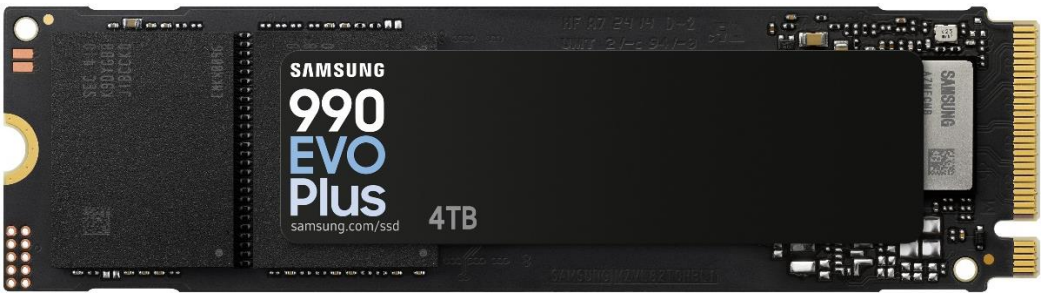
# Samsung V-NAND SSD 990 EVO Plus

## 2024 Data Sheet

Revision 1.0



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# TECHNICAL SPECIFICATIONS

| Samsung SSD 990 EVO Plus | | | | | |
|---|---|---|---|---|---|
| Usage Application | Client PCs | | | | |
| Interface | PCIe® 4.0 x4 / 5.0 x2 NVMe™ 2.0 | | | | |
| Hardware Information | Capacity[1] | | 1TB | 2TB | 4TB |
| | Controller | | Samsung in-house Controller | | |
| | NAND Flash Memory | | Samsung V-NAND TLC | | |
| | Cache Memory | | HMB(Host Memory Buffer) | | |
| | Dimension | | Max 80.15 x Max 22.15 x Max 2.38 (mm) | | |
| | Form Factor | | M.2 (2280) | | |
| Performance (Up to.)[2) 3) 4)] | Sequential Read | | 7,150MB/s | 7,250MB/s | 7,250MB/s |
| | Sequential Write | | 6,300MB/s | 6,300MB/s | 6,300MB/s |
| | Random Read | | 850KIOPS | 1,000KIOPS | 1,050KIOPS |
| | Random Write | | 1,350KIOPS | 1,350KIOPS | 1,400KIOPS |
| Power Consumption | Active[5] (Avg.) | Read | 4.3W | 4.6W | 5.5W |
| | | Write | 4.2W | 4.2W | 4.8W |
| | Idle (Typical) | PS3(APST on) | 60mW | | |
| | | PS4 (L1.2) | 5 mW | | |
| Reliability | Temp. | Operating | 0°C to 70°C (Measured by S.M.A.R.T. Temperature Proper airflow recommended) | | |
| | | 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[6] | TBW | | 600TB | 1200TB | 2,400TB |
| | 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) 990 EVO Plus is backward compatible with PCIe 4.0 x4 and 3.0 x4.
3) Sequential and random performance measurements are based on IOmeter1.1.0. Performance may vary based on SSD's firmware version, system hardware & configuration. Test System: AMD Ryzen 9 7950X 16-Core Processor CPU@4.50GHz, DDR5 4800MHz 16GBx2, OS-Windows 11 Pro 64bit, Chipset-ASRock-X670E-Taichi.
4) Sequential and random write performance was measured with Intelligent TurboWrite technology being activated. Intelligent TurboWrite operates only within a specific data transfer size. For detailed information, please contact your local service center.
5) Active power consumption is measured with IOmeter1.1.0 version with AMD Ryzen 5 7600 6-Core Processor CPU@3.80GHz, DDR5 3200MHz 16GBx2, OS-Windows 10 Pro 64bit, Chipset-ASUS ProArt X670E-CREATOR WIFI STCOM.
6) All documented endurance test results are in compliance with JESD218 Standards. Please visit www.jedec.org for detailed information on JESD218 Standards. TBW means Terabytes 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://www.samsung.com/samsungssd

## PRODUCT LINEUP

| Density | Model Name | Box Contents | Model Code |
|---|---|---|---|
| 1TB (1,000GB*) | MZ-V9S1T0 | Samsung SSD 990 EVO Plus 1TB Warranty Statement | MZ-V9S1T0BW MZ-V9S1T0B/AM |
| 2TB (2,000GB*) | MZ-V9S2T0 | Samsung SSD 990 EVO Plus 2TB Warranty Statement | MZ-V9S2T0BW MZ-V9S2T0B/AM |
| 4TB (4,000GB*) | MZ-V9S4T0 | Samsung SSD 990 EVO Plus 4TB Warranty Statement | MZ-V9S4T0BW MZ-V9S4T0B/AM |

* 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.

## TEST CONFIGURATION

Below you will find a list of system configurations Samsung used to obtain the results reported in this Data Sheet. Performance/power data was measured with the SSD as a secondary drive in a fan cooling desktop system.

| | Read/Write Performance | Power Consumption |
|---|---|---|
| Interface | PCIe 4.0 x4 / 5.0 x2 | PCIe 4.0 x4 / 5.0 x2 |
| OS | Windows 11 Pro 64bit | Windows 10 Pro 64bit |
| CPU | AMD Ryzen9 7950x 16-Core Processor CPU@4.5GHz | AMD Ryzen5 7600 6-Core Processor CPU@3.8GHz |
| Memory | DDR5 4800MHz 16GBx2 | DDR5 3200MHz 16GBx2 |
| Chipset | ASRock-X670E-Taichi | ASUS ProArt X670E-CREATOR WIFI STCOM |
| Test Program | IOmeter 1.1.0 | IOmeter 1.1.0 |

## Revision History

| Revision Number | Description | Revision Date |
|---|---|---|
| 1.0 | Initial Release | October, 2024 |