



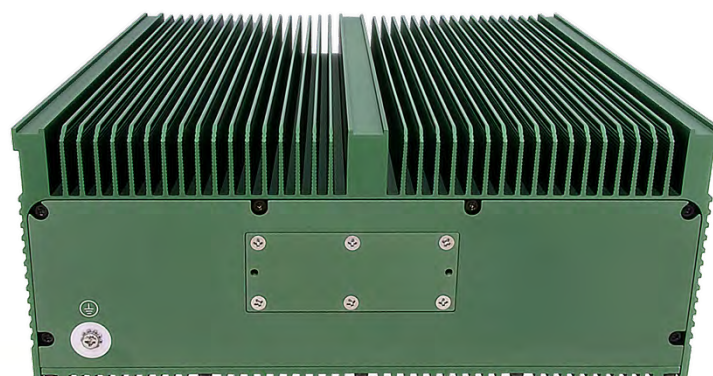
# PERFORMANCE TEST REPORT

## 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



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# 1. SPECIFICATION

## 1-1. SYSTEM CONFIGURATION

<b>Motherboard</b>	AGX Orin for DSBOARD-AGXMAX Board Serial Number: 1425124333971 BIOS Firmware Version: 36.3.0-gcid-36191598
<b>CPU</b>	Product: ARMv8 Model name: Cortex-A78AE CPU max (MHz): 2201.6 MHz
<b>Memory</b>	64GB 256-bit LPDDR5 204.8GB/s
<b>Storage</b>	64GB eMMC 5.1
<b>GPU</b>	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	<p>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.</p> <p>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.</p>																																										
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	<p>1. Thermal Pre-Scan Measurement: Temperature Range: -20°C to 60°C Humidity Condition: 60% RH (when temperature exceeds 25°C)</p> <p>2. Actual Thermal Measurement Procedure:</p> <p>2.1. Identify the test points using the infrared thermal image and attach thermocouples to the identified hot spots.</p> <p>2.2. Place the Equipment Under Test (EUT) in the thermal chamber and configure the test temperature profile according to the specified requirements.</p> <p>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.</p> <p>2.4. After running the test software continuously for 8 hours, record the peak temperature observed at each thermocouple measurement point.</p> <p>2.5. Power off both the thermal chamber and the EUT.</p> <p>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.</p>																																										
Test Diagram of Curves	<p>Environment defines for 53 hours.</p> <table border="1"><thead><tr><th>Time (hour)</th><th>Temperature (°C)</th><th>Humidity (%)</th></tr></thead><tbody><tr><td>0.5</td><td>25</td><td>0</td></tr><tr><td>1.5</td><td>-20</td><td>0</td></tr><tr><td>9.5</td><td>-20</td><td>0</td></tr><tr><td>10.0</td><td>-20</td><td>0</td></tr><tr><td>18.0</td><td>25</td><td>60</td></tr><tr><td>26.5</td><td>60</td><td>60</td></tr><tr><td>35.0</td><td>40</td><td>60</td></tr><tr><td>35.5</td><td>50</td><td>60</td></tr><tr><td>43.5</td><td>60</td><td>60</td></tr><tr><td>44.0</td><td>50</td><td>60</td></tr><tr><td>52.0</td><td>60</td><td>60</td></tr><tr><td>52.5</td><td>60</td><td>60</td></tr><tr><td>53.0</td><td>25</td><td>0</td></tr></tbody></table>	Time (hour)	Temperature (°C)	Humidity (%)	0.5	25	0	1.5	-20	0	9.5	-20	0	10.0	-20	0	18.0	25	60	26.5	60	60	35.0	40	60	35.5	50	60	43.5	60	60	44.0	50	60	52.0	60	60	52.5	60	60	53.0	25	0
Time (hour)	Temperature (°C)	Humidity (%)																																									
0.5	25	0																																									
1.5	-20	0																																									
9.5	-20	0																																									
10.0	-20	0																																									
18.0	25	60																																									
26.5	60	60																																									
35.0	40	60																																									
35.5	50	60																																									
43.5	60	60																																									
44.0	50	60																																									
52.0	60	60																																									
52.5	60	60																																									
53.0	25	0																																									

## 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.

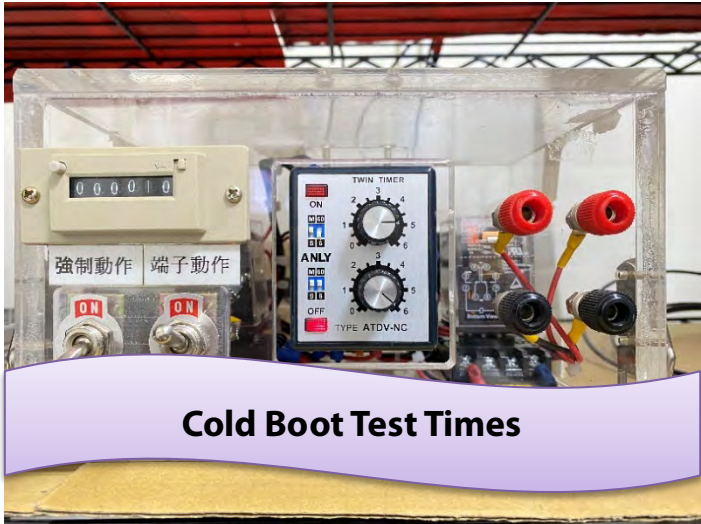
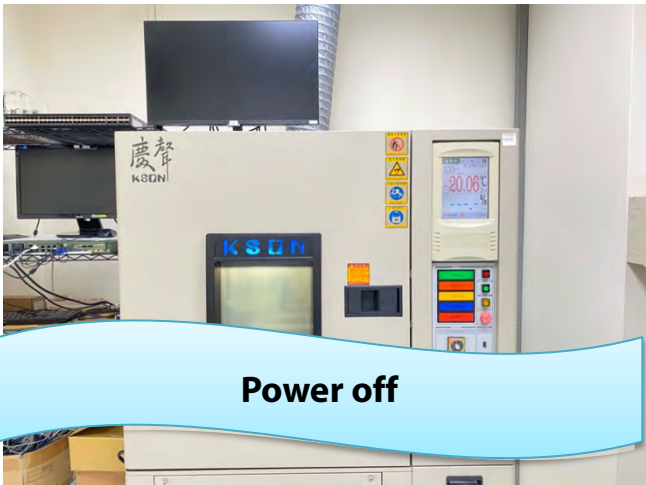
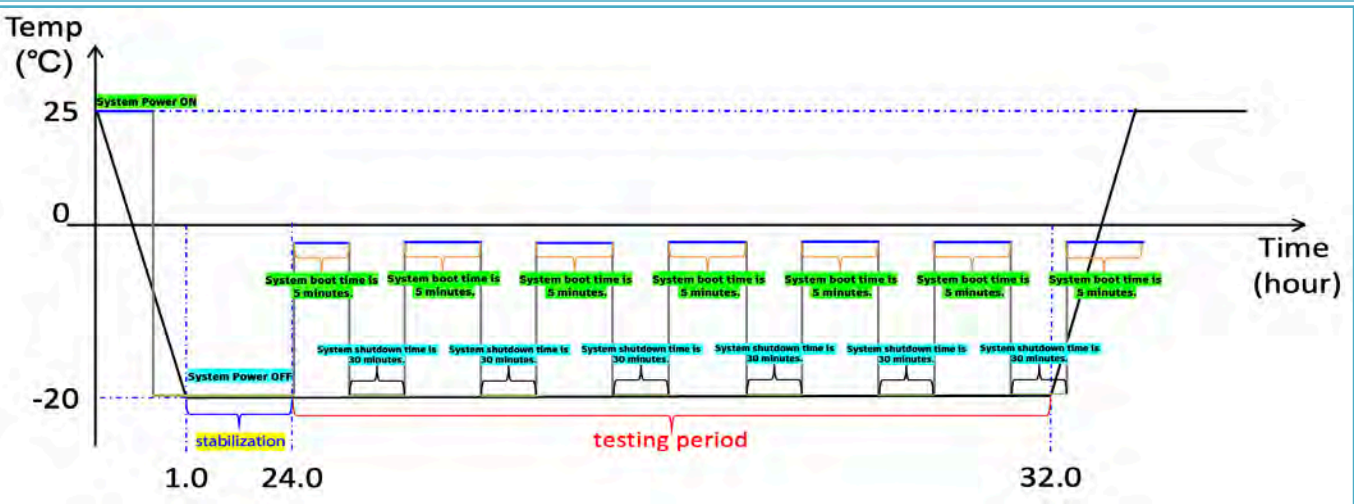
Item	Test Criteria	Result
<b>X2 – HDMI</b>	The HDMI output was verified to be working properly with a resolution of 3840 x 2160.	<b>PASS</b>
<b>X3 – USB 3.0</b>	A PassMark USB 3.0 Loopback was connected for testing and was found to be functioning normally.	<b>PASS</b>
<b>X4 – 1.0GbE</b>	Data transmission 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.	<b>PASS</b>
<b>X5 – RS422</b>	he two RS422 devices were successfully connected. Data transmission tests showed no packet loss, confirming normal operation.	<b>PASS</b>



### 2-2-3. Low Temperature Power Cycle Test

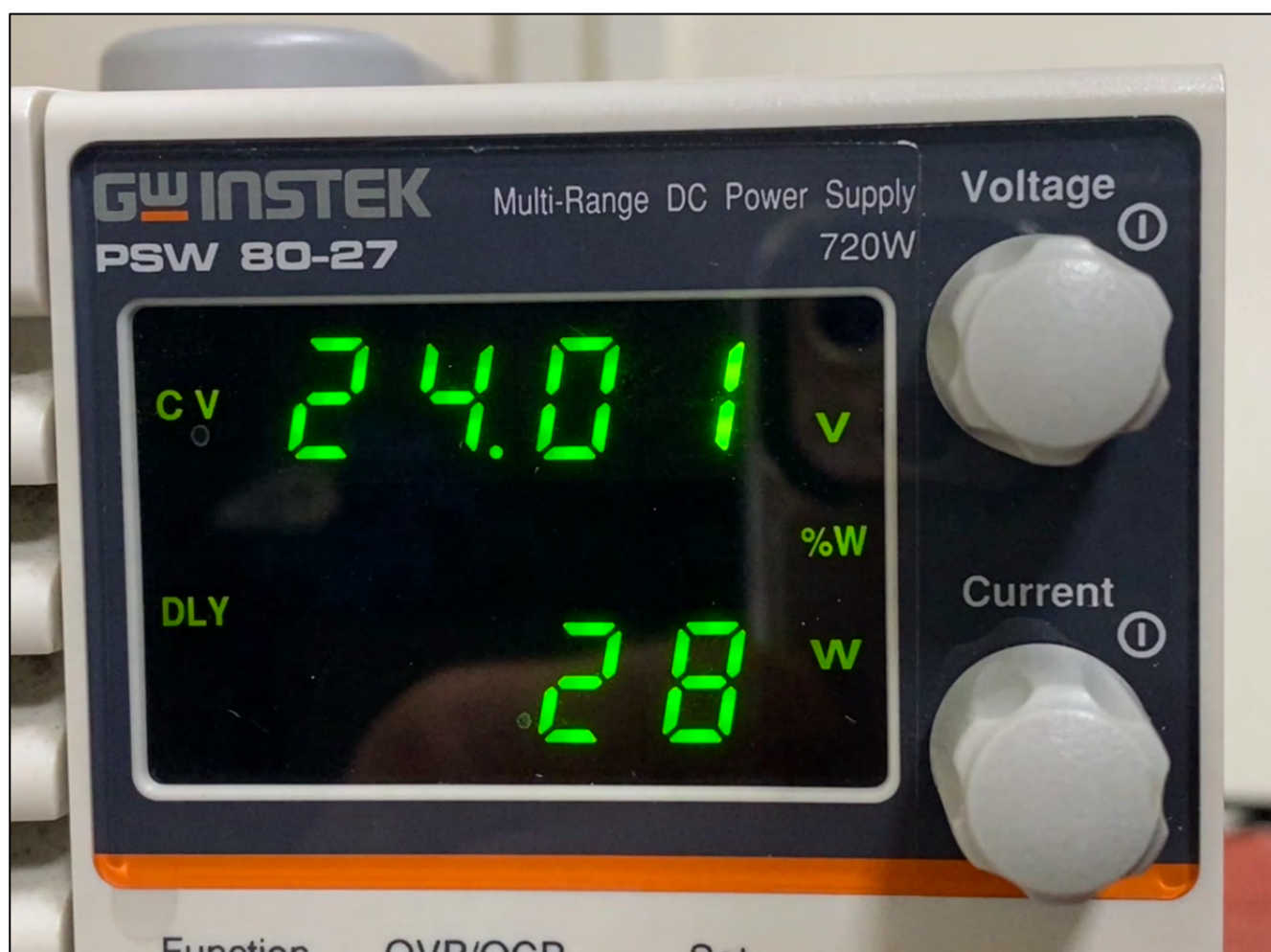
# Apply power to the system under a -20°C ambient condition and confirm successful system boot-up, ensuring stable initialization and operation at low temperatures.

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



### 2-3. POWER CONSUMPTION

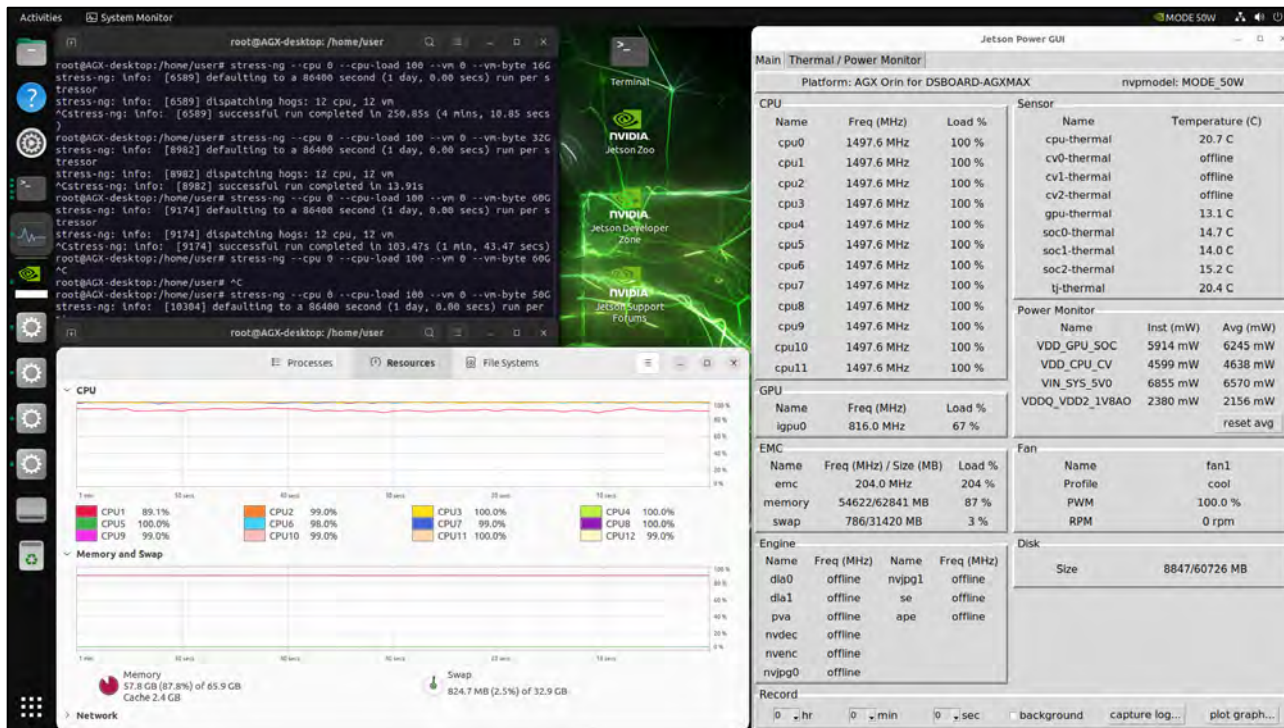
Voltage	Current	Wattage
12.0V	2.33A	28W
24.0V	1.67A	28W
30.0V	0.93A	28W





### 3. TEST PHOTO IN LAB

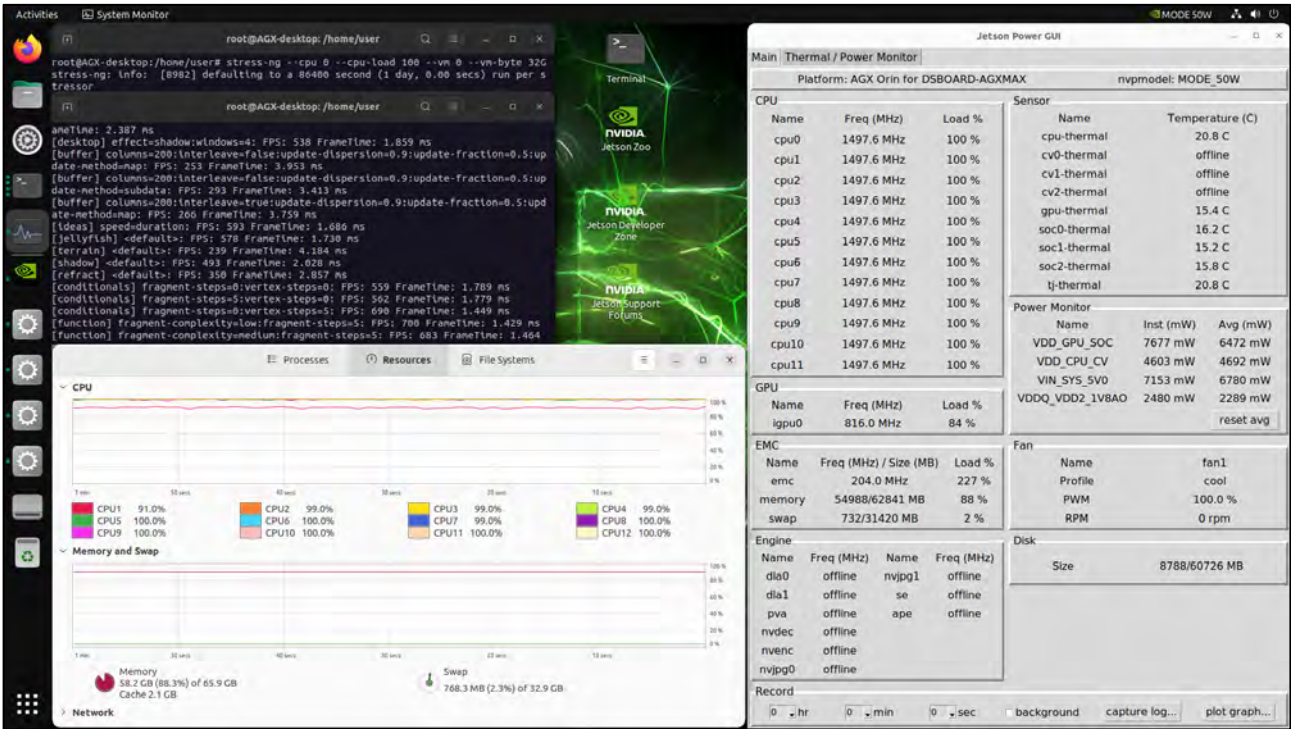
- Chamber in -20°C / 0%RH



# PERFORMANCE TEST REPORT

## NV300-1LS64-AMB

- Chamber in 0°C / 0%RH

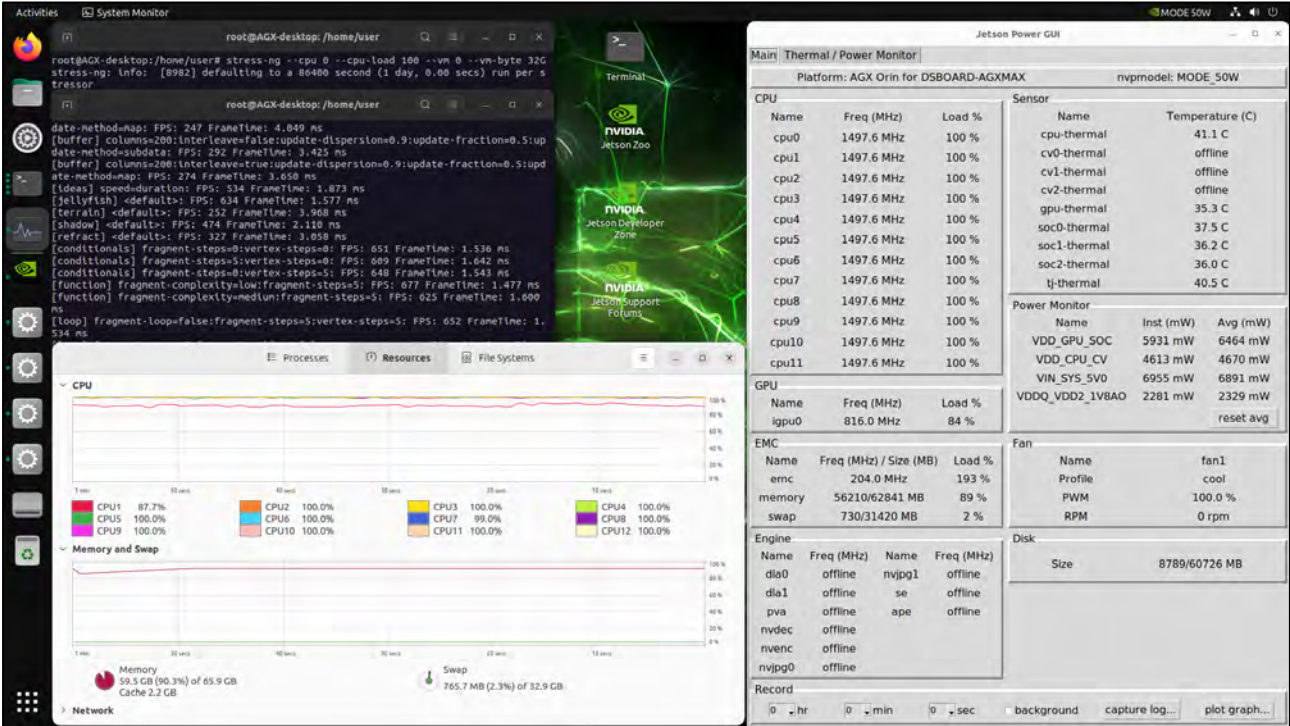




# PERFORMANCE TEST REPORT

## NV300-1LS64-AMB

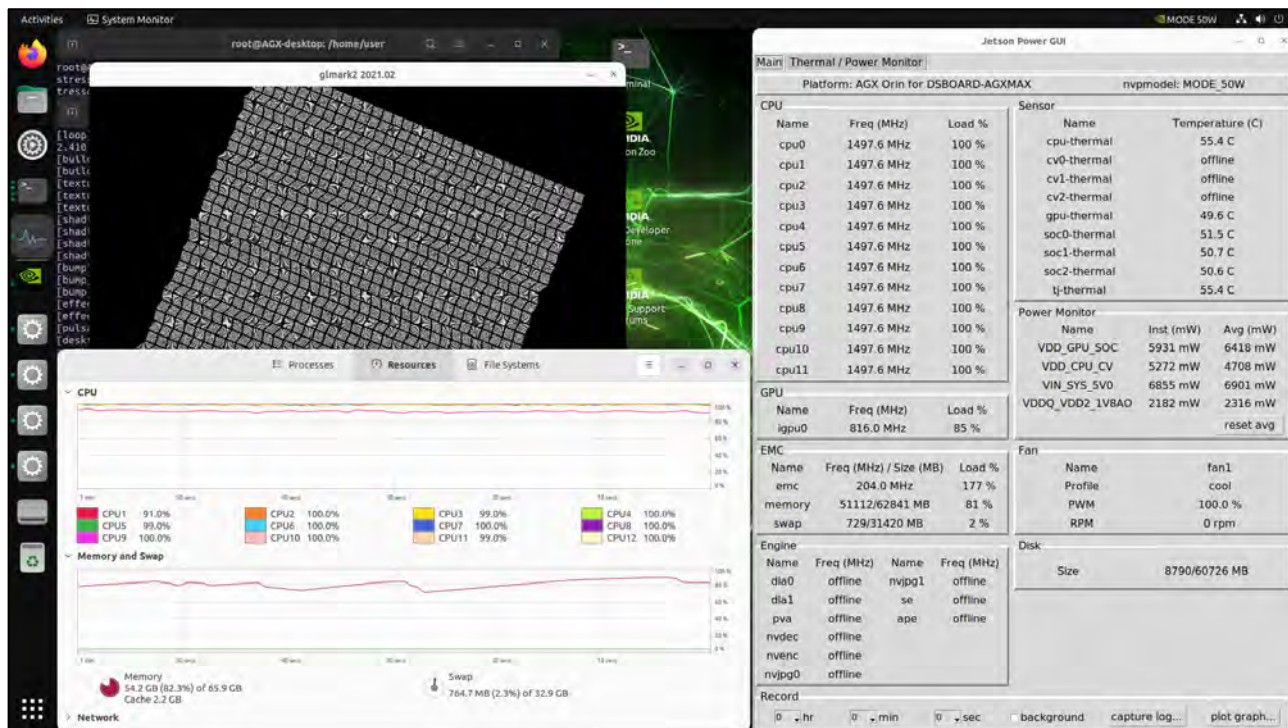
- Chamber in 25°C / 60%RH



# PERFORMANCE TEST REPORT

## NV300-1LS64-AMB

- Chamber in 40°C / 60%RH

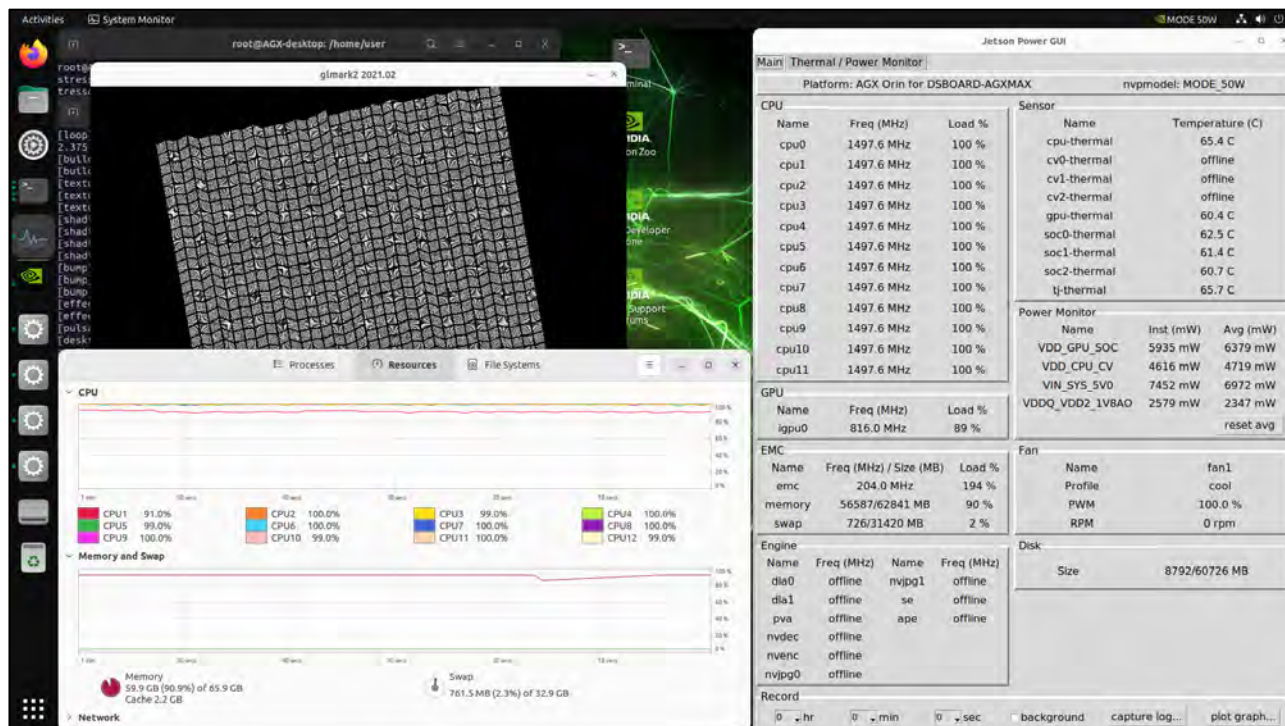




# PERFORMANCE TEST REPORT

## NV300-1LS64-AMB

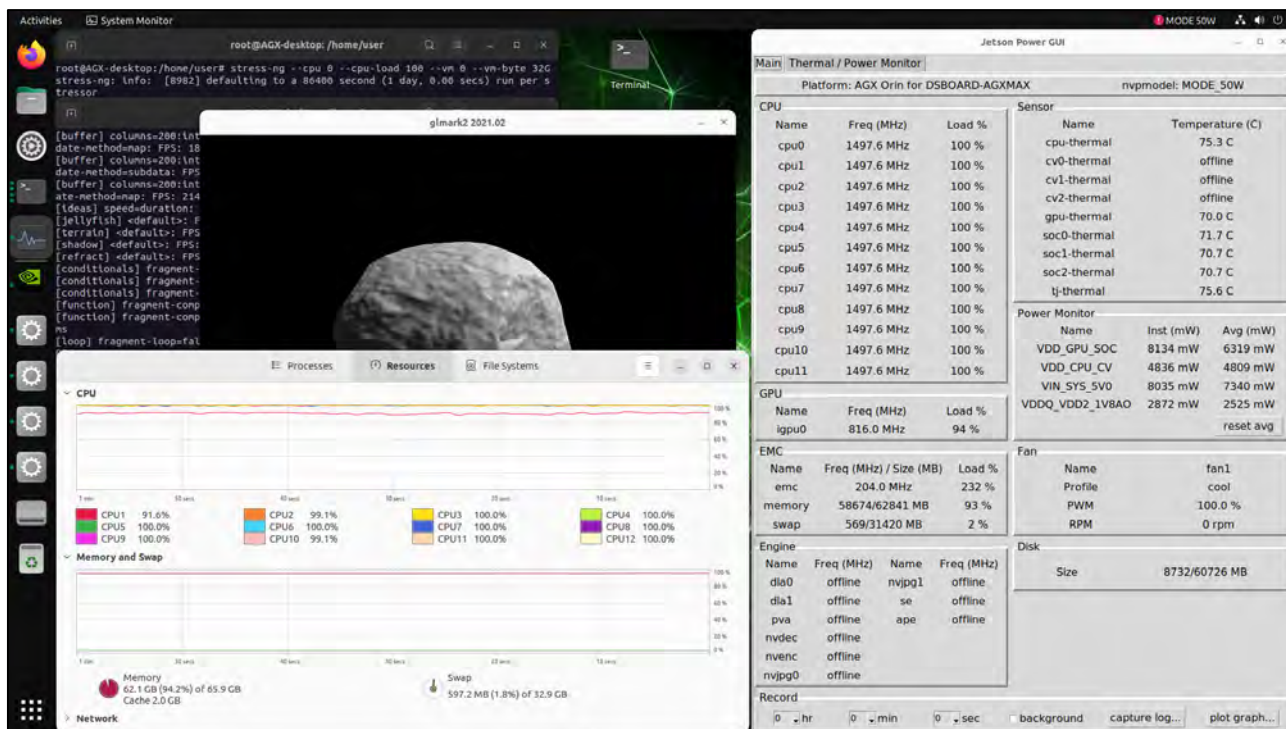
### - Chamber in 50°C / 60%RH



# PERFORMANCE TEST REPORT

## NV300-1LS64-AMB

- Chamber in 60°C / 60%RH





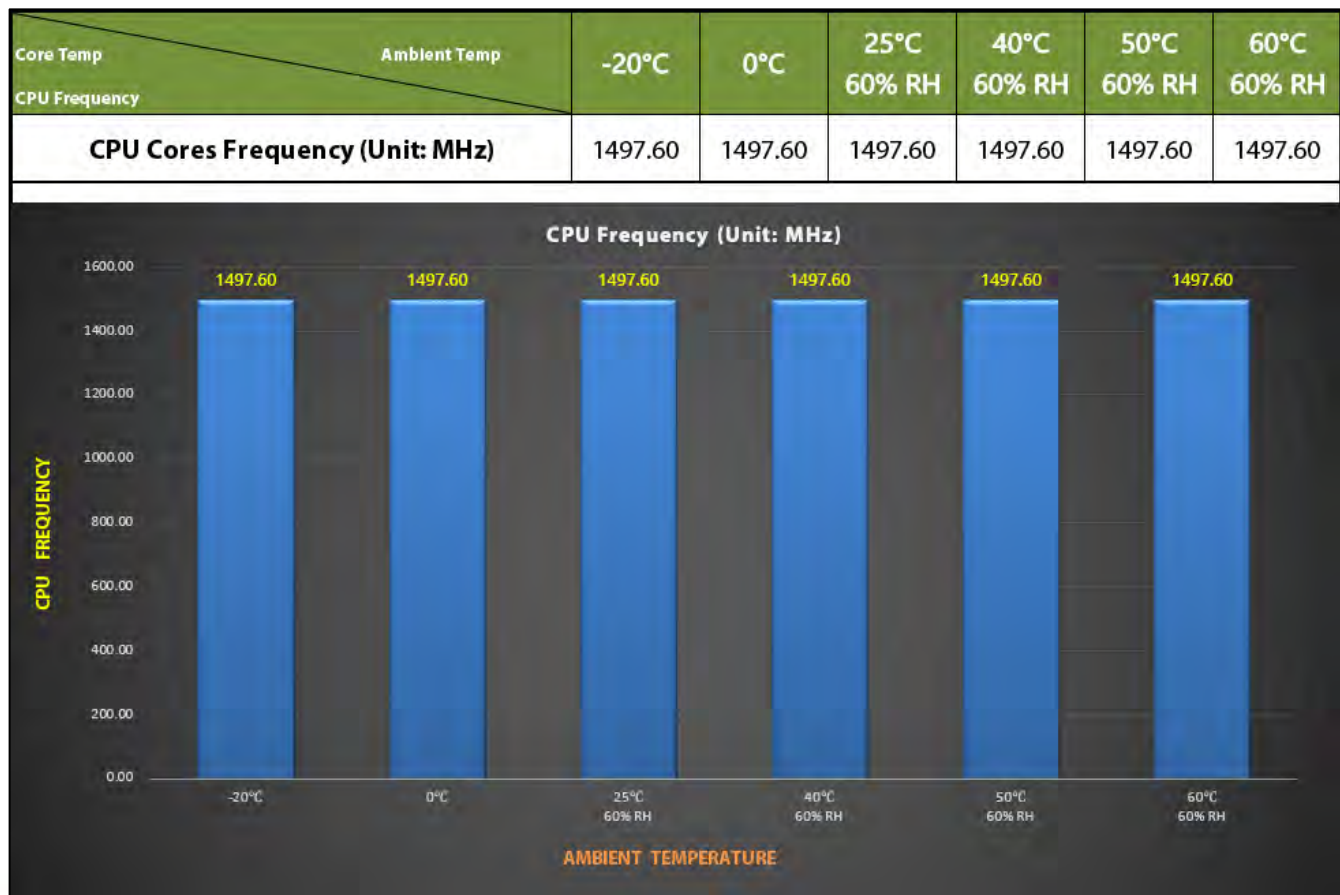
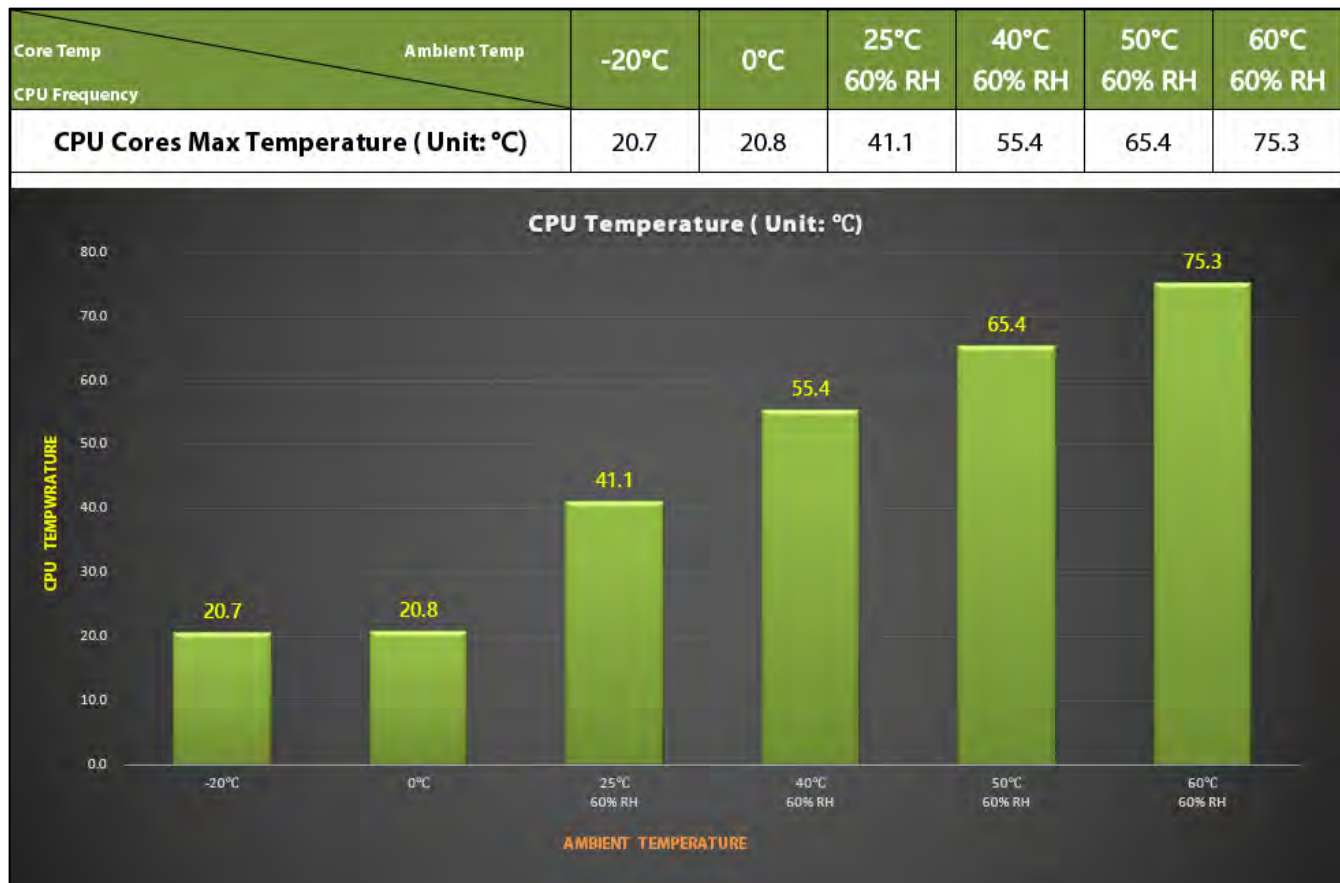
## 4. THERMAL TEST RESULT(-20°C ~ +60°C)

**CPU & GPU Temperature/Frequency**

Temperature Frequency	Ambient Temp.	-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 Frequency	Ambient Temp.	-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

# PERFORMANCE TEST REPORT

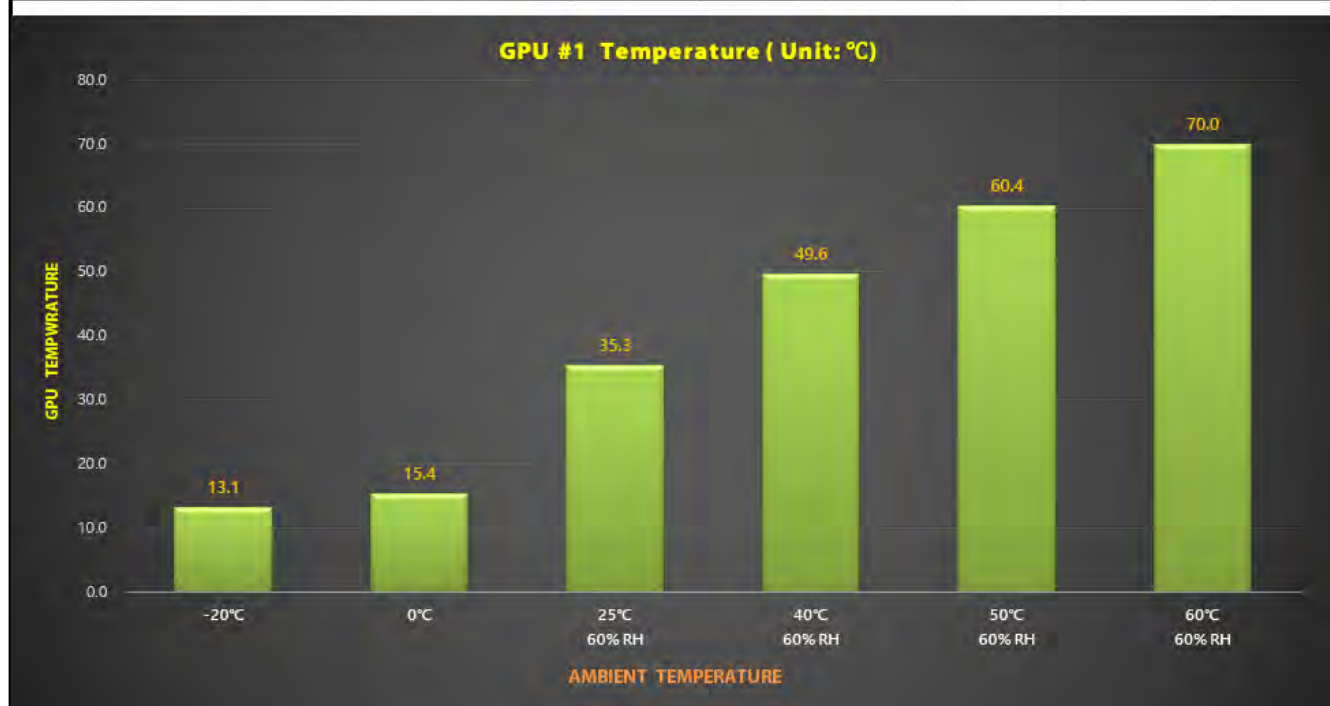
## NV300-1LS64-AMB



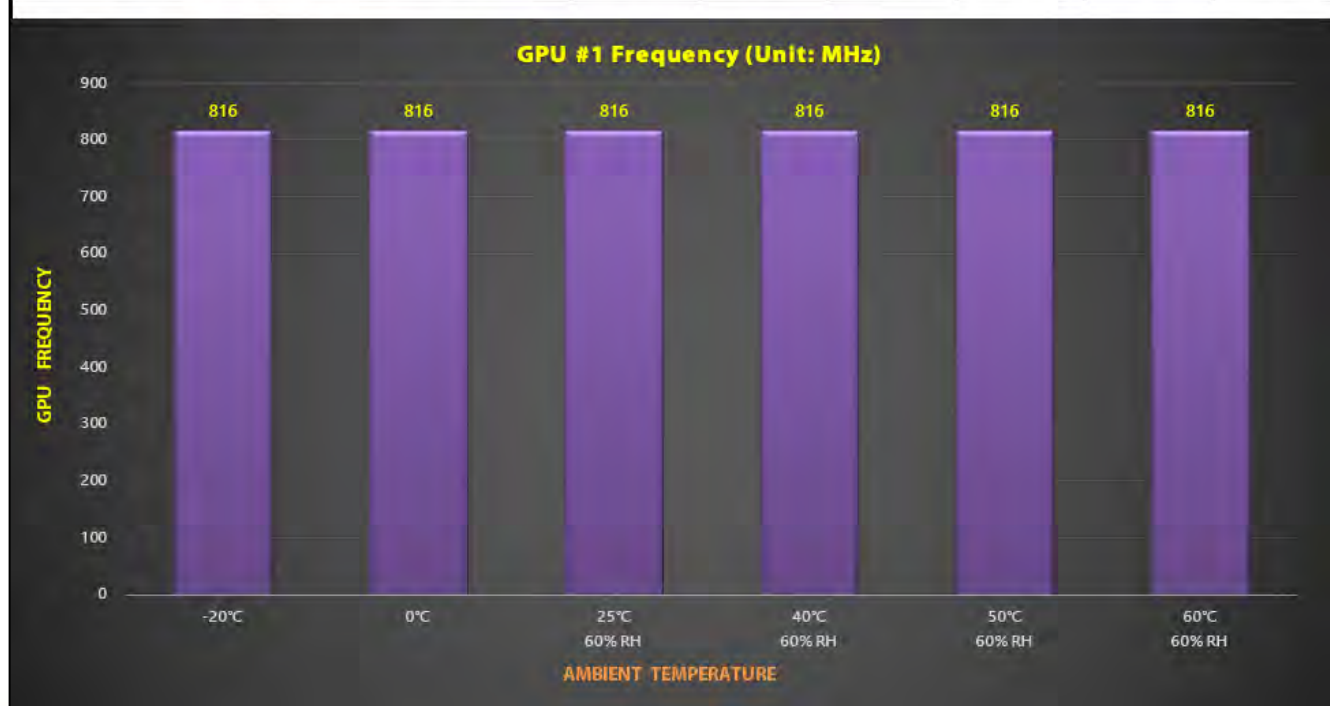
# PERFORMANCE TEST REPORT

NV300-1LS64-AMB

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



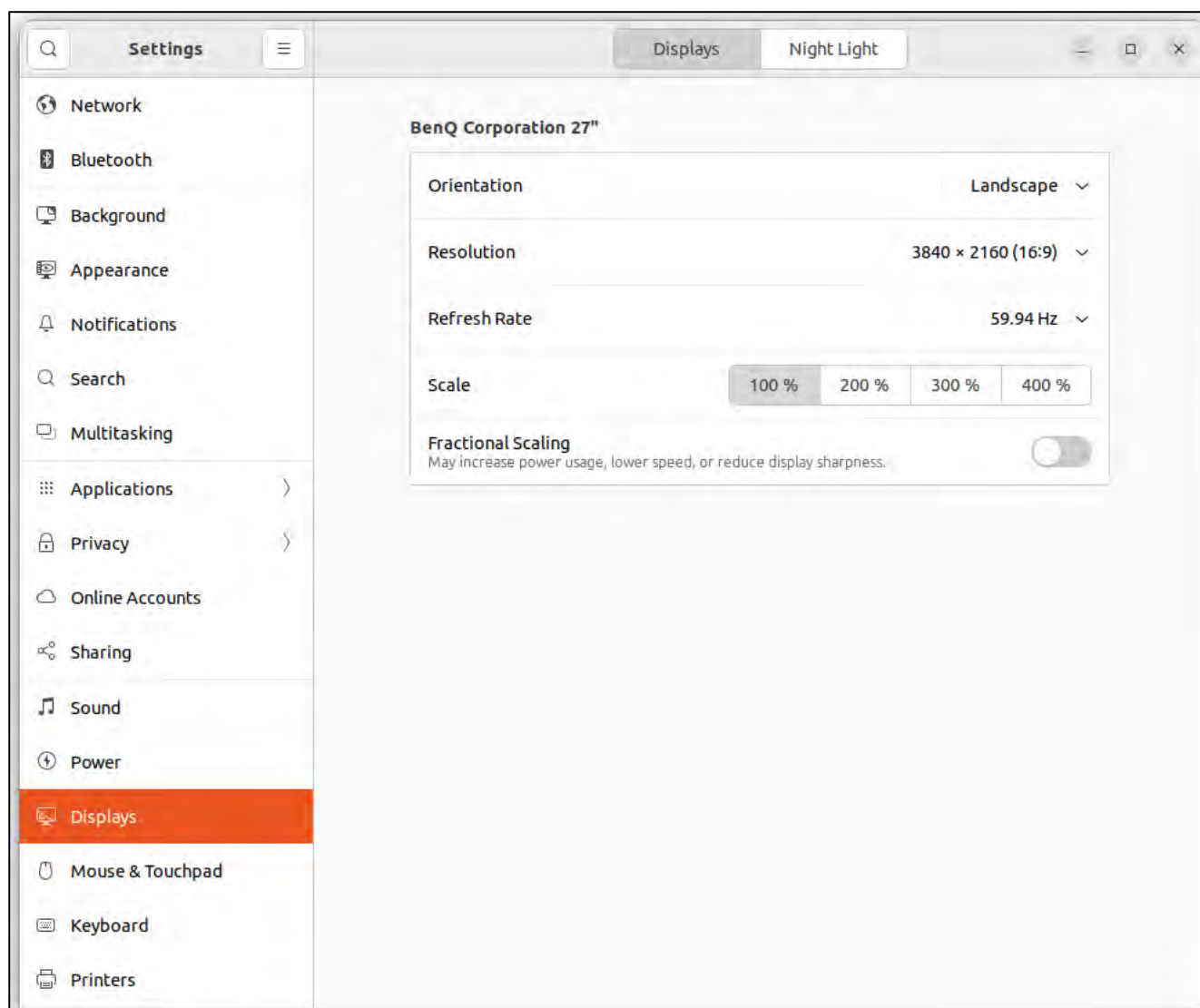
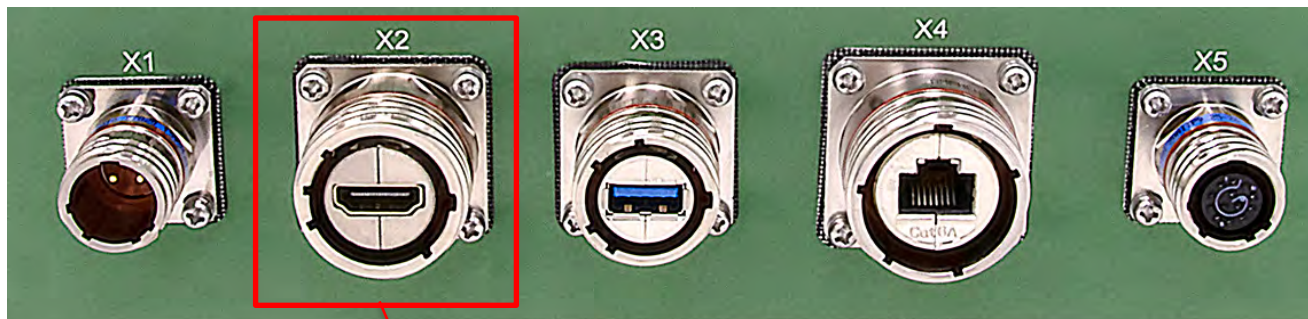
Core Temp CPU Frequency	Ambient Temp	-20°C	0°C	25°C 60% RH	40°C 60% RH	50°C 60% RH	60°C 60% RH
GPU #1 Frequency (Unit: MHz)		816	816	816	816	816	816





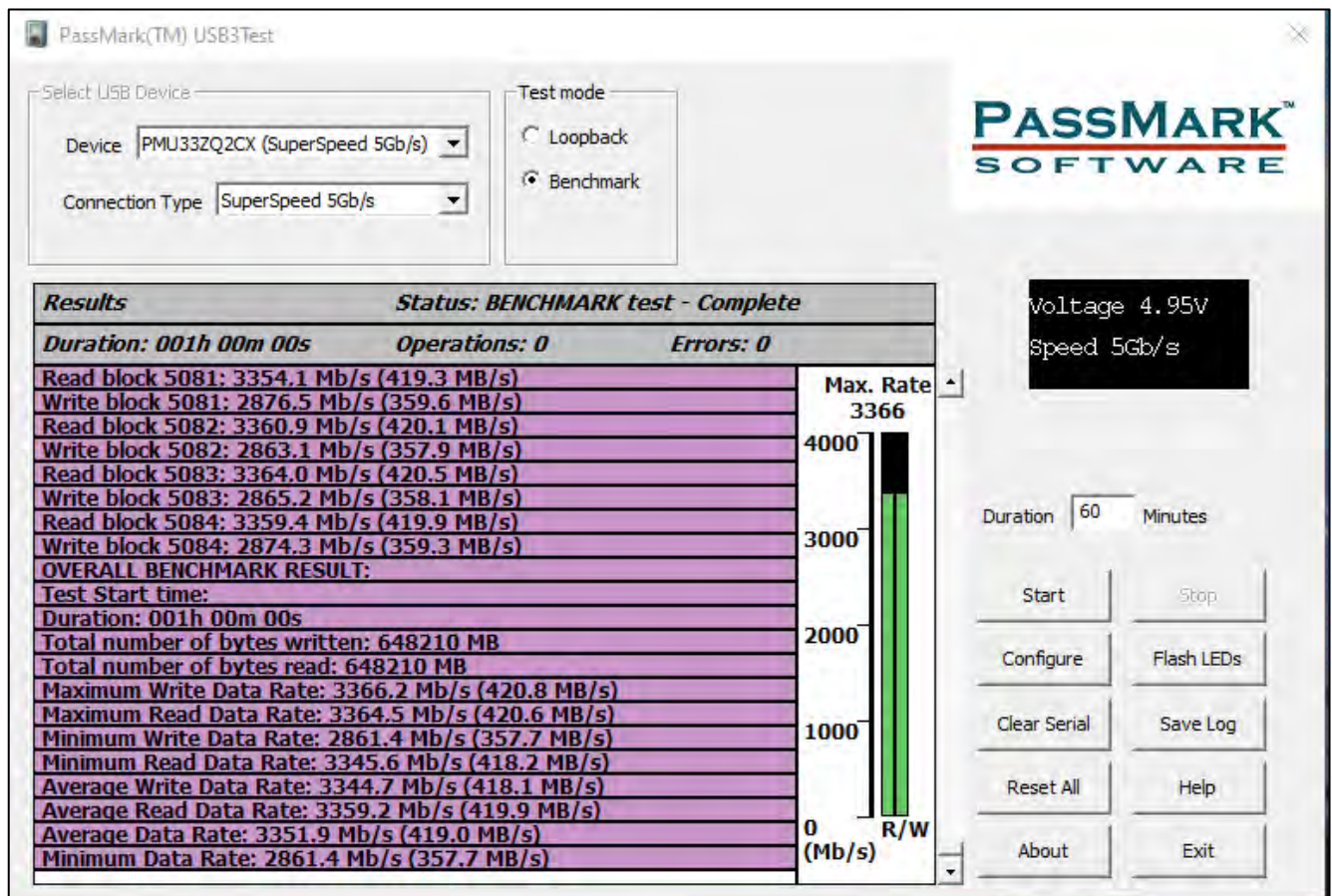
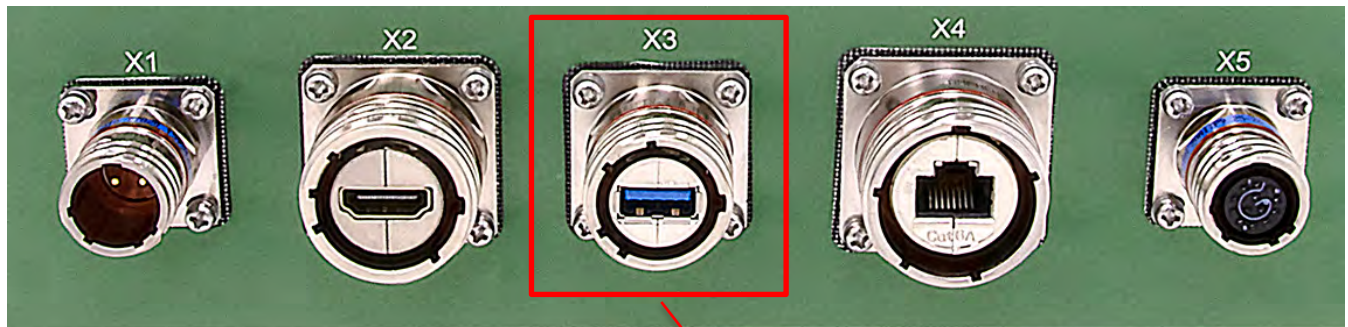
## 5. I/O FUNCTION TEST

### 5-1. HDMI PORT



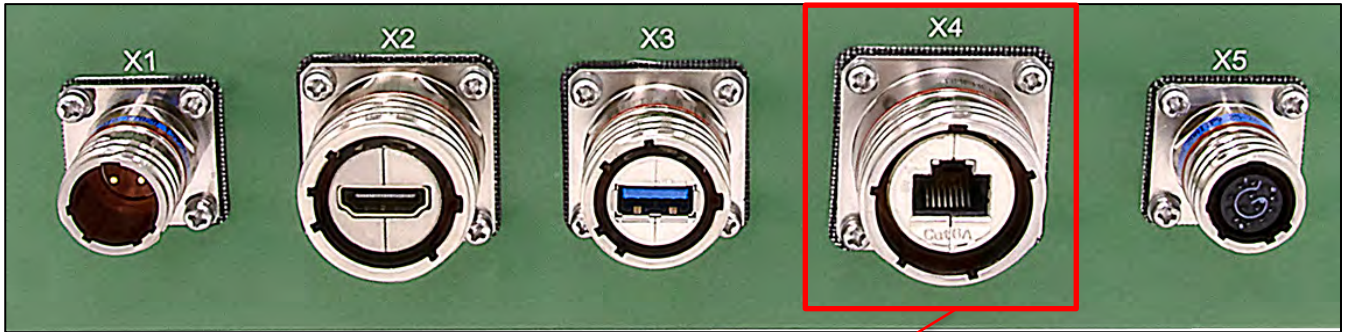


## 5-2. USB PORT





### 5-3. LAN PORT



1.0GbE

LAN SPEED

LAN Data-Packet

X4 - LAN Port

root@user-desktop: /home/user									
[ 5]	5953.00-5954.00	sec	111	Mbytes	933	Mbits/sec	0	655	Kbytes
[ 5]	5954.00-5955.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5955.00-5956.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5956.00-5957.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5957.00-5958.00	sec	111	Mbytes	933	Mbits/sec	0	655	Kbytes
[ 5]	5958.00-5959.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5959.00-5960.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5960.00-5961.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5961.00-5962.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5962.00-5963.00	sec	111	Mbytes	933	Mbits/sec	0	655	Kbytes
[ 5]	5963.00-5964.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5964.00-5965.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5965.00-5966.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5966.00-5967.00	sec	111	Mbytes	933	Mbits/sec	0	655	Kbytes
[ 5]	5967.00-5968.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5968.00-5969.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5969.00-5970.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5970.00-5971.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5971.00-5972.00	sec	111	Mbytes	933	Mbits/sec	0	655	Kbytes
[ 5]	5972.00-5973.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5973.00-5974.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5974.00-5975.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5975.00-5976.00	sec	112	Mbytes	943	Mbits/sec	0	655	Kbytes
[ 5]	5976.00-5977.00	sec	111	Mbytes	934	Mbits/sec	0	655	Kbytes
[ 5]	5977.00-5978.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5978.00-5979.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5979.00-5980.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5980.00-5981.00	sec	111	Mbytes	933	Mbits/sec	0	655	Kbytes
[ 5]	5981.00-5982.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5982.00-5983.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5983.00-5984.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5984.00-5985.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5985.00-5986.00	sec	111	Mbytes	933	Mbits/sec	0	655	Kbytes
[ 5]	5986.00-5987.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5987.00-5988.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5988.00-5989.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5989.00-5990.00	sec	112	Mbytes	943	Mbits/sec	0	655	Kbytes
[ 5]	5990.00-5991.00	sec	111	Mbytes	934	Mbits/sec	0	655	Kbytes
[ 5]	5991.00-5992.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5992.00-5993.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5993.00-5994.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5994.00-5995.00	sec	111	Mbytes	933	Mbits/sec	0	655	Kbytes
[ 5]	5995.00-5996.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5996.00-5997.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5997.00-5998.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5998.00-5999.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5999.00-6000.00	sec	111	Mbytes	933	Mbits/sec	0	655	Kbytes
[ ID]	Interval		Transfer		Bitrate		Retr		
[ 5]	0.00-6000.00	sec	658	Gbytes	941	Mbits/sec	164		
[ 5]	0.00-5999.80	sec	658	Gbytes	941	Mbits/sec			
lperf Done									
root@user-desktop: /home/user#									

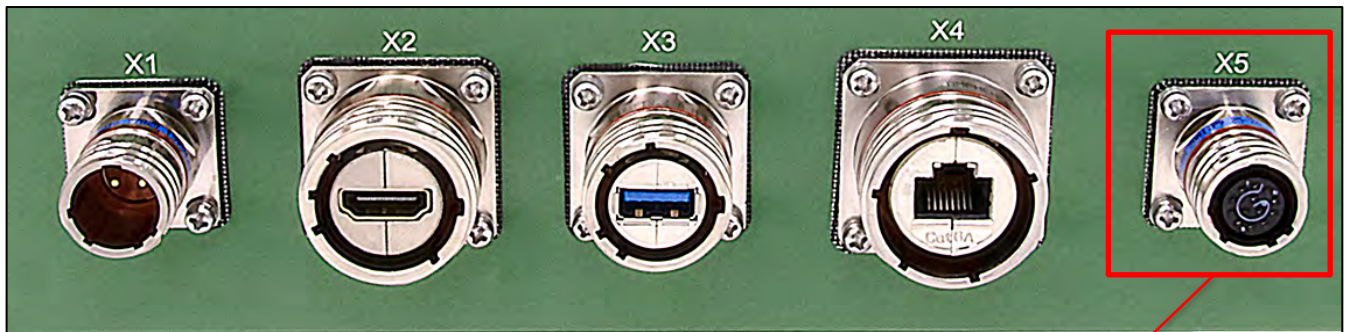
root@user-desktop: /home/user									
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5952	ttl=128	time=0.443	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5953	ttl=128	time=0.437	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5954	ttl=128	time=0.438	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5955	ttl=128	time=0.444	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5956	ttl=128	time=0.433	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5957	ttl=128	time=0.477	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5958	ttl=128	time=0.405	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5959	ttl=128	time=0.437	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5960	ttl=128	time=0.440	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5961	ttl=128	time=0.440	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5962	ttl=128	time=0.438	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5963	ttl=128	time=0.441	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5964	ttl=128	time=0.444	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5965	ttl=128	time=0.439	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5966	ttl=128	time=0.413	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5967	ttl=128	time=0.418	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5968	ttl=128	time=0.427	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5969	ttl=128	time=0.436	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5970	ttl=128	time=0.433	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5971	ttl=128	time=0.435	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5972	ttl=128	time=0.400	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5973	ttl=128	time=0.440	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5974	ttl=128	time=0.432	ms		
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[ 64]	bytes	from	192.168.1.11:	icmp_seq=5982	ttl=128	time=0.449	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5983	ttl=128	time=0.428	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5984	ttl=128	time=0.447	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5985	ttl=128	time=0.482	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5986	ttl=128	time=0.417	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5987	ttl=128	time=0.435	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5988	ttl=128	time=0.445	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5989	ttl=128	time=0.392	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5990	ttl=128	time=0.371	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5991	ttl=128	time=0.437	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5992	ttl=128	time=0.432	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5993	ttl=128	time=0.437	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5994	ttl=128	time=0.397	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5995	ttl=128	time=0.429	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5996	ttl=128	time=0.432	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5997	ttl=128	time=0.399	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5998	ttl=128	time=0.433	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5999	ttl=128	time=0.456	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=6000	ttl=128	time=0.405	ms		
--- 192.168.1.11 ping statistics ---									
6000 packets transmitted, 6000 received, 0% packet loss, time 6117743ms									
rtt min/avg/max/mdev = 0.291/0.578/15.449/0.235 ms									
root@user-desktop: /home/user#									

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-----



# PERFORMANCE TEST REPORT

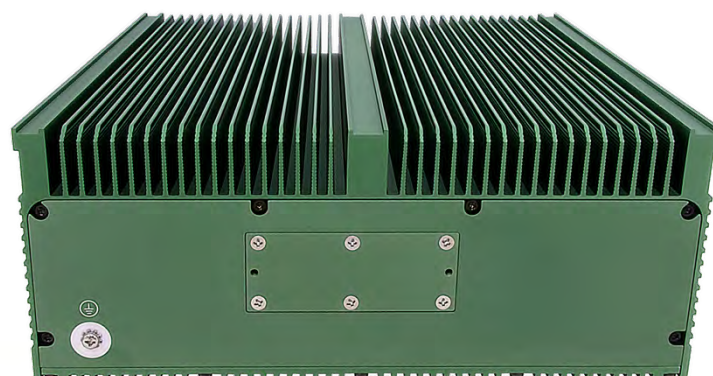
## NV300-1LS64-AMB

S/N: SR202507100102

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

Date: November 19, 2025





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# 1. SPECIFICATION

## 1-1. SYSTEM CONFIGURATION

<b>Motherboard</b>	AGX Orin for DSBOARD-AGXMAX Board Serial Number: 1425124333971 BIOS Firmware Version: 36.3.0-gcid-36191598
<b>CPU</b>	Product: ARMv8 Model name: Cortex-A78AE CPU max (MHz): 2201.6 MHz
<b>Memory</b>	64GB 256-bit LPDDR5 204.8GB/s
<b>Storage</b>	64GB eMMC 5.1
<b>GPU</b>	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	<p>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.</p> <p>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.</p>																																													
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	<p>1. Thermal Pre-Scan Measurement: Temperature Range: -20°C to 60°C Humidity Condition: 60% RH (when temperature exceeds 25°C)</p> <p>2. Actual Thermal Measurement Procedure:</p> <p>2.1. Identify the test points using the infrared thermal image and attach thermocouples to the identified hot spots.</p> <p>2.2. Place the Equipment Under Test (EUT) in the thermal chamber and configure the test temperature profile according to the specified requirements.</p> <p>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.</p> <p>2.4. After running the test software continuously for 8 hours, record the peak temperature observed at each thermocouple measurement point.</p> <p>2.5. Power off both the thermal chamber and the EUT.</p> <p>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.</p>																																													
Test Diagram of Curves	<p>Environment defines for 53 hours.</p> <table border="1"><caption>Test Diagram Data Points</caption><thead><tr><th>Time (hour)</th><th>Temperature (°C)</th><th>Humidity (%)</th></tr></thead><tbody><tr><td>0.5</td><td>25</td><td>0</td></tr><tr><td>1.5</td><td>-20</td><td>0</td></tr><tr><td>9.5</td><td>-20</td><td>0</td></tr><tr><td>10.0</td><td>-20</td><td>0</td></tr><tr><td>18.0</td><td>25</td><td>0</td></tr><tr><td>26.5</td><td>25</td><td>60</td></tr><tr><td>27.0</td><td>30</td><td>60</td></tr><tr><td>35.0</td><td>40</td><td>60</td></tr><tr><td>35.5</td><td>40</td><td>60</td></tr><tr><td>43.5</td><td>50</td><td>60</td></tr><tr><td>44.0</td><td>50</td><td>60</td></tr><tr><td>52.0</td><td>60</td><td>60</td></tr><tr><td>52.5</td><td>60</td><td>60</td></tr><tr><td>53.0</td><td>25</td><td>0</td></tr></tbody></table>	Time (hour)	Temperature (°C)	Humidity (%)	0.5	25	0	1.5	-20	0	9.5	-20	0	10.0	-20	0	18.0	25	0	26.5	25	60	27.0	30	60	35.0	40	60	35.5	40	60	43.5	50	60	44.0	50	60	52.0	60	60	52.5	60	60	53.0	25	0
Time (hour)	Temperature (°C)	Humidity (%)																																												
0.5	25	0																																												
1.5	-20	0																																												
9.5	-20	0																																												
10.0	-20	0																																												
18.0	25	0																																												
26.5	25	60																																												
27.0	30	60																																												
35.0	40	60																																												
35.5	40	60																																												
43.5	50	60																																												
44.0	50	60																																												
52.0	60	60																																												
52.5	60	60																																												
53.0	25	0																																												

## 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

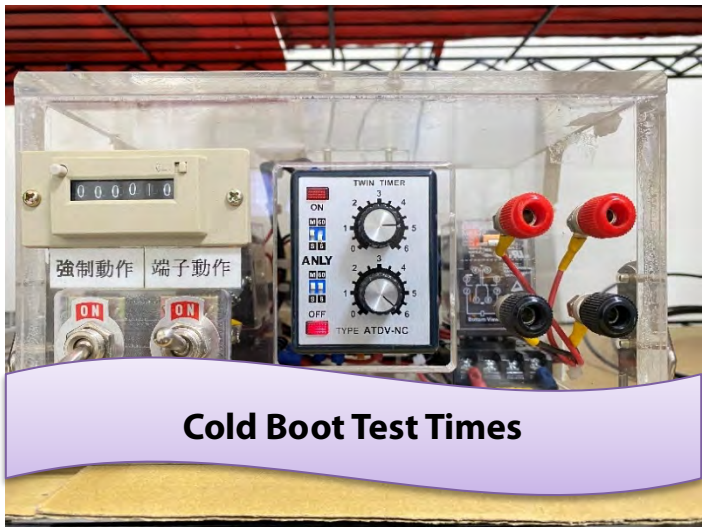
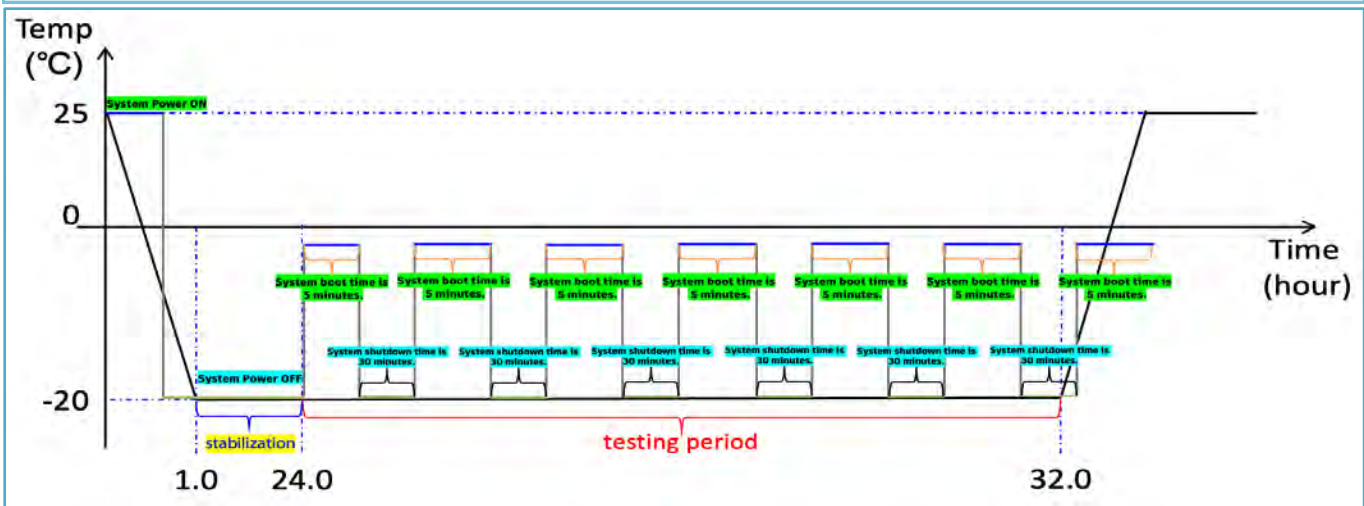
# Confirm that the system specifications and all input/output (I/O) interfaces are correctly configured and functioning as intended, in accordance with the defined technical standards.

Item	Test Criteria	Result
<b>X2 – HDMI</b>	The HDMI output was verified to be working properly with a resolution of 3840 x 2160.	<b>PASS</b>
<b>X3 – USB 3.0</b>	A PassMark USB 3.0 Loopback was connected for testing and was found to be functioning normally.	<b>PASS</b>
<b>X4 – 1.0GbE</b>	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.	<b>PASS</b>
<b>X5 – RS422</b>	he two RS422 devices were successfully connected. Data transmission tests showed no packet loss, confirming normal operation.	<b>PASS</b>

### 2-2-3. Low Temperature Power Cycle Test

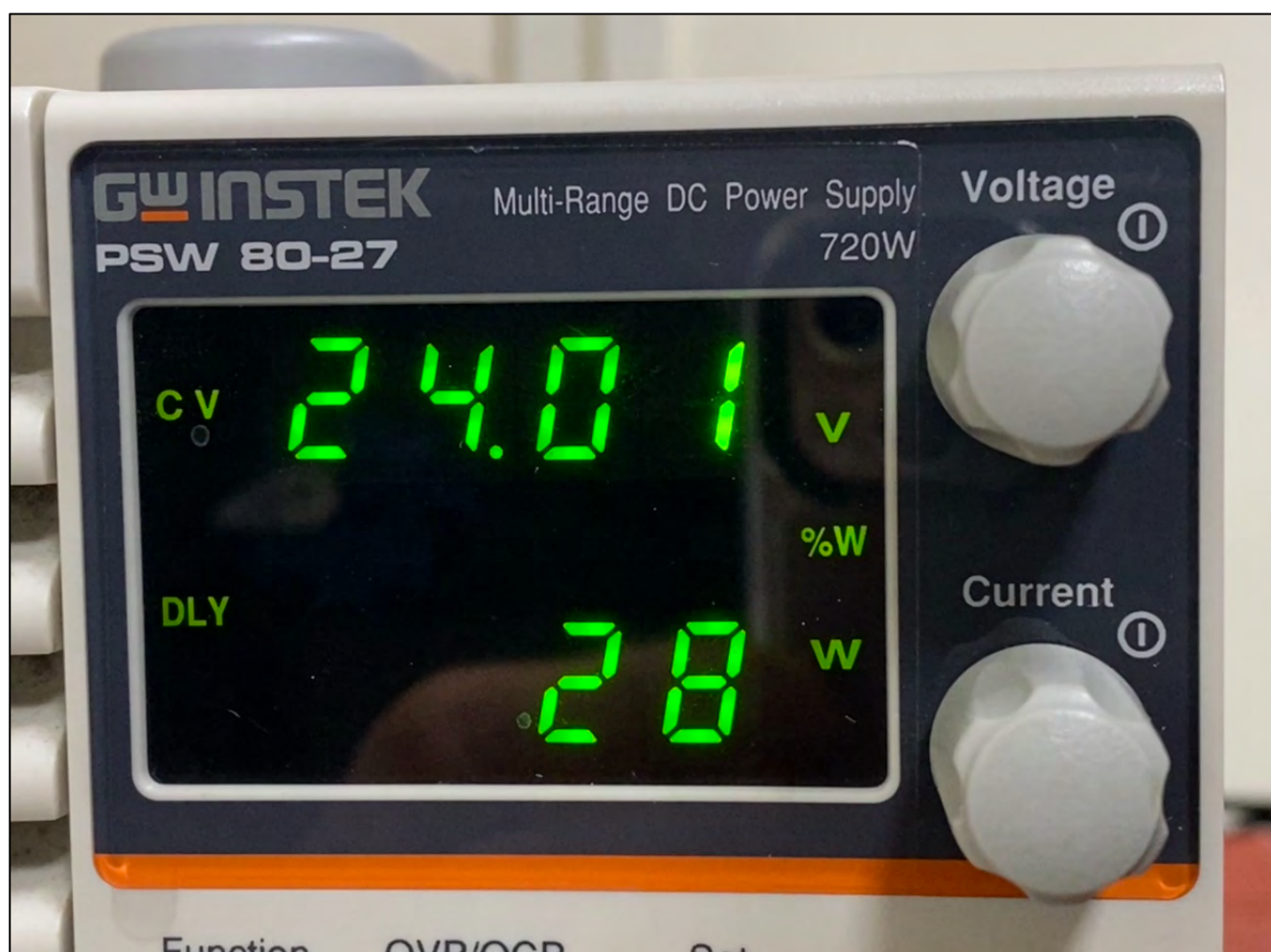
# Apply power to the system under a -20°C ambient condition and confirm successful system boot-up, ensuring stable initialization and operation at low temperatures.

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



### 2-3. POWER CONSUMPTION

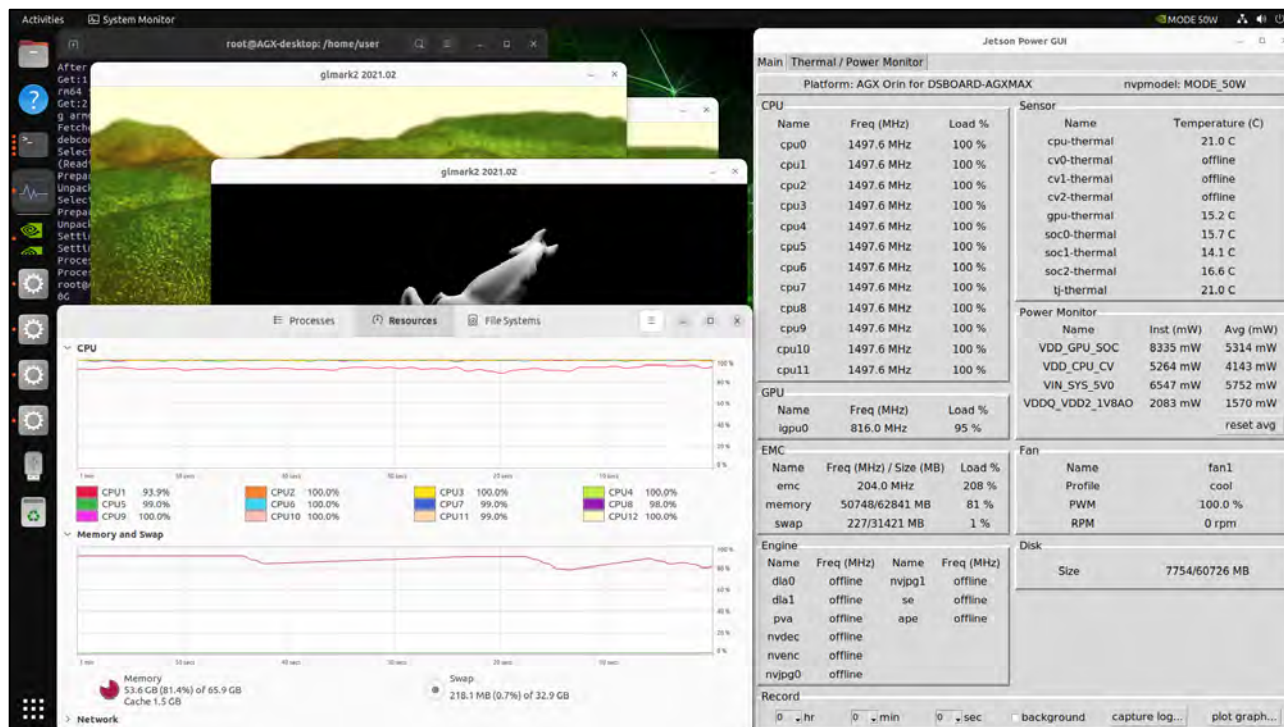
Voltage	Current	Wattage
12.0V	2.33A	28W
24.0V	1.67A	28W
30.0V	0.93A	28W





## 3. TEST PHOTO IN LAB

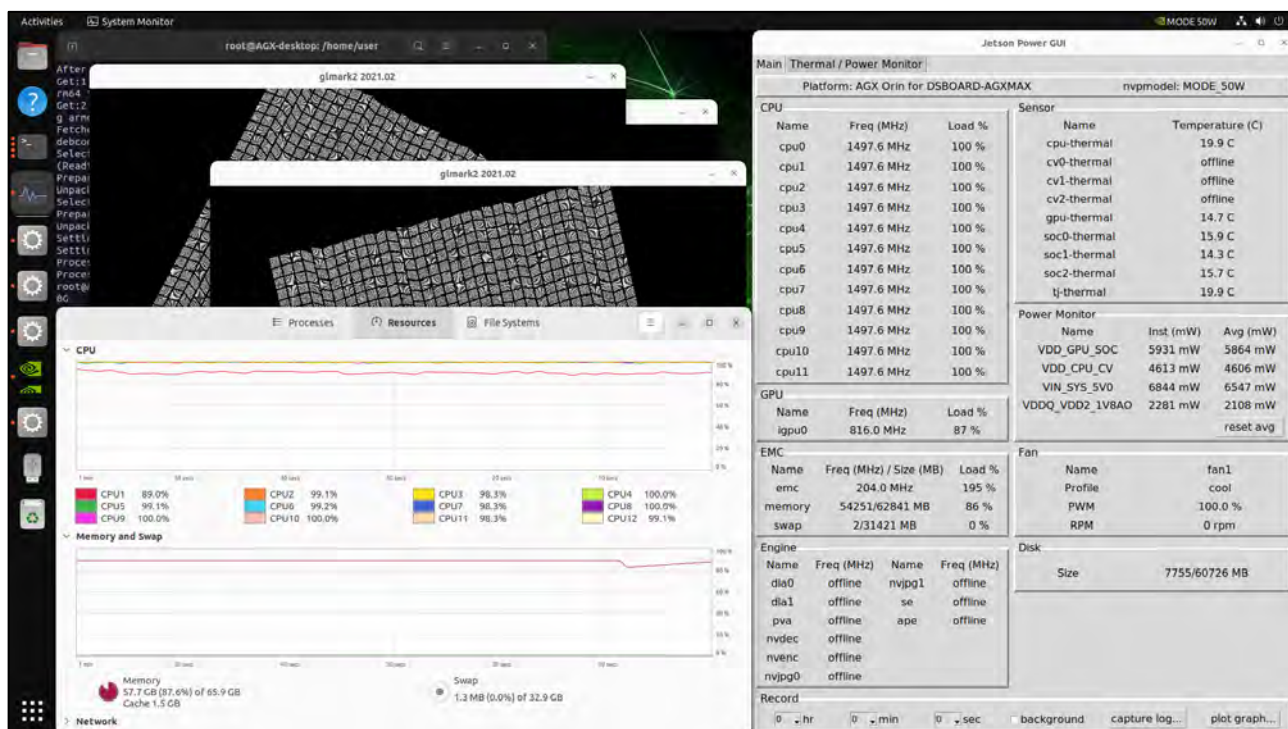
- Chamber in -20°C / 0%RH



# PERFORMANCE TEST REPORT

## NV300-1LS64-AMB

- Chamber in 0°C / 0%RH

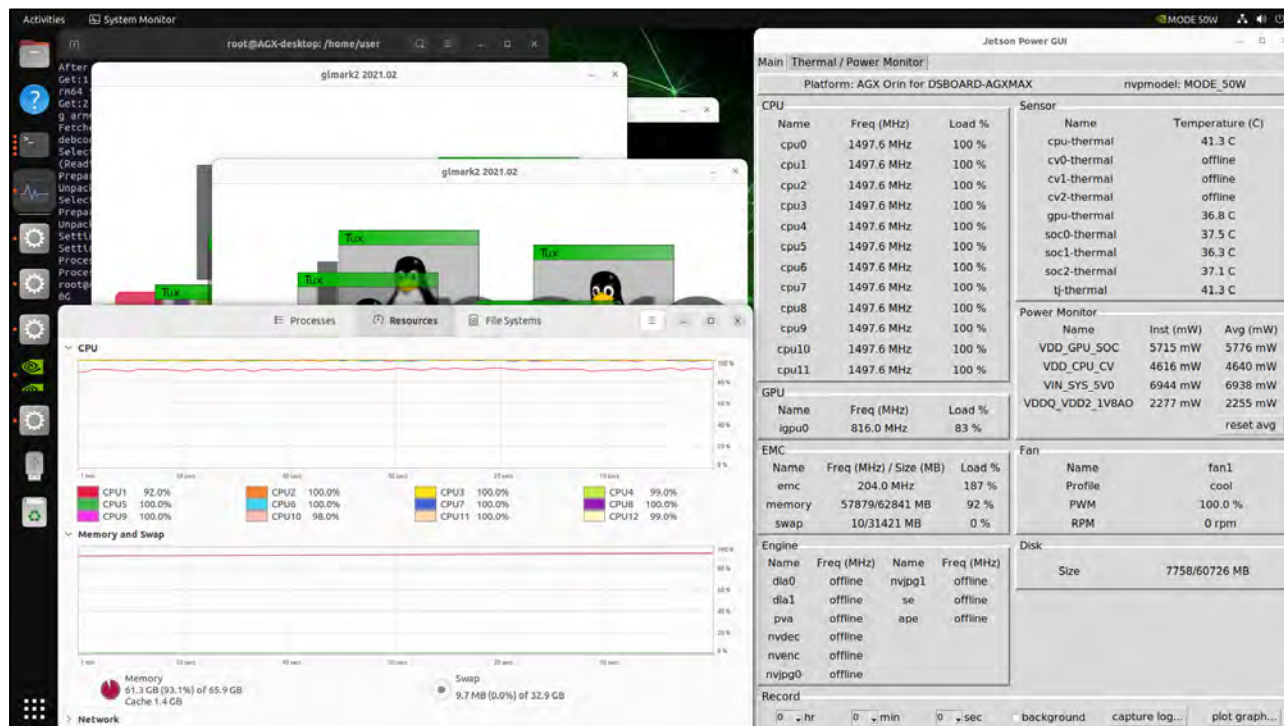




# PERFORMANCE TEST REPORT

## NV300-1LS64-AMB

### - Chamber in 25°C / 60%RH

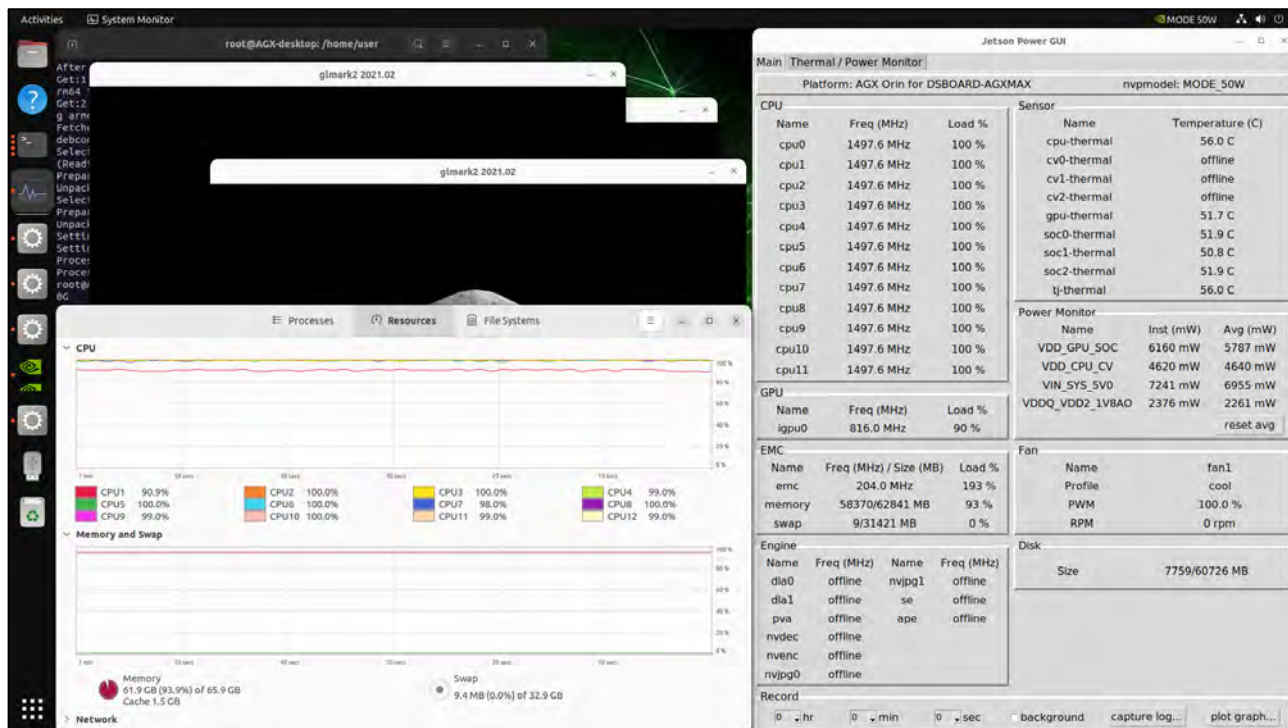




# PERFORMANCE TEST REPORT

## NV300-1LS64-AMB

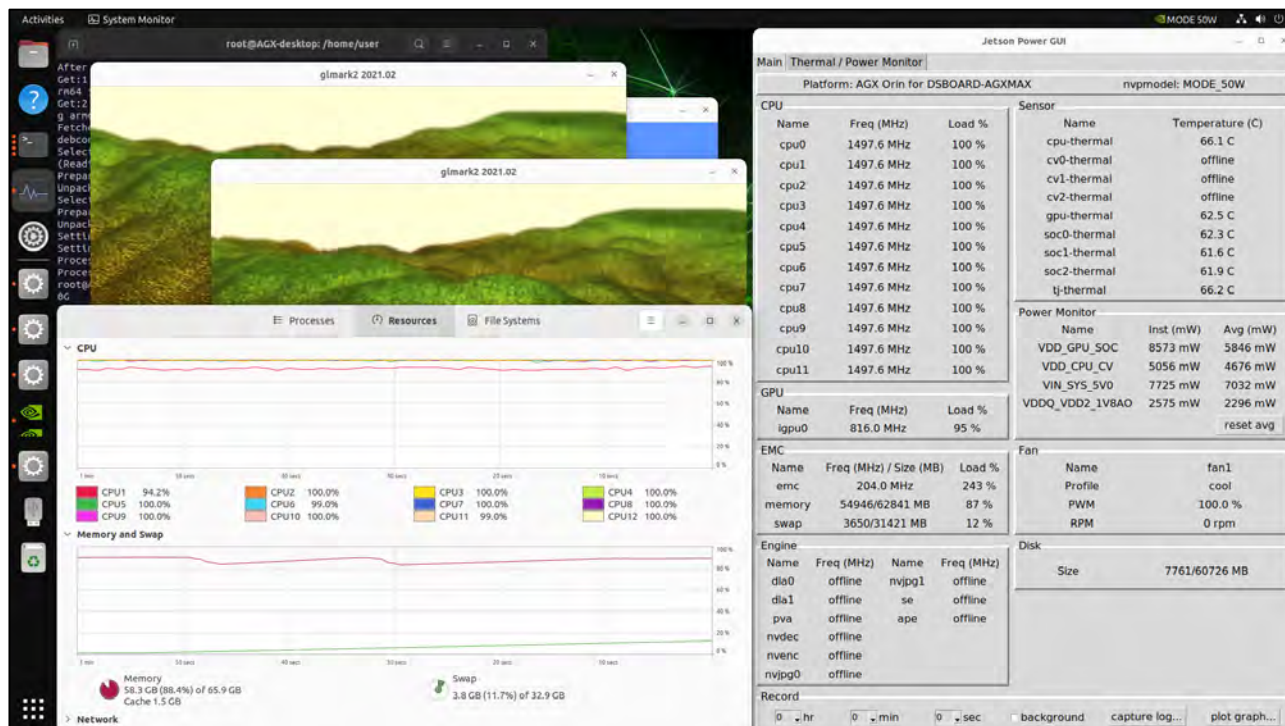
- Chamber in 40°C / 60%RH



# PERFORMANCE TEST REPORT

## NV300-1LS64-AMB

### - Chamber in 50°C / 60%RH

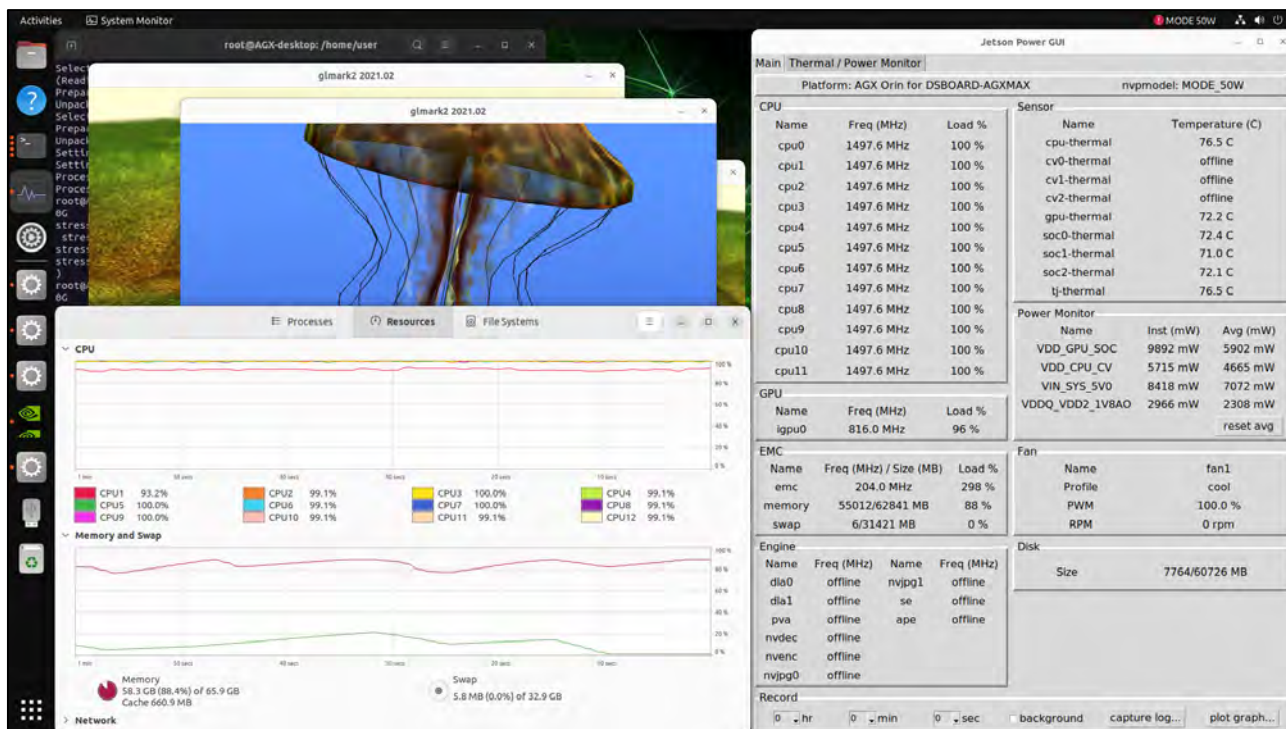




# PERFORMANCE TEST REPORT

## NV300-1LS64-AMB

- Chamber in 60°C / 60%RH





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

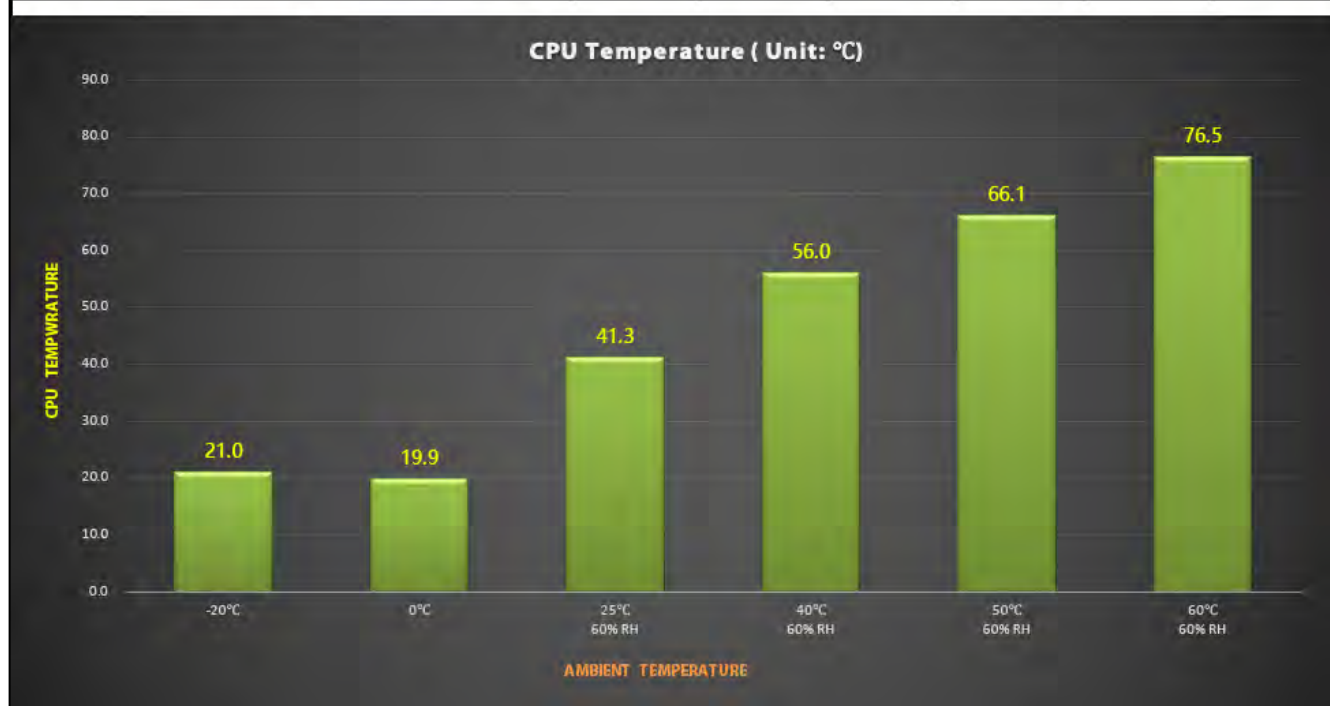
**CPU & GPU Temperature/Frequency**

Temperature Frequency	Ambient Temp.	-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 Frequency	Ambient Temp.	-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

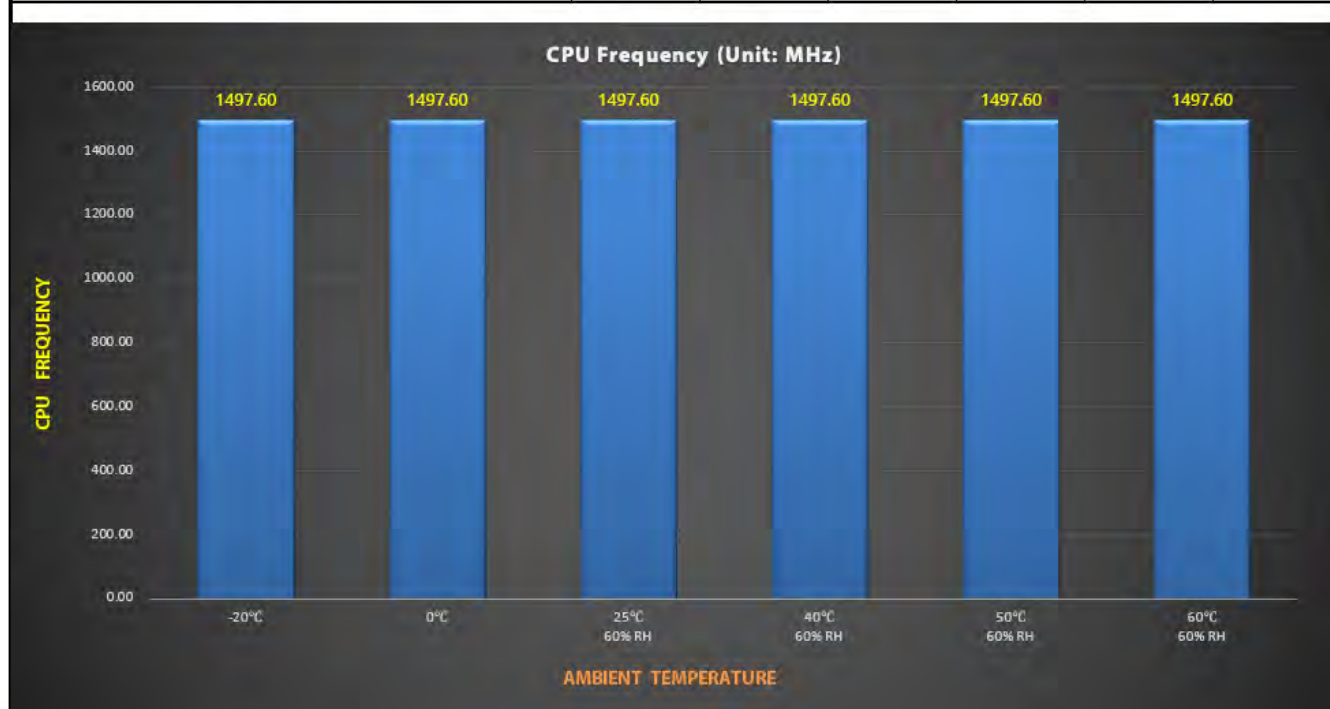
# PERFORMANCE TEST REPORT

NV300-1LS64-AMB

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



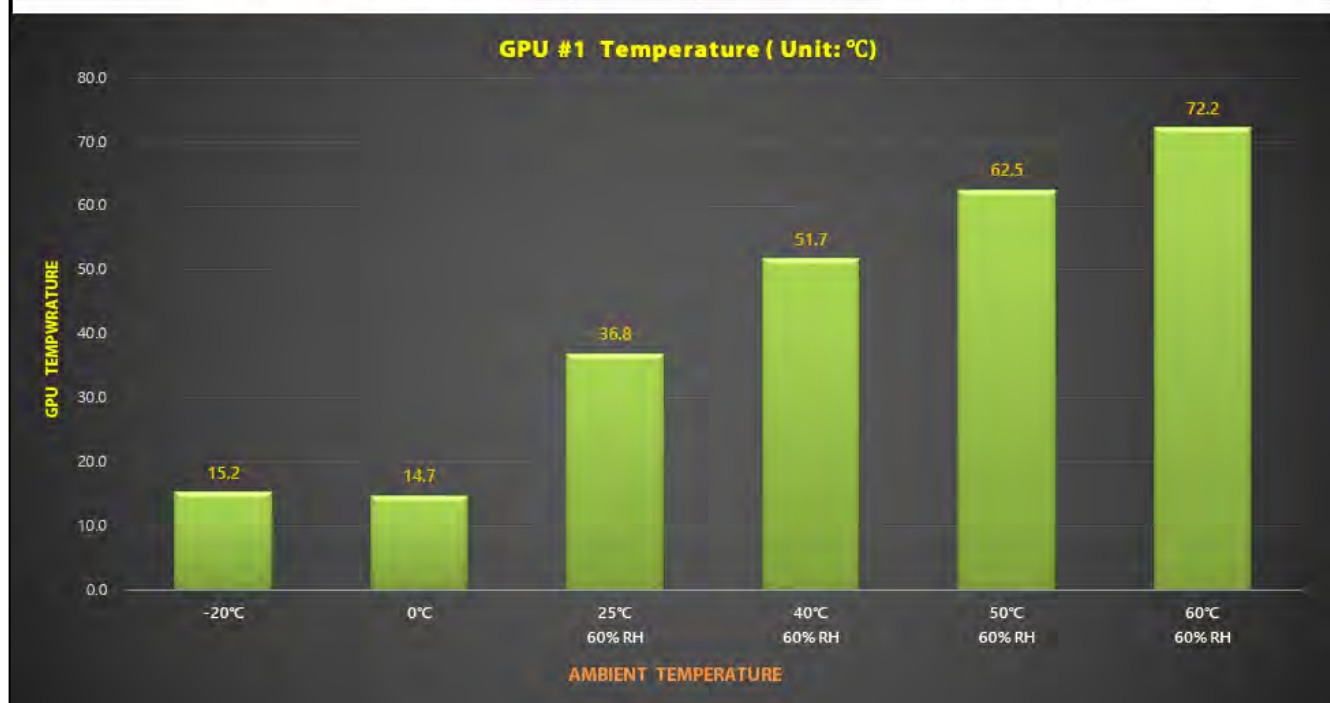
Core Temp	Ambient Temp	-20°C	0°C	25°C 60% RH	40°C 60% RH	50°C 60% RH	60°C 60% RH
CPU Frequency							
CPU Cores Frequency (Unit: MHz)		1497.60	1497.60	1497.60	1497.60	1497.60	1497.60



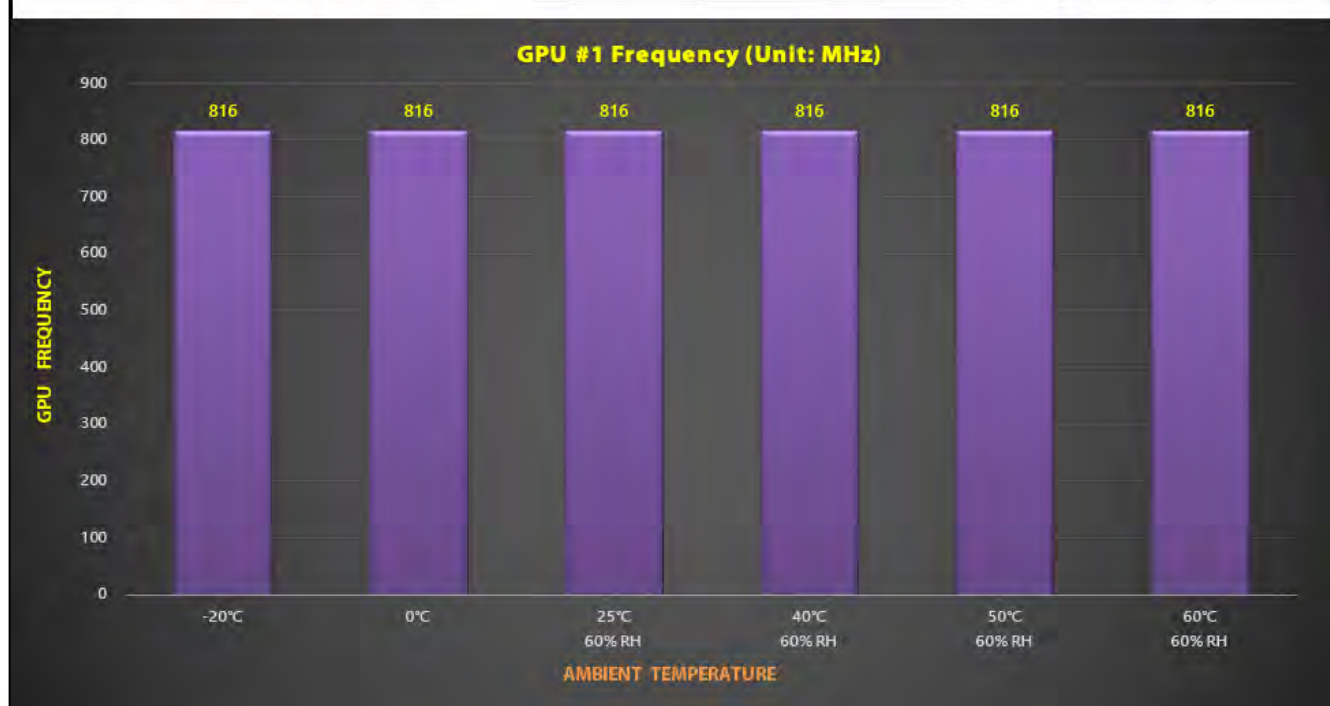
# PERFORMANCE TEST REPORT

NV300-1LS64-AMB

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



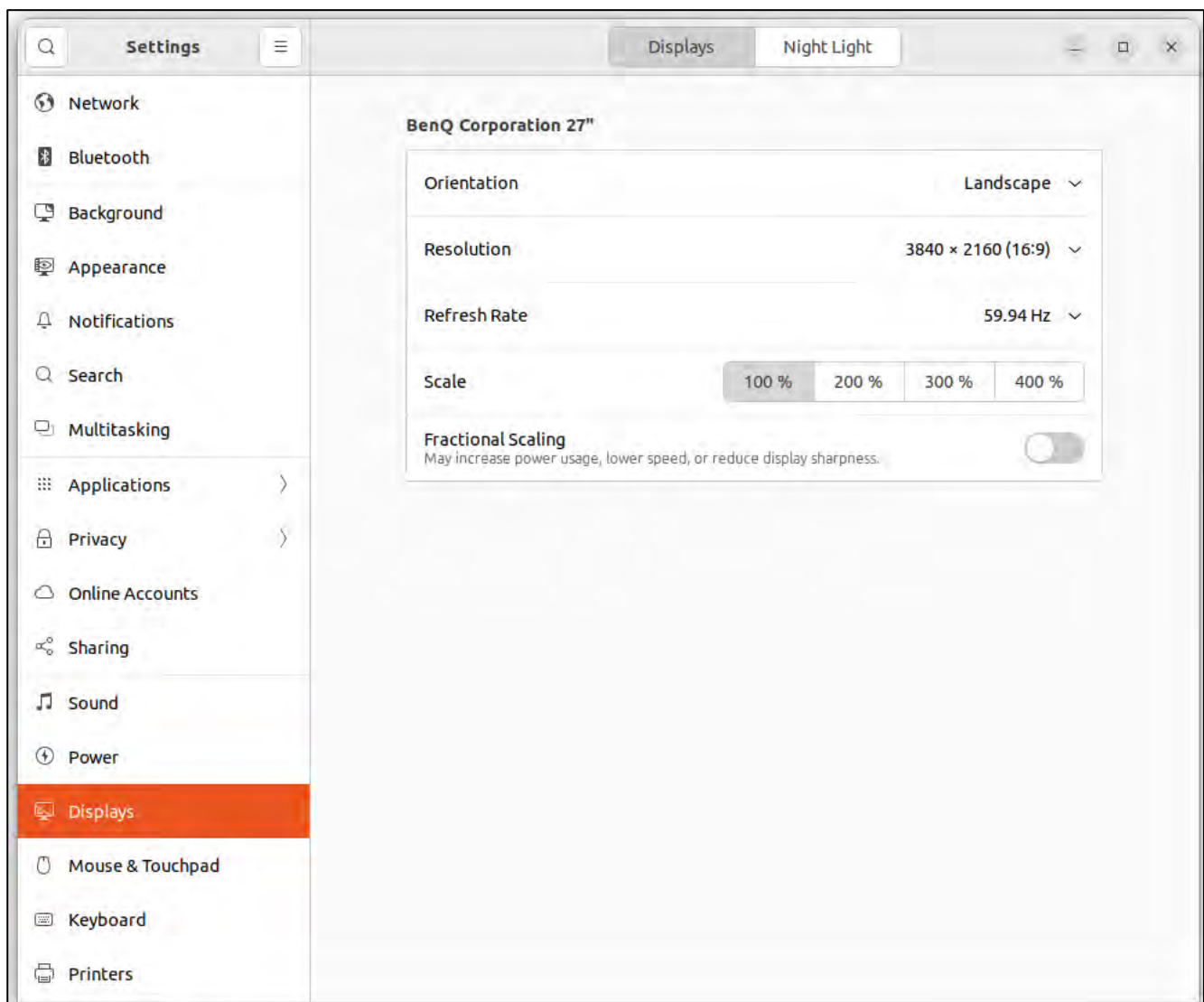
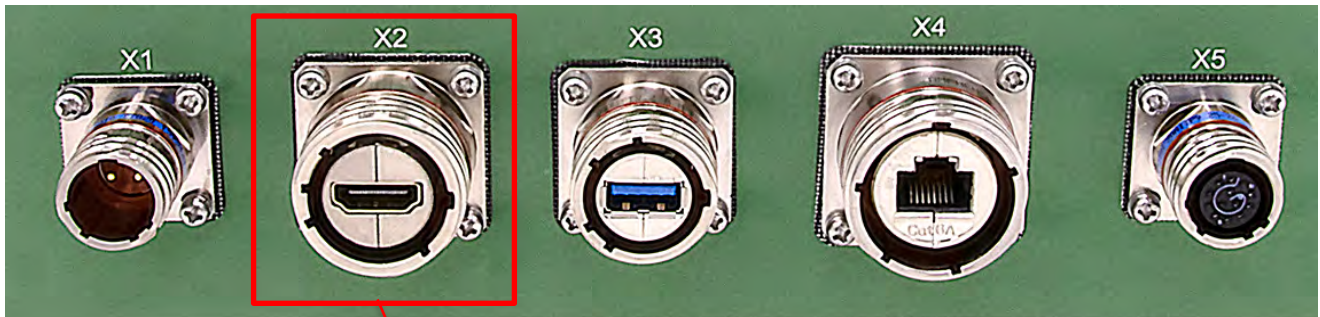
Core Temp CPU Frequency	Ambient Temp	-20°C	0°C	25°C 60% RH	40°C 60% RH	50°C 60% RH	60°C 60% RH
GPU Frequency (Unit: MHz)		816	816	816	816	816	816



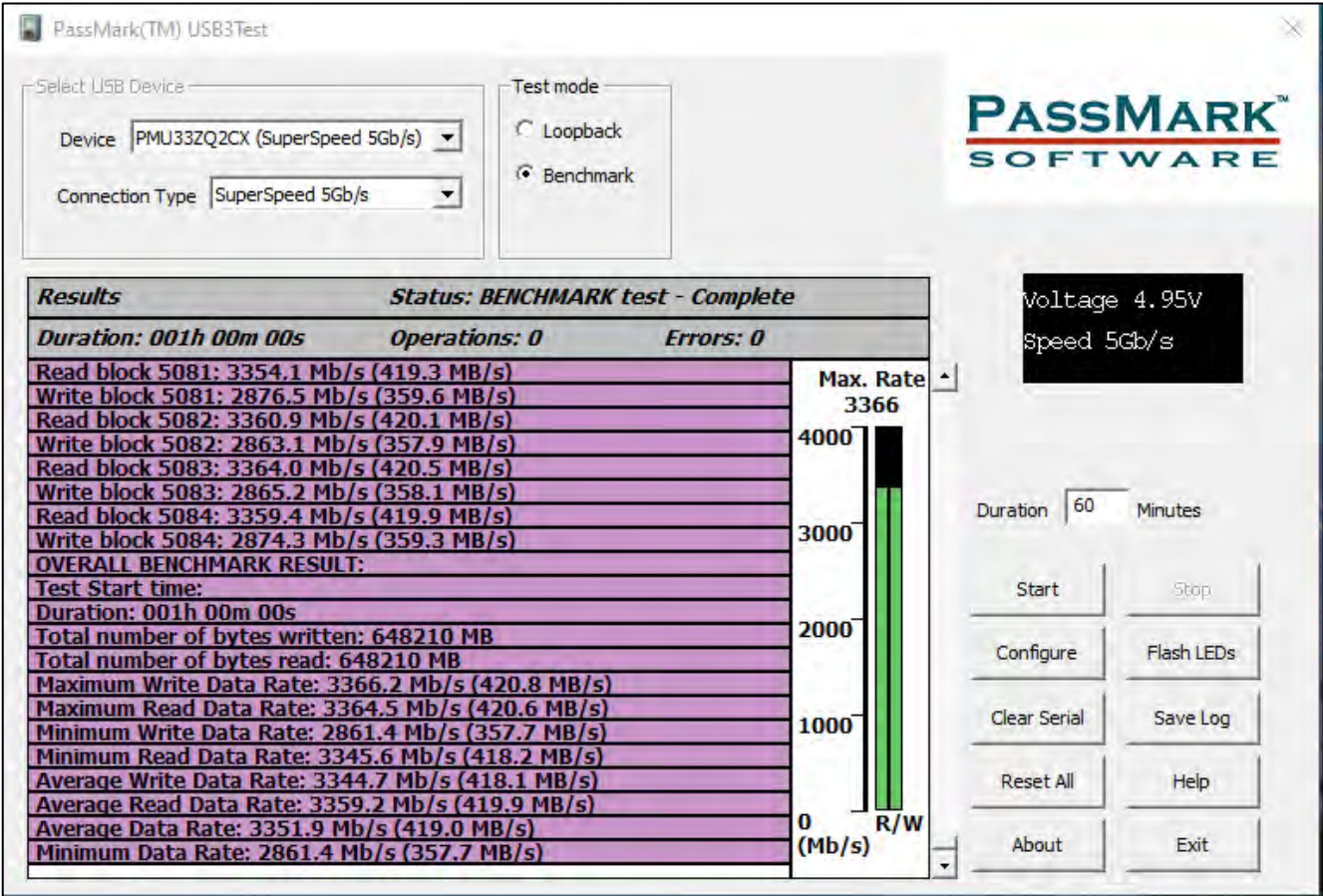
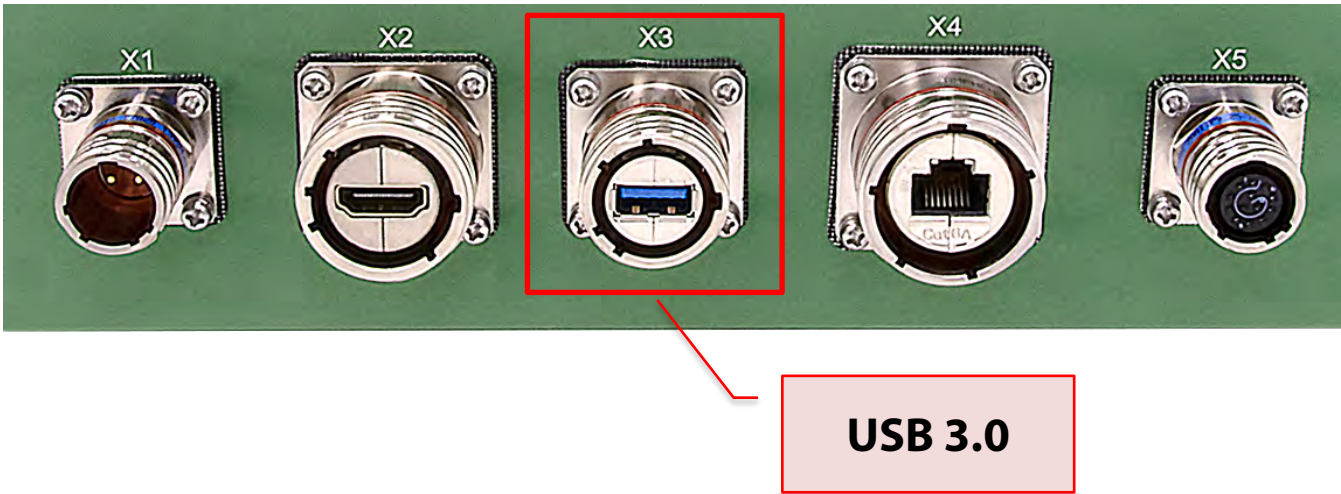


## 5. I/O FUNCTION TEST

### 5-1. HDMI PORT



### 5-2. USB PORT



Voltage 4.95V

Speed 5Gb/s

Duration 60 Minutes

Start

Stop

Configure

Flash LEDs

Clear Serial

Save Log

Reset All

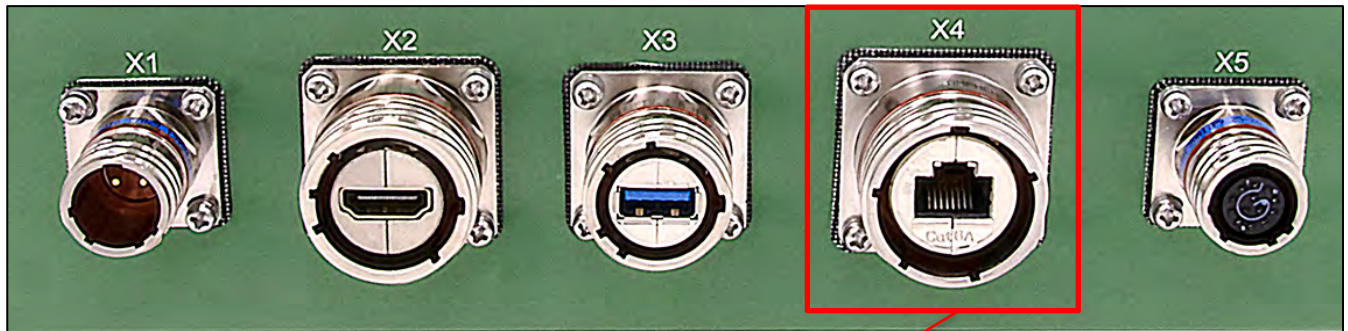
Help

About

Exit



### 5-3. LAN PORT



1.0GbE

LAN SPEED

LAN Data-Packet

X4 - LAN Port

root@user-desktop: /home/user									
[ 5]	5953.00-5954.00	sec	111	Mbytes	933	Mbits/sec	0	655	Kbytes
[ 5]	5954.00-5955.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5955.00-5956.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5956.00-5957.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5957.00-5958.00	sec	111	Mbytes	933	Mbits/sec	0	655	Kbytes
[ 5]	5958.00-5959.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5959.00-5960.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5960.00-5961.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5961.00-5962.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5962.00-5963.00	sec	111	Mbytes	933	Mbits/sec	0	655	Kbytes
[ 5]	5963.00-5964.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5964.00-5965.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5965.00-5966.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5966.00-5967.00	sec	111	Mbytes	933	Mbits/sec	0	655	Kbytes
[ 5]	5967.00-5968.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5968.00-5969.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5969.00-5970.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5970.00-5971.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5971.00-5972.00	sec	111	Mbytes	933	Mbits/sec	0	655	Kbytes
[ 5]	5972.00-5973.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5973.00-5974.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5974.00-5975.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5975.00-5976.00	sec	112	Mbytes	943	Mbits/sec	0	655	Kbytes
[ 5]	5976.00-5977.00	sec	111	Mbytes	934	Mbits/sec	0	655	Kbytes
[ 5]	5977.00-5978.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5978.00-5979.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5979.00-5980.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5980.00-5981.00	sec	111	Mbytes	933	Mbits/sec	0	655	Kbytes
[ 5]	5981.00-5982.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5982.00-5983.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5983.00-5984.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5984.00-5985.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5985.00-5986.00	sec	111	Mbytes	933	Mbits/sec	0	655	Kbytes
[ 5]	5986.00-5987.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5987.00-5988.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5988.00-5989.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5989.00-5990.00	sec	112	Mbytes	943	Mbits/sec	0	655	Kbytes
[ 5]	5990.00-5991.00	sec	111	Mbytes	934	Mbits/sec	0	655	Kbytes
[ 5]	5991.00-5992.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5992.00-5993.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5993.00-5994.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5994.00-5995.00	sec	111	Mbytes	933	Mbits/sec	0	655	Kbytes
[ 5]	5995.00-5996.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5996.00-5997.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5997.00-5998.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5998.00-5999.00	sec	112	Mbytes	944	Mbits/sec	0	655	Kbytes
[ 5]	5999.00-6000.00	sec	111	Mbytes	933	Mbits/sec	0	655	Kbytes
[ ID]	Interval		Transfer		Bitrate		Retr		
[ 5]	0.00-6000.00	sec	658	Gbytes	941	Mbits/sec	164		
[ 5]	0.00-5999.80	sec	658	Gbytes	941	Mbits/sec			
lperf Done									
root@user-desktop: /home/user#									

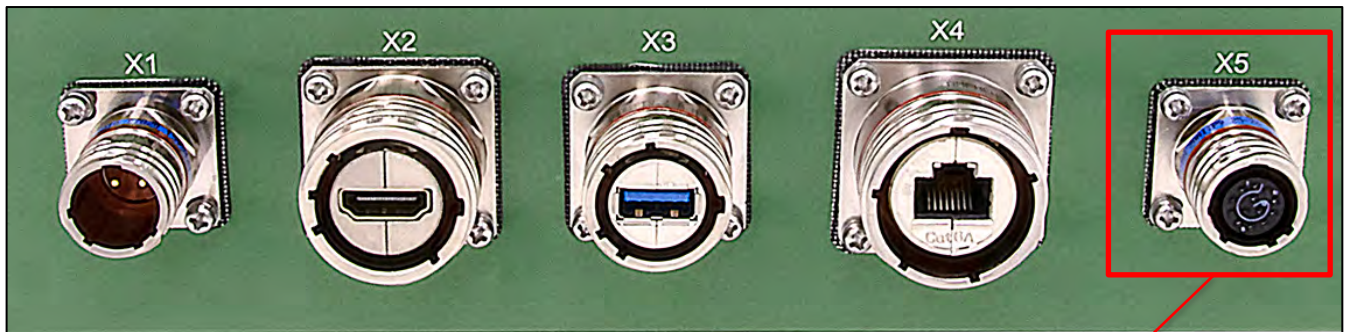
root@user-desktop: /home/user									
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5952	ttl=128	time=0.443	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5953	ttl=128	time=0.437	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5954	ttl=128	time=0.438	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5955	ttl=128	time=0.444	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5956	ttl=128	time=0.433	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5957	ttl=128	time=0.477	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5958	ttl=128	time=0.405	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5959	ttl=128	time=0.437	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5960	ttl=128	time=0.440	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5961	ttl=128	time=0.440	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5962	ttl=128	time=0.438	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5963	ttl=128	time=0.441	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5964	ttl=128	time=0.444	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5965	ttl=128	time=0.439	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5966	ttl=128	time=0.413	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5967	ttl=128	time=0.418	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5968	ttl=128	time=0.427	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5969	ttl=128	time=0.436	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5970	ttl=128	time=0.433	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5971	ttl=128	time=0.435	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5972	ttl=128	time=0.400	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5973	ttl=128	time=0.440	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5974	ttl=128	time=0.432	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5975	ttl=128	time=0.449	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5976	ttl=128	time=0.436	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5977	ttl=128	time=0.437	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5978	ttl=128	time=0.441	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5979	ttl=128	time=0.436	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5980	ttl=128	time=0.439	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5981	ttl=128	time=0.440	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5982	ttl=128	time=0.449	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5983	ttl=128	time=0.428	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5984	ttl=128	time=0.447	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5985	ttl=128	time=0.482	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5986	ttl=128	time=0.417	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5987	ttl=128	time=0.435	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5988	ttl=128	time=0.445	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5989	ttl=128	time=0.392	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5990	ttl=128	time=0.371	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5991	ttl=128	time=0.437	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5992	ttl=128	time=0.432	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5993	ttl=128	time=0.437	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5994	ttl=128	time=0.397	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5995	ttl=128	time=0.429	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5996	ttl=128	time=0.432	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5997	ttl=128	time=0.399	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5998	ttl=128	time=0.433	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=5999	ttl=128	time=0.456	ms		
[ 64]	bytes	from	192.168.1.11:	icmp_seq=6000	ttl=128	time=0.405	ms		
--- 192.168.1.11 ping statistics ---									
6000 packets transmitted, 6000 received, 0% packet loss, time 6117743ms									
rtt min/avg/max/mdev = 0.291/0.578/15.449/0.235 ms									
root@user-desktop: /home/user#									

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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