



MINERVA

GD0804A SlimSAS 4i to PCIe x4 & U.2 to PCIe x4

Performance & Burn In Test Rev. 1. 0

✘ Using SFF-8654 4i to U.2, 50cm Cable

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

GD0804A Rev1.0

1. Overview

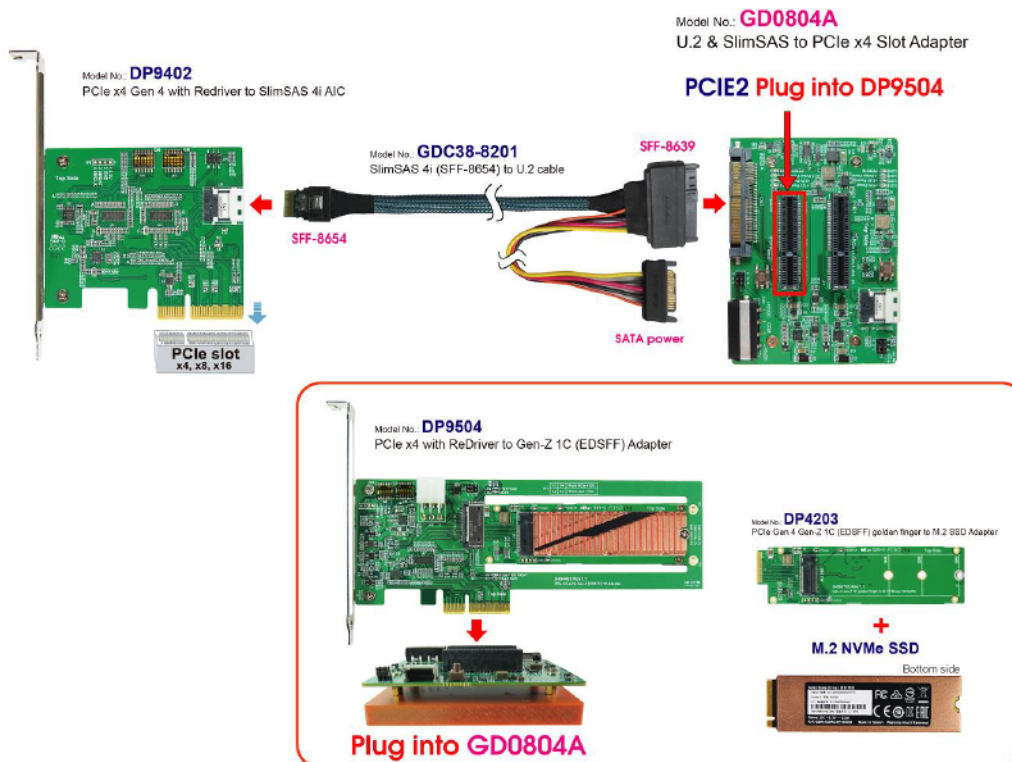
The Adapter may provide PCIe x4 Gen4, 16GT/s high-speed signals extension from U.2(SFF-8639) to PCIe x4 Slot.

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:	DP9402 PCIe x4 Gen 4 with Redriver to SlimSAS 4i Add-in Card
Adapter:	GD0804A U.2 to PCIe x4 Slot & Slim SAS 4i to PCIe x4 Slot
AIC:	DP9504 PCIe x4 Gen 4 with Redriver to Gen-Z 1C Add-in Card
Adapter:	DP4203 Gen-Z 1C to M.2 M-key adapter
Cable	SlimSAS 4i to U.2, 50cm cable
OS :	Microsoft Windows 10 64bit OS

2.2 Test target: GD0804A, DP9504, DP4203 & **GIGABYTE M.2/1TB NVMe SSD**



2.3 Install Hardware

Inserts M.2 NVMe SSD into DP4203 adapter, and plugs DP4203 to DP9504 AIC. The DP9504 plugs into GD0804A Adapter

2.4 BIOS & Windows 10 OS environment setup

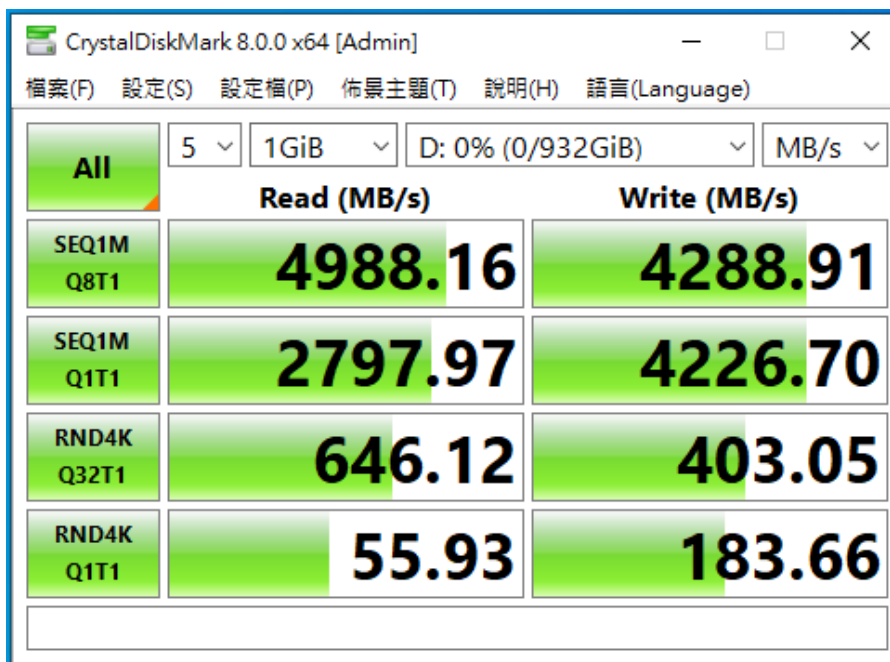
- 2.4.1 Primary SATA SSD installed Windows 10 OS.
- 2.4.2 M.2 NVMe SSD, formatted to NTFS Mode. Don't install any program.



2.5 CrystalDiskMark 8.0 x64 performance test

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

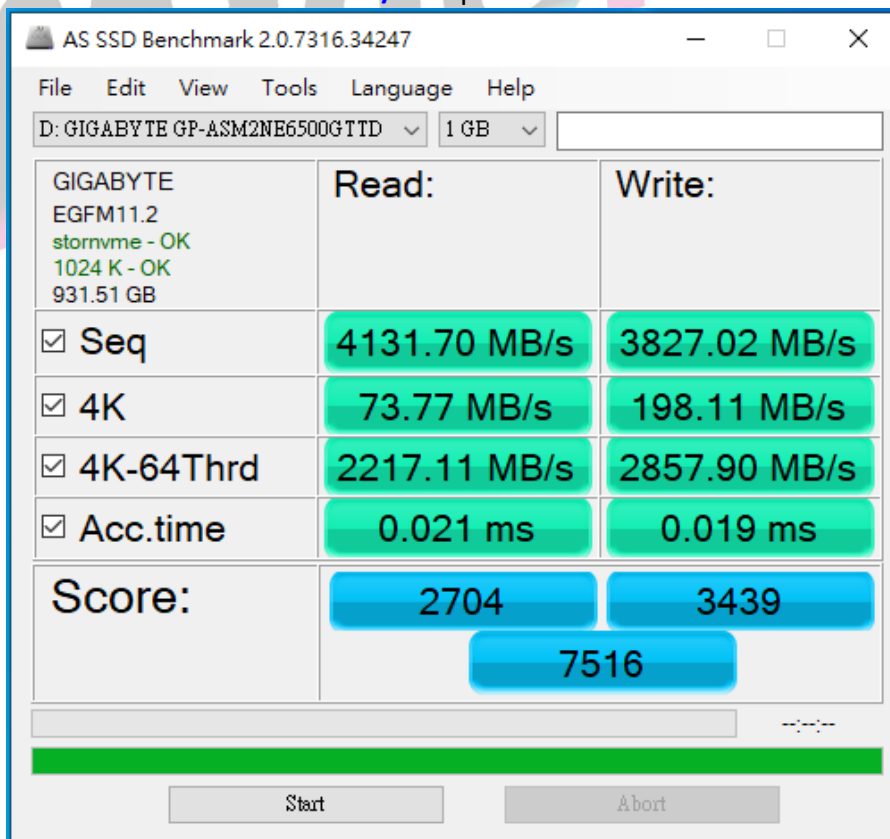
2.5.1 **GIGABYTE M.2 NVMe SSD/ 1TB** performance as below:



2.6 AS SSD Benchmark 2.0.7 performance test

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

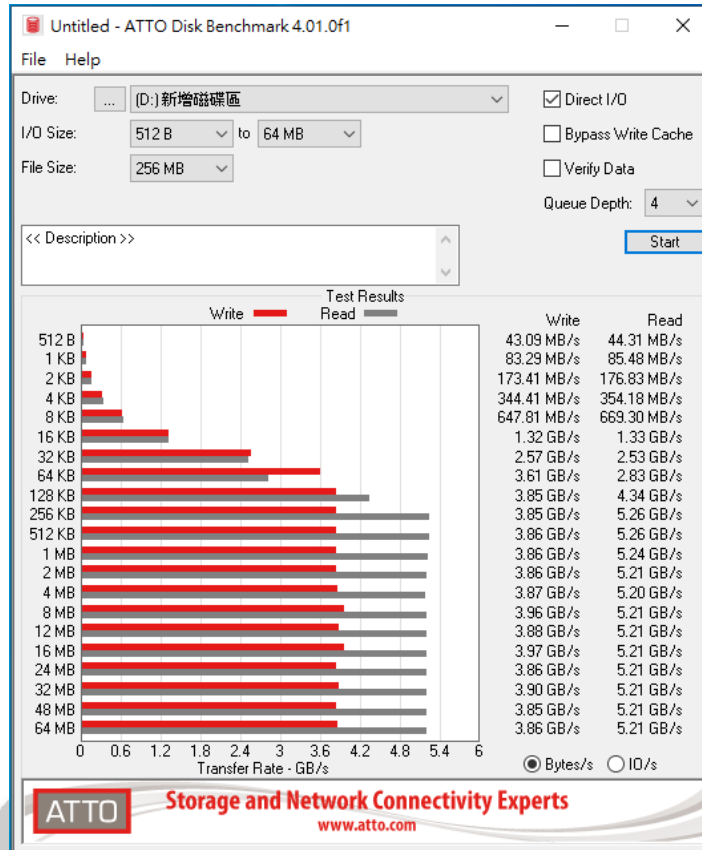
2.6.1 **GIGABYTE M.2 NVMe SSD/ 1TB** performance as below:



GD0804A Rev1.0

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:



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:

System summary
Windows 10 Enterprise Edition build 19042 (64-bit),
1 x AMD Ryzen 7 3700X 8-Core Processor [3601.1 MHz],
32GB RAM,
NVIDIA GeForce 210,
119GB SSD, 932GB HDD,

General

System Name:	DESKTOP-GCSP1VR
Motherboard Manufacturer:	Gigabyte Technology Co., Ltd.
Motherboard Model:	X570 AORUS MASTER
Motherboard Version:	x.x
Motherboard Serial Number:	Default string
BIOS Manufacturer:	American Megatrends International, LLC.
BIOS Version:	F33
BIOS Release Date:	05/21/2021
BIOS Serial Number:	Default string

CPU

CPU manufacturer:	AuthenticAMD Online CPU comparison
CPU Type:	AMD Ryzen 7 3700X 8-Core Processor
CPUID:	Family 17, Model 71, Stepping 0
Physical CPU's:	1
Cores per CPU:	8
Hyperthreading:	Not capable
CPU features:	MMX SSE SSE2 SSE3 SSSE3 SSE4.1 SSE4.2 SSE4a DEP PAE AMD64 AES Turbo core
Clock frequencies:	
Measured CPU speed:	3601.1 MHz
Cache per CPU package:	
L1 Instruction Cache:	16 x 32 KB
L1 Data Cache:	16 x 32 KB
L2 Cache:	16 x 512 KB
L3 Cache:	32 MB

Memory

Total Physical Memory:	32712MB
Available Physical Memory:	30558MB
Memory devices:	
Slot 1:	16GB DDR4 SDRAM PC4-21300
Slot 2:	1.2V, Clk: 1333.3MHz, Timings 19-19-19-43 (@ Max. freq.) 16GB DDR4 SDRAM PC4-21300
Slot 3:	1.2V, Clk: 1333.3MHz, Timings 19-19-19-43 (@ Max. freq.) Not populated
Slot 4:	Not populated
Virtual memory:	C:\pagefile.sys (allocated base size 4864MB)

Graphics

NVIDIA GeForce 210	
Chip Type:	GeForce 210
DAC Type:	Integrated RAMDAC
Memory:	512MB
BIOS:	Version 70.18.64.0.5
Driver provider:	NVIDIA
Driver version:	9.18.13.4195
Driver date:	1-29-2016
Monitor 1:	1920x1080x32 60Hz (Primary monitor)

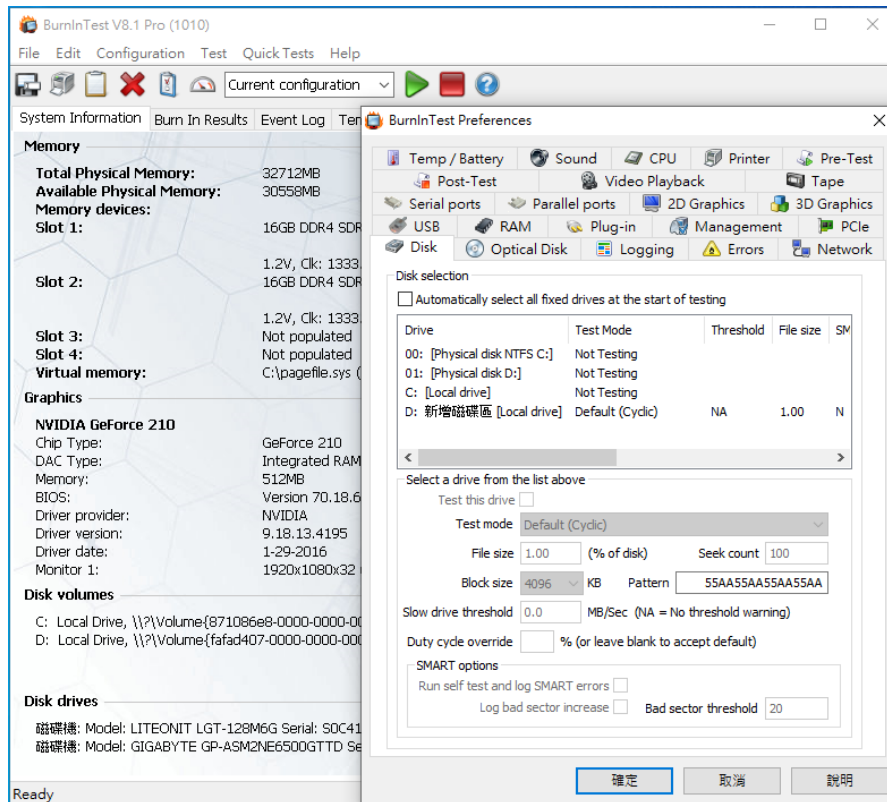
Disk volumes

C:	Local Drive, \\?\Volume{871086e8-0000-0000-0000-501f00000000}\, NTFS, (118.20GB total, 72.57GB free)
D:	Local Drive, \\?\Volume{fafad407-0000-0000-0000-100000000000}\, 新增磁碟區, NTFS, (931.51GB total, 931.38GB free)

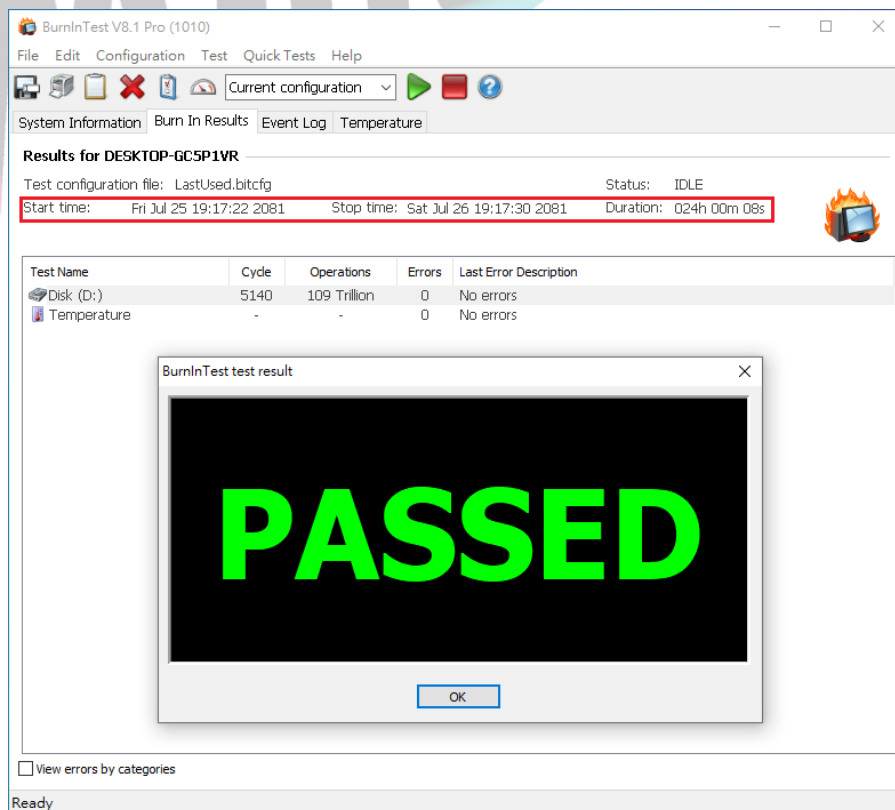
Disk drives

磁碟機:	Model: LITEONIT LGT-128M6G Serial: SOC41196Z1ZSCR001341 (Disk: 0, Size: 119.24GB, Volumes: C)
磁碟機:	Model: GIGABYTE GP-ASM2NE6500GTTD Serial: N/A (Disk: 1, Size: 931.51GB, Volumes: D)

3.1.2 Disk test mode(10 ways cycle test)



3.1.3 24-hour Burn-in test PASSED



4. Summary

- 4.1 M.2 NVMe SSD is PCIe Gen 4, 16GT/s , 4 Lanes Interface, I/O speed, max. to 64Gbps.
- 4.2 GD0804A Adapter I/O performance is based on M.2 NVMe SSD.
- 4.3 DP9504 Host Bus Adapter I/O performance is based on M.2 NVMe SSD.
- 4.4 DP4203 Host Bus Adapter I/O performance is based on M.2 NVMe SSD.

