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

Performance & Burn In Test   Rev 1.0

Table of Contents
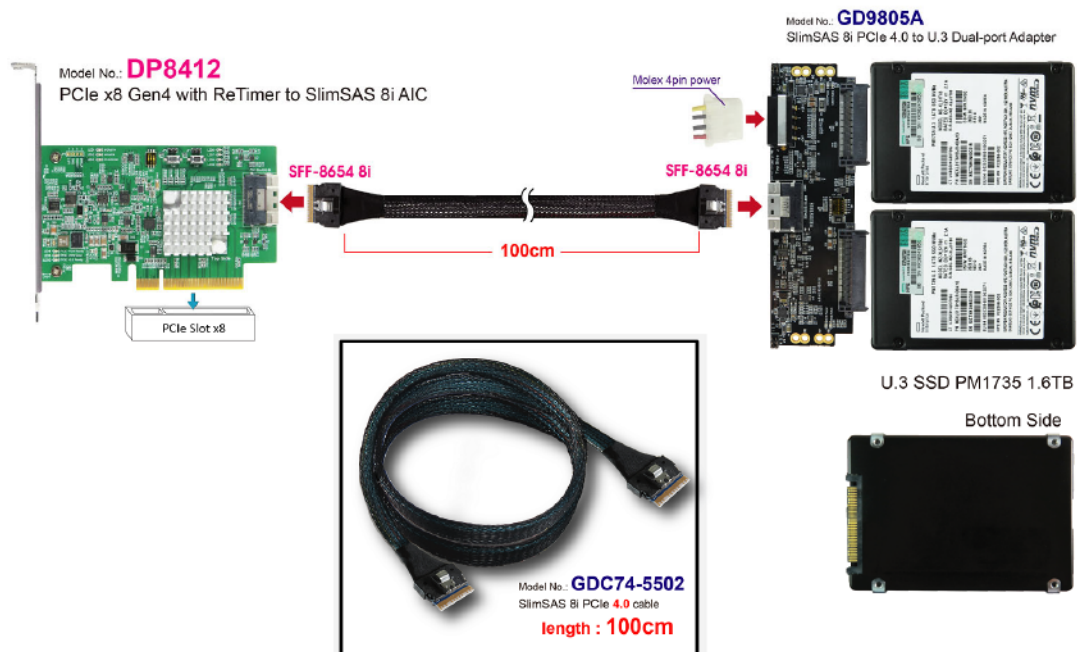
DP8412 Add-in Card

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: GD9805A SlimSAS(SFF-8654) 8i to U.3 dual ports adapter

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

2.2 Test target: DP8412, GD9805A adapter with SAMSUNG U.3 1.6TB x2pcs

DP8412 Add-in Card

2.3 Install Hardware

First inserts the U.3 SSD into the GD9805A U.3 connector, then to connect the GD9805A 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 U.3 NVMe SSDs, formatted to NTFS Mode. Don't install any program.

2.5   CrystalDiskMark 8.0.0 x64 performance test

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

2.5.1   **U.3 NVMe SAMSUNG** / **1.6TB** in **Drive D:** performance as below:

CrystalDiskMark 8.0.0 x64 [Admin]	Read (MB/s)	Write (MB/s)
檔案(F) 設定(S) 設定檔(P) 佈景主題(T) 說明(H) 語言(Language)		
All 5 ∨ 1GiB ∨ D: 0% (0/1490GiB) ∨ MB/s ∨		
SEQ1M Q8T1	7451.79	2592.91
SEQ1M Q1T1	2827.88	2604.41
RND4K Q32T1	544.26	464.65
RND4K Q1T1	53.23	194.11

2.5.2   **U.3 NVMe SAMSUNG** / **1.6TB** in **Drive E:** performance as below:

| CrystalDiskMark 8.0.0 x64 [Admin]	Read (MB/s)	Write (MB/s)
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% (0/1490GiB) ∨ MB/s ∨		
SEQ1M Q8T1	7442.64	2590.45
SEQ1M Q1T1	2854.74	2599.50
RND4K Q32T1	546.40	463.97
RND4K Q1T1	53.44	193.00

2.6 AS SSD Benchmark 2.0 performance test

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

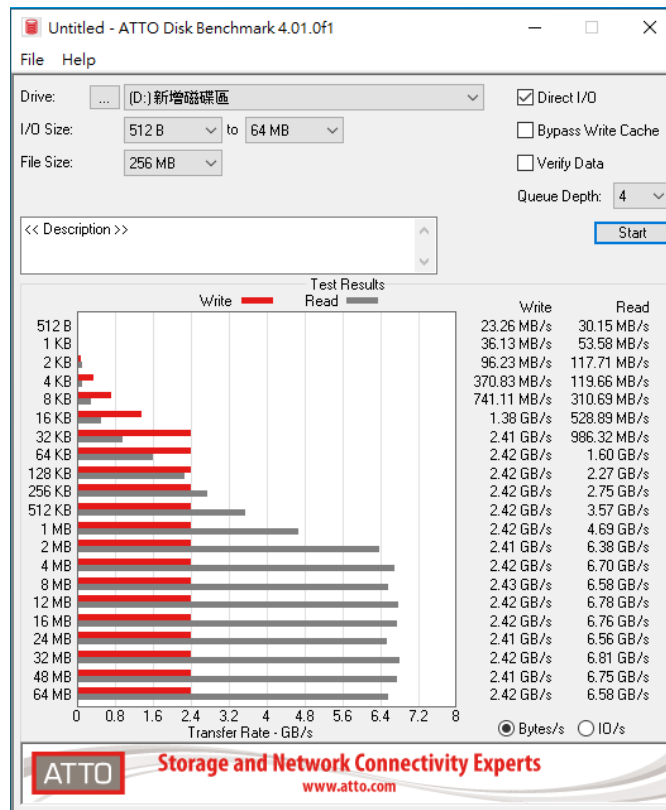2.6.1 **U.3 NVMe SAMSUNG / 1.6TB** in **Drive D:** performance as below:
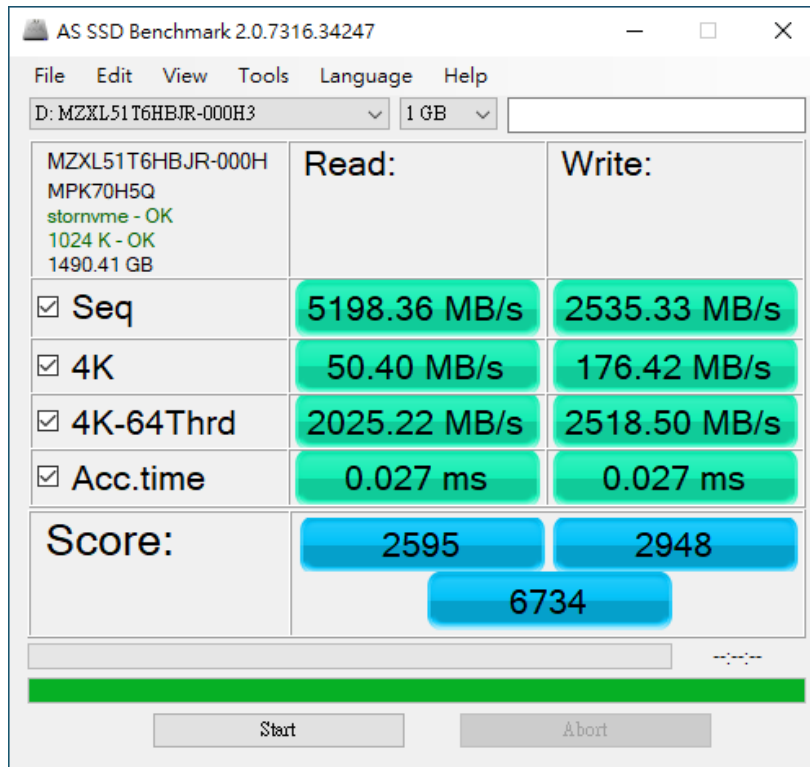
2.6.2 **U.3 NVMe SAMSUNG / 1.6TB** in **Drive E:** performance as below:
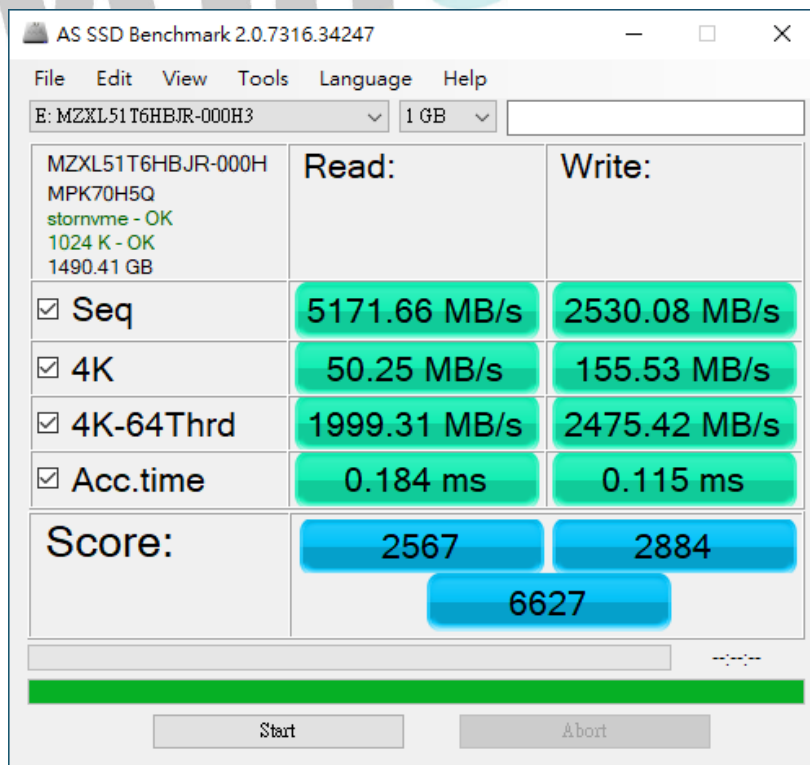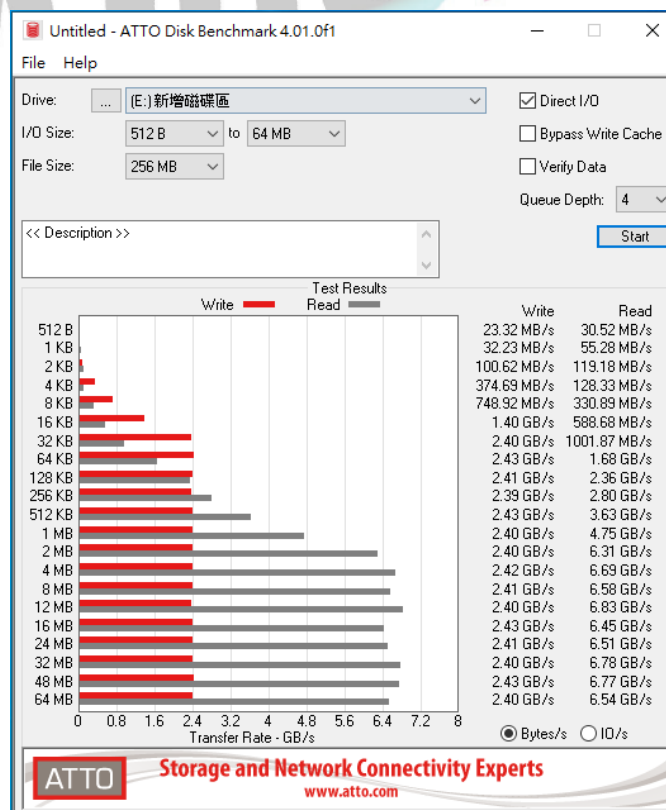
DP8412 Add-in Card

2.7 ATTO Disk Benchamrk 4.01 performance test

2.7.1 **U.3 NVMe SAMSUNG / 1.6TB** in **Drive D:** performance as below:

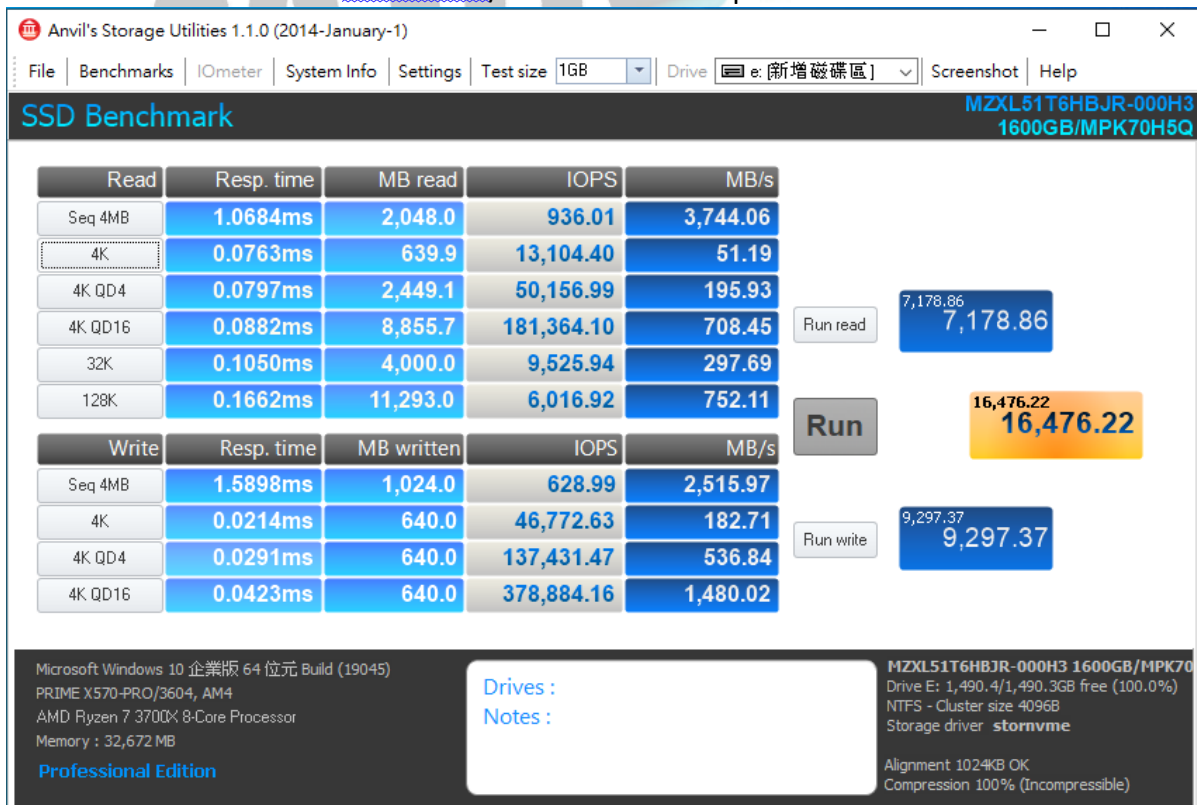2.7.2 **U.3 NVMe SAMSUNG / 1.6TB in Drive E:** performance as below:

2.8 AnvilBenchmark_V110_B337

2.8.1 **U.3 NVMe SAMSUNG** / **1.6TB** in **Drive D:** performance as below:

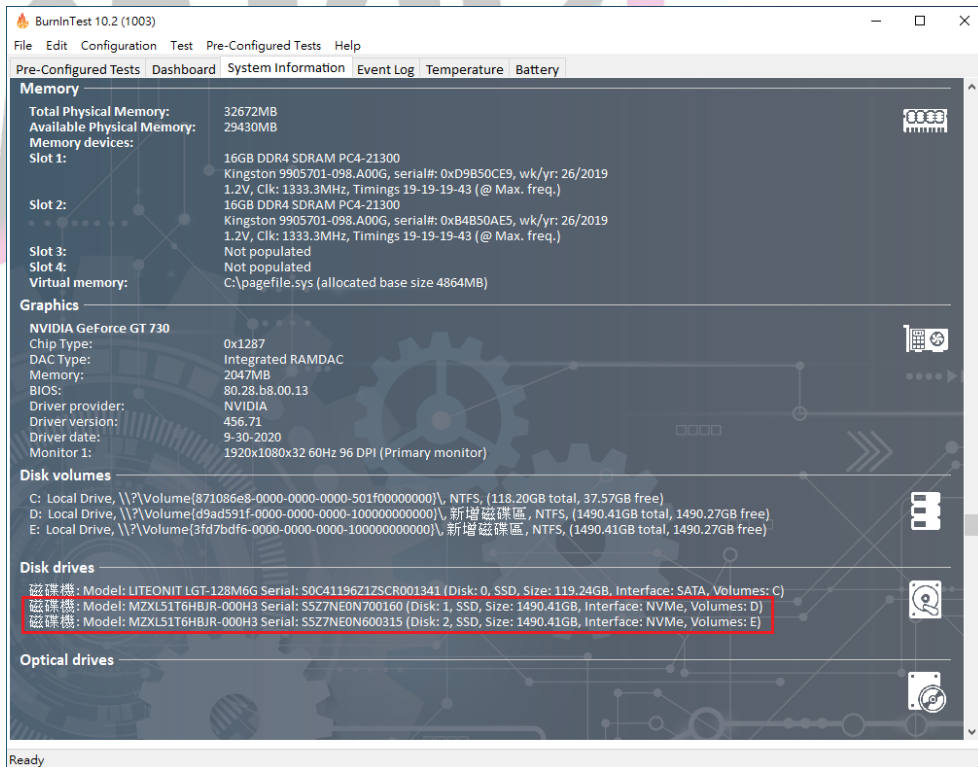### 2.8.2 **U.3 NVMe SAMSUNG** / **1.6TB** in **Drive E:** performance as below:

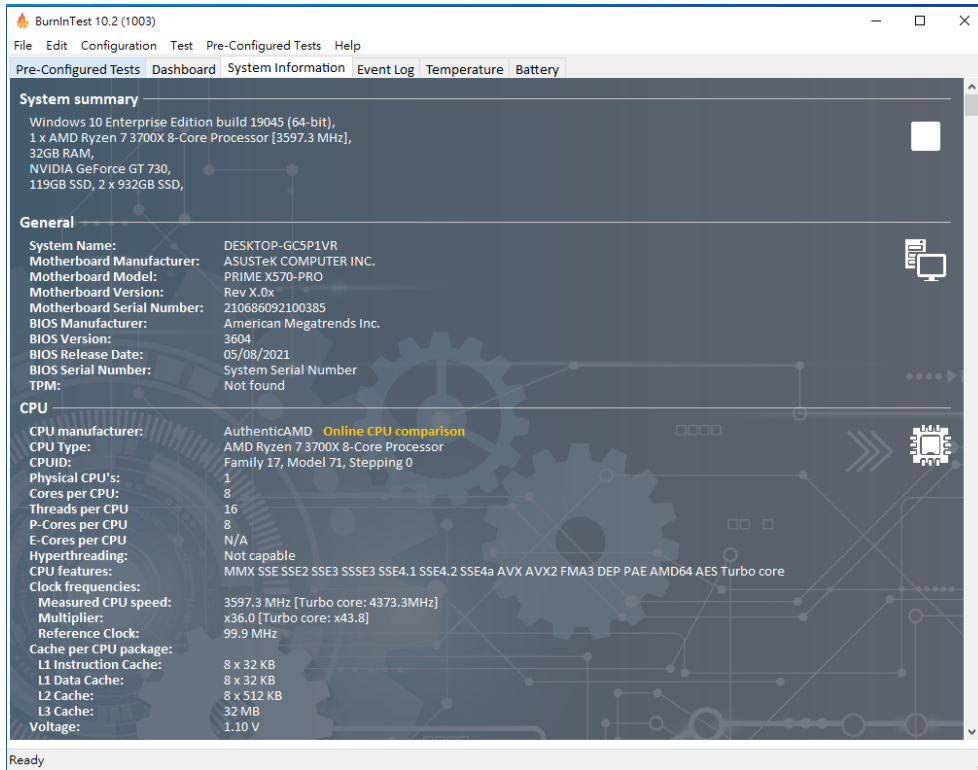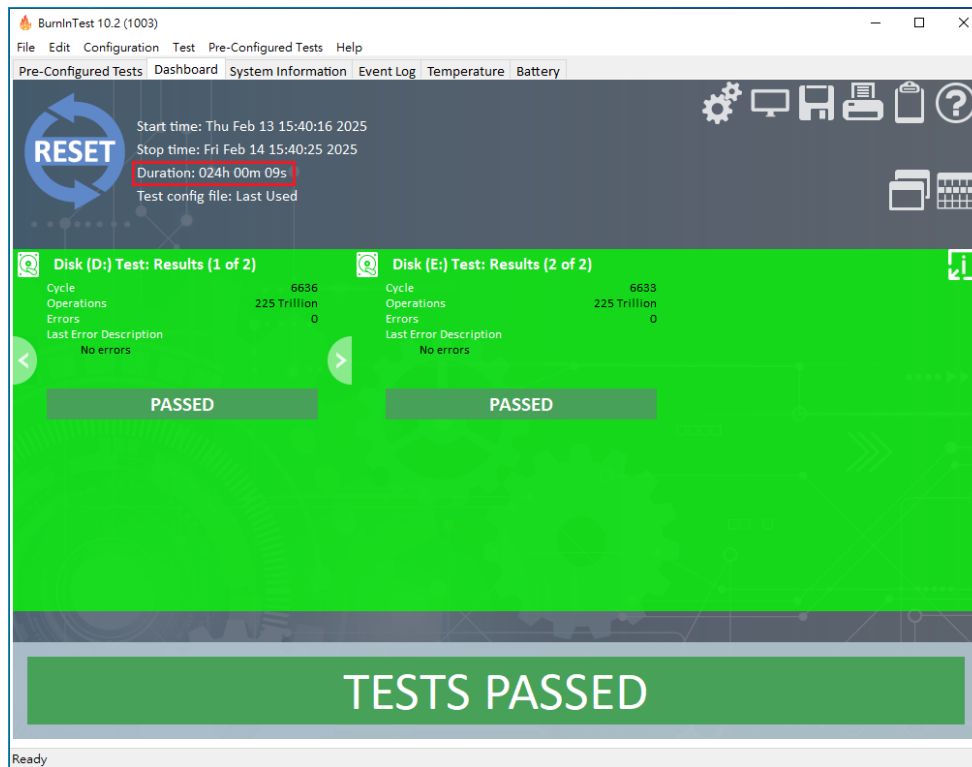# DP8412 Add-in Card

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　U.3 NVMe SSD is PCIe Gen 4 / 4 Lane Interface, I/O speed, max. to 64Gbps.

4.2　GD9805A adapter I/O performance is based on U.3 NVMe SSD.