



MINERVA

PU425A Converter Card

Performance & Burn In Test Rev. 1. 0

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4. Summary

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1. Overview

The PU425A adapter provides 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 1 : PE0405 PCIe to SFF-8654 Slimline SAS
Adapter 2 : U.2 to M.2 enclosure+M.2 512GB NVMe SSD
CABLE: Amphenol U.2(SFF-8639) to SFF-8454 Slimline SAS Cable
OS : Microsoft [Windows 8.1 64bit OS](#)

2.2 Test target: PU425A adapter & U.2 to M.2 enclosure+[Samsung SM961 512GB NVMe SSD](#)



PE0405 Adaptor



Mini SAS HD to U.2 Cable



PD425A Adapter with U.2 to M.2 SSD (Samsung SM961)

2.3 Install Hardware

Inserts U.2 SSD into PU425A converter's U.2 female connector. Connect PU425A converter to PE0405 adapter(PCI-e 4-lane to Slimline SAS SFF-8654) using U.2 cable, plugs PE0405 into [PCI-e slot of Z170X UD5 TH](#).

2.4 BIOS & Windows 10 OS environment setup

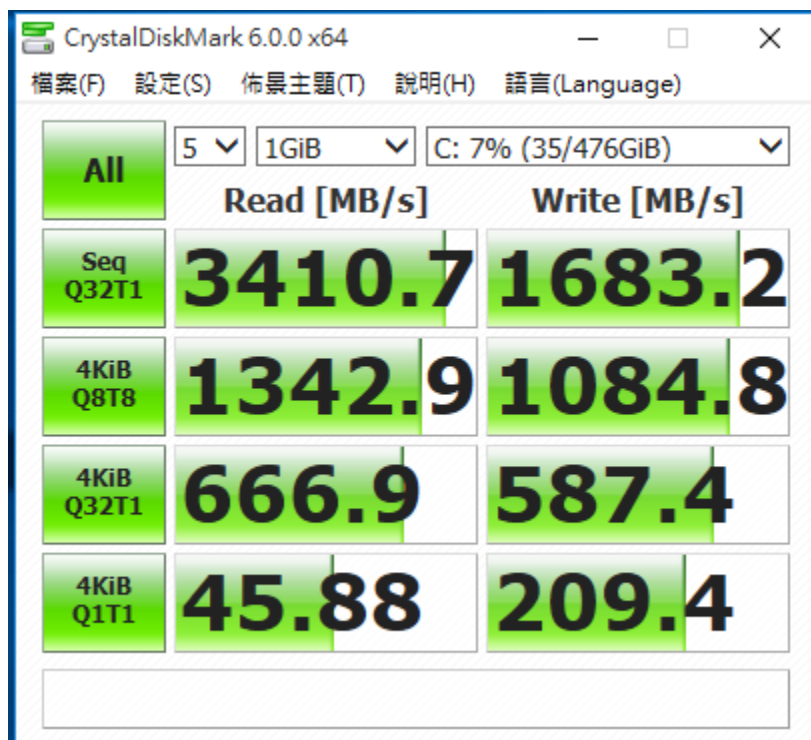
2.4.1 Install Windows 10 64bit OS into [Samsung SM961 512GB NVMe SSD](#)

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2.5 CrystalDiskMark 6.0.0 x64 performance test

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

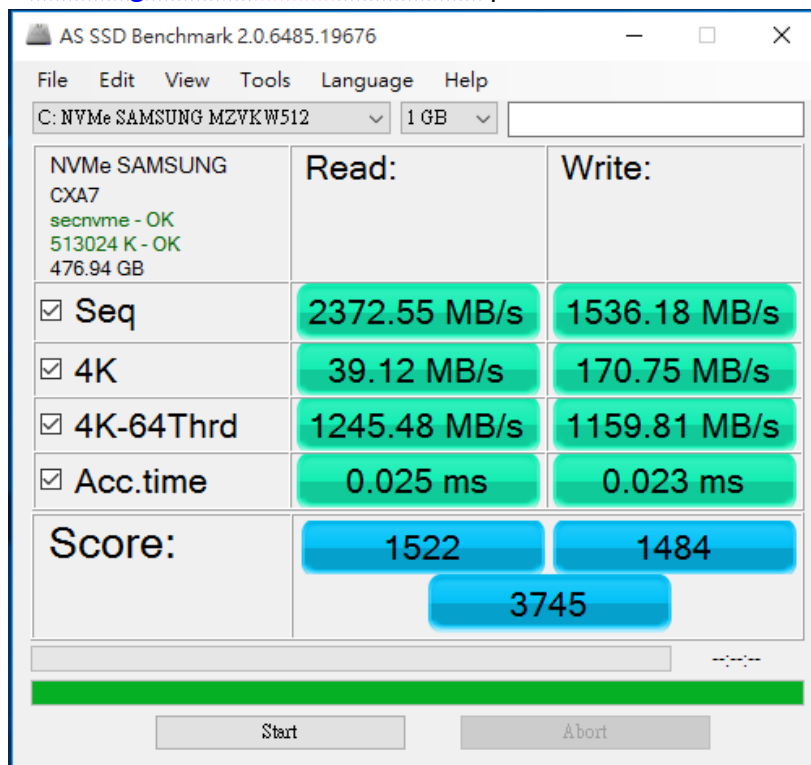
2.5.1 Show [Samsung SM961 512GB NVMe SSD](#) performance as below:



2.6 AS SSD Benchmark 2.0 performance test

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

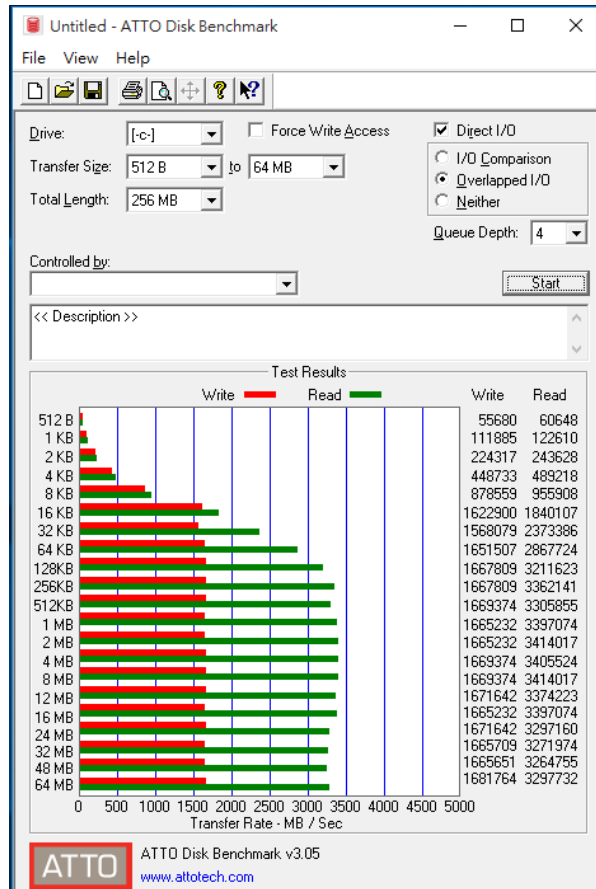
2.6.1 Show [Samsung SM961 512GB NVMe SSD](#) performance as below:



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2.7 ATTO Disk Benchmark 3.05 performance test

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



2.8 AnvilBenchmark_V110_B337

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

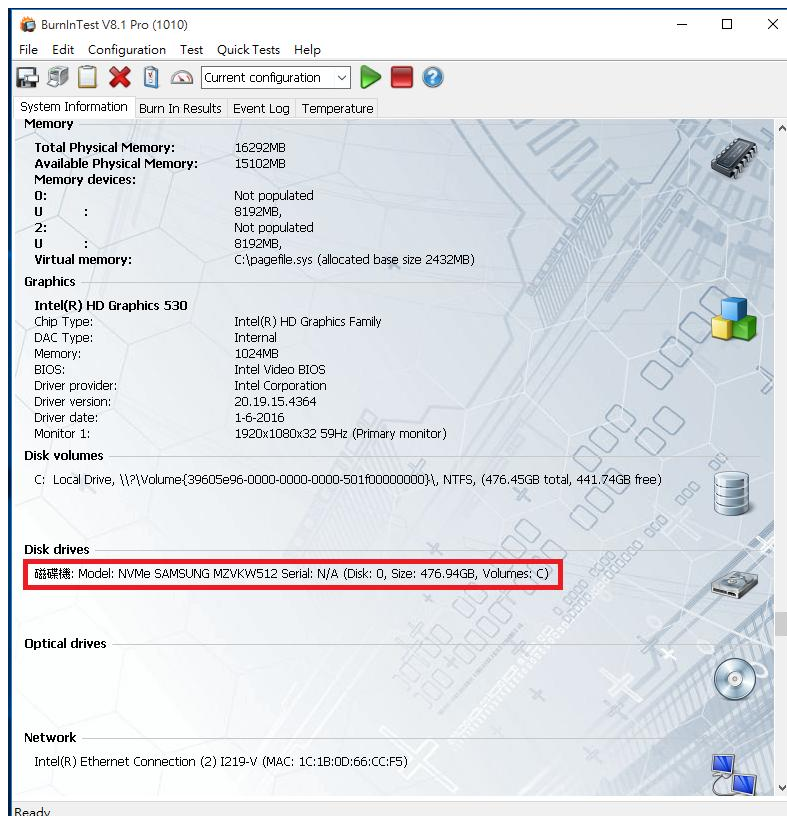
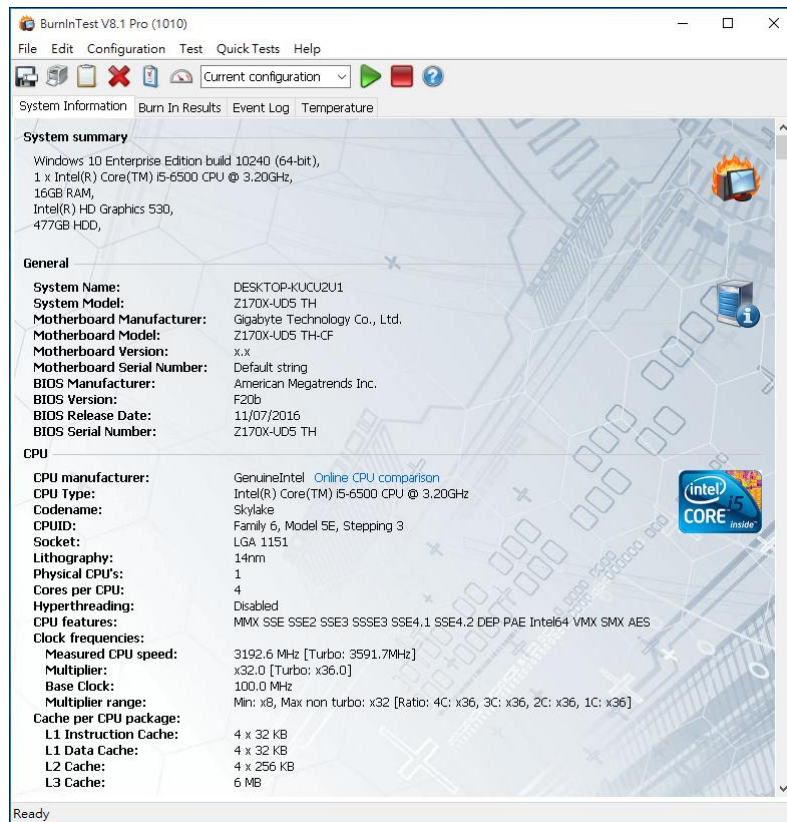


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3. Burn In Tests and Results

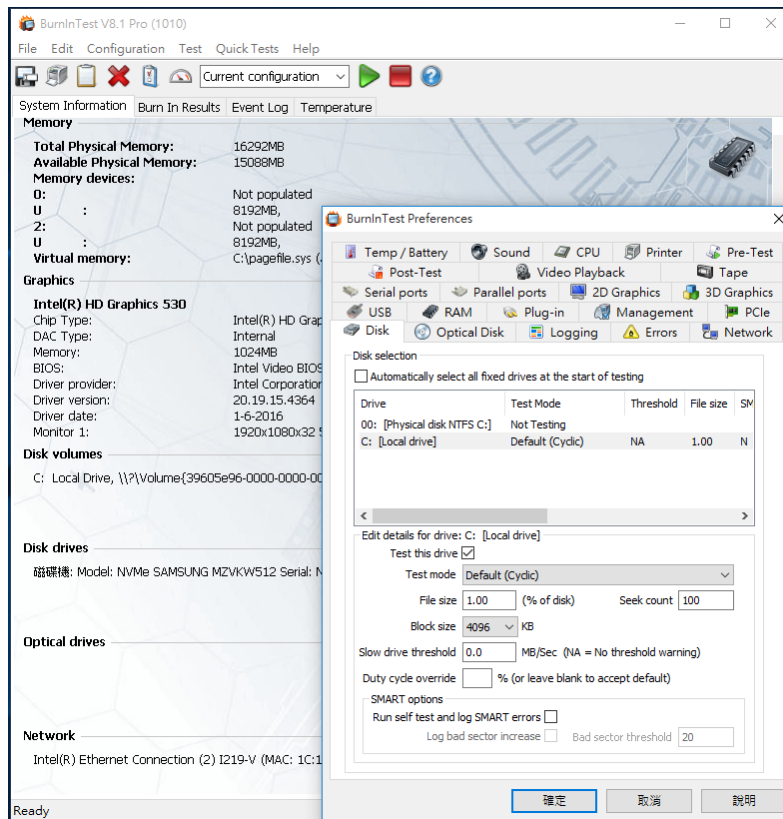
3.1 BurnInTest v8.1 Pro for [Samsung SM961 512GB NVMe SSD](#)

3.1.1 system information as below:

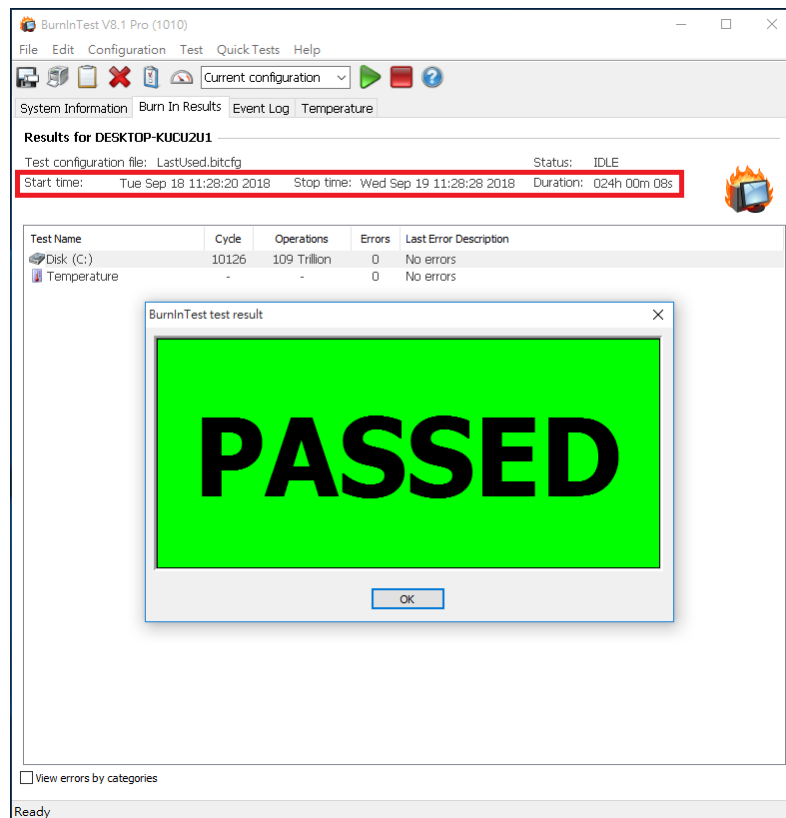


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3.1.2 show Disk test mode (10 ways cycle test)



3.1.3 show 24-hour Burn-in test PASSED



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4. Summary

- 4.1 M.2 SSD is PCI-e Gen 3 / 4 Lanes Interface, I/O speed, max. to 32Gbps
- 4.2 PU425A adapter I/O performance is based on M.2 NVMe PCI-e Gen 3 / 4 Lanes SSD.