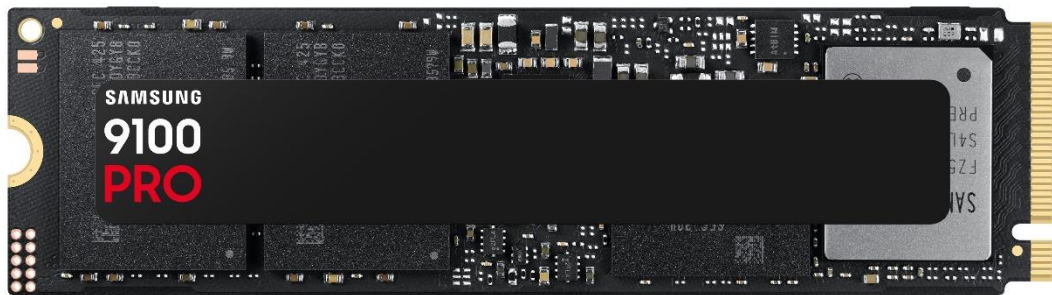


Samsung V-NAND SSD 9100 PRO

2025 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 © 2025

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 9100 PRO							
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 22.15 x Max 2.38 (mm) 8TB : Max 80.15 x Max 22.15 x Max 3.88 (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)						

- 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.
- The 8TB model complies PCI-SIG® D5 standard specification. Please check the specifications of the host device before installation.
- 9100 PRO is backward compatible with PCIe 4.0 x4 and 3.0 x4.
- 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 16Gb x2, OS-Ubuntu 22.04.2, Chipset-ASRock-X670E-Taichi.
- 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.
- Active power consumption is measured on FIO 3.33 with AMD Ryzen 5 7600 6-Core Processor CPU@3.80GHz, DDR5 4800MHz 16Gb x2, OS-Ubuntu 22.04.3 LTS, Chipset-ASUS ProArt X670E-CREATOR WIFI STCOM.
- 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 1TB Warranty Statement	MZ-VAP1T0BW MZ-VAP1T0B/AM
2TB (2,000GB*)	MZ-VAP2T0	Samsung SSD 9100 PRO 2TB Warranty Statement	MZ-VAP2T0BW MZ-VAP2T0B/AM
4TB (4,000GB*)	MZ-VAP4T0	Samsung SSD 9100 PRO 4TB Warranty Statement	MZ-VAP4T0BW MZ-VAP4T0B/AM
8TB (8,000GB*)	MZ-VAP8T0	Samsung SSD 9100 PRO 8TB Warranty Statement	MZ-VAP8T0BW MZ-VAP8T0B/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 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