PBlaze6 6530 Series NVMe™ SSD

PCIe Gen4 Enterprise SSD with Better Performance and Lower Power

Based on the Memblaze self-developed Unified Framework Platform (MUFP), the PBlaze6 6530 series supports NVMe 1.4 specifications and adopts the latest 176-layer enterprise level 3D eTLC NAND flash memory. Compared with its predecessor, the PBlaze6 6530 series features higher endurance, significantly improved performance, with Random Read reaching up to 1100k IOPS. PBlaze6 6530 series supports more enterprise functions and security features, meeting the stringent requirements of hyperscale users in internet, cloud computing, finance and telecommunications etc. filed.

Key Features

- Support PCIe 4.0, backward-compatible
- NVMe 1.4
- Up to 1100K IOPS
- 6.8GB/s throughput
- MTBF > 2 million hours
- UBER < 10^{-17}
- Latency Statistics & High Latency Logging
- Persistent Event Log
- Telemetry
- Sanitize
- TCG Opal 2.0
- Firmware Upgrade without Reset
- Weighted Round Robin (WRR)

Applications & Workloads

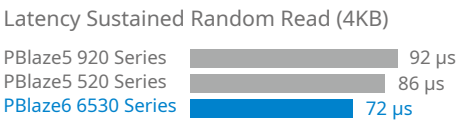
- Database
- Searching, Indexing, CDN
- Cloud and Hyper-scale Computing
- High Performance Software-defined Storage
- Deep Learning and Big Data Analytics
- High Performance Storage System
- ERP, SAP HANA
- BOSS, Banking, Taxing
- High Frequency Trading
- Online Paymen

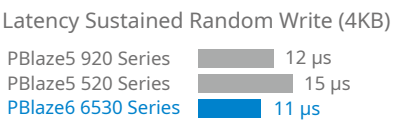
Better performance greatly accelerates applications

PBlaze6 6530 series enterprise SSD supports PCIe 4.0 x 4 interfaces and enjoys superior Read/Write bandwidth. With MemSpeed 4.0 technology, it can provide 4K Random Read performance up to 1100K IOPS, and sequential Read bandwidth reaching 6.8GB/s. Therefore, it can deliver better performance for enterprise users, supporting substantial acceleration in business applications.

Lower latency ensures outstanding user experience and consistency

On the basis of deep optimization of IO processing logic, PBlaze6 6530 series shortens command response and reduced the overall write latency to 11μs by optimizing the write I/O path. Meanwhile, the read latency has also been improved, reduced to 72μs. In addition, the optimization of the scheduling mechanism ensures the QoS and consistent performance, thereby making the latency-sensitive applications running smoothly.





Low power and flexible power configuration help meet different business demands

PBlaze6 6530 series adopts low-power hardware design, and optimizes data path and algorithms, drastically boosting the performance delivered per watt of power. With an energy efficiency 172% higher than that of its predecessor, PBlaze6 6530 series enjoys better performance and lower power consumption. The series features a 11W typical write power consumption and offers dynamic power adjustments from 6W to 14W by per 1W, so as to accommodate users' different power configuration demands.

Ultra-long write endurance ensures long-term and stable operation of the applications

By adopting the highest grade of eTLC NAND, PBlaze6 6530 series enables newly-upgraded MemSpeed4.0 technology set, and optimizes write path and algorithm, achieving ultra-long write endurance. As per JESD219 standard, PBlaze6 6530 write endurance can be up to 1.5 DWPD (5 years), 50% higher than that of the predecessor and suitable for mainstream workloads. PBlaze6 6536 endurance can be up to 3.3 DWPD (five years), suitable for businesses with higher write endurance needs.

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NOTES:

[1] Performance may vary due to different system configurations and firmware version.

[2] Measurement is performed at Steady State refer to SNIA SSS-PTS-E test specification.

[3] DWPD, Drive Writes per Day for 5 years.

[4] Average latency measured with 4KB random I/O pattern.

PBlaze6 6530 Series [1]	C/D 6530			C/D 6536		
User Capacity (TB)	1.92	3.84	7.68	1.6	3.2	6.4
Form Factor	2.5-inch U.2 / HHHL AIC					
Interface	PCIe 4.0 x 4					
128KB Sequential Read (GB/s)	6.8	6.8	6.4	6.8	6.8	6.4
128KB Sequential Write (GB/s)	2.7	4.8	4.8	2.7	4.8	4.8
Sustained Random Read (4KB) IOPS	910K	1100K	1100K	910K	1100K	1100K
Sustained Random Write (4KB) IOPS (Steady State) [2]	110K	190K	230K	225K	415K	420K
Lifetime Endurance DWPD [3]	1.5	1.5	1.7	3.3	3.3	3.5
Latency Read/Write (µs) [4]	72 / 11					
Operating Temperature [5]	2.5-inch U.2: Ambient: 0°C to 35°C with suggested airflow; Case: 0°C to 70°C AIC: Ambient 0°C to 55°C with suggested airflow					
Uncorrectable Bit Error Rate	< 10^{-17}					
Mean Time Between Failures	2 million hours					
Protocol	NVMe 1.4					
NAND Flash Memory	3D eTLC NAND					
Operation System	RHEL, SLES, CentOS, Ubuntu, Windows Server, VMware ESXi					
Power Consumption	Up to 14 Watt					
Basic Feature Support	Power Failure Protection, Hot Pluggable, Full Data Path Protection, S.M.A.R.T, Flexible Power Management					
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, Latency Statistics & High Latency Logging, Timestamp, Weighted Round Robin (WRR), Telemetry, Sanitize, Persistent Event Log, TCG OPAL2.0					
Software Support	Open-source management tool, CLI debug tool OS in-box driver (Easy system integration)					

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