Samsung V-NAND SSD 990 EVO Plus

2024 Data Sheet

Revision 1.0



LEGAL DISCLAIMER

SAMSUNG ELECTRONICS CO., LTD. RESERVES THE RIGHT TO CHANGE PRODUCTS, INFORMATION AND SPECIFICATIONS WITHOUT NOTICE.

Products and specifications discussed herein are provided for reference purposes only. All information discussed herein may change without notice and is provided on an "AS IS" basis, without warranties of any kind. This document and all information discussed herein remain the sole and exclusive property of Samsung Electronics Co., Ltd. No license of any patent, copyright, mask work, trademark or any other intellectual property right is granted under this document, by implication, estoppels or otherwise. Samsung products are not intended for use in life support, critical care, medical, safety equipment, or similar applications where product failure could result in loss of life or personal or physical harm, or any military or defense application, or any governmental procurement to which special terms or provisions may apply. For updates or additional information about Samsung products, contact your nearest Samsung representative. All brand names, trademarks and registered trademarks belong to their respective owners.

COPYRIGHT © 2024

This material is copyrighted by Samsung Electronics Co., Ltd. Any unauthorized reproductions, use or disclosure of this material, or any part thereof, is strictly prohibited and is a violation under copyright law.

TRADEMARKS & SERVICE MARKS

The Samsung logo is the trademark of Samsung Electronics Co., Ltd. All other company and product names may be trademarks of the respective companies with which they are associated.

For more information, please visit www.samsung.com/ssd and www.samsungssd.com.
To download the latest software & manuals, please visit www.samsung.com/samsungssd

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