

DigiStor® Enterprise PCIe 5.0 U.2 SSD

TCG OPAL

AES-XTS 256-BIT

NVME 2.0

V1.0

The DigiStor Enterprise PCIe 5.0 U.2 SSD is a high-performance enterprise solid state disk delivering up to 14,000 MB/s sequential read and 8,500 MB/s sequential write over PCIe Gen5 x4. Designed for demanding enterprise and embedded platforms, it combines TCG Opal hardware encryption with 3D TLC NAND flash in the standard U.2 15mm form factor.

Top Features

- PCIe Gen5 x4
- Hardware AES-XTS 256-bit Encryption
- TCG Opal 2.0 Security Protocol
- IEEE 1667 eDrive Support (vendor-activated)
- PSID Revert / Instant Security Erase
- End-to-end Data Path Protection
- Power Loss Protection Hardware
- Multi-stage Thermal Throttling (TMT1/TMT2)
- Metadata Protection
- MTBF: 2.5 million hours
- RoHS / FCC / CE / BSMI / VCCI Compliant
- NVMe Power States 0-5 Supported

Available Models

Part Number	Capacity	Form Factor	Interface	Encryption	DWPD
DIG-P5U20G31-1T9	1.92 TB	U.2 15mm	PCIe Gen5 x4	AES-256 XTS, TCG Opal 2.0	1
DIG-P5U20G31-3T8	3.84 TB	U.2 15mm	PCIe Gen5 x4	AES-256 XTS, TCG Opal 2.0	1
DIG-P5U20G31-7T6	7.68 TB	U.2 15mm	PCIe Gen5 x4	AES-256 XTS, TCG Opal 2.0	1
DIG-P5U20G31-15T	15.36 TB	U.2 15mm	PCIe Gen5 x4	AES-256 XTS, TCG Opal 2.0	1
DIG-P5U20G31-30T	30.72 TB	U.2 15mm	PCIe Gen5 x4	AES-256 XTS, TCG Opal 2.0	1

Performance Summary

Capacity	Seq. Read	Seq. Write	Rand. Read	Rand. Write	Flash
1.92 TB	14,000 MB/s	4,200 MB/s	2,350,000 IOPS	140,000 IOPS	3D TLC
3.84 TB	14,000 MB/s	8,500 MB/s	3,300,000 IOPS	320,000 IOPS	3D TLC
7.68 TB	14,000 MB/s	8,500 MB/s	3,200,000 IOPS	390,000 IOPS	3D TLC
15.36 TB	14,000 MB/s	8,400 MB/s	2,800,000 IOPS	420,000 IOPS	3D TLC
30.72 TB	14,000 MB/s	7,500 MB/s	2,300,000 IOPS	265,000 IOPS	3D TLC

Sequential performance measured at 128KB QD=32, Jobs=1. Random performance measured at 4K QD=128, Jobs=8 on pre-conditioned TLC NAND. Test platform: Intel Xeon Gold 5416S, DDR5 64G, Ubuntu 20.04.2 LTS. Performance may vary by flash configuration and platform. Tables are for reference only.

Reliability & Environmental

Parameter	Rating
MTBF	2,500,000 hours
UBER	< 1 sector per 10 ¹⁸ bits read
Op. Temp.	0°C to 70°C
Storage Temp.	-40°C to 85°C
Op. Humidity	5% to 95% RH
Shock (op / non-op)	500G @ 2ms; 1000G @ 0.5ms
Vibration (op)	7–800 Hz / 2.17 Grms
Vibration (non-op)	10–2000 Hz / 16.3 Grms
ESD	±4 kV (EN 61000-4-2)
Typical Power	25 W
Idle Power	< 5 W
Inrush Current	2.5 A (1.92 TB); 3 A (3.2 TB+)
Op. Voltage	12V ±10%; 3.3V aux
Dimensions	100.45 × 69.85 × 15 mm
Weight	168 g (min) – 201 g (max)

Compliance

- PCIe Express Base 5.0 & NVMe Express 2.0
- NVMe Express Management Interface Rev 1.2
- TCG Opal / IEEE 1667
- RoHS Compliant
- FCC (ANSI C63.4), CE (EN 55032), UKCA (EN55032)
- JEDEC JESD219A Endurance Test Standard

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Security Capabilities

- TCG Opal 2.0 — self-encrypting drive (SED)
- Hardware AES-XTS 256-bit encryption (always-on)
- Crypto Erase — instant secure erase by cryptographic key destruction, rendering data unrecoverable
- Secure Erase — writes 0xFF to all storage blocks, restores factory defaults
- PSID Revert — 32-character physical label code to revert to manufacturing state
- Instant Security Erase (ISE) — PSID-based full revert of Opal-activated drives
- IEEE 1667 eDrive (vendor-activated to prevent unintended eDrive implementation)
- Sanitize operations: Block Erase, Crypto Erase, Overwrite
- SMBus / NVMe-MI (Management Interface) support
- End-to-end data path protection with metadata integrity

Flash Management Technology

Thermal Throttling (TMT)

Multi-stage firmware-controlled throttling (TMT1/TMT2) protects NAND from overheating via on-board thermal sensors.

Power Loss Protection

Hardware-based PLP safeguards in-flight data and maintains data integrity during unexpected power interruptions.

IOPS Consistency

Sustained 95% IOPS consistency under 4K random workloads (QD=1 and QD=8), ensuring predictable latency.

NVMe Namespace Mgmt.

Supports up to 128 namespaces, reservation, metadata protection, and single-port configurations.

Typical Applications

- Enterprise servers & hyperscale data centers requiring high-throughput NVMe storage
- Storage arrays and JBOFs leveraging U.2 hot-swap capability
- High-performance computing (HPC) workloads with sustained sequential I/O demands
- Classified or sensitive data environments requiring PSID revert and TCG Opal compliance