



MINERVA

PC428A Converter Card

Performance & Burn In Test Rev. 1. 0

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1. Overview

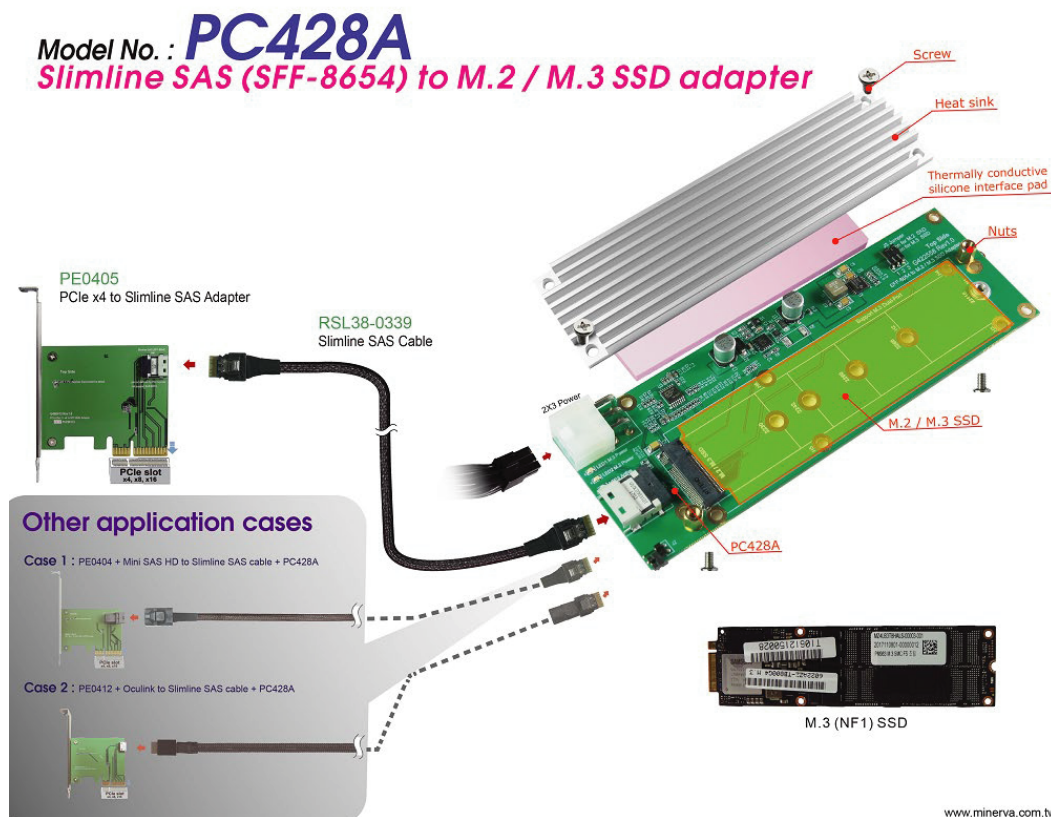
The PC428A adapter, providing M.2 M-key connector can be M.2, M.3 NF1 SSD converted into Slimline SAS(SFF-8654), PCI-e Gen 3 / 4 Lanes interface and uses heat sink strip to M.2 or M.3 SSD.

2. Tools and Results of Performance Measurement

2.1 Test Platform

M/B : GIGABYTE **X570 AORUS MASTER**
CPU : AMD **Ryzen 7, 3700X 8-Core**
Memory : Kingston **KVR26N19D8/16, DDR4-2666MHz, 32GB**(16GB DIMM*2)
ATX Power : COOLER MASTER G750M, **750W ATX**, 12V V2.2 Power Supply
Adapter: PCIe Gen3 x4 to SFF-8654 Slimline SAS adapter
Cable: SFF-8654 Slimline SAS to SFF-8654 Slimline SAS Cable
OS : Microsoft **Windows 10 64bit OS**

2.2 Test target: **PC428A** adapter & **M.3 NF1 Samsung MZ4LB3T8HALS-000 4TB NVMe SSD**



2.3 Install Hardware

Insert M.3 NF1 SSD into PC428A converter's M.2 M-key connector, and then with coppers, and screws to fix SSDs. Connects PC428A converter to PE0405 adapter through Slimline SAS High Speed cable, and then Plug PE0405 into GIGABYTE **X570 AORUS MASTER**.

2.4 BIOS & Windows 10 OS environment setup

2.4.1 M.3 NF1 NVMe SSD, formatted to NTFS Mode. Don't install any program.

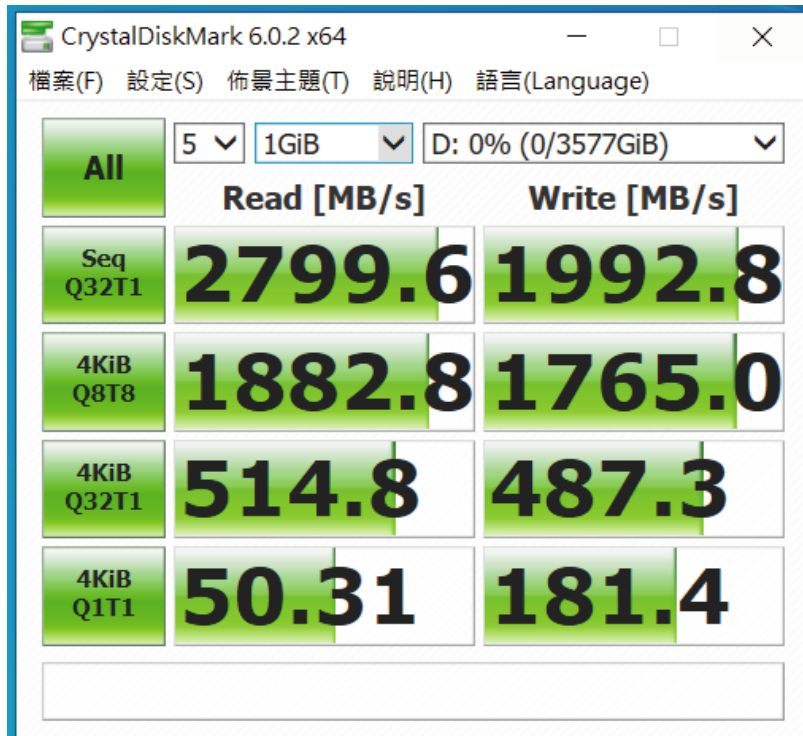


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2.5 CrystalDiskMark 6.02x64 performance test

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

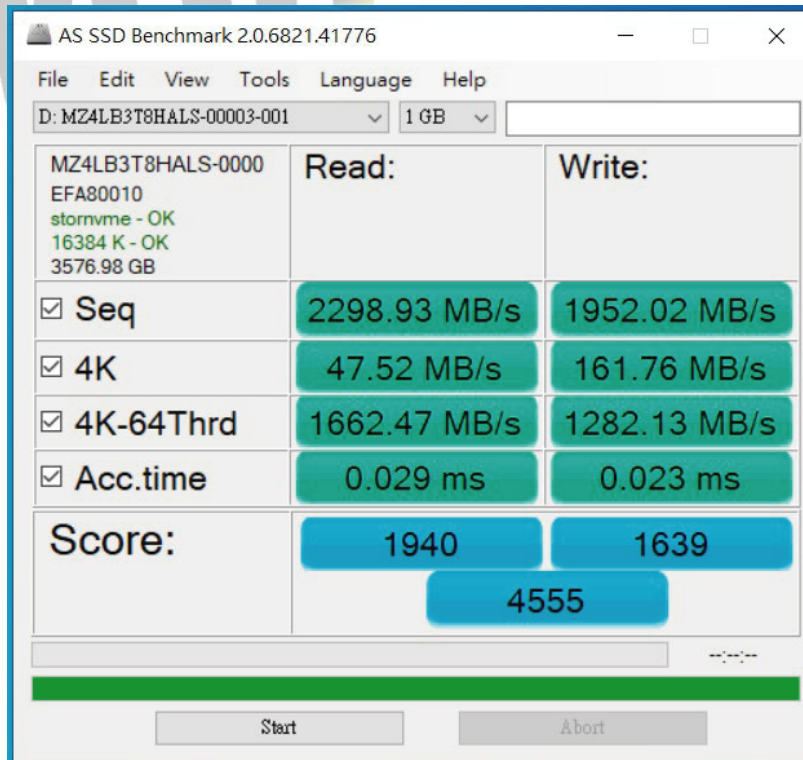
2.5.1 **M.3 NF1 NVMe Samsung PM983/4TB** in Drive D: performance as below:



2.6 AS SSD Benchmark 2.06 performance test

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

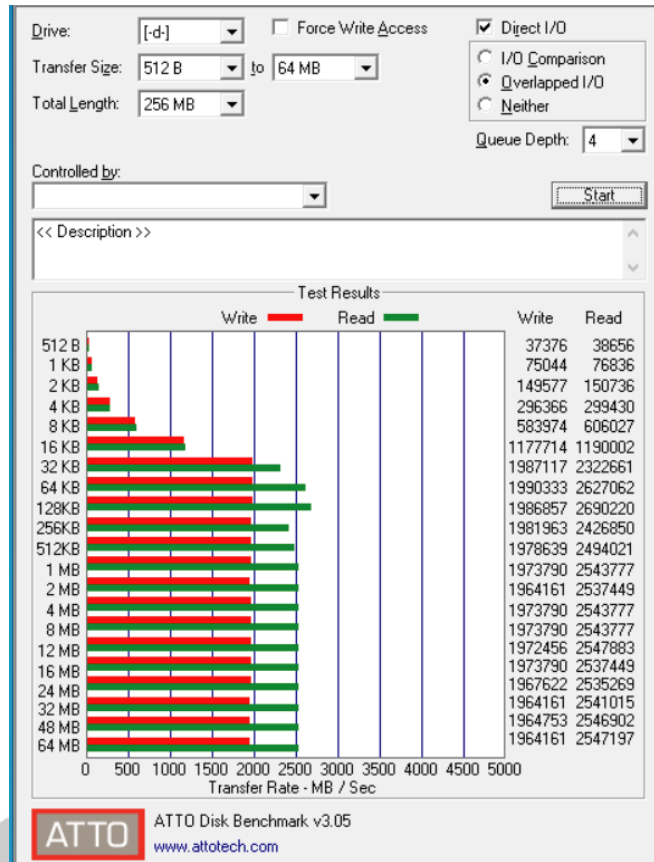
2.6.1 **M.3 NF1 NVMe Samsung PM983/4TB** in Drive D: performance as below:



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2.7 ATTO Disk Benchmark 3.05 performance test

2.7.1 **M.3 NF1 NVMe Samsung PM983/4TB** in Drive D: performance as below:



2.8 AnvilBenchmark_V110_B337

2.8.1 **M.3 NF1 NVMe Samsung PM983/4TB** in Drive D: performance as below:

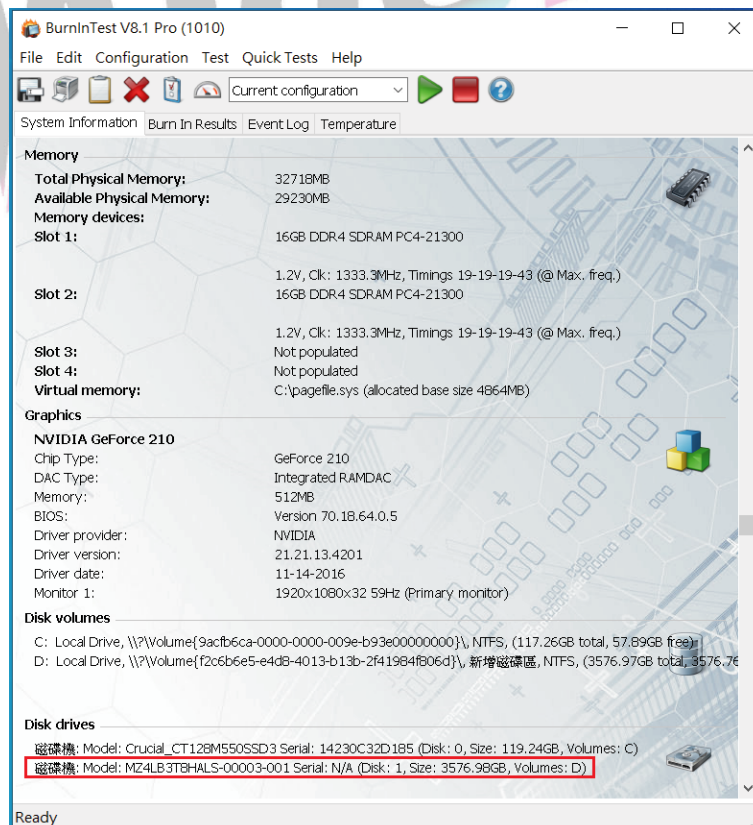


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3. Burn In Tests and Results

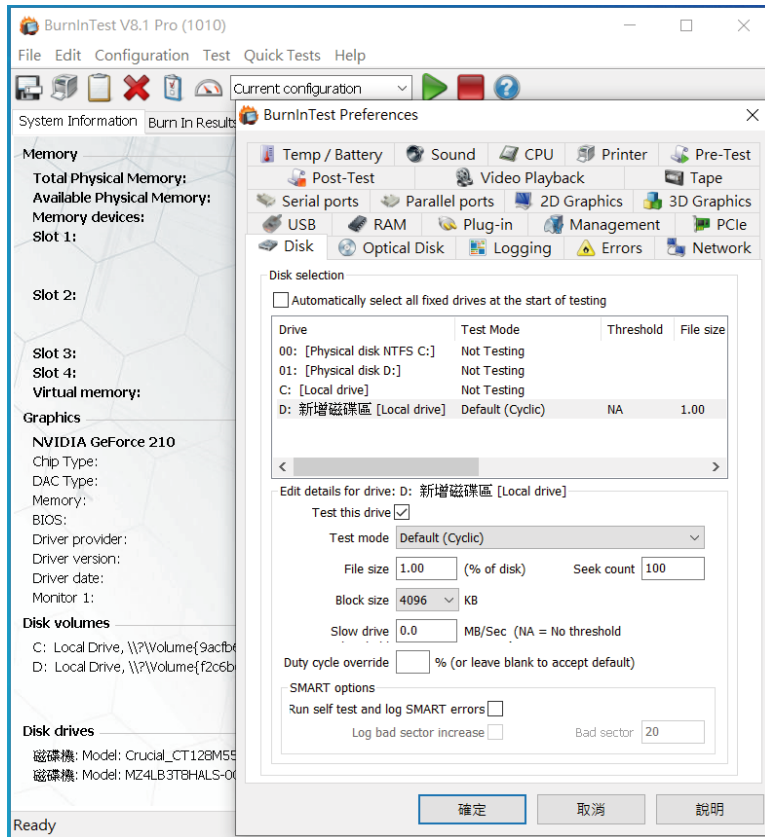
3.1 BurnInTest v8.1 Pro for M.3 NF1 NVMe Samsung PM983/4TB

3.1.1 system information as below:

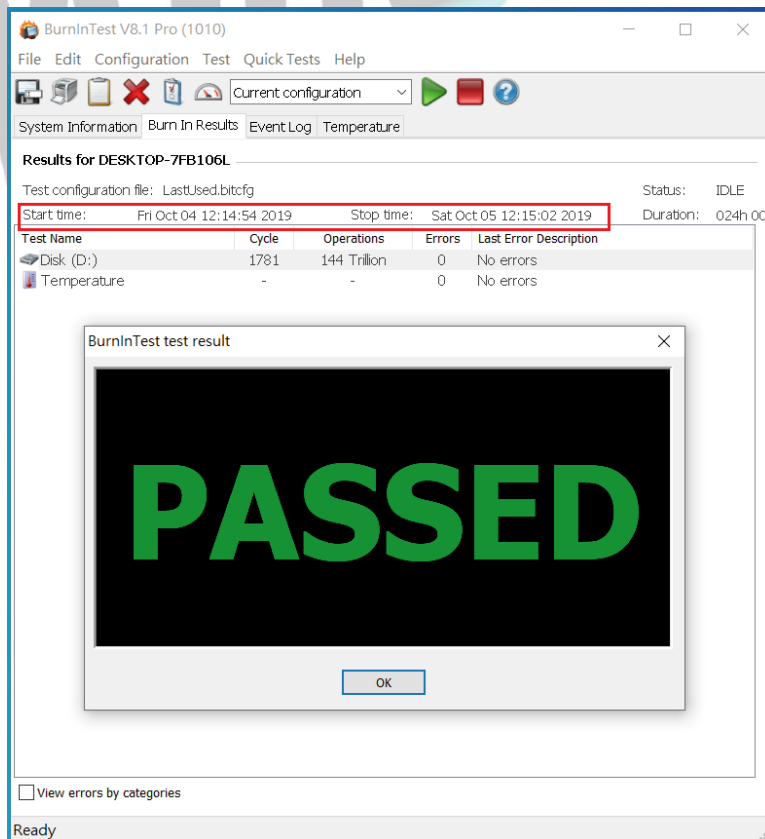


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3.1.2 Disk test mode(10 ways cycle test)



3.1.3 24-hour Burn-in test PASSED



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4. Summary

- 4.1 M.3 NF1 SSD is PCI-e Gen 3 / 4 Lanes Interface, I/O speed, max. to 32Gbps.
- 4.2 PC428A adapter I/O performance is based on M.3 NVMe PCI-e Gen 3 / 4 Lanes SSD.

