

Samsung V-NAND SSD 990 PRO

2022 Data Sheet

Revision 1.0



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TECHNICAL SPECIFICATIONS

Samsung SSD 990 PRO

Usage Application	Client PCs, PlayStation®5		
Interface	PCIe Gen 4.0 x4, NVMe 2.0		
Hardware Information	Capacity ¹⁾	1TB	2TB
	Controller	Samsung in-house Controller	
	NAND Flash Memory	Samsung V-NAND TLC	
	DRAM Cache Memory	1GB LPDDR4	2GB LPDDR4
	Dimension	Max 80.0 x Max 22 x Max 2.3 (mm)	
	Form Factor	M.2 (2280)	
Performance (Up to.) ^{2) 3) 4)}	Sequential Read		7,450 MB/s
	Sequential Write		6,900 MB/s
	QD 1 Thread 1	Ran. Read	22K IOPS
		Ran. Write	80K IOPS
	QD 32 Thread 16	Ran. Read	1,200K IOPS
		Ran. Write	1,550K IOPS
Power Consumption (Up to) ⁵⁾	Idle (APST on)		50mW
	Active (Avg.)	Read	5.4 W
		Write	5.0 W
	L1.2 mode		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
	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 PRO is backward compatible with PCIe 3.0.

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 7 5800X 8-Core Processor CPU@3.80GHz, DDR4 3600MHz 16GBx2, OS-Windows 10 Pro 64bit, Chipset-ASRock-X570-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) Power consumption is measured with Iometer1.1.0 version with AMD Ryzen 7 5800X 8-Core Processor CPU@3.80GHz, DDR4 3600MHz 16GBx2, OS-Windows 10 Pro 64bit, Chipset-ASRock-X570-Taichi

6) All documented endurance test results are in compliance with JEDEC218 Standards. Please visit www.jedec.org for detailed information on JEDEC218 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-V9P1T0	Samsung SSD 990 PRO 1TB Warranty Statement	MZ-V9P1T0BW MZ-V9P1T0B/AM
2TB (2,000GB*)	MZ-V9P2T0	Samsung SSD 990 PRO 2TB Warranty Statement	MZ-V9P2T0BW MZ-V9P2T0B/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. All performance data was measured with the SSD as a secondary drive

	Read/Write Performance	Power Consumption
Interface	PCIe Gen 4.0 x4	PCIe Gen 4.0 x4
OS	Windows 10 Pro 64bit	Windows 10 Pro 64bit
CPU	AMD Ryzen 7 5800X 8-Core CPU@3.80GHz	AMD Ryzen 7 5800X 8-Core CPU@3.80GHz
Memory	DDR4 3600MHz 16GBx2	DDR4 3600MHz 16GBx2
Chipset	ASRock-X570-Taichi	ASRock-X570-Taichi
Test Program	IOmeter 1.1.0	IOmeter 1.1.0

Revision History

Revision Number	Description	Revision Date
1.0	Initial Release	October, 2022