

PM953 2.5" NVMe PCIe SSD

NVMe Performance and
Latency at SATA Cost



PERFORMANCE AND LOW LATENCY THAT LEAVES SATA SOLID-STATE DRIVES IN THE DUST

Samsung PM953 SSD super-charges your datacenter with twice the performance of SATA SSDs

Data center architects face challenging requirements when delivering reliable computing and storage resources at the lowest total cost. Data center servers require high levels of I/O performance to keep their CPUs fully utilized, reducing cost. The storage systems that supply that I/O performance need to deliver consistent performance and latency to all tenant virtual machines 24/7, 365 days a year. Considering each of these factors, IT and datacenter managers are tasked with finding optimal storage solutions.

Samsung provides data centers with solid-state drives (SSDs) that deliver exceptional performance in public cloud applications, such as content delivery networks (CDN), infrastructure as a service (IaaS), shared hosting, NoSQL databases, and cloud data storage. Compared to SATA SSDs, these high-performing NVMe SSDs deliver twice the performance and lower latency, while still maintaining SATA cost and low power consumption. As a pioneer in NVMe SSDs, Samsung has been delivering the advantages of industry standard NVMe performance longer than anyone else. Samsung also has the added advantage of being a vertically integrated supplier of SSDs, providing the highest levels of quality.

Samsung PM953 SSD delivers:

- **High Performance** – Twice the performance of SATA SSDs, using Samsung state-of-the-art 3D vertical-NAND (V-NAND) flash memory. An optimized Samsung NVMe controller with a native PCIe Gen 3.0 x4 host interface, supplies 32 Gb/s of bandwidth.
- **Exceptional Value** – The same low cost per gigabyte as slower SATA SSDs. By providing twice the IOPS per dollar, datacenter operators can continue to scale workload utilization on their servers, decreasing the cost of computing.
- **Low Power and Compact Form Factor** – One-third the power consumption and one-half the space of competing NVMe SSDs, which consume 25 Watts and require 15mm height.

Optimized for data center environments

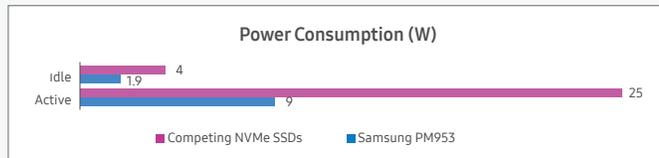
To meet the demand for high utilization, high duty cycle data centers, the PM953 NVMe SSD utilizes firmware which prioritizes quality of service (QoS) for sustained random workloads, to keep all virtual machines running quickly and smoothly. The firmware is also optimized for always on, always busy workloads always ready to respond quickly to incoming host requests. Concurrently, the PM953 NVMe SSD leverages the same controller and NAND flash memory as high volume laptop PCs, allowing data center to deploy large quantities of NVMe SSDs cost effectively.

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Built for high-density deployments

At half the size of competing 2.5" 15mm NVMe SSDs, the PM953 needs only 7mm of height, the same size as a SATA SSD. Even with twice the drive density of competing SSDs, the PM953 9W power consumption means every drive slot can be fully populated.



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 PM953 NVMe 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 PM953 NVMe SSD Technical Specifications

Form Factor	2.5"
Capacity	480GB, 960GB, and 1.92TB
Host Interface	PCIe Gen 3.0 x4 @ 32 Gb/s
MTBF	2,000,000 hours
Power Consumption (Active/Idle)	9W / 1.9W
Endurance	1.3 DWPD for 3 Years (0.8 DWPD for 5 Years)
UBER	1 in 10 ¹⁷
Random Read	Up to 240,000 IOPS
Random Write	Up to 19,000 IOPS
Sequential Read	Up to 1,000 MB/s
Sequential Write	Up to 870 MB/s
Physical Dimensions	70 x 100 x 7 mm
Weight	Up to 74 grams

Legal and additional information

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For more information about Samsung SSDs, visit www.samsung.com/flash-ssd or email: SSD@ssi.samsung.com

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