# 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<br>MZ-77E250B/AM<br>MZ-77E250B/EU<br>MZ-77E250B/CN<br>MZ-77E250B/KR |
| 500GB* | MZ-77E500 | Samsung SSD 870 EVO 500GB Warranty Statement | MZ-77E500BW<br>MZ-77E500B/AM<br>MZ-77E500B/EU<br>MZ-77E500B/CN<br>MZ-77E500B/KR |
| 1TB (1,000GB*) | MZ-77E1T0 | Samsung SSD 870 EVO 1TB Warranty Statement | MZ-77E1T0BW<br>MZ-77E1T0B/AM<br>MZ-77E1T0B/EU<br>MZ-77E1T0B/CN |
| 2TB (2,000GB*) | MZ-77E2T0 | Samsung SSD 870 EVO 2TB Warranty Statement | MZ-77E2T0BW<br>MZ-77E2T0B/AM<br>MZ-77E2T0B/EU<br>MZ-77E2T0B/CN |
| 4TB (4,000GB*) | MZ-77E4T0 | Samsung SSD 870 EVO 4TB Warranty Statement | MZ-77E4T0BW<br>MZ-77E4T0B/AM<br>MZ-77E4T0B/EU<br>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 |