EMB-H61A

A0.1

Thermal Image Analysis Report

Summary	☐ **Pass** ☐ **Fail** ☑ **Pass with Deviation** **Comment: Temperature at 1 component were estimated to be in marginal temperature point in comparion with component datasheets.**

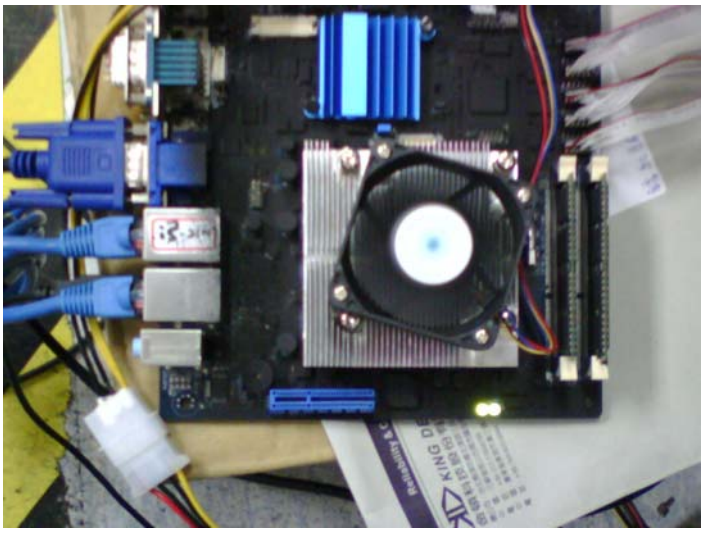
Test Result Summary

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

Issue date	Approval	Test Engineer
2012 / 06 / 07	Vincent Chen	Clement Chien

Sample Configuration & Quantity Under Test

- **Model name :** EMB-H61A
- **CPU :** Intel i5-2390T / 2.70GHz
- **Chipset :** Intel H61
- **Memory :** Transcend DDR3 1333 8GB Micro IVD22 D9PBC X2
- **SATA HDD :** HITACHI Z5K320 160GB
- **BIOS :** EMB-H61A R0.5
- **Test Software :** Windows 7 / Run PassMark Burn In Test 7.0 Pro
- **Power :** AT Power
- **Heat Sink:**



Thermal Image Analysis

1. Test Date: 2012-04-25

2. Test Product: EMB-H61A

3. Test Site: AAEON Internal Lab.

4. Temperature Measurement:

4.1. 40 Channel Thermal Recorder:

4.1.1 YOKOGAWA Inc,

4.2.2 Model: DA100-13-1D

Date of Calibration: 2011/10/12

Serial Number: 12A323190

4.2. IR Scanner: Infrared Camera

4.2.1 NIPPON AVIONICS CO., LTD.

4.2.2 Model: TVS-100

Date of Calibration: 2011/07/11

Serial Number: 0179L2746

5. Test Condition:

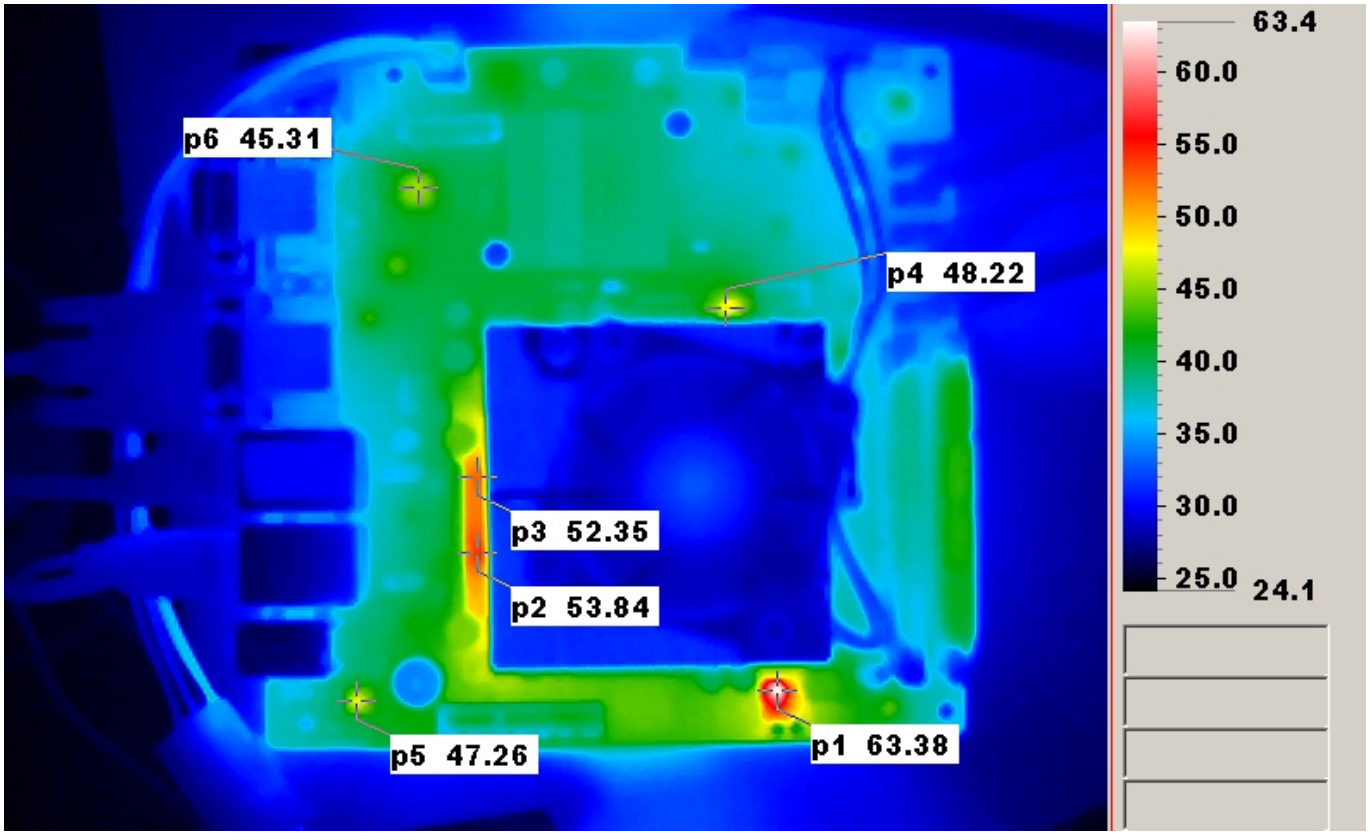
Component Side-1 (Test by DA-100): 25.0℃ With Heat Sink

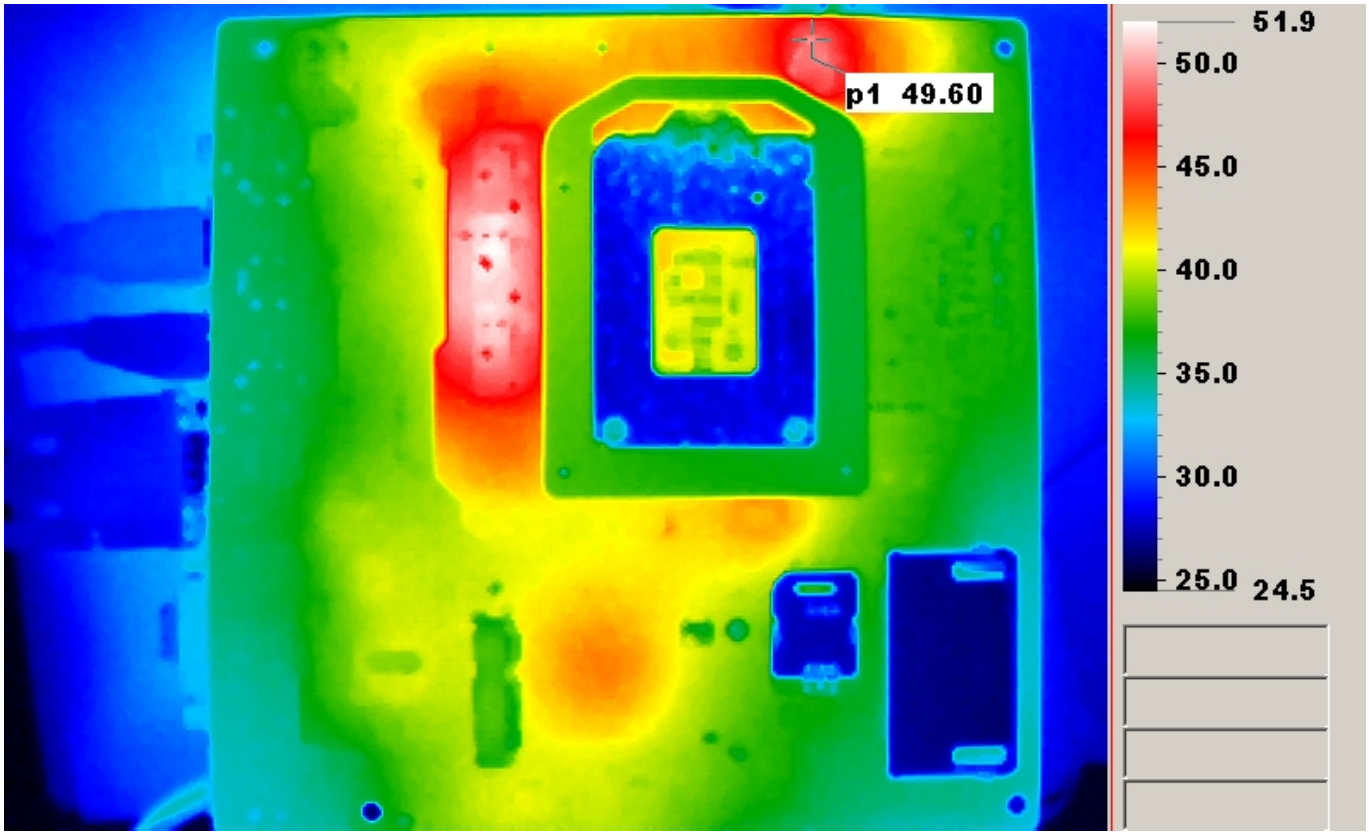
6. Take Picture Time:

After power on 2 hours

Temperature Profile Test:

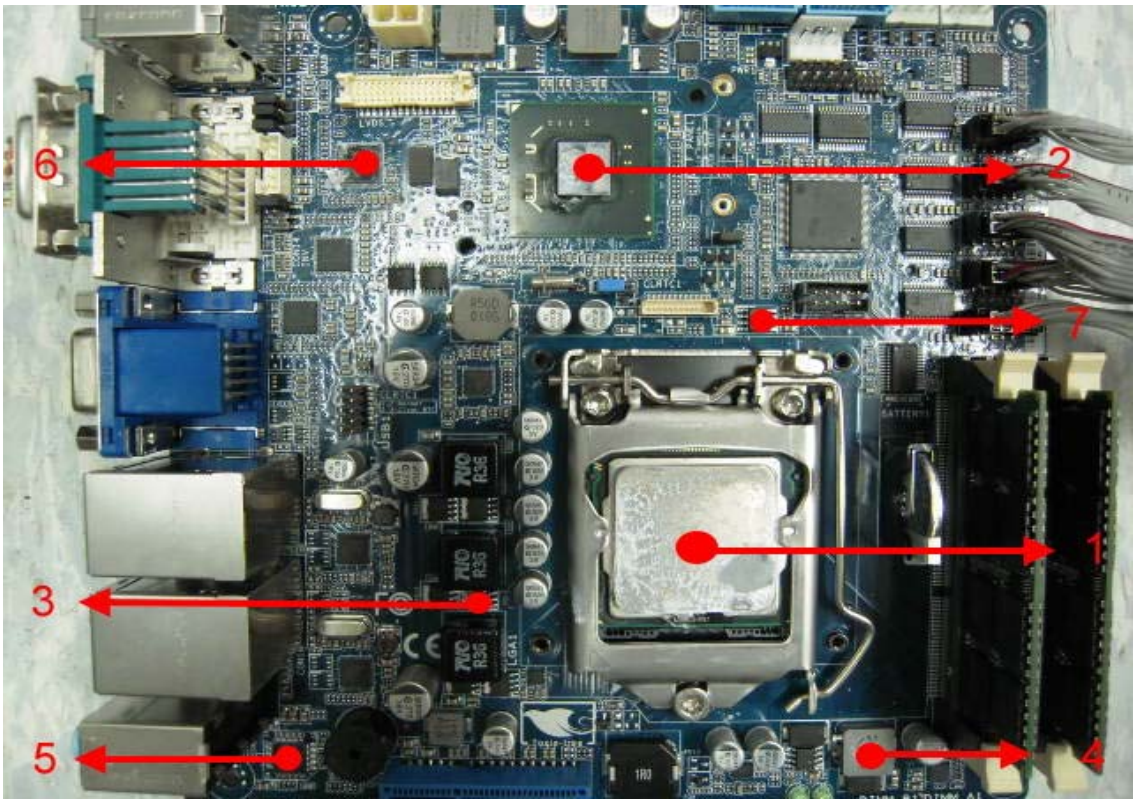
Component Side:

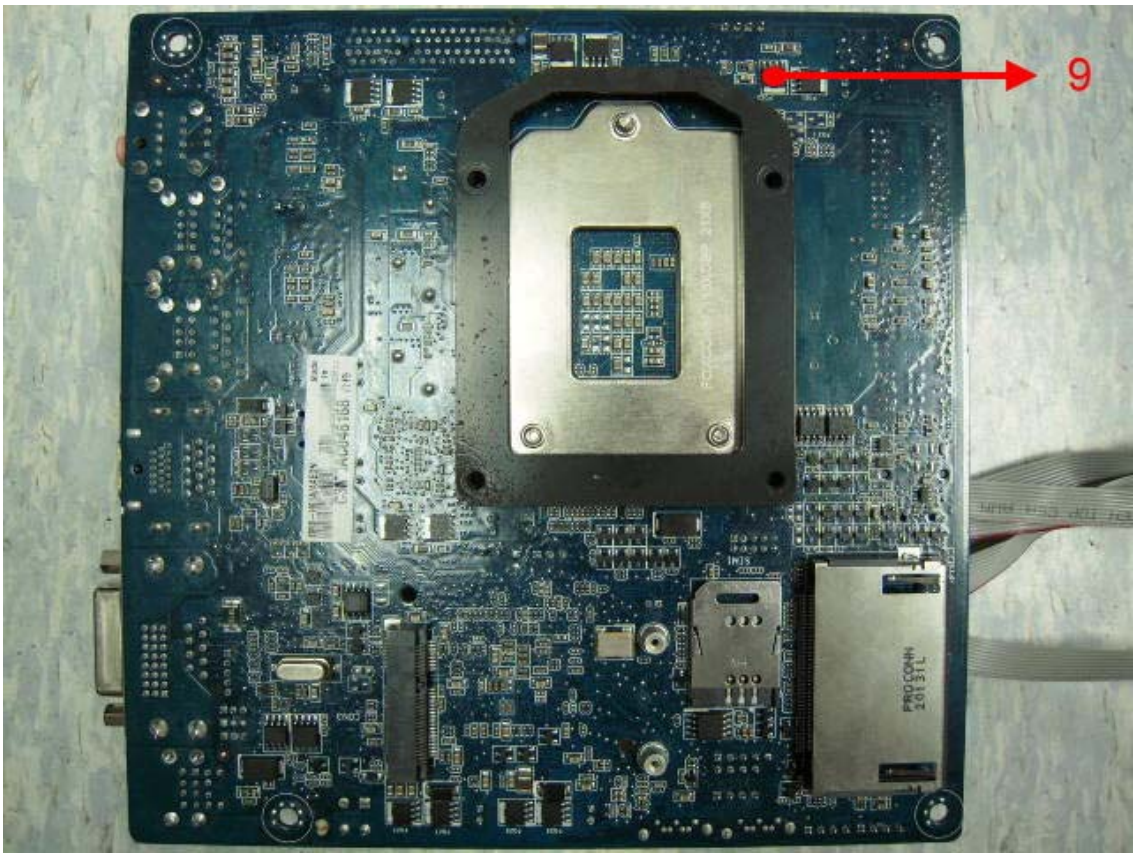




Terminal Recorder:

Measuring Thermal Couple Position：





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

Point	Position	Describe	Tc (*1) (℃)	Tm (*2) Measured Under		Note
				25℃	55℃	
1	CPU	Intel i5-2390T / 2.70GHz	65	36.4	66.4	
2	U35	(TF)IC.SMD.Platform Controller Hub.INTEL.BD82H61.SLJ4B	125	44.2	79.2	
3	PQ11	(TF)PWR.N-MOSFET.NXP.PH7030AL	120	53.4	88.4	
4	PL9	(TF)COIL.1uH.CYNTEC.PCMB104T-1R0MT	125	41.6	76.6	
5	U9	(TF) Audio Codec. output.SMD.Realtek.ALC887-VD2-CG	100.5	41.8	76.8	
6	U22	(TF)DisplayPort to LVDS Converter.Chrontel.CH7511B-BF	100	44.8	79.8	
7	U45	(TF)Low Dropout.Linear Regulator.APEC.APE8955MP	100	46.8	81.8	
8	Memory	Transcend DDR3 1333 8GB Micro IVD22 D9PBC	85	39.3	74.3	
09	PQ22	(TF)PWR.N-MOSFET.NXP.PH7030AL	120	45.5	80.5	

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.