



System Test Report

IV320-RH-KD



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Performance Test

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1. SPECIFICATION

1-1. SYSTEM CONFIGURATION

Motherboard	SK515M+COM Express CPU module MXM Type 3.1 Support NVIDIA® GTX® / RTX® GPU PCI/104 Express Expansion Slot for Modular Open Structure Multi-Expansion Slots include Dual Mini PCIe Express Slots, 1x M.2 Slot Wide Range DC 9V~36V Input Extreme Temperature Support -40°C to 85°C
CPU	Intel® Core™ i7-13800HRE Processor Total Cores: 14 # of Performance-cores: 6 # of Efficient-cores: 8 Total Threads: 20 Max Turbo Frequency: 5.00 GHz Performance-core Max Turbo Frequency: 5.00 GHz Efficient-core Max Turbo Frequency: 4.00 GHz Processor Base Frequency: 2.50 GHz Cache 24 MB Intel® Smart Cache TDP: 45 W
Memory	64GB DDR5 SO-DIMM wide temp. (0C02AM425R4GD00L*2pcs)
Storage	2* 2TB SATA SSD wide temperature (2 x Swappable Tray) (0I05077SL02TB00L*2pcs)
GPU	Nvidia RTX A4500 Embedded GPU BIOS Version: 94.04.81.00.30 CUDA parallel-processing cores: 5888 CUDA® cores GPU base/boost clock: 930 MHz / 1500 MHz Max Power Consumption: 80 W
Power Module	SK708 (0L18SK708000P3PF*1pcs)
RS485 Serial Port	EGP2-X401 M.2 to 4 x RS232/422/485 Module

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2. TEST PLAN

2.1. THERMAL MEASUREMENT PROCESS

Test Purpose	<p>The purpose of performing thermal profile testing is to identify potential thermal issues with the EUT. Considering that semiconductor failure rates rise rapidly with increasing junction temperature, it can aid product reliability assessment.</p> <p>As the system cools down, the mode will change with stack selection, temperature/heat.</p> <p>Mapping can help develop the best tracking arrangements.</p>
Test Equipment	1. KSON THS-B4T-150 Chamber.
Quantity Tested	Minimum 1 Set
Test Software	<p>1. Stress CPU: PassMark Burn-in Test Software Ver 9.0</p> <p>2. Stress GPU: AIDA64 extreme590</p> <p>3. LAN Speed Test: iPerf3</p>
Test Procedure	<p>1. Thermal pre-scan measurement: Temperature: -40°C~60°C Humidity: 85%RH (Temperature above 25°C)</p> <p>2. Actual thermal measurement:</p> <p>2-1. Select the test point based on the infrared photo and connect the thermocouple to the hot spot.</p> <p>2-2. Place the EUT into the hot chamber and set the test temperature curve Specification.</p> <p>2-3. Open the hot cell and power up the EUT, enter the Windows 10 Pro environment and perform a maximum power test + stress application.</p> <p>2-4. After the EUT executes the test software for 8 hours, record the maximum heat generation of each thermocouple point.</p> <p>2-5. Turn off the hot cell and EUT.</p> <p>2-6. Verify and check that the recorded information for each component complies with the operating temperature range listed in the specification/approval sheet for each component being tested.</p>
Test Diagram of Curves	<p>Environment defines for 60 hours.</p>

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2.2. TEST RESULT <TEST ITEM>

2.2.1. Temperature Cycle

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

Test Temperature	Test Result
-40°C	PASS
-20°C	PASS
0°C	PASS
25°C / 85%RH	PASS
40°C / 85%RH	PASS
50°C / 85%RH	PASS
60°C / 85%RH	PASS

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2.2.2. I/O Function

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

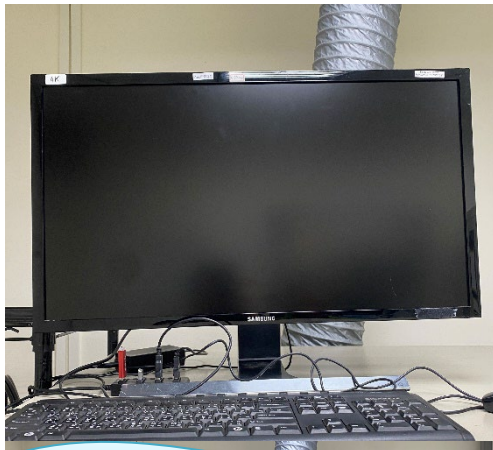
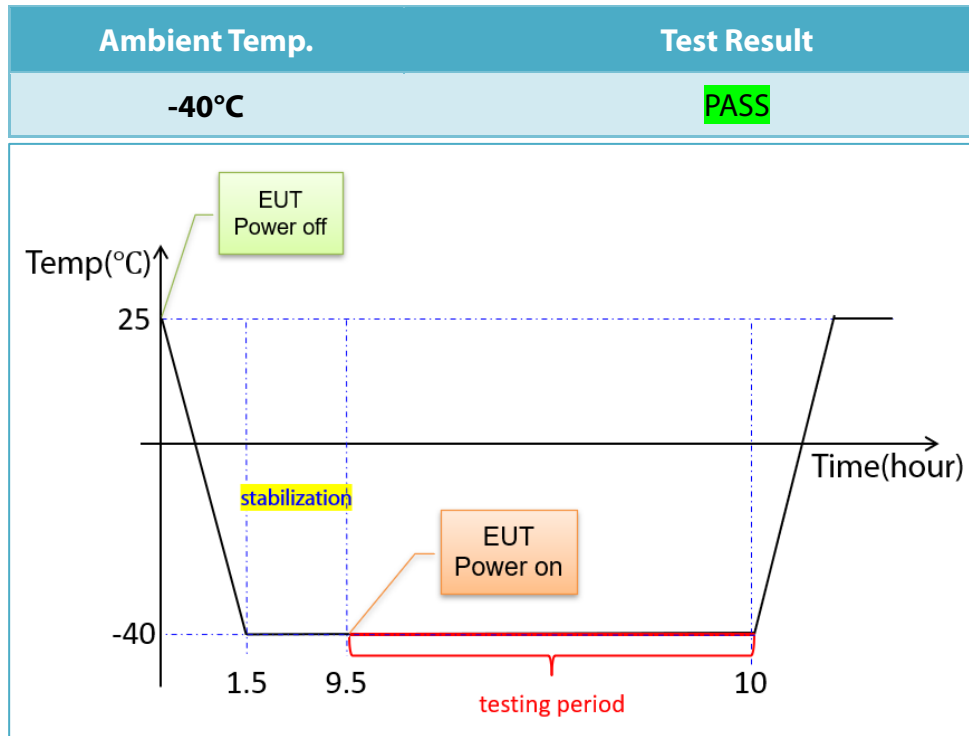
Item	Test Criteria	Result
X1Port - LAN (2.5Gbps)	Connection 1G/2.5G/10G/100G SWITCH HUB transfer data test, it can work normally.	PASS
X2 Port - LAN (2.5Gbps)	Connection 1G/2.5G/10G/100G SWITCH HUB transfer data test, it can work normally.	PASS
X3 Port – CANBus (COM 5)	Connect to the test computer to exchange messages.	PASS
X3 Port – CANBus (COM 6)	Connect to the test computer to exchange messages.	PASS
X4 Port – RS485 (COM 3)	Connect to the test computer to exchange messages.	PASS
X4 Port – RS485 (COM 4)	Connect to the test computer to exchange messages.	PASS
X4 Port – RS485 (COM 7)	Connect to the test computer to exchange messages.	PASS
X4 Port – RS485 (COM 8)	Connect to the test computer to exchange messages.	PASS
X8 Port - USB3.0	Connect a PassMark USB 3.0 Loopback Plugs for testing, it can work normally.	PASS
X9 Port - USB3.0	Connect a PassMark USB 3.0 Loopback Plugs for testing, it can work normally.	PASS
X10 Port - Mini DP	Check work well. (Max Resolution: 4K at 3840 x 2160)	PASS

Performance Test

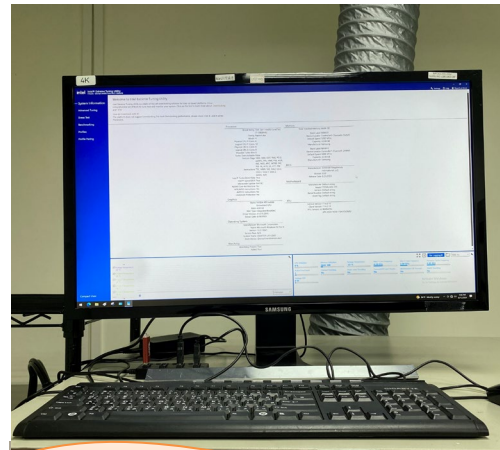
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2.2.3.Low-temperature & Boot-up

#Power supply under -40°C and ensure that the system boot up properly



Power off



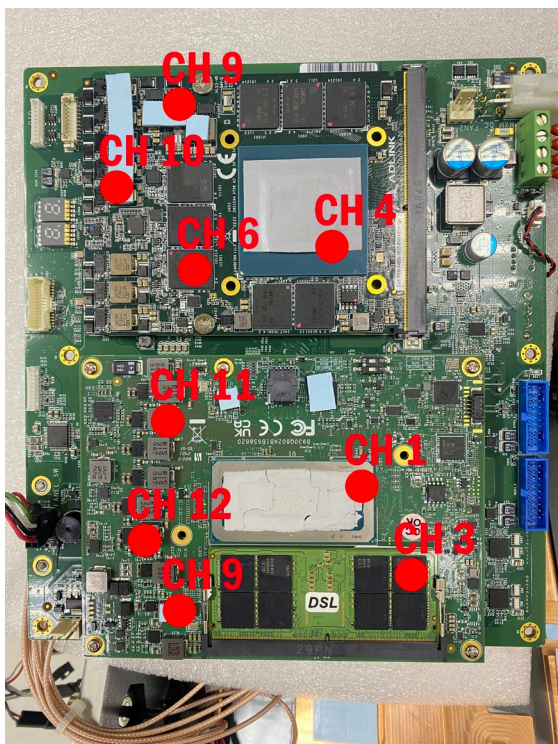
Power on



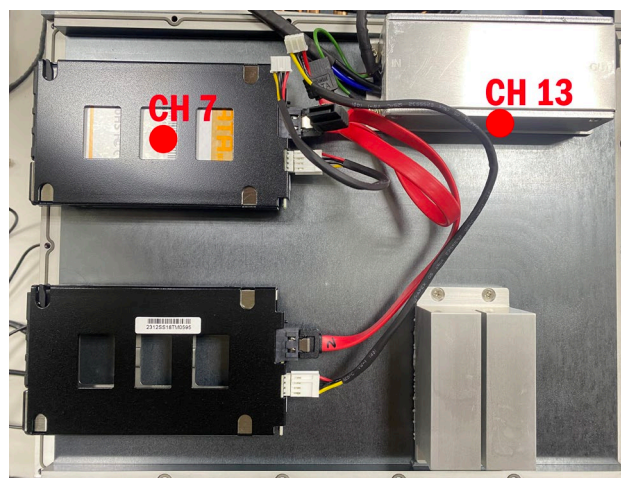
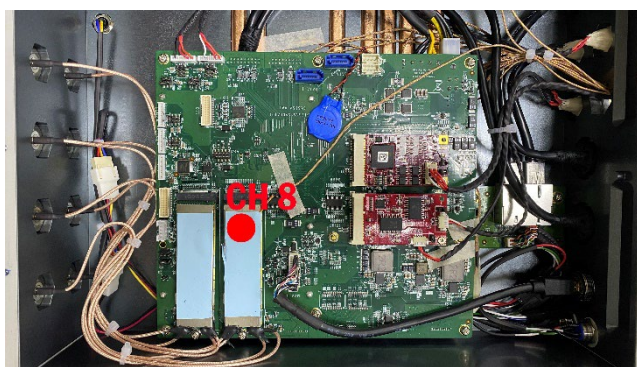
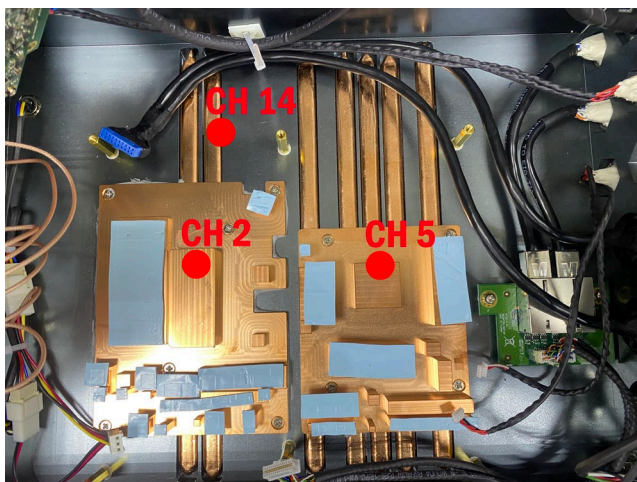
Performance Test

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3. THERMAL TEST POINT



Test Point	Test Point
CH1	CPU
CH2	CPU TOP Heatsink
CH3	DDR5 SO-DIMM
CH4	NVIDIA A4500 GPU
CH5	GPU TOP Heatsink
CH6	GPU DRAM
CH7	SATA SSD
CH8	M.2 Capture Card
CH9	TPU3802 CHOKE
CH10	TPU3802 MOSFET
CH11	PL3 CHOKE
CH12	PL7 MOSFET
CH13	SK708
CH14	TOP Heatsink

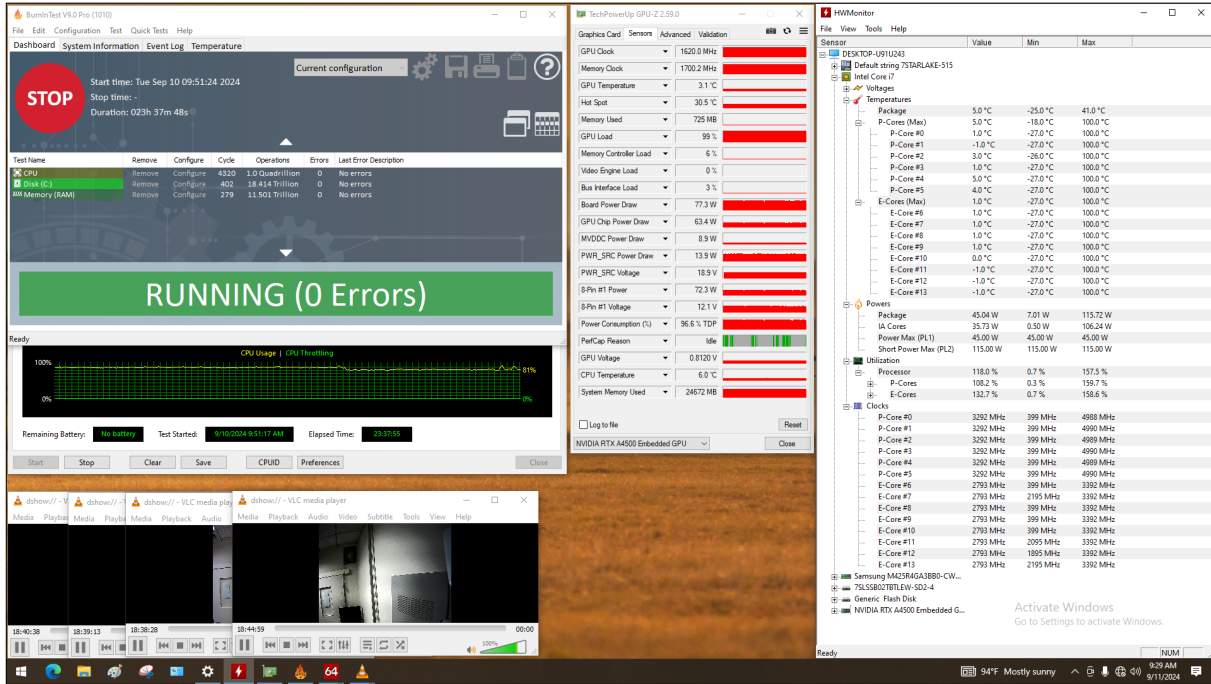


Performance Test

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4. TEST PHOTO IN LAB

- Chamber in -40°C



OVERVIEW				
2024/09/11 09:25:30				
1	7	13	19	-Over
2	8	14	20	-Over
3	9	15	21	-Over
4	10	16	22	-Over
5	11	17	23	-Over
6	12	18	24	-Over

Test Point	Ambient Temp.	-40°C
CPU P-Cores Max Temperature		5.0 °C
CPU E-Cores Max Temperature		1.0 °C
CPU P-Cores Frequency (Unit: GHz)		3.3 GHz
CPU E-Cores Frequency (Unit: GHz)		2.8 GHz
GPU Temperature		3.1 °C
GPU Hot Spot Temperature		30.5 °C
GPU Frequency (Unit: MHz)		1620.0 MHz
CH1	CPU	-16.7 °C
CH2	CPU TOP Heatsink	-21.0 °C
CH3	DDR5 50-DIMM	-21.6 °C
CH4	NVIDIA A4500 GPU	-9.5 °C
CH5	GPU TOP Heatsink	-16.8 °C
CH6	GPU DRAM	-20.9 °C
CH7	SATA SSD	-27.2 °C
CH8	M.2 Capture Card	-29.4 °C
CH9	TPU3802 CHOKE	-18.0 °C
CH10	TPU3802 MOSFET	-8.5 °C
CH11	PL3 CHOKE	-21.2 °C
CH12	PL7 MOSFET	-22.0 °C
CH13	SK708	-28.5 °C
CH14	TOP Heatsink	-27.1 °C



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- Chamber in -20°C

The screenshot displays a performance test environment. On the left, a 'BumInTest V5.0 Pro' window shows a 'STOP' button and a 'RUNNING (0 Errors)' status. The test results table is as follows:

Test Name	Remove	Configure	Cycle	Operations	Errors	Last Error Description
CPU	Remove	Configure	5351	1.8 Quadrillion	0	No errors
Disk (C)	Remove	Configure	519	23.182 Trillion	0	No errors
Memory (RAM)	Remove	Configure	346	84.253 Trillion	0	No errors

The 'TechPowerUp GPU-Z 2.29.0' window shows the following GPU metrics:

- GPU Clock: 1605.0 MHz
- Memory Clock: 1700.2 MHz
- GPU Temperature: 22.4 °C
- Hot Spot: 47.1 °C
- Memory Used: 729 MB
- GPU Load: 100 %
- Memory Controller Load: 6 %
- Video Engine Load: 0 %
- Bus Interface Load: 4 %
- Board Power Draw: 78.2 W
- GPU Chip Power Draw: 64.1 W
- MVDDC Power Draw: 5.1 W
- PWR_SRC Power Draw: 14.1 W
- PWR_SRC Voltage: 18.8 V
- S-Pin #1 Power: 73.2 W
- S-Pin #1 Voltage: 12.1 V
- Power Consumption (%): 97.8 % TDP
- PowerCap Reason: Fan
- GPU Voltage: 0.8180 V
- CPU Temperature: 25.0 °C
- System Memory Used: 24629 MB

The 'HWMonitor' window displays a detailed list of system sensors, including temperatures for various CPU cores (P-Cores #0-5, E-Cores #0-13) and power utilization for the processor and GPU.

OVERVIEW 2024/09/11 18:33:18 ELBIT 7min

1	7	13	19	
	5.0	-6.1	-6.2	-Over
2	8	14	20	
	0.5	-7.2	-5.4	-Over
3	9	15	21	
	0.2	2.9	-Over	-Over
4	10	16	22	
	11.7	12.3	-Over	-Over
5	11	17	23	
	4.9	0.6	-Over	-Over
6	12	18	24	
	0.6	-0.1	-Over	-Over

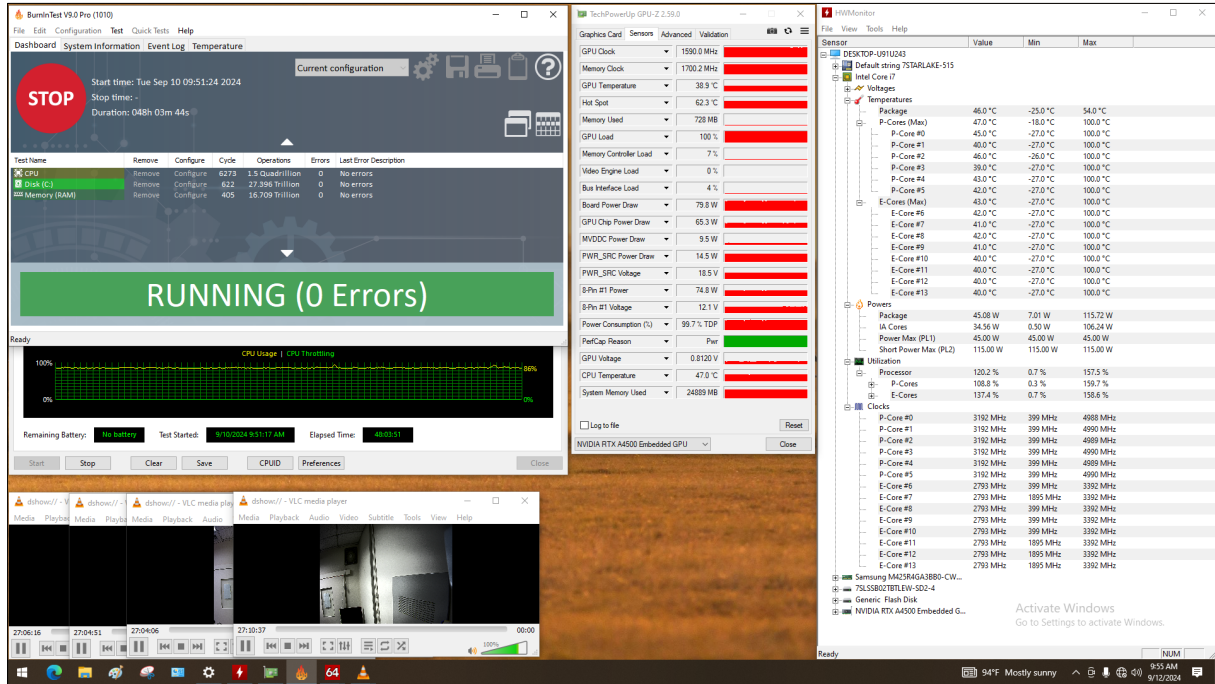
Test Point	Ambient Temp.	-20°C
	CPU P-Cores Max Temperature	25.0 °C
	CPU E-Cores Max Temperature	21.0 °C
	CPU P-Cores Frequency (Unit: GHz)	3.2 GHz
	CPU E-Cores Frequency (Unit: GHz)	2.8 GHz
	GPU Temperature	22.4 °C
	GPU Hot Spot Temperature	47.1 °C
	GPU Frequency (Unit: MHz)	1605.0 MHz
CH1	CPU	5.0 °C
CH2	CPU TOP Heatsink	0.5 °C
CH3	DDRS 50-DIMM	0.2 °C
CH4	NVIDIA A4500 GPU	11.7 °C
CH5	GPU TOP Heatsink	4.9 °C
CH6	GPU DRAM	0.6 °C
CH7	SATA SSD	-6.1 °C
CH8	M.2 Capture Card	-7.2 °C
CH9	TPU3802 CHOKE	2.9 °C
CH10	TPU3802 MOSFET	12.3 °C
CH11	PL3 CHOKE	0.6 °C
CH12	PL7 MOSFET	0.1 °C
CH13	SK798	-6.2 °C
CH14	TOP Heatsink	-5.4 °C



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- Chamber in 0°C



OVERVIEW				
2024/09/12 09:52:11				
1	7	13	19	
24.7	16.3	15.0		-Over
2	8	14	20	
20.7	13.6	16.8		-Over
3	9	15	21	
20.6	22.4	-Over	-Over	
4	10	16	22	
29.3	31.0	-Over	-Over	
5	11	17	23	
23.0	20.5	-Over	-Over	
6	12	18	24	
19.2	19.9	-Over	-Over	

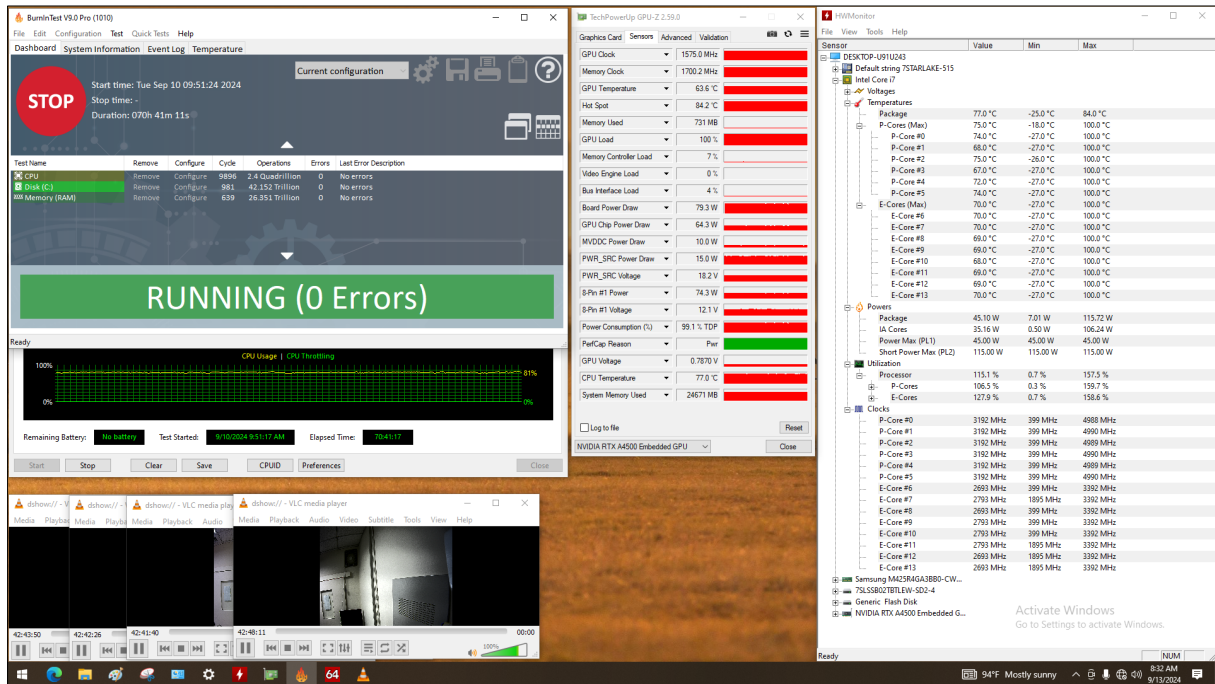
Test Point	Ambient Temp.	0°C
CPU P-Cores Max Temperature	47.0 °C	
CPU E-Cores Max Temperature	43.0 °C	
CPU P-Cores Frequency (Unit: GHz)	3.2 GHz	
CPU E-Cores Frequency (Unit: GHz)	2.8 GHz	
GPU Temperature	38.9 °C	
GPU Hot Spot Temperature	62.3 °C	
GPU Frequency (Unit: MHz)	1590.0 MHz	
CH1	CPU	24.7 °C
CH2	CPU TOP Heatsink	20.7 °C
CH3	DDRS SO-DIMM	20.6 °C
CH4	NVIDIA A4500 GPU	29.3 °C
CH5	GPU TOP Heatsink	23.0 °C
CH6	GPU DRAM	19.2 °C
CH7	SATA SSD	16.3 °C
CH8	M.2 Capture Card	13.6 °C
CH9	TPU3802 CHOKE	22.4 °C
CH10	TPU3802 MOSFET	31.0 °C
CH11	PL3 CHOKE	20.5 °C
CH12	PL7 MOSFET	19.9 °C
CH13	SK708	15.0 °C
CH14	TOP Heatsink	16.8 °C



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- Chamber in 25°C / 85%RH



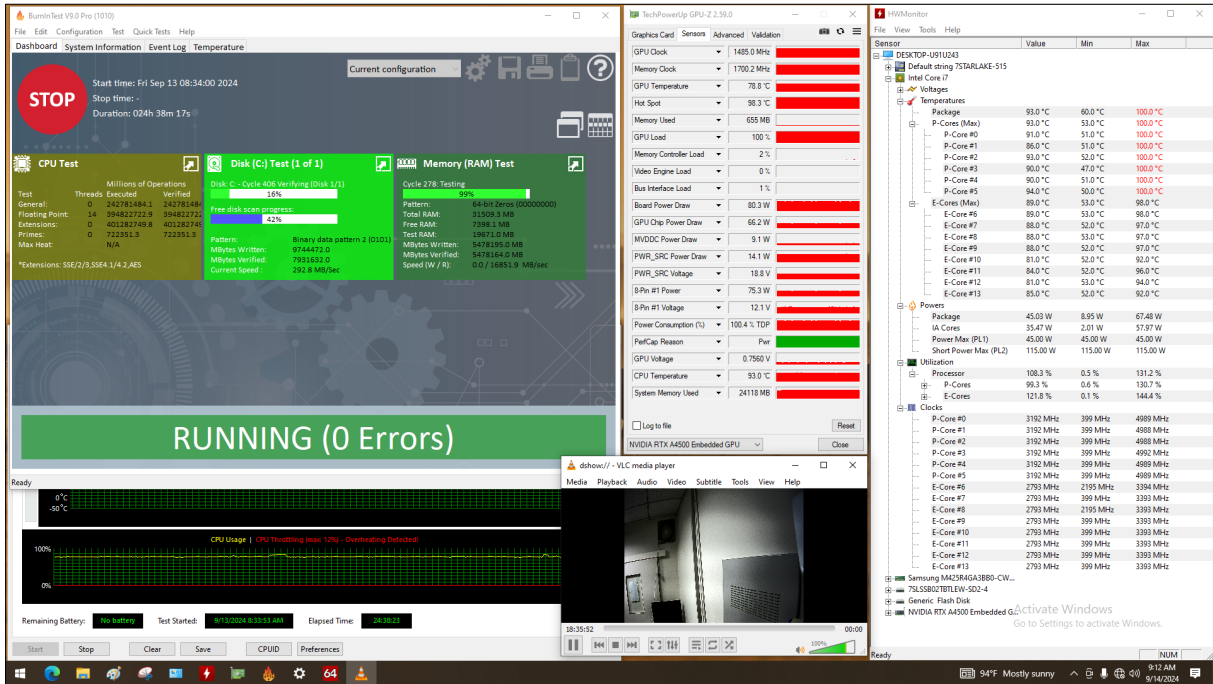
OVERVIEW				
2024/08/13 08:22:42				
1	7	13	19	-Over
2	8	14	20	-Over
3	9	15	21	-Over
4	10	16	22	-Over
5	11	17	23	-Over
6	12	18	24	-Over

Test Point	Ambient Temp.	25°C
	CPU P-Cores Max Temperature	75.0 °C
	CPU E-Cores Max Temperature	70.0 °C
	CPU P-Cores Frequency (Unit: GHz)	3.2 GHz
	CPU E-Cores Frequency (Unit: GHz)	2.8 GHz
	GPU Temperature	6.6 °C
	GPU Hot Spot Temperature	84.2 °C
	GPU Frequency (Unit: MHz)	1575.0 MHz
CH1	CPU	50.5 °C
CH2	CPU TOP Heatsink	46.4 °C
CH3	DDR5 SO-DIMM	46.0 °C
CH4	NVIDIA A4500 GPU	55.0 °C
CH5	GPU TOP Heatsink	48.9 °C
CH6	GPU DRAM	44.9 °C
CH7	SATA SSD	42.6 °C
CH8	M.2 Capture Card	39.3 °C
CH9	TPU3802 CHOKE	47.6 °C
CH10	TPU3802 MOSFET	54.4 °C
CH11	PL3 CHOKE	46.1 °C
CH12	PL7 MOSFET	45.4 °C
CH13	SK708	41.3 °C
CH14	TOP Heatsink	42.6 °C



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- Chamber in 40°C / 85%RH



OVERVIEW				
2024/09/14 09:15:20				
1	65.3	7	56.7	13
2	61.5	8	54.2	14
3	60.5	9	62.3	15
4	69.5	10	67.4	16
5	64.0	11	60.9	17
6	59.8	12	60.4	18
				19
				20
				21
				22
				23
				24

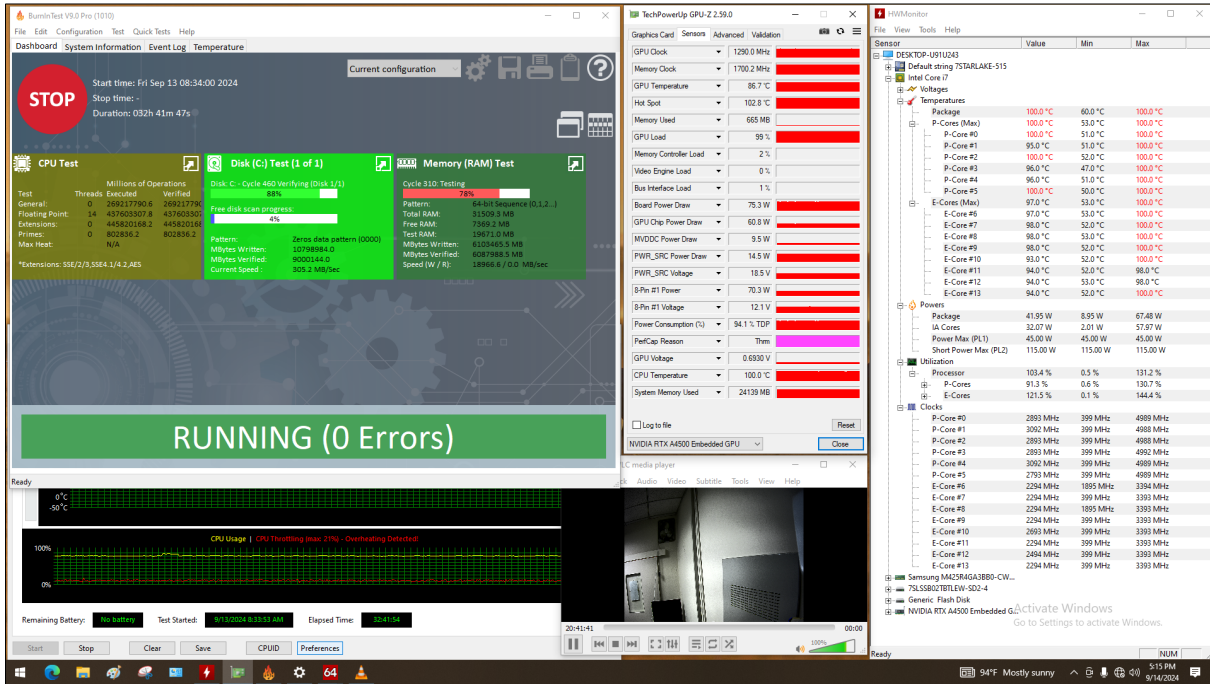
Test Point	Ambient Temp.	40°C
	CPU P-Cores Max Temperature	93.0 °C
	CPU E-Cores Max Temperature	89.0 °C
	CPU P-Cores Frequency (Unit: GHz)	3.2 GHz
	CPU E-Cores Frequency (Unit: GHz)	2.8 GHz
	GPU Temperature	78.8 °C
	GPU Hot Spot Temperature	98.3 °C
	GPU Frequency (Unit: MHz)	1485.0 MHz
CH1	CPU	65.3 °C
CH2	CPU TOP Heatsink	61.5 °C
CH3	DDRS S0-DIMM	60.5 °C
CH4	NVIDIA A4500 GPU	69.5 °C
CH5	GPU TOP Heatsink	64.0 °C
CH6	GPU DRAM	59.8 °C
CH7	SATA SSD	56.7 °C
CH8	M.2 Capture Card	54.2 °C
CH9	TPU3802 CHOKE	62.3 °C
CH10	TPU3802 MOSFET	67.4 °C
CH11	PL3 CHOKE	60.9 °C
CH12	PL7 MOSFET	60.4 °C
CH13	SK708	56.3 °C
CH14	TOP Heatsink	57.4 °C



Performance Test

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- Chamber in 50°C / 85%RH



OVERVIEW				
2024/09/14 17:16:51				
1	74.5	66.0	65.9	+0ver
2	70.8	63.9	66.8	+0ver
3	69.8	71.2	+0ver	+0ver
4	78.1	75.8	+0ver	+0ver
5	73.1	70.8	+0ver	+0ver
6	69.1	69.5	+0ver	+0ver

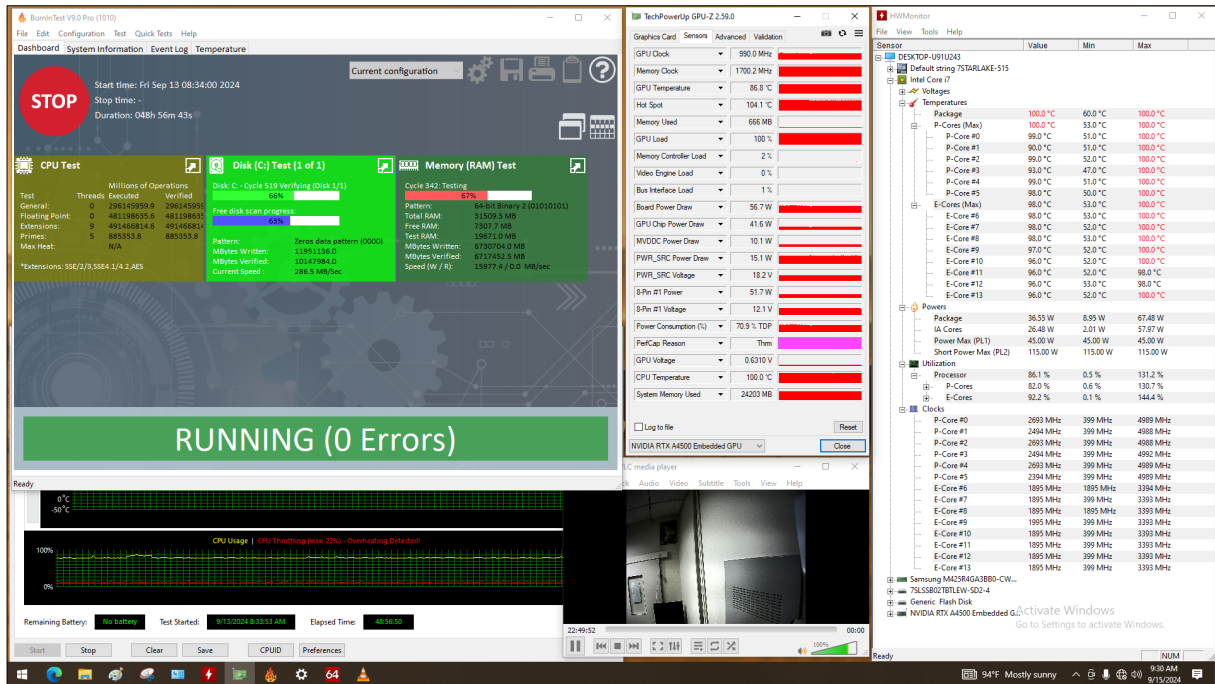
Test Point	Ambient Temp.	50°C
	CPU P-Cores Max Temperature	100.0 °C
	CPU E-Cores Max Temperature	97.0 °C
	CPU P-Cores Frequency (Unit: GHz)	3.1 GHz
	CPU E-Cores Frequency (Unit: GHz)	2.3 GHz
	GPU Temperature	86.7 °C
	GPU Hot Spot Temperature	102.8 °C
	GPU Frequency (Unit: MHz)	1290.0 MHz
CH1	CPU	74.5 °C
CH2	CPU TOP Heatsink	70.8 °C
CH3	DDRS 50-DIMM	69.8 °C
CH4	NVIDIA A4500 GPU	78.1 °C
CH5	GPU TOP Heatsink	73.1 °C
CH6	GPU DRAM	69.1 °C
CH7	SATA SSD	66.0 °C
CH8	M.2 Capture Card	63.9 °C
CH9	TPU3802 CHOKE	71.2 °C
CH10	TPU3802 MOSFET	75.8 °C
CH11	PL3 CHOKE	70.0 °C
CH12	PL7 MOSFET	69.5 °C
CH13	SK708	65.9 °C
CH14	TOP Heatsink	66.8 °C



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- Chamber in 60°C / 85%RH



OVERVIEW 2024/09/15 09:32:21 1hour

1	79.1	7	69.9	13	78.9	19	+0ver
2	75.5	8	69.6	14	72.1	20	+0ver
3	74.9	9	75.4	15	+0ver	21	+0ver
4	80.9	10	78.8	16	+0ver	22	+0ver
5	77.1	11	74.8	17	+0ver	23	+0ver
6	74.1	12	74.5	18	+0ver	24	+0ver

Test Point	Ambient Temp.	60°C
CPU P-Cores Max Temperature		100.0 °C
CPU E-Cores Max Temperature		98.0 °C
CPU P-Cores Frequency (Unit: GHz)		2.7 GHz
CPU E-Cores Frequency (Unit: GHz)		1.9 GHz
GPU Temperature		86.8 °C
GPU Hot Spot Temperature		104.1 °C
GPU Frequency (Unit: MHz)		990.0 MHz
CH1	CPU	79.1 °C
CH2	CPU TOP Heatsink	75.5 °C
CH3	DDRS 50-DIMM	74.9 °C
CH4	NVIDIA A4500 GPU	80.9 °C
CH5	GPU TOP Heatsink	77.1 °C
CH6	GPU DRAM	74.1 °C
CH7	SATA SSD	69.9 °C
CH8	M.2 Capture Card	69.6 °C
CH9	TPU3802 CH0KE	75.4 °C
CH10	TPU3802 MOSFET	78.8 °C
CH11	PL3 CH0KE	74.8 °C
CH12	PL7 MOSFET	74.5 °C
CH13	SK708	70.9 °C
CH14	TOP Heatsink	72.1 °C



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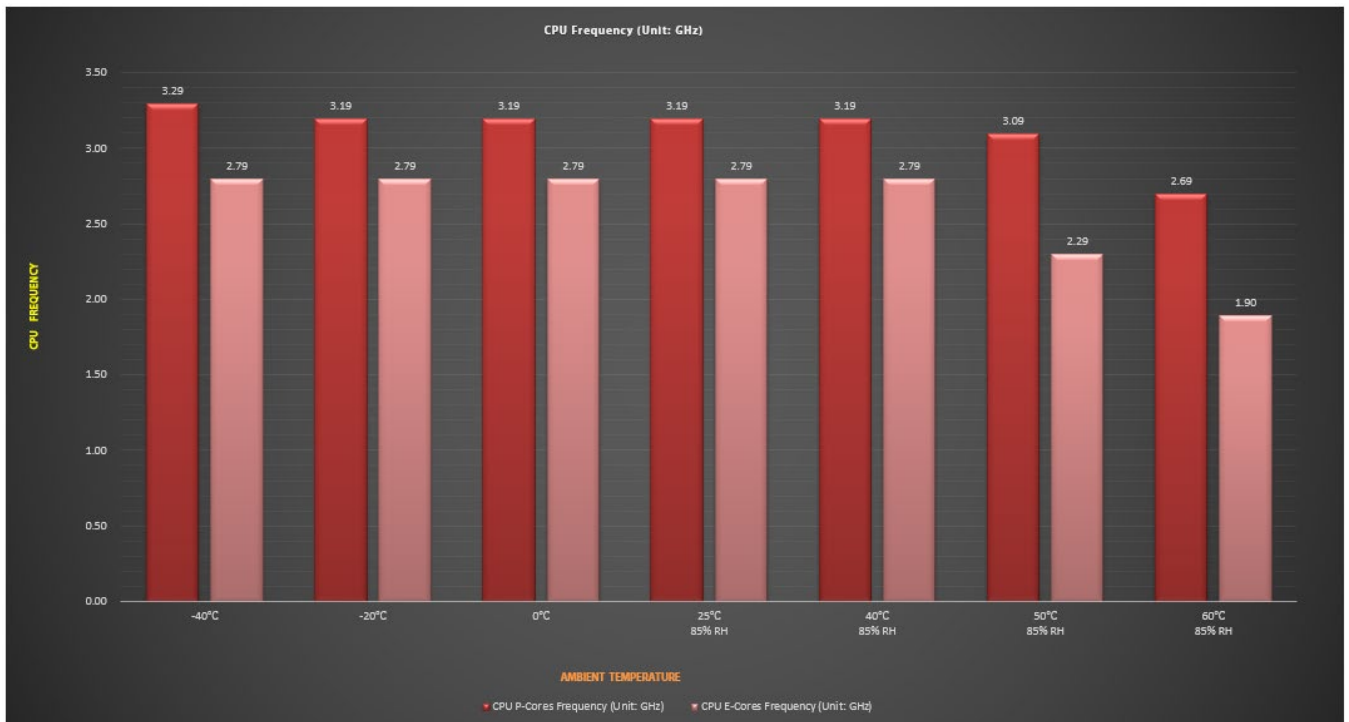
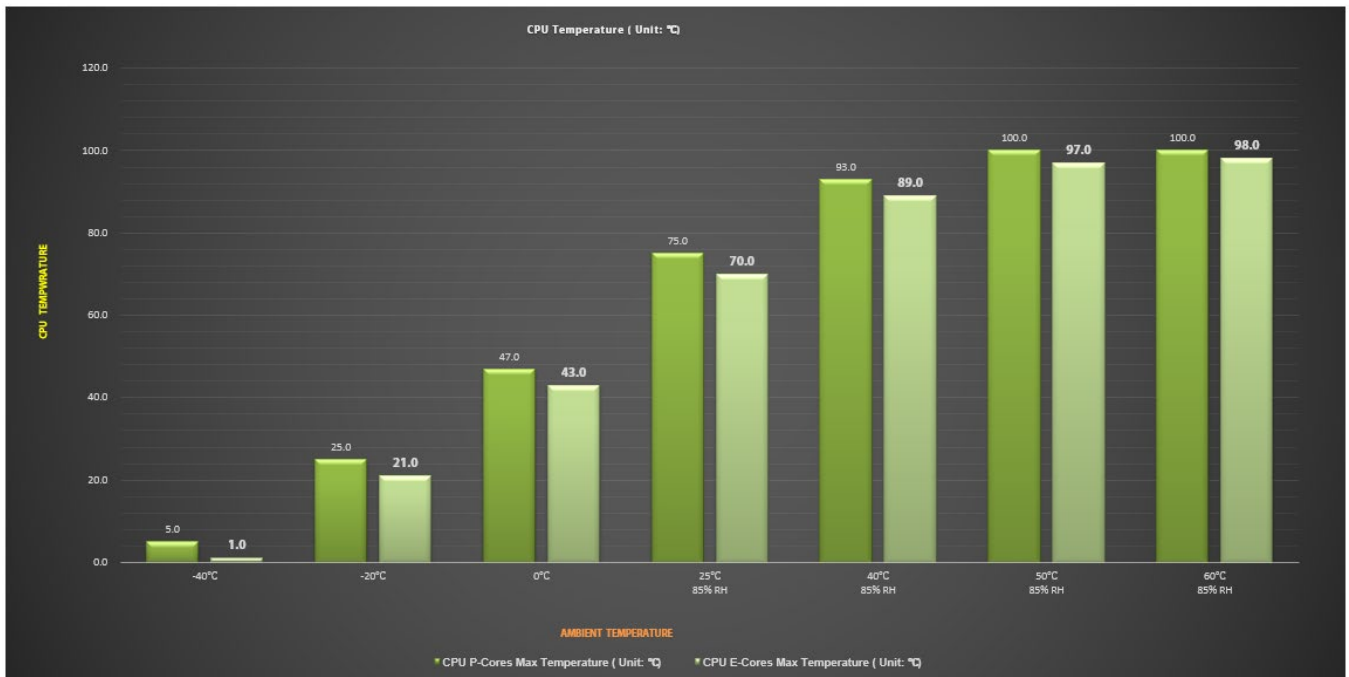
5. THERMAL TEST RESULT(-40°C ~ +60°C)

CPU & GPU Temperature and Frequency / Thermocouple Measurements

Temperature / Frequency		Ambient Temp.	-40°C	-20°C	0°C	25°C 85% RH	40°C 85% RH	50°C 85% RH	60°C 85% RH
CPU P-Cores Max Temperature (Unit: °C)			5.0	25.0	47.0	75.0	93.0	100.0	100.0
CPU E-Cores Max Temperature (Unit: °C)			1.0	21.0	43.0	70.0	89.0	97.0	98.0
CPU P-Cores Frequency (Unit: GHz)			3.29	3.19	3.19	3.19	3.19	3.09	2.69
CPU E-Cores Frequency (Unit: GHz)			2.79	2.79	2.79	2.79	2.79	2.29	1.90
GPU Temperature (Unit: °C)			3.1	22.4	38.9	6.6	78.8	86.7	86.8
GPU Hot Spot Temperature (Unit: °C)			30.5	47.1	62.3	84.2	98.3	102.8	104.1
GPU Frequency (Unit: MHz)			1620	1605	1590	1575	1485	1290	990
Thermocouple measuring point		Ambient Temp.	-40°C	-20°C	0°C	25°C 85% RH	40°C 85% RH	50°C 85% RH	60°C 85% RH
CH1	CPU		-16.7	5.0	24.7	50.5	65.3	74.5	79.1
CH2	CPU TOP Heatsink		-21.0	0.5	20.7	46.4	61.5	70.8	75.5
CH3	DDR5 SO-DIMM		-21.6	0.2	20.6	46.0	60.5	69.8	74.9
CH4	NVIDIA A4500 GPU		-9.5	11.7	29.3	55.0	69.5	78.1	80.9
CH5	GPU TOP Heatsink		-16.8	4.9	23.0	48.9	64.0	73.1	77.1
CH6	GPU DRAM		-20.9	0.6	19.2	44.9	59.8	69.1	74.1
CH7	SATA SSD		-27.2	-6.1	16.3	42.6	56.7	66.0	69.9
CH8	M.2 Capture Card		-29.4	-7.2	13.6	39.3	54.2	63.9	69.6
CH9	TPU3802 CHOKE		-18.0	2.9	22.4	47.6	62.3	71.2	75.4
CH10	TPU3802 MOSFET		-8.5	12.3	31.0	54.4	67.4	75.8	78.8
CH11	PL3 CHOKE		-21.2	0.6	20.5	46.1	60.9	70.0	74.8
CH12	PL7 MOSFET		-22.0	0.1	19.9	45.4	60.4	69.5	74.5
CH13	SK708		-28.5	-6.2	15.0	41.3	56.3	65.9	70.9
CH14	TOP Heatsink		-27.1	-5.4	16.8	42.6	57.4	66.8	72.1

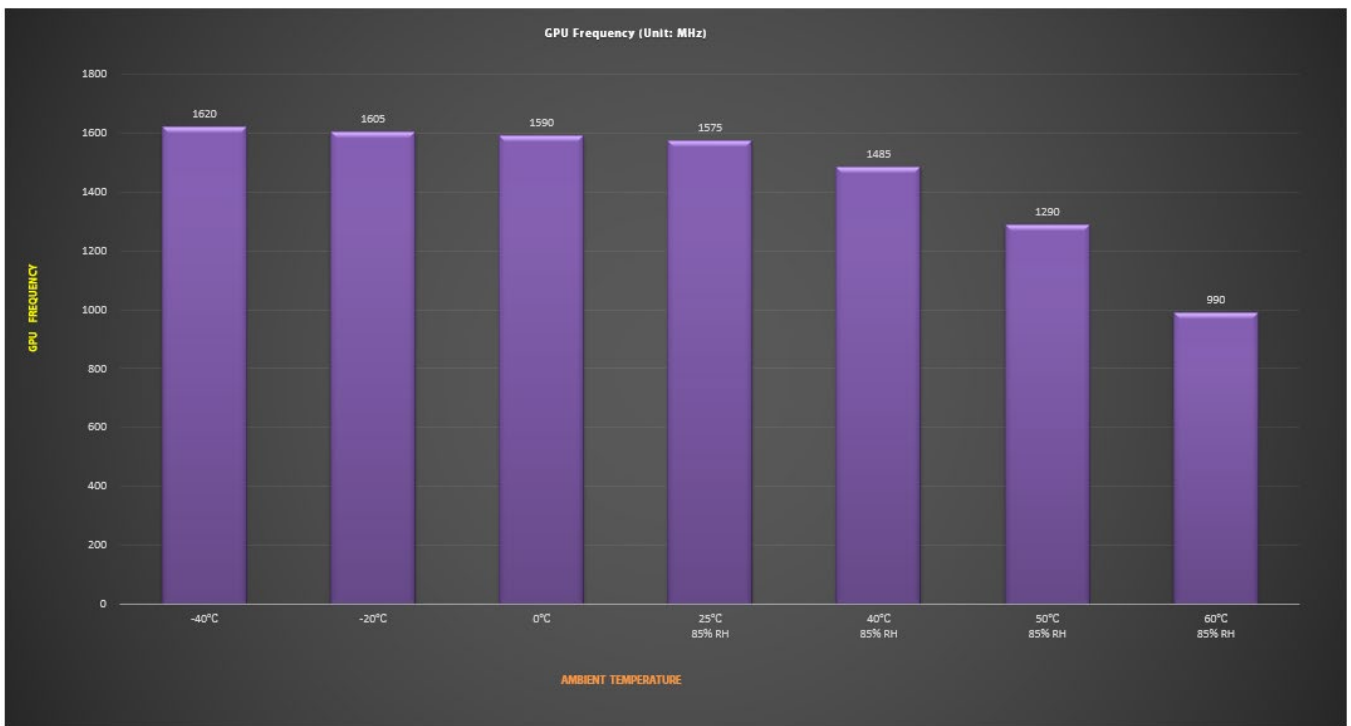
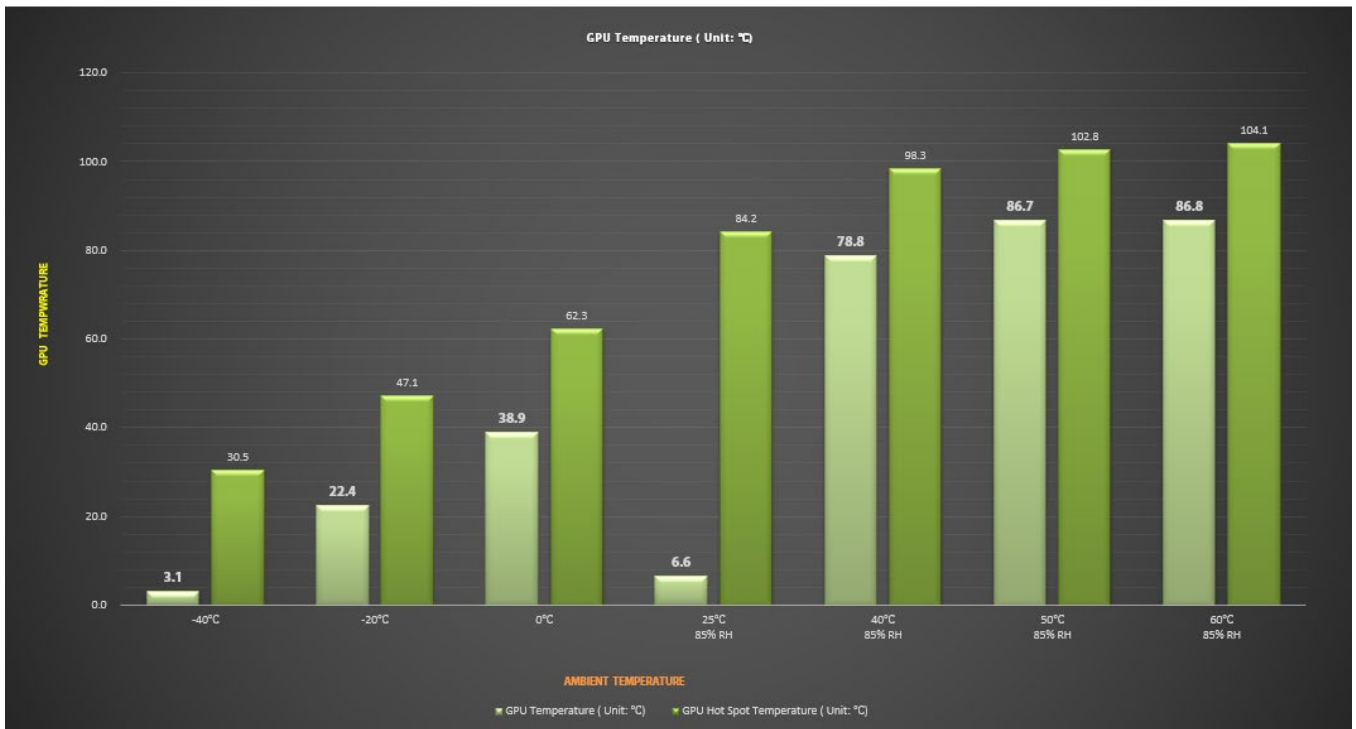
Performance Test

IV320-RH-KD



Performance Test

IV320-RH-KD



Performance Test

IV320-RH-KD

6. I/O FUNCTION TEST

6-1. USB 3.0



PassMark(TM) USB3Test

Select USB Device



Device: PMU33ZQ2CX (SuperSpeed 5Gb/s)

Connection Type: SuperSpeed 5Gb/s

Test mode

Loopback

Benchmark



Voltage 4.92V
Speed 5Gb/s

Duration: 360 Minutes

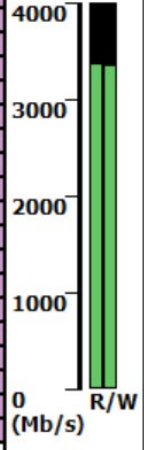
Start Stop

Configure Flash LEDs

Clear Serial Save Log

Reset All Help

About Exit

Results		Status: BENCHMARK test - Complete	
Duration: 006h 00m 00s	Operations: 0	Errors: 0	
Read block 30023:	3372.1 Mb/s (421.5 MB/s)	Max. Rate 3373	
Write block 30023:	2949.2 Mb/s (368.6 MB/s)		
Read block 30024:	3372.1 Mb/s (421.5 MB/s)		
Write block 30024:	2956.1 Mb/s (369.5 MB/s)		
Read block 30025:	3370.3 Mb/s (421.3 MB/s)		
Write block 30025:	2963.4 Mb/s (370.4 MB/s)		
Read block 30026:	3368.8 Mb/s (421.1 MB/s)		
Write block 30026:	2959.8 Mb/s (370.0 MB/s)		
OVERALL BENCHMARK RESULT:			
Test Start time: Thu Aug 1 13:59:41 2024			
Duration: 006h 00m 00s			
Total number of bytes written: 3828315 MB			
Total number of bytes read: 3828315 MB			
Maximum Write Data Rate: 3350.0 Mb/s (418.7 MB/s)			
Maximum Read Data Rate: 3373.6 Mb/s (421.7 MB/s)			
Minimum Write Data Rate: 2943.6 Mb/s (368.0 MB/s)			
Minimum Read Data Rate: 3366.0 Mb/s (420.7 MB/s)			
Average Write Data Rate: 3167.8 Mb/s (396.0 MB/s)			
Average Read Data Rate: 3372.2 Mb/s (421.5 MB/s)			
Average Data Rate: 3266.8 Mb/s (408.3 MB/s)			
Minimum Data Rate: 2943.6 Mb/s (368.0 MB/s)			

Performance Test

IV320-RH-KD

6-2. 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

Voltage 4.92V
Speed 5Gb/s

Duration: 360 Minutes

Start Stop

Configure Flash LEDs

Clear Serial Save Log

Reset All Help

About Exit

Results		Status: BENCHMARK test - Complete	
Duration: 006h 00m 00s	Operations: 0	Errors: 0	
Read block 30023: 3372.1 Mb/s (421.5 MB/s)			
Write block 30023: 2949.2 Mb/s (368.6 MB/s)			
Read block 30024: 3372.1 Mb/s (421.5 MB/s)			
Write block 30024: 2956.1 Mb/s (369.5 MB/s)			
Read block 30025: 3370.3 Mb/s (421.3 MB/s)			
Write block 30025: 2963.4 Mb/s (370.4 MB/s)			
Read block 30026: 3368.8 Mb/s (421.1 MB/s)			
Write block 30026: 2959.8 Mb/s (370.0 MB/s)			
OVERALL BENCHMARK RESULT:			
Test Start time: Wed Jul 31 15:20:26 2024			
Duration: 006h 00m 00s			
Total number of bytes written: 3828315 MB			
Total number of bytes read: 3828315 MB			
Maximum Write Data Rate: 3350.0 Mb/s (418.7 MB/s)			
Maximum Read Data Rate: 3373.6 Mb/s (421.7 MB/s)			
Minimum Write Data Rate: 2943.6 Mb/s (368.0 MB/s)			
Minimum Read Data Rate: 3366.0 Mb/s (420.7 MB/s)			
Average Write Data Rate: 3167.8 Mb/s (396.0 MB/s)			
Average Read Data Rate: 3372.2 Mb/s (421.5 MB/s)			
Average Data Rate: 3266.8 Mb/s (408.3 MB/s)			
Minimum Data Rate: 2943.6 Mb/s (368.0 MB/s)			

Performance Test

IV320-RH-KD

6-5. CANBus (COM 5)



Fintek CANBus tool Version 24.01.12.00

About

CANBus Connect

CANBus Device: COM5

Baudrate | Filter Setting | Log Setting

Interval(ms): 1000

Log Clear

Data Log Off

Disconnect Stop

Send

Extended Mode (EFF) RTR Enable

Send

Length (DLC): 8 ID (HEX): 00000526 Data (HEX): 1A2A3B4C5D6E7F81

Log

Send Log

```
000000494:07/31 14:11:05 ID(SFF):0x526 Write 8 Bytes: 1A 2A 3B 4C 5D 6E 7F 81
000000495:07/31 14:11:06 ID(SFF):0x526 Write 8 Bytes: 1A 2A 3B 4C 5D 6E 7F 81
000000496:07/31 14:11:06 ID(SFF):0x526 Write 8 Bytes: 1A 2A 3B 4C 5D 6E 7F 81
000000497:07/31 14:11:06 ID(SFF):0x526 Write 8 Bytes: 1A 2A 3B 4C 5D 6E 7F 81
000000498:07/31 14:11:06 ID(SFF):0x526 Write 8 Bytes: 1A 2A 3B 4C 5D 6E 7F 81
000000499:07/31 14:11:07 ID(SFF):0x526 Write 8 Bytes: 1A 2A 3B 4C 5D 6E 7F 81
000000500:07/31 14:11:07 ID(SFF):0x526 Write 8 Bytes: 1A 2A 3B 4C 5D 6E 7F 81
```

Send Flow

Current Flow: 1

Total Flow: 500

Receive Log

```
000000494:07/31 14:11:44 ID(SFF):0x52E Read 8 Bytes: 11 22 33 44 55 66 77 88
000000495:07/31 14:11:45 ID(SFF):0x52E Read 8 Bytes: 11 22 33 44 55 66 77 88
000000496:07/31 14:11:45 ID(SFF):0x52E Read 8 Bytes: 11 22 33 44 55 66 77 88
000000497:07/31 14:11:45 ID(SFF):0x52E Read 8 Bytes: 11 22 33 44 55 66 77 88
000000498:07/31 14:11:46 ID(SFF):0x52E Read 8 Bytes: 11 22 33 44 55 66 77 88
000000499:07/31 14:11:46 ID(SFF):0x52E Read 8 Bytes: 11 22 33 44 55 66 77 88
000000500:07/31 14:11:47 ID(SFF):0x52E Read 8 Bytes: 11 22 33 44 55 66 77 88
```

Receive Flow

Current Flow: 0

Total Flow: 500

	Error Code	REC	TEC	Arb Lost	Error Pass	Overrun	Err Warn	SW Overrun
Count	0	0	0	0	0	0	0	0

Performance Test

IV320-RH-KD

6-6. CANBus (COM 6)



Fintek CANBus tool Version 24.01.12.00

About

CANBus Connect

CANBus Device: COM6

Buttons: Disconnect, Stop

Baudrate | Filter Setting | Log Setting

Interval(ms): 1000

Log Clear

Data Log Off

Send

Extended Mode (EFF) RTR Enable

Length (DLC): 8 ID (HEX): 0000052E Data (HEX): 1122334455667788

Send

Log

Send Log

```
000000494:07/31 14:11:44 ID(SFF):0x52E Write 8 Bytes: 11 22 33 44 55 66 77 88
000000495:07/31 14:11:44 ID(SFF):0x52E Write 8 Bytes: 11 22 33 44 55 66 77 88
000000496:07/31 14:11:44 ID(SFF):0x52E Write 8 Bytes: 11 22 33 44 55 66 77 88
000000497:07/31 14:11:45 ID(SFF):0x52E Write 8 Bytes: 11 22 33 44 55 66 77 88
000000498:07/31 14:11:45 ID(SFF):0x52E Write 8 Bytes: 11 22 33 44 55 66 77 88
000000499:07/31 14:11:45 ID(SFF):0x52E Write 8 Bytes: 11 22 33 44 55 66 77 88
000000500:07/31 14:11:46 ID(SFF):0x52E Write 8 Bytes: 11 22 33 44 55 66 77 88
```

Send Flow

Current Flow: 1

Total Flow: 500

Receive Log

```
000000494:07/31 14:11:06 ID(SFF):0x526 Read 8 Bytes: 1A 2A 3B 4C 5D 6E 7F 81
000000495:07/31 14:11:06 ID(SFF):0x526 Read 8 Bytes: 1A 2A 3B 4C 5D 6E 7F 81
000000496:07/31 14:11:07 ID(SFF):0x526 Read 8 Bytes: 1A 2A 3B 4C 5D 6E 7F 81
000000497:07/31 14:11:07 ID(SFF):0x526 Read 8 Bytes: 1A 2A 3B 4C 5D 6E 7F 81
000000498:07/31 14:11:07 ID(SFF):0x526 Read 8 Bytes: 1A 2A 3B 4C 5D 6E 7F 81
000000499:07/31 14:11:07 ID(SFF):0x526 Read 8 Bytes: 1A 2A 3B 4C 5D 6E 7F 81
000000500:07/31 14:11:08 ID(SFF):0x526 Read 8 Bytes: 1A 2A 3B 4C 5D 6E 7F 81
```

Receive Flow

Current Flow: 0

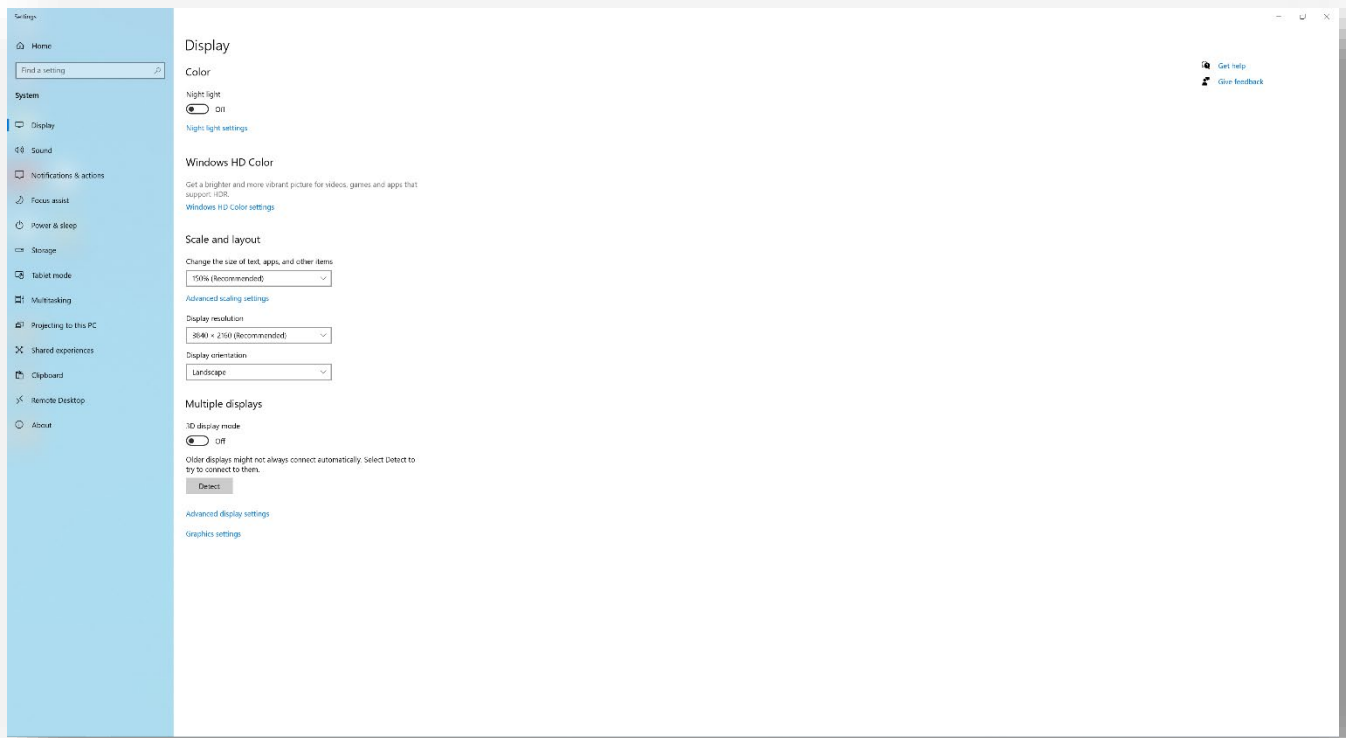
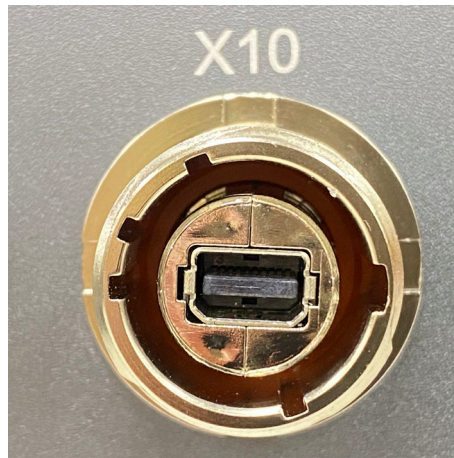
Total Flow: 500

	Error Code	REC	TEC	Arb Lost	Error Pass	Overrun	Err Warn	SW Overrun
Count	0	0	0	0	0	0	0	0

Performance Test

IV320-RH-KD

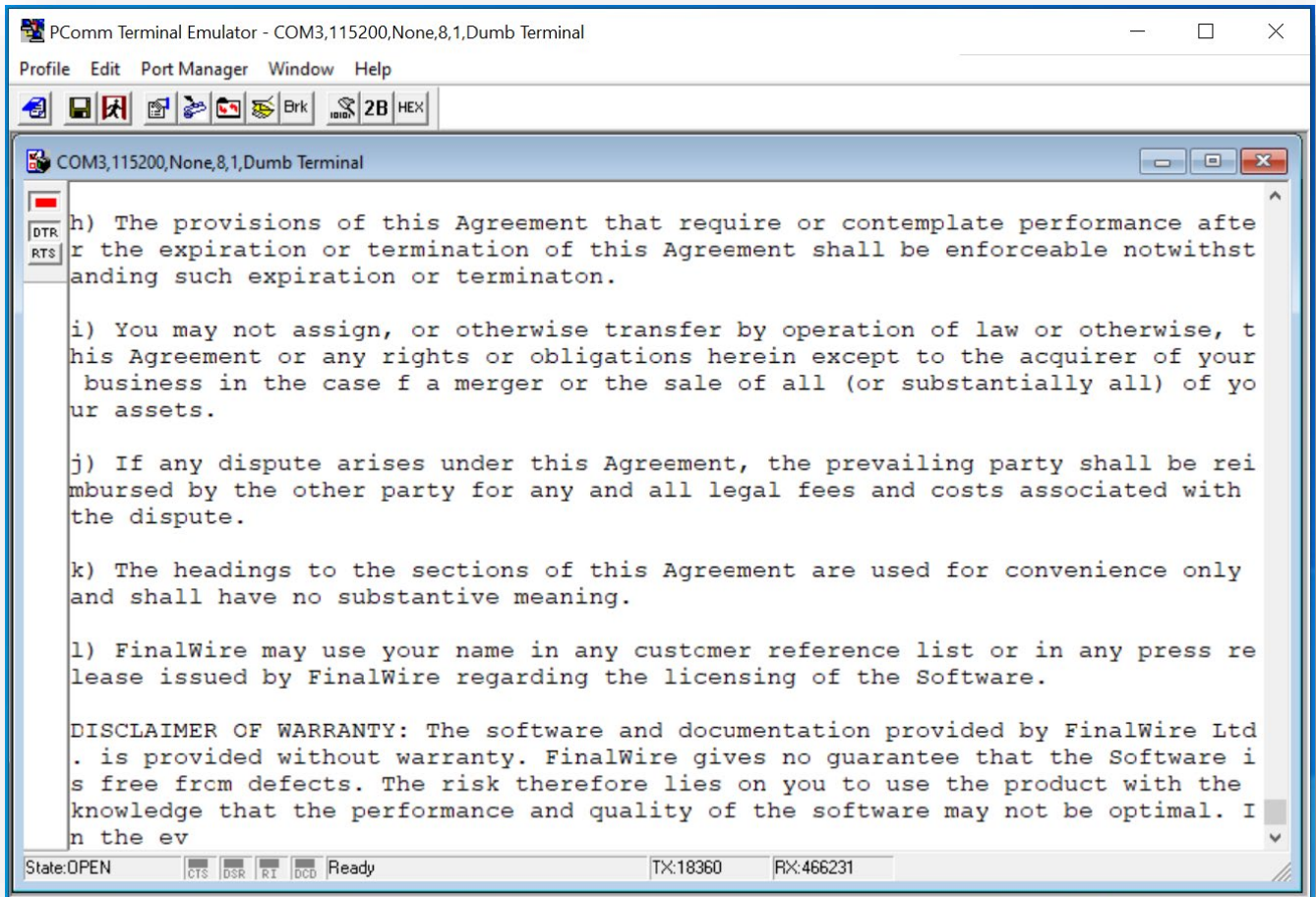
6-7. MINI DISPLAY PORT



Performance Test

IV320-RH-KD

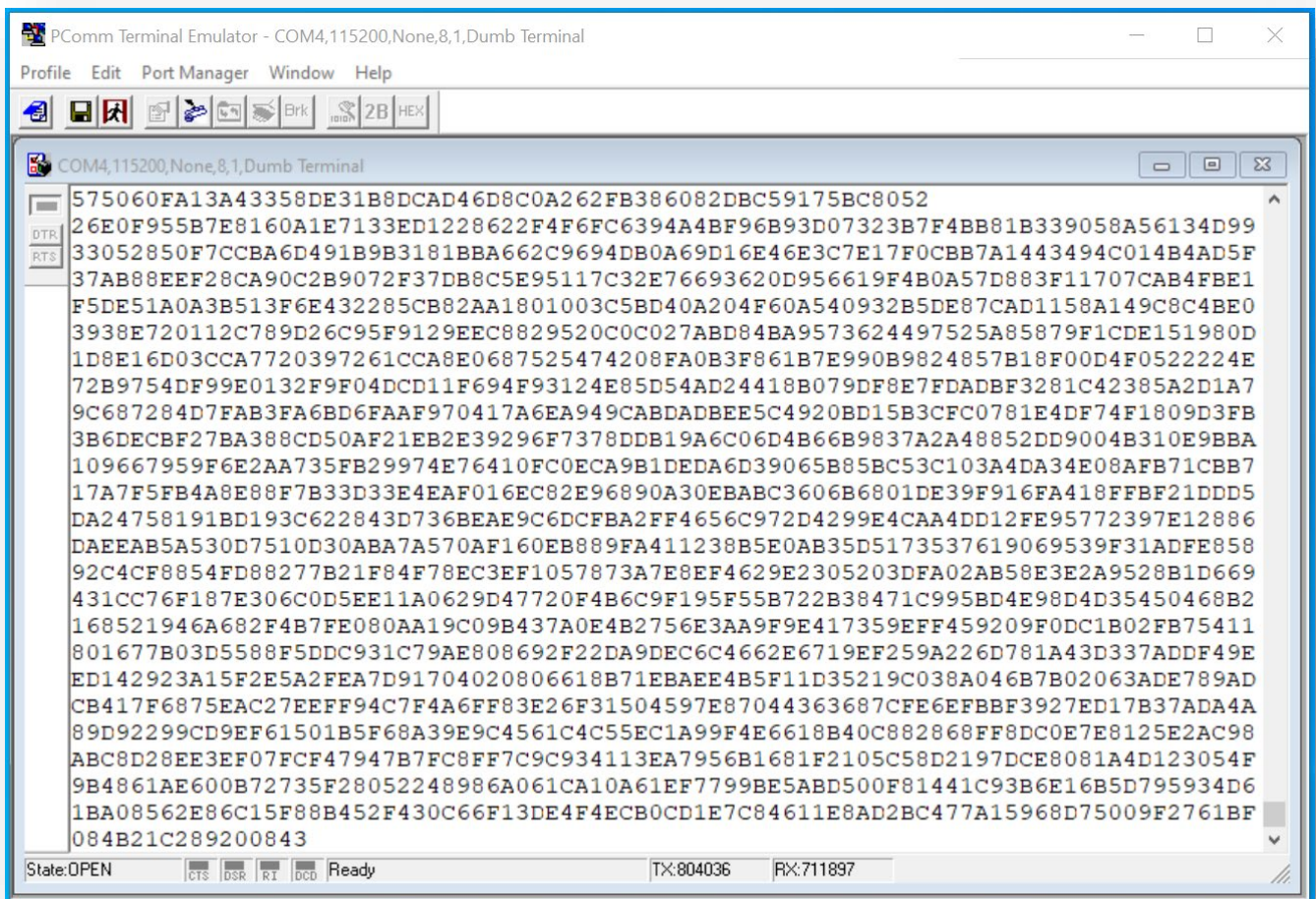
6-8. SERIAL PORT RS485 (COM 3)



Performance Test

IV320-RH-KD

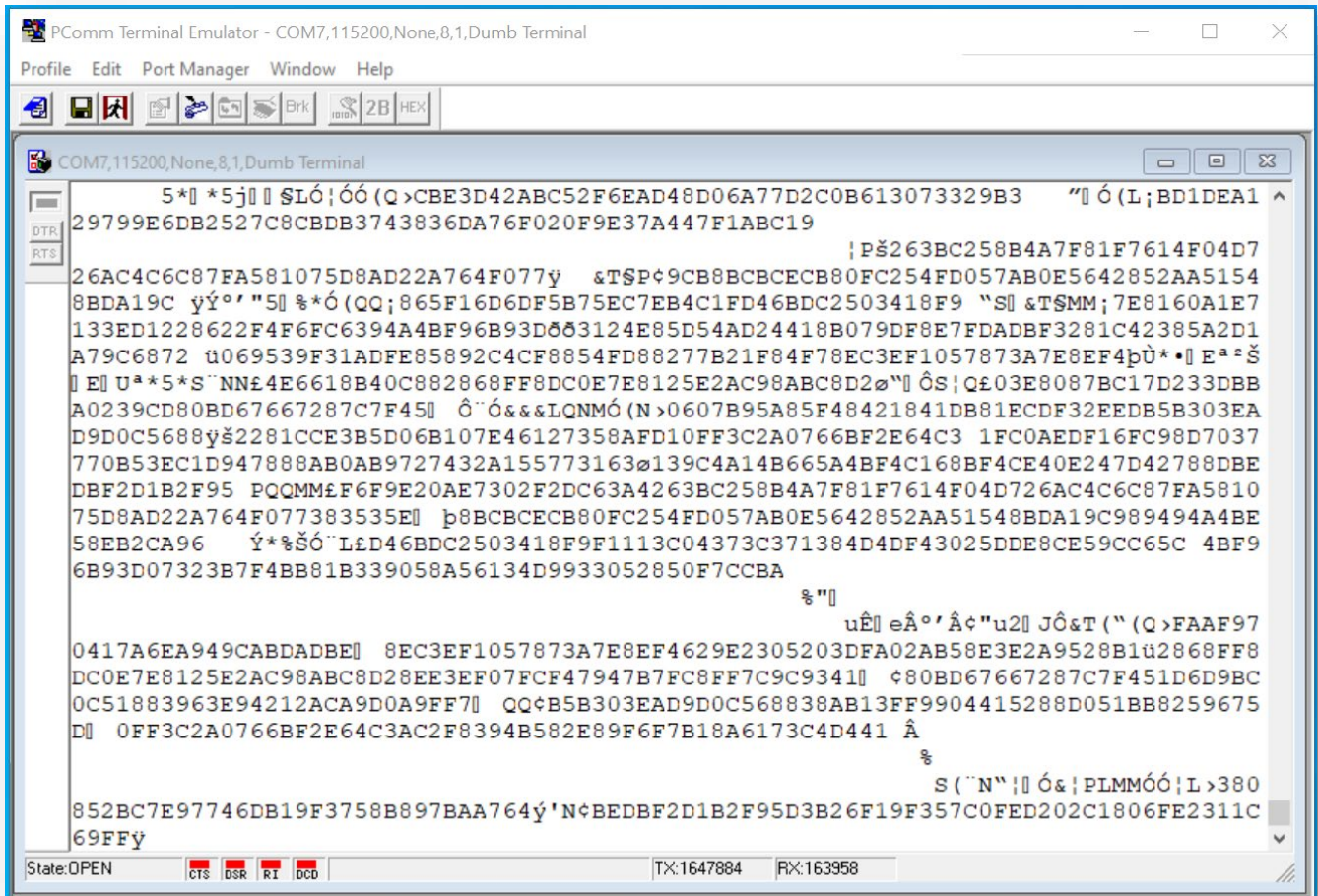
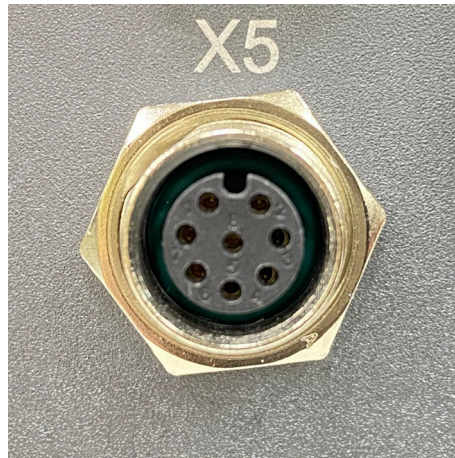
6-9. SERIAL PORT RS485 (COM 4)



Performance Test

IV320-RH-KD

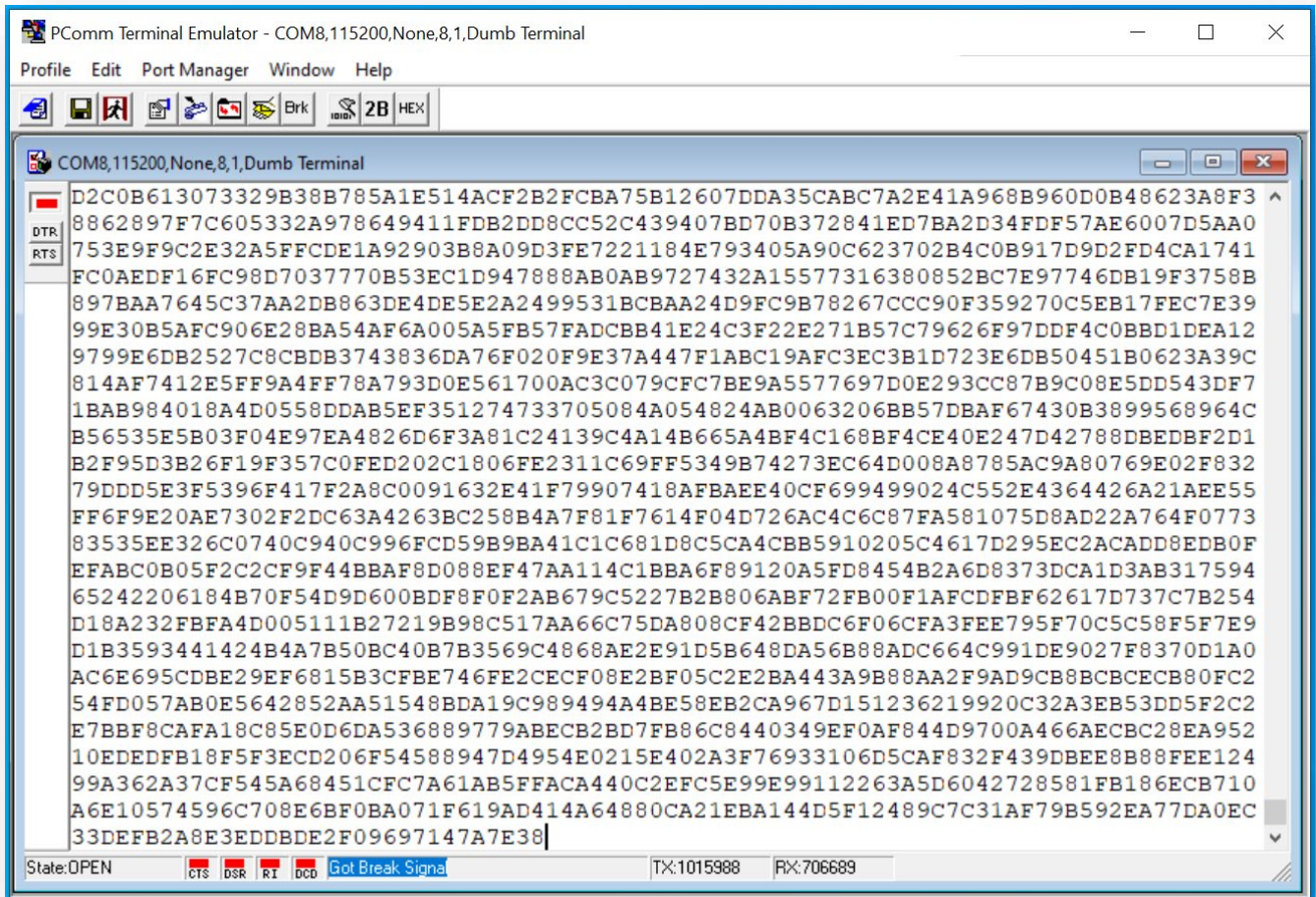
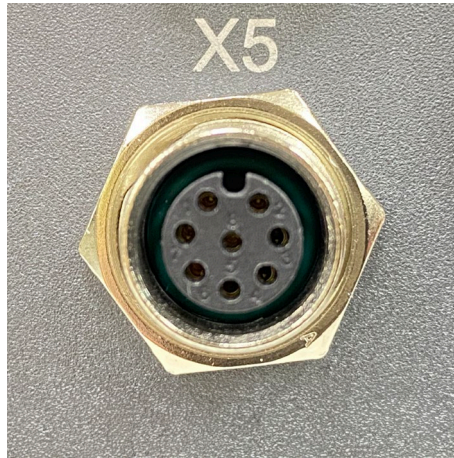
6-10. SERIAL PORT RS485 (COM 7)



Performance Test

IV320-RH-KD

6-11. SERIAL PORT RS485 (COM 8)



Performance Test

IV320-RH-KD

6-12. 3G-SDI (Port 1,3,5,7)



Performance Test

IV320-RH-KD

6-13. 3G-SDI (Port 2,4,6,8)

