AIOT-X1000

Thermal Image Analysis Report

Summary	☑ **Pass** ☐ **Fail** ☐ **Pass with Deviation** **Comment:**

Test Result Summary				
	Critical	Major	Minor	Enhancement
Defect Found	0	0	0	0
Defect Unsolved	0	0	0	0

Issue date	Approval	Test Engineer
2014 / 12 / 08	Vincent Chen	Juno Cheng

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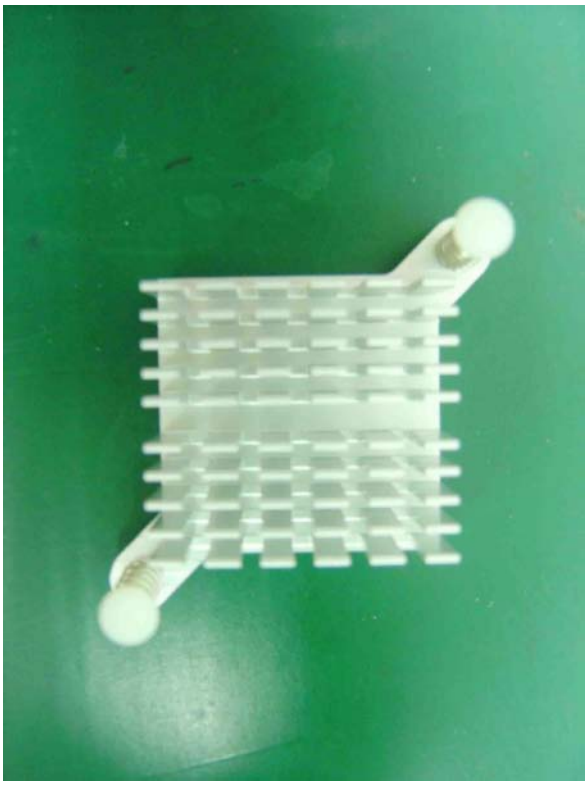
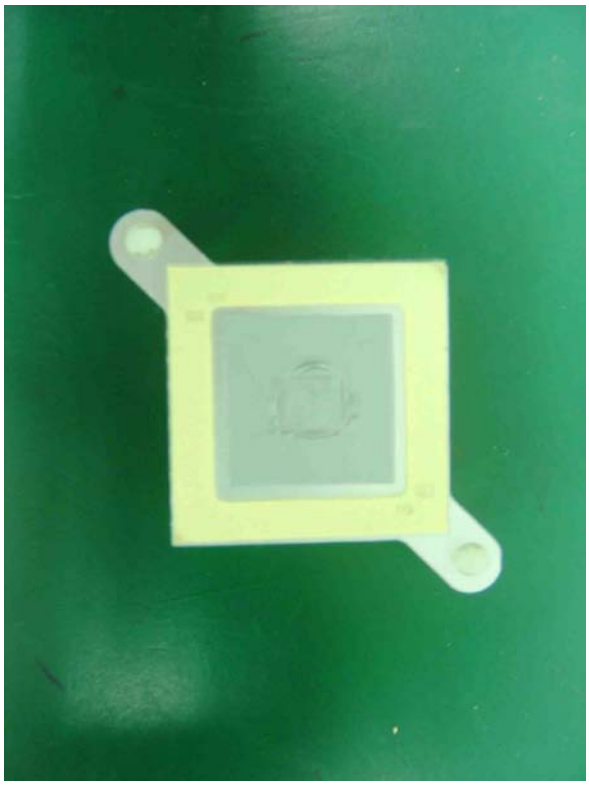
Sample Configuration & Quantity Under Test

- **Model name : AIOT-X1000 B0.3**
- **CPU Board : AIOT X1000 Rev. B0.3**
- **CPU : Intel Quark SoC X1020 400MHz**
- **Memory : On Board 1GB / DDR3 1600 / SAMSUNG.K4B4G0846D-BYK0**
- **SD Card : MICROSDHC10 Card.4G.MLC.Transcend.TS4GUSDC10**
- **BIOS : Wind River Linux 5.0.1.19**
- **Test Software : AAEON ON&OFF Test and AAEON Burnintest.**
- **Power : FSP.FSP060-DBAE1 / 12V / 5A / 60W**
- **Heat Sink :**





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Thermal Image Analysis

1. Test Date: 2014-12-08

2. Test Product: AIOT-X1000

3. Test Site: AAEON QE Dept.

4. Temperature Measurement:

4.1. 40 Channel Thermal Recorder:

4.1.1 YOKOGAWA Inc,

4.2.2 Model: DA100-13-1D

Date of Calibration: 2014/09/11

Serial Number: 12A323190

4.2. IR Scanner: Infrared Camera

4.2.1 NEC Avio Infrared Technologies Co., Ltd.

4.2.2 Model: Thermo GEAR G100W2-D

Date of Calibration: 2013/12/30

Serial Number: 1051444

5. Test Condition:

Test by DA-100: 25.0℃ with Heat Sink + FAN (Full speed)

6. Take Picture Time:

After power on 2 hours

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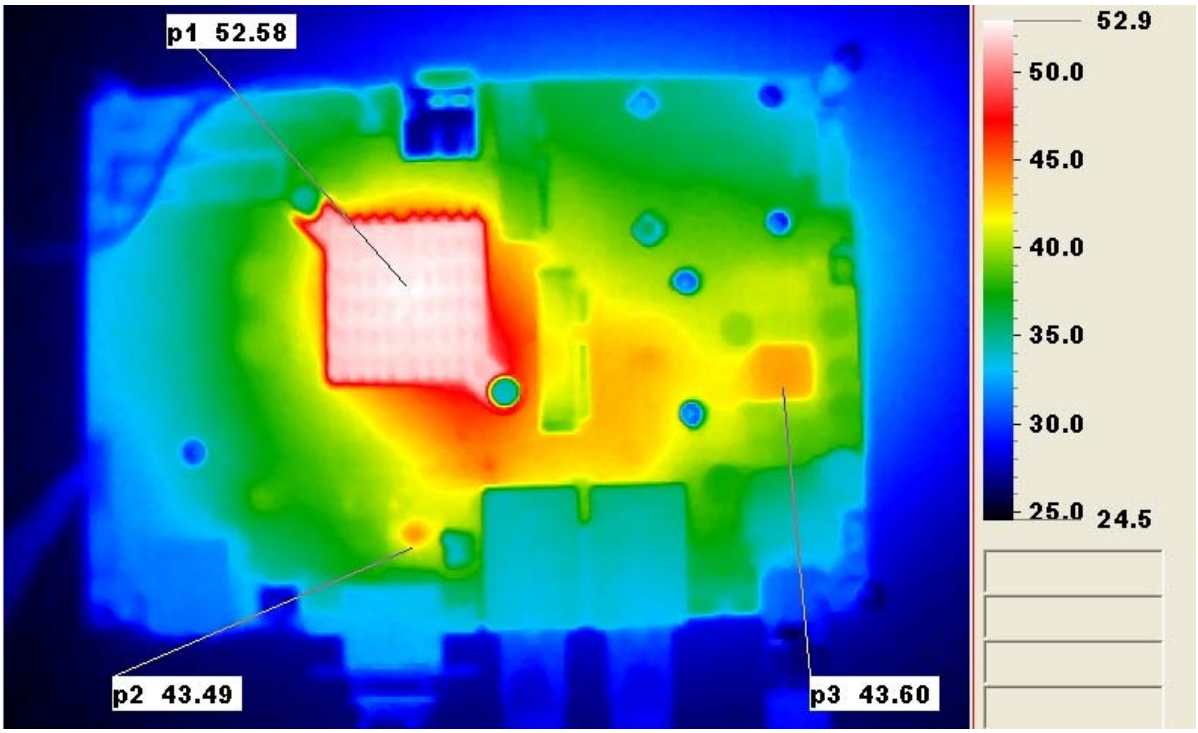
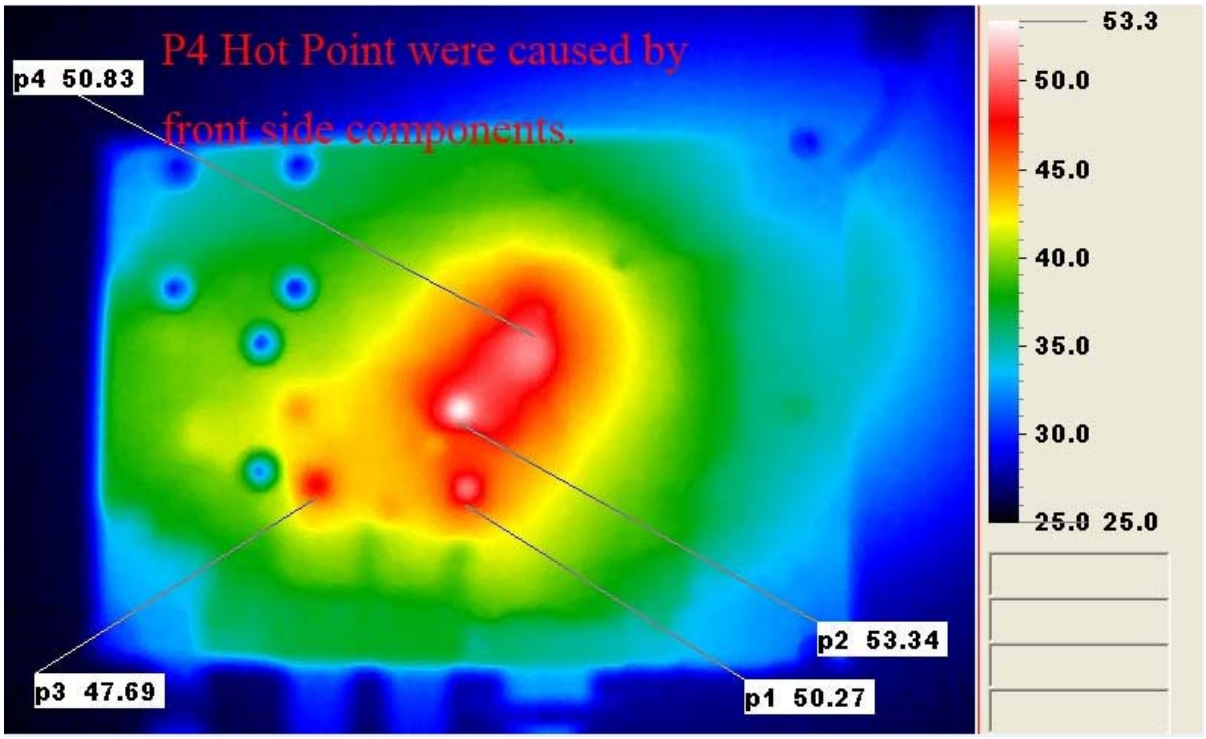
Temperature Profile Test:

Component Side:



Back Side



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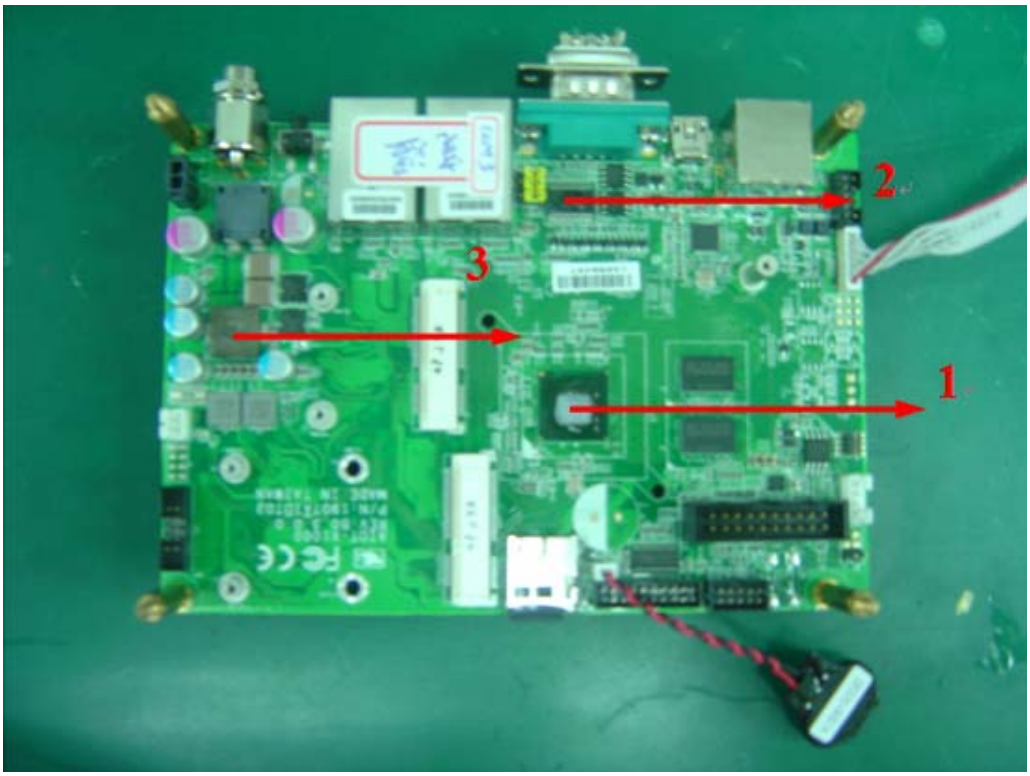
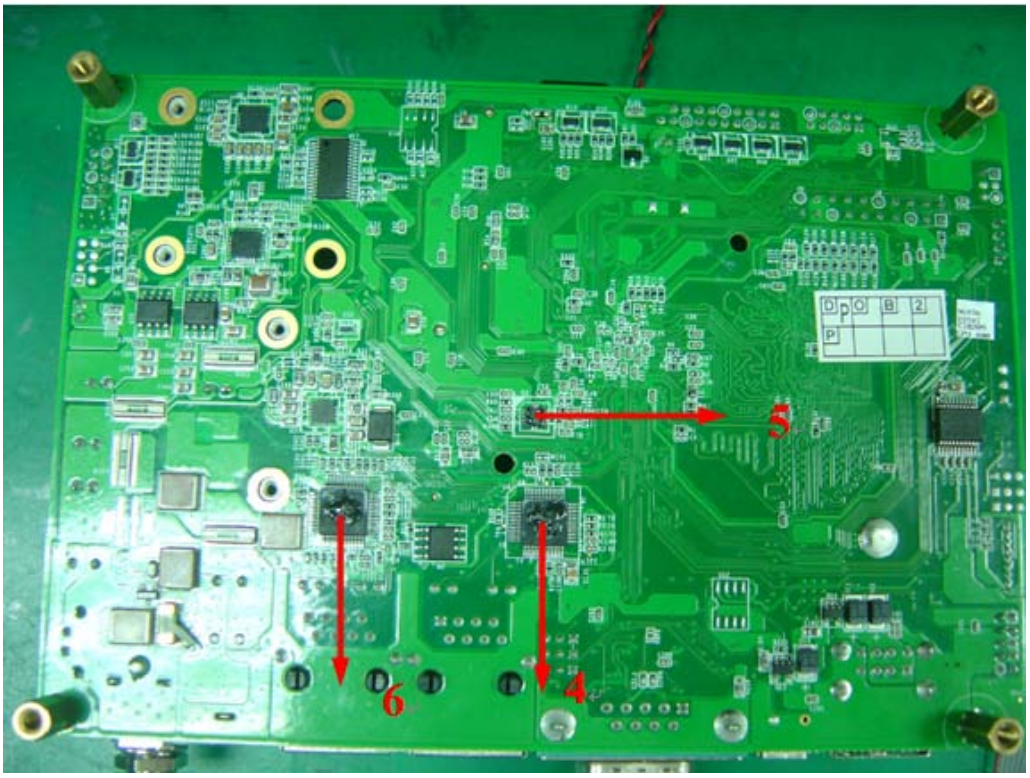
Terminal Recorder :

Measuring Thermal Couple Position：





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

Point	Position	Describe	Tc (*1) (℃)	Tm (*2) Measured Under		Note
				25.0℃	60℃	
1	U1	CPU.QUARK.PN#X1020D.400MHz.FCBGA	110	54.3	89.3	
2	U19	(TF) IC.SMD Transceivers ESD .ADM3311EARSZ	100	45.8	80.8	
3	L11	(TF)COIL. SMD.GOTREND.GSTD1040PE-6R8M	140	44.8	79.8	
4	U9	(TF) IC. Ethernet.PHY LQFP DP83848IVVX/NOPB	100	52.6	87.6	
5	U3	(TF)IC.LDO REG.ADJ. TPS74801DRCR	140	57.9	72.9	
6	U10	(TF)IC. Ethernet.PHY Transceiver. DP83848IVVX/NOPB	100	50.1	85.1	
7		(TF)BATTERY.3V.MAXELL.CR2032M1S8-LF	85	28.8	63.8	

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℃; The measured value is over specification plus margin.
- **Margin** : Tc+5℃ > Tm > Tc-10℃; 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℃; The measured value is with safety margin.

4. Defect NO. : NA

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