MINERVA

PE0402 / Rev1.0   Converter Card

Performance & Burn In Test   Rev. 1.0

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PE0402/Rev1.0   Converter Card

1. Overview

PE0402 adapter, providing M.2 M-key connector can be M.2 (PCI-e I / F) SSD convert PCI-e 4 Lanes, 2 Lanes standard interface, or via SFF-8087 Cable, connect it to AD918E adapter, also M.2 (PCI-e I / F) SSD can be converted into a PCI-e 4 Lanes, 2 Lanes standard interface.

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: PS0401 adapter and M.2 (PCI-e I/F)SSD or M.2(SATA I/F) SSD

PCI-e 4 Lane Samsung 128GB SSD(MZHPU128HCGM)

PCI-e 2 Lane Plextor 128GB SSD (PX-AG128M6e)

PE0402 Adapter

2.3 Install Hardware
Insert M.2 SSD into PE0402 converter's M.2 M-key connector, and then with coppers, and screws to fix SSDs. (Please refer to the Installation Notes). Connect PE0402 converter to **PCI-e slot of ASRock Z97 Extreme 6**.

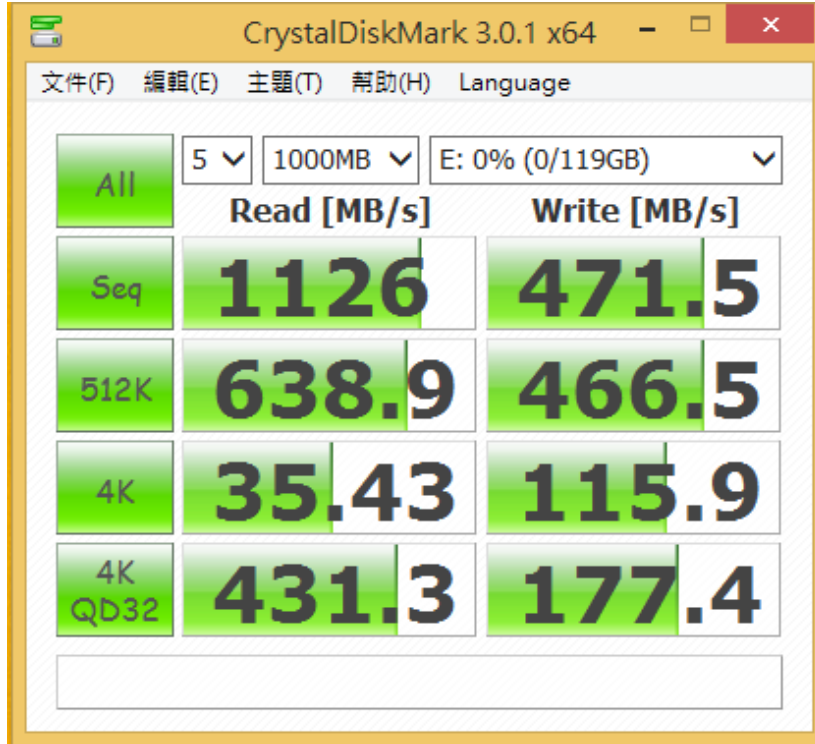### 2.4 BIOS & Windows 8.1 OS environment setup
2.4.1 In Windows 8.1, formatted SSD to NTFS Mode. Don't install any program.
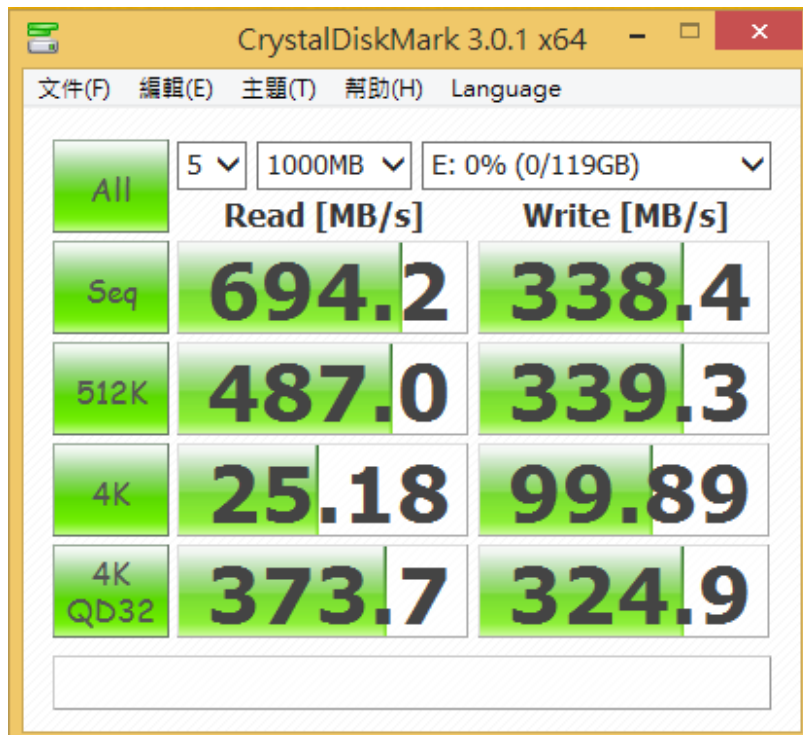
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2.5　CrystalDiskMark 3.0.1 x64 performance test

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

2.5.1　Used Samsung 128GB SSD(**MZHPU128HCGM**)performance as below:

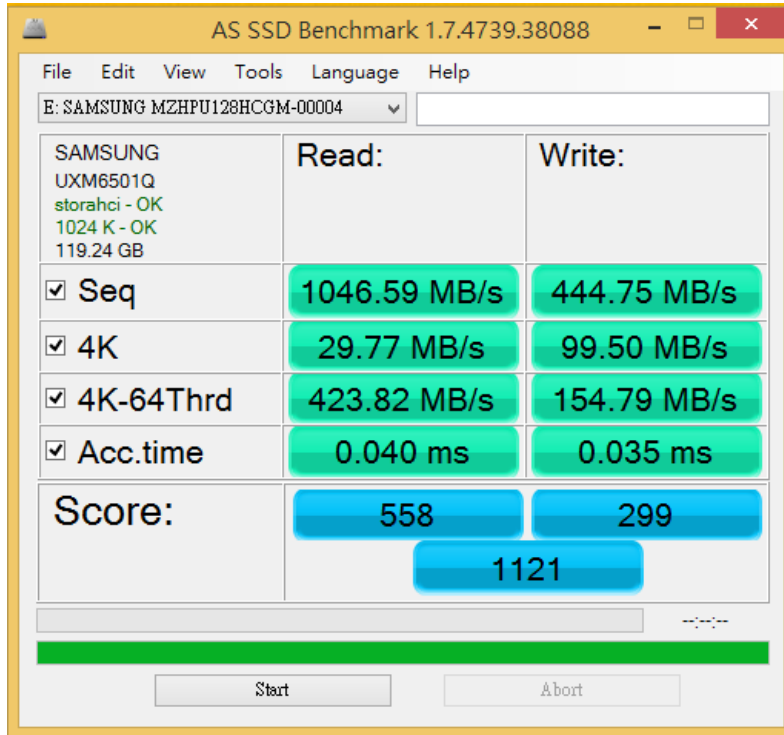2.5.2　Used Plextor 128GB(**PX-AG128M6e**)performance as below:
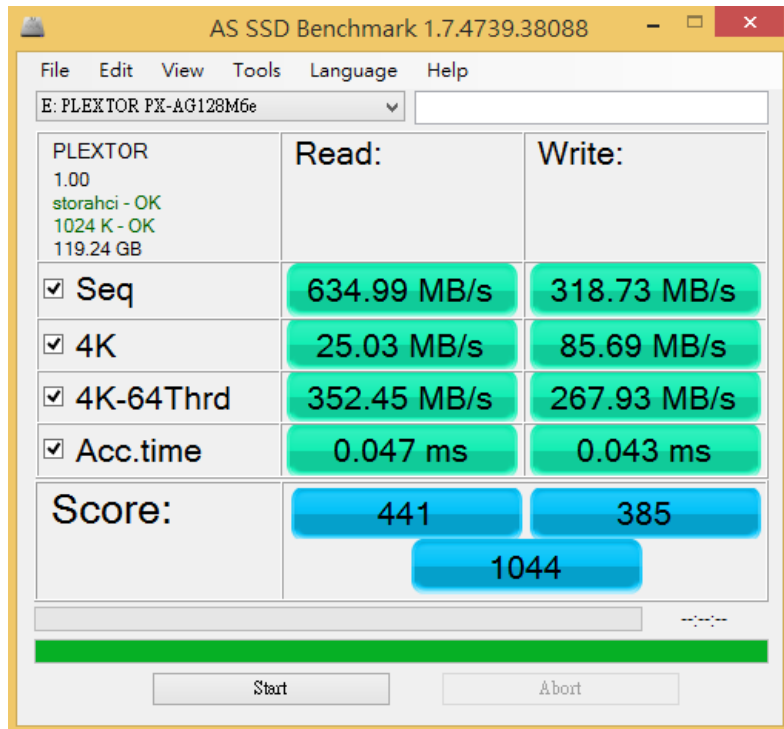
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2.6   AS SSD Benchmark 1.7 performance test

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

2.6.1   Used Samsung 128GB SSD(MZHPU128HCGM)performance as below:
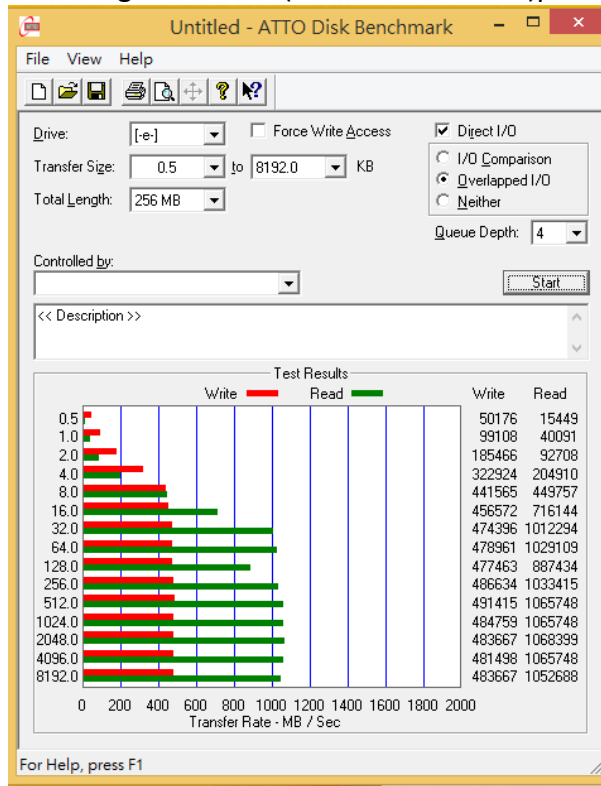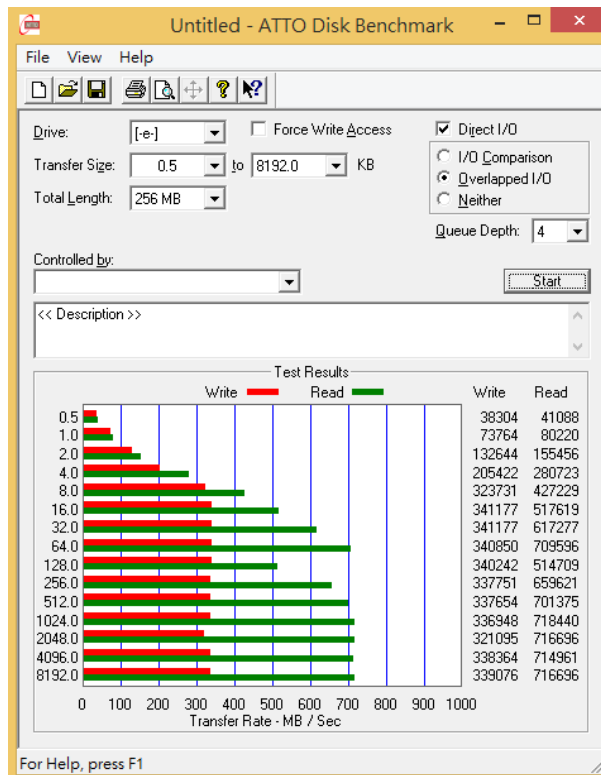

2.6.2   Used Plextor 128GB(PX-AG128M6e)performance as below:

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2.7   ATTO Disk Benchamrk 2.47 performance test

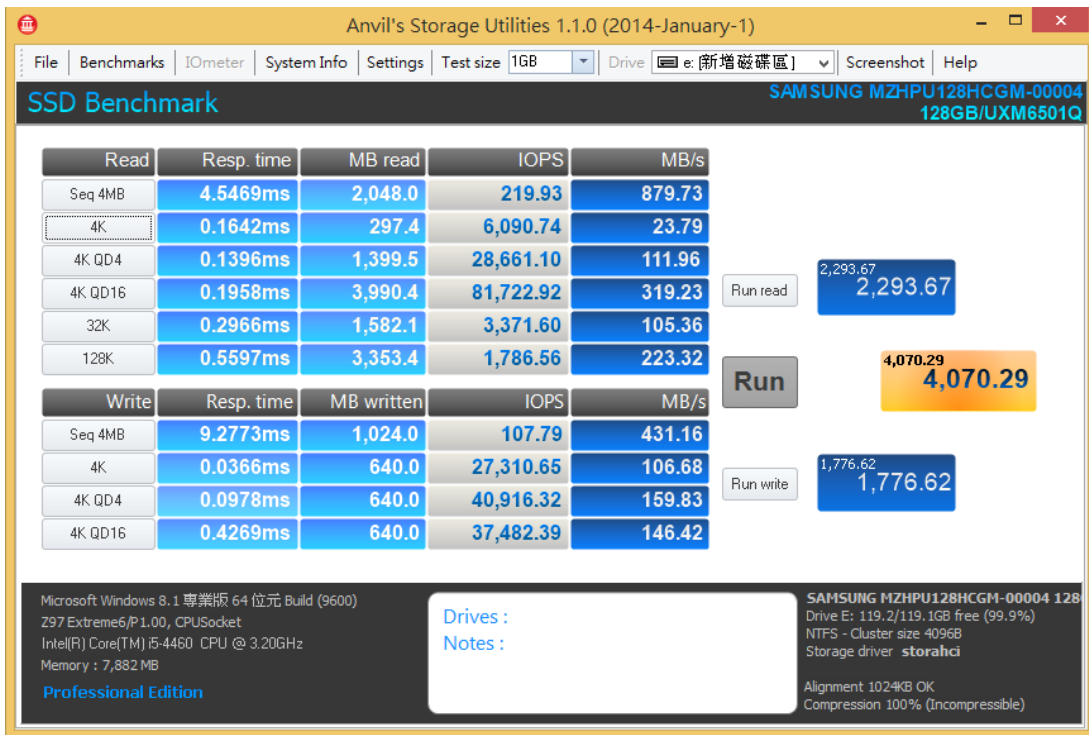   2.7.1   Used Samsung 128GB SSD(**MZHPU128HCGM**)performance as below:

	Write	Read
0.5	50176	15449
1.0	99108	40091
2.0	185466	92708
4.0	322924	204910
8.0	441565	449757
16.0	456572	716144
32.0	474396	1012294
64.0	478961	1029109
128.0	477463	887434
256.0	486634	1033415
512.0	491415	1065748
1024.0	484759	1065748
2048.0	483667	1068399
4096.0	481498	1065748
8192.0	483667	1052688

    2.7.2   Used Plextor 128GB(**PX-AG128M6e**)performance as below:

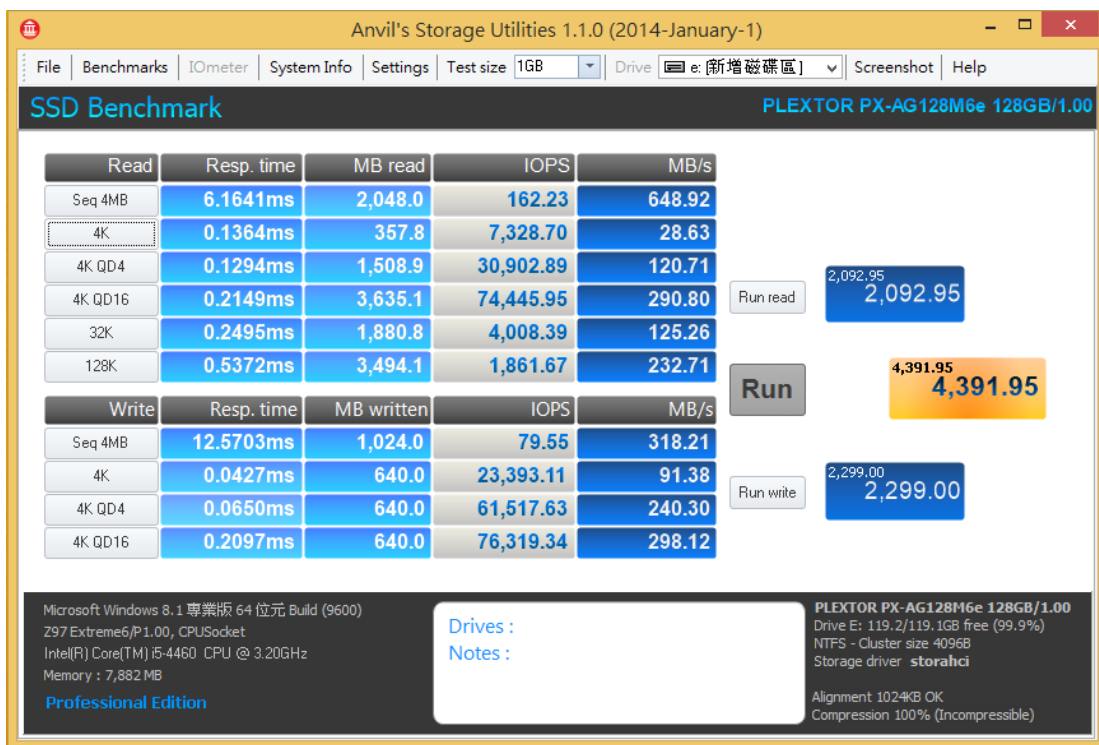|	Write	Read
0.5	38304	41088
1.0	73764	80220
2.0	132644	155456
4.0	205422	280723
8.0	323731	427229
16.0	341177	517619
32.0	341177	617277
64.0	340850	709596
128.0	340242	514709
256.0	337751	659621
512.0	337654	701375
1024.0	336948	718440
2048.0	321095	716696
4096.0	338364	714961
8192.0	339076	716696

2.8   AnvilBenchmark_V110_B337

    2.8.1   Used Samsung 128GB SSD(**MZHPU128HCGM**)performance as below:

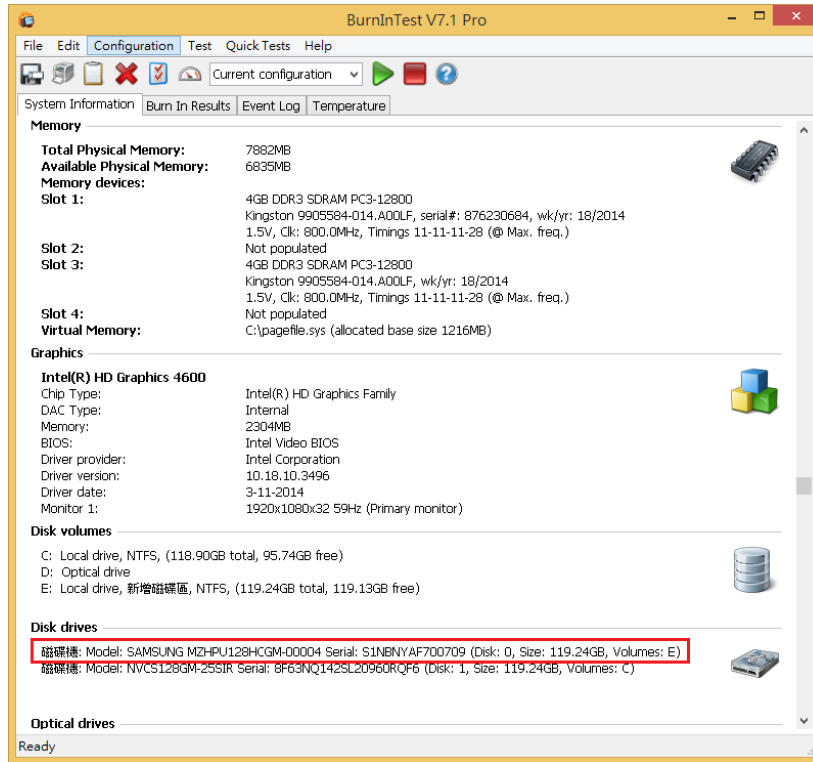   2.8.2   Used Plextor 128GB(**PX-AG128M6e**)performance as below:
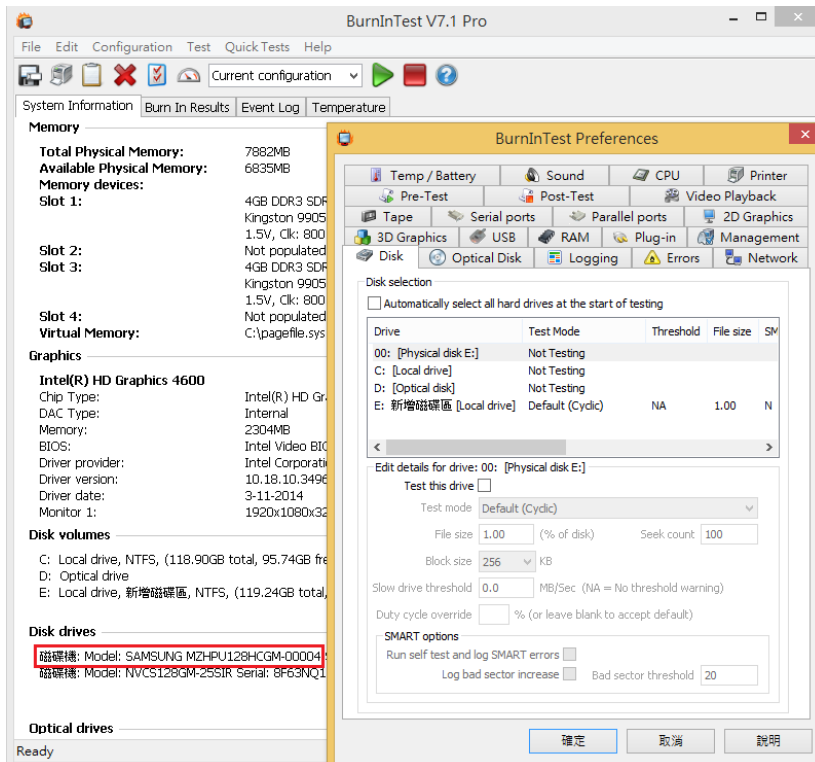
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3. Burn In Tests and Results

3.1 BurnInTest v7.1 Pro for Samsung 128GB SSD(MZHPU128HCGM)
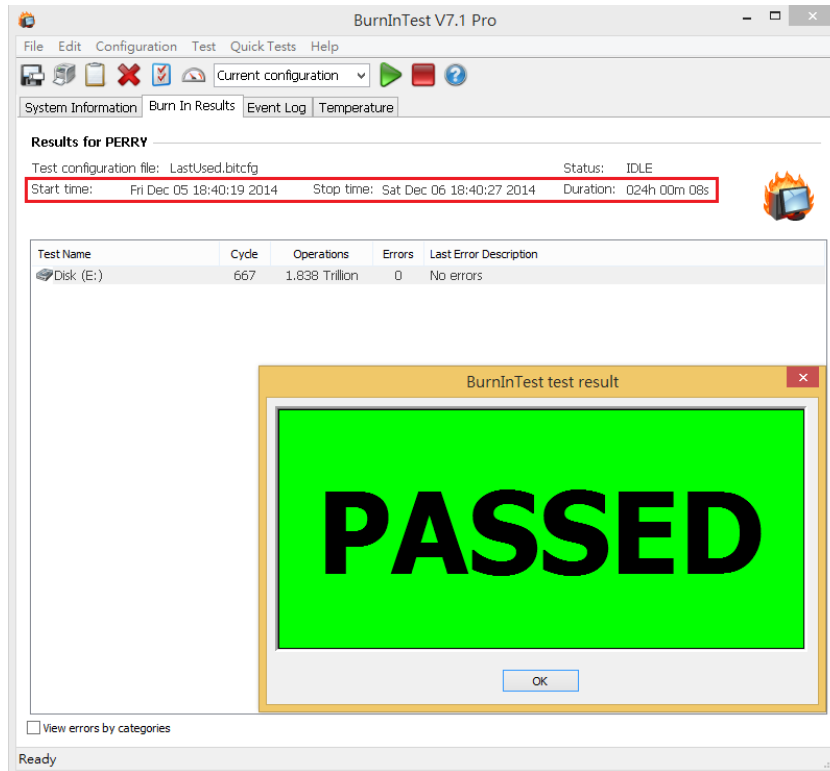
3.1.1 system information as below:
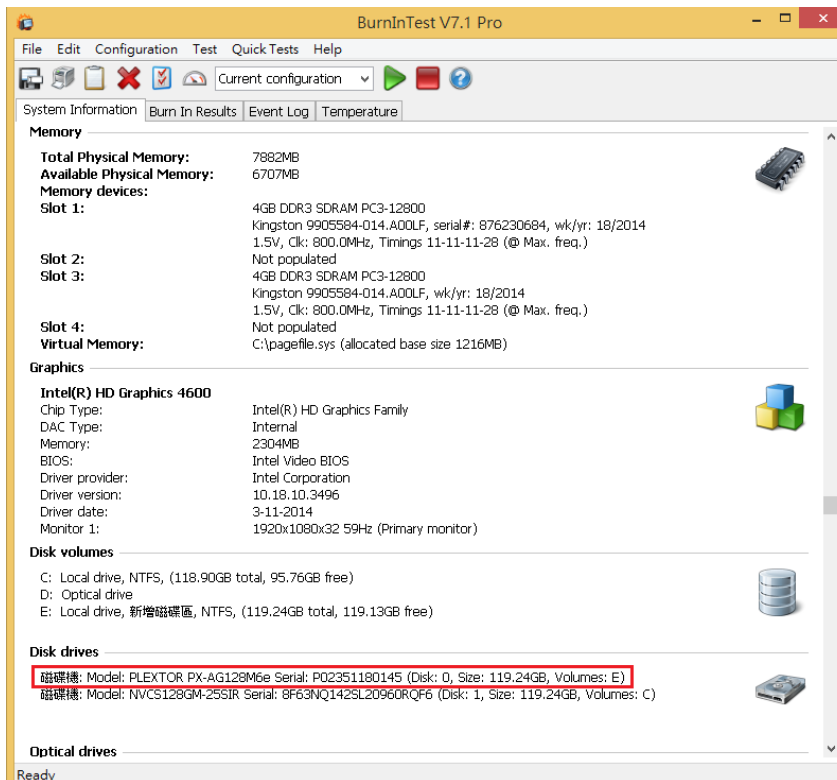

3.1.2 show Disk test mode(10 ways cycle test)
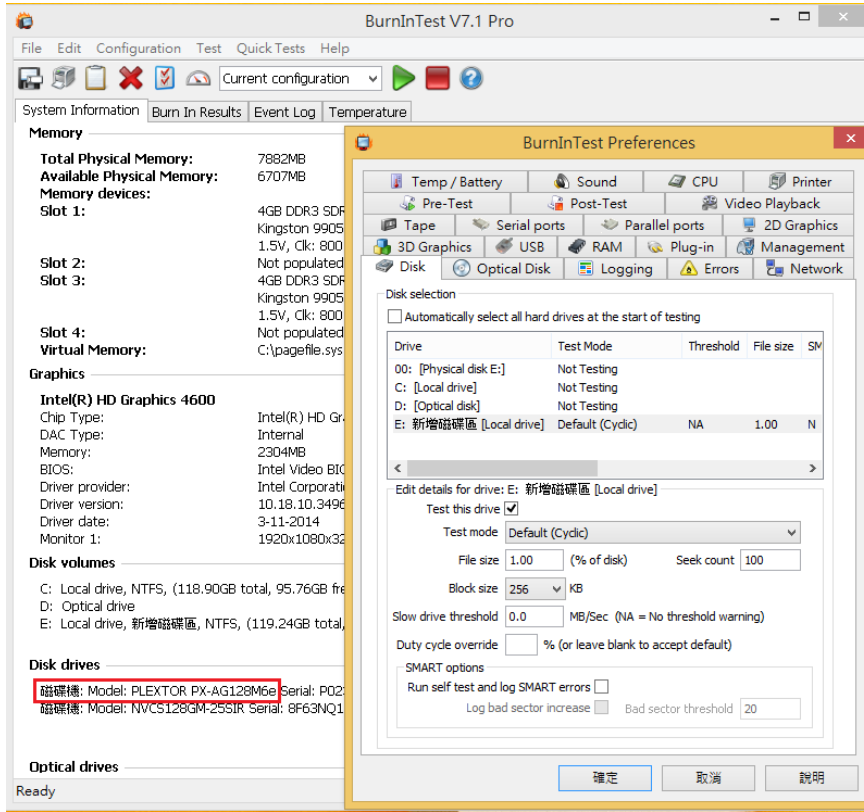
3.1.3   show 24-hour Burn-in test PASSED

3.2   BurnInTest v7.1 Pro for Plextor 128GB(PX-AG128M6e)
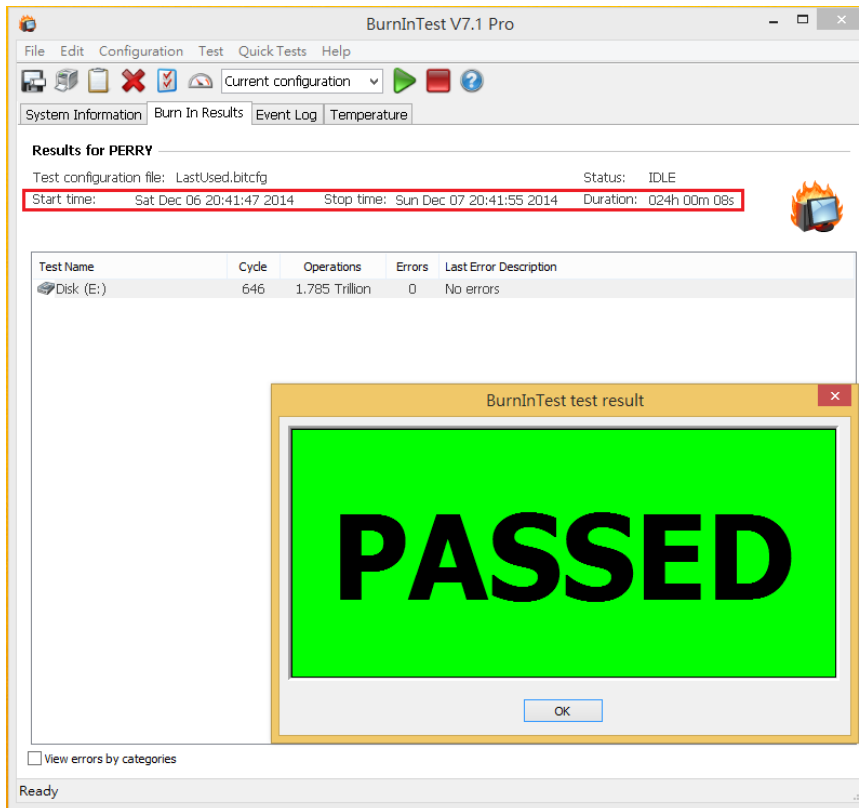### 3.2.1   system information as below:

3.2.2 show Disk test mode(10 ways cycle test)

3.2.3 show 24-hour Burn-in test PASSED

4. Summary

4.1   Samsung 128GB SSD(**MZHPU128HCGM**) is PCI-e Gen 2 / 4 Lane Interface, I/O speed, max. to 1,600MB/s.

4.2   Plextor 128GB(**PX-AG128M6e**) is PCI-e Gen 2 / 2 Lane Interface, I/O speed, max. to 800MB/s.

4.3   PE0402 adapter I/O performance is based on M.2 NGFF SSD.