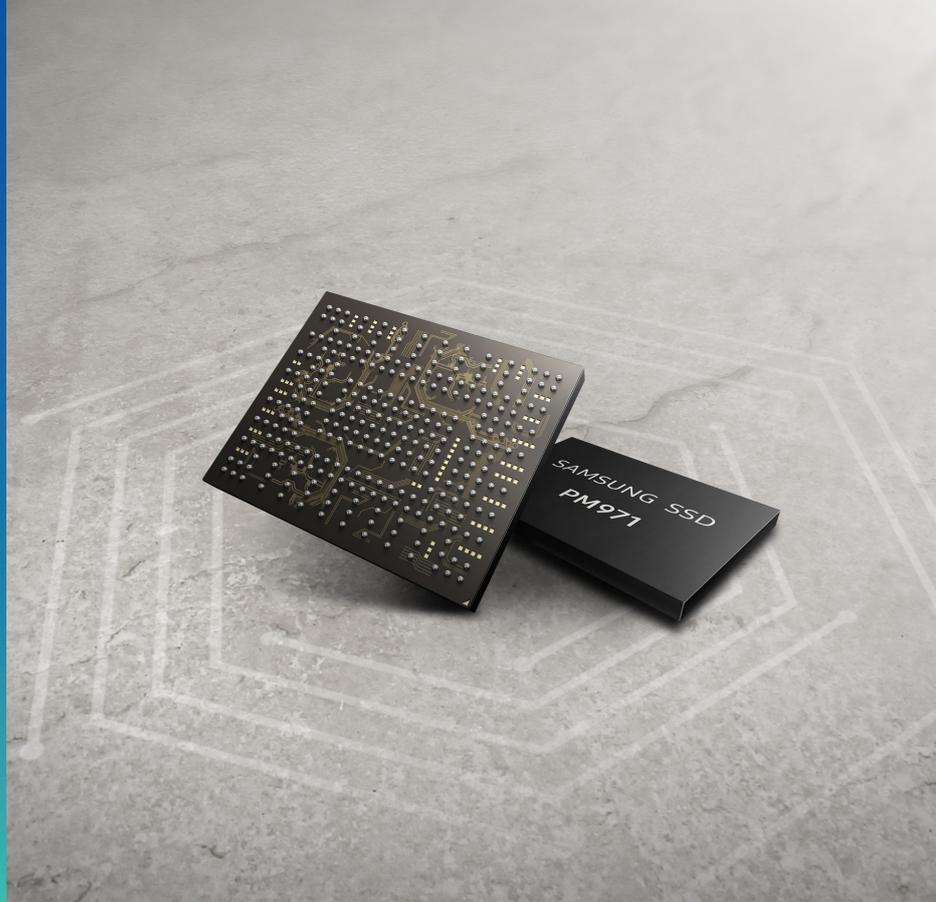


Samsung PM971 BGA NVMe SSD

Get big power in a small package

Product Brief



Highlights

Design possibilities expanded with a smaller, thinner and more lightweight drive

Longer battery life with improved power efficiency and flexible space for a larger battery

Outstanding performance with impressive read/write speeds and a capacity up to 512 GB

Thinner, lighter and longer battery life

The Internet of Things (IoT) is transforming consumer lifestyles. With the desire to stay connected 24/7, consumers are demanding slimmer, lighter, yet more-powerful devices that do not require frequent recharging. The need for go-anywhere portability is challenging device manufacturers to find smaller, high-performance and power-efficient drives to fit these ultra-thin form factors. The Samsung PM971 is the industry's first NVMe™ PCIe® SSD in a single BGA (Ball Grid Array) package that is amazingly small, super powerful and impressively power efficient.

Ultra-compact for ultra-thin devices

The PM971 contains all the essential components of an SSD—NAND flash, DRAM and controller—in one small chip. Its compact design is about a fifth the size of an M.2 drive, making it ideal for today's ultra-slim tablets, laptop hybrids and wearable devices.

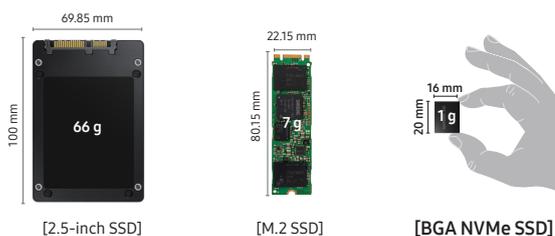
Accomplish more with devices that can last longer

All-day battery life is now a reality. You no longer need to scramble for an outlet to recharge a device. The PM971 is small not just in size but also in power consumption, and it keeps devices up and running for the long haul. Moreover, its small form factor translates into design flexibility, providing more room for other components, such as a larger battery to extend battery life even further.

A small size that packs a punch

The PM971 triples the performance of a SATA SSD with up to 512 GB of storage in the size of a thumbnail. A sequential read speed reaches up to 1,500 MB/s, while a sequential write speed reaches up to 900 MB/s thanks to Samsung's proprietary TurboWrite technology. Random read and write speeds clock in at 190K and 170K IOPS respectively. These speeds surpass any typical SATA SSD, not to mention all existing HDDs.

The world's first 512 GB BGA NVMe SSD



1/100 in physical volume of 2.5-inch SSD

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Technical specifications

		Samsung PM971 BGA NVMe SSD		
Capacity ¹		128 GB	256 GB	512 GB
Form factor (W x H x D)		BGA (20 mm x 16 mm x 1.5 mm)		
Interface		PCI Express® Gen3 x2		
Protocol		NVMe Express™		
Performance ²	Sequential read	up to 1,400 MB/s	up to 1,400 MB/s	up to 1,500 MB/s
	Sequential write	up to 500 MB/s	up to 800 MB/s	up to 900 MB/s
	Random read (4 KB, QD32)	up to 125K IOPS	up to 130K IOPS	up to 190K IOPS
	Random write (4 KB, QD32)	up to 44K IOPS	up to 130K IOPS	up to 170K IOPS
Average power consumption ³		Active read/write (Typ.) 3 W Idle (Typ.) 60 mW L1.2 (Typ.) 5mW		
Controller		Samsung Photon		
DRAM		Samsung LPDDR4		
NAND		Samsung V-NAND		
MTBF ⁴		1.5 million hours		
UBER ⁵		<1 sector per 10 ¹⁵ bits read		

1. 1 GB = 1 Billion bytes by IDEMA. Actual usable capacity may be less (due to formatting, partitioning, operating system, applications or otherwise).

2. Actual performance may vary depending on use conditions and environment.

1) Performance measured using CDM 5.0.2 on Windows® 8.1 64bit. 2) Sequential performance measured using 128KB data size. (QD=32 by Thread=1).

3) Random performance measured using 4KB data size. (QD=32 by Thread 4, QD=1 by Thread 1). 4) Performance measurements based on TurboWrite technology.

3. Actual power consumption may vary depending on system hardware & configuration.

1) Active power is measured on sequential write and read. 2) Idle Power is measured on Idle status with L1 and APST/ASPM on.

4. MTBF is Mean Time Between Failure, and is the predicted elapsed time between inherent failures of a system during operation.

5. UBER is Uncorrectable Bit Error Rate.



For more information

For more information about the Samsung PM971 NVMe SSD, visit www.samsung.com/semiconductor.

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Samsung Electronics Co., Ltd.

129 Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do 16677, Korea www.samsung.com 2017-01

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