NYTRO™ ENTERPRISE

SEAGATE

DATA SHEET

Lightspeed. Solid. Impressive.

1200.2 SAS SSD

The Seagate® 1200.2 SAS SSD family includes high-capacity, high-performance SAS SSDs designed with multiple endurance offerings optimized for demanding enterprise applications and improved TCO.

Key Features and Benefits

- Dual-port 12Gb/s SAS interface
- Industry-leading storage density range up to 4TB-class capacity
- Ultra-fast performance of up to 1900MB/s
- Endurance options for a wide range of enterprise workloads
- Redundant, failover I/O communication
- Power loss data protection circuit
- Superior data security
- Advanced error correction

Best-Fit Applications

- Server virtualization
- OLTP databases
- Software-defined storage
- All flash arrays
- Caching and tiering

SEAGATE SECURE™

Industry-Leading Performance up to 1900MB/s

The 1200.2 SAS SSD family delivers ultra-fast, consistent and easily scalable performance that exceeds 12Gb/s SAS single-port bandwidth. By removing the storage bottleneck, it closes the gap between processor and data storage performance and significantly improves overall system and application responsiveness. The 1200.2 SAS SSD family also provides consistent low-latency data access, reliably accelerating enterprise and cloud storage systems.

High-Capacity Solution With Multiple Endurance Offerings

Enterprise applications have different storage workload requirements for performance, endurance and cost. The optimal storage solution for databases or virtualization with a typically mixed read/write workload, for example, requires the highest random read/write IOPS, ultra-low latency and high endurance. Content streaming applications with highly intensive read workloads, however, demand high sequential read throughput and high storage density at the lowest cost per gigabyte. The 1200.2 SAS SSD family offers an industry-leading range of capacities, including 4TB-class in a 2.5-inch form factor, to increase enterprise storage density in data centers. It also enables lower TCO by offering four endurance categories to match cost and performance requirements of all enterprise workloads.

Enhanced Enterprise Reliability, Data Protection and Security

The 1200.2 SAS SSD family leverages Seagate's decades of enterprise SAS expertise and proven feature set to deliver the highest levels of reliability, data integrity and data security for mission-critical enterprise applications. The 1200.2 SAS SSD family helps deliver exceptional data protection and reliability by integrating full internal and external data path protection (T10 DIF), Seagate's advanced ECC algorithms, media life-cycle management and other techniques for extending flash memory life. With advanced power-loss data protection, the 1200.2 SSD maintains high data integrity to help prevent loss of user data in the event of unexpected power interruptions. The 1200.2 family implements security features to prevent unauthorized access to a drive and safeguards stored data with three levels of security, including Secure Downloads & Diagnostics, TCG-compliant Self-Encrypting Drive and FIPS drive.[1]

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

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Specifications	Mainstream Endurance			
Capacity	3200GB	1600GB	800GB	400GB
Standard Model Numbers	ST3200FM0023	ST1600FM0003	ST800FM0173	ST400FM0233
Seagate Secure™ SED Model[1]	ST3200FM0033	ST1600FM0013	ST800FM0183	ST400FM0243
Seagate Secure FIPS 140-2 Model[1]	ST3200FM0043	ST1600FM0023	ST800FM0213	ST400FM0293
Features				
Interface	Dual 12Gb/s SAS	Dual 12Gb/s SAS	Dual 12Gb/s SAS	Dual 12Gb/s SAS
NAND Flash Type	eMLC	eMLC	eMLC	eMLC
Form Factor	2.5in – 15mm	2.5in – 15mm	2.5in – 7mm	2.5in – 7mm
Performance				
Sequential Read (MB/s) Sustained, 128KB[2,3]	1900	1900	1850	1550
Sequential Write (MB/s) Sustained, 128KB[3]	800	850	850	625
Random Read (IOPS) Sustained, 4KB QD32[3]	200,000	200,000	200,000	180,000
Random Write (IOPS) Sustained, 4KB QD32[3]	80,000	80,000	80,000	67,000
Average Latency (µs)[3]	115	115	115	115
Endurance/Reliability				
Lifetime Endurance (DWPD)[4]	10	10	10	10
Nonrecoverable Read Errors per Bits Read, Max	1 per 10E17	1 per 10E17	1 per 10E17	1 per 10E17
Annualized Failure Rate (AFR)	0.35%	0.35%	0.35%	0.35%
Limited Warranty (years)	5	5	5	5
Power Management				
+5/+12V Max Start Current (A)	0.44/0.47	0.44/0.42	0.44/0.41	0.44/0.41
Average Sleep Power (W)	5.2	4.0	2.6	2.7
Configurable Power Limit Settings (W)	9 to 12	9 to 12	9 to 12	9 to 12
Average Idle Power (W)	6.2	5.0	3.6	3.5
Physical				
Height (mm/in, max)[5]	15.00mm/0.591in	15.00mm/0.591in	7.00mm/0.276in	7.00mm/0.276in
Width (mm/in, max)[5]	70.10mm/2.760in	70.10mm/2.760in	70.10mm/2.760in	70.10mm/2.760in
Depth (mm/in, max)[5]	100.45mm/3.955in	100.45mm/3.955in	100.45mm/3.955in	100.45mm/3.955in
Weight (g/lb)	165g/0.3638lb	155g/0.3417lb	85g/0.1874lb	80g/0.1764lb
Carton Unit Quantity	10	10	10	10
Cartons per Pallet/Cartons per Layer	90/9	90/9	90/9	90/9

1 Not all drives may be available in all countries. Seagate Secure drives meet ISO/IEC 27040 and NIST 800-88 standards and may require use of TCG-compliant host or controller support.
2 Single-port perfomance: 1100MB/s of 128KB sequential reads
3 Dual-port performance. Performance measured at beginning of life. System application performance may vary based on SAS host and prior system workload.
4 DWPD = full drive writes per day
5 These base deck dimensions conform to the Small Form Factor Standard (SFF-8201) found at www.sffcommittee.org. For connector-related dimensions, see SFF-8223 (SAS models).

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Specifications	Light Endurance			
Capacity	3840GB	3200GB	1920GB	1600GB
Standard Model Numbers	ST3840FM0003	ST3200FM0063	ST1920FM0003	ST1600FM0073
Seagate Secure™ SED Model[1]	ST3840FM0023	ST3200FM0073	ST1920FM0023	ST1600FM0083
Seagate Secure FIPS 140-2 Model[1]	—	—	—	—
Features				
Interface	Dual 12Gb/s SAS	Dual 12Gb/s SAS	Dual 12Gb/s SAS	Dual 12Gb/s SAS
NAND Flash Type	eMLC	eMLC	eMLC	eMLC
Form Factor	2.5in – 15mm	2.5in – 15mm	2.5in – 15mm	2.5in – 15mm
Performance				
Sequential Read (MB/s) Sustained, 128KB[2,3]	1850	1600	1850	1600
Sequential Write (MB/s) Sustained, 128KB[3]	770	850	850	850
Random Read (IOPS) Sustained, 4KB QD32[3]	180,000	180,000	180,000	180,000
Random Write (IOPS) Sustained, 4KB QD32[3]	30,000	20,000	30,000	20,000
Average Latency (µs)[3]	115	115	115	115
Endurance/Reliability				
Lifetime Endurance (DWPD)[4]	3	2	3	2
Nonrecoverable Read Errors per Bits Read, Max	1 per 10E17	1 per 10E17	1 per 10E17	1 per 10E17
Annualized Failure Rate (AFR)	0.35%	0.35%	0.35%	0.35%
Limited Warranty (years)	5	5	5	5
Power Management				
+5/+12V Max Start Current (A)	0.44/0.42	0.44/0.41	0.44/0.47	0.44/0.42
Average Sleep Power (W)	4.8	4.8	4.1	4.1
Configurable Power Limit Settings (W)	9 to 12	9 to 12	9 to 12	9 to 12
Average Idle Power (W)	5.8	5.8	5.1	5.1
Physical				
Height (mm/in, max)[5]	15.00mm/0.591in	15.00mm/0.591in	15.00mm/0.591in	15.00mm/0.591in
Width (mm/in, max)[5]	70.10mm/2.760in	70.10mm/2.760in	70.10mm/2.760in	70.10mm/2.760in
Depth (mm/in, max)[5]	100.45mm/3.955in	100.45mm/3.955in	100.45mm/3.955in	100.45mm/3.955in
Weight (g/lb)	165g/0.3638lb	165g/0.3638lb	155g/0.3417lb	155g/0.3417lb
Carton Unit Quantity	10	10	10	10
Cartons per Pallet/Cartons per Layer	90/9	90/9	90/9	90/9

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4 DWPD = full drive writes per day
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NYTRO™ ENTERPRISE

Specifications	Light Endurance			
Capacity	960GB	800GB	480GB	400GB
Standard Model Numbers	ST960FM0003	ST800FM0233	ST480FM0003	ST400FM0303
Seagate Secure™ SED Model[1]	ST960FM0013	ST800FM0243	ST480FM0013	ST400FM0343
Seagate Secure FIPS 140-2 Model[1]	—	—	—	—
Features				
Interface	Dual 12Gb/s SAS	Dual 12Gb/s SAS	Dual 12Gb/s SAS	Dual 12Gb/s SAS
NAND Flash Type	eMLC	eMLC	eMLC	eMLC
Form Factor	2.5in – 7mm	2.5in – 7mm	2.5in – 7mm	2.5in – 7mm
Performance				
Sequential Read (MB/s) Sustained, 128KB[2,3]	1700	1400	1550	1400
Sequential Write (MB/s) Sustained, 128KB[3]	850	710	615	490
Random Read (IOPS) Sustained, 4KB QD32[3]	180,000	180,000	180,000	180,000
Random Write (IOPS) Sustained, 4KB QD32[3]	30,000	20,000	30,000	20,000
Average Latency (µs)[3]	115	115	115	115
Endurance/Reliability				
Lifetime Endurance (DWPD)[4]	3	2	3	3
Nonrecoverable Read Errors per Bits Read, Max	1 per 10E17	1 per 10E17	1 per 10E17	1 per 10E17
Annualized Failure Rate (AFR)	0.35%	0.35%	0.35%	0.35%
Limited Warranty (years)	5	5	5	5
Power Management				
+5/+12V Max Start Current (A)	0.44/0.41	0.44/0.41	0.44/0.41	0.44/0.41
Average Sleep Power (W)	2.6	2.6	2.7	2.7
Configurable Power Limit Settings (W)	9 to 12	9 to 12	9 to 12	9 to 12
Average Idle Power (W)	3.9	3.9	3.5	3.5
Physical				
Height (mm/in, max)[5]	7.00mm/0.276in	7.00mm/0.276in	7.00mm/0.276in	7.00mm/0.276in
Width (mm/in, max)[5]	70.10mm/2.760in	70.10mm/2.760in	70.10mm/2.760in	70.10mm/2.760in
Depth (mm/in, max)[5]	100.45mm/3.955in	100.45mm/3.955in	100.45mm/3.955in	100.45mm/3.955in
Weight (g/lb)	85g/0.1874lb	85g/0.1874lb	80g/0.1764lb	80g/0.1764lb
Carton Unit Quantity	10	10	10	10
Cartons per Pallet/Cartons per Layer	90/9	90/9	90/9	90/9

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EUROstor
Hornbergstr. 39, D-70794 Filderstadt, Tel: +49 711 70 70 91 70, Fax: +49 711 70 70 91 60
E-Mail: info@EUROstor.com
www.EUROstor.com

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Specifications	Scalable Endurance	
Capacity	3840GB	1920GB
Standard Model Numbers	ST3840FM0043	ST1920FM0043
Seagate Secure™ SED Model[1]	ST3840FM0053	ST1920FM0053
Seagate Secure FIPS 140-2 Model[1]	—	—
Features		
Interface	Dual 12Gb/s SAS	Dual 12Gb/s SAS
NAND Flash Type	eMLC	eMLC
Form Factor	2.5in – 15mm	2.5in – 15mm
Performance		
Sequential Read (MB/s) Sustained, 128KB[2,3]	1700	1700
Sequential Write (MB/s) Sustained, 128KB[3]	770	850
Random Read (IOPS) Sustained, 4KB QD32[3]	180,000	180,000
Random Write (IOPS) Sustained, 4KB QD32[3]	15,000	12,000
Average Latency (µs)[3]	115	115
Endurance/Reliability		
Lifetime Endurance (DWPD)[4]	1	1
Nonrecoverable Read Errors per Bits Read, Max	1 per 10E17	1 per 10E17
Annualized Failure Rate (AFR)	0.35%	0.35%
Limited Warranty (years)	5	5
Power Management		
+5/+12V Max Start Current (A)	0.44/0.41	0.44/0.42
Average Sleep Power (W)	4.8	4.1
Configurable Power Limit Settings (W)	9 to 12	9 to 12
Average Idle Power (W)	5.8	5.1
Physical		
Height (mm/in, max)[5]	15.00mm/0.591in	15.00mm/0.591in
Width (mm/in, max)[5]	70.10mm/2.760in	70.10mm/2.760in
Depth (mm/in, max)[5]	100.45mm/3.955in	100.45mm/3.955in
Weight (g/lb)	165g/0.3638lb	155g/0.3417lb
Carton Unit Quantity	10	10
Cartons per Pallet/Cartons per Layer	90/9	90/9

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2 Single-port perfomance: 1100MB/s of 128KB sequential reads
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AMERICAS Seagate Technology LLC 10200 South De Anza Boulevard, Cupertino, California 95014, United States, 408-658-1000
ASIA/PACIFIC Seagate Singapore International Headquarters Pte. Ltd. 7000 Ang Mo Kio Avenue 5, Singapore 569877, 65-6485-3888
EUROPE, MIDDLE EAST AND AFRICA Seagate Technology SAS 16-18, rue du Dôme, 92100 Boulogne-Billancourt, France, 33 1-4186 10 00

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