



PCIe NVMe SSD Test Report

MKM280- 680A0000029-512G-003

512GB

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1. Basic Information

Product Info:	MKM280- 680A0000029-512G-003				
Interface	PCIe Gen3x4				
Form Factor	M.2 2280				
Controller Brand:	SMI				
Controller IC:	SM2263XT				
Flash Brand:	YMTC				
Flash Part No:	JGS C3B				
Flash Package:	BGA				
Drive Configuration:	Drive Capacity	CH	CE	BGA	PLN
	512GB	4	4	4	2
FW Ver.:	SM2263XT_YMTC_PKGT0729A_FWT0709A0				
PCB S/N:	C2BSM270068B				

Test Platform Info:

- HW Info.

CPU	Intel	i5-7400
DRAM	Kingston	HyperX Fury DDR4-3200 x 2
MB	ASUS	PRIME Z390-P

- OS Info.

Windows 10 Pro	64bit	Build 2004
HMB		In-box-driver

2. Test Summary

NO.	Test Item	Operation Description	Test Result
1.	File Format Test and Check Capacity	1. To format UUTs under Windows and Mac, and then check the capacity 2. Check Crystal Disk Info	Pass
2.	Crystal Disk Mark Test	To test the performance with Crystal Disk Mark 1. v6.0 Default 1GB 3-loop 2. v7.0 Default/Read World(Mix) 1GB 3-loop	Pass
3.	MK SSD Benchmark Test	To test the performance with MK SSD 1. Read/Write 2. IOPS Read/Write	Pass
4.	ATTO Disk Benchmark Test	To test the performance with ATTO Disk Benchmark	Pass
5.	HDTune	To test the performance with HD Tune Default Read/Write Performance	Pass



Capacity	CDM6.0 Default-1GB		CDM6.0 Default-32GB		CDM7.0 Default		CDM7.0 Real World(Mix)		
	Read	Write	Read	Write	Read	Write	Read	Write	Mix
512GB	2112.1	1699.9	2112.8	1699.2	2114.2	1699.4	1921.9	1703.4	1304.6

Capacity	MK SSD Benchmark		MK SSD Benchmark		ATTO Disk Benchmark	
	Read	Write	Read IOPS	Write IOPS	Read	Write
512GB	1920.1	1598.4	219.2K	261.9K	1940.0	1570.0

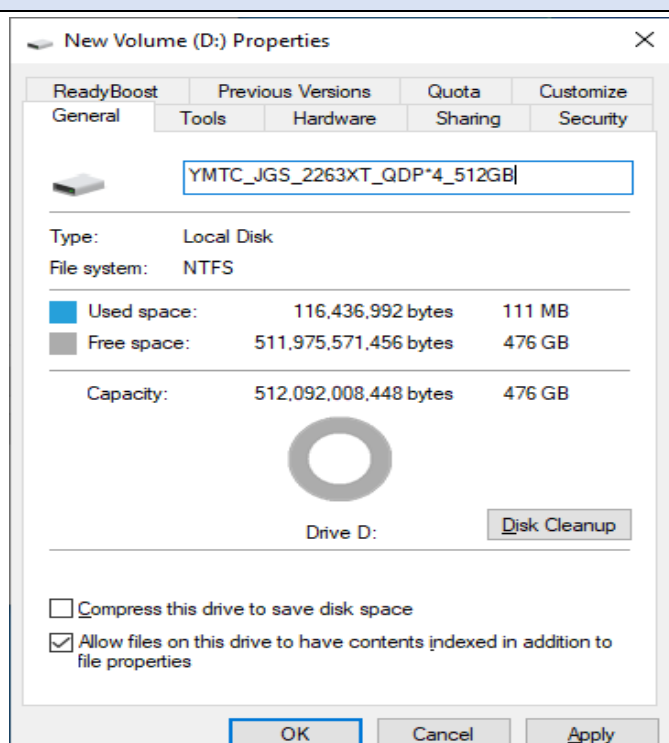
Capacity	HD Tune		
	Read	Write (SLC)	Write (Avg.)
512GB	1393.6	1150.2	748.6

3. File Format Test and Check Capacity

Test Result:

Drive Capacity	Valid Capacity	Valid %	Test Result (Win 10)
512GB	476GB	93%	Pass

512GB



New Volume (D:) Properties

Volume Name: YMTC_JGS_2263XT_QDP*4_512GB|

Type: Local Disk

File system: NTFS

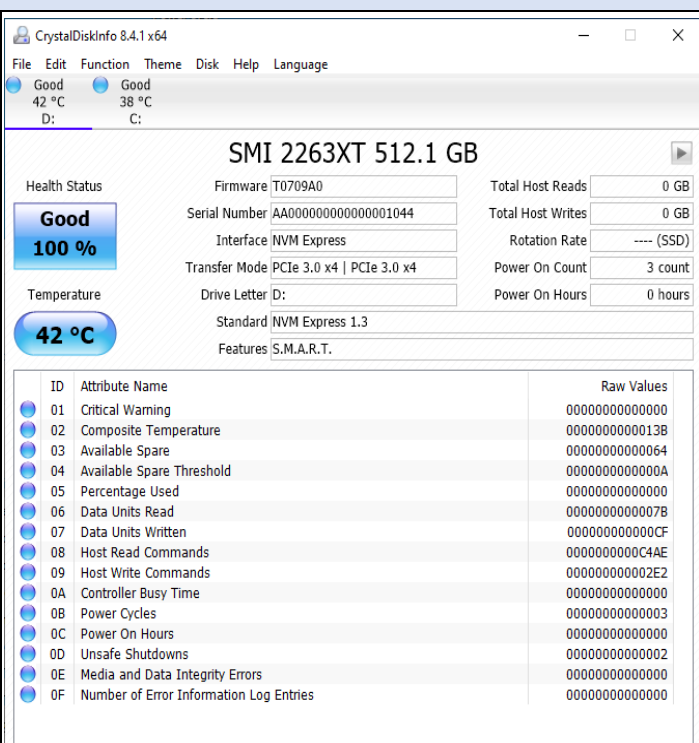
Used space:	116,436,992 bytes	111 MB
Free space:	511,975,571,456 bytes	476 GB
Capacity:	512,092,008,448 bytes	476 GB

Drive D: Disk Cleanup

Compress this drive to save disk space

Allow files on this drive to have contents indexed in addition to file properties

OK Cancel Apply



CrystalDiskInfo 8.4.1 x64

Health Status: Good 100%

Temperature: 42 °C

SMI 2263XT 512.1 GB

Firmware	T0709A0	Total Host Reads	0 GB
Serial Number	AA000000000000001044	Total Host Writes	0 GB
Interface	NVM Express	Rotation Rate	---- (SSD)
Transfer Mode	PCIe 3.0 x4 PCIe 3.0 x4	Power On Count	3 count
Drive Letter	D:	Power On Hours	0 hours
Standard	NVM Express 1.3		
Features	S.M.A.R.T.		

ID	Attribute Name	Raw Values
01	Critical Warning	00000000000000
02	Composite Temperature	0000000000013B
03	Available Spare	00000000000064
04	Available Spare Threshold	0000000000000A
05	Percentage Used	00000000000000
06	Data Units Read	0000000000007B
07	Data Units Written	000000000000CF
08	Host Read Commands	0000000000C4AE
09	Host Write Commands	000000000002E2
0A	Controller Busy Time	00000000000000
0B	Power Cycles	00000000000003
0C	Power On Hours	00000000000000
0D	Unsafe Shutdowns	00000000000002
0E	Media and Data Integrity Errors	00000000000000
0F	Number of Error Information Log Entries	00000000000000

4. Crystal Disk Mark Test

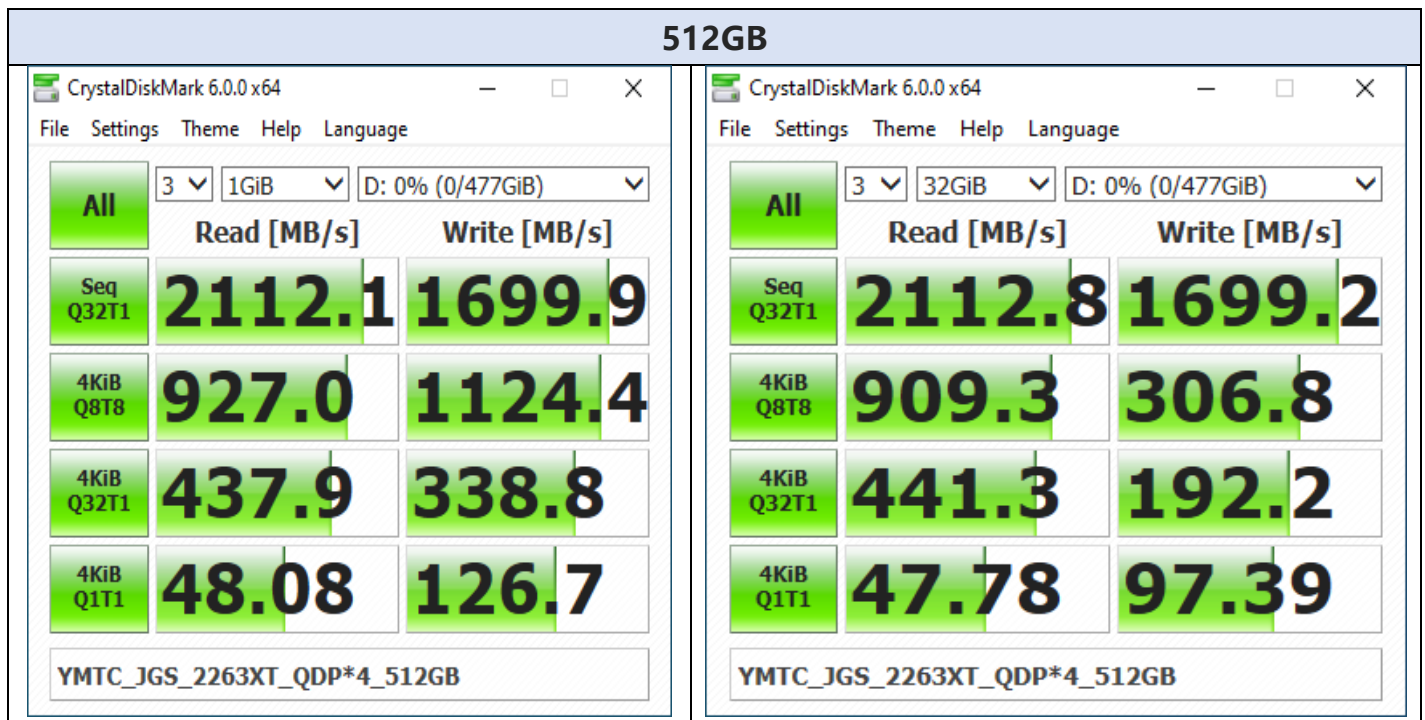
- ◆ Test Program: Crystal Disk Mark v6.0/v7.0

Test Result:

CDM6.0				
Drive Capacity	Read	Write	Read	Write
512GB	2112.1	1699.9	2112.8	1699.2

Unit: MB/s

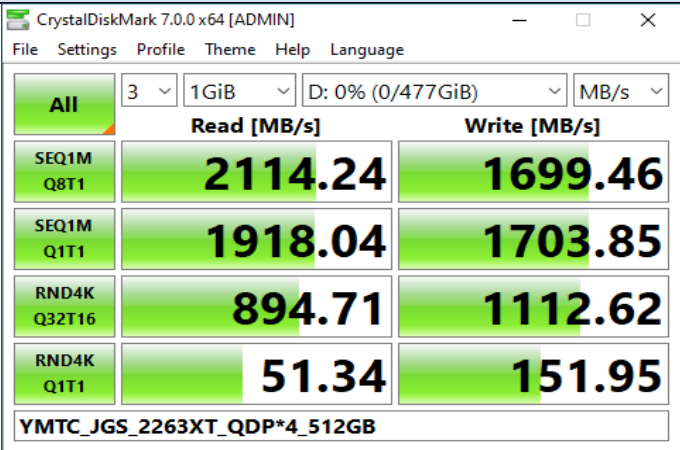
CDM6.0 Default

512GB				
				
Seq Q32T1	2112.1	1699.9	2112.8	1699.2
4KiB Q8T8	927.0	1124.4	909.3	306.8
4KiB Q32T1	437.9	338.8	441.3	192.2
4KiB Q1T1	48.08	126.7	47.78	97.39
YMTC_JGS_2263XT_QDP*4_512GB				

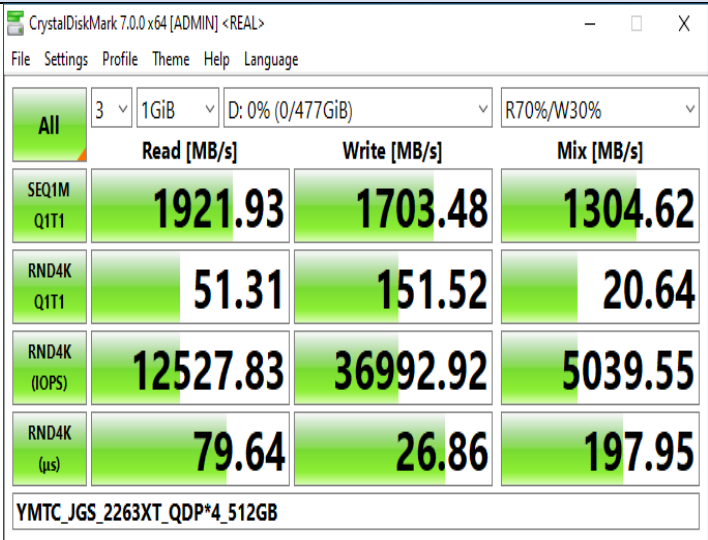
CDM7.0					
Drive Capacity	Default		Real World Performance		
	Read	Write	Read	Write	Mix
512GB	2114.2	1699.4	1921.9	1703.4	1304.6

Unit: MB/s

CDM7.0 Default

512GB			
			
SEQ1M Q8T1	2114.24	1699.46	
SEQ1M Q1T1	1918.04	1703.85	
RND4K Q32T16	894.71	1112.62	
RND4K Q1T1	51.34	151.95	
YMTC_JGS_2263XT_QDP*4_512GB			

CMD7.0 Real World

512GB			
			
SEQ1M Q1T1	1921.93	1703.48	1304.62
RND4K Q1T1	51.31	151.52	20.64
RND4K (IOPS)	12527.83	36992.92	5039.55
RND4K (µs)	79.64	26.86	197.95
YMTC_JGS_2263XT_QDP*4_512GB			

5. MK SSD Benchmark Test

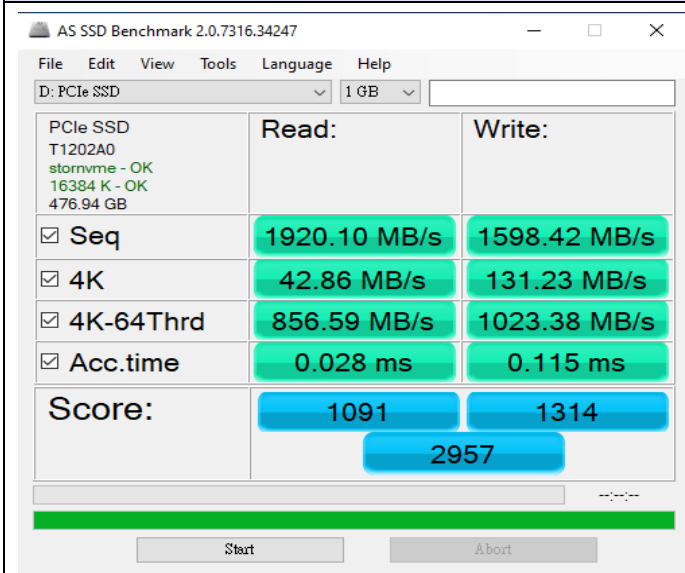
◆ **Test Program:** MK SSD Benchmark v2.0.7316 build34247

Test Result:

Drive Capacity	Read	Write	Read IOPS	Write IOPS
512GB	1920.1	1598.4	219.2K	261.9K

MB/s

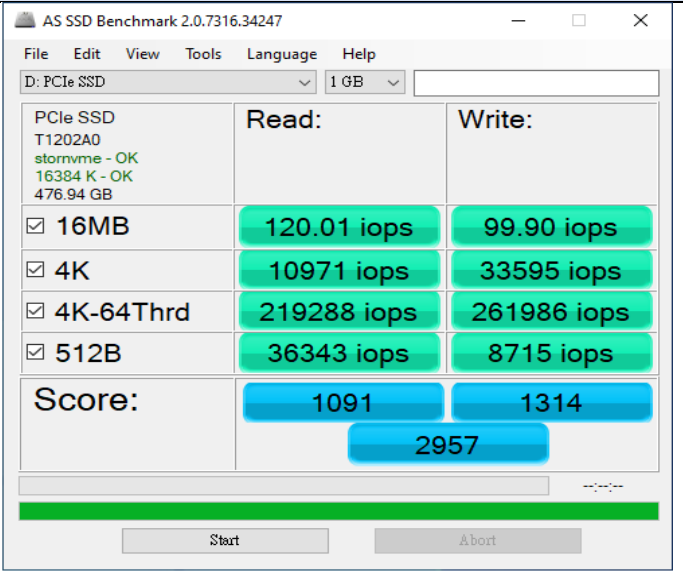
512GB



AS SSD Benchmark 2.0.7316.34247

D: PCIe SSD | 1 GB

	Read:	Write:
Seq	1920.10 MB/s	1598.42 MB/s
4K	42.86 MB/s	131.23 MB/s
4K-64Thrd	856.59 MB/s	1023.38 MB/s
Acc.time	0.028 ms	0.115 ms
Score:	1091	1314
	2957	



AS SSD Benchmark 2.0.7316.34247

D: PCIe SSD | 1 GB

	Read:	Write:
16MB	120.01 iops	99.90 iops
4K	10971 iops	33595 iops
4K-64Thrd	219288 iops	261986 iops
512B	36343 iops	8715 iops
Score:	1091	1314
	2957	

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6. ATTO Disk Benchmark Test

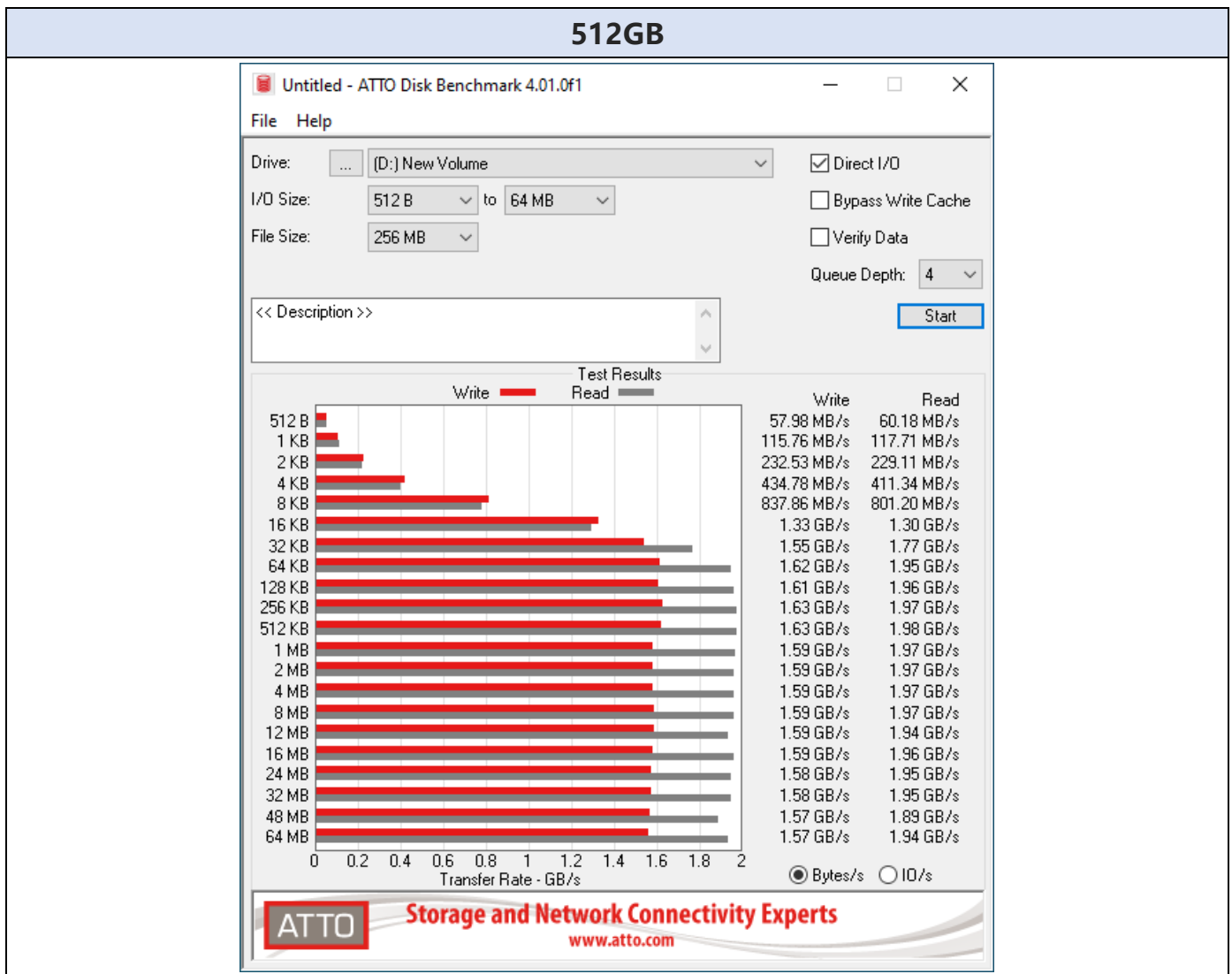
◆ Test Program: ATTO Disk Benchmark v4.0

Test Result:

Drive Capacity	Read	Write
512GB	1940.0	1570.0

MB/s

512GB



7. HD Tune

- ◆ Test program: HD Tune Pro v5.7

Test Result:

Drive Capacity	Read	Write (SLC)	Write (Avg.)
512GB	1393.6	1150.2	748.6

MB/s

