



MINERVA

EP4904 M.2 PCIe 5.0 with ReDriver for ARF6-16

Performance & Burn In Test Rev. 1. 0

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4. Summary

EP4904 Host Bus Adapter

1. Overview

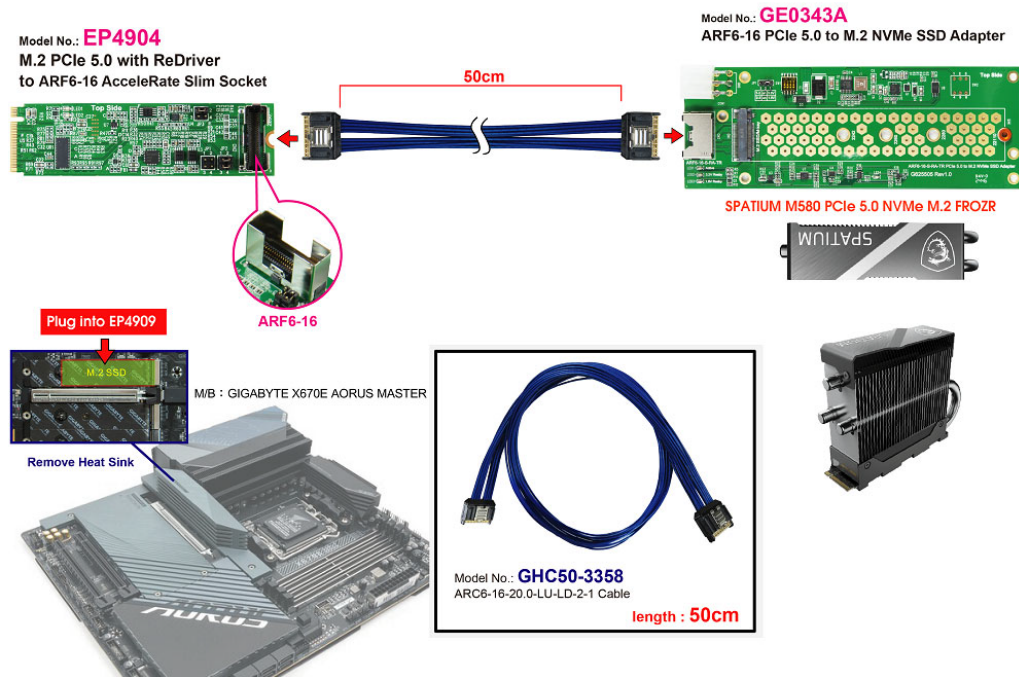
The M.2 Host Bus Adapter may implement PCIe 5.0 4-Lane, 32GT/s high-speed signals extension, built-in ReDriver controller to provides equalization up to **24 dB at 16 GHz** to ARF6-16 connector.

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: EP4904 M.2 PCIe 5.0 with Redriver to ARF6-16 adapter
- Cable: SAMTAC ARC6-16-20.0-LU-LD-2-1, **50cm** cable
- Adapter: GE0343A ARF6-16 to M.2 with Hot Plug Power protection adapter
- OS : Microsoft **Windows 11 64bit OS**

2.2 Test target: EP4904 AIC, GE0343A Adapter & MSI M580 **2TB** PCIe 5.0 M.2 NVMe SSD



EP4904 Host Bus Adapter

2.3 Install Hardware

Inserts M.2 NVMe SSD into GE0343A adapter converter's M.2 M-key connector, and then with coppers, and screws to fix SSDs. (Please refer to the Installation Notes). Connects GE0343A converter to EP4904 adapter(M.2 PCIe 5.0 with Redriver to ARF-6-16 Adapter), Using SAMTAC ARC6-16-20.0-LU-LD-2-1, 50cm cable and plugs EP4904 into M.2 PCIe 5.0 connector of GIGABYTE **X670E AORUS MASTER**

2.4 BIOS & Windows 11 OS environment setup

- 2.4.1 Primary SATA SSD installed Windows 11 OS.
- 2.4.2 M.2 NVMe SSD, formatted to NTFS Mode. Don't install any program.

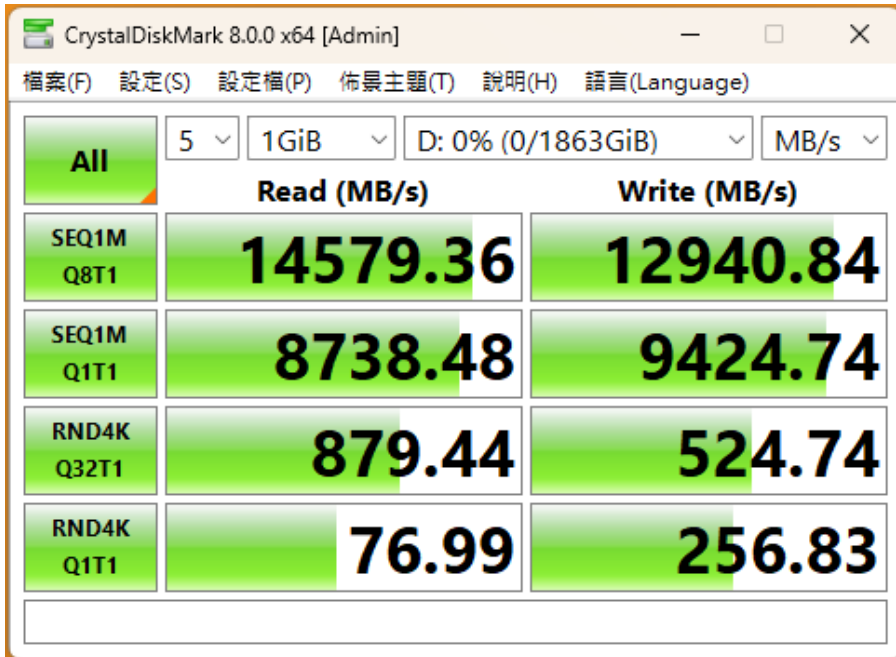


EP4904 Host Bus Adapter

2.5 CrystalDiskMark 8.0 x64 performance test

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

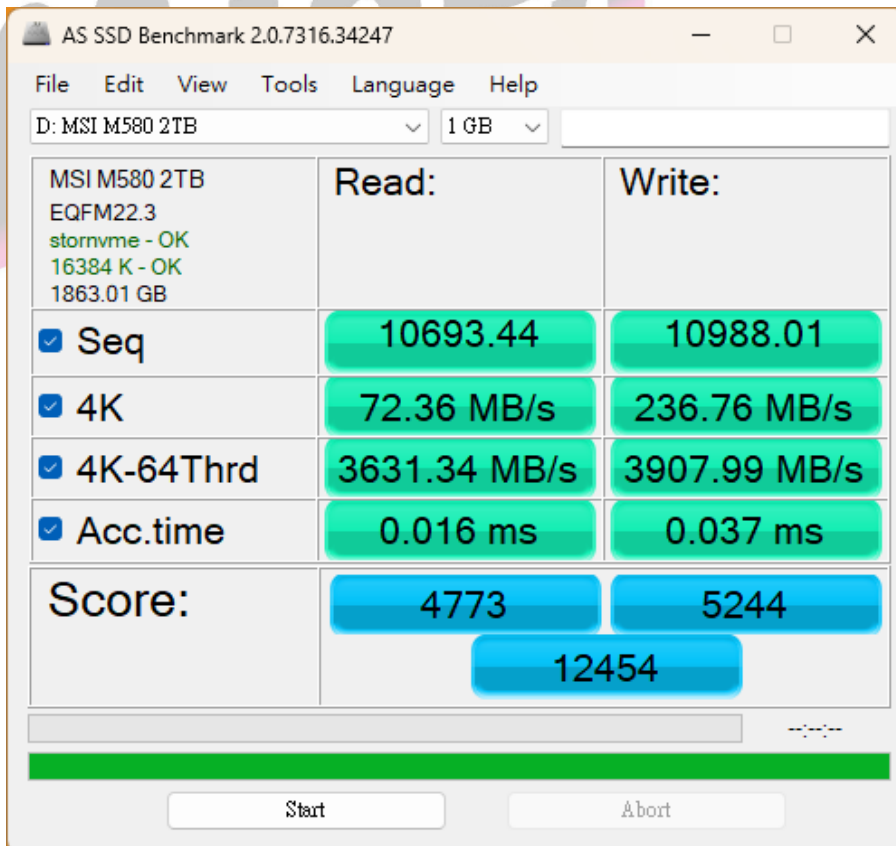
2.5.1 MSI M.2 NVMe SSD/ 2TB performance as below:



2.6 AS SSD Benchmark 2.0.7 performance test

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

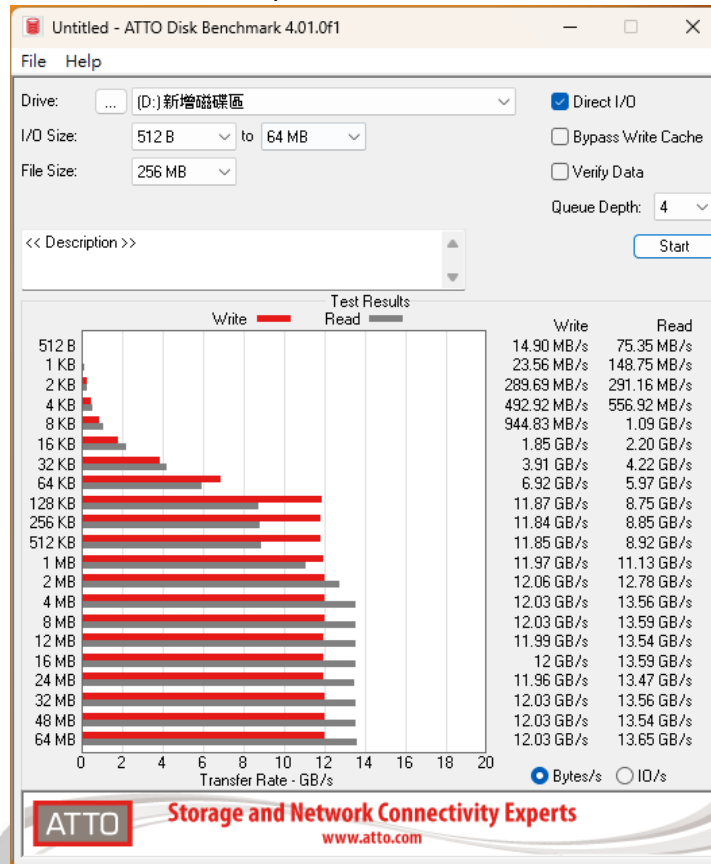
2.6.1 MSI M.2 NVMe SSD/ 2TB performance as below:



EP4904 Host Bus Adapter

2.7 ATTO Disk Benchmark 4.01 performance test

2.7.1 MSI M.2 NVMe SSD/ 2TB performance as below:



2.8 AnvilBenchmark_V110_B337

2.8.1 MSI M.2 NVMe SSD/ 2TB performance as below:

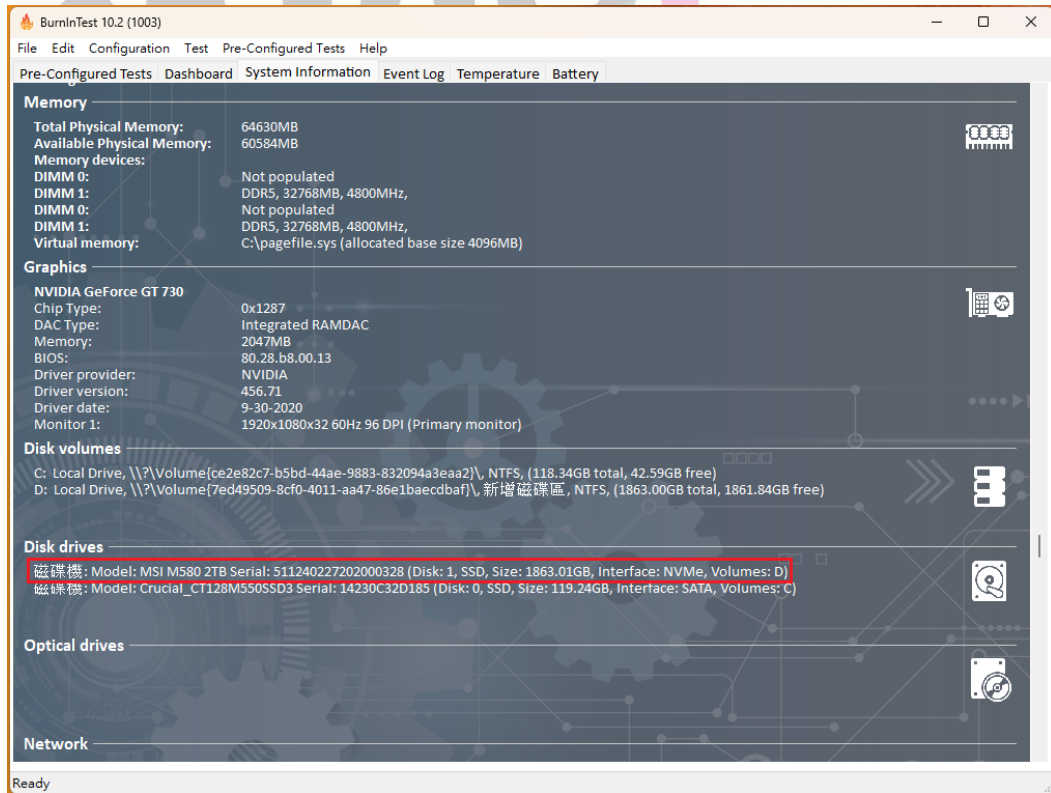
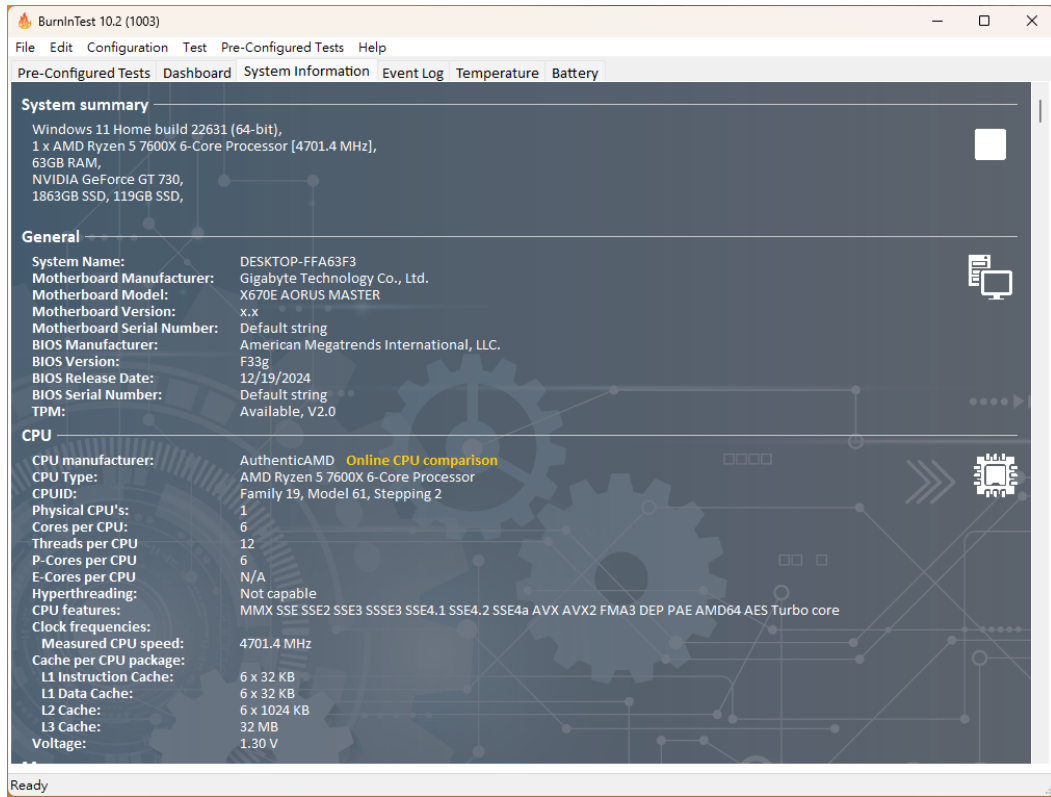


EP4904 Host Bus Adapter

3. Burn In Tests and Results

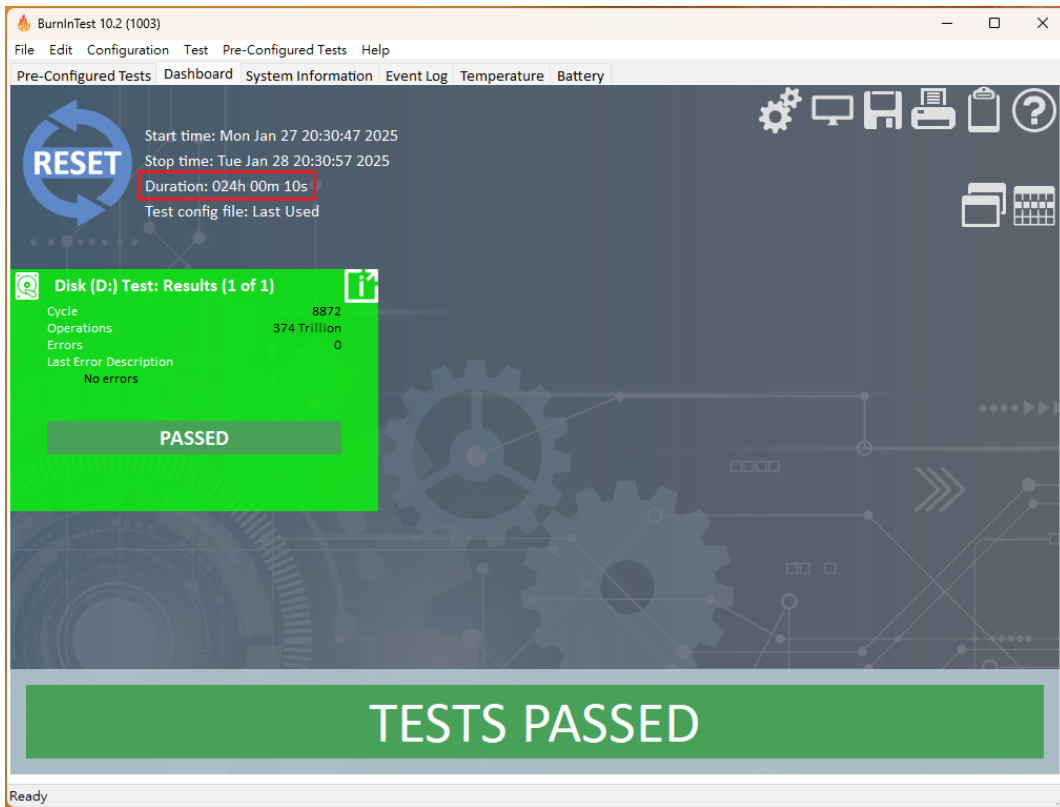
3.1 BurnInTest v10 Pro for MSI M.2 NVMe SSD/ 2TB

3.1.1 System Information as below:



EP4904 Host Bus Adapter

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



4. Summary

- 4.1 M.2 NVMe SSD is PCIe 5.0, 32GT/s, 4 Lanes Interface, I/O speed, max. up 128Gbps.
- 4.2 EP4904 AIC I/O performance is based on M.2 NVMe SSD.
- 4.3 GE0343A adapter I/O performance is based on M.2 NVMe SSD.