



# PBlaze5 510/516 NVMe™ SSD

## Constructing Green Data Center with Low-Power Dual-port SSD

The data center industry is energy-intensive type, consuming a large amounts of energy and putting enormous strain on energy supplies every year. With the rise of internet industry in recent years, data centers are facing the pressure of mounting energy consumption. Memblaze delivers PBlaze5 510/516 series SSD with significant power reduction, offering enterprises green storage options to reduce rack space, room space, equipment purchases and power consumption, thus dramatically lowering the Capital Expenditures (CAPEX) and Operating Expense (OPEX).

### Product Highlights:

- 64-layer 3D NAND
- 10W typical power and 4W idle power
- Accurate power control per watt
- Up to 510K IOPS, and up to 3.4GB/s throughput
- High availability dual-port
- 2 million hours MTBF
- Hot-pluggable

### 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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### Power SSD, Significantly Cuts Power Cost Down

Memblaze unveils the latest low power PBlaze5 510/516 series solid-state drive (SSD), with typical power consumption as low as 10W and even lower idle power consumption of 4W. Compared with its counterpart PBlaze5 700, deployed in semi-equipped storage node with standard 42U cabinet, the PBlaze5 510 series witnesses a whopping 54% fall in the annual electrical consumption from 46,252.8kWh to 21,024kWh.

### High and Consistent Performance, Ultra-low Write Latency

PBlaze5 510/516 Series SSD adopts 8-channel architecture and can provide up to 510K IOPS and 3.4GB/s bandwidth. To further reduce the write latency, Memblaze optimizes PBlaze5 510/516 Series SSD with Tiered Caching mechanism. Comparing to backend buffer, the frontend cache is closer to core processing unit of the controller with higher transfer rate. Thus, PBlaze5 510/516 ensures low and consistent write latency, especially has notable optimization in non-aligned write latency.

### High Availability of System with Dual-port

PBlaze5 510/516 series supports dual-port function and allows access via two ports simultaneously, which solves the single-path failure, ensures continuous data access and meets enterprise high availability requirement. Meanwhile, the PBlaze5 510/516 series SSD has significant reduction in power consumption. Take the 50-bay high density storage system for example. The system fully equipped PBlaze5 510 has a total power consumption of 0.5kW, down 54% from 1.1kW of its counterpart PBlaze5 700, bringing a high-density low-power storage system.

### Guaranteed Data Reliability

PBlaze5 510/516 series supports AES 256 Data Encryption, Full Data Path Protection, and Enhanced Power Failure protection to protect critical enterprise applications.

### Flexible and Accurate Power Management

Enterprise users are extremely demanding on power consumption and ambient temperature, PBlaze5 510/516 series supports the setting of different power modes ranging from 5W to 12W.

### Hot-pluggable

The PBlaze5 510/516 series comes in 2.5-inch form factor and supports hot plug, hot removal and hot swap. It can be plugged in and removed without application interruption, thus simplifying system maintenance cost and difficulty tremendously.

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### Notes:

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

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

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

[4] DWPD, Drive Writes Per Day for 5 years.

[5] Support for operating system native drivers.

PBlaze5 510/516 Series <sup>[1]</sup>	C/D510	D510	C/D516	D516
User Capacity (TB)	1.92	3.84	1.6	3.2
Form Factor	7 mm U.2/AIC	7 mm U.2	7 mm U.2/AIC	7 mm U.2
Interface	PCIe 3.0 x 4			
Sequential Read (128KB)(GB/s)	3.4 GB/s	3.2 GB/s	3.4 GB/s	3.2 GB/s
Sequential Write(128KB) (GB/s)	1.7 GB/s	1.7 GB/s	1.7 GB/s	1.7 GB/s
Sustained Random Read (4KB) IOPS	510K	510K	510K	510K
Sustained Random Write(4KB) IOPS <sup>[2]</sup>	60K	70K	140K	150K
Latency Read/Write <sup>[3]</sup>	94 / 14 μs			
Lifetime Endurance <sup>[4]</sup>	1 DWPD		3 DWPD	
UBER	< 10 <sup>-17</sup>			
MTBF	2 million hours			
Protocol	NVMe 1.3			
NAND Flash Memory	3D eTLC NAND			
Supported Operating Systems <sup>[5]</sup>	RHEL, SLES, CentOS, Ubuntu, Windows Server, VMware ESXi			
Power Consumption	4~12 W			
Basic Feature Support	Power Failure Protection, Hot Pluggable, Full Data Path Protection, S.M.A.R.T, Flexible Power Management			
Advanced Feature Support	TRIM, Namespace Management, AES 256 Data Encryption, Crypto Erase, Dual Port			
Software Support	NVMe Cli, Smartctl, etc.			
Certification	China:CNAS,BSMI	America:FCC	Eruope:CE,RoHS,WEEE,REACH	



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