MINERVA

DP8412 PCIe x8 Gen 4 with ReTimer to SlimSAS 8i A.I.C

Performance & Burn In Test   Rev 1.0

## Table of Contents

DP8412 Add-in Card

1. Overview

This riser card is built-in PCIe 4.0 ReTimer controller and with SlimSAS(SFF-8654) 8i connector. It is designed for use by PCIe x8 to configure two x4 bifurcations. The controller Channel insertion loss is **28 dB at 8 GHz.**

2. Tools and Results of Performance Measurement

2.1 Test Platform

M/B :   ASUS **PRIME X570-PRO**

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: DP8412 PCIe x8 Gen4 bulit-in ReTimer to SlimSAS(SFF-8654) 8i AIC

Cable: PCIe Gen 4 SlimSAS(SFF-8654) 8i to SlimSAS(SFF-8654) 8i, 100cm Cable

Adapter: GD9801G SlimSAS(SFF-8654) 8i to M.2 dual ports adapter

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

2.2 Test target: DP8412, GD9801G adapter with GIGABYTE M.2 **1TB** x2pcs
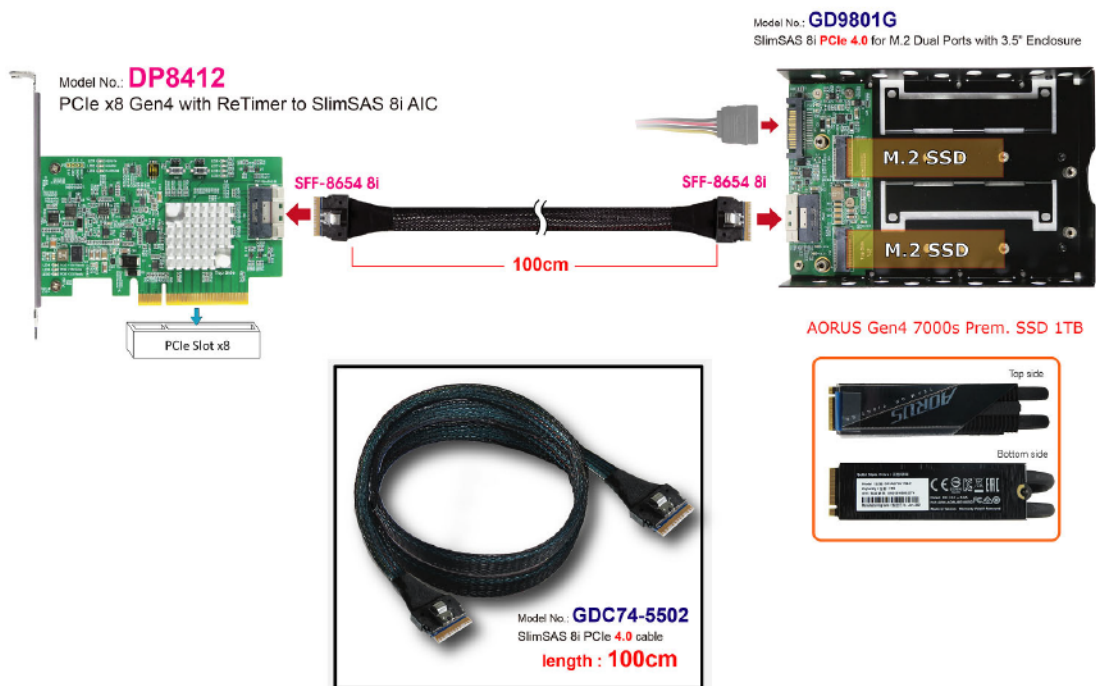
2.3   Install Hardware

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 DP8412 AIC card (PCIe x8 Gen 4 with ReTimer to SFF-8654 8i) using the **GDC74-5502, 100cm Cable**, and Plugs DP8412 AIC into ASUS **PRIME X570-PRO**.

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.
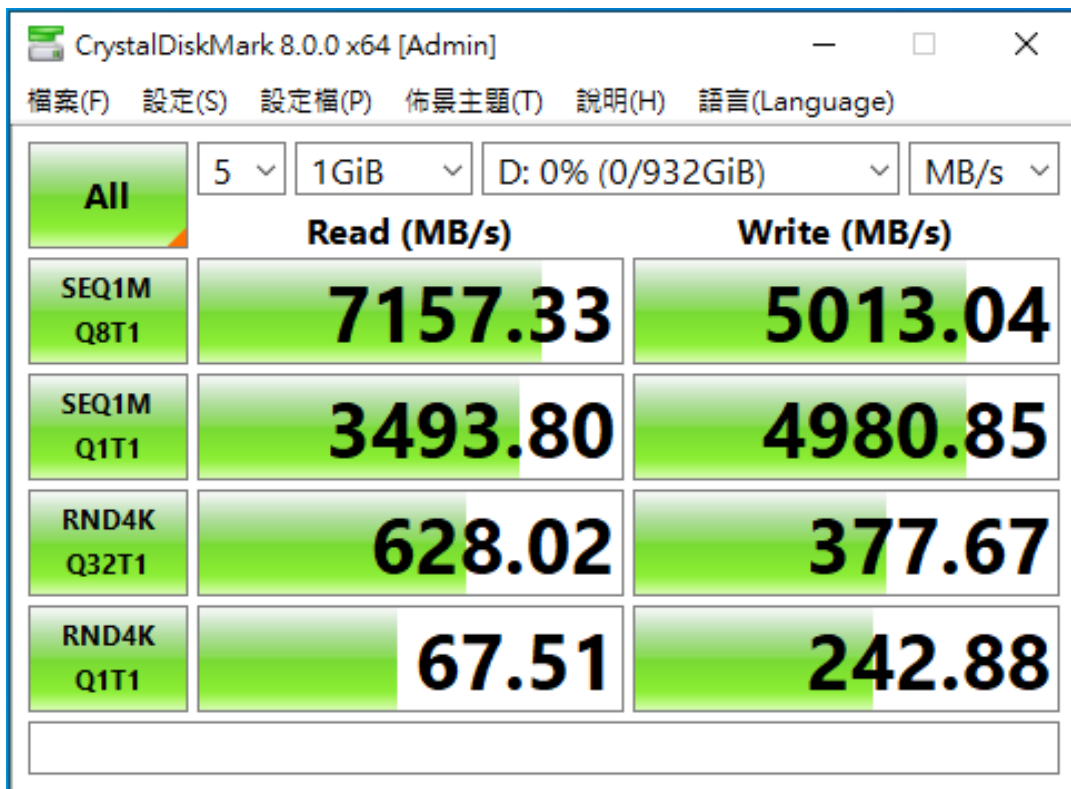
DP8412 Add-in Card

2.5   CrystalDiskMark 8.0.0 x64 performance test
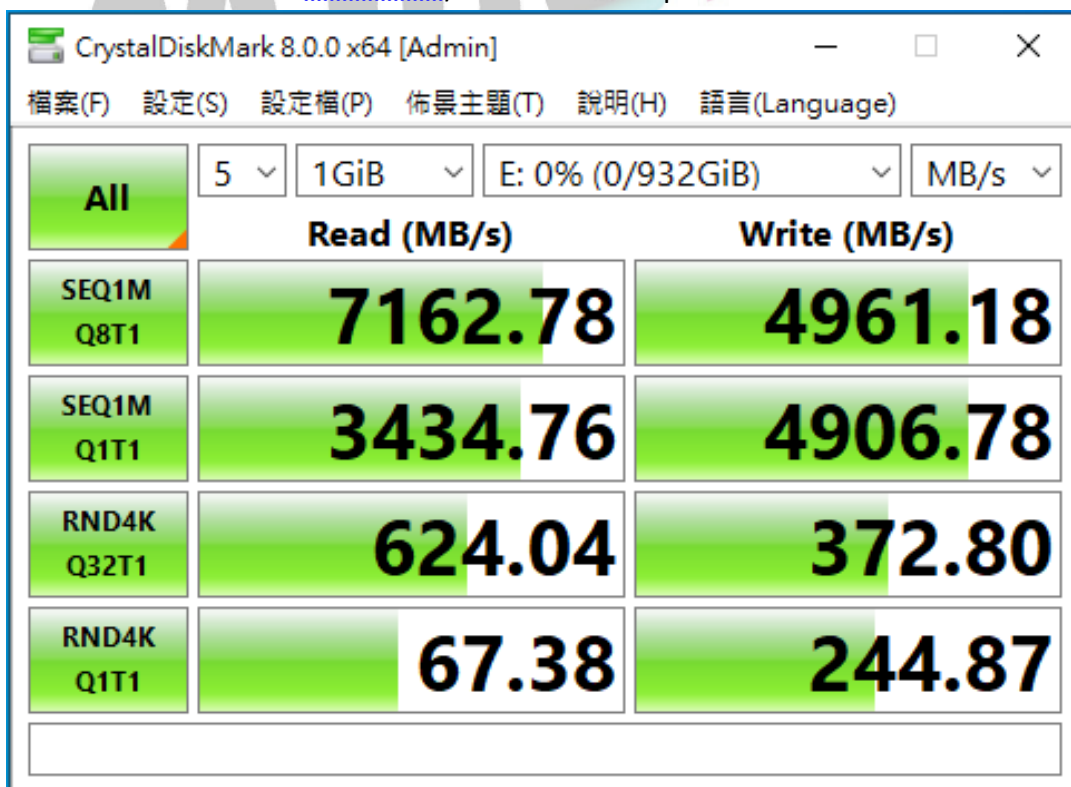
※Benchmark (Sequential Read & Write / default = 1MB)

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

CrystalDiskMark 8.0.0 x64 [Admin]	Read (MB/s)	Write (MB/s)
5 1GiB D: 0% (0/932GiB) MB/s		
SEQ1M Q8T1	7157.33	5013.04
SEQ1M Q1T1	3493.80	4980.85
RND4K Q32T1	628.02	377.67
RND4K Q1T1	67.51	242.88

2.5.2   **M.2 NVMe GIGABYTE / 1TB** in **Drive E:** performance as below:

| CrystalDiskMark 8.0.0 x64 [Admin]	Read (MB/s)	Write (MB/s)
5 1GiB E: 0% (0/932GiB) MB/s		
SEQ1M Q8T1	7162.78	4961.18
SEQ1M Q1T1	3434.76	4906.78
RND4K Q32T1	624.04	372.80
RND4K Q1T1	67.38	244.87

2.6 AS SSD Benchmark 2.0 performance test

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

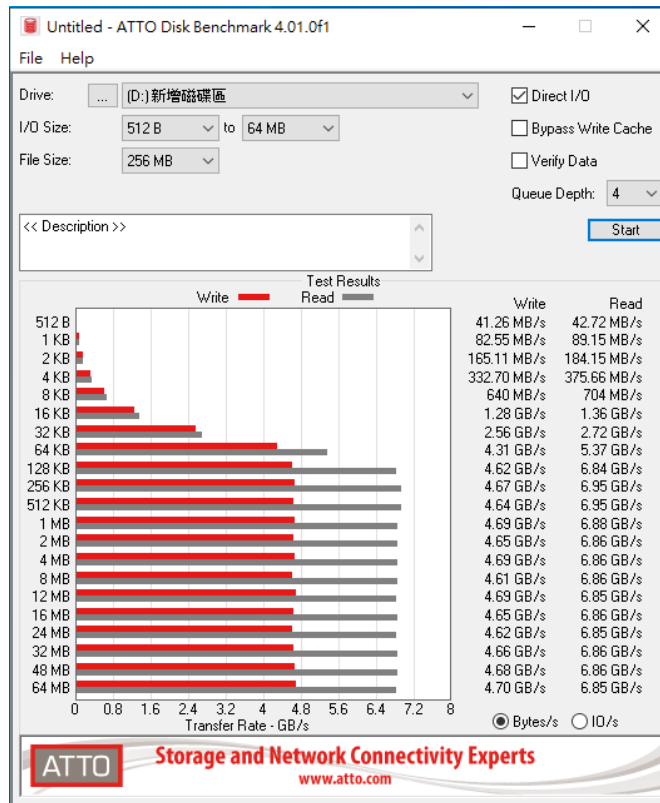2.6.1 **M.2 NVMe GIGABYTE / 1TB** in **Drive D:** performance as below:
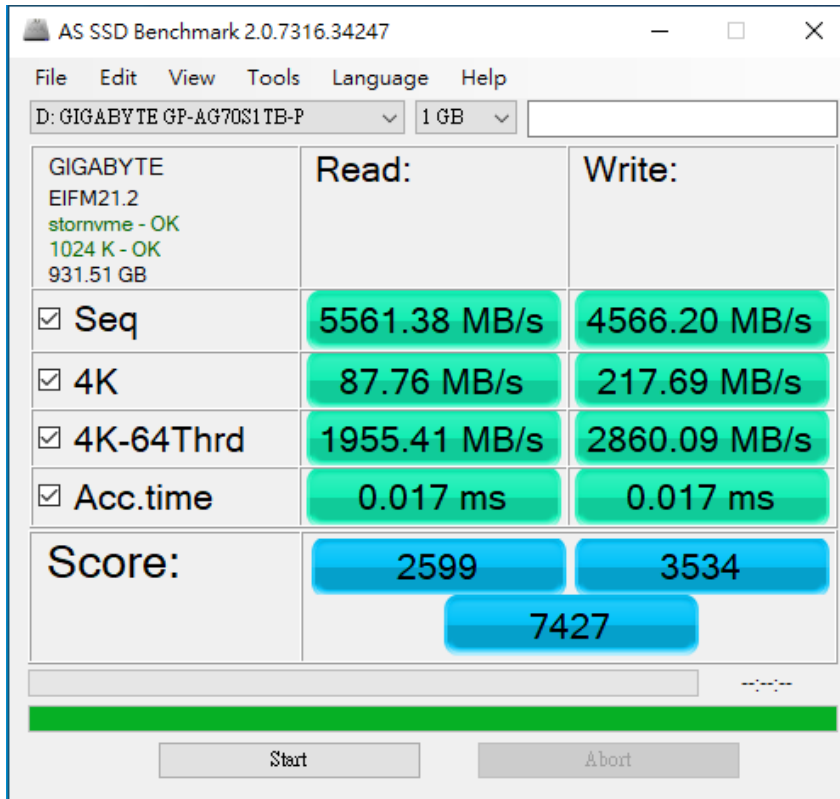
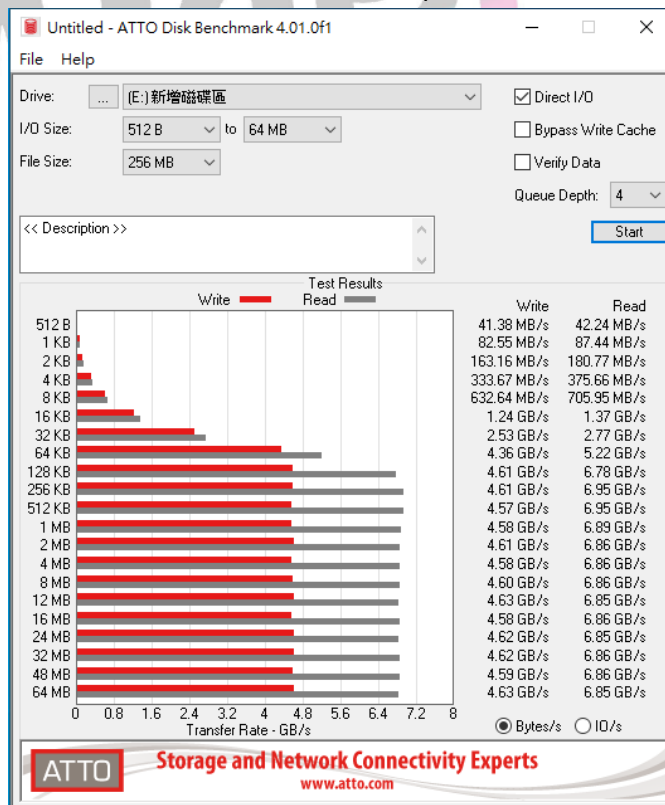2.6.2 **M.2 NVMe GIGABYTE / 1TB** in **Drive E:** performance as below:
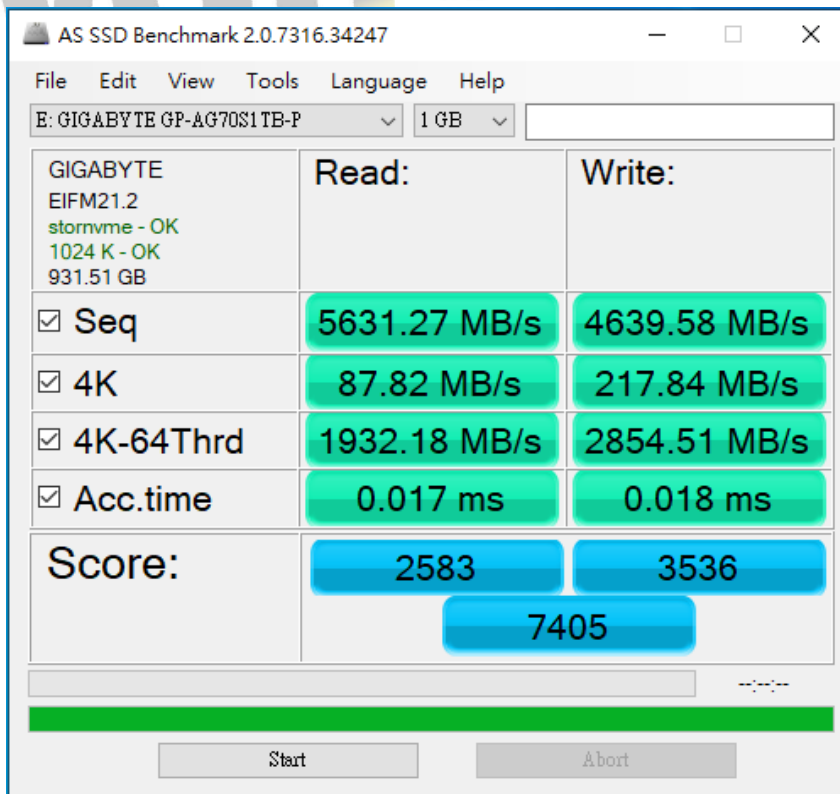
2.7 ATTO Disk Benchamrk 4.01 performance test

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

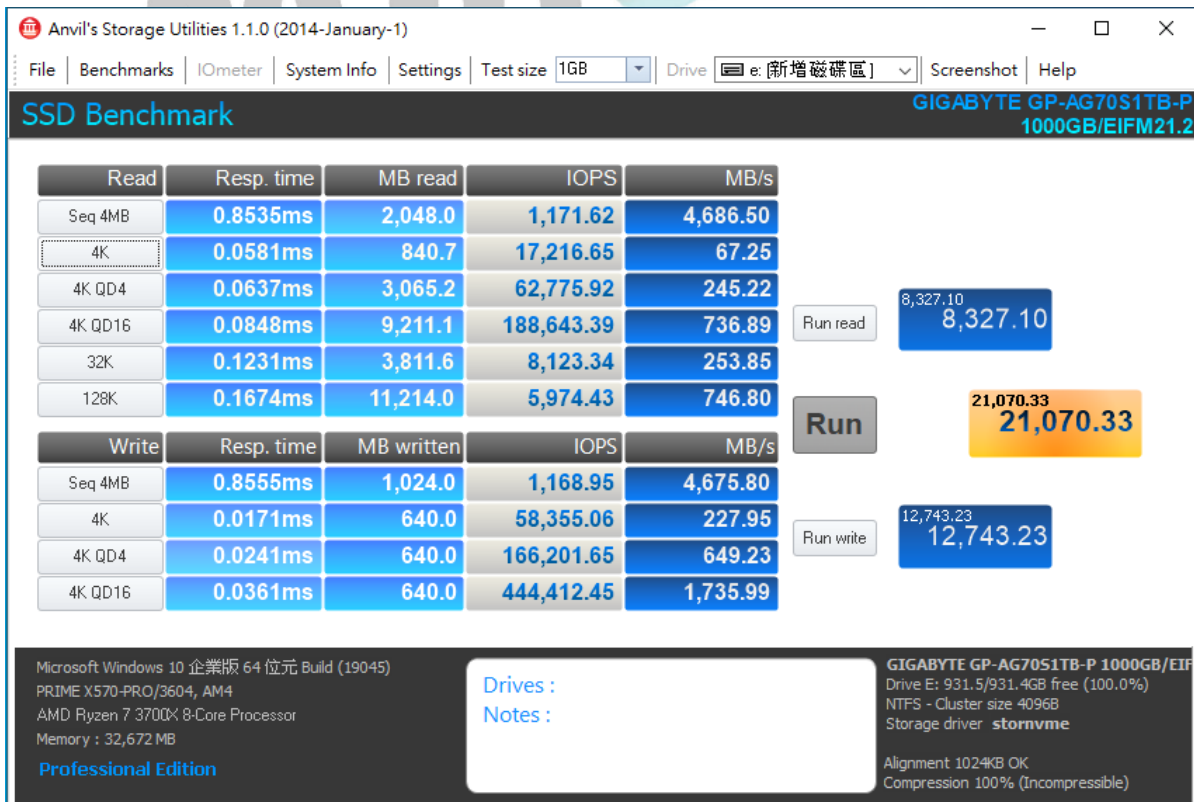2.7.2   **M.2 NVMe GIGABYTE / 1TB** in **Drive E:** performance as below:

2.8 AnvilBenchmark_V110_B337

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

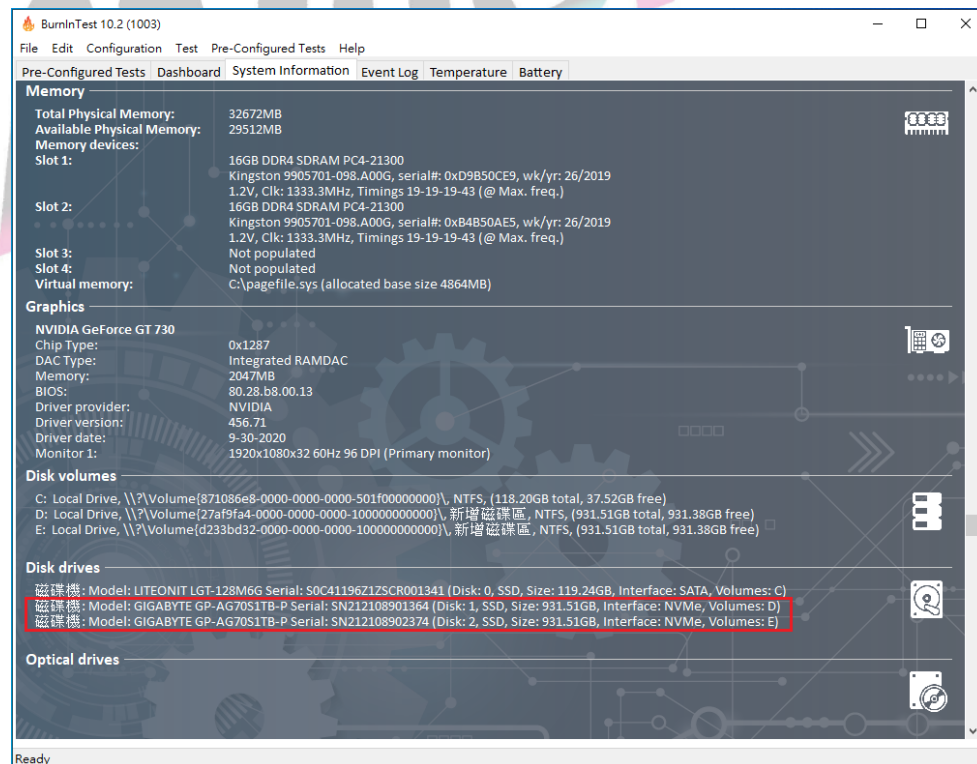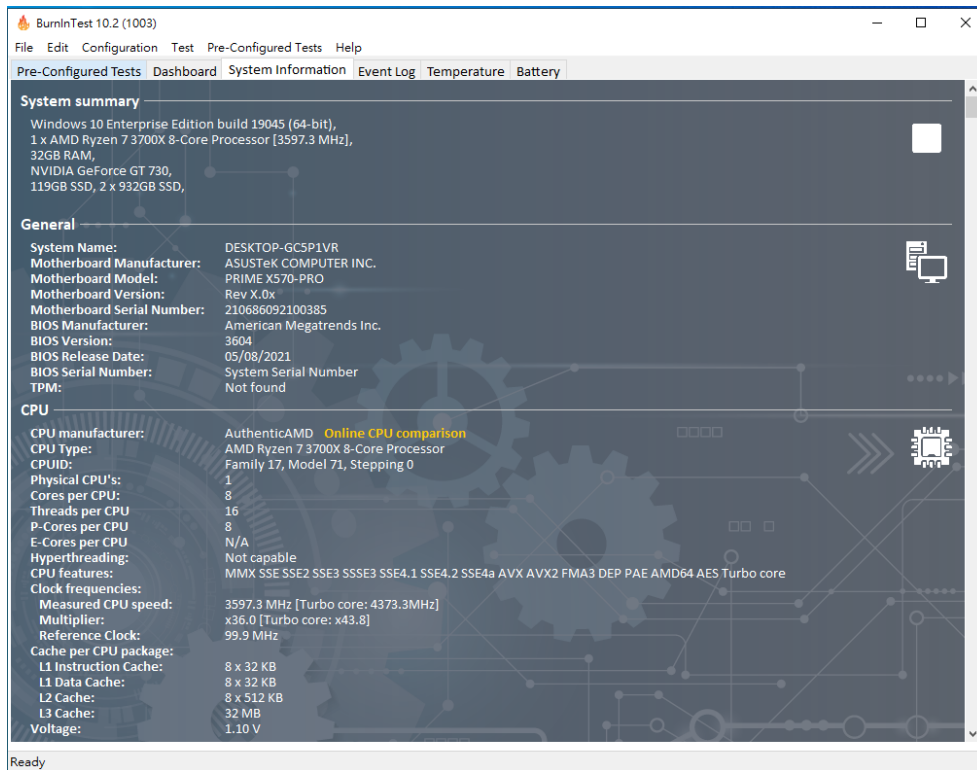### 2.8.2 **M.2 NVMe GIGABYTE / 1TB** in **Drive E:** performance as below:
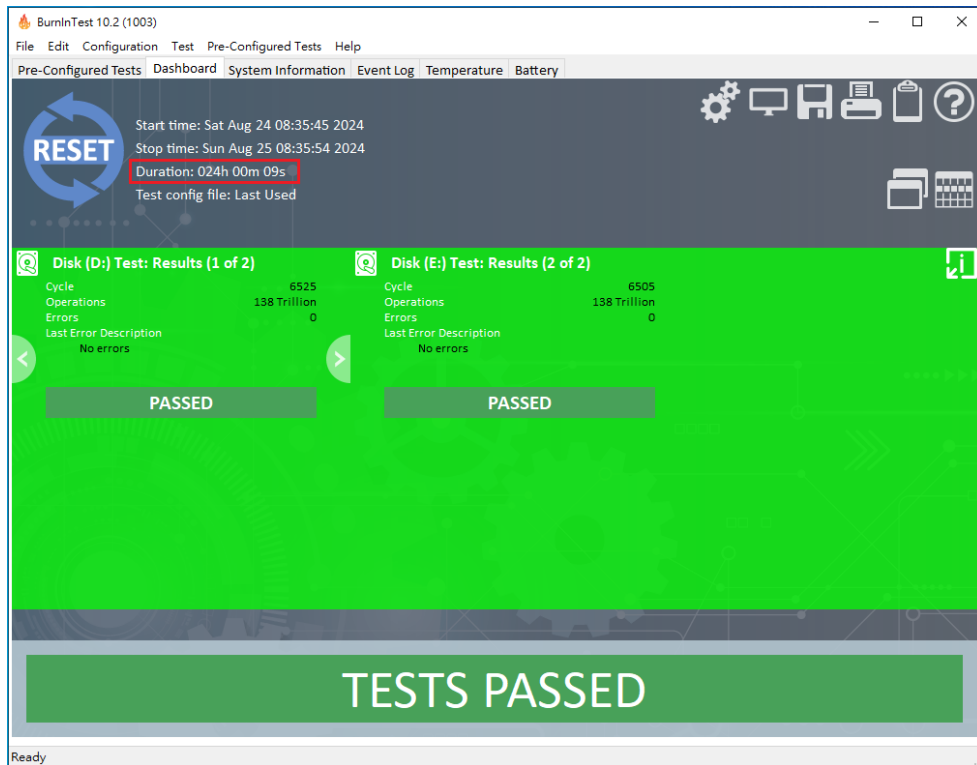
3. Burn In Tests and Results

3.1 BurnInTest v10.2 Pro

3.1.1 **system information** as below:

3.1.2 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 GD9801G adapter I/O performance is based on M.2 NVMe SSD.