

Samsung SATA SSD

PM893 / PM897

The technology Data Centers were built on

Product Brief

Highlights

Samsung PM893 and PM897 SATA SSDs deliver:

- **SATA Compatibility**
Extend the life of existing SATA based servers. Expand storage capacity with up to 7.68TB per SSD, extend the life of systems that rely on hardware RAID controllers, or bring your hard disk drive based server back to life with SSD performance.
- **Flexible Family Portfolio**
Ten product variants covering a variety of common capacities (240 GB up to 7.68 TB) and write endurance levels of 1.3 DWPD and 3.0 DWPD.

Address Data Center Challenges

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, and high system density to minimize total cost. The storage systems that supply that I/O performance need to deliver consistent performance and latency to all tenant virtual machines and containers 24/7, 365 days a year.

Flexible Family Portfolio

Samsung's "ninth generation" SATA SSD families (PM893 and PM897) are available in capacities and write endurance levels to meet just about any application. For example, low capacity PM893 SSDs are ideal for high reliability, low power server boot drives. Higher capacity PM893 SSDs are suitable for a variety of mainstream read-intensive applications, such as collaboration platforms, unstructured data storage, content delivery networks (CDN), and hyper-converged infrastructure, such as the capacity tier of a VMware VSAN node. Samsung's PM897 SSDs offer increased write endurance, making them ideal for mixed read/write workloads, such as a general purpose or dedicated cache tier of hyper-converged infrastructure like VMware's VSAN, logging applications, online transaction processing (OLTP), database servers, and other general purpose servers with legacy workloads with unknown write characteristics. All SSDs in this lineup use the same Samsung controller and V-NAND flash memory, to simplify customer qualification and ensure reliable high volume supply.

SATA Interface Saturating Performance

Samsung's PM893 and PM897 SSDs deliver performance up to the maximum allowable for SATA attached drives: up to 560 MB/sec sequential access, and up to 98,000 IOPS for 4 kbyte random read access. Maximum performance not only allows your workloads to complete as quickly as possible, but also allows efficient shared use of high capacity drives, to maximize the performance per gigabyte of data stored.

Hardware Encryption Engine

Samsung's PM893 and PM897 SSDs keep your private data confidential, with encryption via a hardware based AES-XTS 256-bit encryption engine, and management via the TCG Opal 2.0 standard.

Samsung PM893 / PM897 SATA SSD

Enterprise Power Loss Protection

Samsung's PM893 and PM897 SSDs include enterprise power loss protection (PLP). 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 DRAM buffers can be lost. This can occur with unexpected power outages, or when users unplug devices from the system. However, the Samsung PM893 and PM897 SSDs have been designed to prevent data loss resulting from unexpected power shutdowns with its PLP architecture. Upon detection of a failure, the SSD immediately uses the stored energy from their PLP capacitors to provide enough time to transfer the cached data in DRAM to the flash memory, ensuring no loss of data.

Samsung PM893 and PM897 specifications

Model	PM893	PM897
Form factor		2.5"
Capacity	240, 480, 960GB; 1.92, 3.84, 7.68TB	480, 960 GB; 1.92 TB, 3.84T
Sequential read	Up to 560 MB/s	Up to 550 MB/s
Sequential write	Up to 530 MB/s	Up to 470 MB/s
Random read	Up to 98,000 IOPS	Up to 97,000 IOPS
Random write	Up to 31,000 IOPS	Up to 32,000 IOPS
Power consumption	Read: <= 2.1W, Write: <= 3.2W	Read: <= 2.2W, Write: <= 3
Endurance	1.3 DWPD for 3 years	3 DWPD for 5 years
Physical Dimensions		70 x 100 x 7 mm
Host interface		SATA 6 Gb/s
NAND flash memory		Samsung V6 (128 Layer) TLC V-NAND®
Uncorrectable Bit Error Rate (UBER)		1 sector per 10 ¹⁷ bits read
Mean Time Between Failure (MTBF)		2,000,000 hours
Bytes per Sector		512 Bytes
Spec Compliance		SATA 3.3 Compliant
Encryption	AES-XTS 256-bit Encryption Engine with TCG Opal 2.0 Compliant Management	
Operating Temp	0 - 70 C	

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