MINERVA
DP7401 PCIe 4.0 x16 with ReDriver to SlimSAS 8i x2 A.I.C

Performance & Burn In Test   Rev 1.0

Notice: This test report is for lane8 ~ lane 15 of DP7401 PCIe x16 AIC

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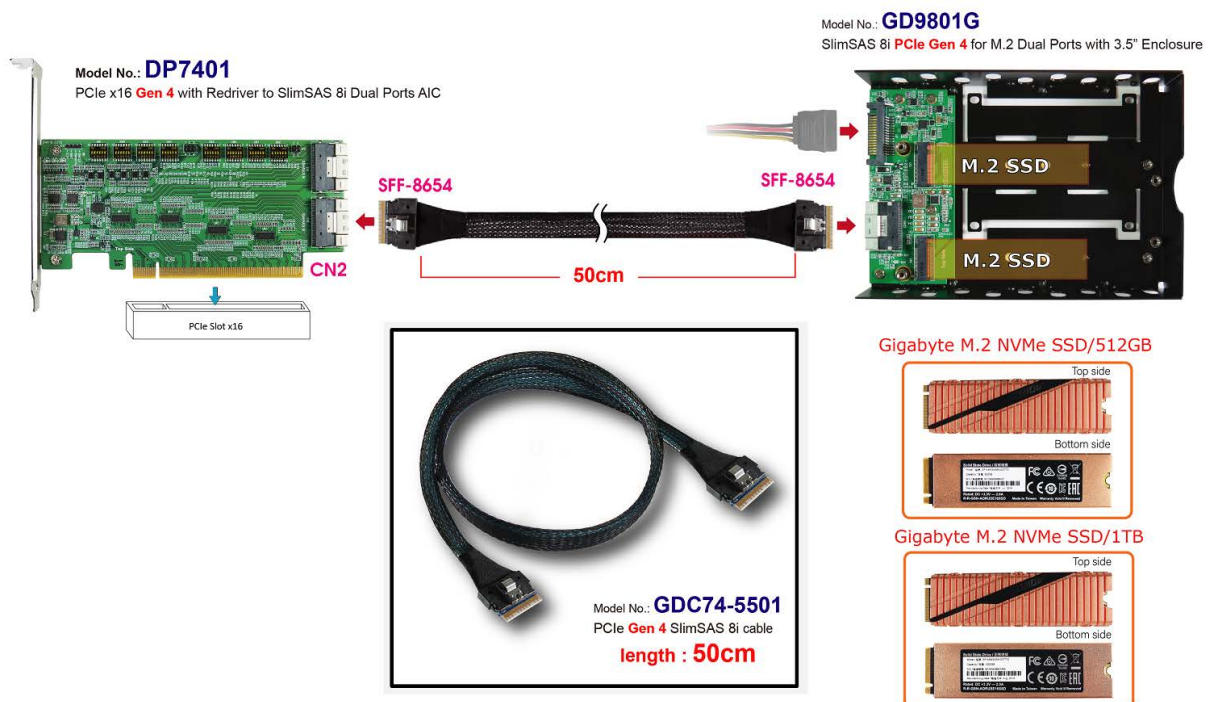
DP7401 Add-in Card

1. Overview

This riser card has built-in SlimSAS(SFF-8654) 8i dual port connector. It is designed for use by PCIe x16 to be bifurcated four x4 link width or can extend PCIe x16 channel reach. The ReDriver may support CTLE boosts up to **13 dB at 8 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: DP7401 PCIe x16 to SlimSAS(SFF-8654) 8i x2 AIC
Cable: PCIe Gen 4 SlimSAS(SFF-8654) 8i to SlimSAS(SFF-8654) 8i Cable
Adapter: GD9801G SlimSAS(SFF-8654) 8i to M.2 dual ports adapter
OS :   Microsoft **Windows 10 64bit OS**

2.2 Test target: D7401, GD9801G adapter with GIGABYTE M.2 **1TB** & M.2 **500GB** NVMe SSD

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2.3   Install Hardware

First inserts the M.2 SSD into the GD9801G M.2 connector, then with copper nuts, and screws to fix SSDs. (Please refer to the Installation Notes). To connect the GD9801G adapter to the DP7401 AIC card (PCIe x16 Gen 4 to SFF-8654 8i x2) using the **GDC74-5501 Cable**, and Plugs DP7401 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.
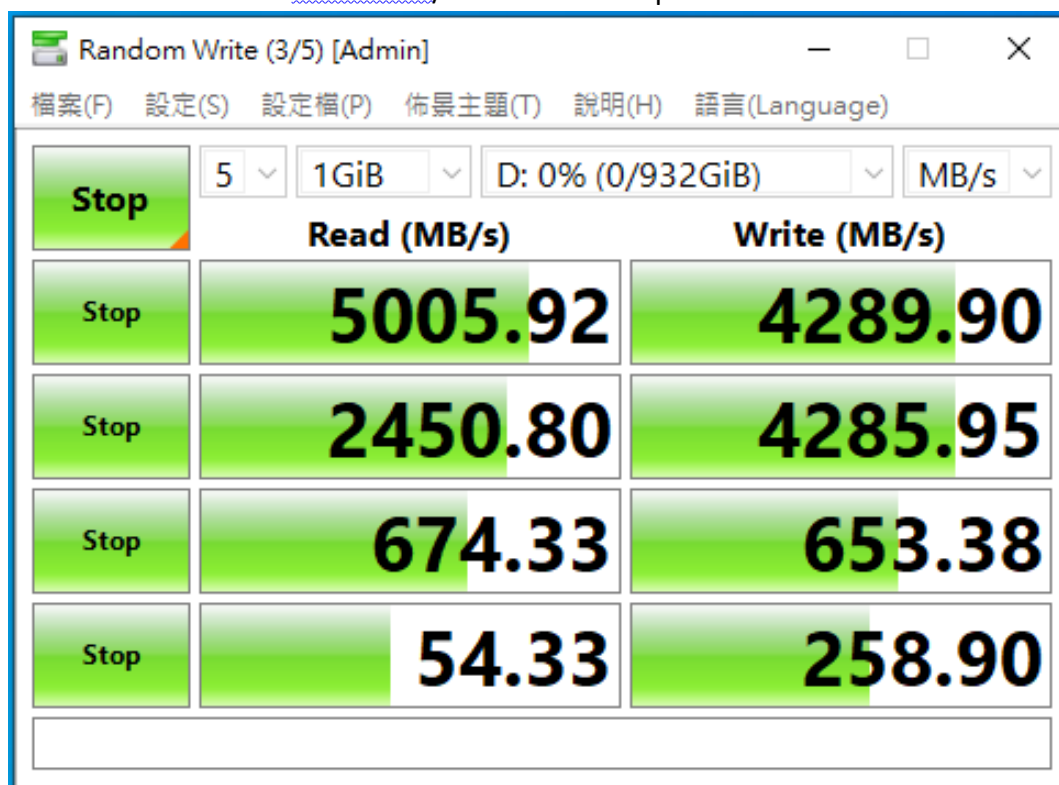
DP7401 Add-in Card
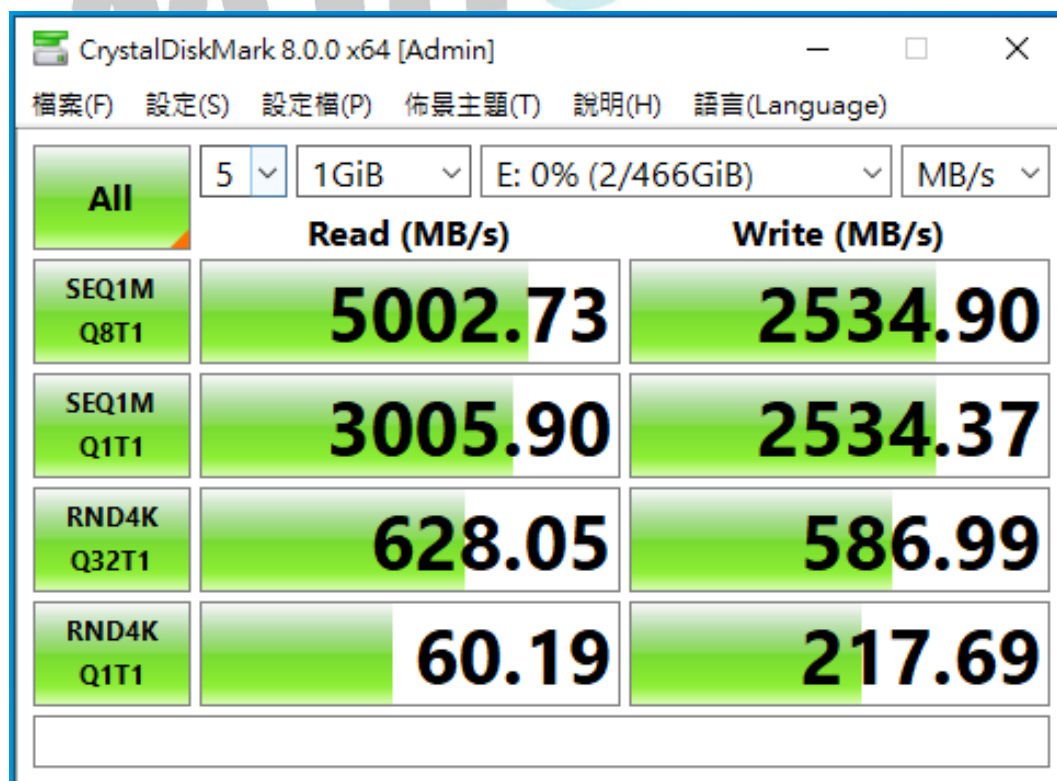
2.5 CrystalDiskMark 8.0.0 x64 performance test
    ※Benchmark (Sequential Read & Write / default = 1MB)
    2.5.1   **M.2 NVMe GIGABYTE / 1TB** in **Drive D:** performance as below:

Random Write (3/5) [Admin]		— □ ×
檔案(F) 設定(S) 設定檔(P) 佈景主題(T) 說明(H) 語言(Language)		
Stop	5 1GiB D: 0% (0/932GiB) MB/s	
	Read (MB/s)	**Write (MB/s)**
Stop	5005.92	4289.90
Stop	2450.80	4285.95
Stop	674.33	653.38
Stop	54.33	258.90

2.5.2   **M.2 NVMe GIGABYTE / 500B** in **Drive E:** performance as below:

| CrystalDiskMark 8.0.0 x64 [Admin]		— □ ×
檔案(F) 設定(S) 設定檔(P) 佈景主題(T) 說明(H) 語言(Language)		
All	5 1GiB E: 0% (2/466GiB) MB/s	
	Read (MB/s)	**Write (MB/s)**
SEQ1M Q8T1	5002.73	2534.90
SEQ1M Q1T1	3005.90	2534.37
RND4K Q32T1	628.05	586.99
RND4K Q1T1	60.19	217.69

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2.6 AS SSD Benchmark 2.0 performance test

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

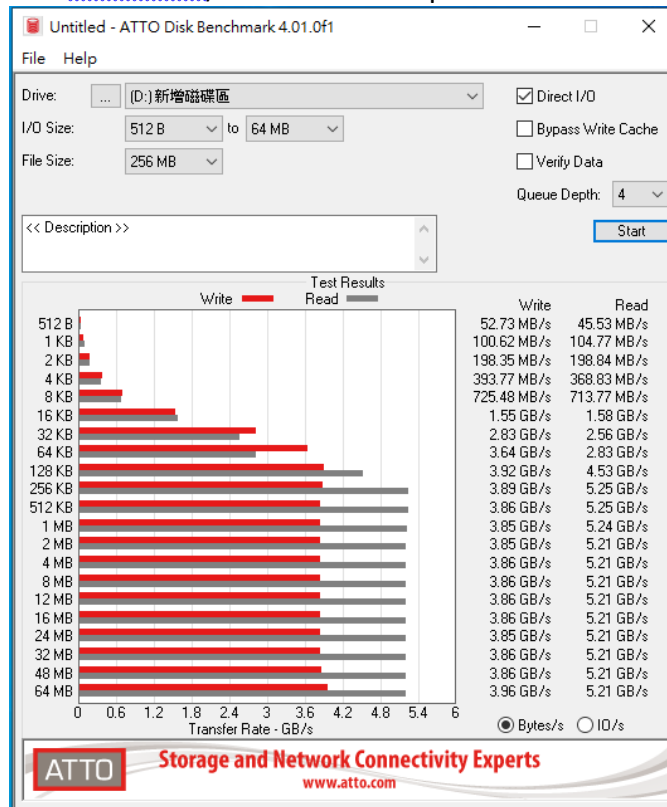2.6.1 **M.2 NVMe GIGABYTE / 1TB** in **Drive D:** performance as below:
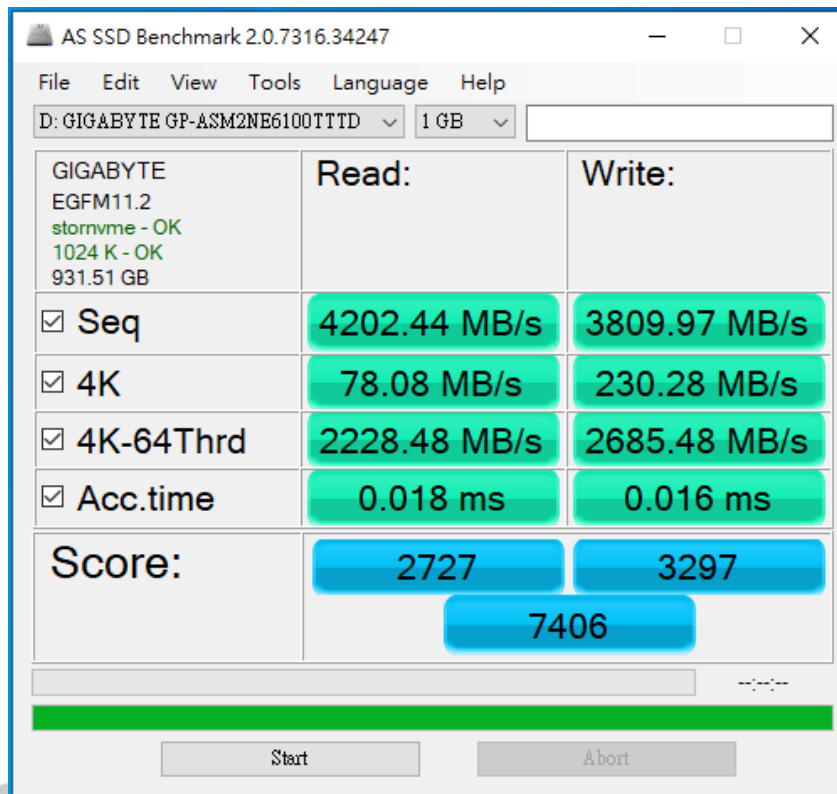
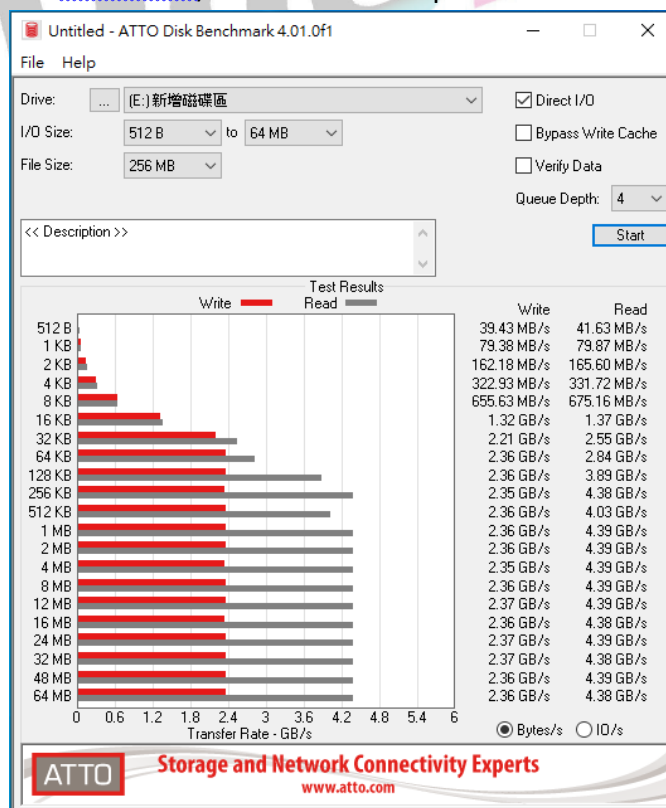2.6.2 **M.2 NVMe GIGABYTE / 500B** in **Drive E:** performance as below:
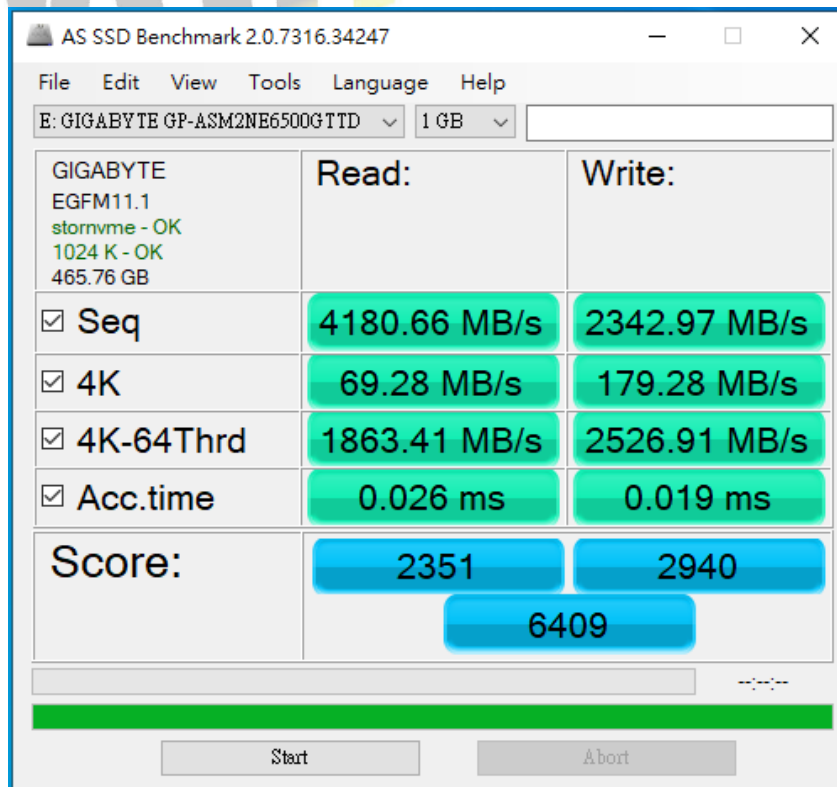
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2.7 ATTO Disk Benchamrk 4.01 performance test

    2.7.1 **M.2 NVMe GIGABYTE / 1TB** in **Drive D:** performance as below:

    2.7.2 **M.2 NVMe GIGABYTE / 500B** in **Drive E:** performance as below:

2.8 AnvilBenchmark_V110_B337

2.8.1 **M.2 NVMe GIGABYTE / 1TB** in **Drive D:** performance as below:

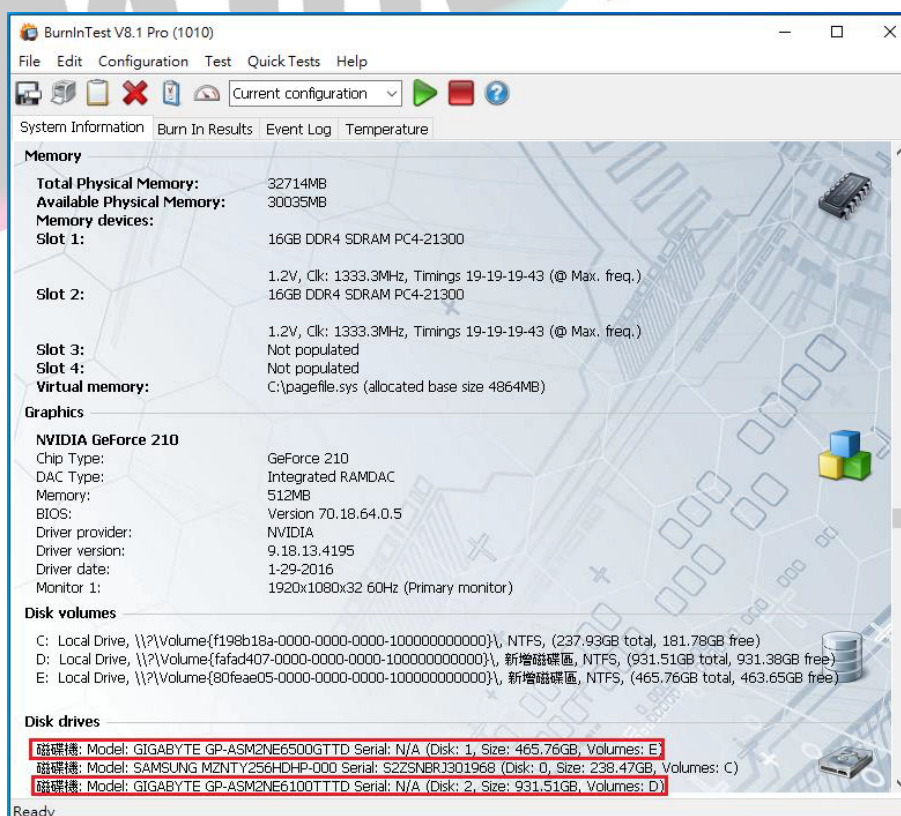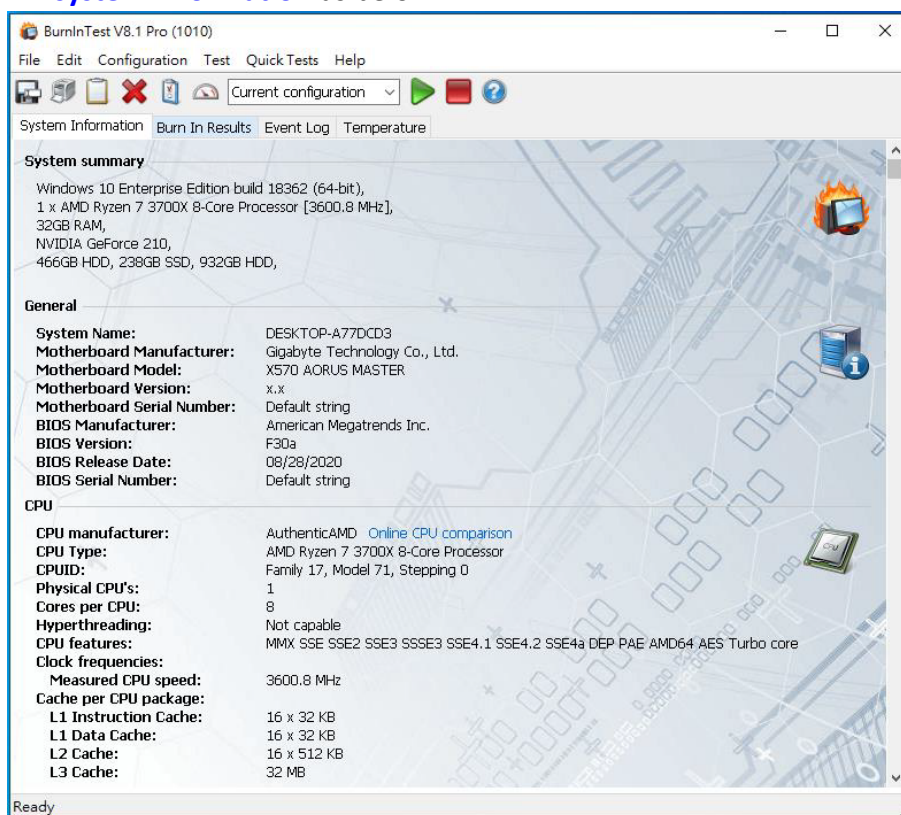2.8.2 **M.2 NVMe GIGABYTE / 500B** in **Drive E:** performance as below:

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3. Burn In Tests and Results
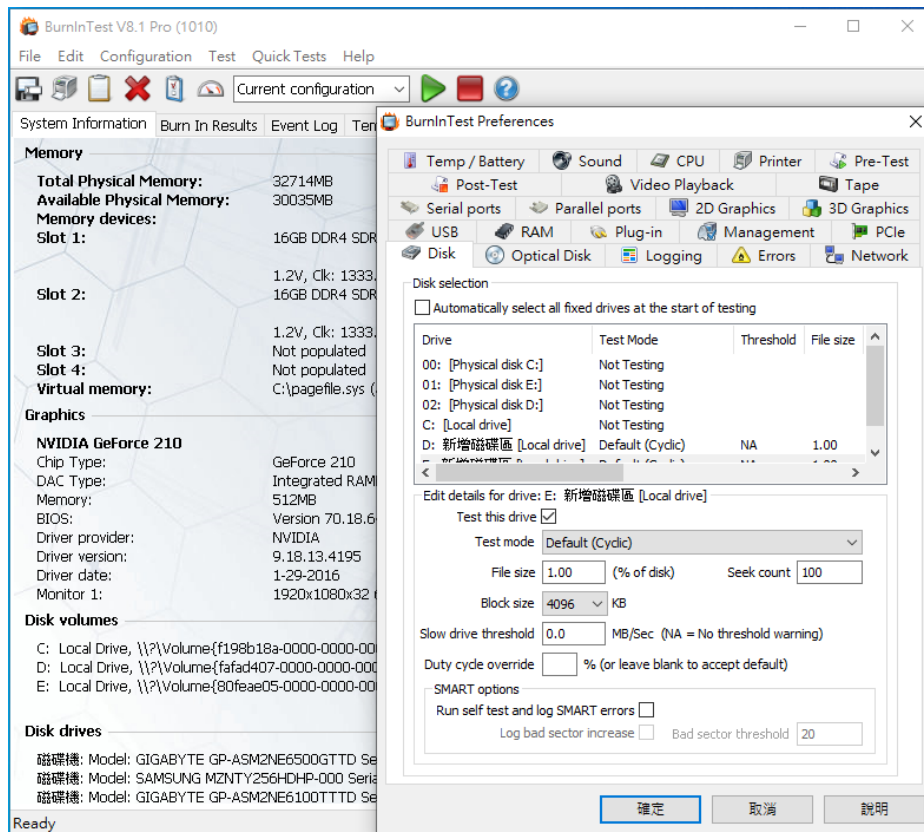
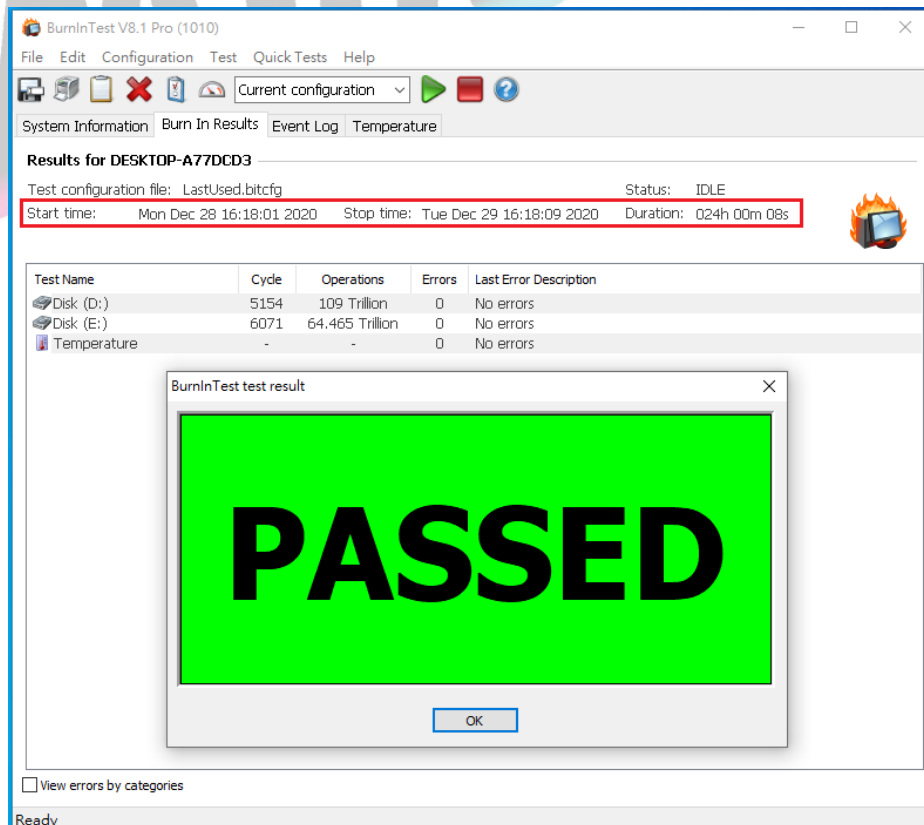### 3.1 BurnInTest v8.1 Pro

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.2 NVMe SSD is PCIe Gen 4 / 4 Lane Interface, I/O speed, max. to 64Gbps.

4.2   DP7401 AIC I/O performance is based on NVMe SSD.