Performance Test Report

THOR11-D27

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Revision Date: April 9, 2024

Performance Test

THOR11-D27

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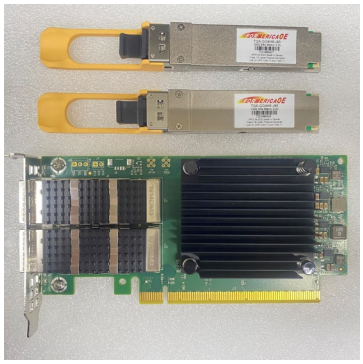
1. SPECIFICATION

1-1. PHOTO



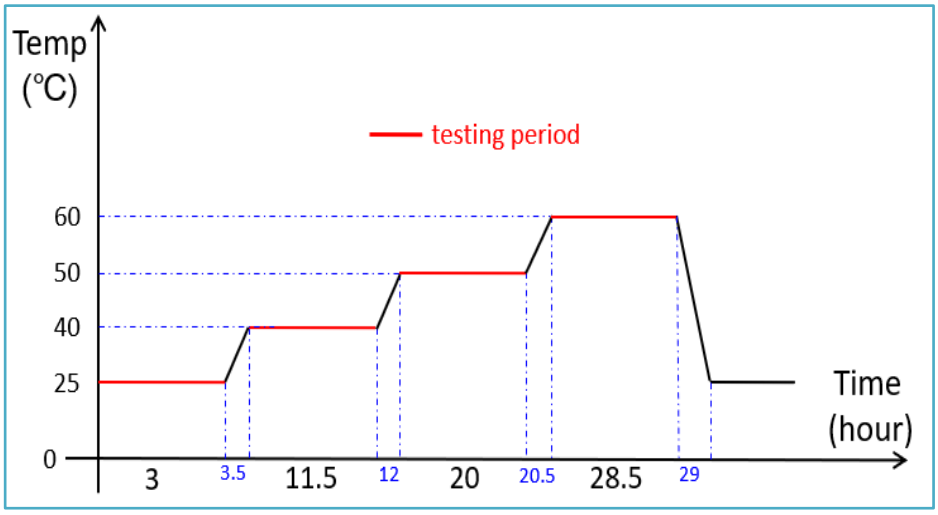


1-2. SYSTEM CONFIGURATION

Motherboard	**Intel® Xeon® Processor D-2796NT, CPU TDP 120W, Intel Quick Assist Technology** **ASPEED AST2600 BMC** **Dual LAN with 25G SFP28 LAN via SoC** **Dual LAN with Intel® X550 10GBase-T Ethernet Controller** **Quad LAN with Intel® i350 Gigabit Ethernet Controller** **Operating Temperature Range: 0°C - 60°C**
CPU	Intel® Xeon® D-2796NT Total Cores: 20 Performance: cores20 Total Threads: 40 Max Turbo Frequency: 3.10 GHz Processor Base Frequency: 2.00 GHz Cache: 30 MB TDP: 120 W
Memory	SAMSUNG M393A4K40CB2-CTD6Q 32GB *2 pcs
Storage	7StarLake TS128GSSD230S 128GB
Power Module	AcBel FLXA4251A Maximum Output Power 250Watt Output Voltage +3.3V, +5V, -12V, +12V, +5Vsb Dimensions 81.5 x 150 x 40.5mm
Add-in Card	CX623106A ConnectX-6 DX Dual Port 100Gb PCIe Ethernet Adapter Card

2. TEST PLAN

2.1. THERMAL MEASUREMENT PROCESS

Test Purpose	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. As the system cools down, the mode will change with stack selection, temperature/heat. Mapping can help develop the best tracking arrangements.
Test Equipment	1. KSON THS-B4T-150 Chamber.
Quantity Tested	Minimum 1 Set
Test Software	1. PassMark Burn-In Test(Ver.9.0) under Windows Server 2022
Test Procedure	1. Thermal pre-scan measurement: Temperature: **25˚C～60˚C/60%RH** 2. Actual thermal measurement: 2-1. Select the test point based on the infrared photo and connect the thermocouple to the hot spot. 2-2. Place the EUT into the hot chamber and set the test temperature curve Specification. 2-3. Open the hot cell and power up the EUT, enter the Windows Server 2022 environment and perform a maximum power test + stress application. 2-4. After the EUT executes the test software for 8 hours, record the maximum heat generation of each thermocouple point. 2-5. Turn off the hot cell and EUT. 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.
Test Diagram of Curves	Environment defines for 29 hours. 

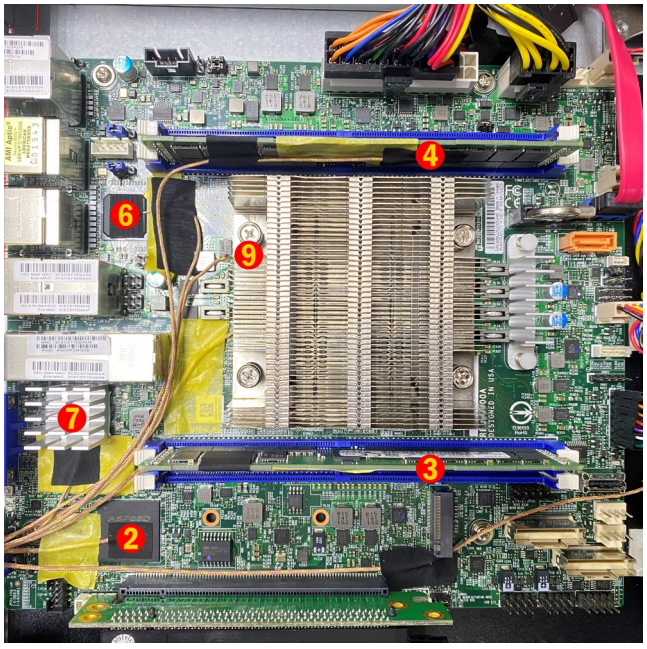
2.2. TEST RRESULT <TEST ITEM>

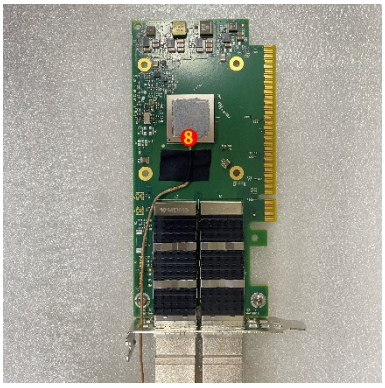
2.2.1 Temperature Cycle

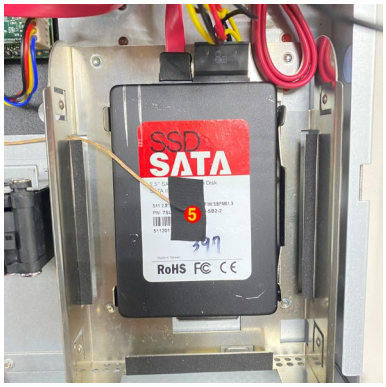
Aging test of various parts at different temperatures under maximum load and full load conditions.

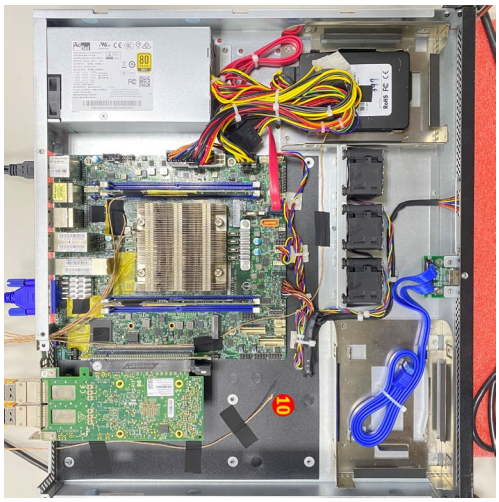
Test Temperature	Test Result
25˚C	PASS
40˚C	PASS
50˚C	PASS
60˚C	PASS

3. THERMAL TEST POINT









Test Point No.	Test Point
CH1	CPU
CH2	Aspeed 2600
CH3	R-DIMM RAM #1
CH4	R-DIMM RAM #2
CH5	2.5 Inch SSD
CH6	Intel I350 Chip
CH7	Intel X550 Chip
CH8	CX623106A ConnectX-6
CH9	CPU Heat Sink
CH10	Inside Chassis

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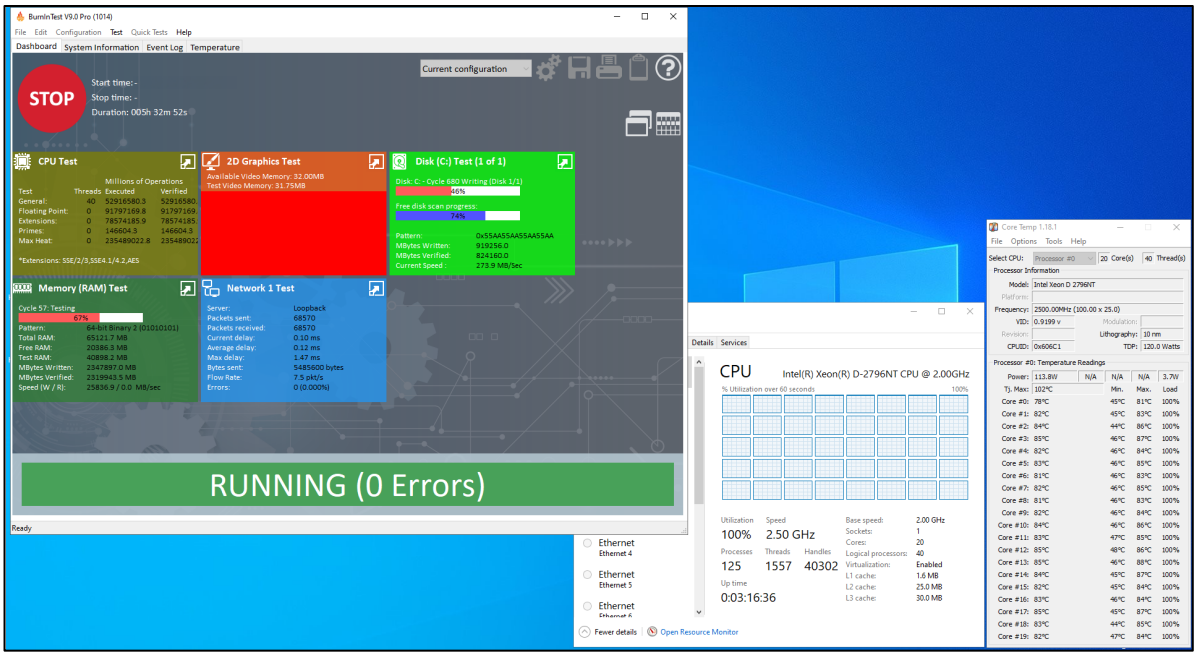
4. TEST PHOTO IN LAB

- Chamber in 25°C



Test Point	Ambient Temp.	25°C
	CPU AVG. FRQ.	2500 MHz
	CPU Tj. Temperature	78.0 °C
CH1	CPU	74.2 °C
CH2	Aspeed 2600	47.3 °C
CH3	R-DIMM RAM #1	38.3 °C
CH4	R-DIMM RAM #2	31.3 °C
CH5	2.5 Inch SSD	27.8 °C
CH6	Intel I350 Chip	44.5 °C
CH7	Intel X550 Chip	54.0 °C
CH8	CX623106A ConnectX-6	77.7 °C
CH9	CPU Heat Sink	71.0 °C
CH10	Inside Chassis	31.4 °C

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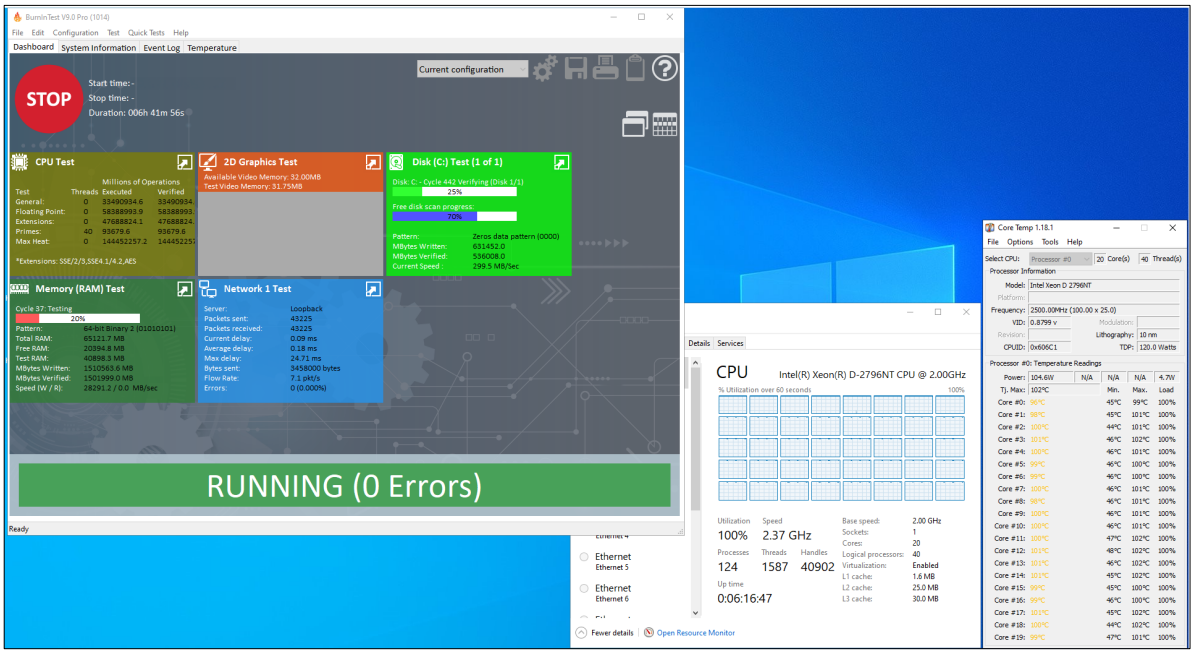
- Chamber in 40°C



Test Point	Ambient Temp.	40°C
	CPU AVG. FRQ.	2370 MHz
	CPU Tj. Temperature	96.0 °C
CH1	CPU	90.8 °C
CH2	Aspeed 2600	63.7 °C
CH3	R-DIMM RAM #1	54.0 °C
CH4	R-DIMM RAM #2	46.6 °C
CH5	2.5 Inch SSD	42.8 °C
CH6	Intel I350 Chip	60.2 °C
CH7	Intel X550 Chip	70.3 °C
CH8	CX623106A ConnectX-6	87.8 °C
CH9	CPU Heat Sink	87.2 °C
CH10	Inside Chassis	46.6 °C

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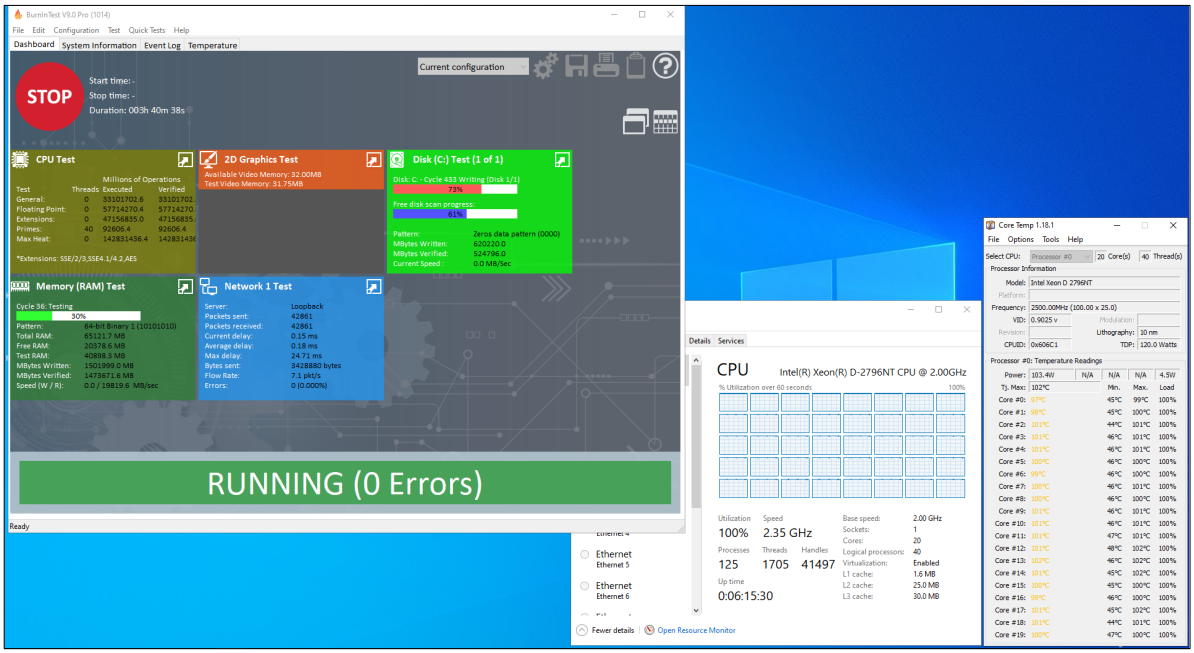
- Chamber in 50°C



Test Point	Ambient Temp.	50°C
	CPU AVG. FRQ.	2350 MHz
	CPU Tj. Temperature	97.0 °C
CH1	CPU	93.9 °C
CH2	Aspeed 2600	71.4 °C
CH3	R-DIMM RAM #1	62.8 °C
CH4	R-DIMM RAM #2	56.5 °C
CH5	2.5 Inch SSD	52.7 °C
CH6	Intel I350 Chip	69.2 °C
CH7	Intel X550 Chip	79.2 °C
CH8	CX623106A ConnectX-6	91.6 °C
CH9	CPU Heat Sink	92.6 °C
CH10	Inside Chassis	55.3 °C

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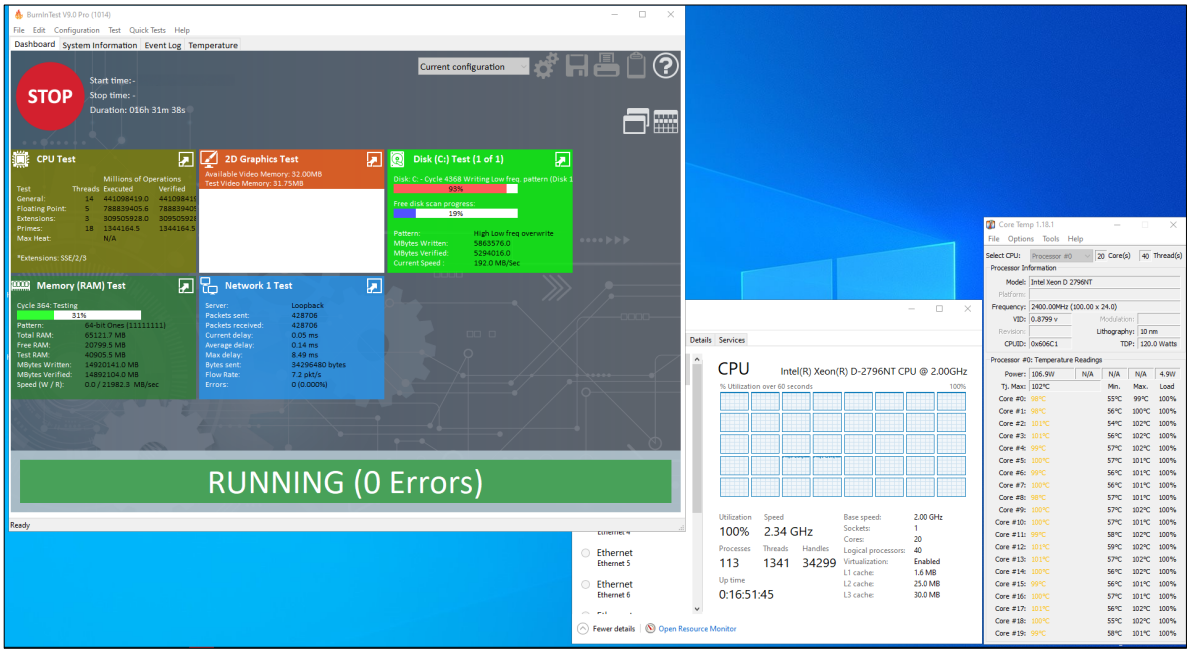
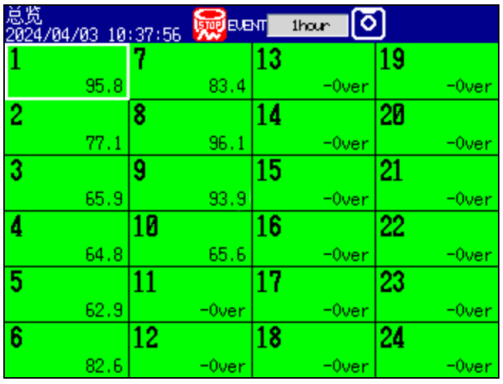
- Chamber in 60°C





Test Point	Ambient Temp.	60°C
	CPU AVG. FRQ.	2340 MHz
	CPU Tj. Temperature	98.0 °C
CH1	CPU	95.8 °C
CH2	Aspeed 2600	77.1 °C
CH3	R-DIMM RAM #1	65.9 °C
CH4	R-DIMM RAM #2	64.8 °C
CH5	2.5 Inch SSD	62.9 °C
CH6	Intel I350 Chip	82.6 °C
CH7	Intel X550 Chip	83.4 °C
CH8	CX623106A ConnectX-6	96.1 °C
CH9	CPU Heat Sink	93.9 °C
CH10	Inside Chassis	65.6 °C

5. THERMAL TEST RESULT(25˚C ~ 60˚C)

CPU Temperature and Frequency

	Core Temp / CPU Frequency \ Ambient Temp	25°C 60% RH	40°C 60% RH	50°C 60% RH	60°C 60% RH
	CPU Avg. Frequency	2500 MHz	2370 MHz	2350 MHz	2340 MHz
	CPU Tj. Temperature	78.0 °C	96.0 °C	97.0 °C	98.0 °C

	Measurement Point \ Ambient Temp	25°C 60% RH	40°C 60% RH	50°C 60% RH	60°C 60% RH
CH1	CPU	74.2 °C	90.8 °C	93.9 °C	95.8 °C
CH2	Aspeed 2600	47.3 °C	63.7 °C	71.4 °C	77.1 °C
CH3	R-DIMM RAM #1	38.3 °C	54.0 °C	62.8 °C	65.9 °C
CH4	R-DIMM RAM #2	31.3 °C	46.6 °C	56.5 °C	64.8 °C
CH5	2.5 Inch SSD	27.8 °C	42.8 °C	52.7 °C	62.9 °C
CH6	Intel I350 Chip	44.5 °C	60.2 °C	69.2 °C	82.6 °C
CH7	Intel X550 Chip	54.0 °C	70.3 °C	79.2 °C	83.4 °C
CH8	CX623106A ConnectX-6	77.7 °C	87.8 °C	91.6 °C	96.1 °C
CH9	CPU Heat Sink	71.0 °C	87.2 °C	92.6 °C	93.9 °C
CH10	Inside Chassis	31.4 °C	46.6 °C	55.3 °C	65.6 °C
