



MINERVA

EP4101 PCIe x4 Gen 5 with ReDriver for MCIO 38P

Performance & Burn In Test Rev. 1.0

PS: Using MCIO 38P PCIe 5.0 to U.2, **100cm** cable

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EP4101 Rev1.0 Host Bus Adapter

1. Overview

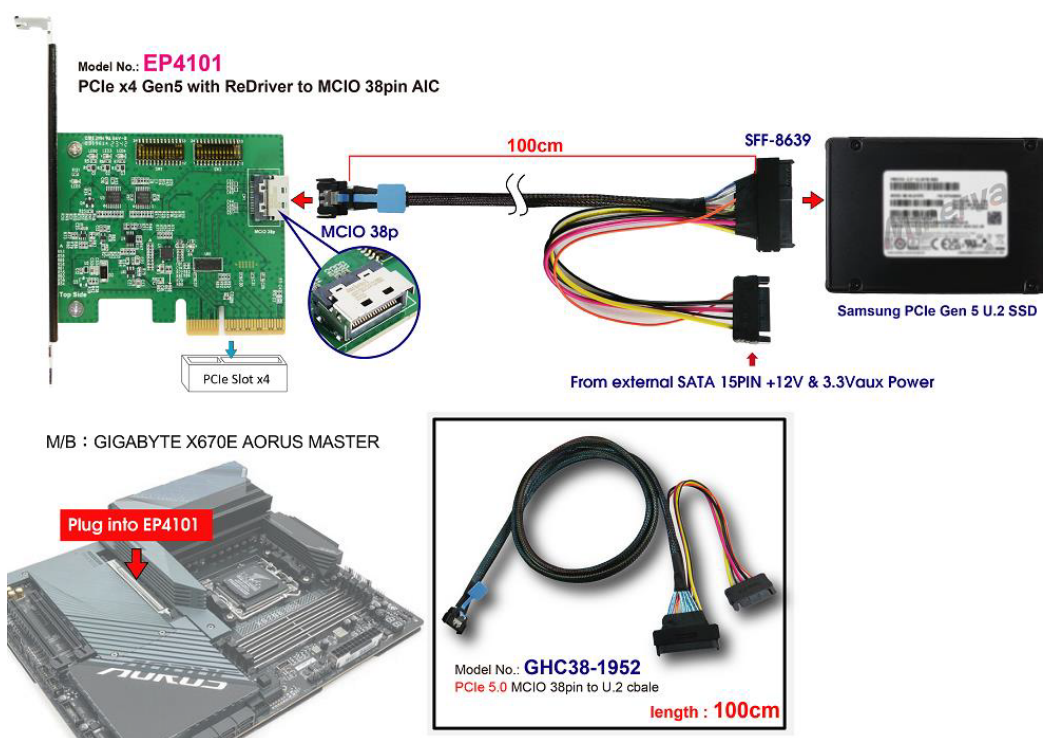
The Host Bus Adapter may provide PCIe x4 Gen 5, 32GT/s high-speed signals extension, built-in ReDriver controller to provides equalization up to **24 dB at 16 GHz** to MCIO 38P.

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: EP4101 PCIe x4 Gen 5 with Redriver to MCIO 38P ADD-in Card
- Cable: MCIO 38P to U.2(SFF-8639) PCIe 5.0, **100cm** Cable
- OS : Microsoft **Windows 11 64bit OS**

2.2 Test target: EP4101 & Samsung **U.2 PM1783 / 15.36TB NVMe SSD**



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2.3 Install Hardware

Inserts U.2 NVMe SSD into MCIO 38P cable, and connects cable to EP4101 AIC. The EP4101 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.



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2.5 CrystalDiskMark 8.0 x64 performance test

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

2.5.1 Samsung U.2 PM1783 / 15.36TB NVMe SSD performance as below:

The screenshot shows the CrystalDiskMark 8.0.0 x64 [Admin] interface. The test is configured for 'All' tests, 5 passes, 1GiB block size, and D: 0% (0/2048GiB) usage. The results are as follows:

	Read (MB/s)	Write (MB/s)
SEQ1M Q8T1	14187.40	7662.69
SEQ1M Q1T1	6142.41	7665.23
RND4K Q32T1	895.61	664.66
RND4K Q1T1	52.99	310.27

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 SSD performance as below:

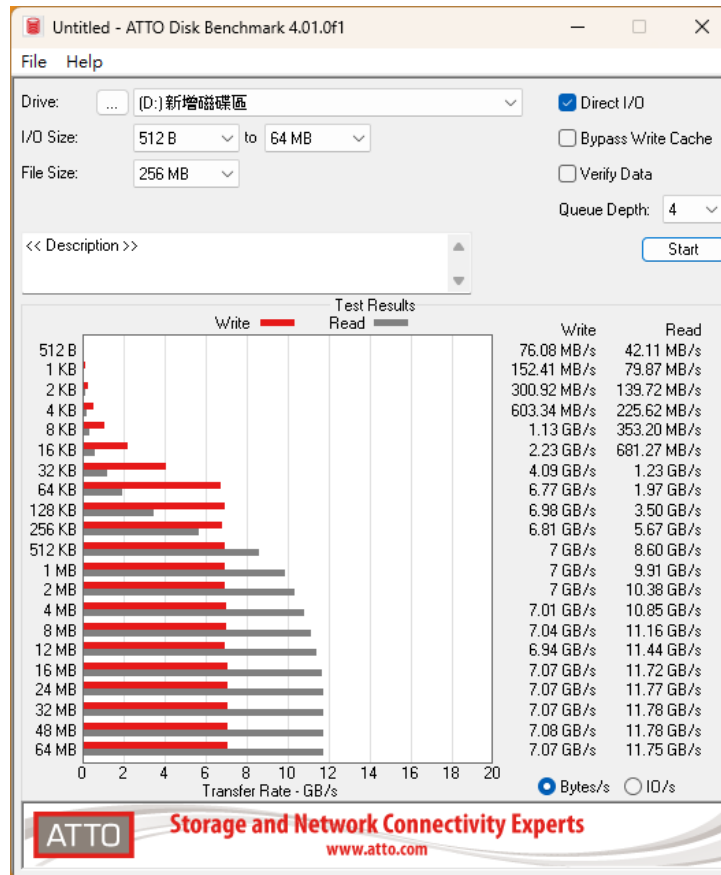
The screenshot shows the AS SSD Benchmark 2.0.716.34247 interface. The test is configured for D: SAMSUNG MZWLO15THBLA-00A07, 1 GB block size. The results are as follows:

	Read:	Write:
SAMSUNG OPPA3B5Q stornvme - OK 1024 K - OK 14306.00 GB		
<input checked="" type="checkbox"/> Seq	9454.39 MB/s	6799.16 MB/s
<input checked="" type="checkbox"/> 4K	49.64 MB/s	279.92 MB/s
<input checked="" type="checkbox"/> 4K-64Thrd	2852.17 MB/s	3840.61 MB/s
<input checked="" type="checkbox"/> Acc.time	0.071 ms	0.014 ms
Score:	3847	4800
	10463	

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2.7 ATTO Disk Benchmark 4.01 performance test

2.7.1 Samsung U.2 PM1783 / 15.36TB NVMe SSD performance as below:



2.8 AnvilBenchmark_V110_B337

2.8.1 Samsung U.2 PM1783 / 15.36TB NVMe SSD performance as below:

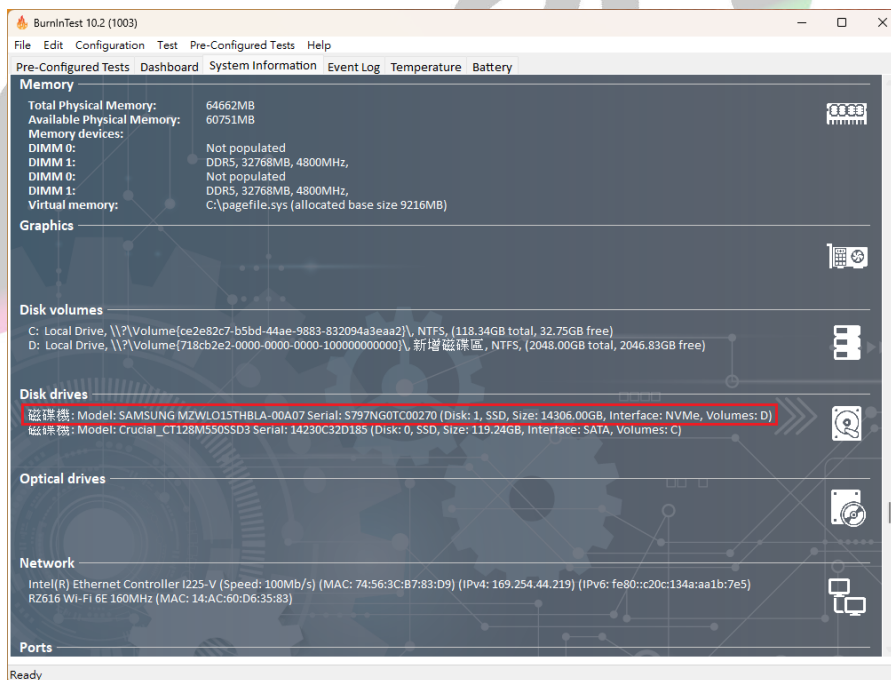
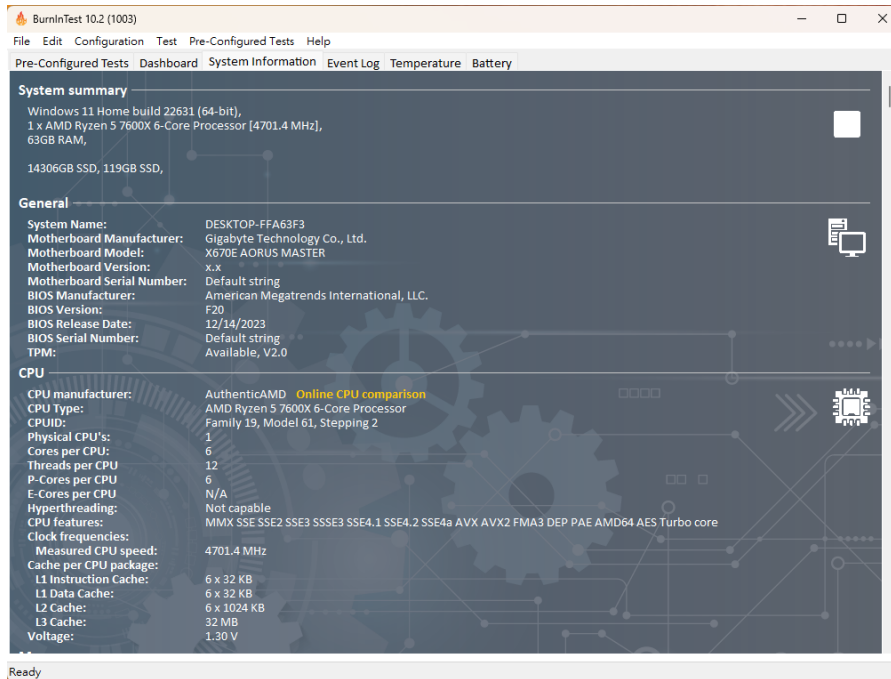


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3. Burn In Tests and Results

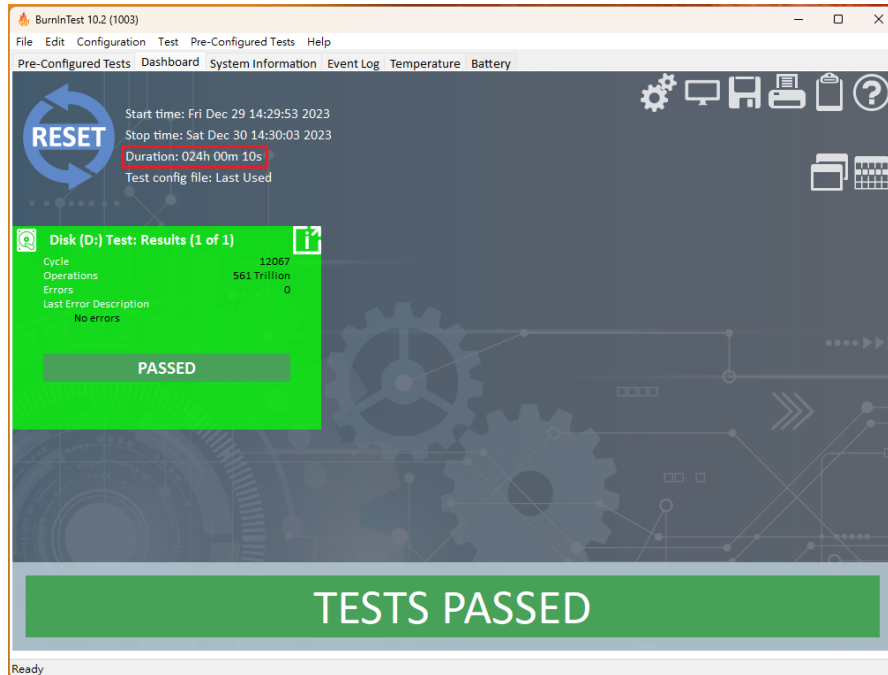
3.1 BurnInTest v10.2 Pro for Samsung U.2 PM1783 / 15.36TB NVMe SSD

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 NVMe SSD is PCIe Gen 5, 32GT/s , 4 Lanes Interface, I/O speed, max. to 128Gbps.
- 4.2 EP4101 Host Bus Adapter I/O performance is based on U.2 NVMe SSD.