



DATA SHEET

Scalable. Responsive. Innovative.
Exos X20z



Seagate manufactures hard drives that specifically address the demand for hyperscale cloud scalability. As the flagship of the Seagate® X class, the Exos® X20z enterprise hard drives are the highest-capacity hard drives in the fleet.



Maximum Storage Capacity for Highest Rack Space Efficiency

Exos X20z is a 20TB drive enabled by host-managed SMR (shingled magnetic recording) to achieve the highest data density

Highest 20TB hard drive performance with enhanced caching, making it perfect for cloud data center and massive scale-out data center applications

Hyperscale SATA model tuned for large data transfers and low latency

PowerBalance™ feature optimizes Watts/TB

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

Helium sealed-drive design delivers lower total cost of ownership through lower power and weight

Next-generation 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**

Best-Fit Applications

- Scalable hyperscale applications/cloud data centers
- Massive scale-out data centers
- 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
- Centralized surveillance

¹ Compared to 14TB competitive product



Specifications	SATA 6Gb/s	12Gb/s SAS
Capacity	20TB	20TB
Standard Model (512e)	ST20000NM001J	—
Standard Model (4Kn)	—	ST20000NM000J
Features		
Helium Sealed-Drive Design	Yes	Yes
Shingled Magnetic Recording (SMR)	Yes	Yes
Protection Information (T10 DIF)	—	Yes
SuperParity	Yes	Yes
Low Halogen	Yes	Yes
PowerChoice™ Idle Power Technology	Yes	Yes
PowerBalance™ Power/Performance Technology	Yes	Yes
Hot-Plug Support ¹	Yes	Yes
Cache, Multisegmented (MB)	256	256
Organic Solderability Preservative	Yes	Yes
RSA 3072 Firmware Verification (SD&D)	Yes	Yes
Reliability/Data Integrity		
Mean Time Between Failures (MTBF, hours)	2,500,000	2,500,000
Reliability Rating @ Full 24x7 Operation (AFR)	0.35%	0.35%
Nonrecoverable Read Errors per Bits Read	1 sector per 10E15	1 sector per 10E15
Power-On Hours per Year (24x7)	8760	8760
512e Sector Size (Bytes per Sector)	512	—
4Kn Sector Size (Bytes per Sector)	—	4096
Limited Warranty (years)	5	5
Performance		
Spindle Speed (RPM)	7200RPM	7200RPM
Interface Access Speed (Gb/s)	6.0, 3.0	12.0, 6.0, 3.0
Max. Sustained Transfer Rate OD (MB/s, MiB/s)	270/258	270/258
Average Latency (ms)	4.16	4.16
Interface Ports	Single	Dual
Rotation Vibration @ 20-1500 Hz (rad/sec ²)	12.5	12.5
Power Consumption		
Idle A (W) Average	5.1W	5.7W
Max Operating, Random Read 4K/16Q (W)	9.1	9.5
Power Supply Requirements	+12 V and +5 V	+12 V and +5 V
Environmental		
Temperature, Operating (°C)	5°C – 60°C	5°C – 60°C
Vibration, Nonoperating: 2 to 500Hz (Grms)	2.27	2.27
Shock, Operating 2ms (Read/Write) (Gs)	50	50
Shock, Nonoperating 2ms (Gs)	200	200
Physical		
Height (mm/in, max) ²	26.1mm/1.028in	26.1mm/1.028in
Width (mm/in, max) ²	101.85mm/4.010in	101.85mm/4.010in
Depth (mm/in, max) ²	147.0mm/5.787in	147.0mm/5.787in
Weight (g/lb)	670g/1.477lb	670g/1.477lb
Carton Unit Quantity	20	20
Cartons per Pallet/Cartons per Layer	40/8	40/8

¹ Supports Hotplug operation per Serial ATA Revision 3.3 specification

² These base deck dimensions conform to the Small Form Factor Standard (SFF-8301) found at www.sffcommittee.org. For connector-related dimensions, see SFF-8323.

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