



PRODUCT OUTGOING INSPECTION REPORT

HORUS420-R1

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Function Inspection

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1. SPECIFICATION

1-1. PHOTOS



1-2. SYSTEM CONFIGURATION

Motherboard	ATX AB20 Intel® Q170 Chipset BIOS Version 1.0
CPU	6th Gen. Intel® Core™ i7-6700TE Total Cores: 4 Total Threads: 8 Max Turbo Frequency: 3.40 GHz Intel® Turbo Boost Technology 2.0 Frequency: 3.40 GHz Processor Base Frequency: 2.40 GHz TDP: 35 W
Memory	STACKRACK 16GB DDR4 2400 WT XR-DIMM * 2pcs
Storage	Internal 2TB SSD *2pcs External 2TB SSD *2pcs
GPU	NVIDIA GeForce® GTX1050Ti MXM 3.1 Graphic Module, Process Technology: 14 nm Form Factor: MXM 3.1, Type A (82mm x 70mm) Memory Amount: 4096 MB Processor Clock: 1392 MHz Memory Type: GDDR5 Memory Interface: 128 bit CUDA Cores: 768 Board Power: 50 W Digital Display (Maximum Resolution): 7680 x 4320

2. TEST PLAN

2-1. THERMAL MEASUREMENT PROCESS

Test Purpose	The purpose of performing thermal profile testing is to identify potential thermal issues with the EUT. Considering that semiconductor failure rates rise rapidly with increasing junction temperature, it can aid product reliability assessment. As the system cools down, the mode will change with stack selection, temperature/heat. Mapping can help develop the best tracking arrangements.
Test Equipment	1. KSON THS-B4T-150 Chamber.
Quantity Tested	Minimum 1 Set
Test Software	1. PassMark Burn-In Test(Ver.9.0) under Windows 10 Pro. 2. AIDA64 stress GPU.
Test Procedure	1. Thermal pre-scan measurement: Temperature: -20°C~60°C/60%RH 2. Actual thermal measurement: 2-1. Select the test point based on the infrared photo and connect the thermocouple to the hot spot. 2-2. Place the EUT into the hot chamber and set the test temperature curve Specification. 2-3. Open the hot cell and power up the EUT, enter the Windows 10 Pro (22H2) environment and perform a maximum power test + stress application. 2-4. After the EUT executes the test software for 8 hours, record the maximum heat generation of each thermocouple point. 2-5. Turn off the hot cell and EUT. 2-6. Verify and check that the recorded information for each component complies with the operating temperature range listed in the specification/approval sheet for each component being tested. Environment defines for 45 hours.
Test Diagram of Curves	The graph illustrates the thermal profile over a 45-hour period. The temperature starts at 25°C, drops to -20°C at 1.5 hours, then rises to 40°C at 11.0 hours. It remains at 40°C until 19.0 hours, then rises to 50°C at 19.5 hours. It stays at 50°C until 27.5 hours, then rises to 60°C at 28.0 hours. The temperature remains at 60°C until 36.0 hours, after which it drops to 25°C at 45.0 hours. A red line segment from 0.5 hours to 36.0 hours is labeled 'testing period'.

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2-2. Test Result <Test Item>

2-2-1. TEMPERATURE CYCLE

Aging test of various parts at different temperatures under maximum load and full load conditions.

Test Temperature	Test Result
-20°C	PASS
25°C	PASS
40°C	PASS
50°C	PASS
60°C	PASS

2-2-2. I/O FUNCTION

#Confirm the system specifications and I/O connection to ensure that they are functioning properly

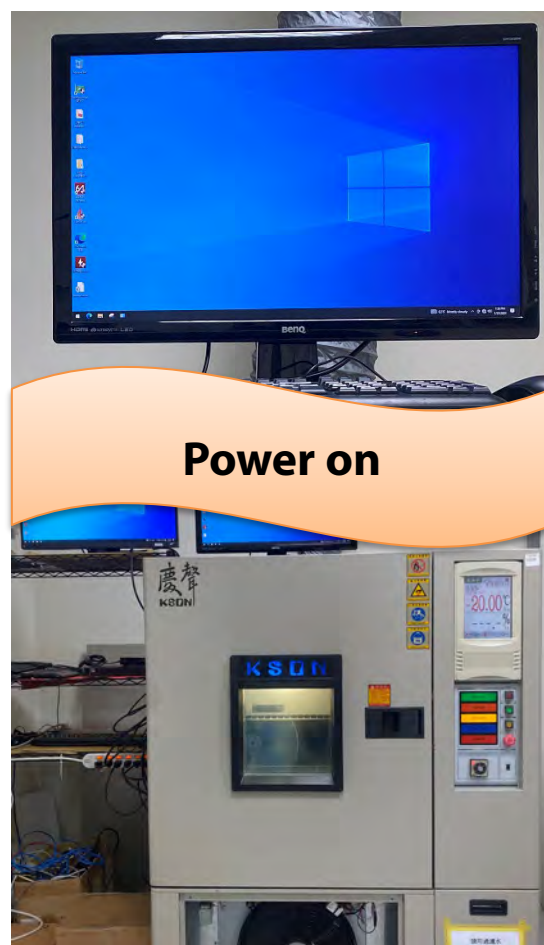
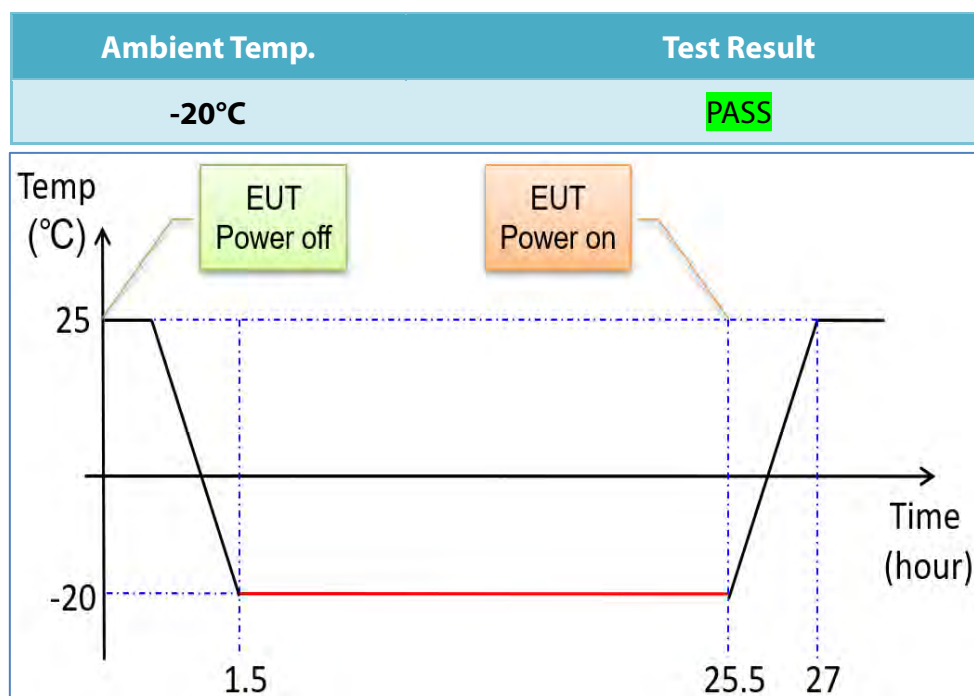
Item	Test Criteria	Result
LAN (3x Intel® i210IT)	Connection 1G/10G/100G SWITCH HUB transfer data test, it can work normally.	PASS
LAN (1x Intel® i219LM)	Connection 1G/10G/100G SWITCH HUB transfer data test, it can work normally.	PASS
LAN (2x Intel® 82599ES [10GbE])	Connection 1G/10G/100G SWITCH HUB transfer data test, it can work normally.	PASS
4x USB3.0	Connect a PassMark USB 3.0 Loopback Plugs for testing, it can work normally.	PASS
2x USB2.0	Connect a PassMark USB 2.0 Loopback Plugs for testing, it can work normally.	PASS
3x Display Port*	Check work well.	PASS

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2-2-3. LOW-TEMPERATURE & BOOT-UP

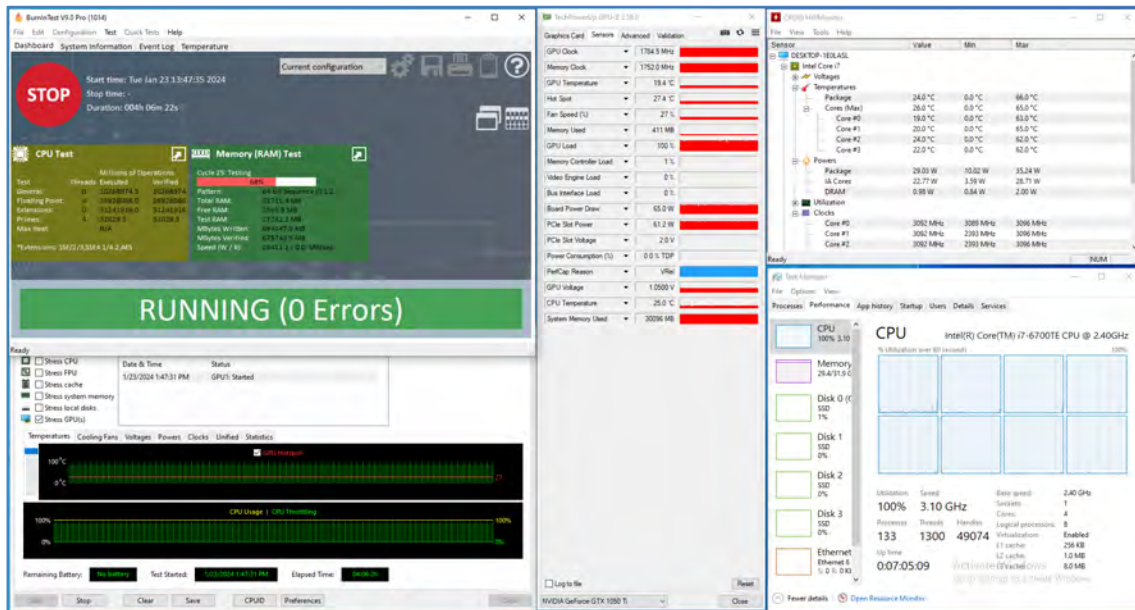
#Power supply under -20°C and ensure that the system boot up properly



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3. TEST PHOTO IN LAB

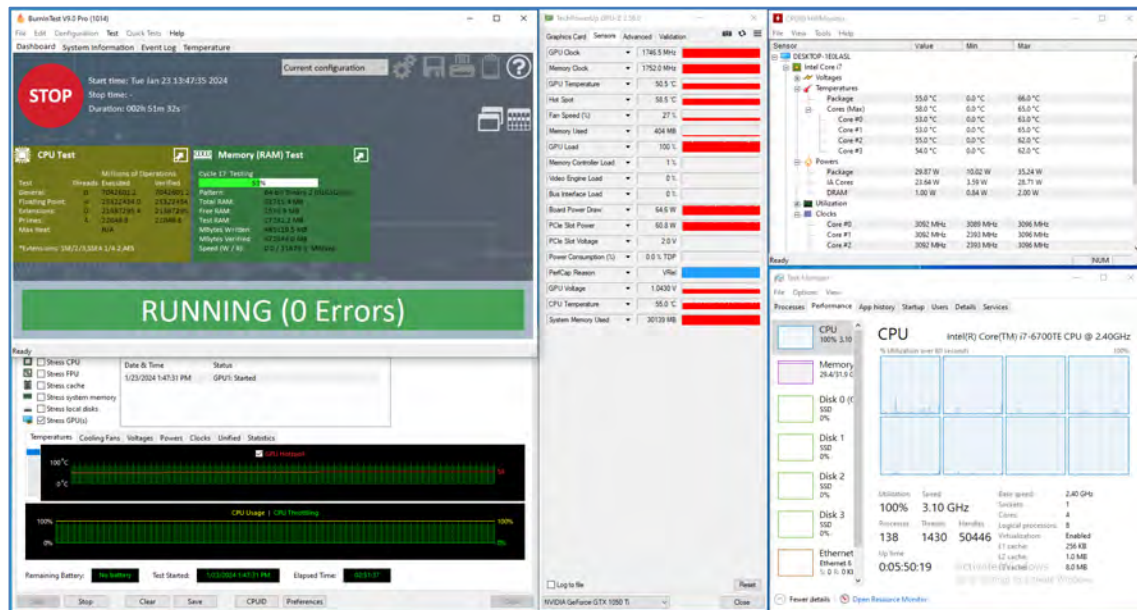
- Chamber in -20°C



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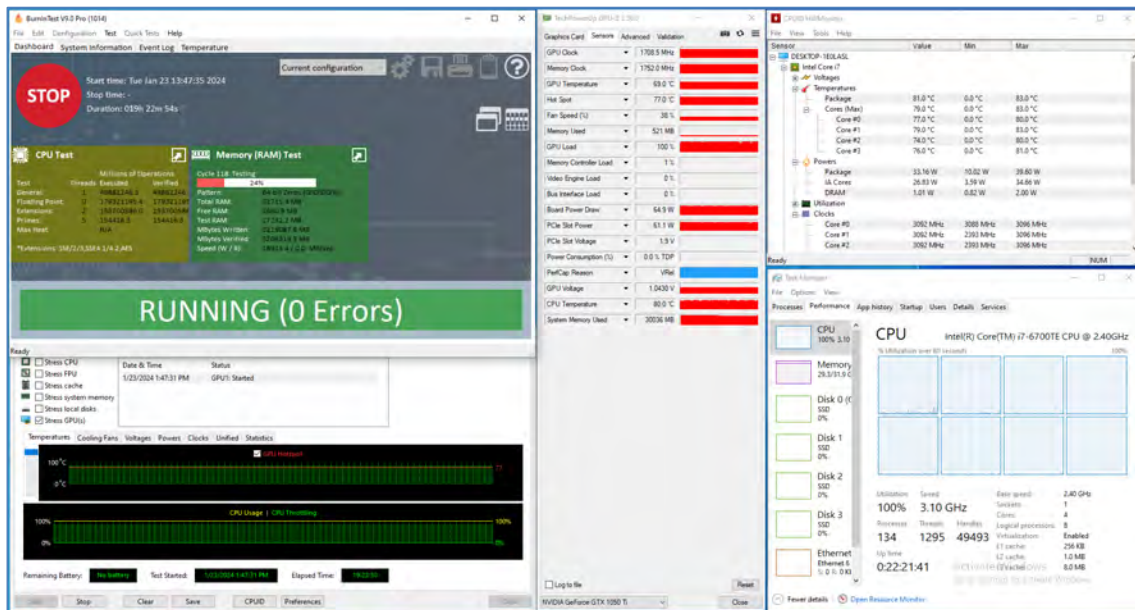
- Chamber in 25°C



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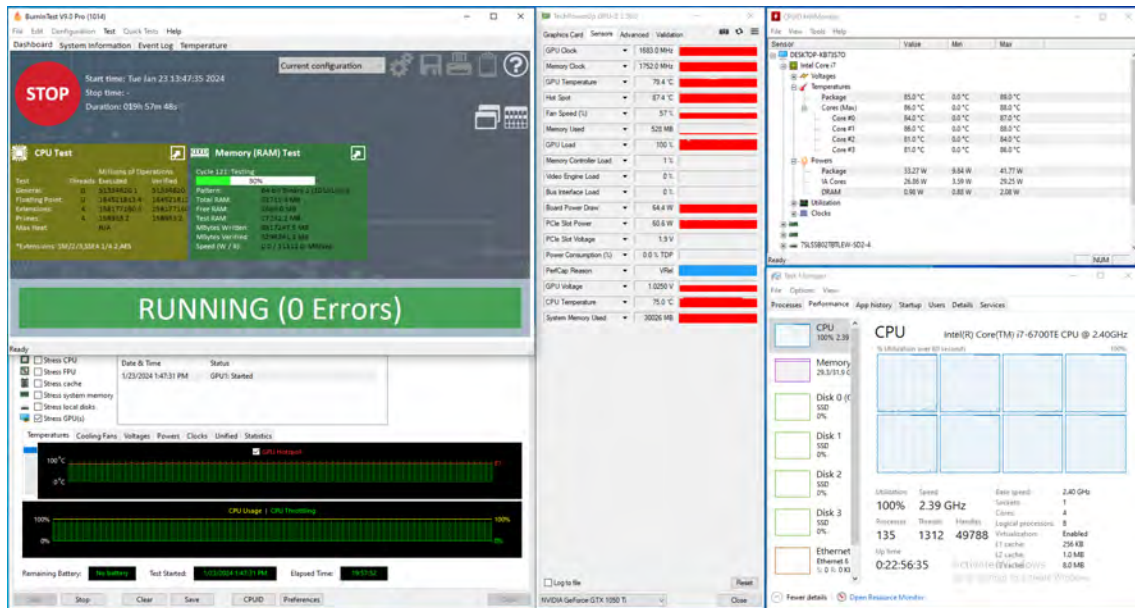
- Chamber in 40°C



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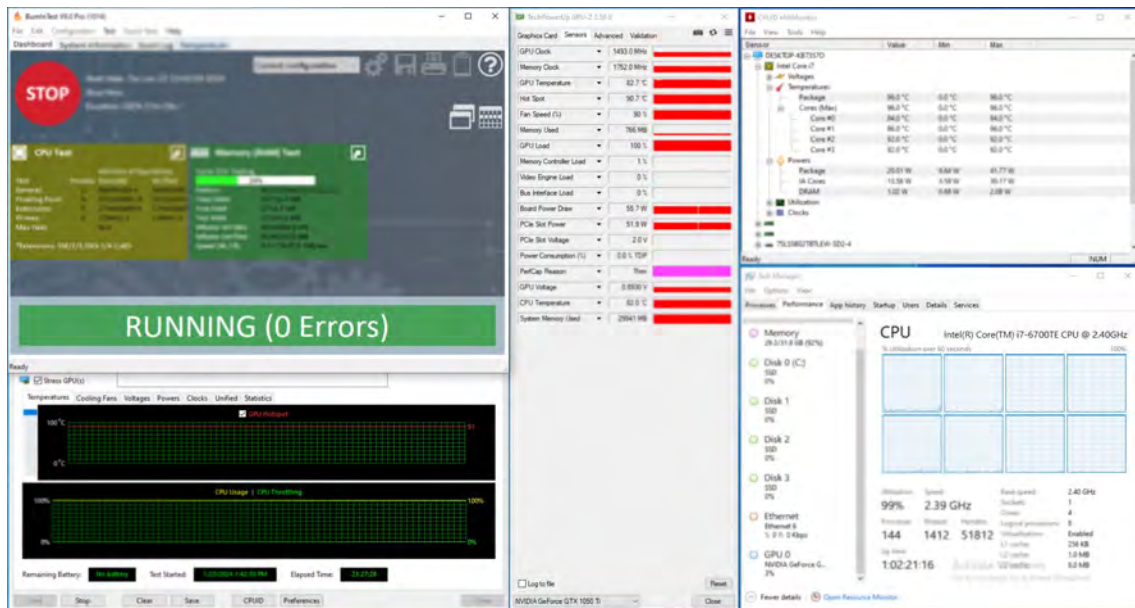
- Chamber in 50°C



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- Chamber in 60°C



4. THERMAL TEST RESULT(-20°C ~ +60°C)

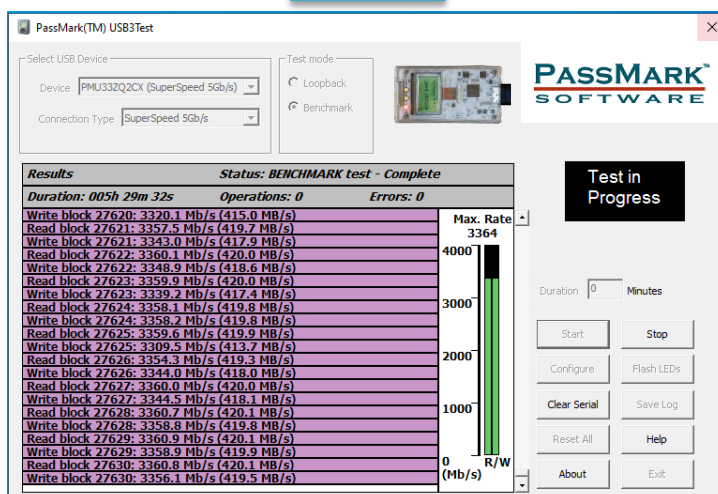
Core Temp. CPU/GPU Frequency	Ambient Temp.	-20°C 60% RH	25°C 60% RH	40°C 60% RH	50°C 60% RH	60°C 60% RH
CPU Package Temperature		24.0 °C	55.0 °C	81.0 °C	85.0 °C	96.0 °C
CPU Avg. Frequency		3100 MHz	3100 MHz	3100 MHz	2390 MHz	2390 MHz
GPU Temperature		19.4 °C	50.5 °C	69.0 °C	79.4 °C	82.7 °C
GPU Avg. Frequency		1785 MHz	1747 MHz	1709 MHz	1683 MHz	1493 MHz

5. I/O FUNCTION TEST

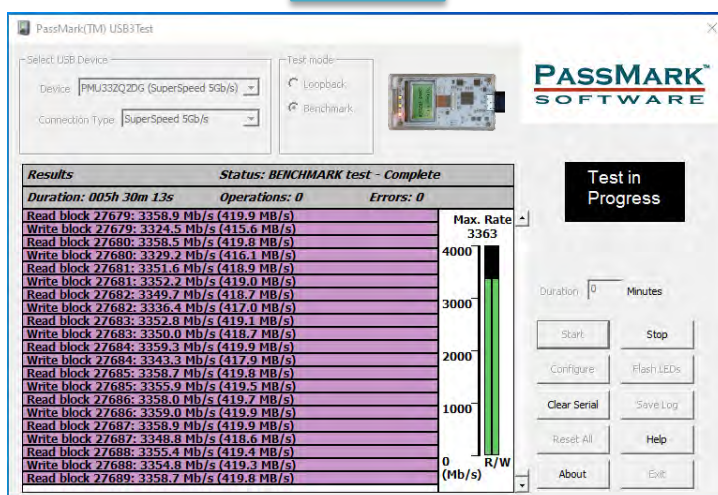
5-1. USB 3.0



USB #1



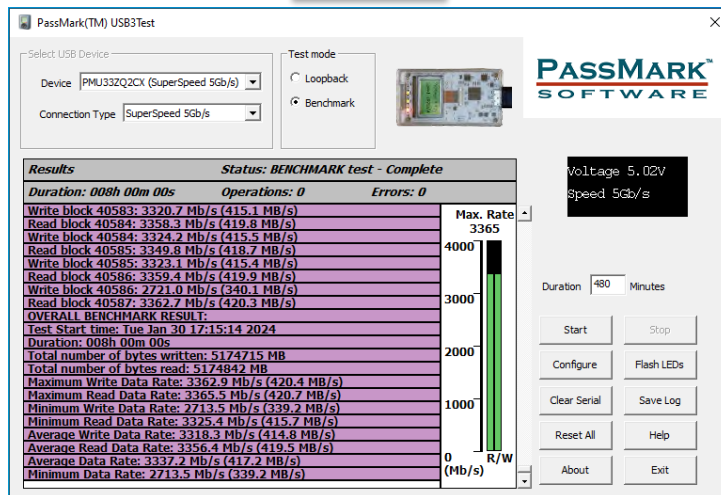
USB #2



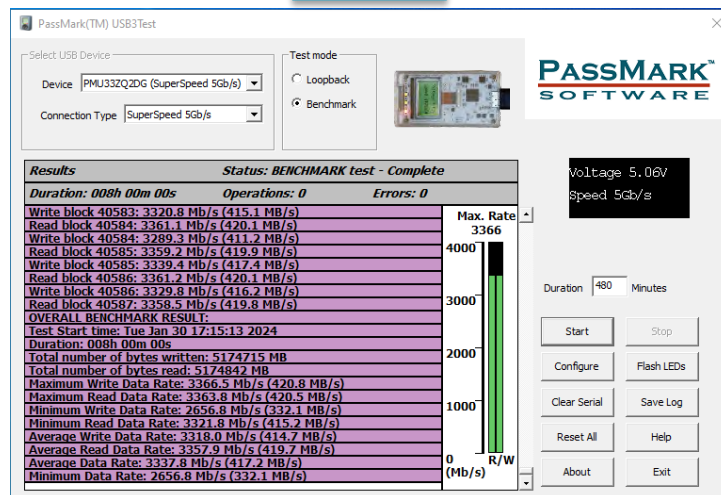
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USB #3



USB #4



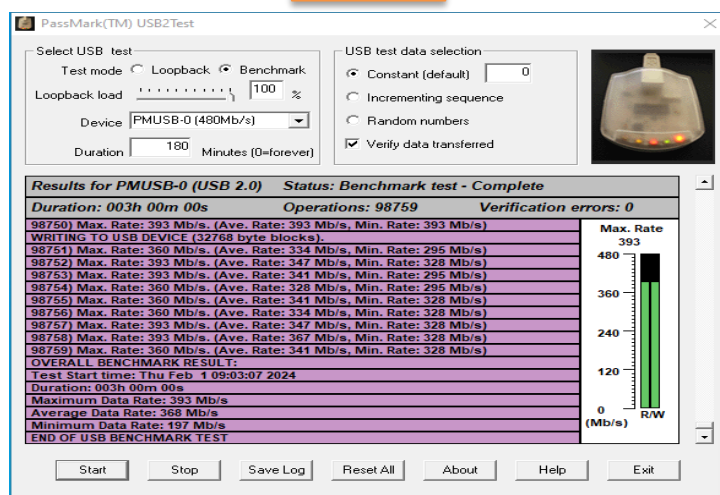
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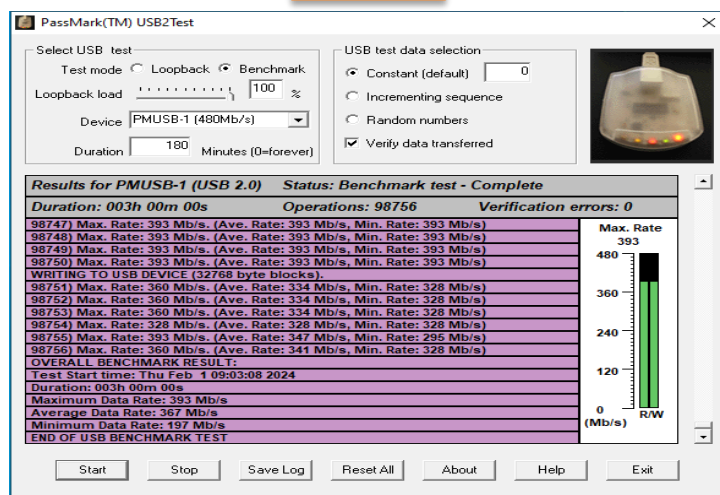
5-2. USB 2.0



USB #1



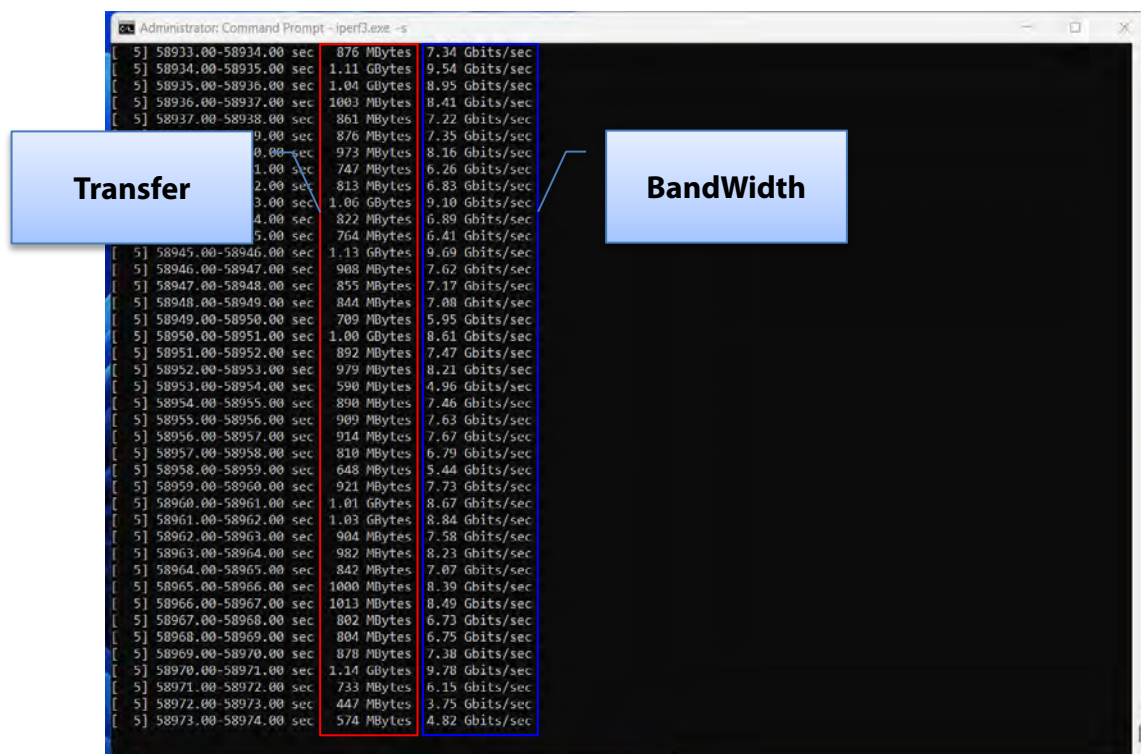
USB #2



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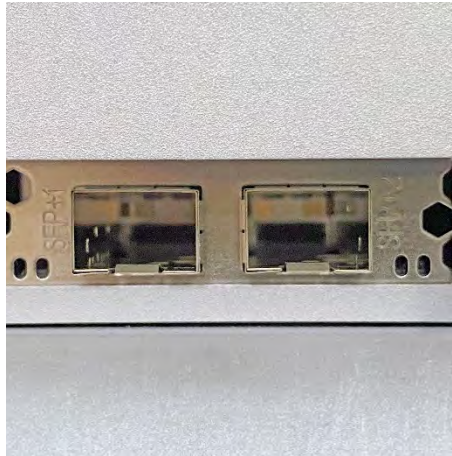
5-3. LAN 1G



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5-4. LAN 10G



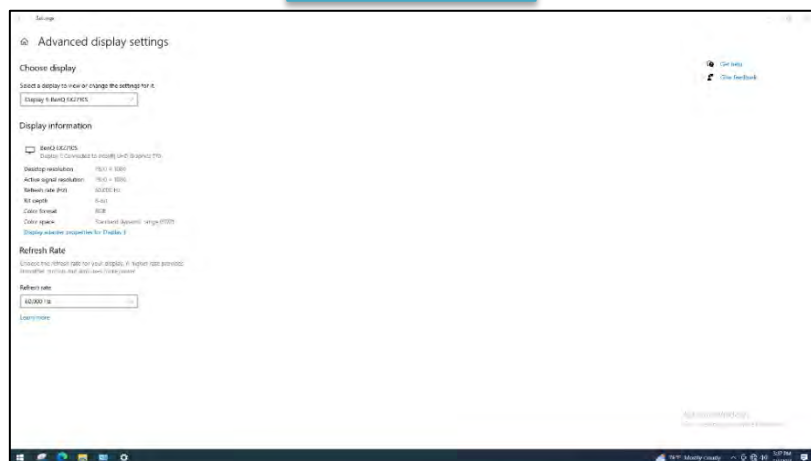
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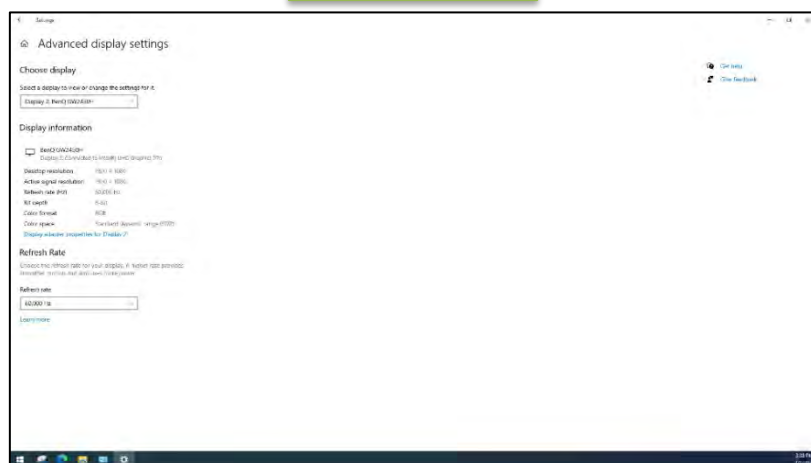
5-5. Display Port



Display Port 1



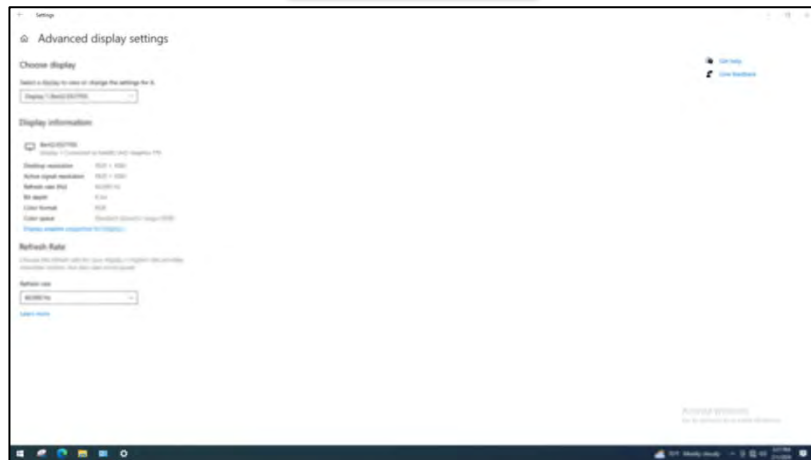
Display Port 2



Function Inspection

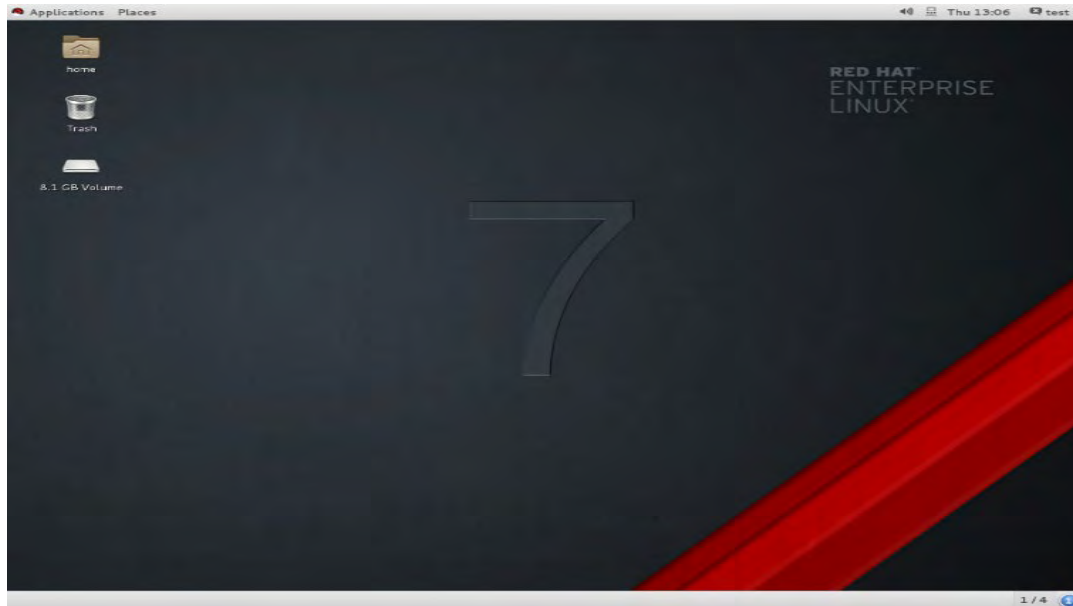
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Display Port 3

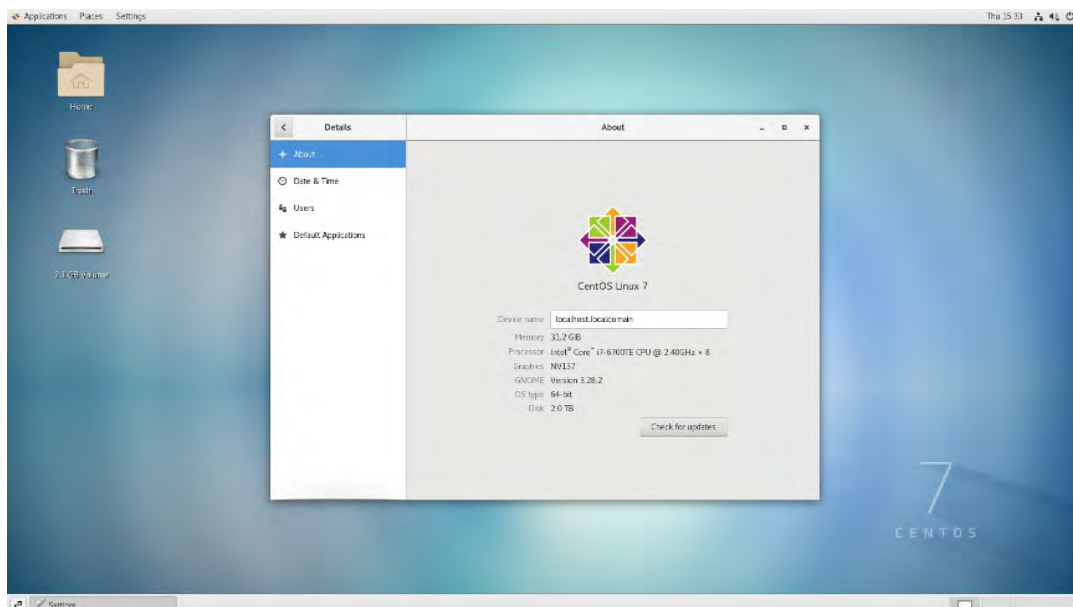


6. LINUX COMPATIBILITY TEST

6-1. Installation Red Hat Enterprise Linux 7.0



6-2. Installation CentOS 7



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6-3. Installation OpenSUSE 15

