PERFORMANCE TEST REPORT

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ROC230-AC

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1. SPECIFICATION

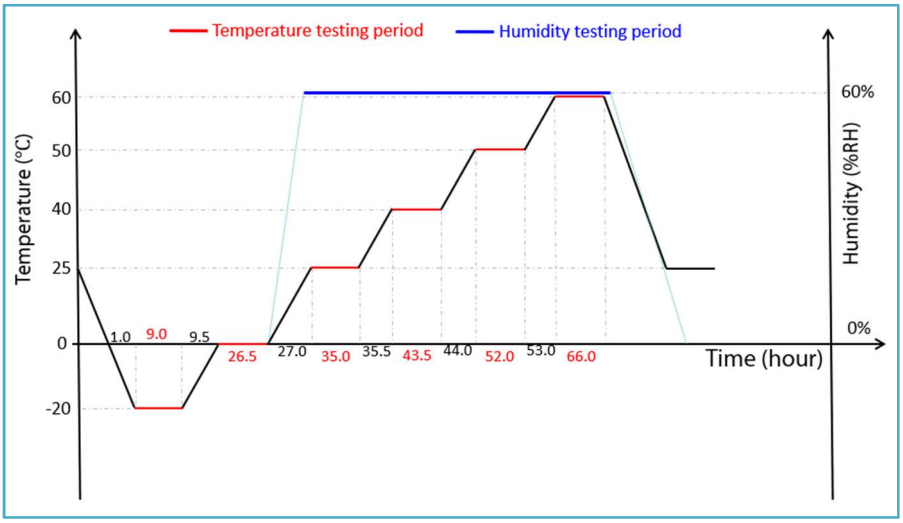
1-1. SYSTEM CONFIGURATION

Motherboard	X12SDV-8C-SPT4F (TDP : 67W) Intel® Xeon® Processor D-1736NT Single Socket FCBGA-2227 supported, CPU TDP supports Up to 67W TDP Dual LAN with 25G SFP28 LAN via SoC Controller Dual LAN with 10GBase-T with Intel® X550 Controller IPMI: ASPEED AST2600 BMC BIOS Version: 1.0
CPU	Intel® Xeon® D Processor Total Cores: 8 Performance-cores: 8 Total Threads: 16 Max Turbo Frequency: 3.50 GHz Processor Base Frequency: 2.70 GHz Cache: 15M TDP: 67 W Intel® Deep Learning Boost (Intel® DL Boost) on CPU:Yes
Memory	SAMSUNG 64GB 2Rx4 PCx4 PC4-3200AA-RB4-12-DC *1pcs
Storage	7SARLAKE M.2 SSD 256GB *1pcs

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	1.CPU Stress: PassMark BurnIn Test Professional 9.0 build 1014 2.LAN Speed Test: iPerf3 3.USB Test: PassMark USB 2.0 Loop Back Plug 4.USB Test: PassMark USB 3.0 Loop Back Plug
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 Windows 10 Pro 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 66 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	PASS
0°C	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

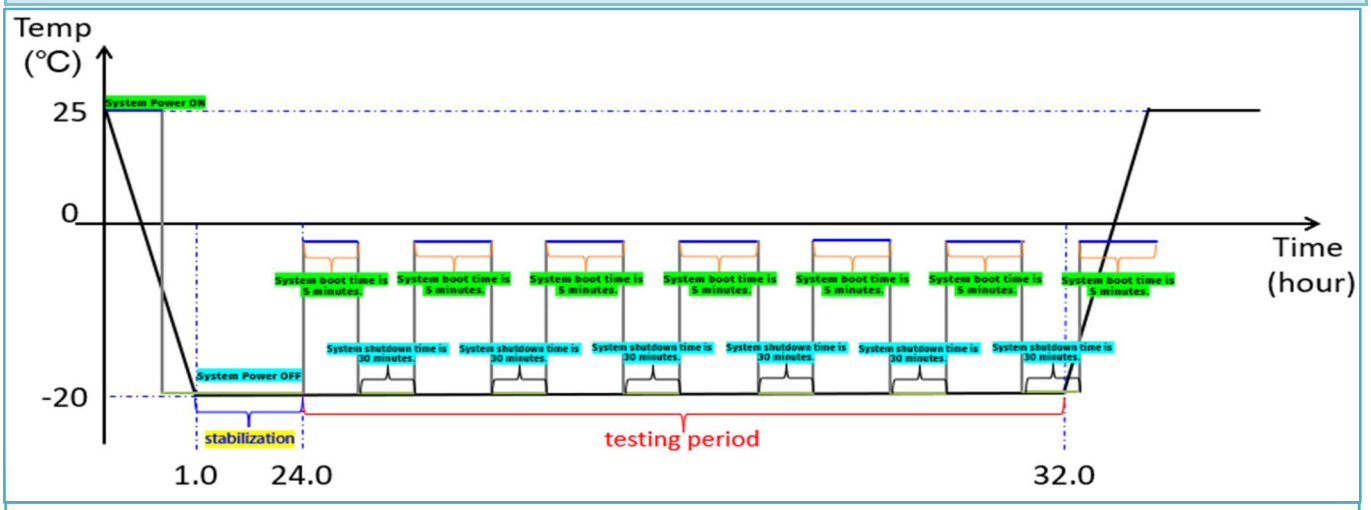
Confirm that the system specifications and all input/output (I/O) interfaces are correctly configured and functioning as intended, in accordance with the defined technical standards.

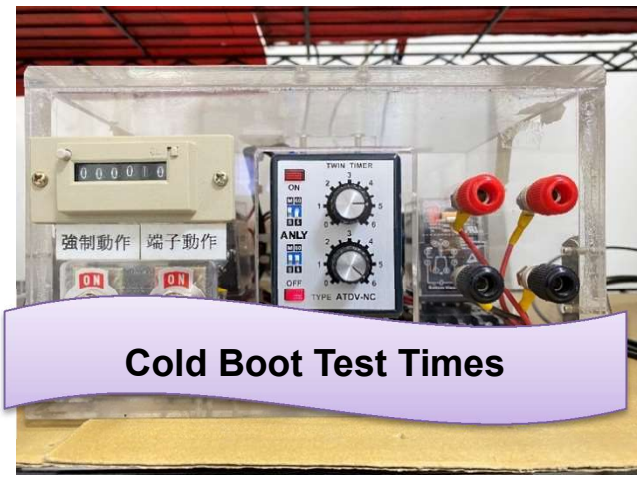
Item	Test Criteria	Result
LAN Port (25Gbps)	Data transmission via connection to a 25Gbps LAN switch has been tested. The transfer speed meets the required standard with zero packet loss, confirming normal functionality.	PASS
LAN Port (25Gbps)	Data transmission via connection to a 25Gbps LAN switch has been tested. The transfer speed meets the required standard with zero packet loss, confirming normal functionality.	PASS
LAN Port (10Gbps)	Data transmission via connection to a 10Gbps LAN switch has been tested. The transfer speed meets the required standard with zero packet loss, confirming normal functionality.	PASS
LAN Port (10Gbps)	Data transmission via connection to a 10Gbps LAN switch has been tested. The transfer speed meets the required standard with zero packet loss, confirming normal functionality.	PASS
USB Port (3.0)	A PassMark USB 3.0 Loopback was connected for testing and was found to be functioning normally.	PASS
USB Port (3.0)	A PassMark USB 3.0 Loopback was connected for testing and was found to be functioning normally.	PASS
IPMI Port	Check work well	PASS
USB Port (2.0)	A PassMark USB 2.0 Loopback was connected for testing and was found to be functioning normally.	PASS
USB Port (2.0)	A PassMark USB 2.0 Loopback was connected for testing and was found to be functioning normally.	PASS
VGA Port	The VGA output was verified to be working properly with a resolution of 1920x1080 .	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

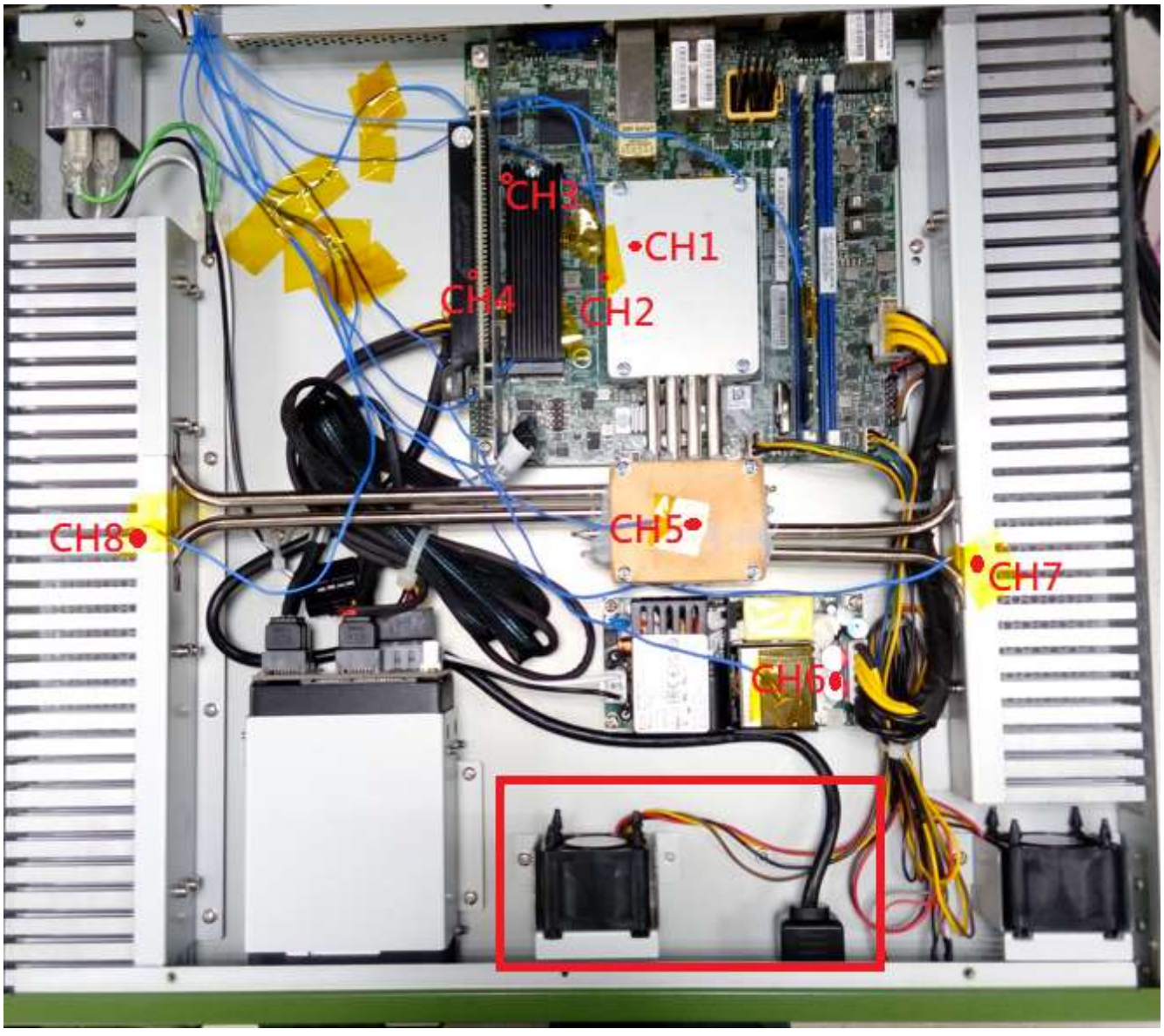




3. TEST PHOTO IN LAB

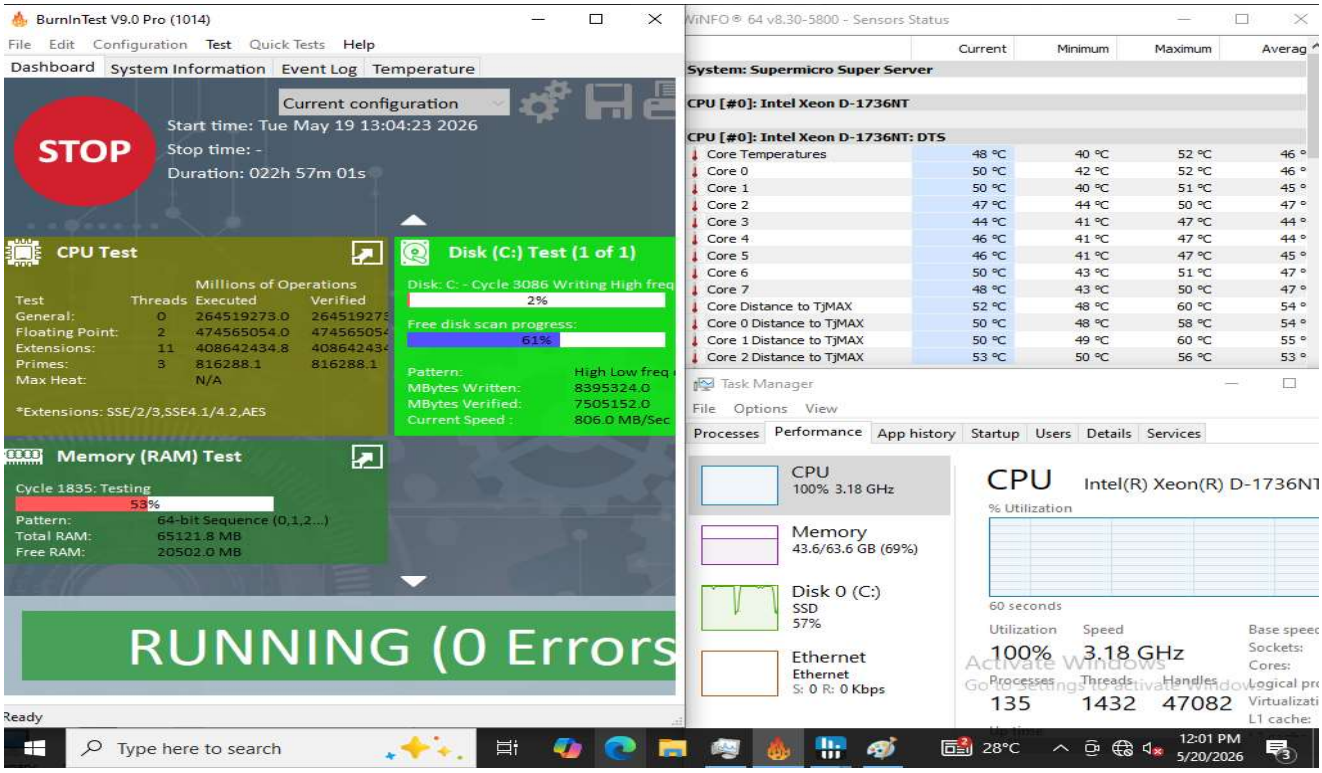
3-1. THERMOCOUPLE PLACEMENT

Measurement Point	Components	Measurement Point	Components	Measurement Point	Components	Measurement Point	Components
CH1	CPU Integrated Heat Spreader	CH7	Right Side System Heat Sink	CH13	N/A	CH19	N/A
CH2	CPU Heat Sink	CH8	Left Sidede System Heat Sink	CH14	N/A	CH20	N/A
CH3	M.2	CH9		CH15	N/A	CH21	N/A
CH4	DRAM	CH10	N/A	CH16	N/A	CH22	N/A
CH5	Heat-Pipe Heat Sink	CH11	N/A	CH17	N/A	CH23	N/A
CH6	Power Supply	CH12	N/A	CH18	N/A	CH24	N/A



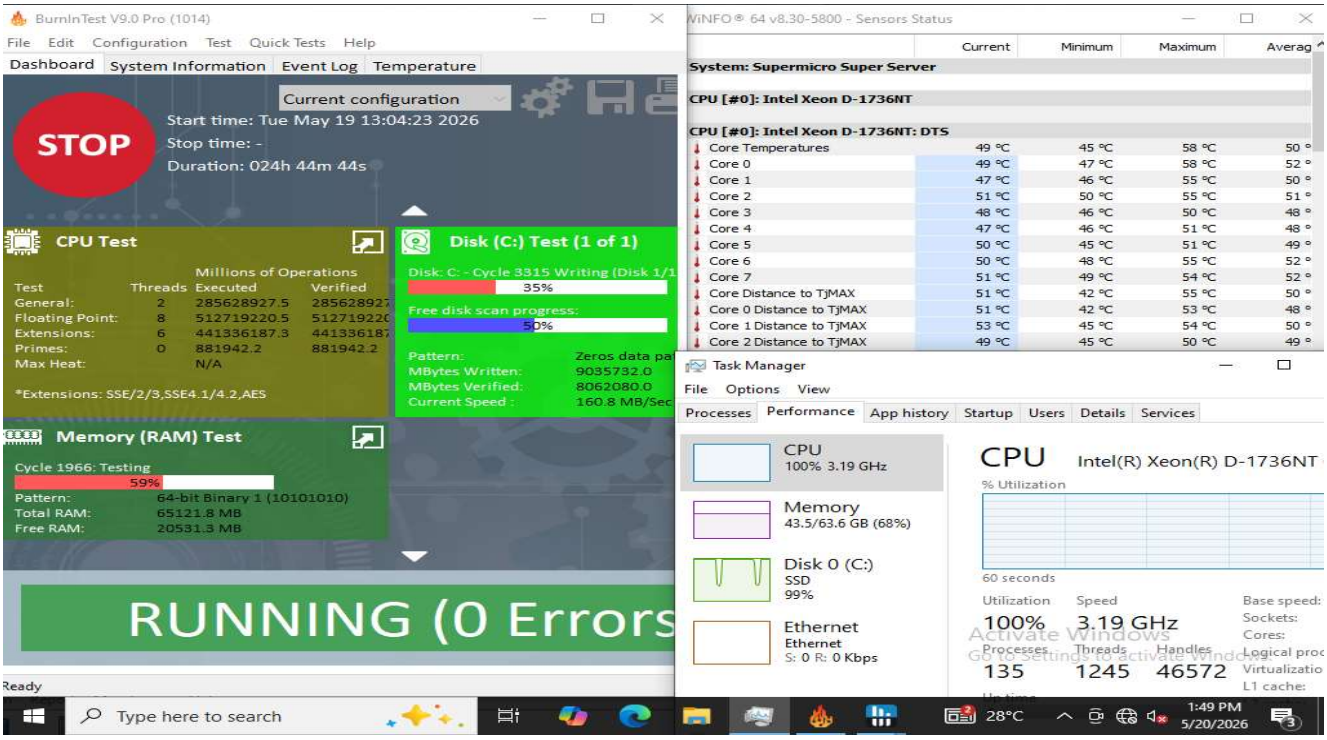
3-2. ENVIRONMENTAL TEMPERATURE TEST

- **Chamber in -20°C**



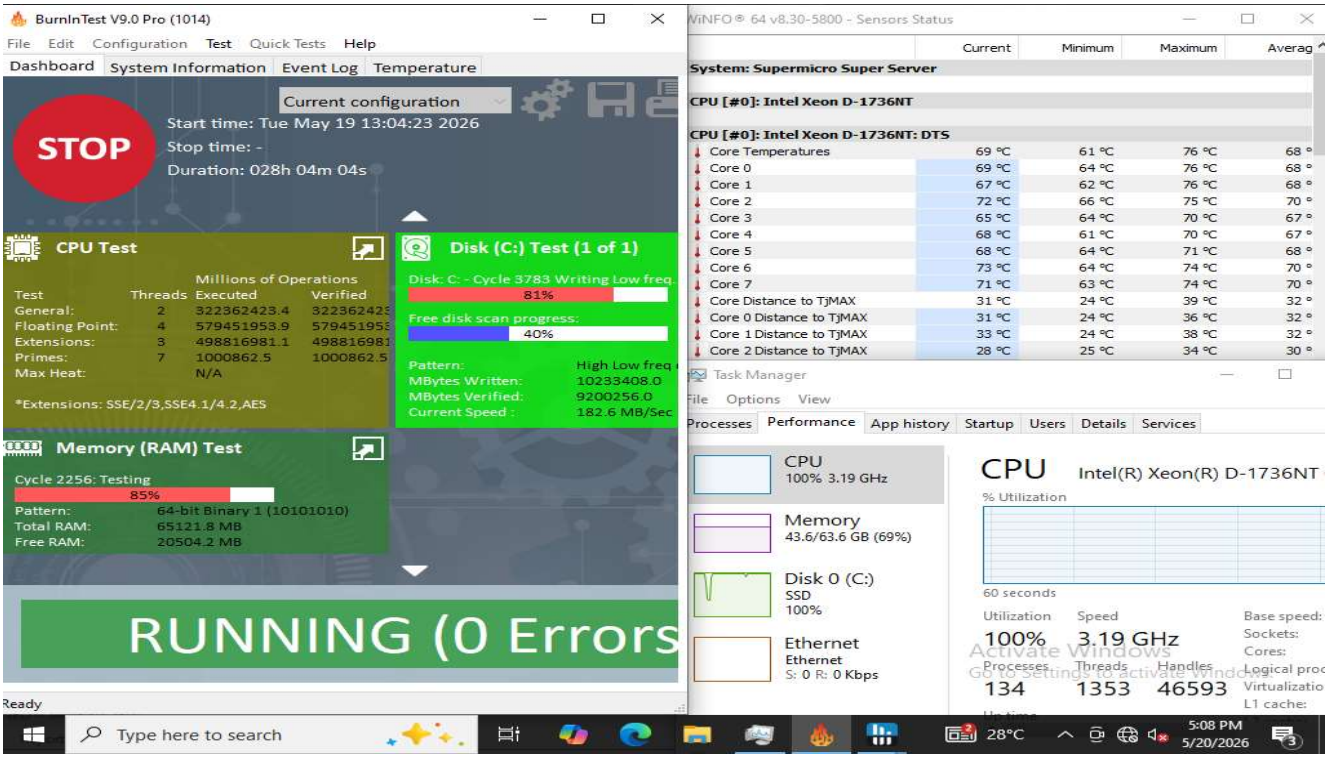
Measuring Point	Ambient Temp.	-20°C 0% RH
	CPU Max Temperature (Unit: °C)	52°C
	CPU Core Frequency (Unit: GHz)	3.18 GHz
CH1	CPU Integrated Heat Spreader	23.5°C
CH2	CPU Heat-sink	23.3°C
CH3	M.2	24.6°C
CH4	DRAM	17.8°C
CH5	Heat-Pipe Heat Sink	14.2°C
CH6	Power Supply	-0.7°C
CH7	Right Side System Heat Sink	0.8°C
CH8	Left Sidede System Heat Sink	-12.8°C

- Chamber in 0°C



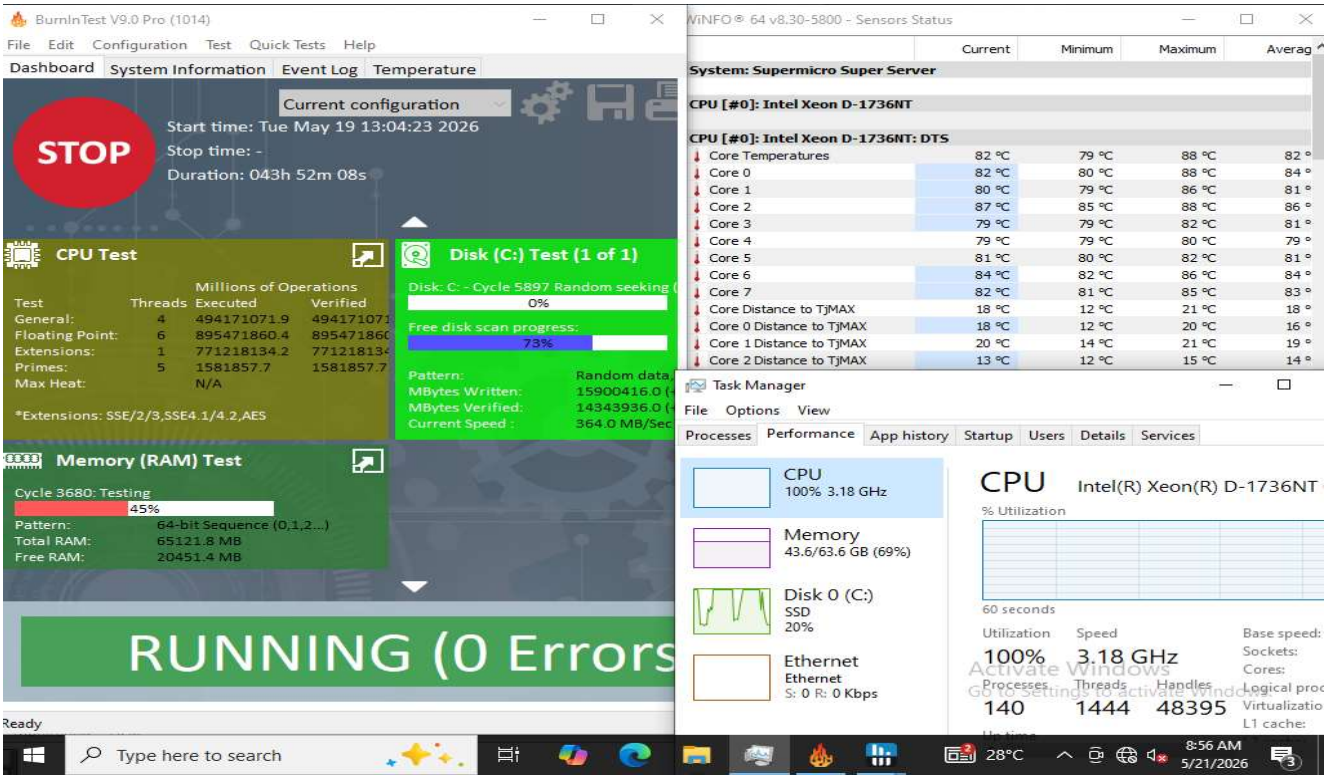
Measuring Point	Ambient Temp.	0°C 0% RH
	CPU Max Temperature (Unit: ˚C)	58˚C
	CPU Core Frequency (Unit: GHz)	3.19 GHz
CH1	CPU Integrated Heat Spreader	29.2˚C
CH2	CPU Heat-sink	26.0˚C
CH3	M.2	34.6˚C
CH4	DRAM	25.4˚C
CH5	Heat-Pipe Heat Sink	20.8˚C
CH6	Power Supply	13.2˚C
CH7	Right Side System Heat Sink	13˚C
CH8	Left Sidede System Heat Sink	11.4˚C

- Chamber in 25°C / 60%RH



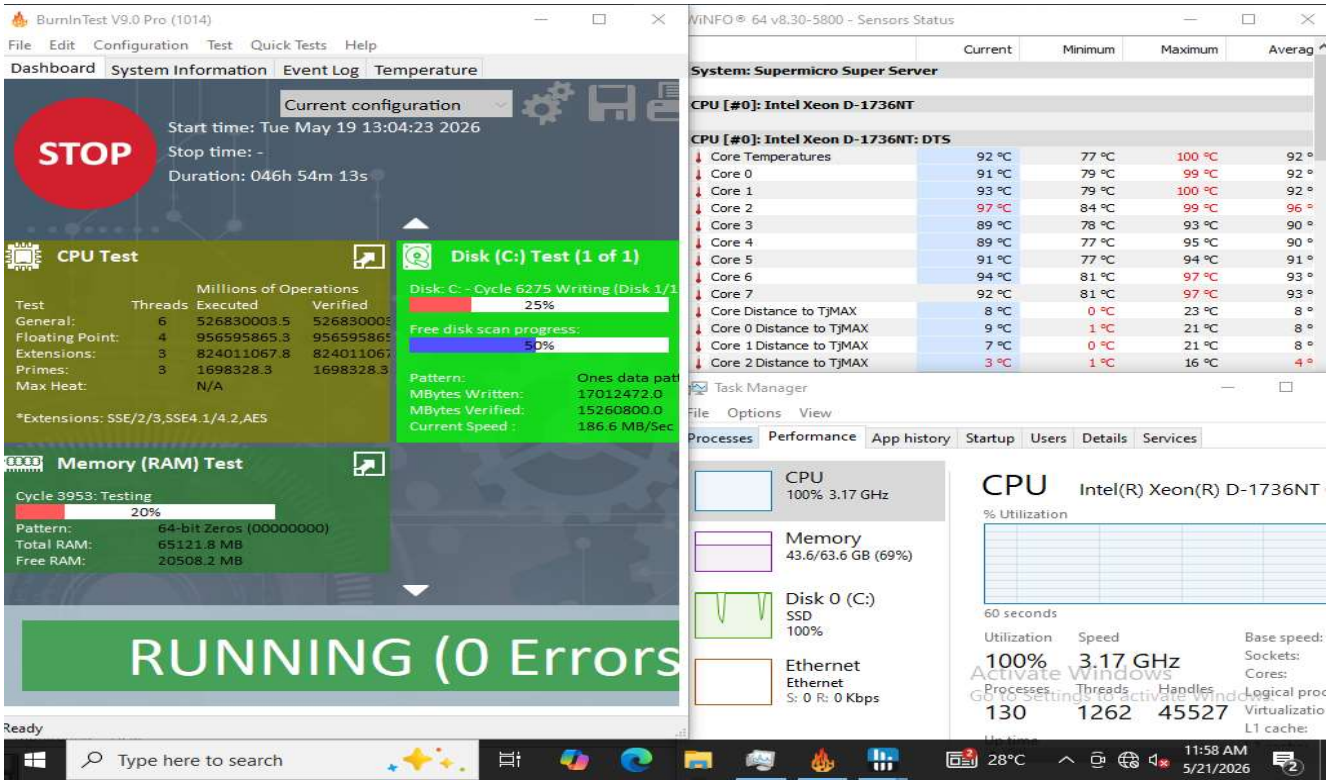
Measuring Point	Ambient Temp.	25°C 60% RH
	CPU Max Temperature (Unit: °C)	76°C
	CPU Core Frequency (Unit: GHz)	3.19 GHz
CH1	CPU Integrated Heat Spreader	46.7°C
CH2	CPU Heat-sink	44.8°C
CH3	M.2	48.8°C
CH4	DRAM	40.4°C
CH5	Heat-Pipe Heat Sink	38.8°C
CH6	Power Supply	34.1°C
CH7	Right Side System Heat Sink	33.7°C
CH8	Left Sidede System Heat Sink	33.8°C

- Chamber in 40°C / 60%RH



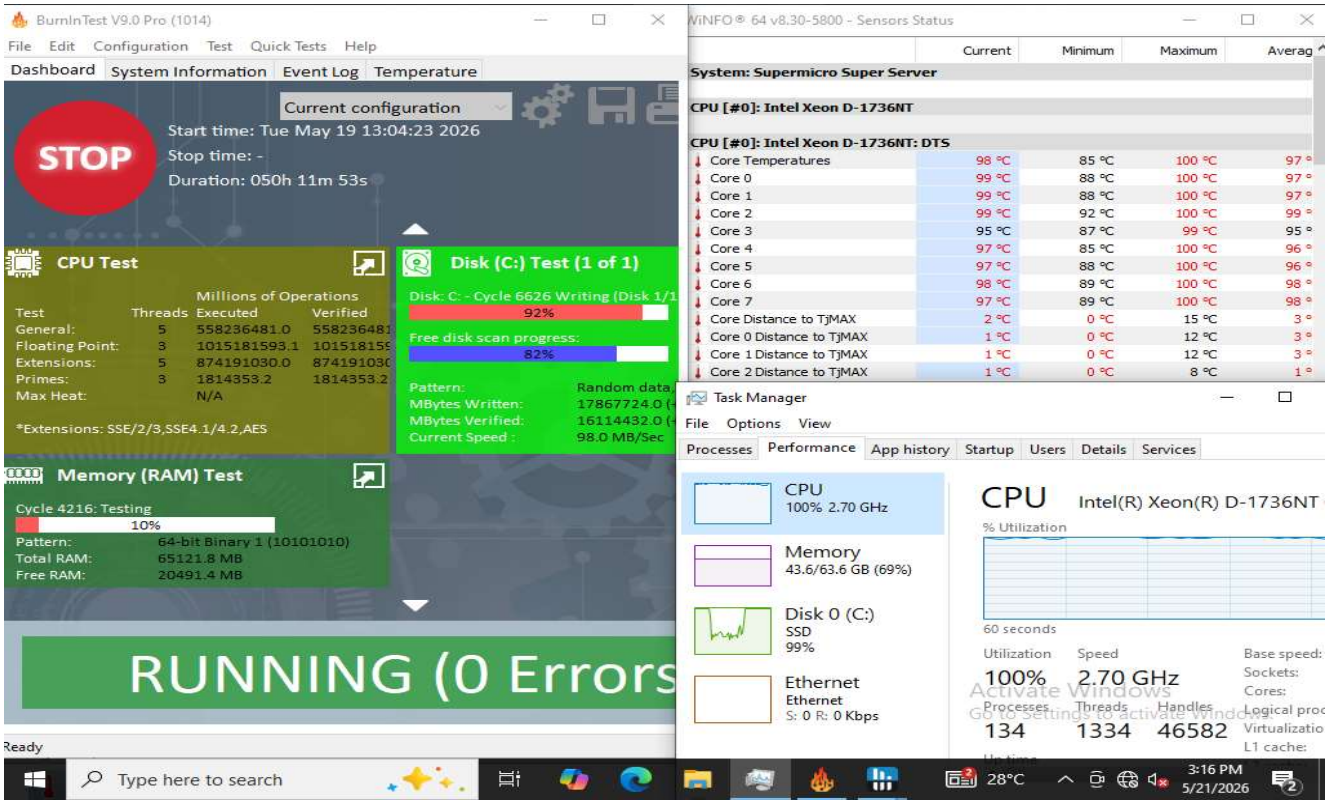
Measuring Point	Ambient Temp.	50°C 60% RH
	CPU Max Temperature (Unit: °C)	88°C
	CPU Core Frequency (Unit: GHz)	3.18 GHz
CH1	CPU Integrated Heat Spreader	61.0°C
CH2	CPU Heat-sink	57.8°C
CH3	M.2	58.3°C
CH4	DRAM	59.6°C
CH5	Heat-Pipe Heat Sink	46.2°C
CH6	Power Supply	49.7°C
CH7	Right Side System Heat Sink	49.2°C
CH8	Left Sidede System Heat Sink	48.7°C

- Chamber in 50°C / 60%RH



Measuring Point	Ambient Temp.	50°C 60% RH
	CPU Max Temperature (Unit: °C)	100°C
	CPU Core Frequency (Unit: GHz)	3.17 GHz
CH1	CPU Integrated Heat Spreader	71.0°C
CH2	CPU Heat-sink	67.6°C
CH3	M.2	68.9°C
CH4	DRAM	71.6°C
CH5	Heat-Pipe Heat Sink	56.1°C
CH6	Power Supply	59.5°C
CH7	Right Side System Heat Sink	59°C
CH8	Left Sidede System Heat Sink	58.5°C

- Chamber in 60°C / 60%RH



Measuring Point	Ambient Temp.	60°C 60% RH
	CPU Max Temperature (Unit: °C)	100°C
	CPU Core Frequency (Unit: GHz)	2.70 GHz
CH1	CPU Integrated Heat Spreader	80.2°C
CH2	CPU Heat-sink	76.9°C
CH3	M.2	78.4°C
CH4	DRAM	81.1°C
CH5	Heat-Pipe Heat Sink	66.1°C
CH6	Power Supply	69.1°C
CH7	Right Side System Heat Sink	68.3°C
CH8	Left Sidede System Heat Sink	68.3°C

4. THERMAL TEST RESULT(-20°C ~ +60°C)

CPU Temperature/Frequency

Ambientemp. / Temperature / Frequency		-20°C 0% RH	0°C 0% RH	25°C 60% RH	40°C 60% RH	50°C 60% RH	60°C 60% RH
CPU Max Temperature (Unit: °C)		52	58	76	88	100	100
CPU Cores Frequency (Unit: GHz) Performance-core Base Frequency: 2.70 GHz		3.18	3.19	3.19	3.18	3.17	2.7
Ambient Temp. / Thermocouple / Measuring point and Temperature		-20°C 0% RH	0°C 0% RH	25°C 60% RH	40°C 60% RH	50°C 60% RH	60°C 60% RH
CH1	CPU Integrated Heat Spreader	23.5	29.2	46.7	61	71	80.2
CH2	CPU Heat Sink	23.3	26	44.8	57.8	67.6	76.9
CH3	M.2	24.6	34.6	48.8	58.3	68.9	78.4
CH4	DRAM	17.8	25.4	40.4	59.6	71.6	81.1
CH5	Heat-Pipe Heat Sink	14.2	20.8	38.8	46.2	56.1	66.1
CH6	Power Supply	-0.7	13.2	34.1	49.7	59.5	69.1
CH7	Right Side System Heat Sink	0.8	13	33.7	49.2	59	68.3
CH8	Left Sidede System Heat Sink	-12.8	11.4	33.8	48.7	58.5	68.3

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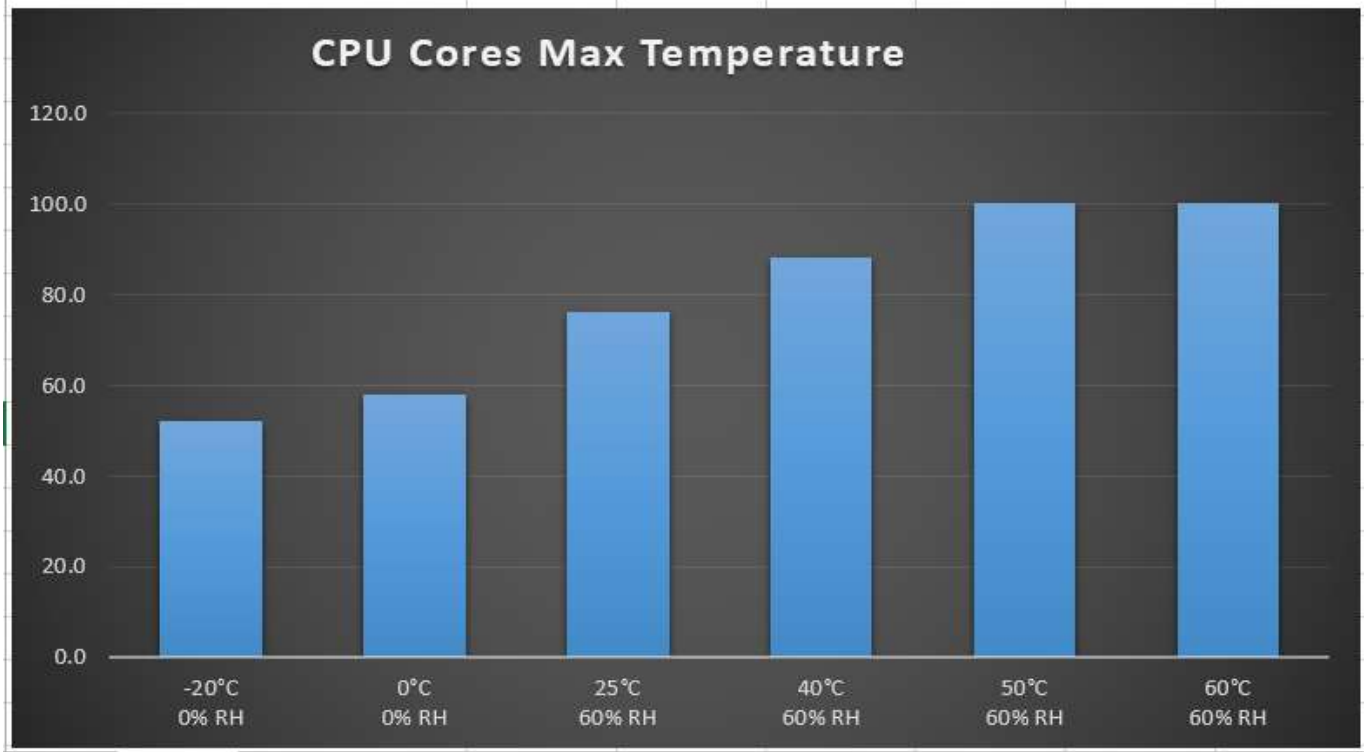
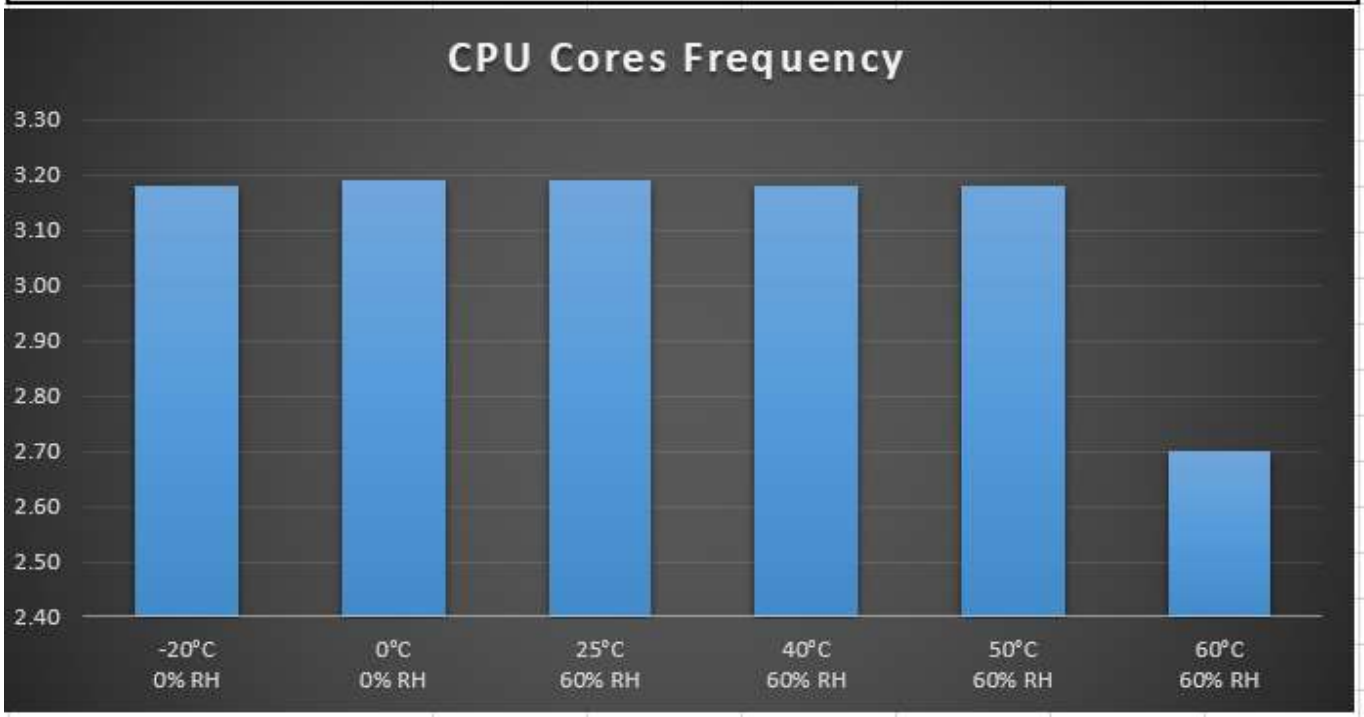
Core Temp / Ambient Temp CPU Frequency	-20°C 0% RH	0°C 0% RH	25°C 60% RH	40°C 60% RH	50°C 60% RH	60°C 60% RH
CPU Cores Max Temperature	52.0	58.0	76.0	88.0	100.0	100.0

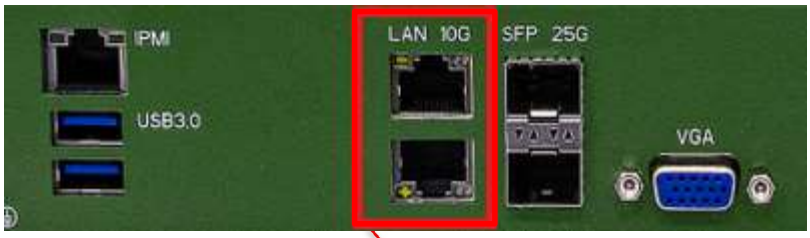


Core Temp / Ambient Temp CPU Frequency	-20°C 0% RH	0°C 0% RH	25°C 60% RH	40°C 60% RH	50°C 60% RH	60°C 60% RH
CPU Cores Frequency	3.18	3.19	3.19	3.18	3.18	2.70



5. I/O FUNCTION TEST

5-1. LAN PORT

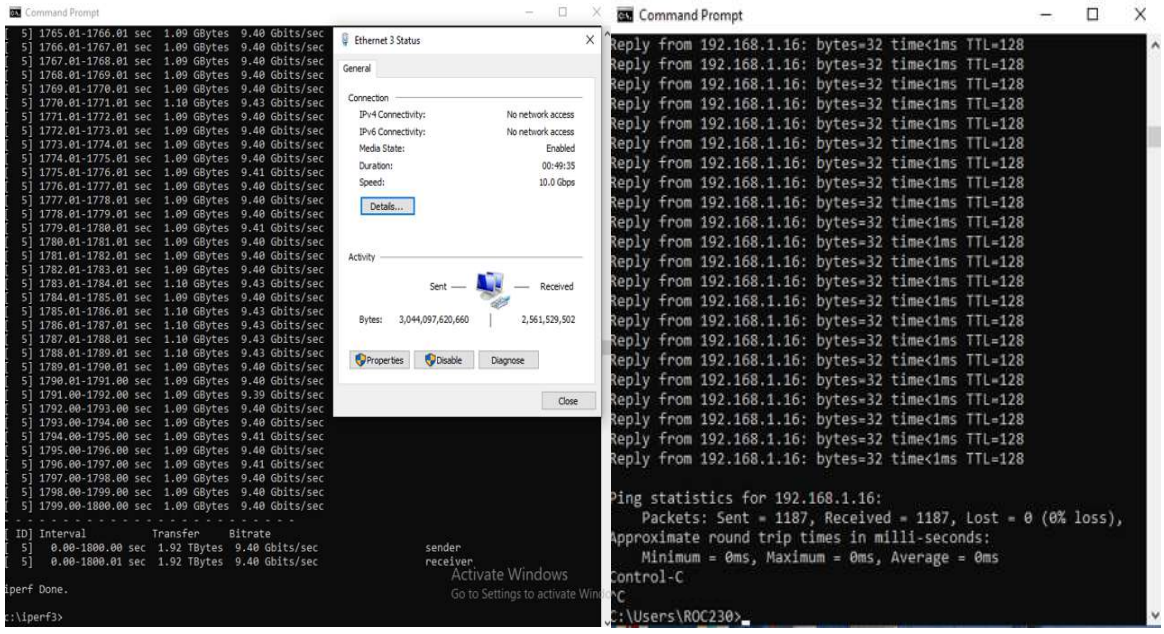


LAN 10GbE

LAN SPEED

LAN Data-Packet

LAN (Above)

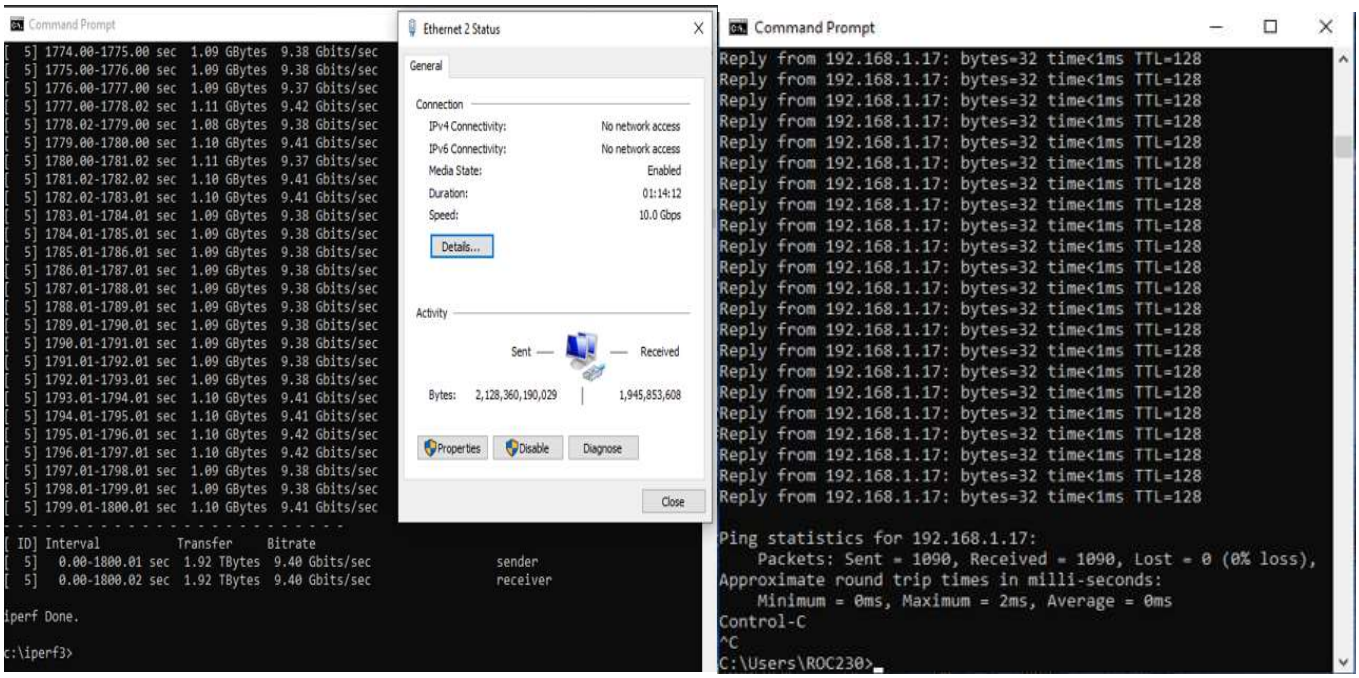


LAN Speed Test Result: Pass
LAN Data-Packet Test Result: 0 Lost (0% loss)

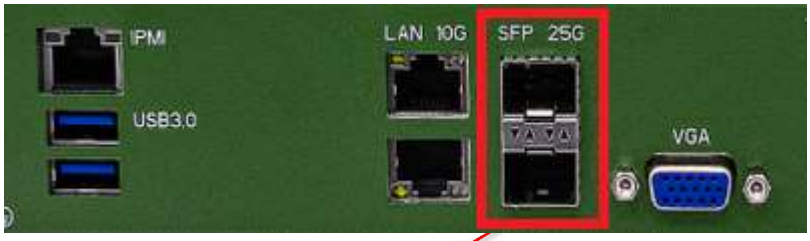
LAN SPEED

LAN Data-Packet

LAN (Below)



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

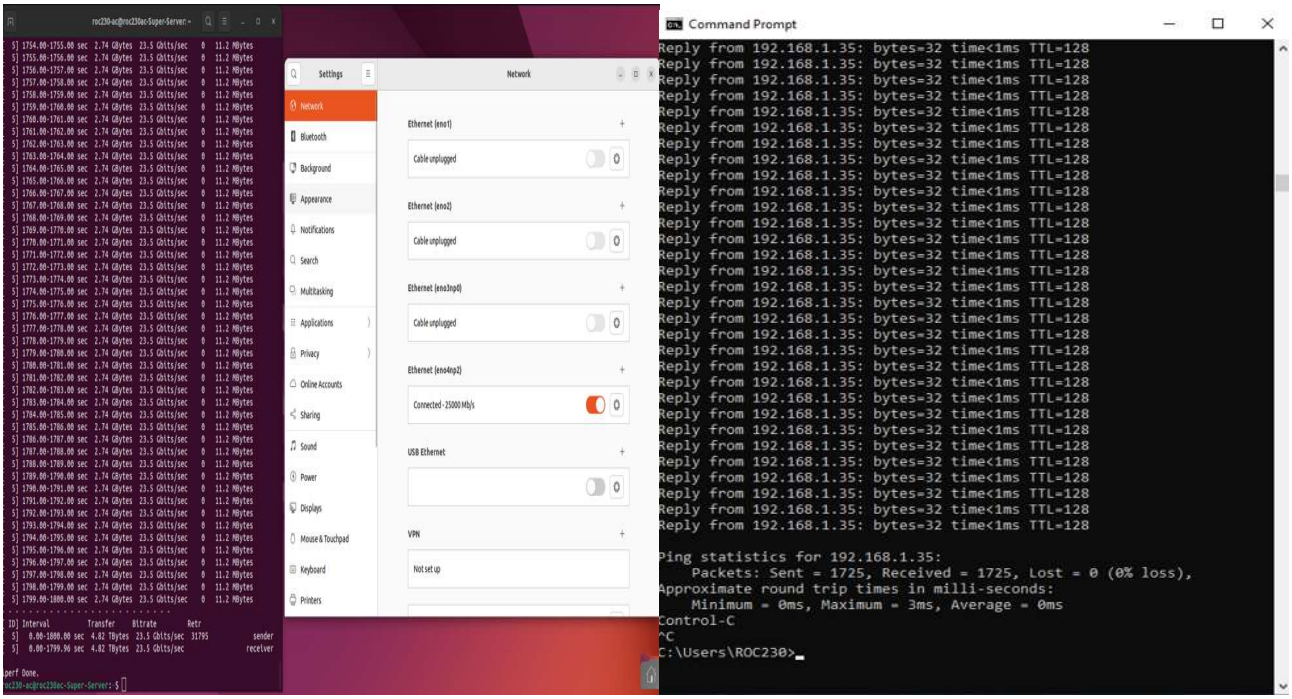


LAN 25GbE

LAN SPEED

LAN Data-Packet

LAN (Above)

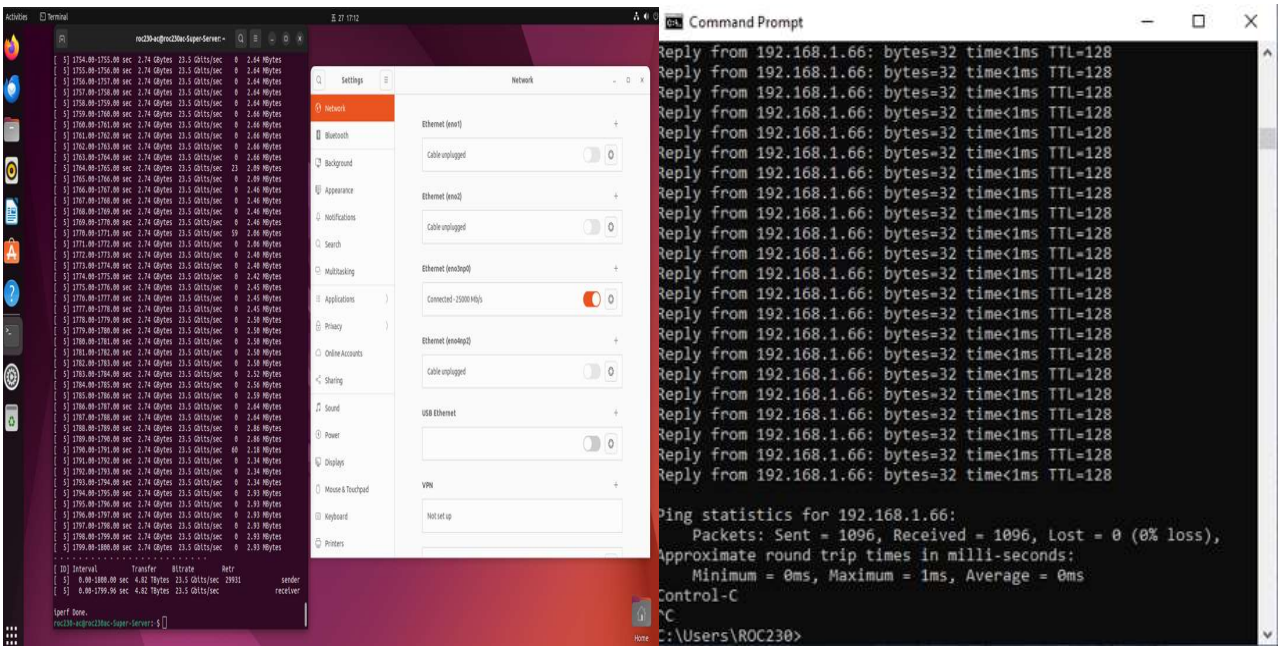


LAN Speed Test Result: Pass
LAN Data-Packet Test Result: 0 Lost (0% loss)

LAN SPEED

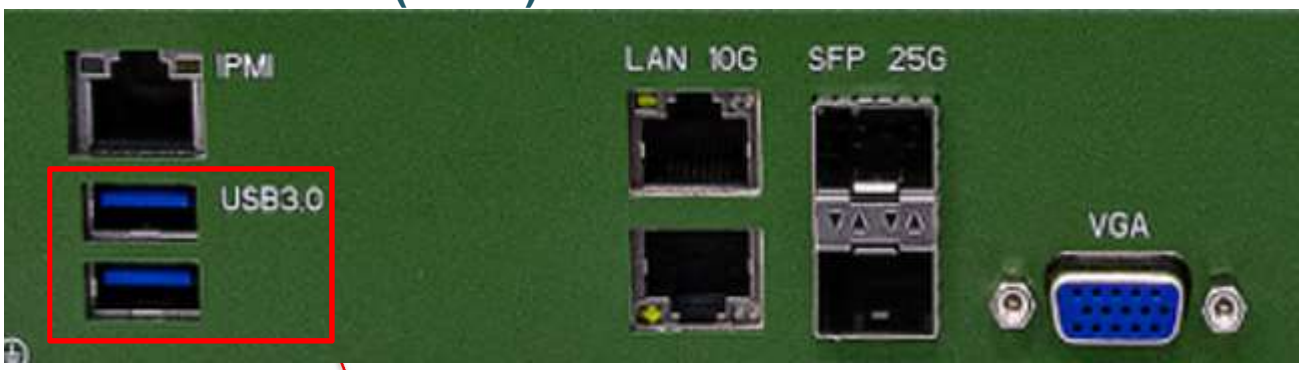
LAN Data-Packet

LAN (Below)

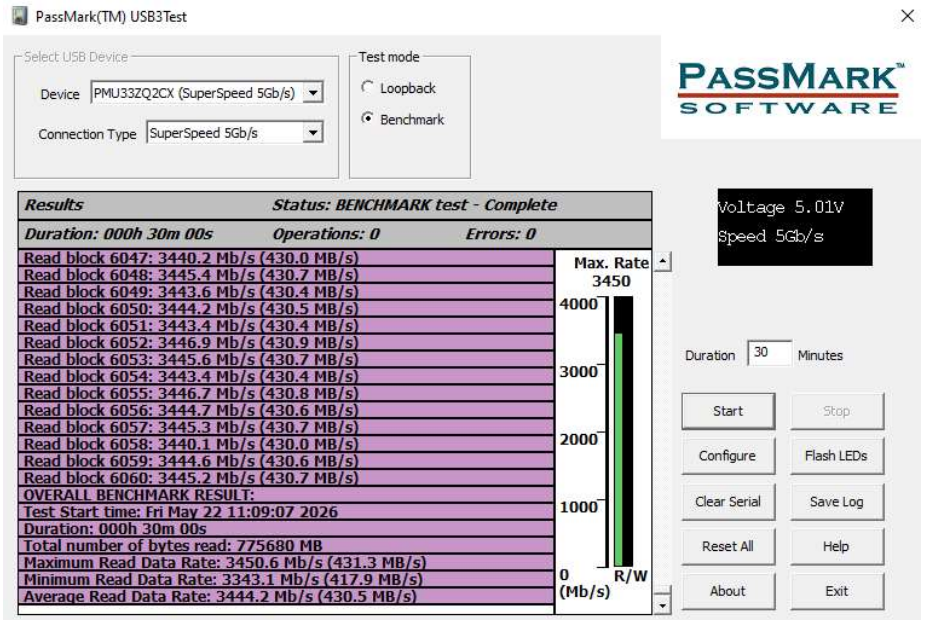


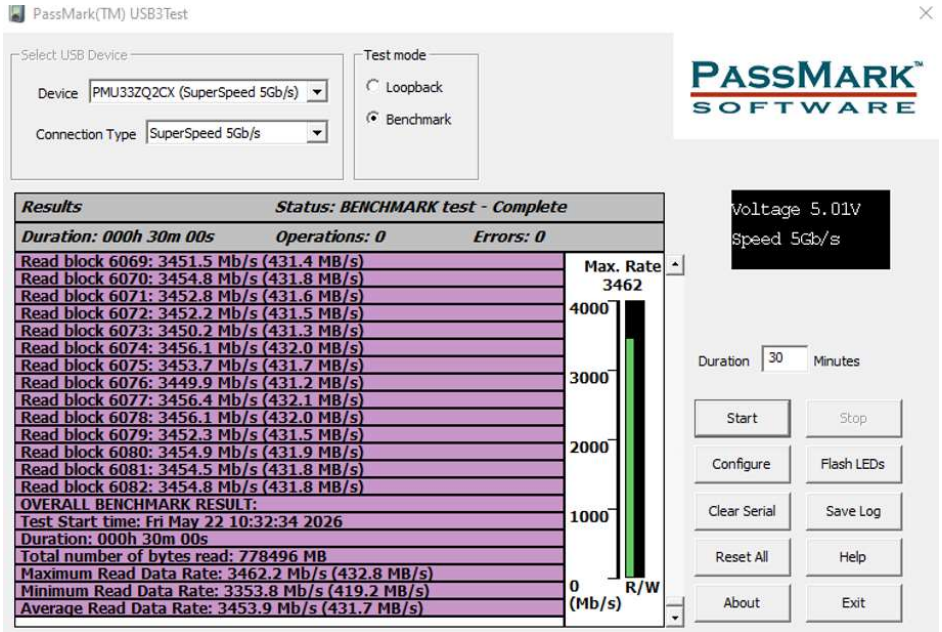
LAN Speed Test Result: Pass
LAN Data-Packet Test Result: 0 Lost (0% loss)

5-2. USB PORT (REAR)

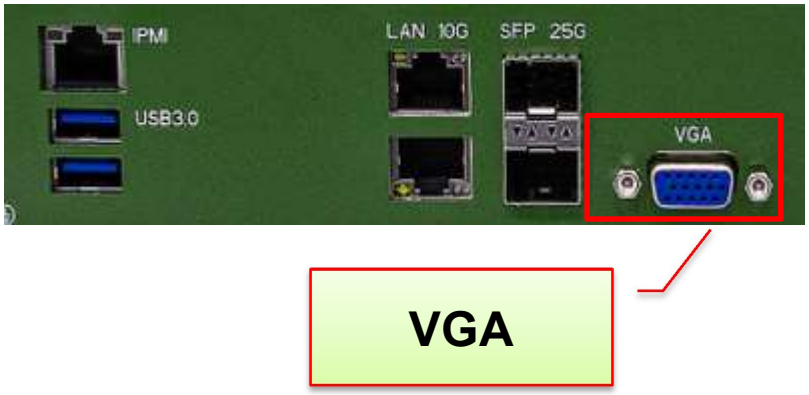


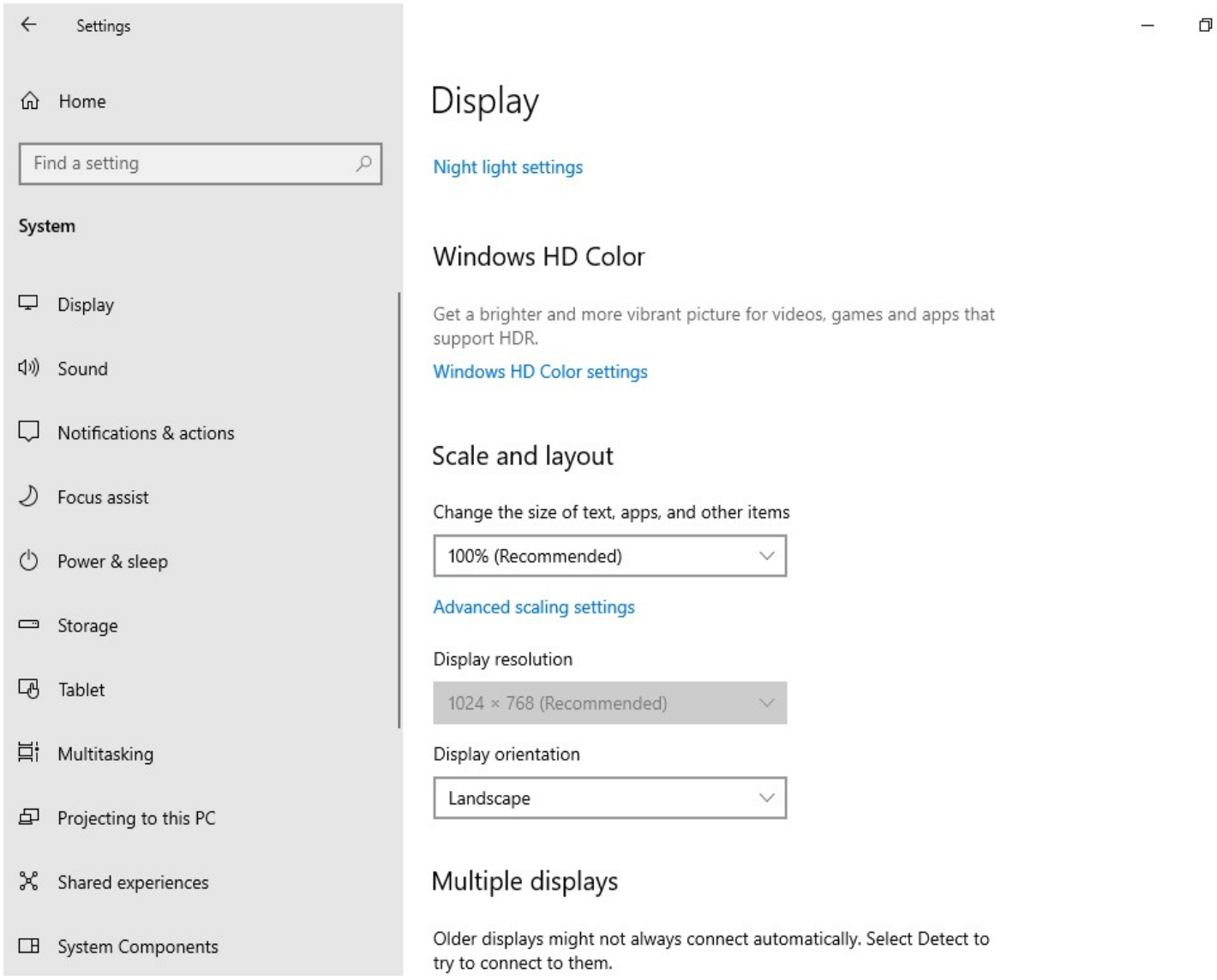
USB 3.0

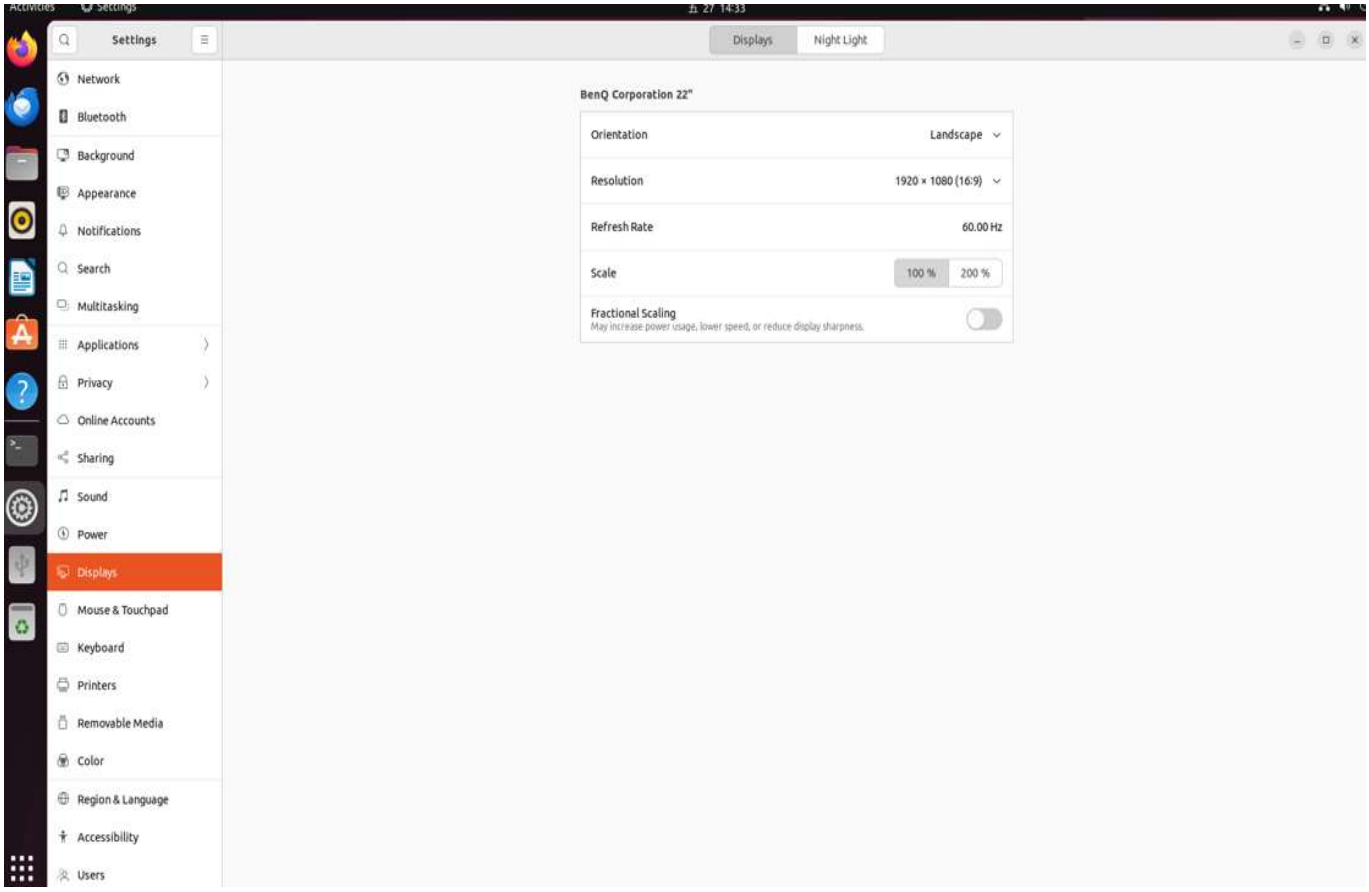


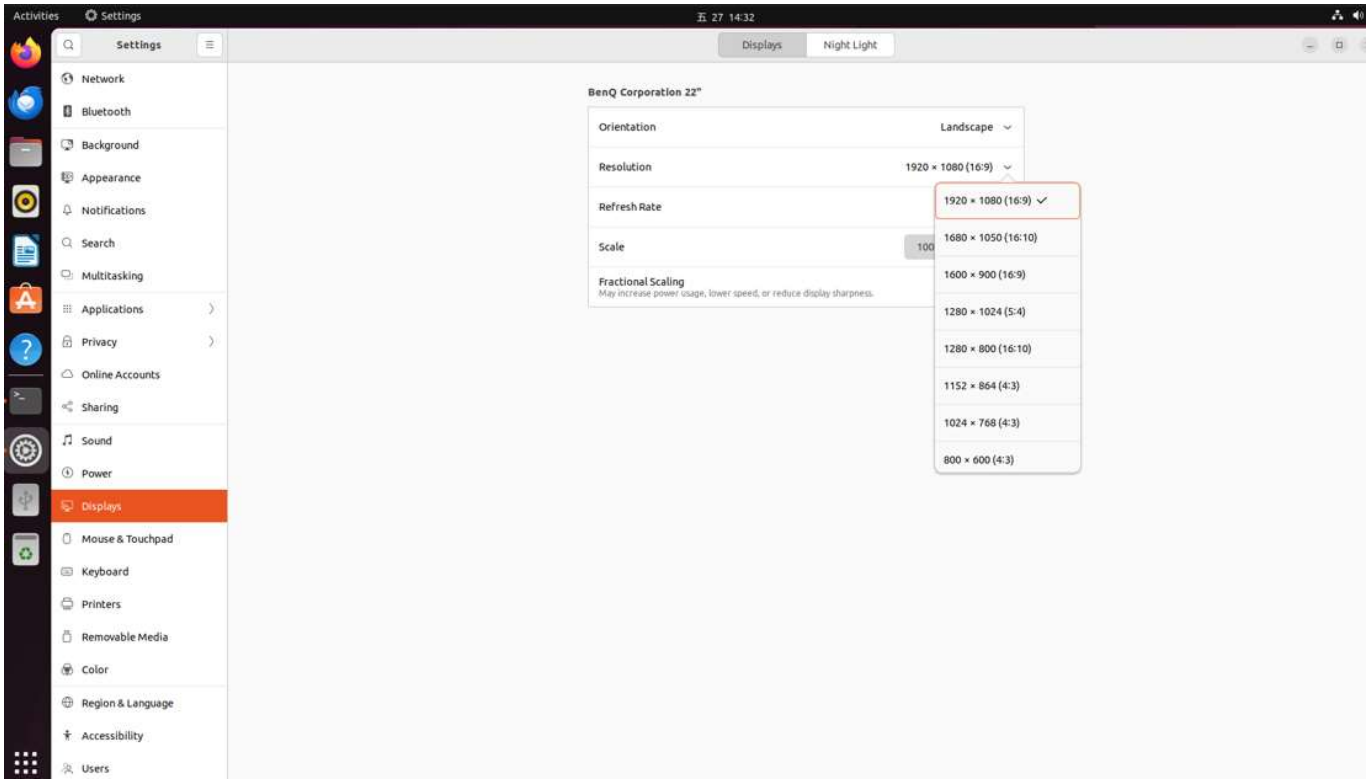


5-3. VGA PORT


IPMI
USB3.0
LAN 10G
SFP 25G
VGA
VGA

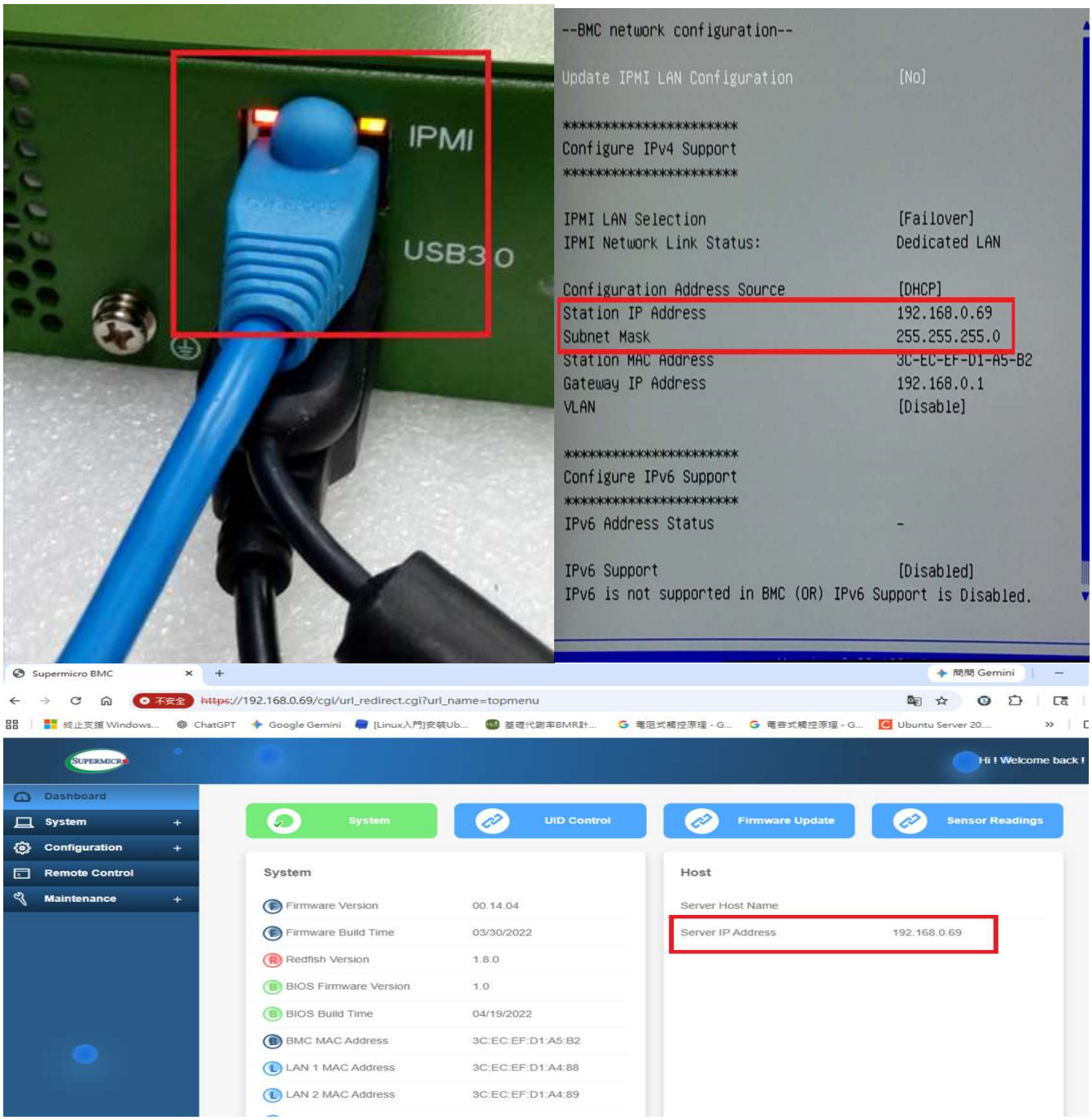

Settings
Home
Find a setting
System
Display
Sound
Notifications & actions
Focus assist
Power & sleep
Storage
Tablet
Multitasking
Projecting to this PC
Shared experiences
System Components
Display
Night light settings
Windows HD Color
Get a brighter and more vibrant picture for videos, games and apps that support HDR.
Windows HD Color settings
Scale and layout
Change the size of text, apps, and other items
100% (Recommended)
Advanced scaling settings
Display resolution
1024 × 768 (Recommended)
Display orientation
Landscape
Multiple displays
Older displays might not always connect automatically. Select Detect to try to connect to them.


Activities
Settings
五 27 14:33
Settings
Displays
Night Light
Network
Bluetooth
Background
Appearance
Notifications
Search
Multitasking
Applications
Privacy
Online Accounts
Sharing
Sound
Power
Displays
Mouse & Touchpad
Keyboard
Printers
Removable Media
Color
Region & Language
Accessibility
Users
BenQ Corporation 22"
Orientation
Landscape
Resolution
1920 × 1080 (16:9)
Refresh Rate
60.00 Hz
Scale
100 %
200 %
Fractional Scaling
May increase power usage, lower speed, or reduce display sharpness.


Activities
Settings
五 27 14:32
Settings
Displays
Night Light
Network
Bluetooth
Background
Appearance
Notifications
Search
Multitasking
Applications
Privacy
Online Accounts
Sharing
Sound
Power
Displays
Mouse & Touchpad
Keyboard
Printers
Removable Media
Color
Region & Language
Accessibility
Users
BenQ Corporation 22"
Orientation
Landscape
Resolution
1920 × 1080 (16:9)
Refresh Rate
Scale
Fractional Scaling
May increase power usage, lower speed, or reduce display sharpness.
1920 × 1080 (16:9)
1680 × 1050 (16:10)
1600 × 900 (16:9)
1280 × 1024 (5:4)
1280 × 800 (16:10)
1152 × 864 (4:3)
1024 × 768 (4:3)
800 × 600 (4:3)

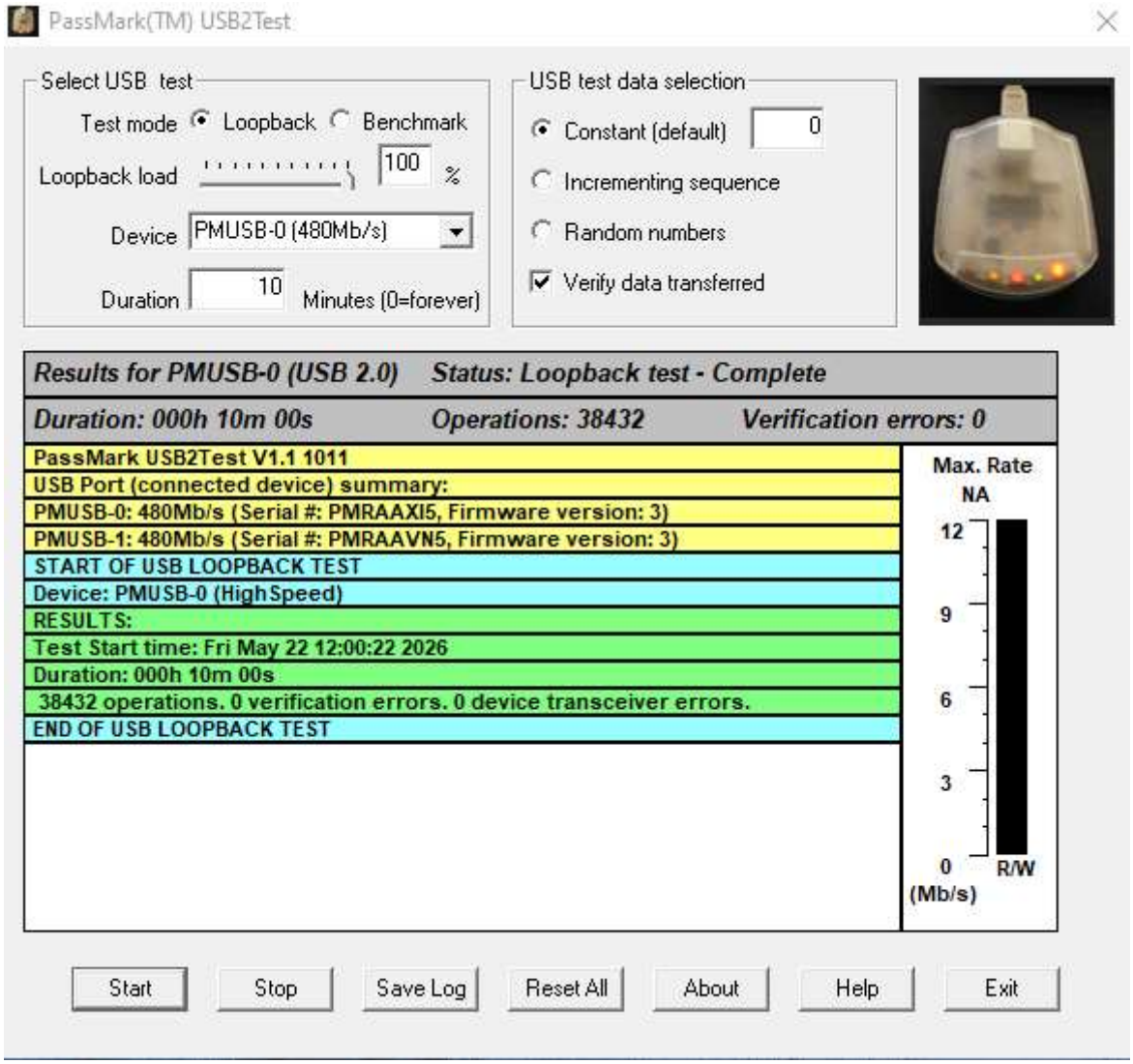
5-3. IPMI PORT

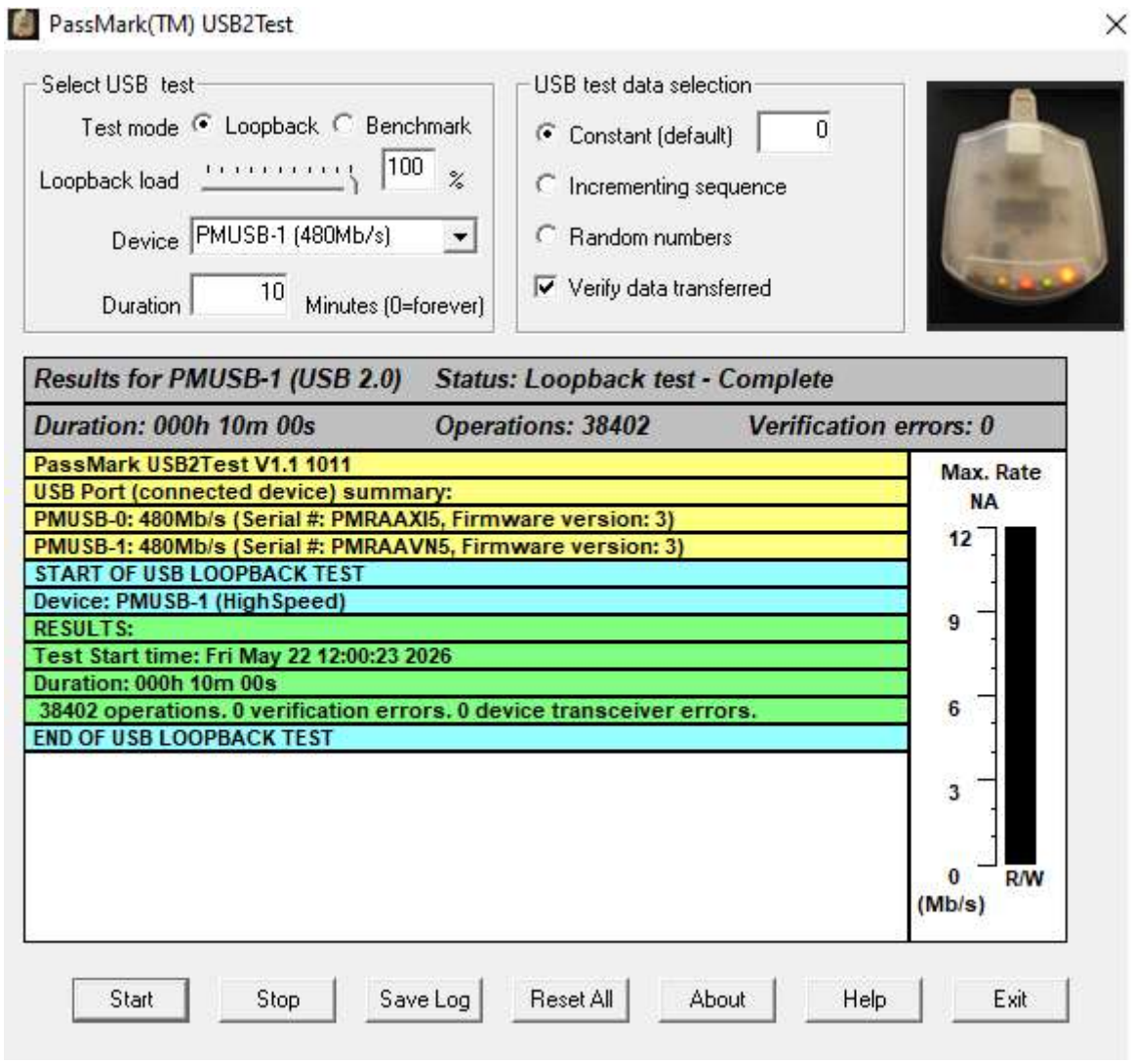

IPMI
USB3.0
LAN 10G
SFP 25G
VGA
IPMI


IPMI
USB3.0
--BMC network configuration--
Update IPMI LAN Configuration [No]
****
Configure IPv4 Support
****
IPMI LAN Selection [Failover]
IPMI Network Link Status: Dedicated LAN
Configuration Address Source [DHCP]
Station IP Address 192.168.0.69
Subnet Mask 255.255.255.0
Station MAC Address 3C-EC-EF-D1-A5-B2
Gateway IP Address 192.168.0.1
VLAN [Disable]
****
Configure IPv6 Support
****
IPv6 Address Status -
IPv6 Support [Disabled]
IPv6 is not supported in BMC (OR) IPv6 Support is Disabled.
Supermicro BMC
https://192.168.0.69/cgi/url_redirect.cgi?url_name=topmenu
Hi ! Welcome back !
Dashboard
System
Configuration
Remote Control
Maintenance
System
UID Control
Firmware Update
Sensor Readings
System
Firmware Version 00.14.04
Firmware Build Time 03/30/2022
Redfish Version 1.8.0
BIOS Firmware Version 1.0
BIOS Build Time 04/19/2022
BMC MAC Address 3C:EC:EF:D1:A5:B2
LAN 1 MAC Address 3C:EC:EF:D1:A4:88
LAN 2 MAC Address 3C:EC:EF:D1:A4:89
Host
Server Host Name
Server IP Address 192.168.0.69

5-6 USB PORT (FRONT)

USB 2.0




PassMark(TM) USB2Test
Select USB test
Test mode
Loopback
Benchmark
Loopback load
100
%
Device
PMUSB-1 (480Mb/s)
Duration
10
Minutes (0=forever)
USB test data selection
Constant (default)
0
Incrementing sequence
Random numbers
Verify data transferred
Results for PMUSB-1 (USB 2.0)
Status: Loopback test - Complete
Duration: 000h 10m 00s
Operations: 38402
Verification errors: 0
PassMark USB2Test V1.1 1011
USB Port (connected device) summary:
PMUSB-0: 480Mb/s (Serial #: PMRAAXI5, Firmware version: 3)
PMUSB-1: 480Mb/s (Serial #: PMRAAVN5, Firmware version: 3)
START OF USB LOOPBACK TEST
Device: PMUSB-1 (High Speed)
RESULTS:
Test Start time: Fri May 22 12:00:23 2026
Duration: 000h 10m 00s
38402 operations. 0 verification errors. 0 device transceiver errors.
END OF USB LOOPBACK TEST
Max. Rate
NA
12
9
6
3
0
(Mb/s)
R/W
Start
Stop
Save Log
Reset All
About
Help
Exit

-----END-----