EMB-BSW1

Thermal Image Analysis Report

Summary	☐ **Pass** ☐ **Fail** ☑ **Pass with Deviation** **Comment:** **There are six temperature point marginal passed, hope to get improvement for the next generation.**

Test Result Summary

	Critical	Major	Minor	Enhancement
Defect Found	0	0	0	6
Defect Unsolved	0	0	0	6

Issue date	QE Manager	Test Engineer
2016 / 04 / 07	KJ Wang	Jerry Chen

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Sample Configuration & Quantity Under Test

- **Model name : EMB-BSW1 R1.02**
- **CPU Board : Intel Pentium N3710 1.6 GHz**
- **CPU : Intel Pentium N3710 1.6 GHz**
- **Chipset : Intel Braswell**
- **BIOS : R1.3 (EBW1AM13) (03/07/2016)**
- **Memory：Transcend DDR3L 1600 SO 4GB (SEC / K4B4G0846B) *2**
- **2.5” SATA SSD: OCZ / TRN100-25SAT3-240G 240GB**
- **Test Software : Windows 8 / Run PassMark Burn In Test 8.1 Pro**
- **AT Power Supply: Zippy HG2-6400P / 400W**
- **Heat sink :**

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Thermal Image Analysis

1. Test Date: 04-06-2016

2. Test Product: EMB-BSW1

3. Test Site: AAEON QE Dept.

4. Temperature Measurement:

4.1. 20 Channel Thermal Recorder:

4.1.1 OMRON Inc,

4.2.2 Model: ZR-RX45

Date of Calibration: 12/18/2015

Serial Number: H30481978

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: 12/01/2015

Serial Number: 1051444

5. Test Condition:

Test by DA-100: 25.0℃ with Heat sink

6. Take Picture Time:

After power on 2 hours

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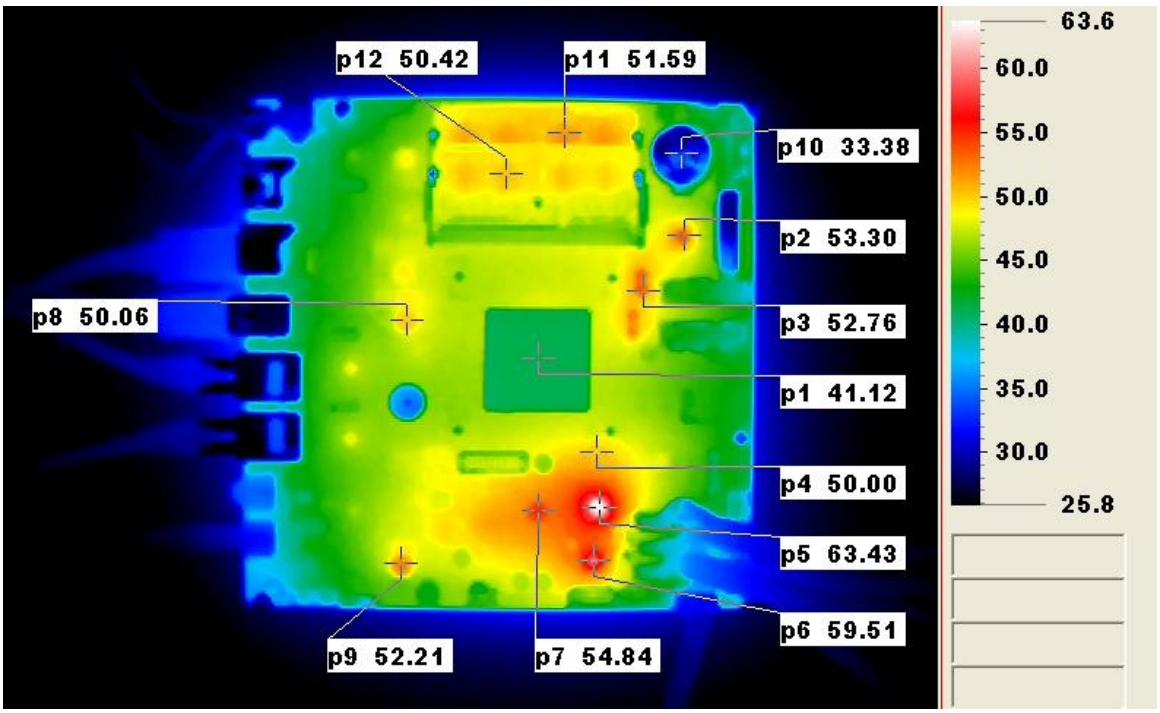
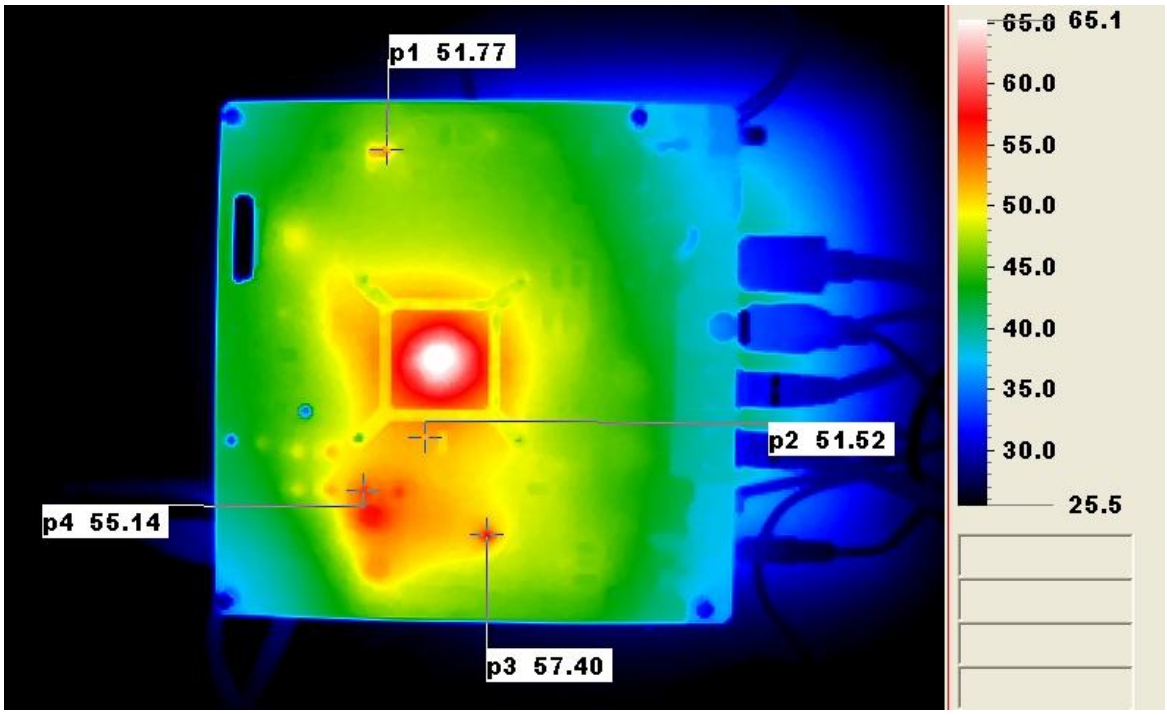
Temperature Profile Test:

Front Side:



Back Side



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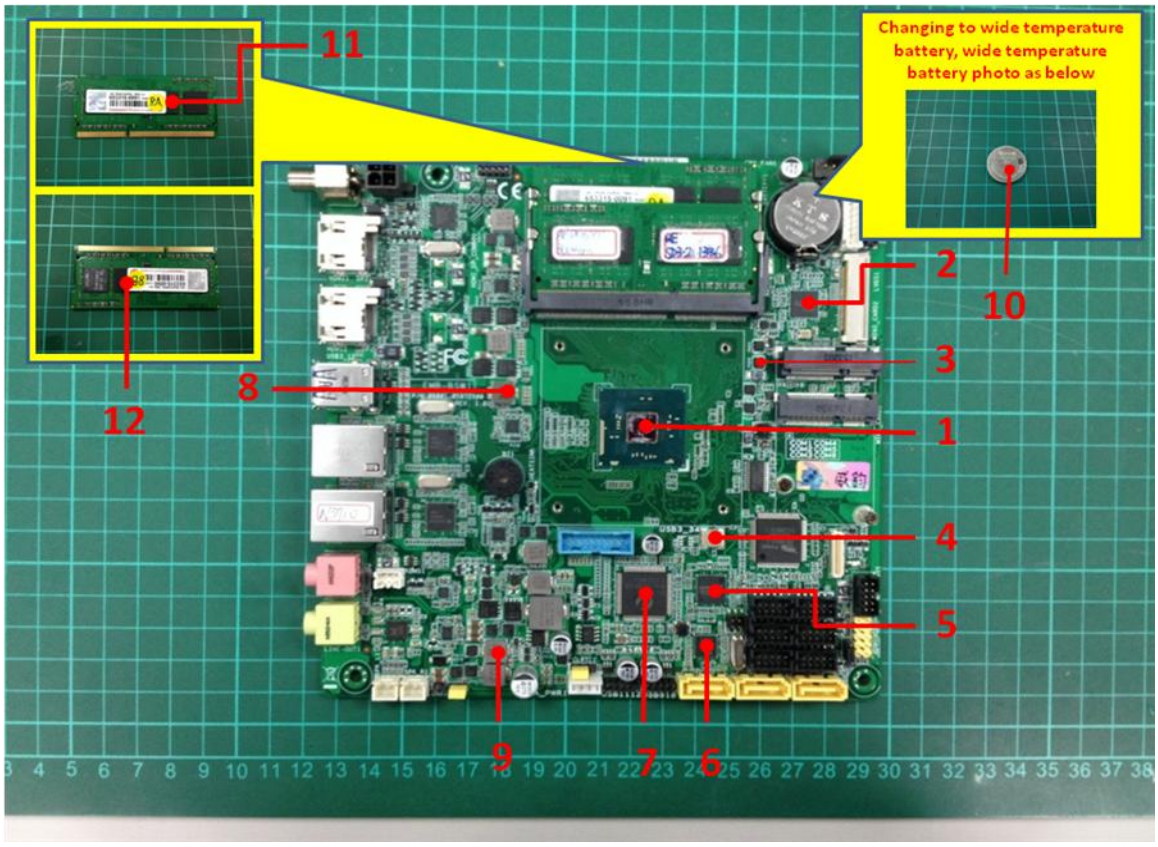
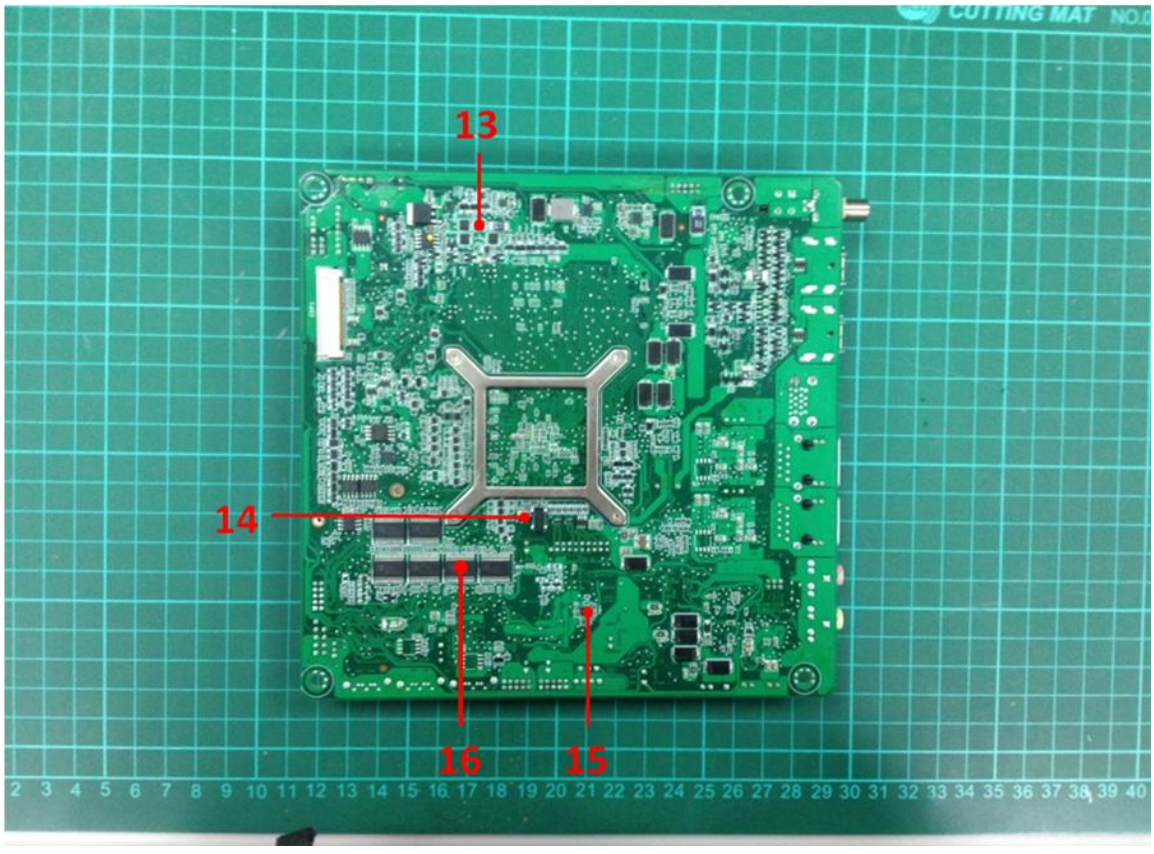
Terminal Recorder:

Measuring Thermal Couple Position：





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Using OMRON Inc / ZR-RX45 test

Point	Position	Describe	Tc (*1) (℃)	TAT(*2)	TPT(*3)	Note
				25.0℃	50℃	
1	CPU	Intel Pentium N3710 1.6 GHz	90	65.9	**90.9**	**Note 6**
2	LVU1	C.S CH7511B-BF QFN68	125	59.5	84.5	
3	PQ26	N-MOSFET EMB20N03V POWER PAK	150	63.3	88.3	
4	U11	OSC 48MHZ SMD 3.3V 15PF/50PPM	85	60.3	**85.3**	**Note 6**
5	Y1U1	C.S ASM1184E QFN-64L	95	71.6	**96.6**	**Note 6**
6	U26	C.S ASM1061 (A3) QFN48L	95	67.1	**92.1**	**Note 6**
7	U27	BRIDGE PI7C9X440SLBFDE PCIE TO USB LQFP-128	100	63.2	88.2	
8	PL7	INDUCTOR 0.36UH/24A 20%	140	57.8	82.8	
9	PL2	INDUCTOR 4.7UH/5.5A SMD 20%	140	60.1	85.1	
10	BATTERY	BATT-LI MAXELL//CR2032 3V/210mAh <G> (Wide Temperature)	85	46.1	71.1	
11	RAM-1	Memory chipset (SEC / K4B4G0846B)	95	55.2	80.2	
12	RAM-2	Memory chipset (SEC / K4B4G0846B)	95	54.8	79.8	
13	PQ36	N-MOSFET EMB20N03V POWER PAK	150	60.5	85.5	
14	SX1	XTAL 19.2MHZ 7PF/10PPM	100	61.2	86.2	
15	PU21	LDO REG. UP0132PDDA	100	67.9	**92.9**	**Note 6**
16	U19	INTERFACE ADM213EARSZ SSOP-28	100	65.6	**90.6**	**Note 6**
17	N/A	Air Temperature	N/A	25	50	

Note(*):

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

2. "TAT" indicates the actual measured temperature under 25℃ working environmental.

3. "TPT" indicates the predicted temperature under product specification.

4. 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.

5. RTC battery avoid to put on heat position. Please do not exceed battery temperature specification.

6. Defect NO. : W150103QED01

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