



MINERVA

SU406A / Rev1.0 Converter Card

Performance & Burn In Test Rev. 1.0

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4. Summary

SU406A/Rev1.0 Converter Card

1. Overview

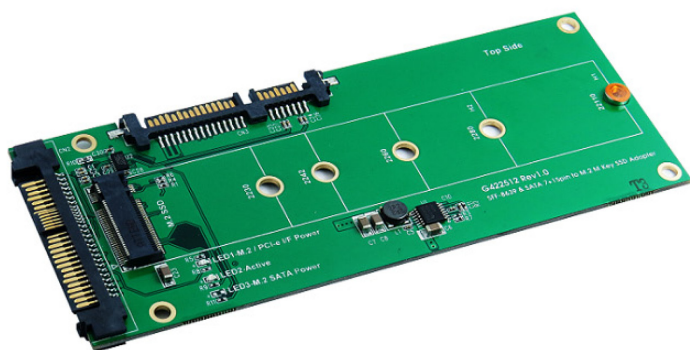
SU406A adapter, built-in U.2(SFF-8639) connector, SATA 7+15pin connector, provide a port **M.2 M-key** connector. First M.2 NVMe SSD inserts M.2 M-key connector, use Mini SAS HD to U.2(SFF-8639) cable, connected to the PCI-e to Mini SAS HD(SFF-8643) adapter, then M.2 NVMe SSD can be work. Or inserts M.2(SATA) SSD into M.2 M-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**
Add in Card: PCIe Gen 3/4-lane to SFF-8643 Cable(SFF-8643 pin out defined by PCIe)
Cable: SFF-8643 to U.2(SFF-8639) cable
OS : Microsoft **Windows 8.1 64bit OS**

2.2 Test target: SU406A adapter and M.2 NVMeSSD and M.2(SATA) SSD



SU406A Adapter



M.2 NVMe SSD
Samsung SM951



M.2 SATA SSD
LITE ON (LGT-128M6G)

2.3 Install Hardware

Insert M.2 NVMeSSD into SU406A converter's M.2 connector, and then with coppers, and screws to fix SSDs. (Please refer to the Installation Notes). Connect SU406A converter to PE0404 adapter(PCI-e 4-lane to Mini SAS HD SFF-86437), Plug PE0404 into **PCI-e slot of ASRock Z170 Extreme 7+**. Or Insert M.2 (SATA Interface) SSD, then connect SU406A to **SATA port of ASRock Z170 Extreme 7+**.

2.4 BIOS & Windows 8.1 OS environment setup

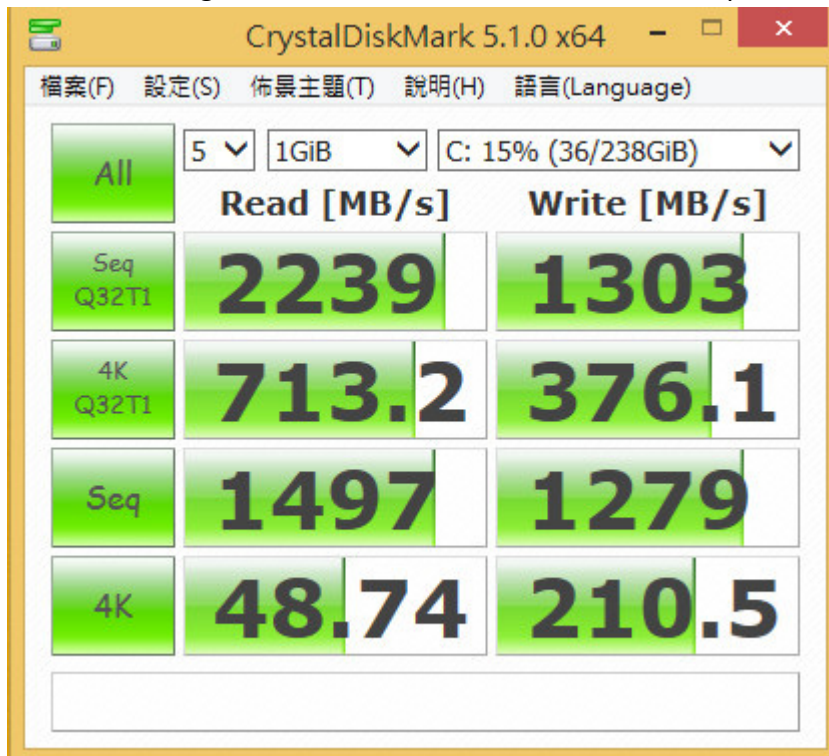
2.4.1 Install Windows 8.1 OS. Don't install any program.

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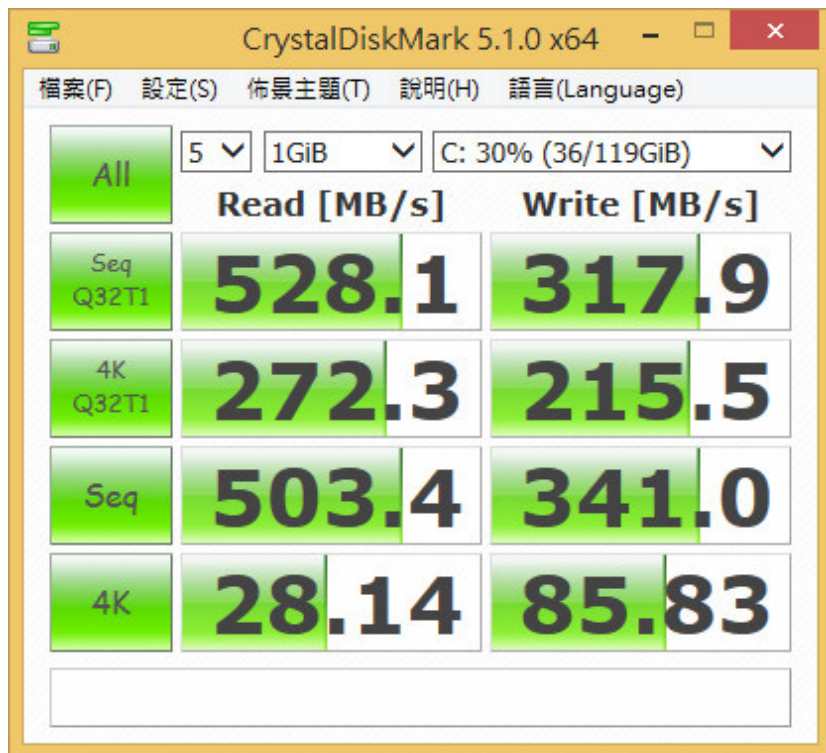
2.5 CrystalDiskMark 5.1.0 x64 performance test

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

2.5.1 Used Samsung [SM951 256GB NVMe MZVPV256HDGL](#) performance as below:



2.5.2 Used LITE-ON 128GB([LGT-128M6G](#))performance as below:

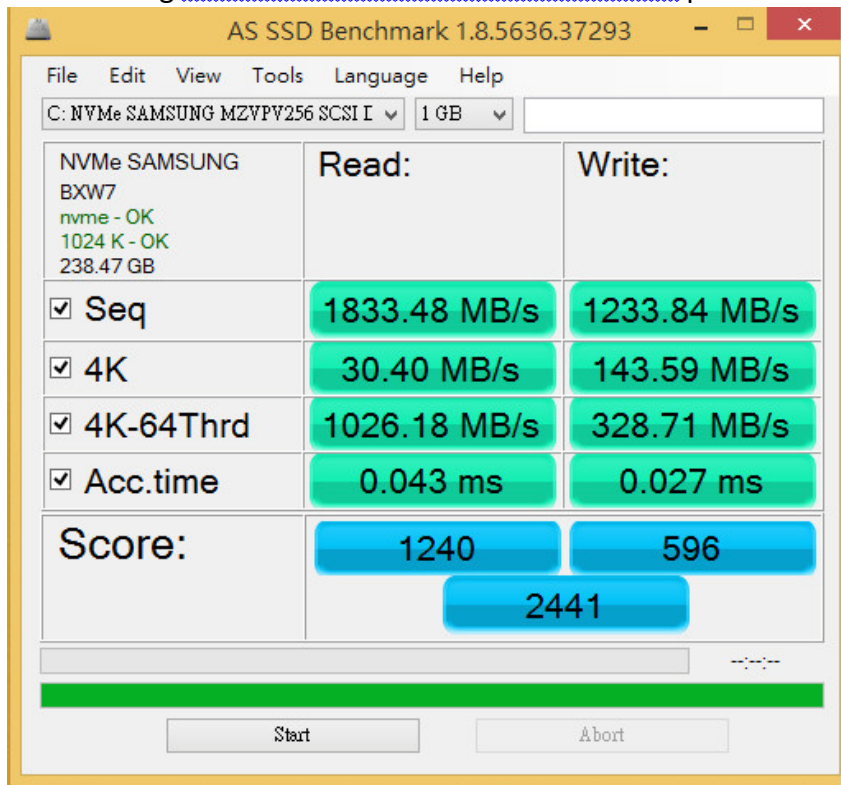


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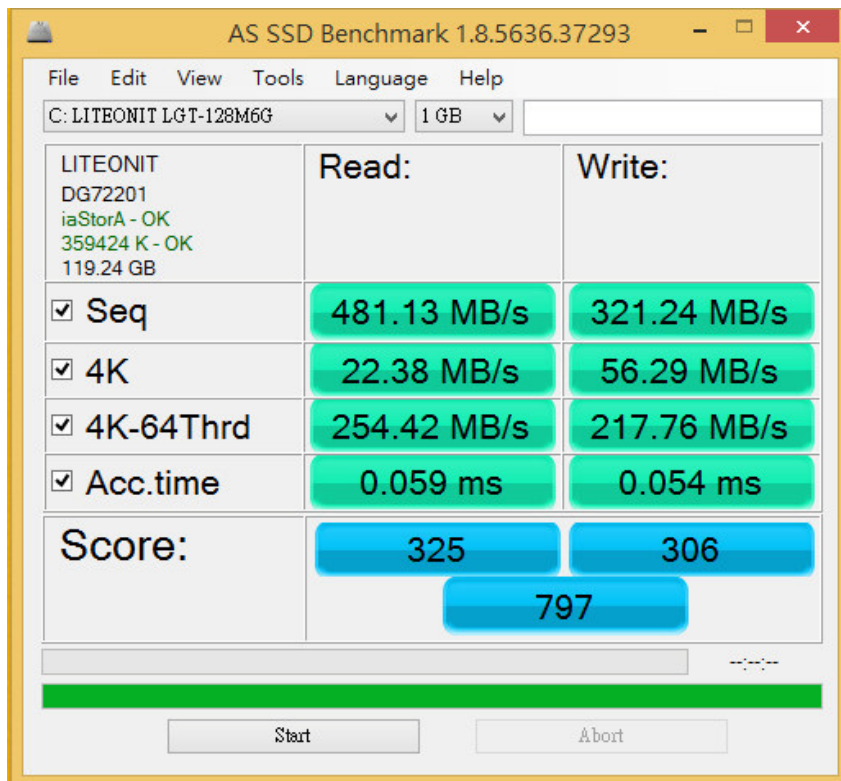
2.6 AS SSD Benchmark 1.9 performance test

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

2.6.1 Used Samsung [SM951 256GB NVMe MZVPV256HDGL](#) performance as below:



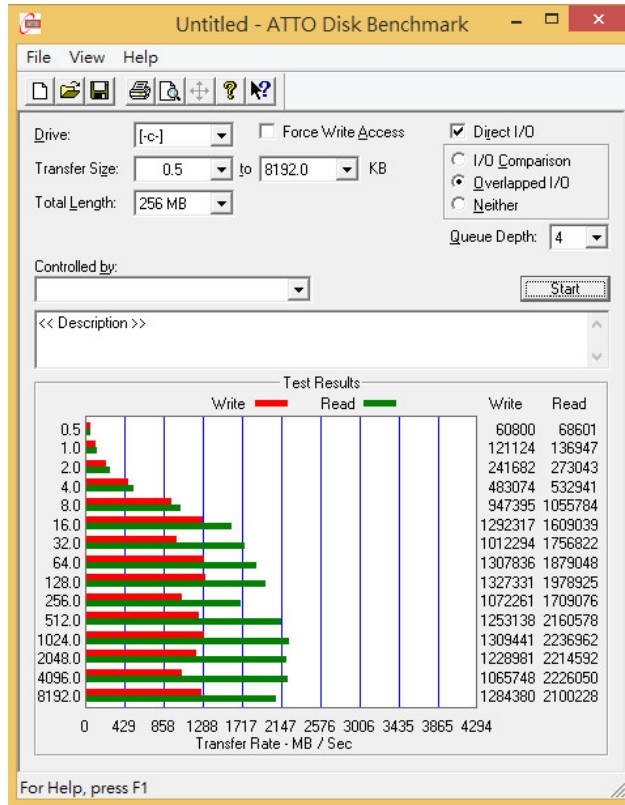
2.6.2 Used LITE-ON 128GB([LGT-128M6G](#))performance as below:



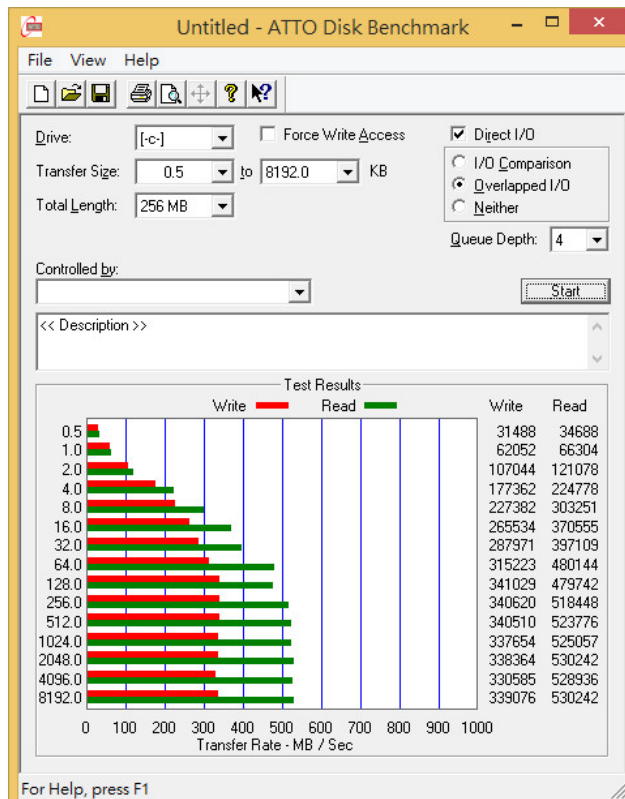
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2.7 ATTO Disk Benchmark 2.47 performance test

2.7.1 Used [SM951 256GB NVMe MZVPV256HDGL](#) performance as below:



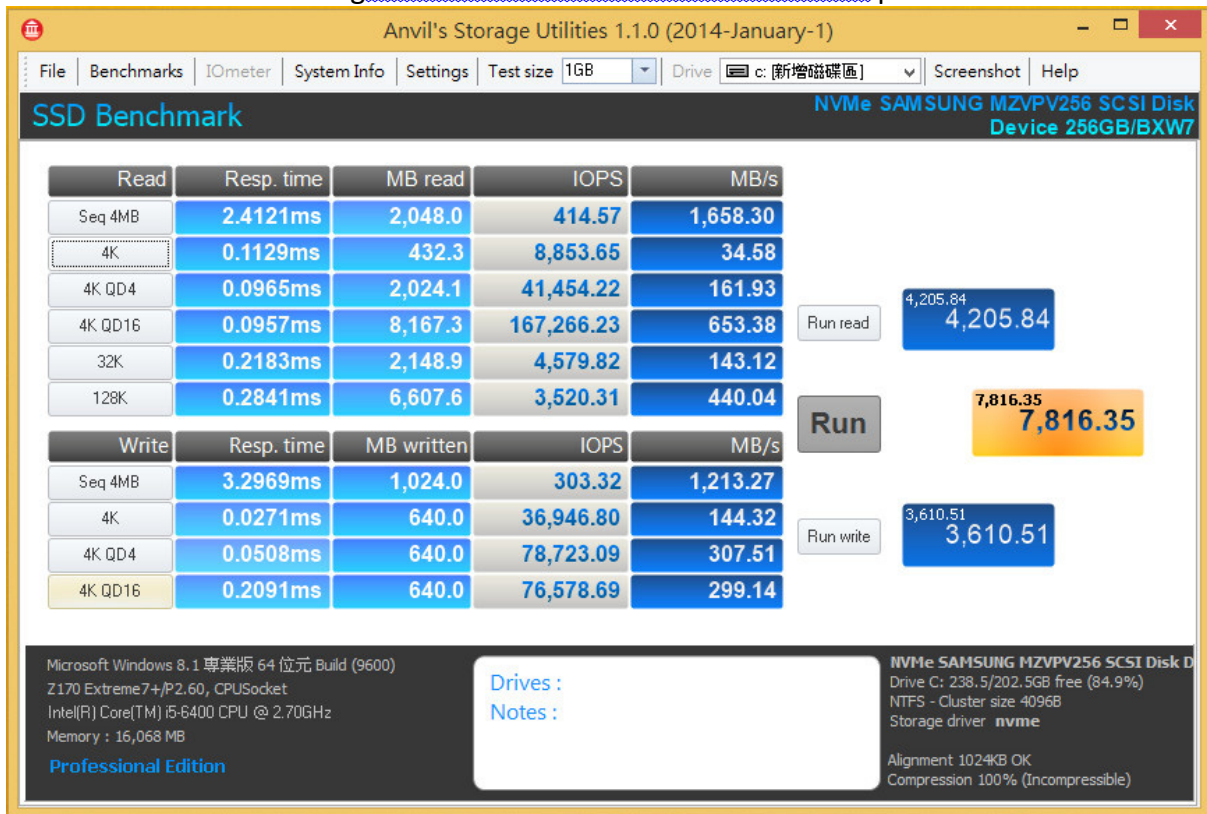
2.7.2 Used [LITE-ON 128GB\(LGT-128M6G\)](#) performance as below:



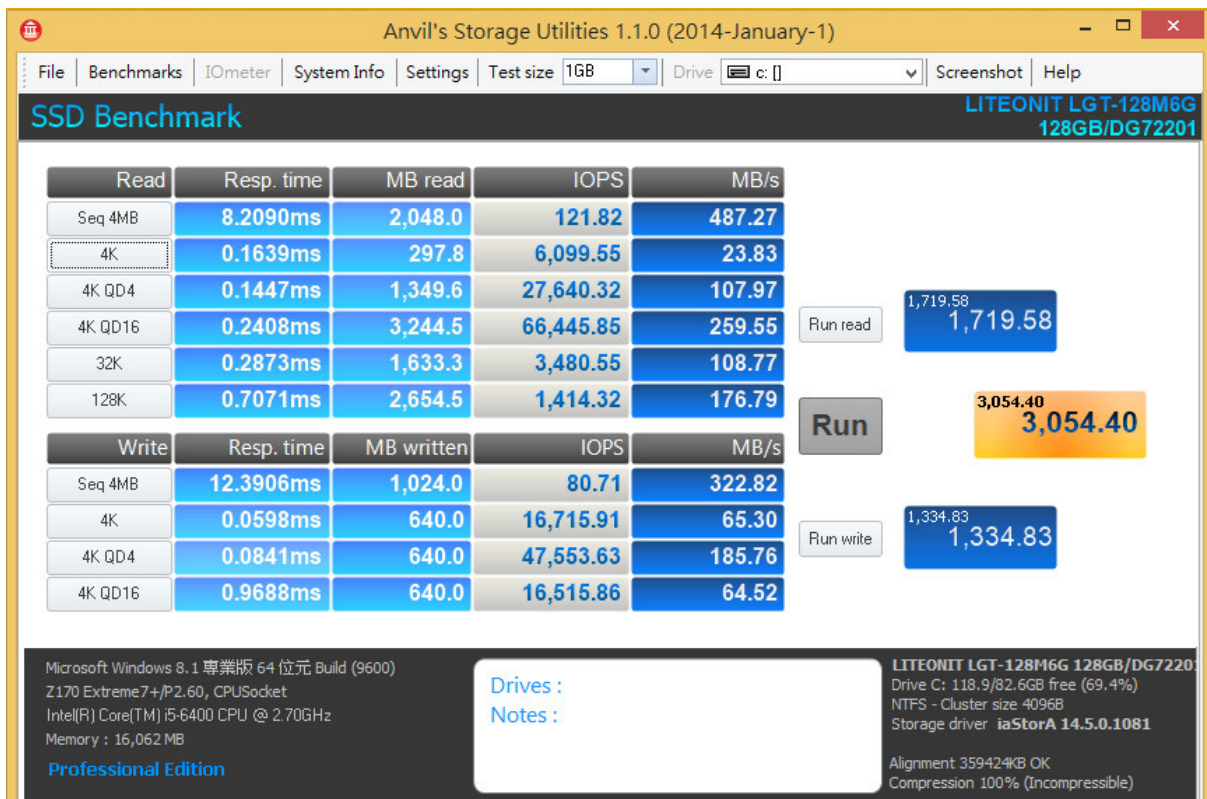
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2.8 AnvilBenchmark_V110_B337

2.8.1 Used Samsung [SM951 256GB NVMe MZVPV256HDGL](#) performance as below:



2.8.2 Used LITE-ON 128GB([LGT-128M6G](#)) performance as below:



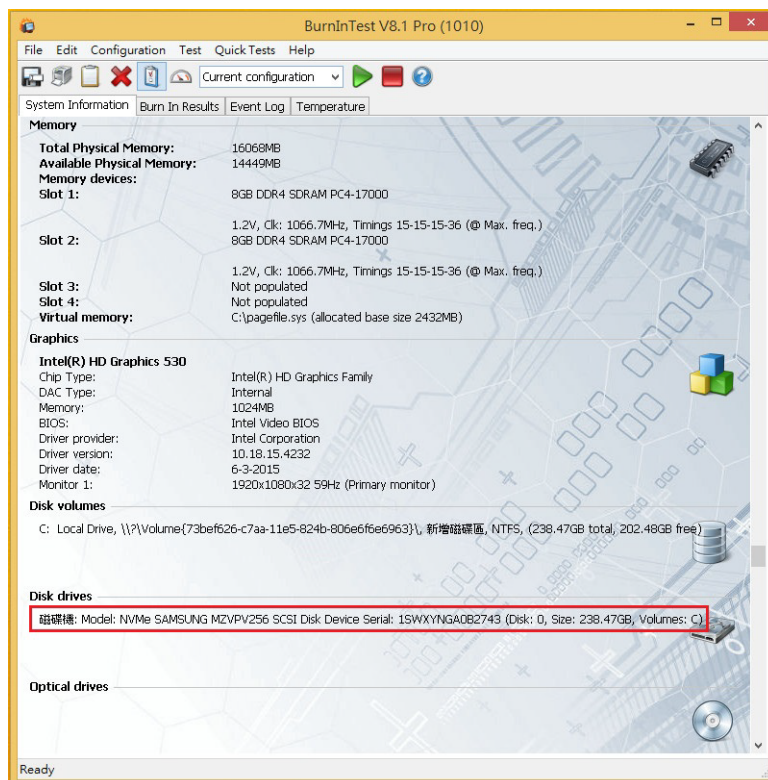
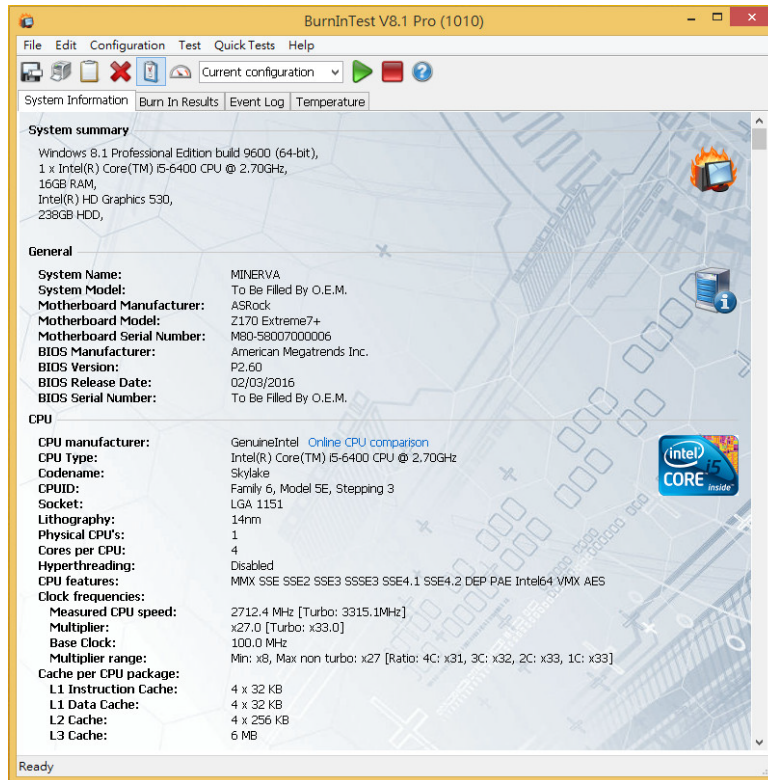
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3. Burn In Tests and Results

3.1 BurnInTest v8.1 Pro

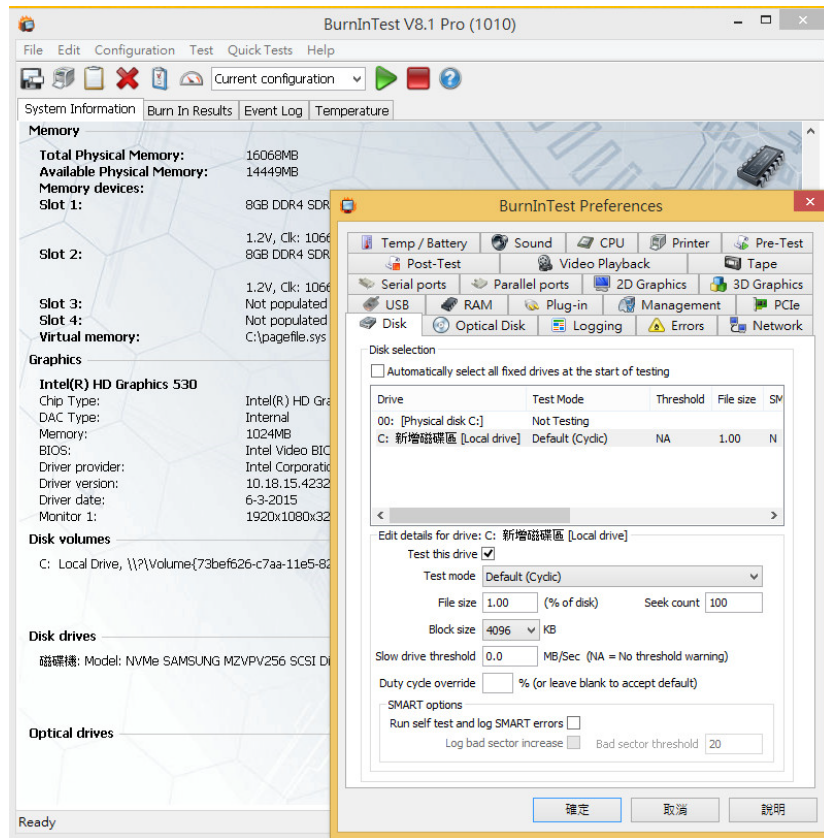
Used in Samsung [SM951 256GB NVMe MZVPV256HDGL](#)

3.1.1 system information as below:

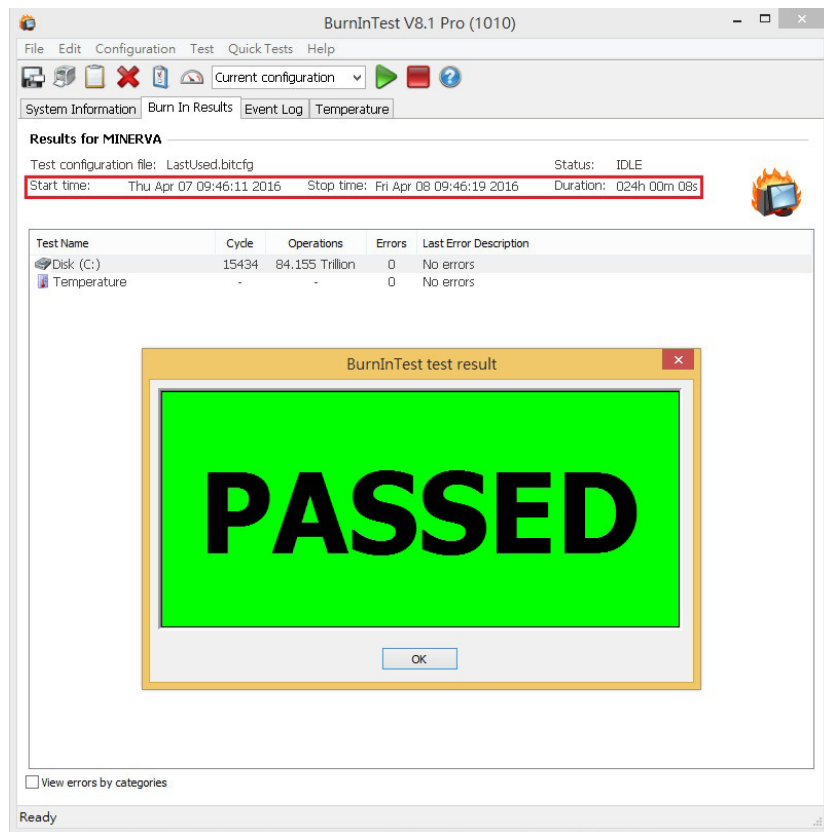


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3.1.2 show Disk test mode (10 ways cycle test) .



3.1.3 show 24-hour Burn-in test PASSED

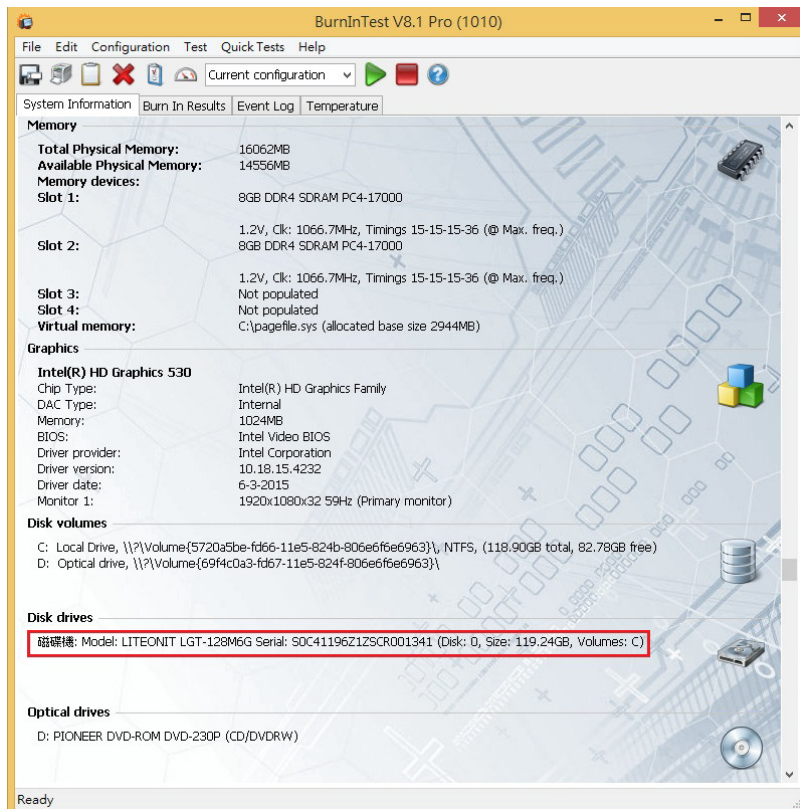
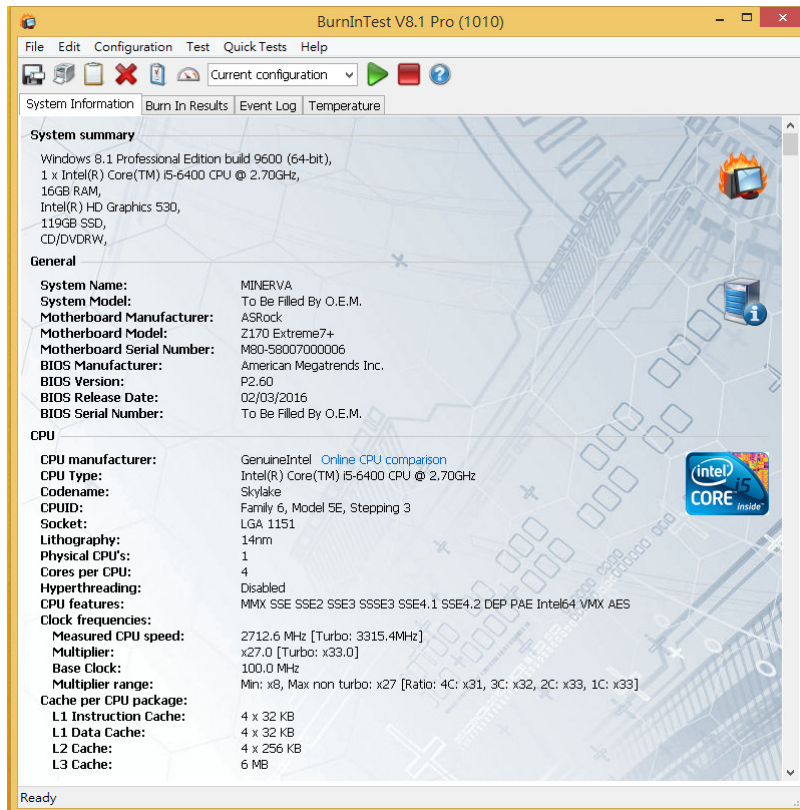


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3.2 BurnInTest v8.1 Pro

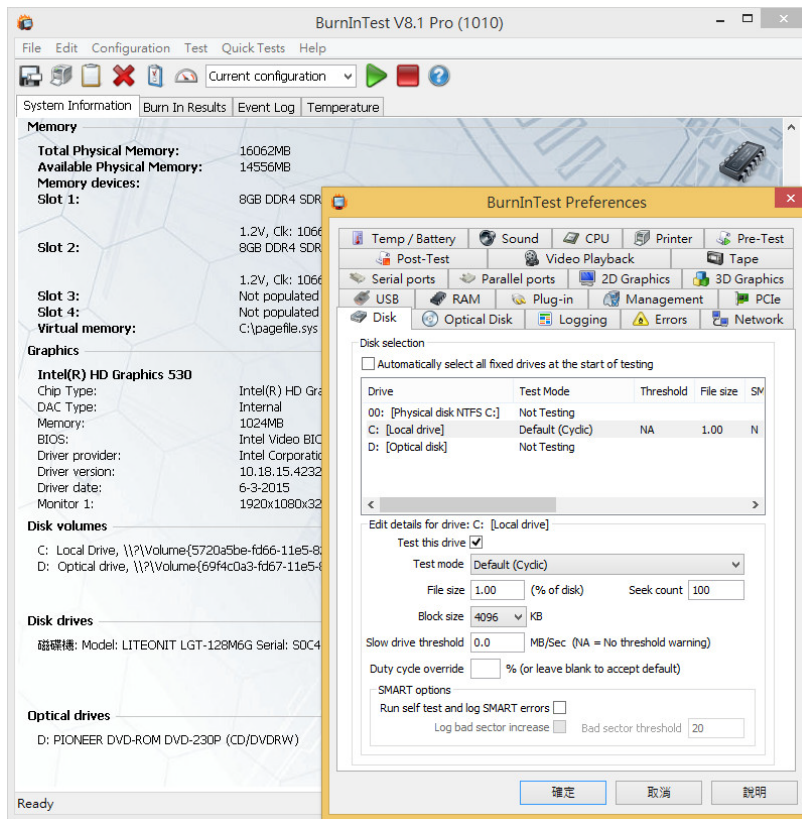
Used in LITE-ON 128GB(LGT-128M6G)

3.2.1 system information as below:

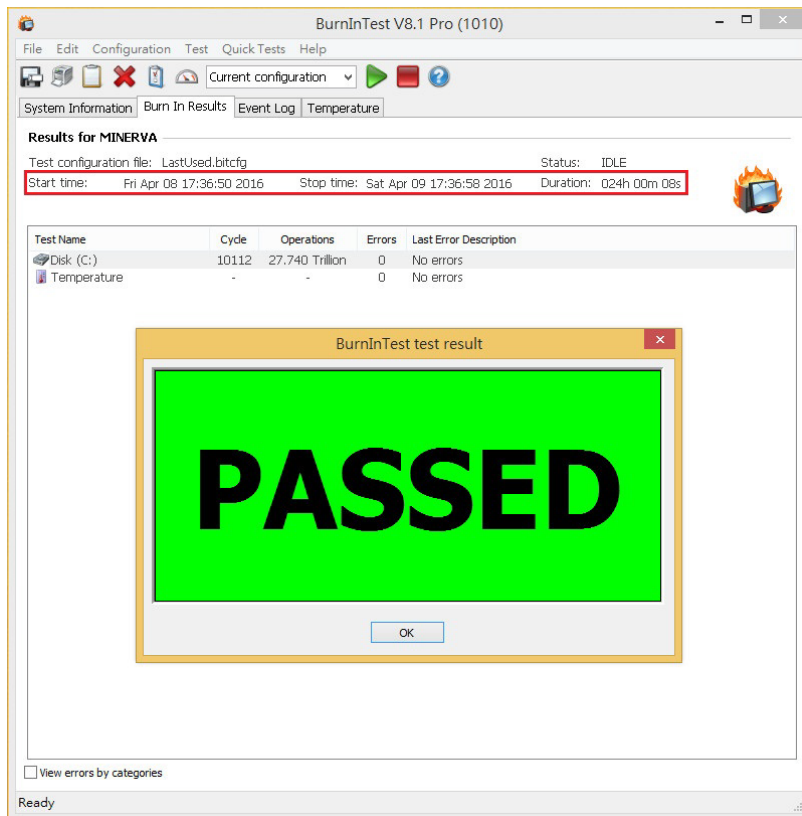


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3.2.2 show Disk test mode (10 ways cycle test)



3.3.3 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 3,200MB/s.
- 4.2 M.2(SATA I/F) SSD is SATA III Interface, I/O speed, max. to 600MB/s.
- 4.3 SU406A adapter I/O performance is based on M.2 NGFF SSD.