



# MINERVA

## US415A / Rev1.0 Converter Card

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### Performance & Burn In Test Rev. 1.0

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# 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, using USB3.1 A to Micro-B cable to connect to the host, M.2 SSD can work properly. or mSATA SSD insert into Mini PCI-e connector, use USB3.1 A to Micro-B cable to connect to the host, mSATA can work properly.

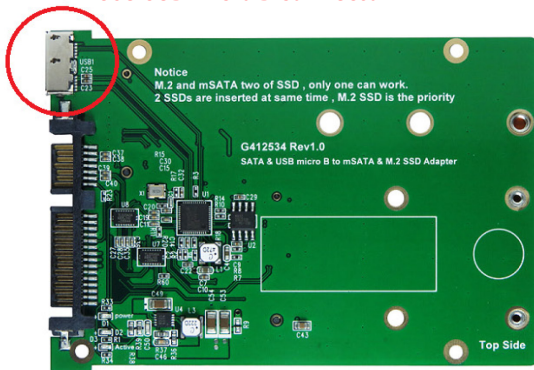
## 2. Tools and Results of Performance Measurement

### 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**  
Adapter: Asus PCIe to USB3.1 type-A + type C adapter  
CABLE: type-A to Micro-B USB3.1 Gen 2 Cable  
OS : Microsoft **Windows 10 64bit OS**

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

Use USB micro B connector



US415A Adapter



USB 3.1 A to micro B 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 USB3.1 A to micro-B cable to connect to the ASUS PCI-e to USB 3.1 host card.

### 2.4 Windows 10 OS environment setup

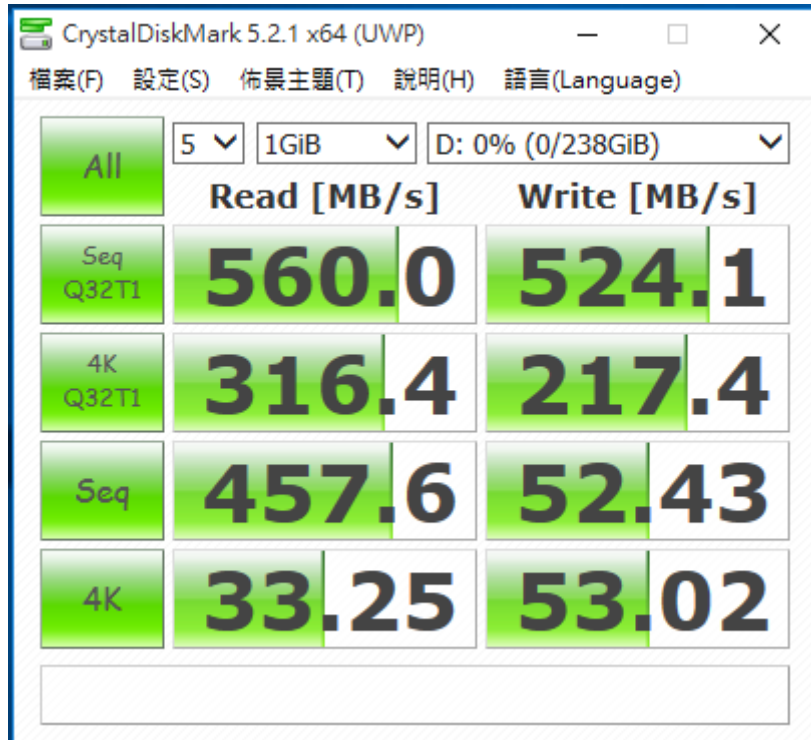
2.4.1 In Windows 10, formatted SSD to NTFS Mode. Don't install any program.

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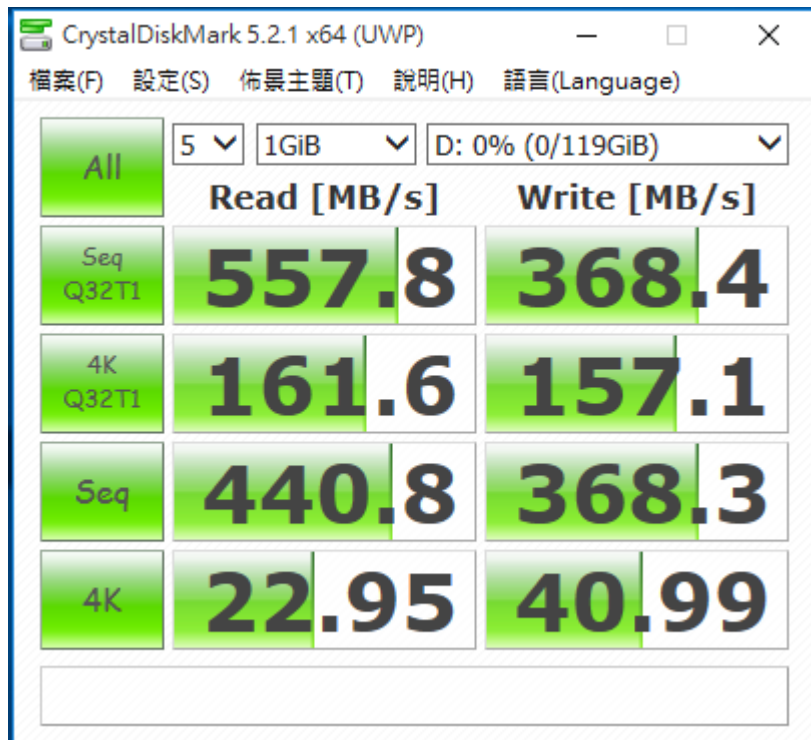
## 2.5 CrystalDiskMark 5.2.1 x64 performance test

※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:

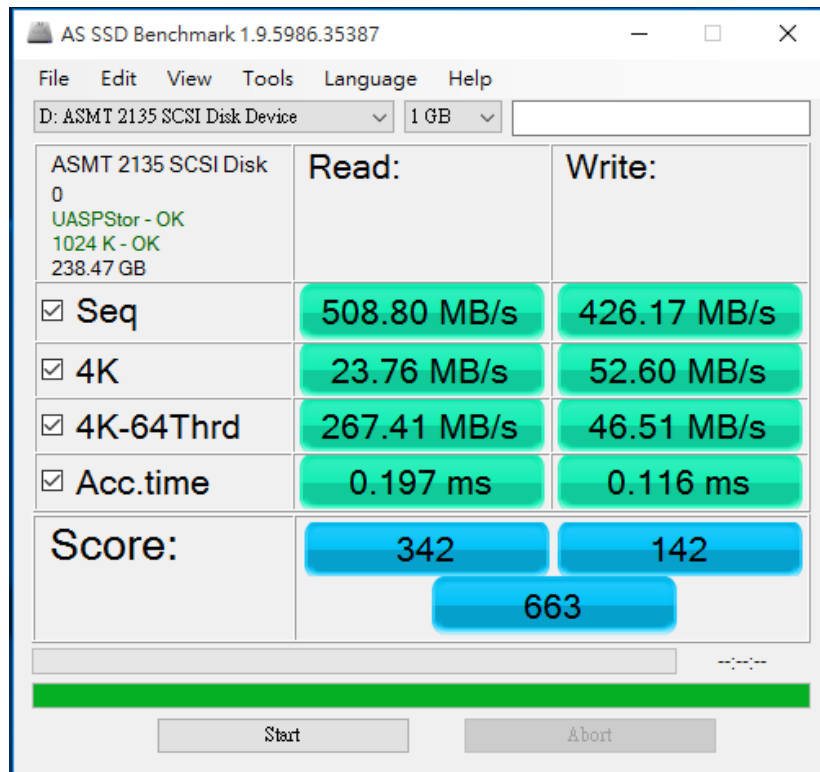


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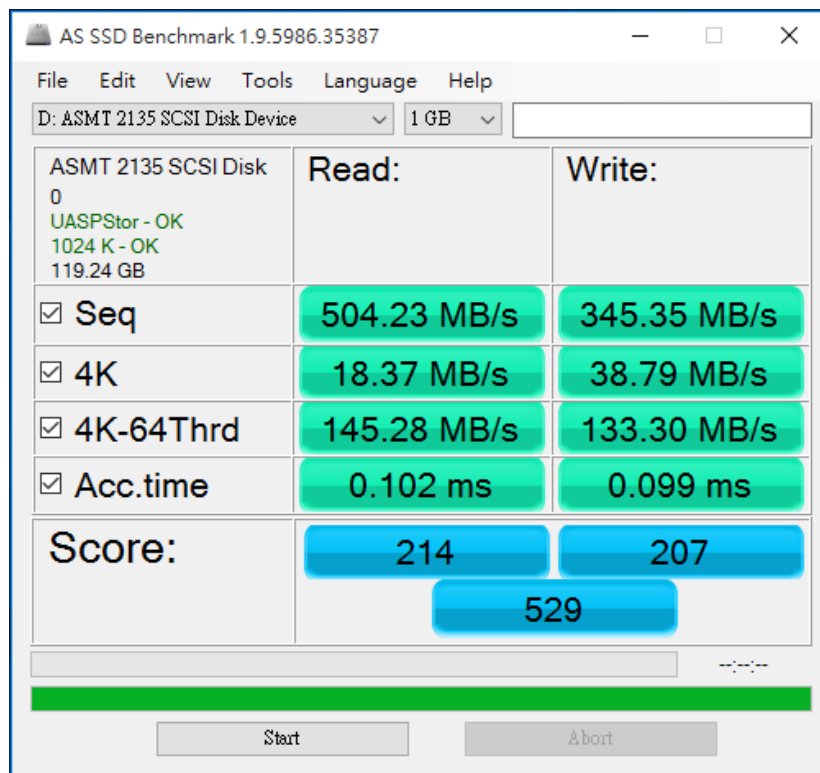
## 2.6 AS SSD Benchmark 1.9 performance test

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

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



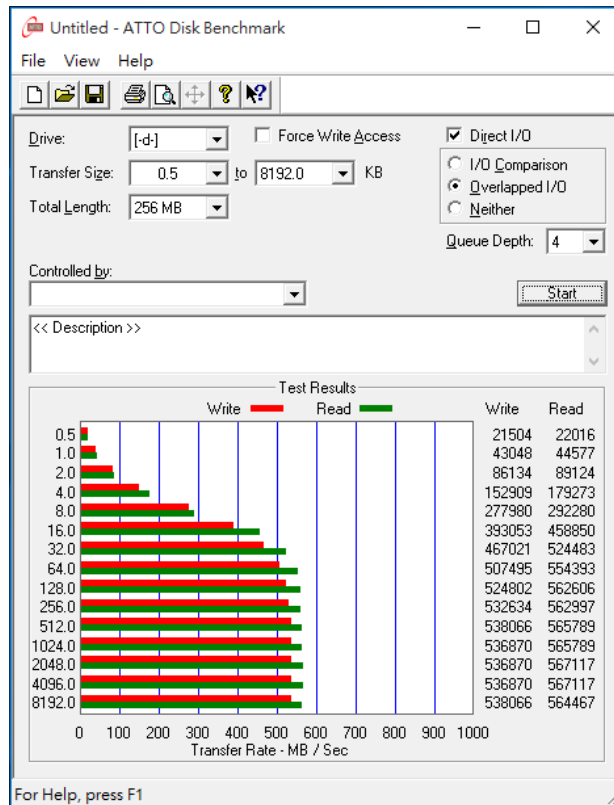
2.6.2 shows Crucial 128GB([CT-128M550SSD3](#)) performance as below:



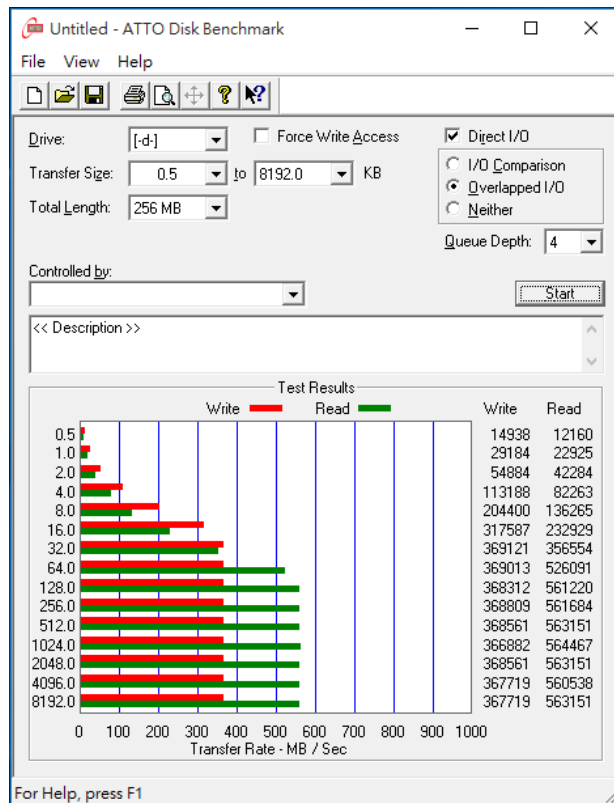
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## 2.7 ATTO Disk Benchmark 2.47 performance test

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



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



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## 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:



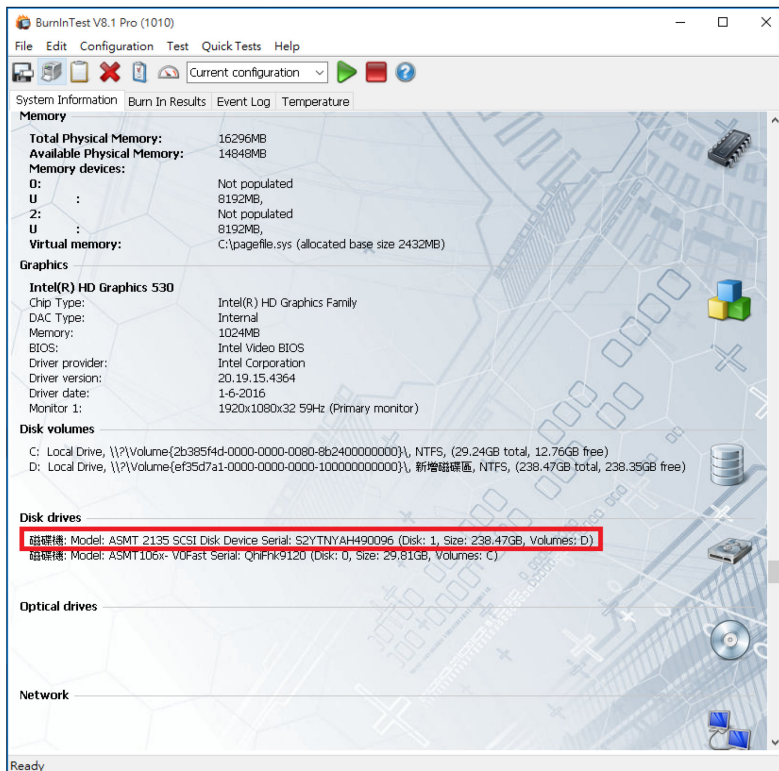
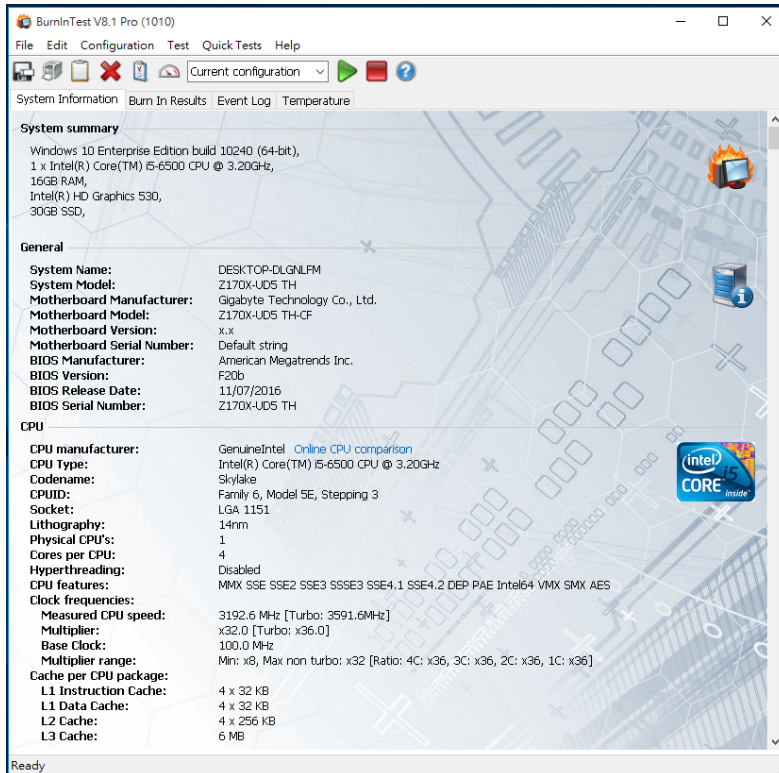
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## 3. Burn In Tests and Results

### 3.1 BurnInTest v8.1 Pro

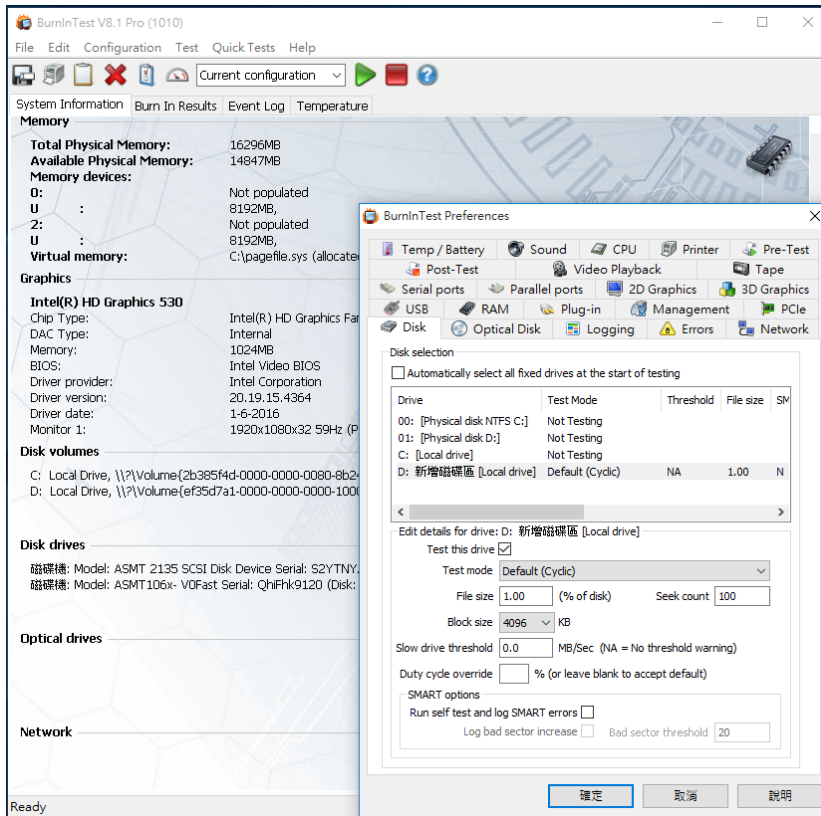
shows Samsung 256GB(Samsung CM871a M.2) & Crucial 128GB(CT-128M550SSD3)

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

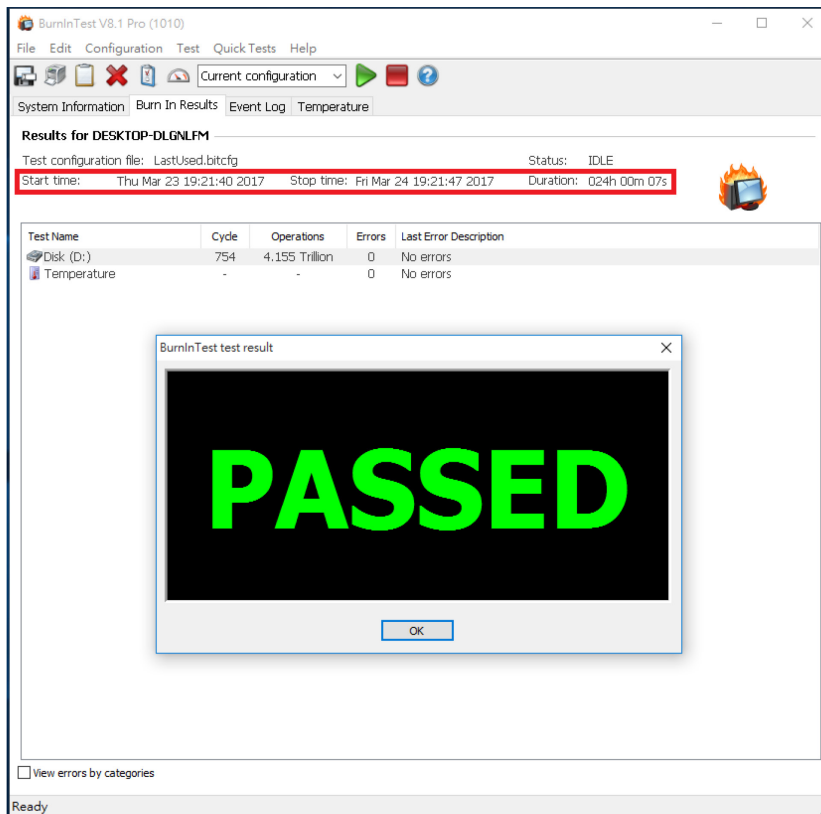


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## 3.1.2 shows Disk test mode( 10 ways cycle test)



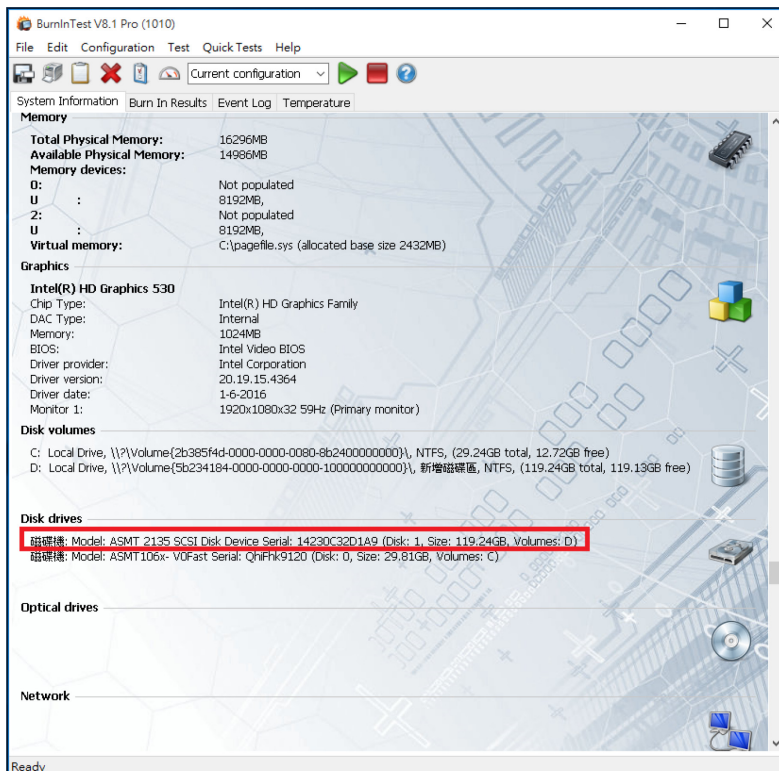
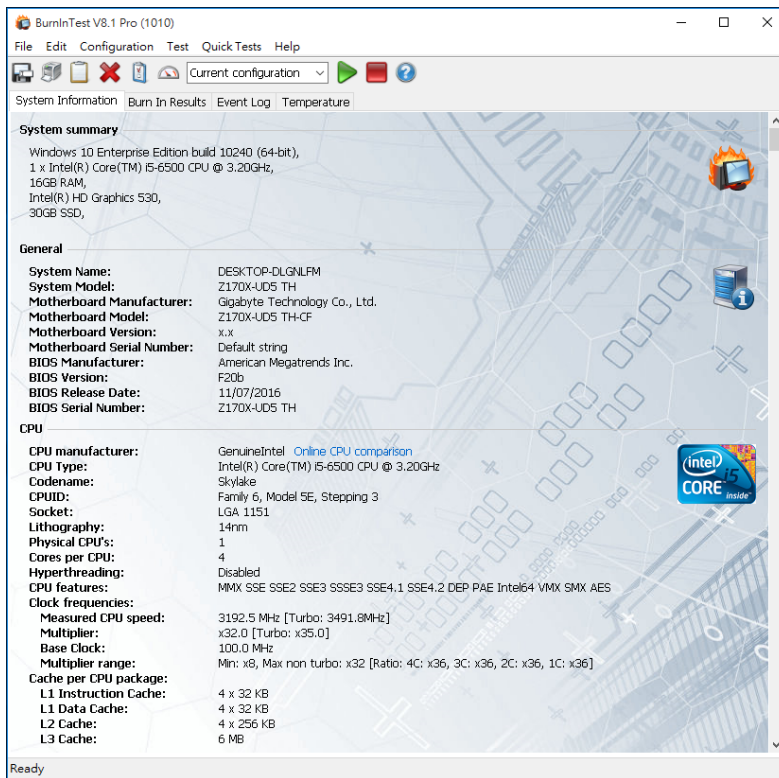
## 3.1.3 shows 24-hour Burn-in test PASSED





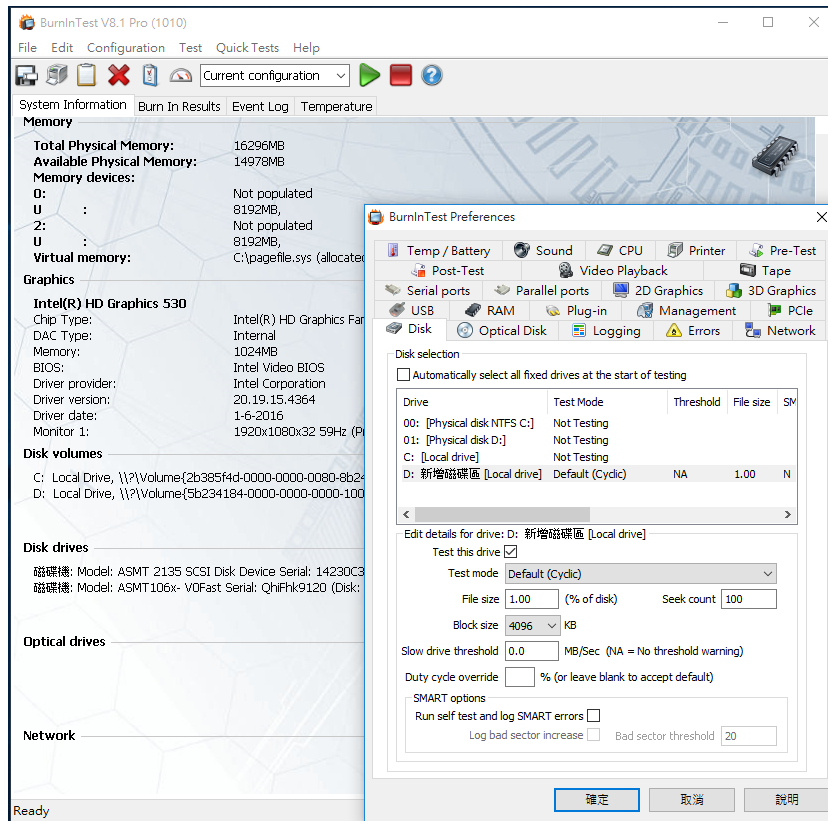
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## 3.2.1 system information for Crucial 128GB(CT-128M550SSD3) as below:

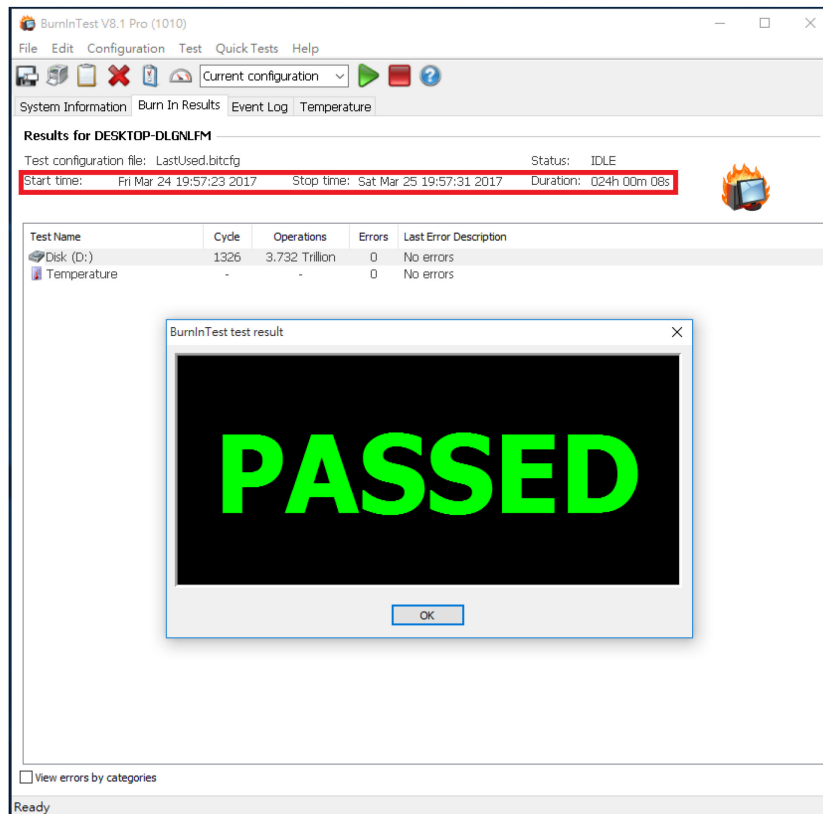


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## 3.2.2 show Disk test mode (10 ways cycle test)



## 3.2.3 shows 24-hour Burn-in test PASSED



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## 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.