



# MINERVA

**DP7401 PCIe x16 Gen4 with ReDriver to SFF-8654 8i dual port**

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## Performance & Burn In Test Rev 1.0

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# DP7401 Add-in Card

## 1. Overview

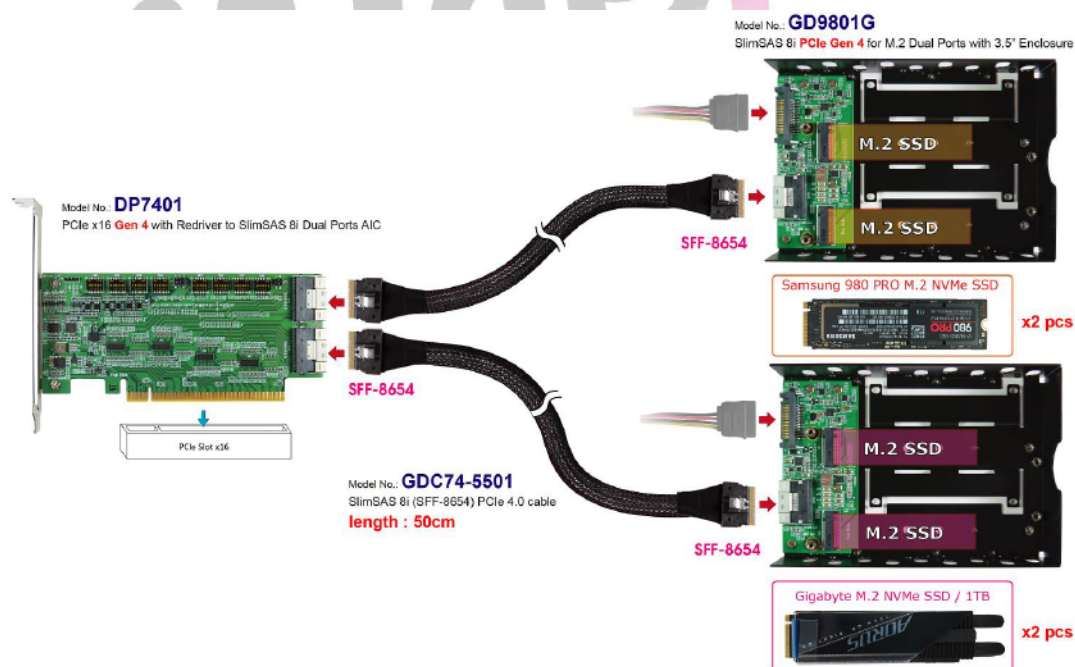
The DP7401 AIC has built-in ReDriver and is with SlimSAS 8i(SFF-8654) dual port connectors. It is designed for use by PCIe x16 to be bifurcated four x4 link width or can extend PCIe x16 signals channel reach. The PCIe 4.0 ReDriver may support CTLE boosts up to **13 dB**.

## 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: DP7401 PCIe x16 to with ReDriver SlimSAS 8i(SFF-8654) dual port AIC  
Cable: PCIe 4.0 SFF-8654 8i, 50cm Cable  
Adapter: GD9801G SlimSAS 8i(SFF-8654) PCIe 4.0 to M.2 dual port adapter  
OS : Microsoft **Windows 10 64bit OS**

### 2.2 Test target: DP7401, GD9801G adapter with M.2 **1TB**



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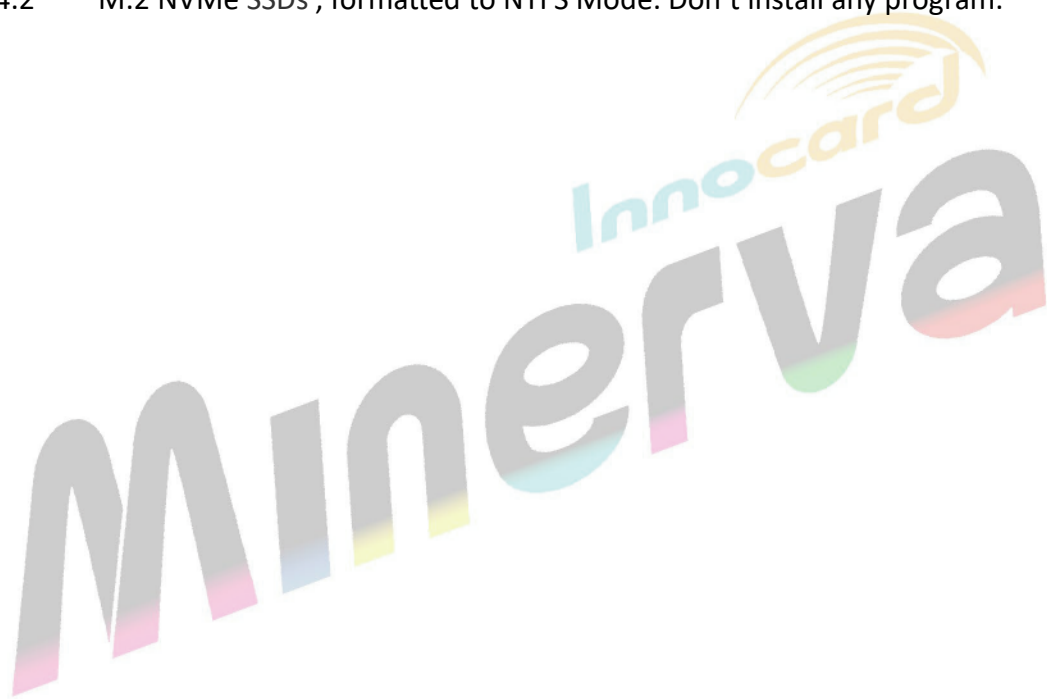
### 2.3 Install Hardware

First inserts the M.2 SSD into the GD9801G M.2 connector and connects the GD9801G adapter to the DP7401 AIC card (PCIe x16 Gen 4 to SFF-8654 8i dual port), using the **GDC74-5501 Cable**, and Plugs DP7401 AIC into PCIe x16 Slot of ASUS **PRIME X570-PRO** mainboard.

### 2.4 BIOS & Windows 10 OS environment setup

2.4.1 Primary SATA NVMe SSD install Windows 10 OS.

2.4.2 M.2 NVMe SSDs , formatted to NTFS Mode. Don't install any program.

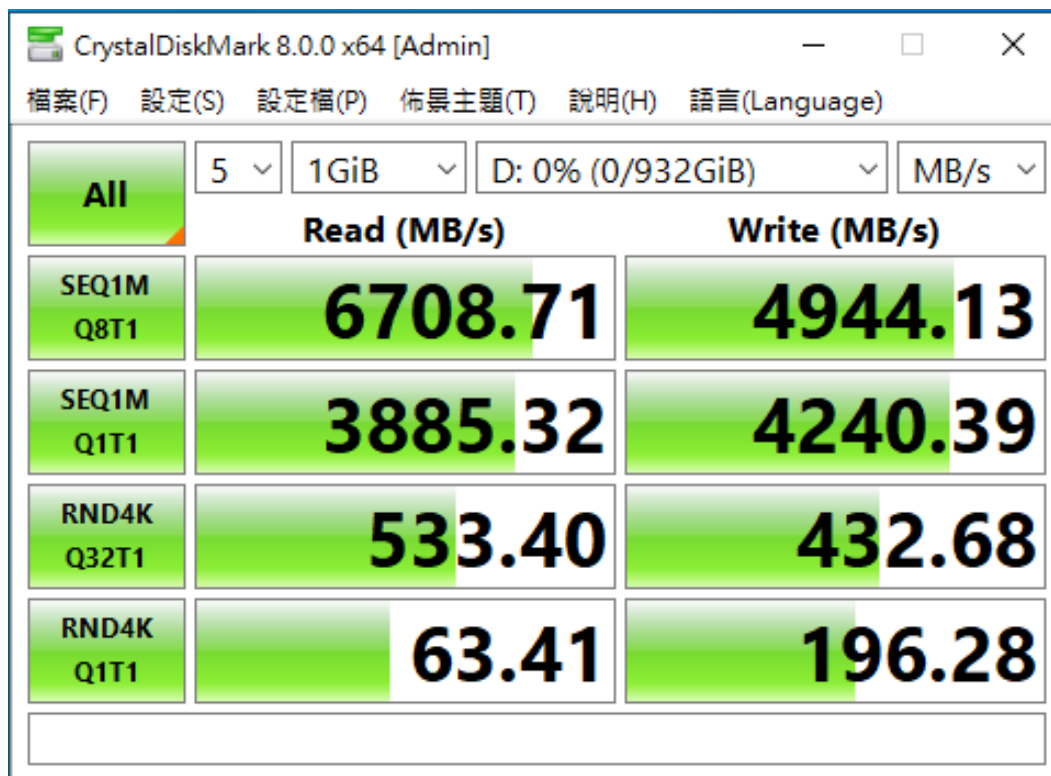


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### 2.5 CrystalDiskMark 8.0.0 x64 performance test

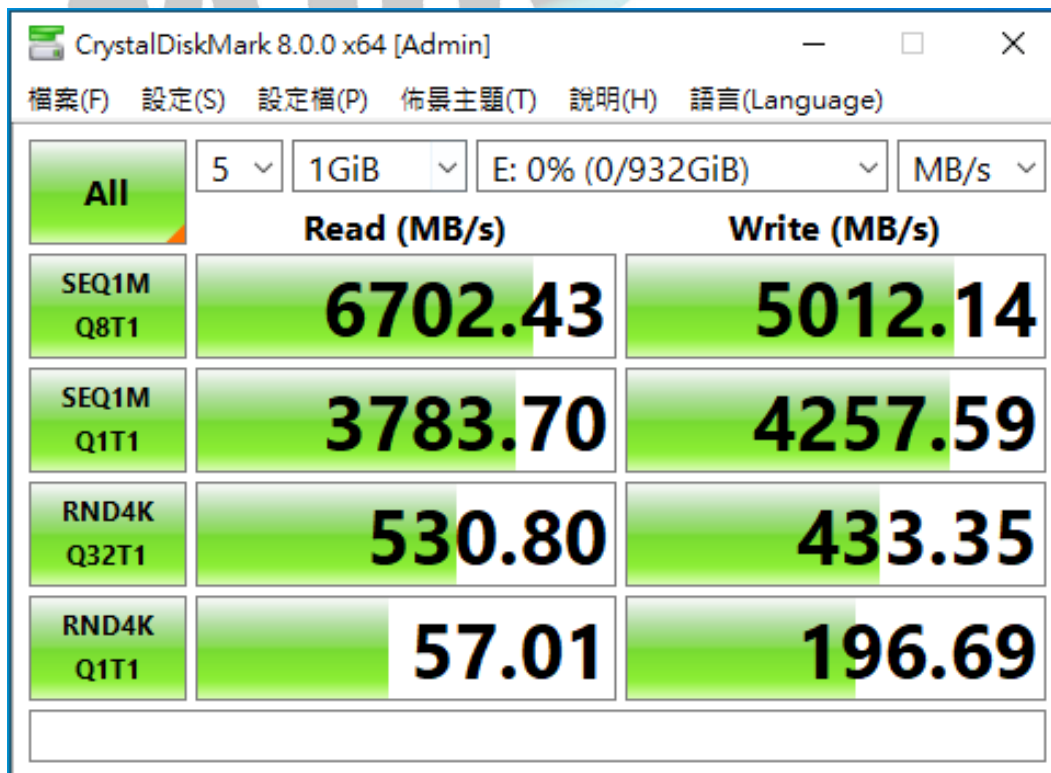
※Benchmark (Sequential **Read & Write** / default = **1MB**)

2.5.1 SAMSUNG 980 PRO M.2 / **1TB** in **Drive D:** performance as below:



	Read (MB/s)	Write (MB/s)
SEQ1M Q8T1	6708.71	4944.13
SEQ1M Q1T1	3885.32	4240.39
RND4K Q32T1	533.40	432.68
RND4K Q1T1	63.41	196.28

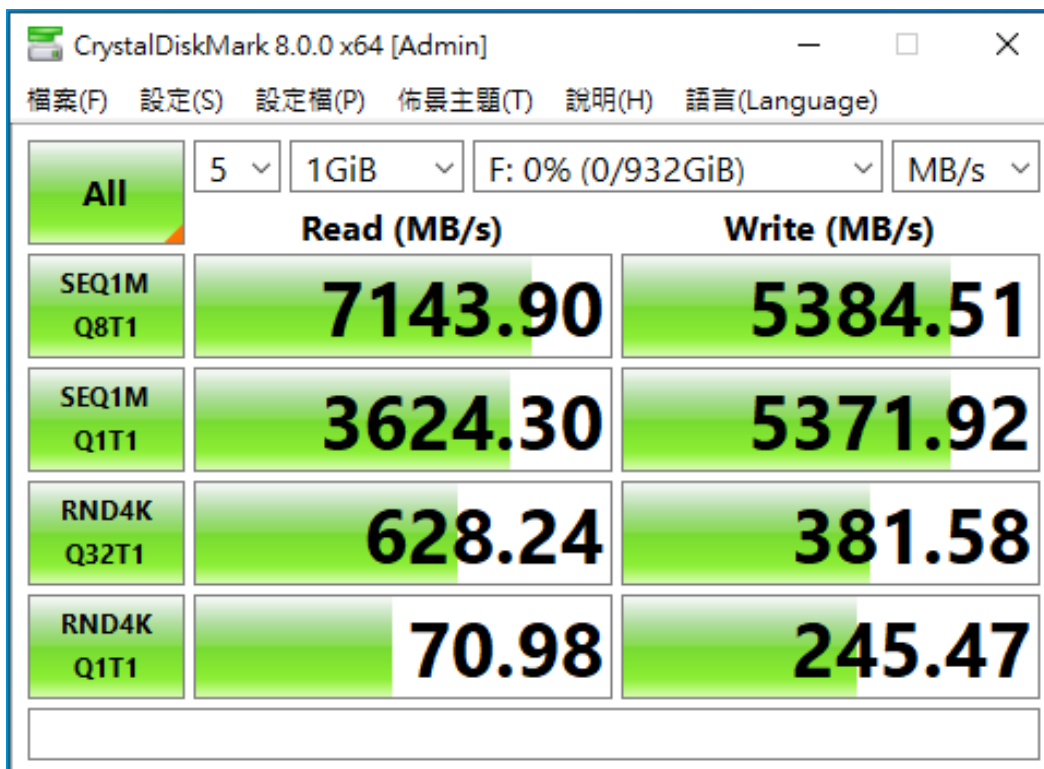
2.5.2 SAMSUNG 980 PRO M.2 / **1TB** in **Drive E:** performance as below:



	Read (MB/s)	Write (MB/s)
SEQ1M Q8T1	6702.43	5012.14
SEQ1M Q1T1	3783.70	4257.59
RND4K Q32T1	530.80	433.35
RND4K Q1T1	57.01	196.69

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2.5.3 GIGABYTE M.2 / 1TB in Drive F: performance as below:



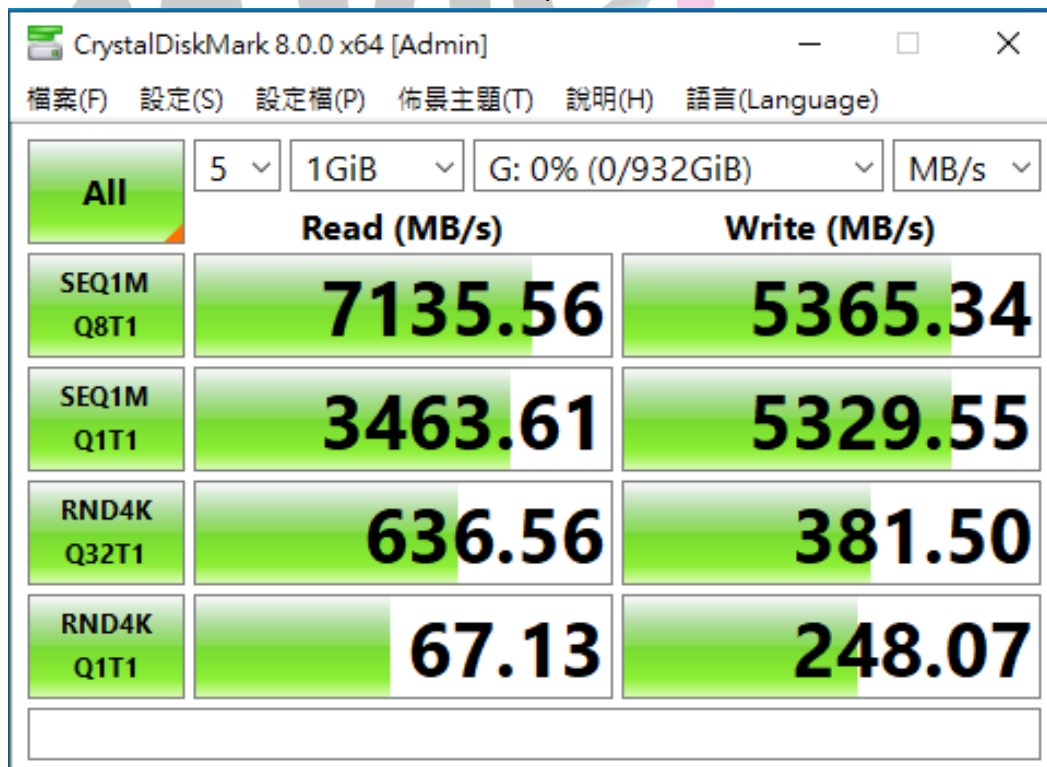
CrystalDiskMark 8.0.0 x64 [Admin]

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

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

	Read (MB/s)	Write (MB/s)
SEQ1M Q8T1	7143.90	5384.51
SEQ1M Q1T1	3624.30	5371.92
RND4K Q32T1	628.24	381.58
RND4K Q1T1	70.98	245.47

2.5.4 GIGABYTE M.2 / 1TB in Drive G: 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 G: 0% (0/932GiB) MB/s

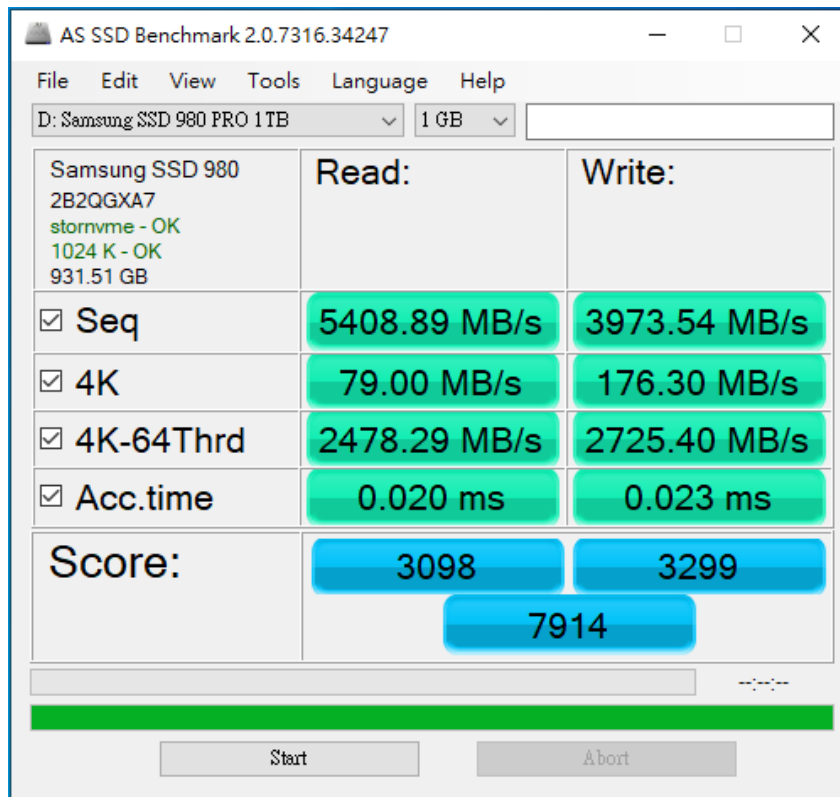
	Read (MB/s)	Write (MB/s)
SEQ1M Q8T1	7135.56	5365.34
SEQ1M Q1T1	3463.61	5329.55
RND4K Q32T1	636.56	381.50
RND4K Q1T1	67.13	248.07

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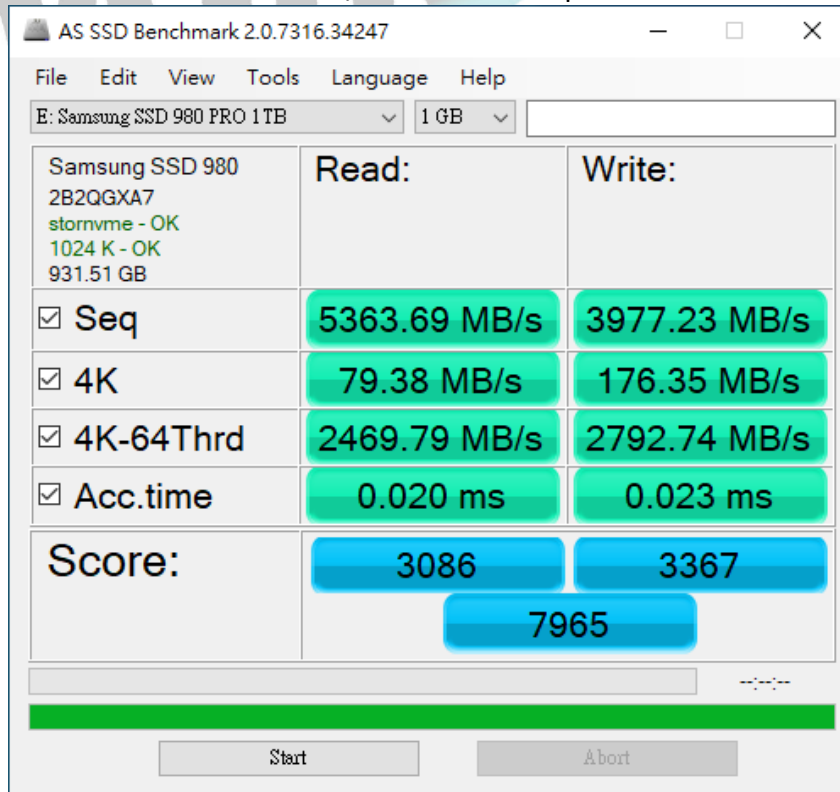
### 2.6 AS SSD Benchmark 2.0 performance test

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

2.6.1 SAMSUNG 980 PRO M.2 / 1TB in Drive D: performance as below:

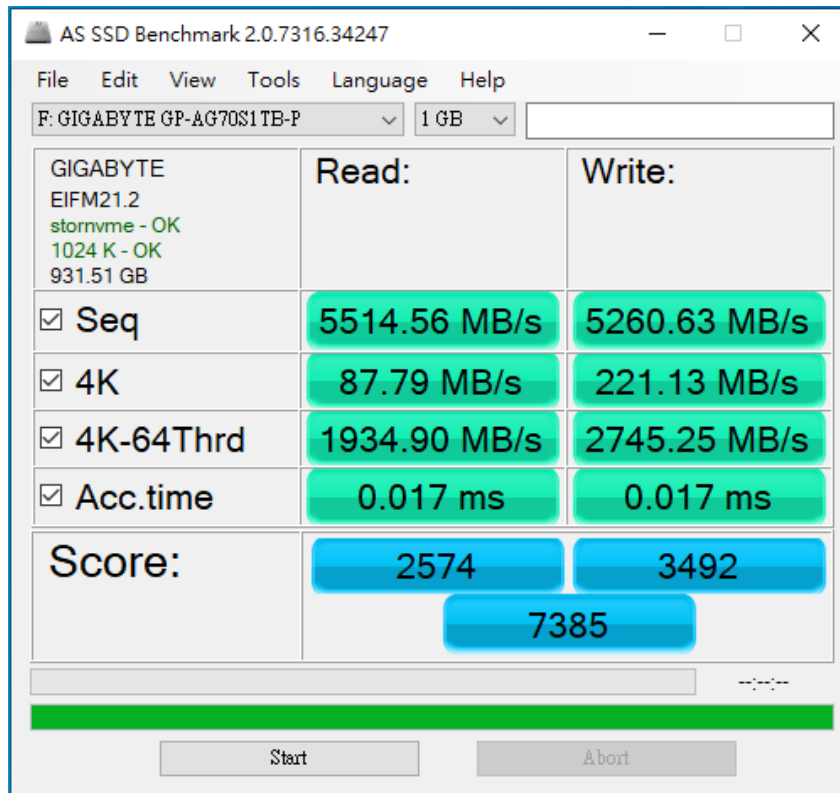


2.6.2 SAMSUNG 980 PRO M.2 / 1TB in Drive E: performance as below:

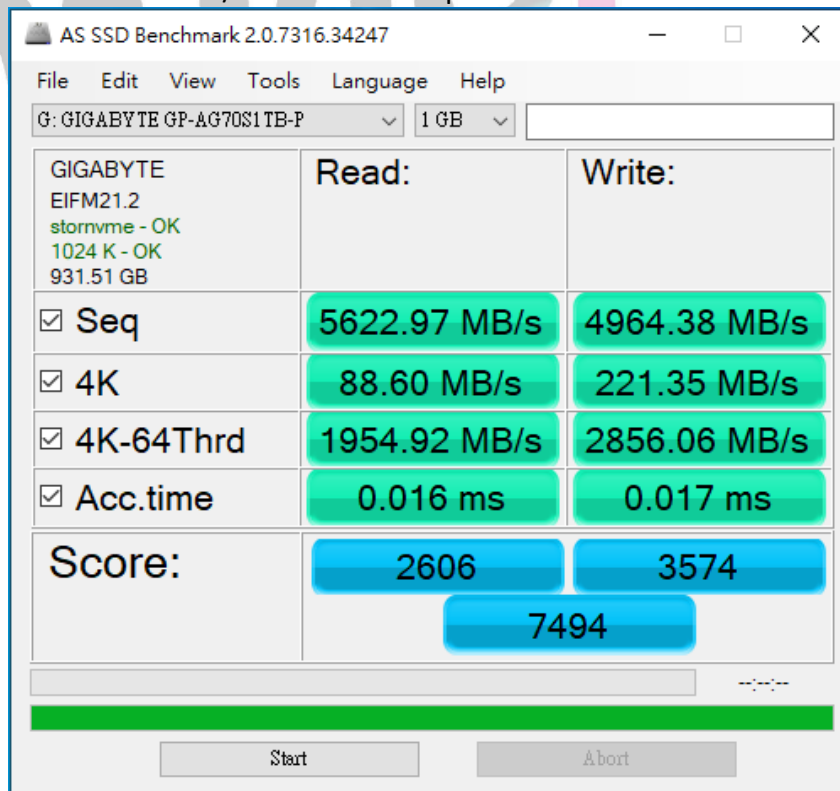


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2.6.3 GIGABYTE M.2 / **1TB** in **Drive F:** performance as below:



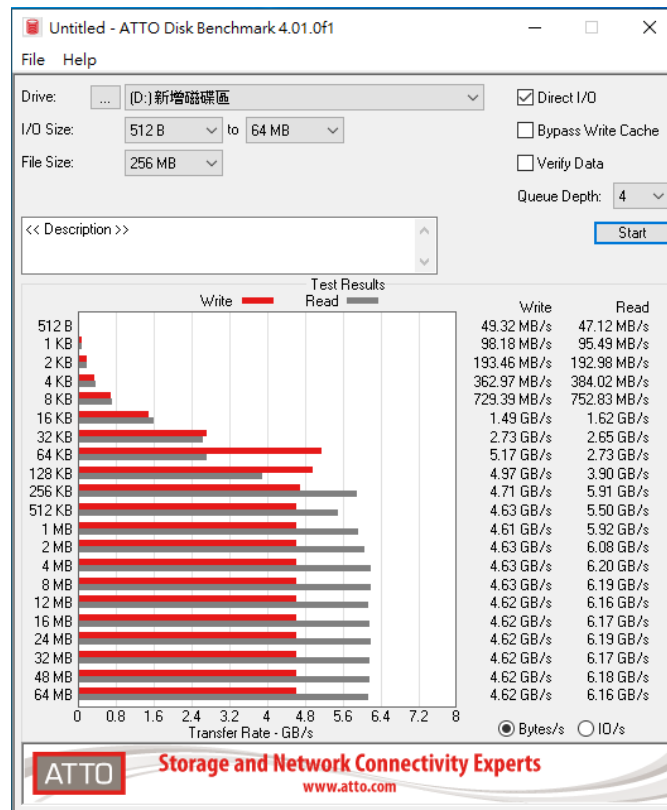
2.6.4 GIGABYTE M.2 / **1TB** in **Drive G:** performance as below:



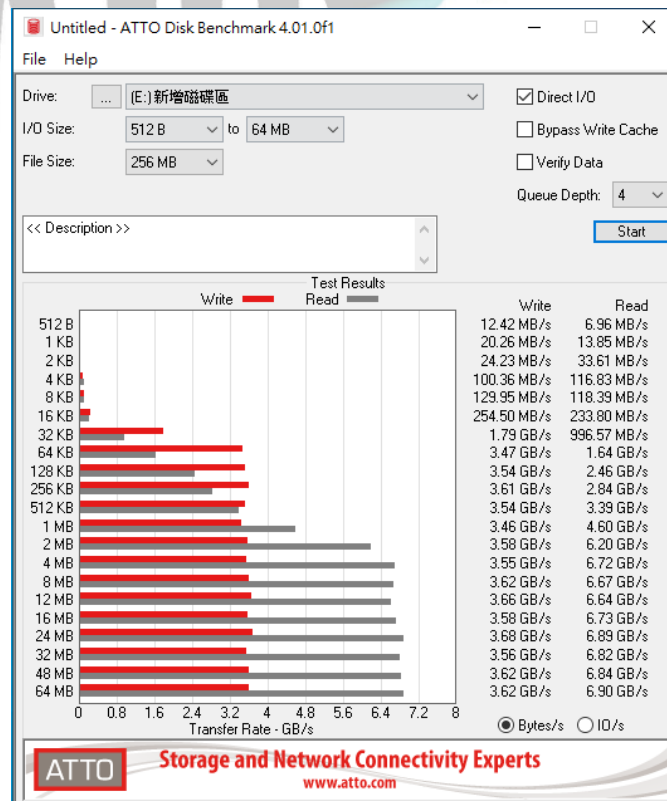
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### 2.7 ATTO Disk Benchmark 4.01 performance test

#### 2.7.1 SAMSUNG 980 PRO M.2 / 1TB in Drive D: performance as below:



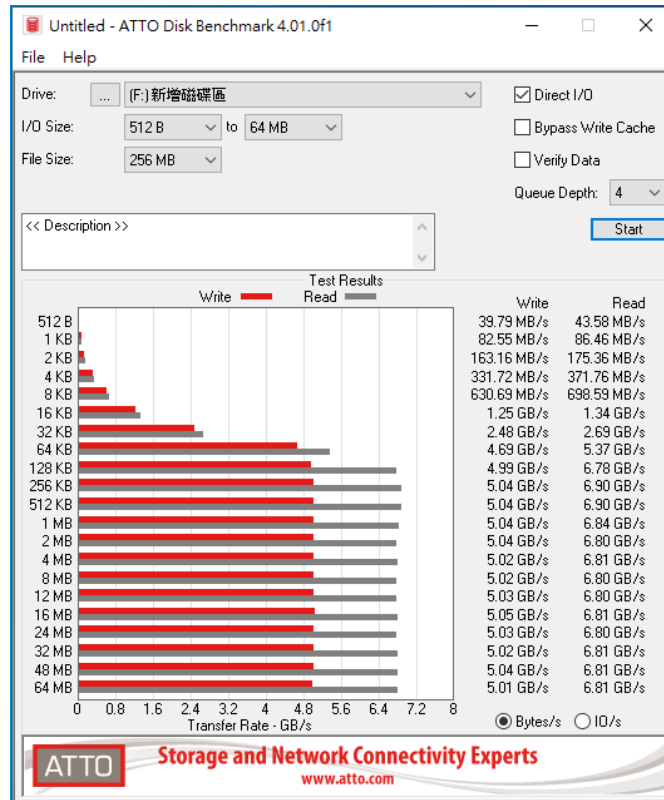
#### 2.7.2 SAMSUNG 980 PRO M.2 / 1TB in Drive E: performance as below:



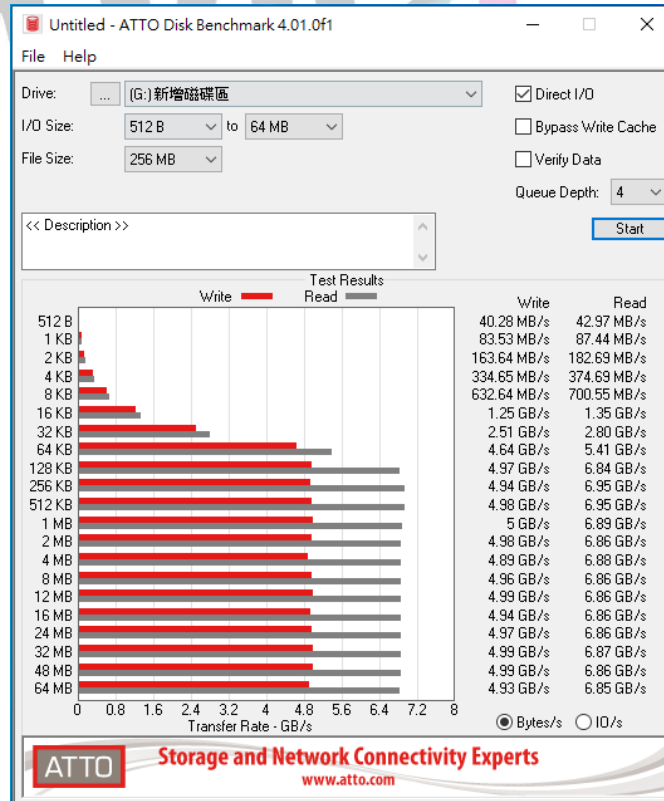


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### 2.7.3 GIGABYTE M.2 / 1TB in Drive F: performance as below:



### 2.7.4 GIGABYTE M.2 / 1TB in Drive G: performance as below:



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## 2.8 AnvilBenchmark\_V110\_B337

### 2.8.1 SAMSUNG 980 PRO M.2 / 1TB in Drive D: performance as below:



### 2.8.2 SAMSUNG 980 PRO M.2 / 1TB in Drive E: performance as below:



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## 2.8.3 GIGABYTE M.2 / 1TB in Drive F: performance as below:



## 2.8.4 GIGABYTE M.2 / 1TB in Drive G: performance as below:

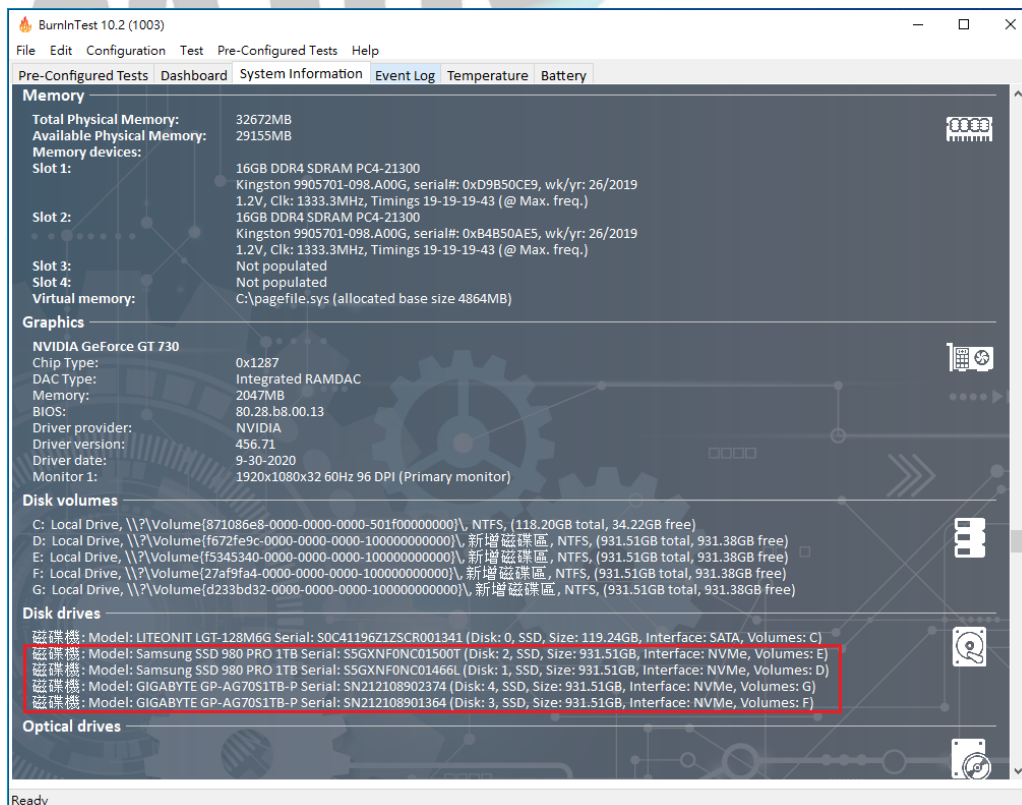
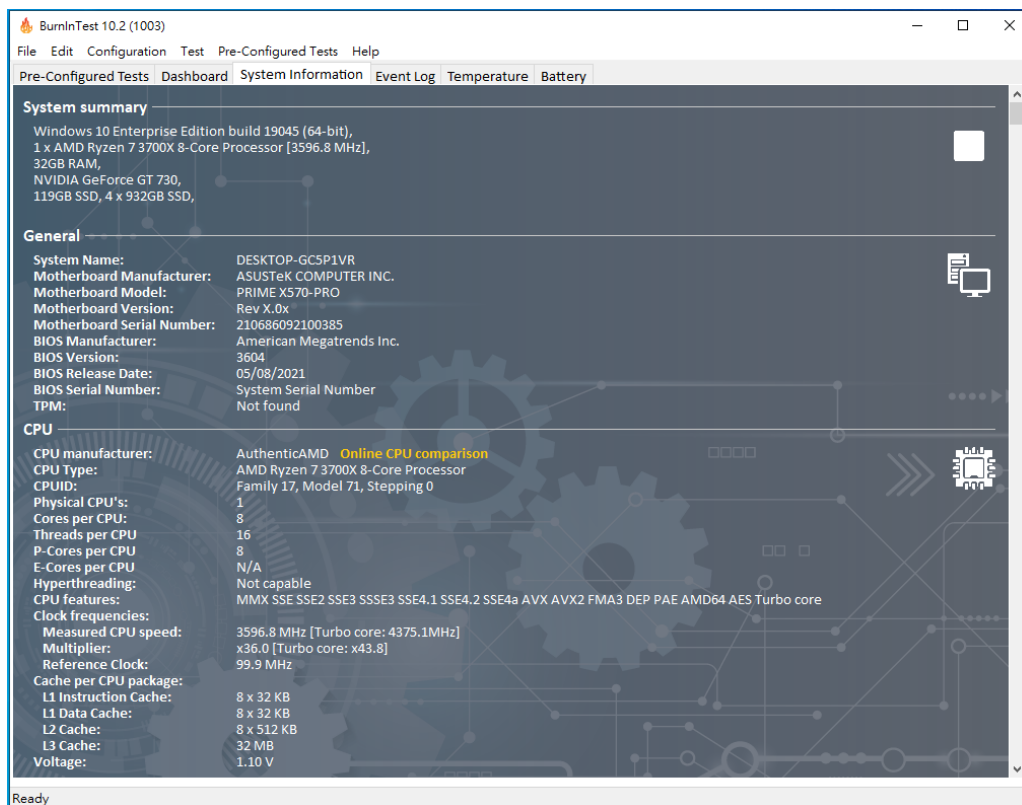


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## 3. Burn In Tests and Results

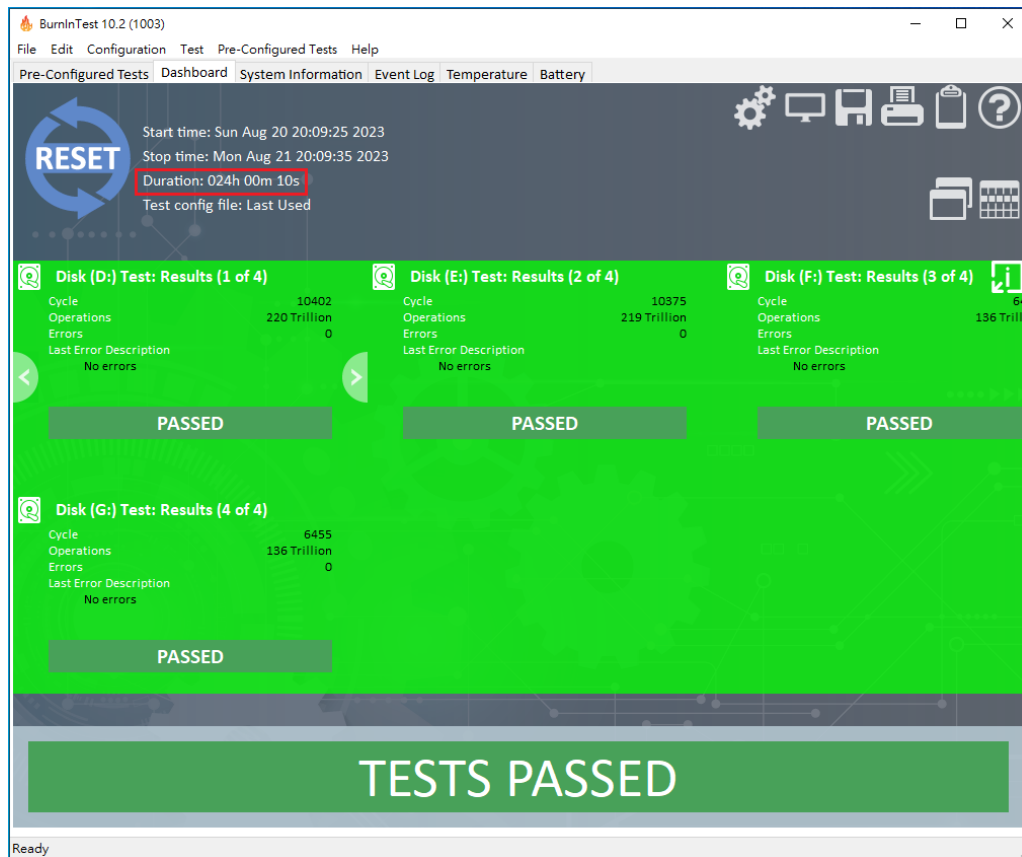
### 3.1 BurnInTest v10.2 Pro

#### 3.1.1 system information as below:



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## 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 DP7401 AIC & GD9801G Adapter I/O performance is based on M.2 NVMe SSD.