

Samsung V-NAND SSD 980

2021 Data Sheet

Revision 1.0



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Revision History

| Revision Number | Description | Revision Date |
|-----------------|-----------------|---------------|
| 1.0 | Initial Release | February 2021 |

TECHNICAL SPECIFICATIONS

Samsung SSD 980

| Usage Application | | Client PCs | | | | |
|--|--|---|---------------|--|------------|------------|
| Interface | | PCIe Gen 3.0 x4, NVMe 1.4 | | | | |
| Hardware Information | | Capacity ¹⁾ | | 250GB | 500GB | 1TB |
| | | Controller | | Samsung in-house Controller | | |
| | | NAND Flash Memory | | Samsung V-NAND 3bit MLC | | |
| | | DRAM Cache Memory | | - | | |
| | | Dimension | | Max 80.15 x Max 22.15 x Max 2.38 (mm) | | |
| | | Form Factor | | M.2 (2280) | | |
| Performance (Up to.) ^{2) 3)} | | Sequential Read | | 2,900 MB/s | 3,100 MB/s | 3,500 MB/s |
| | | Sequential Write | | 1,300 MB/s | 2,600 MB/s | 3,000 MB/s |
| | | QD 1 Thread 1 | Ran. Read | 17K IOPS | 17K IOPS | 17K IOPS |
| | | | Ran. Write | 53K IOPS | 54K IOPS | 54K IOPS |
| | | QD 32 Thread 16 | Ran. Read | 230K IOPS | 400K IOPS | 500K IOPS |
| | | | Ran. Write | 320K IOPS | 470K IOPS | 480K IOPS |
| Power Consumption (Up to.) ⁴⁾ | | Idle (ASPT on) | | 45mW | | |
| | | Active (Avg.) | Read | 3.7 W | 4.3 W | 4.5 W |
| | | | Write | 3.2 W | 4.2 W | 4.6 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 ⁸⁾ | | TBW ^{5) 6)} | | 150TB | 300TB | 600TB |
| | | Period | | 5 years limited ⁷⁾ | | |
| 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) 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: Intel(R) Core(TM) i7-6700K CPU @ 4.00GHz, DDR4 2133MHz 8GBx2 OS-Windows 10 Pro 64bit Asrock Z-170 Extreme7+

3) Sequential and random write performance was measured with Intelligent TurboWrite technology being activated. Intelligent TurboWrite operates only within a specific data transfer size. Performance may vary depending on SSD's firmware, system hardware & configuration and other factors. For detailed information, please contact your local service center.

4) Power consumption is measured with Iometer1.1.0 version with AMD Ryzen 7 3700X 8 Core @3.6GHz, DDR4 8GBx2, OS-Windows 10 Pro 64bit, Chipset-GIGABYTE-X570-AORUS MASTER

5) All documented endurance test results are in compliance with JESD218 Standards. Please visit www.jedec.org for detailed information on JESD218 Standards.

6) TBW means Total Bytes Written.

7) Please refer to the detailed warranty statement here at <http://www.samsung.com/samsungssd>.

8) Warranty provides coverage for the stated time period or the TBW, whichever comes first.

PRODUCT LINEUP

| Density | Model Name | Box Contents | Model Code |
|-------------------|------------|---|------------------------------|
| 250GB* | MZ-V8V250 | Samsung SSD 980 250GB Warranty Statement | MZ-V8V250BW MZ-V8V250B/AM |
| 500GB* | MZ-V8V500 | Samsung SSD 980 500GB Warranty Statement | MZ-V8V500BW MZ-V8V500B/AM |
| 1TB (1,000GB*) | MZ-V8V1T0 | Samsung SSD 980 1TB Warranty Statement | MZ-V8V1T0BW MZ-V8V1T0B/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 3.0 x4 | PCIe Gen 3.0 x4 |
| OS | Windows 10 Pro 64bit | Windows 10 Pro 64bit |
| CPU | Intel(R) Core™ i7-6700K CPU@4.00GHz | AMD Ryzen 7 3700X 8 Core @3.6GHz |
| Memory | DDR4 2133MHz 8GBx2 | DDR4 8GBx2 |
| Chipset | Asrock Z-170 Extreme 7+ | GIGABYTE-X570-AORUS MASTER |
| Test Program | IOmeter 1.1.0 | IOmeter 1.1.0 |