Samsung V-NAND SSD 9100 PRO with Heatsink

2025 Data Sheet

Revision 1.0

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TECHNICAL SPECIFICATIONS

Samsung SSD 9100 PRO with Heatsink						
Usage Application	Client PCs, PlayStation®5					
Interface	PCIe® 5.0 x4, NVMe™ 2.0					
Hardware Information	Capacity[1]		1TB	2TB	4TB	8TB
	Controller		Samsung in-house Controller			
	NAND Flash Memory		Samsung V-NAND TLC			
	Cache Memory		1GB LPDDR4X	2GB LPDDR4X	4GB LPDDR4X	8GB LPDDR4X
	Dimension[2]		1TB/2TB/4TB : Max 80.15 x Max 25 x Max 8.88 (mm) 8TB : Max 80.15 x Max 25 x Max 11.25 (mm)			
	Form Factor		M.2 (2280)			
Performance (Up to.)[3] [4] [5]	Sequential Read		14,700 MB/s	14,700 MB/s	14,800 MB/s	(TBD)14,800 MB/s
	Sequential Write		13,300 MB/s	13,400 MB/s	13,400 MB/s	(TBD)13,400 MB/s
	QD 256 Thread 32	Ran. Read	1,850 KIOPS	1,850 KIOPS	2,200 KIOPS	(TBD)2,200 KIOPS
		Ran. Write	2,600 KIOPS	2,600 KIOPS	2,600 KIOPS	(TBD)2,600 KIOPS
Power Consumption	Active[6] (Avg.)	Read	7.6 W	8.1 W	9.0 W	TBD
		Write	7.2 W	7.9 W	8.2 W	TBD
	Idle (Typical)	PS3(APST on)	4.0 mW	4.8 mW	6.5 mW	TBD
		PS4 (L1.2)	3.3 mW	4.0 mW	5.7 mW	TBD
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[7]	TBW		600 TB	1,200 TB	2,400 TB	4,800 TB
	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) The heatsink model from 1TB to 4TB complies PCI-SIG® D8 standard specification. For 8TB model, please refer to information as Top - 8.0mmT, PCB - 0.8mmT, Bottom - 2.45mmT. Please check the specifications of the host device before installation.
3) 9100 PRO is backward compatible with PCIe 4.0 x4 and 3.0 x4.
4) Sequential and random performance measurements are based on FIO 3.33. 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-Ubuntu 22.04.2, Chipset-ASRock-X670E-Taichi.
5) 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.
6) Active power consumption is measured on FIO 3.33 with AMD Ryzen 5 7600 6-Core Processor CPU@3.80GHz, DDR5 4800MHz 16GBx2, OS-Ubuntu 22.04.3 LTS, Chipset-ASUS ProArt X670E-CREATOR WIFI STCOM.
7) 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-VAP1T0	Samsung SSD 9100 PRO with Heatsink 1TB Warranty Statement	MZ-VAP1T0CW
2TB (2,000GB*)	MZ-VAP2T0	Samsung SSD 9100 PRO with Heatsink 2TB Warranty Statement	MZ-VAP2T0CW
4TB (4,000GB*)	MZ-VAP4T0	Samsung SSD 9100 PRO with Heatsink 4TB Warranty Statement	MZ-VAP4T0CW
8TB (8,000GB*)	MZ-VAP8T0	Samsung SSD 9100 PRO with Heatsink 8TB Warranty Statement	MZ-VAP8T0CW

* 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 5.0 x4	PCIe 5.0 x4
OS	Linux Ubuntu 22.04.2	Linux Ubuntu 22.04.3 LTS
CPU	AMD Ryzen9 7950x 16-Core Processor CPU@4.5GHz	AMD Ryzen 5 7600 6-Core Processor CPU@3.80GHz
Memory	DDR5 4800MHz 16GBx2	DDR5 4800MHz 16GBx2
Chipset	ASRock-X670E-Taichi	ASUS ProArt X670E-CREATOR WIFI STCOM
Test Program	FIO 3.33	FIO 3.33

Revision History

Revision Number	Description	Revision Date
1.0	Initial Release	January, 2025