MINERVA

U.2(SFF-8639) to M.2 NVMe & M.2 SATA converter Card

Performance & Burn In Test   Rev. 1.0

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BU287F Rev1.0   Converter Card

1. Overview

The BU287F adapter, built-in SFF-8639 connector, provides one port **M.2 M-key** connector, one port **M.2 B-key** connector. First M.2 NVMe SSD inserts M.2 M-key connector, use U.2 to SFF-8611 cable, connected to the PCI-e to OCulink(SFF-8612) adapter, then M.2 NVMe(PCI-e) SSD can be work.

## 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:	PE0412 PCIe to SFF-8611 OCulink Cable
CABLE:	Amphenol U.2(SFF-8639) to SFF-8611 OCulink Cable
OS :	Microsoft **Windows 10 64bit OS**

2.2 Test target: BU287F adapter and Samsung SM961 **512GB** NVMe SSD
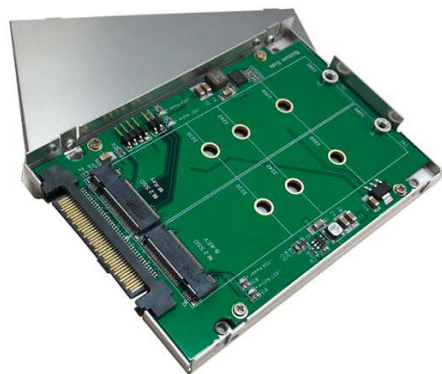
U.2 to Oculink Cable	BU287F Adapter	Samsung SM961 M.2 NVMe SSD

2.3   Install Hardware

Inserts M.2 NVMe(PCIe Interface)SSD into BU287F converter's M.2 M-key connector, and then with coppers, and screws to fix SSDs. Connects BU287F converter to PE0412 adapter(PCI-e to Oculink SFF-8612) and plugs PE0412 into **PCI-e slot of Z170X UD5 TH.**
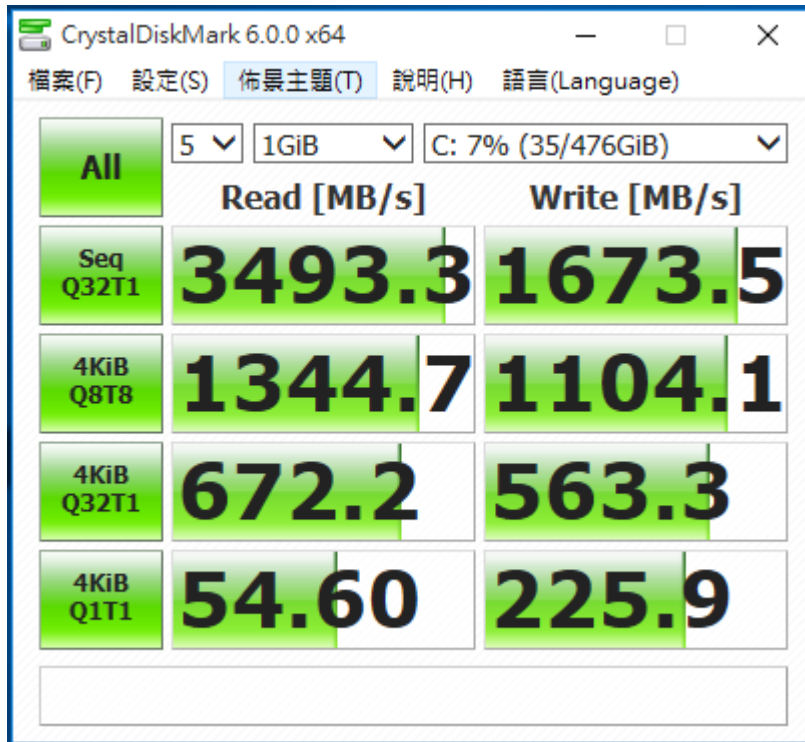
2.4 BIOS & Windows10 OS environment setup

2.4.1 Installs Windows 10 64bit OS into BU287F. Don't install any Application program.

2.5 CrystalDiskMark 6.0.0 x64 performance test
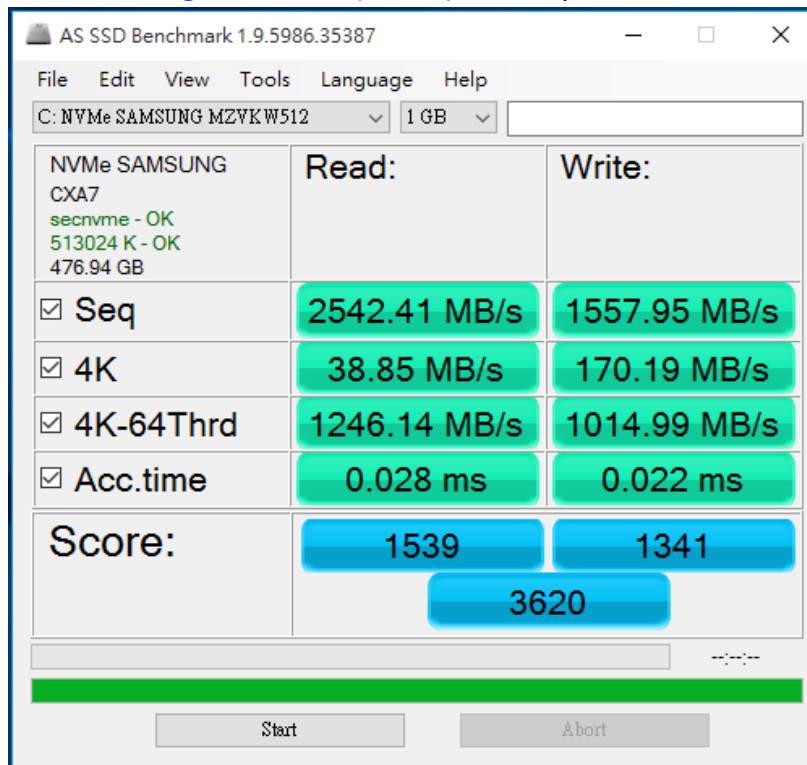
※Benchmark (Sequential Read & Write / default = 1MB)

2.5.1 shows Samsung SM961 M.2(NVMe)/512GB performance as below:

2.6 AS SSD Benchmark 1.9 performance test
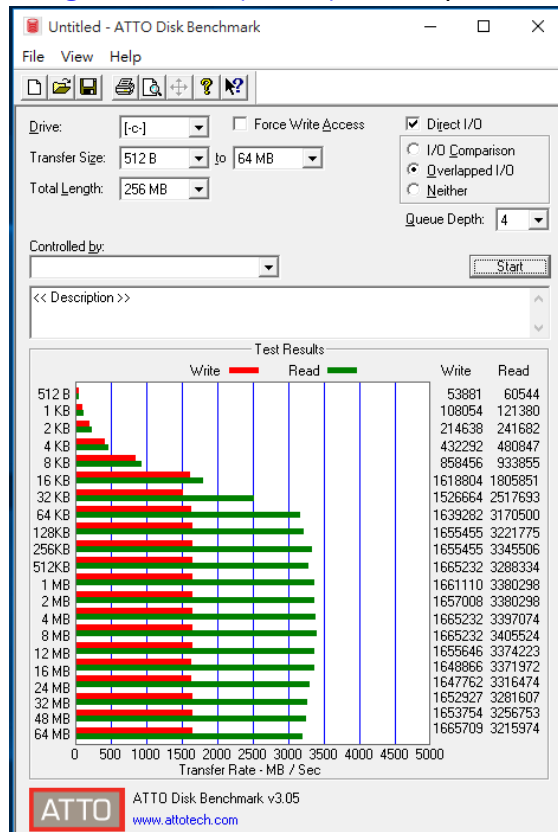
※Benchmark (Read & Write by MB/s, default block size = 16MB)

2.6.1 shows Samsung SM961 M.2(NVMe)/512GB performance as below:
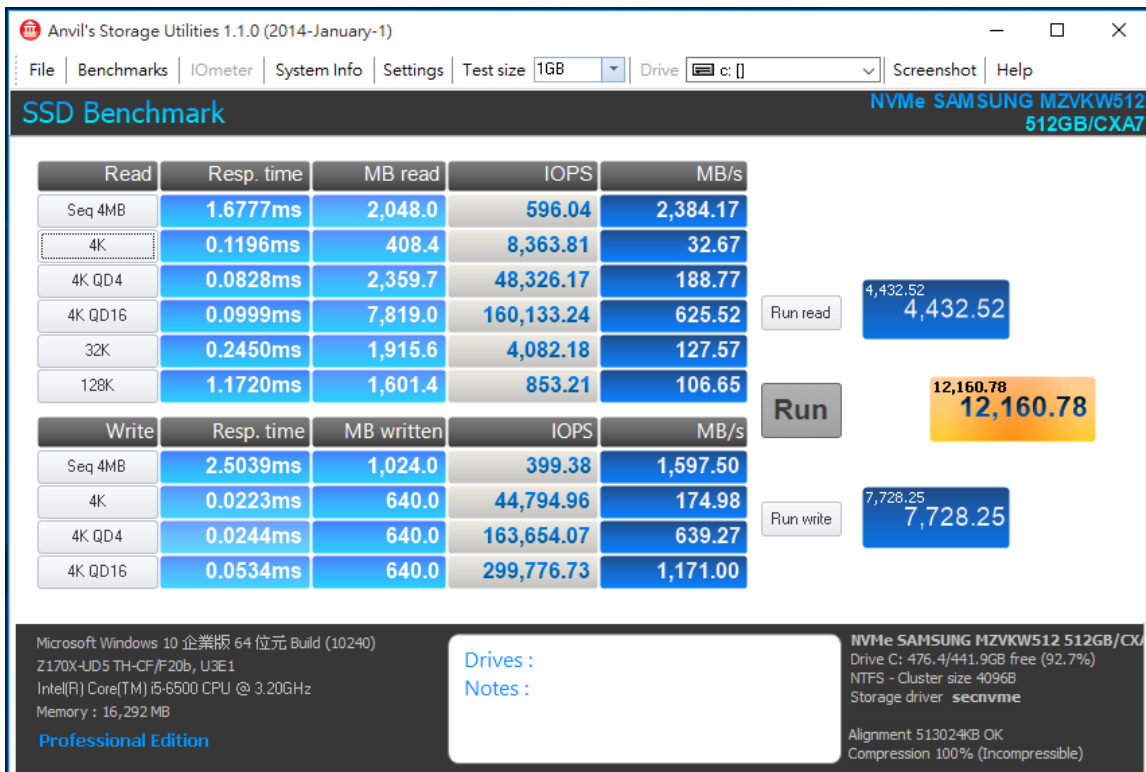
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2.7 ATTO Disk Benchamrk 3.0.5 performance test

    2.7.1 shows Samsung SM961 M.2(NVMe)/**512GB** performance as below:

2.8 AnvilBenchmark_V110_B337

    2.8.1 shows Samsung SM961 M.2(NVMe)/**512GB** performance as below:
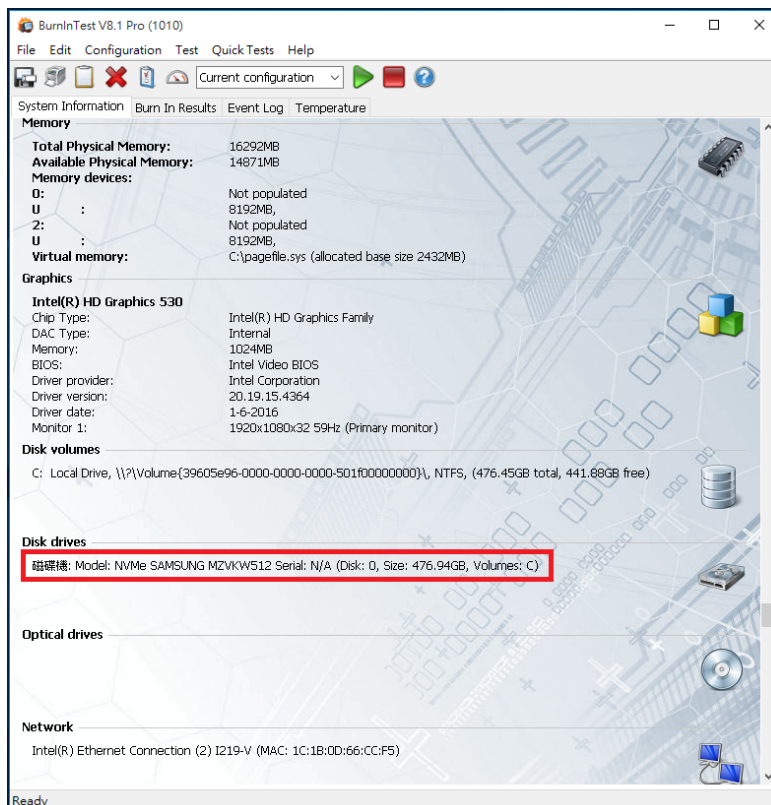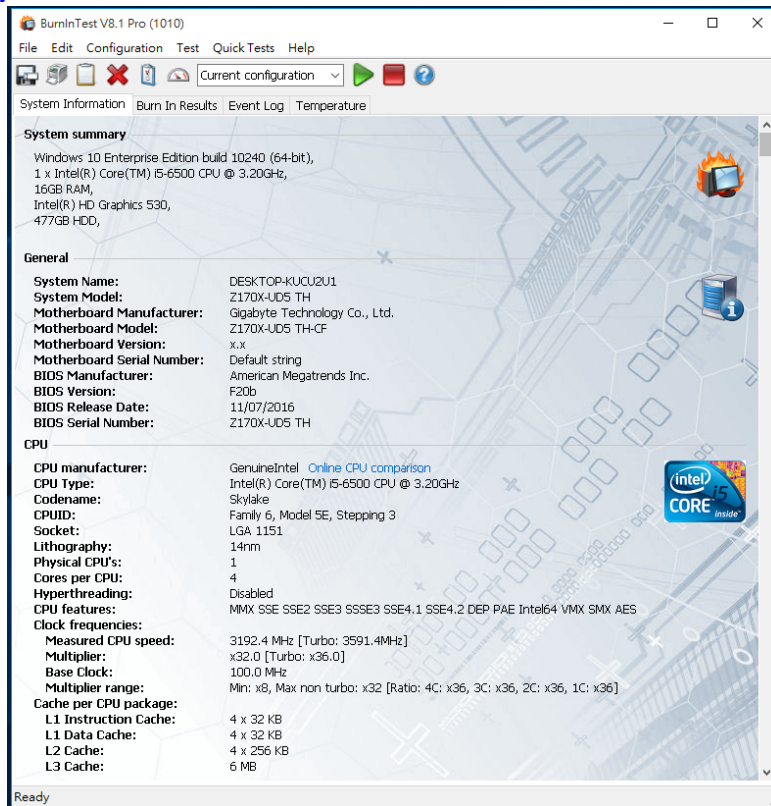
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3. Burn In Tests and Results
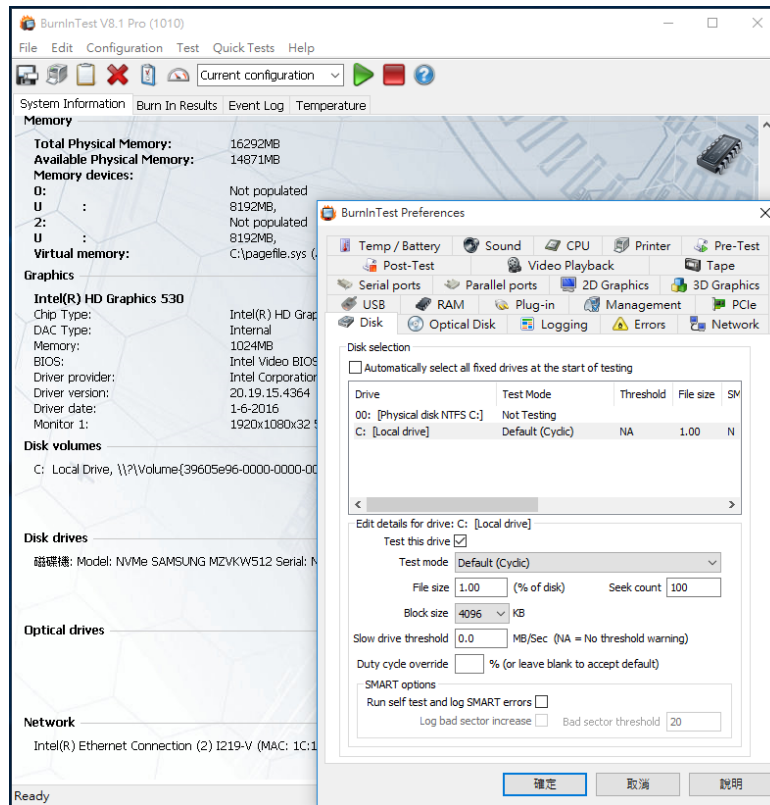
3.1　BurnInTest v8.1 Pro for Samsung SM961 M.2(NVMe)/512GB SSD
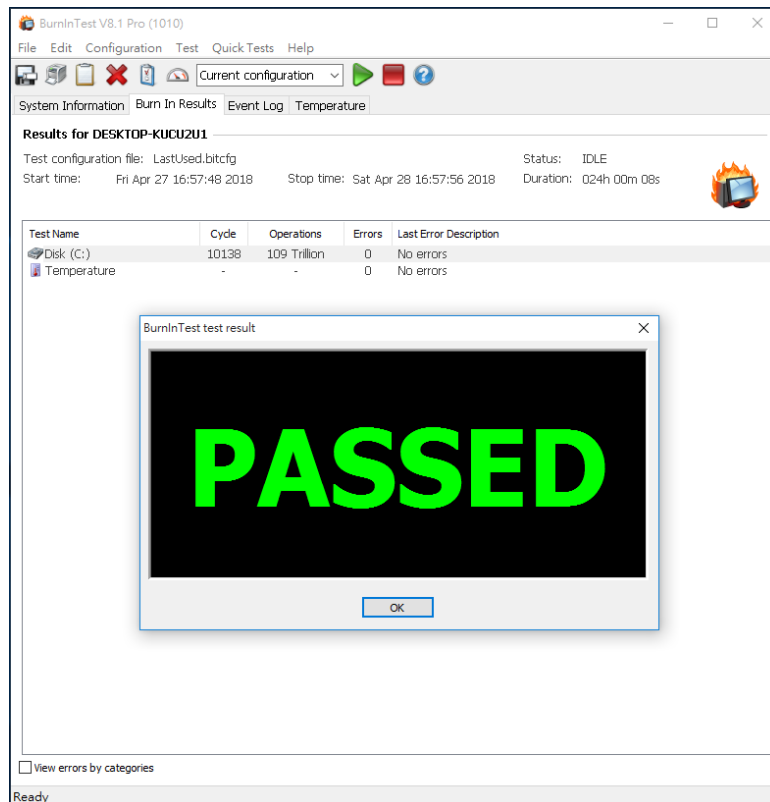
3.1.1　**system information** as below:

3.1.2　shows Disk test mode(10 ways cycle test)

3.1.3　shows 24-hour Burn-in test PASSED

4. Summary

4.1   M.2 NVMe SSD is PCI-e Gen 3 / 4 Lane Interface, I/O speed, max. to 32Gbps.

4.2   BU287F adapter I/O performance is based on M.2 NVMe SSD.