



MINERVA

U.2 Male to U.2 Female for PCIe 4.0, 16GT/s adapter

Performance & Burn In Test Rev. 1. 0

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GD1406A Converter Card

1. Overview

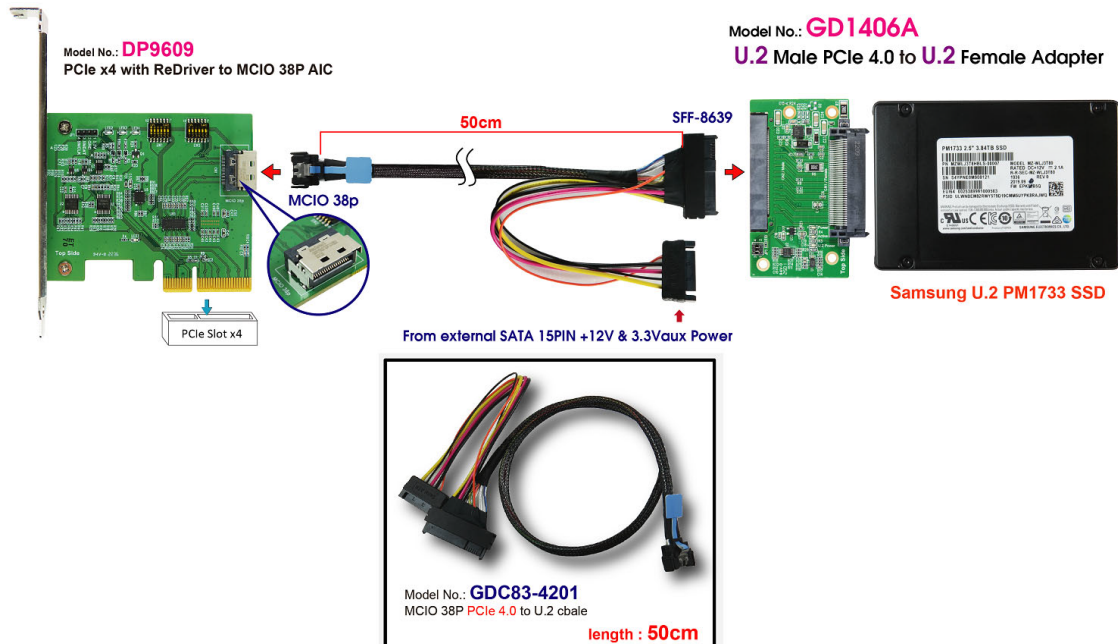
The GD1406A adapter supports PCIe 4.0, 16GT/s high-speed transmission, and provides U.2 Male to U.2 Female conversion.

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
AIC: DP9609 PCIe x4 Gen 4 with Redriver to MCIO 38P Add-in Card
Adapter: GD1406A U.2 to U.2 adapter
DUT: PCIe 4.0 U.2 NVMe SSD Adapter
Cable: MCIO 38P PCIe 4.0 to U.3(SFF-8639), **50cm** Cable
OS : Microsoft **Windows 10 64bit OS**

2.2 Test target: GD1406A adapter and U.2 NVMe 4TB SSD



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2.3 Install Hardware

Inserts U.2 SSD into GD1406A converter's U.2 female connector. Connects GD1406A to DP9609 AIC(PCIe x4 Gen 4 to MCIO 38P), then using MC10 38P to U.2(SFF-8639) cable, plugs DP9609 adapter into **PCIe x16 slot of ASUS PRIME X570-PRO**.

2.4 BIOS & Windows 10 OS environment setup

- 2.4.1 Primary SATA SSD installed Windows 10 OS.
- 2.4.2 U.2 NVMe SSD, formatted to NTFS Mode. Don't install any program.

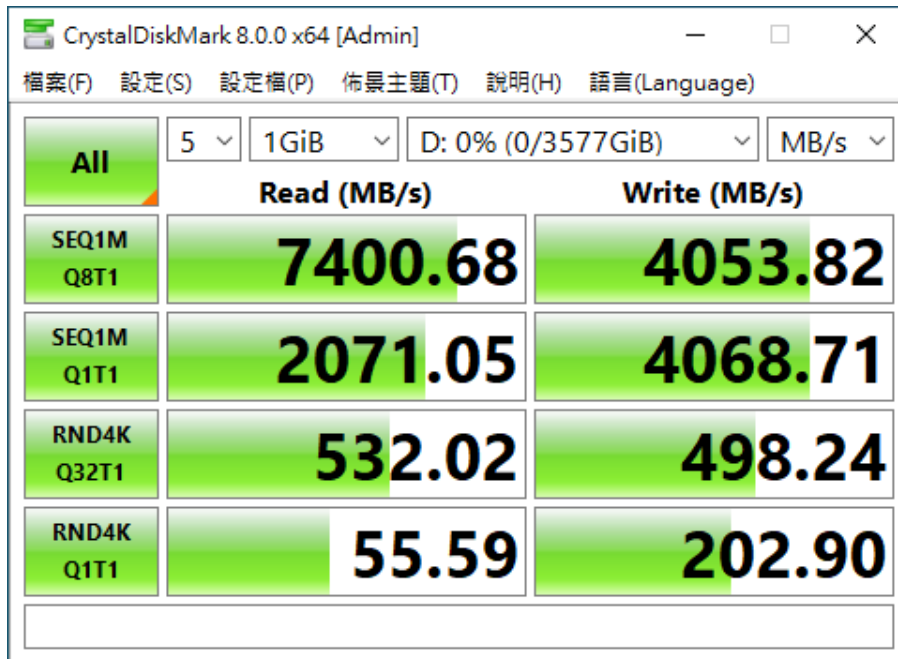


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2.5 CrystalDiskMark 8.0.0 x64 performance test

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

2.5.1 Samsung **U.2 PCIe 4.0 NVMe/ 4TB** performance as below:

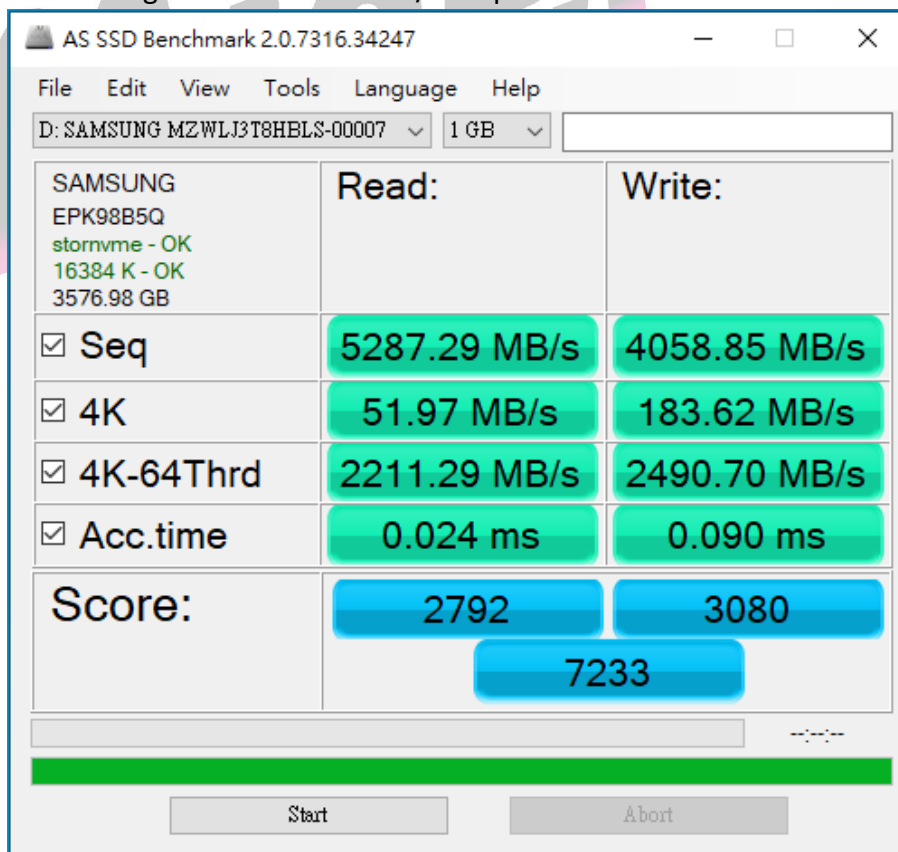


	Read (MB/s)	Write (MB/s)
SEQ1M Q8T1	7400.68	4053.82
SEQ1M Q1T1	2071.05	4068.71
RND4K Q32T1	532.02	498.24
RND4K Q1T1	55.59	202.90

2.6 AS SSD Benchmark 2.0.7 performance test

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

2.6.1 Samsung **U.2 PCIe 4.0 NVMe/ 4TB** performance as below:

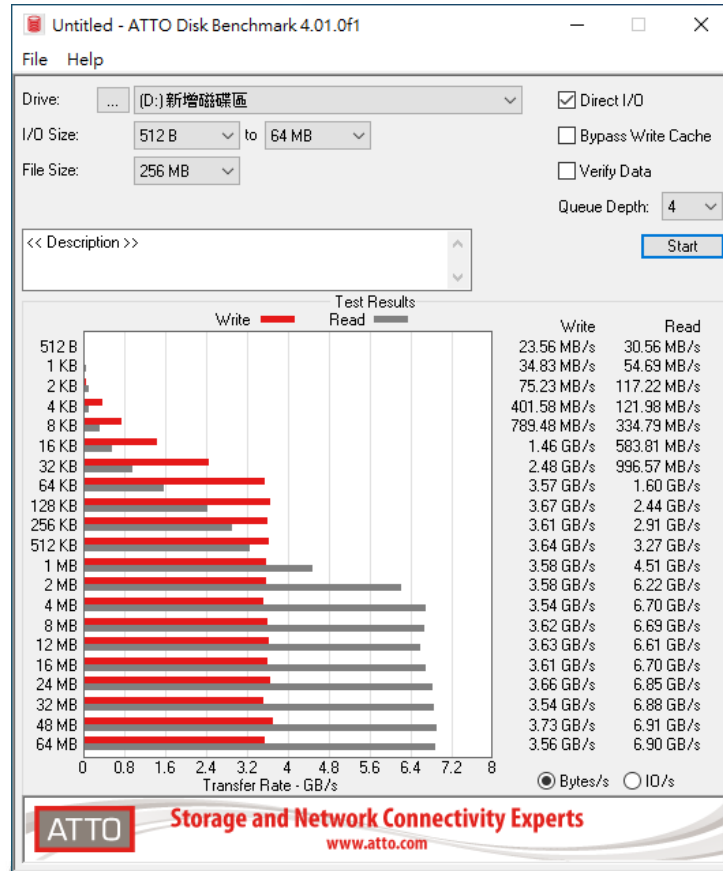


	Read:	Write:
Seq	5287.29 MB/s	4058.85 MB/s
4K	51.97 MB/s	183.62 MB/s
4K-64Thrd	2211.29 MB/s	2490.70 MB/s
Acc.time	0.024 ms	0.090 ms
Score:	2792	3080
	7233	

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2.7 ATTO Disk Benchmark 4.0.1 performance test

2.7.1 Samsung U.2 PCIe 4.0 NVMe/ 4TB performance as below:



2.8 AnvilBenchmark_V110_B337

2.8.1 Samsung U.2 PCIe 4.0 NVMe/ 4TB performance as below:

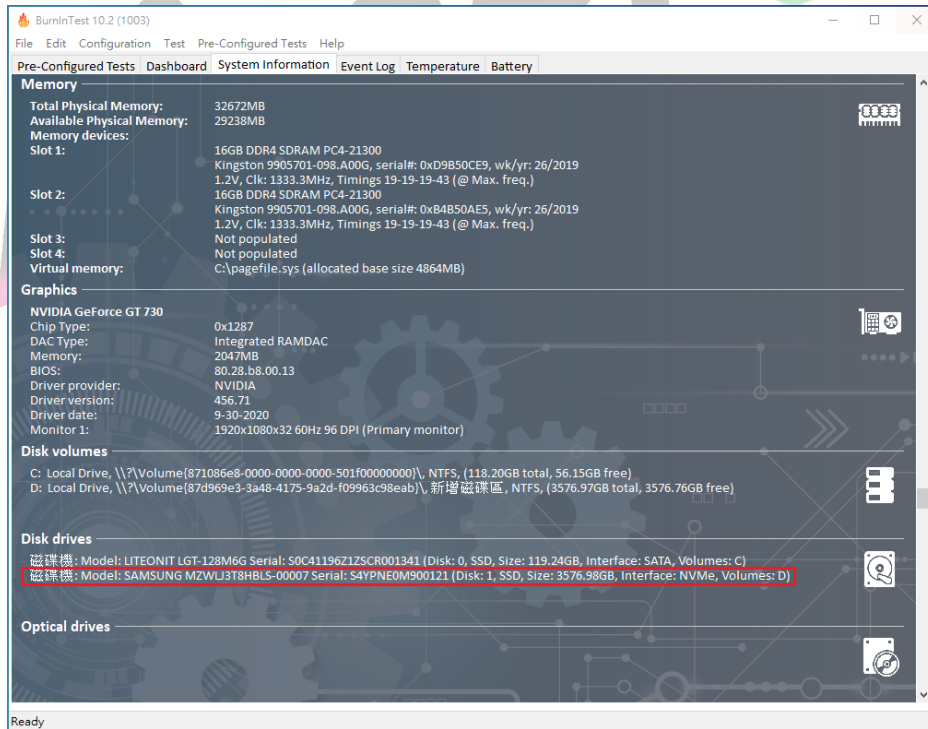
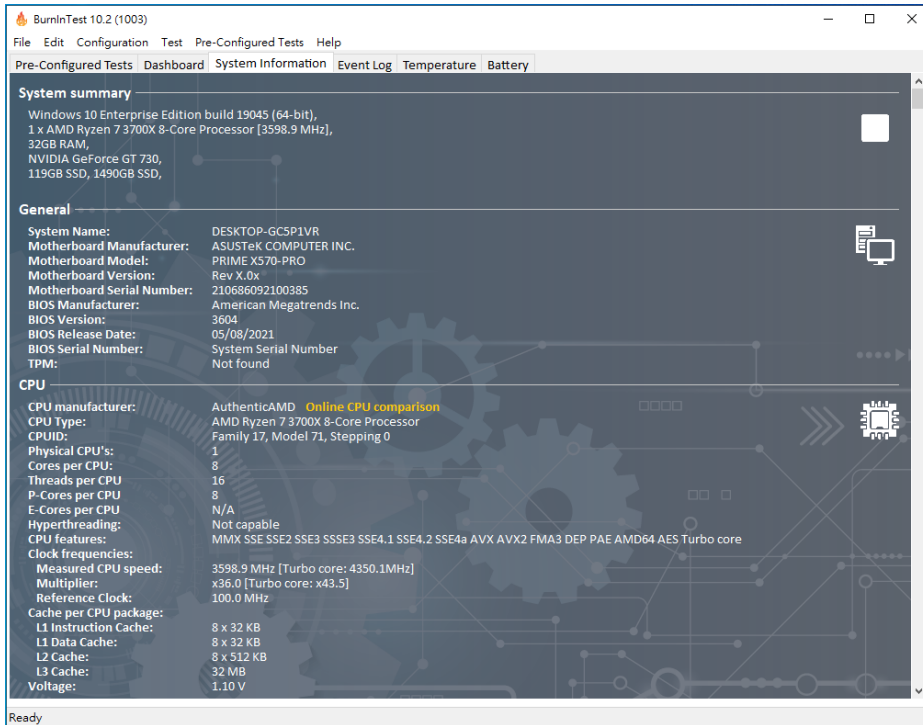


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3. Burn In Tests and Results

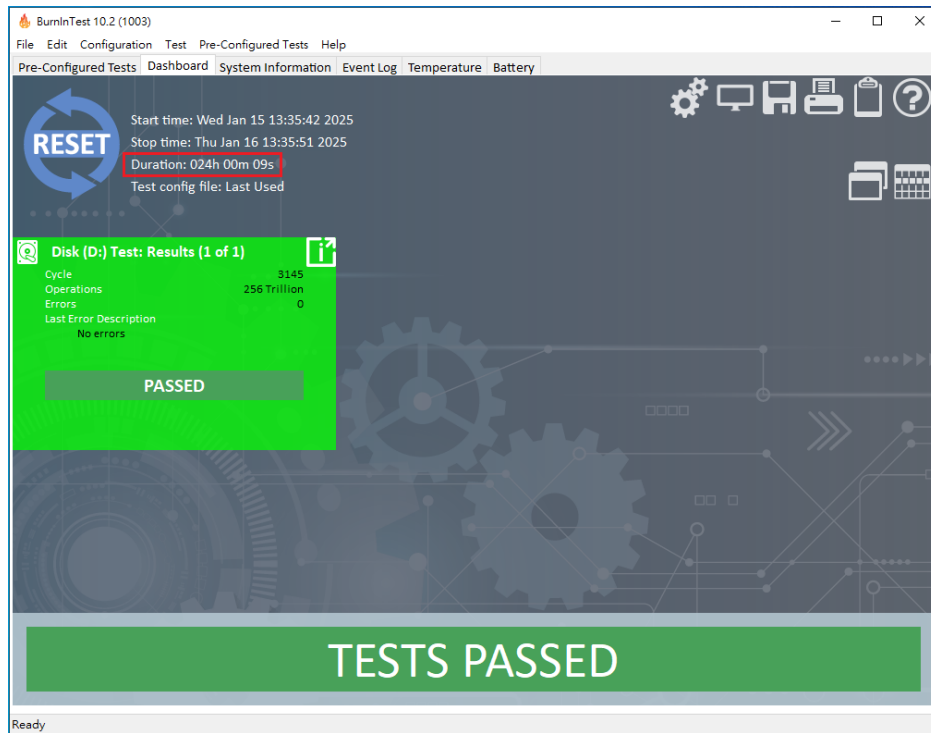
3.1 BurnInTest v8.1 Pro for Samsung U.2 PCIe 4.0 NVMe/ 4TB

3.1.1 system information as below:



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



4. Summary

- 4.1 U.2 SSD is PCIe 4.0 / 4 Lanes Interface, I/O speed, max. to 64Gbps.
- 4.2 GD1406A adapter I/O performance is based on U.2 NVMe SSD.