UCOM-BT

Report No: 15E080008

Thermal Image Analysis Report

Summary	☐ **Pass** ☐ **Fail** ☑ **Pass with Deviation** **Comment: 1.<u>There are six component temperature was estimated to be in marginal temperature point in comparison with component datasheet.</u>** **2. <u>There are 13 component in the absence of Tc and Tj specification, So we are unable to determine.</u>**

Test Result Summary				
	Critical	Major	Minor	Enhancement
Defect Found	0	0	0	19
Defect Unsolved	0	0	0	19

Issue date	Approval	Test Engineer
2015 / 05 / 04	KJ Wang	Jerry Chen

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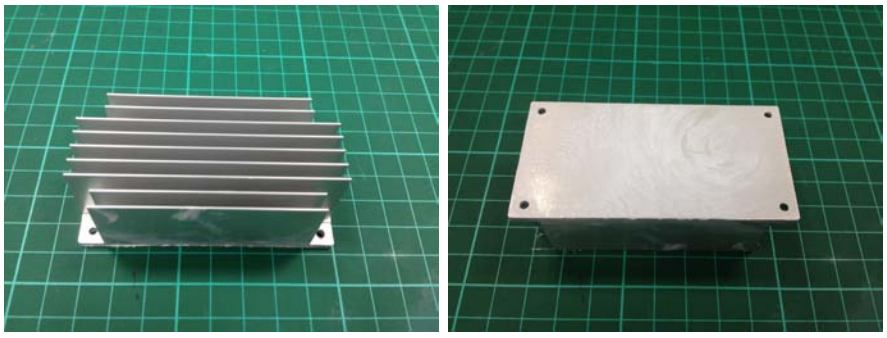
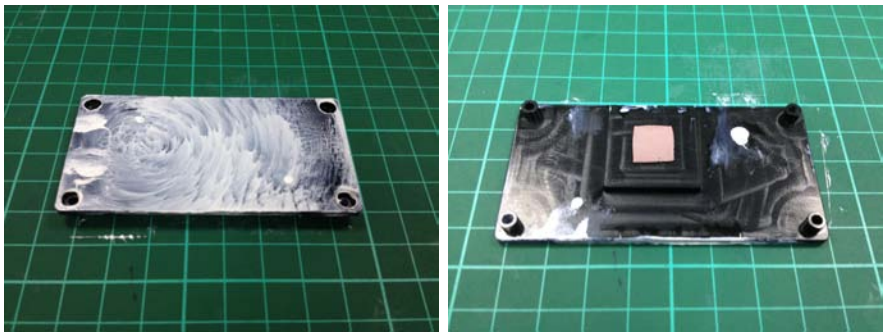
Sample Configuration & Quantity Under Test

- **Model Name : UCOM-BT Ver. A1.0**
- **Carrier Board: ECB-960 Ver. A0.1**
- **BIOS : UCOM-BT R0.B(UCBTAM0B) (02/24/2015)**
- **CPU : Intel Atom E3845 1.91GHz**
- **Memory : On board DDR3L-SDRAM.256Mx16(bit).1600MHz .Samsung.K4B4G1646D**
- **eMMC : On board eMMC SSD 16G.**
- **Test Software : Windows 8 / Run PassMark Burn In Test 8.0 Pro**
- **AT Power：Zippy / HG2-6400P**
- **Heat sink/spreader :**

Heat sink(P/N: M16UCBT010)



Heat-Spreader (P/N: M16UCBT000)



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Thermal Image Analysis

1. Test Date: 2015-04-30

2. Test Product: UCOM-BT

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: 2014/12/19

Serial Number: 1051444

5. Test Condition:

Test by DA-100: 25℃ With Heat Sink

6. Take Picture Time:

After power on 2 hours

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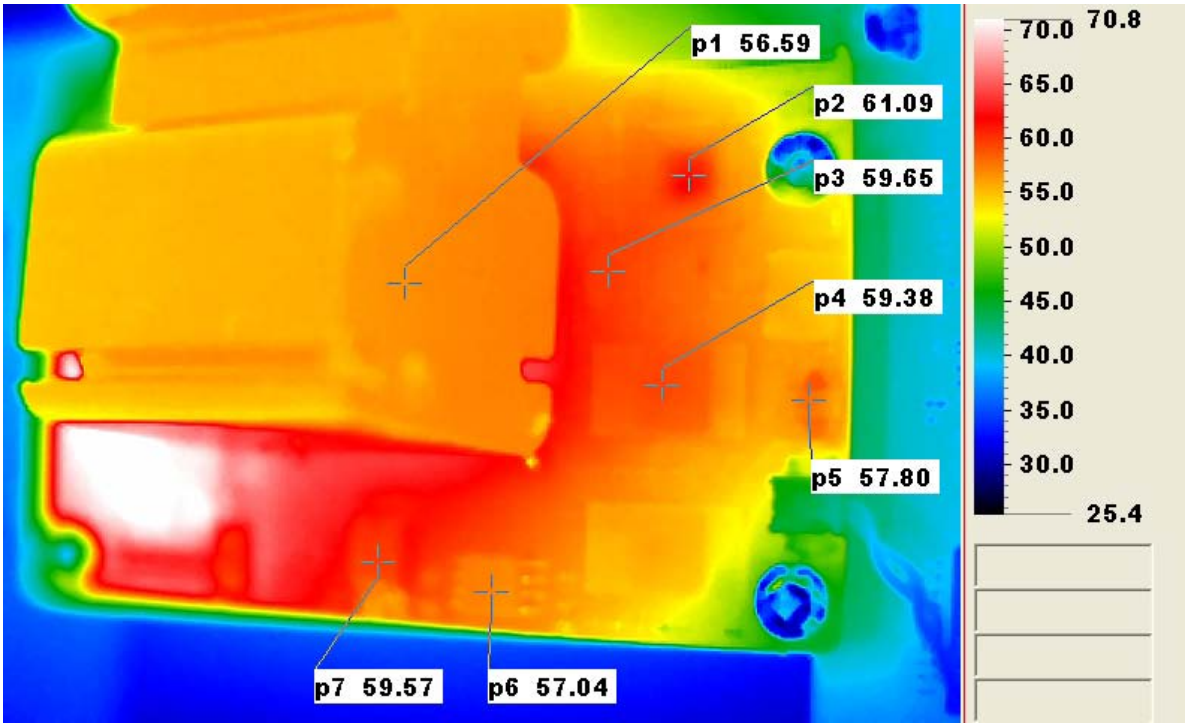
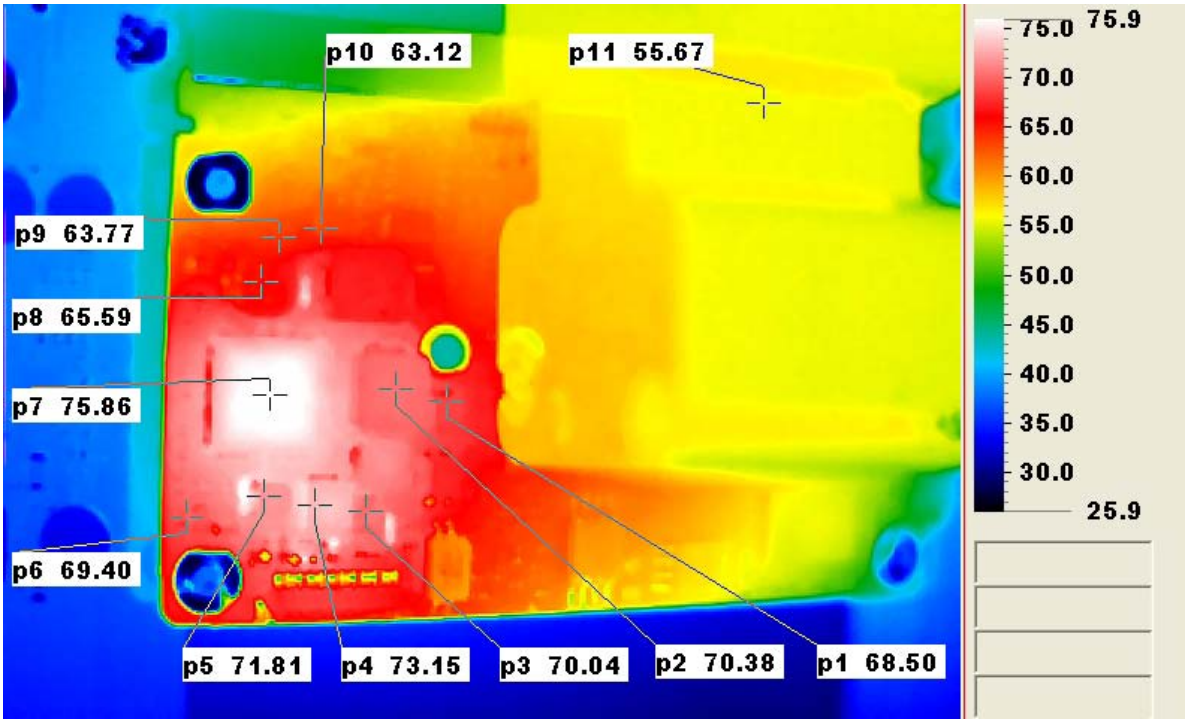
Temperature Profile Test:

Front Side:





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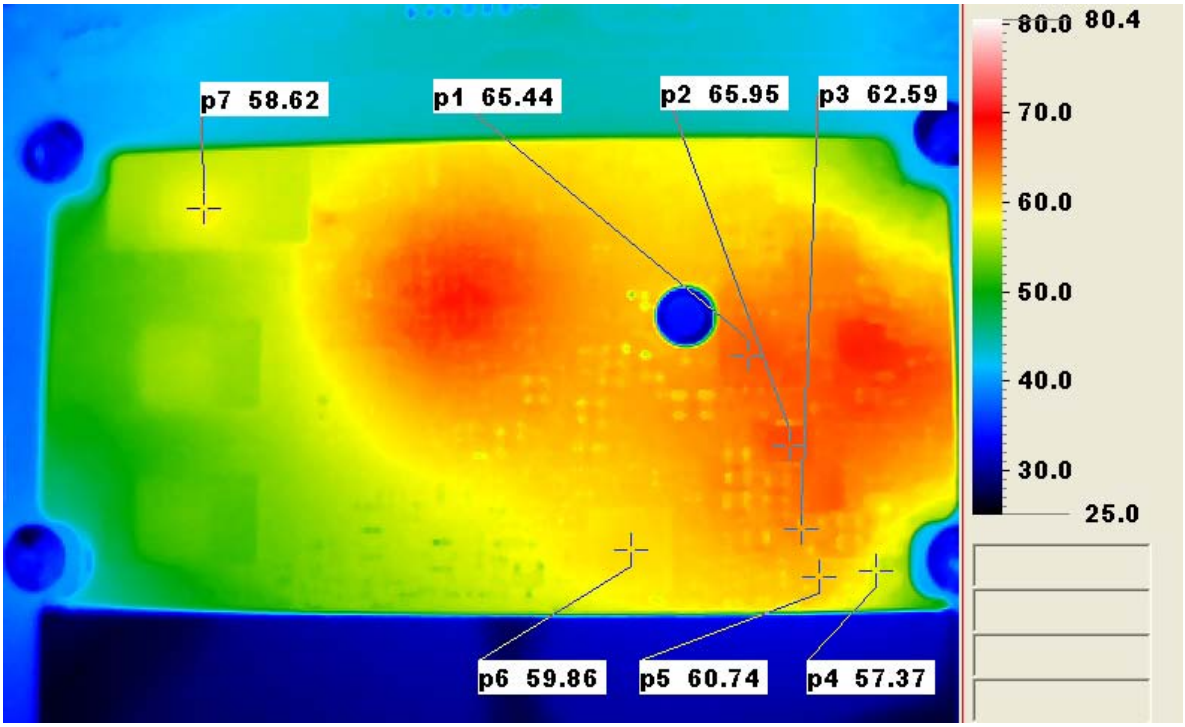
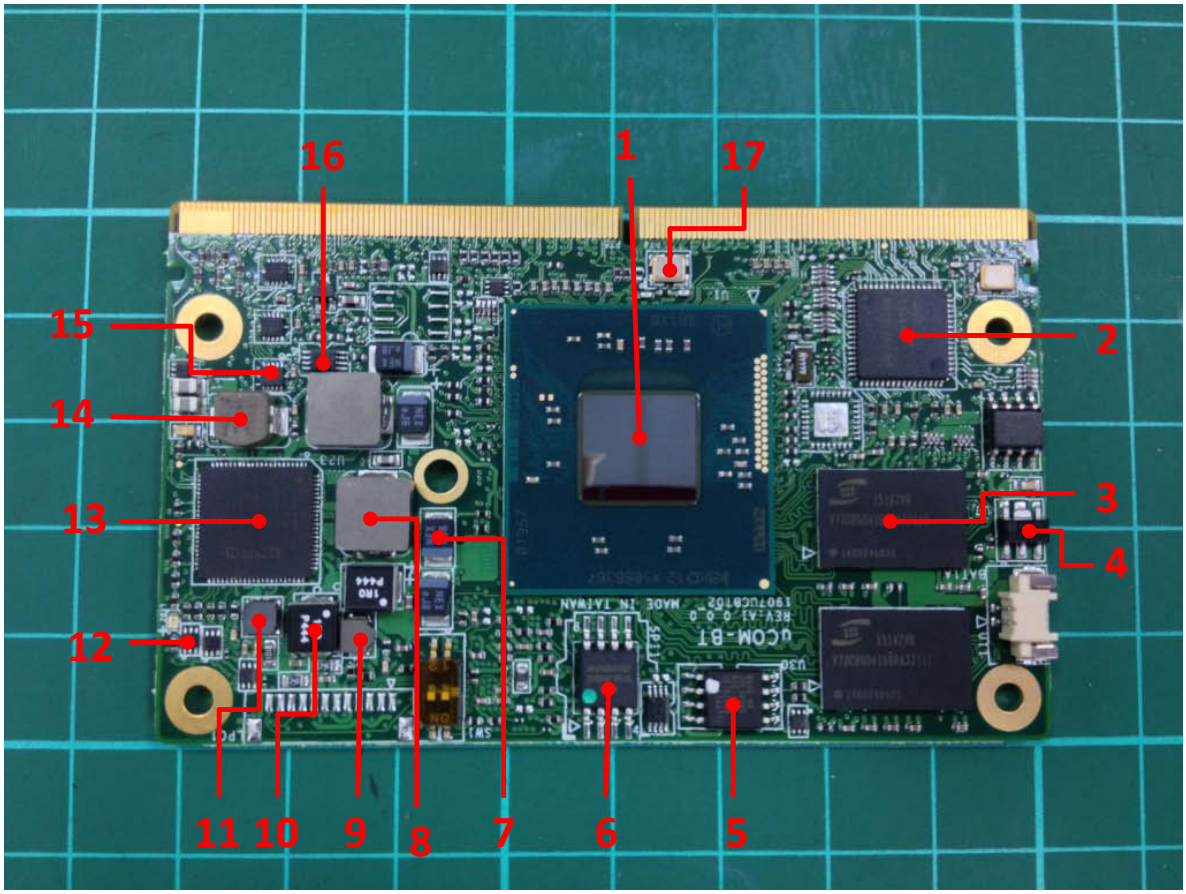
Rear Side:



Terminal Recorder:

Measuring Thermal Couple Position：



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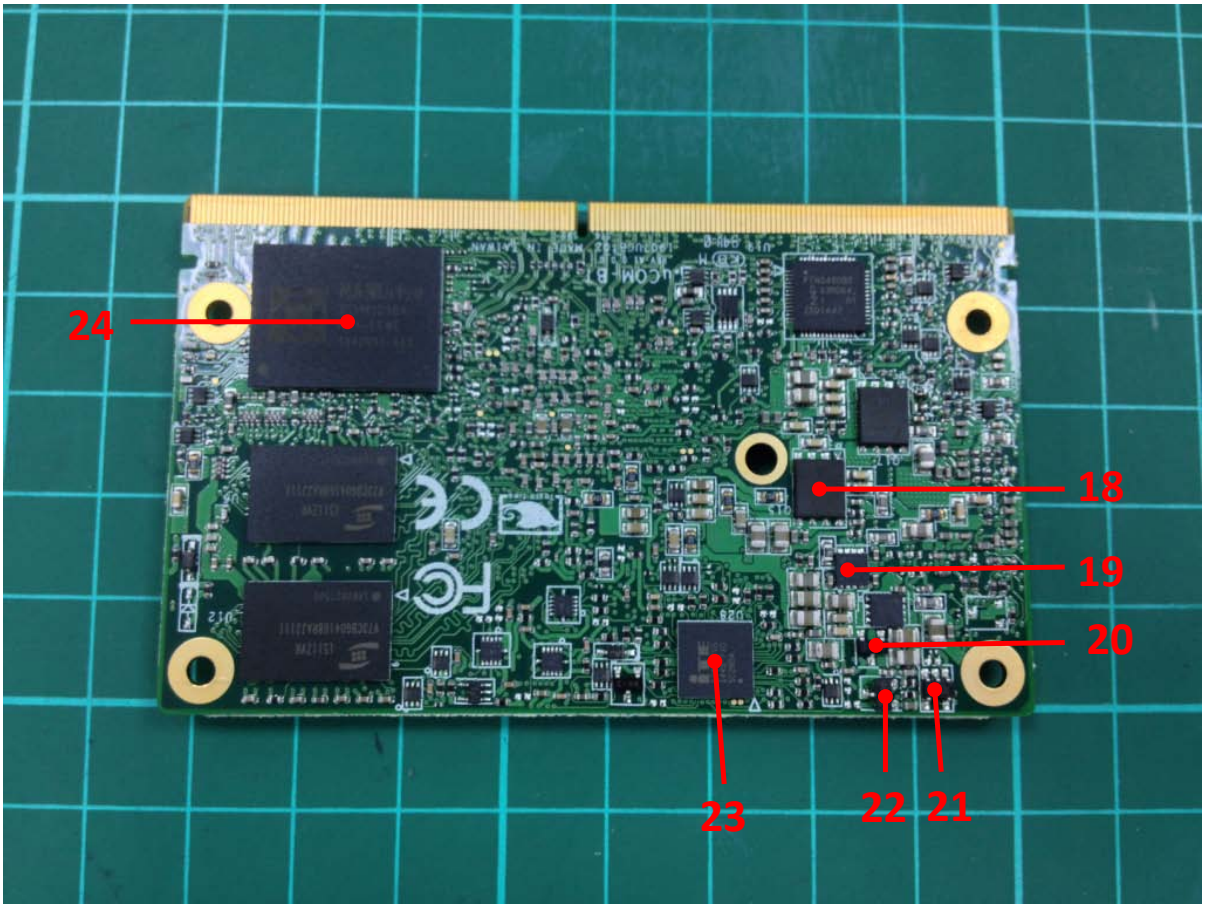

Using YOKOGAWA / DARWIN DA100-100-13-1D test

Point	Position	Describe	Tc (*1) (℃)	Tm (*2) Measured Under		Note
				25℃	60℃	
1	U1	CPU - Intel Atom E3845 1.91GHz	110	78.4	113.4	Note 3
2	U22	IC.PCI-E GigaBit Ethernet Chipset.QFN 64P.SMD.Intel.WGI211AT	105	61.8	96.8	Note 3
3	U7	DDR3L-SDRAM.256Mx16.1600MHz .Samsung.K4B4G1646D-BYK0	95	64.4	99.4	Note 3
4	U33	IC.LDO.1A.SOT89-5.YOBON.YT9110HGF-ADJ	100	58.6	93.6	Note 3
5	U30	SPI Flash.SO8.MXIC.MX25L1606EM2I-12G	N/A	63.9	98.9	Note 4
6	SPI1	IC.64 Mbit SPI Flash.SOIC-8P 208mil.Winbond.W25Q64FVSSIG	N/A	66.4	101.4	Note 4
7	TC1	CAP.220uF.2.5V.15mohm.NEC-TOKIN.TEPSLB20E227M(15)8R	N/A	71.5	106.5	Note 4
8	L4	COIL.0.33uH.DCR=3mohm.Idc.HDTPower.MPC-7066CZ-R33-M	N/A	69.8	104.8	Note 4
9	L2	COIL.3.3uH.DCR=183mohm.IDC=1.5A.TDK.SPM3012T-3R3M	N/A	70.9	105.9	Note 4
10	L6	COIL.1.0uH.DCR=17mohm.Sumida.0420CDMCBDS-1R0MC	N/A	69.8	104.8	Note 4

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11	L3	**COIL.6.8uH.DCR=0.216ohm.IDC=0.92A.TDK.VLS3015ET-6R8M**	N/A	68.5	103.5	Note 4
12	Q5	**PWR.Dual N-Channel MOSFET.EMT6.ROHM.EM6K1GT2R**	N/A	59.1	94.1	Note 4
13	U23	**IC.PMIC.for Intel Valleyview.UQFN.88P.ROHM.BD9596MWV**	125	77.7	112.7	
14	L1	**COIL.3.3uH.DCR=58mohm.NEC/TOKIN.MPLCG0530L3R3**	N/A	64.3	99.3	Note 4
15	U24	**IC.4 Bit Voltage-Level Translator.QFN 12P.NXP.NTS0104GU12**	N/A	64.7	99.7	Note 4
16	U25	**IC.VSSOP 8P.TI.PCA9306DCUR**	N/A	66	101	Note 4
17	Y1	**X'TAL.25MHz.20PF.4P.ARGO.AGX-25.000M-20-S3225-E-TR**	N/A	64.1	99.1	Note 4
18	Q15	**PWR.DUAL.N-MOSFET.PQFN8.FAIRCHILD.FDMS3664S**	125	74.6	109.6	
19	Q14	**PWR.PMPAK3X3 DUAL N-MOSFET.FAIRCHILD.FDMC7200S**	125	71.6	106.6	
20	D6	**D Schottky. SOT-23.PHILIPS.BAT54C**	100	65.7	100.7	Note 3
21	U5	**LDO Regulator.500mA.SOT23-5 5P.UPI.UP0107BMA5-00**	125	58.6	93.6	
22	U29	**REG.SOT-23 3P.CMOS LDO Regulator.AME.AME8800AEETZ**	100	60.8	95.8	Note 3
23	U28	**IC.Embedded Controller.VFBGA 128P.ITE.IT8528VG/FX**	N/A	67.2	102.2	Note 4
24	U36	**eMMC SSD 16G.Greenliant.GLS85VM1016A-M-I-LFWE-ND202**	111.78	64.4	99.4	
25	**N/A**	**Air Temperature**	N/A	25	60	

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. C140703QED01

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