Samsung V-NAND SSD 870 EVO

2021 Data Sheet

Revision 1.1



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TECHINCAL 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
	Controller		Samsung MKX Controller				
	NAND Flash Memory		Samsung V-NAND 3bit MLC				
	DRAM Cache Memory		512MB LPDDR4		1GB LPDDR4	2GB LPDDR4	4GB 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
	Active (Avg.)	Read/Write	2.0W/2.2W	2.0W/2.2W	2.0W/2.5W	2.2W/2.5W	2.2W/2.5W
	Devslp		2.5 mW	2.5 mW	3.0 mW	4.5 mW	6.5 mW
Reliability[4]	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, duration: 0.5ms, 3 axis				
	Vibration	Non-Operating	20~2,000Hz, 20G				
	MTBF		1.5 million hours				
Warranty	TBW[5]		150TB	300TB	600TB	1,200TB	2,400TB
	Period		5 year 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) GB: 1GB = 1,000,000,000 bytes. A certain portion of capacity may be used for system file and maintenance use, thus the actual available capacity may differ from the labeled total capacity.
2) Sequential performance measurements are based on CrystalDiskMark v.5.0.2. 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 i7-470K CPU @4.00 GHz, DDR3 1600MHz 8GB, OS-Windows 10 Pro 64bit, Chipset-ASUS Z97 PRO
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).
4) Power consumption is measured with IOmeter1.1.0 version with Intel Core i7-7700K @ 4.2GHz, SAMSUNG DDR4 16GB, Gigabyte GA-Z270X, OS – Windows 10 PRO K x64
5) All documented endurance test results are obtained in compliance with JESD218 Standards. Please visit www.jedec.org for detailed information on JESD218 Standards
6) TBW means Total Bytes Written.
7) Please refer to the detailed warranty statement here at http://samsung.com/samsungssd.
8) Warranty provides coverage for the stated time period or the TBW, whichever comes first.

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

* GB: 1GB = 1,000,000,000 bytes by IDEMA. 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, 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