Performance & Burn In Test Rev. 1. 0

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1. Overview

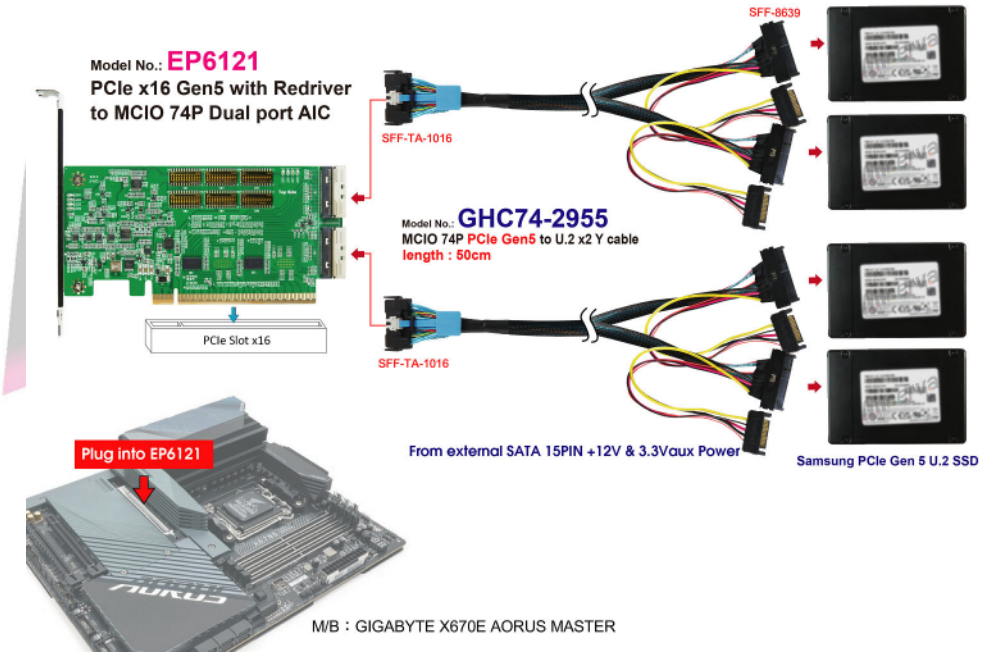
The Host Bus Adapter may provide PCIe x16 Gen 5, 32GT/s high-speed signals extension, bulit-in ReDriver controller to provides equalization up to **22 dB at 16 GHz** to MCIO 74P.

2. Tools and Results of Performance Measurement

2.1 Test Platform:

M/B :	GIGABYTE **X670E AORUS MASTER**
CPU :	AMD **Ryzen 5, 7600X 6-Core**
Memory :	Kingston **KF556C36BBEK2**, **DDR5-5600MT/s**, **64GB**(32GB DIMM*2)
ATX Power :	Apexgaming AN-550, **550W ATX**, 12V V2.2 Power Supply
AIC:	EP6121 PCIe x16 Gen 5 with Redriver to MCIO 74P dual port ADD-in Card
Cable:	PCIe 5.0 MCIO 74P to U.2(SFF-8639) dual port, **50cm** Cable
OS :	Microsoft **Windows 11 64bit OS**

2.2 Test target: EP6121 & Samsung **U.2 PM1783** / **15.36TB NVMe SSD**



2.3 Install Hardware

Inserts U.2 NVMe SSD into MCIO 74P to U.2 dual port cable, and connects cable to EP6121 AIC. The EP6121 AIC plugs into PCIe x16 Slot of GIGABYTE **X670E AORUS MASTER**

2.4 BIOS & Windows 11 OS environment setup

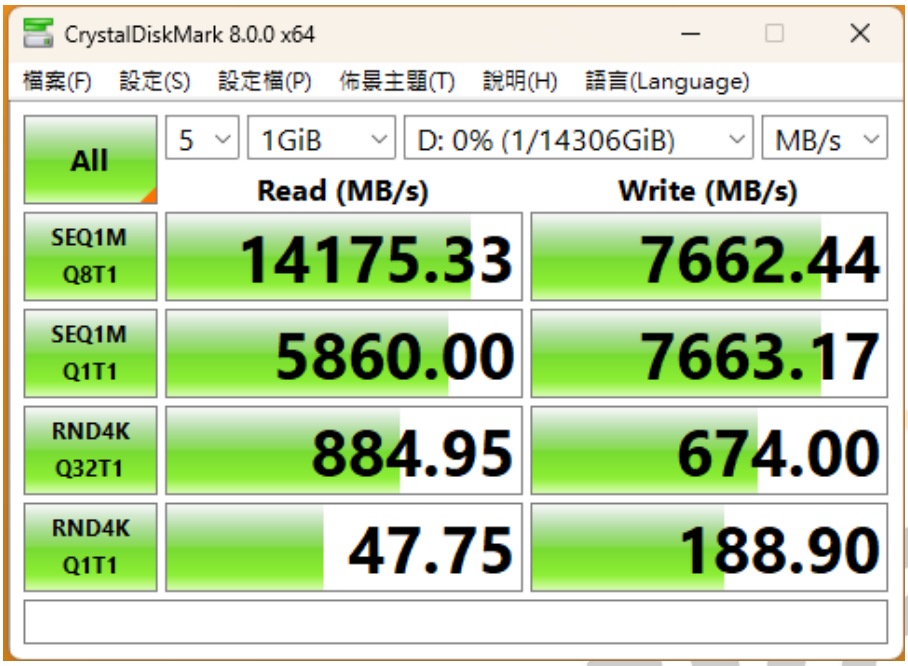
2.4.1 Primary SATA SSD installed Windows 10 OS.

2.4.2 U.2 NVMe SSD, formatted to NTFS Mode. Don’t install any program.

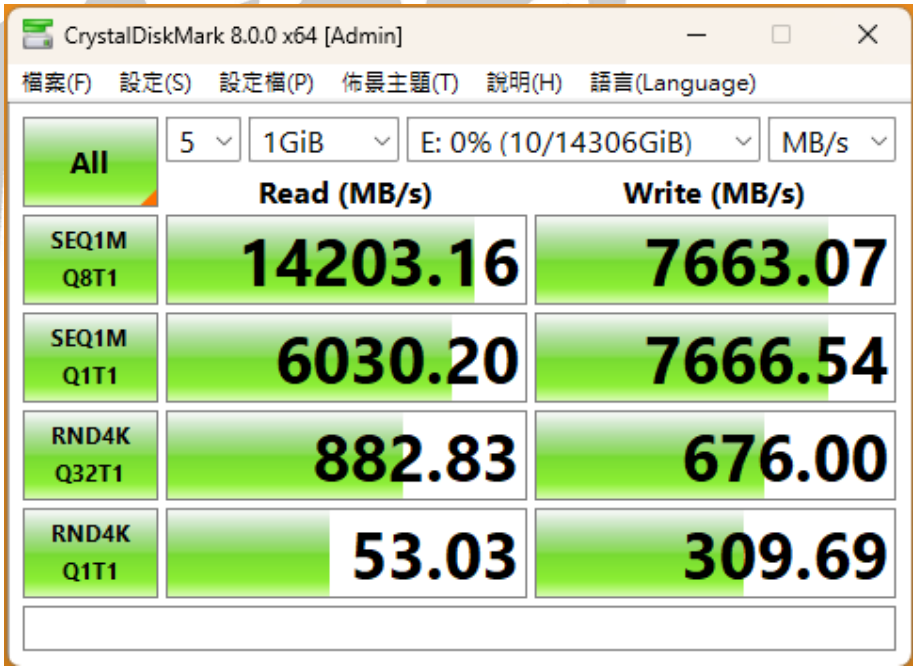
2.5 CrystalDiskMark 8.0 x64 performance test

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

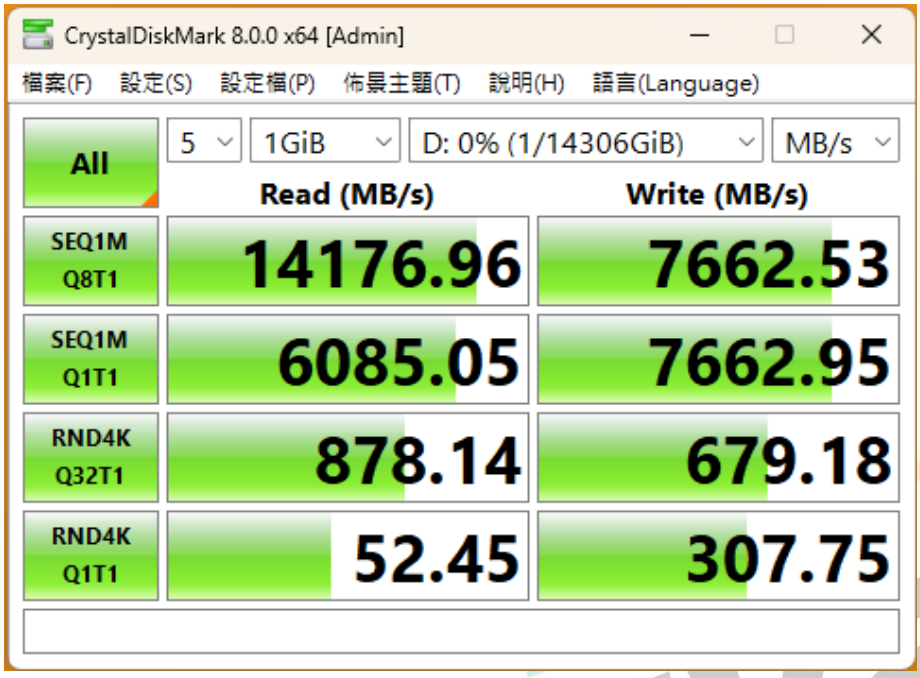
2.5.1 Samsung U.2 PM1783 / 15.36TB SSD performance in Lane 0~3 as below:



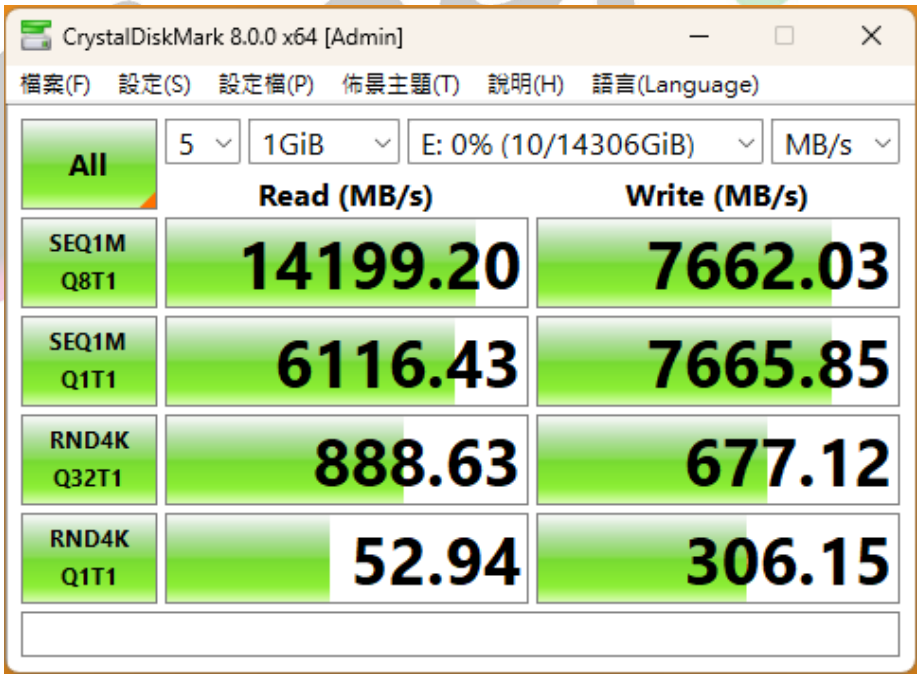
2.5.2 Samsung U.2 PM1783 / 15.36TB NVMe performance in Lane 4~7 as below:



2.5.3 **Samsung U.2 PM1783 / 15.36TB NVMe** performance in **Lane 8~11** as below:



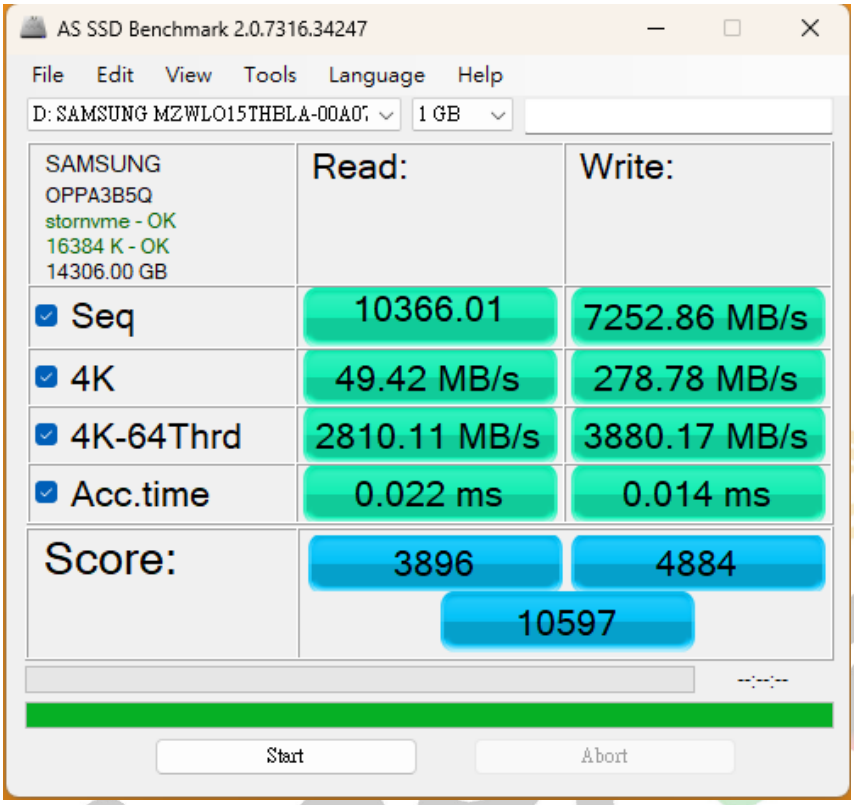
2.5.4 **Samsung U.2 PM1783 / 15.36TB NVMe** performance in **Lane 12~15** as below:



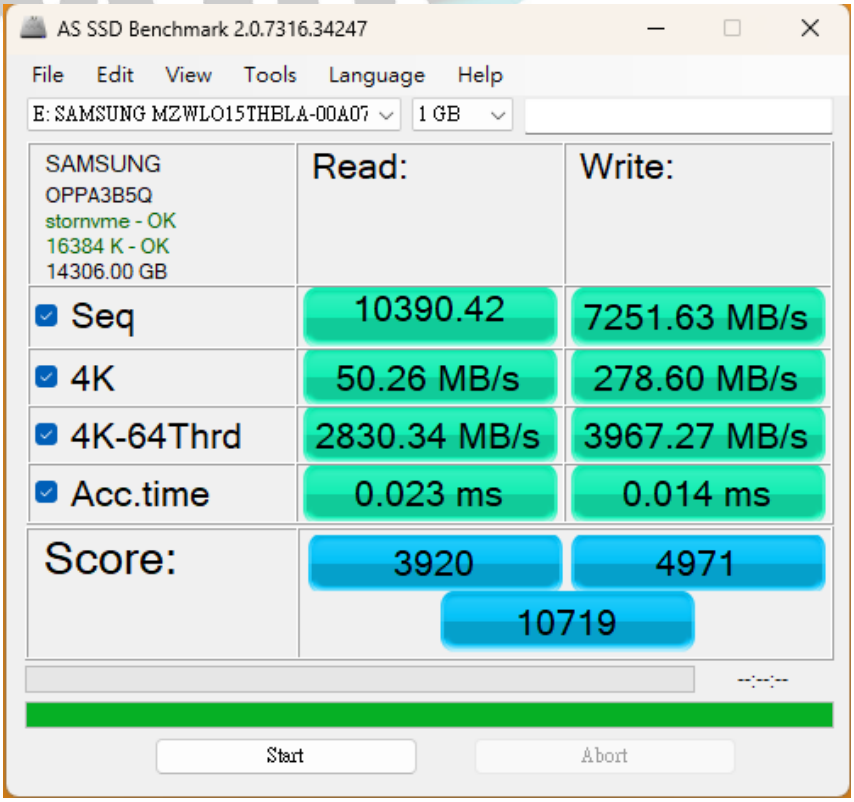
2.6 AS SSD Benchmark 2.0.7 performance test

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

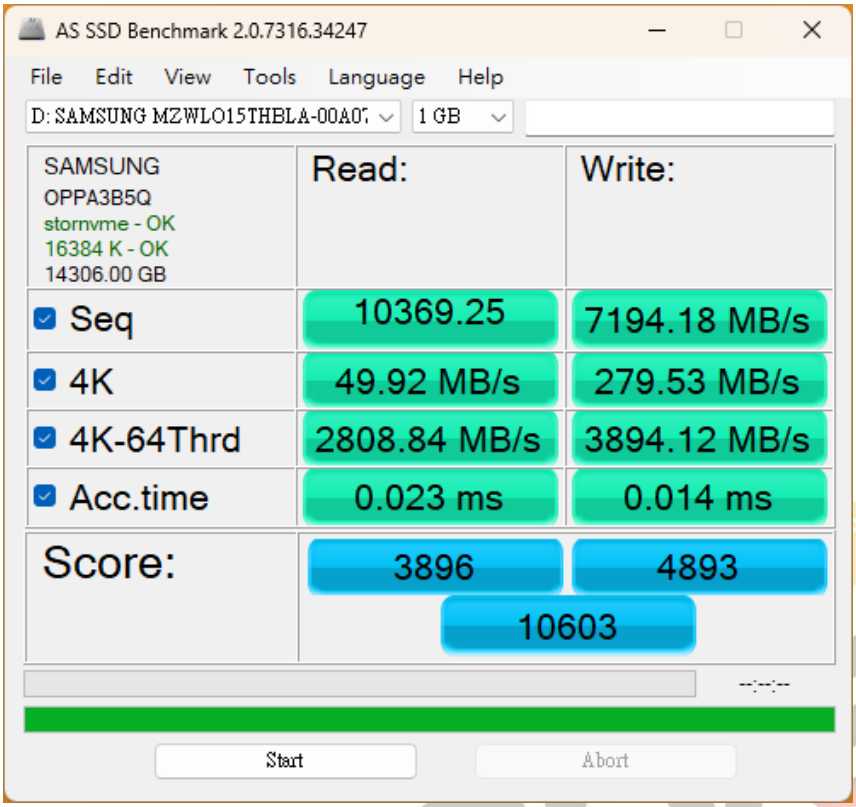
2.6.1 Samsung U.2 PM1783 / 15.36TB NVMe performance in Lane 0~3 as below:



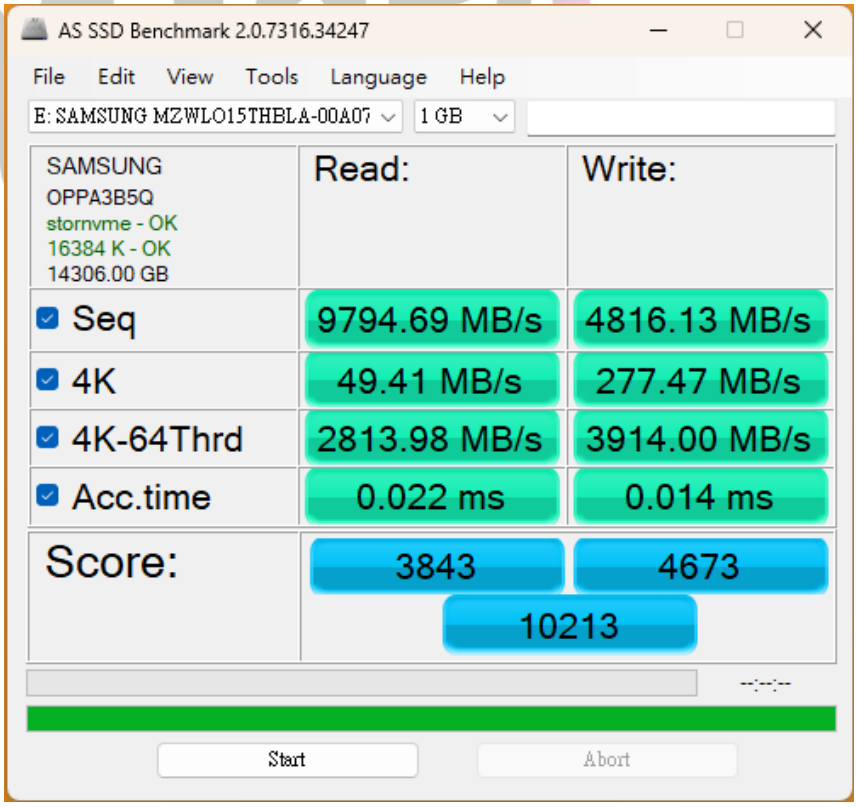
2.6.2 Samsung U.2 PM1783 / 15.36TB NVMe performance in Lane 4~7 as below:



2.6.3 **Samsung U.2 PM1783 / 15.36TB NVMe** performance in **Lane 8~11** as below:

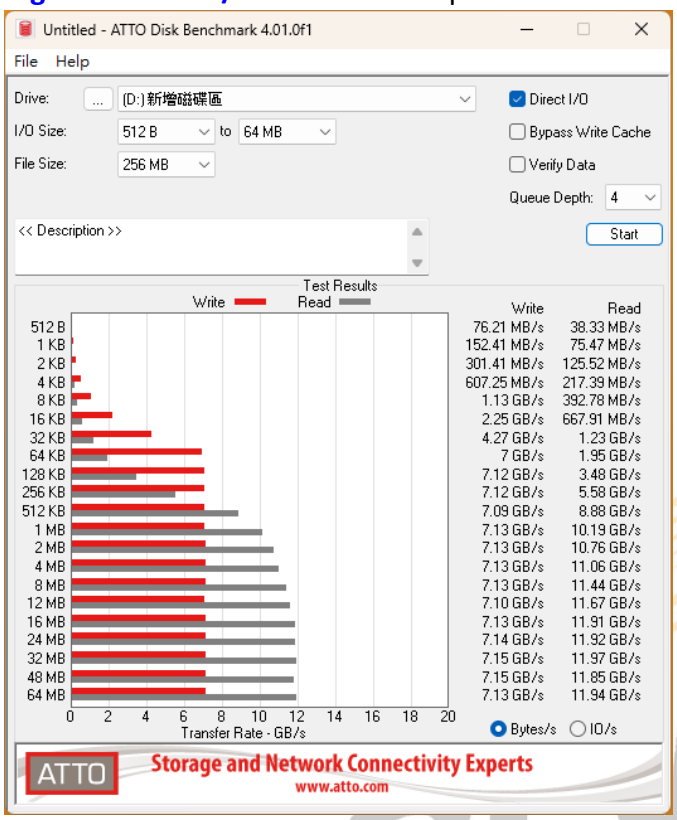


2.6.4 **Samsung U.2 PM1783 / 15.36TB NVMe** performance in **Lane12~15** as below:

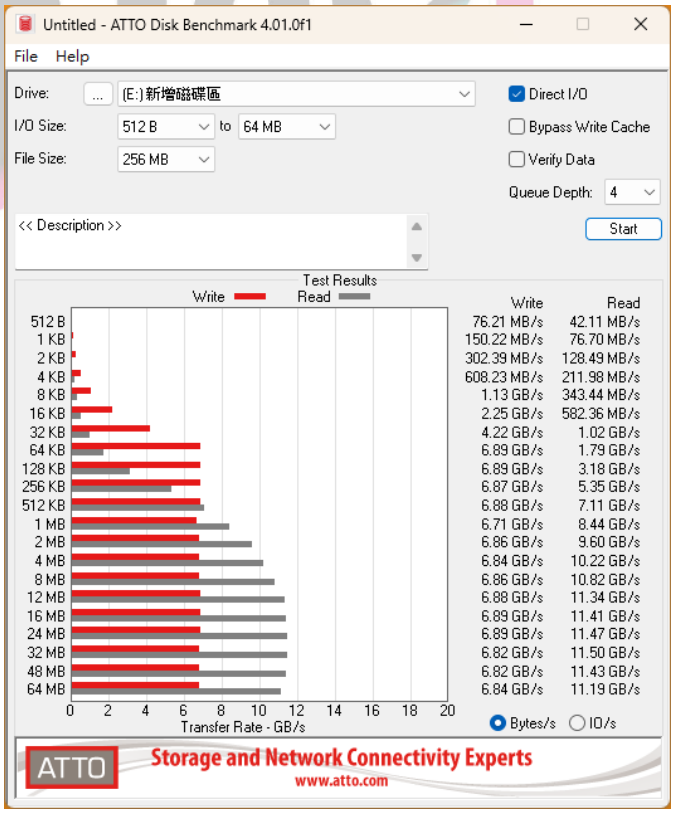


2.7 ATTO Disk Benchamrk 4.01 performance test

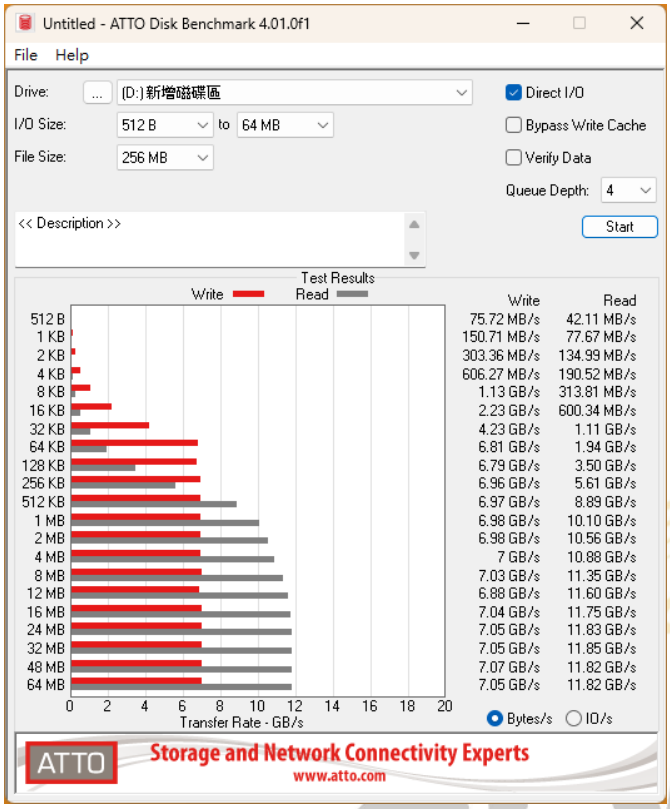
2.7.1 Samsung U.2 PM1783 / 15.36TB NVMe performance in Lane 0~3 as below:



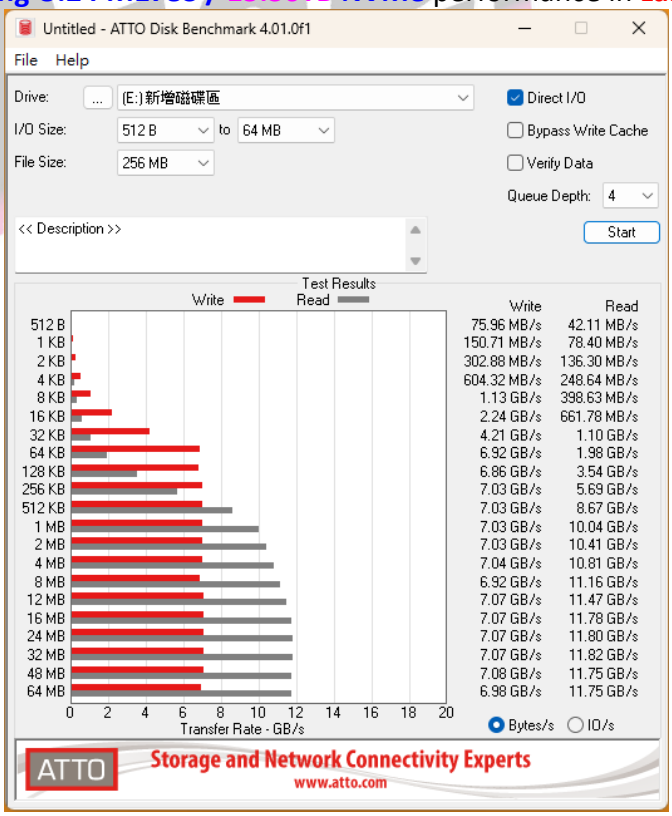
2.7.2 Samsung U.2 PM1783 / 15.36TB NVMe performance in Lane 4~7 as below:



2.7.3 Samsung U.2 PM1783 / 15.36TB NVMe performance in Lane 8~11 as below:



2.7.4 Samsung U.2 PM1783 / 15.36TB NVMe performance in Lane 12~15 as below:

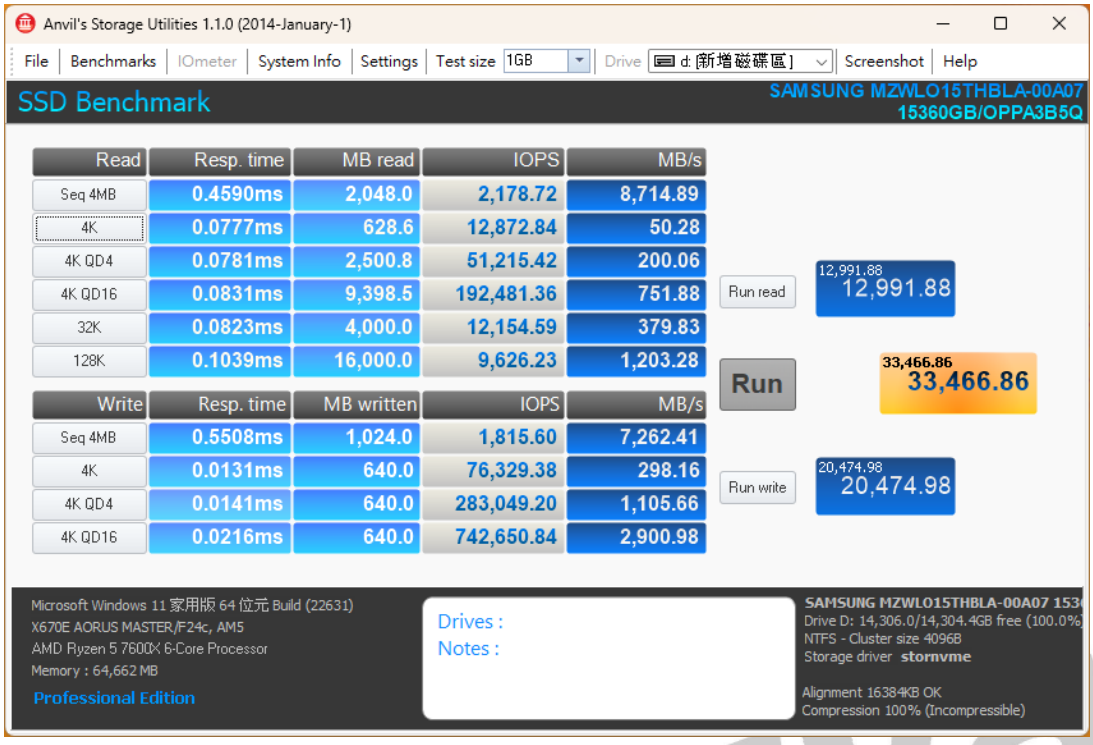


2.8 AnvilBenchmark_V110_B337

2.8.1 Samsung U.2 PM1783 / 15.36TB NVMe performance in Lane 0~3 as below:

2.8.2 Samsung U.2 PM1783 / 15.36TB NVMe performance in Lane 4~7 as below:

2.8.3 **Samsung U.2 PM1783 / 15.36TB NVMe** performance in **Lane 8~11** as below:

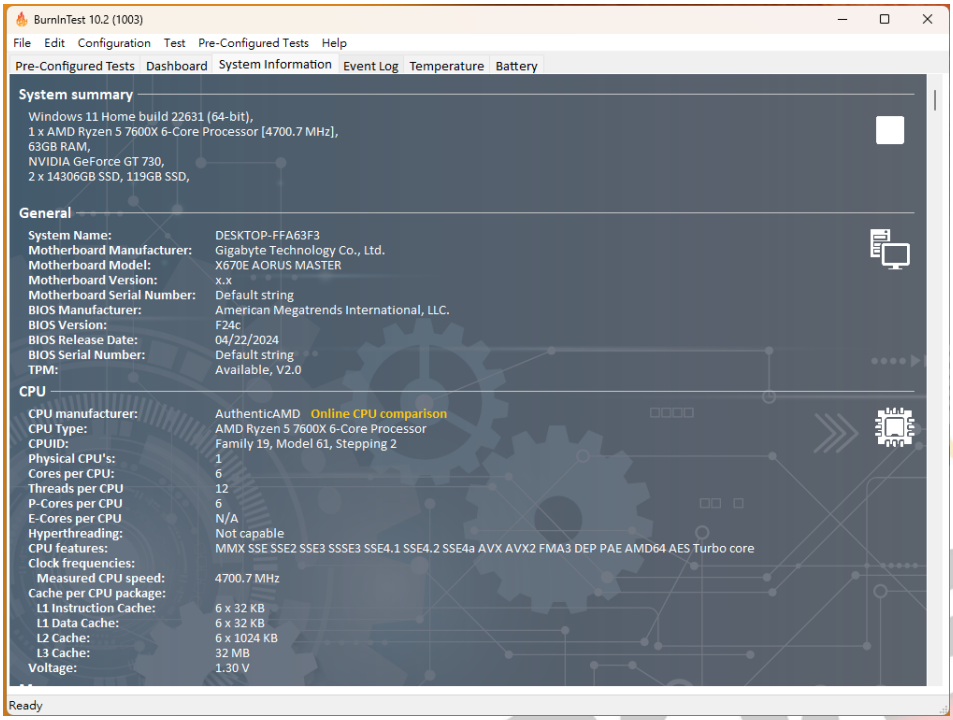


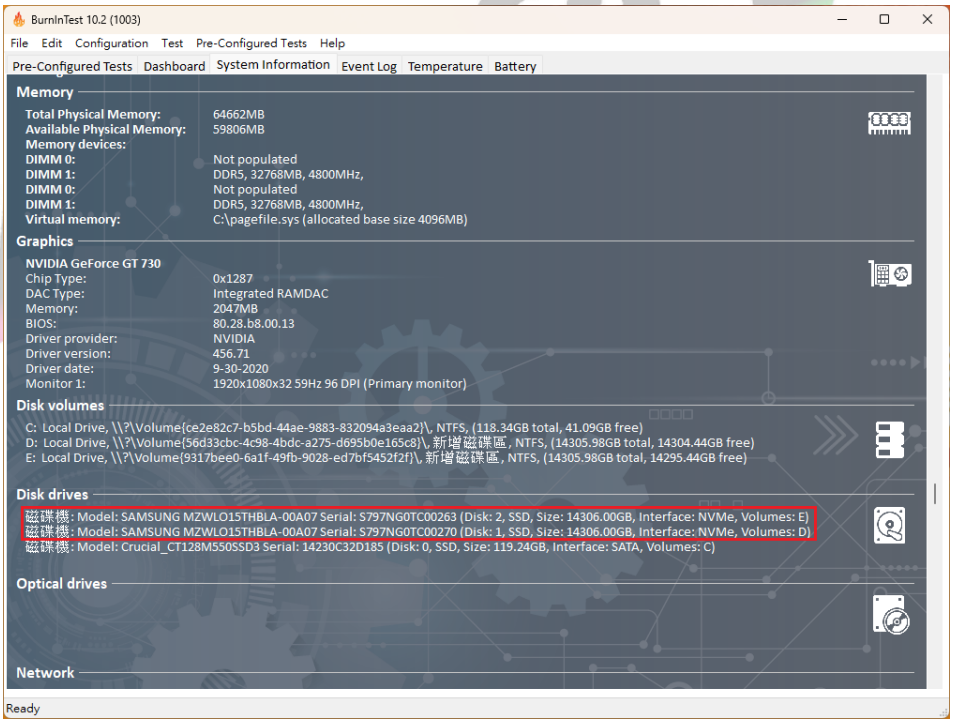
2.8.4 **Samsung U.2 PM1783 / 15.36TB NVMe** performance in **Lane 12~15** as below:

3. Burn In Tests and Results

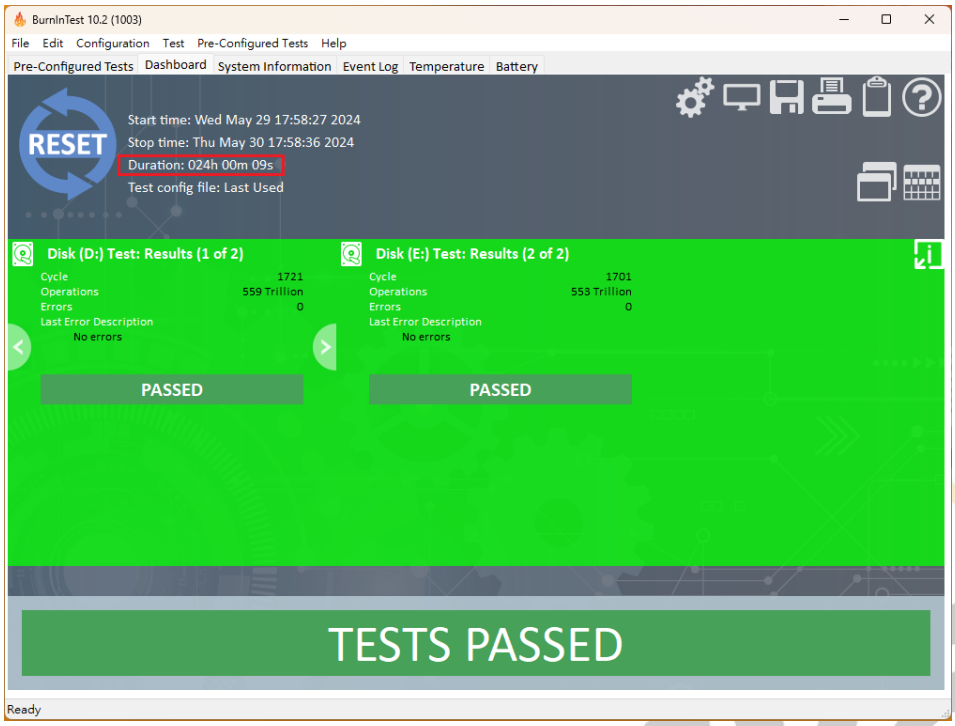
3.1 BurnInTest v10.2 Pro for Samsung U.2 PM1783 / 15.36TB SSD

3.1.1 System Information for lane 0~7 as below:

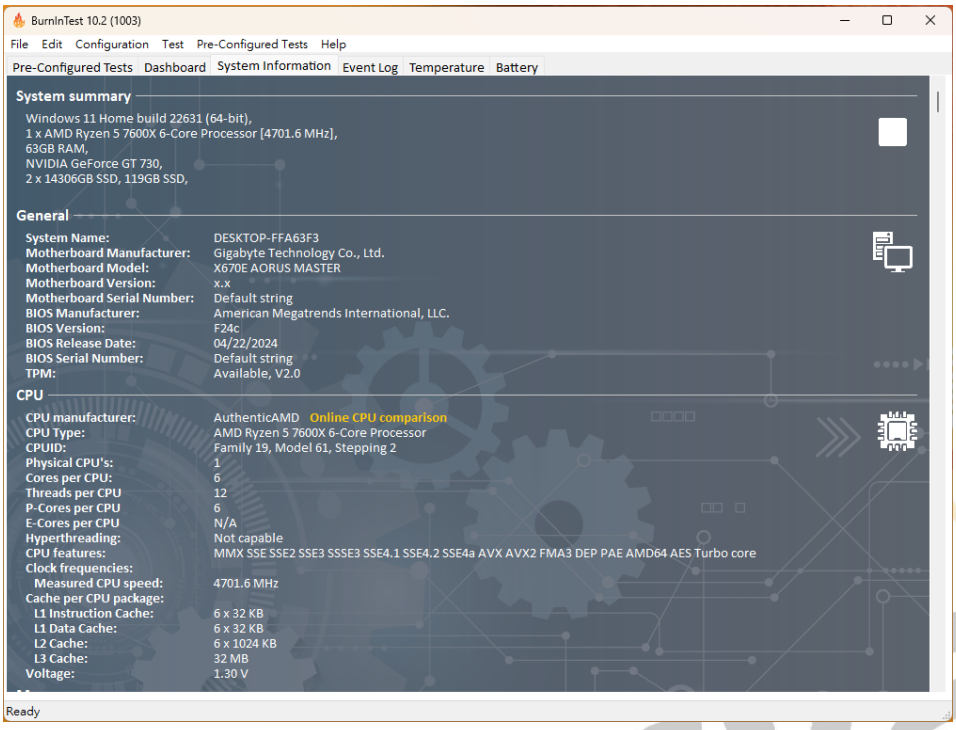


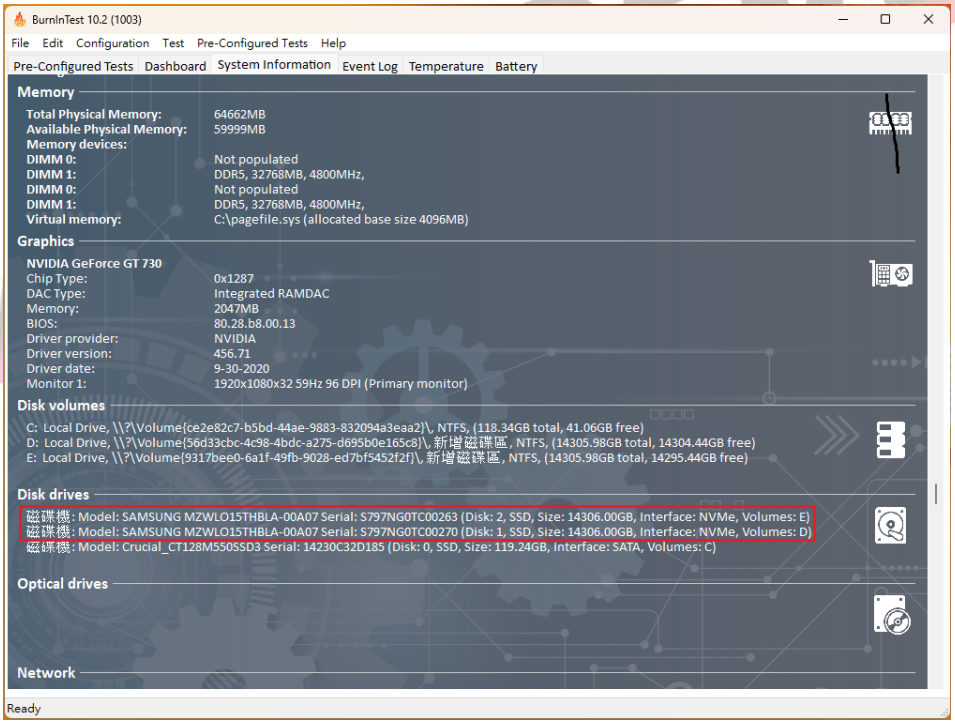


3.1.2 24-hour Burn-in test PASSED

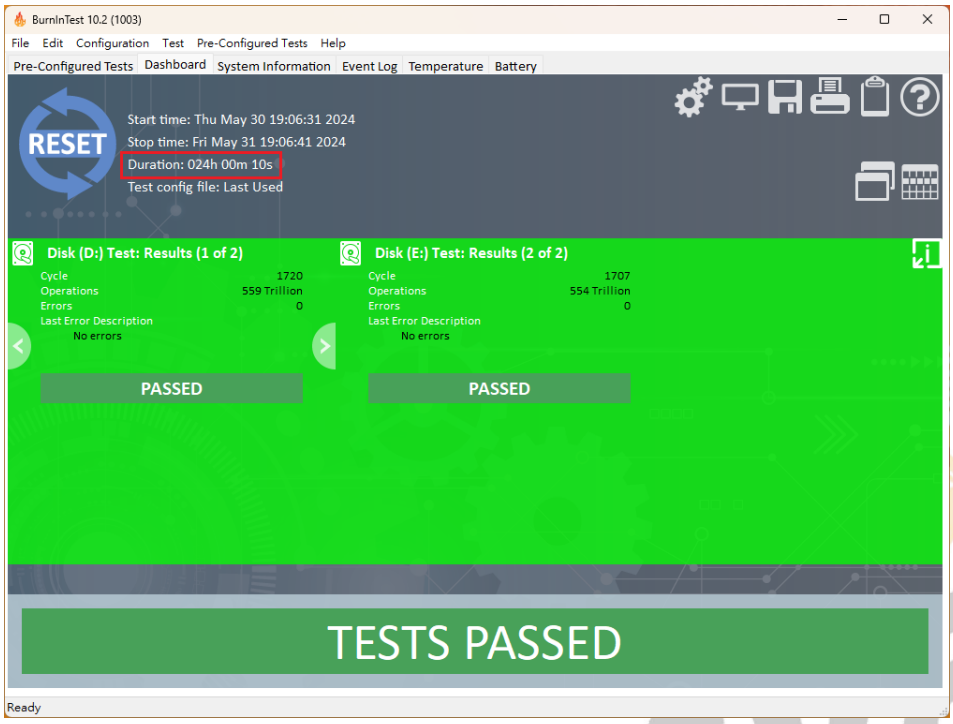


3.2.1 System Information for lane 8~15 as below:





3.2.2 24-hour Burn-in test PASSED



4. Summary

4.1 U.2 NVMe SSD is PCIe Gen 5, 32GT/s , 4 Lanes Interface, I/O speed, max. to 128Gbps.

4.2 EP6121 Host Bus Adapter I/O performance is based on U.2 NVMe SSD.