

# **MINERVA**

DP8811 PCIe x8 Gen4 with Redriver to SFF-8673 1x2,4X A.I.C.

### Performance & Burn In Test Rev 1.0

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#### 1. Overview

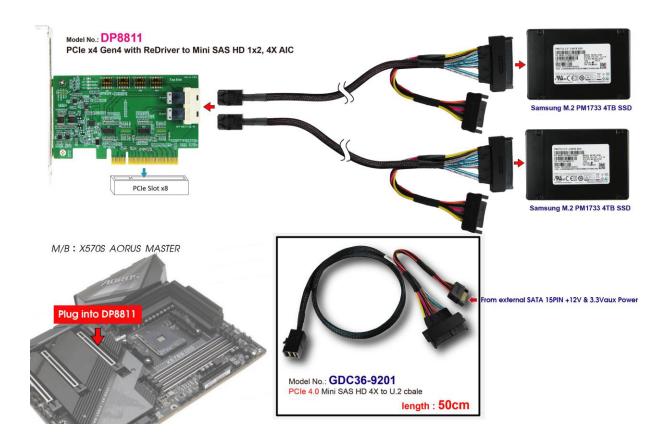
This riser card has built-in SFF-8673 1x2, 4X (internal Mini SAS HD) connector. It is designed for use by PCIe x8 to be bifurcated two x4 link width or can extend PCIe x8 channel reach. The ReDriver may support CTLE boosts up to 13 dB at 8 GHz.

### 2. Tools and Results of Performance Measurement

#### 2.1 **Test Platform**

M/B :	GIGABYTE X570S AORUS MASTER
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:	DP8811 PCIe x8 with ReDriver to SFF-8673 1x2, 4X AIC
Cable:	PCIe 4.0 Internal Mini SAS HD 1x1, 4X to U.2, 50cm Cable x2pcs
OS :	Microsoft Windows 10 64bit OS
Test target: [	0P8811 & U.2 NVMe SSD

#### 2.2 Test target: DP8811 & U.2 NVMe SSD



#### 2.3 Install Hardware

First inserts the U.2 SSD into the SFF-8673 1x1, 4X to U.2, 100cm Cable and then the cable connects to DP8711 AIC, Plugs DP8811 AIC into PCIe x16 slot of GIGABYTE **X570S AORUS MASTER**.

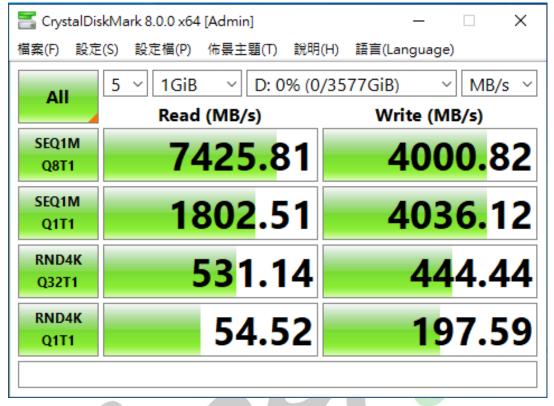
- 2.4 BIOS & Windows 10 OS environment setup
  - 2.4.1 Primary SATA NVMe SSD install Windows 10 OS.
  - 2.4.2 Two U.2 NVMe SSDs, formatted to NTFS Mode. Don't install any program.



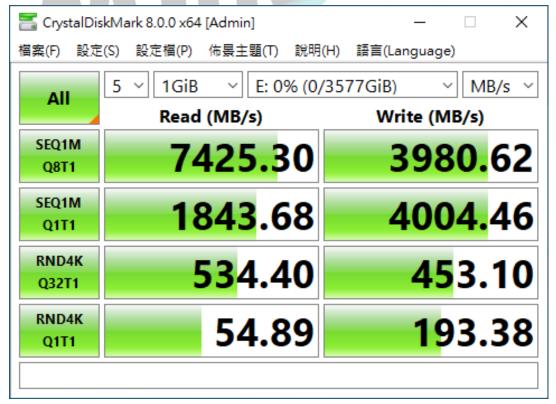
2.5 CrystalDiskMark 8.0.0 x64 performance test

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

2.5.1 Samsung PM1733 U.2 SSD /4TB in Drive D: performance as below:



2.5.2 Samsung PM1733 U.2 SSD /4TB in Drive E: performance as below:



### 2.6 AS SSD Benchmark 2.0 performance test

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

2.6.1 Samsung PM1733 U.2 SSD /4TB in Drive D: performance as below:

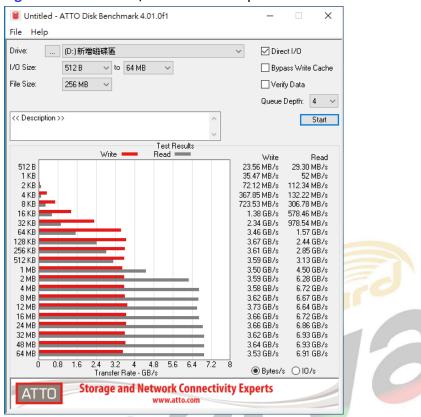
AS SSD Benchmark 2.0.73	16.34247	– 🗆 X			
File Edit View Tools					
D: SAMSUNG MZWLJ3T8HBLS	-00007 ~ 1 GB ~				
SAMSUNG EPK98B5Q stornvme - OK 16384 K - OK 3576.98 GB	Read:	Write:			
⊠ Seq	5338.76 MB/s	4026.70 MB/s			
⊠ 4K	51.57 MB/s	184.20 MB/s			
☑ 4K-64Thrd	2238.96 MB/s	2418.19 MB/s			
☑ Acc.time	0.025 ms	0.092 ms	2		
Score:	2824	3005			
	7202				
			0		
Star	t	Abort			

### 2.6.2 Samsung PM1733 U.2 SSD /4TB in Drive E: performance as below:

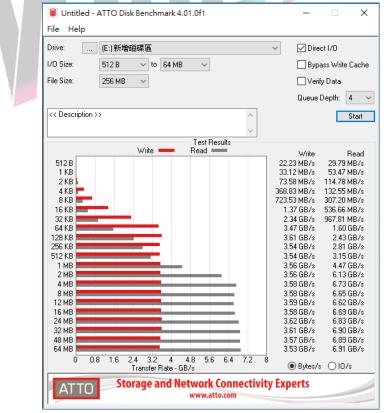
SAMSUNG EPK98B5Q stornvme - OK 16384 K - OK 3576.98 GB	Read:	Write:			
⊠ Seq	5316.30 MB/s	4151.98 MB/s			
⊠ 4K	51.77 MB/s	185.05 MB/s			
☑ 4K-64Thrd	2217.57 MB/s	2458.74 MB/			
☑ Acc.time	0.024 ms	0.091 ms			
Score:	2801	3059			
	7228				

#### 2.7 ATTO Disk Benchamrk 4.01 performance test

2.7.1 Samsung PM1733 U.2 SSD /4TB in Drive D: performance as below:



#### 2.7.2 Samsung PM1733 U.2 SSD /4TB in Drive E: performance as below:



#### 2.8 AnvilBenchmark\_V110\_B337

#### 2.8.1 Samsung PM1733 U.2 SSD /4TB in Drive D: performance as below:

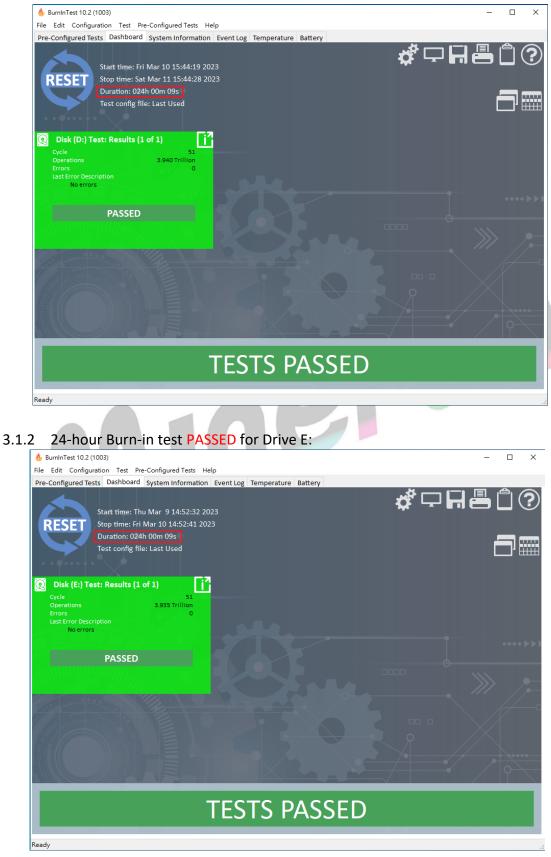
💼 An	vil's Storage U	Jtilities 1.1.0 (	(2014-Janua	ary-1)					-		×
File	Benchmarks	IOmeter	System Inf	o Settings	Test size 1GB	🔹 Drive 🖃 d: 僚	増磁碟區]	<ul> <li>✓ Screenshot</li> </ul>	Help		
SSD	Benchn	nark					SA	MSUNG MZWL	J3T8HE IOGB/E		
_											
	Read	Resp. 1	time	MB read	IOPS	MB/s					
	Seq 4MB	1.0996	õms	2,048.0	909.41	3,637.66					
	4K	0.0740	)ms	660.2	13,520.38	52.81					
	4K QD4	0.0759	)ms	2,573.7	52,708.56	205.89		7,408.60			
-	4K QD16	0.0834	lms	9,362.0	191,733.66	748.96	Run read	7,408.6	0		
	32K	0.1005	īms	4,000.0	9,953.34	311.04					
	128K	0.1394	lms	13,467.9	7,175.21	896.90		18,253.	57 , <b>253</b>		
	Write	Resp. 1	time N	/IB written	IOPS	MB/s	Run	18	,253	.57	
	Seq 4MB	0.9766		1,024.0	1,024.00	4,096.00					
	4K	0.0203	Bms	640.0	49,283.69	192.51		10,844.98 10,844.9	0		
	4K QD4	0.0244	lms	640.0	164,217.93	641.48	Run write	10,044.8	0		
	4K QD16	0.0463	8ms	640.0	345,983.22	1,351.50					
<b>x570</b> AMD	soft Windows 10 S AORUS MASTE Ryzen 7 3700X ory : 32,706 MB	ER/F1, AM4 (8-Core Proces		945)	Drives : Notes :			SAMSUNG MZWLD3 Drive D: 3,577.0/3,5 NTFS - Cluster size 40 Storage driver store	76.8GB fr )96B		
	fessional Ed							Alignment 16384KB O Compression 100% (I		sible)	

### 2.8.2 Samsung PM1733 U.2 SSD /4TB in Drive E: performance as below:

	Jtilities 1.1.0 (2014-J						×
File Benchmarks	IOmeter System	n Info   Settings	Test size 1GB	Drive 🖃 e: 🗊		_ ∨ Screenshot Help	
SSD Benchn	nark				SA	MSUNG MZWLJ3T8HBL: 3840GB/EPH	
Read	Resp. time	MB read	IOPS	MB/s			
Seq 4MB	1.0977ms	2,048.0	911.03	3,644.13			
4K	0.0739ms	661.0	13,537.06	52.88			
4K QD4	0.0758ms	2,576.2	52,761.31	206.10		7,423.50	
4K QD16	0.0832ms	9,385.8	192,219.32	750.86	Run read	7,423.50	
32K	0.0999ms	4,000.0	10,014.87	312.96			
128K	0.1391ms	13,491.1	7,187.60	898.45		18,028.66	-
Write	Resp. time	MB written	IOPS	MB/s	Run	18,028.6	b
Seq 4MB	1.0391ms	1,024.0	962.41	3,849.62			
4K	0.0204ms	640.0	49,130.35	191.92		10,605.16	
4K QD4	0.0244ms	640.0	164,150.56	641.21	Run write	10,605.16	
4K QD16	0.0462ms	640.0	346,814.80	1,354.75			
Microsoft Windows 10	0 企業版 64 位元 Build	(19045)				SAMSUNG MZWLJ3T8HBLS-00	
X570S AORUS MASTE			Drives :			Drive E: 3,577.0/3,576.8GB free (: NTFS - Cluster size 4096B	100.0%
AMD Ryzen 7 3700X Memory : 32,706 MB	8-Core Processor		Notes :			Storage driver <b>stornvme</b>	
Professional Edi	ition					Alignment 16384KB OK	
r roressional Eu						Compression 100% (Incompressible	

#### 3. Burn In Tests and Results

- 3.1 BurnInTest v10.2 Pro
  - 3.1.1 24-hour Burn-in test PASSED for Drive D:



#### 4. Summary

- 4.1 The U.2 NVMe SSD is PCIe 4.0 Interface, I/O speed, max. to 64Gbps.
- 4.2 The DP8811 AIC I/O performance is based on U.2 NVMe SSD.

