



MINERVA

PE0409 Converter Card

Performance & Burn In Test Rev. 1. 0

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4. Summary

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1. Overview

PE0409 adapter, providing SFF-8643 Mini SAS HD and SFF-8639 U.2 connector can be U.2(SFF-8639) SSD or SFF-8639 to M.2 NVMe SSD converted into PCI-e Gen 3 / 4 Lanes interface.

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, [16GB](#)(8GB DIMM*2)
ATX Power : COOLER MASTER G750M, [750W ATX](#), 12V V2.2 Power Supply
Graphic : Z170 Chipsets built-in [HD Graphics 530](#)
Adapter: PE0409 PCIe to SFF-8643 Mini SAS HD& SFF-8639 U.2
CABLE: Amphenol [SFF-8639 Female to SFF-8639 Female Cable](#)
OS : Microsoft [Windows 10 64bit OS](#)

2.2 Test target: PE0409 adapter + PU3401F + [Samsung SM961 512GB NVMe SSD](#)



2.3 Install Hardware

Use SFF-8639 to SFF-8639 cable to connect PU3401F to PE0409 PCI-e adapter of GIGABYTE [Z170X UD5 TH](#).

2.4 BIOS & Windows 10 OS environment setup

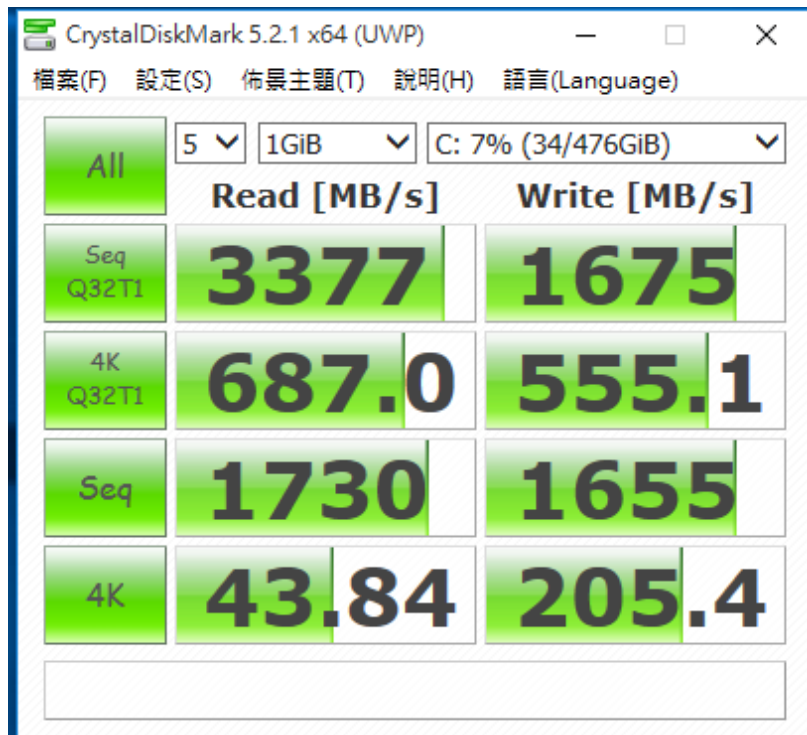
2.4.1 Install Windows 10 64BIT OS in U.2 NVMe SSD.

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2.5 CrystalDiskMark 5.2.1 x64 performance test

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

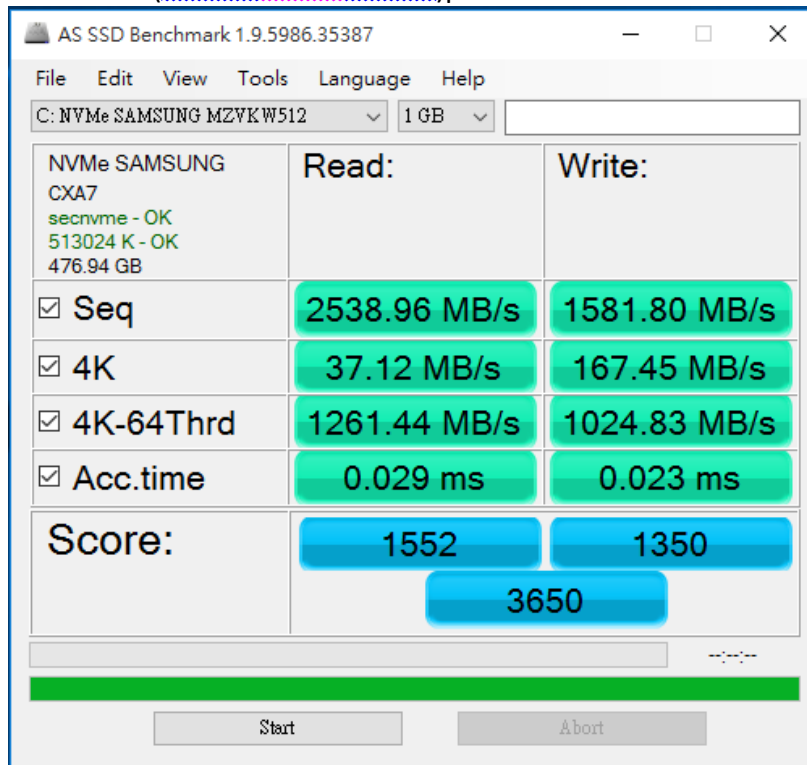
2.5.1 shows SSD([SM961 512GB NVMe](#))performance as below:



2.6 AS SSD Benchmark 1.9 performance test

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

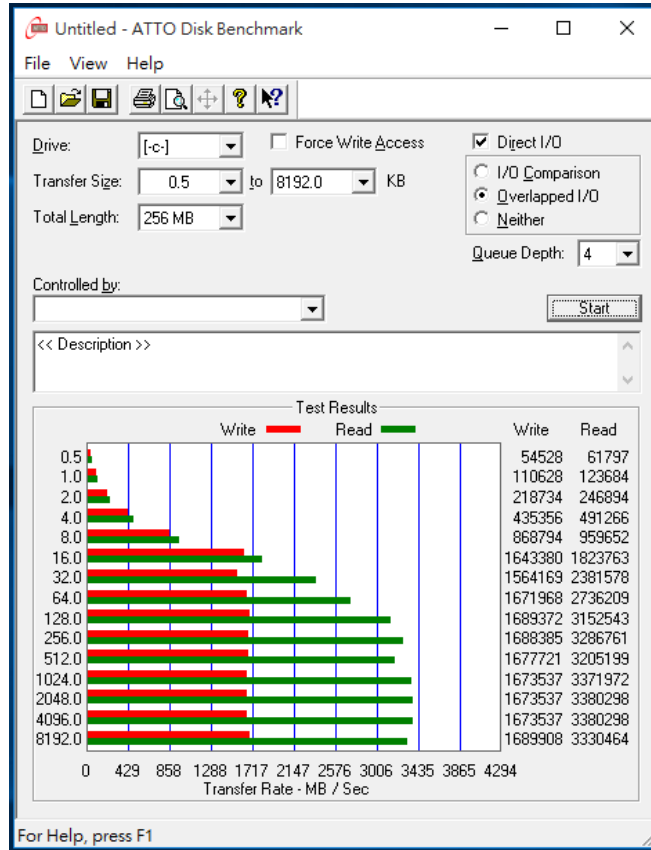
2.6.1 shows SSD([SM961 512GB NVMe](#))performance as below:



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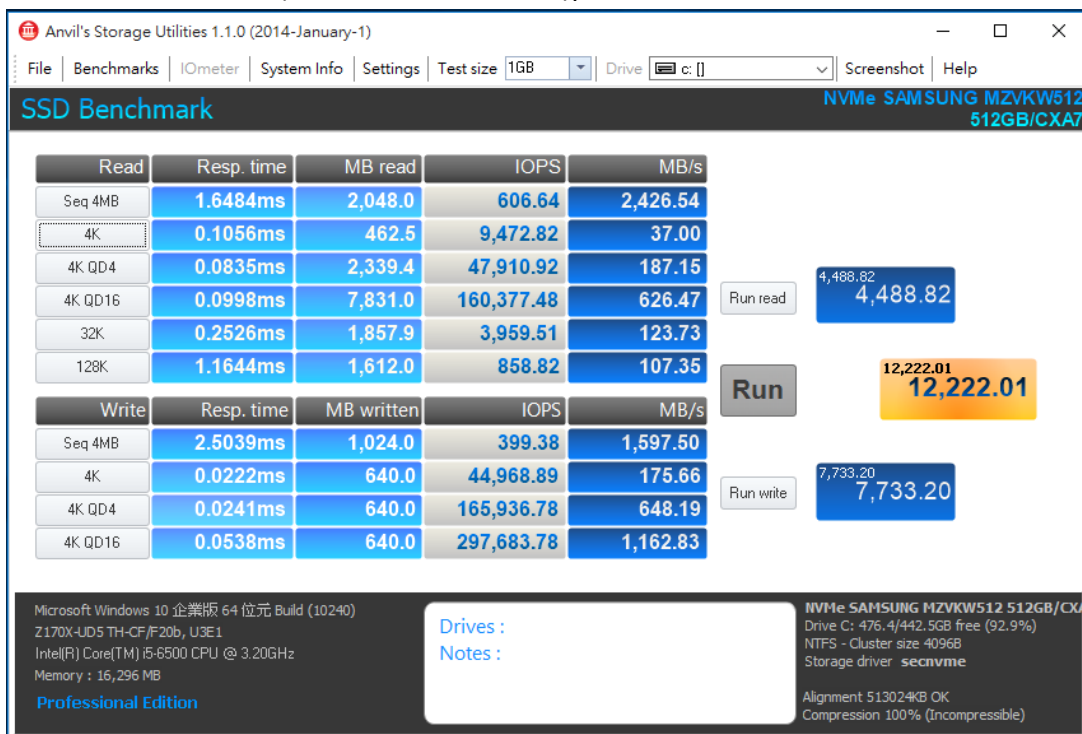
2.7 ATTO Disk Benchmark 2.47 performance test

2.7.1 shows SSD(SM961 512GB NVMe)performance as below:



2.8 AnvilBenchmark_V110_B337

2.8.1 shows SSD(SM961 512GB NVMe)performance as below:

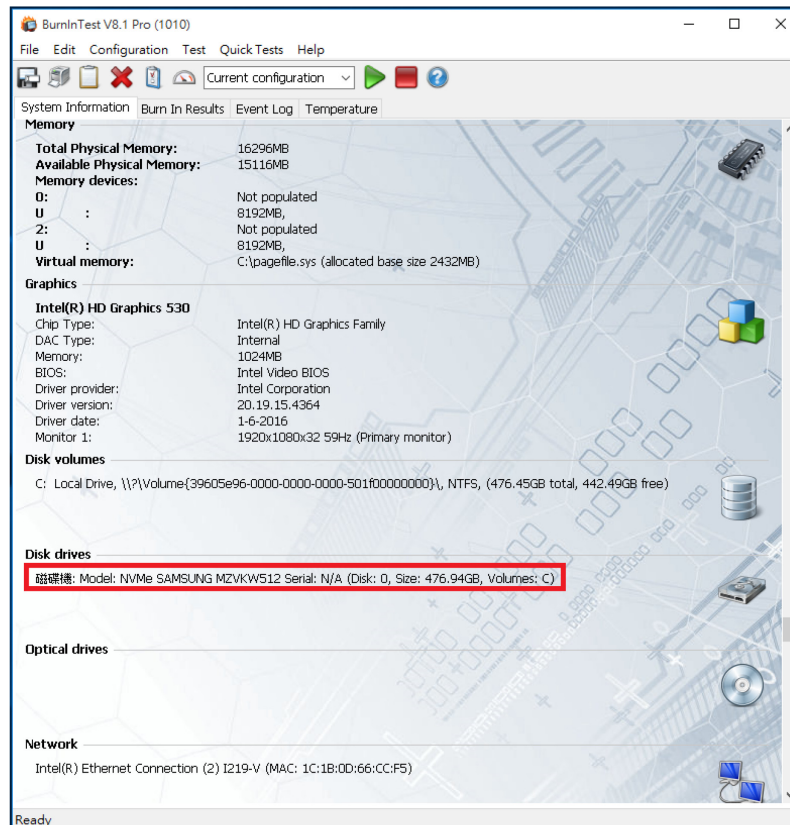
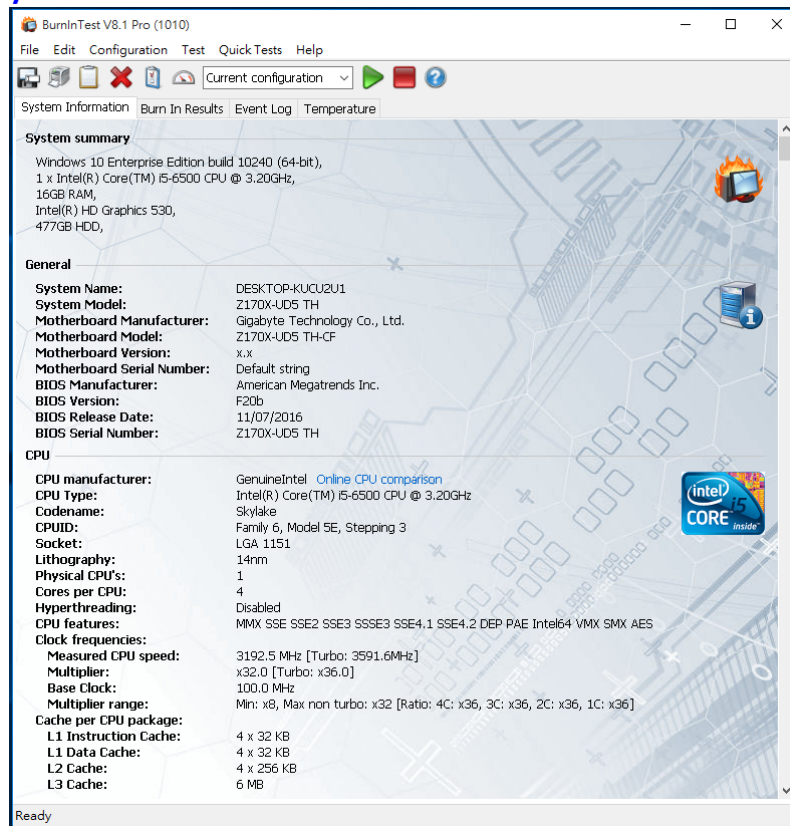


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3. Burn In Tests and Results

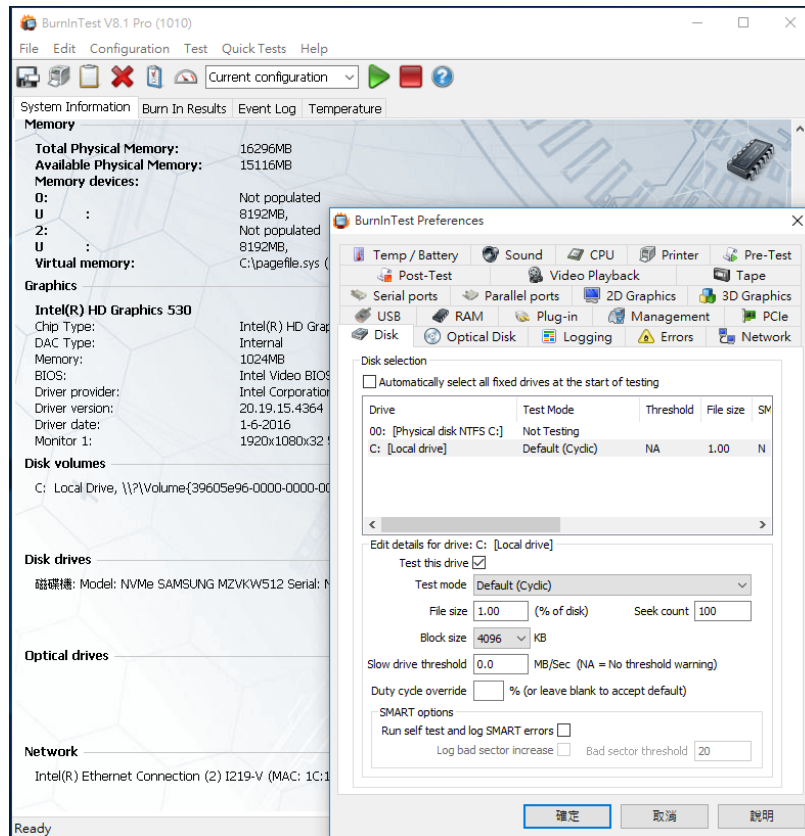
3.1 BurnInTest v8.0 Pro for SSD(SM961 512GB NVMe)

3.1.1 system information as below:

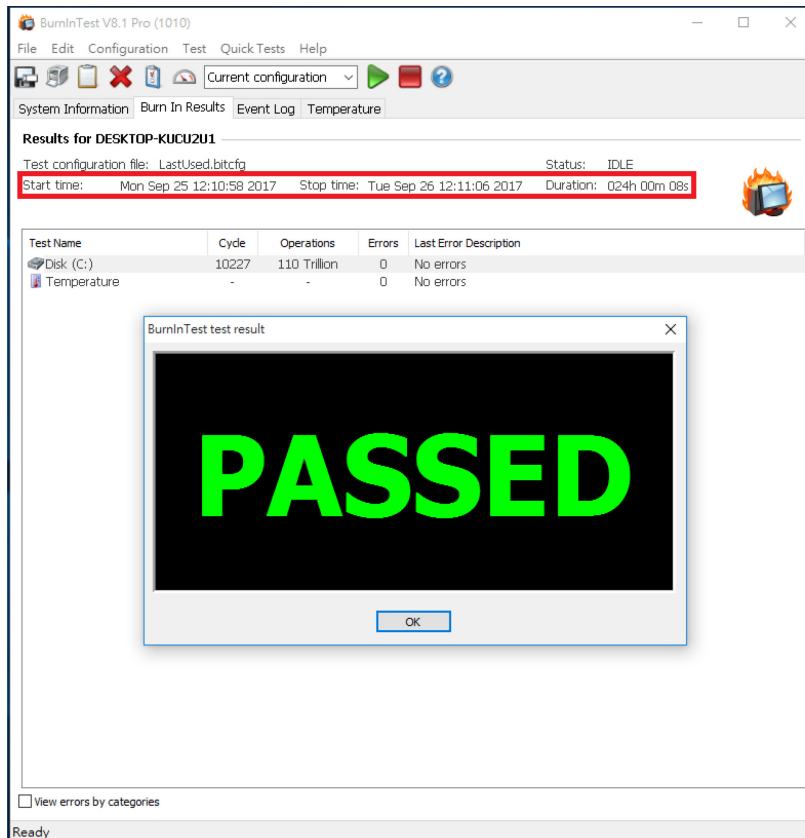


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3.1.2 show Disk test mode (10 ways cycle test)



3.1.3 show 24-hour Burn-in test PASSED



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4. Summary

- 4.1 SM961 512GB NVMe SSD is PCI-e Gen 3 / 4 Lanes Interface, I/O speed, max. to 32Gbps.
- 4.2 PE0409 adapter I/O performance is based on SM961 512GB NVMe.