

DigiStor M.2 2230 PCIe Gen 4 Single-Sided Opal SED

TAA COMPLIANT

TCG OPAL 2.0

M.2 2230

SINGLE-SIDED

-25C TO 85C

This is a high-performance embedded/industrial PCIe SSD delivering up to 7200 MB/s read and 6300 MB/s write over PCIe Gen 4 x4. Designed for mission-critical embedded applications, it combines NVMe 2.0 compliance with 3D TLC NAND in the compact M.2 2230 form factor.

Top Features

- PCIe Gen 4 x4 / NVMe 2.0 Interface
- AES 256-bit Hardware Self-Encryption
- PSID Revert Support
- Sanitize Command (Block Erase / Crypto Erase)
- LDPC ECC (>120 bit/KB capability)

- Dynamic & Static Wear Leveling
- Multi-stage Thermal Throttling & Thermal Monitor
- End-to-End Data Path Protection (ETEDPP)
- MTBF > 4 million hours
- Extended Temperature: -25°C to 85°C

Available Models

Part Number	Capacity	Form Factor	Interface	Encryption	TBW
DIG-P4MS1G37-0T5	512 GB	M.2 2230-S3-M	PCIe Gen 4 x4	TCG OPAL 2.0	524 TB
DIG-P4MS1G37-1T	1.0 TB	M.2 2230-S3-M	PCIe Gen 4 x4	TCG OPAL 2.0	1288 TB
DIG-P4MS1G37-2T	2.0 TB	M.2 2230-S3-M	PCIe Gen 4 x4	TCG OPAL 2.0	2690 TB

Performance Summary (Burst)

Capacity	Seq. Read	Seq. Write	Rand. Read	Rand. Write	Flash
512 GB	7200 MB/s	5600 MB/s	690K IOPS	1200K IOPS	3D TLC
1.0 TB	7200 MB/s	6300 MB/s	1000K IOPS	1300K IOPS	3D TLC
2.0 TB	7200 MB/s	6300 MB/s	1000K IOPS	1300K IOPS	3D TLC

Burst sequential performance measured with CrystalDiskMark 8.0.4 (QD8T1, 1GB range); burst random performance measured with IOMeter v1.1.0 (QD32T16, 1GB range, 4KB). Test platform: AMD Ryzen 7 7700X, Windows 11 Pro 64-bit, DC+3.3V, 20–25°C, 40–60% RH. Performance measured prior to thermal throttling activation. Actual performance may vary by flash configuration, use condition, environment, and platform.

The information provided herein is for reference and evaluation purposes only and should not be relied upon for final design decisions. Photos in this document are for illustrative purposes only and might not be representative of the exact product described.

Reliability & Environmental

Parameter	Rating
MTBF	> 4,000,000 hours
UBER	< 1 sector per 1016 bits read
Op. Temp.	-25°C to 85°C
Storage Temp.	-40°C to 85°C
Op. Humidity	5% to 95% RH
Shock (non-op)	1500 G 0-p / 0.5 ms half sine
Vibration (non-op)	20–80 Hz / 1.52 mm p-p; 80–2000 Hz / 20 G p-p
ESD	±4 kV (EN 55035 / IEC 61000-4-2)
Max Read Power	3.93 W (2.0 TB)
Max Write Power	3.78 W (2.0 TB)
Idle Power	< 1200 mW
L1.2 Power	< 5 mW
Op. Voltage	DC 3.3 V ± 5%
Dimensions	22.00 × 30.00 × 2.30 mm

Compliance

- NVMe 2.0 / PCI Express Base 4.0
- TAA Compliant
- TCG OPAL 2.0
- RoHS Compliant | EMI: FCC, CE

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Security Capabilities

- TCG OPAL 2.0 — AES 256-bit hardware self-encryption
- PSID Revert — factory reset for OPAL-activated drives (32-character string on label)
- Sanitize: Block Erase (default), Overwrite, Crypto Erase
- Secure Firmware Upgrade — host-initiated via NVMe command
- MBR Shadowing — pre-boot authentication environment
- LBA Range Locking/Unlocking — explicit and implicit (reset-triggered)
- End-to-End Data Path Protection (ETEDPP)
- Read Only Mode (End of Life) — prevents further data corruption at wear-out
- HMB (Host Memory Buffer) — extended host-side mapping support

Flash Management Technology

LDPC ECC

Low Density Parity Check detects and corrects read errors, protecting data integrity throughout the flash lifetime (>120 bit/KB capability).

Wear Leveling

Dynamic and static algorithms evenly distribute P/E cycles across the entire NAND media to maximize device lifespan.

Bad Block Mgmt.

Detects early (factory) and later (in-use) bad blocks, preventing data from being stored in unreliable cells.

RAID ECC

Additional RAID-based error correction layer provides a redundant data protection mechanism beyond standard LDPC ECC.

Typical Applications

- Embedded & Industrial Computing — ruggedized edge devices and fanless systems
- Digital Signage & Retail Kiosks — always-on, high-reliability storage
- Medical Devices — data integrity in diagnostic and imaging equipment
- Industrial IoT & Automation — sustained performance under harsh environments
- Thin Client & Mini PC — compact 2230 form factor for space-constrained designs
- Secure Government / Enterprise — TCG OPAL 2.0 encryption and PSID revert compliance