MINERVA
GD8604A PCIe 4.0 x16 Slot dual port Backplane

Performance & Burn In Test   Rev 1.0

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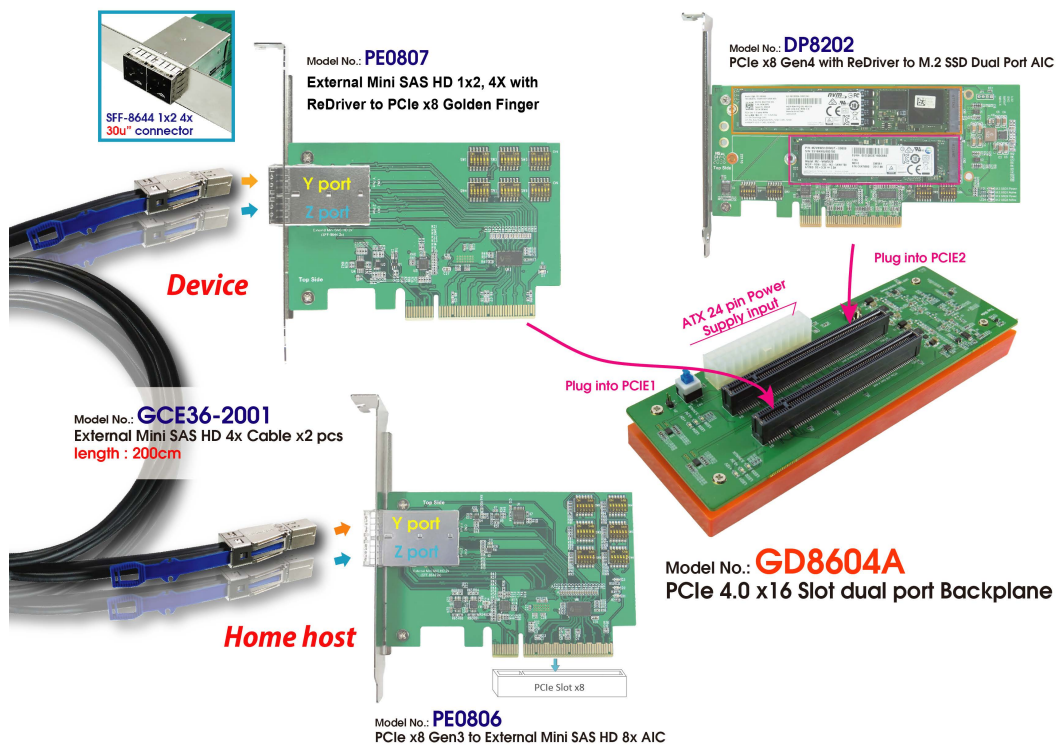
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1. Overview

This riser card has built-in external Mini SAS HD(SFF-8644) 1x2,4X connector. It is designed to for extend PCIe x8 channel reach. The ReDriver may support CTLE boosts up to **15 dB at 4 GHz.**

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

Add in Card: PE0806 PCIe x8 with ReDriver to SFF-8644 1x2, 4X AIC for Host

Add in Card: PE0807 SFF-8644 1x2, 4X with ReDriver to PCIe x8AIC for Device

Cable: PCIe Gen 3 external Mini SAS 1x1,4X, **200cm** Cable x2pcs

Adapter: GD8604A PCIe x16 Slot to PCIe x16 Slot adapter

Add in Card: DP8202 PCIe x8 to M.2 dual port

OS :   Microsoft **Windows 10 64bit OS**

2.2 Test target: PE0806, PE0807,GD8604A & PE0802 with PCIe Gen M.2 NVMe SSD

2.3   Install Hardware

First inserts the M.2 SSD into the PE0802 M.2 connector, then with copper nuts, and screws to fix SSDs. (Please refer to the Installation Notes). Plugs PE0802 into GD8604A device port PCIe x16 Slot and PE0807 into GD8604A host port PCIe x16 Slot. The PE0807 connects to the PE0806 AIC card (PCIe x16 Gen 4 to SFF-8644 1x2, 4X), using the **GCE36-2001 Cable**, and Plugs PE0806 AIC into GIGABYTE **X570 AORUS MASTER**.

2.4   BIOS & Windows 10 OS environment setup

2.4.1   Primary SATA NVMe SSD install Windows 10 OS.
2.4.2   Two M.2 NVMe SSDs , formatted to NTFS Mode. Don't install any program.
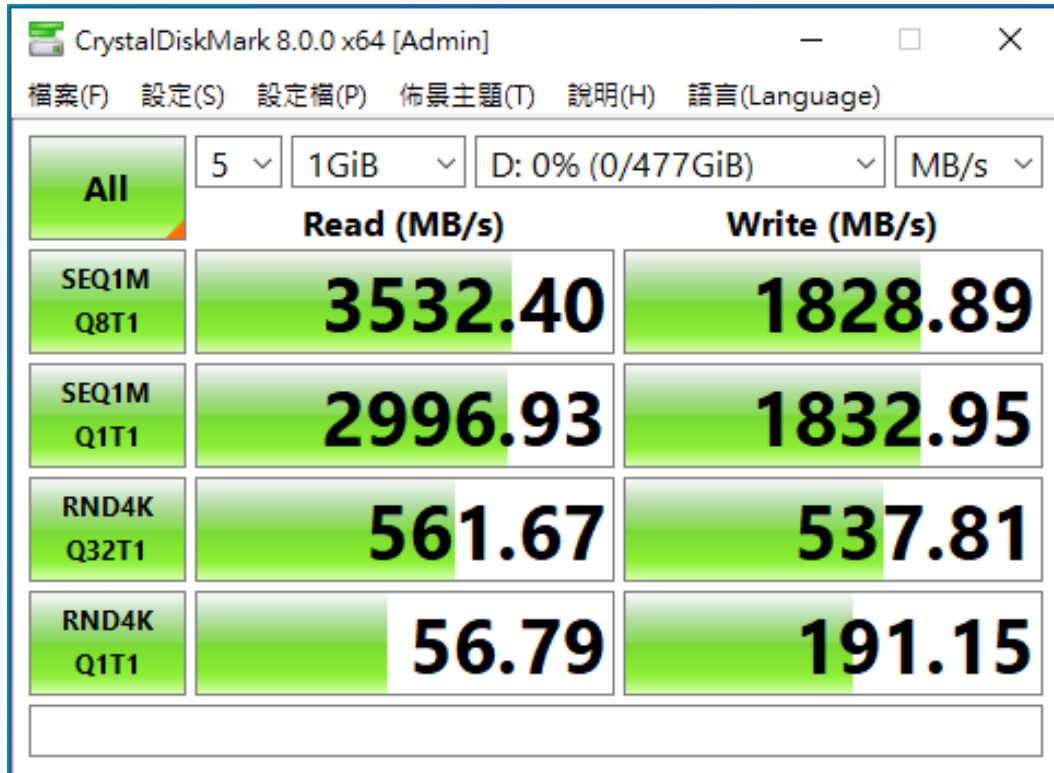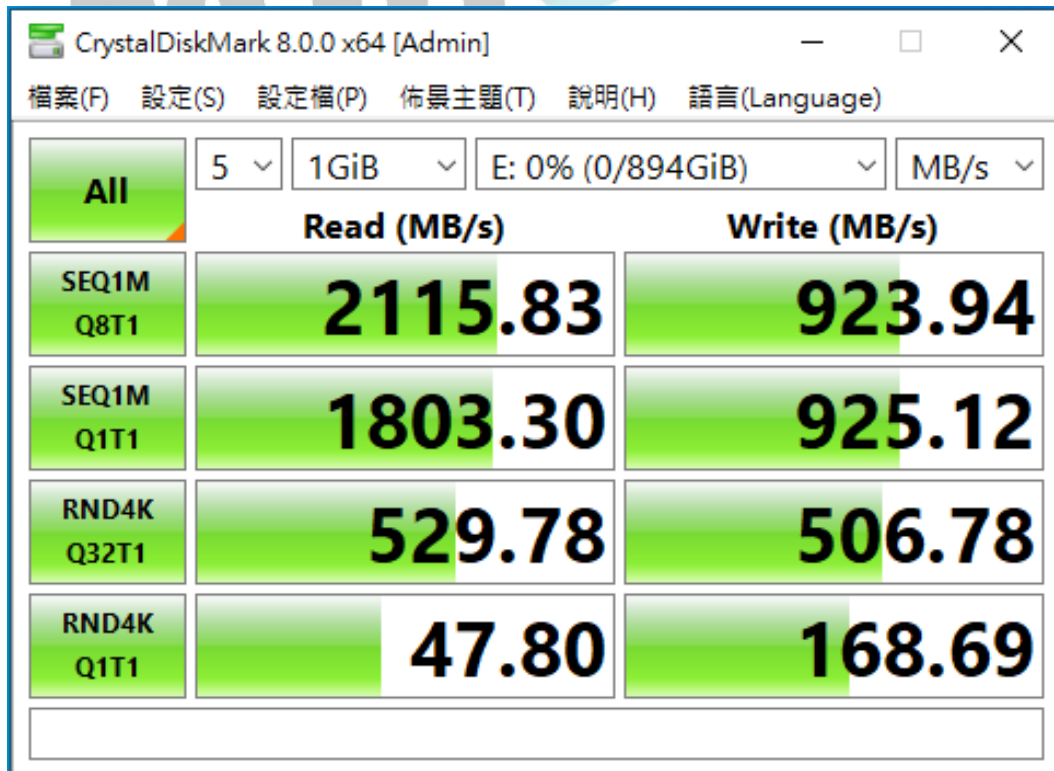
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2.5 CrystalDiskMark 8.0.0 x64 performance test

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

2.5.1　Samsung SM961 M.2 22x80mm /512GB in **Drive D:** performance as below:

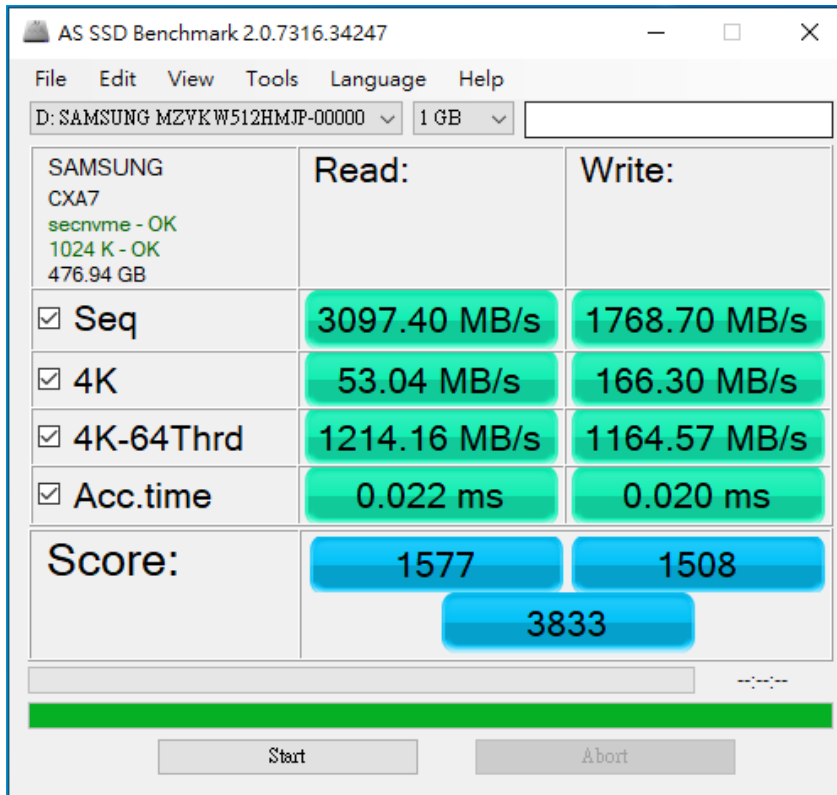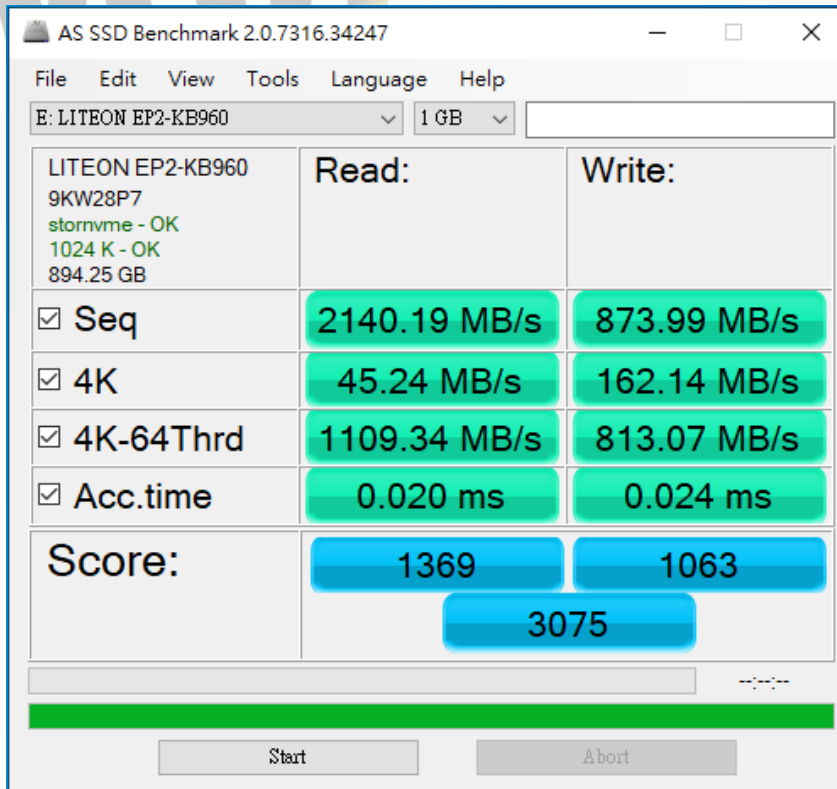### 2.5.2　LITEON M.2 22x110mm /1TB in **Drive E:** performance as below:

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2.6 AS SSD Benchmark 2.0 performance test

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

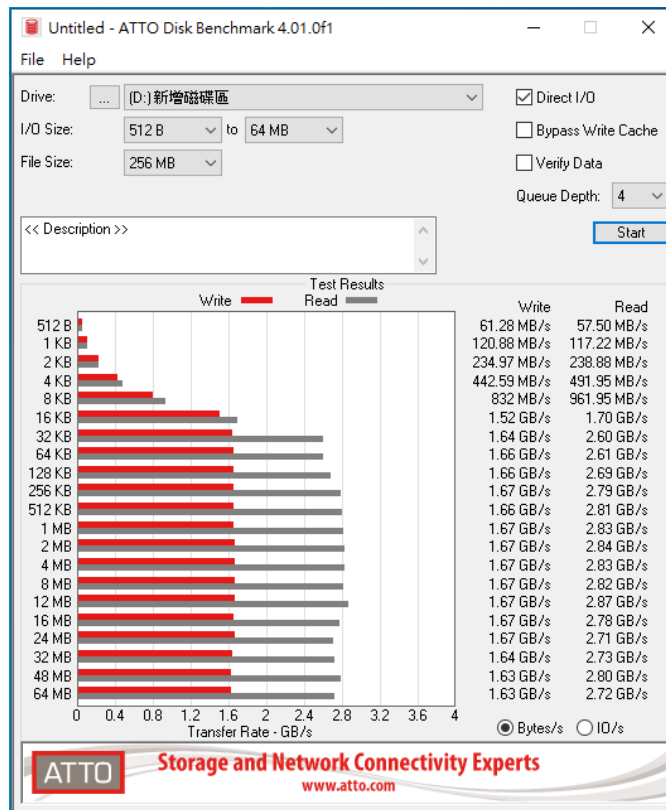2.6.1 **Samsung SM961 M.2 22x80mm /512GB** in **Drive D:** performance as below:

2.6.2 **LITEON M.2 22x110mm /1TB** in **Drive E:** performance as below:
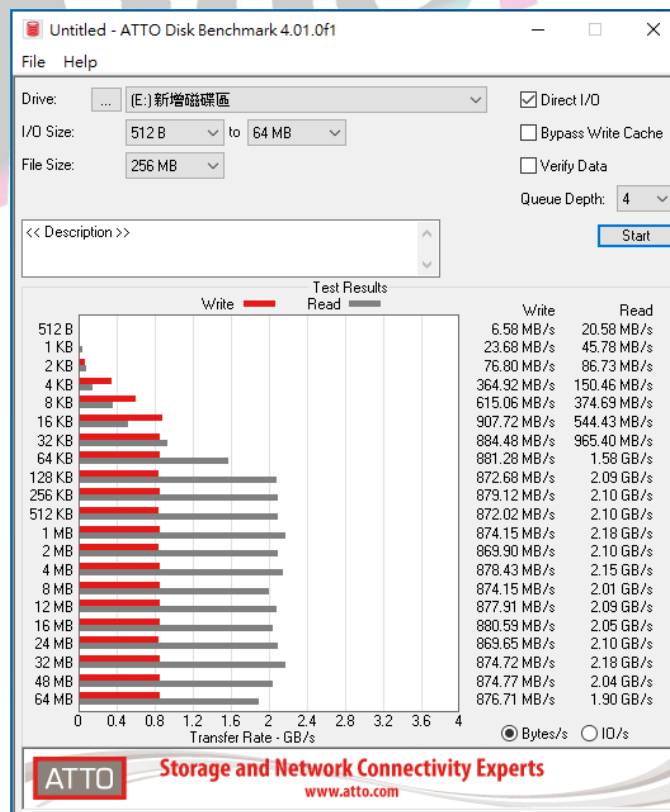
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2.7 ATTO Disk Benchamrk 4.01 performance test

    2.7.1   Samsung SM961 M.2 22x80mm /512GB in **Drive D:** performance as below:
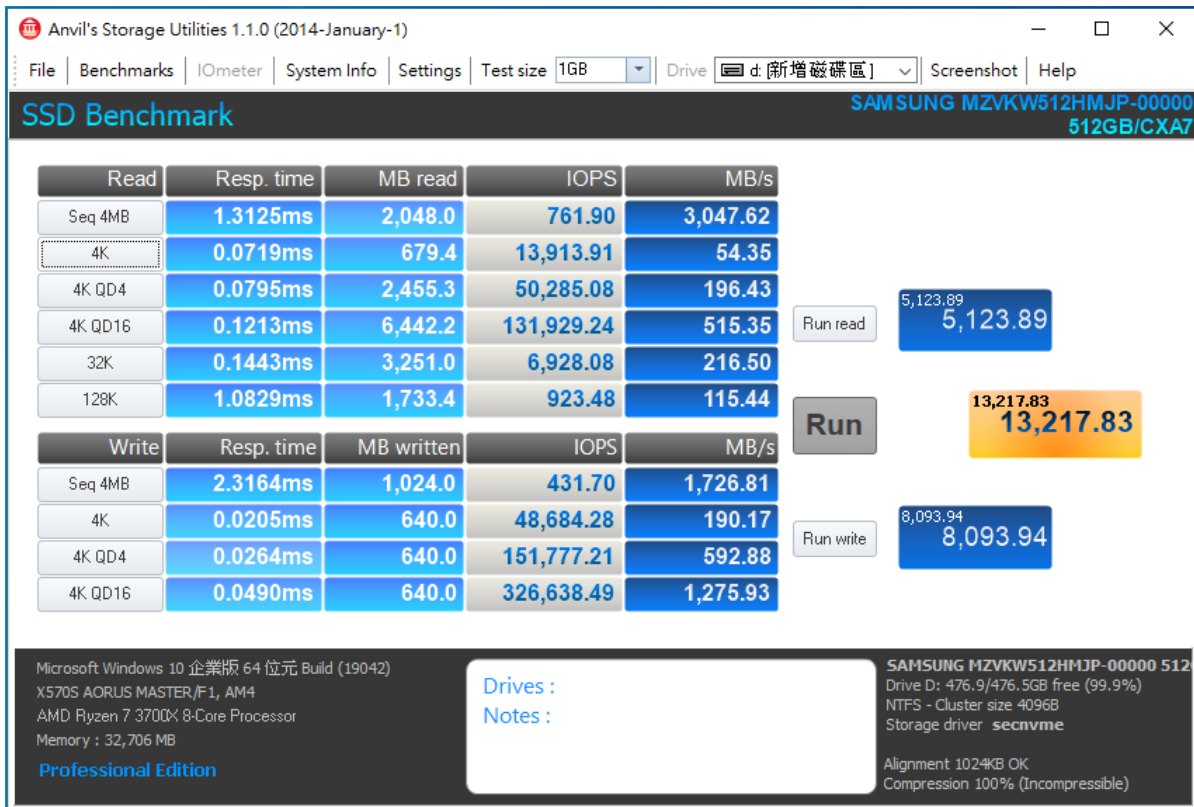

    2.7.2   LITEON M.2 22x110mm /1TB in **Drive E:** performance as below:

2.8 AnvilBenchmark_V110_B337

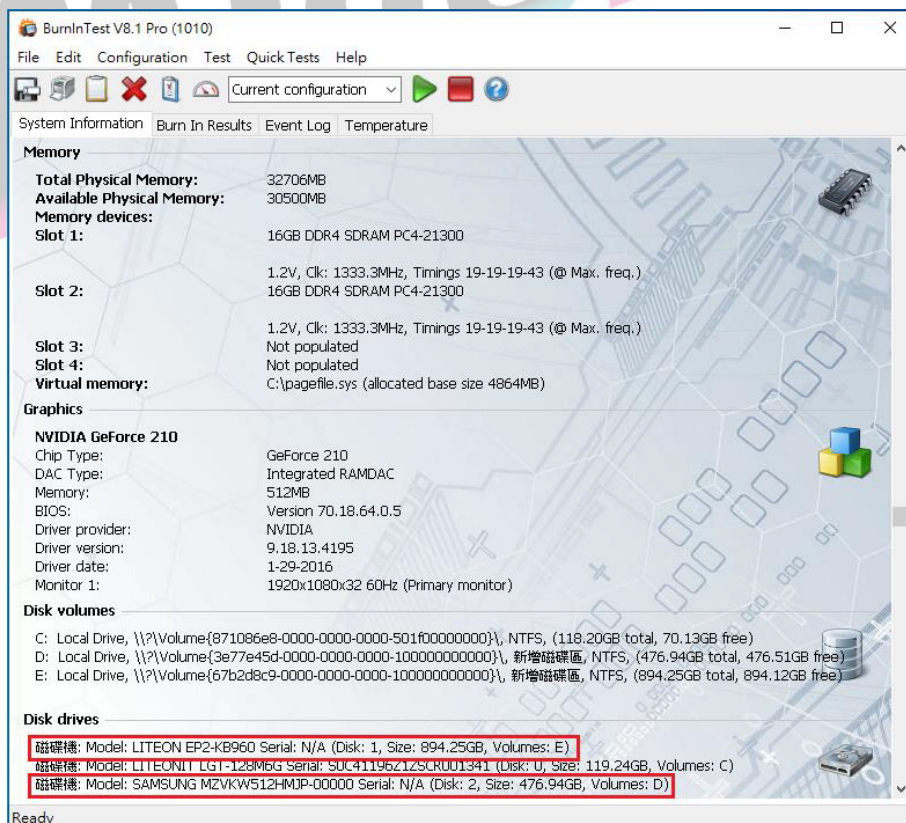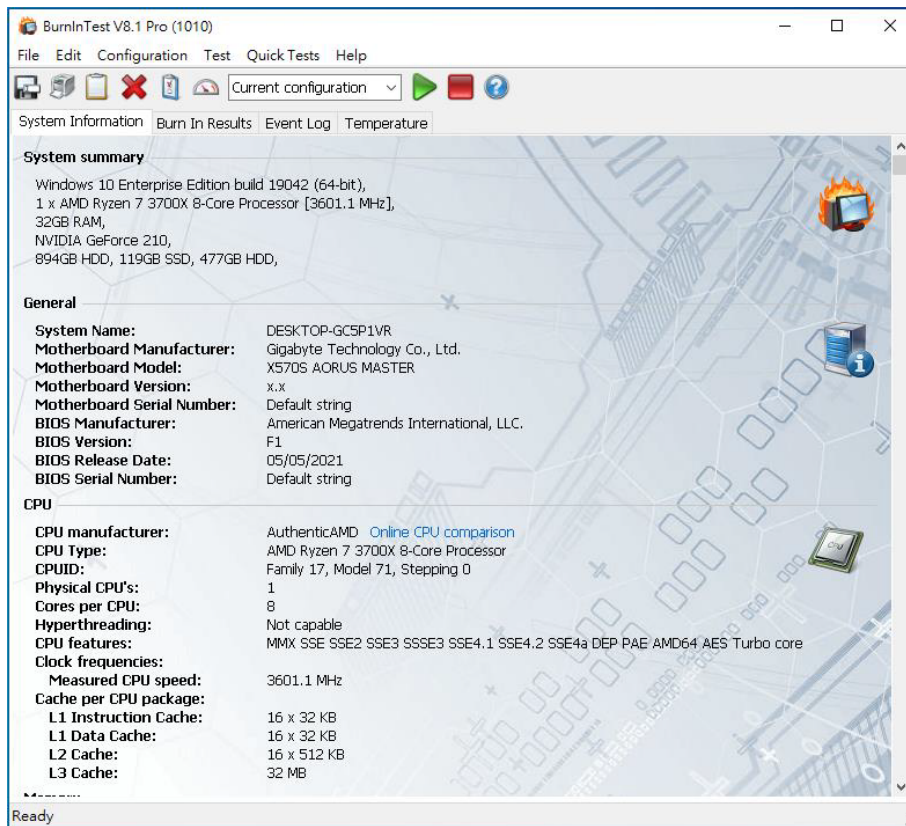### 2.8.1 Samsung SM961 M.2 22x80mm /512GB in **Drive D:** performance as below:

2.8.2 LITEON M.2 22x110mm /1TB in **Drive E:** performance as below:

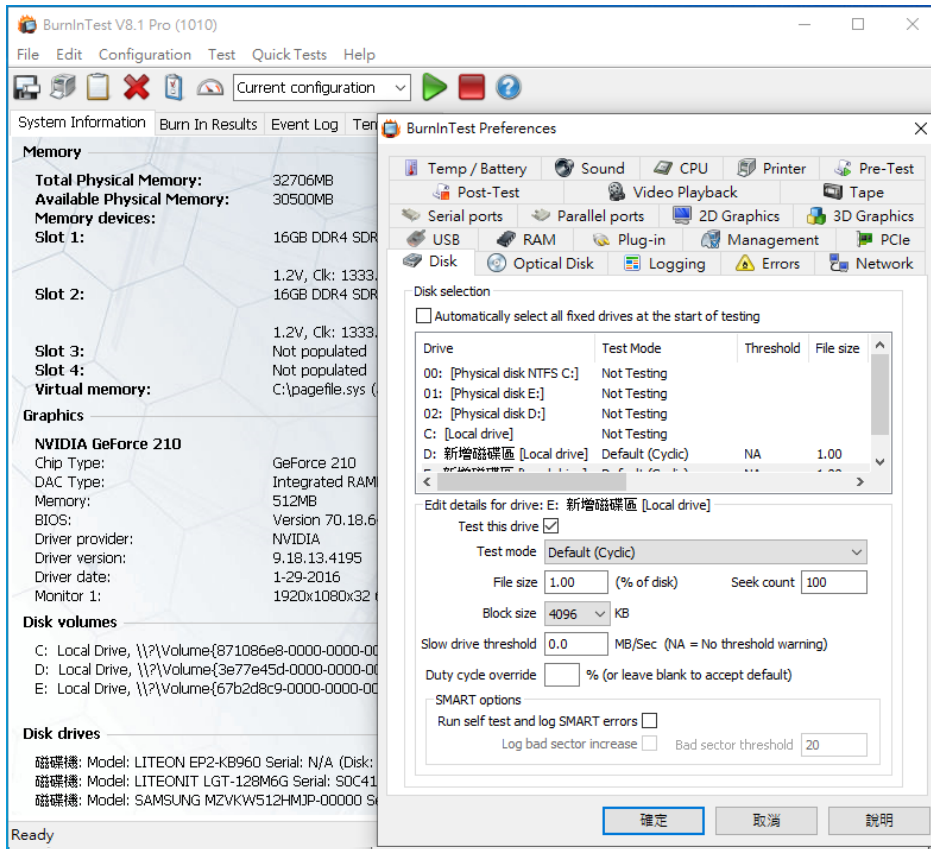## GD8604A

3. Burn In Tests and Results

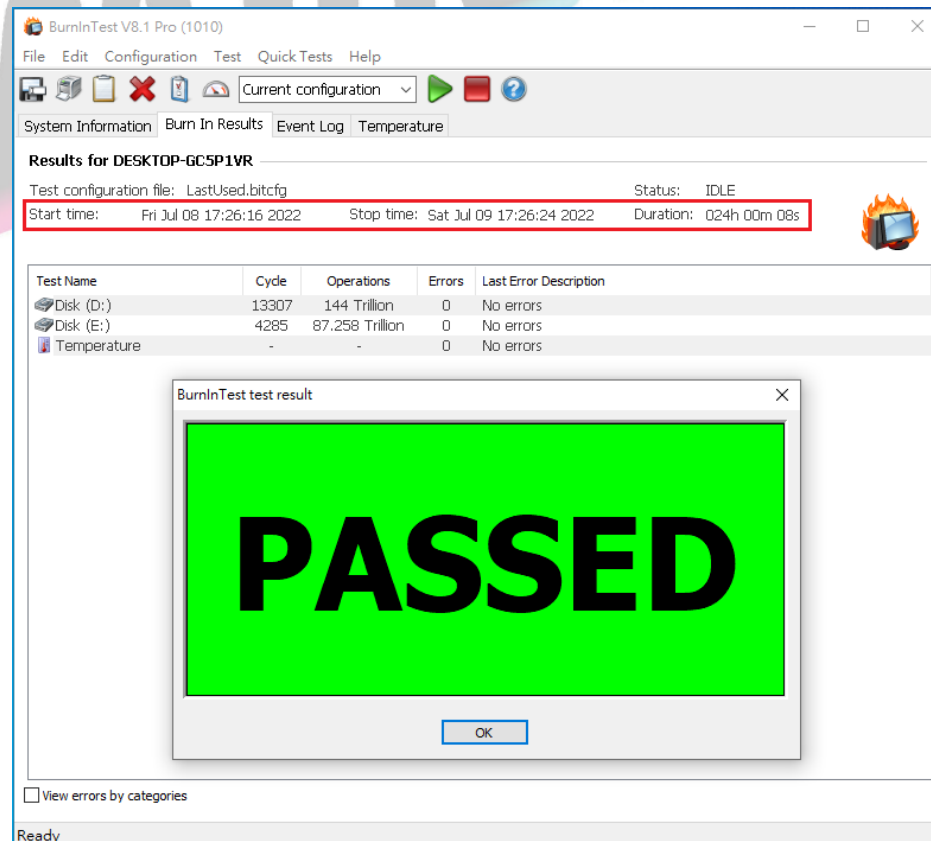### 3.1 BurnInTest v8.1 Pro

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

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4. Summary

    4.1   M.2 NVMe SSD is PCIe Gen 3 / 4 Lane Interface, I/O speed, max. to32Gbps.

    4.2   PE0807 AIC I/O performance is based on NVMe SSD.