



MINERVA

DP9301 PCIe x4 Gen 4 for OCulink 4i(SFF-8612) AIC

Performance & Burn In Test Rev. 1. 0

Table of Contents

1. Overview
2. Performance Measurement Tools and Results
 - 2.1 Test Platform
 - 2.2 Test target and M.2 NVMe SSD
 - 2.3 Install Hardware
 - 2.4 BIOS & Windows 10 OS environment setup
 - 2.5 CrystalDiskMark 8.0 x64 performance test
 - 2.6 AS SSD Benchmark 2.0.7 performance test
 - 2.7 ATTO Disk Benchamrk 4.0.1 performance test
 - 2.8 AnvilBenchmark_V110_B337 Benchmark performance test
3. Burn In Tests and Results
 - 3.1 BurnInTest v8.1 Pro burn in test
4. Summary

DP9301 Add-in Card

1. Overview

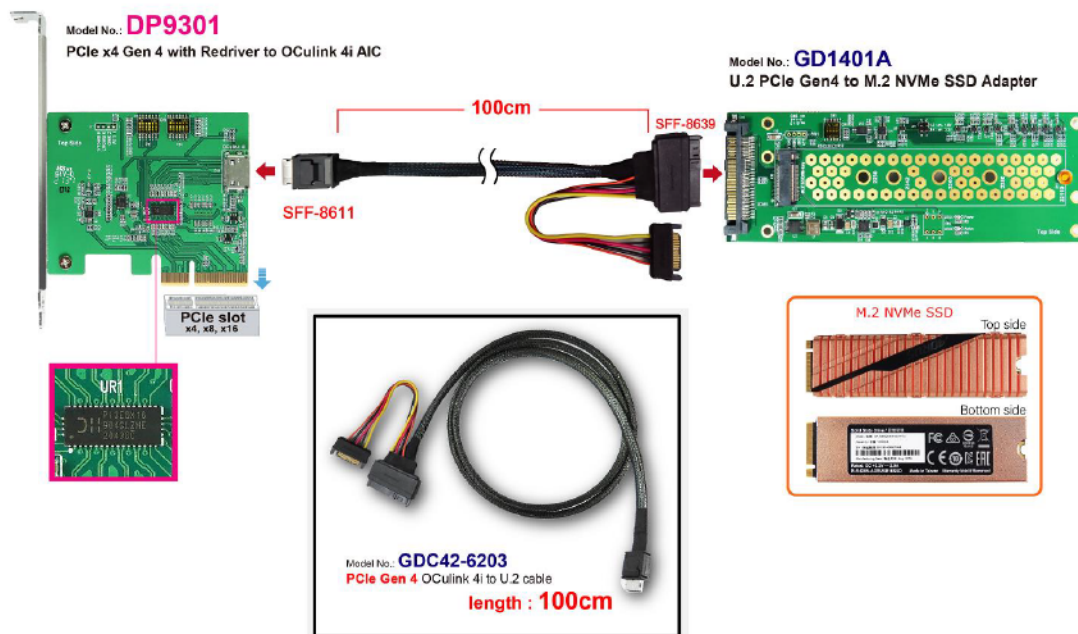
The Host Bus Adapter may provide PCIe x4 Gen4, 16GT/s high-speed signals extension to OCulink 4i(SFF-8612).

2. Tools and Results of Performance Measurement

2.1 Test Platform

M/B : GIGABYTE **X570 AORUS MASTER**
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: DP9301 PCIe x4 Gen 4 with **Redriver** to OCulink 4i Add-in Card
PS: AIC with **Diodes PCIe 4.0 ReDriver**
Adapter: GD1401A U.2 PCIe Gen 4 to M.2 NVMe Adapter
Cable: SFF-8611 to U.2(SFF-8639) PCIe Gen4 Cable, 100cm
OS : Microsoft **Windows 10 64bit OS**

2.2 Test target: GD1401A Adapter & **Gigabyte 1TB NVMe SSD**



DP9301 Add-in Card

2.3 Install Hardware

Inserts M.2 NVMe SSD into GD1401A adapter converter's M.2 M-key connector, and then with coppers, and screws to fix SSDs. (Please refer to the Installation Notes). Connects GD1401A converter to DP9301 AIC(PCIe x4 Gen4 with Redriver to OCulink 4i ADD-in Card), Using SFF-8611 4i to U.2(SFF-8639), 100cm cable and plugs DP9301 into GIGABYTE **X570 AORUS MASTER**

2.4 BIOS & Windows 10 OS environment setup

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

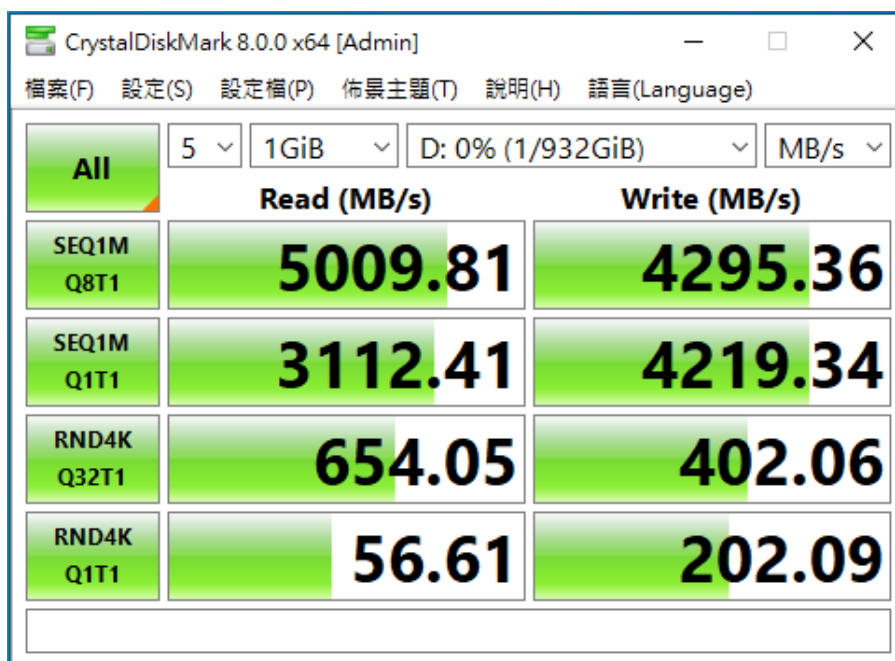
Innocard
Minerva

DP9301 Add-in Card

2.5 CrystalDiskMark 8.0 x64 performance test

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

2.5.1 Gigabyte M.2 NVMe SSD/1TB 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)

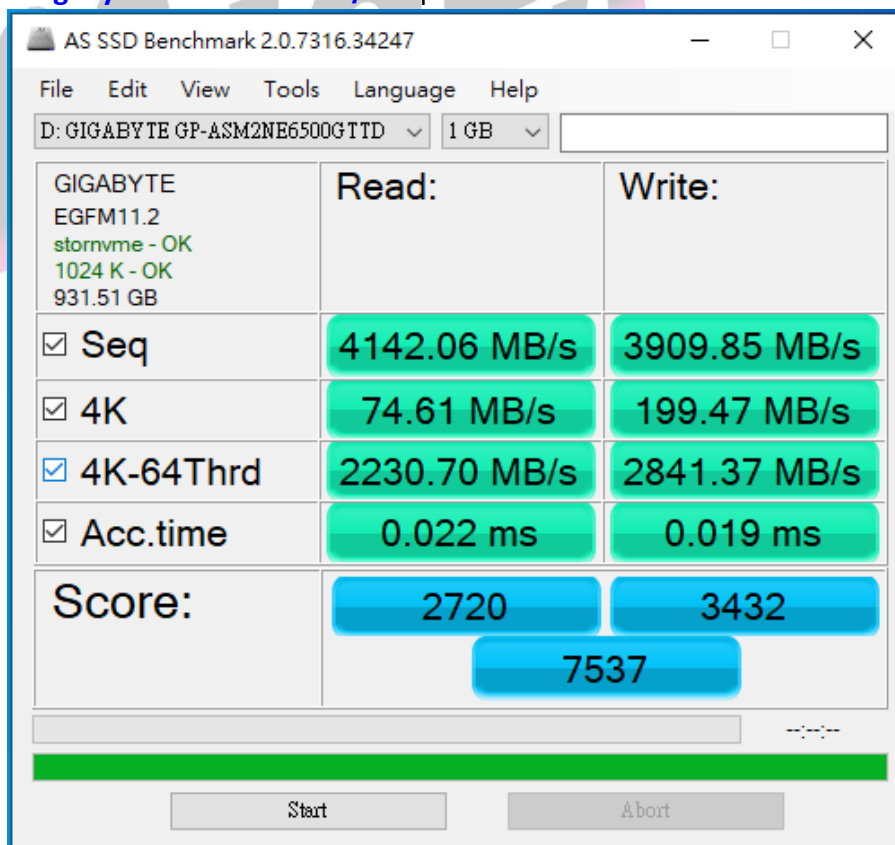
All 5 1GiB D: 0% (1/932GiB) MB/s

	Read (MB/s)	Write (MB/s)
SEQ1M Q8T1	5009.81	4295.36
SEQ1M Q1T1	3112.41	4219.34
RND4K Q32T1	654.05	402.06
RND4K Q1T1	56.61	202.09

2.6 AS SSD Benchmark 2.0.7 performance test

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

2.6.1 Gigabyte M.2 NVMe SSD/1TB performance as below:



AS SSD Benchmark 2.0.7316.34247

File Edit View Tools Language Help

D: GIGABYTE GP-ASM2NE6500GTTD 1 GB

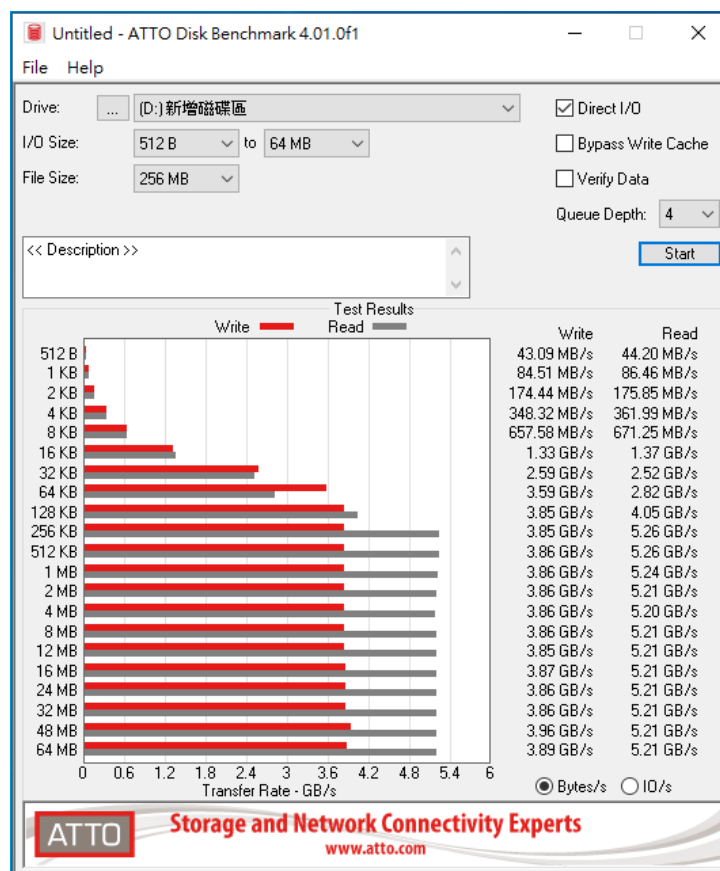
	Read:	Write:
GIGABYTE EGFM11.2 stornvme - OK 1024 K - OK 931.51 GB		
☒ Seq	4142.06 MB/s	3909.85 MB/s
☒ 4K	74.61 MB/s	199.47 MB/s
☒ 4K-64Thrd	2230.70 MB/s	2841.37 MB/s
☒ Acc.time	0.022 ms	0.019 ms
Score:	2720	3432
	7537	

Start Abort

DP9301 Add-in Card

2.7 ATTO Disk Benchmark 4.01 performance test

2.7.1 Gigabyte M.2 NVMe SSD/1TB performance as below:



2.8 AnvilBenchmark V110_B337

2.8.1 Gigabyte M.2 NVMe SSD/1TB performance as below:

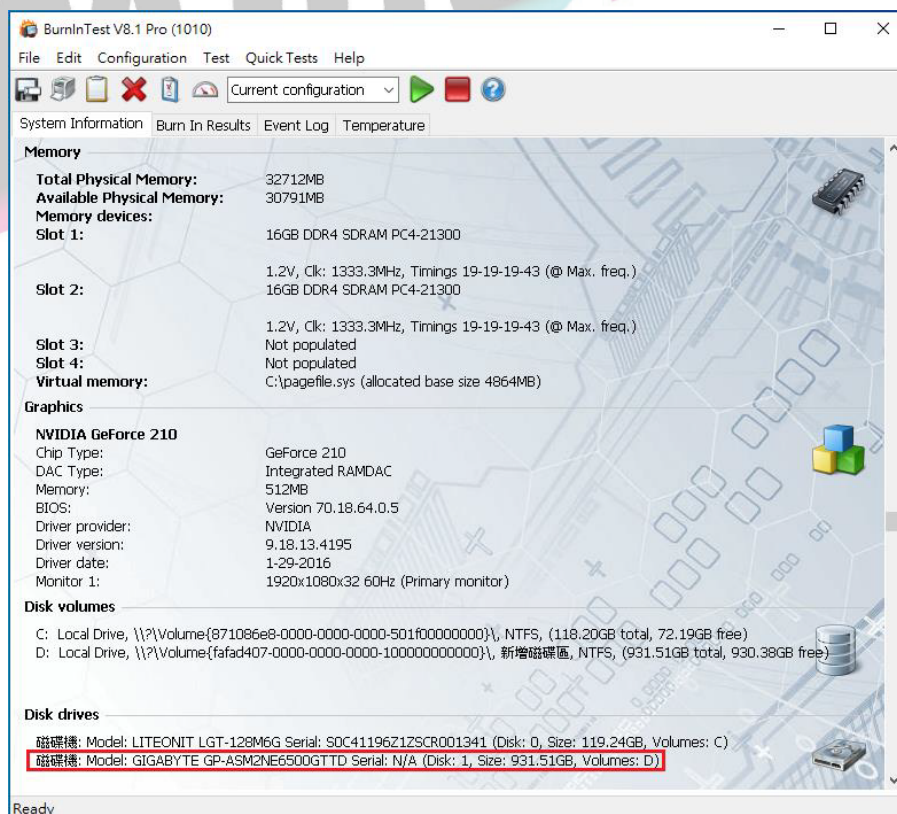
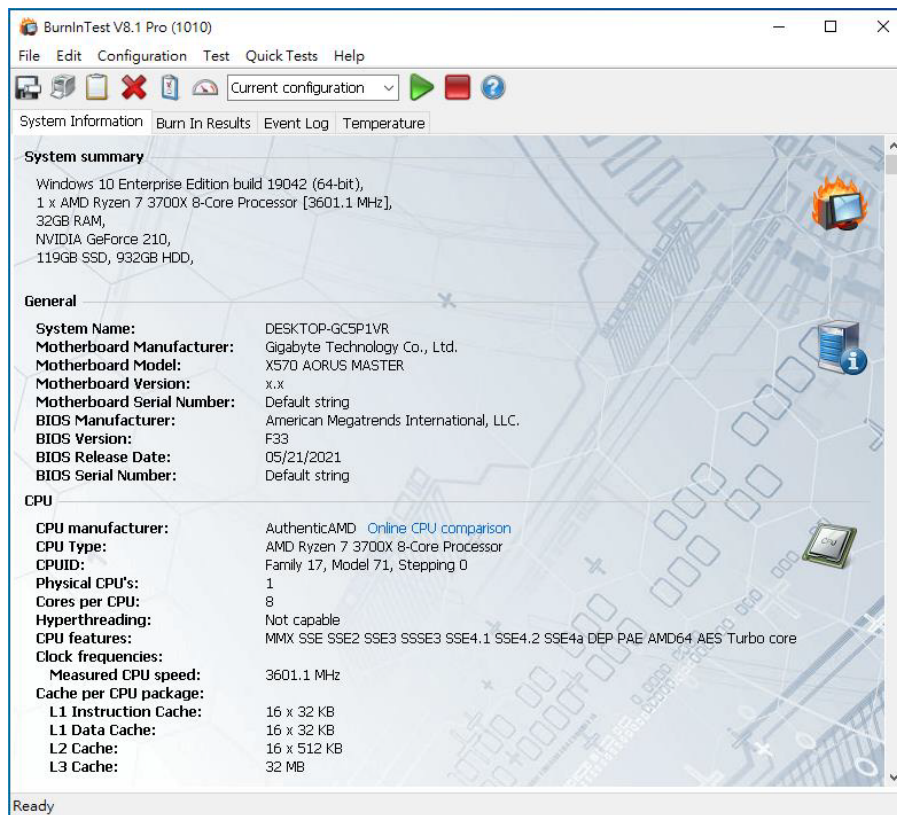


DP9301 Add-in Card

3. Burn In Tests and Results

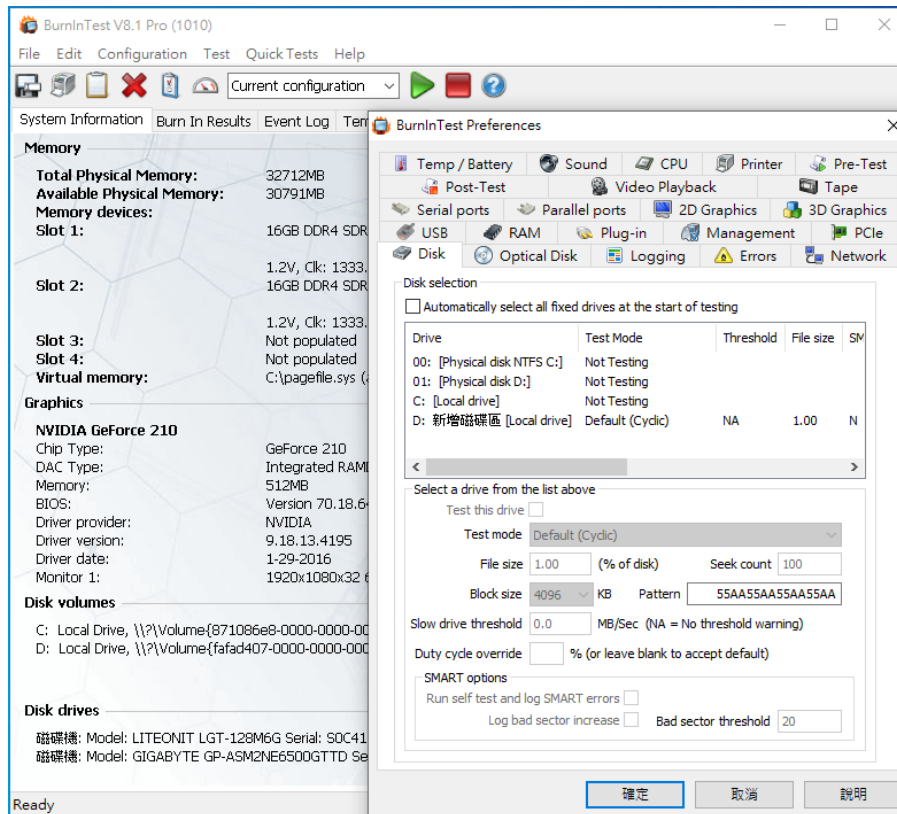
3.1 BurnInTest v8.1 Pro for [Gigabyte M.2 NVMe SSD / 1TB](#)

3.1.1 System Information as below:

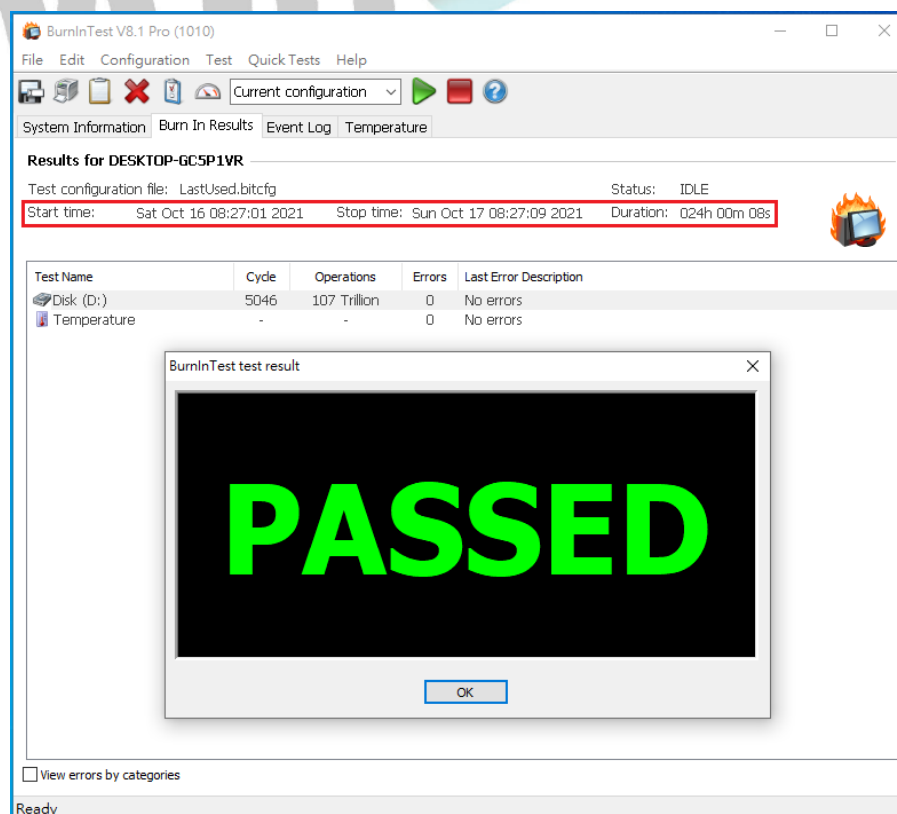


DP9301 Add-in Card

3.1.2 Disk test mode(10 ways cycle test)



3.1.3 24-hour Burn-in test PASSED



DP9301 Add-in Card

4. Summary

- 4.1 M.2 NVMe SSD is PCIe Gen4, 16GT/s , 4 Lanes Interface, I/O speed, max. to 64Gbps.
- 4.2 PD9301 AIC & GD1401A adapter I/O performance are based on M.2 NVMe SSD.

