

Data Sheet

Constellation.2™

Design Small and Deliver BIG—2.5-Inch,
Eco-Friendly Nearline Drive

Key Advantages

- Second generation of the first 2.5-inch, mainstream capacity, 15mm z-height, nearline enterprise drive for space-constrained data centers
- Choose 6Gb/s SAS for data integrity, scalability and fast data access, or SATA 6Gb/s for fast, economical Tier 2/nearline performance.
- The industry's highest-reliability 7200-RPM drive, designed for 24x7 operation with MTBF of 1.4M hours and AFR of 0.62%
- Enterprise-class firmware features and best-in-class rotational vibration tolerance maximize system availability and performance.
- Lowest operating power (under 6.4W) and enhanced PowerChoice™ options for additional power savings during slow or idle periods; Workload Management™ technology helps systems keep drives cool.
- Self-Encrypting Drive (SED) option (AES-256) cuts IT drive retirement costs while securely protecting data where it lives—on the drive.¹
- FIPS 140-2 Validated™ drives protect *Sensitive but Unclassified* and *Protected* class data.^{1,2}

Best-Fit Applications

- Storage-hungry business applications
- Storage area networks (SAN) and network attached storage (NAS)
- Maximum-capacity servers and blade servers
- Rich media content storage
- Enterprise backup and restore—D2D, virtual tape
- Cloud computing

¹ Self-Encrypting Drives (SED) and FIPS 140-2 Validated drives are not available in all models or countries. May require TCG-compliant host or controller support.

² See FIPS 140-2 Level 2 Certificate at <http://csrc.nist.gov/groups/STM/cmvp/documents/140-1/1401val2011.htm#1635>



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Specifications	6Gb/s SAS		SATA 6Gb/s		
	1TB ¹	500GB ¹	1TB ¹	500GB ¹	250GB ¹
Standard Model Number	ST91000640SS	ST9500620SS	ST91000640NS	ST9500620NS	ST9250610NS
SED Model Number	ST91000641SS ²	ST9500621SS ²	ST91000641NS ²	ST9500621NS ²	ST9250611NS ²
SED (AES-256) FIPS 140-2 Model Number	ST91000642SS ^{2,3}	ST9500622SS ^{2,3}	ST91000642NS ^{2,3}	ST9500622NS ^{2,3}	ST9250612NS ^{2,3}
Features					
Protection Information	Yes	Yes	—	—	—
Low Halogen	Yes	Yes	Yes	Yes	Yes
Reliability/Data Integrity					
Mean Time Between Failures (MTBF, hours)	1.4 million	1.4 million	1.4 million	1.4 million	1.4 million
Reliability Rating @ Full 24x7 Operation (AFR)	0.62%	0.62%	0.62%	0.62%	0.62%
Nonrecoverable Read Errors per Bits Read	1 sector per 10E15	1 sector per 10E15	1 sector per 10E15	1 sector per 10E15	1 sector per 10E15
Power-On Hours per Year	8760	8760	8760	8760	8760
Bytes per Sector	512, 520, 528	512, 520, 528	512	512	512
Limited Warranty (years) ⁴	5	5	5	5	5
Performance					
Spindle Speed (RPM)	7200	7200	7200	7200	7200
Cache, Multisegmented (MB)	64	64	64	64	64
Interface Access Speed (Gb/s)	6.0, 3.0, 1.5	6.0, 3.0, 1.5	6.0, 3.0, 1.5	6.0, 3.0, 1.5	6.0, 3.0, 1.5
Max. Sustained Transfer Rate (MB/s)	115	115	115	115	115
Seek Time, Average Read/Write (ms)	8.5/9.5	8.5/9.5	8.5/9.5	8.5/9.5	8.5/9.5
Average Latency (ms)	4.16	4.16	4.16	4.16	4.16
Interface Ports	Dual	Dual	Single	Single	Single
RV Tolerance (rad/s ² to 1800Hz)	16	16	16	16	16
Power Management					
Idle Power (W)	3.85	3.27	3.31	2.67	2.52
Typical Operating, Random Read (W)	6.4	5.6	5.21	4.51	4.35
Power Supply Requirements	+12V and +5V	+12V and +5V	+12V and +5V	+12V and +5V	+12V and +5V
PowerChoice™ Technology (W) ⁵	As low as 1.87	As low as 1.87	As low as 1.19	As low as 1.19	As low as 1.19
Environmental					
Temperature, Operating (°C)	5 to 60	5 to 60	5 to 60	5 to 60	5 to 60
Vibration, Operating, <400Hz (Gs)	0.5	0.5	0.5	0.5	0.5
Vibration, Nonoperating, <500Hz (Gs)	3.0	3.0	3.0	3.0	3.0
Shock, Operating, 2ms (Gs)	70	70	70	70	70
Shock, Nonoperating, 1ms and 2ms (Gs)	400	400	400	400	400
Acoustics, Typical Idle (bels)	2.2	2.2	2.2	2.2	2.2
Acoustics, Typical Seek (bels)	2.8	2.8	2.8	2.8	2.8
Physical					
Height (in/mm) ⁶	0.591/15.00	0.591/15.00	0.591/15.00	0.591/15.00	0.591/15.00
Width (in/mm) ⁶	2.760/70.10	2.760/70.10	2.760/70.10	2.760/70.10	2.760/70.10
Depth (in/mm) ⁶	3.955/100.45	3.955/100.45	3.955/100.45	3.955/100.45	3.955/100.45
Weight (lb/kg)	0.441/0.200	0.403/0.183	0.441/0.200	0.403/0.183	0.395/0.179
Carton Unit Quantity	30	30	30	30	30
Cartons per Pallet	50	50	50	50	50

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

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⁴ Nearline products shipped between December 31, 2011, and June 30, 2012, have a 3-year limited warranty. Nearline products shipped before December 31, 2011, or after June 30, 2012, have a 5-year limited warranty.

⁵ Based on 1TB capacity model.

⁶ 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

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