PBLAZE IV

Solid-State Drive Series

Scalable Enterprise Class Flash Memory Products

The PBlaze4 Series is Memblazes' next generation enterprise SSD designed to deliver consistent level of performance and reliability for the most demanding data center applications, including database, CDN, Tier1 Caching, Virtualization and Cloud Computing.

Class Leading Highlights

> High and consistent performance
> Highest user capacity support of PBlaze4 C/D750 up to 3.2T
> In-box NVMe driver supported via Windows, Linux, and VMware systems
> Selectable power model (C/D750: 25W, 20W)
> UEFI boot support

NVMe Support

NVMe 1.1,PCIe 3.0

PBlaze4 supports the industry-standard NVMe 1.1b (Non-Volatile Memory express) interface. Combined with PCIe Gen3, the PBlaze4 series increases IOPS and removes the I/O storage bottleneck that plagues the modern-day data centers.

High and Consistent Performance

Superior QoS,Consistently High IOPS and Throughput,Sustained Low Latencies

PBlaze4 750 series comes in a range of capacities, from 800GB to 3.2TB in both 2.5" and Add-in Card (AIC) form factors. To achieve high and consistent performance, MemSpeed® technology set is optimized and utilized on PBlaze4, by delivering superior QoS to handle the most demanding workload spikes of today's and tomorrow's data centers.

Proven Data Reliability

ECC, Dynamic RAID5, pSLC, Enhanced Power Failure Protection, Thermal Throttling

To ensure Enterprise class data integrity, PBlaze4 incorporates a variety of innovative reliability features which summarized as MemSolid® technology set. Flash memory reliability is ensured through a combination of improved architecture and exceptionally strong ECC, Read Retry and RAID among NANDs technology.

Pseudo-SLC (pSLC) is a variant of MLC which possesses the speed and durability of SLC. For metadata protection, PBlaze4 leverages this technology by splitting the memory array into two sections, providing a high-reliability section which set as pSLC mode for metadata storage.

To minimize potential data loss during unsafe power outages or shutdowns, the PBlaze4 series includes a power-fail detection circuit with power loss capacitor, which allows for preservation of data currently in transition (in temporary buffers) to NAND media. PBlaze4 also supports NVMe1.1b standardized and additional SMART attributes, which providing ability periodically detect health of SSD.

Inside PBlaze4 Memblaze implements a Thermal Throttling (TT) technique which enables protection from data loss due to excessive heat dissipation. Memblaze engineered TT to go above and beyond the requirement of NVMe 1.1b by setting an internal hard limit threshold thereby shutting down necessary circuits from overheating.

Hot-Pluggable

SFF-8639 Supported, Surprise Removal Suppored

The PBlaze4 2.5" form factor adheres to SFF-8639 provisions for hot plug, hot removal and hot swap. PBlaze4 Serials will guarantee the integrity of data both already committed to non-volatile NAND media and cached writes commit to media during hot plug operation.

Increased Return on Investment

Low Host Memory and Compute Overhead, Increased Density, Reduced TCO

Utilizing Memblaze's innovative Device-based Architecture, PBlaze4 can significantly reduce host system overhead (1MB memory occupy). With the flexibility of 2.5" form factor, it is effective to reduce deployment time, increase the PCIe SSD density and, save operating expense for data centers and reduce the total cost of ownership (TCO).

MEMBLAZE

PBlaze IV Technical Specifications

PBlaze4 Series [1] [2]	PBlaze4 C/D750				
User Capacity	800GB	1.2T*	1.6T	2.4T*	3.2T
Sequential Read (128KB)	2.4 GB/s	2.9 GB/s	2.9GB/s	2.9 GB/s	2.8 GB/s
Sequential Write (128KB)	700 MB/s	1.4 GB/s	1.4 GB/s	2.3 GB/s	2.3 GB/s
Sustained Random Read (4KB) IOPS	600K	740K	740K	700K	700K
Sustained Random Write (4KB) IOPS (Steady State / Peek) [3]	60K / 170K	240K / 350K	140K / 350K	310K / 580K	170K / 580K
Lifetime Endurance DWPD [4] (Sequential Workload/JESD218)	3 / 1	4 / 2	3 / 1	4 / 2	3 / 1
Latency Read/Write [5]	95µs / 16µs				
Uncorrectable Bit Error Rate	<1 sector per 10^{17} bits read				
Mean Time Between Failures	2 million hours				
Form Factor	2.5-inch / HHHL				
Interface	PCLe 3.0 x 4				
Dimensions	2.5":61.72mmx100.20mmx15.00mm HHHL:68.9mmx167.65mmx18.74mm				
Protocol	NVMe 1.1b				
NAND Flash Memory	MLC				
Operation System	RHEL, SLES, CentOS, Ubuntu, Windows Server, VMware ESXi				
Power Consumption	≤ 25w				
Operating Temperature	AIC: 0 – 55℃ ambient temperature with suggested airflow 2.5": 0–35℃ ambient temperature with suggested airflow, 0-70℃ case temperature				
Airflow(LFM)	300@25℃				
Software Support	CLI Management Tool, OS in-box driver				
Certification	America:FCC Taiwan:BSMI Europe: CE, RoHS, WEEE				

Note:
* Random workload and endurance optimized SKU.
[1].D750 default power mode is 20W.
[2].Performance is in tuning, changes may make.
[3].Measurement is performed at 100% disk span and fresh out of the box (FOB).
[4].DWPD: Drive Write Per Day , obtained under sequential workload and JESD218 with JESD219 workload.
[5].Average latency measured with 4KB random I/O pattern.

» MemSpeed 2.0

- Write cache
- Global FTL
- Flash Channel QoS
- Adaptive Smooth Technology
- Multi-core Computing
- Hardware Multi-Q

» MemSolid 2.0

- Power Failure Protection
- Metadata Protection
- Randomize
- Read Disturb Protection
- Read Retry
- Data Retention Enhanced
- Strong BCH ECC
- Dynamic RAID5
- Wear Leveling
- Fast Recovery
- High Temperature Protection
- Firmware Protection

Consulting Email: contact@memblaze.com

contact@memblaze.com
www.memblaze.com