



MINERVA

R2096E SATA 3 to SATA 2-port & M.2 2-port RAID

RAID JBOD Mode Performance & Burn In Test Rev. 1.0

Table of Contents

1. Overview

2. Performance Measurement Tools and Results
 - 2.1 Test Platform
 - 2.2 Test target and Used SATA III / mSATA SSD
 - 2.3 Install Hardware
 - 2.4 BIOS & Windows 8.1 x64 OS environment setup
 - 2.5 CrystalDiskMark 3.0.3 x64 performance test
 - 2.6 AS SSD Benchmark 1.7 performance test
 - 2.7 ATTO Disk Benchamrk 2.47 performance test
 - 2.8 AnvilBenchmark_V110_B337 Benchmark performance test

3. Burn In Tests and Results
 - 3.1 BurnInTest V7.1 Pro burn in test

4. Summary

R2096E SATA 3 to SATA 2-port & M.2 2-port RAID Card

1. Overview

R2096E RAID card offers SATA 3 interface, built-in 2-port SATA 7-pin connector & 2-port M.2 B key connector, can be combined two SATA SSD into a RAID 0, RAID 1, JBOD mode.

This test report is based M.2 NGFF SSD x2, JBOD set as a benchmark.

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: R2096E RAID Card and M.2 NGFF SSD(LGT-128M6G/128GBx2)



R2096E Adapter



LGT-128M6G / 128GB x2

2.3 Install Hardware

2.3.1 Insert M.2 SSDx2 into R2096E converter's M.2 B key connector, and then with coppers, and screws to fix SSDs. (Please refer to the Installation Notes).

Connect R2096E converter to **SATA III Port of ASRock Z97 Extreme6**.

2.4 BIOS & Windows 8 OS environment setup

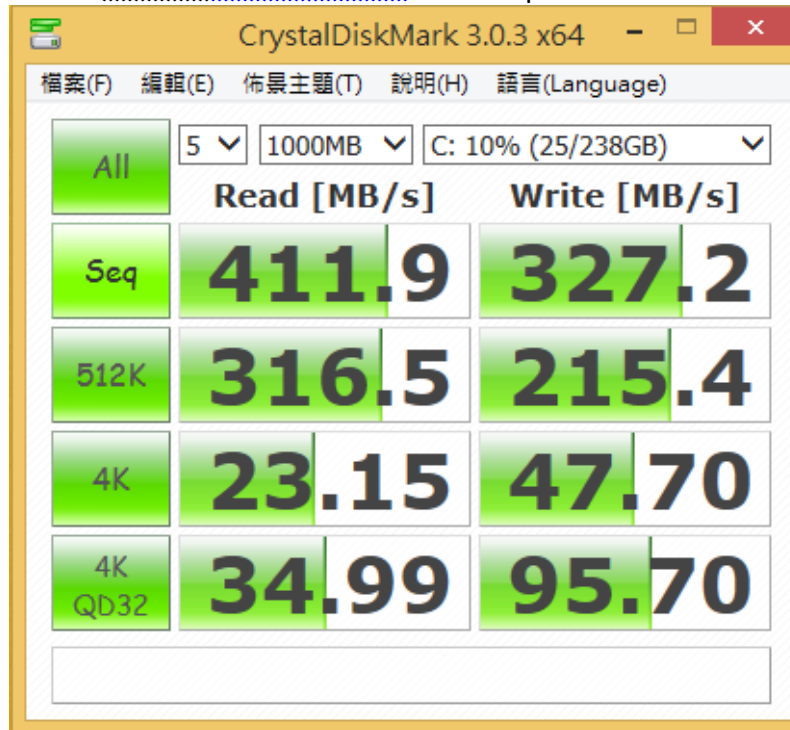
2.4.1 Install Windows 8.1 x64 OS.

R2096E SATA 3 to SATA 2-port & M.2 2-port RAID Card

2.5 CrystalDiskMark 3.0.1 x64 performance test

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

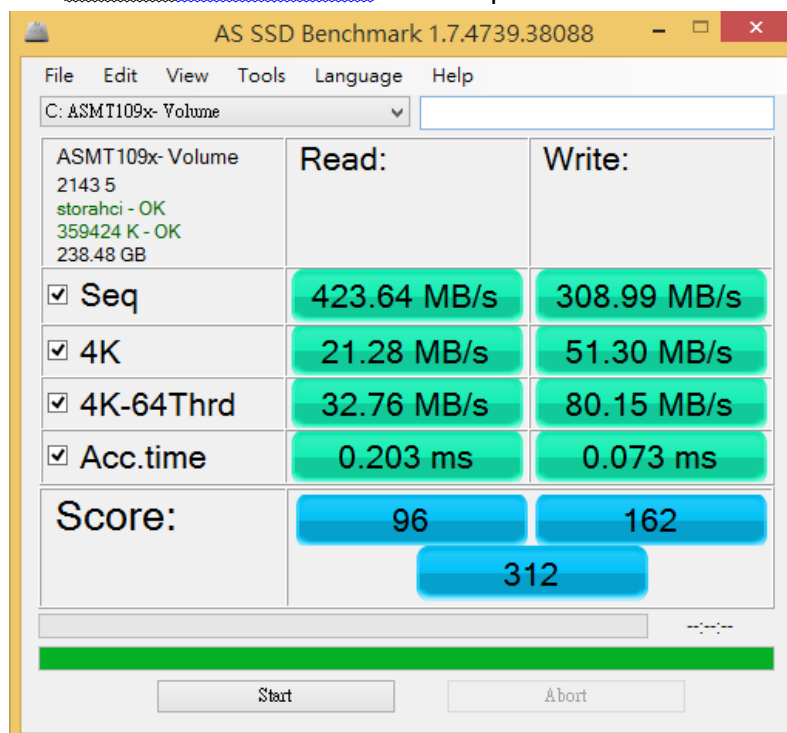
2.5.1 Used LITE-ON [LGT-128M6Gx2](#) in **JBOD** performance as below:



2.6 AS SSD Benchmark 1.7 performance test

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

2.6.1 Used LITE-ON [LGT-128M6Gx2](#) in **JBOD** performance as below:

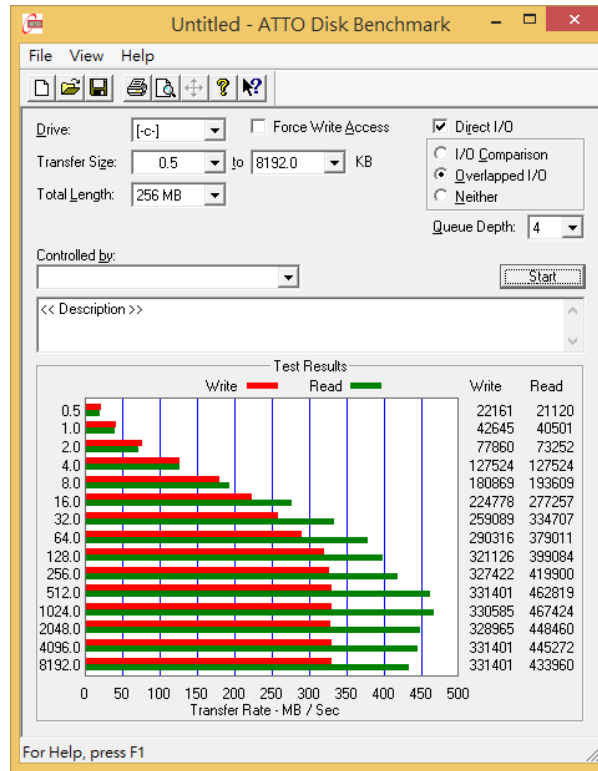


R2096E SATA 3 to SATA 2-port & M.2 2-port RAID Card

2.7 ATTO Disk Benchmark performance test

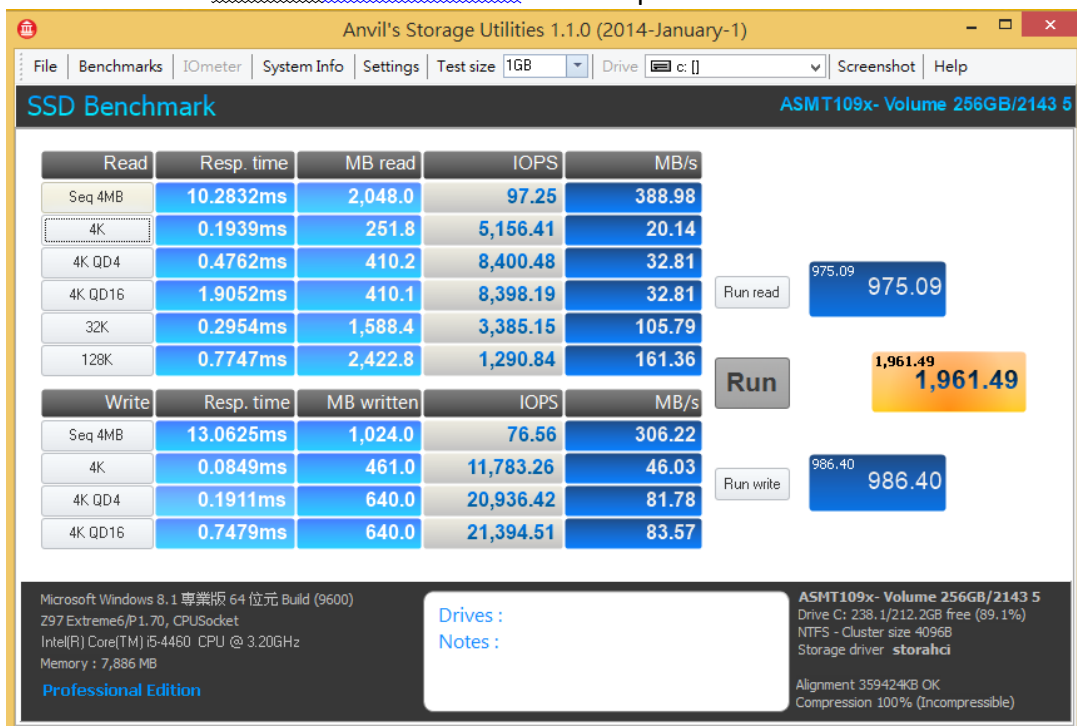
※Benchmark (Sequential **Read** / default block size = **8MB**)

2.7.1 Used LITE-ON **LGT-128M6Gx2** in **JBOD** performance as below:



2.8 AnvilBenchmark_V110_B337

2.8.1 Used LITE-ON **LGT-128M6Gx2** in **JBOD** performance as below:

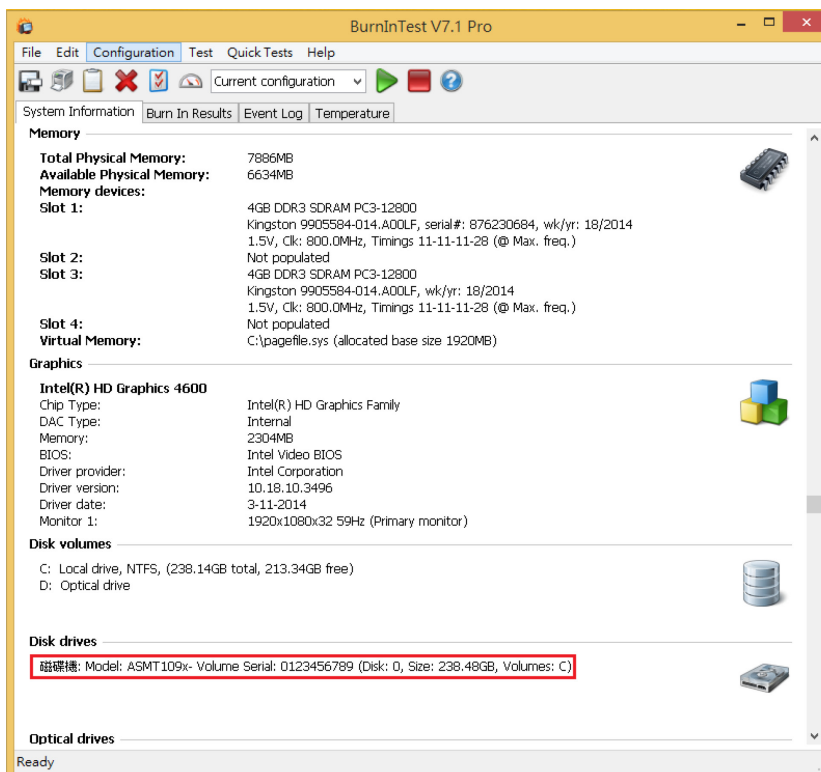
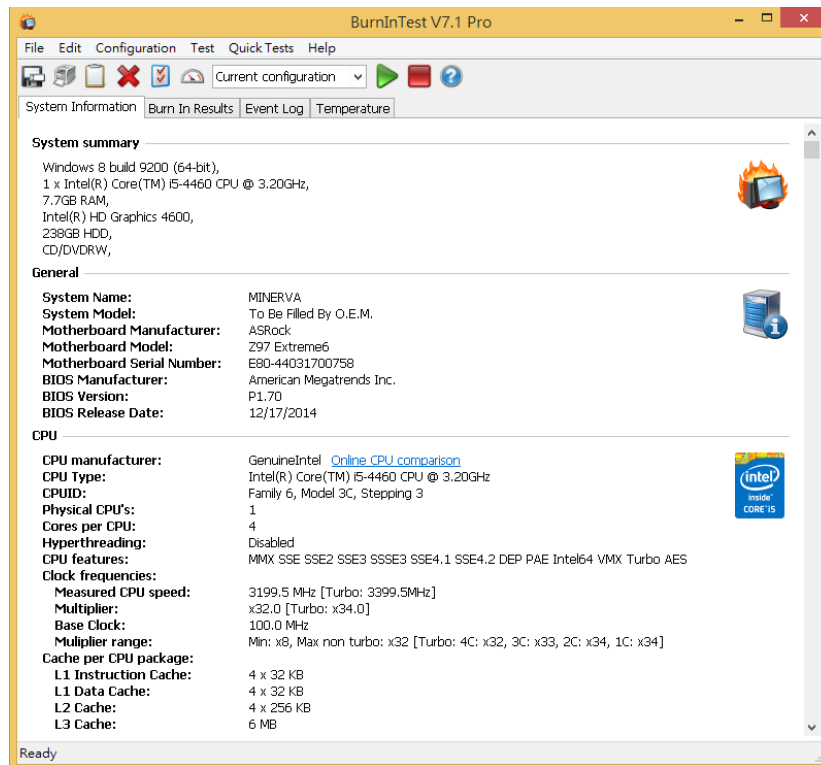


R2096E SATA 3 to SATA 2-port & M.2 2-port RAID Card

3. Burn In Tests and Results

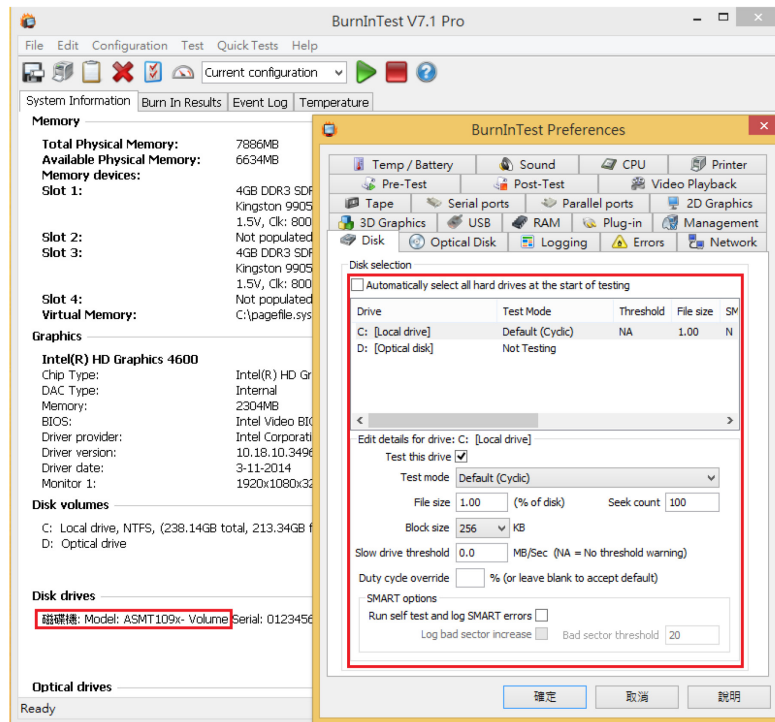
3.1 BurnInTest v7.1 Pro

3.1.1 system information for LITE-ON LGT-128M6Gx2 in JBOD as below:

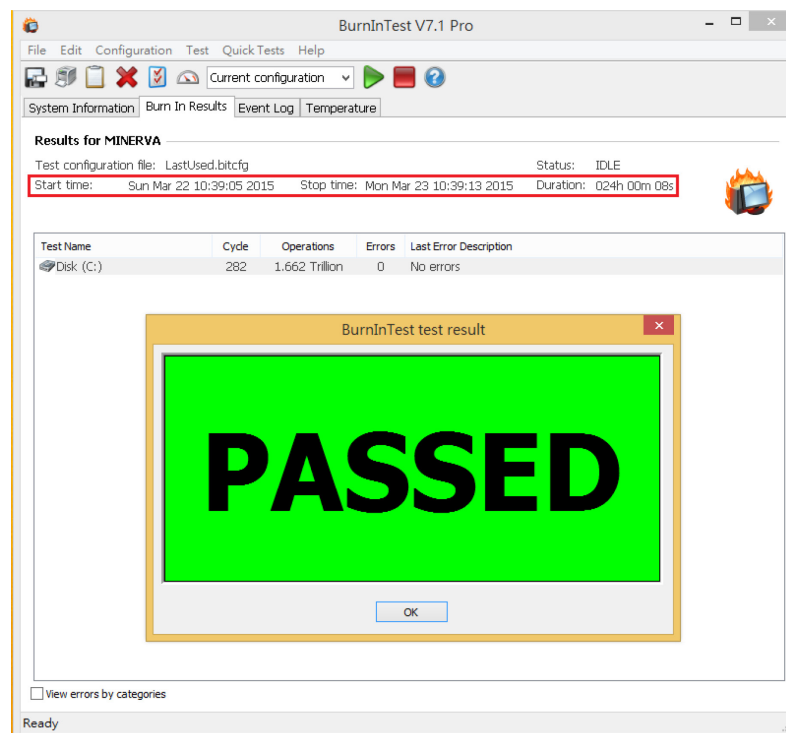


R2096E SATA 3 to SATA 2-port & M.2 2-port RAID Card

3.1.2 show JBOD SSD test mode(default cyclic -- 10 ways cycle test)



3.1.3 show LITE-ON LGT-128M6Gx2 in JBOD 24-hour Burn-in test PASSED



4. Summary

- 4.1 R2096E is SATA III Interface, I/O speed, max. to 600MB/s.
- 4.2 R2096E adapter I/O performance is based on M.2 NGFF SSD.