



MINERVA

PCIe x16 Gen4 with ReDriver to MCIO 74P dual port AIC

Performance & Burn In Test Rev 1.0

PS: The test is used [MCIO 74P to SFF-8654 8i](#), [100cm cable](#)

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4. Summary

PCIe x16 Gen4 with ReDriver to SFF-TA-1016 74P dual port

1. Overview

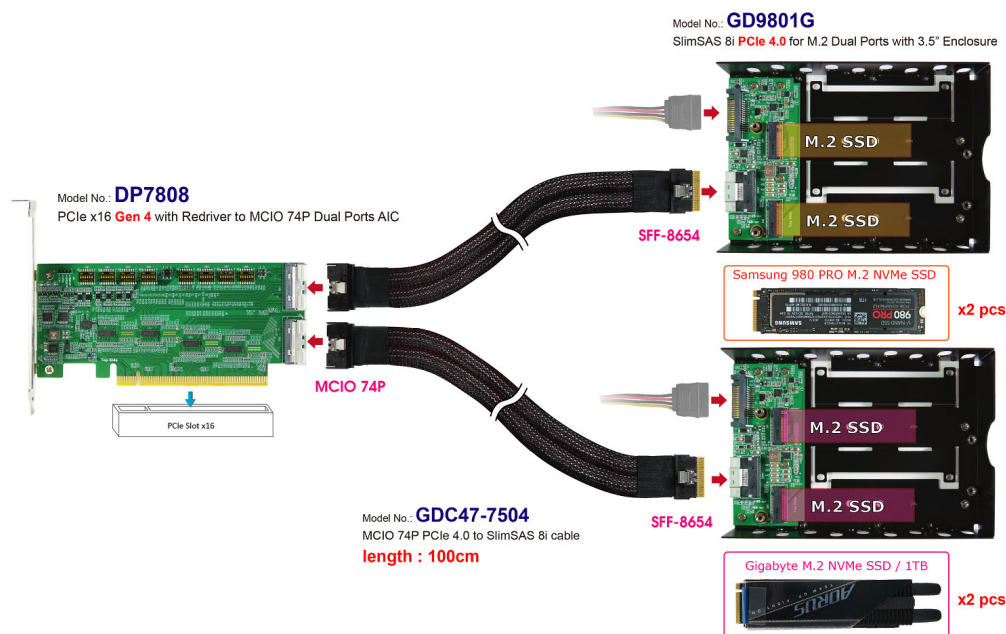
This riser card is built-in ReDriver controller and with MCIO 74P dual port connector. It is designed to extend PCIe x16 channel signals and may provide PCIe bifurcation. The ReDriver may support CTLE boosts up to **13 dB at 8 GHz**.

2. Tools and Results of Performance Measurement

2.1 Test Platform

M/B : **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: **DP7808 PCIe x16 Gen4 with ReDriver to MCIO 74P dual port AIC**
Cable: **PCIe 4.0 MCIO 74P to SlimSAS(SFF-8654) 8i, 100cm** Cable x2pcs
Adapter: **GD9801G SlimSAS(SFF-8654) 8i PCIe 4.0 to M.2 adapter dual port**
OS : **Microsoft Windows 10 64bit OS**

2.2 Test target: DP7808, GD9801G adapter with **GIGABYTE M.2 1TB** SSD X2pcs, **Samsung** M.2 **1TB** SSD X2pcs



PCIe x16 Gen4 with ReDriver to SFF-TA-1016 74P dual port

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). Using the **GDC47-7404 Cable** to connect the GD9801G adapter to the DP7808 AIC and plug 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 Four M.2 NVMe SSDs, formatted to NTFS Mode. Don't install any program.

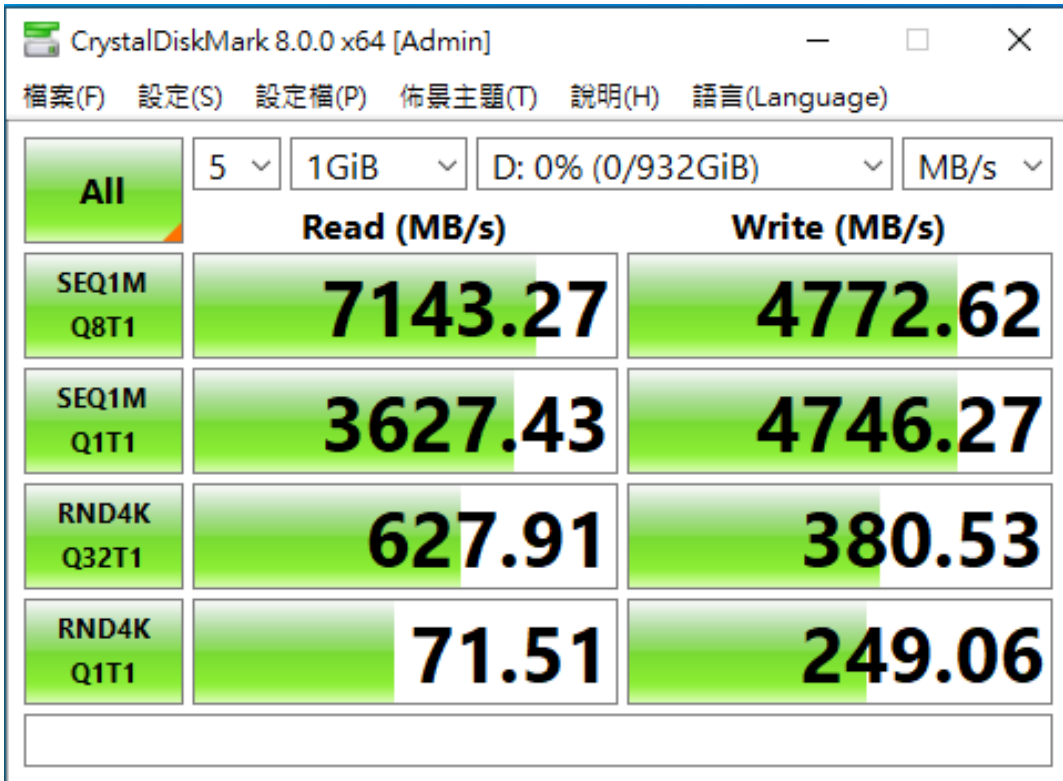


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2.5 CrystalDiskMark 8.0.0 x64 performance test

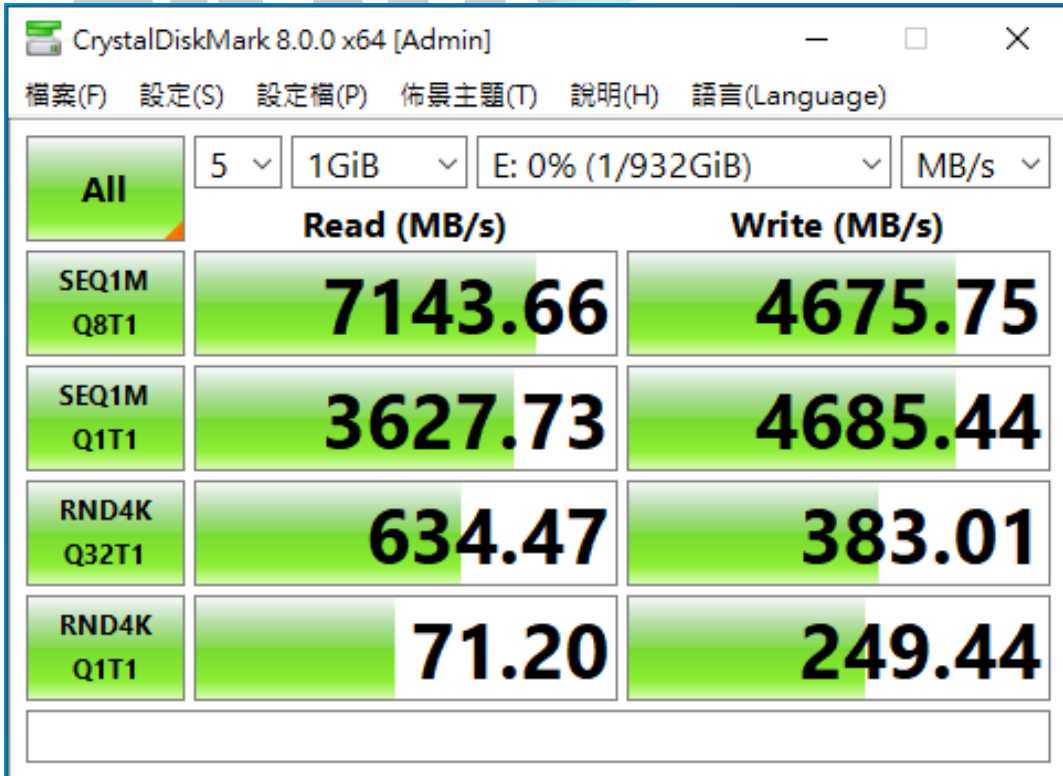
※Benchmark (Sequential **Read & Write** / default = **1MB**)

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



	Read (MB/s)	Write (MB/s)
SEQ1M Q8T1	7143.27	4772.62
SEQ1M Q1T1	3627.43	4746.27
RND4K Q32T1	627.91	380.53
RND4K Q1T1	71.51	249.06

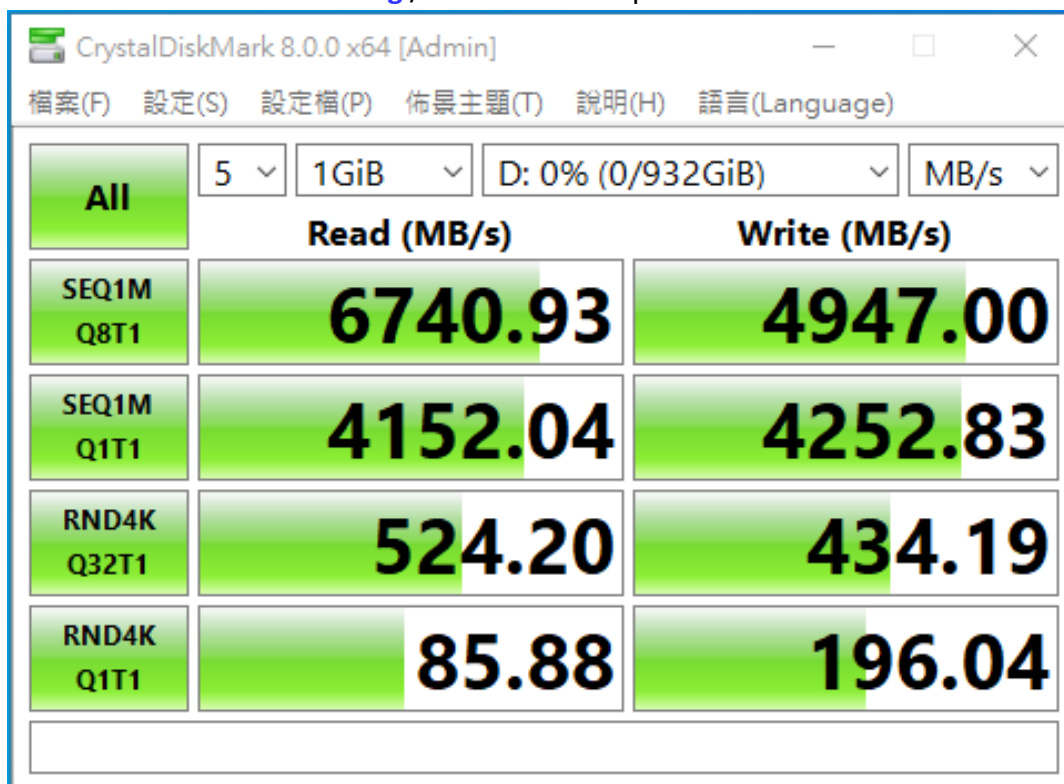
2.5.2 **M.2 NVMe Gigabyte / 1TB** in **Drive E:** performance as below:



	Read (MB/s)	Write (MB/s)
SEQ1M Q8T1	7143.66	4675.75
SEQ1M Q1T1	3627.73	4685.44
RND4K Q32T1	634.47	383.01
RND4K Q1T1	71.20	249.44

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2.5.3 **M.2 NVMe Samsung / 1TB** in Drive D: performance as below:



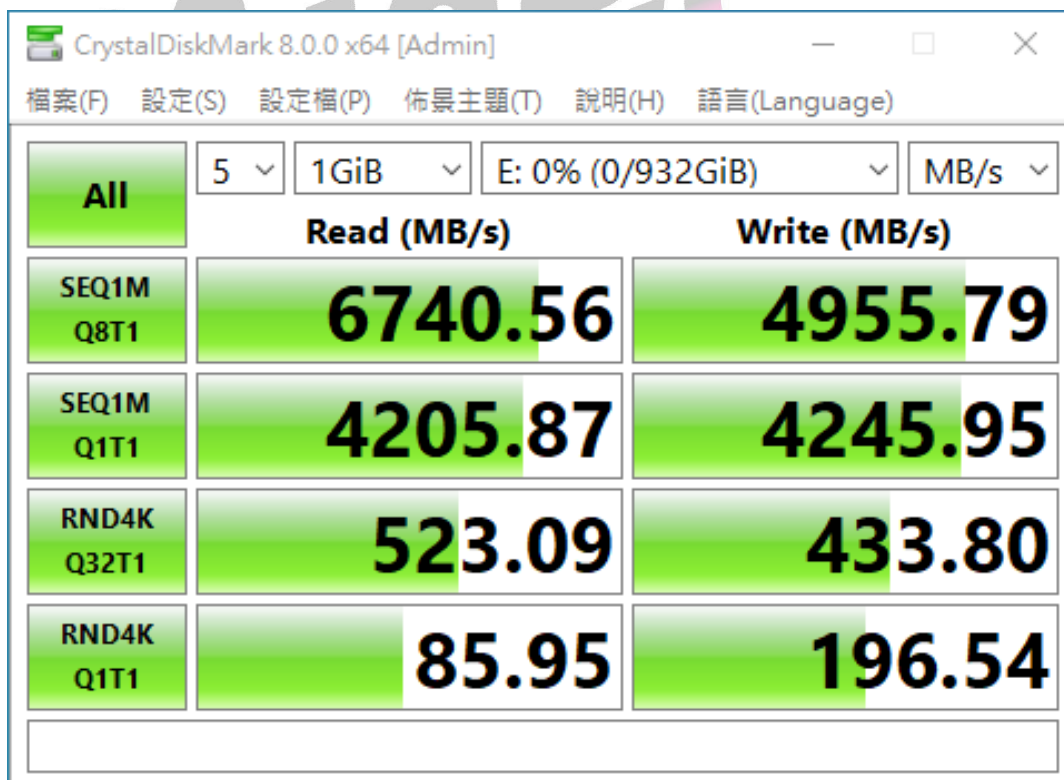
CrystalDiskMark 8.0.0 x64 [Admin]

檔案(F) 設定(S) 設定檔(P) 佈景主題(T) 說明(H) 語言(Language)

All 5 1GiB D: 0% (0/932GiB) MB/s

	Read (MB/s)	Write (MB/s)
SEQ1M Q8T1	6740.93	4947.00
SEQ1M Q1T1	4152.04	4252.83
RND4K Q32T1	524.20	434.19
RND4K Q1T1	85.88	196.04

2.5.4 **M.2 NVMe Samsung / 1TB** 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% (0/932GiB) MB/s

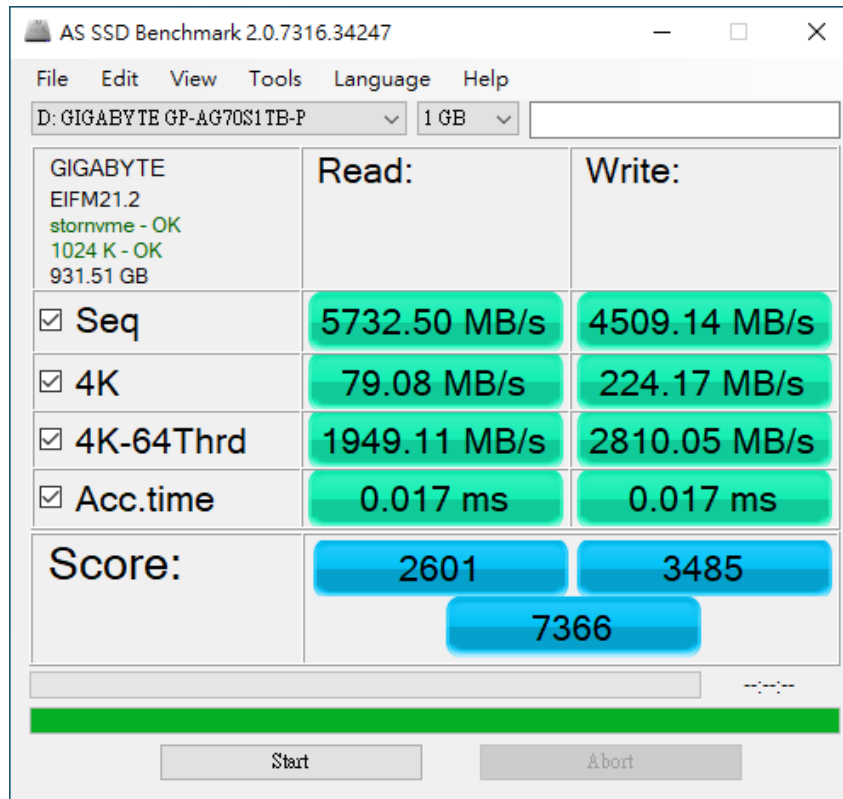
	Read (MB/s)	Write (MB/s)
SEQ1M Q8T1	6740.56	4955.79
SEQ1M Q1T1	4205.87	4245.95
RND4K Q32T1	523.09	433.80
RND4K Q1T1	85.95	196.54

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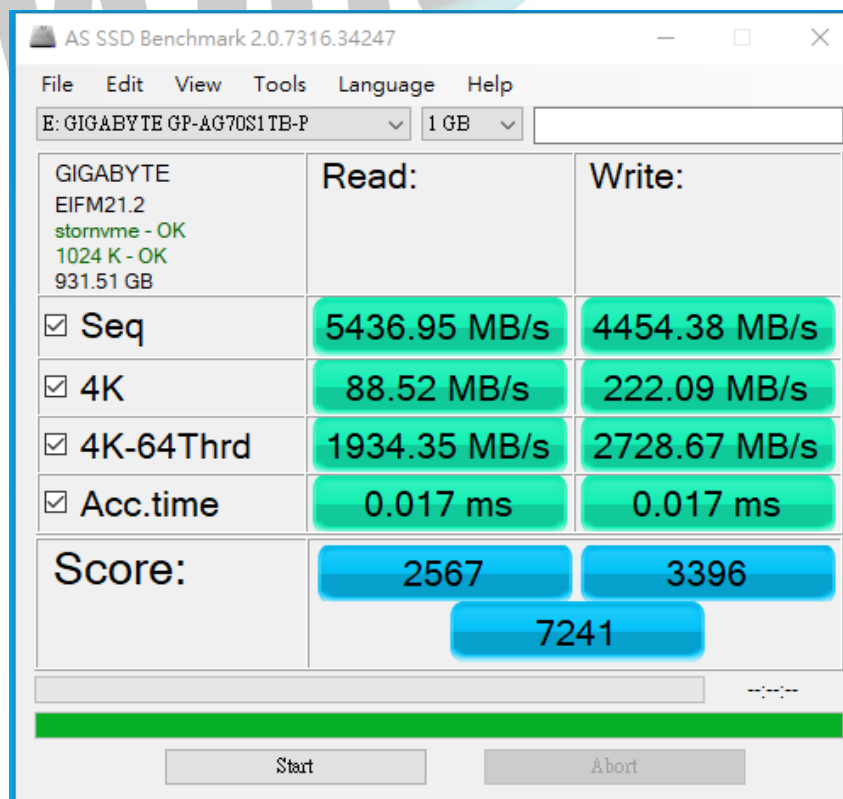
2.6 AS SSD Benchmark 2.0 performance test

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

2.6.1 **M.2 NVMe Gigabyte / 1TB** in **Drive D:** performance as below:

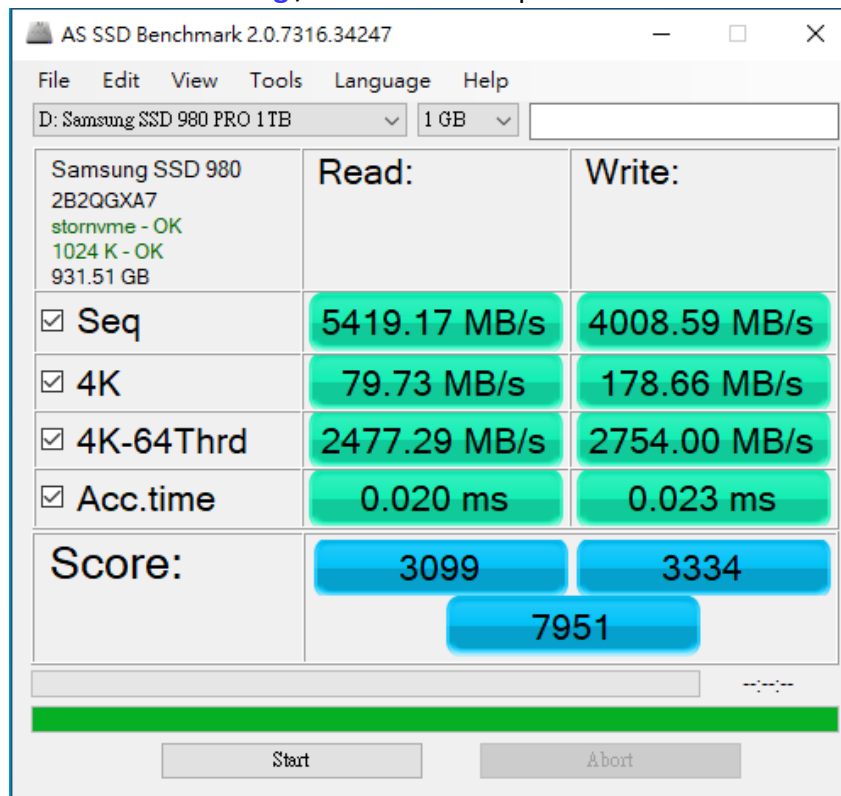


2.6.2 **M.2 NVMe Gigabyte / 1TB** in **Drive E:** performance as below:

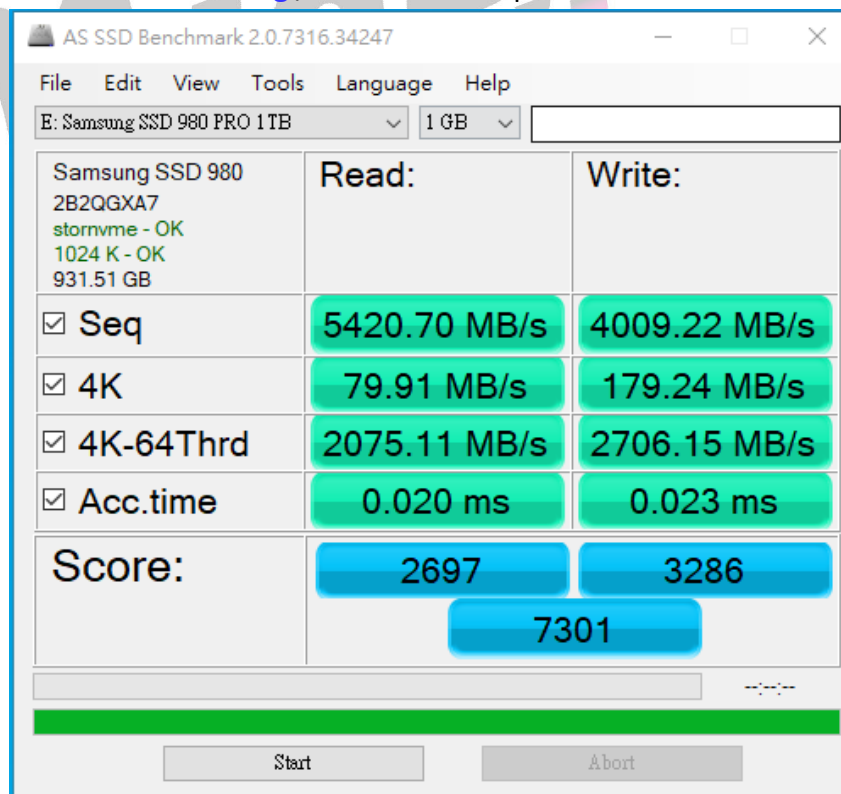


PCIe x16 Gen4 with ReDriver to SFF-TA-1016 74P dual port

2.6.3 **M.2 NVMe Samsung / 1TB** in Drive D: performance as below:



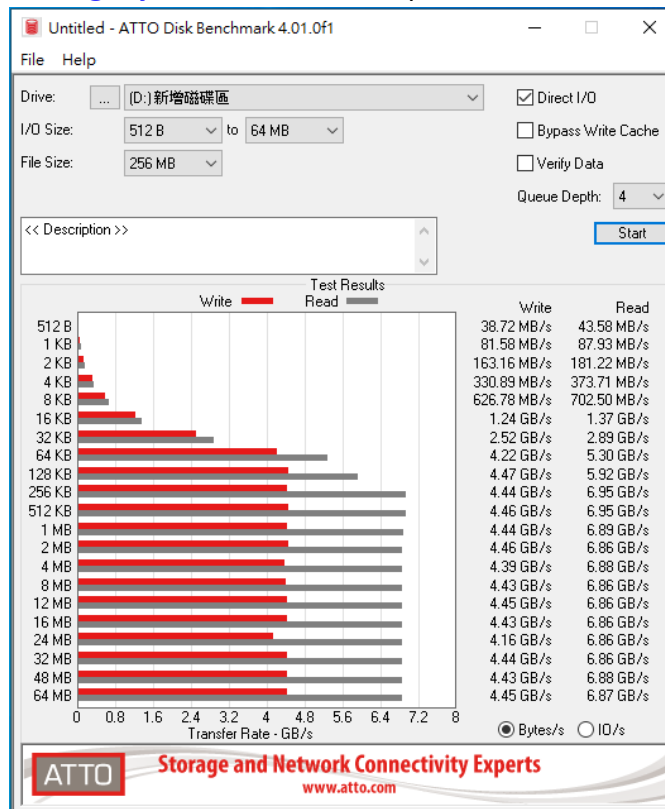
2.6.4 **M.2 NVMe Samsung / 1TB** in Drive E: performance as below:



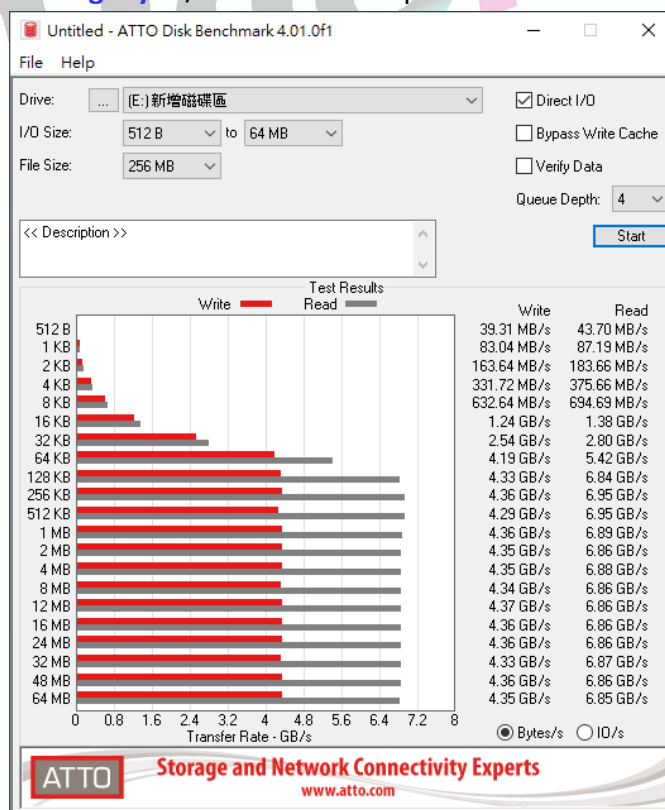
PCIe x16 Gen4 with ReDriver to SFF-TA-1016 74P dual port

2.7 ATTO Disk Benchmark 4.01 performance test

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

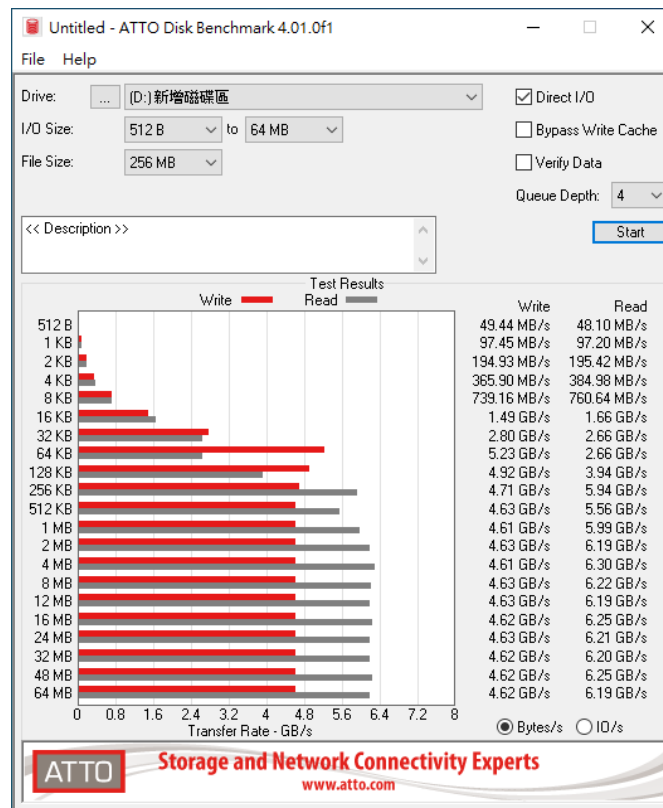


2.7.2 M.2 NVMe Gigabyte / 1TB in Drive E: performance as below:

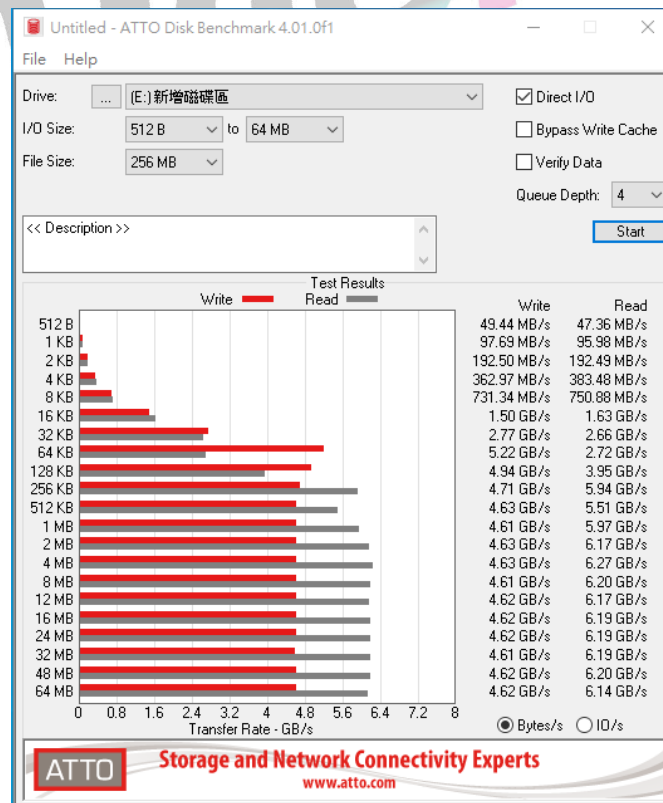


PCIe x16 Gen4 with ReDriver to SFF-TA-1016 74P dual port

2.7.3 **M.2 NVMe Samsung / 1TB** in Drive D: performance as below:



2.7.4 **M.2 NVMe Samsung / 1TB** in Drive E: performance as below:



PCIe x16 Gen4 with ReDriver to SFF-TA-1016 74P dual port

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:



PCIe x16 Gen4 with ReDriver to SFF-TA-1016 74P dual port

2.8.3 M.2 NVMe Samsung / 1TB in Drive D: performance as below:



2.8.3 M.2 NVMe Samsung / 1TB in Drive E: performance as below:



PCIe x16 Gen4 with ReDriver to SFF-TA-1016 74P dual port

3. Burn In Tests and Results

3.1 BurnInTest v10.2 Pro

3.1.1 System information as below:

The image displays two screenshots of the BurnInTest v10.2 Pro software interface. The top screenshot shows the 'System Information' tab, which provides a comprehensive overview of the system's hardware and software configuration. The bottom screenshot shows the 'Memory' and 'Graphics' sections, providing detailed information about the system's memory and graphics cards.

System summary
Windows 10 Enterprise Edition build 19045 (64-bit),
1 x AMD Ryzen 7 3700X 8-Core Processor [3597.6 MHz],
32GB RAM,
NVIDIA GeForce GT 730,
119GB SSD, 4 x 932GB SSD,

General
System Name: DESKTOP-GC5P1VR
Motherboard Manufacturer: ASUSTeK COMPUTER INC.
Motherboard Model: PRIME X570-PRO
Motherboard Version: Rev X.0x
Motherboard Serial Number: 210686092100385
BIOS Manufacturer: American Megatrends Inc.
BIOS Version: 3604
BIOS Release Date: 05/08/2021
BIOS Serial Number: Not found
TPM: Not found

CPU
CPU manufacturer: AuthenticAMD [Online CPU comparison](#)
CPU Type: AMD Ryzen 7 3700X 8-Core Processor
CPUID: Family 17, Model 71, Stepping 0
Physical CPU's: 1
Cores per CPU: 8
Threads per CPU: 16
P-Cores per CPU: 8
E-Cores per CPU: N/A
Hyperthreading: Not capable
CPU features: MMX SSE SSE2 SSE3 SSE4.1 SSE4.2 SSE4a AVX AVX2 FMA3 DEP PAE AMD64 AES Turbo core
Clock frequencies:
Measured CPU speed: 3597.6 MHz [Turbo core: 4318.1MHz]
Multiplier: x36.0 [Turbo core: x43.5]
Reference Clock: 99.9 MHz
Cache per CPU package:
L1 Instruction Cache: 8 x 32 KB
L1 Data Cache: 8 x 32 KB
L2 Cache: 8 x 512 KB
L3 Cache: 32 MB
Voltage: 1.10 V

Memory
Total Physical Memory: 32672MB

Memory
Total Physical Memory: 32672MB
Available Physical Memory: 29172MB
Memory devices:
Slot 1: 16GB DDR4 SDRAM PC4-21300
Kingston 9905701-098.A00G, serial#: 0xD9B50CE9, wk/yr: 26/2019
1.2V, Clk: 1333.3MHz, Timings 19-19-19-43 (@ Max. freq.)
Slot 2: 16GB DDR4 SDRAM PC4-21300
Kingston 9905701-098.A00G, serial#: 0xB4B50AE5, wk/yr: 26/2019
1.2V, Clk: 1333.3MHz, Timings 19-19-19-43 (@ Max. freq.)
Slot 3: Not populated
Slot 4: Not populated
Virtual memory: C:\pagefile.sys (allocated base size 4864MB)

Graphics
NVIDIA GeForce GT 730
Chip Type: 0x1287
DAC Type: Integrated RAMDAC
Memory: 2047MB
BIOS: 80.28.b8.00.13
Driver provider: NVIDIA
Driver version: 456.71
Driver date: 9-30-2020
Monitor 1: 1920x1080x32 60Hz 96 DPI (Primary monitor)

Disk volumes
C: Local Drive, \\?\Volume{871086e8-0000-0000-0000-501f00000000}\, NTFS, (118.20GB total, 30.89GB free)
D: Local Drive, \\?\Volume{27af9fa4-0000-0000-0000-100000000000}\, 新增磁碟區, NTFS, (931.51GB total, 931.38GB free)
E: Local Drive, \\?\Volume{d23bd3d2-0000-0000-0000-100000000000}\, 新增磁碟區, NTFS, (931.51GB total, 930.38GB free)
F: Local Drive, \\?\Volume{f672fe9c-0000-0000-0000-100000000000}\, 新增磁碟區, NTFS, (931.51GB total, 931.38GB free)
G: Local Drive, \\?\Volume{f345340-0000-0000-0000-100000000000}\, 新增磁碟區, NTFS, (931.51GB total, 931.38GB free)

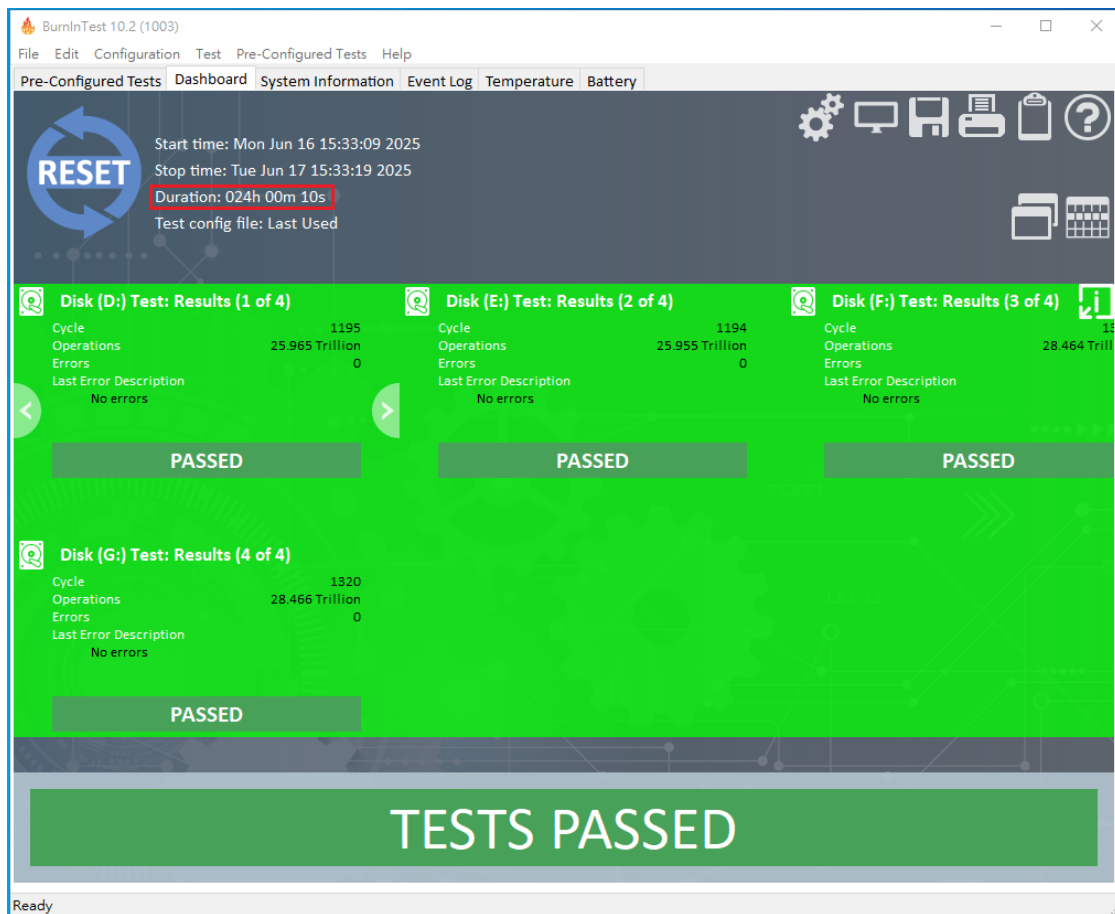
Disk drives
磁碟機: Model: LITEONIT LGT-128M6G Serial: S0C4119621Z5CR001341 (Disk 0, SSD, Size: 119.24GB, Interface: SATA, Volumes: C)
磁碟機: Model: GIGABYTE GP-AG70S1TB-P Serial: SN212108901364 (Disk 1, SSD, Size: 931.51GB, Interface: NVMe, Volumes: D)
磁碟機: Model: Samsung SSD 980 PRO 1TB Serial: S5GXNF0NC01466L (Disk 3, SSD, Size: 931.51GB, Interface: NVMe, Volumes: F)
磁碟機: Model: Samsung SSD 980 PRO 1TB Serial: S5GXNF0NC01500T (Disk 4, SSD, Size: 931.51GB, Interface: NVMe, Volumes: G)
磁碟機: Model: GIGABYTE GP-AG70S1TB-P Serial: SN212108902374 (Disk 2, SSD, Size: 931.51GB, Interface: NVMe, Volumes: E)

Optical drives

Network
Intel(R) I211 Gigabit Network Connection (Speed: 100Mb/s) (MAC: 7C:10:C9:44:13:55) (IPv4: 169.254.244.227) (IPv6: fe80::b7f5:d99:ed1b:5418)

PCIe x16 Gen4 with ReDriver to SFF-TA-1016 74P dual port

3.1.2 24-hour Burn-in test **PASSED**



4. Summary

- 4.1 M.2 NVMe SSD is PCIe Gen4 / 4 Lane Interface, I/O speed, max. to 64Gbps.
- 4.2 DP7808 AIC, I/O performance is based on M.2 NVMe SSD.