



MINERVA

EP4903 M.2 PCIe 5.0 with ReDriver for ARF6-16

Performance & Burn In Test Rev. 1. 0

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4. Summary

EP4903 Host Bus Adapter

1. Overview

The Host Bus Adapter may provide PCIe x4 Gen 5, 32GT/s high-speed signals extension, built-in ReDriver controller to provide equalization up to **24 dB at 16 GHz** to ARF6-16.

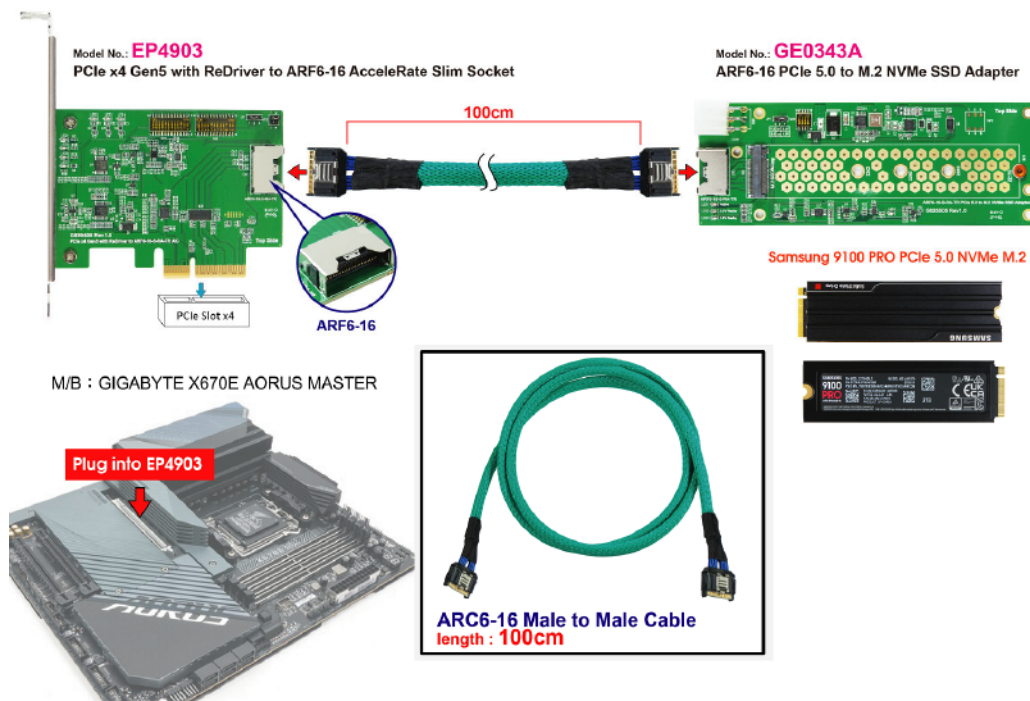
GE0343A Adapter, providing M.2 M-key connector can be M.2 NVMe SSD converted into ARF6-16 PCIe 5.0, 16GT/s 4-Lane interface.

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: EP4903 PCIe x4 Gen 5 with Redriver to ARF6-16 AIC
Cable: S2CEDA ARC6-16 Male to Male PCIe 5.0, **100cm** Cable
Adapter: GE0343A ARF6-16 to M.2 with Hot Plug Power protection adapter
OS : Microsoft **Windows 11 64bit OS**

2.2 Test target: EP4903 AIC, GE0343A Adapter & Samsung 9100 pro **2TB** PCIe 5.0 M.2 SSD



EP4903 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 EP4903 AIC(PCIe x4 Gen 5 with Redriver to ARF6-16 AIC), Using ARC6-16 Male to Male, 100cm cable and plugs EP4903 into PCIe x16 Slot of GIGABYTE **X670E AORUS MASTER**

2.4 BIOS & Windows 10 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.

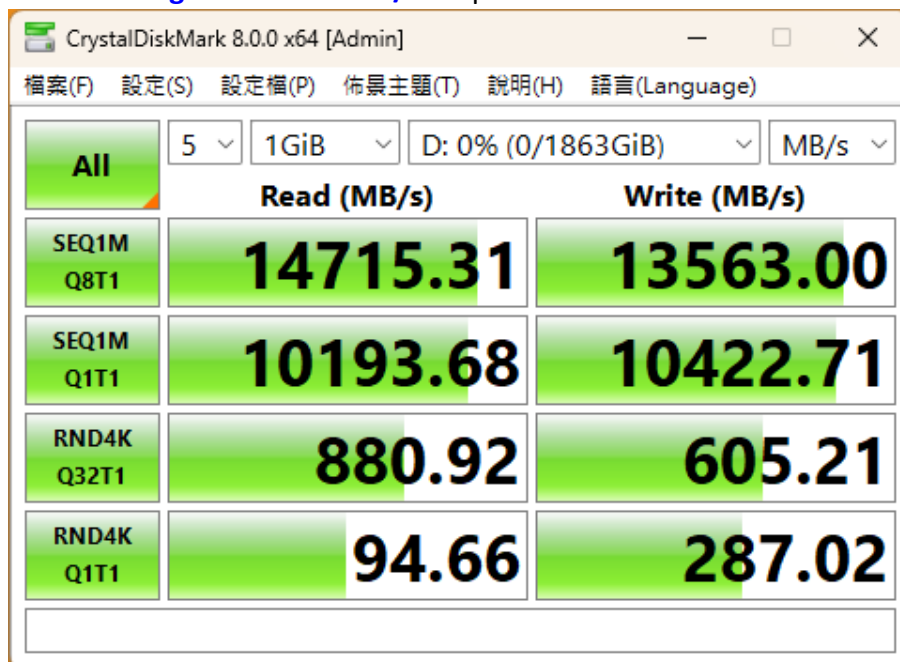


EP4903 Host Bus Adapter

2.5 CrystalDiskMark 8.0 x64 performance test

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

2.5.1 Samsung M.2 NVMe SSD/ 2TB 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)

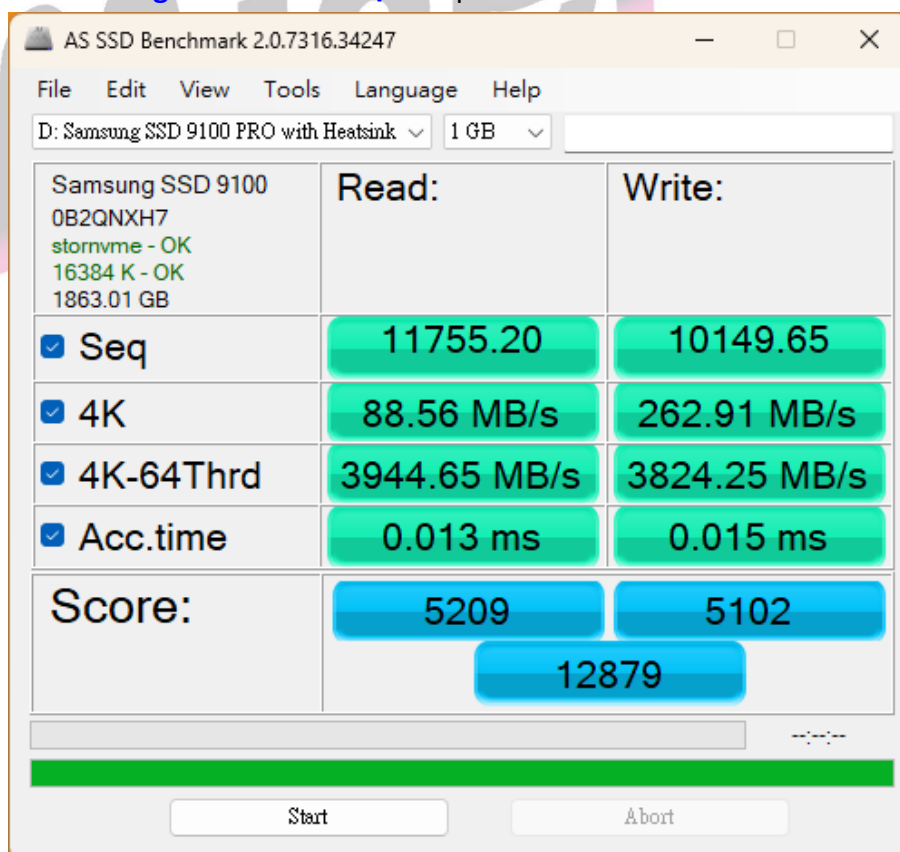
All 5 1GiB D: 0% (0/1863GiB) MB/s

	Read (MB/s)	Write (MB/s)
SEQ1M Q8T1	14715.31	13563.00
SEQ1M Q1T1	10193.68	10422.71
RND4K Q32T1	880.92	605.21
RND4K Q1T1	94.66	287.02

2.6 AS SSD Benchmark 2.0.7 performance test

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

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



AS SSD Benchmark 2.0.7316.34247

File Edit View Tools Language Help

D: Samsung SSD 9100 PRO with Heatsink 1 GB

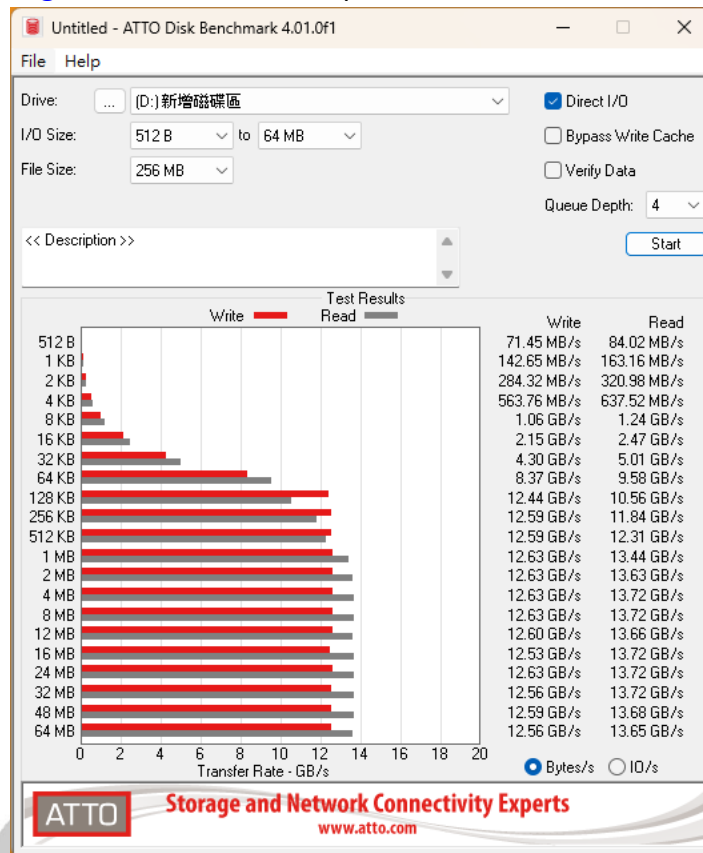
Samsung SSD 9100 0B2QNXH7 stornvme - OK 16384 K - OK 1863.01 GB	Read:	Write:
<input checked="" type="checkbox"/> Seq	11755.20	10149.65
<input checked="" type="checkbox"/> 4K	88.56 MB/s	262.91 MB/s
<input checked="" type="checkbox"/> 4K-64Thrd	3944.65 MB/s	3824.25 MB/s
<input checked="" type="checkbox"/> Acc.time	0.013 ms	0.015 ms
Score:	5209	5102
	12879	

Start Abort

EP4903 Host Bus Adapter

2.7 ATTO Disk Benchmark 4.01 performance test

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



2.8 AnvilBenchmark_V110_B337

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

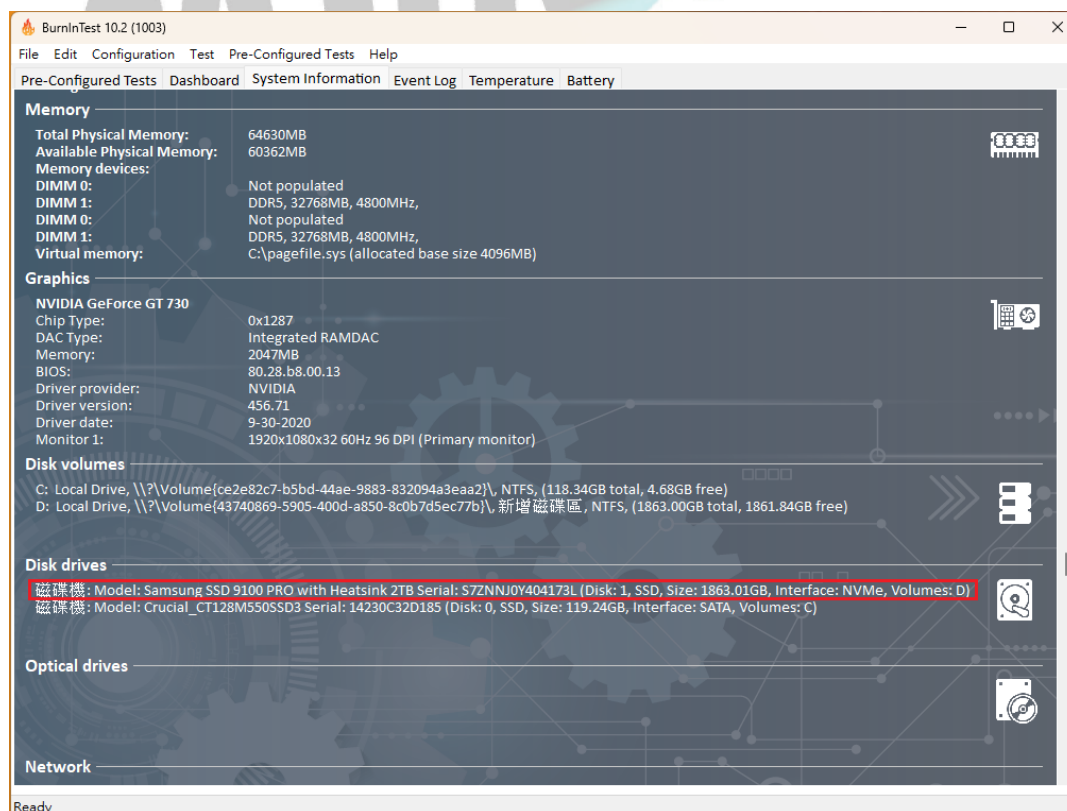
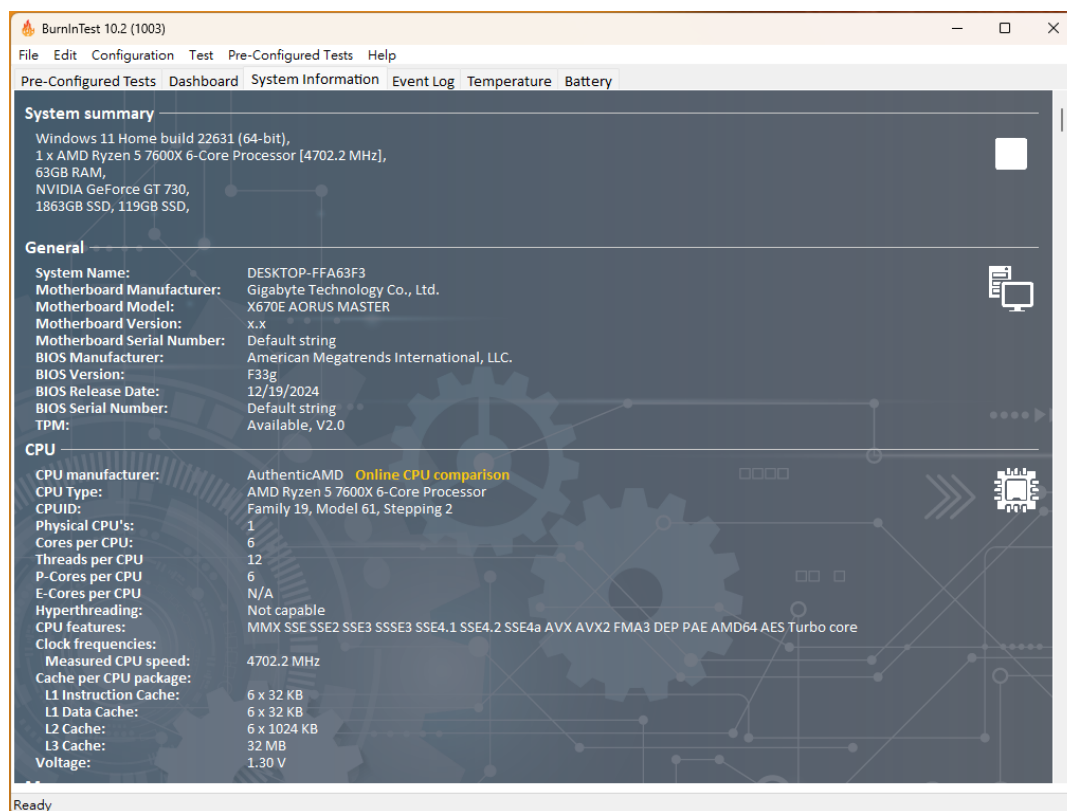


EP4903 Host Bus Adapter

3. Burn In Tests and Results

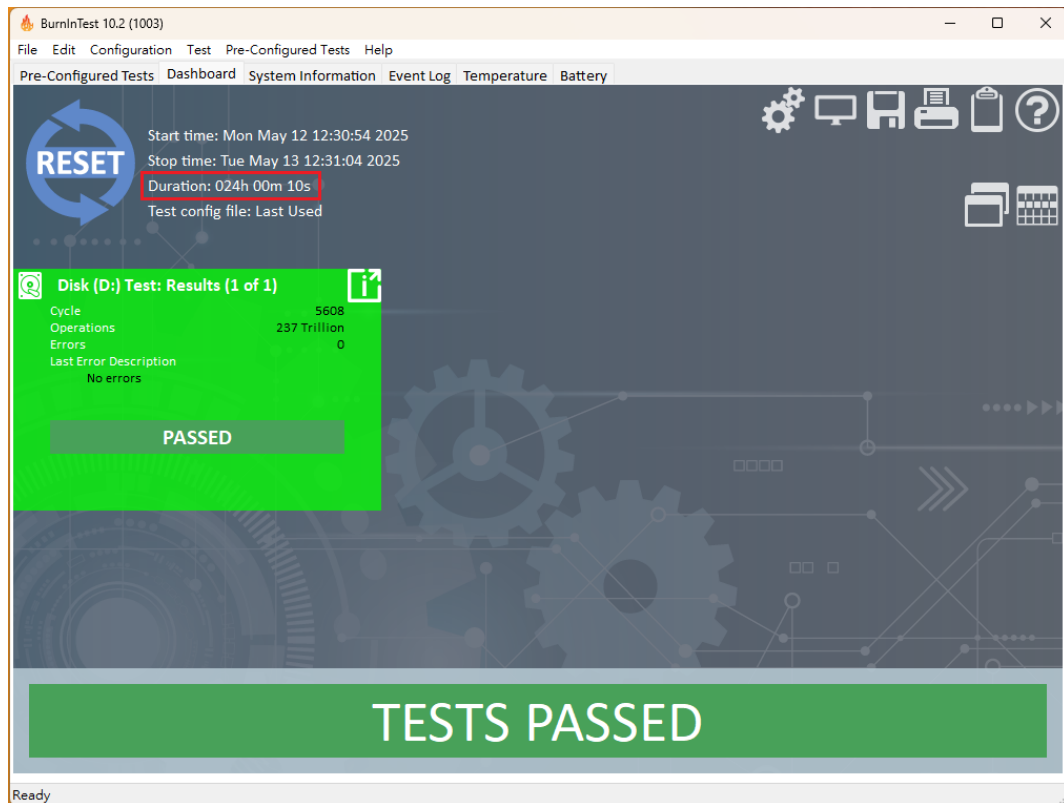
3.1 BurnInTest v10 Pro for Samsung M.2 NVMe SSD/ 2TB

3.1.1 System Information as below:



EP4903 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. to 128Gbps.
- 4.2 EP4903 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.