



# MINERVA

## PE0406 Converter Card

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### Performance & Burn In Test Rev. 1. 0

#### Table of Contents

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##### **1. Overview**

##### **2. Performance Measurement Tools and Results**

2.1 Test Platform

2.2 Test target and Used use 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**

# PE0406 Converter Card

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## 1. Overview

PE0406 adapter, providing SFF-8643 Mini SAS HD and SFF-8654 Slimline SAS 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

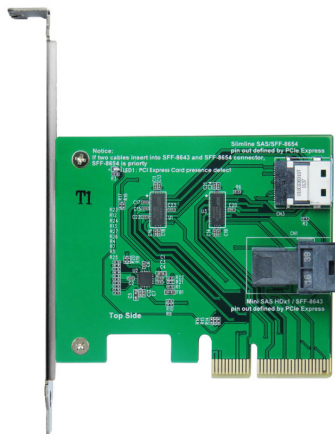
### 2.1 Test Platform

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: PE0406 PCIe to SFF-8643 Mini SAS HD& SFF-8654 Slimline SAS  
CABLE: Amphenol U.2(SFF-8639) to SFF-8643 Mini SAS HD Cable  
OS : Microsoft [Windows 10 64bit OS](#)

2.2 Test target: PE0406 adapter + PU3401F + [Samsung SM961 512GB NVMe SSD](#)

### 2.3 Install Hardware

Use SFF-8643 to SFF-8639 cable to connect PU3401F to PE0406 PCI-e adapter of GIGABYTE [Z170X UD5 TH](#).



PE0406 Adapter



SFF-8643 to SFF-8639 cable



PU3401F Adapter



Samsung SM961 M.2

### 2.4 BIOS & Windows 10 OS environment setup

2.4.1 Install Windows 10 64BIT OS.

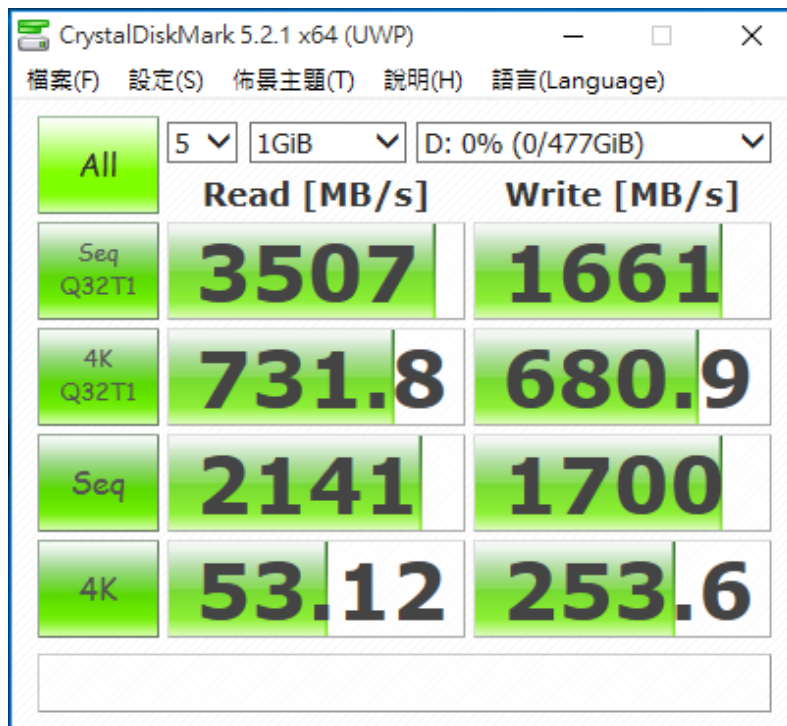
2.4.2 Samsung SM961 formatted NTFS

# PE0406 Converter Card

## 2.5 CrystalDiskMark 5.2.1 x64 performance test

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

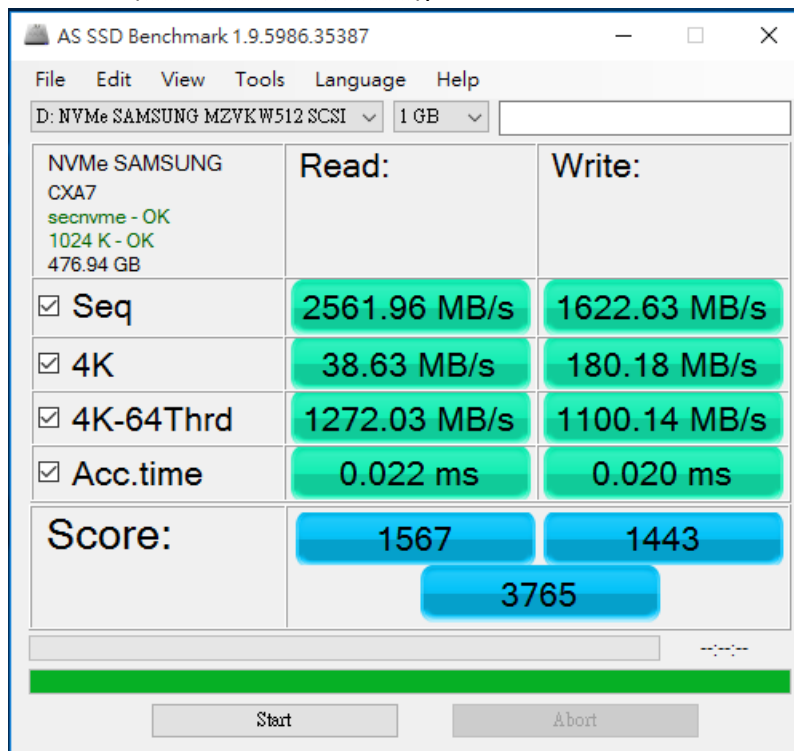
2.5.1 shows SSD([SM961 512GB NVMe](#))performance as below:



## 2.6 AS SSD Benchmark 1.9 performance test

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

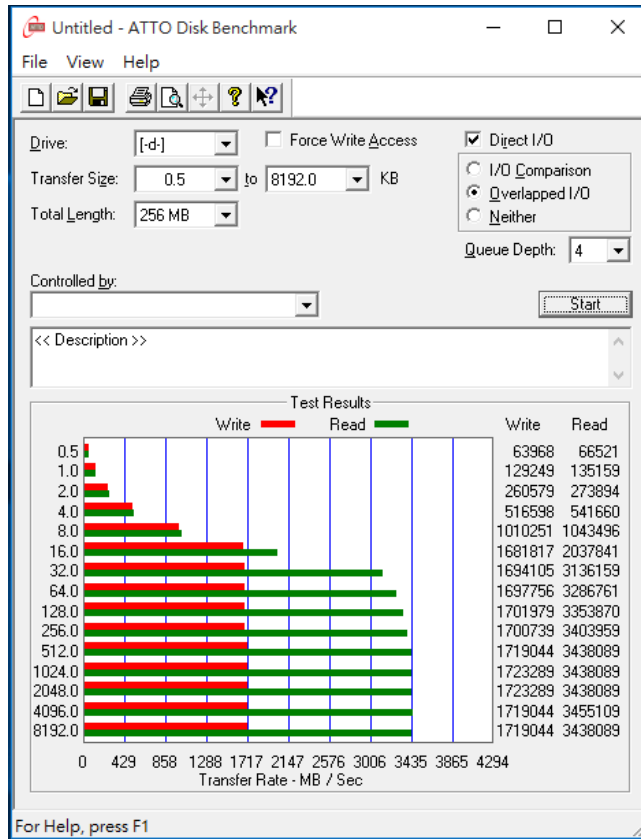
2.6.1 shows SSD([SM961 512GB NVMe](#))performance as below:



# PE0406 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:

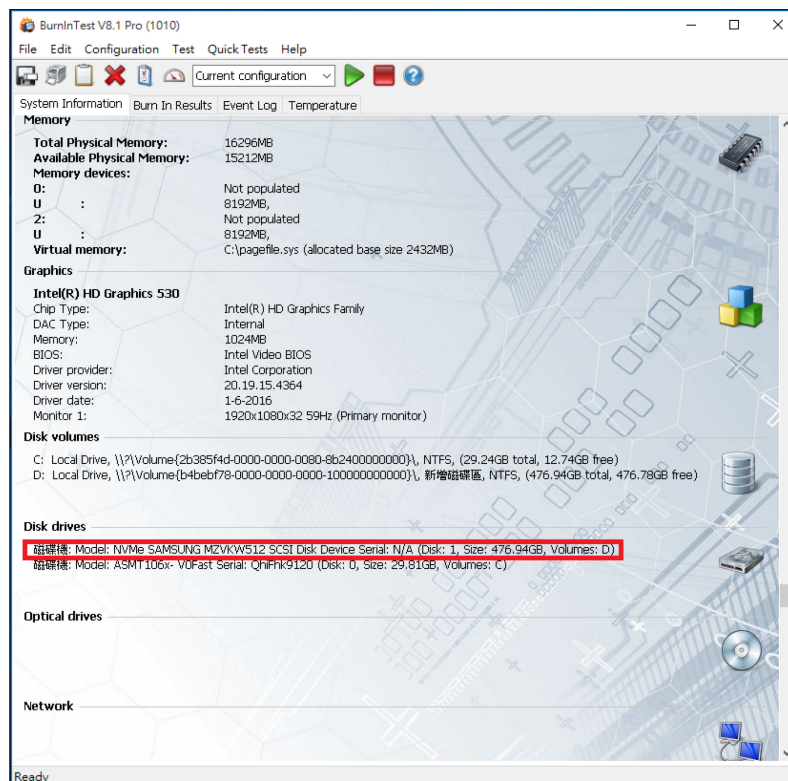
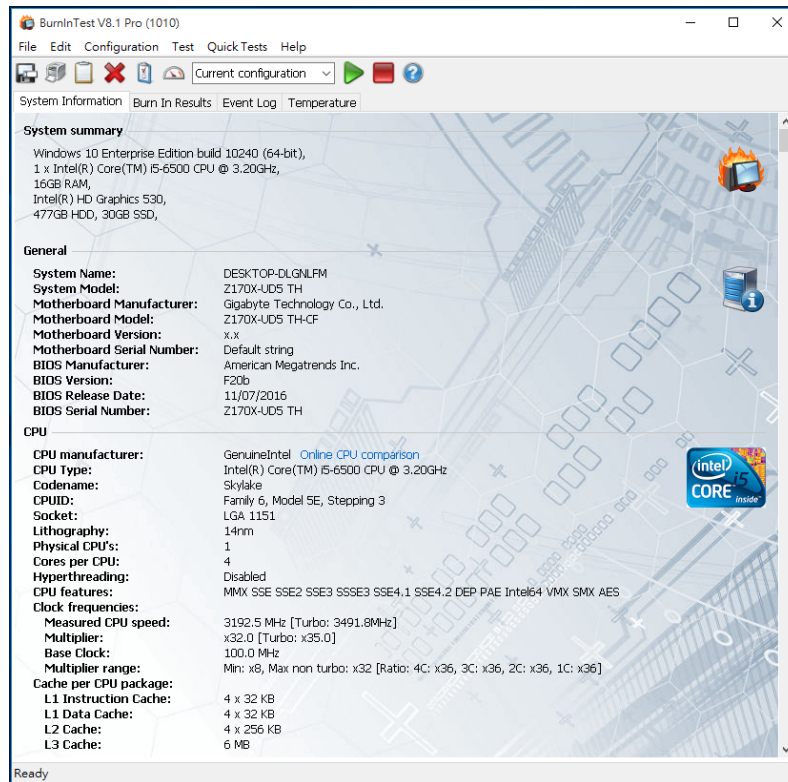


# PE0406 Converter Card

## 3. Burn In Tests and Results

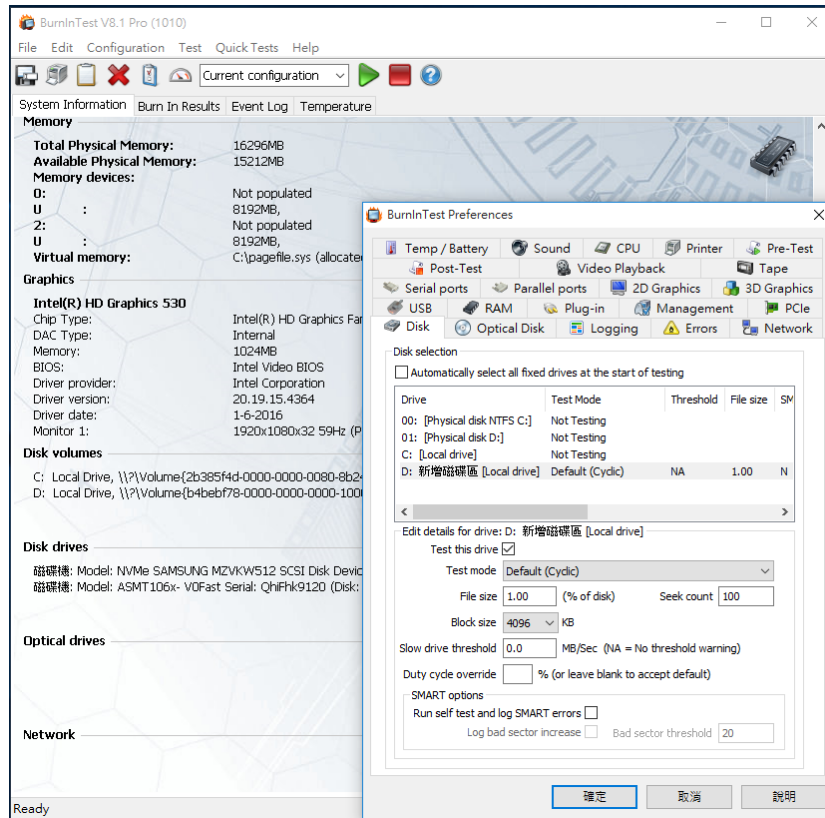
### 3.1 BurnInTest v8.0 Pro for SSD(SM961 512GB NVMe)

#### 3.1.1 system information as below:

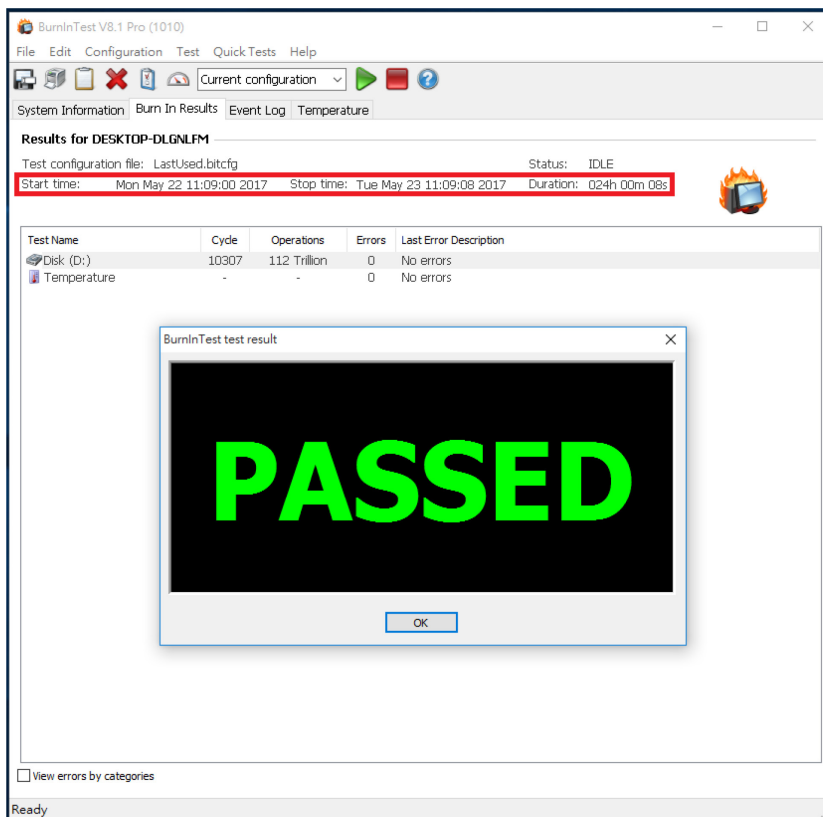


# PE0406 Converter Card

## 3.1.2 show Disk test mode (10 ways cycle test)



## 3.1.3 show 24-hour Burn-in test PASSED



# PE0406 Converter Card

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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 PE0406 adapter I/O performance is based on SM961 512GB NVMe.