

The Next Leading SSD for Performance, Endurance and Energy Efficiency

The world's first 3D Vertical NAND (V-NAND) SSD – the Samsung SSD 850 PRO



Samsung SSD **850 PRO**

- The World's First Consumer 3D V-NAND SSD
- Enhanced Endurance and Reliability
- Ultimate Read/Write Performance
- Efficient Power Management

1 What is V-NAND and how does it differ from existing technology?

Samsung's flash memory is fabricated using an innovative 3D V-NAND architecture, which stacks 32 cell layers on top of one another. The result is higher density and higher performance using a smaller footprint and a breakthrough in overcoming the density limits of conventional planar NAND.



2 Boost performance with an industry-leading 3D V-NAND SSD

Powered by Samsung's cutting-edge 3D V-NAND technology, the NAND flash memory delivers class-leading read and write performance for both sequential and random workloads.



3 An SSD that won't quit before you do

With twice the endurance of the previous model¹, the 850 PRO will keep working as long as you do. Samsung's V-NAND technology is built to handle a minimum of 150 Terabytes Written (TBW) over the lifetime of the drive, which equates to a 40GB daily read/write workload over a 10-year period. Plus, it comes with the industry's top-level 10-year limited warranty.

¹840 PRO – 73 TBW > 850 PRO – 150 TBW



4 Work longer with high-efficiency innovation

The efficient design of the 850 PRO enables you work longer and more productively. Boasting the lowest power consumption of any SSD when in full use, the 850 PRO uses less energy while maintaining class-leading performance. The 850 PRO fully supports Device Sleep mode for Ultrabook™, consuming only 2 milliwatts (2mW) of power in its ultralow power state. Plus, its low power DDR2 cache memory provides high performance while consuming up to 30% less power when active and up to 93% less power when idle than typical DDR2 or DDR3 memory.



5 Safeguard precious data without sacrificing performance

Protect your PC's hardware and personal data when you take your laptop on the road with the 850 PRO's Self-Encrypting Drive (SED) technology. The drive includes an AES 256-bit hardware-based, full disk encryption engine that secures your data without the performance loss often experienced with software-based encryption. The 850 PRO's advanced security complies with the TCG™ Opal v2.0 standard and is compatible with the Microsoft® eDrive IEEE® 1667 protocol. Plus, you can quickly erase data or sanitize your drive with the crypto erase feature.



6 Protect your PC from overheating with Dynamic Thermal Guard protection

The 850 PRO includes Dynamic Thermal Guard protection, which sustains performance while minimizing the risk of overheating. This feature monitors and maintains the drive's optimal operating temperature with a throttle feature that automatically drops the SSD's temperature to protect your data while ensuring the responsiveness you expect.



7 Level up to the 850 PRO simply without any hassle

Using its One-Stop Install Navigator software, you can migrate all your data and applications from your SSD or HDD to the 850 PRO quickly and easily. The Auto Install guide navigates you through a simple three-step point-and-click process. Plus, you can conveniently set up, monitor, manage and maintain your 850 PRO with Samsung Magician software, which features tools to help you maximize performance, including benchmarking, advanced OS optimization, disk health status tracking and overprovisioning (OP) settings.



8 Shift into high gear with the enhanced RAPID mode

You can kick up the read/write performance when you need it with Samsung RAPID mode. Just like shifting gears in a car, Magician software gives you the option to enhance performance by processing data using unused PC memory (DRAM) as a cache, providing 1.8x faster performance in RAPID mode².

² PCMark Vantage score (512 GB): 53K vs/ 97K(in RAPID mode)



9 Ensure each component works together seamlessly

The Samsung 850 PRO uses 100% Samsung-designed and -manufactured components. Because Samsung has intimate knowledge of every component and its parts, it can fine-tune them at each stage of development to ensure they work perfectly together. The result – enhanced performance, lower power consumption with the Samsung LPDDR2 DRAM cache memory and improved energy efficiency with the Samsung three-core MEX controller.



Comparison Chart

SAMSUNG

OPERATING FEATURES

- Standard Operating Voltage 5V ± 5%
- Power Consumption (Active):

MZ-7KE128BW	2.8W
MZ-7KE256BW	3.5W
MZ-7KE512BW	3.5W
MZ-7KE1T0BW	4.5W

- Power Consumption (Idle): 50mW

RELIABILITY (MTBF)

- 2.0M hours

TEMPERATURE

- 32°F to 158°F (Operating)

HUMIDITY

- 5% to 95%, non-condensing

TRIM SUPPORT

- Yes (Requires OS Support)

RAID SUPPORT

- Yes (With RAID Controller)

ENCRYPTION

- Yes, Class 0 (256-Bit AES), TCG/Opal v2.0, MS eDrive (IEEE1667)

SOFTWARE COMPATIBILITY

- Windows 8 (32-bit and 64-bit), Windows 7 (32-bit and 64-bit), Vista® (SP1 and above), XP (SP2 and above), Windows Server® 2008 (32-bit and 64-bit), Windows Server 2003 (32-bit and 64-bit with SP2 and above)

WARRANTY

- 10 Years/150TBW

TECH SUPPORT

- 1-800-SAMSUNG (1-800-726-7864)

PRODUCT DIMENSION (W x H x L)

- 2.76 x .27 x 3.94 in.
- 2.5" Form Factor
- Only 7mm Thick to Accommodate Ultraportables and Netbooks

PRODUCT WEIGHT

- 1TB: Max. 0.14 lbs.

Samsung SSD **850 PRO**



Samsung SSD **850 EVO**



Model Code	MZ-7KE1T0	MZ-7KE512	MZ-7KE256	MZ-7KE128	MZ-75E1T0B/AM	MZ-75E500B/AM	MZ-75E250B/AM	MZ-75E120B/AM
Memory Size	1TB (1,024GB)	512GB	256GB	128GB	1TB (1000GB)*	500GB	250GB	120GB
Type	SATA III				SATA III			
Controller	Samsung MEX Controller				Samsung MEX Controller	Samsung MGX Controller		
NAND Flash Memory	Samsung 32-Layer 3D V-NAND				Samsung 32-Layer 3D V-NAND			
Seq. Read	Up to 550MB/sec				Up to 540MB/sec			
Seq. Write	Up to 520MB/sec		Up to 470MB/sec		Up to 520MB/sec			
Ran. Read @ 4KB/QD32	100,000				98000	98000	97000	94000
Ran. Write @ 4KB/QD32	90,000				90000	90000	88000	88000

*Actual usable capacity may be less (due to formatting, partitioning, operating system, applications or otherwise).

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