

E3.S PCIe Gen5 Enterprise NVMe - FIPS 140-3 Compliant

- TAA COMPLIANT
- FIPS 140-3 LV2 COMPLIANT
- TCG OPAL
- PCIe GEN5 X4
- NVME 2.0

This a high-performance enterprise PCIe Gen5 x4 SSD in the E3.S form factor, delivering up to 14,800 MB/s sequential read and 8,700 MB/s sequential write using 3D TLC NAND with DDR4. Designed for data center and cloud platforms, it uses AES-XTS 256-bit hardware encryption with hot-swap capability, supporting both single port x4 and dual port 2x2 lane configurations.

Top Features

- AES-XTS 256-bit Hardware Encryption
 - FIPS 140-3 Level 2 Compliant
 - TCG Opal / IEEE 1667 (activation via vendor tool)
 - Secure Crypto Erase & PSID Revert
 - End-to-End Data Protection (Metadata Protection)
- Power Loss Protection (PLP / PLP Health Check)
 - Thermal Throttling with multi-stage TMT control
 - 128 Namespaces supported
 - MTBF: 2.5 million hours (Telcordia SR-332)

Available Models

Capacity	DWPD	TBW	Form Factor	Single Port P/N	Dual Port P/N
1.92 TB	1	3,504 TB	E3.S	DIG-P5E3SG09-1T9	DIG-P5E3SG46-1T9
3.84 TB	1	7,008 TB	E3.S	DIG-P5E3SG09-3T8	DIG-P5E3SG46-3T8
7.68 TB	1	14,016 TB	E3.S	DIG-P5E3SG09-7T6	DIG-P5E3SG46-7T6
15.36 TB	1	28,032 TB	E3.S	DIG-P5E3SG09-15T	DIG-P5E3SG46-15T
1.6 TB	3	8,760 TB	E3.S	DIG-P5E3SG17-1T6	DIG-P5E3SG47-1T6
3.20 TB	3	17,520 TB	E3.S	DIG-P5E3SG17-3T2	DIG-P5E3SG47-3T2
6.40 TB	3	35,040 TB	E3.S	DIG-P5E3SG17-6T4	DIG-P5E3SG47-6T4
12.80 TB	3	70,080 TB	E3.S	DIG-P5E3SG17-12T	DIG-P5E3SG47-12T

Performance Summary (Sequential 512KB, QD=32 / Random 4KB, QD=128 Jobs=8)

Capacity	Seq. Read	Seq. Write	Rand. Read	Rand. Write	Flash
1.92 TB	14,800 MB/s	4,300 MB/s	2,400K IOPS	140K IOPS	3D TLC
3.84 TB	14,800 MB/s	8,600 MB/s	3,300K IOPS	320K IOPS	3D TLC
7.68 TB	14,800 MB/s	8,700 MB/s	3,200K IOPS	460K IOPS	3D TLC
15.36 TB	14,800 MB/s	8,500 MB/s	2,600K IOPS	420K IOPS	3D TLC
1.6 TB	14,800 MB/s	4,300 MB/s	2,400K IOPS	390K IOPS	3D TLC
3.20 TB	14,800 MB/s	8,600 MB/s	3,300K IOPS	790K IOPS	3D TLC
6.40 TB	14,800 MB/s	8,700 MB/s	3,200K IOPS	900K IOPS	3D TLC
12.80 TB	14,800 MB/s	8,500 MB/s	2,600K IOPS	900K IOPS	3D TLC

Note: Performance measured with FIO on Linux (512KB sequential / 4KB random, full drive, unformatted) on MS03-CE0-000 motherboard with Intel Xeon Gold 5416S, DDR5 64G, Ubuntu 20.04.2 LTS. Performance may vary by flash configuration and platform.

This document describes a product that is currently under development. Specifications, features, and performance characteristics are subject to change without notice as the product design is finalized. 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	2,500,000 hours (Telcordia SR-332)
UBER	< 1 sector per 1018 bits read
Op. Temp.	0°C to 70°C (with specified airflow)
Storage Temp.	-40°C to 85°C
Op. Humidity	5% to 95% RH
Shock (operating)	500G, 2ms
Shock (non-op)	1000G, 0.5ms
Vibration (op)	2.17 Grms (7-800 Hz)
Vibration (non-op)	16.3 Grms (10-2000 Hz)
ESD	±4 kV (EN55035 / IEC 61000-4-2)
Active Write Power	Up to 25W (Avg. RMS)
Active Read Power	Up to 22W (Avg. RMS)
Idle Power	< 5W
Op. Voltage (12V)	12V ±10%
Op. Voltage (3.3V)	3.3V +5%/-10% (aux)
Dimensions	112.75 × 76 × 7.45 mm
Weight	106g (1.6/1.92TB) 119g (12.8/15.36TB)
DWPD	1 DWPD / 3 DWPD

Compliance

- TAA Compliant
- FIPS 140-3 Level 2 Compliant
- FCC, CE, RCM
- RoHS Compliant



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Security Capabilities

- FIPS 140-3 Level 2 Compliant
- AES-XTS 256-bit Hardware Encryption
- TCG Opal — full self-encrypting drive support
- PSID Revert — secure drive reset to factory state
- Crypto Erase via TCG Revert command
- IEEE 1667 support (activation via vendor tool)
- SMBus-accessible VPD for inventory & power management
- Reservation support (NVMe Reservation Commands)
- Metadata Protection with end-to-end data integrity
- PCIe AER (Advanced Error Reporting) compliant

Flash Management Technology

LDPC Error Correction

Advanced LDPC engine for superior NAND error correction, enabling high UBER performance of <1 per 1018 bits read.

Wear Leveling

Dynamic and static wear leveling algorithms distribute writes evenly across all flash cells to maximize drive endurance and TBW ratings.

DDR4 DRAM Cache

On-board DDR4 DRAM provides high-speed mapping cache, accelerating random I/O performance and sustaining low latency under heavy workloads.

Thermal Throttling (TMT)

Multi-stage thermal management (TMT1/TMT2/TT Stable) with automatic throttling and thermal shutdown protection to ensure sustained reliability.

Typical Applications

- Hyperscale & cloud data centers — high-density NVMe storage
- AI/ML inference and training — sustained high-bandwidth workloads
- Enterprise databases — low-latency random I/O at scale
- High-performance computing (HPC) — sequential throughput intensive
- Telecommunications — hot-swappable E3.S platform deployments