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

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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 Terabytes 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