EMB-BSW2

Thermal Image Analysis Report

Summary	☐ **Pass** ☐ **Fail** ☑ **Pass with Deviation** **Comment:** There are 2 temperature points marginal passed but function are stable.

Test Result Summary				
	Critical	Major	Minor	Enhancement
Defect Found	0	0	0	2
Defect Unsolved	0	0	0	2

Issue date	QE Manager	Test Engineer
2017 / 12 / 13	KJ Wang	Jerry Chen

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Sample Configuration & Quantity Under Test

- **Model name : EMB-BSW2**
- **M/B Name : EMB-BSW2 / Rev. 1.01**
- **CPU : Intel Pentium N3710 / 1.60GHz**
- **BIOS : R1.0 (EBW2AM10) (11/20/2017)**
- **Chipset: Intel Braswell**
- **Memory：Innodisk DDR3L 1600 8GB x 1 / Memory chipset: SEC K4B4G0846D**
- **2.5” SATA HDD: HGST 500GB / HTS725050A7E630**
- **Test Software：Windows 10 / Run PassMark Burn In Test 8.1 Pro**
- **Power Supply: Zippy / HG2-6400P / 400W (MAX)**
- **Heat Sink:**

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Thermal Image Analysis

1. Test Date: 2017-12-11

2. Test Product: EMB-BSW2

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: 12/20/2016
Due date of Calibration: 12/19/2017
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: 11/23/2017
Due date of Calibration: 11/22/2018
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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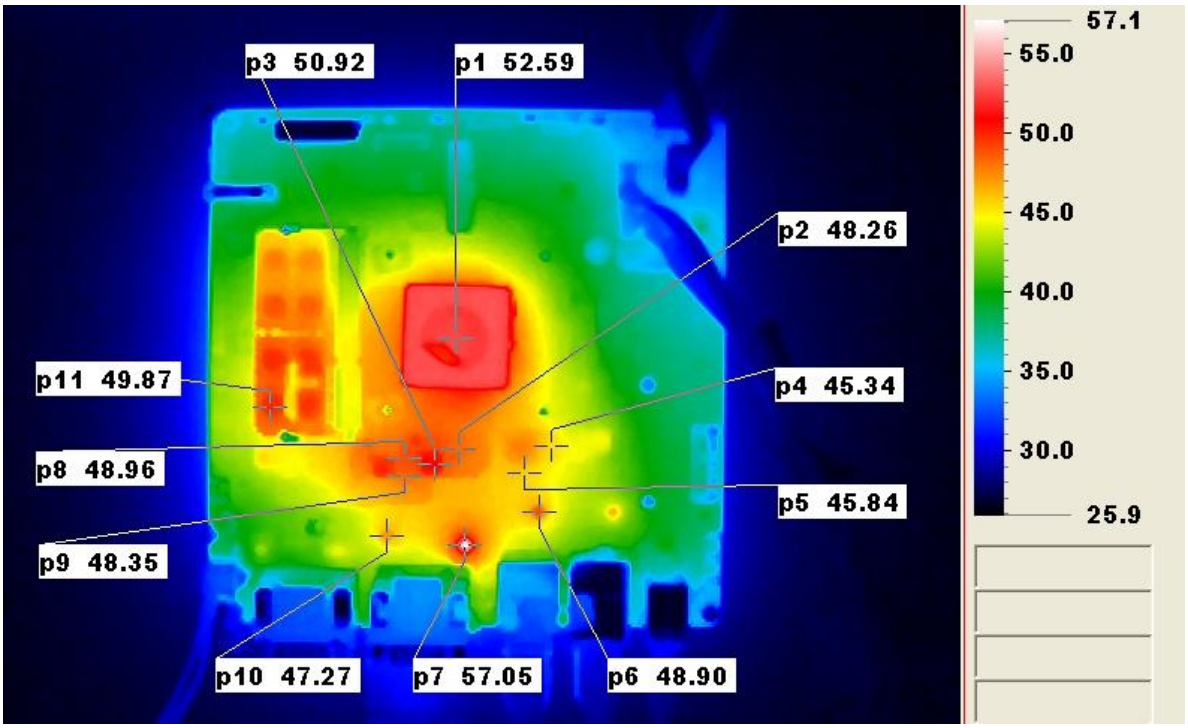
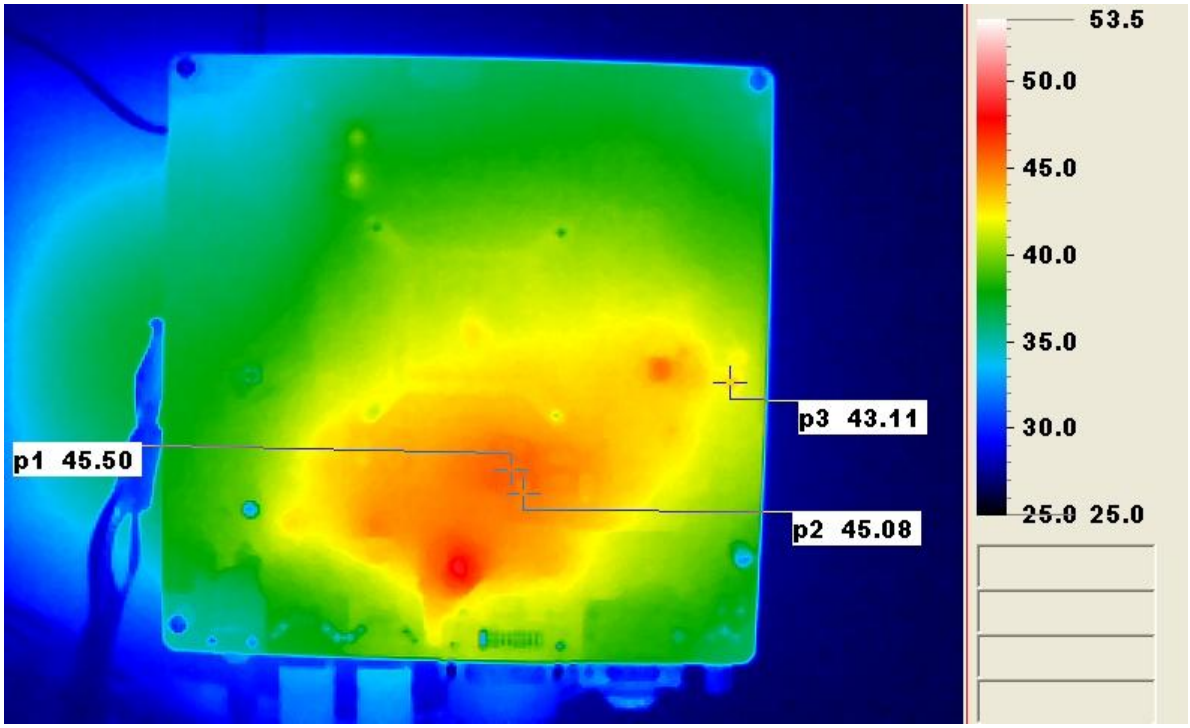
Temperature Profile Test:

Front Side:



Rear Side:



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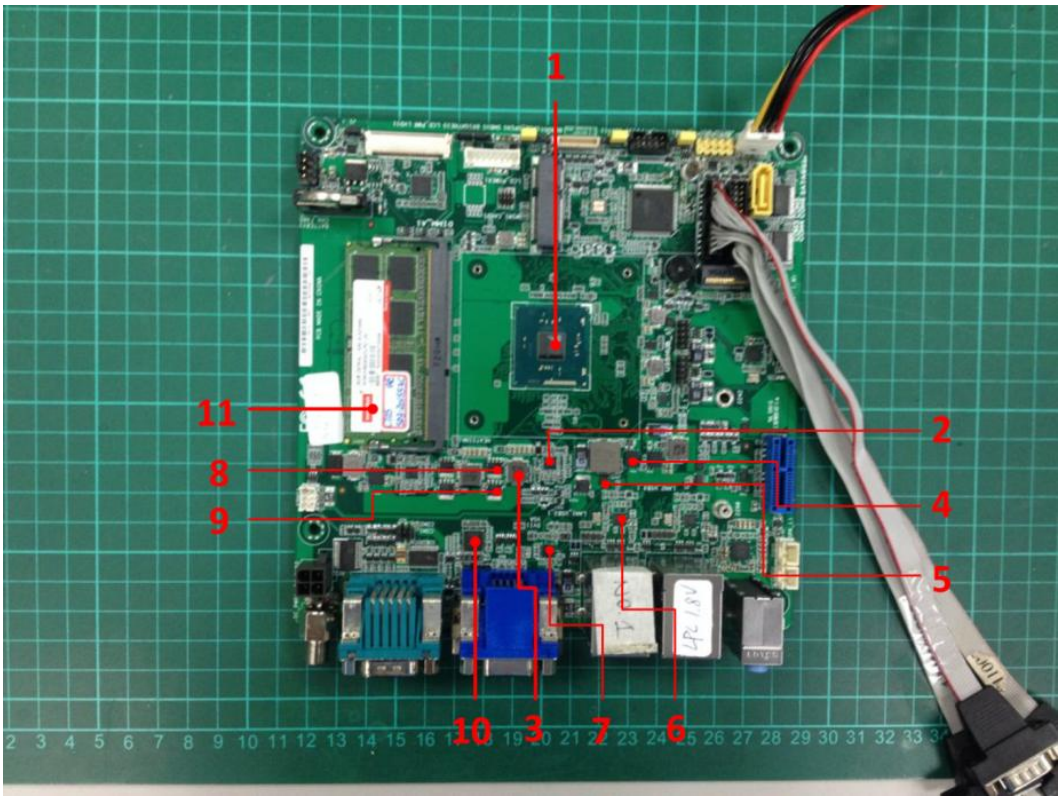
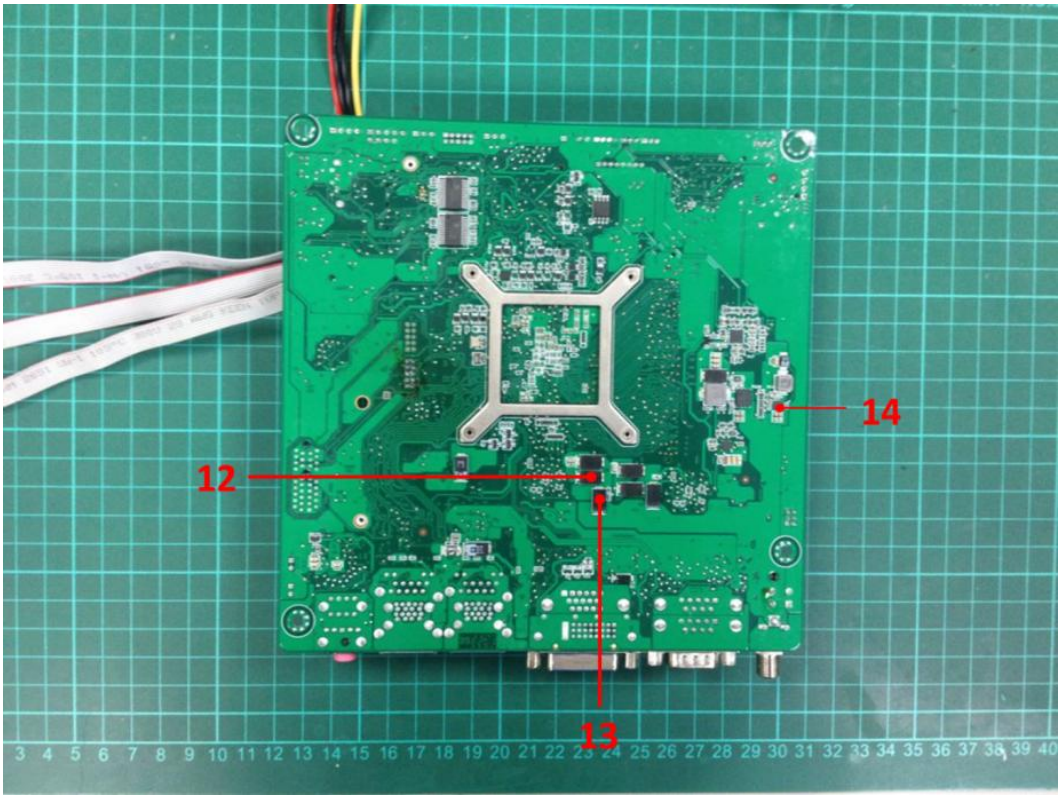
Terminal Recorder:

Measuring Thermal Couple Position：

Front Side:



Rear Side:



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Using YOKOGAWA Inc / DA100-13-1D test

Point	Position	Describe	Tc (*1) (℃)	TAT(*2)	TPT(*3)	Note
				25℃	50℃	
1	U1	Intel Pentium N3710 / 1.60GHz	90	67.1	92.1	Note 4
2	PU9	PWM CONTROLLER RT8161BGQW	125	54.2	79.2	
3	PL10	INDUCTOR 0.36UH/24A 20	125	57.6	82.6	
4	PQ1	DUAL N-MOSFET EMB06K03HP	125	49.6	74.6	
5	Q19	N-MOSFET QM0930M3	125	49.8	74.8	
6	LAN1	C.S RTL8111G-CG QFN-32	100	51	76	
7	GVU1	BRIDGE IT6516BFN/BX-0062	100	60.6	85.6	
8	PQ24	N-MOSFET PH4030DLVX SOT669	150	54.7	79.7	
9	PQ23	N-MOSFET PH4030DLVX SOT669	150	51.6	76.6	
10	DU1	C.S ASM1442K (A1) QFN-48	85	51.5	76.5	Note 4
11	Memory	Memory chipset	95	52.4	77.4	
12	PCE10	CAP PL 15UF/25V (7343/D) 20%	105	54.4	79.4	
13	PCE11	PL EL 470UF/2V (7343/D) 20%	105	52.6	77.6	
14	PU4	DOWN CONVERTER NB671GQ-Z	125	47.7	72.7	
15	Air	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. : BUL1703LABD01

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