

Samsung V-NAND SSD 870 EVO

2025 Data Sheet

Revision 2.0



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TECHNICAL SPECIFICATIONS

Samsung SSD 870 EVO

Usage Application	Client PCs							
Interface	SATA 6 Gb/s Interface, compatible with SATA 3 Gb/s & 1.5 interfaces							
Hardware Information	Capacity ¹⁾	250GB	500GB	1TB	2TB	4TB	8TB	
	Controller	Samsung in-house Controller						
	NAND Flash Memory	Samsung V-NAND TLC						
	DRAM Cache Memory	512MB LPDDR4	1GB LPDDR4	2GB LPDDR4	4GB LPDDR4	8GB LPDDR4		
	Dimensions	100x 69.85x 6.8 (mm)						
	Form Factor	2.5 inch						
Performance (Up to.) ²⁾	Sequential Read	560 MB/s						
	Sequential Write ³⁾	530 MB/s						
	4KB Ran. Read (QD1)	13,000 IOPS						
	4KB Ran. Write (QD1)	36,000 IOPS						
	4KB Ran. Read (QD32)	98,000 IOPS						
	4KB Ran. Write (QD32)	88,000 IOPS						
Power Consumption ⁴⁾	Idle	DIPM on	30 mW	30 mW	30 mW	35 mW	35 mW	40 mW
	Active (Avg.)	Read/Write	2.0 W/2.2 W	2.0 W/2.2 W	2.0 W/2.5 W	2.2 W/2.5 W	2.2 W/2.5 W	2.2 W/2.6 W
		DevsIp	2.5 mW	2.5 mW	3.0 mW	4.5 mW	6.5 mW	10 mW
Reliability	Temp.	Operating	0°C to 70°C					
		Non-Operating	-40°C to 85°C					
		Humidity	5% to 95% non-condensing					
	Shock	Non-Operating	1,500G(Gravity), duration: 0.5ms, 3 axis					
	Vibration	Non-Operating	20~2,000Hz, 20G					
	MTBF	1.5 million hours						
Warranty ⁵⁾	TBW	150TB	300TB	600TB	1,200TB	2,400TB	4,800TB	
	Period	5 years limited						
Supporting Features	TRIM (Required OS support), Garbage Collection, S.M.A.R.T							
Data Security	AES 256-bit Full Disk Encryption, TCG/Opal V2.0, Encrypted Drive (IEEE1667)							

1) 1GB = 1,000,000,000 bytes by IDEMA. A certain portion of capacity may be used for system file and maintenance use, thus the actual available capacity may differ from the labeled capacity.

2) Sequential performance measurements are based on CrystalDiskMark v.8.0.4. Random performance measurements are based on IOMeter1.1.0. Performance may vary based on SSD's firmware version, system hardware & configuration. Test system configuration: Intel® Core i7-4790K CPU @4.00 GHz, DDR3 16GB, ASUS Z97 PRO, Windows 10 Pro 64bit

3) Sequential Write performance measurements are based on Intelligent TurboWrite technology. The sequential performance measurements after Intelligent TurboWrite region are 300MB/s (250/500GB), or 530MB/s (1TB/2TB/4TB/8TB).

4) Power consumption measurement is based on IOMeter1.1.0. Test system configuration: AMD Ryzen™ 9 7000, DDR5 32GB, ASUS ProArt X670E, Windows 11 Pro 64bit

5) All documented endurance test results are obtained in compliance with JESD218 Standards. Please visit www.jedec.org for detailed information on JESD218 Standards. TBW means Total Bytes Written, Warranty provides coverage for the stated time period or the TBW, whichever comes first. Please refer to the detailed warranty statement here at <http://samsung.com/samsungssd>.

PRODUCT LINEUP

Density	Model Name	Box Contents	Model Code
250GB*	MZ-77E250	Samsung SSD 870 EVO 250GB Warranty Statement	MZ-77E250BW MZ-77E250B/AM MZ-77E250B/EU MZ-77E250B/CN MZ-77E250B/KR
500GB*	MZ-77E500	Samsung SSD 870 EVO 500GB Warranty Statement	MZ-77E500BW MZ-77E500B/AM MZ-77E500B/EU MZ-77E500B/CN MZ-77E500B/KR
1TB (1,000GB*)	MZ-77E1T0	Samsung SSD 870 EVO 1TB Warranty Statement	MZ-77E1T0BW MZ-77E1T0B/AM MZ-77E1T0B/EU MZ-77E1T0B/CN
2TB (2,000GB*)	MZ-77E2T0	Samsung SSD 870 EVO 2TB Warranty Statement	MZ-77E2T0BW MZ-77E2T0B/AM MZ-77E2T0B/EU MZ-77E2T0B/CN
4TB (4,000GB*)	MZ-77E4T0	Samsung SSD 870 EVO 4TB Warranty Statement	MZ-77E4T0BW MZ-77E4T0B/AM MZ-77E4T0B/EU MZ-77E4T0B/CN
8TB (8,000GB*)	MZ-77E8T0	Samsung SSD 870 EVO 8TB Warranty Statement	MZ-77E8T0BW MZ-77E8T0B/AM MZ-77E8T0B/EU

* GB: 1GB = 1,000,000,000 bytes. The actual usable capacity may be less than the labeled capacity.

For more information, including but not limited to the warranty provided for this product, and to download the latest software & manuals, please visit www.samsung.com/ssd and www.samsungssd.com.

Revision History

Revision Number	Description	Revision Date
1.0	Initial Release	November, 2020
1.1	After TurboWrite performance for 1/2/4TB change (500 → 530 MB/s)	January, 2021
2.0	8TB Model added System Configuration Revision	December, 2025

