



DATA SHEET

Powerful performance. Proven technology. Scalable design.

# Exos X20



"Designed with the highest rack-space efficiency and protected with Seagate Secure™ Exos X20 offers extreme market-leading capacity, earning customer confidence by delivering trusted peace of mind."



## Best-Fit Applications

- Scalable hyperscale applications/cloud data centres
- Massive scale-out data centres
- Big data applications
- High-capacity density RAID storage
- Mainstream enterprise external storage arrays
- Distributed file systems, including Hadoop and Ceph
- Enterprise backup and restore — D2D, virtual tape
- Centralised surveillance

## Maximum Storage Capacity for Highest Rack Space Efficiency

**Market-leading 20 TB HDD** offering the highest capacity available for more petabytes per rack<sup>1</sup>

**Highly reliable performance** with enhanced caching, making it the logical choice for cloud data centre and massive scale-out data centre applications

**Hyperscale SATA model** tuned for large data transfers and low latency

**PowerBalance™** feature optimises Watts/TB

**Maximise total cost of ownership savings** through lower power and weight with helium sealed-drive design

**Proven helium side-sealing weld technology** for added handling robustness and leak protection

**Digital environmental sensors** to monitor internal drive conditions for optimal operation and performance

**Data protection and security** — Seagate Secure features for safe, affordable, fast and easy drive retirement

Proven enterprise-class reliability backed by **5-year limited warranty and 2.5M-hr MTBF rating**

<sup>1</sup> Compared to 18 TB competitive product



Specifications	SATA 6 Gb/s	SAS 12Gb/s	SATA 6 Gb/s	12 Gb/s SAS
Capacity	20 TB	20 TB	18 TB	18 TB
Standard Model FastFormat™ (512e/4Kn) <sup>1</sup>	ST20000NM007D	ST20000NM002D	ST18000NM003D	ST18000NM000D
SED Model FastFormat (512e/4Kn) <sup>1,2</sup>	ST20000NM000D	ST20000NM003D	ST18000NM004D	ST18000NM001D
SED-FIPS FastFormat (512e/4Kn) <sup>1,2</sup>	—	ST20000NM005D	—	ST18000NM002D
<b>Features</b>				
Helium Sealed-Drive Design	Yes	Yes	Yes	Yes
Conventional Magnetic Recording (CMR)	Yes	Yes	Yes	Yes
Protection Information (T10 DIF)	—	Yes	—	Yes
SuperParity	Yes	Yes	Yes	Yes
Low Halogen	Yes	Yes	Yes	Yes
PowerChoice™ Idle Power Technology	Yes	Yes	Yes	Yes
PowerBalance™ Power/Performance Technology	Yes	Yes	Yes	Yes
Hot-Plug Support <sup>3</sup>	Yes	Yes	Yes	Yes
Cache, Multi-segmented (MB)	256	256	256	256
Organic Solderability Preservative	Yes	Yes	Yes	Yes
RSA 3072 Firmware Verification (SD&D)	Yes	Yes	Yes	Yes
<b>Reliability/Data Integrity</b>				
Mean Time Between Failures (MTBF, hours)	2,500,000	2,500,000	2,500,000	2,500,000
Reliability Rating @ Full 24x7 Operation (AFR)	0.35%	0.35%	0.35%	0.35%
Non-recoverable Read Errors per Bits Read	1 sector per 10E15	1 sector per 10E15	1 sector per 10E15	1 sector per 10E15
Power-On Hours per Year (24x7)	8,760	8,760	8,760	8,760
512e Sector Size (Bytes per Sector)	512	512, 520, 528	512	512, 520, 528
4Kn Sector Size (Bytes per Sector)	4,096	4,096, 4,160, 4,224	4,096	4,096, 4,160, 4,224
Limited Warranty (years)	5	5	5	5
<b>Performance</b>				
Spindle Speed (RPM)	7,200 RPM	7,200 RPM	7,200 RPM	7,200 RPM
Interface Access Speed (Gb/s)	6.0, 3.0	12.0, 6.0, 3.0	6.0, 3.0	12.0, 6.0, 3.0
Max. Sustained Transfer Rate OD (MB/s, MiB/s)	285/272	285/272	285/272	285/272
Random Read/Write 4K QD16 WCD (IOPS)	168/550	168/550	168/550	168/550
Average Latency (ms)	4.16	4.16	4.16	4.16
Interface Ports	Single	Dual	Single	Dual
Rotation Vibration @ 20-1500 Hz (rad/sec <sup>2</sup> )	12.5	12.5	12.5	12.5
<b>POWER CONSUMPTION</b>				
Idle A (W) Average	5.4 W	5.8 W	5.4 W	5.8 W
Max Operating, Random Read/Write 4K/16Q (W)	9.4, 6.4	9.8, 7.0	9.4, 6.4	9.8, 7.0
Power Supply Requirements	+12 V and +5 V	+12 V and +5 V	+12 V and +5 V	+12 V and +5 V
<b>Environmental</b>				
Temperature, Operating (°C)	5°C – 60°C	5°C – 60°C	5°C – 60°C	5°C – 60°C
Vibration, Non-operating: 2 to 500 Hz (Grms)	2.27	2.27	2.27	2.27
Shock, Operating 2 ms (Read/Write) (Gs)	40	40	40	40
Shock, Non-operating 2 ms (GS)	200	200	200	200
<b>Physical</b>				
Height (in/mm, max) <sup>4</sup>	1.028 in/26.1 mm	1.028 in/26.1 mm	1.028 in/26.1 mm	1.028 in/26.1 mm
Width (in/mm, max) <sup>3</sup>	4.01 in/101.85 mm	4.01 in/101.85 mm	4.01 in/101.85 mm	4.01 in/101.85 mm
Depth (in/mm, max) <sup>4</sup>	5.787 in/147 mm	5.787 in/147 mm	5.787 in/147 mm	5.787 in/147 mm
Weight (gm/lb)	670 g/1.477 lb	670 g/1.477 lb	670 g/1.477 lb	670 g/1.477 lb
Carton Unit Quantity	20	20	20	20
Cartons per Pallet / Cartons per Layer	40/8	40/8	40/8	40/8

<sup>1</sup> FastFormat models ship in 512e format state. When switching from 512e to 4Kn by executing the FastFormat routine, all data on the drive will be deleted. Note that data must be aligned to 4K sectors to see improved performance in 4Kn format.

<sup>2</sup> Self-Encrypting Drives (SED) and FIPS 140-3 Validated drives available through franchised authorised distributors. May require TCG-compliant host or controller support.

<sup>3</sup> Supports Hotplug operation per Serial ATA Revision 3.3 specification

<sup>4</sup> These base deck dimensions conform to the Small Form Factor Standard (SFF-8301) found at <https://www.snia.org/sff>. For connector-related dimensions, see SFF-8323.

© 2021 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. Exos, the Exos logo, FastFormat, PowerBalance, PowerChoice, and Seagate Secure 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](http://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. DS2080-2111GB November 2021