



The Leading NVMe SoC and Data Center Platform Provider

Peta8118 PCIe4 NVMe 1.4 Data Center SSD

Peta8118 U.2 SSD is based on PETAiO's Titanium-DC controller optimized for enterprise data center applications, cost, and time-to-product. PETAiO's Titanium-DC controller has been architected with the intrinsic flexibility to meet hyper-scale datacenter specific requirements without compromises on performance, power, and reliability.

The Titanium-DC controller is designed using TSMC 16nm FinFET process node with the latest PCIe Gen4x4 interface and 8-channels at 1200MT/s NAND interface speed supporting the latest generation of TLC and QLC NANDs. It can deliver unprecedented 7.0GB/s sequential read and 1.2MIOPS 4K random read performances at the lowest possible power consumption.

PetaiO's proprietary Titanium series controller architecture, which fully supports the latest NVMe 1.4 specification, enables best-in-class QoS and I/O Determinism and can effectively support ZNS and Open Channel emerging protocols. Peta8118 U.2 SSD provides the performance, flexibility, and reliability required to meet the most demanding enterprise data center requirements at the lowest TCO.

PETA8118 SSD Parameters

Host Interface	PCIe Gen4 x 4 Lanes with Bifurcation Single / Dual Port support
NAND Interface	8 Channels, up to 1,200 MT/s ONFI 4.1 4 CE per Channel, up to 16 die/Channel SLC, MLC, TLC, QLC support
Capacity	Read Intensive: 1.92 TB, 3.84 TB, 7.68 TB Mixed Workload: 1.6 TB, 3.2 TB, 6.4 TB
Data Reliability	Read Intensive: 1 DWPD Mixed Workload: 3 DWPD UBER = 1e-17 (Enterprise Workload)
Form Factors	U.2, E1.S (EDSFF 1U Short), M.2 (22x110)

Key Features

- Full Support of Latest NVMe 1.4**
 With the full support of the latest NVMe 1.4 features, mandatory and optional commands, PETA8118 enables the most performing and advanced data center system solutions.
- Customization for Specific Requirements**
 Each data center has a specific requirement to optimally meet applications and customers' demands. The unique HW/FW flexibility of Titanium architecture enables unconstrained proprietary command implementation with no restrictions or tradeoffs on performances, throughput, and latency.

- Data Security**
 Customer data security is paramount. PETA8118 supports the most stringent data encryption standards including XTS-AES 256, SHA 256, TCG Storage Enterprise/Opal/Opalite SSC
- Data Integrity and Reliability**
 Data center and Enterprise applications demand the highest level of end-to-end data integrity. PETA8118 implements full end-to-end protection, LDPC error correction, configurable RAID for uncorrectable data recovery and NAND defects, and built-in Power Loss Protection.
- Lowest Power/KIOPS**
 Titanium-DC Architecture in 16nm ASIC technology delivers the lowest power/performance metric. This enables PETA8118 U.2 SSD to deliver full PCIe Gen4x4 throughput at/below 16W.
- Diagnostics and Telemetry**
 The health and performance metrics of each Peta8118 drive in the data center can be constantly monitored. Thanks to the flexible and customizable support of telemetry and diagnostic, the drive metrics can be customized to support data center monitoring requirements.

Peta8118 U.2, E1.S Performances (*)

Workload	3.2TB TLC 800MT/s	3.2 TB TLC 1,200 MT/s
Sequential Read	5.1 GB/s	7.0 GB/s
Sequential Write	2.1 GB/s	3.2 GB/s
4KB Random Read	650 KIOPS	650 KIOPS
4KB Random Write Peak	510 KIOPS	560 KIPOS
4KB Random Write Sustained	160 KIOPS	260 KIOPS
Power	< 10W	< 16W

Workload	6.4TB TLC 800MT/s	6.4 TB TLC 1,200 MT/s
Sequential Read	5.1 GB/s	7.0 GB/s
Sequential Write	3.2 GB/s	3.2 GB/s
4KB Random Read	950 KIOPS	1.2 MIOPS
4KB Random Write Peak	560 KIPOS	560 KIPOS
4KB Random Write Sustained	240 KIOPS	280 KIOPS
Power	< 12W	< 16W

(*) Performance values based on TLC flash from major NAND vendors