SAMSUNG

Pushing limits and possibilities

Innovations in solid state

As the importance of data in our lives increases, so too does the importance of data reliability and security. Samsung has been an industry leader in SSD technology for more than two decades, and our innovations are safeguarding data all over the world. Always on the cutting edge of technology, Samsung pioneered the world's first mass production of Vertical NAND flash memory. It's a groundbreaking technology that delivers more capacity, more speed, more endurance and more power efficiency. As technology evolves, so too will SSD technology, and you can trust that Samsung will always be at the forefront.

The ultimate in performance, reliability and capacity

With the launch of the 950 PRO in 2015, Samsung initiated the NVMe era, and we continue to accelerate that innovation to address the evolving PC environment across laptops and desktops. These hardware options have fully matured for NVMe adoption with chipset, operating system, and motherboard support for PCI Express® (PCIe) Gen 3 x 4 lanes in an M.2 slot. Now Samsung is expanding the NVMe SSD market with the introduction of the 3rd-generation V-NAND and a two-tier lineup.

Packed with more technology and innovation than ever, the 960 PRO and 960 EVO are designed for users who seek smaller and faster storage solutions. These SSDs deliver higher bandwidth and lower latency for processing massive amounts of data, for everything from gaming and graphics to 4K video rendering, data analytics and more, on ultra-thin notebooks and PCs.

Samsung NVMe SSD Lineup: 960 PRO and 960 EVO

960 PRO

Designed for tech enthusiasts and professionals seeking unprecedented workstation and PC performance for CAD engineering or data simulations.

960 EVO

The smart choice for entry-level NVMe SSD users who want to discover next-generation PC performance for gaming and graphics.

Key benefits

Ultimate performance

- NVMe accelerates data processing with enhanced bandwidth
- 960 PRO achieves a 40% performance gain over 950 PRO.*
- Intelligent TurboWrite accelerates sequential write speeds for 960 EVO

*Comparison of sequential read speeds for 512 GB models

Solid reliability

- DTG (Dynamic Thermal Guard) helps prevent overheating
- Heat-spreading label dissipates heat quickly to sustain optimal performance
- Five-year warranty or up to 1.2 PBW (Petabytes Written) is provided for 960 PRO

World's largest capacity in M.2

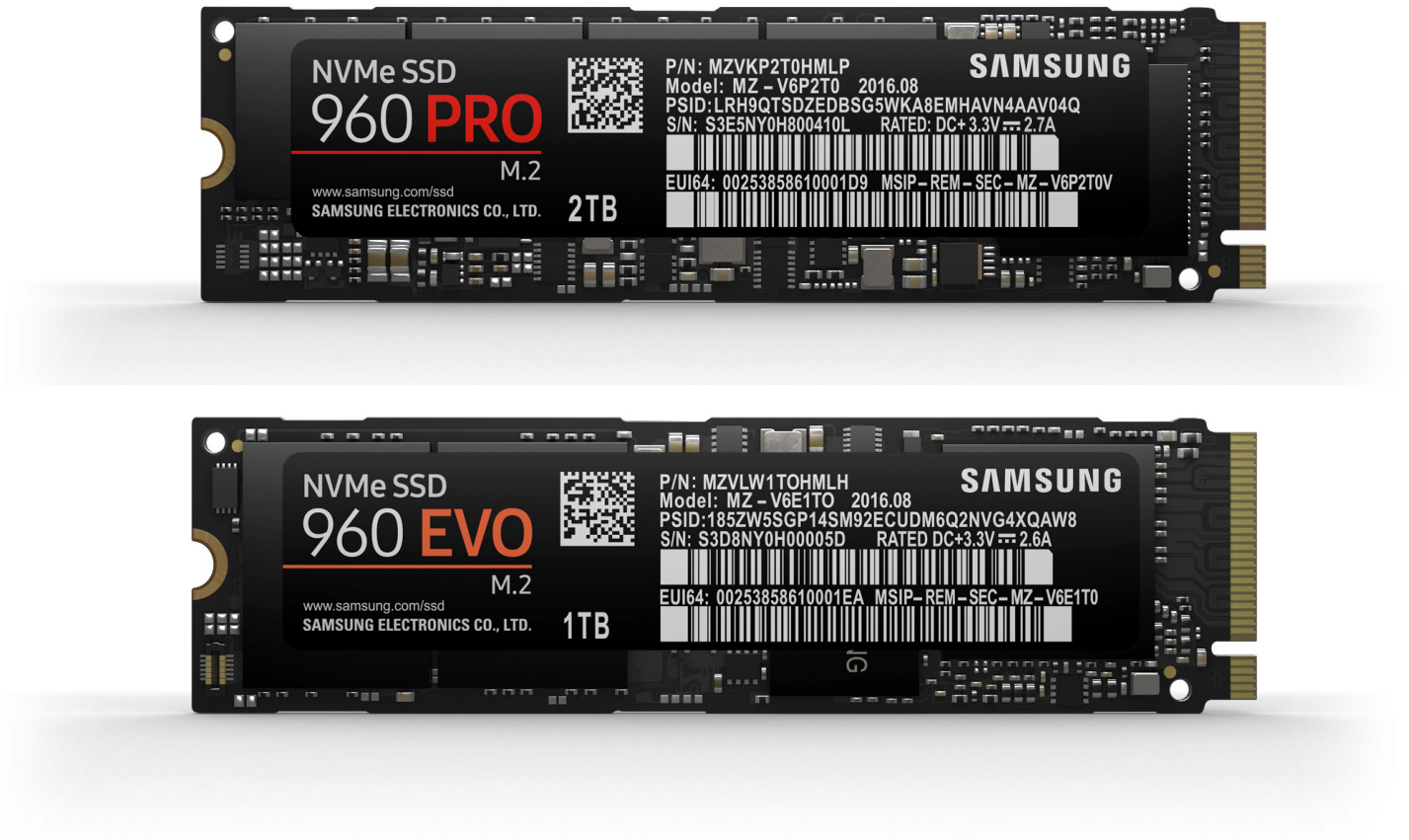
- 3rd generation V-NAND and PoP (package-on-package) technology enables spacious storage up to 2 TB in M.2 (2280) form factor ideal for ultra-thin notebooks and PCs.

Innovations exceeding expectations

Go further. The 960 PRO and 960 EVO can help you get there. Designed for tech enthusiasts and professionals, the 960 PRO delivers unprecedented workstation and PC performance for CAD engineering or data simulations. The 960 EVO, meanwhile, delivers next-generation PC performance for entry-level gamers and graphics enthusiasts. Each delivers the power of performance through Samsung NVMe PCIe Gen 3 x 4 memory, packaged in an M.2 form factor with maximum storage capacity. It's performance beyond any SSD you've ever experienced, enabling you to do more than ever before.

Accelerating PC experiences

Both the 960 PRO and 960 EVO use the Peripheral Component Interconnect Express (PCIe) Gen 3 x 4 lane interface. As a result, NVMe interface SSDs can deliver fast read and write speeds without bottlenecks, up to 32 gbps.



Raising the bar for SSD

Samsung is never content with the status quo. We're always pushing ourselves to create new ways of increasing performance that benefits you. It's why we're able to introduce innovative new features to the 960 PRO and 960 EVO that enable them to deliver industry-leading performance.

Fast read and write speeds

The 960 PRO delivers peak sequential read and write speeds of 3,500 MB/s and 2,100 MB/s, respectively. The 960 EVO delivers sequential read and write speeds that reach peaks of 3,200 MB/s and 1,900MB/s, respectively.

Fast Intelligent TurboWrite

The new Intelligent TurboWrite technology makes its debut in the 960 EVO and accelerates the sequential write speed by creating an SLC write buffer in the SSD. This technology intelligently measures the user's workloads, and if the workload exceeds the buffer size, the buffer is adjusted accordingly up to 42 GB.

Fast 5-core controller

Samsung's exclusive 5-core Polaris controller is optimized for NVMe-based SSDs for more efficient data processing performance. One core is dedicated to processing from the host system and the controller resulting in faster data processing, while the other four cores are allocated to the NAND.

Thermal control

The 960 PRO and 960 EVO provide a more reliable thermal dissipation solution with an improved Dynamic Thermal Guard (DTG) and a new heat spreader: a thin, copper film-layered label. This feature helps in reducing the temperature of the SSD when it reaches a certain threshold, protecting the data and the drive.

Increased capacity

The new 48-layer Samsung V-NAND and the four-NAND package landing design offer optimal layout for the single M.2 (2280) form factor, achieving the world's first 2TB NVMe M.2 (2280) SSD in the 960 PRO. It also includes a PoP design that integrates the DRAM and Polaris controller into a single package, allowing more space for NAND.

Enhanced software

Samsung's Magician software provides ease of monitoring, managing and maintaining performance and reliability through an intuitive UI/UX. In addition, the Magician software introduces the new Secure File Erase and Magic Vault features for data protection.

Long-lasting construction

The Samsung 960 PRO and 960 EVO are designed to thrive under heavy workloads. Built on our 3rd-generation V-NAND technology, the 960 PRO offers a warranty of up to 5 years or up to 1.2 PBW (Petabytes Written)[1,2] for unmatched endurance. The 960 EVO guarantees a warranty of up to 3 years or up to 400 TBW.[2]

[1]One Petabyte is equal to 1,000 Terabytes.
[2]Number of years or PBW/TBW the SSD will be guaranteed, whichever comes first.

Specifications		960 PRO			960 EVO		
Usage Application		Client PCs					
Interface		PCIe Gen 3.0 x4, NVMe 1.2 (Partial)					
Hardware Information	Model Name	MZ-V6P512	MZ-V6P1T0	MZ-V6P2T0	MZ-V6E250	MZ-V6E500	MZ-V6E1T0
	Capacity[1]	512 GB	1 TB (1,024 GB)	2 TB (2,048 GB)	250 GB	500 GB	1 TB (1,000 GB)
	Controller	Samsung Porlaris Controller					
	NAND Flash Memory	Samsung V-NAND Flash Memory			Samsung V-NAND 3bit MLC Flash Memory		
	DRAM Cache Memory	512 MB LP DDR3	1 GB LP DDR3	2 GB LP DDR3	512 MB LP DDR3		1 GB LP DDR3
	Dimension	Max. 80.15 x 22.15 x 2.38 (mm)					
	Form Factor	M.2 (2280)[2]					
Performance (Max.)	Sequential Read	3,500 MB/s			3,200 MB/s		
	Sequential Write[3]	2,100 MB/s			1,500 MB/s	1,800 MB/s	1,900 MB/s
	Random Read (QD1, Thread1)	14K IOPS			14K IOPS		
	Random Write (QD1, Thread1)	50K IOPS			50K IOPS		
	Random Read (QD32, Thread4)	330K IOPS	440K IOPS	440K IOPS	330K IOPS	330K IOPS	380K IOPS
	Random Write (QD32, Thread4)	330K IOPS	360K IOPS	360K IOPS	300K IOPS	330K IOPS	360K IOPS
Power Consumption[4]	Idle (Typ.)	40 mW			40 mW		
	Active Read (Average, Typ.)	5.1 W	5.3 W	5.8 W	5.3 W	5.4 W	5.7 W
	Active Write (Average, Typ.)	4.7 W	5.2 W	5.2 W	4.2 W	4.4 W	4.8 W
	DEVSLP (L1.2 Mode, Typ.)	5 mW	5 mW	8 mW	5 mW		
Data Security		AES 256-bit for User Data Encryption, TCG/Opal					
Supporting Features		TRIM (Required OS Support), Garbage Collection, S.M.A.R.T					
Temperature	Operating	0 ~ 70°C					
	Non-operating	-45 ~ 85°C					
Humidity		5% to 95%, Non-condensing					
Shock	Non-operating	1,500G, Duration: 0.5ms, 3 Axis					
Vibration	Non-operating	20 ~ 2,000Hz, 20G					
Reliability	MTBF	1.5 Million Hours					
Weight (Max.)		8.3 g	8.5 g	9 g	7.7 g	8 g	8 g
Warranty	Total Bytes Written	400 TBW[5]	800 TBW	1,200 TBW	100 TBW	200 TBW	400 TBW
	Period	5-Year Limited			3-Year Limited		

1. GB=1,000,000,000 bytes by IDEMA. A certain portion of capacity may be used for system file and maintenance use, so the actual capacity may differ from what is indicated on the product label.
2. M.2 is a specification of form factor for ultra-thin PCs. The M.2 standard allows widths of 12, 16, 22 and 30 mm and lengths of 16, 26, 30, 38, 42, 60, 80 and 110 mm. Commercially M.2 is popular with a width of 22 mm and lengths of 30, 42, 60, 80 and 110 mm. Samsung provides the most popular form factor with 22 mm x 80 mm model (i.e., 2280) for user convenience.
3. Sequential performance measurements based on CrystalDiskMark 5.1.2, and random performance measurements based on Iometer 1.1.0. Performance may vary based on SSD's firmware version, system hardware and configuration. Test system configuration: Intel® Core i7-6700K @ 4.0 GHz, DDR4 1,700 MHz 16 GB, OS – Windows® 10 Pro x64, ASROCK™ Z170 EXTREME 7. For 960 EVO, sequential write performance measurements based on TurboWrite technology. These sequential write performances after TurboWrite region are 300 MB/s (250 GB), 600 MB/s (500 GB) and 1,200 MB/s (1 TB). Random write performance measurements based on TurboWrite technology. These random write performances after TurboWrite region are 80,000 IOPS (250 GB), 160,000 IOPS (500 GB) and 300,000 IOPS (1 TB).
4. Power consumption measured with IOmeter 1.1.0 with Intel i7-5820K @ 3.3 GHz, DDR4 8 GB, ASUS® x99-M WS/SE, OS-Windows10 Pro x64 and APST on.
5. TBW means Terabytes Written.

Samsung NVMe SSD activated

Product support: 1-866-SAM4BIZ 1-800-SAMSUNG

For complete product information and accessories, visit samsung.com/business, insights.samsung.com or samsung.com/b2bssd

SAMSUNG

Follow us: youtube.com/samsungbizusa @SamsungBizUSA

SSD-960EVO960PROBRO-JAN17T