



Thermal & Functions Test Report

SR800-021



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SYSTEM SPEC

1-1. PRODUCT PHOTOS



1-2. SYSTEM COFIGURATION

System Configuration	
Motherboard	X11SDV-16C-TP8F
CPU	Intel® Xeon D-2183IT
Memory	DDR4 32G ECC+REG DIMM *4
SSD	2.5" SSD 2TB *2
POWER BOARD	ONBOARD DC-DC 18V~36V
1G LAN	INTEL I350
10G LAN	INTEL X557

1. TEST PLAN

2.1. Thermal Measurement Process

Test Purpose	<p>The purpose of performing thermal profile test is to identify potential thermal problem of the EUT. And it is to aid products in reliability assessment considering that semiconductor failure rates rise rapidly with increasing junction temperature</p> <p>In case of systems cooling, patterns will vary with stacking choices, temperature/thermal mapping can aid in the development of optimum tacking arrangements</p>
Test Equipment	<p>1. KSON THS-B4T-150 Chamber</p> <p>2. YOKOGAWA MV1000, Thermometer (FLUKE50D K/J)</p>
Quantity Tested	Minimum 1 Set
Test Software	Passmark Burn-In Test under Windows 10
Test Procecedure	<p>1. Thermal pre-scan measurement: Temperature: -20~55°C /60%RH</p> <p>2. Thermal actual measurement:</p> <ol style="list-style-type: none"> Select the test points according to the IR photo and attach thermocouples to the hot points Put the EUT in thermal chamber and set the temperature profile of as test specification Turn on the thermal chamber and power on the EUT to enter windows environment to run Max Power Test After the EUT executing the test software for 2 hours, record thermal maximum value for each thermocouples point. Turn off the thermal chamber and EUT Verify and check recorded figure of each components to its' operating temperature range listed in specification/approval sheet of each measured component
Test diagram of curves	<p>Environment defines for 12 hours</p>

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2.2. SR800-D21 TEST RESULT<TEST ITEM>

2.2.1 TEMPERATURE CYCLE

Burn-in test under each temperature with maximum quantity of external devices on all I/O connected and full loading status on each device

Test Temperature	Test Result
-20°C	PASS
0°C	PASS
40°C	PASS
55°C	PASS

2.2.2 I/O FUNCTION

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

Item	Criteria	Result
USB2.0 *2	PassMark USB2.0 Loopback Plugs for Troubleshooting and Testing USB 2.0 ports.	PASS
USB3.0 *1	PassMark USB3.0 Loopback Plugs for Troubleshooting and Testing USB 3.0 ports.	PASS
1G LAN *2	Connection 1G SWITCH HUB transfer data test	PASS
10G LAN *2	Connection 10G SWITCH HUB transfer data test	PASS
VGA	Check work well	PASS

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2.2.3 LOW-TEMP. BOOT-UP

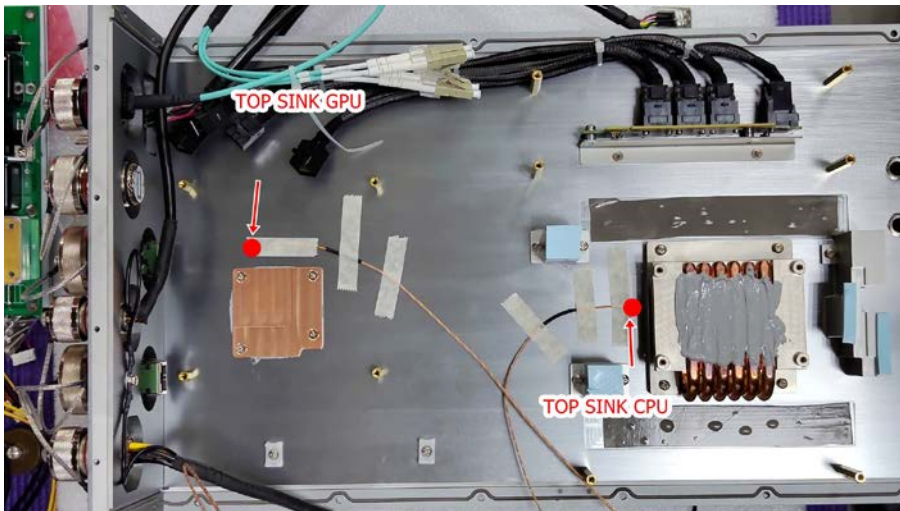
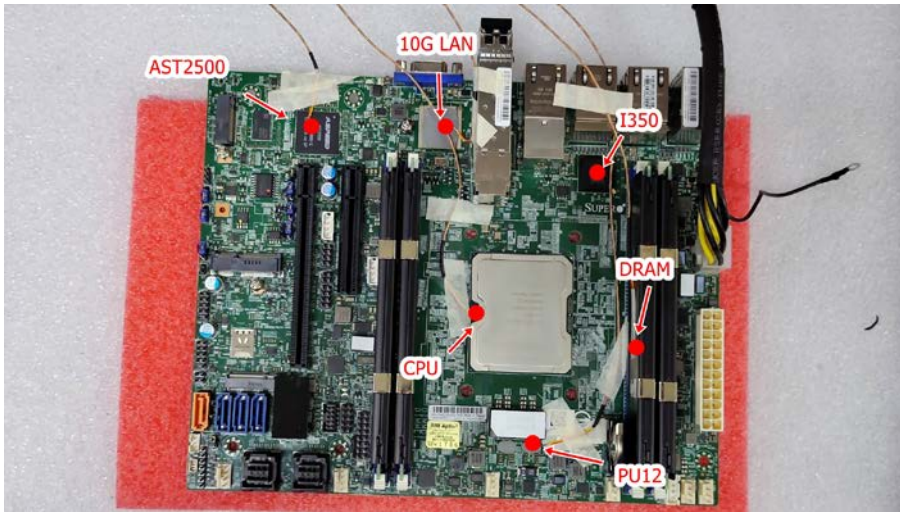
#Power supply under -20°C and ensure that the system boot up properly

Ambient Temp.	Test Result
-20°C	PASS

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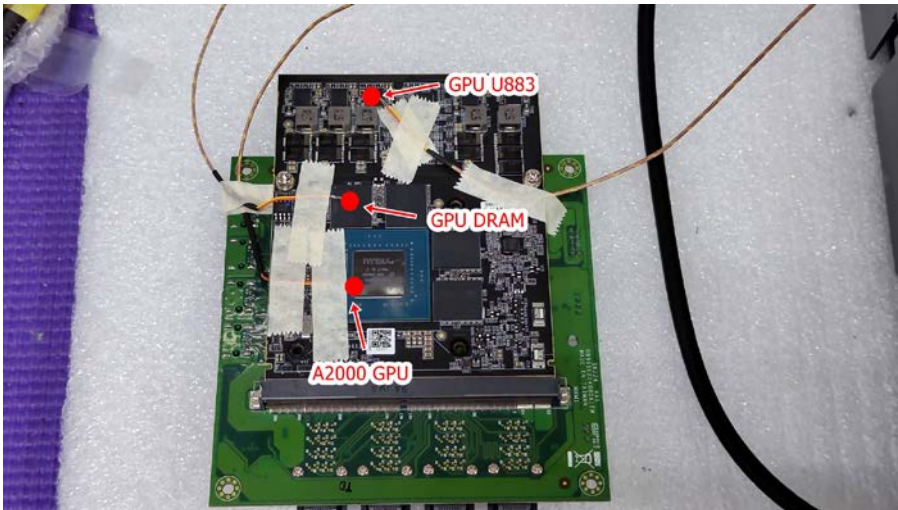
2. THERMAL TEST POINT



TEST POINT NO.	Test Point
1	CPU CASE
2	DRAM-A1
3	I350 LAN CHIP
4	X557 LAN CHIP
5	AST2500 CHIP
6	MB PU12
7	MXM A2000 CHIP
8	MXM DRAM
9	MXM U883 MOS
10	SK710 Brick
11	SSD1
12	SSD2
13	TOP SINK - CPU
14	TOP SINK - GPU

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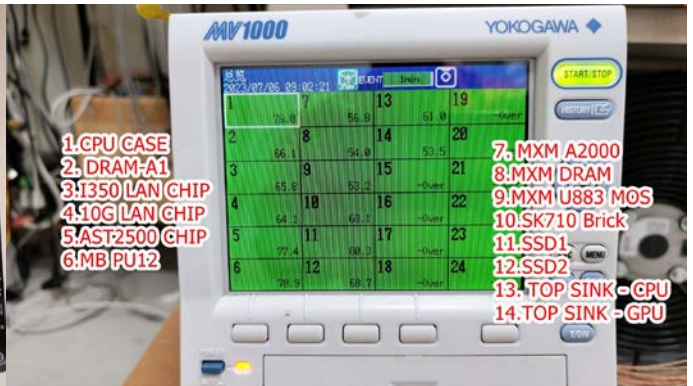
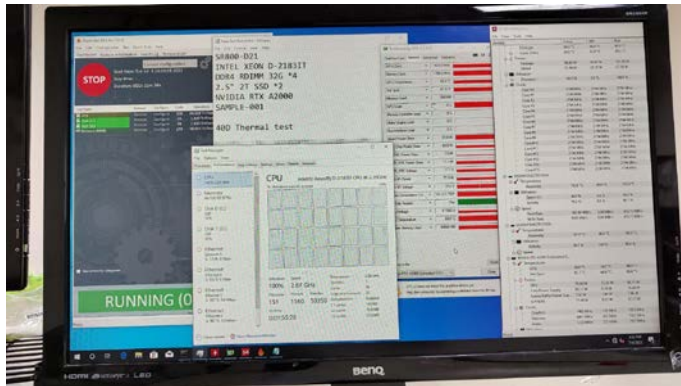


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3. TEST PHOTO IN LAB

- Chamber in 40°C



- 1. CPU CASE
- 2. DRAM-A1
- 3. I350 LAN CHIP
- 4. I0G LAN CHIP
- 5. AST2500 CHIP
- 6. MB PU12
- 7. MXM A2000
- 8. MXM DRAM
- 9. MXM U883 MOS
- 10. SK710 Brick
- 11. SSD1
- 12. SSD2
- 13. TOP SINK - CPU
- 14. TOP SINK - GPU

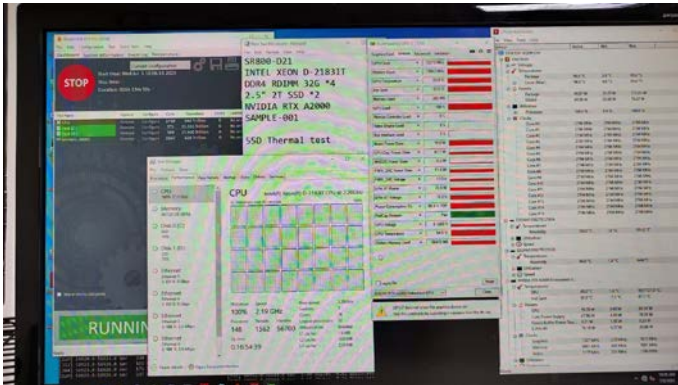


Test Point	Ambient Temp.	40°C
	CPU Frq.	2.6G hz
	CPU Tj.	85
	GPU Frq.	1.4G hz
	GPU Tj.	68.3
1	CPU CASE	76.8
2	DRAM-A1	66.1
3	I350 LAN CHIP	65.8
4	X557 LAN CHIP	64.1
5	AST2500 CHIP	77.4
6	MB PU12	78.9
7	MXM A2000 CHIP	56.8
8	MXM DRAM	54.0
9	MXM U883 MOS	53.2
10	SK710 Brick	68.1
11	SSD1	80.3
12	SSD2	68.7
13	TOP SINK - CPU	61.0
14	TOP SINK - GPU	53.5

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- Chamber in 55°C



- 1. CPU CASE
- 2. DRAM-A1
- 3. I350 LAN CHIP
- 4. X557 LAN CHIP
- 5. AST2500 CHIP
- 6. MB PU12
- 7. MXM A2000
- 8. MXM DRAM
- 9. MXM U883 MOS
- 10. SK710 Brick
- 11. SSD1
- 12. SSD2
- 13. TOP SINK - CPU
- 14. TOP SINK - GPU



Test Point	Ambient Temp.	55°C
	CPU Frq.	2.2G Hz
	CPU Tj.	94
	GPU Frq.	1.3G hz
	GPU Tj.	83.8
1	CPU CASE	87.8
2	DRAM-A1	78.3
3	I350 LAN CHIP	79.3
4	X557 LAN CHIP	77.7
5	AST2500 CHIP	90.6
6	MB PU12	88.1
7	MXM A2000 CHIP	71.1
8	MXM DRAM	68.4
9	MXM U883 MOS	67.8
10	SK710 Brick	80.1
11	SSD1	91.1
12	SSD2	81.2
13	TOP SINK - CPU	71.9
14	TOP SINK - GPU	65.9

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- Chamber in 0°C

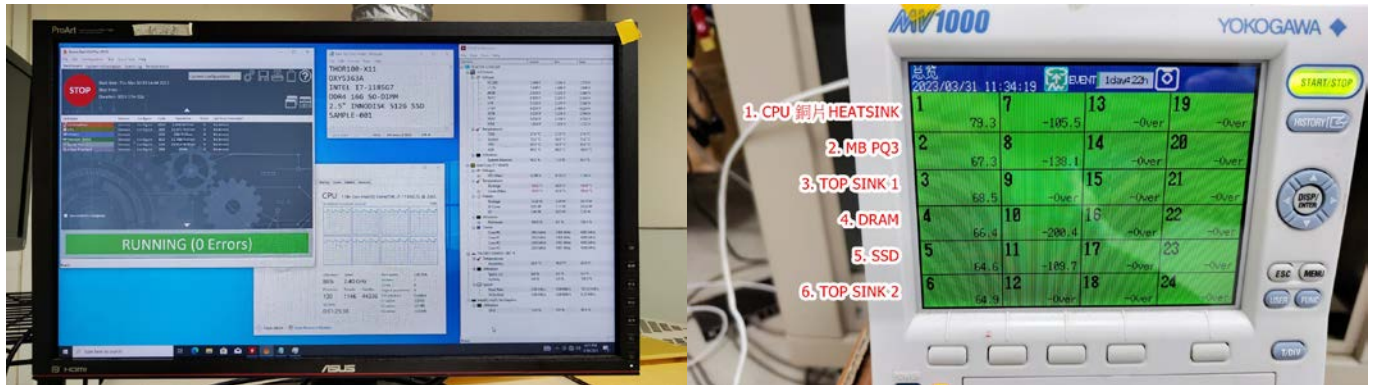


Test Point	Ambient Temp.	°C
	CPU Frq.	2.6G Hz
	CPU Tj.	44
	GPU Frq.	1.5G hz
	GPU Tj.	27.5
1	CPU CASE	36.8
2	DRAM-A1	25.8
3	I350 LAN CHIP	24.2
4	X557 LAN CHIP	22.9
5	AST2500 CHIP	37.8
6	MB PU12	36.8
7	MXM A2000 CHIP	16
8	MXM DRAM	13.2
9	MXM U883 MOS	12
10	SK710 Brick	25.8
11	SSD1	42.3
12	SSD2	27.8
13	TOP SINK - CPU	20.5
14	TOP SINK - GPU	12.8

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- Chamber in -20°C



Test Point	Ambient Temp.	-20°C
	CPU Frq.	2.6G Hz
	CPU Tj.	25
	GPU Frq.	1.5G Hz
	GPU Tj.	5.7
1	CPU CASE	18.5
2	DRAM-A1	6.1
3	I350 LAN CHIP	3.0
4	X557 LAN CHIP	1.8
5	AST2500 CHIP	16.8
6	MB PU12	15.3
7	MXM A2000 CHIP	-4.6
8	MXM DRAM	-7.5
9	MXM U883 MOS	08.7
10	SK710 Brick	4.0
11	SSD1	19.2
12	SSD2	6.1
13	TOP SINK - CPU	-0.1
14	TOP SINK - GPU	-7.6

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Low Temperature SYSTEM Boot up Test

- Ambient Temp. -20°C



4. SR800-D21 THERMAL TEST RESULT (-20~+55 DEGREE)

TEST POINT NO.	Test Point / Ambient Temp.	-20°C	0°C	40°C	55°C
	CPU Frq.	2.6G Hz	2.6G Hz	2.65G hz	2.2G Hz
	CPU Tj.	25	44	85	94
	GPU Frq.	1.5G Hz	1.5G hz	1.4G hz	1.3G hz
	GPU Tj.	5.7	27.5	68.3	83.8
1	CPU CASE	18.5	36.8	76.8	87.8
2	DRAM-A1	6.1	25.8	66.1	78.3
3	I350 LAN CHIP	3.0	24.2	65.8	79.3
4	X557 LAN CHIP	1.8	22.9	64.1	77.7
5	AST2500 CHIP	16.8	37.8	77.4	90.6
6	MB PU12	15.3	36.8	78.9	88.1
7	MXM A2000 CHIP	-4.6	16	56.8	71.1
8	MXM DRAM	-7.5	13.2	54.0	68.4
9	MXM U883 MOS	08.7	12	53.2	67.8
10	SK710 Brick	4.0	25.8	68.1	80.1
11	SSD1	19.2	42.3	80.3	91.1
12	SSD2	6.1	27.8	68.7	81.2
13	TOP SINK - CPU	-0.1	20.5	61.0	71.9
14	TOP SINK - GPU	-7.6	12.8	53.5	65.9

5. I/O FUNCTION TEST

6.1 VGA OUTPUT TEST



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6.2 1G LAN Transfer Data Test

LAN 1 / LAN 2 1Gbps transfer test.

```
Command Prompt - 101
[312] 18.0-21.0 sec 169 MBytes 472 Mbits/sec
[304] 18.0-21.0 sec 170 MBytes 475 Mbits/sec
[ ID] Interval Transfer Bandwidth
[SUM] 18.0-21.0 sec 339 MBytes 948 Mbits/sec
[304] 21.0-24.0 sec 170 MBytes 474 Mbits/sec
[312] 21.0-24.0 sec 169 MBytes 473 Mbits/sec
[SUM] 21.0-24.0 sec 339 MBytes 947 Mbits/sec
[304] 24.0-27.0 sec 170 MBytes 475 Mbits/sec
[312] 24.0-27.0 sec 169 MBytes 474 Mbits/sec
[SUM] 24.0-27.0 sec 339 MBytes 948 Mbits/sec
[312] 27.0-30.0 sec 169 MBytes 472 Mbits/sec
[304] 27.0-30.0 sec 170 MBytes 474 Mbits/sec
[SUM] 27.0-30.0 sec 338 MBytes 946 Mbits/sec
[312] 30.0-33.0 sec 169 MBytes 474 Mbits/sec
[304] 30.0-33.0 sec 170 MBytes 474 Mbits/sec
[SUM] 30.0-33.0 sec 339 MBytes 948 Mbits/sec
[304] 33.0-36.0 sec 169 MBytes 473 Mbits/sec
[312] 33.0-36.0 sec 169 MBytes 472 Mbits/sec
[SUM] 33.0-36.0 sec 338 MBytes 945 Mbits/sec
[304] 36.0-39.0 sec 170 MBytes 477 Mbits/sec
[312] 36.0-39.0 sec 170 MBytes 475 Mbits/sec
[SUM] 36.0-39.0 sec 340 MBytes 952 Mbits/sec
[304] 39.0-42.0 sec 169 MBytes 473 Mbits/sec
[ ID] Interval Transfer Bandwidth
[312] 39.0-42.0 sec 169 MBytes 471 Mbits/sec
[SUM] 39.0-42.0 sec 338 MBytes 944 Mbits/sec
[312] 42.0-45.0 sec 170 MBytes 474 Mbits/sec
[304] 42.0-45.0 sec 170 MBytes 476 Mbits/sec
[SUM] 42.0-45.0 sec 340 MBytes 950 Mbits/sec

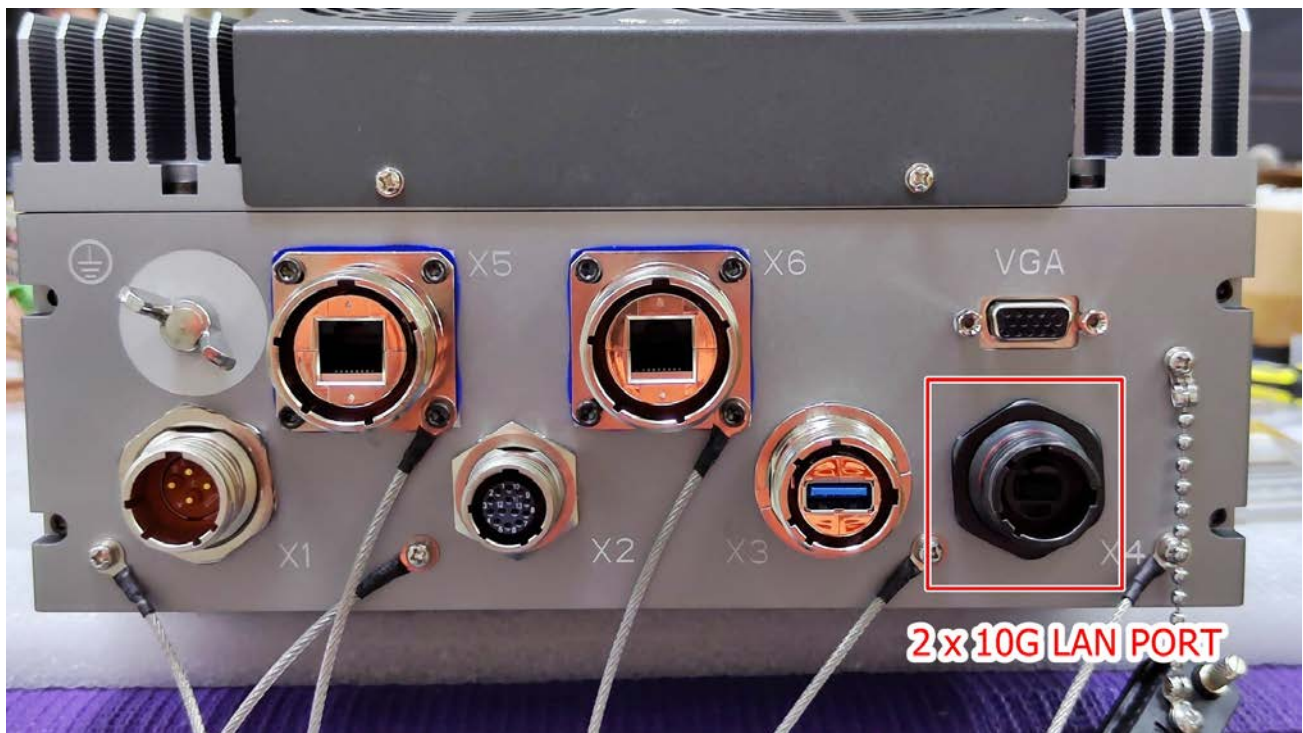
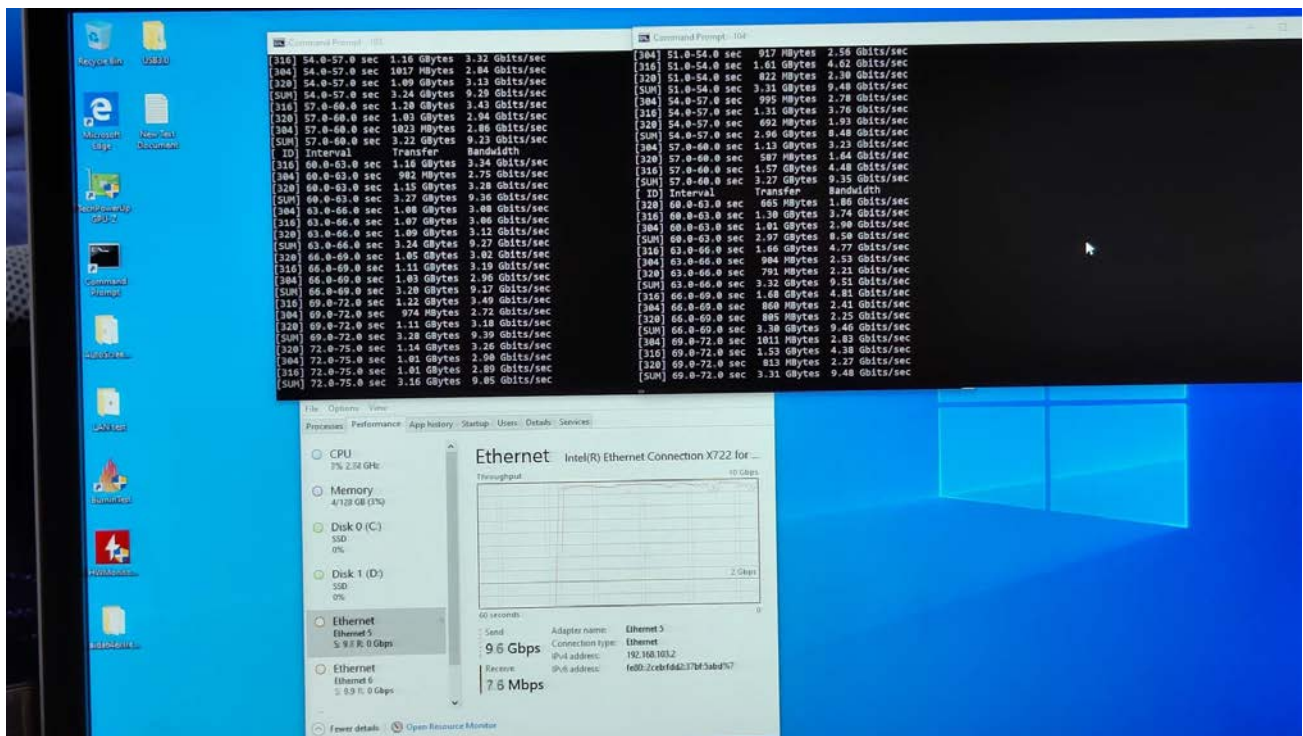
Command Prompt - 102
[312] local 192.168.102.2 port 59954 connected with 192.168.102.1 port 5001
[304] local 192.168.102.2 port 59953 connected with 192.168.102.1 port 5001
[ ID] Interval Transfer Bandwidth
[304] 0.0- 3.0 sec 179 MBytes 499 Mbits/sec
[312] 0.0- 3.0 sec 167 MBytes 468 Mbits/sec
[SUM] 0.0- 3.0 sec 346 MBytes 967 Mbits/sec
[304] 3.0- 6.0 sec 174 MBytes 488 Mbits/sec
[312] 3.0- 6.0 sec 163 MBytes 456 Mbits/sec
[SUM] 3.0- 6.0 sec 337 MBytes 944 Mbits/sec
[304] 6.0- 9.0 sec 175 MBytes 492 Mbits/sec
[312] 6.0- 9.0 sec 164 MBytes 460 Mbits/sec
[SUM] 6.0- 9.0 sec 340 MBytes 951 Mbits/sec
[312] 9.0-12.0 sec 163 MBytes 457 Mbits/sec
[304] 9.0-12.0 sec 175 MBytes 489 Mbits/sec
[SUM] 9.0-12.0 sec 338 MBytes 946 Mbits/sec
[304] 12.0-15.0 sec 175 MBytes 488 Mbits/sec
[312] 12.0-15.0 sec 163 MBytes 457 Mbits/sec
[SUM] 12.0-15.0 sec 338 MBytes 945 Mbits/sec
[304] 15.0-18.0 sec 176 MBytes 492 Mbits/sec
[312] 15.0-18.0 sec 165 MBytes 460 Mbits/sec
[SUM] 15.0-18.0 sec 341 MBytes 952 Mbits/sec
[312] 18.0-21.0 sec 164 MBytes 457 Mbits/sec
[304] 18.0-21.0 sec 175 MBytes 489 Mbits/sec
[ ID] Interval Transfer Bandwidth
[312] 18.0-21.0 sec 169 MBytes 471 Mbits/sec
[SUM] 18.0-21.0 sec 338 MBytes 946 Mbits/sec
[312] 21.0-24.0 sec 163 MBytes 457 Mbits/sec
[304] 21.0-24.0 sec 175 MBytes 488 Mbits/sec
[SUM] 21.0-24.0 sec 338 MBytes 945 Mbits/sec
```



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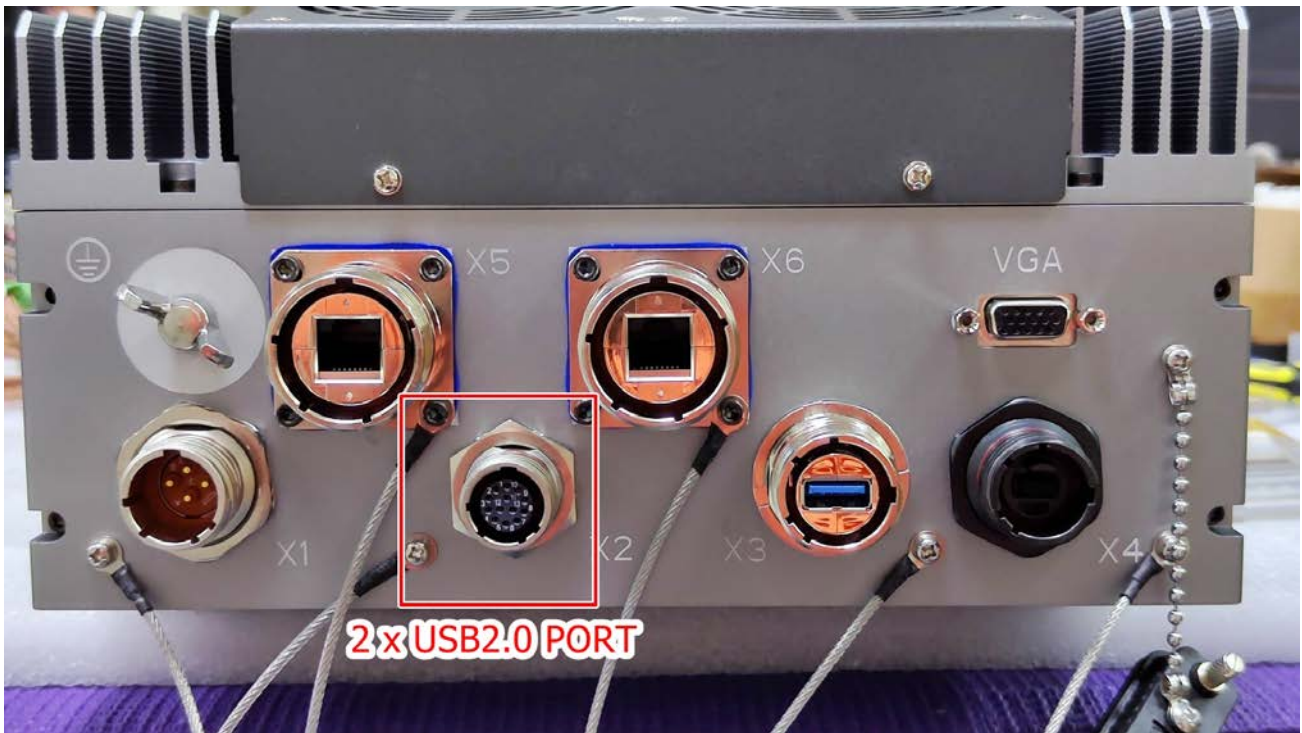
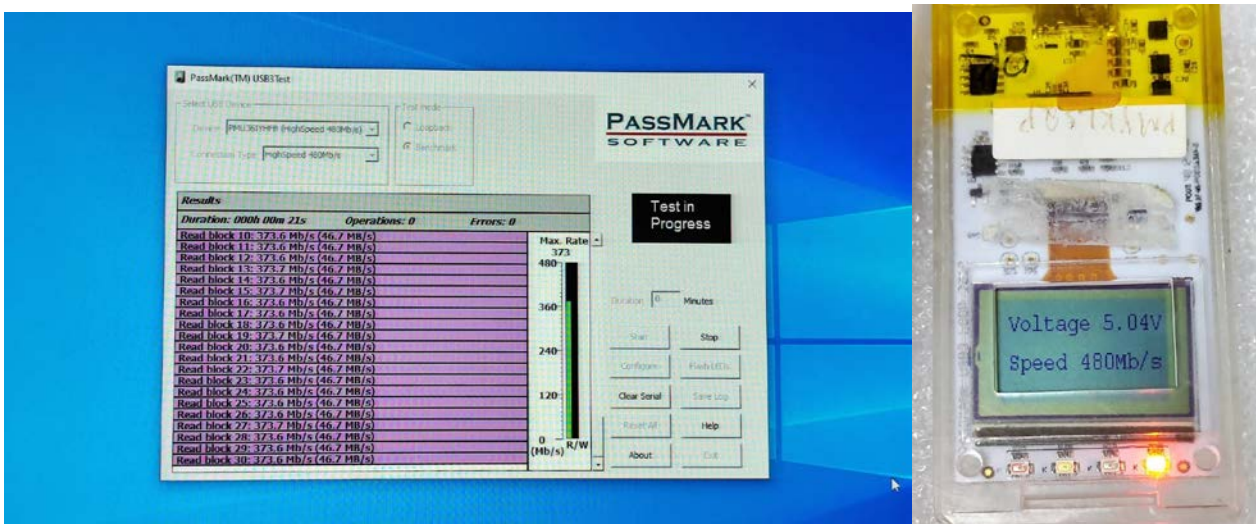
6.3 10G LAN Transfer Data Test



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6.4 USB 2.0 Transfer Data Test



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6.5 USB 3.0 Transfer Data Test

