PERFORMANCE TEST REPORT

NV300-1LS64-AMB

S/N: SR202507100101

Product Manager	Mechanical Engineer	System Engineer	Test Engineer
Honwen Huang	Fulin Chuang	William Cheng	Mike Chen

Date: November 19, 2025


X1
X2
X3
X4
X5


X1
X2
X3
X4
X5

INDEX

1. SPECIFICATION

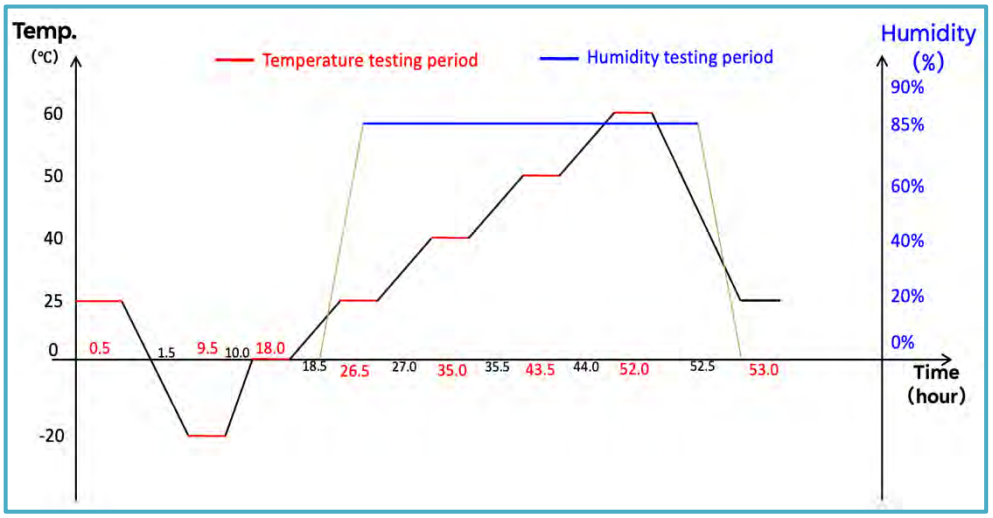
1-1. System Configuration

Motherboard	AGX Orin for DSBOARD-AGXMAX Board Serial Number: 1425124333971 BIOS Firmware Version: 36.3.0-gcid-36191598
CPU	Product: ARMv8 Model name: Cortex-A78AE CPU max (MHz): 2201.6 MHz
Memory	64GB 256-bit LPDDR5 204.8GB/s
Storage	64GB eMMC 5.1
GPU	2048-core NVIDIA Ampere architecture GPU with 64 Tensor Cores GPU Max Frequency: 1.3 GHz

1-2. Product Interior Photo

2. TEST PLAN

2-1. THERMAL MEASUREMENT PROCESS

Test Purpose	The purpose of conducting thermal profile testing is to identify potential thermal issues in the Equipment Under Test (EUT). Given that semiconductor failure rates increase significantly with rising junction temperatures, this testing contributes to the overall assessment of product reliability. As the system undergoes a cooling phase, operational modes may shift depending on stack configuration, temperature, and heat dissipation characteristics. Thermal mapping provides critical insight for optimizing thermal management strategies and determining the most effective component layout and monitoring arrangements.
Test Equipment	1. KSON THS-B4T-150 Chamber.
Quantity Tested	Minimum 1 Set
Test Software	CPU Stress: Stress-ng GPU Stress: glmark2 LAN Speed Test: iPerf3
Test Procedure	1. Thermal Pre-Scan Measurement: Temperature Range: **-20°C to 60°C** Humidity Condition: **60% RH** (when temperature exceeds 25°C) 2. Actual Thermal Measurement Procedure: 2.1. Identify the test points using the infrared thermal image and attach thermocouples to the identified hot spots. 2.2. Place the Equipment Under Test (EUT) in the thermal chamber and configure the test temperature profile according to the specified requirements. 2.3. Power on the EUT after closing the thermal chamber. Boot into Ubuntu 22.04.5 LTS and initiate a maximum power consumption and stress test. 2.4. After running the test software continuously for 8 hours, record the peak temperature observed at each thermocouple measurement point. 2.5. Power off both the thermal chamber and the EUT. 2.6. Verify that the recorded temperature data for each component remains within its specified operating temperature range, as defined in the component specification or approval documents.
Test Diagram of Curves	Environment defines for 53 hours. 

2-2. Test Result

2-2-1. Temperature Cycle

Aging tests were performed on individual components across a range of temperature settings, under both maximum load and full load conditions, to evaluate thermal endurance and operational stability over time.

Test Temperature	Test Result
-20˚C / 0%RH	PASS
0˚C / 0%RH	PASS
25˚C / 60%RH	PASS
40˚C / 60%RH	PASS
50˚C / 60%RH	PASS
60˚C / 60%RH	PASS

2-2-2. I/O Function

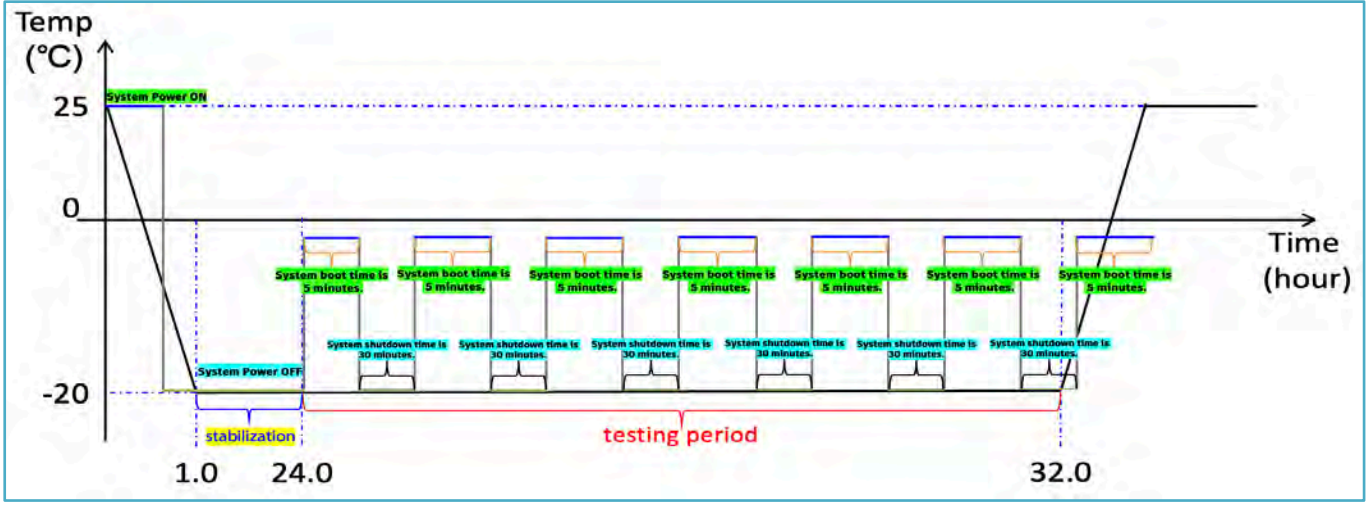
Confirm that the system specifications and all input/output (I/O) interfaces are correctly configured and functioning as intended, in accordance with the defined technical standards.

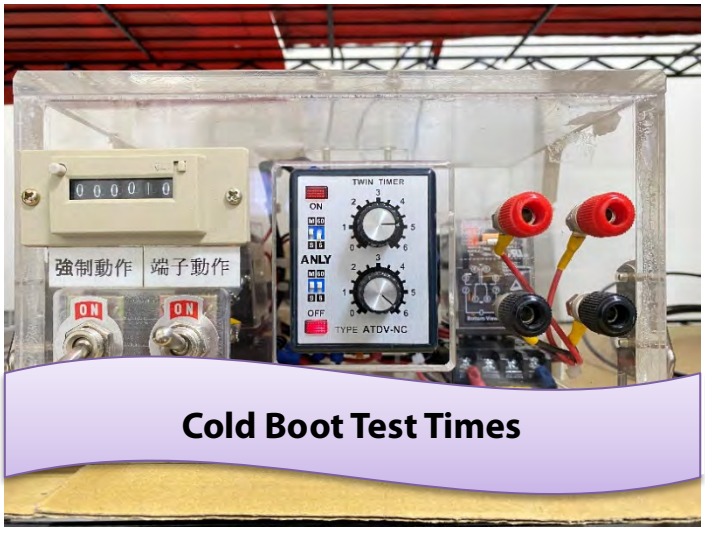
Item	Test Criteria	Result
X2 – HDMI	The HDMI output was verified to be working properly with a resolution of 3840 x 2160.	PASS
X3 – USB 3.0	A PassMark USB 3.0 Loopback was connected for testing and was found to be functioning normally.	PASS
X4 – 1.0GbE	Data transmission via connection to a 1.0Gbps LAN switch has been tested. The transfer speed meets the required standard with zero packet loss, confirming normal functionality.	PASS
X5 – RS422	he two RS422 devices were successfully connected. Data transmission tests showed no packet loss, confirming normal operation.	PASS

2-2-3. Low Temperature Power Cycle Test

Apply power to the system under a -20°C ambient condition and confirm successful system boot-up, ensuring stable initialization and operation at low temperatures.

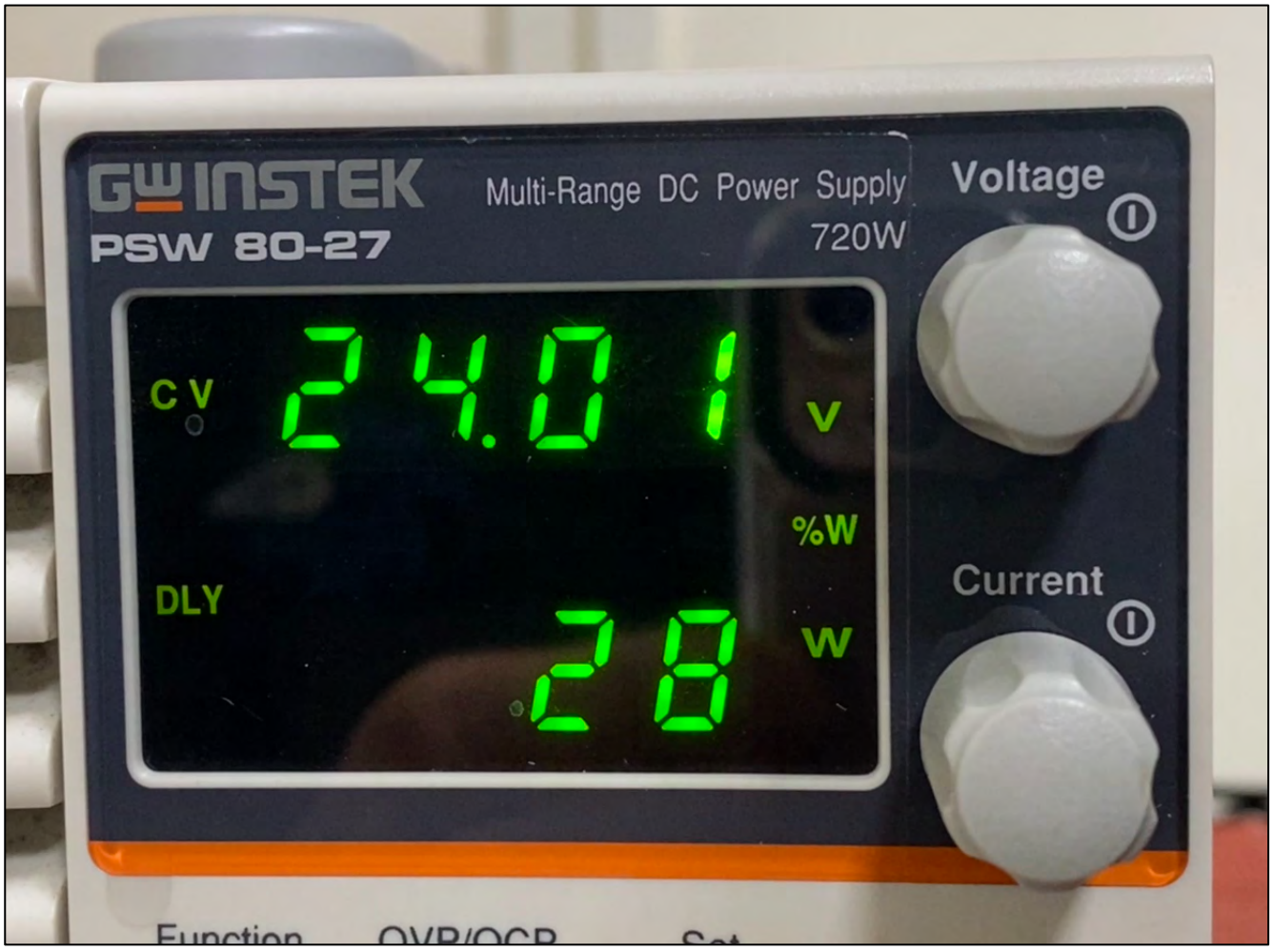
Ambient Temp.	Cold Boot Test Times	Test Result
-20°C	10 times	PASS





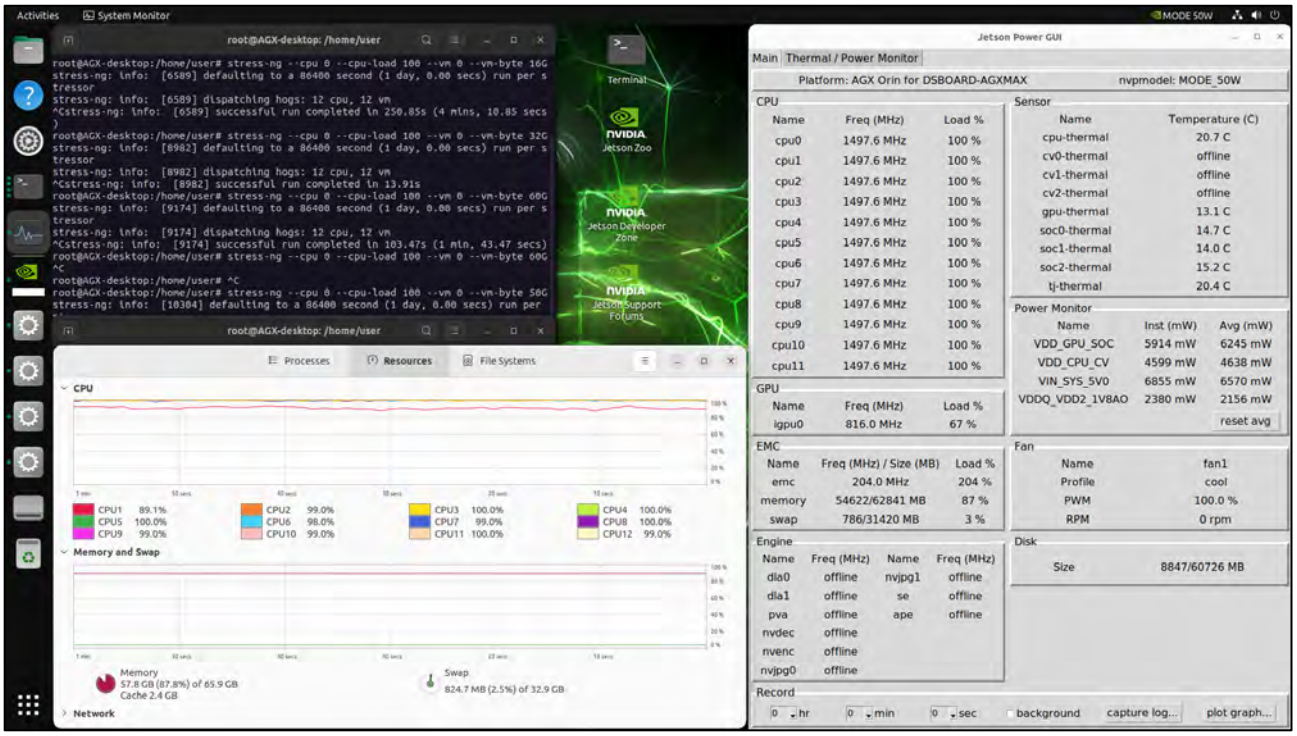
2-3. Power Consumption

Voltage	Current	Wattage
12.0V	2.33A	28W
24.0V	1.67A	28W
30.0V	0.93A	28W

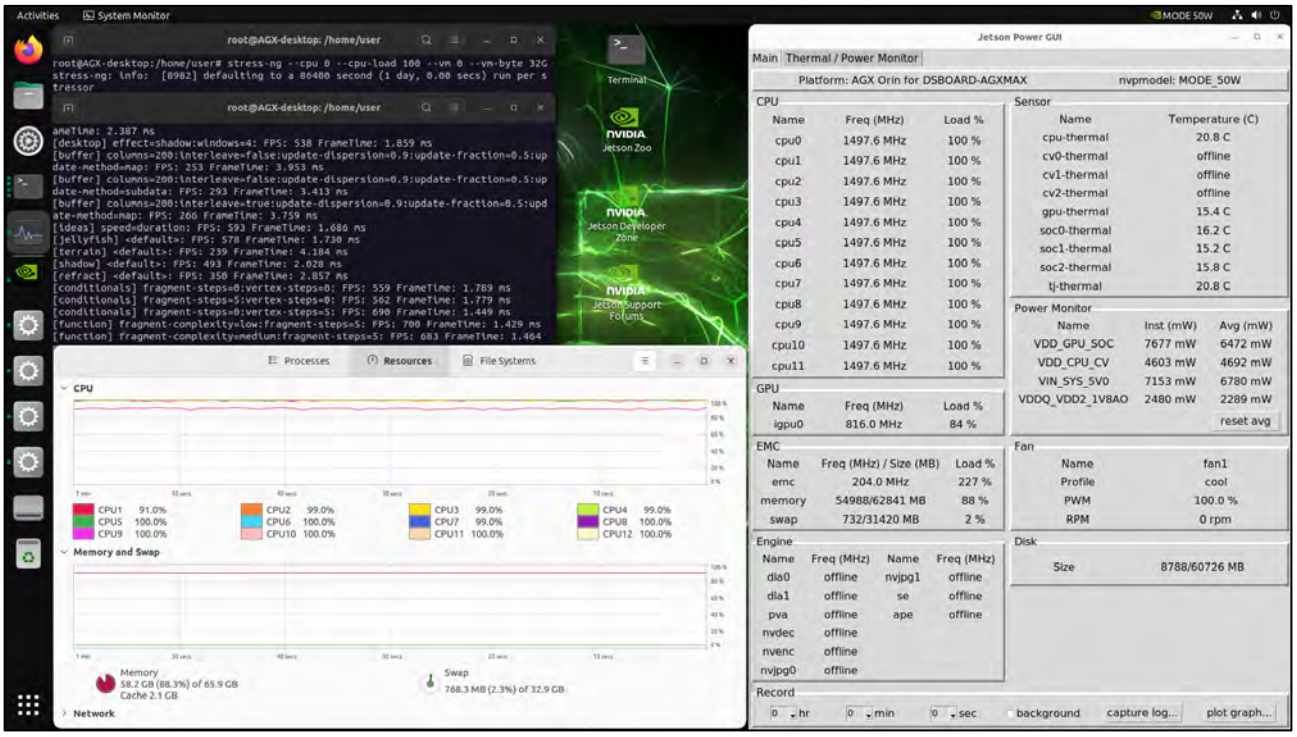


3. TEST PHOTO IN LAB

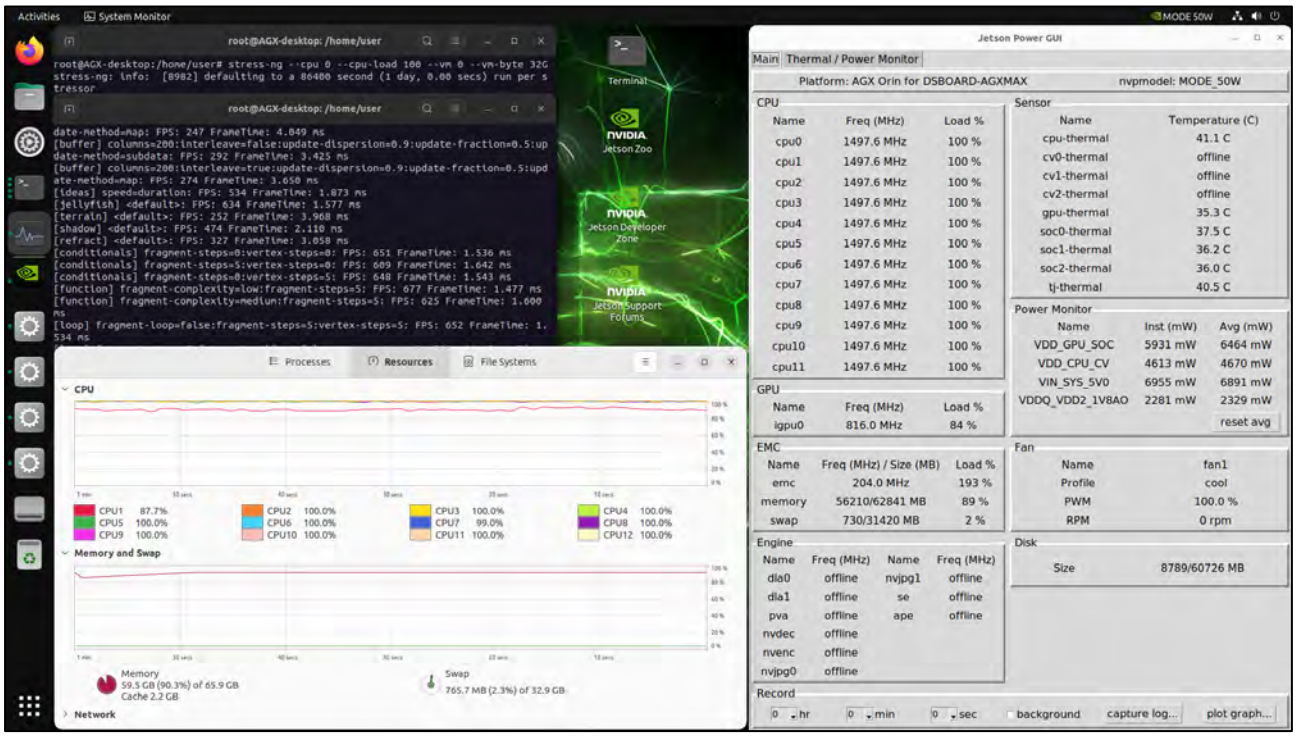
- Chamber in -20°C / 0%RH



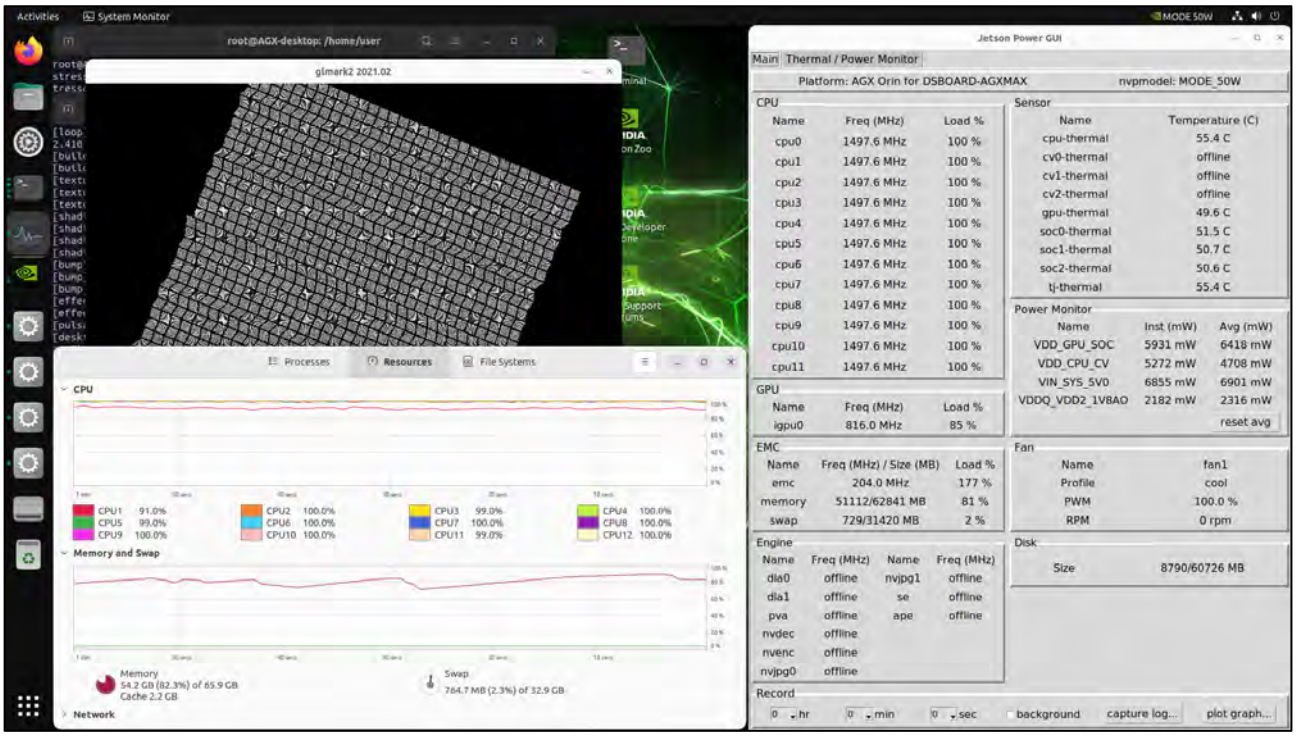
- Chamber in 0°C / 0%RH



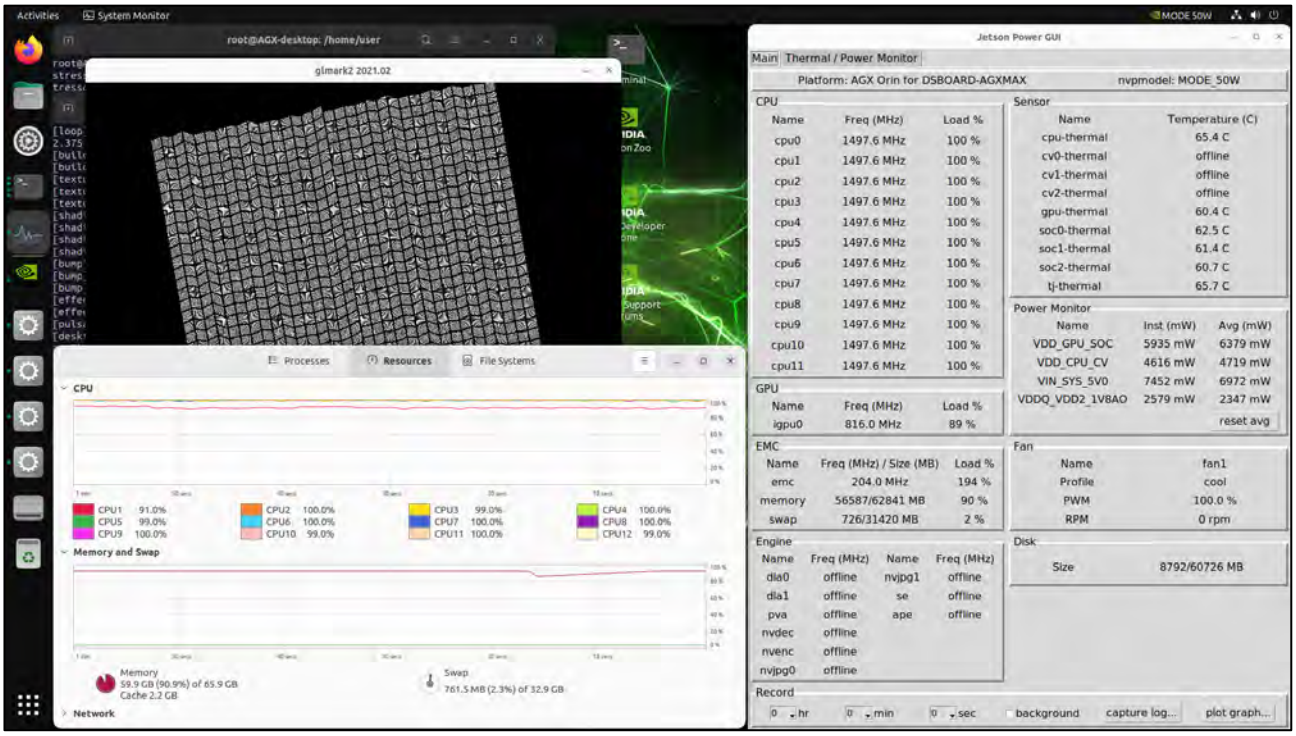
- Chamber in 25°C / 60%RH

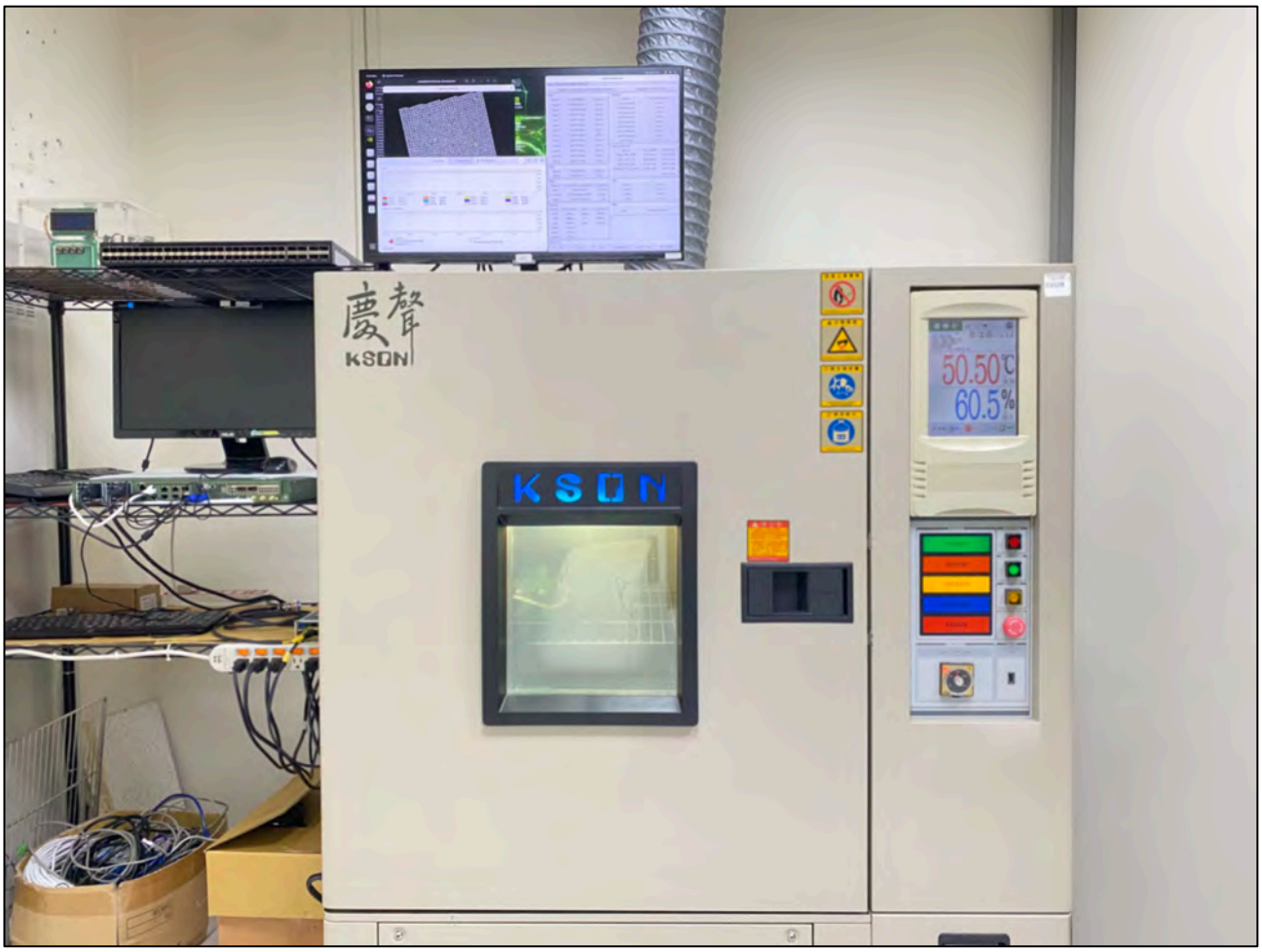


- Chamber in 40°C / 60%RH

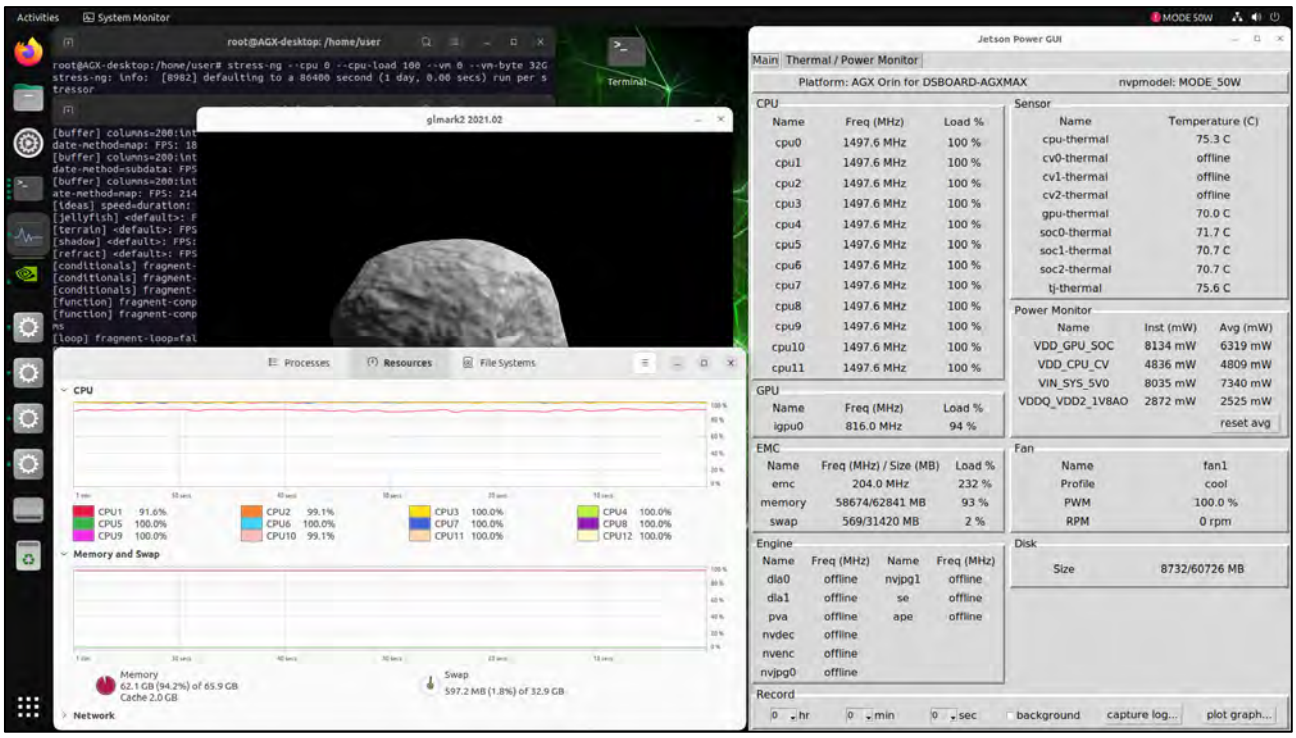


- Chamber in 50°C / 60%RH





- Chamber in 60°C / 60%RH



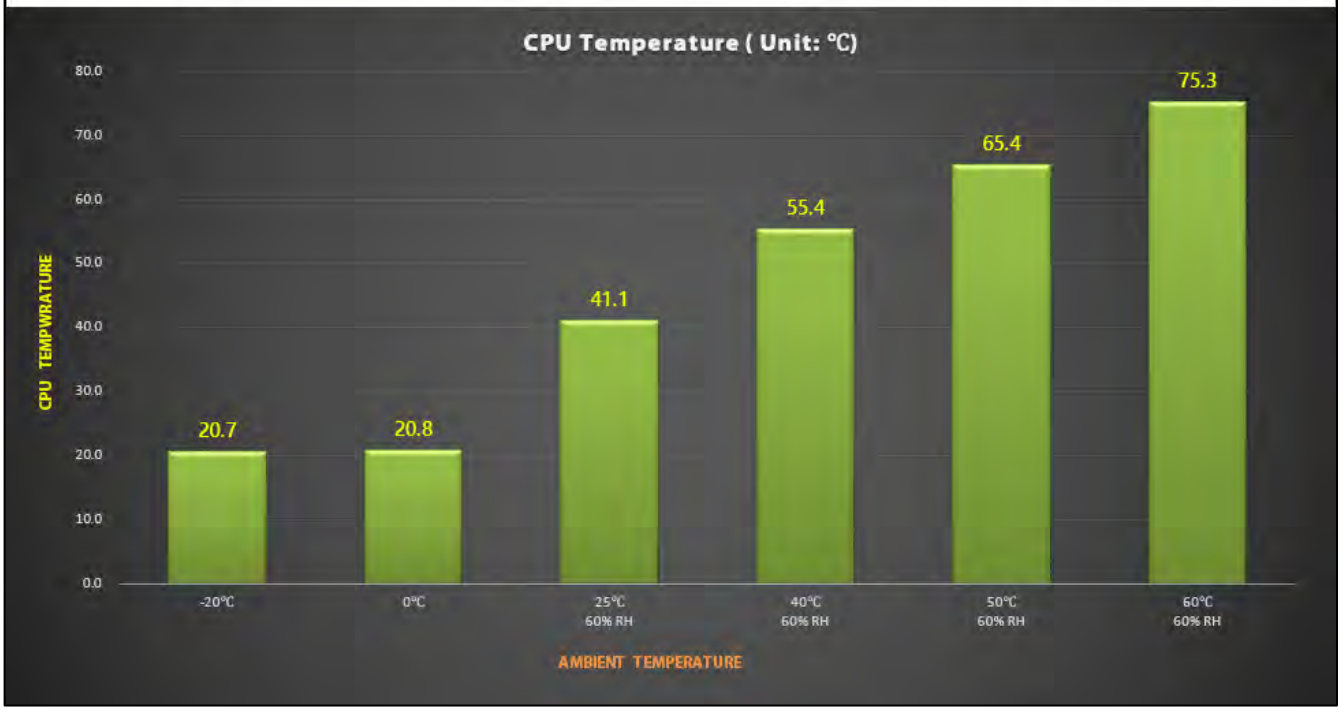
4. THERMAL TEST RESULT(-20°C ~ +60°C)

CPU & GPU Temperature/Frequency

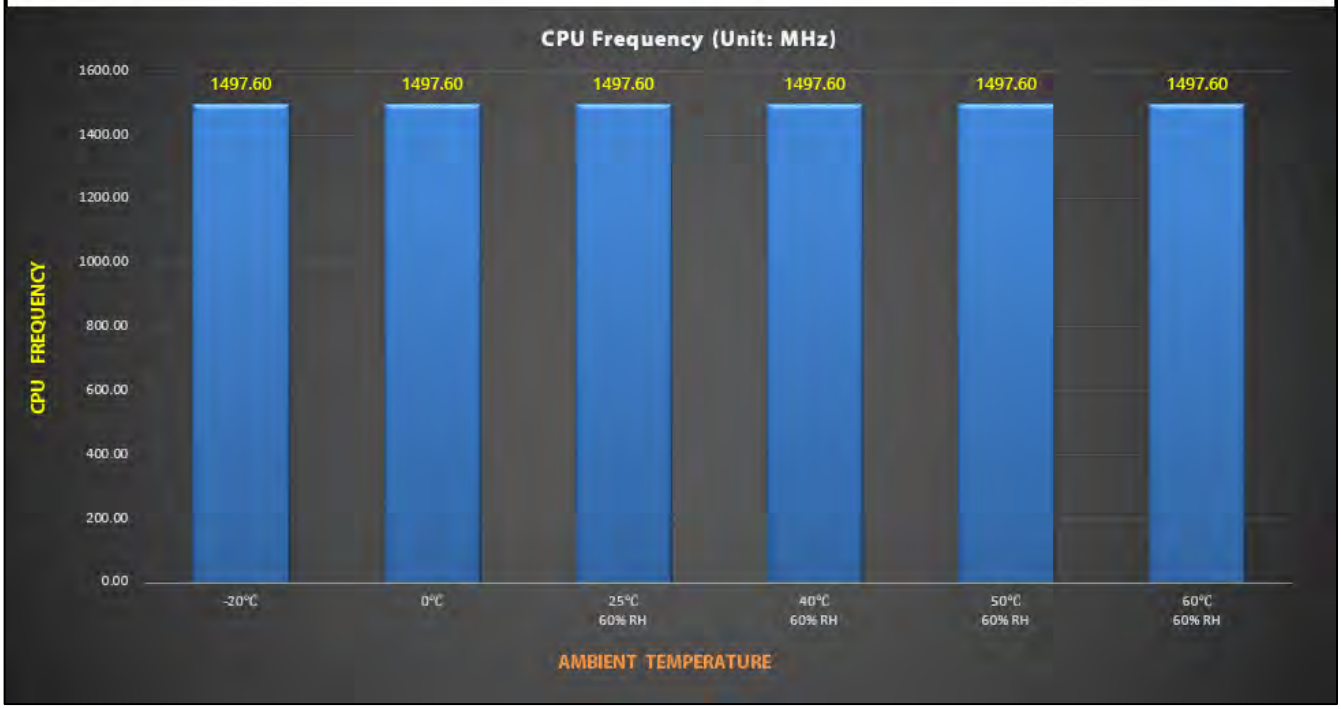
Temperature / Ambient Temp. / Frequency	-20°C	0°C	25°C 60% RH	40°C 60% RH	50°C 60% RH	60°C 60% RH
CPU Cores Max Temperature (Unit: °C)	20.7	20.8	41.1	55.4	65.4	75.3
CPU Cores Frequency (Unit: MHz)	1497.60	1497.60	1497.60	1497.60	1497.60	1497.60

Temperature / Ambient Temp. / Frequency	-20°C	0°C	25°C 60% RH	40°C 60% RH	50°C 60% RH	60°C 60% RH
GPU Temperature (Unit: °C)	13.1	15.4	35.3	49.6	60.4	70.0
GPU Frequency (Unit: MHz)	816.0	816.0	816.0	816.0	816.0	816.0

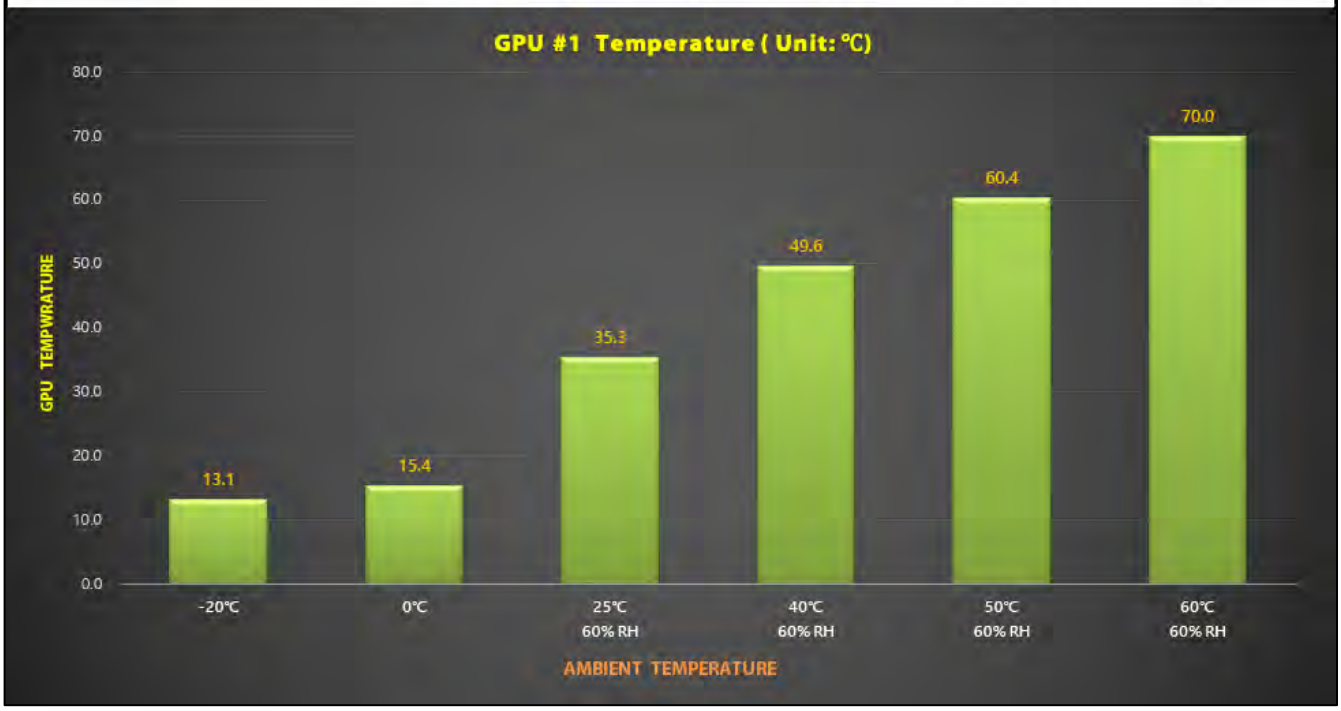
Core Temp / Ambient Temp / CPU Frequency	-20°C	0°C	25°C 60% RH	40°C 60% RH	50°C 60% RH	60°C 60% RH
CPU Cores Max Temperature (Unit: °C)	20.7	20.8	41.1	55.4	65.4	75.3



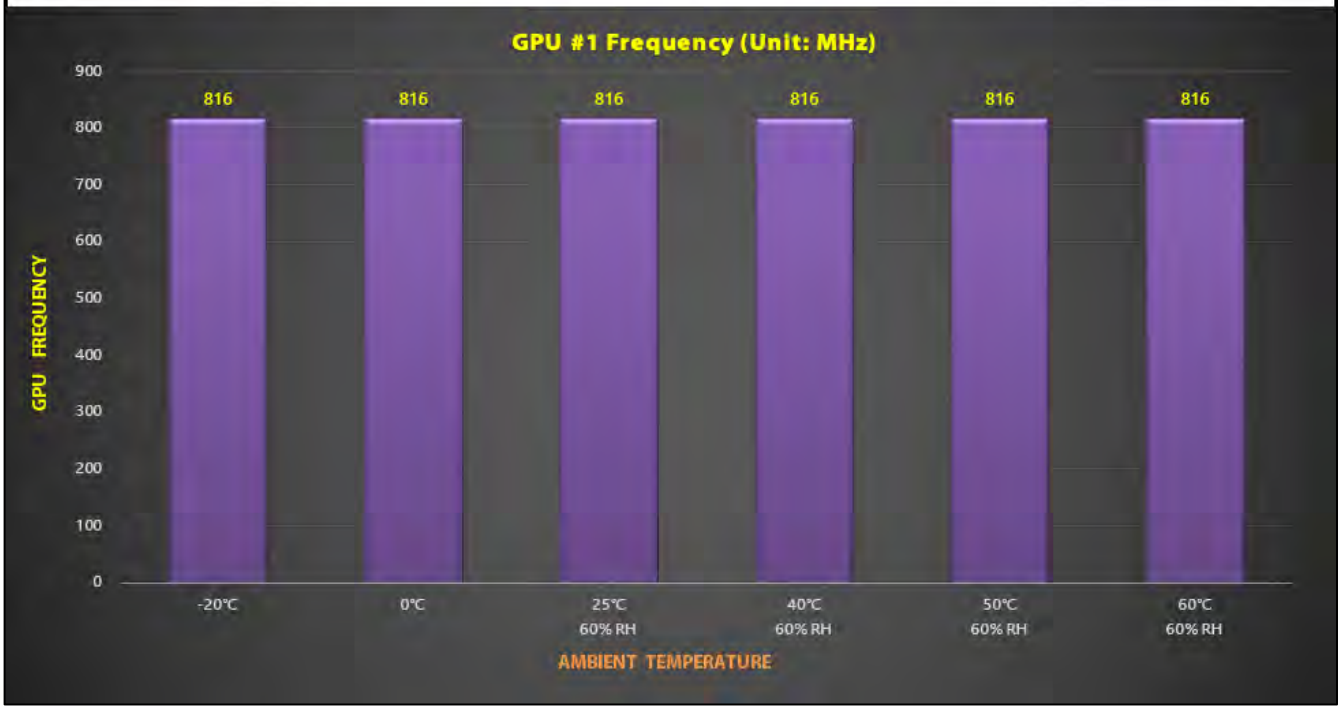
Core Temp / Ambient Temp / CPU Frequency	-20°C	0°C	25°C 60% RH	40°C 60% RH	50°C 60% RH	60°C 60% RH
CPU Cores Frequency (Unit: MHz)	1497.60	1497.60	1497.60	1497.60	1497.60	1497.60



Core Temp / Ambient Temp / CPU Frequency	-20°C	0°C	25°C 60% RH	40°C 60% RH	50°C 60% RH	60°C 60% RH
GPU #1 Temperature (Unit: ℃)	13.1	15.4	35.3	49.6	60.4	70.0

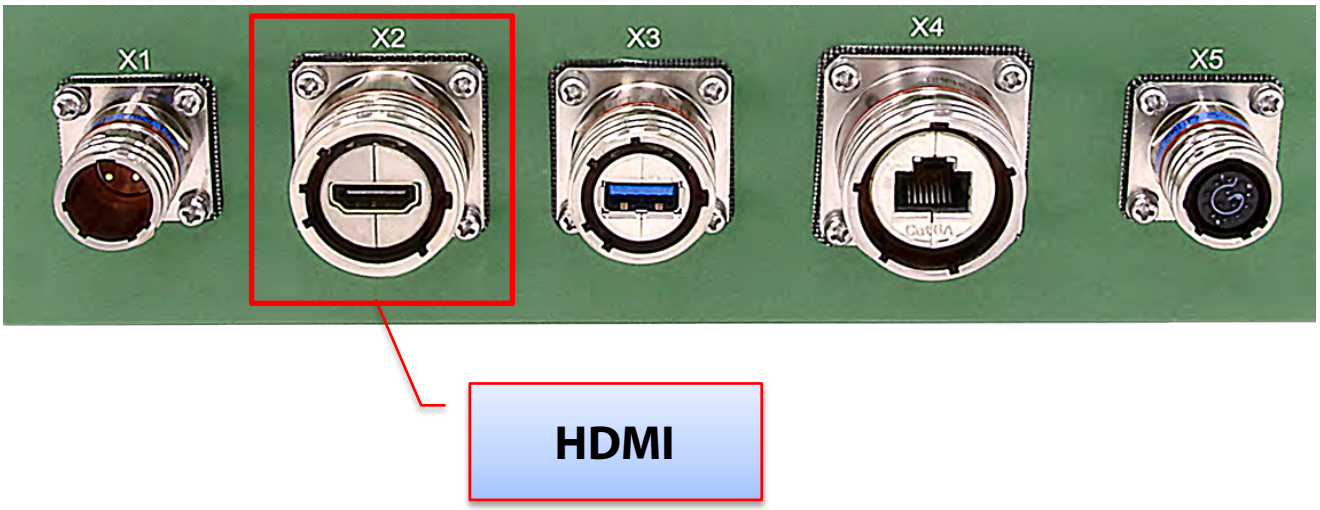


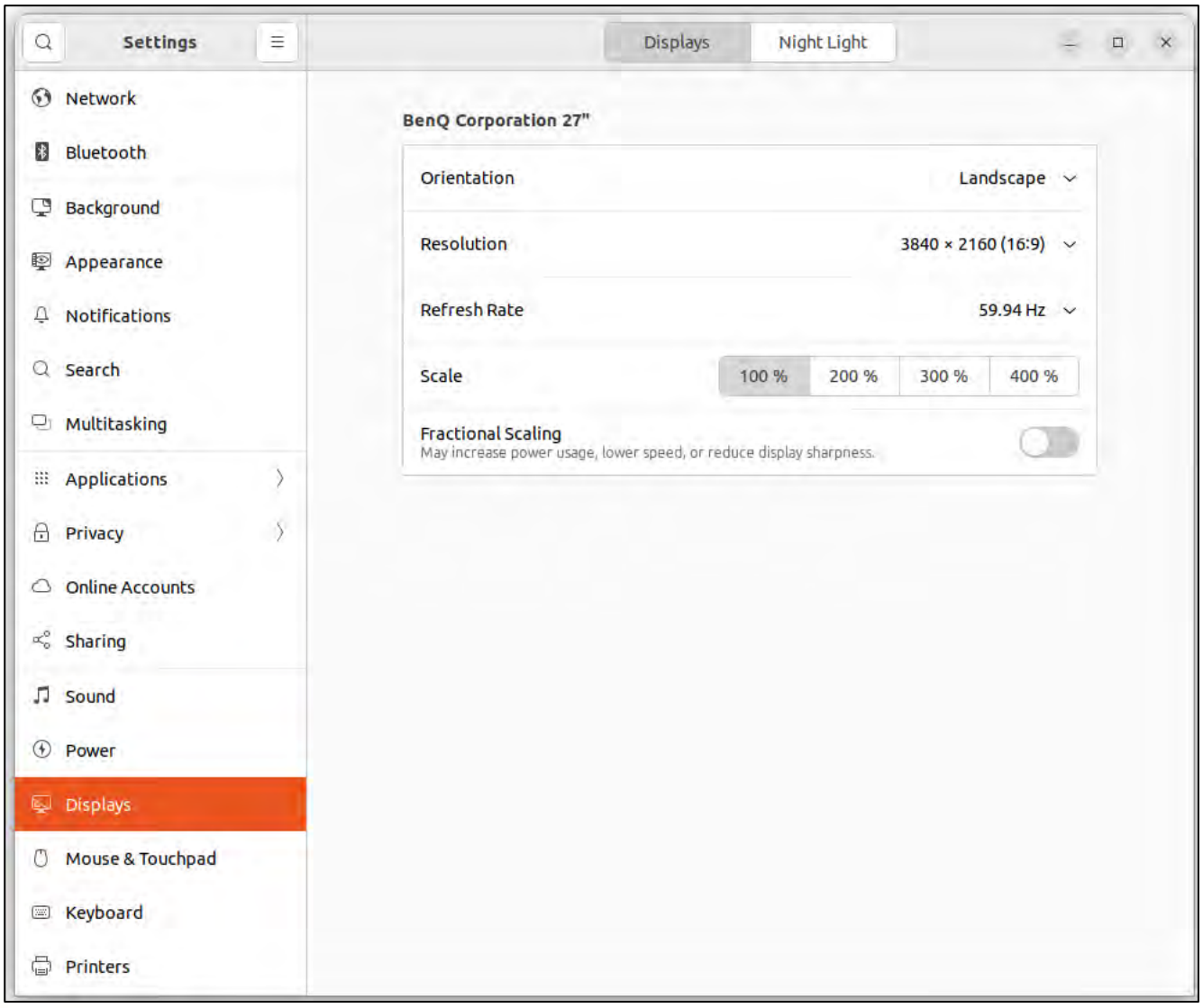
Core Temp / Ambient Temp / CPU Frequency	-20°C	0°C	25°C 60% RH	40°C 60% RH	50°C 60% RH	60°C 60% RH
GPU #1 Frequency (Unit: MHz)	816	816	816	816	816	816



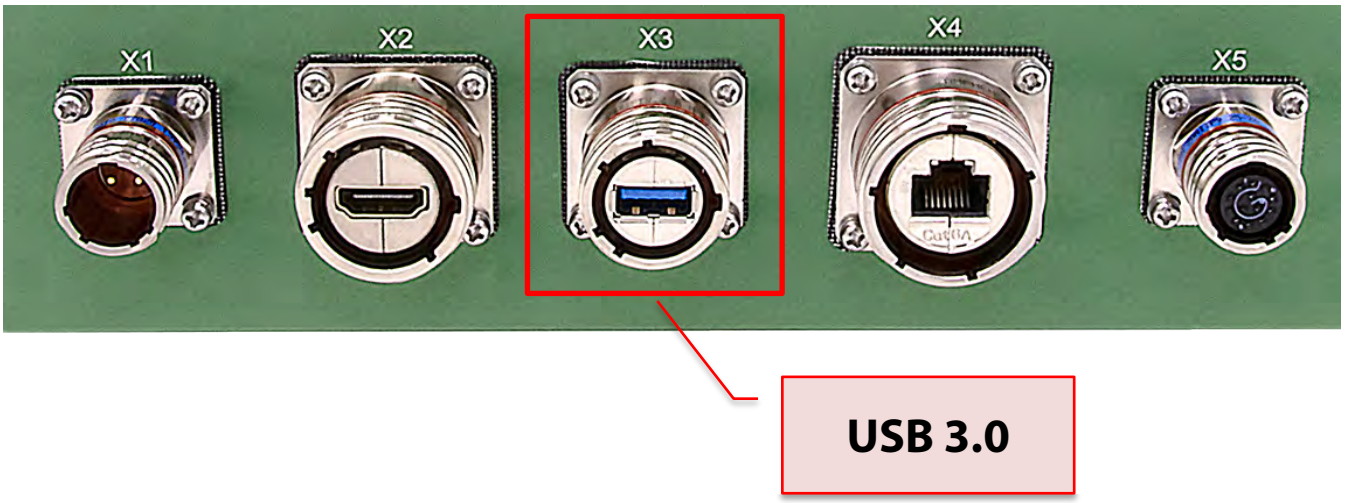
5. I/O FUNCTION TEST

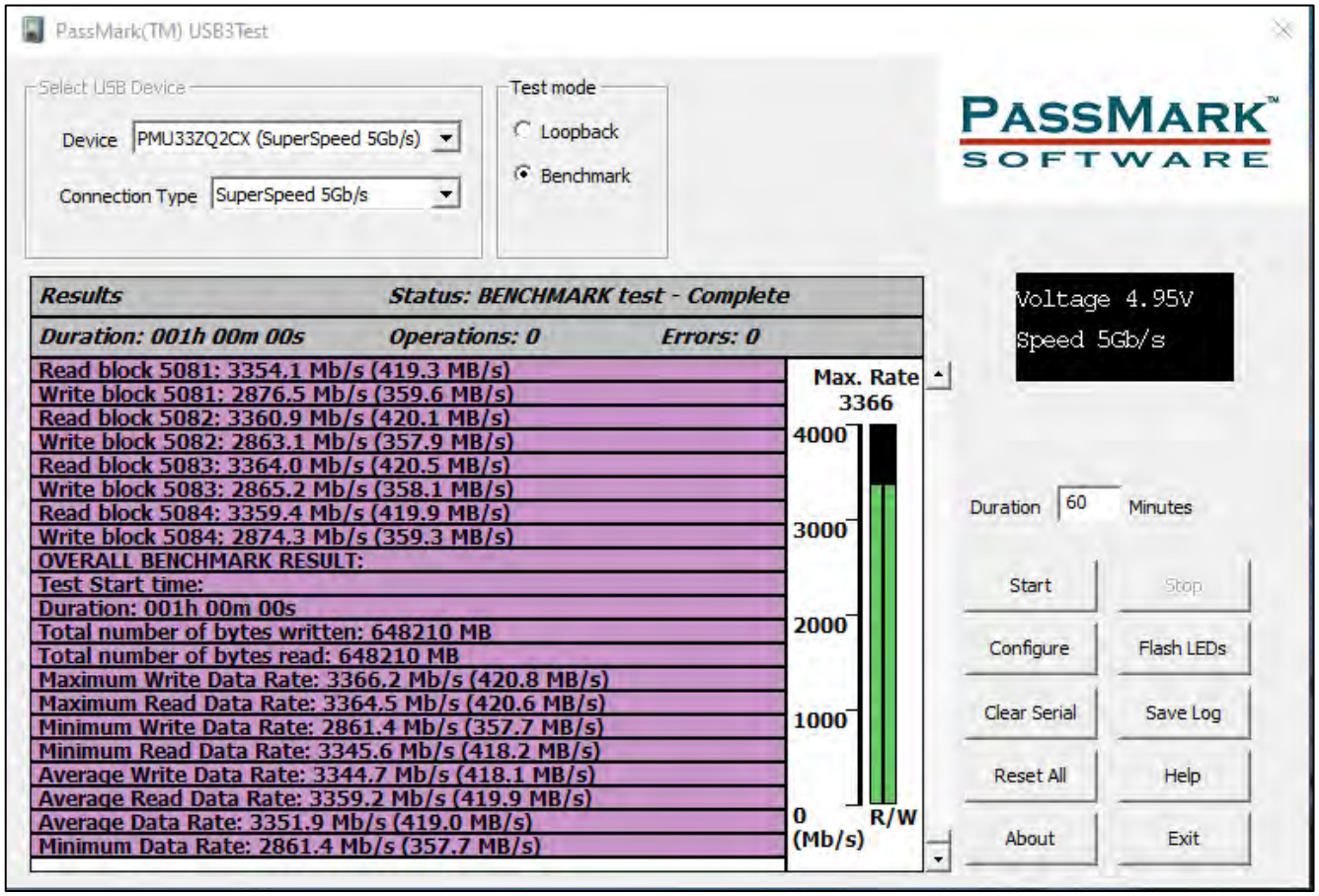
5-1. HDMI PORT



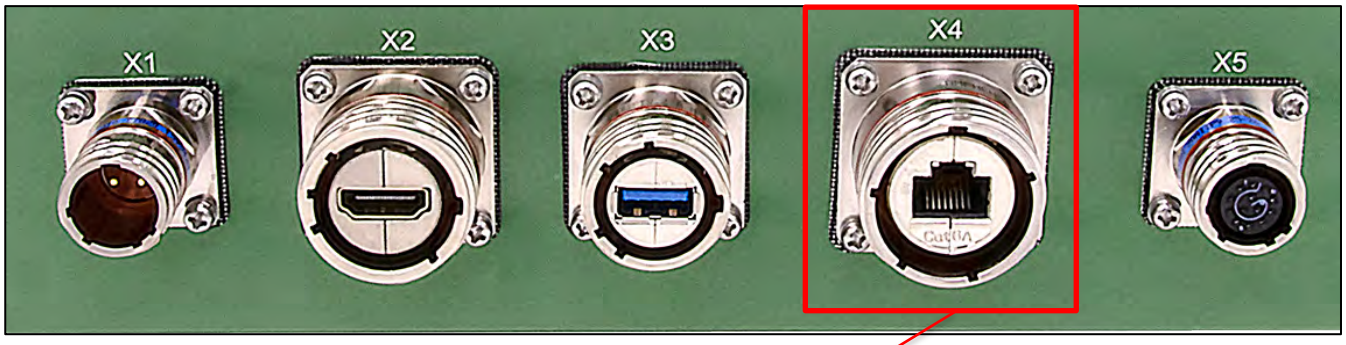


5-2. USB PORT


X1
X2
X3
X4
X5
USB 3.0


PassMark(TM) USB3Test
Select USB Device
Device
PMU33ZQ2CX (SuperSpeed 5Gb/s)
Connection Type
SuperSpeed 5Gb/s
Test mode
Loopback
Benchmark
PASSMARK SOFTWARE
Results
Status: BENCHMARK test - Complete
Duration: 001h 00m 00s
Operations: 0
Errors: 0
Read block 5081: 3354.1 Mb/s (419.3 MB/s)
Write block 5081: 2876.5 Mb/s (359.6 MB/s)
Read block 5082: 3360.9 Mb/s (420.1 MB/s)
Write block 5082: 2863.1 Mb/s (357.9 MB/s)
Read block 5083: 3364.0 Mb/s (420.5 MB/s)
Write block 5083: 2865.2 Mb/s (358.1 MB/s)
Read block 5084: 3359.4 Mb/s (419.9 MB/s)
Write block 5084: 2874.3 Mb/s (359.3 MB/s)
OVERALL BENCHMARK RESULT:
Test Start time:
Duration: 001h 00m 00s
Total number of bytes written: 648210 MB
Total number of bytes read: 648210 MB
Maximum Write Data Rate: 3366.2 Mb/s (420.8 MB/s)
Maximum Read Data Rate: 3364.5 Mb/s (420.6 MB/s)
Minimum Write Data Rate: 2861.4 Mb/s (357.7 MB/s)
Minimum Read Data Rate: 3345.6 Mb/s (418.2 MB/s)
Average Write Data Rate: 3344.7 Mb/s (418.1 MB/s)
Average Read Data Rate: 3359.2 Mb/s (419.9 MB/s)
Average Data Rate: 3351.9 Mb/s (419.0 MB/s)
Minimum Data Rate: 2861.4 Mb/s (357.7 MB/s)
Max. Rate
3366
4000
3000
2000
1000
0
(Mb/s)
R/W
Voltage 4.95V
Speed 5Gb/s
Duration
60
Minutes
Start
Stop
Configure
Flash LEDs
Clear Serial
Save Log
Reset All
Help
About
Exit

5-3. LAN PORT

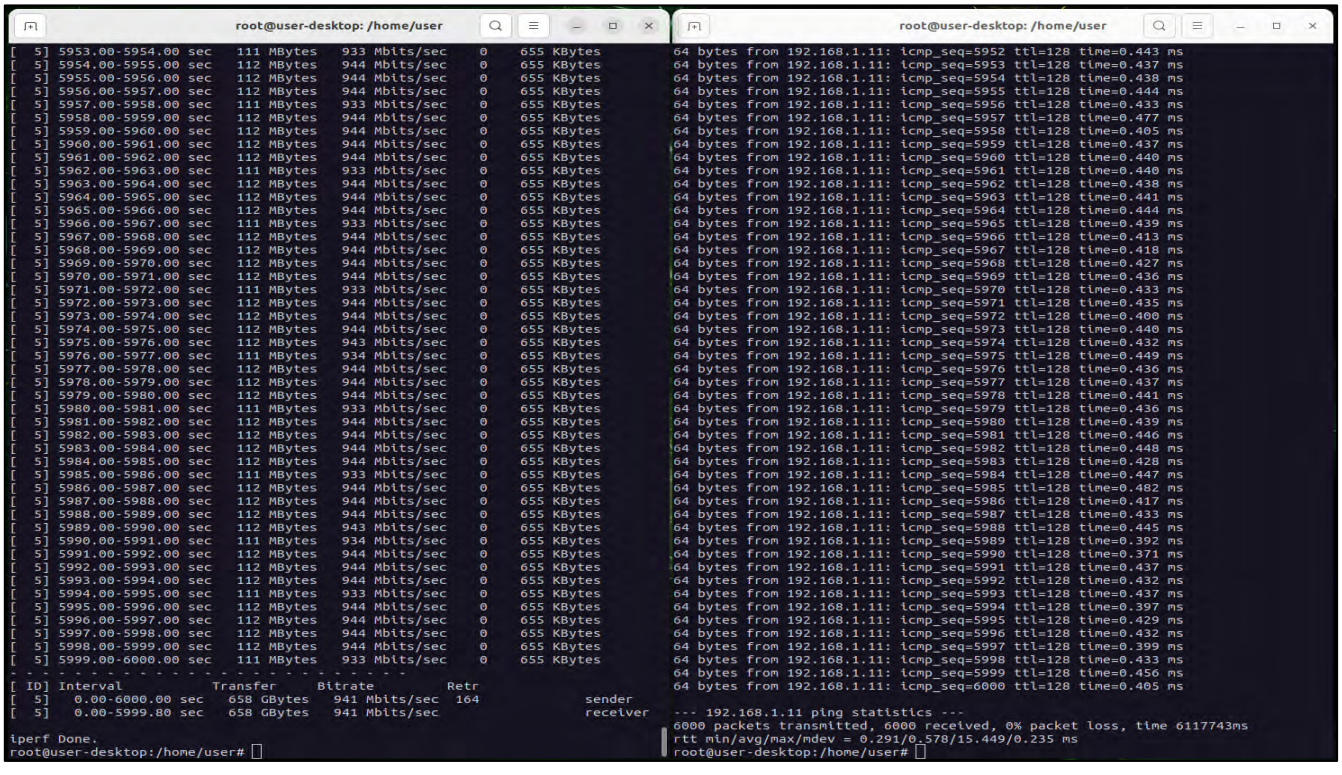


1.0GbE

LAN SPEED

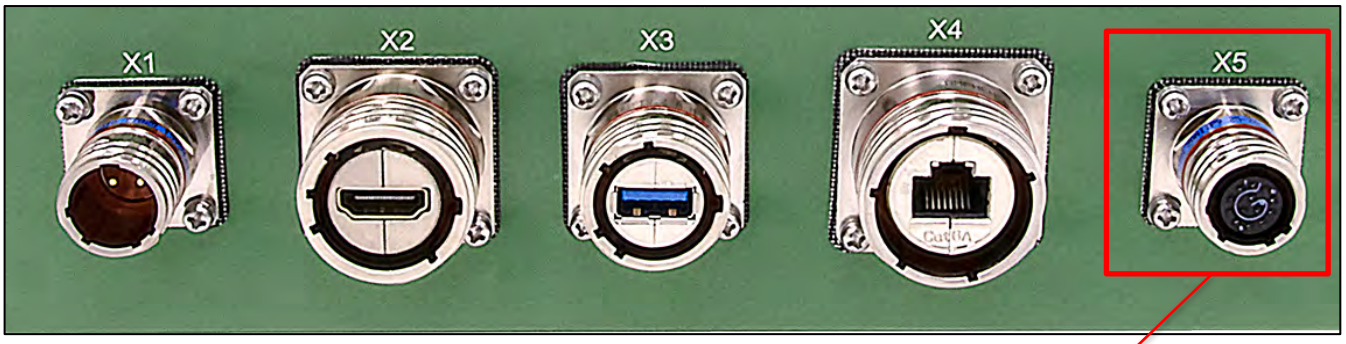
LAN Data-Packet

X4 – LAN Port



LAN Speed Test Result: Pass
LAN Data-Packet Test Result: 0 Lost (0% loss)

5-4. SERIAL PORT & USB PORT



This port provides RS-422 data transmission and the device's USB interface for the display connection.

RS-422 data transmission

The USB interface is used to transmit the side-panel function-key signals of the display.

-----END-----

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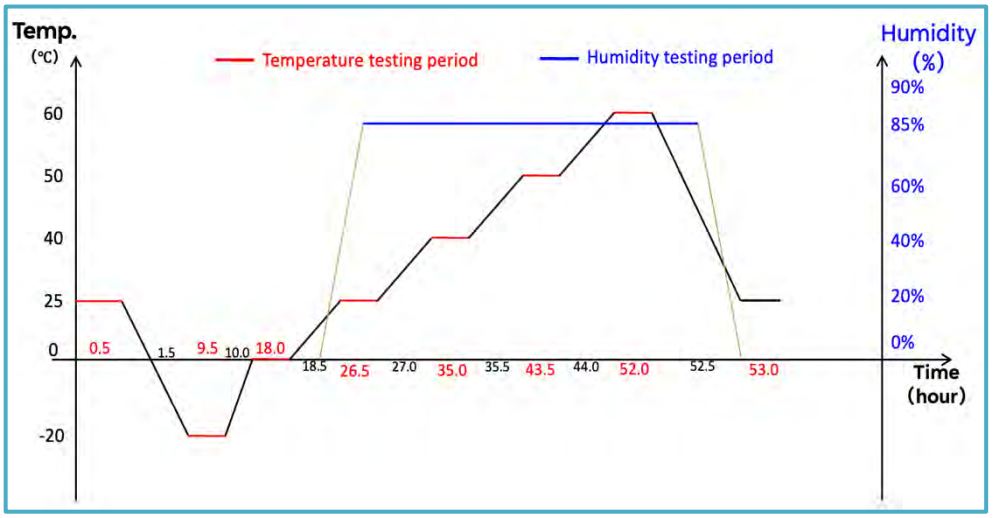
Test Diagram of Curves	Environment defines for 53 hours. 

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0˚C / 0%RH	PASS
25˚C / 60%RH	PASS
40˚C / 60%RH	PASS
50˚C / 60%RH	PASS
60˚C / 60%RH	PASS

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X5 – RS422	he two RS422 devices were successfully connected. Data transmission tests showed no packet loss, confirming normal operation.	PASS

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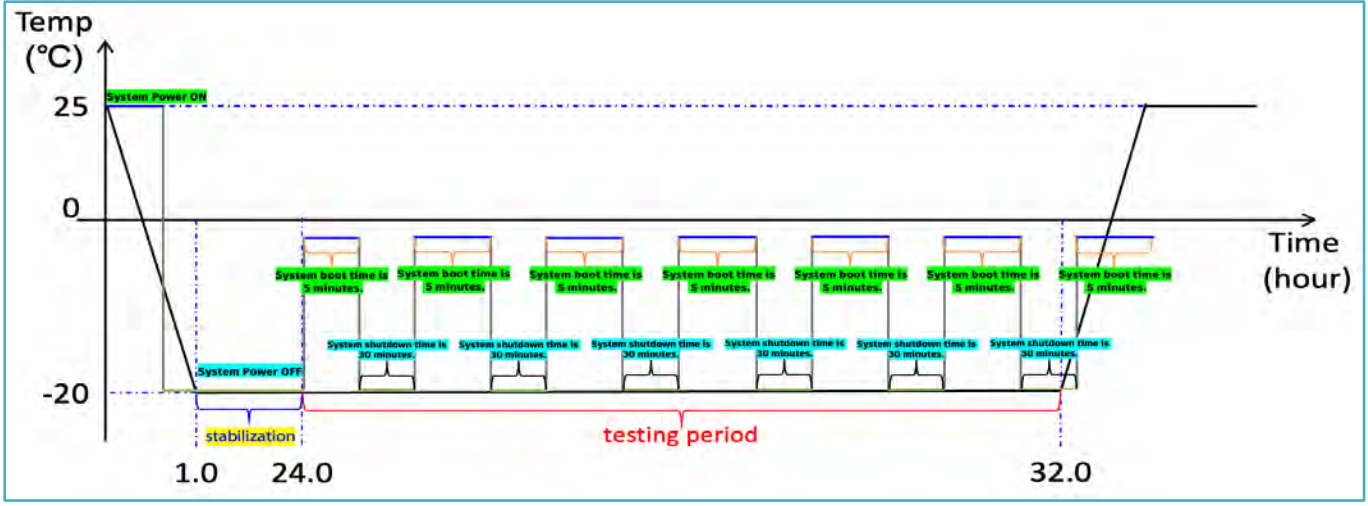
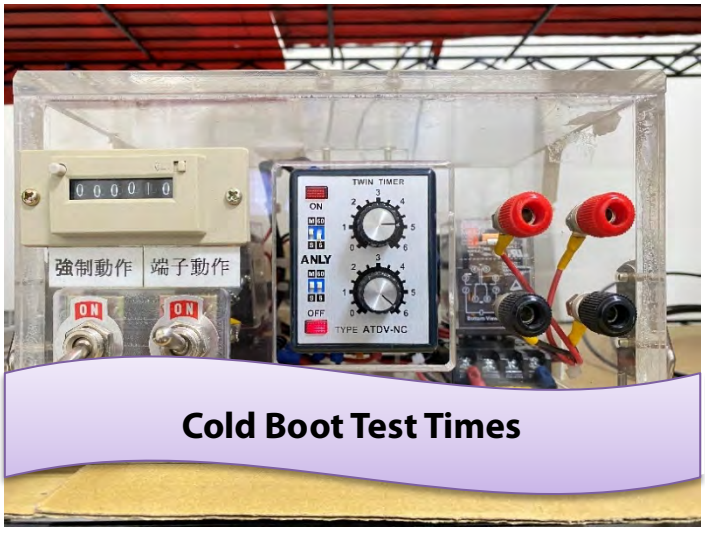
Apply power to the system under a -20°C ambient condition and confirm successful system boot-up, ensuring stable initialization and operation at low temperatures.

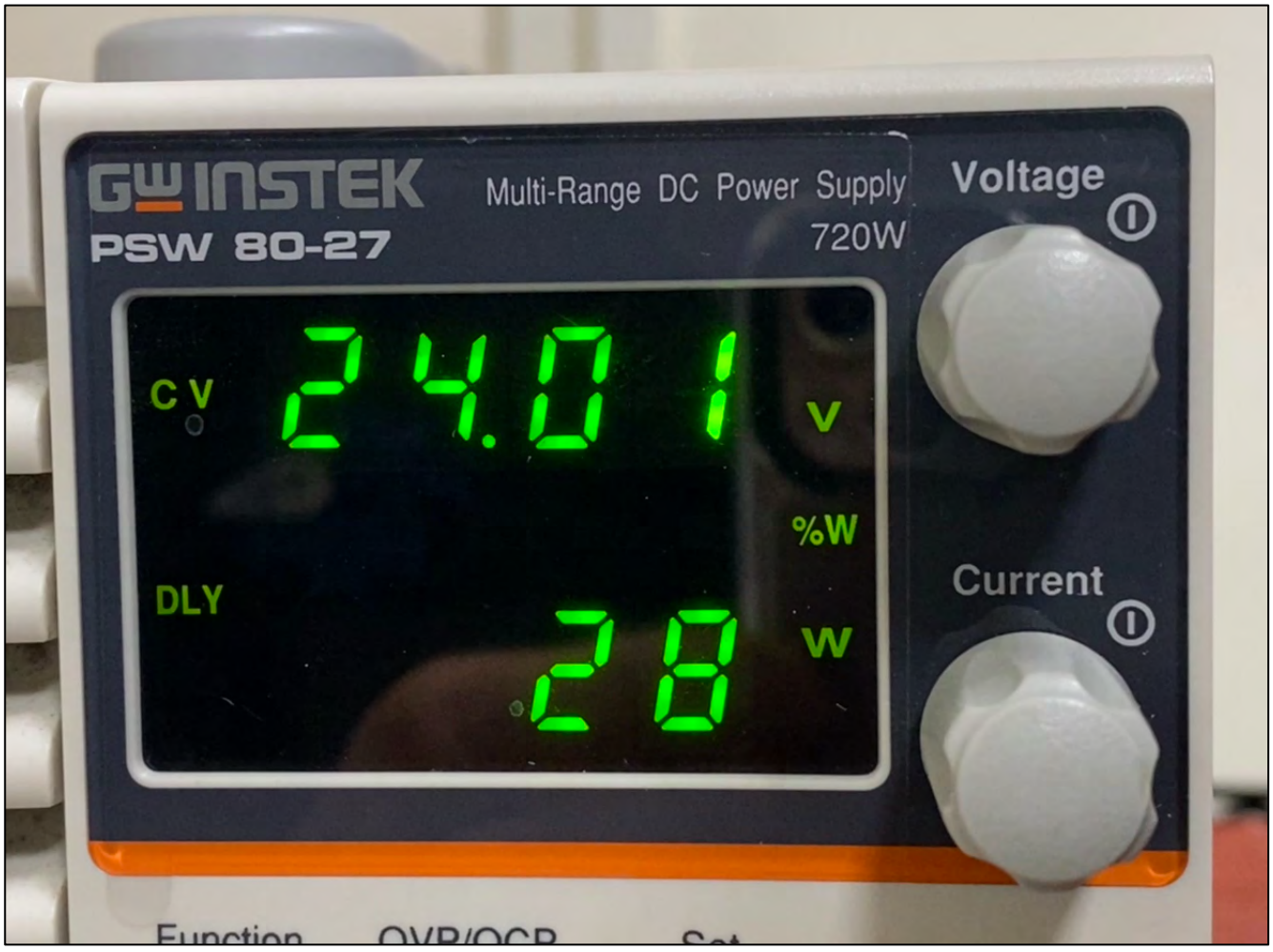
Ambient Temp.	Cold Boot Test Times	Test Result
-20°C	10 times	PASS





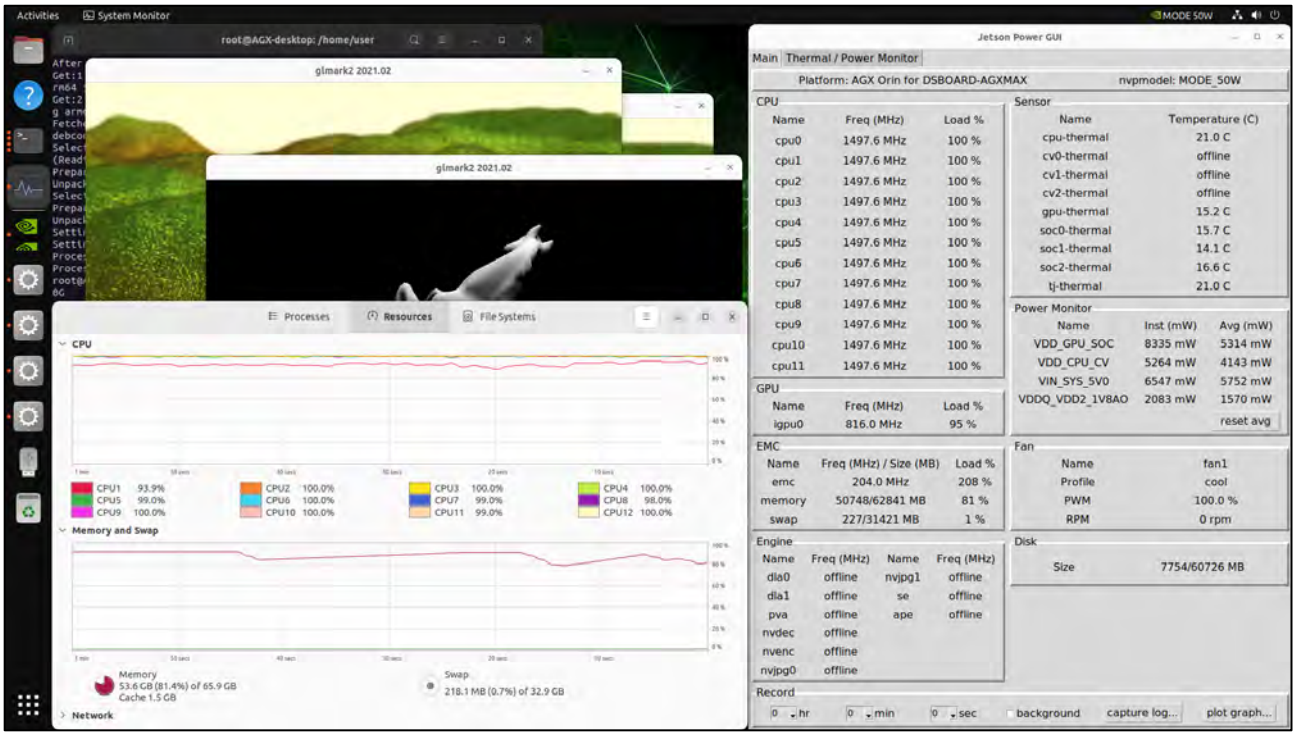
2-3. Power Consumption

Voltage	Current	Wattage
12.0V	2.33A	28W
24.0V	1.67A	28W
30.0V	0.93A	28W

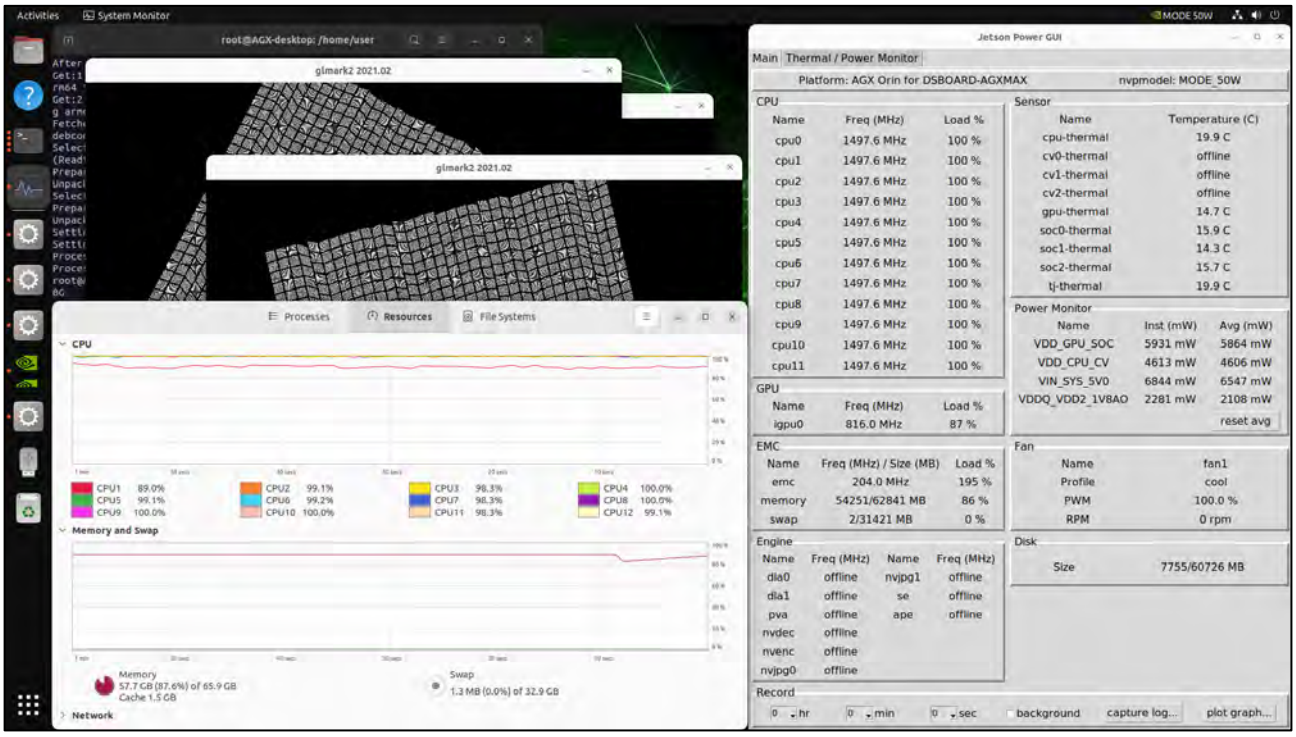


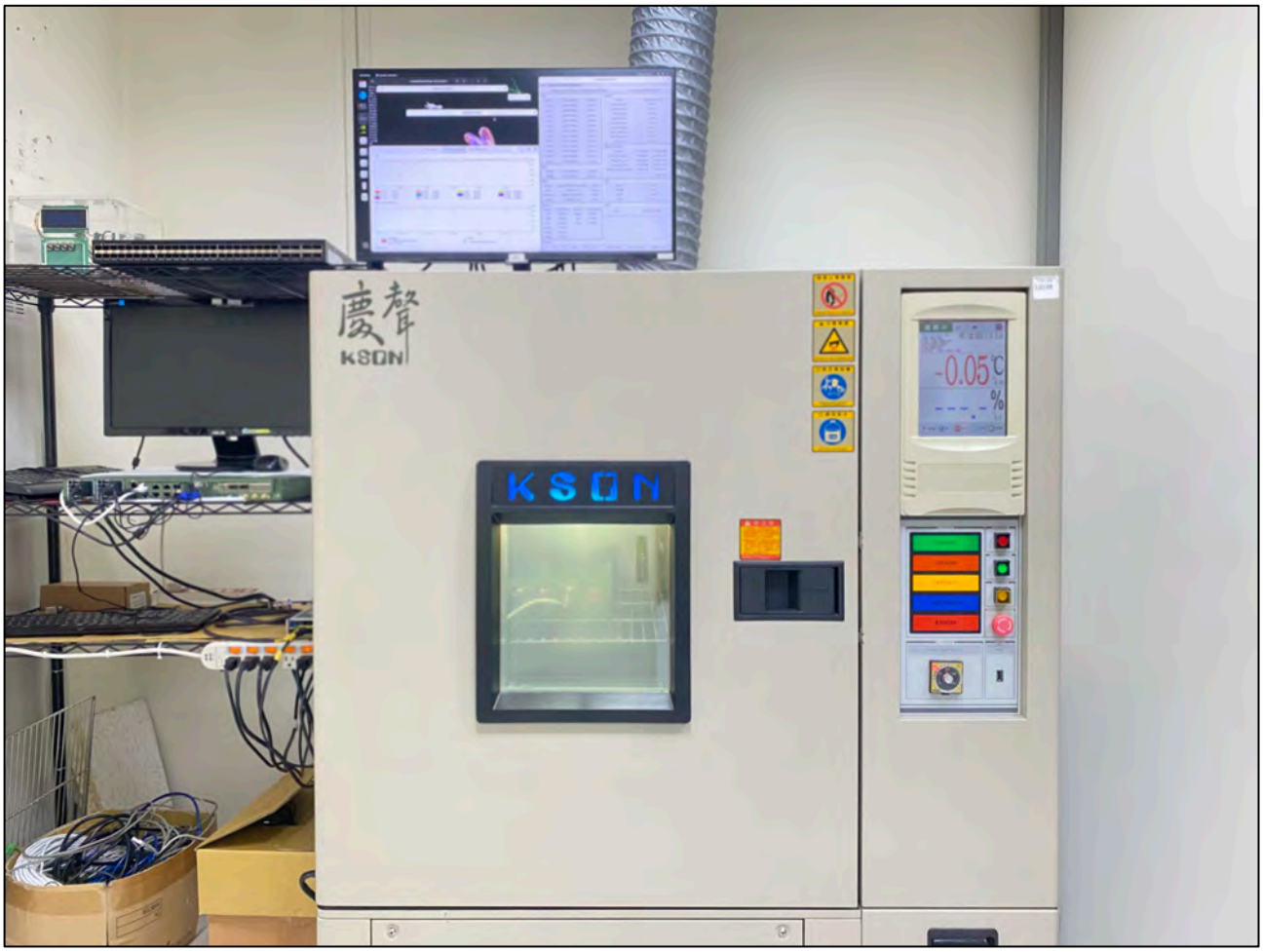
3. TEST PHOTO IN LAB

- Chamber in -20°C / 0%RH

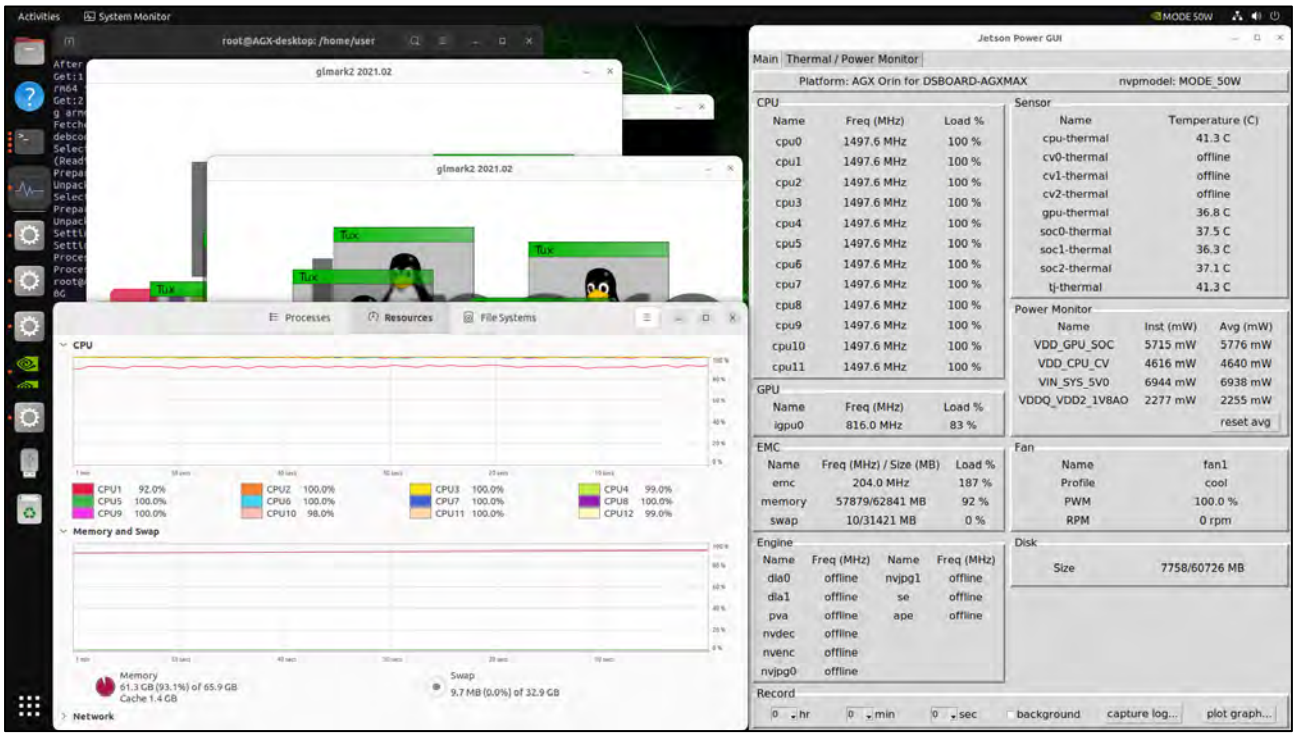


- Chamber in 0°C / 0%RH

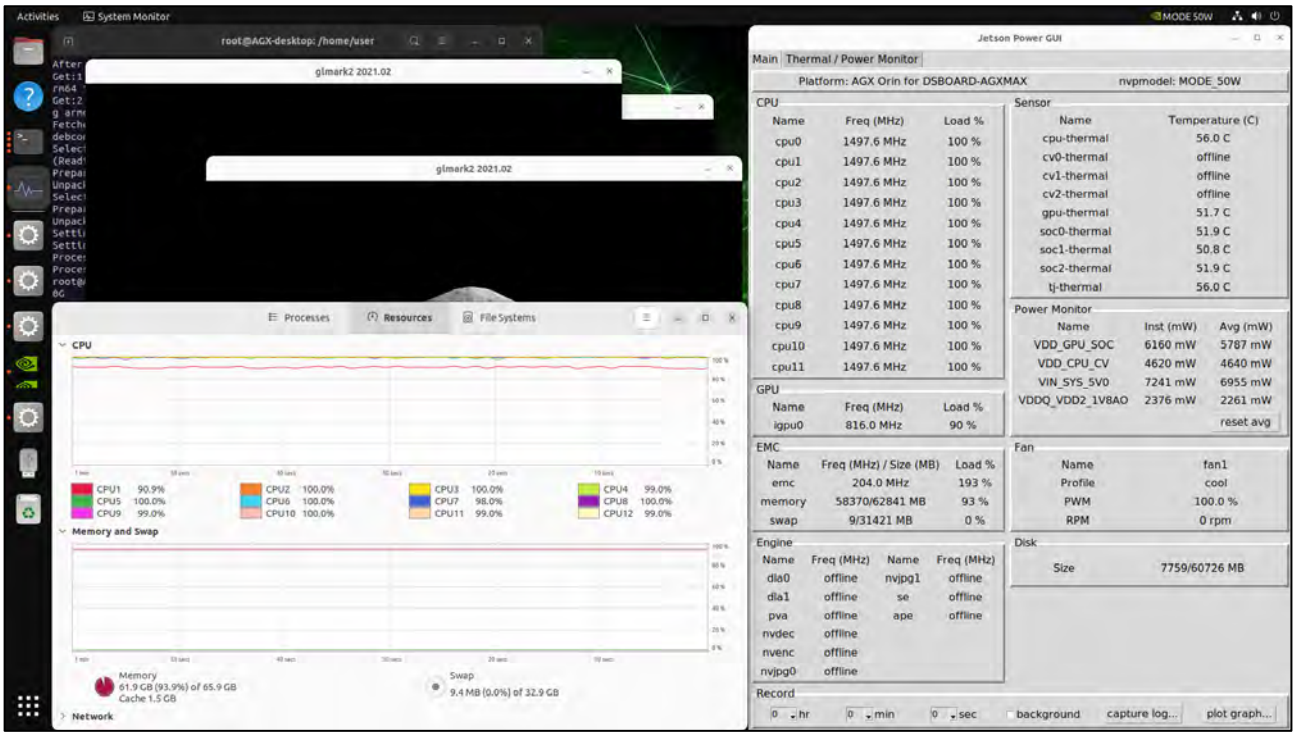


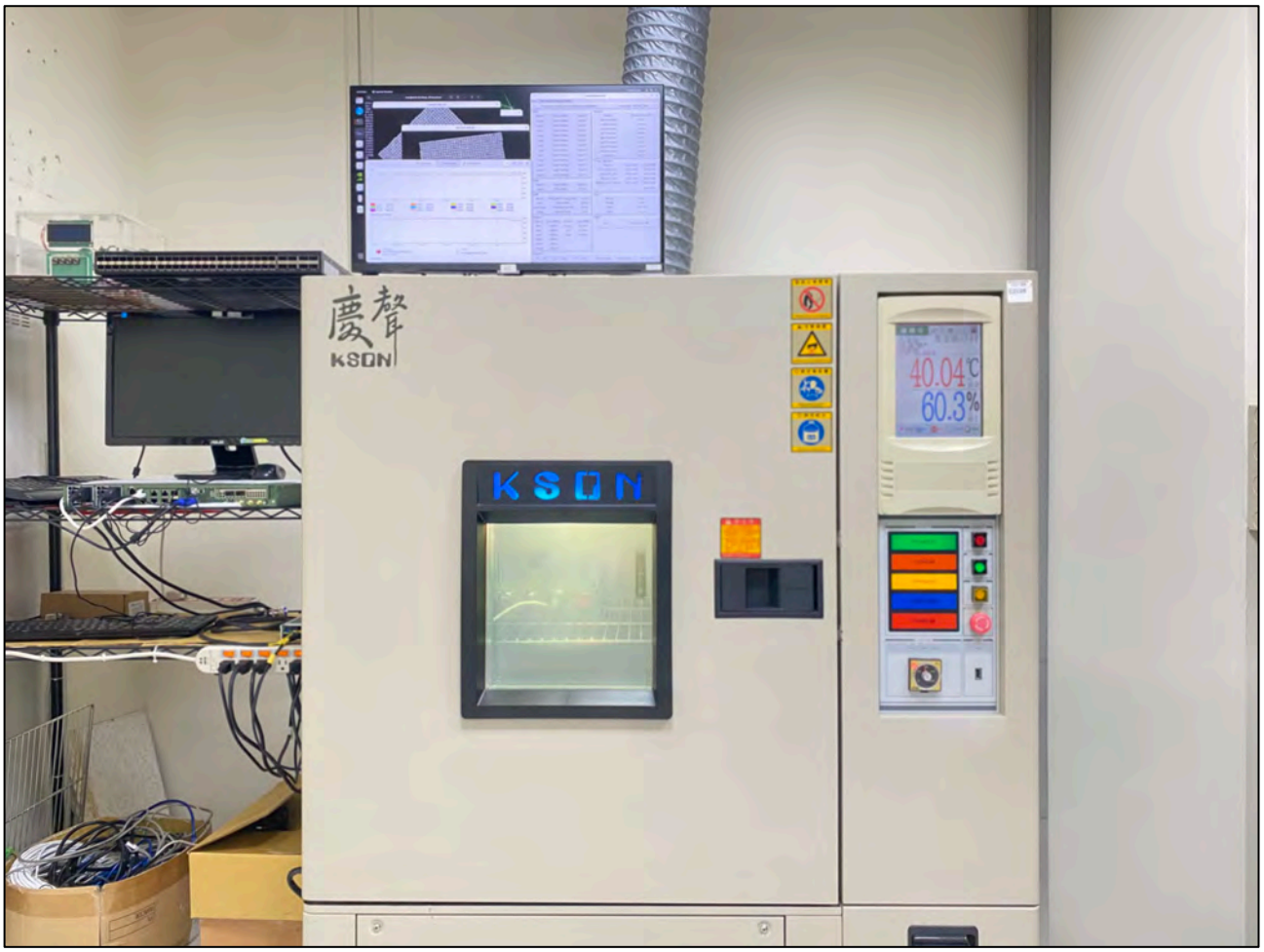


- Chamber in 25°C / 60%RH

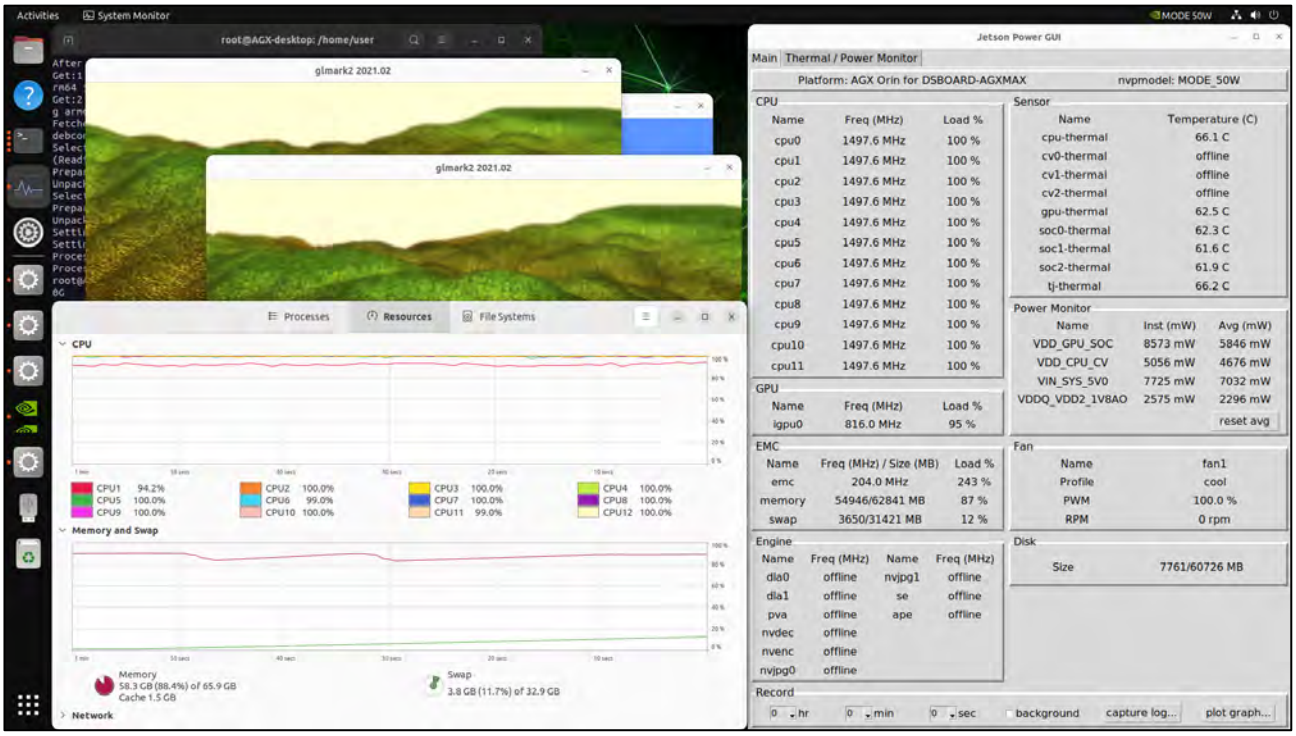


- Chamber in 40°C / 60%RH

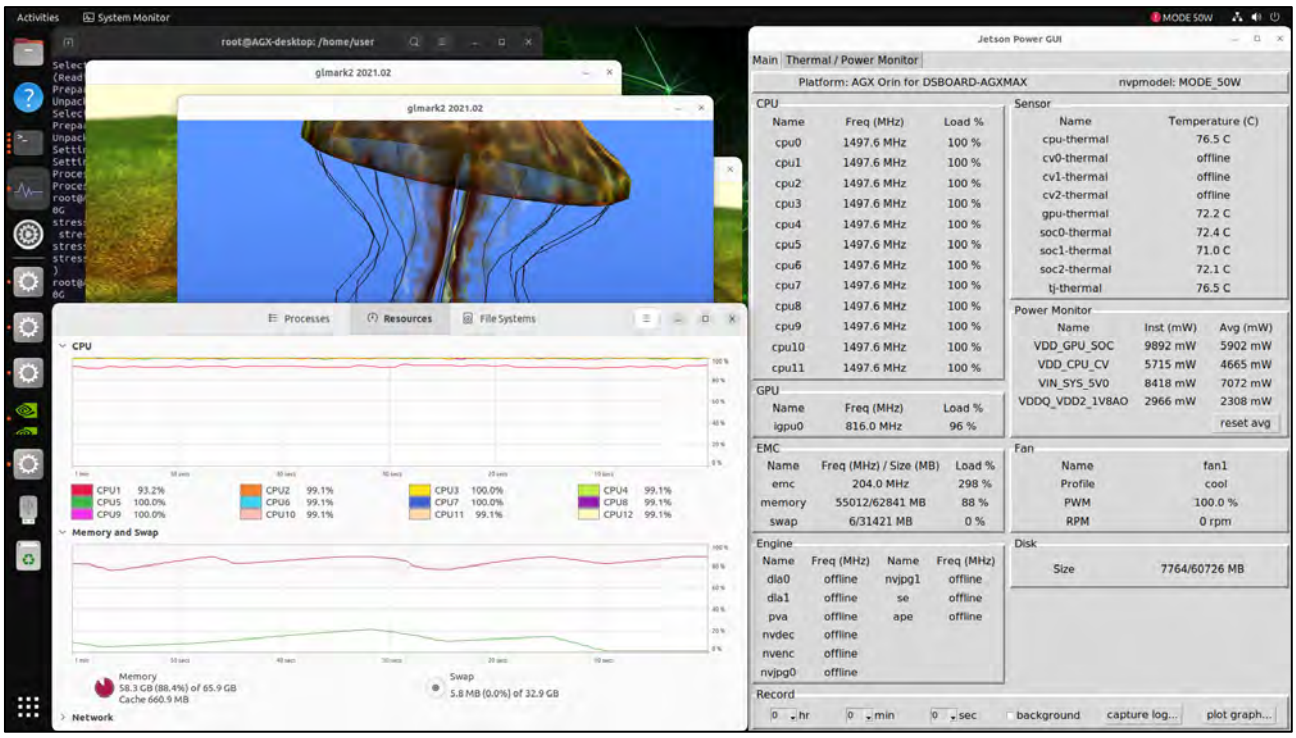


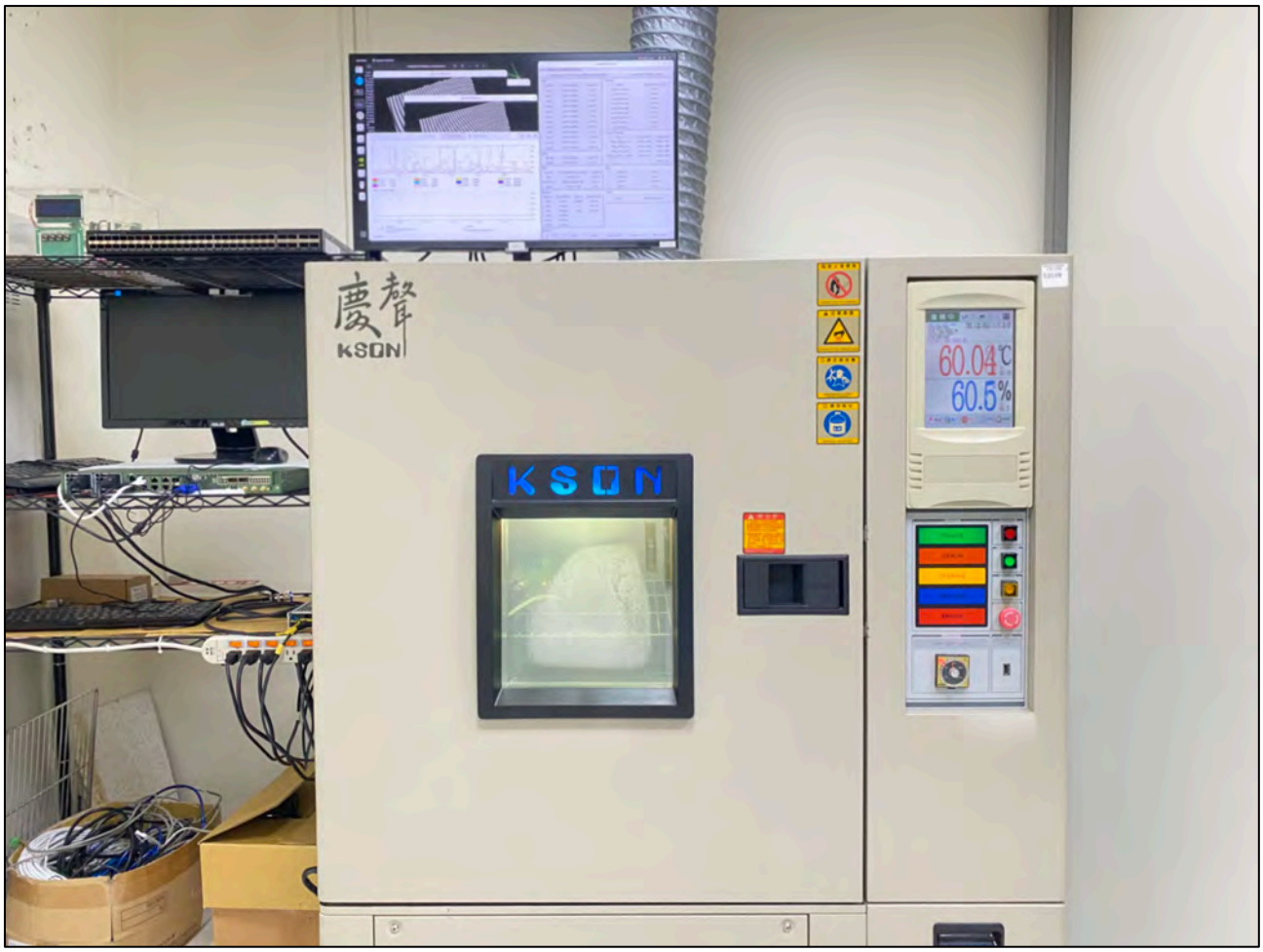


- Chamber in 50°C / 60%RH



- Chamber in 60°C / 60%RH





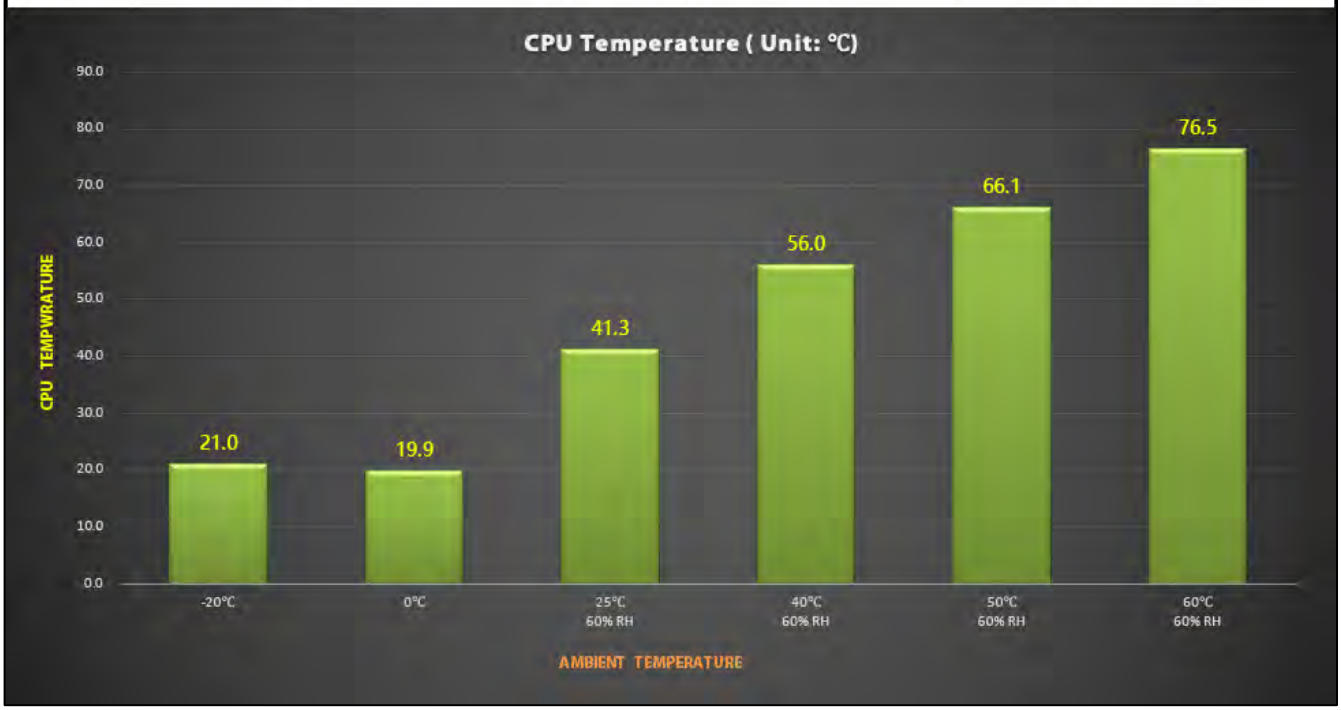
4. THERMAL TEST RESULT(-20°C ~ +60°C)

CPU & GPU Temperature/Frequency

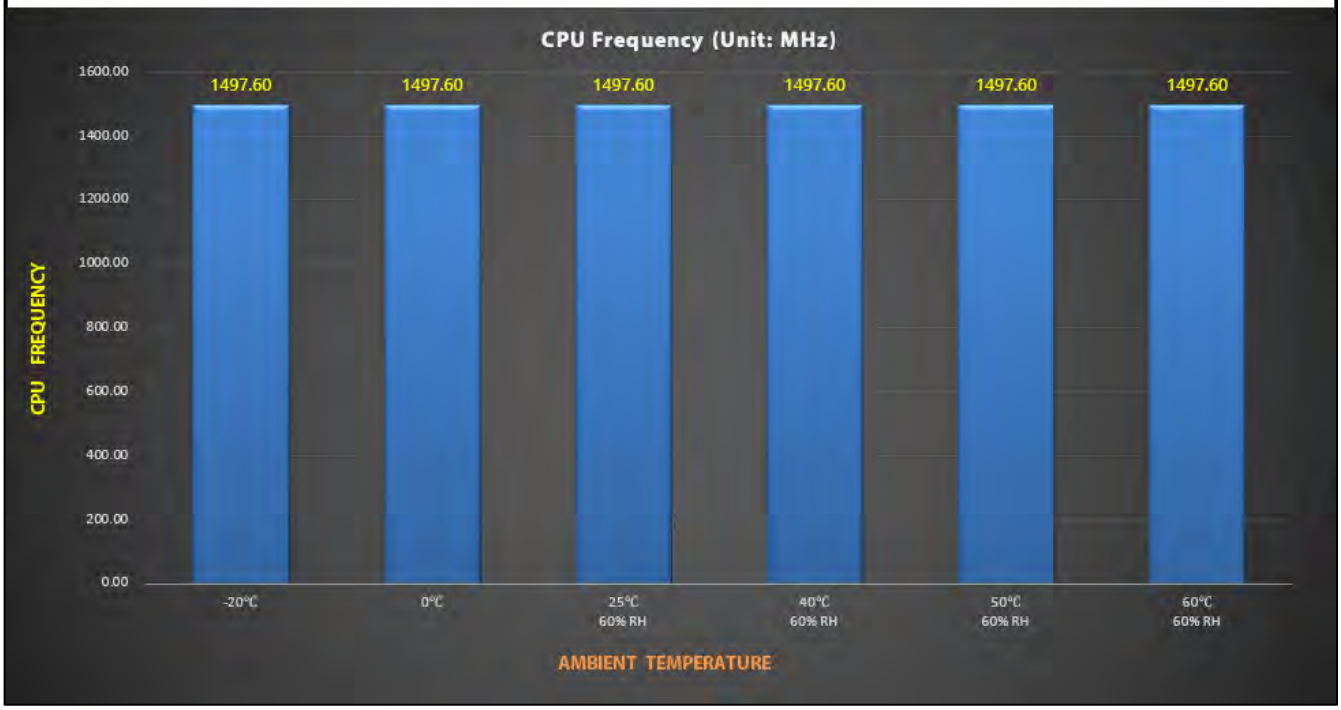
Temperature / Ambient Temp. / Frequency	-20°C	0°C	25°C 60% RH	40°C 60% RH	50°C 60% RH	60°C 60% RH
CPU Cores Max Temperature (Unit: °C)	21.0	19.9	41.3	56.0	66.1	76.5
CPU Cores Frequency (Unit: MHz)	1497.60	1497.60	1497.60	1497.60	1497.60	1497.60

Temperature / Ambient Temp. / Frequency	-20°C	0°C	25°C 60% RH	40°C 60% RH	50°C 60% RH	60°C 60% RH
GPU Temperature (Unit: °C)	15.2	14.7	36.8	51.7	62.5	72.2
GPU Frequency (Unit: MHz)	816.0	816.0	816.0	816.0	816.0	816.0

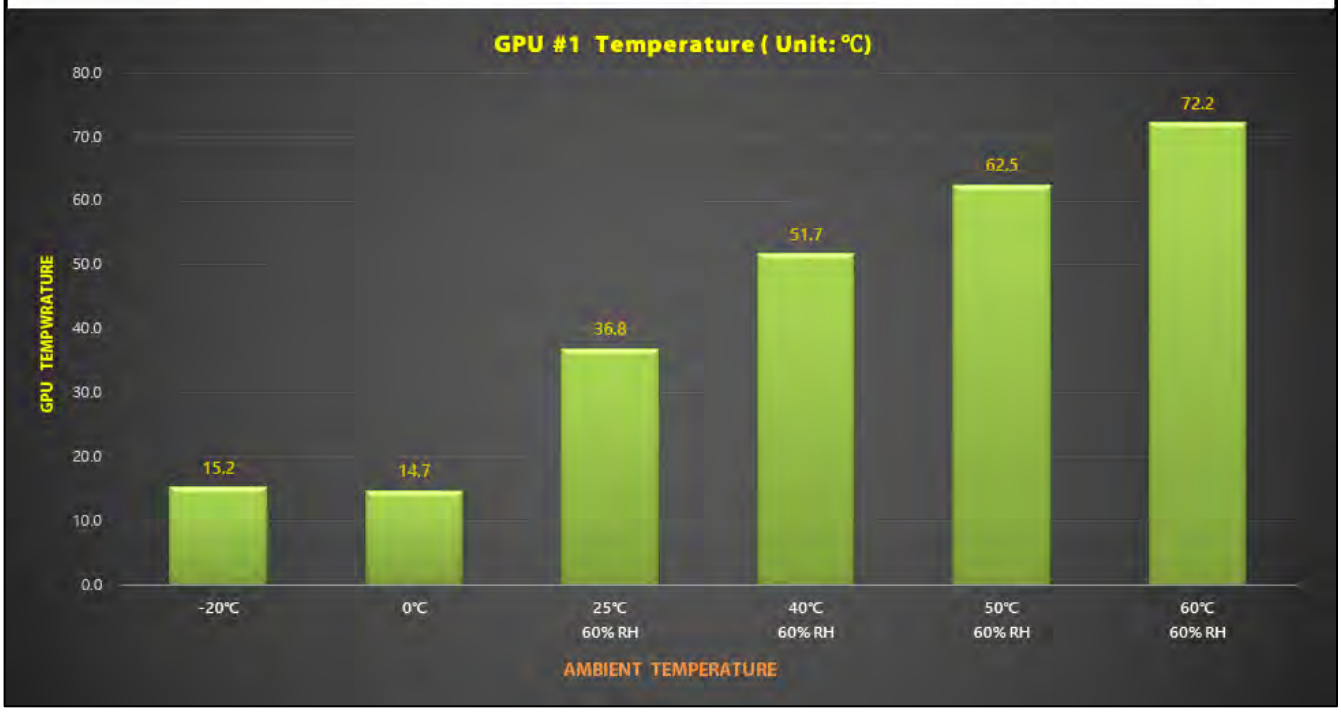
Core Temp / Ambient Temp / CPU Frequency	-20°C	0°C	25°C 60% RH	40°C 60% RH	50°C 60% RH	60°C 60% RH
CPU Cores Max Temperature (Unit: °C)	21.0	19.9	41.3	56.0	66.1	76.5



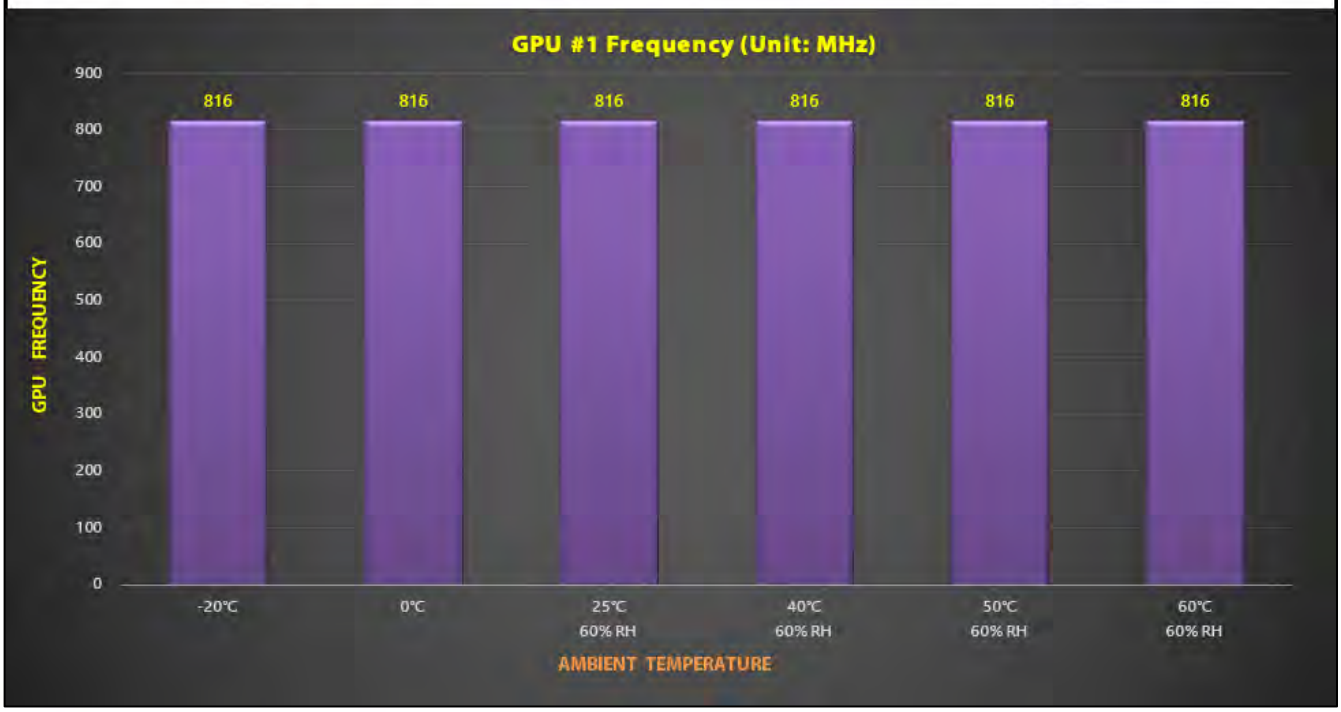
Core Temp / Ambient Temp / CPU Frequency	-20°C	0°C	25°C 60% RH	40°C 60% RH	50°C 60% RH	60°C 60% RH
CPU Cores Frequency (Unit: MHz)	1497.60	1497.60	1497.60	1497.60	1497.60	1497.60



Core Temp / Ambient Temp / CPU Frequency	-20°C	0°C	25°C 60% RH	40°C 60% RH	50°C 60% RH	60°C 60% RH
GPU #1 Temperature (Unit: ℃)	15.2	14.7	36.8	51.7	62.5	72.2

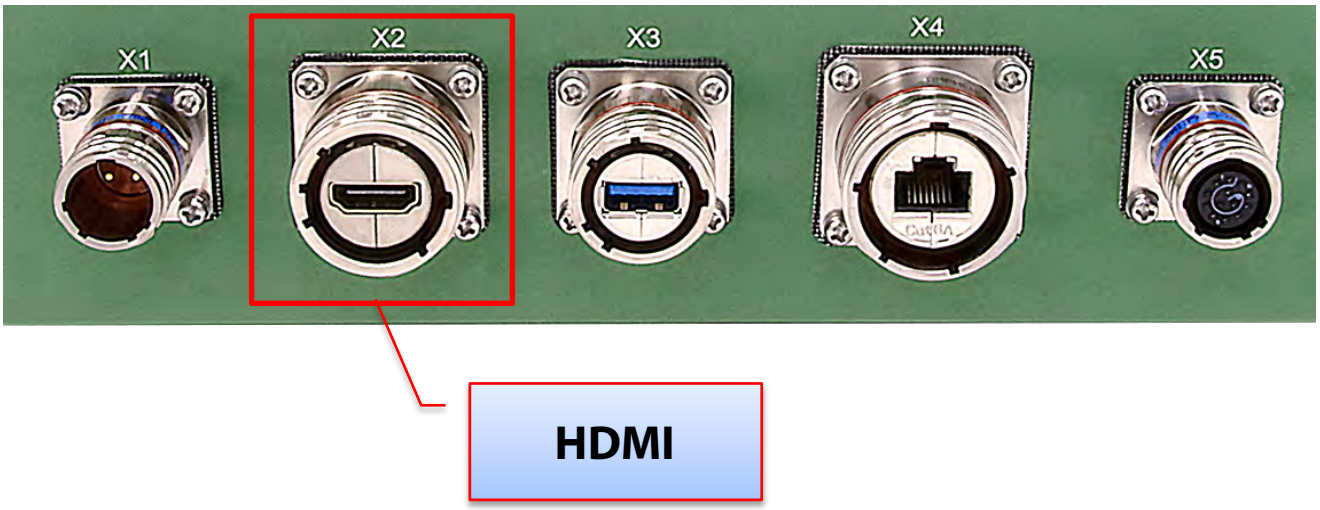


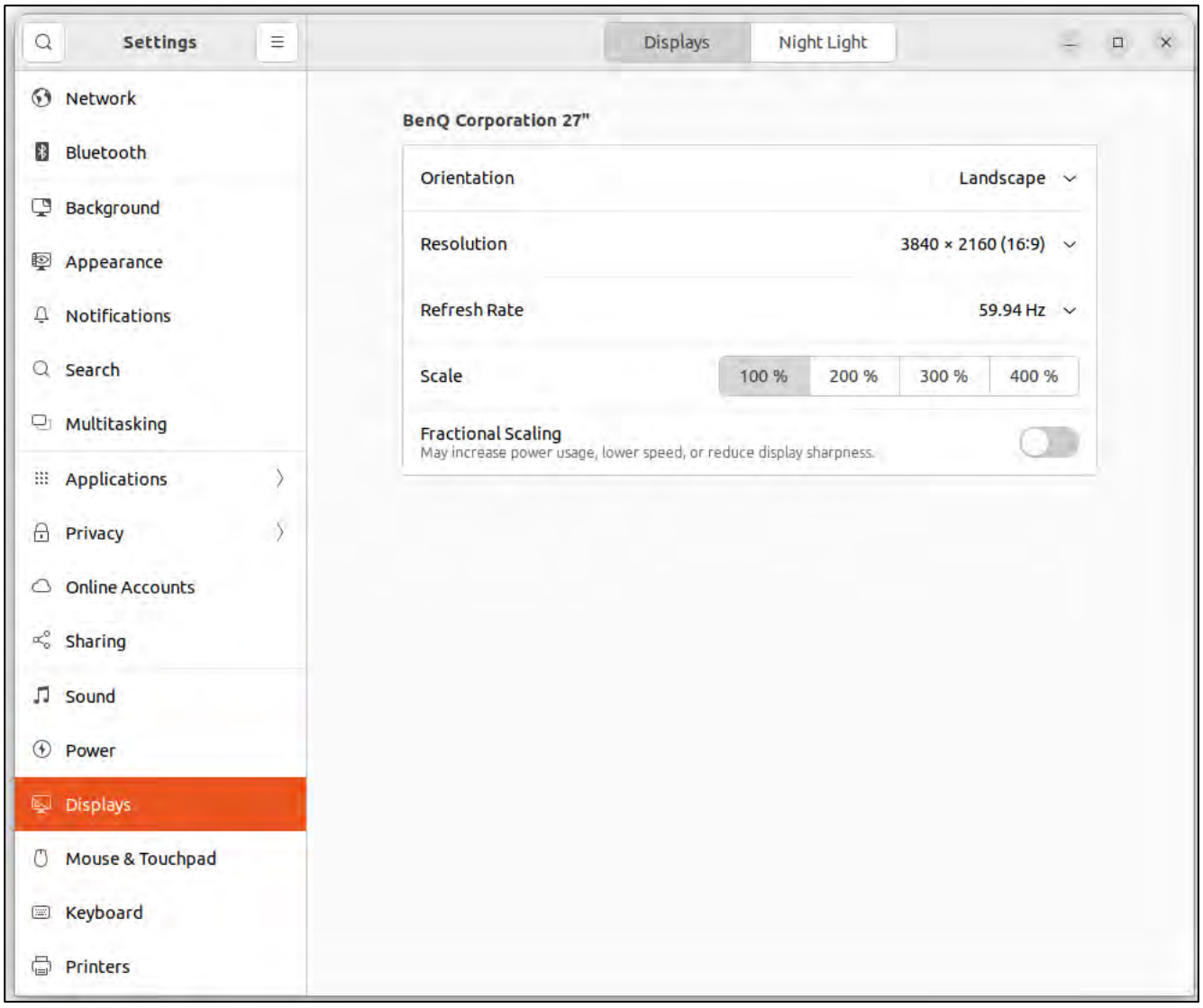
Core Temp / Ambient Temp / CPU Frequency	-20°C	0°C	25°C 60% RH	40°C 60% RH	50°C 60% RH	60°C 60% RH
GPU Frequency (Unit: MHz)	816	816	816	816	816	816



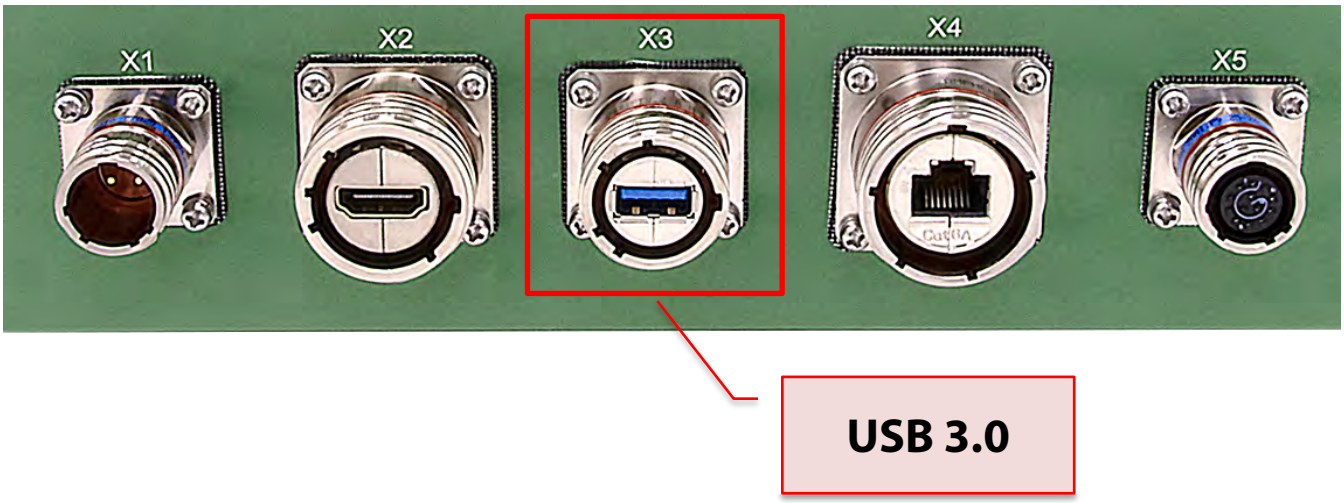
5. I/O FUNCTION TEST

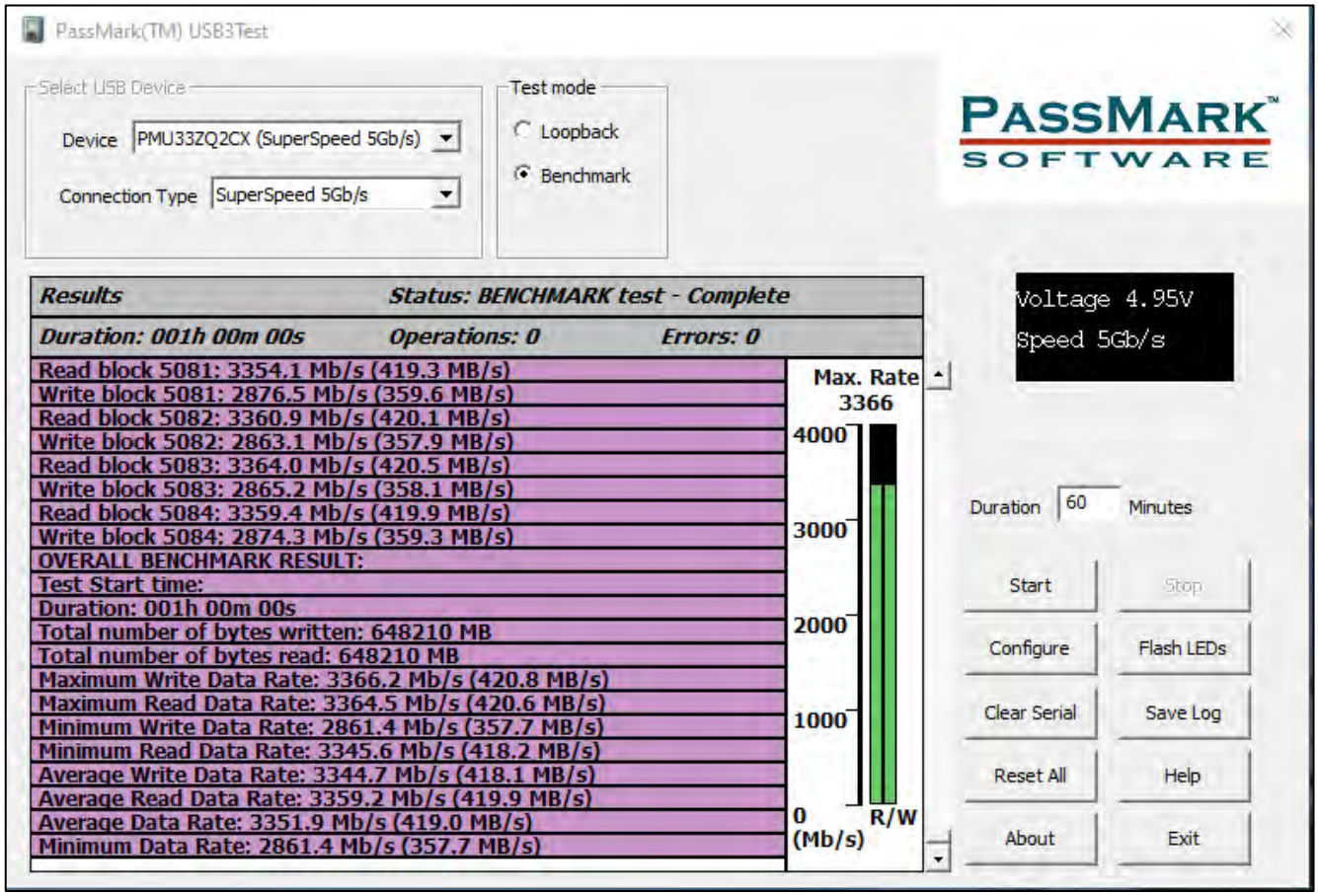
5-1. HDMI PORT



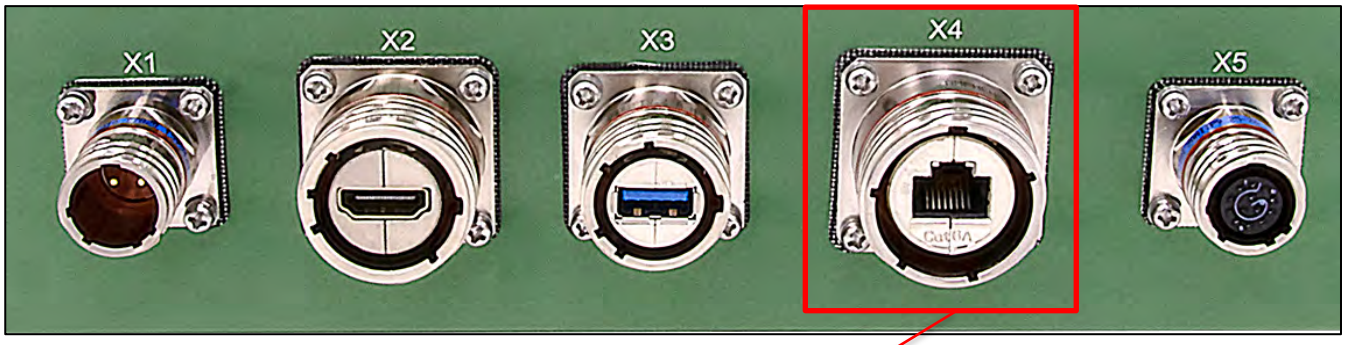


5-2. USB PORT


X1
X2
X3
X4
X5
USB 3.0


PassMark(TM) USB3Test
Select USB Device
Device
PMU33ZQ2CX (SuperSpeed 5Gb/s)
Connection Type
SuperSpeed 5Gb/s
Test mode
Loopback
Benchmark
PASSMARK SOFTWARE
Results
Status: BENCHMARK test - Complete
Duration: 001h 00m 00s
Operations: 0
Errors: 0
Read block 5081: 3354.1 Mb/s (419.3 MB/s)
Write block 5081: 2876.5 Mb/s (359.6 MB/s)
Read block 5082: 3360.9 Mb/s (420.1 MB/s)
Write block 5082: 2863.1 Mb/s (357.9 MB/s)
Read block 5083: 3364.0 Mb/s (420.5 MB/s)
Write block 5083: 2865.2 Mb/s (358.1 MB/s)
Read block 5084: 3359.4 Mb/s (419.9 MB/s)
Write block 5084: 2874.3 Mb/s (359.3 MB/s)
OVERALL BENCHMARK RESULT:
Test Start time:
Duration: 001h 00m 00s
Total number of bytes written: 648210 MB
Total number of bytes read: 648210 MB
Maximum Write Data Rate: 3366.2 Mb/s (420.8 MB/s)
Maximum Read Data Rate: 3364.5 Mb/s (420.6 MB/s)
Minimum Write Data Rate: 2861.4 Mb/s (357.7 MB/s)
Minimum Read Data Rate: 3345.6 Mb/s (418.2 MB/s)
Average Write Data Rate: 3344.7 Mb/s (418.1 MB/s)
Average Read Data Rate: 3359.2 Mb/s (419.9 MB/s)
Average Data Rate: 3351.9 Mb/s (419.0 MB/s)
Minimum Data Rate: 2861.4 Mb/s (357.7 MB/s)
Max. Rate
3366
4000
3000
2000
1000
0
(Mb/s)
R/W
Voltage 4.95V
Speed 5Gb/s
Duration
60
Minutes
Start
Stop
Configure
Flash LEDs
Clear Serial
Save Log
Reset All
Help
About
Exit

5-3. LAN PORT

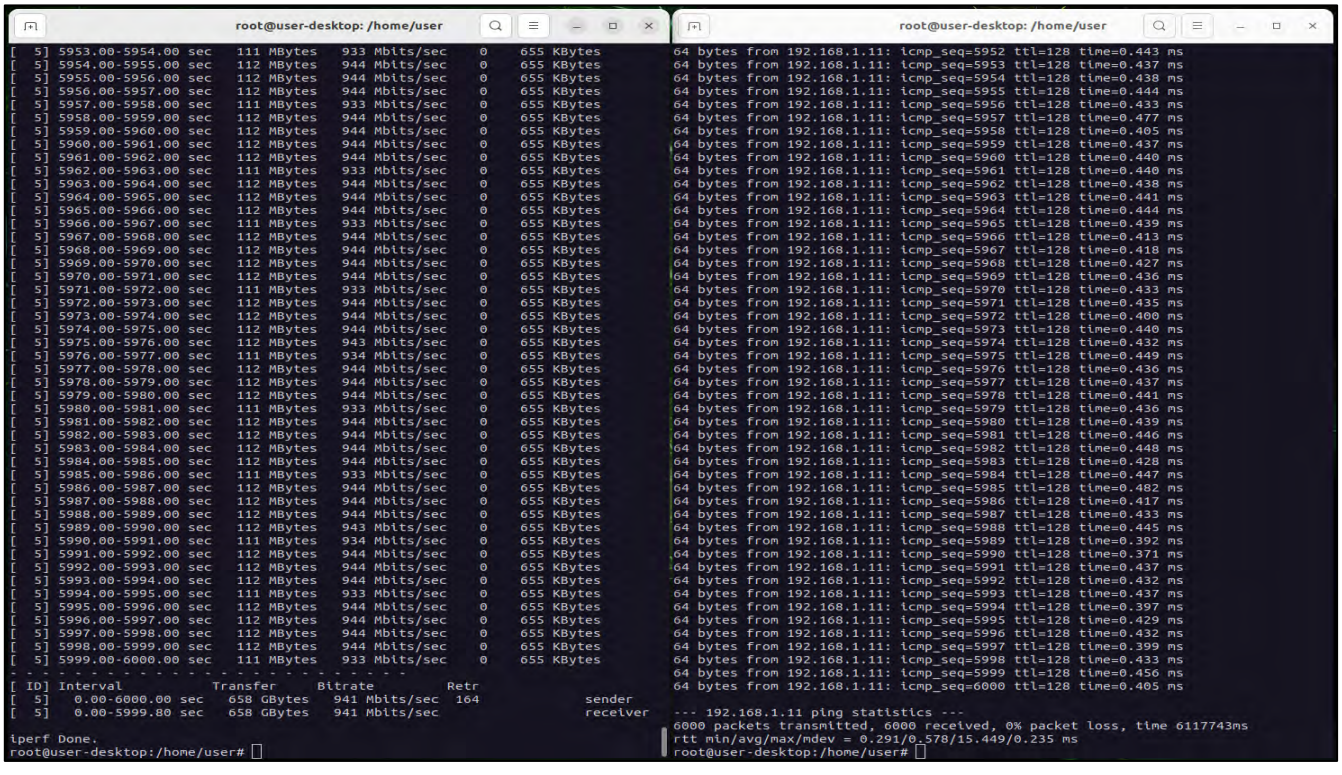


1.0GbE

LAN SPEED

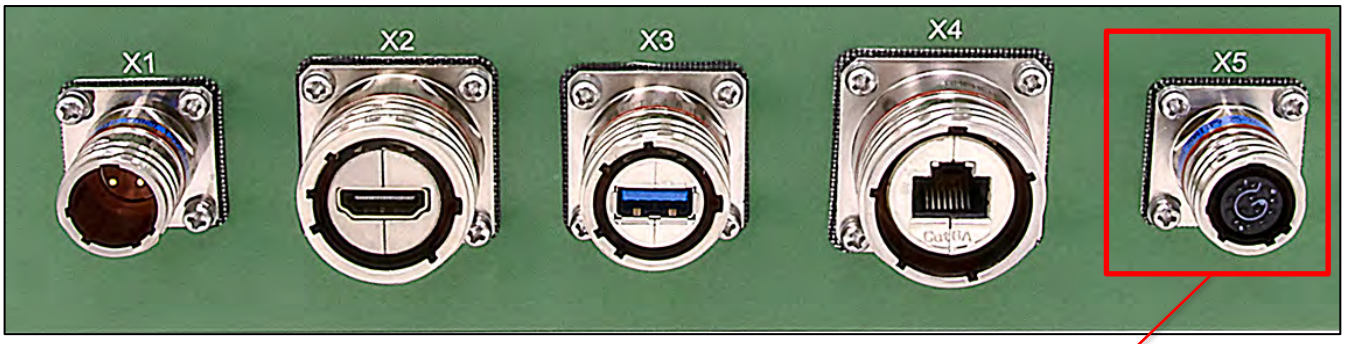
LAN Data-Packet

X4 – LAN Port



LAN Speed Test Result: Pass
LAN Data-Packet Test Result: 0 Lost (0% loss)

5-4. SERIAL PORT & USB PORT



This port provides RS-422 data transmission and the device's USB interface for the display connection.

RS-422 data transmission

The USB interface is used to transmit the side-panel function-key signals of the display.

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