MINERVA

PE1604 PCIe 16 Lanes to OCulink 8i x2 Converter Card

Performance & Burn In Test Rev 1.0

Table of Contents

1. **Overview**

2. **Performance Measurement Tools and Results**
   - 2.1 Test Platform
   - 2.2 Test target and M.2 NVMe SSD
   - 2.3 Install Hardware
   - 2.4 BIOS & Windows 10 OS environment setup
   - 2.5 CrystalDiskMark 7.0 x64 performance test
   - 2.6 AS SSD Benchmark 2.0.7 performance test
   - 2.7 ATTO Disk Benchamrk 4.0.1 performance test
   - 2.8 AnvilBenchmark_V110_B337 Benchmark performance test

3. **Burn In Tests and Results**
   - 3.1 BurnInTestv8.1 Pro burn in test

4. **Summary**

1. Overview

This riser card has built-in SFF-8612 8i dual ports connector. It is designed for use by PCIe x16 to configure two SFF-8612 8i bifurcations for x4 NVMe 4 ports.

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
AIC:	PE1604 PCIe x16 to OCulink 8i dual ports ADD-in Card
Adapter:	PD893A SFF-8612 8i to M.2/M.3 dual ports Storage Adapter
Cable:	SFF-8611 8i(OCulink) to SFF-8612 8i(OCulink) Cable x2
OS :	Microsoft **Windows 10 64bit OS**

2.2 Test target: PE1604 AIC, PD893A adapter and M.3 NF1 & M.2 NVMe SSD

2.3 Install Hardware

First inserts PE1604 AIC into GABYTE **X570 AORUS MASTER** PCIe x16 Slot and, using the MIC80-7701 Cable to connect PD893A adapter with M.3 NF1, M.2 NVMe SSD.

2.4 BIOS & Windows 10 OS environment setup

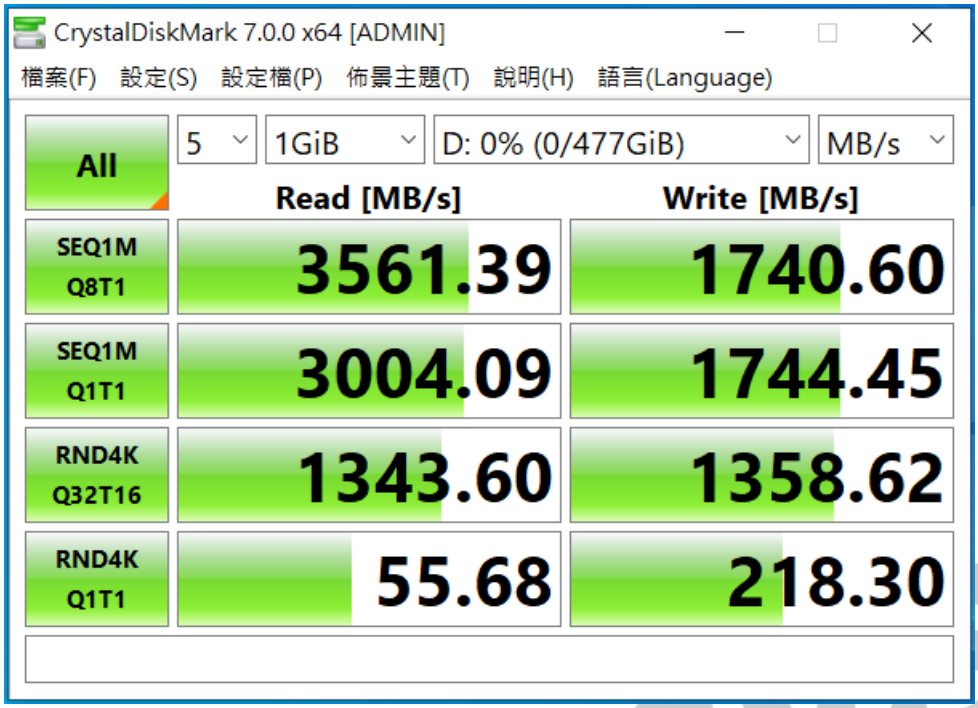
2.4.1 Primary SATA SSD installed Windows 10 OS.

2.4.2 M.3 NF1, M.2 NVMe SSD, formatted to NTFS Mode. Don't install any program.

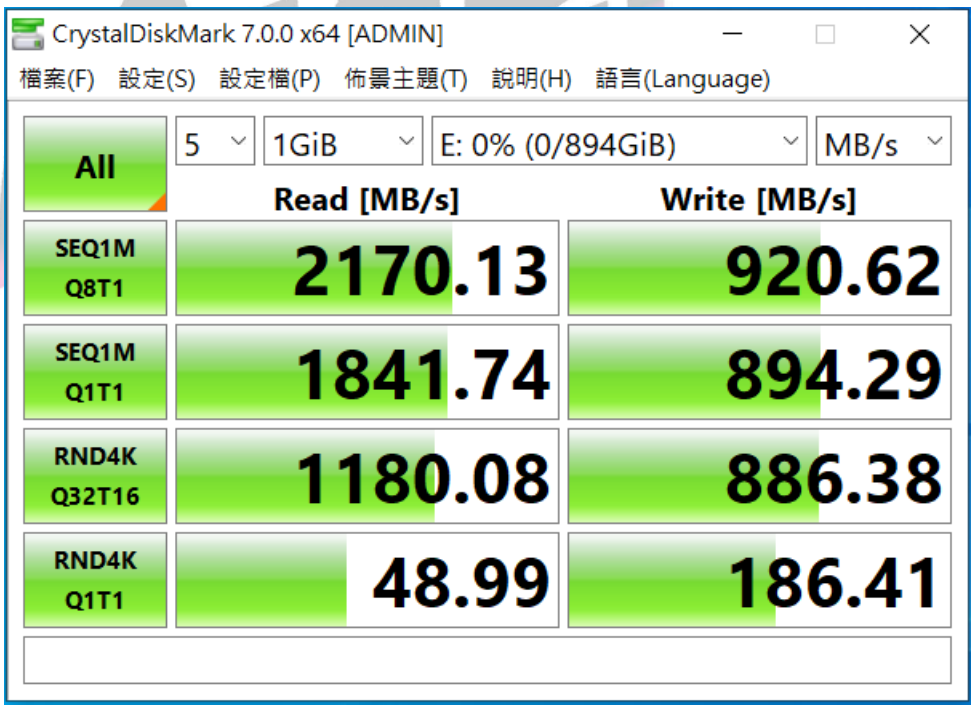
2.5 CrystalDiskMark 7.0 x64 performance test

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

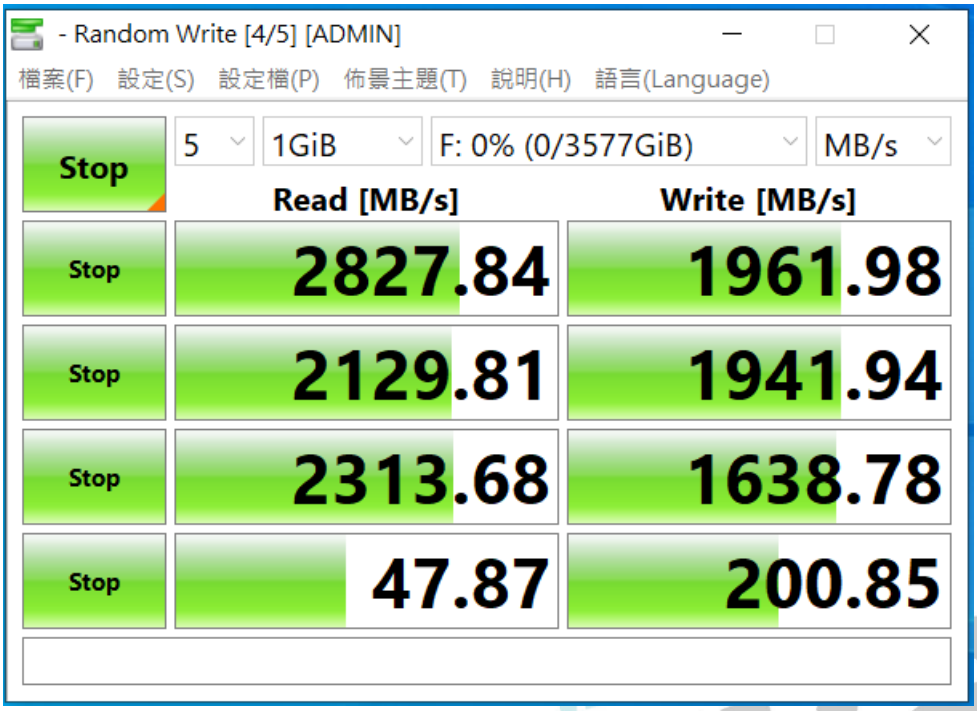
2.5.1 M.2 NVMe Samsung/512GB performance as below:



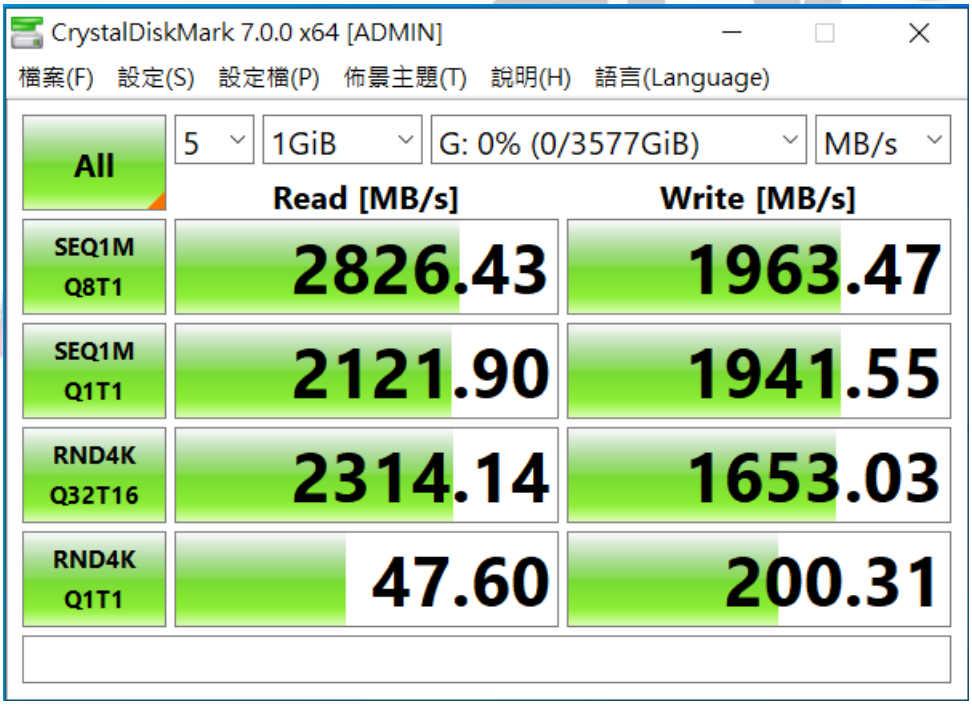
2.5.2 M.2 NVMe LITEON/960GB performance as below:



2.5.3 M.3 NF1 Samsung/4TB performance as below:



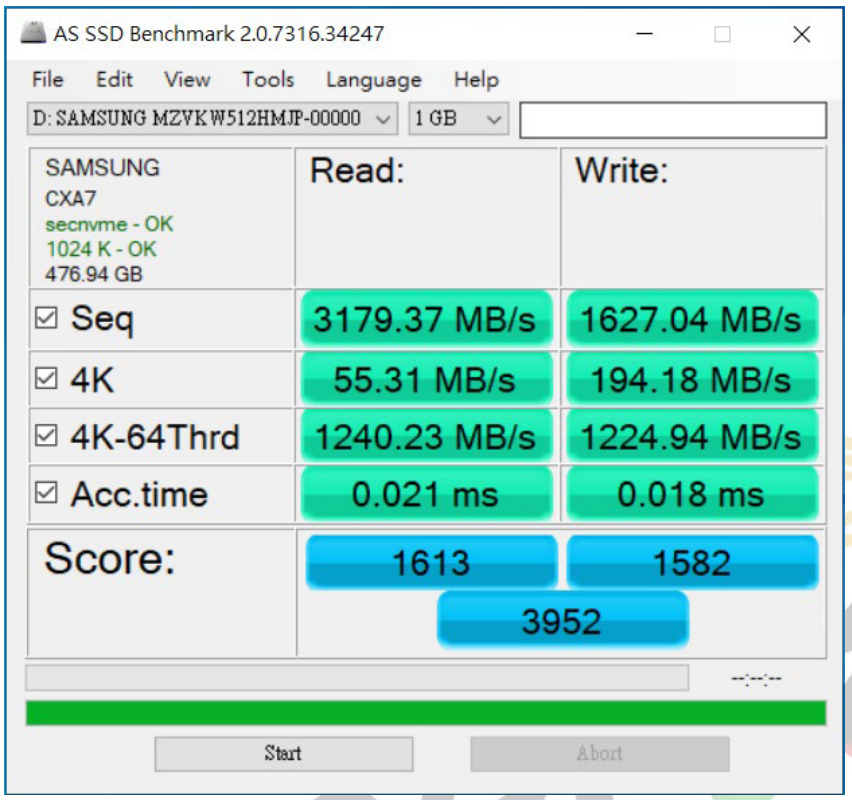
2.5.4 M.3 NF1 Samsung/4TB performance as below:



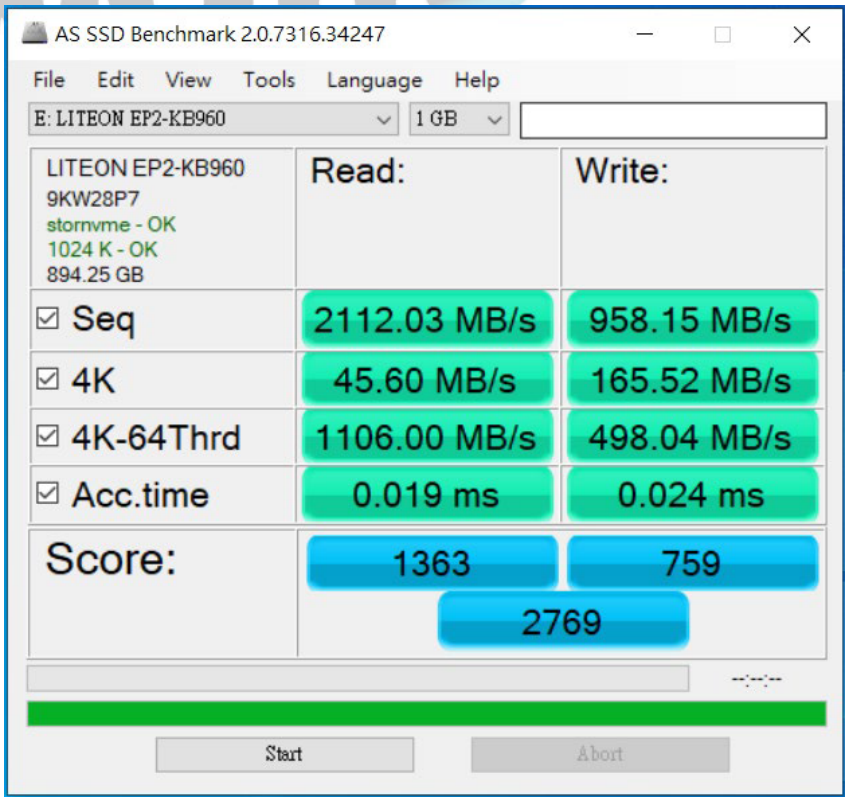
2.6 AS SSD Benchmark 2.0.7 performance test

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

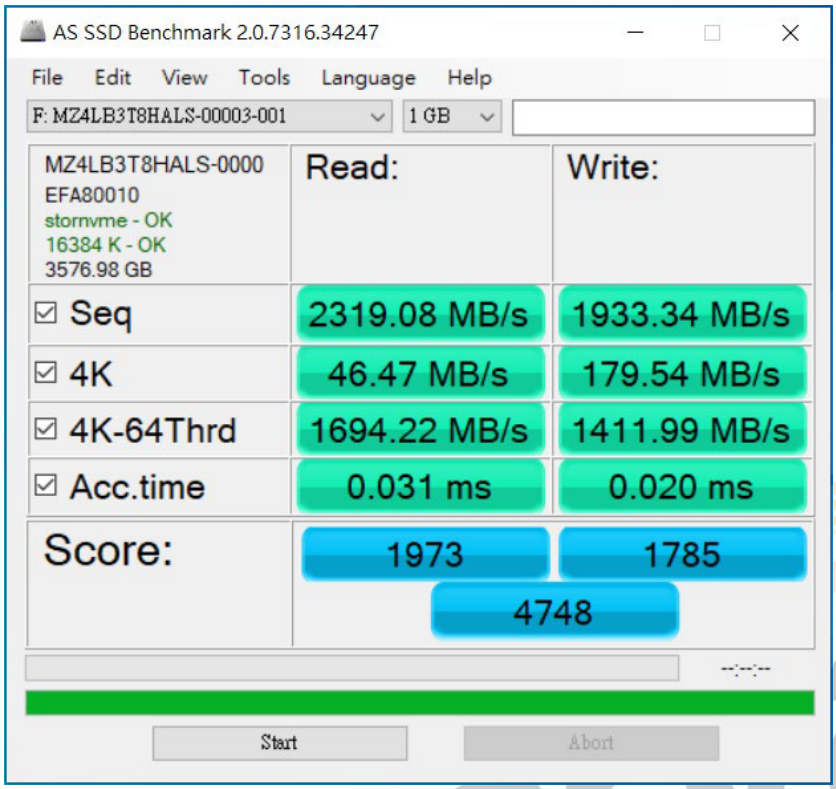
2.6.1 M.2 NVMe Samsung/512GB performance as below:



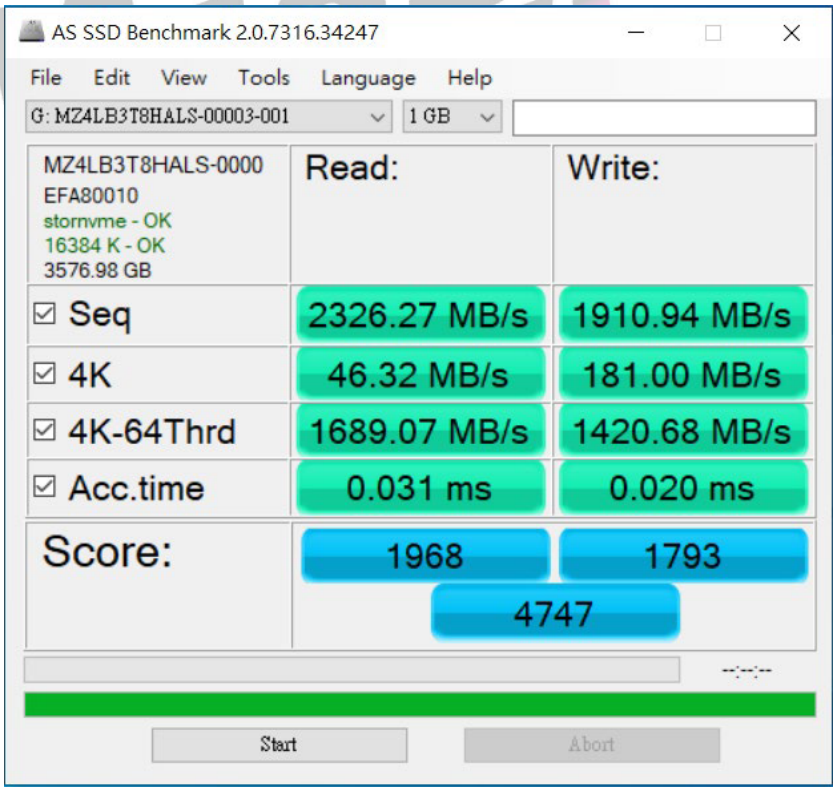
2.6.2 M.2 NVMe LITEON/960GB performance as below:



2.6.3 M.3 NF1 Samsung/4TGB performance as below:

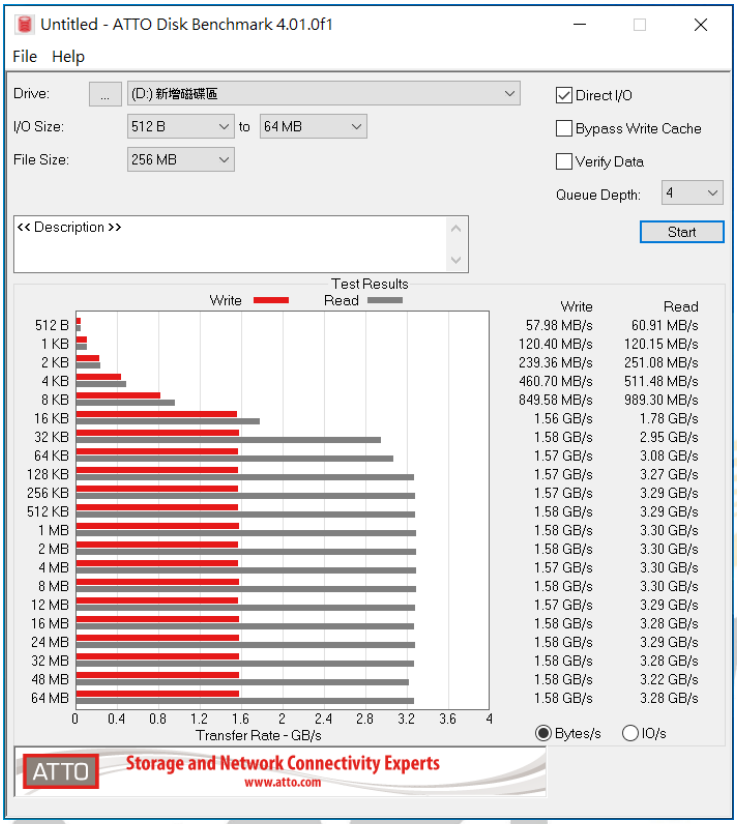


2.6.4 M.3 NF1 Samsung/4TGB performance as below:

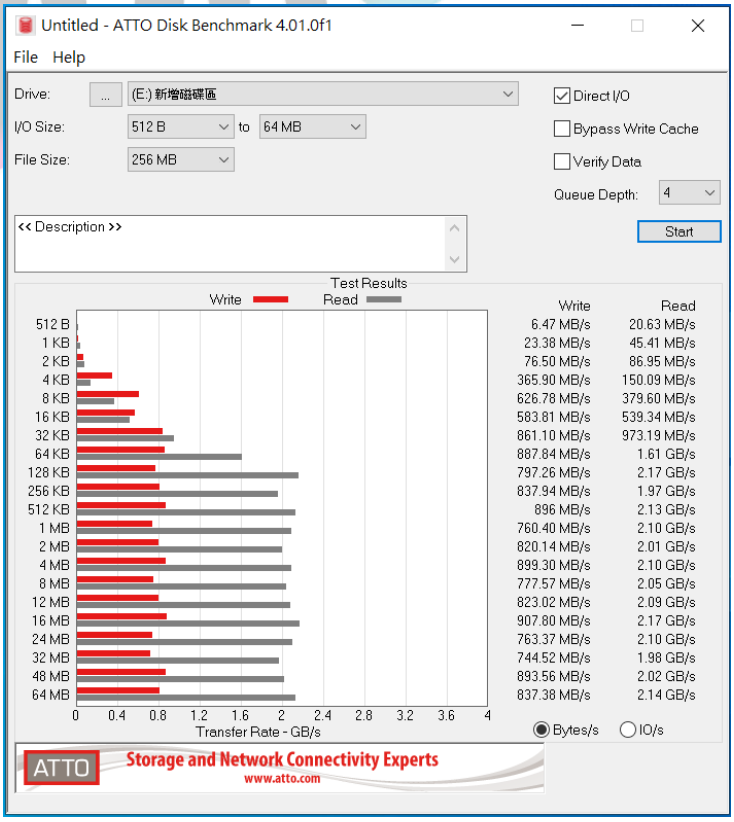


2.7 ATTO Disk Benchamrk 4.01. performance test

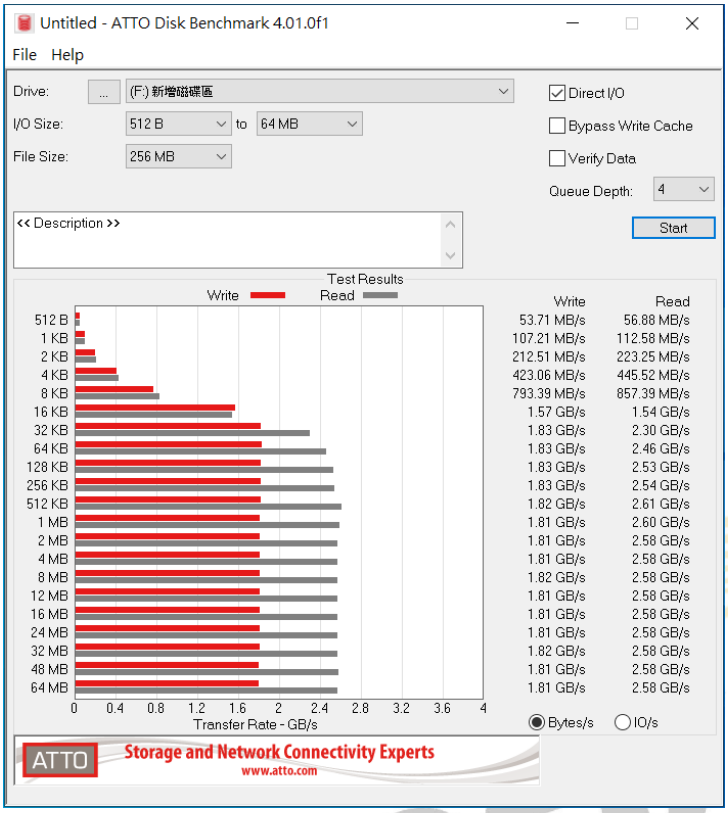
2.7.1 M.2 NVMe Samsung/512GB performance as below:



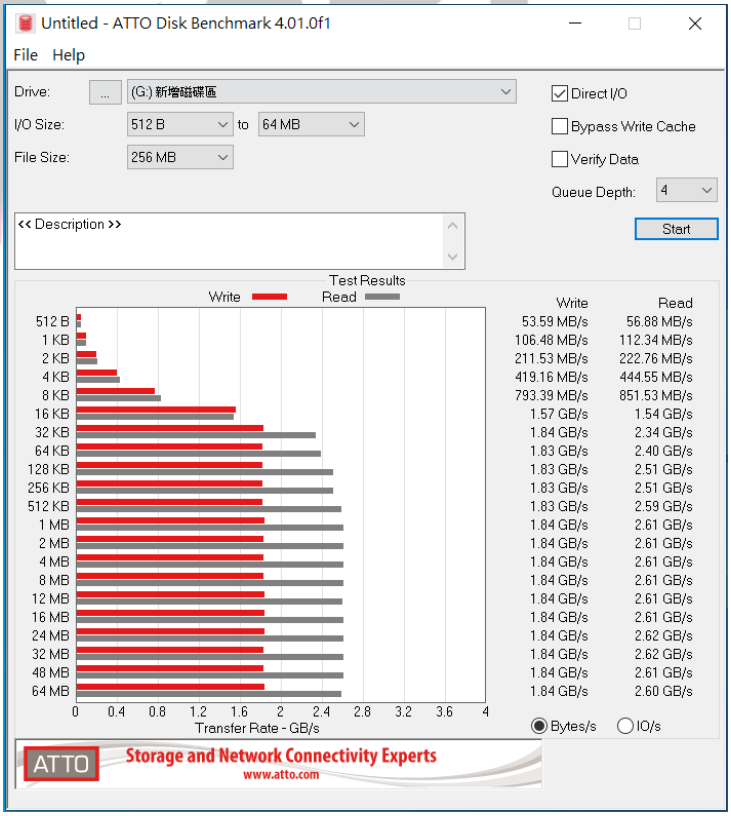
2.7.2 M.2 NVMe LITEON/960GB performance as below:



2.7.3 M.3 NF1 Samsung/4TGB performance as below:



2.7.4 M.3 NF1 Samsung/4TGB performance as below:



2.8 AnvilBenchmark_V110_B337

2.8.1 **M.2 NVMe Samsung/512GB** performance as below:

2.8.2 **M.2 NVMe LITEON/960GB** performance as below:

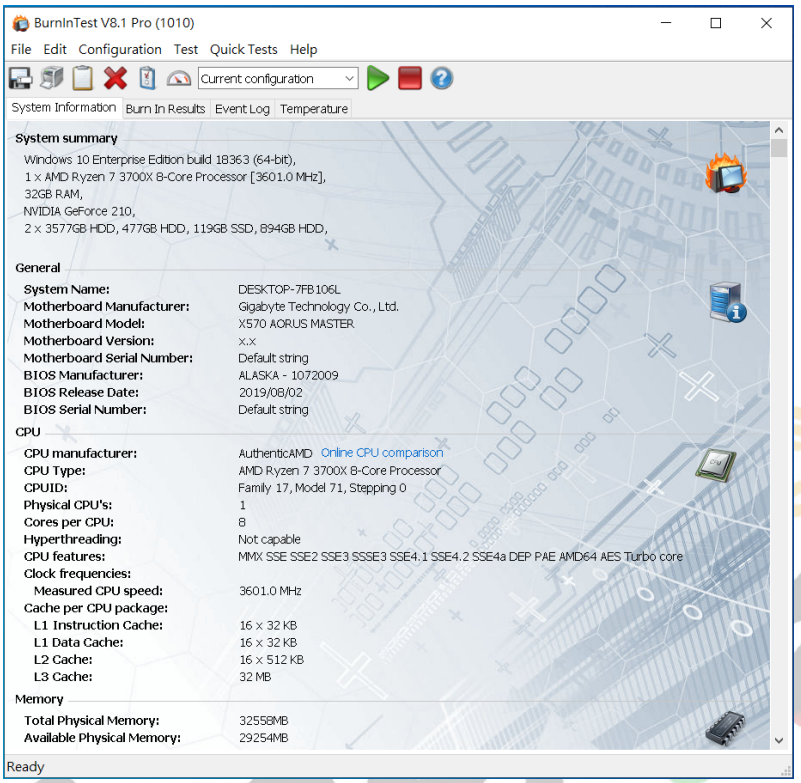
2.8.3 **M.3 NF1 Samsung/4TGB** performance as below:

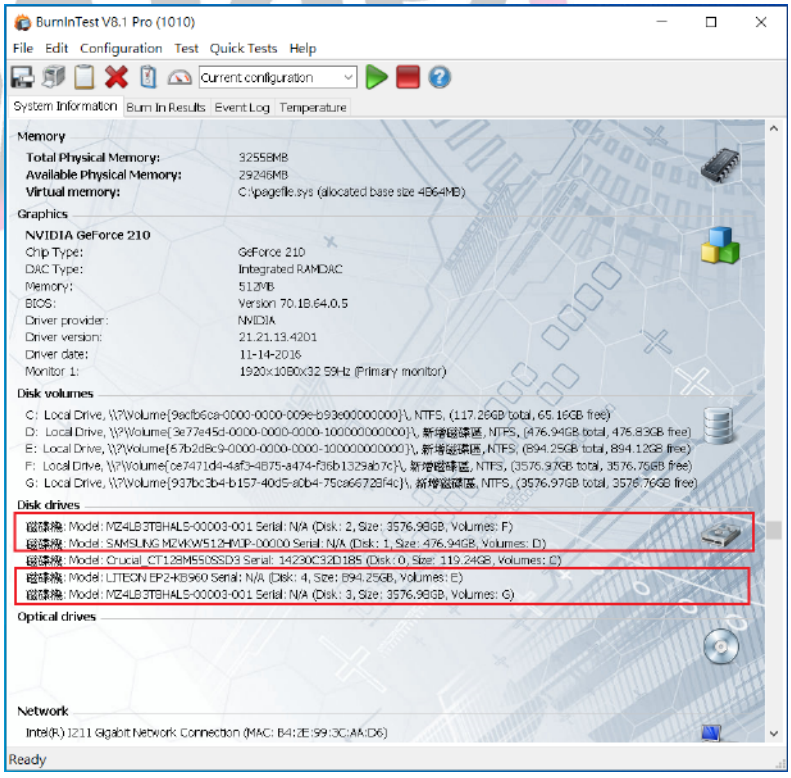
2.8.4 **M.3 NF1 Samsung/4TGB** performance as below:

3. Burn In Tests and Results

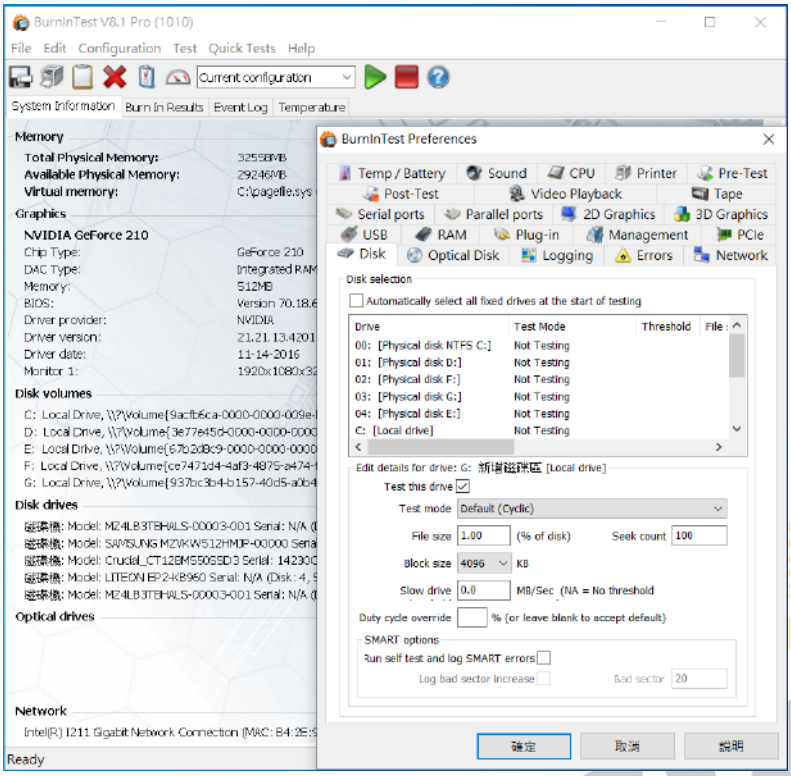
3.1 BurnInTest v8.1 Pro

3.1.1 system information as below:

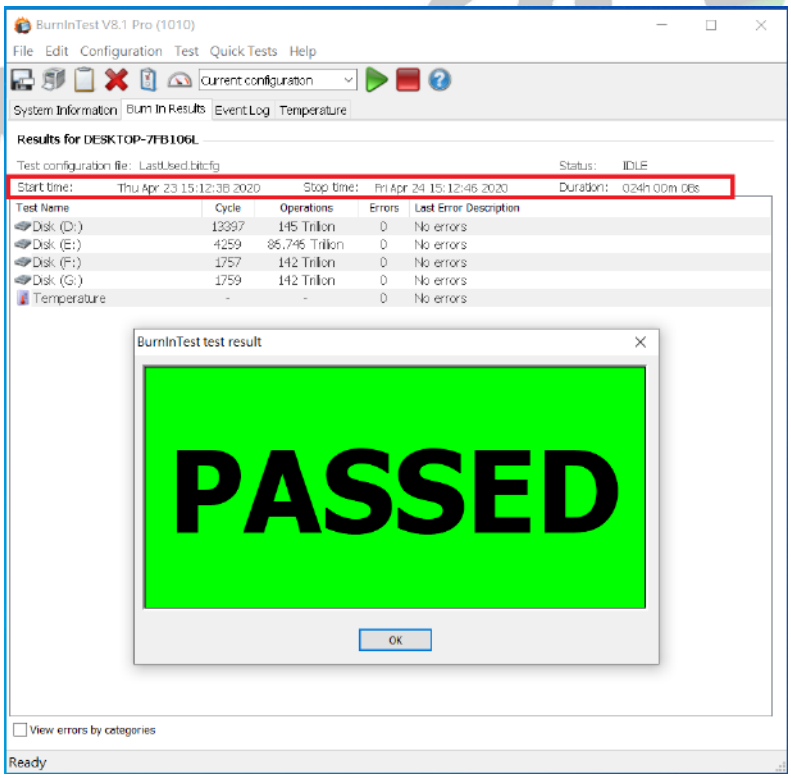




3.1.2 Disk test mode(10 ways cycle test)



3.1.3 24-hour Burn-in test PASSED



4. Summary

4.1 M.3 NF1, M.2 NVMe SSD is PCI-e Gen 3 / 4 Lane Interface, I/O speed, max. to 32Gbps.

4.2 PE1604 adapter I/O performance is based on M.3 NF1, M.2 NVMe SSD.