



MINERVA

PU409A Converter Card

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 use M.2 NVMe SSD

2.3 Install Hardware

2.4 BIOS & Windows 10 OS environment setup

2.5 CrystalDiskMark 5.2.1 x64 performance test

2.6 AS SSD Benchmark 1.9 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 BurnInTest v8.1 Pro burn in test

4. Summary

PU409A Converter Card

1. Overview

The PU409A 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

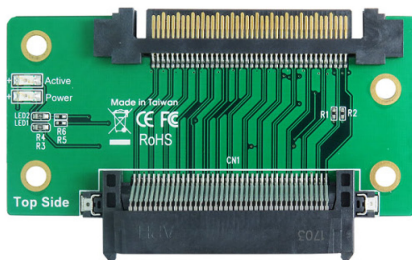
2.1 Test Platform

M/B : GIGABYTE **Z170X UD5 TH**
CPU : Intel **i5-6500**, 3.2GHz/ 6M Cache/ LGA1150
Memory : Kingston **KVR21N15D8/8**, **DDR4-2133MHz**, 8G(8GB DIMM*2)
ATX Power : FSP RAIDER 550, **550W 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 10 64bit OS**

2.2 Test target: PU409A adapter & [Intel 750 U.2\(SFF-8639\)](#) **400GB** SSD

2.3 Install Hardware

Insert U.2 SSD into PU409A converter's U.2 female connector. Connect PU409A converter to PE0404 adapter(PCI-e 4-lane to Mini SAS HD SFF-86437) using U.2 cable, plugs PE0404 into **PCI-e slot of Z170X UD5 TH**.



PU409A Adapter



Intel 750 2.5" SSD

2.4 BIOS & Windows 10 OS environment setup

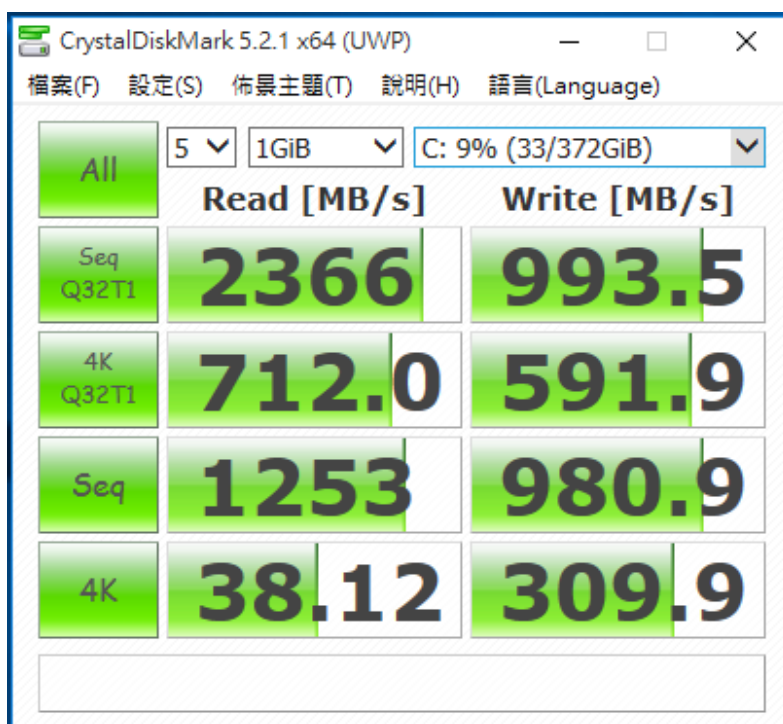
2.4.1 Install Windows 10 64bit OS into [Intel 750 U.2\(SFF-8639\)](#) **400GB** SSD

PU409A Converter Card

2.5 CrystalDiskMark 5.2.1 x64 performance test

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

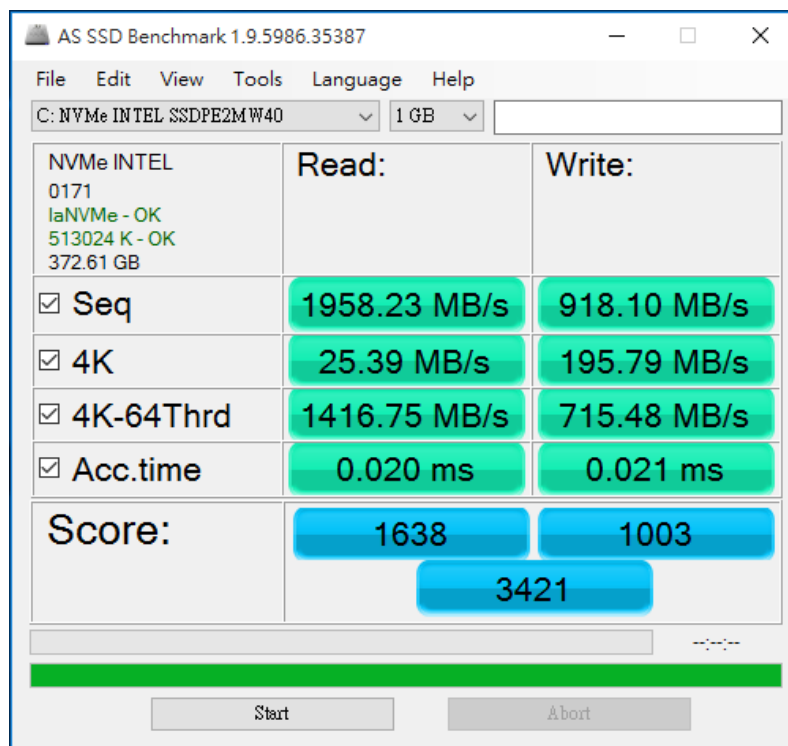
2.5.1 Show [Intel 750 U.2\(SFF-8639\)](#) **400GB** SSD performance as below:



2.6 AS SSD Benchmark 1.9 performance test

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

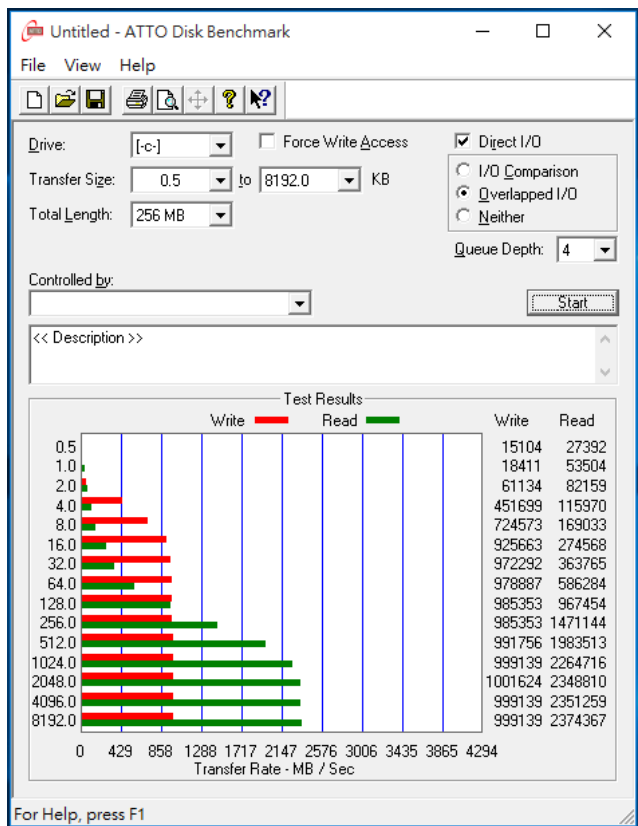
2.6.1 Show [Intel 750 U.2\(SFF-8639\)](#) **400GB** SSD performance as below:



PU409A Converter Card

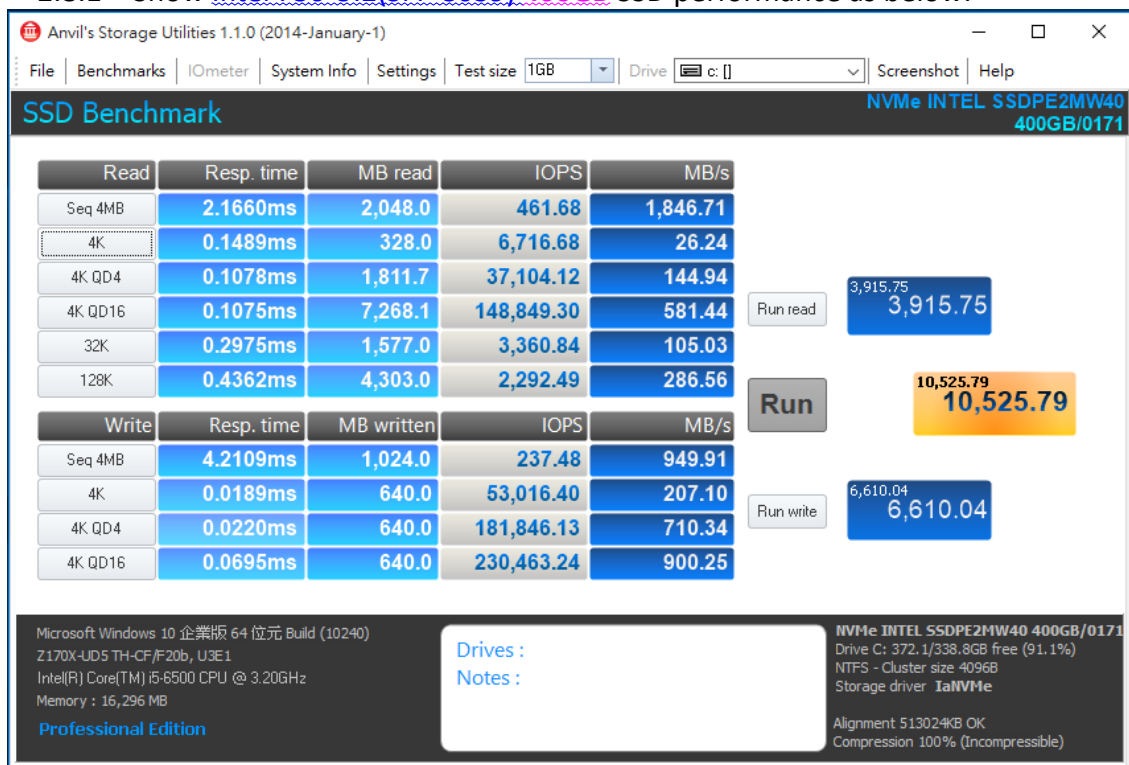
2.7 ATTO Disk Benchmark 2.47 performance test

2.7.1 Show Intel 750 U.2(SFF-8639) 400GB SSD performance as below:



2.8 AnvilBenchmark_V110_B337

2.8.1 Show Intel 750 U.2(SFF-8639) 400GB SSD performance as below:

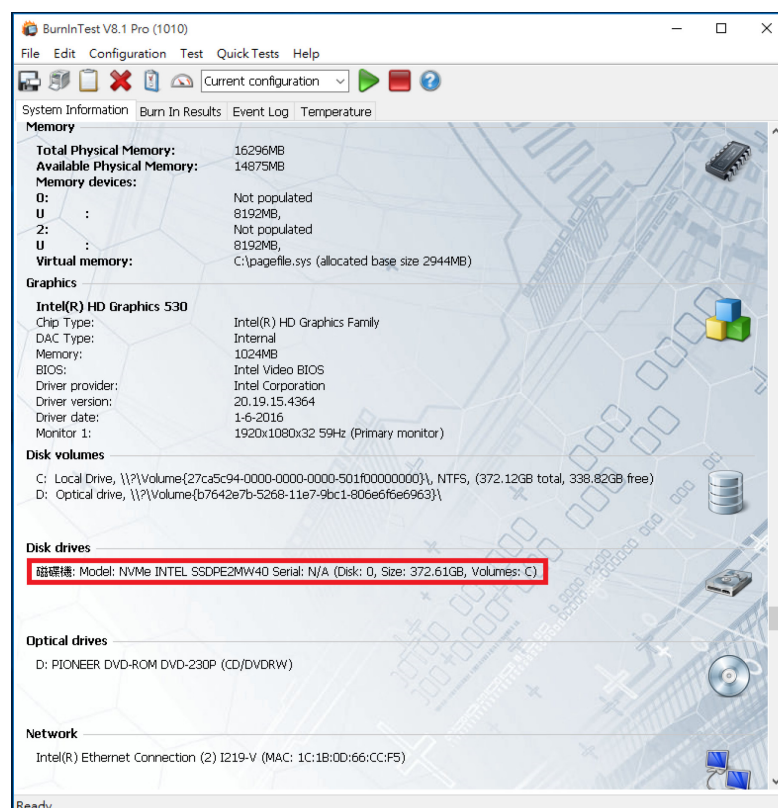
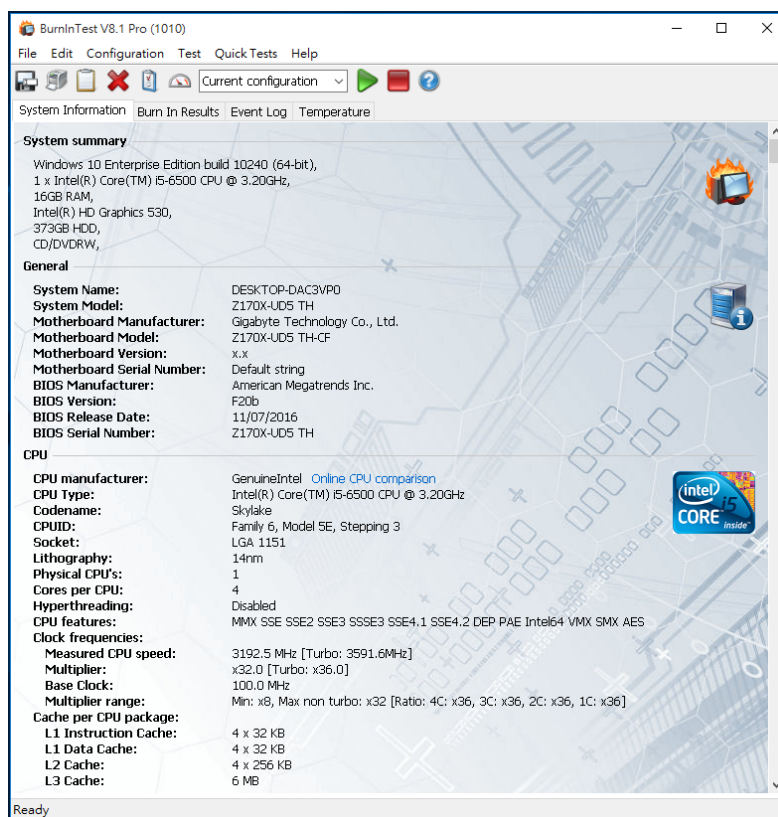


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3. Burn In Tests and Results

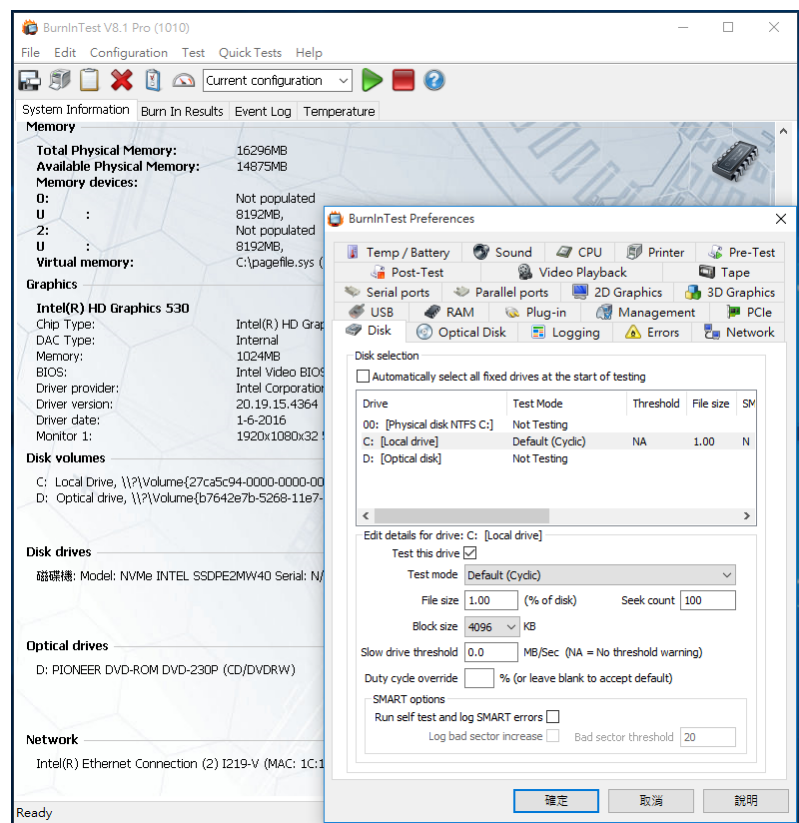
3.1 BurnInTest v8.1 Pro for [Intel 750 U.2\(SFF-8639\) 400GB](#) SSD

3.1.1 system information as below:

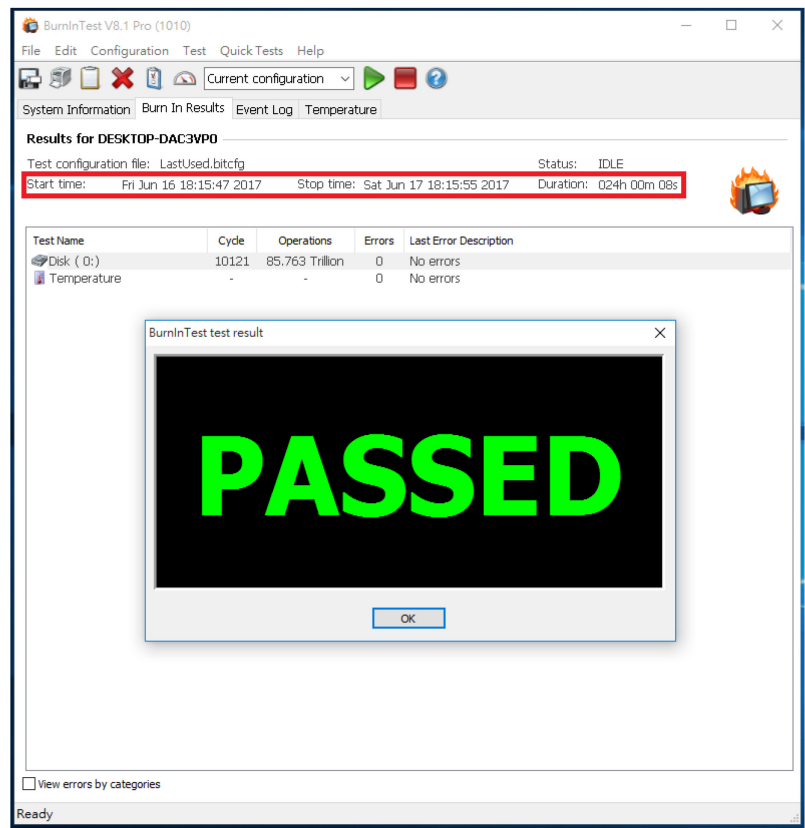


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3.1.2 show Disk test mode(10 ways cycle test)



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 4GB.
- 4.2 PU409A adapter I/O performance is based on U.2 NVMe PCI-e Gen 3 / 4 Lanes SSD.