

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, 15 mm z-height, nearline drive for space-constrained data centres
- 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 most reliable 7,200 RPM drive, designed for 24x7 operation with an MTBF of 1.4M hours and an AFR of 0.62%
- Enterprise-class firmware and best-in-class rotational vibration tolerance maximise system availability and performance.
- Lowest operating power (under 6.4) and enhanced PowerChoice™ options for additional power savings (W) during slow or idling periods; Workload Management™ technology helps systems to keep drives cool
- Self-Encrypting Drive (SED) option (AES-256) cuts IT drive retirement costs while protecting data securely where it lives — on the drive<sup>1</sup>
- FIPS 140-2 Validated™ Drives protect data classed as *Sensitive but Unclassified* and *Protected*.<sup>1,2</sup>

## 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

<sup>1</sup> 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.

<sup>2</sup> 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 <sup>1</sup>	500GB <sup>1</sup>	1TB <sup>1</sup>	500GB <sup>1</sup>	250GB <sup>1</sup>
Standard Model Number	ST91000640SS	ST9500620SS	ST91000640NS	ST9500620NS	ST9250610NS
SED Model Number	ST91000641SS <sup>2</sup>	ST9500621SS <sup>2</sup>	ST91000641NS <sup>2</sup>	ST9500621NS <sup>2</sup>	ST9250611NS <sup>2</sup>
SED (AES-256) FIPS 140-2 Model Number	ST91000642SS <sup>2,3</sup>	ST9500622SS <sup>2,3</sup>	ST91000642NS <sup>2,3</sup>	ST9500622NS <sup>2,3</sup>	ST9250612NS <sup>2,3</sup>
<b>Features</b>					
Protection Information	Yes	Yes	—	—	—
Low Halogen	Yes	Yes	Yes	Yes	Yes
<b>Reliability/Data Integrity</b>					
Mean Time Between Failures (MTBF, hours)	1.4 million	1.4 million	1.4 million	1.4 million	1.4 million
Reliability Rating at Full 24x7 Operation (AFR)	0.62%	0.62%	0.62%	0.62%	0.62%
Non-recoverable Read Errors per Bits Read	1 sector per 10 <sup>15</sup>	1 sector per 10 <sup>15</sup>	1 sector per 10 <sup>15</sup>	1 sector per 10 <sup>15</sup>	1 sector per 10 <sup>15</sup>
Power-On Hours per Year	8,760	8,760	8,760	8,760	8,760
Bytes per Sector	512, 520, 528	512, 520, 528	512	512	512
LIMITED WARRANTY (years)	3	3	3	3	3
<b>Performance</b>					
Spindle Speed (RPM)	7,200	7,200	7,200	7,200	7,200
Cache, Multi-segmented (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 <sup>2</sup> to 1,800Hz)	16	16	16	16	16
<b>Power Management</b>					
Idling 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) <sup>5</sup>	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
<b>Environmental</b>					
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, Non-operating, <500Hz (Gs)	3.0	3.0	3.0	3.0	3.0
Shock, Operating, 2ms (Gs)	70	70	70	70	70
Shock, Non-operating, 1ms and 2ms (Gs)	400	400	400	400	400
Acoustics, typical – idling (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
<b>Physical</b>					
Height (in/mm) <sup>6</sup>	0.591/15.00	0.591/15.00	0.591/15.00	0.591/15.00	0.591/15.00
Width (in/mm) <sup>6</sup>	2.760/70.10	2.760/70.10	2.760/70.10	2.760/70.10	2.760/70.10
Depth (in/mm) <sup>6</sup>	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

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

<sup>2</sup> 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.

<sup>3</sup> See FIPS 140-2 Level 2 Certificate at <http://csrc.nist.gov/groups/STM/cmvp/documents/140-1/1401val2011.htm#1635>

<sup>4</sup> Nearline products shipped on or after 31 December, 2011, have a 3-year limited warranty. Nearline products shipped before 31 December, 2011, have a 5-year limited warranty.

<sup>5</sup> Based on 1TB capacity model.

<sup>6</sup> These base deck dimensions conform to the Small Form Factor Standard (SFF-8201) found at [www.sffcommittee.org](http://www.sffcommittee.org). For connector-related dimensions, see SFF-8223



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