



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 optimised for demanding enterprise applications and improved TCO.



Industry-Leading Performance up to 1,900 MB/s

The 1200.2 SAS SSD family delivers ultra-fast, consistent and easily scalable performance that exceeds 12 Gb/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 virtualisation 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 4 TB-class in a 2.5-inch form factor, to increase enterprise storage density in data centres. 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 unauthorised 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.

Key Features and Benefits

- Dual-port 12 Gb/s SAS interface
- Industry-leading storage density range up to 4 TB-class capacity
- Ultra-fast performance of up to 1,900 MB/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 virtualisation
- OLTP databases
- Software-defined storage
- All flash arrays
- Caching and tiering





Specifications	Mainstream Endurance			
	3200GB	1600GB	800GB	400GB
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	2.5 in – 15 mm	2.5 in – 15 mm	2.5 in – 7 mm	2.5 in – 7 mm
Performance				
Sequential Read (MB/s) Sustained, 128 KB ^{2,3}	1,900	1,900	1,850	1,550
Sequential Write (MB/s) Sustained, 128 KB ³	800	850	850	625
Random Read (IOPS) Sustained, 4 KB QD32 ³	200,000	200,000	200,000	180,000
Random Write (IOPS) Sustained, 4 KB 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
Non-recoverable Read Errors per Bits Read, Max	1 per 10E17	1 per 10E17	1 per 10E17	1 per 10E17
Annualised Failure Rate (AFR)	0.35%	0.35%	0.35%	0.35%
Limited Warranty (years)	5	5	5	5
Power Management				
+5/+12 V 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	2.6	2.7
Configurable Power Limit Settings (W)	9 to 12	9 to 12	9 to 12	9 to 12
Average Idling Power (W)	6.2	5	3.6	3.5
Physical				
Height (mm/in, max) ⁵	15 mm/0.591 in	15 mm/0.591 in	7 mm/0.276 in	7 mm/0.276 in
Width (mm/in, max) ⁵	70.1 mm/2.76 in	70.1 mm/2.76 in	70.1 mm/2.76 in	70.1 mm/2.76 in
Depth (mm/in, max) ⁵	100.45 mm/3.955 in	100.45 mm/3.955 in	100.45 mm/3.955 in	100.45 mm/3.955 in
Weight (lb/g)	165 g/0.3638 lb	155 g/0.3417 lb	85 g/0.1874 lb	80 g/0.1764 lb
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 performance: 1100 MB/s of 128 KB 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).



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	2.5 in – 15 mm	2.5 in – 15 mm	2.5 in – 15 mm	2.5 in – 15 mm
Performance				
Sequential Read (MB/s) Sustained, 128 KB ^{2,3}	1,850	1,600	1,850	1,600
Sequential Write (MB/s) Sustained, 128 KB ³	770	850	850	850
Random Read (IOPS) Sustained, 4 KB QD32 ³	180,000	180,000	180,000	180,000
Random Write (IOPS) Sustained, 4 KB 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
Non-recoverable Read Errors per Bits Read, Max	1 per 10E17	1 per 10E17	1 per 10E17	1 per 10E17
Annualised Failure Rate (AFR)	0.35%	0.35%	0.35%	0.35%
Limited Warranty (years)	5	5	5	5
Power Management				
+5/+12 V 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 Idling Power (W)	5.8	5.8	5.1	5.1
Physical				
Height (mm/in, max) ⁵	15 mm/0.591 in	15 mm/0.591 in	15 mm/0.591 in	15 mm/0.591 in
Width (mm/in, max) ⁵	70.1 mm/2.76 in	70.1 mm/2.76 in	70.1 mm/2.76 in	70.1 mm/2.76 in
Depth (mm/in, max) ⁵	100.45 mm/3.955 in	100.45 mm/3.955 in	100.45 mm/3.955 in	100.45 mm/3.955 in
Weight (lb/g)	165 g/0.3638 lb	165 g/0.3638 lb	155 g/0.3417 lb	155 g/0.3417 lb
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 performance: 1100 MB/s of 128 KB 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).



Specifications	Light Endurance			
	960GB	800GB	480GB	400GB
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	2.5 in – 7 mm	2.5 in – 7 mm	2.5 in – 7 mm	2.5 in – 7 mm
Performance				
Sequential Read (MB/s) Sustained, 128 KB ^{2,3}	1,700	1,400	1,550	1,400
Sequential Write (MB/s) Sustained, 128 KB ³	850	710	615	490
Random Read (IOPS) Sustained, 4 KB QD32 ³	180,000	180,000	180,000	180,000
Random Write (IOPS) Sustained, 4 KB 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
Non-recoverable Read Errors per Bits Read, Max	1 per 10E17	1 per 10E17	1 per 10E17	1 per 10E17
Annualised Failure Rate (AFR)	0.35%	0.35%	0.35%	0.35%
Limited Warranty (years)	5	5	5	5
Power Management				
+5/+12 V 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 Idling Power (W)	3.9	3.9	3.5	3.5
Physical				
Height (mm/in, max) ⁵	7 mm/0.276 in	7 mm/0.276 in	7 mm/0.276 in	7 mm/0.276 in
Width (mm/in, max) ⁵	70.1 mm/2.76 in	70.1 mm/2.76 in	70.1 mm/2.76 in	70.1 mm/2.76 in
Depth (mm/in, max) ⁵	100.45 mm/3.955 in	100.45 mm/3.955 in	100.45 mm/3.955 in	100.45 mm/3.955 in
Weight (lb/g)	85 g/0.1874 lb	85 g/0.1874 lb	80 g/0.1764 lb	80 g/0.1764 lb
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 performance: 1100 MB/s of 128 KB 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).



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	2.5 in – 15 mm	2.5 in – 15 mm
Performance		
Sequential Read (MB/s) Sustained, 128 KB ^{2,3}	1,700	1,700
Sequential Write (MB/s) Sustained, 128 KB ³	770	850
Random Read (IOPS) Sustained, 4 KB QD32 ³	180,000	180,000
Random Write (IOPS) Sustained, 4 KB QD32 ³	15,000	12,000
Average Latency (µs) ³	115	115
Endurance/Reliability		
Lifetime Endurance (DWPD) ⁴	1	1
Non-recoverable Read Errors per Bits Read, Max	1 per 10E17	1 per 10E17
Annualised Failure Rate (AFR)	0.35%	0.35%
Limited Warranty (years)	5	5
Power Management		
+5/+12 V 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 Idling Power (W)	5.8	5.1
Physical		
Height (mm/in, max) ⁵	15 mm/0.591 in	15 mm/0.591 in
Width (mm/in, max) ⁵	70.1 mm/2.76 in	70.1 mm/2.76 in
Depth (mm/in, max) ⁵	100.45 mm/3.955 in	100.45 mm/3.955 in
Weight (lb/g)	165 g/0.3638 lb	155 g/0.3417 lb
Carton Unit Quantity	10	10
Cartons per Pallet / Cartons per Layer	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 performance: 1100 MB/s of 128 KB 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).

seagate.com



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

© 2017 Seagate Technology LLC. All rights reserved. Seagate, Seagate Technology and the Spiral logo are registered trademarks of Seagate Technology LLC in the United States and/or other countries. Nytro, the Nytro logo, Seagate Secure and the Seagate Secure logo are either trademarks or registered trademarks of Seagate Technology LLC or one of its affiliated companies in the United States and/or other countries. All other trademarks or registered trademarks are the property of their respective owners. When referring to drive capacity, one gigabyte, or GB, equals one billion bytes; and one terabyte, or TB, equals one trillion bytes. Your computer's operating system may use a different standard of measurement and report a lower capacity. In addition, some of the listed capacity is used for formatting and other functions, and thus will not be available for data storage. Actual data rates may vary depending on operating environment and other factors, such as chosen interface and disk capacity. The export or re-export of Seagate hardware or software is regulated by the U.S. Department of Commerce, Bureau of Industry and Security (for more information, visit www.bis.doc.gov), and may be controlled for export, import and use in other countries. Seagate reserves the right to change, without notice, product offerings or specifications. DS1947.1-1709GB September 2017