PBA-BT02

Thermal Image Analysis Report

Summary	☐ **Pass** ☐ **Fail** ☑ **Pass with Deviation** **Comment: Temperature at 1 component was estimated to be in marginal temperature point in comparison with component datasheet.**

Test Result Summary

	Critical	Major	Minor	Enhancement
Defect Found	0	0	0	1
Defect Unsolved	0	0	0	1

Issue date	Approval	Test Engineer
2015 / 03 / 04	KJ Wang	Juno Cheng

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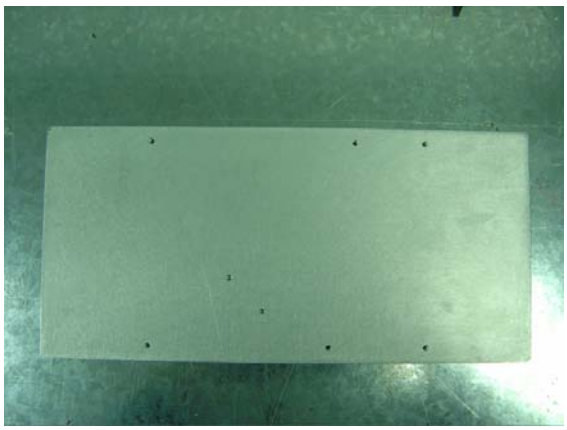
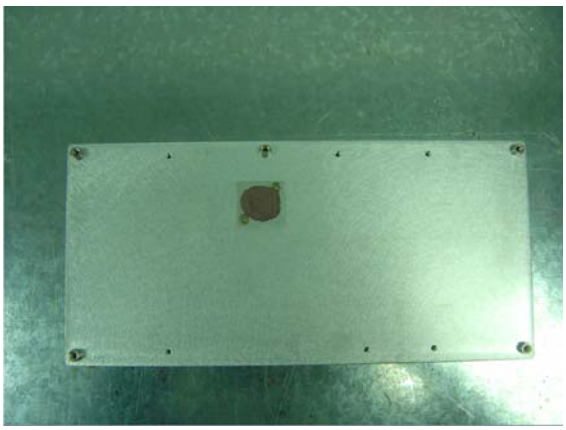
Sample Configuration & Quantity Under Test

- **Model name :** PBA-BT02 Ver. A0.2
- **CPU :** Intel Atom CPU E3845 @ 1.91 GHZ (4 Core)
- **Memory :** DSL DDR3L-1600 2 GB CL11 1.35v (Hynix H5TC2G83EFR)
- **2.5“SATA HDD :** Seagate ST9160412AS/7200RPM/160GB
- **BIOS :** PBA-BT02 R0.5 (RBT2AM05) (01/20/2015)
- **Test Software :** Windows 7 / Run PassMark Burn In Test 8.0
- **Power :** AT Power
- **Heat Sink :**





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Thermal Image Analysis

1. Test Date: 2015-03-04

2. Test Product: PBA-BT02

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: 2014/10/12

Serial Number: 12A323190

4.2. IR Scanner: Infrared Camera

4.2.1 NIPPON AVIONICS CO., LTD.

4.2.2 Model: NEC-G100D

Date of Calibration: 2014/12/30

Serial Number: 1051444

5. Test Condition:

Component Side-1 (Test by DA-100): 25.0℃

6. Take Picture Time:

After power on 2 hours

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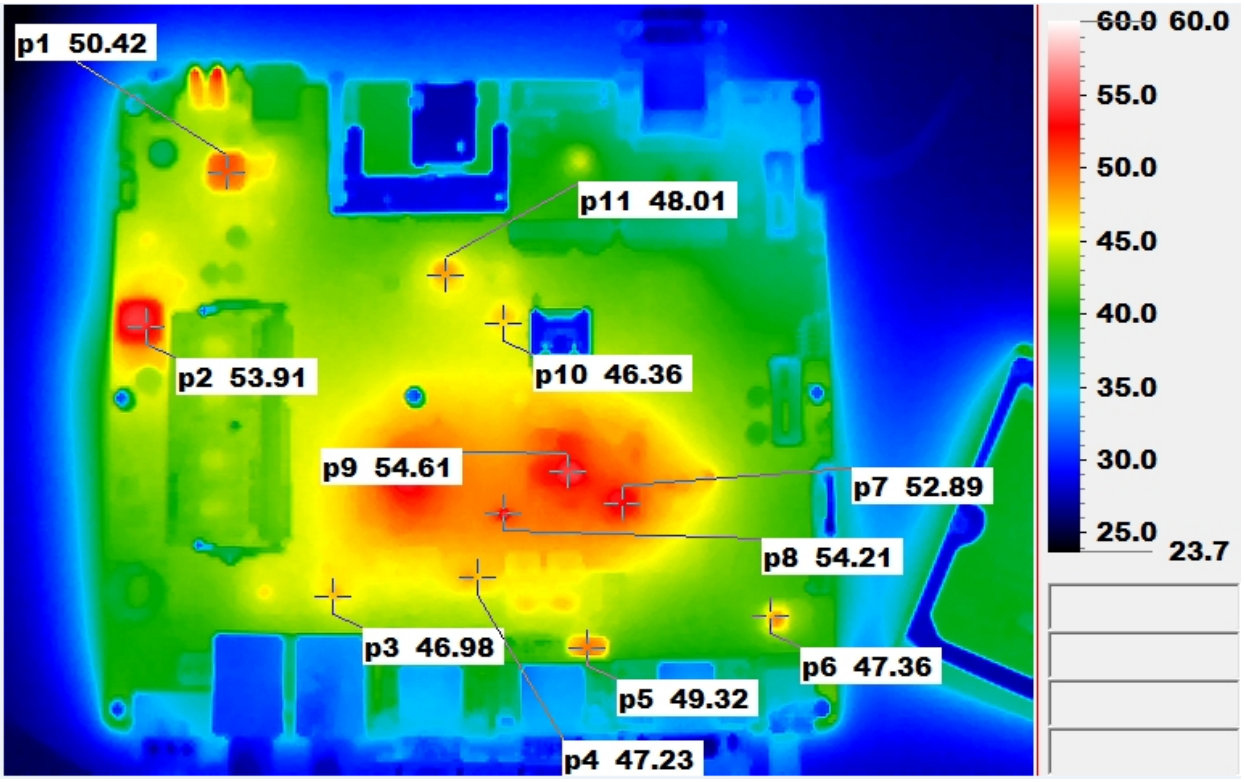
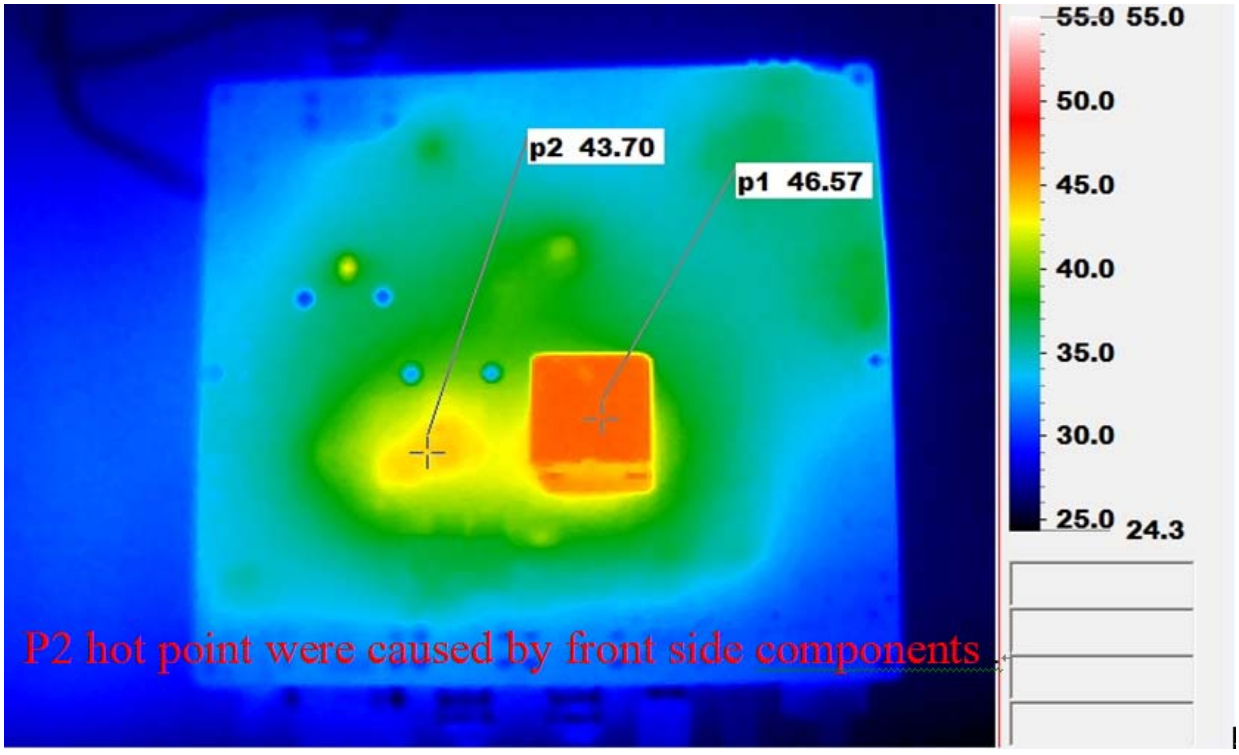
Temperature Profile Test:

Component Side:



Solder Side:



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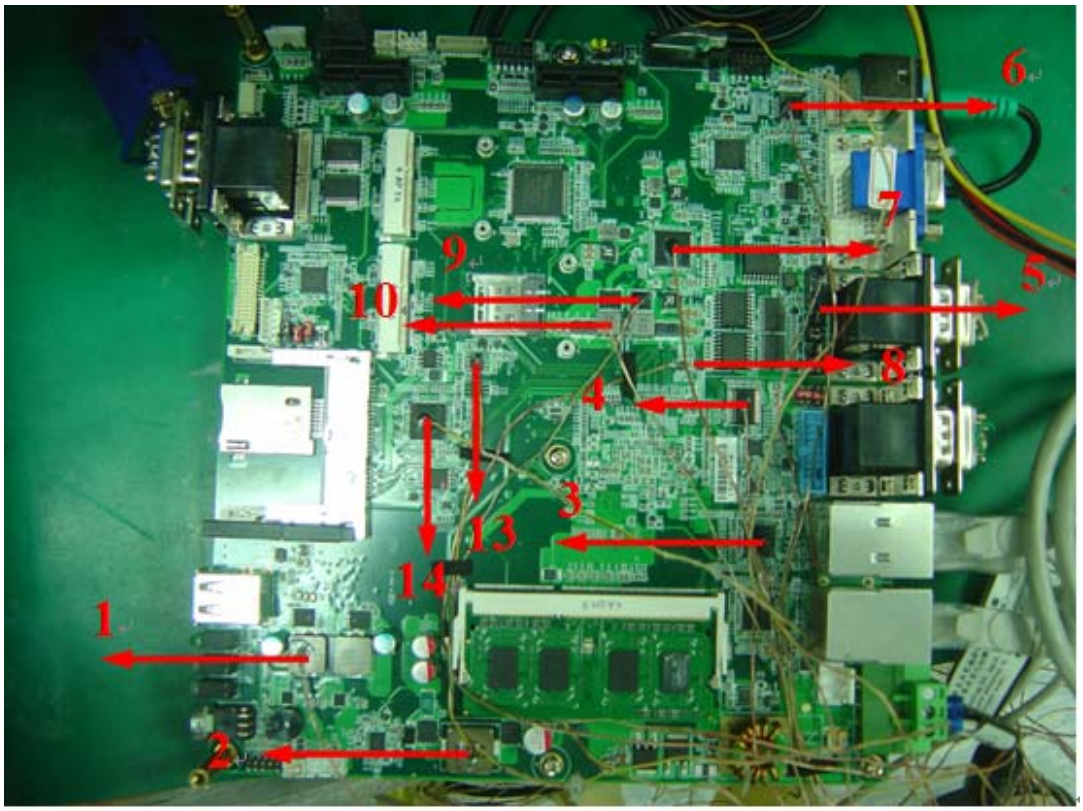
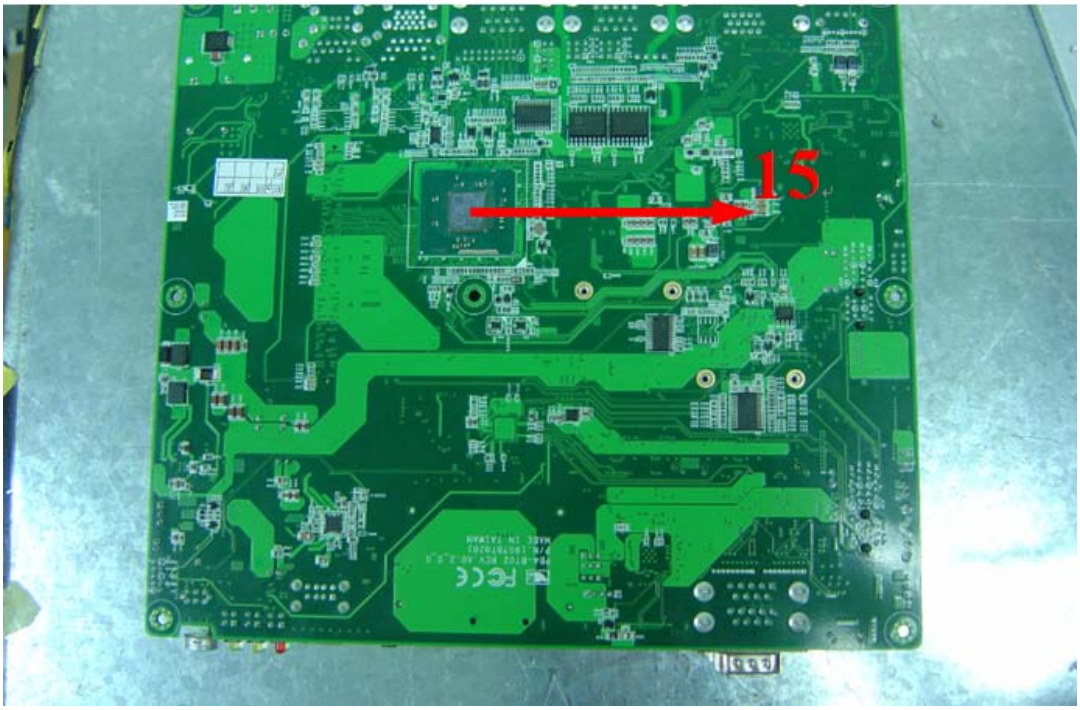
Terminal Recorder:

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℃	60℃	
1	L1	(TF)COIL. GOTREND.GSTC104P-1R5MN	140	47.1	82.1	
2	L3	(TF)COIL..ZenithTek.ZPWM-1250M-2R2	140	48.5	83.5	
3	U36	(TF)IC.PCI-E GigaBit Ethernet Chipset.QFN .Intel.WGI211AT	85	52.9	87.9	Note 3
4	U32	(TF)IC.RS232 Driver/Receiver.15KV ESD.SSOP TI.TRS213IDBR	125	50.6	85.6	
5	U48	(TF)CONVERTER.DIP. Isolated DC.MORNSUN.F0505M -1W	100	46.9	81.9	
6	U45	(TF)IC. High Definition.Audio Codec.LQFP.SMD.REALTEK.ALC892-CG	85	47.9	82.9	
7	U26	(TF)IC.PMIC.UQFN-88P.SMD.ROHM.BD9596MWV	125	44.9	79.9	
8	U27	(TF)IC.LDO Regulator.SOT23-5 5P.SMD.UPI.UP0107BMA5-00	100	43.1	78.1	
9	Q23	(TF)N-MOSFET. SMD.ON.NTMFD4C50NT1G	125	45.8	80.8	
10	L5	(TF)COIL.ZenithTek.ZPWM-6030M-R33M	140	42.4	77.4	
11		DIMM	95	38.7	73.7	
12		(TF)Lithium Battery.3V.220mAH.-20~+85°C.MAXELL.CR2032H	85	38.1	73.1	
13	U17	(TF)IC.SMD.Low dropout Linear Regulator.GMT.G9731F11U	125	41.2	76.2	
14	U10:	IC.SMD.PCI Express Switch.IDT.89HPES4T4ZBNQG	100	42.9	77.9	
15	U58	(TF)INTEL Bay Trail-I.E3845.1.91GHz.X6	110	44.1	79.1	

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 :** P140906QED04

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