



MINERVA

U.2 (SFF-8639) male to U.2 female Adapter with 3.5" Housing

Performance & Burn In Test Rev. 1. 0

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4. Summary

PU409G Converter Card

1. Overview

PU409G adapter, providing U.2 connector can be M.2 (PCI-e I/F NVMe) SSD converted into U.2(SFF-8639), PCI-e Gen 3 / 4 Lanes interface and uses heat sink strip to M2 SSD.

2. Tools and Results of Performance Measurement

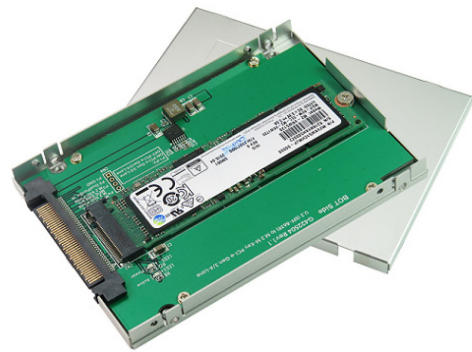
2.1 Test Platform

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 : FSP RAIDER 550, **550W ATX**, 12V V2.2 Power Supply
Graphic : Z170 Chipsets built-in **HD Graphics 530**
Adapter: PU3401F U.2 (SFF-8639) to M.2 NVMe SSD Adapter
CABLE: Amphenol U.2(SFF-8639) to SFF-8463 Mini SAS HD Cable
OS : Microsoft **Windows 10 64bit OS**

2.2 Test target: PU409G adapter & Samsung SM961 512GB NVMe SSD



PU409G Adapter



Minerva PU3401F Adapter + SM961 M.2 NVMe SSD

2.3 Install Hardware

Insert M.2 SSD into PU3401F converter's M.2 M-key connector, and then with coppers, and screws to fix SSDs. (Please refer to the Installation Notes). Inserts PU3401F into PU409G, and then connects PU409G to PE0404 adapter(PCI-e 4-lane to Mini SAS HD SFF-86437) using U.2 cable, Plug PE0404 into **PCI-e slot of Z170X UD5 TH**.

2.4 BIOS & Windows 10 OS environment setup

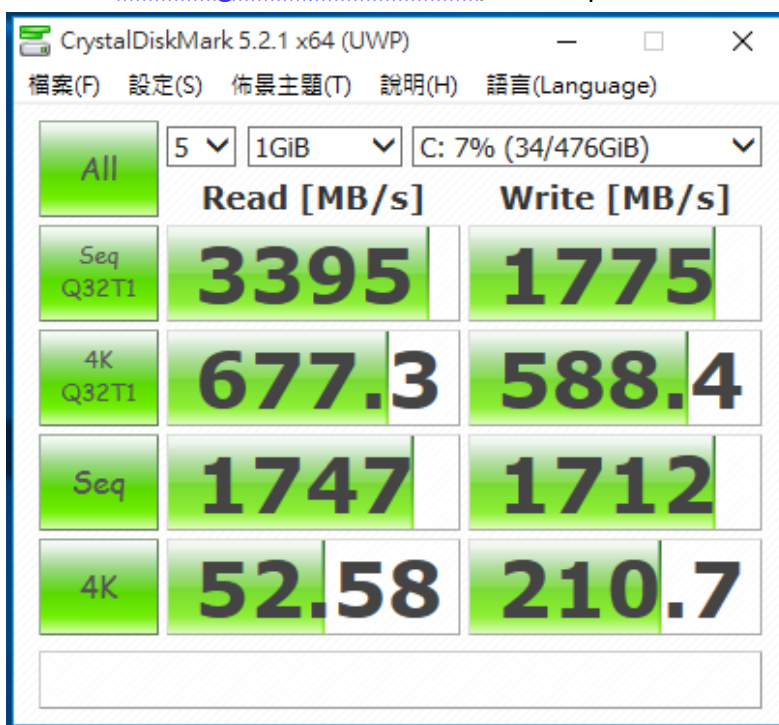
2.4.1 Install Windows 10 64bit OS into **Samsung SM961/512GB**

PU409G Converter Card

2.5 CrystalDiskMark 5.2.1 x64 performance test

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

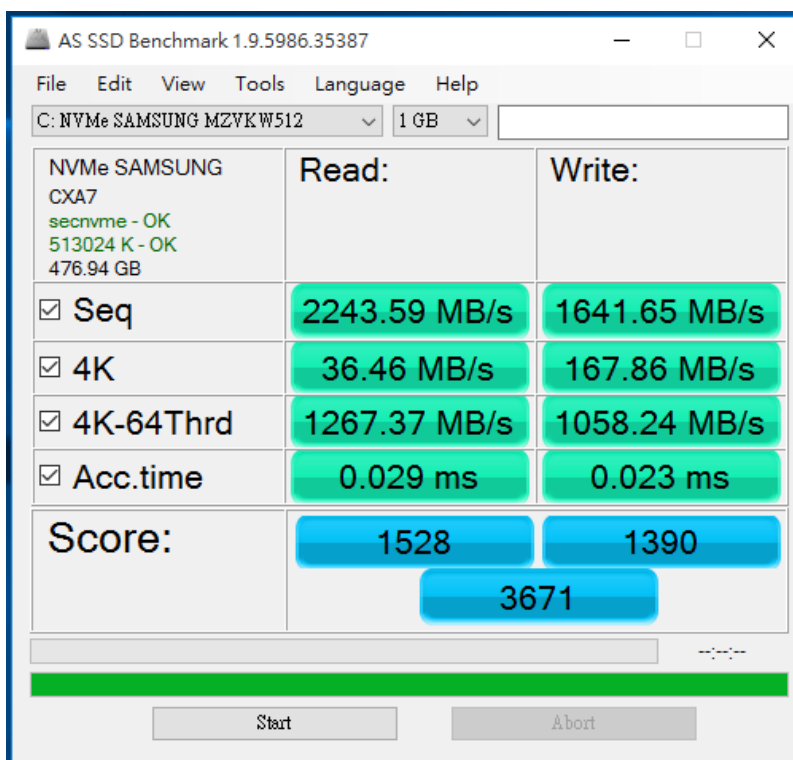
2.5.1 Shows **Samsung SM961 NVMe SSD/512GB** performance as below:



2.6 AS SSD Benchmark 1.9 performance test

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

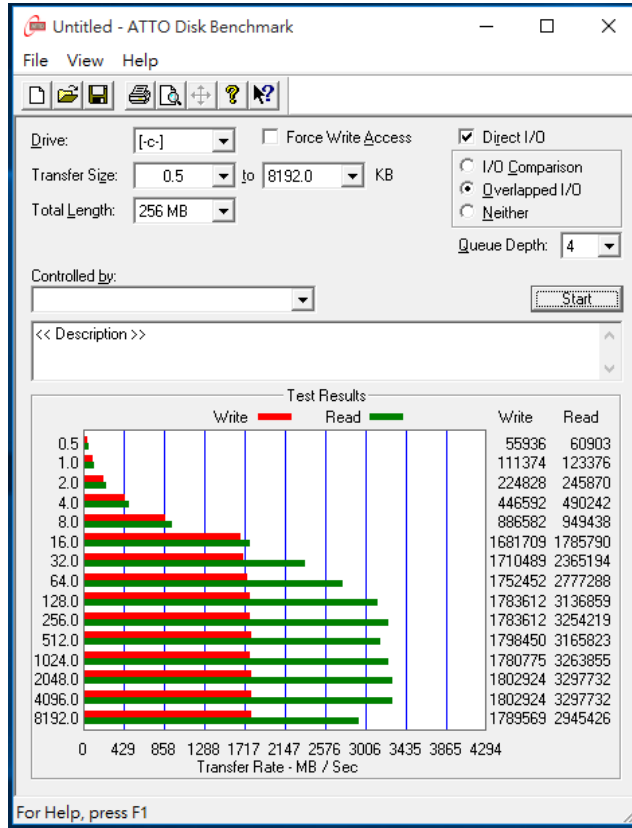
2.6.1 Shows **Samsung SM961 NVMe SSD/512GB** performance as below:



PU409G Converter Card

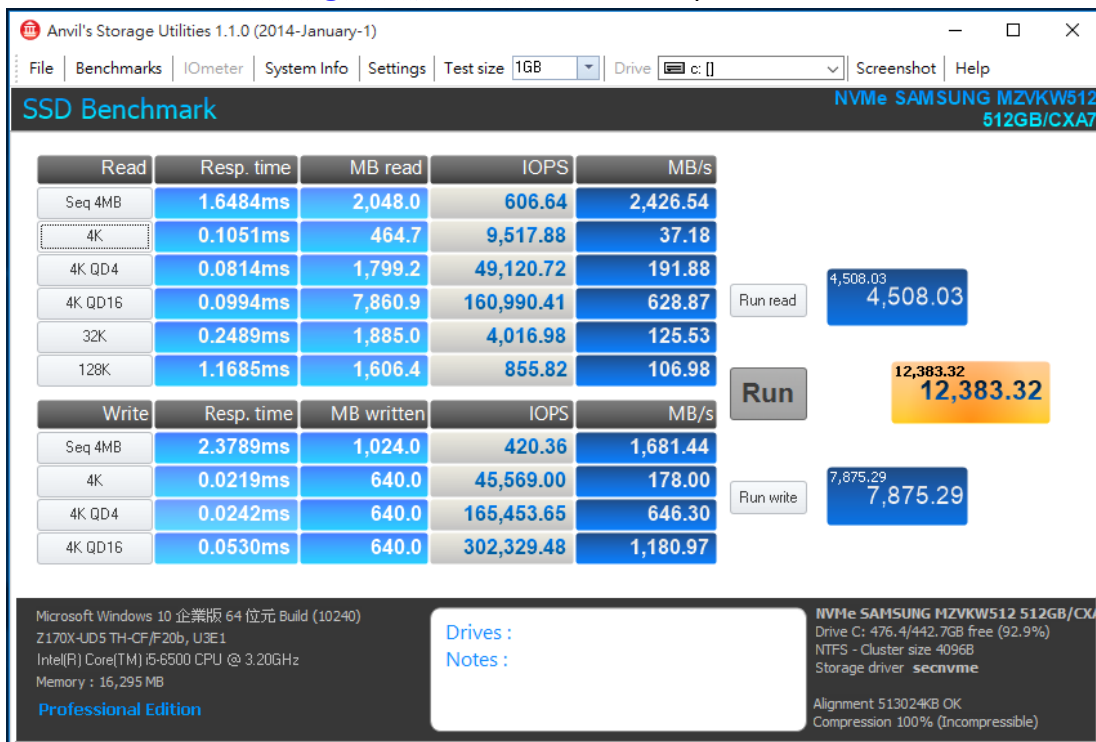
2.7 ATTO Disk Benchmark 2.47 performance test

2.7.1 Shows [Samsung SM961 NVMe SSD/512GB](#) performance as below:



2.8 AnvilBenchmark_V110_B337

2.8.1 Shows [Samsung SM961 NVMe SSD/512GB](#) performance as below:

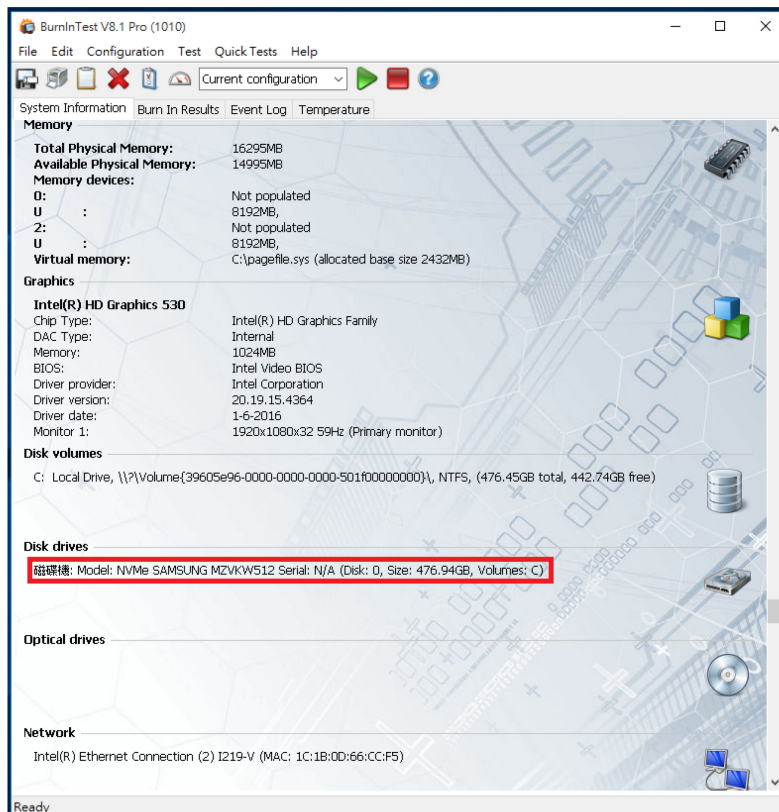
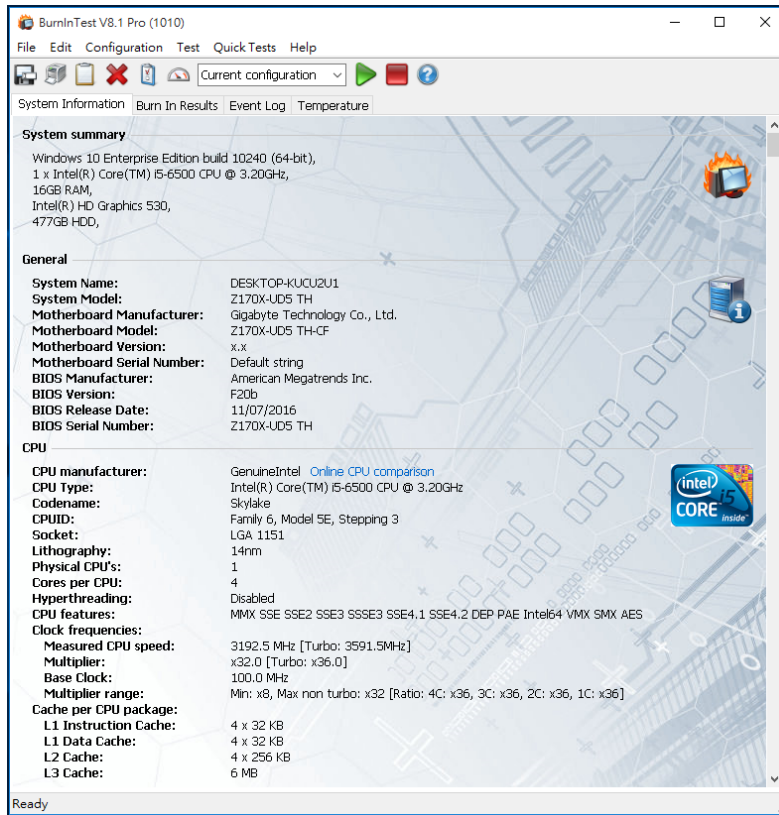


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3. Burn In Tests and Results

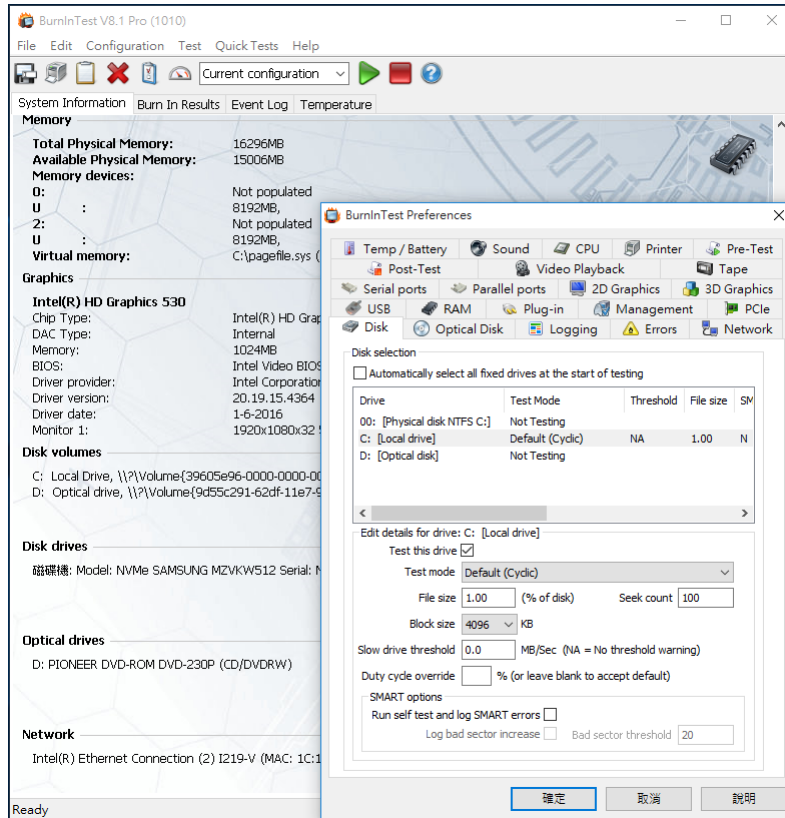
3.1 BurnInTest v8.1 Pro for Shows [Samsung SM961 NVMe SSD/512GB](#)

3.1.1 [system information](#) as below:

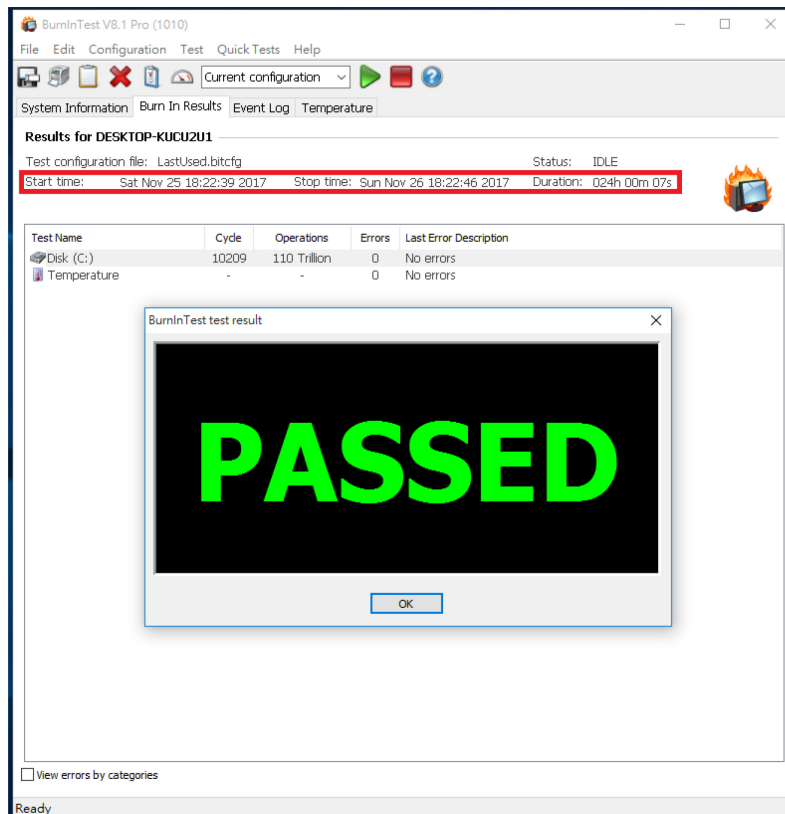


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3.1.2 show Disk test mode (10 ways cycle test)



3.1.3 show 24-hour Burn-in test PASSED



PU409G Converter Card

4. Summary

- 4.1 M.2 SSD is PCI-e Gen 3 / 4 Lanes Interface, I/O speed, max. to 4Gbps
- 4.2 PU409G adapter I/O performance is based on M.2 NVMe PCI-e Gen 3 / 4 Lanes SSD.