



MINERVA

PU424A U.3/Gen-Z for M.2 NVMe SSD 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 M.2 NVMe SSD
 - 2.3 Install Hardware
 - 2.4 BIOS & Windows 10 OS environment setup
 - 2.5 CrystalDiskMark 6.0.0 x64 performance test
 - 2.6 AS SSD Benchmark 2.0 performance test
 - 2.7 ATTO Disk Benchamrk 3.0.5 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

PU424A Converter Card

1. Overview

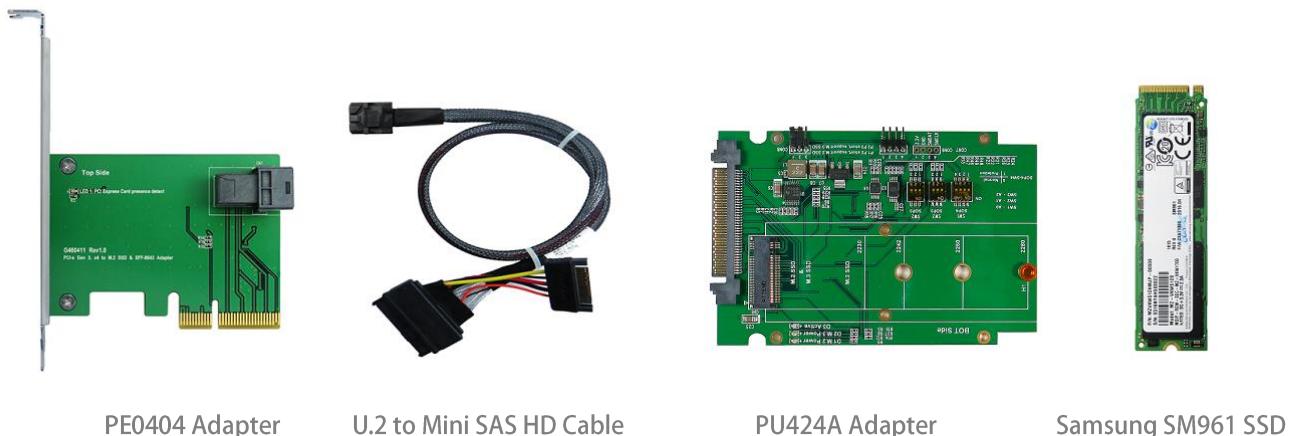
PU424A adapter, providing M.2 M-key connector can be M.2 NVMe SSD converted into U.3 or Gen-Z , PCI-e Gen 3 / 4 Lanes interface..

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 V750, **750W ATX**, 12V V2.2 Power Supply
Graphic : Z170 Chipsets built-in **HD Graphics 530**
Adapter: PE0404 PCIe to SFF-8643 Mini SAS HD Cable
CABLE: Amphenol U.2(SFF-8639) to SFF-8463 Mini SAS HD Cable
OS : Microsoft **Windows 10 64bit OS**

2.2 Test target: PU424A adapter & [Samsung SM961 512GB NVMe SSD](#)



2.3 Install Hardware

Inserts M.2 NVMe SSD into PU424A adapter converter's M.2 M-key connector, and then with coppers, and screws to fix SSDs. (Please refer to the Installation Notes). Connects PU424A converter to PE0404 adapter(PCI-e 4-lane to Mini SAS HD SFF-8643) using SFF-8643 to U.3(SFF-8639) cable and Plugs PE0404 into **PCI-e slot of Z170X UD5 TH MB.**

2.4 BIOS & Windows 10 OS environment setup

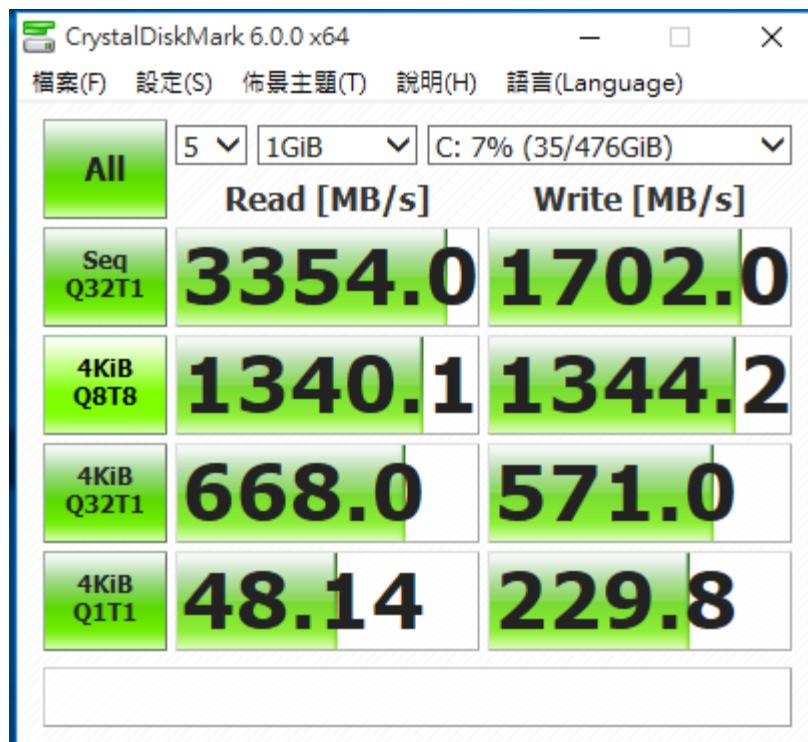
2.4.1 Install Windows 10 64bit OS into [SM961 512GB NVMe SSD](#)

PU424A Converter Card

2.5 CrystalDiskMark 6.0 x64 performance test

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

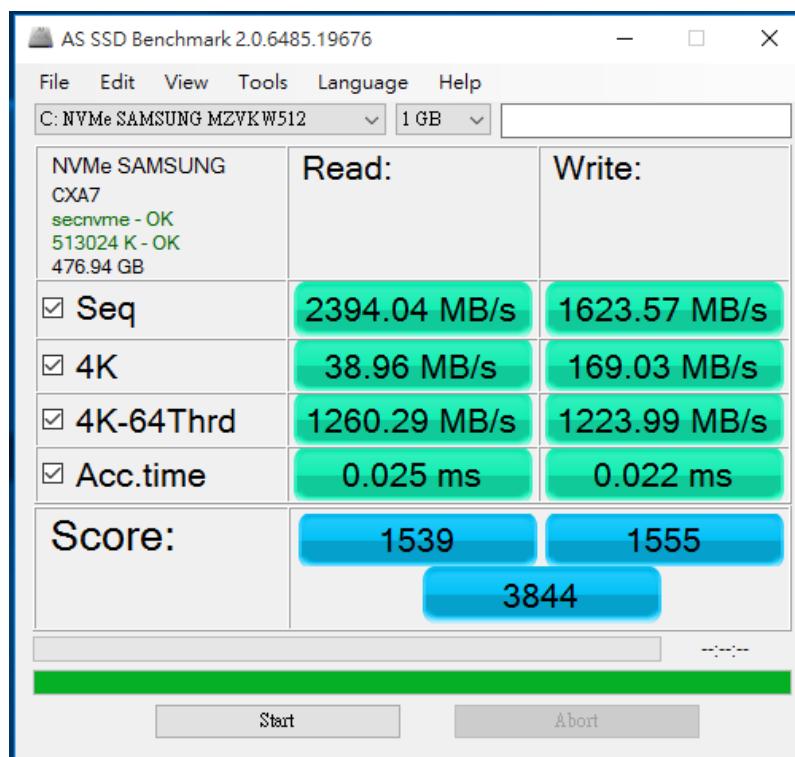
2.5.1 Shows [Samsung SM961 M.2/512GB](#) performance as below:



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 M.2/512GB](#) performance as below:

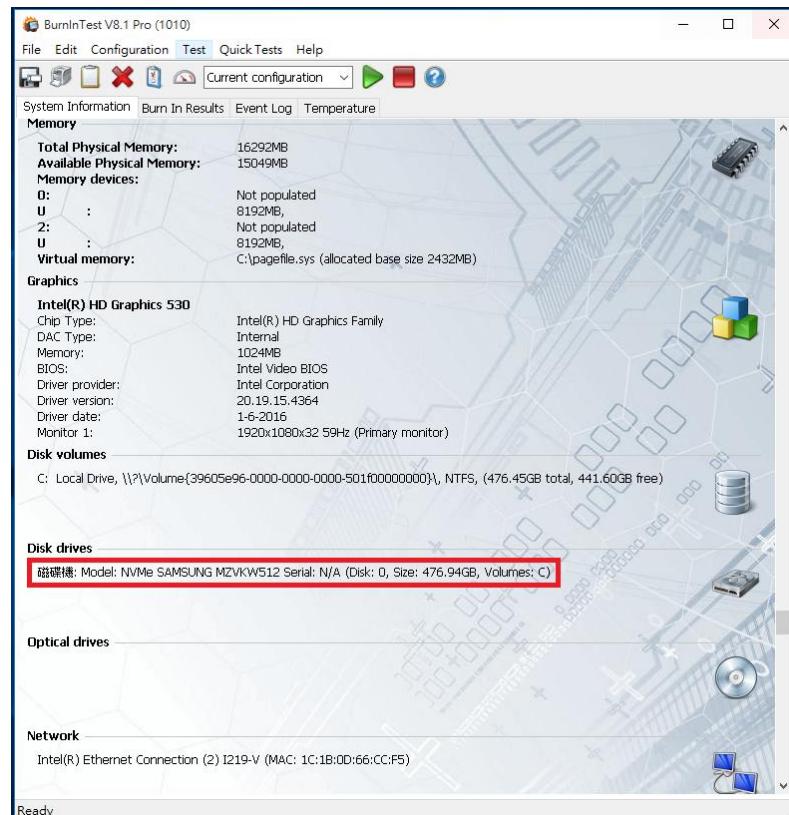
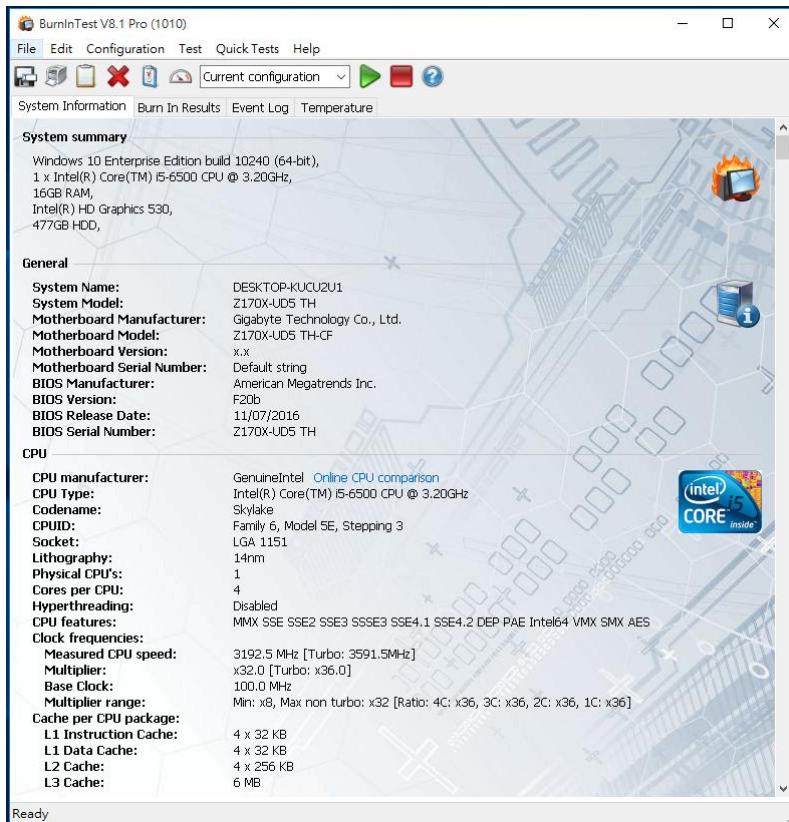


PU424A Converter Card

3. Burn In Tests and Results

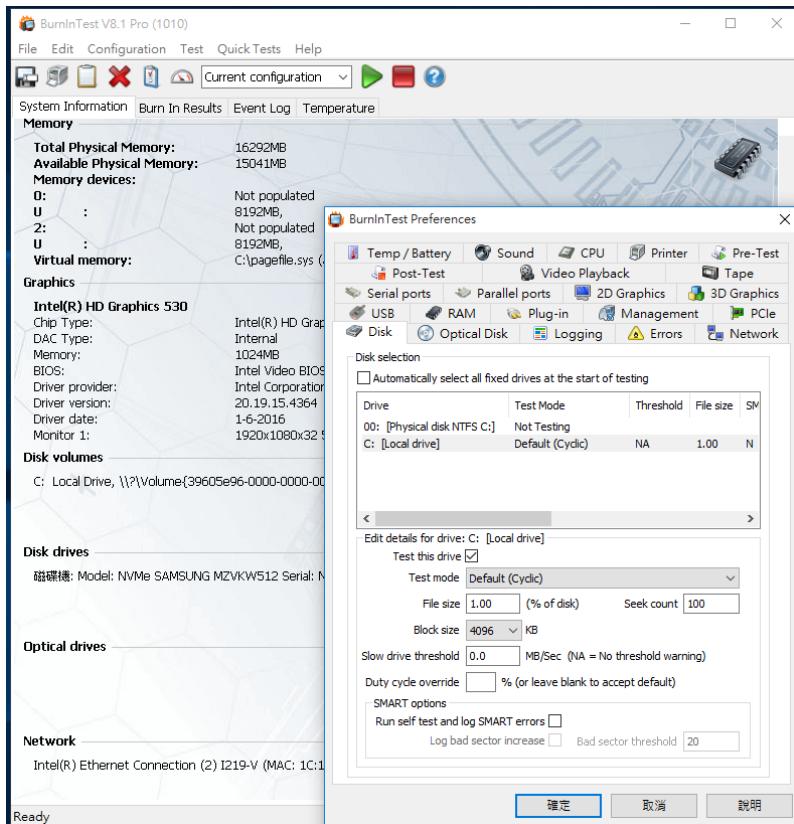
3.1 BurnInTest v8.1 Pro for Samsung SM961 M.2/512GB SSD

3.1.1 system information as below:

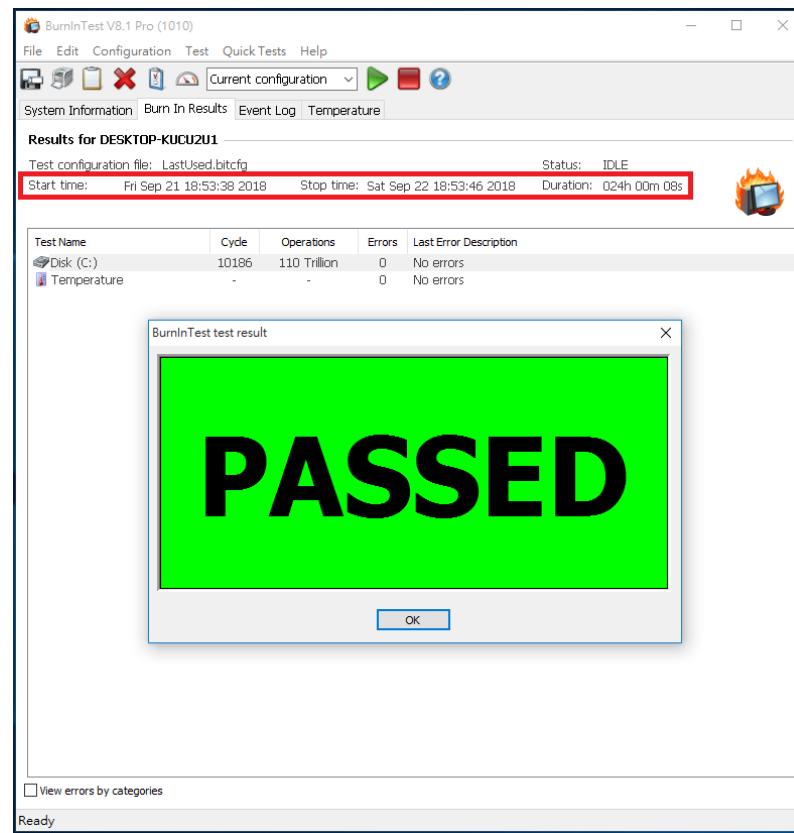


PU424A Converter Card

3.1.2 show Disk test mode(10 ways cycle test)



3.1.3 show 24-hour Burn-in test PASSED



PU424A Converter Card

4. Summary

- 4.1 M.2 NVMe SSD is PCI-e Gen 3 / 4 Lanes Interface, I/O speed, max. to 32Gbps.
- 4.2 PU424A adapter I/O performance is based on M.2 NVMe PCI-e Gen 3 / 4 Lanes SSD.