

# PCIe 5.0 SSD

## High performance for any workload



## PBlaze<sup>®</sup>7 7940 Series NVMe<sup>™</sup> 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 MUFP, the PBlaze7 7940 series 4K random read/write performance, achieving up to 2,800K IOPS / 720K 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 57 / 9μs to ensures 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  
 14 GB/s Sequential Read  
 10 GB/s Sequential Write  
 Latency R/W 57/9μs

#### 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

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### 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



For more information, please visit:  
[www.memblaze.com](http://www.memblaze.com)

Phone:  
400-650-7995

Email:  
[contact@memblaze.com](mailto:contact@memblaze.com)

<b><i>PBlaze7 7940 Series</i></b> <sup>[1]</sup>	<b><i>7940</i></b>				<b><i>7946</i></b>		
User Capacity (TB)	3.84	7.68	15.36	30.72	3.2	6.4	12.8
128KB Sequential Read(GB/s)	14	14	13.5	14	14	14	13.5
128KB Sequential Write(GB/s)	5.8	10	9.5	9.7	5.8	10	9.5
Sustained Random Read (4KB) IOPS	2700K	2800K	2800K	2700K	2700K	2800K	2800K
Sustained Random Write (4KB) IOPS (Steady State)	260K	410K	410K	410K	530K	710K	720K
Lifetime Endurance DWPD <sup>[2]</sup>	1				3		
Random R/W Latency	57 / 9 μs						
Sequential R/W Latency	8 / 9 μs						
Form Factor <sup>[3]</sup>	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 <sup>-18</sup>						
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 <sup>[4]</sup>	TRIM, Multi-namespace, AES 256 Data Encryption & Crypto Erase, EUI64/NGUID, Variable Sector Size Management & NVMe End-to-End Data Protection (DIF/DIX) <sup>[4]</sup> , 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 <sup>[4]</sup> , 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. For E1.S, 4K RW for the 7.68TB and 6.4TB are 380K and 700K, respectively.

[4] The 30.72T U.2 only supports sector size of 512 and 4096 Bytes and does not support 128K Write Atomicity Normal.

[memblaze.com](http://memblaze.com)



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