



M.2 NVMe

M.2 solid state modules speed and performance are to fulfill the increasing demand for responsiveness in embedded and enterprise storage systems and to support the growing data-hungry needs of today's applications.

Delivering 32 Gb/s bandwidth on a PCIe 3.1 x4 slot (8 Gb/s per lane), Our NVMe M.2 outperform Serial ATA 6 Gb/s SSDs with 4-6X faster access, over 3X lower latency, and higher Input/Output per Second (IOPS).

Quantum Digital Technology NVMe SSDs is a good fit for industrial application which delivers stable performance even in extreme temperatures ranging from -40°C to 85°C, while throttling automatically adjusts the speed to maintain cooler operation under intense and heavy workloads.

Adopting NVMe 1.3 specifications and integrating 3D NAND TLC technology, Quantum Digital Technology M.2 2280 NVMe modules offer up to ~2TB of storage capacity. The performance with sequential read up to 3,300 MB/s, sequential write up to 2,900 MB/s, and random read/write IOPS up to 225,200/179,200. NVMe was specifically built for faster, more efficient access to Flash storage devices which are using NAND technology. These SSDs can deliver fast, reliable and durable performance for any demanding applications.



Firmware Features

- Supports NVM command
- Dynamic thermal throttling
- Built-in LDPC ECC (Error Correction Code) functionality
- Advanced Global Wear-Leveling and Block management for reliability
- Advanced Garbage Collection
- Supports S.M.A.R.T. function to conduct health monitoring, analysis, and reporting for storage devices
- TRIM command for better performance
- NCQ command for better performance
- Full drive encryption with Advanced Encryption Standard (AES) (optional)

Hardware Features

- Compliant with RoHS 2.0 standards
 - Compliant with NVM Express specification 1.4
 - Compliant with PCI Express specification 4.0
 - Space-saving M.2 form factor (80mm) – ideal for space constraint solutions
 - PCIe Gen 3 X 4 & 4 x4 interface
 - DDR4 DRAM Cache embedded
 - Endurance: 3K P/E cycles (Program/Erase cycles) guaranteed
 - 30μ" PCB gold finger
 - Anti-sulfur technology implemented to prevent sulfurization in the environment
 - Power loss protection (PS) to ensure data transfer integrity and minimize data corruption in the drive during an abnormal power outage
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Specifications

Appearance

Dimensions	80 mm x 22 mm x 3.58 mm (3.15" x 0.87" x 0.14")
Weight	Up to 10 g (0.35 oz)
M.2 Type	2280-D2-M (Double-sided)
Form Factor	M.2 2280

Interface

Bus Interface	NVMe PCIe Gen3 x 4 or Gen4 X 4
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Storage

Capacity	~128 GB/ to ~2 TB
Flash Type	3D NAND Flash

Operating Environment

Operating Voltage	3.3V±5%
Operating Temperature	Extended Temp. -20°C (-4°F) ~ 75°C (167°F)
Storage Temperature	-55°C (-67°F) ~ 85°C (185°F)
Humidity	5% ~ 95%
Shock	1500 G, 0.5 ms, 3 axis

Performance

Sequential Read/Write (CrystalDiskMark)	
Read: up to 7,200 MB/s Write: up to 6,500 MB/s	
4K Random Read/Write (IOMeter)	
Read: up to 530,000 IOPS Write: up to 420,000 IOPS	
Mean Time Between Failures (MTBF)	3,000,000 hour(s)
Terabytes Written (up to 1,560 TBW)	
Drive Writes Per Day (DWPD)	0.70 (3 yrs.)
Certificate	CE, FCC
Warranty	Three-year Limited Warranty

Capacity	Operating	Power Loss	Custom Part number
120GB	-40°C to 85°C	Hardware + Firmware	TBD
240GB	-40°C to 85°C	Hardware + Firmware	TBD
480GB	-40°C to 85°C	Hardware + Firmware	TBD
960GB	-40°C to 85°C	Hardware + Firmware	TBD
120GB	0°C to 70°C	Hardware + Firmware	TBD
240GB	0°C to 70°C	Hardware + Firmware	TBD
480GB	0°C to 70°C	Hardware + Firmware	TBD
960GB	0°C to 70°C	Hardware + Firmware	TBD
120GB	0°C to 70°C	Hardware + Firmware	TBD
240GB	0°C to 70°C	Hardware + Firmware	TBD
480GB	0°C to 70°C	Hardware + Firmware	TBD
960GB	0°C to 70°C	Hardware + Firmware	TBD
1920GB	0°C to 70°C	Hardware + Firmware	TBD
120GB	0°C to 70°C	Firmware Based	TBD
240GB	0°C to 70°C	Firmware Based	TBD
480GB	0°C to 70°C	Firmware Based	TBD
960GB	0°C to 70°C	Firmware Based	TBD
1920GB	0°C to 70°C	Firmware Based	TBD
120GB	0°C to 70°C	Firmware Based	TBD
240GB	0°C to 70°C	Firmware Based	TBD
480GB	0°C to 70°C	Firmware Based	TBD
120GB	0°C to 70°C	Firmware Based	TBD
240GB	0°C to 70°C	Firmware Based	TBD
480GB	0°C to 70°C	Firmware Based	TBD
960GB	0°C to 70°C	Firmware Based	TBD