repurposing[2]

Best-Fit Applications

- Big data analytics
- Databases (ERP and OLTP)
- Virtual desktop infrastructure (VDI)
- Web development and Web page delivery
- Content delivery networks (CDN)
- File and print serving
- Online gaming
- Critical search/Web servers

1 SAS-based Protection Information (PI) feature requires PI-compliant host or controller support.

2 Self-Encrypting Drives (SED) and FIPS SEDs are not available in all models or countries. May require TCG-compliant host or controller support.

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Specifications	5xx Emulation			4K Native		
Magnetic Media Capacity	600GB[1]	450GB[1]	300GB[1]	600GB[1]	450GB[1]	300GB[1]
Standard Model Number	ST600MX0004	ST450MX0004	ST300MX0004	ST600MX0034	ST450MX0034	ST300MX0034
SED Model Number	ST600MX0014[2]	ST450MX0014[2]	ST300MX0014[2]	ST600MX0044[2]	ST450MX0044[2]	ST300MX0044[2]
SED FIPS 140-2 Model Number	ST600MX0024[2,3]	—	—	ST600MX0054[2,3]	—	—
Interface	6Gb/s SAS	6Gb/s SAS	6Gb/s SAS	6Gb/s SAS	6Gb/s SAS	6Gb/s SAS
DRAM Buffer (MB)	128	128	128	128	128	128
NAND Flash Type	eMLC	eMLC	eMLC	eMLC	eMLC	eMLC
Nonvolatile Cache (MB)	8	8	8	8	8	8
NAND Cache (GB)	32	32	32	32	32	32
External Transfer Rate (MB/s)	600	600	600	600	600	600
Formatted 512 Bytes Sector (GB)	600	450	300	600	450	300
Performance						
Real-World Workload Performance (IOPS)	800	800	800	800	800	800
Sustained Transfer Rate, Max (MB/s)	up to 247	up to 247	up to 247	up to 247	up to 247	up to 247
Random Read (IOPS) 5xxE/4K	562	562	562	562	562	562
Random Writes (IOPS) 5xxE/4K	480	480	480	480	480	480
Spindle Speed (RPM)	15K	15K	15K	15K	15K	15K
Average Latency (ms)	2.0	2.0	2.0	2.0	2.0	2.0
Cache, Multisegmented (MB)	128	128	128	128	128	128
Configuration/Reliability						
Disks/Heads	3/6	3/6	2/4	3/6	3/6	2/4
Nonrecoverable Read Errors per Bits Read, Max	1 per 10E16	1 per 10E16	1 per 10E16	1 per 10E16	1 per 10E16	1 per 10E16
Annualized Failure Rate (AFR)	0.44%	0.44%	0.44%	0.44%	0.44%	0.44%
Power Management						
Typical Operating (A) +5V/+12V	0.44/0.52	0.44/0.52	0.42/0.46	0.44/0.52	0.44/0.52	0.42/0.46
Average Operating Power (W)	8.5	8.5	7.6	8.5	8.5	7.6
Average Idle Power (W)	5.9	5.5	5.4	5.9	5.5	5.4
Environmental						
Ambient Temperature, Operating (C°)	5 to 55	5 to 55	5 to 55	5 to 55	5 to 55	5 to 55
Ambient Temperature, Nonoperating (C°)	–40 to 70	–40 to 70	–40 to 70	–40 to 70	–40 to 70	–40 to 70
Max Temperature Change per Hour, Operating (C°)	20	20	20	20	20	20
Max Temperature Change per Hour, Nonoperating (C°)	20	20	20	20	20	20
Relative Humidity, Noncondensing (max gradient 20%/hour)	5% to 95%	5% to 95%	5% to 95%	5% to 95%	5% to 95%	5% to 95%
Shock, Max Operating: 11ms (Gs)	40	40	40	40	40	40
Shock, Max Nonoperating: 2ms (Gs)	400	400	400	400	400	400
Vibration, Operating: 5Hz to 500Hz (Gs)	0.5	0.5	0.5	0.5	0.5	0.5
Vibration, Nonoperating: 10Hz to 500Hz (Gs)	2.4	2.4	2.4	2.4	2.4	2.4
Physical						
Height (in/mm, max)[4]	0.591/15.00	0.591/15.00	0.591/15.00	0.591/15.00	0.591/15.00	0.591/15.00
Width (in/mm, max)[4]	2.750/69.85	2.750/69.85	2.750/69.85	2.750/69.85	2.750/69.85	2.750/69.85
Depth (in/mm, max)[4]	3.955/100.45	3.955/100.45	3.955/100.45	3.955/100.45	3.955/100.45	3.955/100.45
Weight (lb/kg)	0.507/0.230	0.507/0.230	0.496/0.255	0.507/0.230	0.507/0.230	0.496/0.255
Carton Unit Quantity	30	30	30	30	30	30
Cartons per Pallet	50	50	50	50	50	50
Cartons per Layer	10	10	10	10	10	10
Warranty						
Limited Warranty (years)	5	5	5	5	5	5

1 One gigabyte, or GB, equals one billion bytes when referring to drive capacity.

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3 FIPS in review. See FIPS 140-2 Level 2 Certificate at http://csrc.nist.gov/groups/STM/cmvp/documents/140-1/1401vend.htm

4 The drive physical dimensions conform to the Small Form Factor Standard (SFF-8201) found at ww.sffcommittee.org. For connector-related dimensions, see SFF-8223.

Seagate Secure®

Unified Storage™

Seagate 5-Year Warranty

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