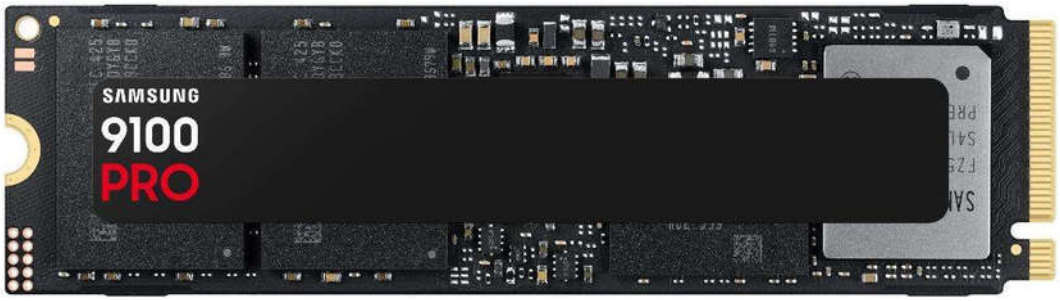
# Samsung V-NAND SSD 9100 PRO

## 2025 Data Sheet

Revision 1.0



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# 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)<br>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<br>(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 8TB model complies PCI-SIG® D5 standard specification. 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 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 |