

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 14.1GB/s and 10.8GB/s respectively. It also reduced the read and write latency to 56 / 8μs to ensure QoS and consistent performance, making the latency-sensitive applications running smoothly.

High-capacity and Diverse Form Factors

The PBlaze7 7940 series is available in capacities ranging from 3.2TB to 30.72TB, offered in diverse form factors including 2.5-inch U.2, E3.S and E1.S. This extensive range of options ensures compatibility with diverse deployment environments.

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.

Richer Enterprise Features

PBlaze7 7940 series 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, 128K Write Atomicity Normal, ARP and more.

Key Features

PCIe 5.0, NVMe2.0
 3.2TB-30.72TB Capacity
 2800K IOPS
 128K SR 14.1 GB/s
 128K SW 10.8 GB/s
 Latency R/W 56/8μs

Reliability

128K Write Atomicity Normal
 AES 256 Data Encryption
 Sanitize
 Full Data Path Protection
 Power Failure Protection
 Secure Download and Secure Boot

Easy-to-use

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

Advanced Feature Support

Timestamp
 Weighted Round Robin
 8TB/s Enterprise TRIM

PCIe 5.0 SSD

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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| PBlaze7 7940 Series ^[1] | 7940 | | | | 7946 | | |
|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------------|-------|-------|
| User Capacity (TB) | 3.84 | 7.68 | 15.36 | 30.72 | 3.2 | 6.4 | 12.8 |
| 128KB Sequential Read(GB/s) | 14.1 | 14.1 | 13.9 | 14 | 14.1 | 14.1 | 13.9 |
| 128KB Sequential Write(GB/s) | 6.0 | 10.8 | 9.8 | 9.7 | 6.0 | 10.8 | 9.8 |
| Sustained Random Read (4KB) IOPS | 2700K | 2800K | 2800K | 2700K | 2700K | 2800K | 2800K |
| Sustained Random Write (4KB) IOPS (Steady State) | 260K | 410K | 400K | 410K | 530K | 700K | 690K |
| Lifetime Endurance DWPD ^[2] | 1 | 1 | 1 | 1 | 3 | 3 | 3 |
| Random R/W Latency | 56 / 8 μs | | | | | | |
| Sequential R/W Latency | 7 / 8 μs | | | | | | |
| Form Factor ^[3] | 2.5-inch U.2, E1.S, E3.S, HHHL AIC | | | | | | |
| Interface | PCIe 5.0 x 4 | | | | | | |
| Operating Temperature | Case: 0°C to 77°C | | | | | | |
| Uncorrectable Bit Error Rate | < 10 ⁻¹⁸ | | | | | | |
| Mean Time Between Failures | 2.5 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 ^[4] | TRIM, Multi-namespace, AES 256 Data Encryption & Crypto Erase, EUI64/NGUID, Variable Sector Size Management & NVMe End-to-End Data Protection (DIF/DIX) ^[4] , Firmware Upgrade without Reset, Timestamp, Weighted Round Robin, Sanitize, Persistent Event Log, Telemetry, Secure Download, Secure Boot, Get LBA Status, Write Zeroes, Write Uncorrectable, 128K Write Atomicity Normal ^[4] , NVMe-MI, ARP | | | | | | |
| 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] DWPD, Drive Writes per Day for 5 years.
- [3] Only U.2 support 30.72T, and 30.72TB Random R/W Latency is 58/9 μs.
For E1.S, 4K RW for the 7.68TB and 6.4TB are 360K and 680K, respectively.
- [4] The 30.72T U.2 only supports sector size of 512 and 4096 Bytes and does not support 128K Write Atomicity Normal.

