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Samsung PM1725b NVMe SSD

Unrivalled performance
and flexibility

Product Brief



Highlights

Samsung PM1725b delivers:

- **Extreme performance**

The highest level of random read speed and an ultra-low latency rate using Samsung's highly innovative 3D vertical-NAND (V-NAND) flash memory and an optimized controller.

- **Outstanding reliability**

Features three DWPD (drive writes per day) for five years, which equates to 38.4TBs daily, or 7,680 files of 5GB-equivalent data or video every day.

- **High capacities**

The 1725b supports a range of capacities, from 1.6TB to an industry leading 15.36TB.

The NVMe advantage

The NVMe protocol was built from the ground up to maximize flash storage performance and minimize latency. It replaces legacy disk-based protocols and uses the PCIe interface to enable higher bandwidth.

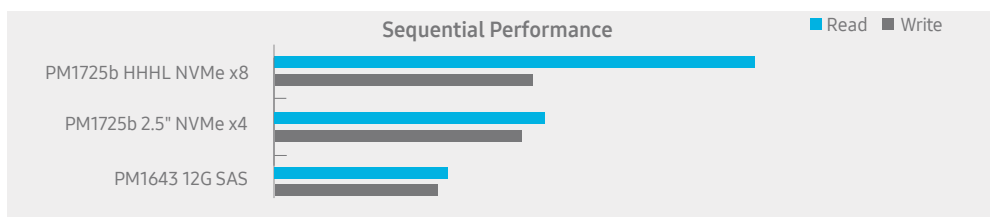
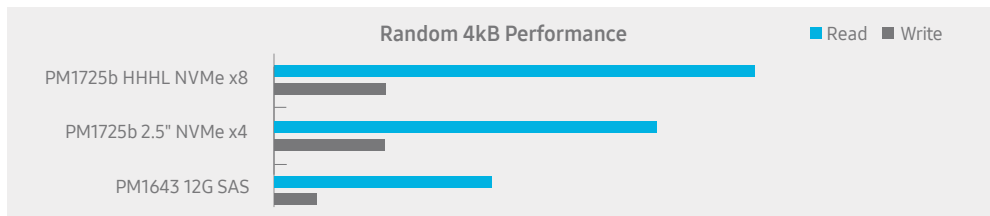
EXTREME PERFORMANCE FROM THE SSD TECHNOLOGY LEADER

Maximize your data transmission with Samsung's highly reliable, high performance PM1725b SSD

Enterprise environments have unique requirements to ensure that they operate optimally 24/7, 365 days a year. Varied levels of performance with low latency is essential. It is also critical that these environments remain stable when processing a wide variety of read and write workloads. The most crucial criteria of all is protection from data corruption or loss due to unexpected power outages. Considering each of these factors, IT and data center managers are tasked with finding high performing and dependable memory solutions.

Samsung is offering enterprises superb solid-state drives (SSDs) that deliver outstanding performance in multi-thread applications, such as compute and virtualization, relational databases and storage. These SSDs are also extraordinarily reliable for continuous operation regardless of unanticipated power loss. Using proven expertise and a wealth of experience in cutting-edge SSD technology, Samsung memory solutions help data centers operate continuously at the highest performance levels. Samsung has the added advantage of being the sole manufacturer of all of its SSD components, ensuring end-to-end integration, remarkable quality assurance and the utmost compatibility.

Samsung PM1725b Performance vs Enterprise SAS



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Samsung PM1725b NVMe SSD

Realize extreme performance with ultra-low latency in read-intensive applications

To satisfy an enterprise environment's exceptionally high-demands, an SSD must perform over long periods of time at maximum performance levels for the variety of workloads accessing the device simultaneously. In addition, the SSD must provide the performance consistency to satisfy grueling Quality of Service (QoS) requirements.

Delivering highly optimized performance for various data center applications

The Samsung PM1725b SSD is optimized to excel in virtually any data center scenario. This enterprise-level, ultra-high performance SSD provides exceptional random read performance and is particularly suitable for read-intensive data center applications.

Physical and Digital Flexibility to fit your needs

The PM1725b is available in both 2.5" U.2 and HHHL AIC form factors. In addition, the PM1725b firmware can be modified by the user to exchange some endurance for additional drive capacity. These features provide you with the flexibility to bring top-tier performance and reliability to a variety of architectures and environments.

The PM1725b is endurance and performance optimized, with 3 DWPD at 1.6TB, 3.2TB, 6.4TB and 12.8TB. However, the drive can also be reconfigured as capacity optimized, changing to 1 DWPD at 1.92TB, 3.84TB, 7.68TB, and 15.36TB. The capacity optimized version is most popular when utilizing dual port functionality in all-flash-array applications.

Delivering Dual-Port NVMe to the Enterprise

PM1725b supports dual-port functionality, enabling high-availability via two access paths to the storage array controller. This feature delivers the reliability, availability and serviceability (RAS) that is required for enterprise storage designs, allowing for SAS SSDs to be replaced by high-performance NVMe SSDs in new all-flash-array architectures.

Enterprise-grade power loss protection

During normal power-off periods, the host server allocates time to preserve data integrity by transmitting a standby command to each device. In the event of an unexpected power loss, though, the cached data in a storage device's internal buffers (DRAM) can be lost. This can occur with unexpected power outages, or when users unplug devices from the system. However, the Samsung PM1725b SSD has been designed to prevent data loss resulting from unexpected power shutdowns with its power-loss protection architecture. Upon detection of a failure, the SSD immediately uses the stored energy from tantalum capacitors to provide enough time to transfer the cached data in DRAM to the flash memory, ensuring no loss of data.

Samsung PM1725b specifications

Form factor	2.5"	HHHL
Capacity	1.6 TB, 3.2 TB, 6.4TB, and 12.8TB	
Host interface	PCIe Gen 3 x4/dual x2	PCIe Gen 3 x8
Spec Compliance	NVMe spec rev. 1.2, PCI Express base specification rev. 3.0	
NAND flash memory	Samsung V-NAND	
Power consumption (Active/Idle)	23W/7W	23W/8W
Write Endurance (@4K random write)	3 DWPD for 5 Years	
Uncorrectable Bit Error Rate (UBER)	1 sector per 10 ¹⁷ bits read	
Mean Time Between Failure (MTBF)	2,000,000 hours	
Endurance	3 DWPD for 5 years	
Sequential read	Up to 3,500 MB/s	Up to 6,300 MB/s
Sequential write	Up to 3,100 MB/s	Up to 3,300 MB/s
Random read	Up to 800,000 IOPS	Up to 980,000 IOPS
Random write	Up to 190,000 IOPS	Up to 190,000 IOPS
Physical Dimensions	69 x 100 x 14 mm	69 x 168 x 19 mm
Encryption Supported	Instant Secure Erase	

*Specifications of 1725b 2.5" after user-enabled firmware change to capacity-optimized:

Capacities: 1.92TB, 3.84TB, 7.68TB, 15.36TB
Endurance: 1 DWPD
Seq Read/Write: Up to 3,500/3,000 MB/s
Random Read/Write: Up to 675K/90K IOPS