

PCIe 5.0 SSD

High performance for any workload



PBlaze[®]7 7940 Series NVMe[™] SSD

PBlaze7 7940 Series NVMe SSD, adopting PCIe 5.0 interface and supporting NVMe 2.0, delivers 2.5 times the performance and 1.5 times the power efficiency compared to conventional PCIe 4.0 SSDs. This exceptional performance enables it to meet the growing storage performance demands for cutting-edge digital technology applications.

PCIe 5.0, High performance

Developed on MUFPT, the PBlaze7 7940 series 4K random read/write performance, achieving up to 2,800K IOPS / 700K IOPS. Additionally, the sequential read and write performance has experienced a significant 100% improvement, reaching 14GB/s and 10GB/s respectively. It also reduced the read and write latency to 55 / 9 μ s to ensure QoS and consistent performance, making the latency-sensitive applications running smoothly.

Optimal Power Efficiency

PBlaze7 7940 series boasts superior energy efficiency, delivering up to 970MB/s sequential read performance per watt. Through extensive hardware design and firmware optimization, the PBlaze7 7940 series achieves higher hardware utilization and minimizes its impact on server heat dissipation. Meanwhile with power mode settings ranging from 12W to 25W, PBlaze7 7940 series provides accurate and dynamic power control.

Multiple Form Factors

The PBlaze7 7940 series is available in capacities ranging from 3.2TB to 15.36TB, offered in multiple form factors including 2.5-inch U.2, E3.S 1T, E3.S 2T, E1.S, and HHHL AIC. This extensive range of options ensures compatibility with diverse deployment environments.

Richer Enterprise Features

PBlaze7 7940 series support for SR-IOV to maximize the utilization of resources and enhance virtualization capabilities. Additionally, the PBlaze7 7940 series has also upgraded to NVMe 2.0 and OCP 2.0 specifications, providing advanced enterprise features including NVMe-MI 1.2b out-of-band management, end-to-end data protection, TCG Opal 2.0, 128K atomic writes and more.

Key Features

- PCIe 5.0, NVMe2.0
- 3.2TB - 15.36TB Capacity
- 2800K IOPS
- 14 GB/s Sequential Read
- 10 GB/s Sequential Write
- Latency R/W 55/9 μ s

Reliability

- TCG Opal2.0
- 128K Atomic Write
- AES 256 Data Encryption
- Sanitize
- Full Data Path Protection
- Power Failure Protection
- Secure Download and Secure Boot

Easy-to-use

- NVMe-MI 1.2b (ARP)
- Telemetry
- Firmware Upgrade without Reset
- Persistent Event Log
- Latency Statistics & High Latency Logging

Advanced Feature Support

- SR-IOV
- Timestamp
- Weighted Round Robin
- 8TB/s Enterprise TRIM

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PBlaze[®] 7 7940 Series NVMe™ SSD

PRODUCT BRIEF

Applications & Workloads

Database
Searching, Indexing, CDN
Cloud and Hyper-scale Computing
High Performance Software-defined Storage
Deep Learning and Big Data Analytics
High Performance Storage System
ERP, SAP HANA
BOSS, Banking, Taxing
High Frequency Trading
Online Payment



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<i>PBlaze7 7940 Series</i> ^[1]	<i>7940</i>			<i>7946</i>		
	3.84	7.68	15.36	3.2	6.4	12.8
User Capacity (TB)						
Form Factor	HHHL AIC, 2.5-inch U.2, E1.S, E3.S					
Interface	PCIe 5.0 x 4					
128KB Sequential Read	up to 14 GB/s					
128KB Sequential Write	up to 10 GB/s					
Sustained Random Read (4KB) IOPS	up to 2800K					
Sustained Random Write (4KB) IOPS (Steady State) ^[2]	up to 400K			up to 700K		
Lifetime Endurance DWPD ^[3]	1			3		
Random R/W Latency (μs) ^[4]	55 / 9					
Sequential R/W Latency (μs) ^[4]	8 / 9					
Operating Temperature	Ambient: 0°C to 35°C with suggested airflow; Case: 0°C to 77°C					
Uncorrectable Bit Error Rate	< 10 ⁻¹⁷					
Mean Time Between Failures	2 million hours					
Protocol	NVMe 2.0, OCP 2.0					
NAND Flash Memory	3D TLC NAND					
Operation System	RHEL, SLES, CentOS, Ubuntu, Windows Server, VMware ESXi					
Power Consumption	< 25 W					
Basic Feature Support	Power Failure Protection, Full Data Path Protection, S.M.A.R.T, Flexible Power Management, Hot Pluggable					
Advanced Feature Support	TRIM, Multi-namespace, AES 256 Data Encryption & Crypto Erase, EUI64/NGUID, Variable Sector Size Management & NVMe End-to-End Data Protection (DIF/DIX), Firmware Upgrade without Reset, Timestamp, Weighted Round Robin, Persistent Event Log, Telemetry, Secure Download, Secure Boot, TCG OPAL2.0, 128K Atomic Write, NVMe-MI, SR-IOV					
Software Support	Open-source management tool, CLI debug tool OS in-box driver (Easy system integration)					

NOTES:

- [1] Performance may vary due to different system configurations and firmware version.
- [2] Measurement is performed at Steady State.
- [3] DWPD, Drive Writes per Day for 5 years.
- [4] Average latency & sequential latency measured with 4KB random I/O pattern.

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