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 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 24×7 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 6.4W) and enhanced PowerChoice™ options for additional power savings 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[1]

- FIPS 140-2 Validated™ drives protect data classed as *Sensitive but Unclassified* and *Protected*[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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Seagate ®

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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 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^{15}	1 sector per 10^{15}	1 sector per 10^{15}	1 sector per 10^{15}	1 sector per 10^{15}
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) [4]	5	5	5	5	5
Performance					
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^2 to 1,800Hz)	16	16	16	16	16
Power Management					
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)[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, 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
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]	3.955/100.46	3.955/100.46	3.955/100.46	3.955/100.46	3.955/100.46
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.
[2] 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.
[3] See FIPS 140-2 Level 2 Certificate at http://csrc.nist.gov/groups/STM/cmvp/documents/140-1/1401val2011.htm#1635
[4] Nearline products shipped between 31 December 2011 and 30 June 2012 have a 3-year limited warranty. Nearline products shipped
  before 31 December 2011 or after 30 June 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.

FIPS VALIDATED 140-2
FIPS 140-2 INSIDE

Unified Storage™

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