



MINERVA

PR9401 PCIe Gen 2 2-Lane RAID Card for mSATA 2-port & M.2 2-port

Performance & Burn In Test Rev. 1.0 in RAID 0 Mode

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PR9401 PCIe Gen2 x2 RAID Card

1. Overview

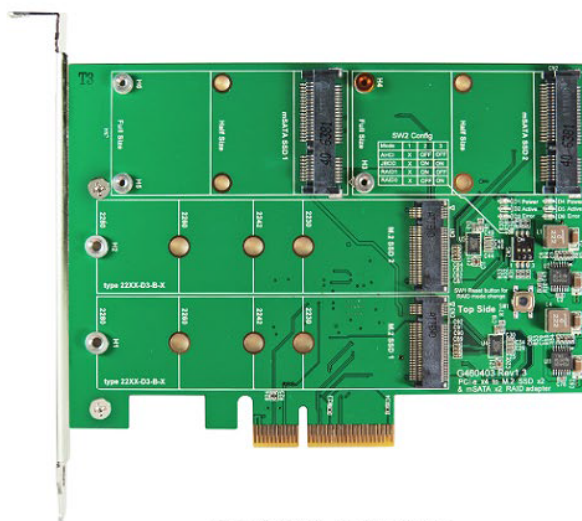
PR9401 RAID card offers PCIe Gen 2 x2 interface, built-in 2-port Mini PCI-e & 2-port M.2 B key connector can be combined mSATA SSDx2 or M.2 SSDx2 into a RAID 0, RAID 1, JBOD mode of operation.

2. Tools and Results of Performance Measurement

2.1 Test Platform

M/B : GIGABYTE **Z270-Gaming 8**
CPU : Intel **i7-7700**, 3.6GHz/ 8M Cache/ LGA1151
Memory : Kingston **KVR21N15D8/8**, **DDR4-2133MHz**, **16G**(8GB DIMM*2)
ATX Power : COOLER MASTER G750M, **750W ATX**, 12V V2.2 Power Supply
Graphic : Z270 Chipsets built-in **HD Graphics 630**
OS : Microsoft **Windows 10 64bit OS**

2.2 Test target: PR9401 RAID Add in Card and mSATA 512GB SSDx2



PR9401 Adapter



mSATA SSD (SAM 512GB)

PR9401 PCIe Gen2 x2 RAID Card

2.3 Install Hardware

Inserts mSATA SSDx2 into PR9401 RAID card 's M.2 B-key connector, and then with coppers, and screws to fix SSDs. (Please refer to the Installation Notes). Plug PR9401 RAID Add in Card in **PCIe slot of GIGABYTE Z270-Gaming 8**.

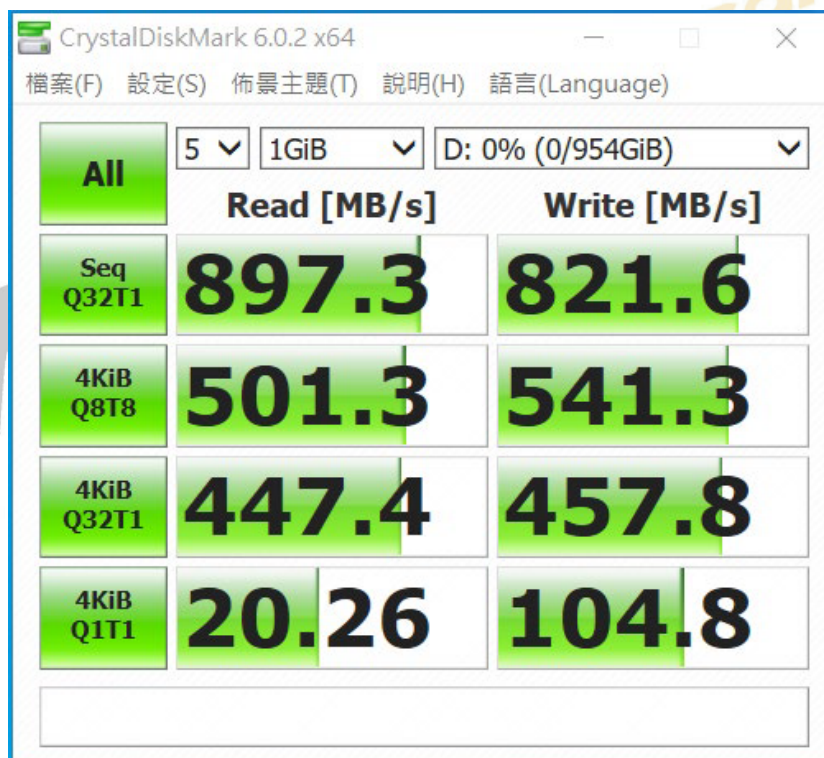
2.4 BIOS & Windows 10 OS environment setup

- 2.4.1 Primary port installed Windows 10 x64 OS.
- 2.4.2 Secondary port is PR9401+ mSATA 512GB SSD x2

2.5 CrystalDiskMark 6.0.2 x64 performance test

※Benchmark (Sequential **Read & Write** / default = **1MB**)

- 2.5.1 Micron [mSATA 512GBx2](#) in **Z270-Gaming 8 RAID 0** performance as below:

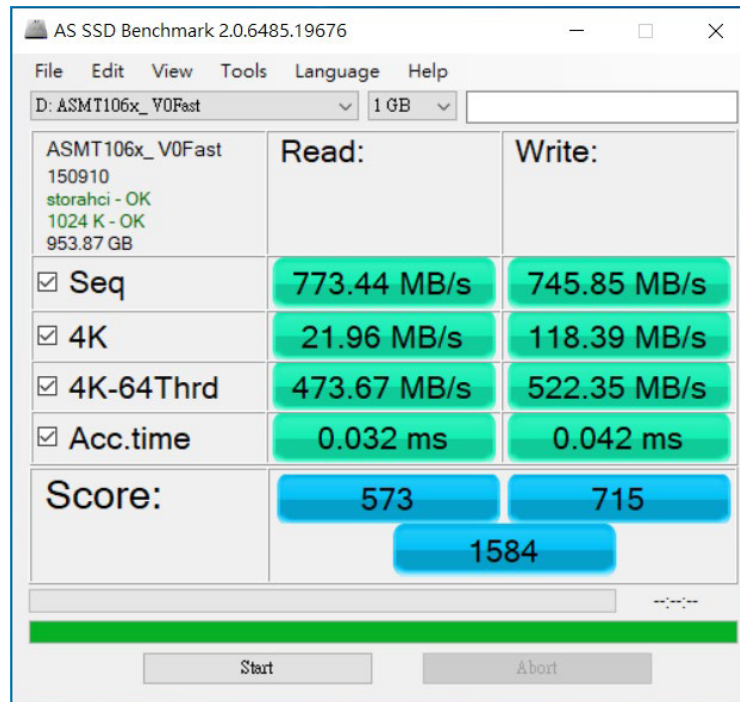


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2.6 AS SSD Benchmark 2.0.6 performance test

✘ Benchmark (Read & Write by MB/s, default block size = 16MB)

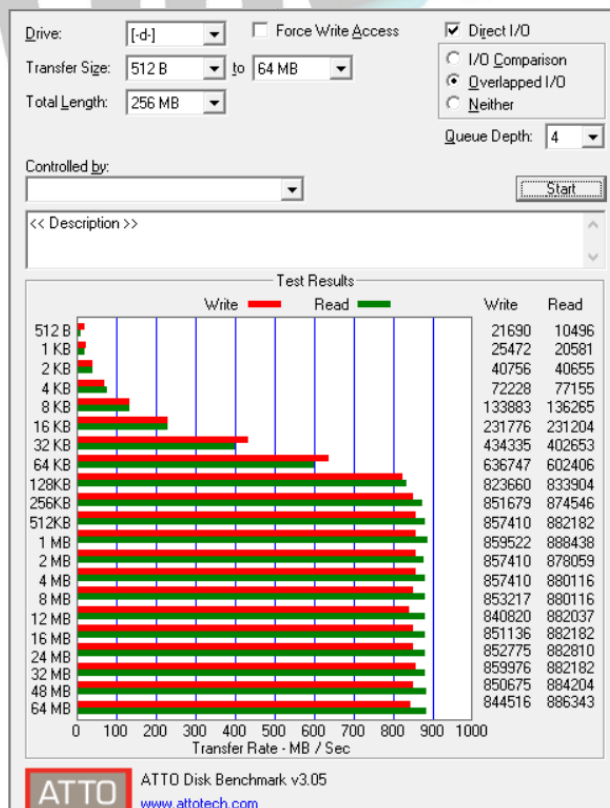
2.6.1 Micron mSATA 512GBx2 in Z270-Gaming 8 RAID 0 performance as below:



2.7 ATTO Disk Benchmark performance test

✘ Benchmark (Sequential Read / default block size = 8MB)

2.7.1 Micron mSATA 512GBx2 in Z270-Gaming 8 RAID 0 performance as below:



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2.8 AnvilBenchmark_V110_B337

2.8.1 Micron [mSATA 512GBx2](#) in **Z270-Gaming 8 RAID 0** performance as below:

Anvil's Storage Utilities 1.1.0 (2014-January-1)

File | IOmeter | System Info | Settings | Test size 1GB | Drive d: (新增磁碟區) | Screenshot | Help

SSD Benchmark

ASMT106x_V0Fast 1024GB/150910

Read	Resp. time	MB read	IOPS	MB/s
Seq 4MB	5.2188ms	2,048.0	191.62	766.47
4K	0.1859ms	262.6	5,378.74	21.01
4K QD4	0.2010ms	971.8	19,902.32	77.74
4K QD16	0.2422ms	3,225.3	66,052.50	258.02
32K	0.2657ms	1,766.1	3,763.65	117.61
128K	0.5165ms	3,634.3	1,936.20	242.03

Write	Resp. time	MB written	IOPS	MB/s
Seq 4MB	5.5547ms	1,024.0	180.03	720.11
4K	0.0321ms	640.0	31,121.22	121.57
4K QD4	0.2335ms	640.0	17,129.04	66.91
4K QD16	0.2376ms	600.0	63,140.22	246.64

Run read: 2,006.99

Run: 4,154.03

Run write: 2,147.04

Microsoft Windows 10 企業版 64 位元 Build (18362)
Z270X-Gaming 8/F7, U3E1
Intel(R) Core(TM) i7-7700 CPU @ 3.60GHz
Memory : 16,270 MB
Professional Edition

Drives :
Notes :

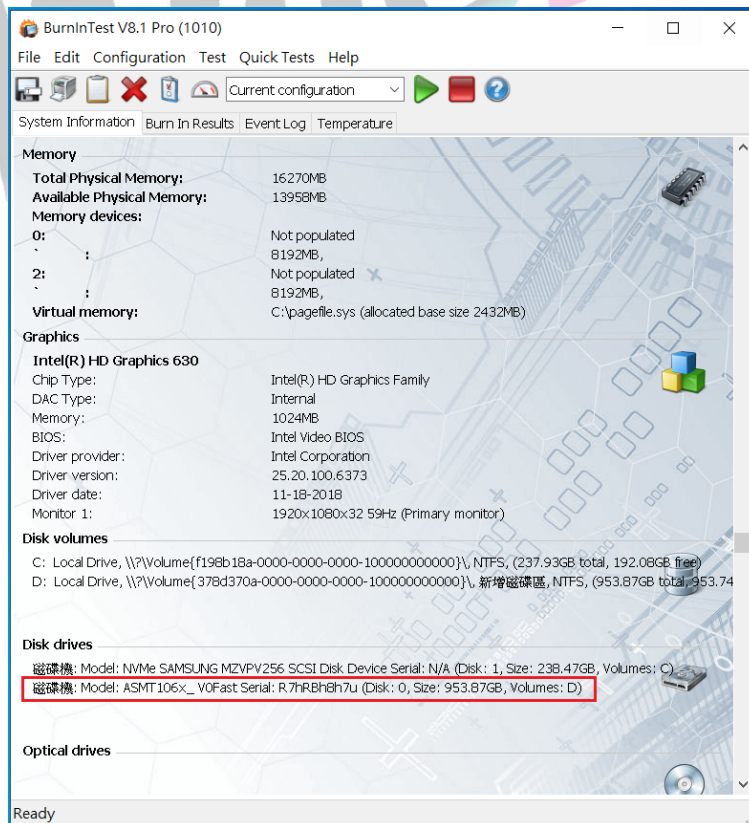
ASMT106x_V0Fast 1024GB/150910
Drive D: 953.9/953.7GB free (100.0%)
NTFS - Cluster size 4096B
Storage driver storahci
Alignment 1024KB OK
Compression 100% (Incompressible)

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3. Burn In Tests and Results

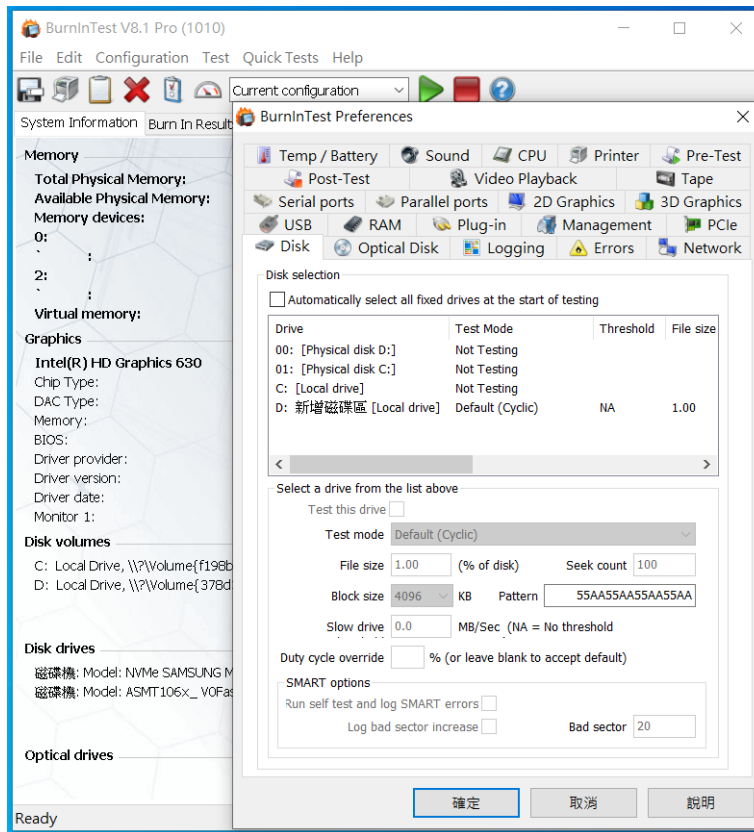
3.1 BurnInTest v8.1 Pro for Micron mSATA 512GBx2 in RAID 0

3.1.1 system information as below:

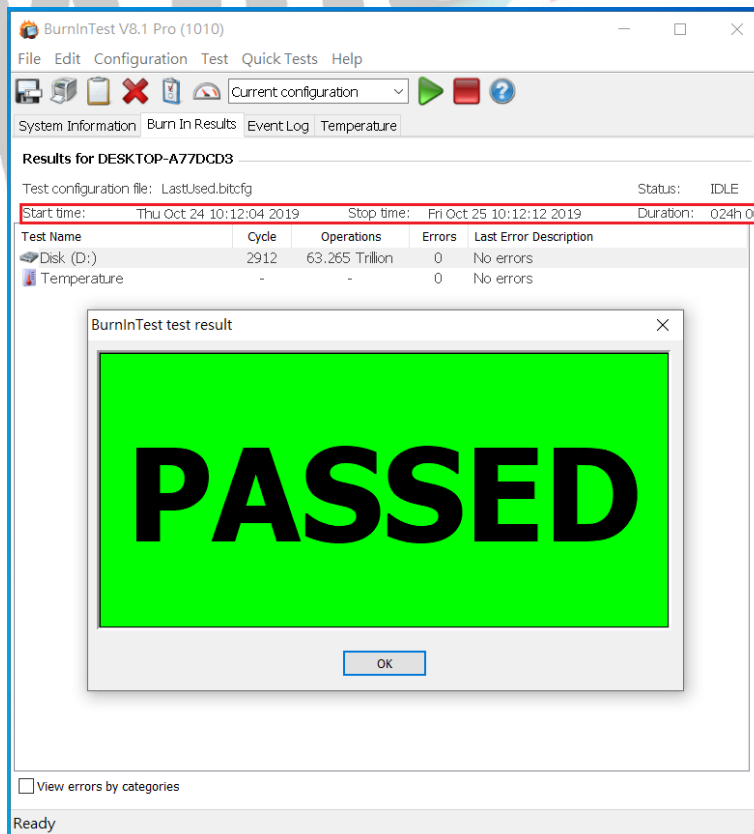


PR9401 PCIe Gen2 x2 RAID Card

3.1.2 test mode(default cyclic -- 10 ways cycle test)



3.1.3 24-hour Burn-in test PASSED



PR9401 PCIe Gen2 x2 RAID Card

4. Summary

- 4.1 PR9401 is PCIe Gen2 2-Lane data width Interface, I/O speed, max. to 8Gbps.
- 4.2 PR9401 RAID Add in Card I/O performance is based on mSATA SSD.

