



MINERVA

S4035A/E Converter Card

Performance & Burn In Test Rev. 1.0

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4. Summary

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1. Overview

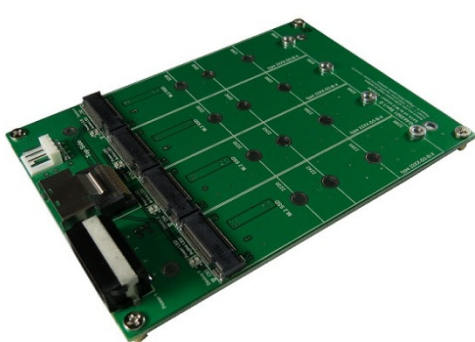
S4035A/E adapter, build in M.2 B-key connector 4-port. It used mini SAS SFF-8087 to SATA 7-pin 4-port cable to connect to M/B SATA III port.

2. Tools and Results of Performance Measurement

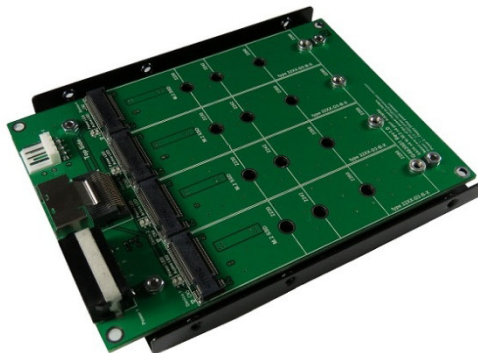
2.1 Test Platform

M/B : ASRock **Z97 Extreme 6**
CPU : Intel **i5-4426**, 3.2GHz/ 6M Cache/ LGA1150
Memory : Kingston **KVR16N11S8/4**, DDR3-1600MHz, 8G(4GB DIMM*2)
ATX Power : FSP RAIDER 550, **550W ATX**, 12V V2.2 Power Supply
Graphic : Z97 Chipsets built-in **HD Graphics 4600**
OS : Microsoft **Windows 8.1 64bit OS**

2.2 Test target: S4035A/E adapter and M.2 SSD(LITE-ON [LGT-128M6G/128G](#))



S4035A Adapter



S4035E Adapter



LITE-ON LGT-128M6G

2.3 Install Hardware

2.3.1 Insert M.2 SSDx4 into S4035A/E converter's M.2 B-key connector, and then with coppers, and screws to fix SSDs. (Please refer to the Installation Notes).
Connect S4035A/E converter to **SATA III Port of ASRock Z97 Extreme 6**.

2.4 BIOS & Windows 7 OS environment setup

2.4.1 In UFI BIOS(Basic Input/Output Setup) – Change IDE Mode into RAID Mode
2.4.2 Install Windows 8.1 x64 OS.

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2.5 SSD I/O Performance impact factors

2.5.1 SATA I/O performance -- depending on the SSD Controller IC

2.5.2 SATA I/O performance - -depending on the NAND Flash IC.

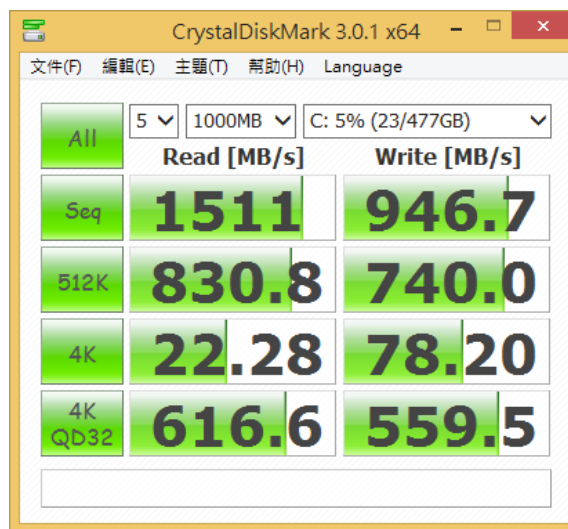
2.5.2.1 Toggle DDR mode or ONFI synchronous NAND Flash IC, will show good performance

2.5.2.2 Traditional asynchronous or SDR NAND Flash IC, will show poor performance

2.6 CrystalDiskMark 3.0.1 x64 performance test

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

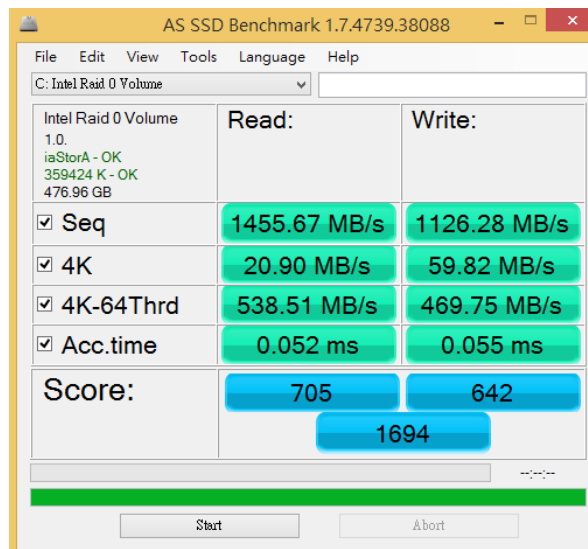
2.6.1 Used LITE-ON [LGT-128M6G/128Gx4](#) in **Z97 RAID 0** performance as below:



2.7 AS SSD Benchmark 1.7 performance test

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

2.7.1 Used LITE-ON [LGT-128M6G/128Gx4](#) in **Z97 RAID 0** performance as below:

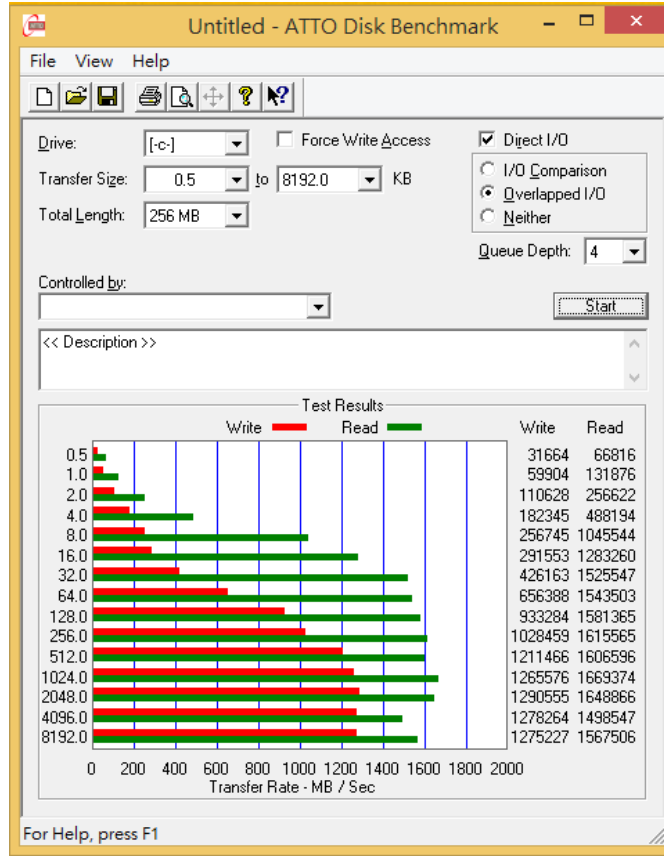


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2.8 ATTO Disk Benchmark performance test

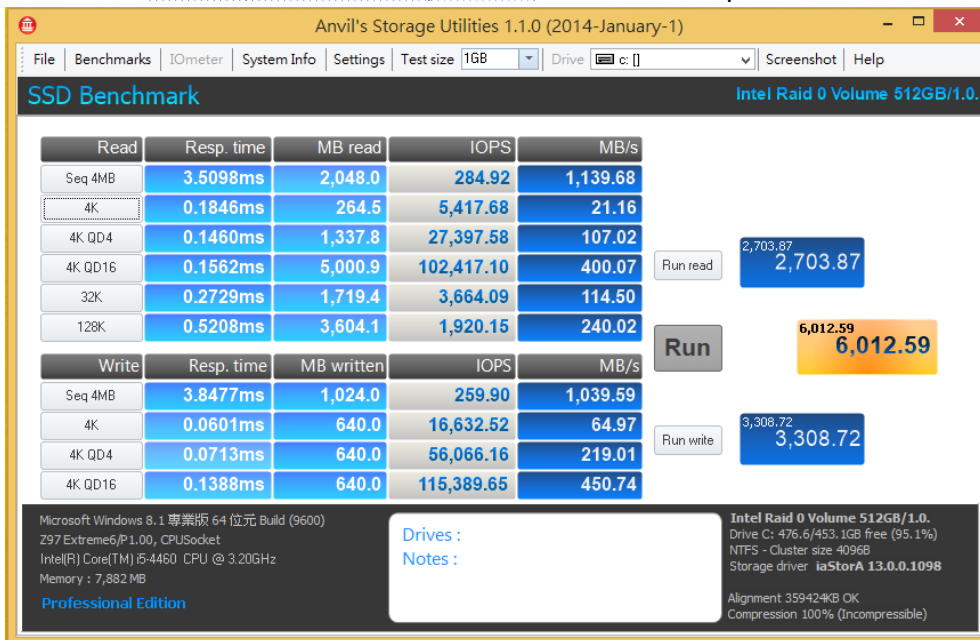
※Benchmark (Sequential Read / default block size = 8MB)

2.8.1 Used LITE-ON LGT-128M6G/128Gx4 in Z97 RAID 0 performance as below:



2.9 AnvilBenchmark_V110_B337

2.9.1 Used LITE-ON LGT-128M6G/128Gx4 in Z97 RAID 0 performance as below:

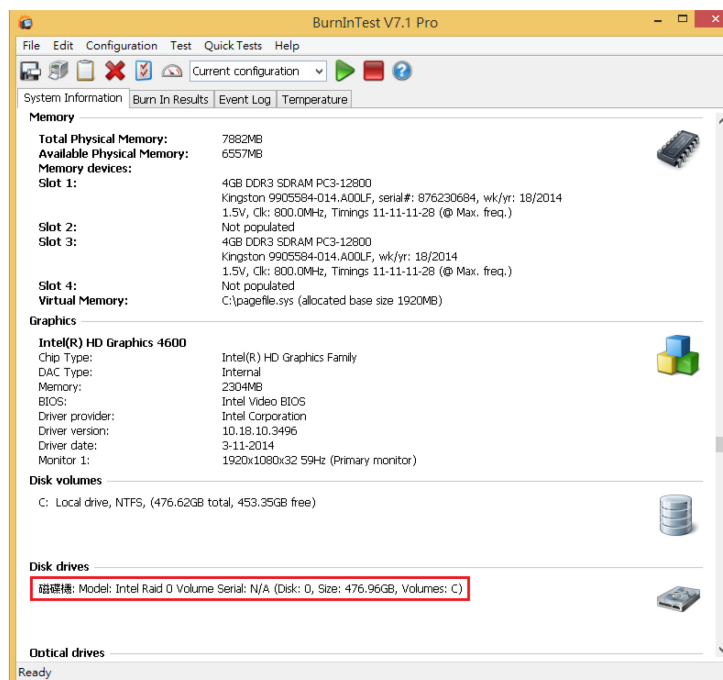
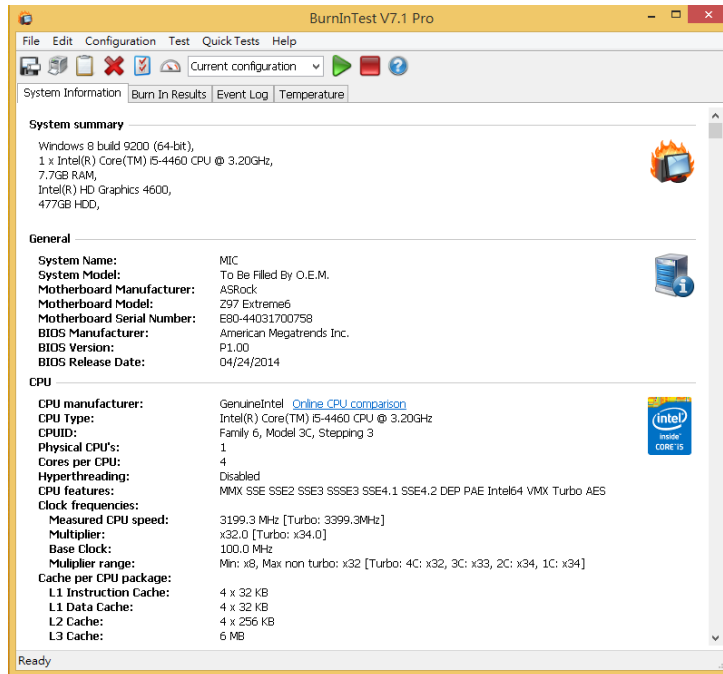


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3. Burn In Tests and Results

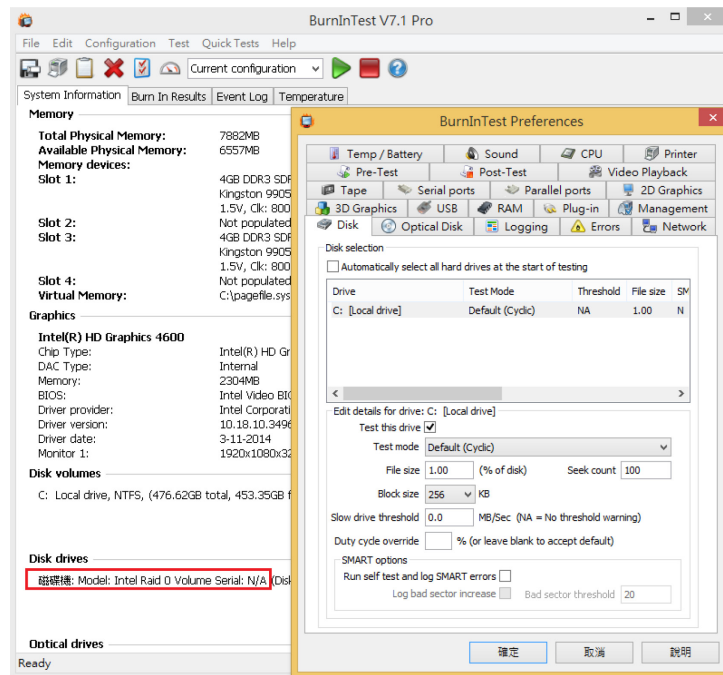
3.1 BurnInTest v7.1 Pro

3.1.1 system information for LITE-ON LGT-128M6G/128Gx4 as below:

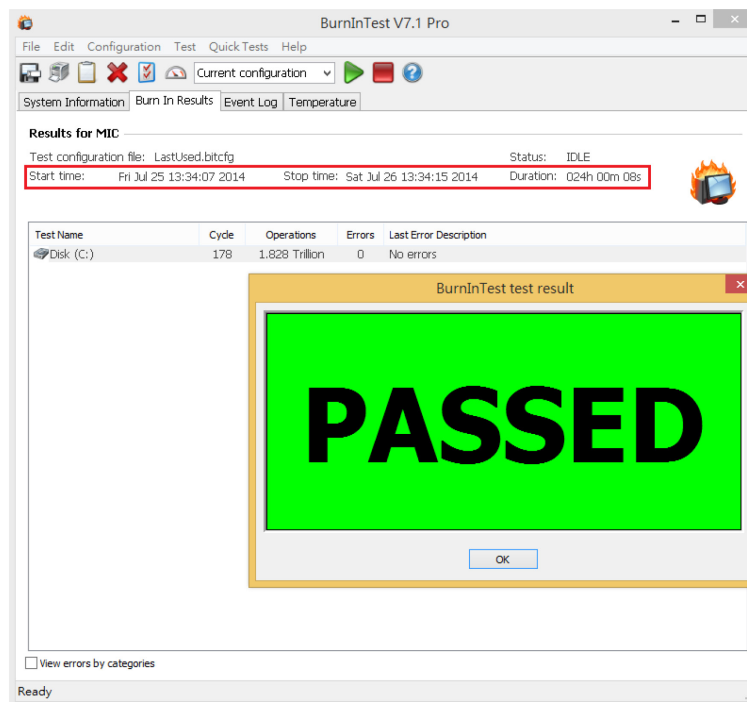


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3.1.2 show LITE-ON LGT-128M6G/128Gx4 Disk test mode(default -- 10 ways cycle test)



3.1.3 show LITE-ON LGT-128M6G/128Gx4 24-hour Burn-in test PASSED



4. Summary

- 4.1 M.2 SSD is SATA III Interface, I/O speed, max. to 600MB/s.
- 4.2 S4035A/E adapter I/O performance is based on M.2 SSD.