

PCIe x8 Gen 4 with ReDriver to MCIO 74P AIC

## Performance & Burn In Test Rev 1.0

## PS: The test is used MCIO 74P to SFF-8654 4i, 100cm Y-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 x2
  - 2.3 Install Hardware
  - nnocar 2.4 BIOS & Windows 10 OS environment setup
  - 2.5 CrystalDiskMark 8.0.0 x64 performance test
  - 2.6 AS SSD Benchmark 4.0 performance test
  - 2.7 ATTO Disk Benchamrk 4.01 performance test
  - 2.8 AnvilBenchmark V110 B337 Benchmark performance test
- 3. Burn In Tests and Results
  - 3.1 BurnInTestv10.2 Pro burn in test
- 4. Summary

## 1. Overview

This riser card is built-in ReDriver controller with MCIO 74P connector. It is designed for use by PCIe x8 to configure two x4 bifurcations or can extend PCIe x8 channel reach. The ReDriver may support CTLE boosts up to **13 dB at 8 GHz**.

## 2. Tools and Results of Performance Measurement

### 2.1 Test Platform

M/B :	ASUS PRIME X570-PRO
CPU :	AMD Ryzen 7, 3700X 8-Core
Memory :	Kingston KVR26N19D8/16, DDR4-2666MHz, 32GB(16GB DIMM*2)
ATX Power :	COOLER MASTER G750M, <b>750W ATX</b> , 12V V2.2 Power Supply
Add in Card:	DP8414 PCIe x8 Gen 4 to MCIO 74P AIC
Cable:	PCIe 4.0 MCIO 74P to SlimSAS(SFF-8654) 4ix2, 100cm Y-Cable
Adapter:	GD2409A SlimSAS(SFF-8654) 4i PCIe 4.0 to M.2 adapter x2
OS :	Microsoft Windows 10 64bit OS

2.2 Test target: DP8414, GD2409A adapter x2 with GIGABYTE M.2 1TB SSD X2



### 2.3 Install Hardware

First inserts the M.2 SSD into the GD2409A M.2 connector, then with copper nuts, and screws to fix SSDs. (Please refer to the Installation Notes). Using the GDC47-7402 Cable to connect the GD2409A adapter to the DP8414 AIC card (PCIe x8 Gen 4 to MCIO 74P) and Plugs DP8414 AIC into ASUS PRIME X570-PRO.

### 2.4 BIOS & Windows 10 OS environment setup

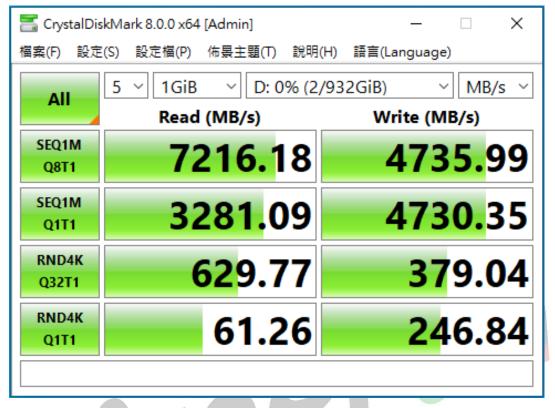
- 2.4.1 Primary SATA NVMe SSD install Windows 10 OS.
- 2.4.2 Two M.2 NVMe SSDs, formatted to NTFS Mode. Don't install any program.



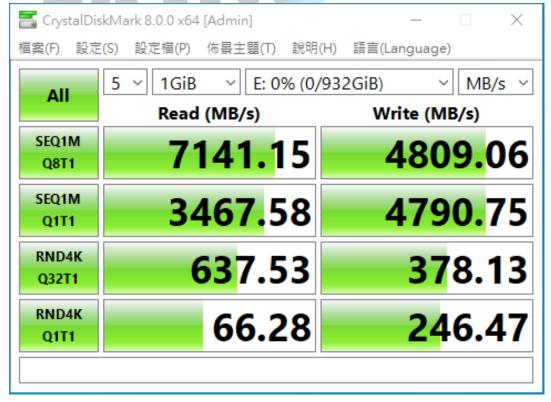
2.5 CrystalDiskMark 8.0.0 x64 performance test

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

2.5.1 M.2 NVMe Gigabyte / 1TB in Drive D: performance as below:



2.5.2 M.2 NVMe Gigabyte / 1TB in Drive E: performance as below:



## 2.6 AS SSD Benchmark 2.0 performance test

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

2.6.1 M.2 NVMe Gigabyte / 1TB in Drive D: performance as below:

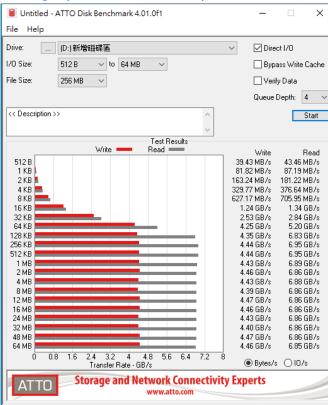
AS SSD Benchmark 2.0.7316.34247 - 🗆 🗙							
File Edit View Tools Language Help							
D: GIGABYTE GP-AG70S1TB-F	P ∨ 1 GB ∨						
GIGABYTE EIFM21.2 stornyme - OK 1024 K - OK 931.51 GB	Read:	Write:					
⊠ Seq	5740.83 MB/s	4357.15 MB/s					
⊠ 4K	88.18 MB/s	222.05 MB/s					
☑ 4K-64Thrd	1903.80 MB/s	2897.21 MB/s					
☑ Acc.time	0.017 ms	0.017 ms					
Score:	2566	3555					
7379							
Start Abort							

### 2.6.2 M.2 NVMe Gigabyte / 1TB in Drive E: performance as below:

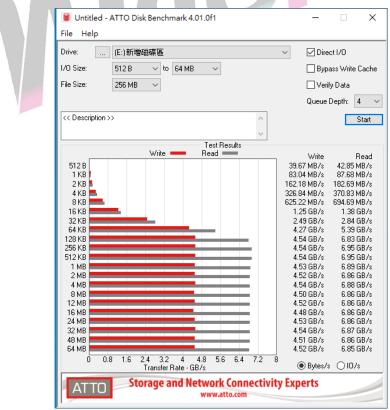
AS SSD Benchmark 2.0.7316.34247 - X							
File     Edit     View     Tools     Language     Help       E: GIGABYTE GP-AG70S1TB-P     V     1 GB     V							
GIGABYTE EIFM21.2 stornvme - OK 1024 K - OK 931.51 GB	Read:	Write:					
⊠ Seq	5773.55 MB/s	4699.02 MB/s					
⊠ 4K	87.94 MB/s	221.33 MB/s					
☑ 4K-64Thrd	1923.44 MB/s	2849.40 MB/s					
☑ Acc.time	0.017 ms	0.017 ms					
Score:	2589	3541					
7414							
Start Abort							

#### 2.7 ATTO Disk Benchamrk 4.01 performance test

2.7.1 M.2 NVMe Gigabyte / 1TB in Drive D: performance as below:



### 2.7.2 M.2 NVMe Gigabyte / 1TB in Drive E: performance as below:



## 2.8 AnvilBenchmark\_V110\_B337

2.8.1 M.2 NVMe Gigabyte / 1TB in Drive D: performance as below:

💼 Anı	vil's Storage Ut	tilities 1.1.0	(2014-Janu	uary-1)						$\times$
File	Benchmarks	IOmeter	System Ir	nfo Settings	Test size 1GB	🔽 Drive 🖃 d: 節	増磁碟區]	<ul> <li>✓ Screenshot</li> </ul>	Help	
SSD	Benchm	nark						GIGABYTE	GP-AG70S	
_									iooob/Eii	10121
	Read	Resp.	time	MB read	IOPS	MB/s				
9	Seq 4MB	0.8555	ōms	2,048.0	1,168.95	4,675.80				
	4K	0.0578	3ms	845.5	17,315.22	67.64				
	4K QD4	0.0631	lms	3,095.7	63,400.35	247.66		8,339.82		
-	4K QD16	0.0845	ōms	9,248.1	189,400.44	739.85	Run read	8,339.8	32	
	32K	0.1216	ôms	3,859.7	8,225.84	257.06				
	128K	0.1664	4ms	11,280.1	6,009.66	751.21		21,719	.24	
	Write	Resp.	time	MB written	IOPS	MB/s	Run	21	,719.24	ł
	Seq 4MB	0.7930		1,024.0	1,261.08	5,044.33				
	4K	0.0170	Oms	640.0	58,944.49	230.25	Duranita	13,379.42 13,379.4	12	
	4K QD4	0.0239	9ms	640.0	167,118.53	652.81	Run write	15,578.4	+2	
-	4K QD16	0.0344	1ms	640.0	465,549.26	1,818.55				
PRIM	soft Windows 10 IE X570-PRO/360 Ryzen 7 3700X 3	4, AM4		9045)	Drives : Notes :			GIGABYTE GP-AG7 Drive D: 931.5/929.4 NTFS - Cluster size 4 Storage driver stor	4GB free (99.8% 096B	
	ory : 32,672 MB fessional Edit							Alignment 1024KB OK Compression 100% (		

## 2.8.2 M.2 NVMe Gigabyte / 1TB in Drive E: performance as below:

	il's Storage Ut				T . : 100					- 0	×
	Benchmarks		System Inf	o Settings	Test size 1GB	Drive	■ e: (新	増磁碟區」	✓ Screenshot		
SSD	Benchm	nark								GP-AG70S 1000GB/EII	
_							_				
	Read	Resp.		MB read	IOPS		MB/s				
Se	eq 4MB	0.9160	)ms	2,048.0	1,091.68	4,36	6.74				
[	4K	0.0580	)ms	841.8	17,240.60	6	7.35				
4	K QD4	0.0632	2ms	3,089.8	63,278.88	24	7.18		8,020.96		
48	< QD16	0.0845	ōms	9,244.2	189,319.28	73	9.53	Run read	8,020.9	96	
	32K	0.1226	òms	3,827.8	8,157.78	25	4.93				
	128K	0.1671	Ims	11,235.0	5,985.62	74	8.20		20,856		
	Write	Resp.	time N	/B written	IOPS	1	MB/s	Run	20	,856.08	,
Se	eq 4MB	0.8555		1,024.0	1,168.95	4,67	5.80				
	4K	0.0166	òms	640.0	60,169.09	23	5.04		12,835.12	2	
4	K QD4	0.0239	)ms	640.0	167,422.48	65	3.99	Run write	12,835.1	2	
48	< QD16	0.0357	7ms	640.0	448,614.18	1,75	2.40				
Microso	oft Windows 10	企業版 64 位	〕 元 Build (190	)45)					GIGABYTE GP-AG7		
PRIME X570-PRO/3604, AM4					Drives :				Drive E: 931.5/931.4 NTFS - Cluster size 4		%)
AMD Ryzen 7 3700X 8-Core Processor Memory : 32,672 MB					Notes :				Storage driver <b>stor</b>	nvme	
	essional Edit	tion							Alignment 1024KB OK		
									Compression 100% (	incompressible)	

## 3. Burn In Tests and Results

## 3.1 BurnInTest v10.2 Pro

## 3.1.1 System information as below:

🍐 BurnInTest 10.2 (1003)		_		$\times$
File Edit Configuration Test P	re-Configured Tests Help			_
Pre-Configured Tests Dashboard	System Information Event Log Temperature Battery		_	
System summary Windows 10 Enterprise Edition 1 x AMD Ryzen 7 3700X 8-Core 32GB RAM, NVIDIA GEForce GT 730, 119GB SSD, 2 x 932GB SSD,				
General				
System Name: Motherboard Model: Motherboard Model: Motherboard Version: Motherboard Serial Number: BIOS Monufacturer: BIOS Version: BIOS Release Date: BIOS Relia Number:	DESKTOP-GCSP1VR ASUSTEK COMPUTER INC. PRIME X570-PRO Rev X.0x 210686092100385 American Megatrends Inc. 3604 05/08/2021 System Serial Number			
TPM:	Not found			
CPU CPU manufacturer: CPU Type: CPUID: Physical CPU's: Cores per CPU: Threads per CPU E-Cores per CPU E-Cores per CPU Hyperthreading: CPU features: Clock frequencies: Measured CPU speed: Multiplier: Reference Clock: Cache per CPU package: L1 Data Cache: L2 Cache: L2 Cache: L3 Cache: Voltage:	AuthenticAMD Online CPU comparison AMD Ryzen 7 3700X 8-Core Processor Family 17, Model 71, Stepping 0 1 8 16 8 N/A Not capable MMX SSE SSE2 SSE3 SSE4.1 SSE4.2 SSE4a AVX AVX2 FMA3 DEP PAE AMD64 AES Turbo core 3597.1 MHz [Turbo core: 4321.3MHz] x36.0 [Turbo core: 4321.3MHz] x36.0 [Turbo core: x43.5] 99.9 MHz 8 x 32 KB 8 x 32 KB 8 x 512 KB 32 MB 1.10 V			ř
Ready				
Ready				.:
			_	~
BurninTest 10.2 (1003)	an Canfin and Tank . Unla	—		×
File Edit Configuration Test P	System Information Event Log Temperature Battery			
Memory				^
Total Physical Memory: Available Physical Memory: Memory devices: Slot 1: Slot 2: Slot 3: Slot 4: Virtual memory: Graphics	32672MB 26938MB 16GB DDR4 SDRAM PC4-21300 Kingston 9905701-098.A00G, serial#: 0xD9850CE9, wk/yr: 26/2019 1.2V, Cik: 133.3MHz, Timings 19-19-19-43 (@ Max. freq.) 16GB DDR4 SDRAM PC4-21300 Kingston 9905701-098.A00G, serial#: 0xB4B50AE5, wk/yr: 26/2019 1.2V, Cik: 133.3MHz, Timings 19-19-19-43 (@ Max. freq.) Not populated Not populated Not populated C:\pagefile.sys (allocated base size 4864MB)			
NVIDIA GeForce GT 730 Chip Type:	0x1287		₩03	
DAC Type: Memory: BIOS: Driver provider: Driver version:	Integrated RAMDAC 2047MB 80.28.b8.00.13 NV/DIA 456.71		•••••	
Driver date: Monitor 1:	9-30-2020 1920x1080x32 60Hz 96 DPI (Primary monitor)			
Disk volumes	L086e8-0000-0000-0000-501f00000000) NTFS, (118.20GB total, 29.57GB free)			
D: Local Drive, \\?87 D: Local Drive, \\?d2: E: Local Drive, \\?27a	ubases-0000-0000-0000-0000-001000000000/\新增滋碟區,NTFS,(931.51GB total,929.38GB free) 33bd32-0000-0000-0000-100000000000\\新增磁碟區,NTFS,(931.51GB total,929.38GB free)			
Disk drives				
磁碟機: Model: GIGABYTE GP-/	128M6G Serial: S0C41196Z1ZSCR001341 (Disk: 0, SSD, Size: 119.24GB, Interface: SATA, Volumes: C) AG7051TB-P Serial: SN212108901364 (Disk: 1, SSD, Size: 931.51GB, Interface: NVMe, Volumes: E) AG7051TB-P Serial: SN212108902374 (Disk: 2, SSD, Size: 931.51GB, Interface: NVMe, Volumes: D)			
Optical drives				
			. @	

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Ready

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

🔥 BurninTest 10.2 (1003) — 🗆 🗙							
File Edit Configuration Test Pre-Configured Tests Help							
Pre-Configured Tests Dashboard System Information Ev RESET Start time: Wed Mar 5 10:03:57 2025 Stop time: Thu Mar 6 10:04:06 2025 Duration: 024h 00m 09s Test config file: Last Used		͡ऀ॒≞⊣⊐∿ ≣⊡					
😡 Disk (D:) Test: Results (1 of 2)	Disk (E:) Test: Results (2 of 2)	月1					
Cycle 5030 Operations 106 Trillion Errors 0 Last Error Description No errors PASSED	Cycle 5087 Operations 107 Trillion Errors 0 Last Error Description No errors PASSED						
		$\langle \gamma \rangle$					
Т	ESTS PASSED						
Ready							

#### 4. Summary

- 4.1 M.2 NVMe SSD is PCIe Gen4 / 4 Lane Interface, I/O speed, max. to 64Gbps.
- 4.2 DP8414 cable, I/O performance is based on M.2 NVMe SSD.