MINERVA

US415A / Rev1.0 Converter Card

Performance & Burn In Test Rev. 1.0

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4. **Summary**

US415A/Rev1.0 Converter Card

1. Overview

US415A adapter, built-in USB3.1 Micro-B connectors, SATA 7+15pin connector provides one M.2 B-key connector and one Mini PCI-e connector. First M.2 SSD insert into M.2 B-key connector, use SATA signals cable to connect to the host, M.2 SSD can work properly. or mSATA SSD insert into Mini PCI-e connector, use SATA signals cable to connect to the host, mSATA can work properly.

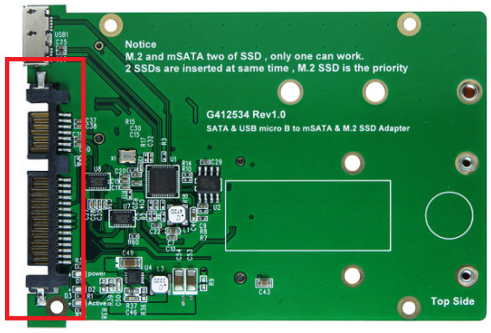
2. Tools and Results of Performance Measurement

2.1 Test Platform

M/B : GIGABYTE **Z170X UD5 TH**
CPU : Intel **i5-6500,** 3.2GHz/ 6M Cache/ LGA1150
Memory : Kingston **KVR21N15D8/8,** DDR4-2133MHz, 16GB(8GB DIMM*2)
ATX Power : COOLER MASTER V750, **750W ATX**, 12V V2.2 Power Supply
Graphic : Z170 Chipsets built-in **HD Graphics 530**
OS : Microsoft **Windows 10 64bit OS**

2.2 Test target: US415A adapter and use M.2 SSD or mSATA SSD

Use SATA 7+15pin connector



US415A Adapter

SATA cable

Samsung CM871a M.2 SSD

Crucial 128GB mSATA SSD

2.3 Install Hardware

Insert M.2 SSD or mSATA SSD to US415A adapter's M.2 or Mini PCI-e connector, and then use the coppers and screws to fix SSDs (please refer to the installation Notes). This adapter through SATA signals cable can connect to SATA port of GIGABYTE **Z170X UD5 TH**.

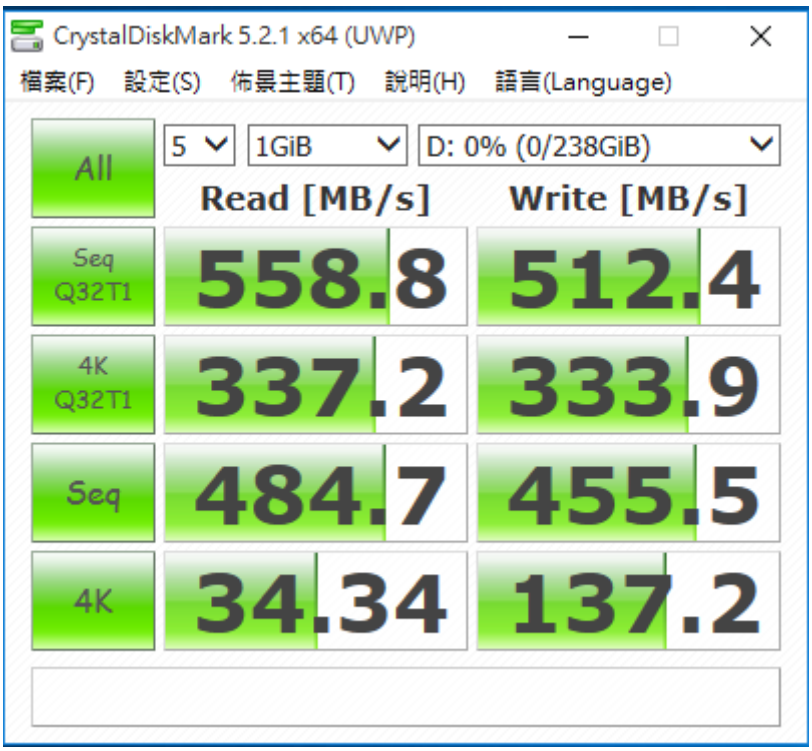
2.4 Windows 10 OS environment setup

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

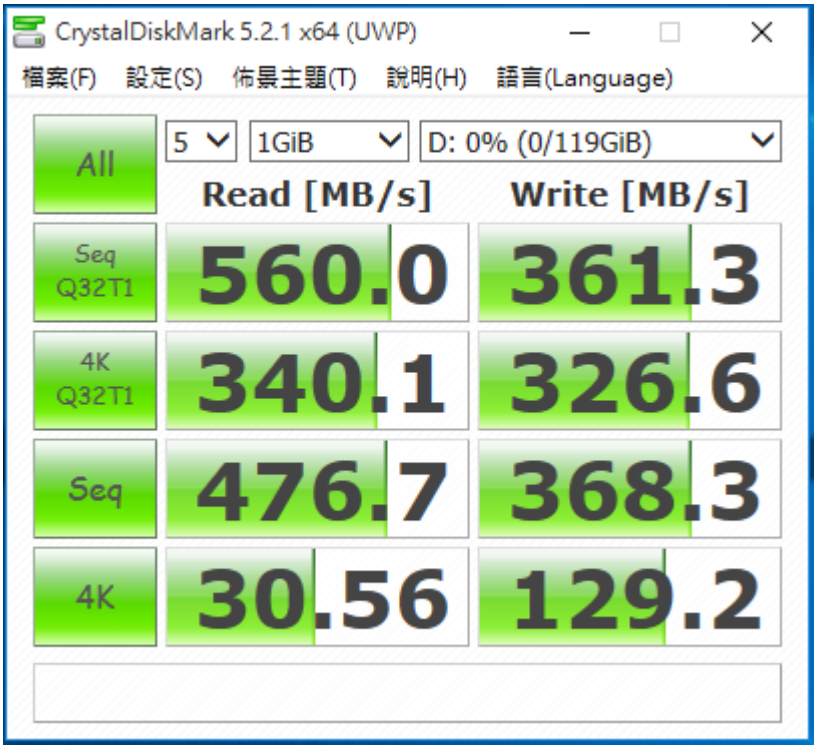
2.5 CrystalDiskMark 5.2.1 x64 performance test

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

2.5.1 shows Samsung 256GB(Samsung CM871a M.2) performance as below:



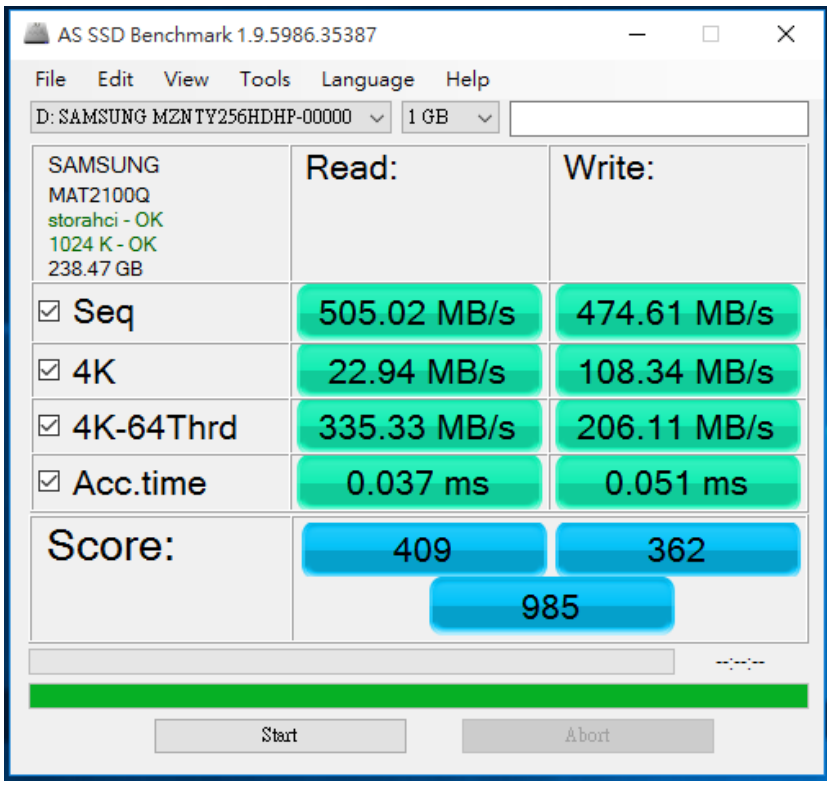
2.5.2 shows Crucial 128GB(CT-128M550SSD3) performance as below:



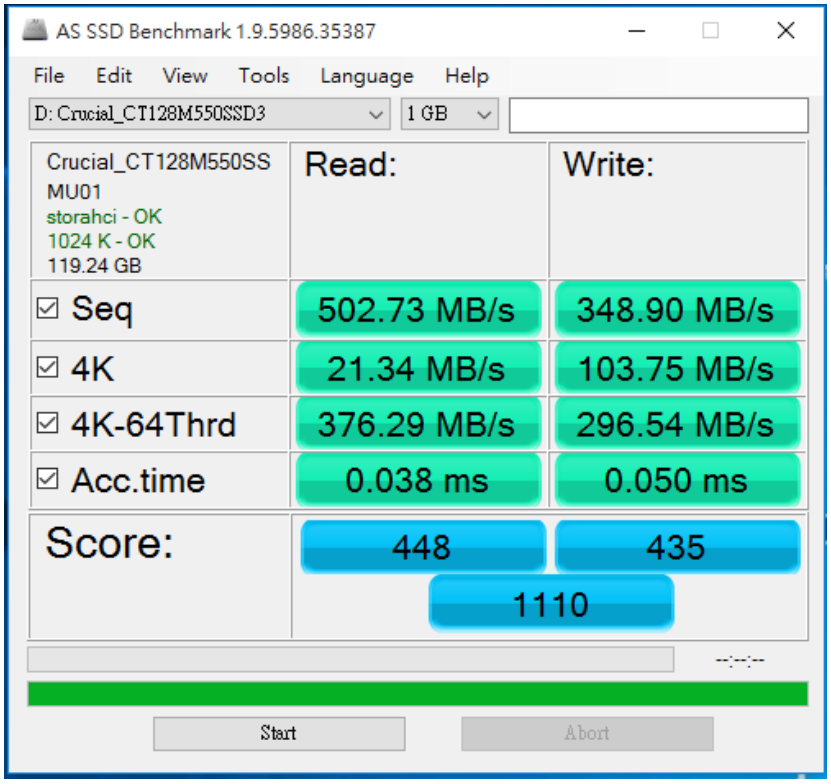
2.6 AS SSD Benchmark 1.9 performance test

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

2.6.1 shows Samsung 256GB(Samsung CM871a M.2) performance as below:

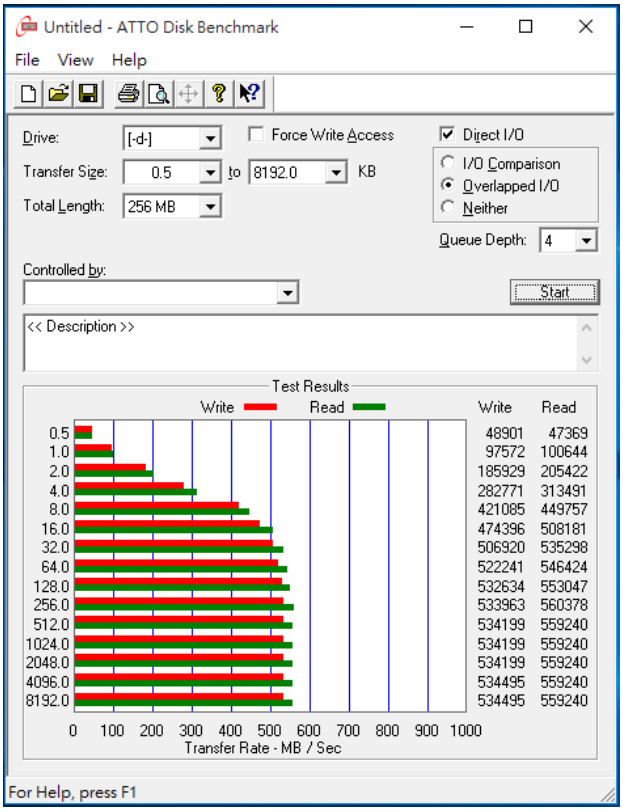


2.6.2 shows Crucial 128GB(CT-128M550SSD3) performance as below:

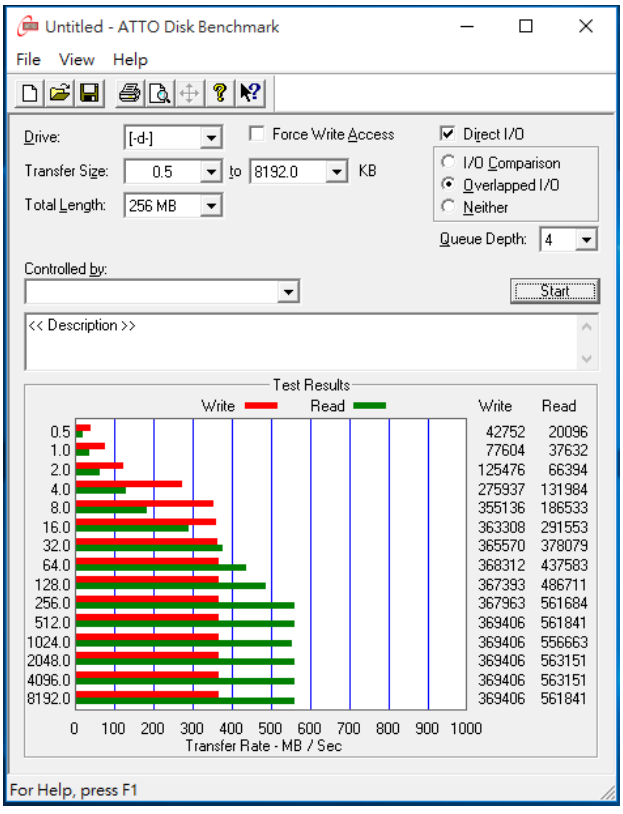


2.7 ATTO Disk Benchamrk 2.47 performance test

2.7.1 shows Samsung 256GB(Samsung CM871a M.2) performance as below:



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



2.8 AnvilBenchmark_V110_B337

2.8.1 shows Samsung 256GB(Samsung CM871a M.2) performance as below:

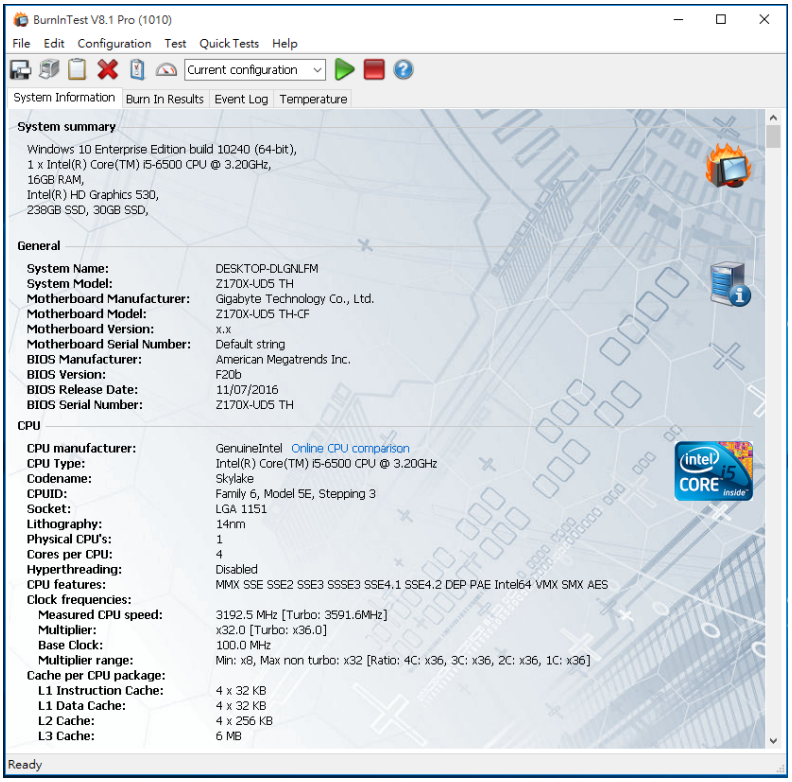
2.8.2 shows Crucial 128GB(CT-128M550SSD3) performance as below:

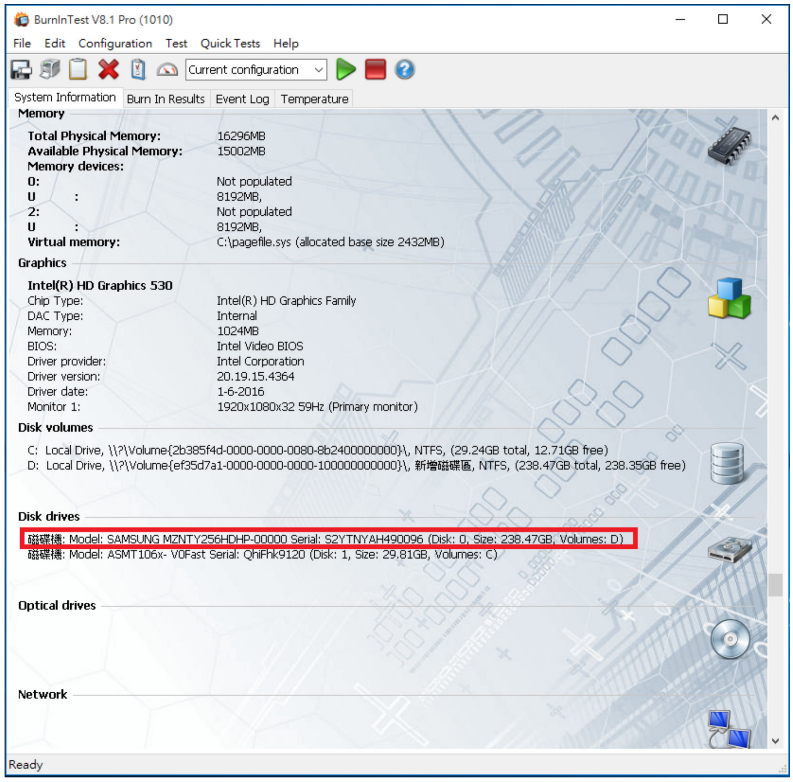
3. Burn In Tests and Results

3.1 BurnInTest v8.1 Pro

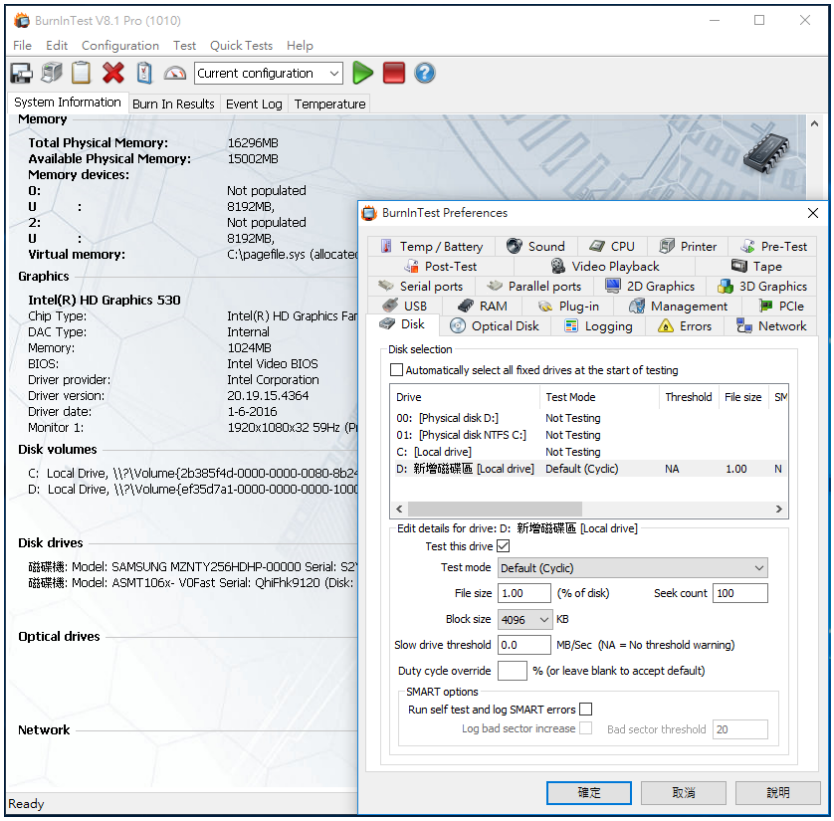
shows Samsung 256GB(Samsung CM871a M.2) & Crucial 128GB(CT-128M550SSD3)

3.1.1 system information for Samsung 256GB(Samsung CM871a M.2) as below:

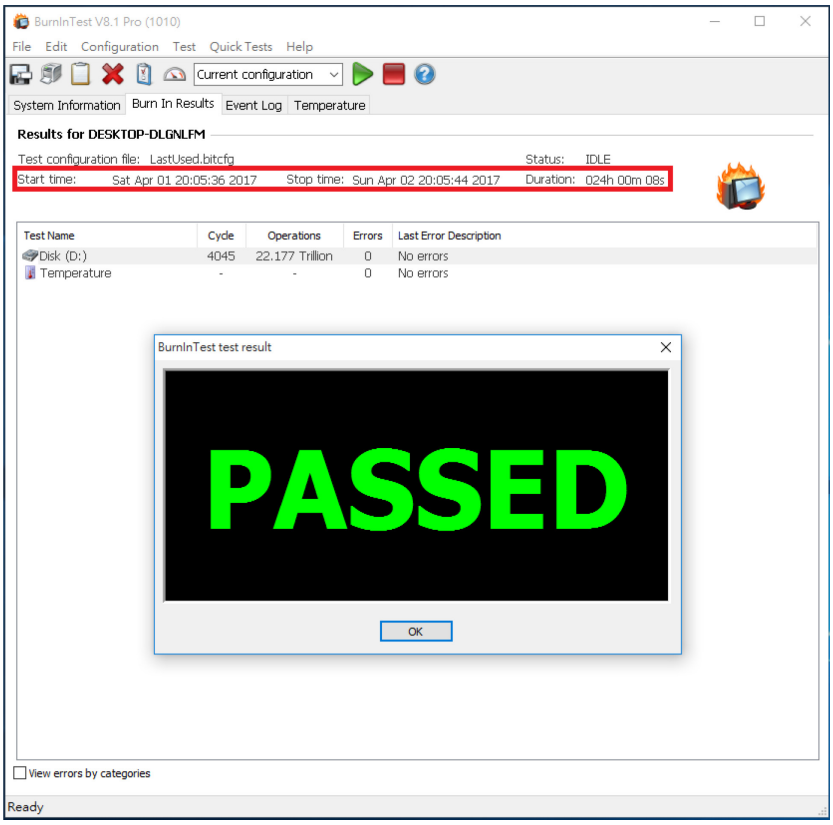




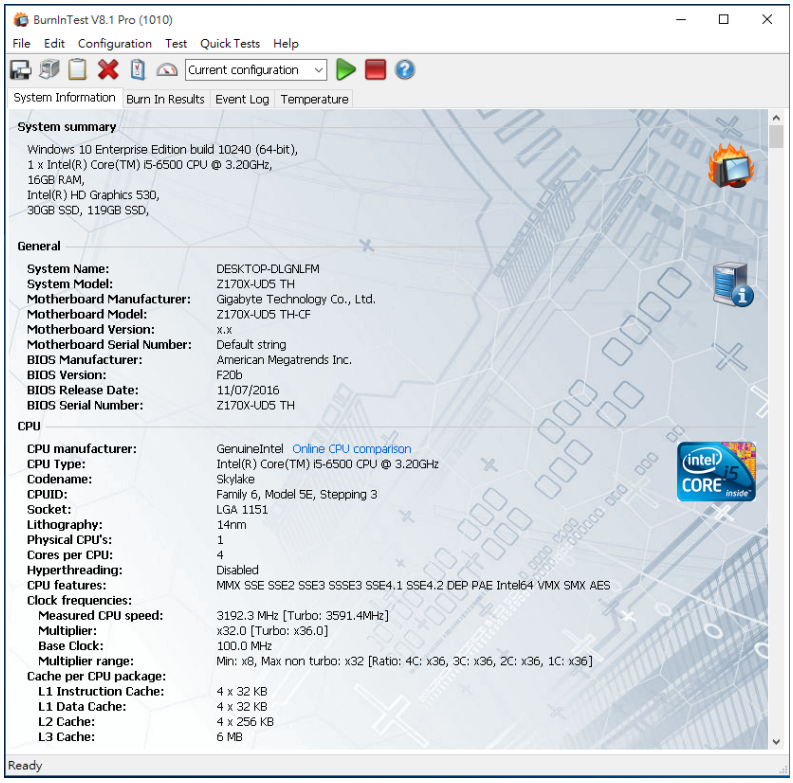
3.1.2 shows Disk test mode(10 ways cycle test)

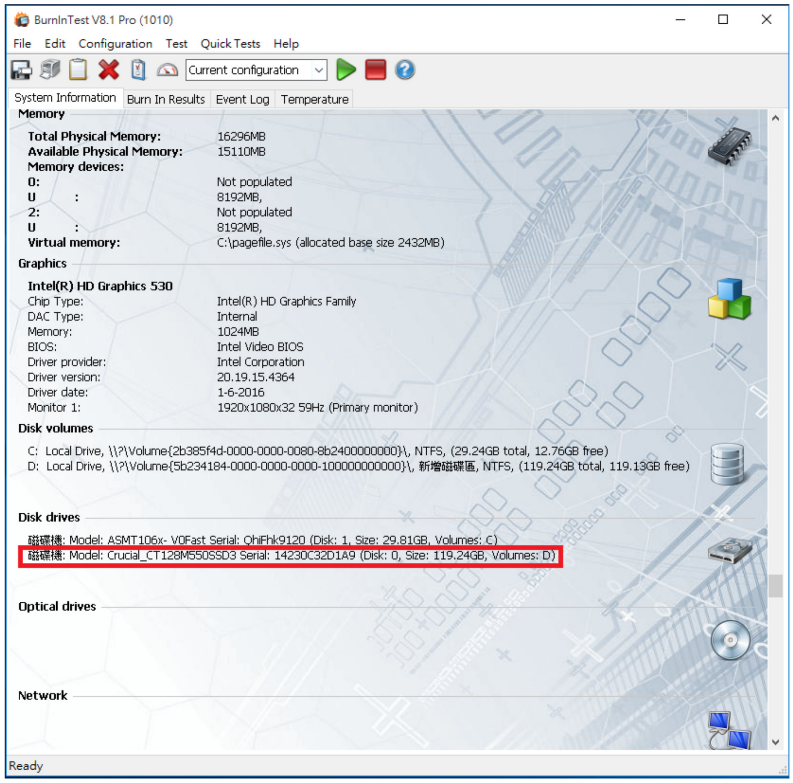


3.1.3 shows 24-hour Burn-in test PASSED

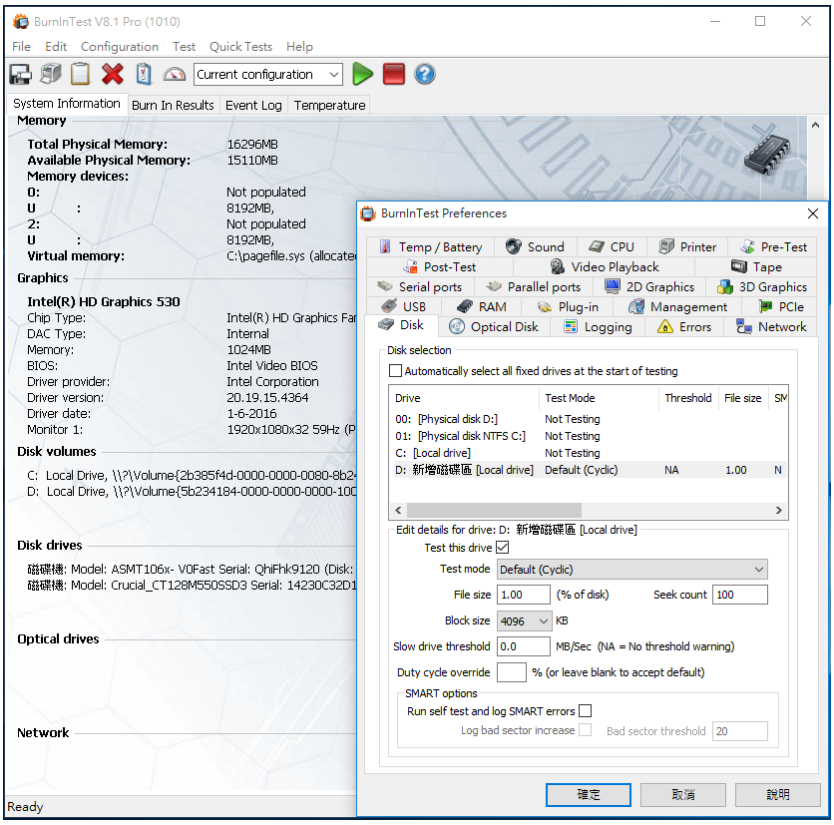


3.2.1 **system information** for Crucial 128GB(CT-128M550SSD3) as below:

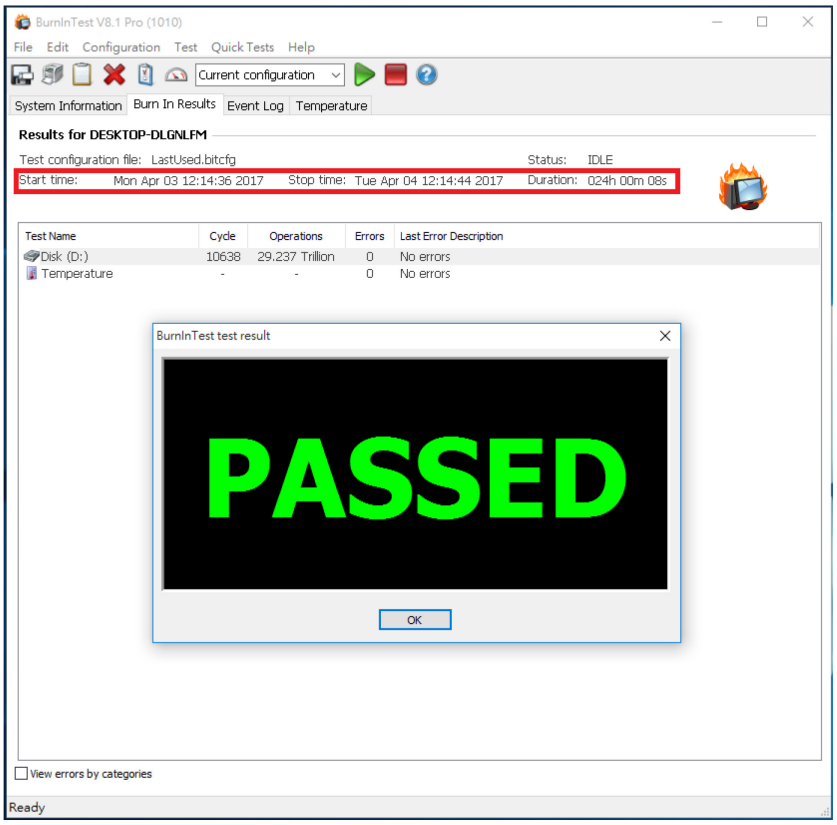




3.2.2 show Disk test mode(10 ways cycle test)



3.2.3 shows 24-hour Burn-in test PASSED



4. Summary

4.1 USB 3.1 Gen 2 is 10Gbps Interface, I/O speed, max. to 800MB/s.

4.2 M.2 SSD is SATA III Interface, I/O speed, max. to 600MB/s.

4.3 mSATA SSD is SATA III Interface, I/O speed, max. to 600MB/s.

4.4 US415A adapter I/O performance is based on M.2 SSD or mSATA SSD.