Nytro® XF1440 and XM1440 NVMe SSDs

Data Sheet

Key Features and Benefits

- PCIe Gen3 ×4 interface with NVMe protocol for improved latency, consistent response time and high throughput
- Best-in-class performance per Watt of up to 30,000 IOPS/W enables more computing with less energy consumption
- Host-selectable performance optimization to balance performance and power
- Industry-leading storage density of up to 1.92TB in both 2.5-inch × 7mm and M.2 22110 form factors
- Optimized for read-intensive and mixed workloads
- Hot-swappable 2.5-inch SSD with SFF-8639 connector for easy serviceability
- Power loss data protection circuit to prevent loss of data in the event of unexpected power interruptions
- End-to-end data protection, LDPC error correction and Seagate RAISE technology for a high level of data integrity and reliability

The Seagate Nytro XF1440 2.5-inch solid state drive (SSD) and Seagate Nytro XM1440 M.2 SSD are the new class of low-power enterprise NVMe SSDs with optimized power and performance designed to increase storage density in data centers. With the NVMe protocol the XF1440 and XM1440 SSDs deliver 5× the bandwidth of SATA SSDs, eliminating performance bottlenecks and significantly improving quality of service.

Increase Storage Density in Data Centers

The Nytro XF1440 and XM1440 are low-power, high-performance enterprise NVMe SSDs in compact form factors engineered to increase storage density as well as reduce storage footprints and power use in data centers. The SSDs enable more computing with less space, energy and cost by delivering the highest performance in the smallest power envelope.

Improve Data Center Efficiency and Lower TCO

The Nytro XF1440 and XM1440 are cost-effective, energy efficient storage solutions that combine a high level of serviceability, improved power and cooling efficiency, scalability and space optimization to reduce total cost of ownership (TCO) in data centers.

The Nytro XF1440 with the SFF-8639 connector enables effortless serviceability and maintenance without any downtime requirements, and features hot-swap capability for easy addition, removal or replacement of SSDs.

Enhanced Enterprise Reliability, Data Protection and Security

By leveraging Seagate's existing enterprise expertise and manufacturing excellence, the Nytro XF1440 and XM1440 SSDs deliver the highest levels of data integrity, data security, and endurance for critical business applications.

The Nytro XF1440 and XM1440 feature end-to-end data protection, LDPC error correction and Seagate RAISE™ technology for solid reliability and endurance. With power-loss data protection, the XF1440 and XM1440 maintain data integrity to prevent loss of data in the event of unexpected power interruptions.

Seagate Secure® Self-Encrypting Drive (SED) models[1] support TCG Enterprise protocol and help companies keep valuable data secure.

1 Self-Encrypting Drives (SED) are not available in all models or countries. May require TCG-compliant host or controller support.

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Nytro® XF1440 and XM1440 NVMe SSDs

Nytro XF1440 SSD Specifications	Endurance Optimized			Capacity Optimized		
	1600GB[1,2]	800GB[1,2]	400GB[1,2]	1920GB[1,2]	960GB[1,2]	480GB[1,2]
Target Application	Mixed Workloads			Read-Intensive Workloads		
Standard Model	ST1600KN0001	ST800KN0001	ST400KN0001	ST1920KN0001	ST960KN0001	ST480KN0001
Seagate Secure® SED Model	ST1600KN0011[3]	ST800KN0011[3]	ST400KN0011[3]	ST1920KN0011[3]	ST960KN0011[3]	ST480KN0011[3]
Interface	PCIe Gen3 ×4 NVMe 1.2a	PCIe Gen3 ×4 NVMe 1.2a	PCIe Gen3 ×4 NVMe 1.2a	PCIe Gen3 ×4 NVMe 1.2a	PCIe Gen3 ×4 NVMe 1.2a	PCIe Gen3 ×4 NVMe 1.2a
NAND Flash Type	eMLC	eMLC	eMLC	eMLC	eMLC	eMLC
Sector Size Support[4]	512 / 4K	512 / 4K	512 / 4K	512 / 4K	512 / 4K	512 / 4K
Form Factor	2.5 in × 7mm	2.5 in × 7mm	2.5 in × 7mm	2.5 in × 7mm	2.5 in × 7mm	2.5 in × 7mm
Performance						
Sequential Read (MB/s) Sustained, 128KB[5]	2500	2500	2400	2500	2500	2400
Sequential Write (MB/s) Sustained, 128KB[5]	900	900	500	900	900	500
Random Read (IOPS) Sustained, 4KB QD64[5]	240,000	240,000	220,000	240,000	240,000	220,000
Random Write (IOPS) Sustained, 4KB QD64[5]	40,000	33,000	25,000	15,000	12,000	10,000
Random 70/30 R/W (IOPS) Sustained, 4KB QD64[5]	100,000	80,000	55,000	45,000	35,000	25,000
Endurance/Reliability						
Lifetime Endurance (Drive Writes per Day)	3	3	3	0.3	0.3	0.3
Nonrecoverable Read Errors per Bits Read	1 per 10E16	1 per 10E16	1 per 10E16	1 per 10E16	1 per 10E16	1 per 10E16
Mean Time Between Failures (MTBF, hours)	2M	2M	2M	2M	2M	2M
Power Management						
+12V Max Power (W)	12.5	12.5	12.5	12.5	12.5	12.5
Average Read/Write Power (W)	9	9	9	9	9	9
Average Idle Power (W)	2.5	2.5	2.5	2.5	2.5	2.5
Environmental						
Temperature, Operating (°C)	0 to 70	0 to 70	0 to 70	0 to 70	0 to 70	0 to 70
Temperature, Nonoperating (°C)	–40 to 85	–40 to 85	–40 to 85	–40 to 85	–40 to 85	–40 to 85
Temperature Change Rate/Hr, Max (°C)	30	30	30	30	30	30
Shock, 0.5ms (Gs)	1500	1500	1500	1500	1500	1500
Vibration, 7Hz to 800Hz (Grms)	3.08	3.08	3.08	3.08	3.08	3.08
Vibration, 20Hz to 2000Hz (Grms)	16.3	16.3	16.3	16.3	16.3	16.3
Physical						
Height (in/mm, max)[6]	0.276/7.00	0.276/7.00	0.276/7.00	0.276/7.00	0.276/7.00	0.276/7.00
Width (in/mm, max)[6]	2.750/69.85	2.750/69.85	2.750/69.85	2.750/69.85	2.750/69.85	2.750/69.85
Depth (in/mm, max)[6]	3.951/100.35	3.951/100.35	3.951/100.35	3.951/100.35	3.951/100.35	3.951/100.35
Weight (lb/g)	0.198/90	0.198/90	0.198/90	0.198/90	0.198/90	0.198/90
Carton Unit Quantity	10	10	10	10	10	10
Cartons per Pallet	40	40	40	40	40	40
Cartons per Layer	5	5	5	5	5	5
Warranty						
Limited Warranty (years)	5	5	5	5	5	5

1 Not all capacities and features may be available in all regions and countries.

2 One gigabyte, or GB, equals one billion bytes and one terabyte, or TB, equals one trillion bytes when referring to drive capacity.

3 Not all drives may be available in all countries. Seagate Secure drives meet ISO/IEC 27040 and NIST 800-88 standards and may require use of TCG-compliant host or controller support.

4 Drives are shipped with 512B sector size set as default. Drives can be re-formatted to 4K sectors.

5 Performance data is based on testing under certain workload conditions and is subject to change. 400GB and 480GB capacities are limited to 32x 128Gb die active.

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-8639.

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Seagate 5-Year Warranty

Nytro XM1440 M.2 NVMe SSD Specifications on Next Page

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Nytro® XF1440 and XM1440 NVMe SSDs

Nytro XM1440 SSD Specifications	Endurance Optimized		Capacity Optimized		
	800GB[1,2]	400GB[1,2]	1920GB[1,2]	960GB[1,2]	480GB[1,2]
Target Application	Mixed Workloads		Read-Intensive Workloads		
Standard Model	ST800KN0021	ST400KN0021	XM1441-1AA112048	ST960KN0021	ST480KN0021
Seagate Secure® SED Model	ST800KN0031[3]	ST400KN0031[3]	—	ST960KN0031[3]	ST480KN0031[3]
Interface	PCIe Gen3 x4 NVMe 1.2a	PCIe Gen3 x4 NVMe 1.2a	PCIe Gen3 x4 NVMe 1.2a	PCIe Gen3 x4 NVMe 1.2a	PCIe Gen3 x4 NVMe 1.2a
NAND Flash Type	eMLC	eMLC	MLC	eMLC	eMLC
Sector Size Support[4]	512 / 4K	512 / 4K	512 / 4K	512 / 4K	512 / 4K
Form Factor	M.2 22110	M.2 22110	M.2 22110	M.2 22110	M.2 22110
Performance					
Sequential Read (MB/s) Sustained, 128KB[5]	2500	2400	2500	2500	2400
Sequential Write (MB/s) Sustained, 128KB[5]	600	475	600	600	475
Random Read (IOPS) Sustained, 4KB QD64[5]	240,000	220,000	240,000	240,000	220,000
Random Write (IOPS) Sustained, 4KB QD64[5]	33,000	25,000	15,000	12,000	8,000
Random 70/30 R/W (IOPS) Sustained,4KB QD64[5]	75,000	55,000	40,000	35,000	22,000
Endurance/Reliability					
Lifetime Endurance (Drive Writes per Day)	3	3	0.3	0.3	0.3
Nonrecoverable Read Errors per Bits Read	1 per 10E16	1 per 10E16	1 per 10E16	1 per 10E16	1 per 10E16
Mean Time Between Failures (MTBF, hours)	2M	2M	2M	2M	2M
Power Management					
+3.3V Max Power (W)	8.25	8.25	8.25	8.25	8.25
Average Read/Write Power (W)	7	7	7	7	7
Environmental					
Temperature, Operating (°C)	0 to 70	0 to 70	0 to 70	0 to 70	0 to 70
Temperature, Nonoperating (°C)	–40 to 85	–40 to 85	–40 to 85	–40 to 85	–40 to 85
Temperature Change Rate/Hr, Max (°C)	30	30	30	30	30
Shock, 0.5ms (Gs)	1500	1500	1500	1500	1500
Vibration, 7Hz to 800Hz (Grms)	3.08	3.08	3.08	3.08	3.08
Vibration, 20Hz to 2000Hz (Grms)	16.3	16.3	16.3	16.3	16.3
Physical					
Component Max Height - Top (mm)	2.0	2.0	2.0	2.0	2.0
Component Max Height - Bottom (mm)	1.5	1.5	1.5	1.5	1.5
Width (mm)	22.0	22.0	22.0	22.0	22.0
Length (mm)	110.0	110.0	110.0	110.0	110.0
Weight (g)	14	14	14	14	14
Carton Unit Quantity	10	10	10	10	10
Cartons per Pallet	56	56	56	56	56
Cartons per Layer	8	8	8	8	8
Warranty					
Limited Warranty (years)	5	5	5	5	5

1 Not all capacities and features may be available in all regions and countries.

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