



MINERVA

PE0409 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 INTEL U.2 750 SSD & Samsung 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

PE0409 Converter Card

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 **U.2(SFF-8639) to SFF-8463 Mini SAS HD 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-8643 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

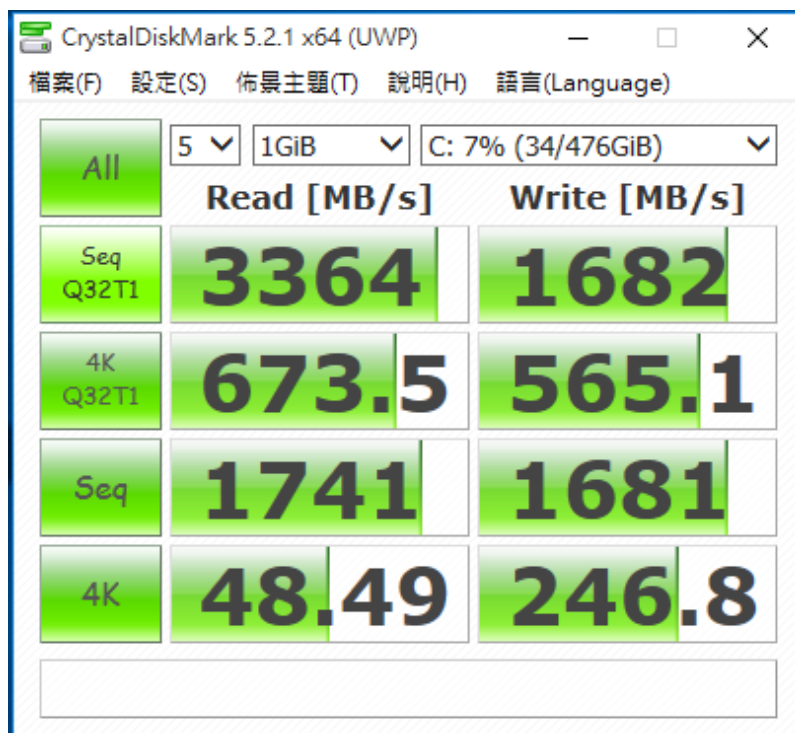
2.4.1 Install Windows 10 64BIT OS in U.2 NVMe SSD.

PE0409 Converter Card

2.5 CrystalDiskMark 5.2.1 x64 performance test

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

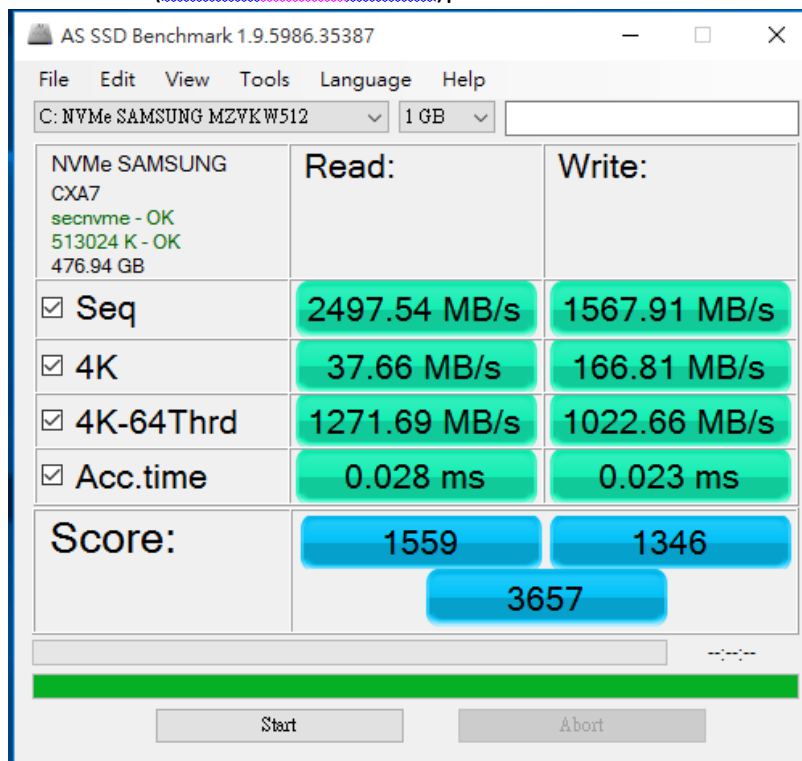
2.5.1 shows SSD([SM961 512GB NVMe](#))performance as below:



2.6 AS SSD Benchmark 1.9 performance test

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

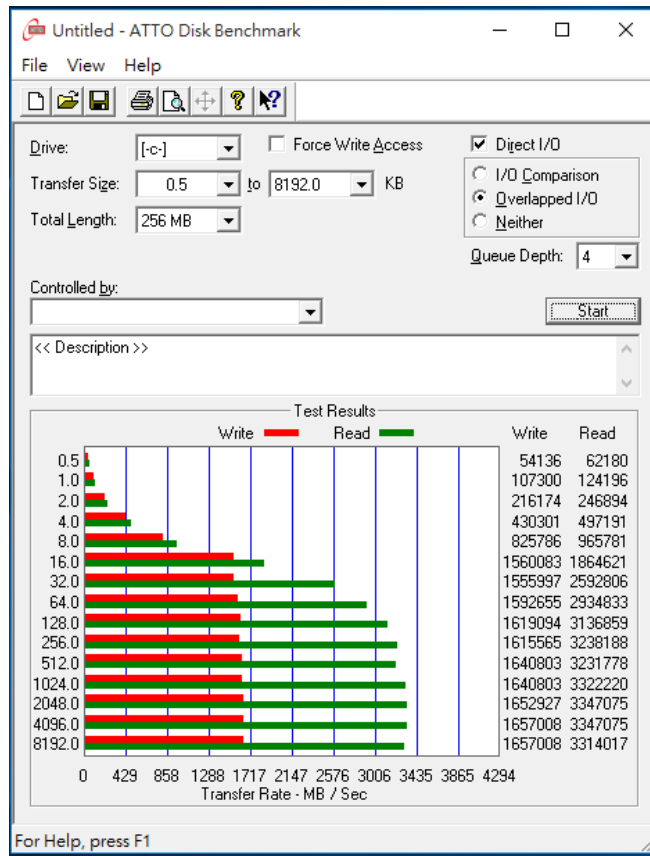
2.6.1 shows SSD([SM961 512GB NVMe](#))performance as below:



PE0409 Converter Card

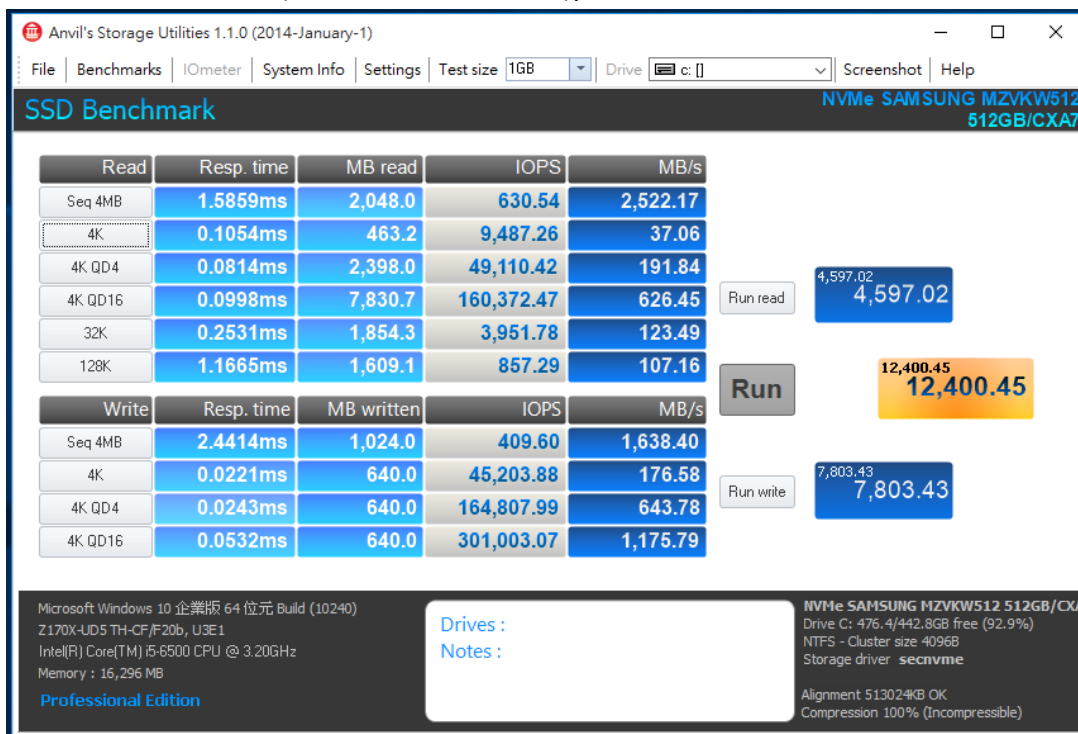
2.7 ATTO Disk Benchmark 2.47 performance test

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:

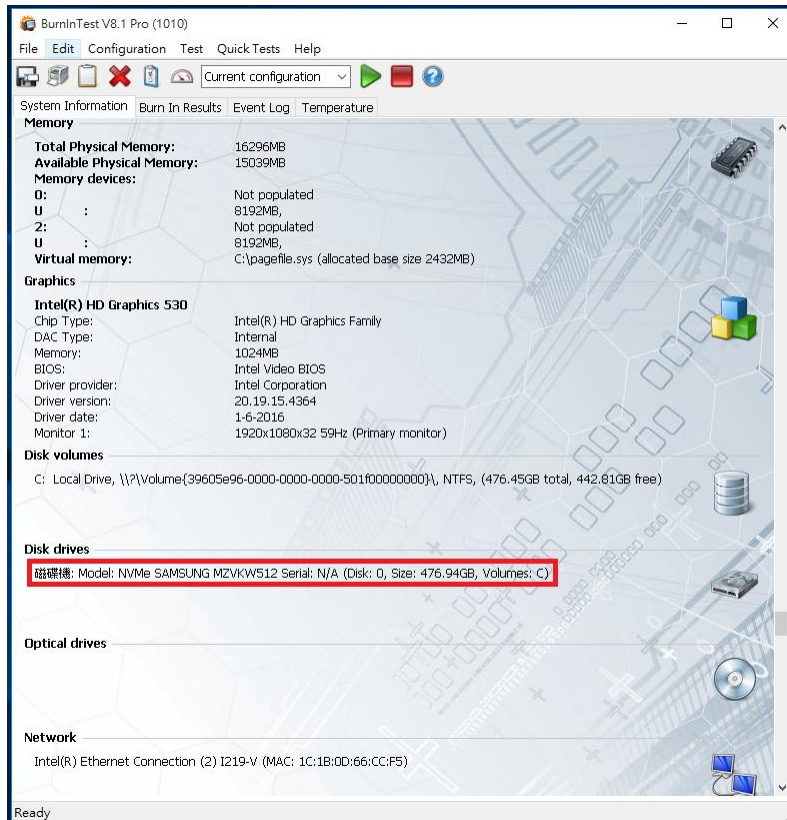
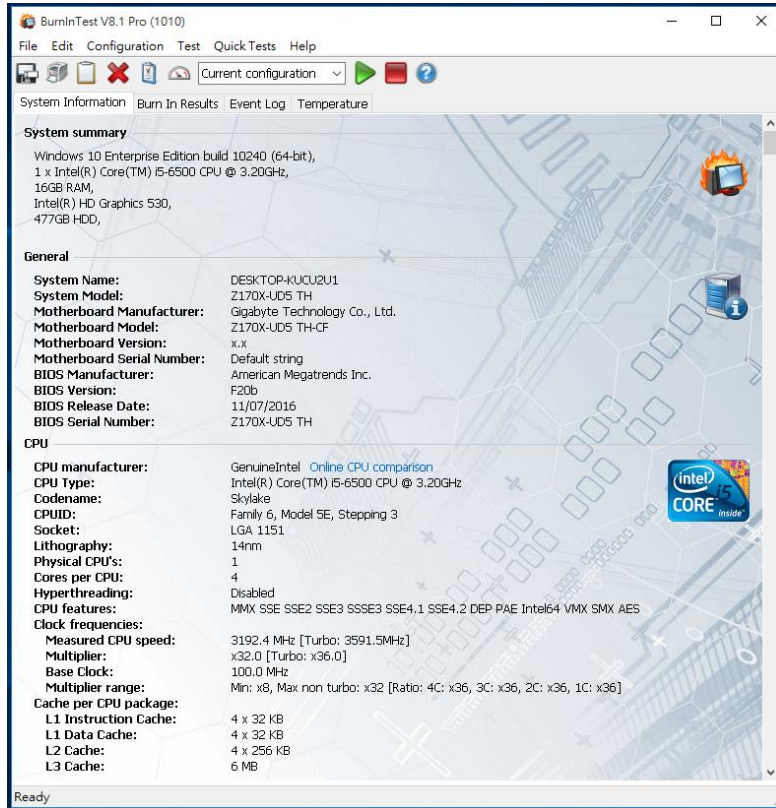


PE0409 Converter Card

3. Burn In Tests and Results

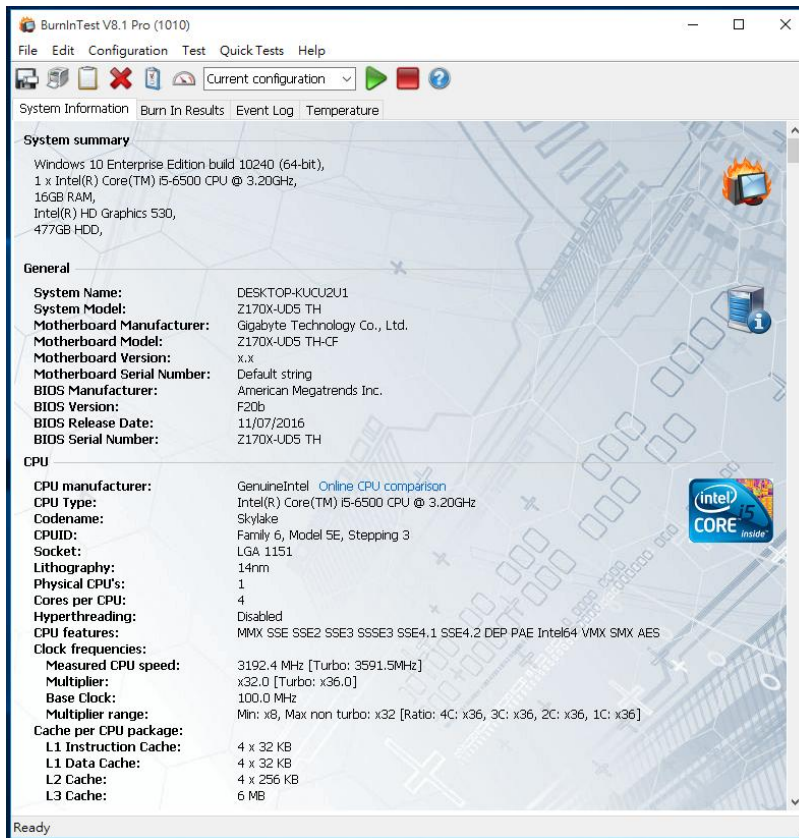
3.1 BurnInTest v8.0 Pro for SSD(SM961 512GB NVMe)

3.1.1 system information as below:

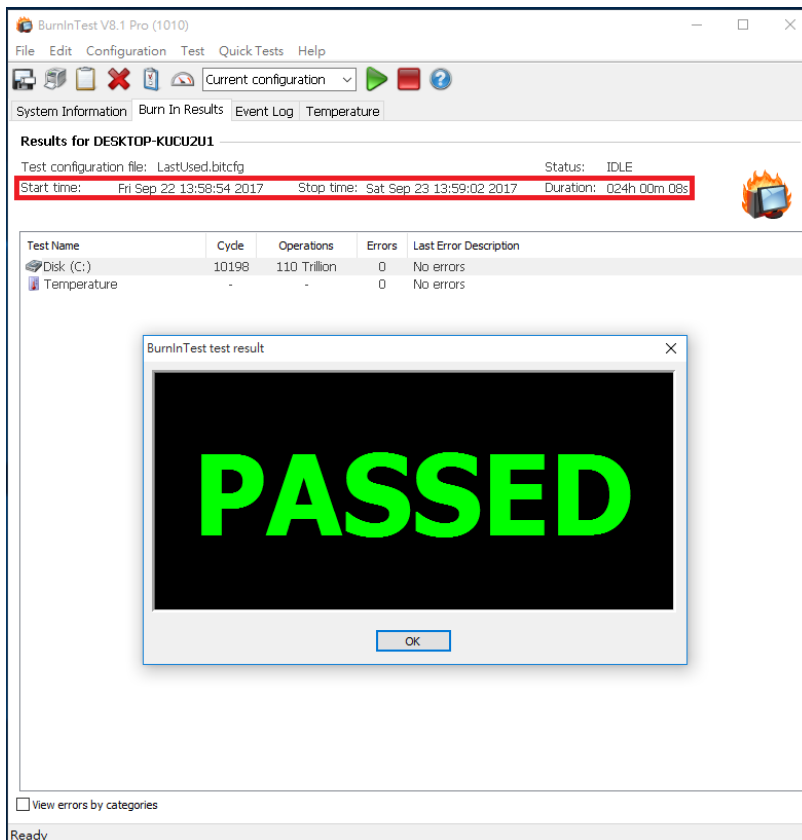


PE0409 Converter Card

3.1.2 show Disk test mode(10 ways cycle test)



3.1.3 show 24-hour Burn-in test PASSED



PE0409 Converter Card

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.