

# Enterprise Capacity 2.5 HDD

## Data Sheet

### Design Small and Deliver BIG - 2.5-Inch Nearline Drive

- Up to 2 TB capacity in 15mm z-height, 2.5-inch form factor for space-constrained data centres
- Designed for high-density storage solutions requiring environmentally sound low power consumption and low weight for maximum storage efficiency
- Choose 12 Gb/s SAS for high data integrity, scalability and fast data access or SATA 6 Gb/s for economical nearline performance
- Third-generation, enterprise-class reliability for 24x7 environmental robustness
- Advanced sector formats (4K Native and 512 Emulation) as well as 512 Native support for legacy systems
- Highest efficiency with over 50% improvement in watts/TB, and 18% sequential performance improvement compared to the previous generation
- Improved rotational vibration tolerance and head micro-actuation maximises system availability and performance
- Lowest enterprise operating power and enhanced PowerChoice™ options for additional power savings during idle periods
- Protect data where it lives - on the drive - by choosing from government-grade SED FIPS 140-2 option or SED models with Seagate Instant Secure Erase technology for easy and cost-effective drive disposal<sup>1</sup>

### Best-fit Applications

- Storage-hungry business applications
- Storage area networks (SAN) and network attached storage (NAS)
- Maximum-capacity entry-level 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. Instant Secure Erase (ISE) functionality meets the ISO/IEC 27040 and NIST 800-88 guidelines for complete and authoritative drive sanitization.



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| Specifications                                 | 12 Gb/s SAS                   |                               |                               |                               |                               |                               |
|------------------------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
|                                                | 4K Native                     |                               | 5xx Emulation                 |                               | 5xx Native                    |                               |
|                                                | 2 TB <sup>1</sup>             | 1 TB <sup>1</sup>             | 2 TB <sup>1</sup>             | 1 TB <sup>1</sup>             | 2 TB <sup>1</sup>             | 1 TB <sup>1</sup>             |
| Standard Model Number                          | ST2000NX0263                  | ST1000NX0323                  | ST2000NX0273                  | ST1000NX0333                  | ST2000NX0433                  | ST1000NX0453                  |
| SED Model Number                               | ST2000NX0323 <sup>2</sup>     | ST1000NX0363 <sup>2</sup>     | ST2000NX0343 <sup>2</sup>     | ST1000NX0373 <sup>2</sup>     | —                             | —                             |
| SED-FIPS Model Number                          | ST2000NX0333 <sup>2</sup>     | —                             | ST2000NX0353 <sup>2</sup>     | —                             | —                             | —                             |
| Features                                       |                               |                               |                               |                               |                               |                               |
| PowerChoice™ On-Demand Power Option            | Yes                           | Yes                           | Yes                           | Yes                           | Yes                           | Yes                           |
| Protection Information                         | Yes                           | Yes                           | Yes                           | Yes                           | Yes                           | Yes                           |
| Low Halogen                                    | Yes                           | Yes                           | Yes                           | Yes                           | Yes                           | Yes                           |
| RAID Rebuild™                                  | Yes                           | Yes                           | Yes                           | Yes                           | Yes                           | Yes                           |
| Reliability/Data Integrity                     |                               |                               |                               |                               |                               |                               |
| Mean Time Between Failures (MTBF, hours)       | 2.0 million                   | 2.0 million                   | 2.0 million                   | 2.0 million                   | 2.0 million                   | 2.0 million                   |
| Reliability Rating @ Full 24x7 operation (AFR) | 0.44%                         | 0.44%                         | 0.44%                         | 0.44%                         | 0.44%                         | 0.44%                         |
| 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> | 1 sector per 10 <sup>15</sup> |
| Power-On Hours per Year                        | 8,760                         | 8,760                         | 8,760                         | 8,760                         | 8,760                         | 8,760                         |
| Bytes per Sector                               | 4K                            | 4K                            | 512, 520, 528                 | 512, 520, 528                 | 512, 520, 528                 | 512, 520, 528                 |
| Limited Warranty (years)                       | 5                             | 5                             | 5                             | 5                             | 5                             | 5                             |
| Performance                                    |                               |                               |                               |                               |                               |                               |
| Spindle Speed (RPM)                            | 7,200                         | 7,200                         | 7,200                         | 7,200                         | 7,200                         | 7,200                         |
| Cache Buffer, Multisegmented (MB)              | 128                           | 128                           | 128                           | 128                           | 128                           | 128                           |
| Interface Access Speed (Gb/s)                  | 12.0, 6.0, 3.0                | 12.0, 6.0, 3.0                | 12.0, 6.0, 3.0                | 12.0, 6.0, 3.0                | 12.0, 6.0, 3.0                | 12.0, 6.0, 3.0                |
| Max. Sustained Transfer Rate (MB/s)            | 136                           | 136                           | 136                           | 136                           | 136                           | 136                           |
| Average Latency (ms)                           | 4.16                          | 4.16                          | 4.16                          | 4.16                          | 4.16                          | 4.16                          |
| Interface Ports                                | Dual                          | Dual                          | Dual                          | Dual                          | Dual                          | Dual                          |
| RV Tolerance (rad/s <sup>2</sup> to 1,800 Hz)  | 16                            | 16                            | 16                            | 16                            | 16                            | 16                            |
| Power Management                               |                               |                               |                               |                               |                               |                               |
| Idling Power (W)                               | 3.53                          | 3.29                          | 3.53                          | 3.29                          | 3.53                          | 3.29                          |
| Typical Operating, Random Read (W)             | 6.02                          | 5.9                           | 6.02                          | 5.9                           | 6.02                          | 5.9                           |
| PowerChoice™ Technology (Standby) (W)          | 1.52                          | 1.52                          | 1.52                          | 1.52                          | 1.52                          | 1.52                          |
| Power Supply Requirements                      | +12 V and +5 V                | +12 V and +5 V                | +12 V and +5 V                | +12 V and +5 V                | +12 V and +5 V                | +12 V and +5 V                |
| Environmental                                  |                               |                               |                               |                               |                               |                               |
| Temperature, Operating (°C)                    | 5 to 55                       | 5 to 55                       | 5 to 55                       | 5 to 55                       | 5 to 55                       | 5 to 55                       |
| Vibration, Operating, 5 Hz to 500 Hz (Gs)      | 0.5                           | 0.5                           | 0.5                           | 0.5                           | 0.5                           | 0.5                           |
| Vibration, Non-operating, 5 Hz to 500 Hz (Gs)  | 3.0                           | 3.0                           | 3.0                           | 3.0                           | 3.0                           | 3.0                           |
| Shock, Operating, 2ms (Gs)                     | 25                            | 25                            | 25                            | 25                            | 25                            | 25                            |
| Shock, Non-operating, 2 ms (Gs)                | 400                           | 400                           | 400                           | 400                           | 400                           | 400                           |
| Acoustics, typical - idling (bels)             | 2.8                           | 2.8                           | 2.8                           | 2.8                           | 2.8                           | 2.8                           |
| Acoustics, typical - seek (bels)               | 3.2                           | 3.2                           | 3.2                           | 3.2                           | 3.2                           | 3.2                           |
| Physical                                       |                               |                               |                               |                               |                               |                               |
| Height (in/mm) <sup>3</sup>                    | 0.591/15.00                   | 0.591/15.00                   | 0.591/15.00                   | 0.591/15.00                   | 0.591/15.00                   | 0.591/15.00                   |
| Width (in/mm) <sup>3</sup>                     | 2.760/70.10                   | 2.760/70.10                   | 2.760/70.10                   | 2.760/70.10                   | 2.760/70.10                   | 2.760/70.10                   |
| Depth (in/mm) <sup>3</sup>                     | 3.955/100.45                  | 3.955/100.45                  | 3.955/100.45                  | 3.955/100.45                  | 3.955/100.45                  | 3.955/100.45                  |
| Weight (lb/kg)                                 | 0.437/0.198                   | 0.419/0.190                   | 0.437/0.198                   | 0.419/0.190                   | 0.437/0.198                   | 0.437/0.198                   |
| Carton Unit Quantity                           | 40                            | 40                            | 40                            | 40                            | 40                            | 40                            |
| Cartons per Pallet                             | 60                            | 60                            | 60                            | 60                            | 60                            | 60                            |
| Cartons per Layer                              | 10                            | 10                            | 10                            | 10                            | 10                            | 10                            |

<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. Instant Secure Erase (ISE) functionality meets the ISO/IEC 27040 and NIST 800-88 guidelines for complete and authoritative drive sanitization.

<sup>3</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.





# Enterprise Capacity 2.5 HDD



| Specifications                                 | 6 Gb/s SATA                   |                               |                               |                               |                               |                               |
|------------------------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
|                                                | 4K Native                     |                               | 512 Emulation                 |                               | 512 Native                    |                               |
|                                                | 2 TB <sup>1</sup>             | 1 TB <sup>1</sup>             | 2 TB <sup>1</sup>             | 1 TB <sup>1</sup>             | 2 TB <sup>1</sup>             | 1 TB <sup>1</sup>             |
| Standard Model Number                          | ST2000NX0243                  | ST1000NX0303                  | ST2000NX0253                  | ST1000NX0313                  | ST2000NX0403                  | ST1000NX0423                  |
| SED Model Number                               | ST2000NX0283 <sup>2</sup>     | ST1000NX0343 <sup>2</sup>     | ST2000NX0303 <sup>2</sup>     | ST1000NX0353 <sup>2</sup>     | —                             | —                             |
| Features                                       |                               |                               |                               |                               |                               |                               |
| PowerChoice™ On-Demand Power Option            | Yes                           | Yes                           | Yes                           | Yes                           | Yes                           | Yes                           |
| Low Halogen                                    | Yes                           | Yes                           | Yes                           | Yes                           | Yes                           | Yes                           |
| RAID Rebuild™                                  | Yes                           | Yes                           | Yes                           | Yes                           | Yes                           | Yes                           |
| Reliability/Data Integrity                     |                               |                               |                               |                               |                               |                               |
| Mean Time Between Failures (MTBF, hours)       | 2.0 million                   | 2.0 million                   | 2.0 million                   | 2.0 million                   | 2.0 million                   | 2.0 million                   |
| Reliability Rating @ Full 24x7 operation (AFR) | 0.44%                         | 0.44%                         | 0.44%                         | 0.44%                         | 0.44%                         | 0.44%                         |
| 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> | 1 sector per 10 <sup>15</sup> |
| Power-On Hours per Year                        | 8,760                         | 8,760                         | 8,760                         | 8,760                         | 8,760                         | 8,760                         |
| Bytes per Sector                               | 4K                            | 4K                            | 512                           | 512                           | 512                           | 512                           |
| Limited Warranty (years)                       | 5                             | 5                             | 5                             | 5                             | 5                             | 5                             |
| Performance                                    |                               |                               |                               |                               |                               |                               |
| Spindle Speed (RPM)                            | 7,200                         | 7,200                         | 7,200                         | 7,200                         | 7,200                         | 7,200                         |
| Cache Buffer, Multisegmented (MB)              | 128                           | 128                           | 128                           | 128                           | 128                           | 128                           |
| 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                 | 6.0, 3.0, 1.5                 |
| Max. Sustained Transfer Rate (MB/s)            | 136                           | 136                           | 136                           | 136                           | 136                           | 136                           |
| Average Latency (ms)                           | 4.16                          | 4.16                          | 4.16                          | 4.16                          | 4.16                          | 4.16                          |
| Interface Ports                                | Single                        | Single                        | Single                        | Single                        | Single                        | Single                        |
| RV Tolerance (rad/s <sup>2</sup> to 1,800 Hz)  | 16                            | 16                            | 16                            | 16                            | 16                            | 16                            |
| Power Management                               |                               |                               |                               |                               |                               |                               |
| Idling Power (W)                               | 3.87                          | 3.51                          | 3.87                          | 3.51                          | 3.87                          | 3.51                          |
| Typical Operating, Random Read (W)             | 5.22                          | 4.74                          | 5.22                          | 4.74                          | 5.22                          | 4.74                          |
| PowerChoice™ Technology (Standby) (W)          | 1.14                          | 1.14                          | 1.14                          | 1.14                          | 1.14                          | 1.14                          |
| Power Supply Requirements                      | +12 V and +5 V                | +12 V and +5 V                | +12 V and +5 V                | +12 V and +5 V                | +12 V and +5 V                | +12 V and +5 V                |
| Environmental                                  |                               |                               |                               |                               |                               |                               |
| Temperature, Operating (°C)                    | 5 to 55                       | 5 to 55                       | 5 to 55                       | 5 to 55                       | 5 to 55                       | 5 to 55                       |
| Vibration, Operating, 5 Hz to 500 Hz (Gs)      | 0.5                           | 0.5                           | 0.5                           | 0.5                           | 0.5                           | 0.5                           |
| Vibration, Non-operating, 5 Hz to 500 Hz (Gs)  | 3.0                           | 3.0                           | 3.0                           | 3.0                           | 3.0                           | 3.0                           |
| Shock, Operating, 2ms (Gs)                     | 25                            | 25                            | 25                            | 25                            | 25                            | 25                            |
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| Acoustics, typical - idling (bels)             | 2.8                           | 2.8                           | 2.8                           | 2.8                           | 2.8                           | 2.8                           |
| Acoustics, typical - seek (bels)               | 3.2                           | 3.2                           | 3.2                           | 3.2                           | 3.2                           | 3.2                           |
| Physical                                       |                               |                               |                               |                               |                               |                               |
| Height (in/mm) <sup>3</sup>                    | 0.591/15.00                   | 0.591/15.00                   | 0.591/15.00                   | 0.591/15.00                   | 0.591/15.00                   | 0.591/15.00                   |
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| Carton Unit Quantity                           | 40                            | 40                            | 40                            | 40                            | 40                            | 40                            |
| Cartons per Pallet                             | 60                            | 60                            | 60                            | 60                            | 60                            | 60                            |
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<sup>3</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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