



MINERVA

AD919E Rev1.1 SFF-8643 & SATA to M.2 converter Card

Performance & Burn In Test Rev 2.0

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AD919E Rev1.1 Converter Card

1. Overview

AD919E adapter, built-in mini SAS HD(SFF-8643) connector, SATA 7+15pin connector, provide a port **M.2 M-key** connector. First M.2 (PCI-e) SSD inserts M.2 M-key connector, use Mini SAS HD cable, connected to the PCI-e to Mini SAS HD(SFF-8643) adapter, then M.2 (PCI-e) SSD can be work. Also provided a port **M.2 B-key** connector, inserts M.2 (SATA) SSD into M.2 B-key connector, use SATA cable, connect to the host, and then M.2 (SATA) SSD can be work.

2. Tools and Results of Performance Measurement

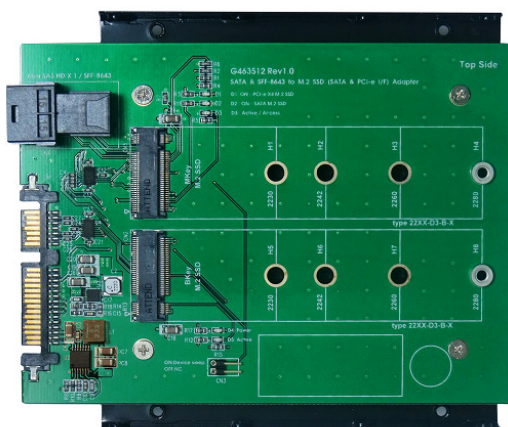
2.1 Test Platform:

M/B : ASRock **Z170 Extreme 7+**
CPU : Intel **i5-6400**, 2.7GHz/ 6M Cache/ LGA1151
Memory : Kingston **KVR21N15D8/8**, DDR4-2133MHz, **16G**(8GB DIMM*2)
ATX Power : FSP RAIDER 550, **550W ATX**, 12V V2.2 Power Supply
Graphic : Z170 Chipsets built-in **HD Graphics 530**
OS : Microsoft **Windows 10 64bit OS**

2.2 Test target: AD919E adapter and M.2 NVMe SSD and M.2 SATA SSD

2.3 Install Hardware

Insert M.2 SSD into AD919E converter's M.2 connector, and then with copper nuts, and screws to fix SSDs. (Please refer to the Installation Notes). Connect AD919E converter to PE0404 adapter(PCI-e to Mini SAS HD SFF-86437), Plug PE0404 into **PCI-e slot and SATA III Port of Z170 Extreme 7+**.



AD919E Adapter



Samsung SM961 M.2 NVMe SSD



Samsung CM871a 256GB M.2 SSD

2.4 BIOS & Windows 10 OS environment setup

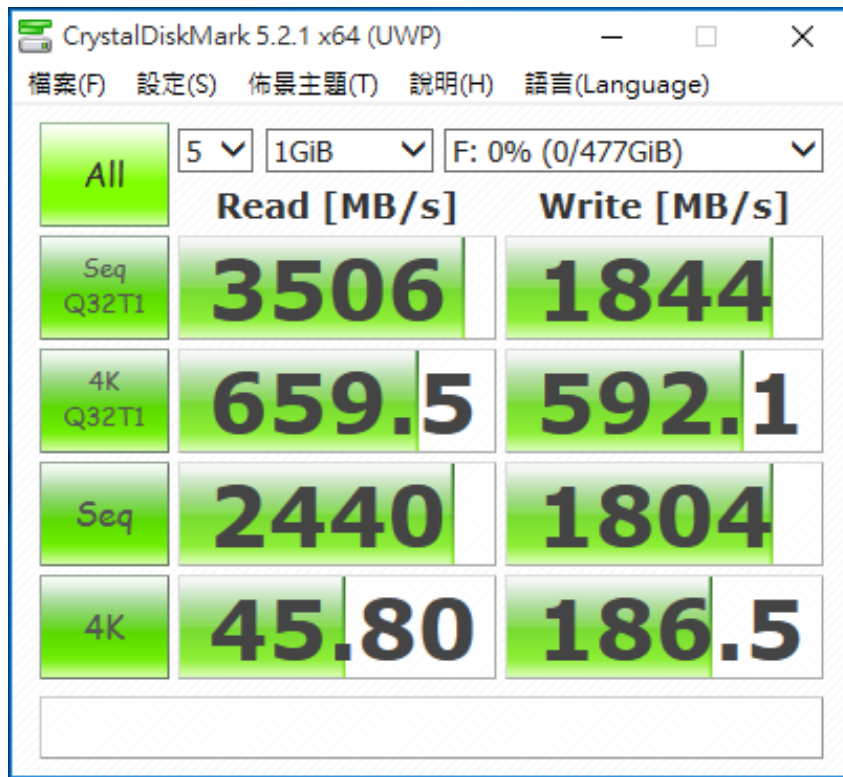
2.4.1 In Windows 10, formatted SSD to NTFS Mode. Don't install any program.

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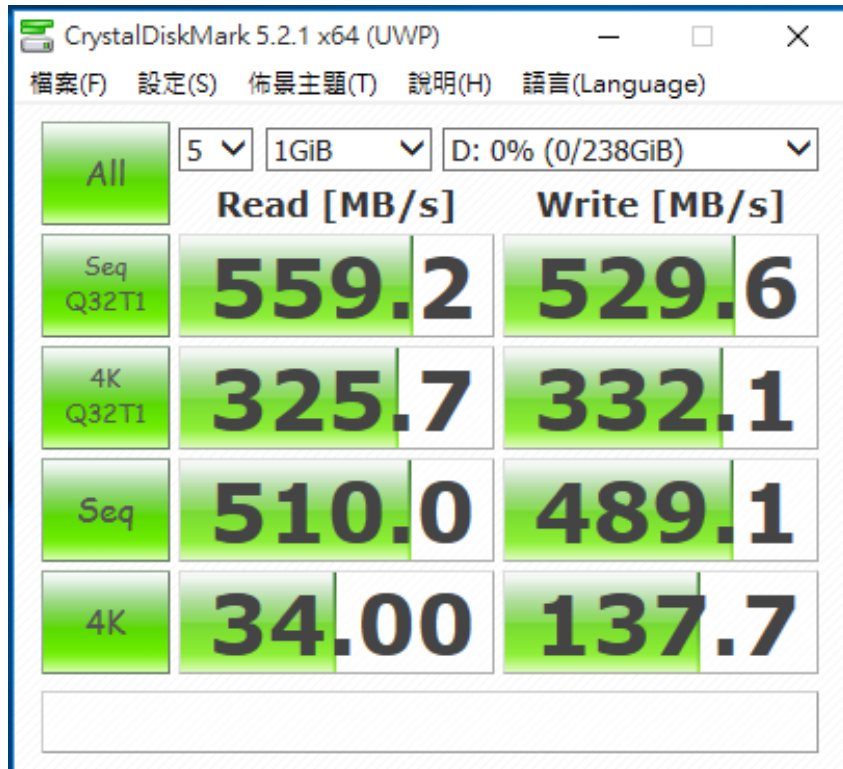
2.5 CrystalDiskMark 5.2.1 x64 performance test

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

2.5.1 Shows **M.2 NVMe Samsung SM961/512GB** performance as below:



2.5.2 Shows **M.2 SATA SSD Samsung CM871a /256GB** performance as below:

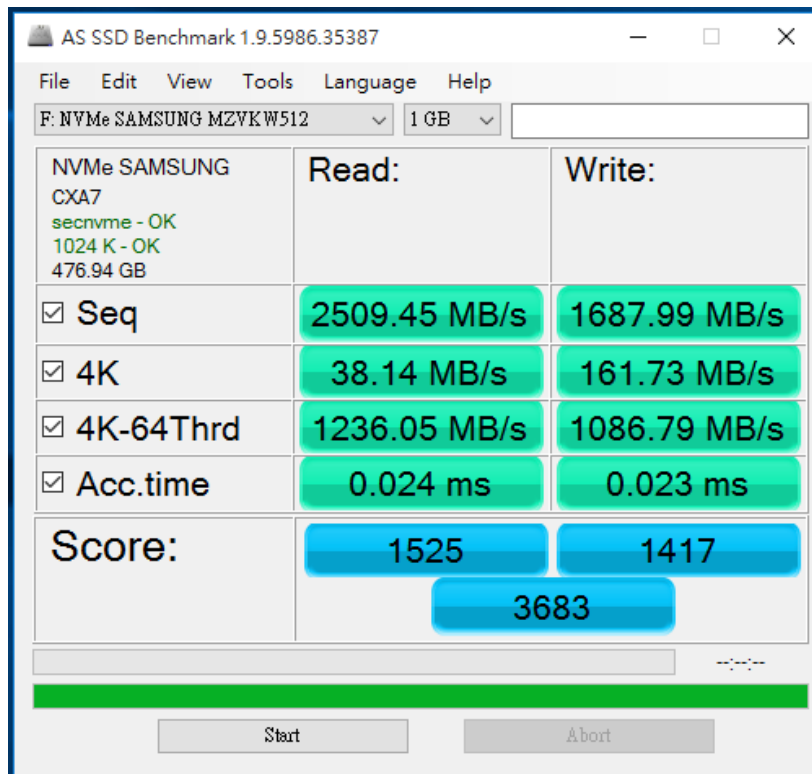


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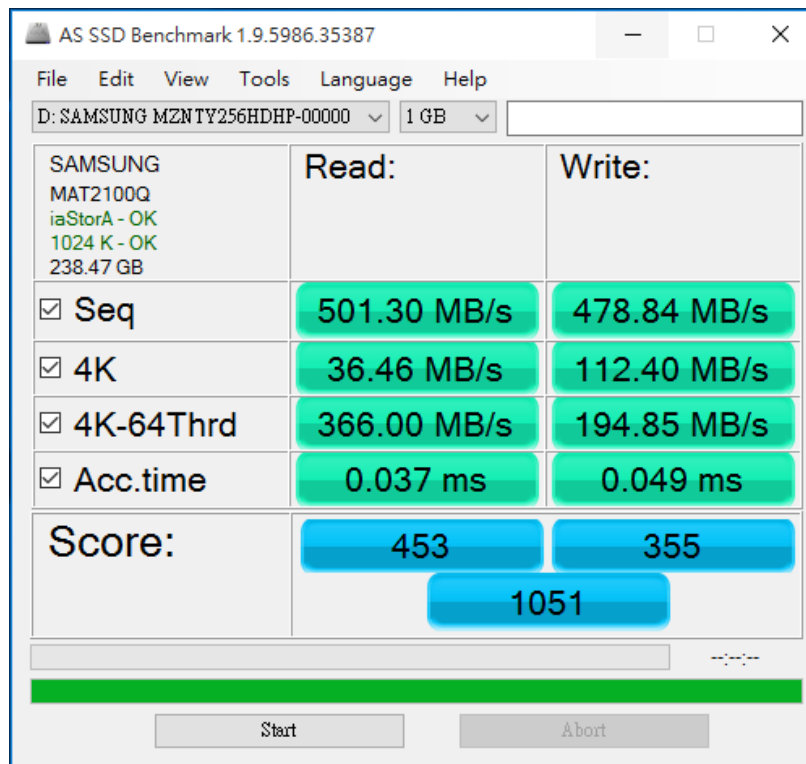
2.6 AS SSD Benchmark 1.9 performance test

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

2.6.1 Shows M.2 NVMe Samsung SM961/512GB performance as below:



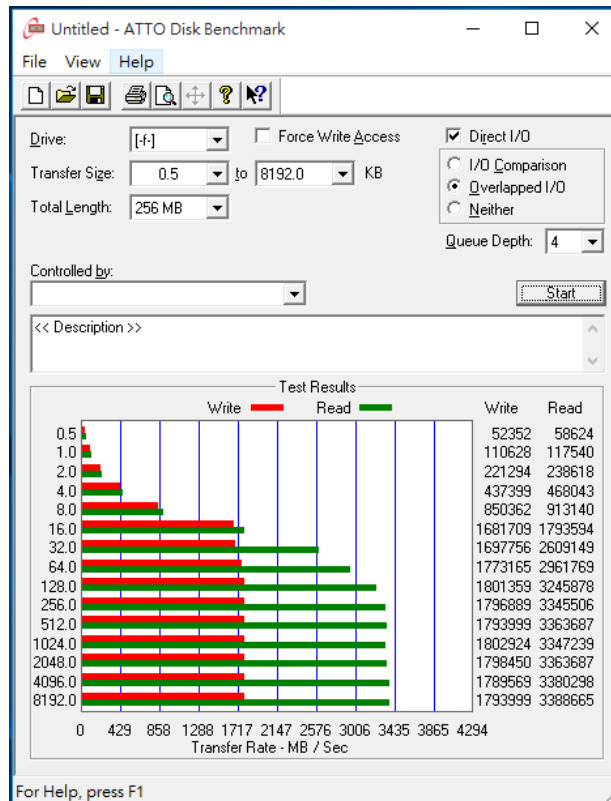
2.6.2 Shows M.2 SATA SSD Samsung CM871a / 256GB performance as below:



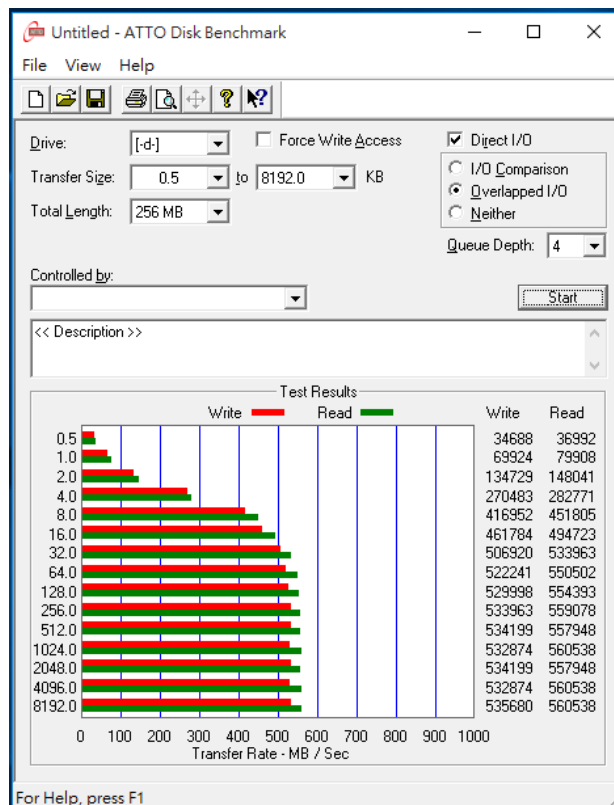
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2.7 ATTO Disk Benchmark 2.47 performance test

2.7.1 Shows **M.2 NVMe Samsung SM961/512GB** performance as below:



2.7.2 Shows **M.2 SATA SSD Samsung CM871a / 256GB** performance as below:



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2.8 AnvilBenchmark_V110_B337

2.8.1 Shows **M.2 NVMe Samsung SM961/512GB** performance as below:



2.8.2 Shows **M.2 SATA SSD Samsung CM871a / 256GB** performance as below:



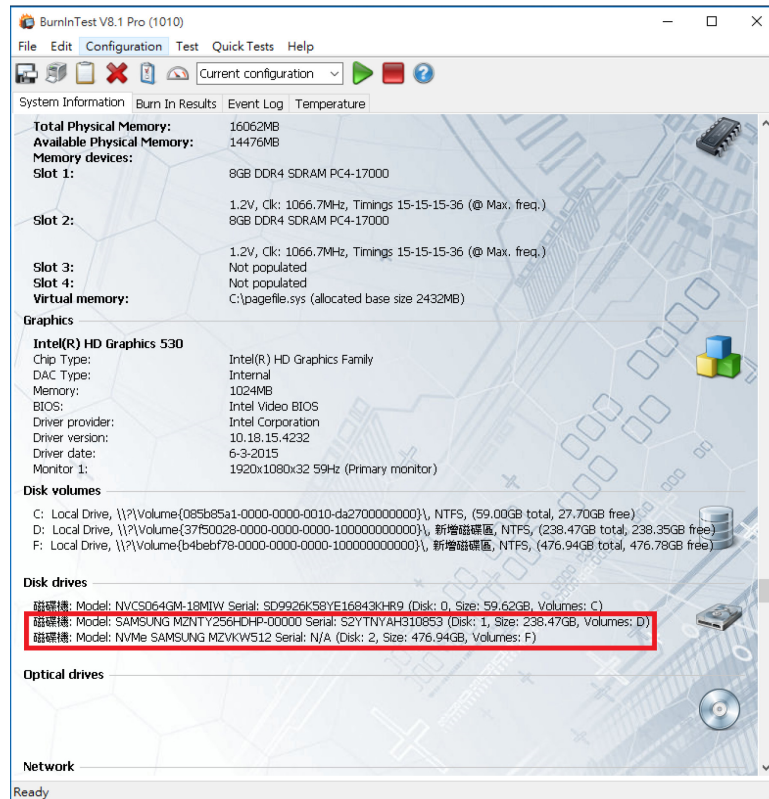
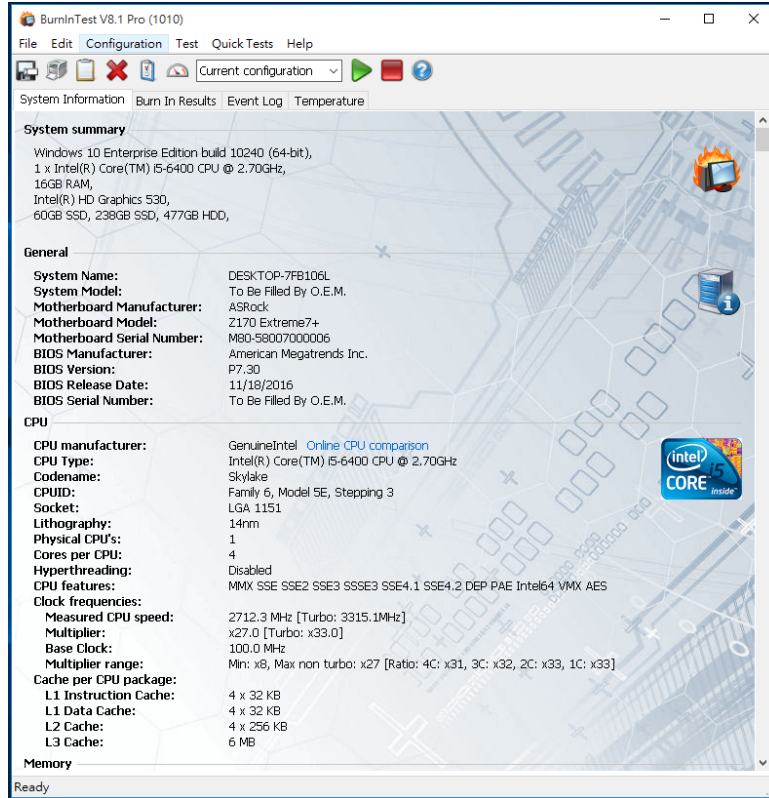
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3. Burn In Tests and Results

3.1 BurnInTest v8.1 Pro

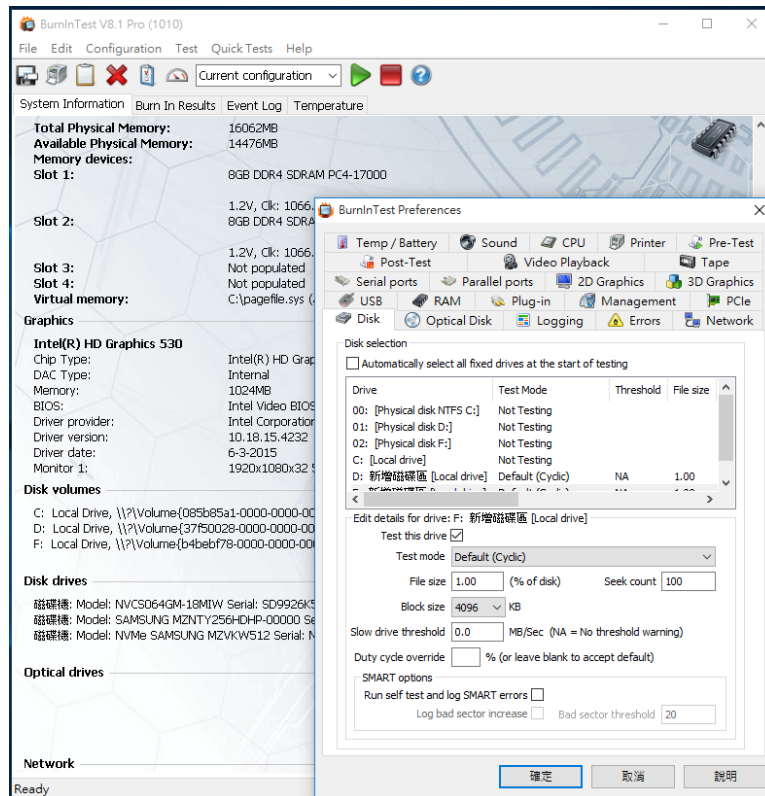
Shows **Samsung SM961 M.2 NVMe/512GB** & **Samsung CM871a M.2 SATA/256GB**

3.1.1 system information as below:

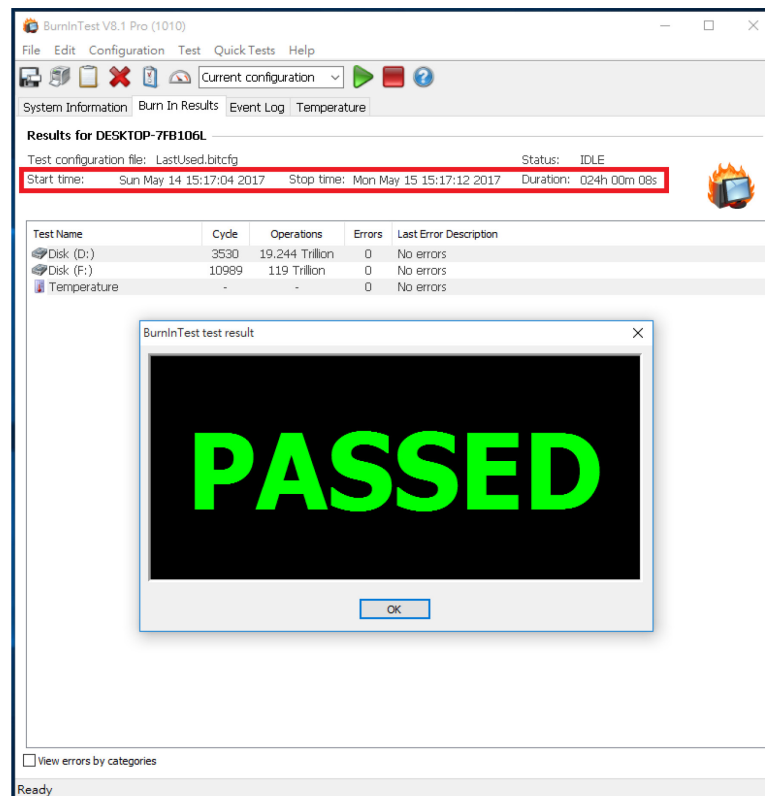


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3.1.2 show Disk test mode(10 ways cycle test)



3.1.3 show 24-hour Burn-in test PASSED



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4. Summary

- 4.1 M.2 NVMe SSD is PCI-e Gen 3 / 4 Lane Interface, I/O speed, max. to 3.2GB/s.
- 4.2 M.2 SATA I/F SSD is SATA III Interface, I/O speed, max. to 600MB/s.
- 4.3 AD919E adapter I/O performance is based on M.2 NGFF SSD.