

SP5002 Enterprise SSD

The BIWIN SP5002 Enterprise SSD solves the biggest challenge for modern data centers and AI computer clusters: scaling massive storage without inflating operational costs. It combines ultra-dense QLC NAND technology, delivering up to 61.44 TB of storage capacity, with modern EDSFF (E3.S/E1.L) form factors to replace bulky 2.5-inch drives, radically reducing physical rack footprint and power/cooling overhead.

Compared with conventional 2.5-inch U.2 SSDs, these EDSFF form factors enable higher storage density yet align with standardized server and storage platform designs. The standardized slot architecture simplifies large-scale deployment, maintenance, hot-swap replacement, and capacity expansion, reducing drive footprint, lowering rack-level deployment costs, and improving overall data center efficiency.

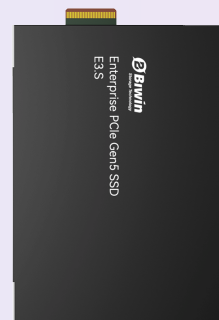
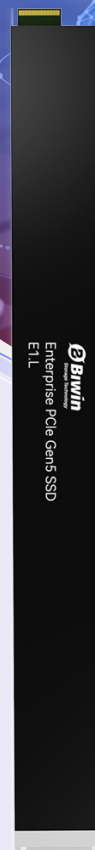
Unlike standard QLC drives that degrade under load, the SP5002 delivers predictable, low-latency performance even during heavy garbage collection and continuous enterprise workloads.

Engineered for the performance consistency demanded by enterprise storage, the SP5002 is extensively optimized for three critical operating conditions: sustained heavy workloads, garbage collection (GC), and mixed read/write traffic. It delivers low latency under steady-state full-load operation with tightly controlled performance variation, ensuring stable bandwidth and IOPS without unexpected fluctuations throughout continuous operation.

Out-of-the-box support for NVMe 2.0 and OCP standards ensures painless, plug-and-play compatibility across mainstream hyperscale and open computing environments. Powered by a mature enterprise-class firmware architecture, the SP5002 integrates a comprehensive suite of enterprise reliability technologies, including end-to-end data protection, power-loss protection, wear leveling, and vibration and shock protection. These features ensure dependable operation under demanding data center conditions while supporting continuous 24/7 mission-critical workloads.

Every SP5002 SSD supports the enterprise-grade TCG Opal security standard, providing comprehensive data protection. Combined with Data Path End-to-End (E2E) Protection and Sanitize capabilities, it safeguards data integrity throughout the entire data path, enables secure data erasure, and helps mitigate the risk of data leakage.

By combining the inherent cost advantages of high-capacity QLC NAND with enterprise-class reliability, consistent performance, and broad standards compliance, the BIWIN SP5002 is an ideal storage solution for cloud service providers, AI infrastructure, large-scale archival platforms, and distributed storage clusters seeking both exceptional capacity and high-performance storage.



Key Features

Ultra-High Capacity, Maximized Density

Available in capacities from 30.72 TB to 61.44 TB, the SP5002 supports compact E3.S and E1.L form factors to maximize storage density. Compared with conventional drive deployments, it significantly reduces drive footprint per server, enabling higher rack-level storage density while simplifying large-scale deployment, maintenance, and rapid drive replacement.

Faster Read Performance for Data-Intensive Workloads

Powered by a PCIe 5.0x4, the SP5002 is optimized for exceptional read throughput, delivering sequential read speeds of up to 14,700 MB/s and sequential write speeds of up to 2,400 MB/s. Designed for read-intensive workloads such as AI dataset loading, large-scale data retrieval, content streaming, and big data analytics, it delivers outstanding bandwidth to accelerate data access, reduce file loading times, and alleviate queue congestion and latency bottlenecks.

Enterprise-Grade Reliability, Built for Continuous Operation

Built on a mature enterprise-grade firmware architecture, the SP5002 integrates comprehensive reliability features, including power-loss protection, end-to-end data protection, wear leveling, and vibration and shock protection. Designed for mission-critical environments, it delivers the reliability required for continuous 24/7 operation.

Comprehensive Enterprise Security

Supporting the enterprise-grade TCG Opal security standard, the SP5002 features Data Path End-to-End (E2E) Protection and Sanitize capabilities to help safeguard data integrity throughout the entire data path and enable secure data erasure, helping mitigate the risk of data leakage.

Technologies

OCP 2.0+

AES-256
Encryption

Multiple
Namespaces

Atomic Write

Sanitize

Data Path E2E
Protection

Internal RAID

Intelligent Thermal
Throttling

Power Loss
Protection (PLP)

S.M.A.R.T.

TCG Opal

Applications



Data Centers



Cloud Infrastructure



AI Compute



Distributed Storage

Specifications

Model Name	SP5002
Interface	PCIe Gen 5x4, NVMe 2.0 & NVMe-MI 1.2
Form Factor	EDSFF E3.S & E1.L
Flash Type	3D eQLC
Capacity	30.72 TB / 61.44 TB
Sequential Read (Up to)	14,700 MB/s
Sequential Write (Up to)	2,400 MB/s
4K Random Read (Up to)	2,300K IOPS
16K Random Write (Up to)	35K IOPS
Read Power Consumption (Max.)	25 W
Write Power Consumption (Max.)	25 W
Idle Power Consumption (Max.)	5 W
Operating Temperature	0°C to +70°C
Storage Temperature	-40°C to +85°C
MTBF	>2,500,000 hours
DWPD	0.3 DWPD
Certifications	CE, FCC, RoHS, REACH, WEEE, HF, China RoHS
Warranty	5-Year Limited

Order Information

Capacity	Part Number	Power-Loss Protection
30.72 TB	TBD	Firmware-Based, Hardware-Based
61.44 TB	TBD	Firmware-Based, Hardware-Based

1. Tested by BiWIN labs. Actual performance may vary due to systems, devices, or environment.
2. Maintenance and future updates are required throughout the product lifecycle. Specifications are subject to change without notice.
3. The pictures are for illustration only. Actual products may vary due to product enhancements or changes.
4. Not all products are sold in all regions of the world.
5. As used for storage capacity, one megabyte (MB) = one million bytes, one gigabyte (GB) = one billion bytes, and one terabyte (TB) = one trillion bytes. Total accessible capacity varies depending on the operating environment. As used for buffer or cache, one megabyte (MB) = 1,048,576 bytes. As used for transfer rate or interface, megabyte per second (MB/s) = one million bytes per second, and gigabyte per second (GB/s) = one billion bytes per second.
6. MTBF = Mean Time Between Failures based on internal testing using the Telcordia stress testing standard.
7. Please visit www.biwintech.com for warranty details in your region.
8. For more information, please contact sales@biwintech.com.

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