

NanoCOM-CV

Thermal Image Analysis Report

Summary	☐ Pass ☐ Fail ☒ Pass with Deviation Comment: <u>1. There is one temperature point (U40) cannot meet the spec requirement, and eight temperature points were noted marginal pass while under the temperature rise test.</u> <u>2. However U40 can be passed while under the chamber test with air flow condition (0.5m/sec).</u> <u>3. Customer application is suggested to adopt the air flow solution in which needs to be amended on the product user manual.</u> <u>4. All of the founded items will need PM/RD's further enhancement for the future generation.</u>																		
	Test Result Summary <table border="1"> <thead> <tr> <th></th> <th>Critical</th> <th>Major</th> <th>Minor</th> <th>Enhancement</th> </tr> </thead> <tbody> <tr> <td>Defect Found</td> <td>0</td> <td>0</td> <td>0</td> <td>9</td> </tr> <tr> <td>Defect Unsolved</td> <td>0</td> <td>0</td> <td>0</td> <td>9</td> </tr> </tbody> </table>						Critical	Major	Minor	Enhancement	Defect Found	0	0	0	9	Defect Unsolved	0	0	0
	Critical	Major	Minor	Enhancement															
Defect Found	0	0	0	9															
Defect Unsolved	0	0	0	9															

Issue date

2012 / 09 / 21

Approval

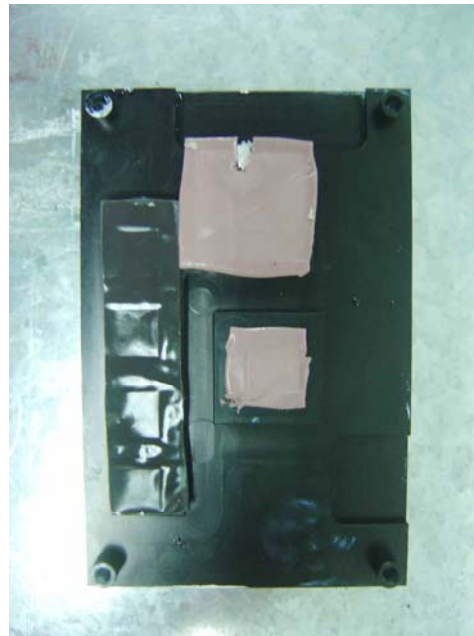
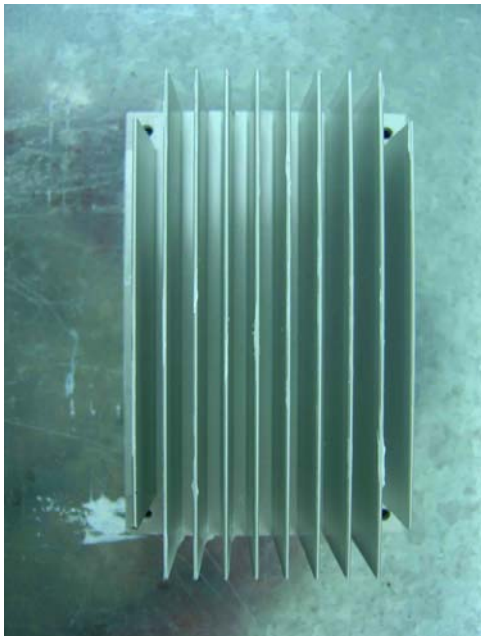
Tom Lin

Test Engineer

Rex Chang

Sample Configuration & Quantity Under Test

- **Model name : NanoCOM-CV A0.2**
- **CPU Board : NanoCOM-CV A0.2**
- **Carrier Board : ECB-916M B1.1_0_0**
- **CPU : Onboard Intel Atom N2600 / 1.6GHz**
- **Memory : Onboard DDR3 1333 2GB / SEC K4B2GO846D**
- **CFD : Transcend / 16GB**
- **BIOS : NanoCOM-CV_A R0.5(09/03/2012)**
- **Test Software : Windows 7 / Run PassMark Burn In Test 7.0 Pro**
- **Power : ATX Power (ATX to AT Mode)**
- **Heat Sink :**



Thermal Image Analysis

1. Test Date: 2012-09-19

2. Test Product: NanoCOM-CV A0.2

3. Test Site: AAEON QE Dept.

4. Temperature Measurement:

4.1 Temperature Rise

4.1.1. 40 Channel Thermal Recorder:

YOKOGAWA Inc,

Model: DA100-13-1D

Date of Calibration: 2011/10/12

Serial Number: 12A323190

4.1.2 IR Scanner: Infrared Camera

NEC Avio Infrared Technologies Co., Ltd.

Model: Thermo GEAR G100W2-D

Date of Calibration: 2012/01/03

Serial Number: 1051444

4. 2 With Air Flow 0.5m/sec Chamber

4.2.1. Programmable Temperature & Humidity Chamber

K.SON. INS. TECH. CORP.

Model: THS-D4H+-100

Date of Calibration: 2011/10/13

Serial Number: 2582

4.2.2 40 Channel Thermal Recorder:

Model: DA100-13-1D

Date of Calibration: 2011/10/12

Serial Number: 12A323190

5. Test Condition:

Test by DA-100: 25.1°C with Heat Sink

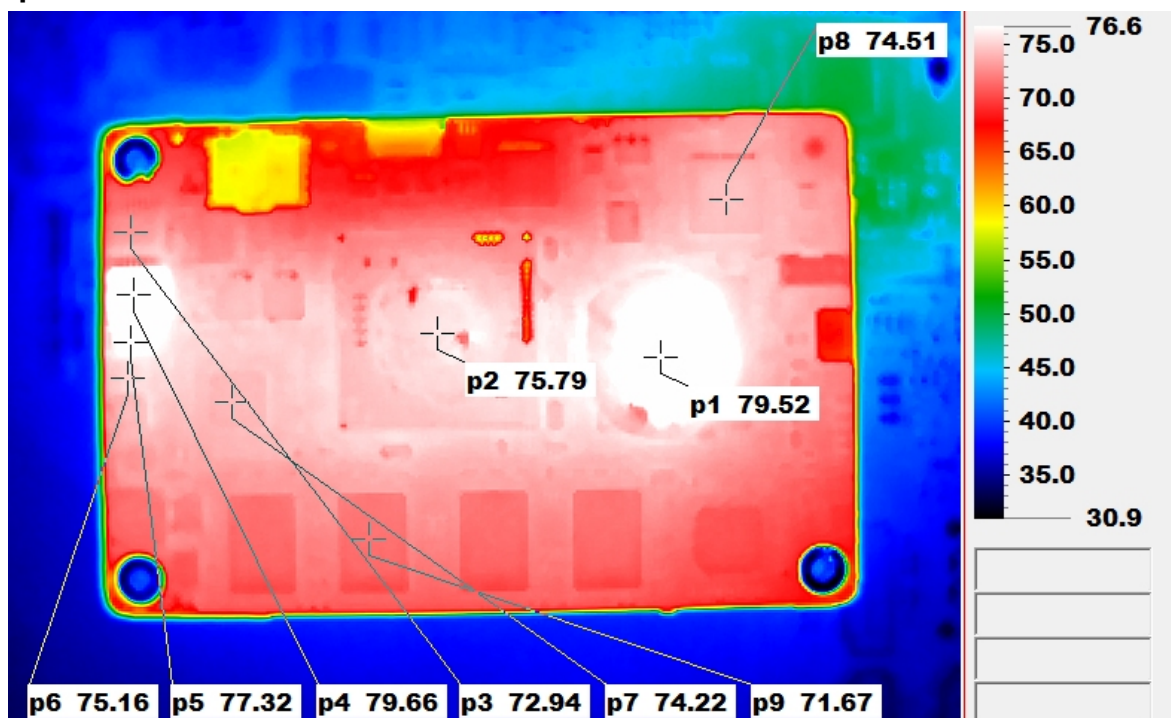
6. Take Picture Time:

After power on 2 hours

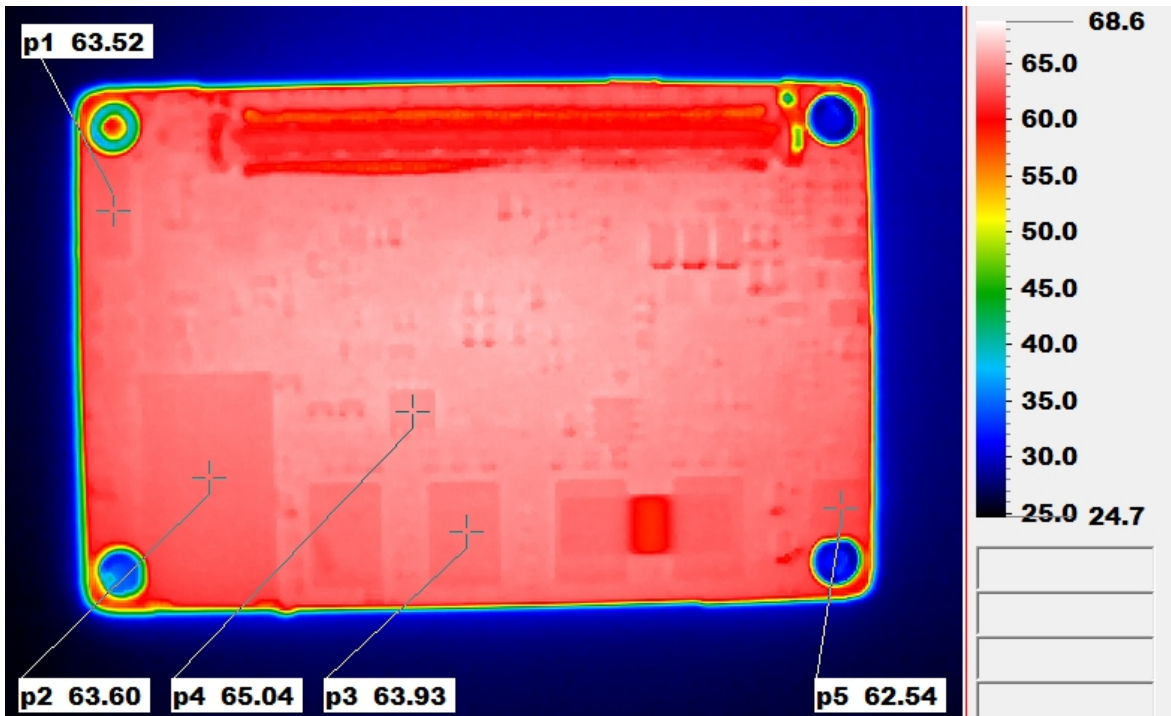
:

Temperature Profile Test:

Component Side:

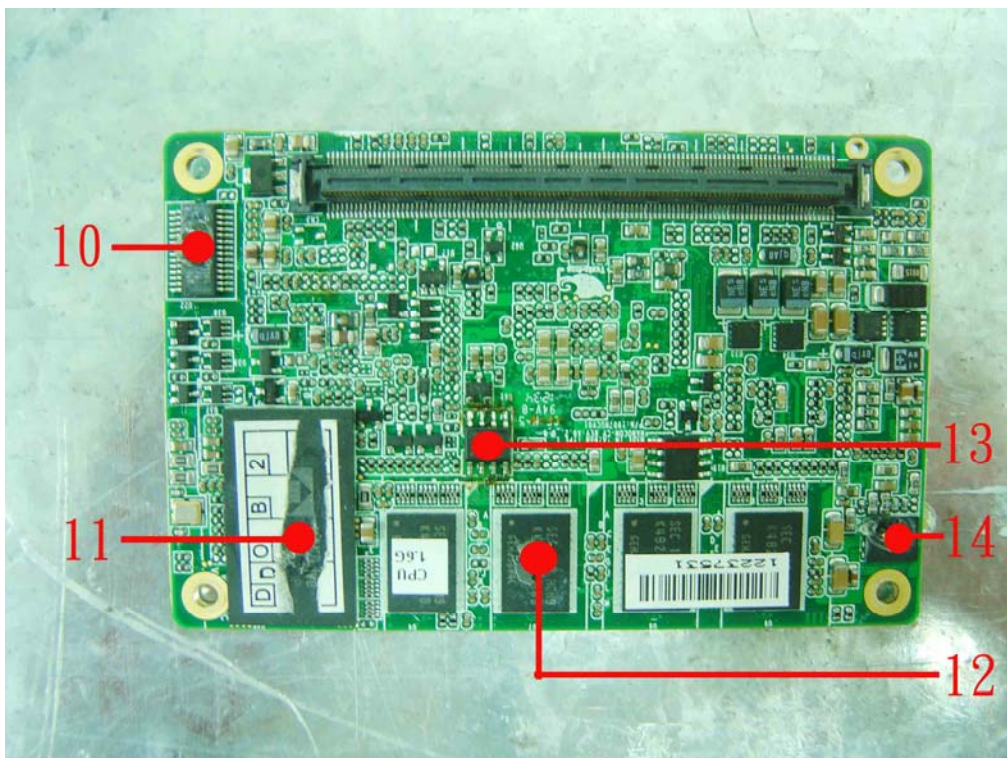
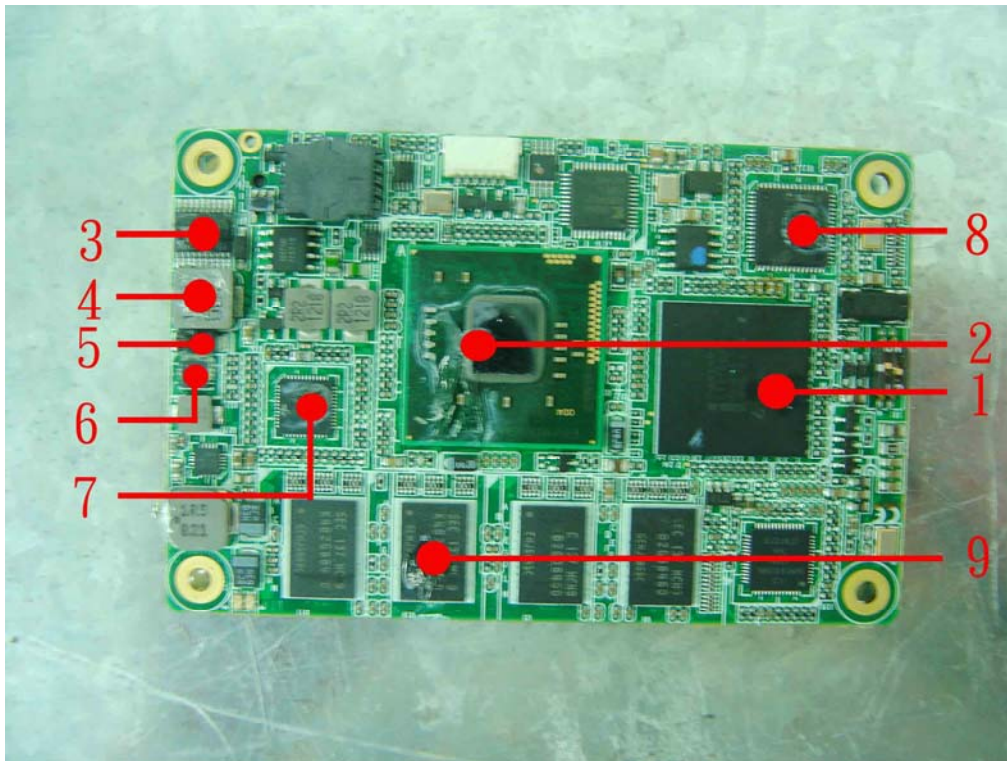


Back Side:



Terminal Recorder:

Measuring Thermal Couple Position :



Temperature Rise Test:

Using YOKOGAWA / DARWIN DA100-100-13-1D test

Point	Position	Describe	Tc (*1) (°C)	Tm (*2) Measured Under		Note
				25.1°C	60°C	
1	U12	(TF)NM10 Express Chipset.INTEL.CG82NM10.SLGXX	115	56.2	91.1	
2	U1	(TF)INTEL.Cedarview CPU.1.6GHz.N2600.	100	57.8	92.7	Note4
3	U60	(TF) PWM Controller.TSSOP-20EP.TI.LM25118MHX	100	60.8	95.7	Note4
4	L22	((TF)INDUCTOR.10uH.20%. CYNTEC.PCMB063T-100MS	125	71.3	106.2	
5	D17	(TF)D Schottky.VDC=40V.3A. Barrier Rectifiers.Willas.SK34A	100	64.1	99.0	Note4
6	U32	(TF)MLPD-10P. DC-DC Converter.Semtech.SC174MLTRT	125	67.1	102.0	
7	U35	(TF)IMVP7.Dual Single-Phase PWM.Richtek.RT8167AGQW	100	64.3	99.2	Note4
8	U13	(TF)PCI-E GigaBit Ethernet Chipset.Intel.WG82583V	109	64.9	99.8	Note4
9	U10	(TF)DDRIII-SDRAM.1333MHz. SAMSUNG.K4B2G0846D	95	55.9	90.8	Note4
10	U22	(TF) WatchDog.Fintek.F75111RG	100	57.2	92.1	Note4
11	U40	(TF)SATA SSD 4G.Greenliant.GLS85LS1004P-S-I-FZJE	85	55.7	90.6	Note4
12	U7	(TF)DDRIII-SDRAM.1333MHz. SAMSUNG.K4B2G0846D	95	59.7	94.6	Note4
13	Q32	(TF)PWR.P-Channel.-12V.-11A.25mΩ.MOSFET.AOS.AO4437	125	58.7	93.6	
14	Q33	(TF)PWR. N-Channel.Mosfet. ON.2N7002WT1G	125	60.7	95.6	

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.

4. Defect NO. C120303QED01

With Air Flow 0.5m/sec Chamber Test:**Using YOKOGAWA / DARWIN DA100-100-13-1D test**

Point	Position	Describe	Tc (*1) (°C)	Tm (*2) Measured Under		Note
				25.1°C	60°C	
1	U12	(TF)NM10 Express Chipset.INTEL.CG82NM10.SLGXX	115	38.8	73.7	
2	U1	(TF)INTEL.Cedarview CPU.1.6GHz.N2600.	100	40.7	75.6	
3	U60	(TF) PWM Controller.TSSOP-20EP.TI.LM25118MHX	100	43.8	78.7	
4	L22	((TF)INDUCTOR.10uH.20%. CYNTEC.PCMB063T-100MS	125	54.4	89.3	
5	D17	(TF)D Schottky.VDC=40V.3A. Barrier Rectifiers.Willas.SK34A	100	27.5	62.4	
6	U32	(TF)MLPD-10P. DC-DC Converter.Semtech.SC174MLTRT	125	48.6	83.5	
7	U35	(TF)IMVP7.Dual Single-Phase PWM.Richtek.RT8167AGQW	100	46.2	81.1	
8	U13	(TF)PCI-E GigaBit Ethernet Chipset.Intel.WG82583V	109	49.5	84.4	
9	U10	(TF)DDRIII-SDRAM.1333MHz. SAMSUNG.K4B2G0846D	95	39.2	74.1	
10	U22	(TF) WatchDog.Fintek.F75111RG	100	41.9	76.8	
11	U40	(TF)SATA SSD 4G.Greenliant.GLS85LS1004P-S-I-FZJE	85	37.7	72.6	
12	U7	(TF)DDRIII-SDRAM.1333MHz. SAMSUNG.K4B2G0846D	95	40.9	75.8	
13	Q32	(TF)PWR.P-Channel.-12V.-11A.25mΩ.MOSFET.AOS.AO4437	125	39.9	74.8	
14	Q33	(TF)PWR. N-Channel.Mosfet. ON.2N7002WT1G	125	42.3	77.2	

Note(*):

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