



MINERVA

USB 3.1 Gen 2 Enclosure for mSATA SSD & M.2 SSD with Micro-B

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 M.2 NGFF SSD
 - 2.3 Install Hardware
 - 2.4 BIOS & Windows 8.1 OS environment setup
 - 2.5 CrystalDiskMark 5.10 x64 performance test
 - 2.6 AS SSD Benchmark 1.8 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 BurnInTestv8.1 Pro burn in test

4. Summary

USB 3.1 Gen 2 Micro-B for mSATA SSD & M.2 SSD Enclosure

1. Overview

U4215F enclosure, built-in USB3.1 Micro-B connectors, provides one M.2 B-key connector and one Mini PCI-e connector. First M.2 SSD inserts into M.2 B-key connector or mSATA SSD inserts into Mini PCI-e connector, using USB A-type to Micro-B cable to connect to the host, M.2 SSD or mSATA SSD, only one can work, M.2 SSD would be priority.

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**
- Cable: USB 3.1 A to micro-B cable
- OS : Microsoft **Windows 8.1 64bit OS**

2.2 Test target: U4215F enclosure and SSD(M.2 or mSATA)



U4215F Adapter



Crucial 128GB mSATA



LITE-ON 128GB M.2

2.3 Install Hardware

Inserts M.2 SSD or mSATA SSD into U4215F enclosure's M.2 and Mini PCI-e connector, and use the coppers and screws to fix SSDs (please refer to the installation Notes). Then this enclosure through USB cable to connect to USB3.1 port of ASRock **Z170 Extreme 7+**.

2.4 BIOS & Windows 8.1 OS environment setup

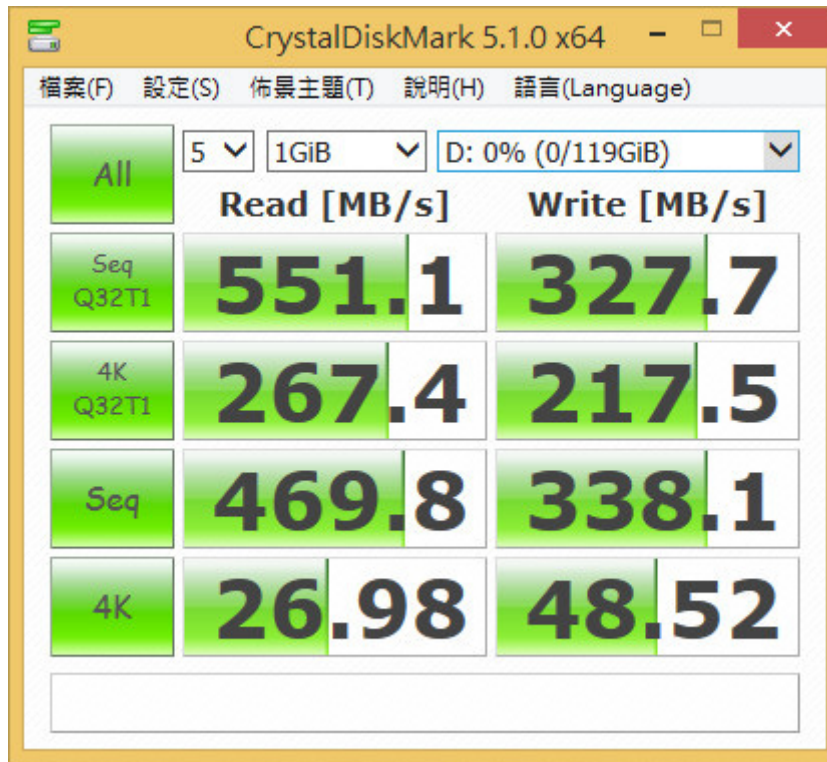
- 2.4.1 install Windows 8.1 64bit OS.

USB 3.1 Gen 2 Micro-B for mSATA SSD & M.2 SSD Enclosure

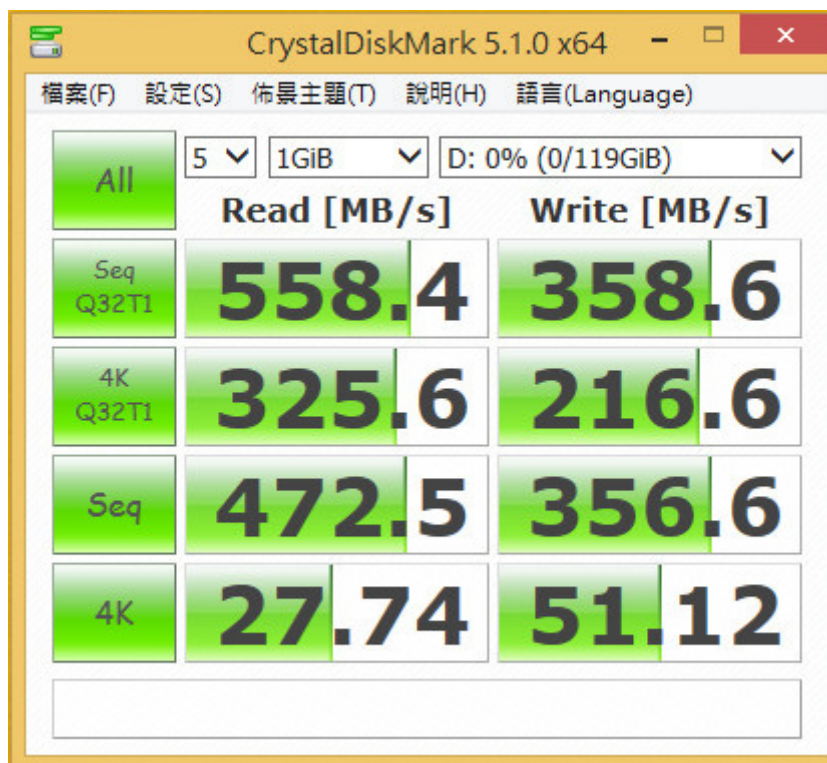
2.5 CrystalDiskMark 5.1.0 x64 performance test

※Benchmark (Sequential [Read & Write](#) / default = 1MB)

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



2.5.2 show [Crucial 128GB\(CT-128M550SSD3\)](#) performance as below:

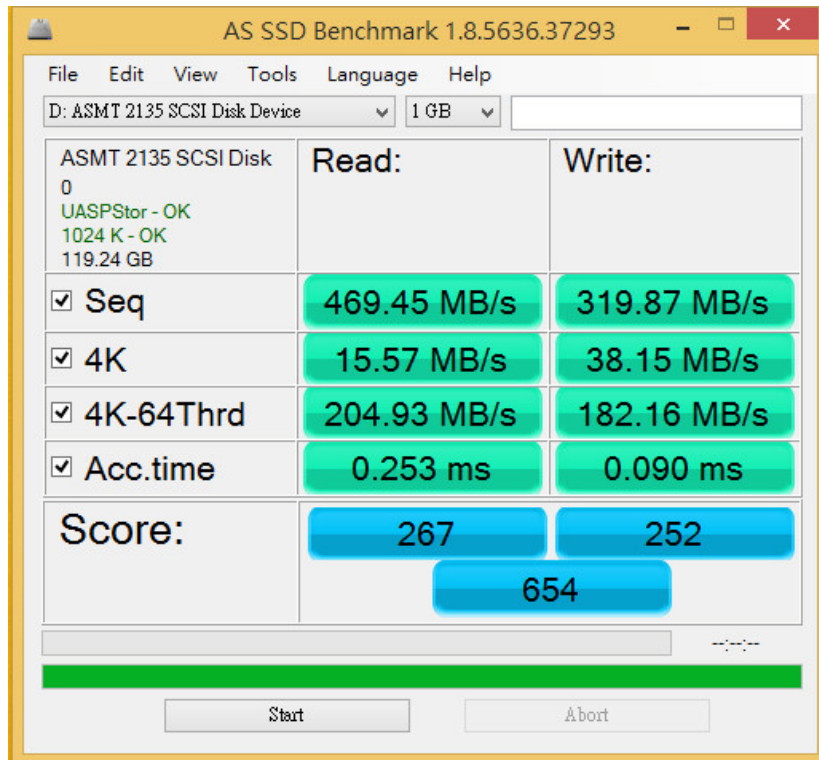


USB 3.1 Gen 2 Micro-B for mSATA SSD & M.2 SSD Enclosure

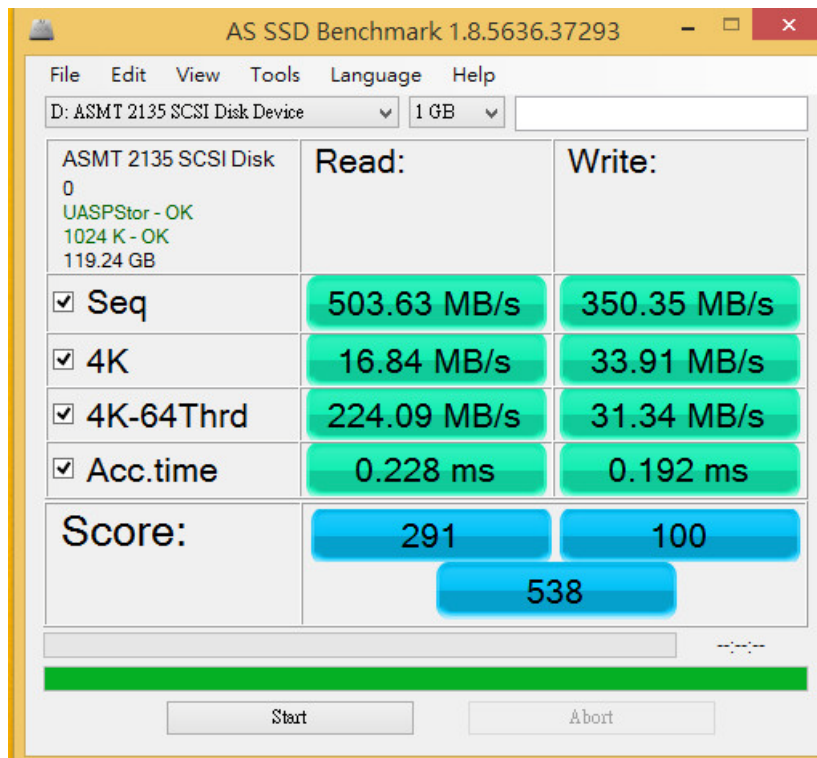
2.6 AS SSD Benchmark 1.8 performance test

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

2.6.1 show LITE-ON 128GB(LGT-128M6G) performance as below:



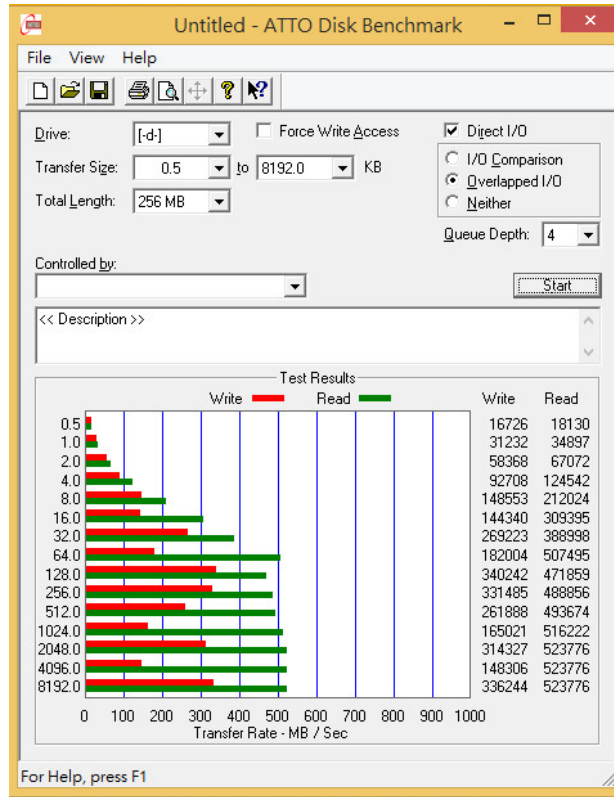
2.6.2 show Crucial 128GB(CT-128M550SSD3) performance as below:



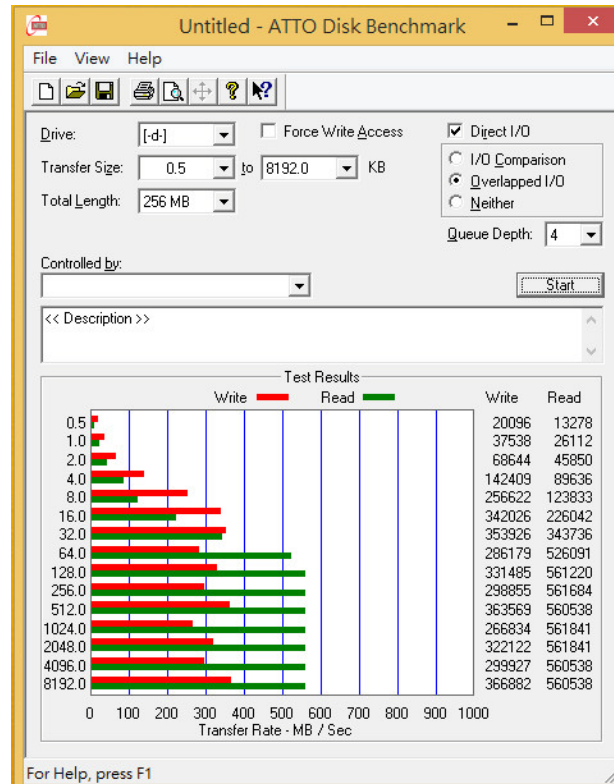
USB 3.1 Gen 2 Micro-B for mSATA SSD & M.2 SSD Enclosure

2.7 ATTO Disk Benchmark 2.47 performance test

2.7.1 show LITE-ON 128GB(LGT-128M6G) performance as below:



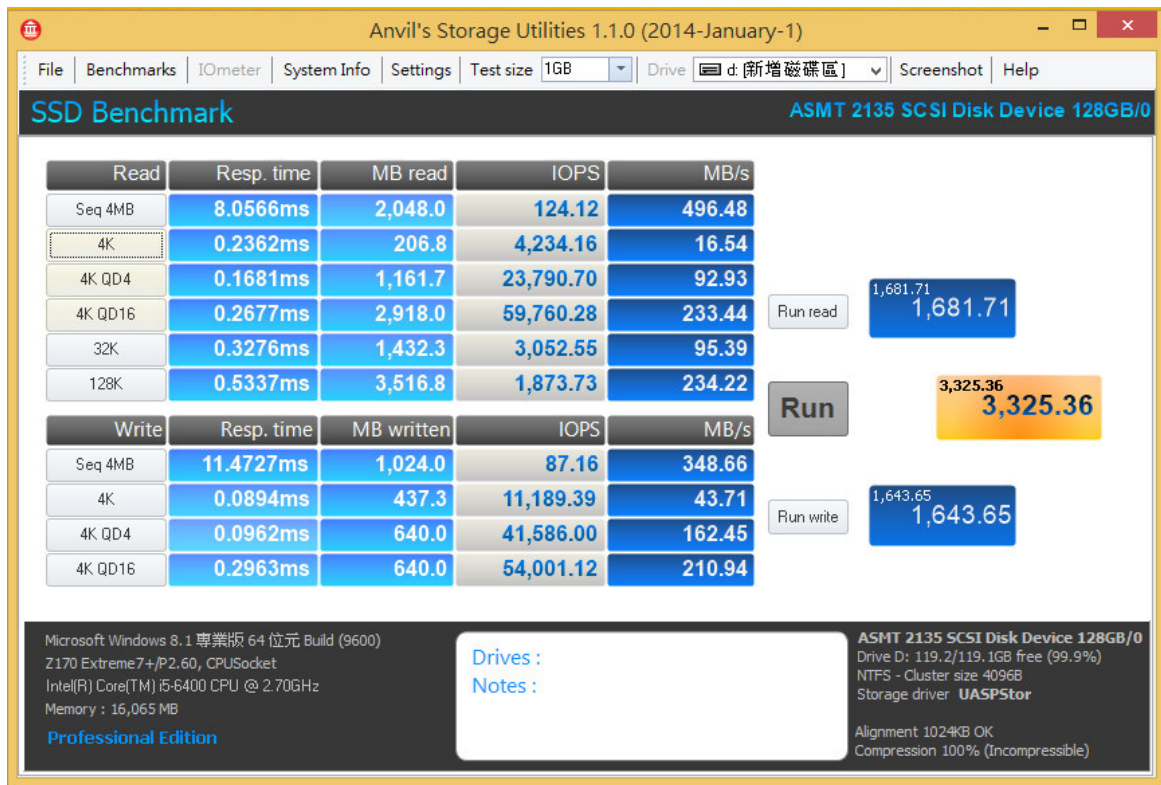
2.7.2 show Crucial 128GB(CT-128M550SSD3) performance as below:



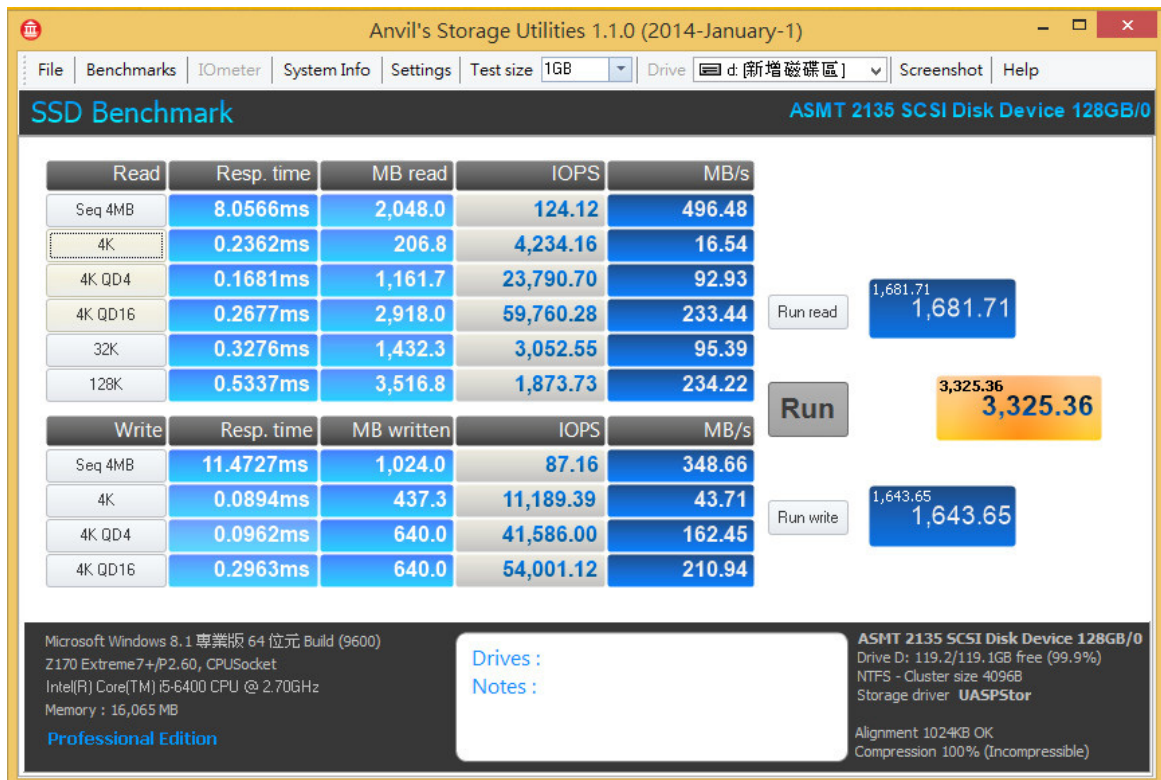
USB 3.1 Gen 2 Micro-B for mSATA SSD & M.2 SSD Enclosure

2.8 AnvilBenchmark_V110_B337

2.8.1 show LITE-ON 128GB(LGT-128M6G) performance as below:



2.8.2 show Crucial 128GB(CT-128M550SSD3) performance as below:



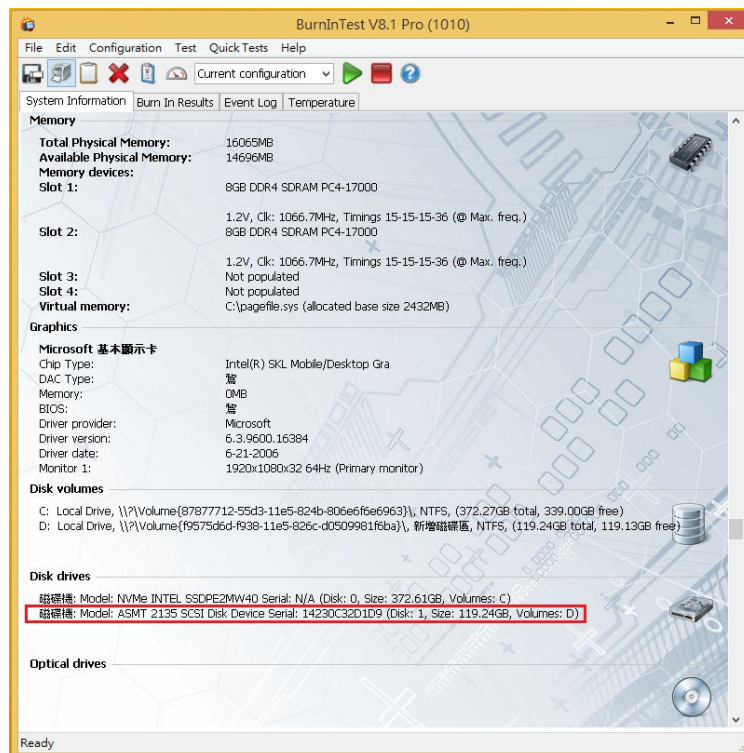
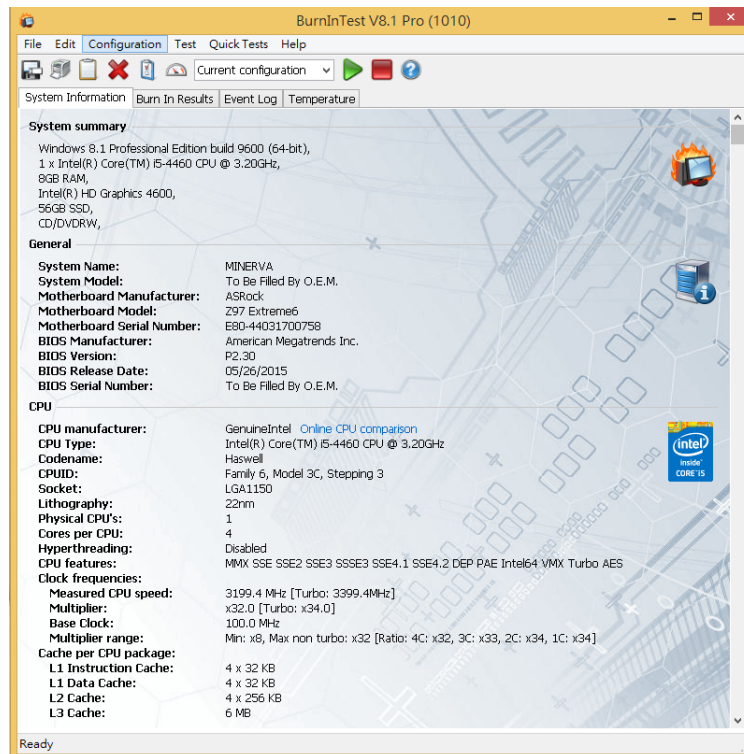
USB 3.1 Gen 2 Micro-B for mSATA SSD & M.2 SSD Enclosure

3. Burn In Tests and Results

3.1 BurnInTest v8.1 Pro

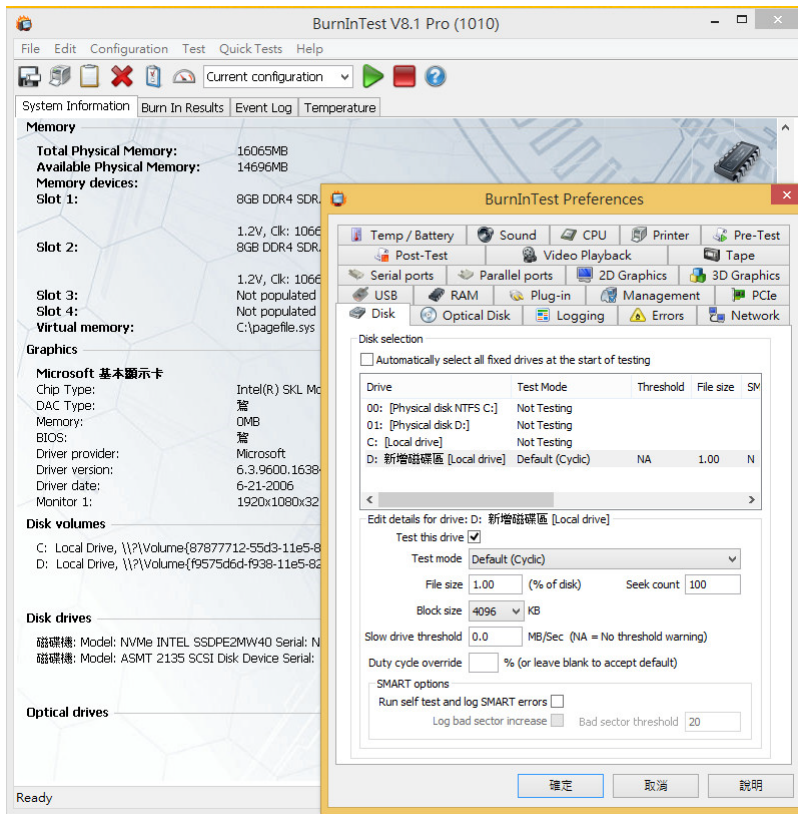
show LITE-ON 128GB(LGT-128M6G) & Crucial 128GB(CT-128M550SSD3)

3.1.1 system information as below:

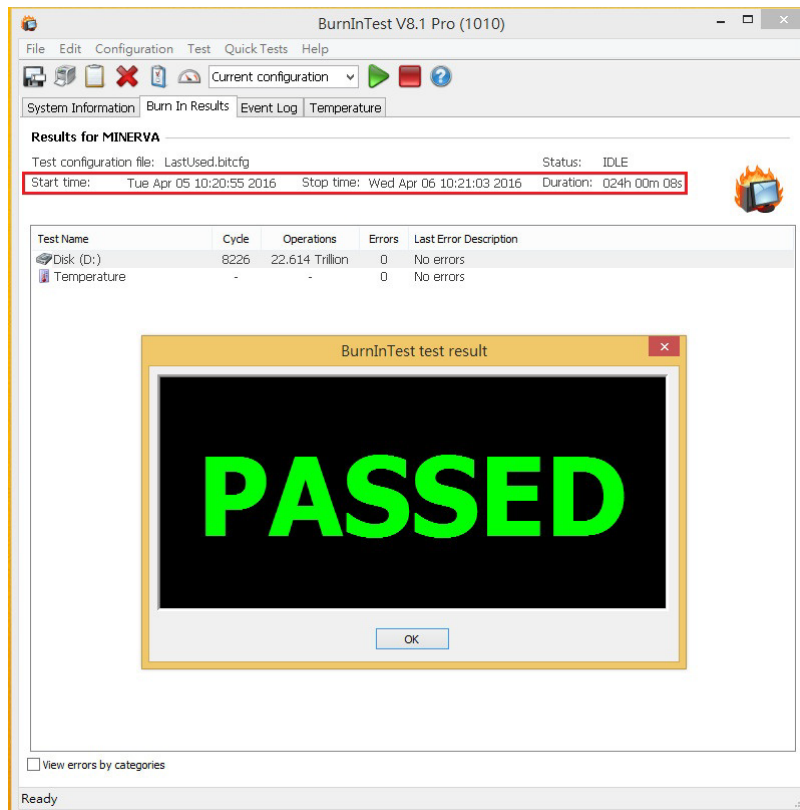


USB 3.1 Gen 2 Micro-B for mSATA SSD & M.2 SSD Enclosure

3.1.2 show Disk test mode (10 ways cycle test)

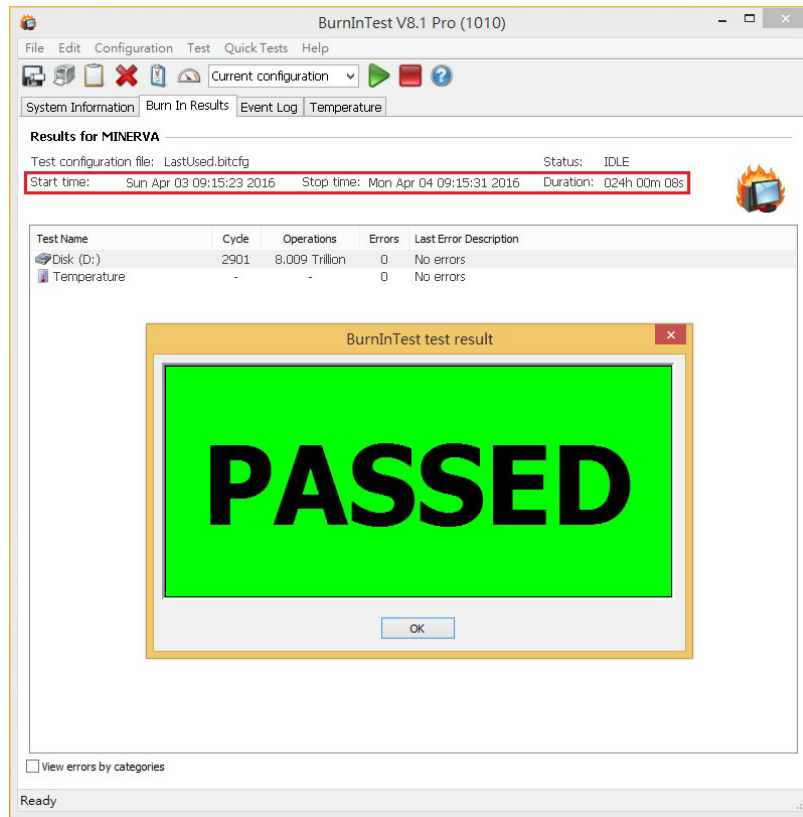


3.1.3 show 24-hour Burn-in test for LITE-ON 128GB(LGT-128M6G) PASSED



USB 3.1 Gen 2 Micro-B for mSATA SSD & M.2 SSD Enclosure

3.1.4 show 24-hour Burn-in test for Crucial 128GB(CT-128M550SSD3) **PASSED**



4. Summary

- 4.1 USB 3.1 is 10Gbps Interface.
- 4.2 SATA III is 6Gbps Interface.
- 4.3 M.2 SSD is SATA III Interface, I/O speed, max. to 600MB/s.
- 4.4 mSATA SSD is SATA III Interface, I/O speed, max. to 600MB/s.
- 4.4 U4215F enclosure I/O performance is based on M.2 SSD or mSATA SSD.