



MINERVA

PU416G Converter Card

Performance & Burn In Test Rev. 1. 0

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4. Summary

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1. Overview

The PU416G Adapters provide a very simple mean for controlling and switching the PCI Express lanes in the connection to a U.2 SSD. It is possible to isolate & test specific lanes in order to isolate performance issues quickly and easily.

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, **16G**(8GB DIMM*2)
ATX Power : COOLER MASTER G750M, **750W ATX**, 12V V2.2 Power Supply
Graphic : Z170 Chipsets built-in **HD Graphics 530**
Adapter: PE0404 PCIe to SFF-8643 Mini SAS HD Cable
CABLE: Amphenol U.2(SFF-8639) to SFF-8463 Mini SAS HD Cable
OS : Microsoft **Windows 8.1 64bit OS**

2.2 Test target: PU416G adapter & Intel 750 U.2(SFF-8639) 400GB SSD



PU416G adapter



Intel 750 Series U.2 SSD (400GB)

2.3 Install Hardware

Insert U.2 SSD into PU416G converter's U.2 female connector. Connect PU416G converter to PE0404 adapter(PCI-e 4-lane to Mini SAS HD SFF-86437) using U.2 cable, plugs PE0404 adapter into **PCI-e slot of Z170X UD5 TH**.

2.4 BIOS & Windows 8.1 OS environment setup

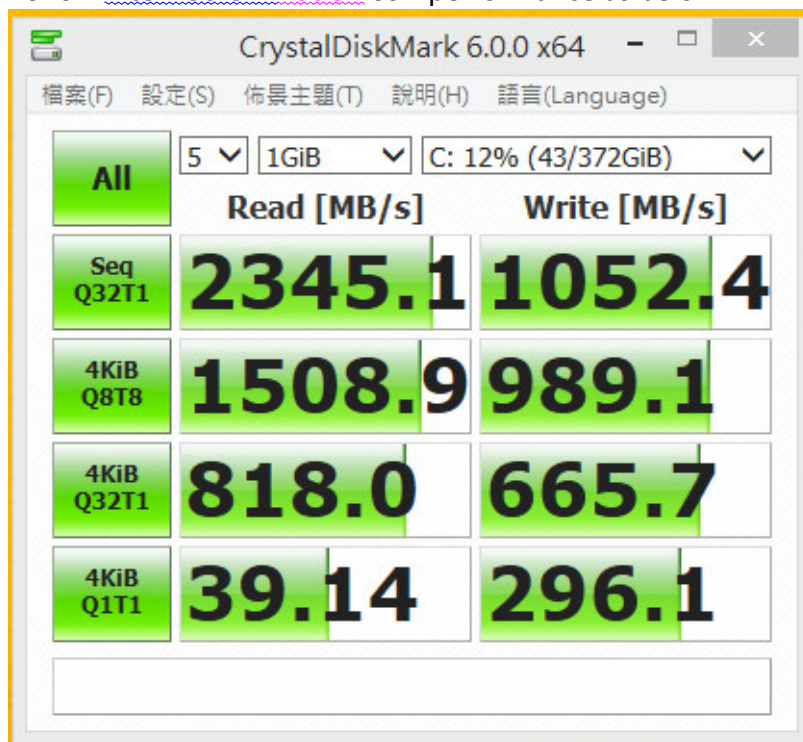
Install Windows 8.1 64bit OS into **Intel 750 U.2 400GB SSD**

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2.5 CrystalDiskMark 6.0.0 x64 performance test

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

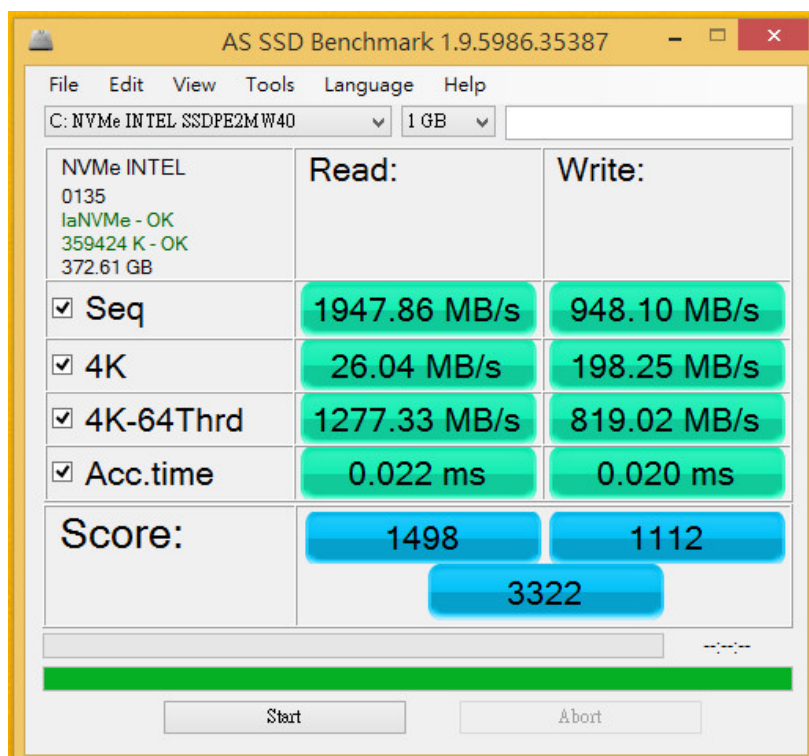
2.5.1 Show [Intel 750 U.2 400GB](#) SSD performance as below:



2.6 AS SSD Benchmark 1.9 performance test

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

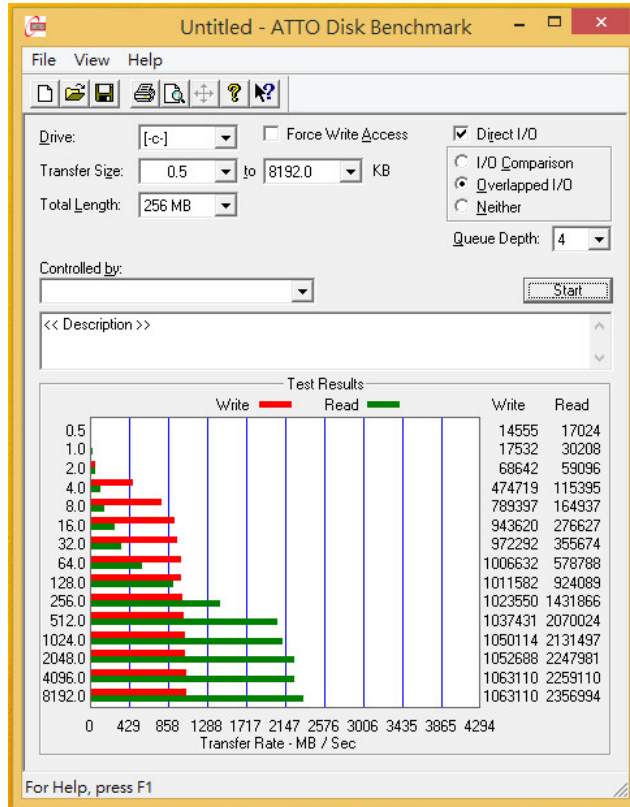
2.6.1 Show [Intel 750 U.2\(SFF-8639\) 400GB](#) SSD performance as below:



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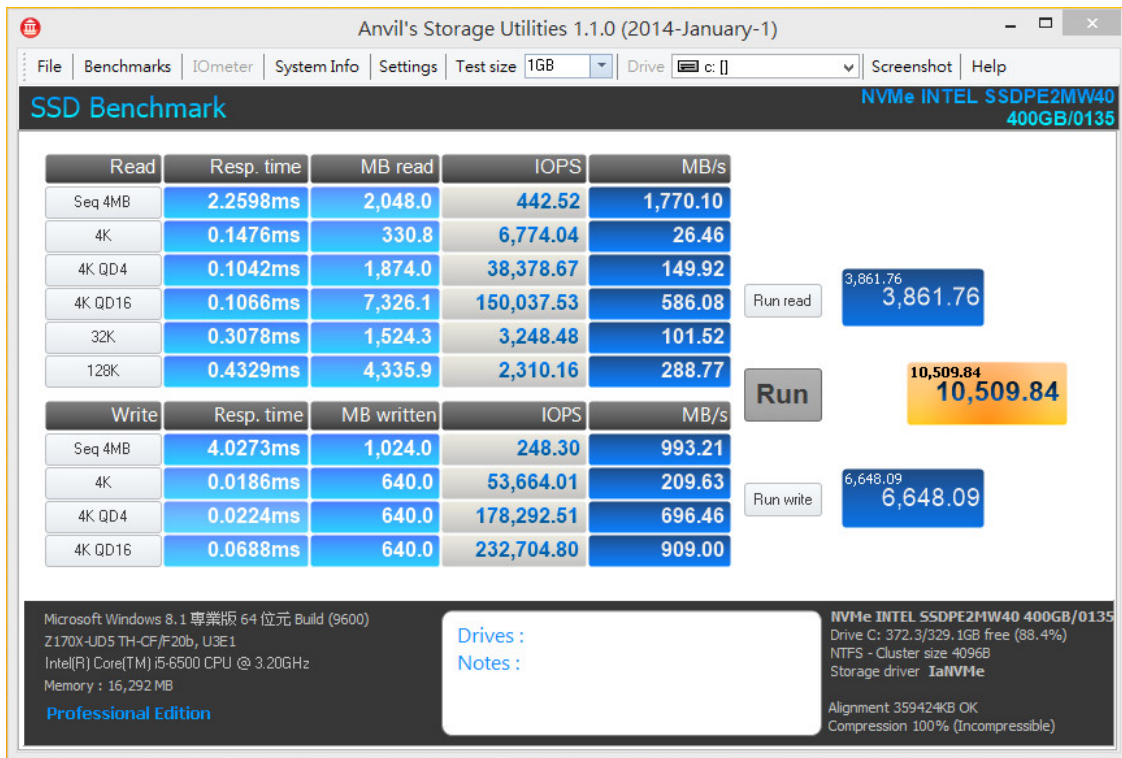
2.7 ATTO Disk Benchmark 2.47 performance test

2.7.1 Show [Intel 750 U.2 400GB](#) SSD performance as below:



2.8 AnvilBenchmark_V110_B337

2.8.1 Show [Intel 750 U.2 400GB](#) SSD performance as below:

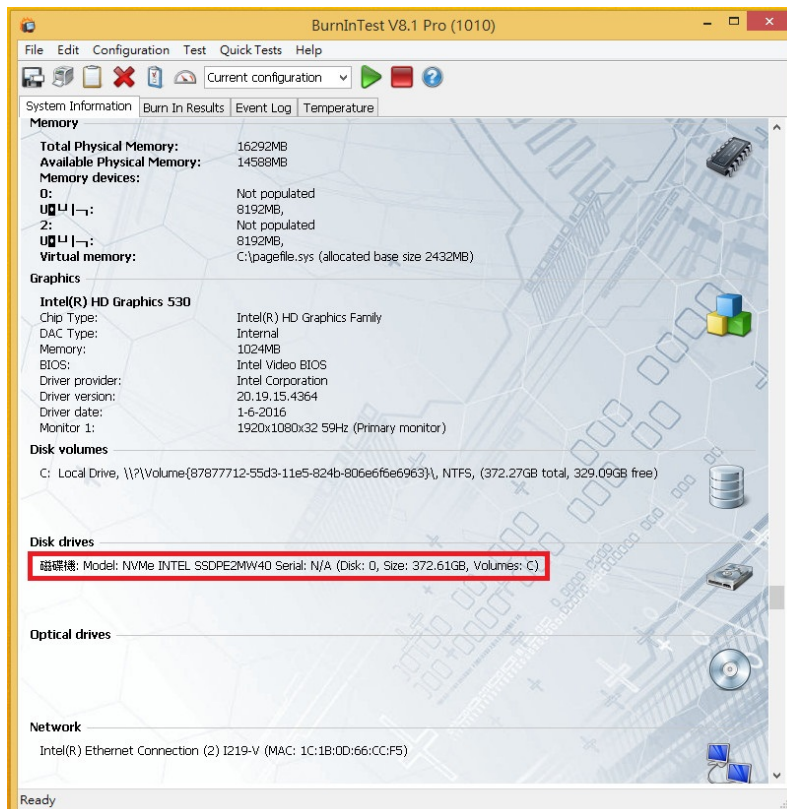
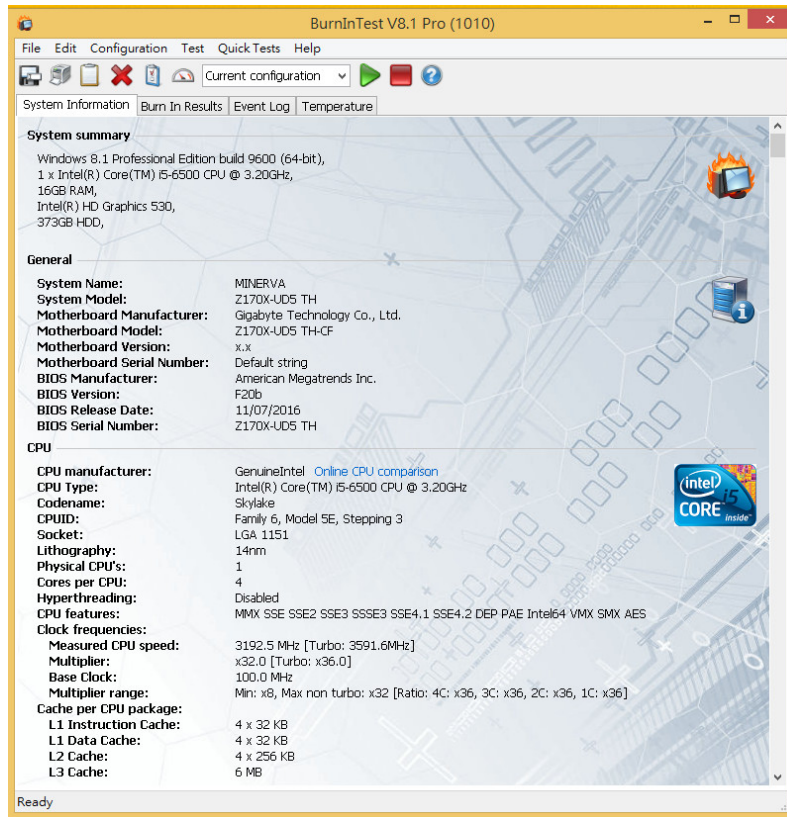


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3. Burn In Tests and Results

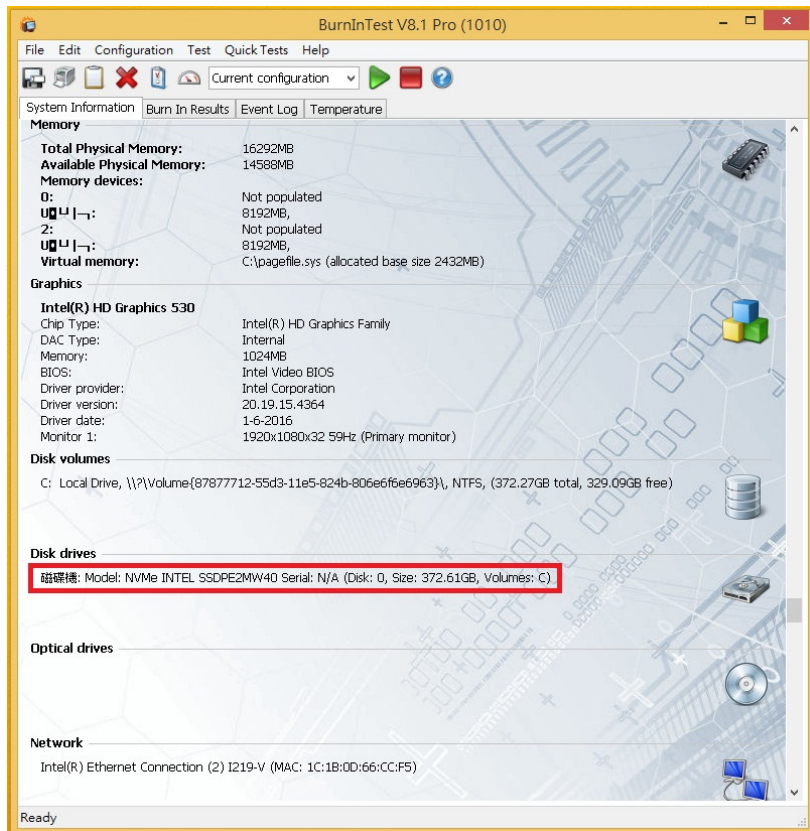
3.1 BurnInTest v8.1 Pro for [Intel 750 U.2\(SFF-8639\) 400GB](#) SSD

3.1.1 system information as below:

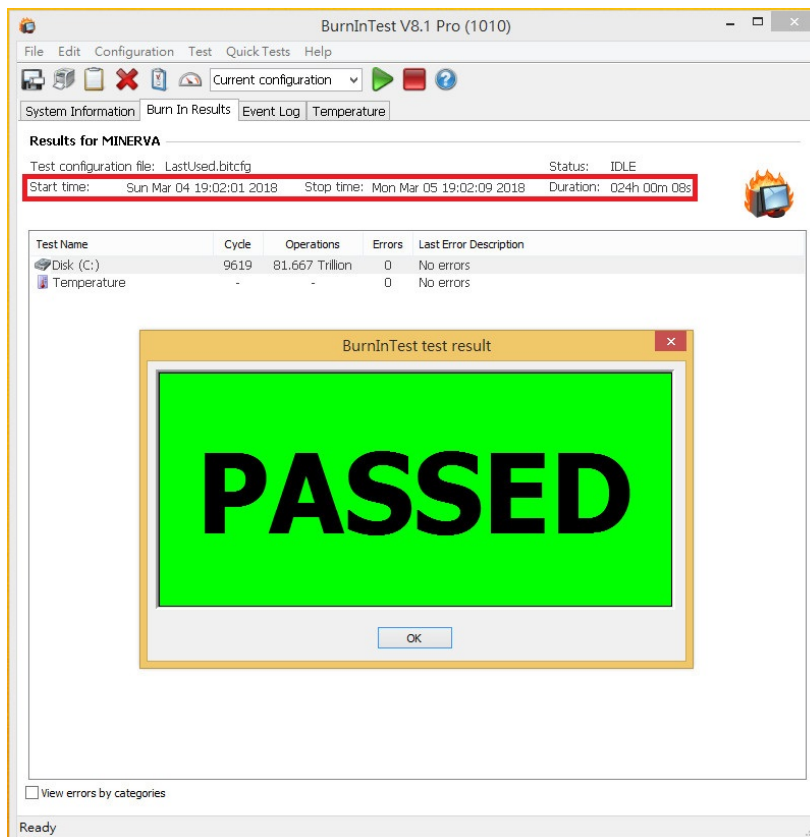


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3.1.2 show Disk test mode(10 ways cycle test)



3.1.3 show 24-hour Burn-in test PASSED



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4. Summary

- 4.1 U.2 SSD is PCI-e Gen 3 / 4 Lanes Interface, I/O speed, max. to 32Gbps.
- 4.2 PU416G adapter I/O performance is based on U.2 NVMe PCI-e Gen 3 / 4 Lanes SSD.