

DP8401 PCIe x8 Gen 4 with ReDriver to SlimSAS 8i A.I.C

Performance & Burn In Test Rev 1.0

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1. Overview

This riser card has built-in SlimSAS(SFF-8654) 8i 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 :	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
Add in Card:	DP8401 PCIe x8 to SlimSAS(SFF-8654) 8i AIC
Cable:	PCIe Gen 4 SlimSAS(SFF-8654) 8i to SlimSAS(SFF-8654) 8i Cable
Adapter:	GD9801G SlimSAS(SFF-8654) 8i to M.2 dual ports adapter
OS :	Microsoft Windows 10 64bit OS

2.2 Test target: DP8401, GD9801G adapter with GIGABYTE M.2 1TB & M.2 500GB NVMe SSD



2.3 Install Hardware

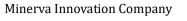
First inserts the M.2 SSD into the GD9801G M.2 connector, then with copper nuts, and screws to fix SSDs. (Please refer to the Installation Notes). To connect the GD9801G adapter to the DP8401 AIC card (PCIe x8 Gen 4 to SFF-8654 8i) using the GDC74-5502 Cable, and Plugs DP8401 AIC into GIGABYTE X570 AORUS MASTER.

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.

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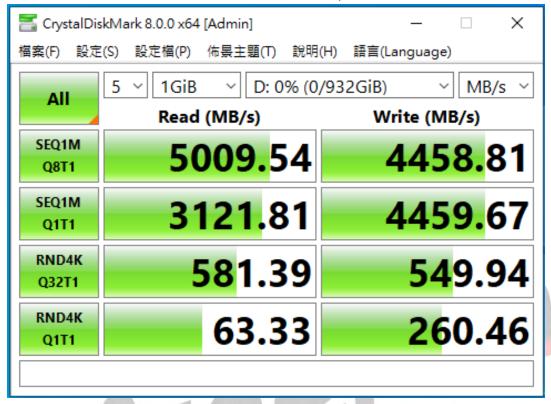
Innocal



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 🚺	1.2 NVMe GIGABYTE / 500B in Driv	ve E: performance as below:
\overline CrystalDis	skMark 8.0.0 x64 [Admin]	– 🗆 X
檔案(F) 設定	(S) 設定檔(P) 佈景主題(T) 說明	(H) 語言(Language)
All	5 ~ 1GiB ~ E: 0% (2/	/466GiB) ~ MB/s ~
~"	Read (MB/s)	Write (MB/s)
SEQ1M	5006.99	2539.96
Q8T1	5000.99	2559.90
SEQ1M	3009.96	2540 .06
Q1T1	5005.90	2340.00
RND4K	64 3.15	59 0.45
Q32T1	045.15	JJU .4J
RND4K	60.16	218.09
Q1T1	00.10	210.09

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2.6 AS SSD Benchmark 2.0 performance test

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

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

GIGABYTE EGFM11.2 stornyme - OK 1024 K - OK 931.51 GB	Read:	Write:
⊠ Seq	4178.57 MB/s	3965.13 MB/s
⊠ 4K	77.73 MB/s	227.56 MB/s
☑ 4K-64Thrd	2218.59 MB/s	2681.05 MB/s
Acc.time	0.018 ms	0.016 ms
Score:	2714	3305
	74	105

2.6.2 M.2 NVMe GIGABYTE / 500B in Drive E: performance as below:

File Edit View Tools E: GIGABYTE GP-ASM2NE650				
GIGABYTE EGFM11.1 stornvme - OK 1024 K - OK 465.76 GB	Read:	Write:		
⊠ Seq	4150.64 MB/s	2335.54 MB/s		
⊠ 4K	69.24 MB/s	177.61 MB/s		
☑ 4K-64Thrd	1849.08 MB/s	2625.15 MB/s		
☑ Acc.time	0.027 ms	0.019 ms		
Score:	2333	3036		
	6480			

2.7 ATTO Disk Benchamrk 4.01 performance test

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

Drive:	. (D:)新增磁碟區	👻 🗹 Dire	ct 1/0
I/O Size:	512.B 🗸 to 64.MB 🗸	Byp	ass Write Cache
File Size:	256 MB: ~		
File Size.	206 MB		fy Data
		Queue	Depth: 4
<< Description	**	1	Start
	Test Results Write - Read -	Write	Read
5128		45.29 MB/s	49.80 MB/s
1 KB		95.01 MB/s	95.98 MB/s
2 KB 📕		190.50 MB/s	191.48 MB/s
4 KB 🚍		357.11 MB/s	384 MB/s
8 KB		679.32 MB/s	682.97 MB/s
16 KB		1.01 GB/s	1.48 GB/s
32 KB		2.77 GB/s	2.56 GB/s
64 KB		3.80 GB/s	2.83 GB/s
128 KB		3.99 GB/s	4.38 GB/s
256 KB		3.98 GB/s	5,22 GB/s
512 KB		3.91 GB/s	5.24 GB/s
1 MB		3.86 GB/s	5.24 GB/s
2 MB		3.86 GB/s	5.21 GB/s
4 MB		3.86 GB/s	5.21 GB/s
8 MB		3.86 GB/s 3.86 GB/s	5.21 GB/s 5.21 GB/s
16 MB		3.86 GB/s	5.21 GB/s
24 MB		3.85 GB/s	5.21 GB/s
32 MB		3.86 GB/s	5.21 GB/s
48 MB		3.86 GB/s	5.21 GB/s
64 MB		3.89 GB/s	5.21 GB/s
0 1	0.6 1.2 1.8 2.4 3 3.6 4.2 4.8 5 Transfer Rate - GB/s	.4 6 (Bytes/:	s ()10/s

2.7.2 M.2 NVMe GIGABYTE / 500B in Drive E: performance as below:

Drive:	(E:)新增磁碟區		Dire:	ct 1/0
1/0 Size:	512.8 v to 64.MB v		П Вура	ass Write
File Size:	256 MB ~		∏Verif	hi Data
1 110 0120.	230 MD *			
			Queue	Depth:
<< Description :	>>			
	Vrite Test Results			
Prop .	wille head		Write	
512B			57 MB/s	40.53
1 KB			43 MB/s 23 MB/s	80.85
2 KB			23 MB/s 52 MB/s	333.67
4 KB			52 MB/s 53 MB/s	671.25
16 KB			32 GB/s	1.37
32 KB			32 GB/s 21 GB/s	2.52
54 KB			37 GB/s	2.92
128 KB	the second se		36 GB/s	3.84
256 KB			37 GB/s	4.38
512 KB			37 GB/s	4.03
1 MB			37 GB/s	4.39
2 MB			37 GB/s	4.39
4 MB			37 GB/s	4.39
8 MB		2.	36 GB/s	4.38
12 MB		2.	37 GB/s	4.39
16 MB			37 GB/s	4.38
24 MB		2.	36 GB/s	4.39
32 MB		2.	37 GB/s	4.38
48 MB			36 GB/s	4.39
64 MB			37 GB/s	4.38
0 0.	6 1.2 1.8 2.4 3 3.6 4.2 4.8 Transfer Rate - GB/s	5.4 B	Bytes/s	010

2.8 AnvilBenchmark_V110_B337

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

D Davida	and an	-		-	GIGA	BYTE GP-ASM2NE65000
D Benchn	nark					1000GB/EGFI
Read	Resp. time	MB read	IOPS	MB/s		
Seq 4MB	1.3730ms	2,048.0	728.31	2,913.23		
4K	0.0650ms	751.0	15,381.36	60.08		
4K QD4	0.0718ms	2,718.7	55,678.42	217.49		6.652.35
4K QD16	0.0886ms	8,814.4	180,517.87	705.15	Run read	^{6,652,35} 6,652.35
32K	0.1014ms	4,000.0	9,858.29	308.07		
128K	0.1411ms	13,299.8	7,085.64	885.71	-	18,632.71
Write	Resp. time	MB written	IOPS	MB/s	Run	18,632.71
Seq 4MB	0.9766ms	1,024.0	1,024.00	4,096.00		
4K	0.0163ms	640.0	61,418.14	239.91	Base	11,980.36 11,980.36
4K QD4	0.0242ms	640.0	165,437.02	646.24	Run write	11,860.50
4K QD16	0.0376ms	640.0	425,470.54	1,661.99		
rosoft Windows 10) 企業版 64 位元 Build	(18362)				IGABYTE GP-ASM2NE6500GTTD
0 AORUS MASTER	t/F30a, AM4 8-Core Processor	A contraction of the second	Drives : Notes :			rive D: 931.5/931.4GB free (100.0% TFS - Cluster size 4096B

2.8.2 M.2 NVMe GIGABYTE / 500B in Drive E: performance as below:

	nark					500GB/EGF
Read	Resp. time	MB read	IOPS	MB/s		
Seq 4MB	1.0996ms	2,048.0	909.41	3,637.66		
4K	0.0705ms	692.9	14,191.07	55.43		
4K QD4	0.0755ms	2,586.9	52,980.00	206.95		7,176.47
4K QD16	0.0934ms	8,364.9	171,312.60	669.19	Run read	^{7,176,47} 7,176.47
32K	0.1255ms	3,738.2	7,966.37	248.95		
128K	0.1442ms	13,016.0	6,934.47	866.81	-	17,093.74
Write	Resp. time	MB written	IOPS	MB/s	Run	17,093.74
Seq 4MB	1.6484ms	1,024.0	606.64	2,426.54		
4K	0.0225ms	640.0	44,531.86	173.95	Bass	^{9,917.26} 9.917.26
4K QD4	0.0241ms	640.0	165,738.97	647.42	Run write	9,917.20
4K QD16	0.0387ms	640.0	414,093.58	1,617.55		
rosoft Windows 1	0 企業版 64 位元 Build	(18362)	Drives :			IGABYTE GP-ASM2NE6500GTTI rive E: 465.8/463.7GB free (99.5%

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3. Burn In Tests and Results

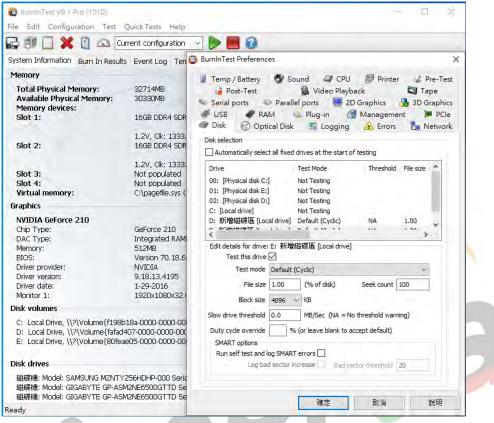
3.1 BurnInTest v8.1 Pro

3.1.1 system information as below:



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3.1.2 Disk test mode(10 ways cycle test)



3.1.3 24-hour Burn-in test PASSED

tem Information	Burn In Results Eve					
sults for DESKTO						
	E LastUsed.bitcfg Dec 22 16:13:35 20	Ston time	Wod F	Dec 23 16:13:43 2020	Status: IDLE Duration: D24h 00m 08s	4
artume. Tue	Dec 22 10:13:33 20	J20 Stop arrie	weu L	JEC 23 10:13:43 2020	Doration. 024/100111085	
est Name	Cycle	Operations	Errors	Last Error Description		
Disk (D:)	5151	109 Trillion	D	No errors		
Disk (Et)	6055	64.306 Trillion	0	No errors		
Temperature			D	No errors		
	P	A	S	SE	D	
		_				

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4. Summary

- 4.1 M.2 NVMe SSD is PCIe Gen 4 / 4 Lane Interface, I/O speed, max. to 64Gbps.
- 4.2 GD9801G adapter I/O performance is based on NVMe SSD.

