

ReportNO:10E080019

NanoCOM-LN

Intel Atom N550 / N455 + ICH8M

Thermal Image Analysis Report

Summary	☐ Pass			
	☐ Fail			
	☒ Pass with Deviation			
Comment: <u>One temperature point need improving</u>				
Test Result Summary				
	Critical	Major	Minor	Enhancement
Defect Found	0	0	0	1
Defect Unsolved	0	0	0	1

Issue date

Approval

Test Engineer

2010 / 11 / 08

Jansin Lee

Allen Hsu

Sample Configuration & Quantity Under Test

- **Model name : NanoCOM-LN**
- **CPU Board: NanoCOM-LN Rev A0.2**
- **Carrier Board: ECB-916M Rev A2.1**
- **CPU: Onboard Intel Atom CPU N455 @1.66GHz / 45nm**
- **Memory: Onboard DDR3 Memory Chip 667 1GB - SAMSUNG chip 028 K482G1646C-HCH9**
- **HDD: Onboard SST NANDrive SSD 4G**
- **BIOS : NCLN_0.02 – 09/14/2010**
- **Test Software: Windows XP sp3 / Run Prime95 v25.11**
- **ATX Power Supply: Delta ATX Power 350W GPS-350EB-102A**
- **Heat Sink:**



Thermal Image Analysis

1. Test Date: 11/08/2010

2. Test Product: NanoCOM-LN

3. Test Site: AAEON Internal Lab.

4. Temperature Measurement:

1. YOKOGAWA / MX100-E-1D

2. IR Scanner: Infrared Camera

NIPPON AVIONICS CO., LTD.

Model: TVS-100

Date of Calibration: 08/10/2010

Serial Number: 0179L2746

5. Test Condition:

Component Side-1 (Test by TVS-100): 20.9°C With cooler

Component Side-2 (Test by TVS-100): 21.5°C With cooler

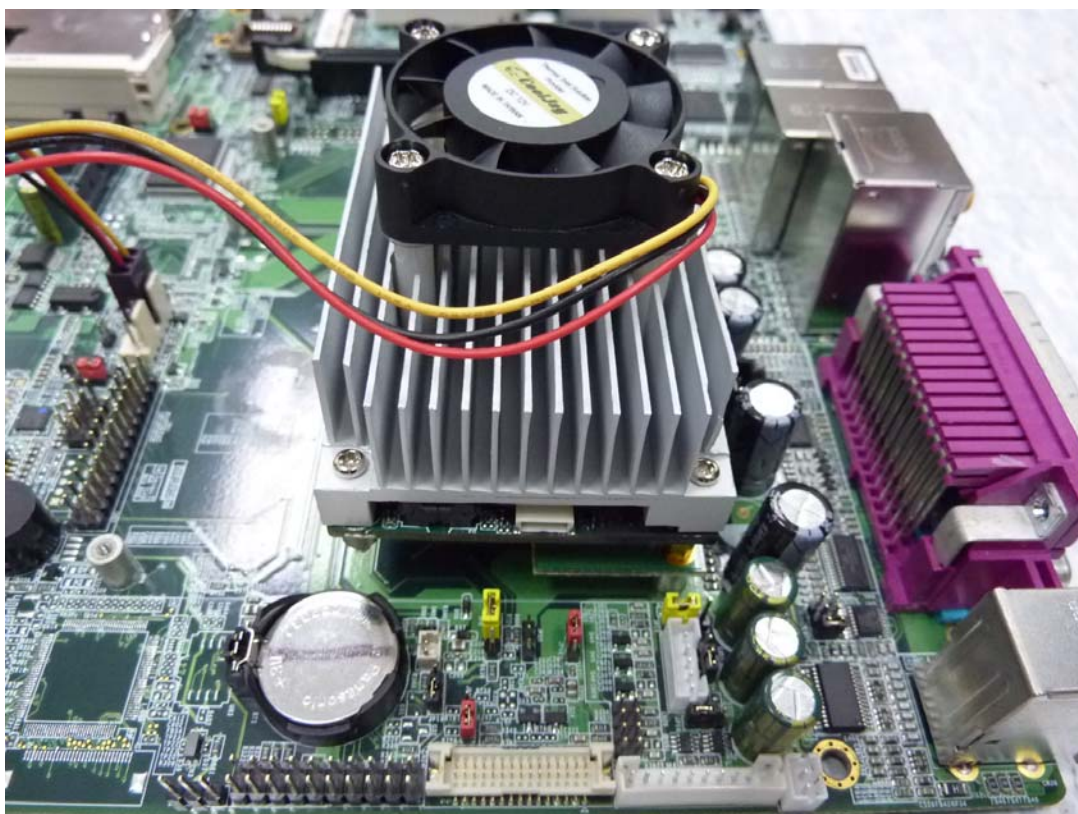
6. Test Software:

Windows XP sp3 / Run Prime 95 v25.11

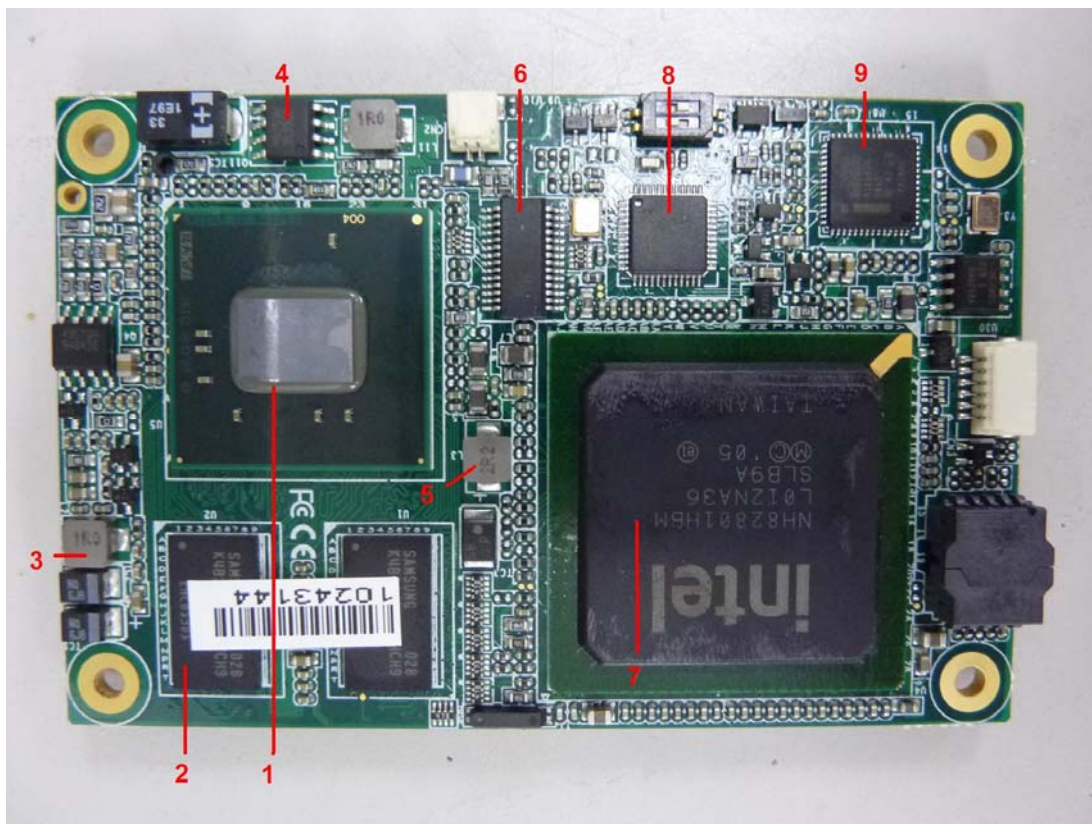
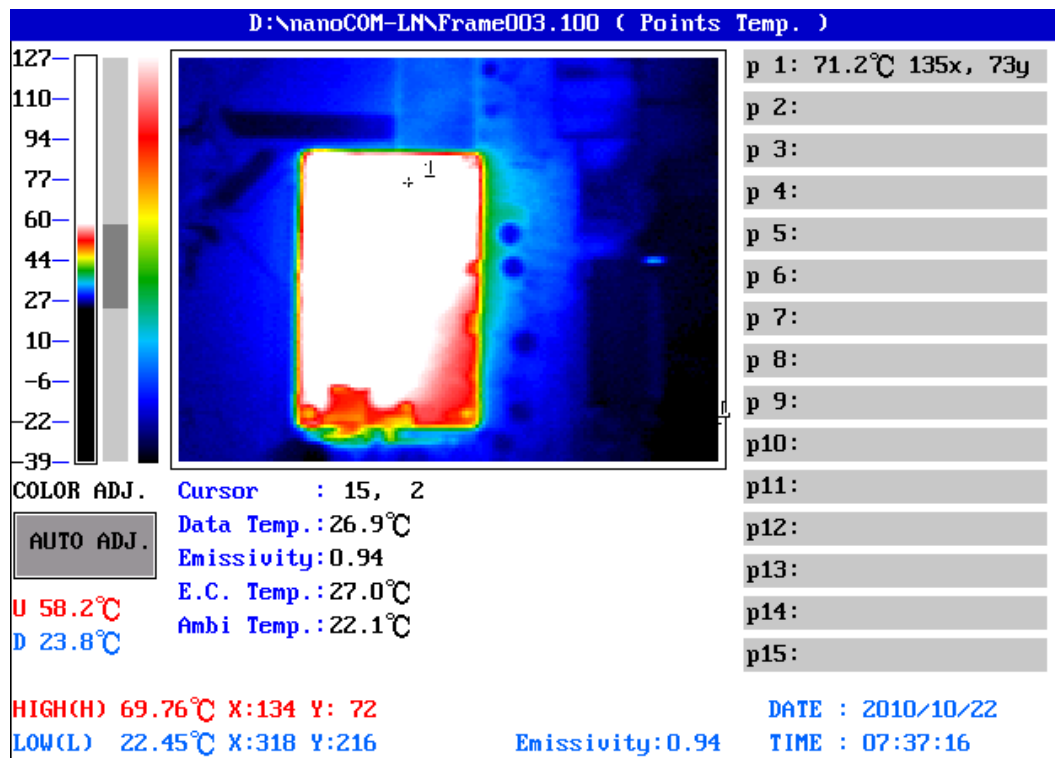
7. Take Picture Time:

After power on 2 hours

Temperature Profile Test:



Component Side-1:



It's front side

Using YOKOGAWA / MX100-E-1D test

Point	Position	Describe	Tc (*1) (°C)	Tm (*2) Measured Under		Note
				20.9°C	60°C	
1	U5(CPU)	Intel CPU.Pinetrail M.SINGLE CORE.N455.1.66GHz	100	55.3	94.5	
2	U2(RAM)	DDRIII-SDRAM.128Mbx16(bit).1333MHz SAMSUNG K4B2G1646C – HCH9	125	29.4	68.5	
3	L2	DCR=21mΩ.Irms=5.3Amp.TRIO.EM-10AM01V01	----	32.9	72	
4	Q11	Dual N-Channel.SO-8. APEC.AP9975GM	120	51.6	90.7	
5	L3	DCR=40mΩ.Irms=4Amp.TRIO.EM-22AM01V01	----	38.7	77.8	
6	U6	WatchDog.Fintek.F75111RG	115	42.7	81.8	
7	U4	Chipset ICH8M.INTEL.NH82801HBM.SLB9A	105	28.5	67.6	
8	U7	CoolRunner-II CPLD.Xilinx.XC2C64A-7QFG48C	120	43.2	82.3	
9	U8	GigaBit Ethernet PHY.INTEL.WG82567V SLAW7	115	29.2	68.3	

Note(*):

1. "Tc" indicates the component's case maximum temperature value specified in its datasheet.

2. "Tm" indicates the measured Tc value under working environmental temperature within product specification.

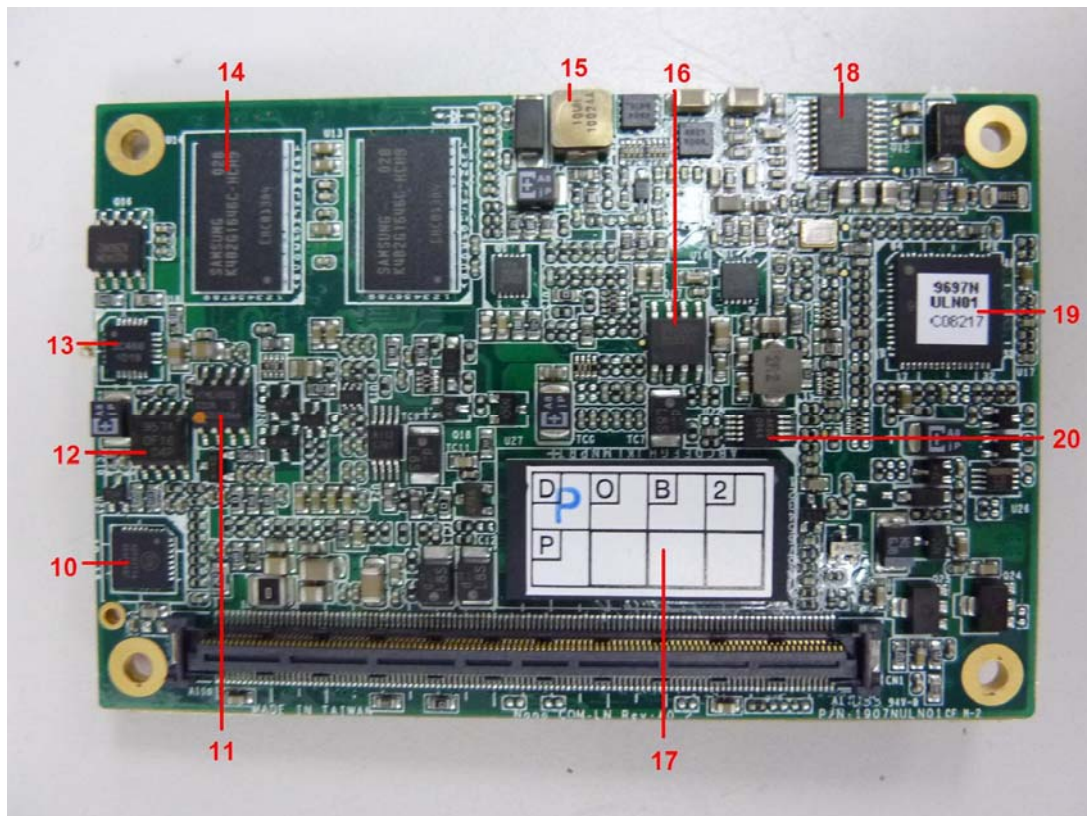
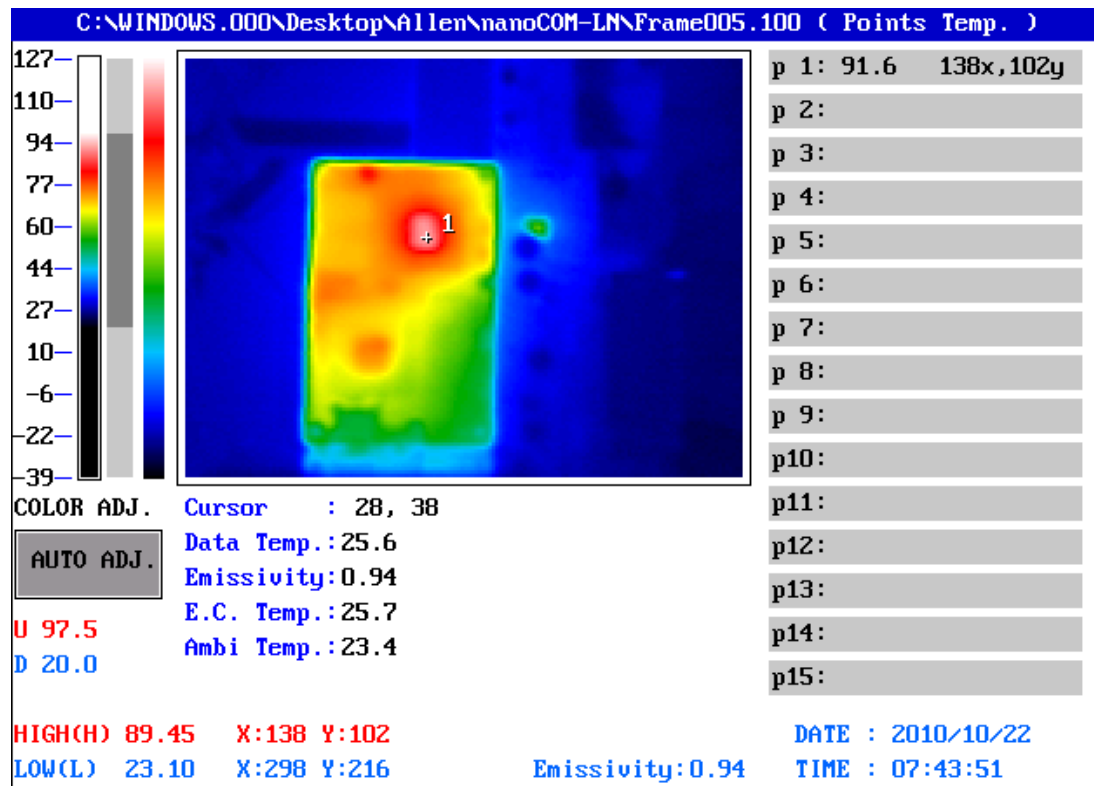
3. Judgment Criteria:

- **Fail** : $T_m > T_c + 5^{\circ}\text{C}$; The measured value is over specification plus margin.

- **Margin** : $T_c + 5^{\circ}\text{C} > T_m > T_c - 10^{\circ}\text{C}$; The measured value is within specification with margin.
For FANLESS system application, it is strongly recommended to add thermal dissipation design for better reliability.

- **Pass** : $T_m < T_c - 10^{\circ}\text{C}$; The measured value is with safety margin.

Component Side-2:



It's rear side

Using YOKOGAWA / MX100-E-1D test

Point	Position	Describe	Tc (*1) (°C)	Tm (*2) Measured Under		Note
				21.5°C	60°C	
10	U23	Voltage Detecting.System Resetting IC.MITSUBISHI.M51957A	115	48.9	87.4	
11	U20	2KSerialEEPROM.CS:08A8h.nano COM-LN.1024MB. ATMEL.AT24C02BN-SH-T	115	44.9	83.4	
12	U23	Voltage Detecting.System Resetting IC.MITSUBISHI.M51957A	----	43.9	82.4	
13	U18	DDR1/2/3 Memory Power Supply.Semtech.SC488MLTRT	120	46.1	84.6	
14	U14(CPU)	DDRIII-SDRAM.128Mbx16(bit).1333MHz SAMSUNG K4B2G1646C – HCH9	125	45.4	83.9	
15	L12	INDUCTOR.10uH.20%.SMD.5.18*5.49*3mm.DCR=146mOh m.Isat 4A.VISHAY.IHLP2020CZER100M01	155	62.2	100.7	
16	Q17	Dual N-Channel.SO-8.SMD.APEC.AP9975GM	125	61.7	100.2	
17	U27	PATA SSD 4G.SST.SST85LD1004T-60-RI-LCTE	115	42.4	80.9	
18	U12	Buck-Boost PWM Controller.NS.LM5118MHX	125	40.5	79	
19	U17	CLOCK GENERATOR.IDT.9LPRS501PKLF	----	42.7	81.2	
20	U22	Dual Linear FET Controller.SEMTECH.SC338IMSTRT	115	41.2	79.7	

Note(*):

1. "Tc" indicates the component's case maximum temperature value specified in its datasheet.
2. "Tm" indicates the measured Tc value under working environmental temperature within product specification.
3. Judgment Criteria:
 - **Fail** : Tm > Tc+5°C; The measured value is over specification plus margin.
 - **Margin** : Tc+5°C > Tm > Tc-10°C; The measured value is within specification with margin.
For FANLESS system application, it is strongly recommended to add thermal dissipation design for better reliability.
 - **Pass** : Tm < Tc-10°C; The measured value is with safety margin.