COM-CV

Thermal Image Analysis Report

Summary	☐ **Pass** ☐ **Fail** ☑ **Pass with Deviation** **Comment: 1. There is one temperature point (U41) cannot meet the spec requirement, and seven temperature points were noted marginal pass while under the temperature rise test.** **2. However U41 can be marginal passed while under the chamber test with air flow condition (0.5m/sec).** **3. Customer application is suggested to adopt the air flow solution in which needs to be amended on the product user manual.** **4. All of the founded items will need PM/RD's further enhancement for the future generation.**

Test Result Summary

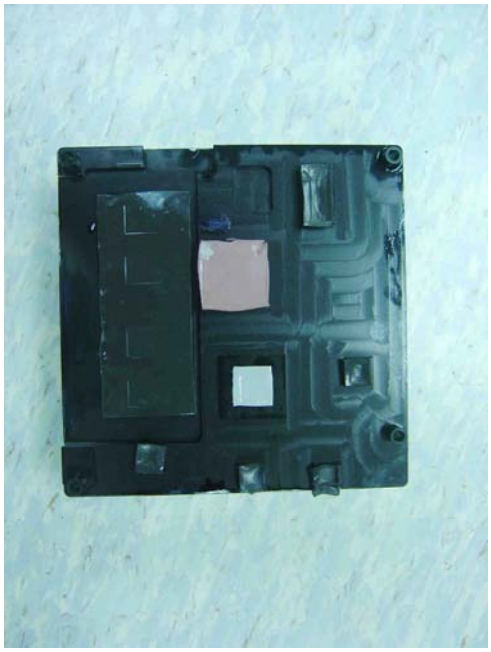
	Critical	Major	Minor	Enhancement
Defect Found	0	0	0	8
Defect Unsolved	0	0	0	8

Issue date	Approval	Test Engineer
2012 / 06 / 04	Vincent Chen	Rex Chang

AAEON Technology Inc.
5F, No.135, Lane 235, Pao Chiao Rd.,
Hsin-Tien City, Taipei, Taiwan, R.O.C.
TEL: +886-2-8919-1234
FAX: +886-2-8919-1053

Sample Configuration & Quantity Under Test

- **Model name : COM-CV A1.0_0_0**
- **CPU Board : COM-CV A1.0_0_0**
- **Carrier Board : ECB-916M B1.1_0_0**
- **CPU : Onboard Intel Cedarview CPU N2600 / 1.6GHz**
- **Memory : Transcend DDR3 1333 2GB / SEC K4B2GO846D**
- **2.5“ SATA HDD : Seagate ST3160811AS / 160GB**
- **BIOS : COM-CV R1.1 (CMCVAM11_01) (04/19/2012)**
- **Test Software : Windows 7 / Run PassMark Burn In Test 7.0 Pro**
- **Power : ATX Power**
- **Heat Sink :**



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Thermal Image Analysis

1. Test Date: 2012-06-01

2. Test Product: COM-CV A1.0

3. Test Site: AAEON QE Dept.

4. Temperature Measurement:

4.1 Temperature Rise

4.1.1. 40 Channel Thermal Recorder:

YOKOGAWA Inc,

Model: DA100-13-1D

Date of Calibration: 2011/10/12

Serial Number: 12A323190

4.1.2 IR Scanner: Infrared Camera

NIPPON AVIONICS CO., LTD.

Model: TVS-100

Date of Calibration: 2011/07/11

Serial Number: 0179L2746

4. 2 With Air Flow 0.5m/sec Chamber

4.2.1. Programmable Temperature & Humidity Chamber

K.SON. INS. TECH. CORP.

Model: THS-D4H+-100

Date of Calibration: 2011/10/13

Serial Number: 2582

4.2.2 Thermal Meter

Model: OMRON ZR-RX25

Date of Calibration: 2012/02/29

Serial Number: H10250666

5. Test Condition:

Test by DA-100: 24.6℃ with Cooler

6. Take Picture Time:

After power on 2 hours

:

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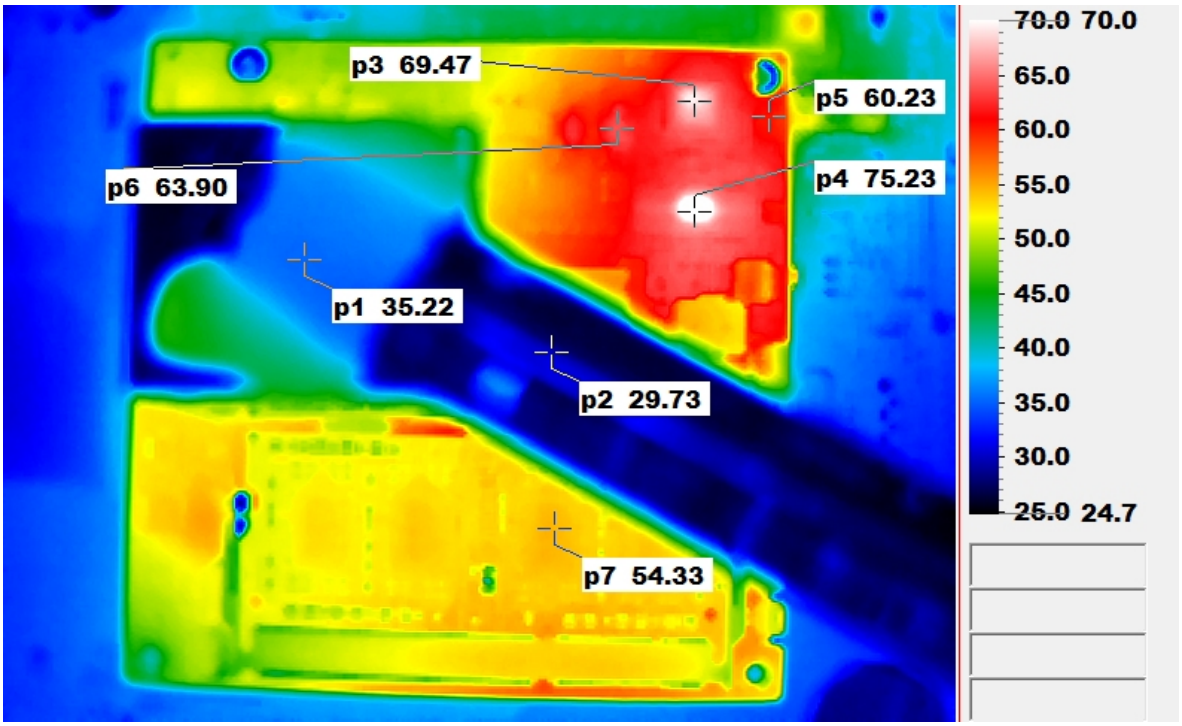
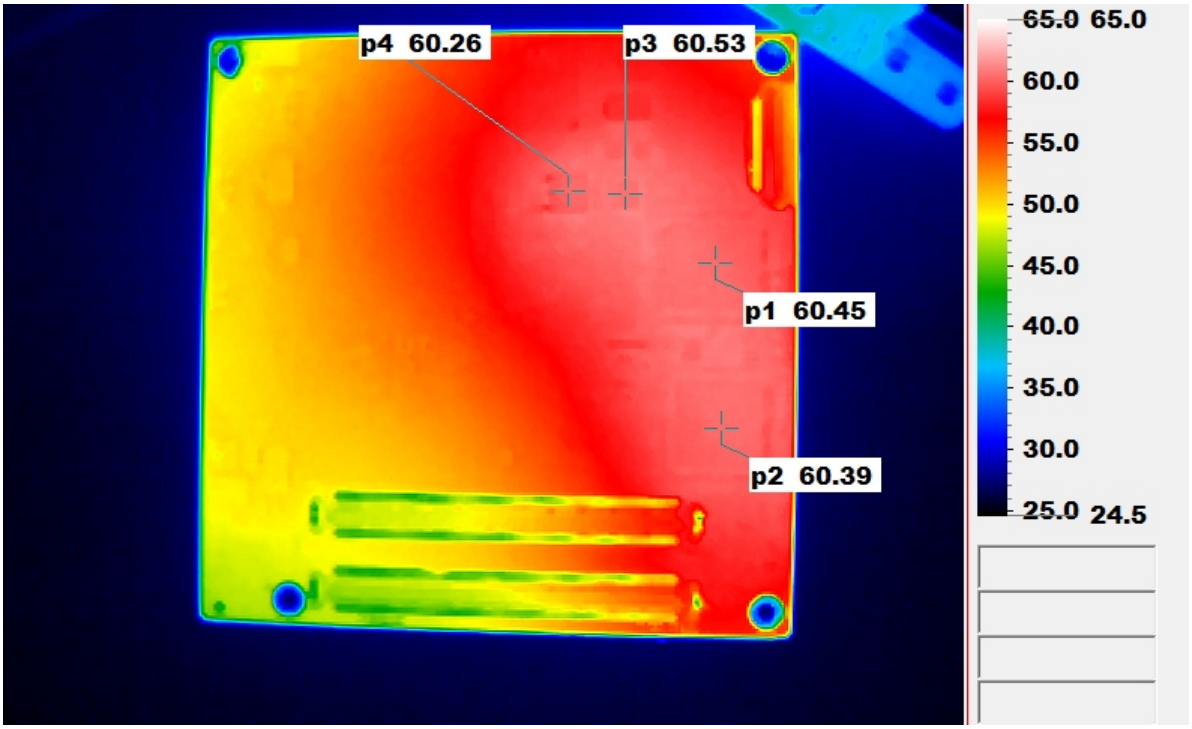
Temperature Profile Test:

Component Side:



Back Side:



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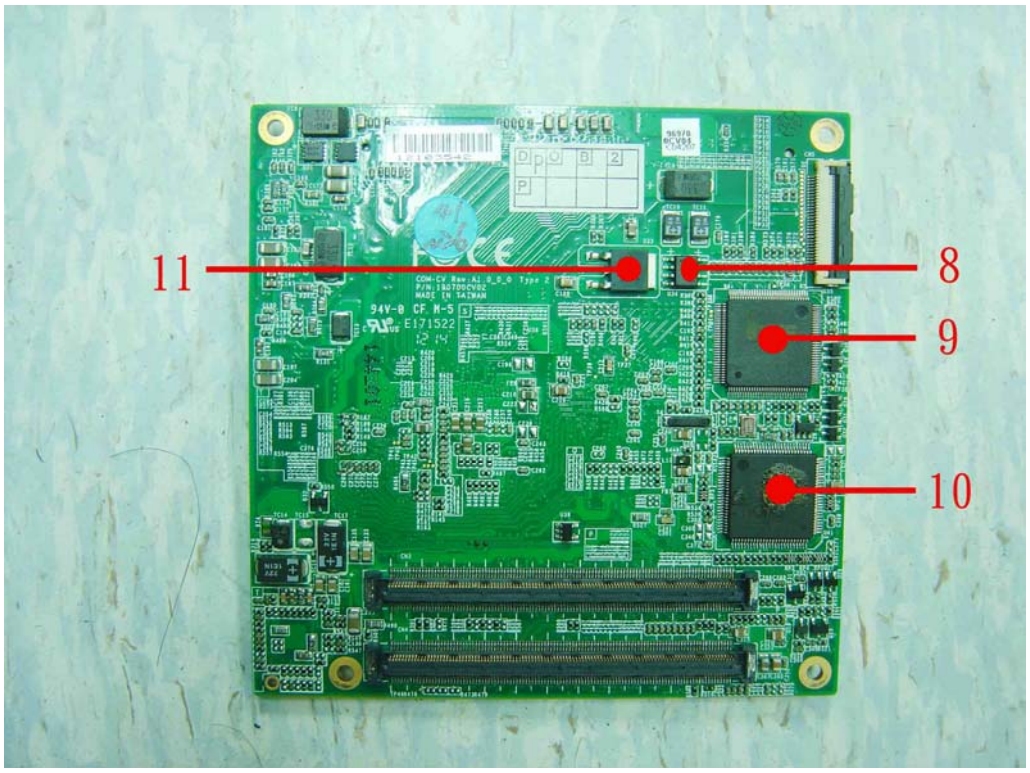
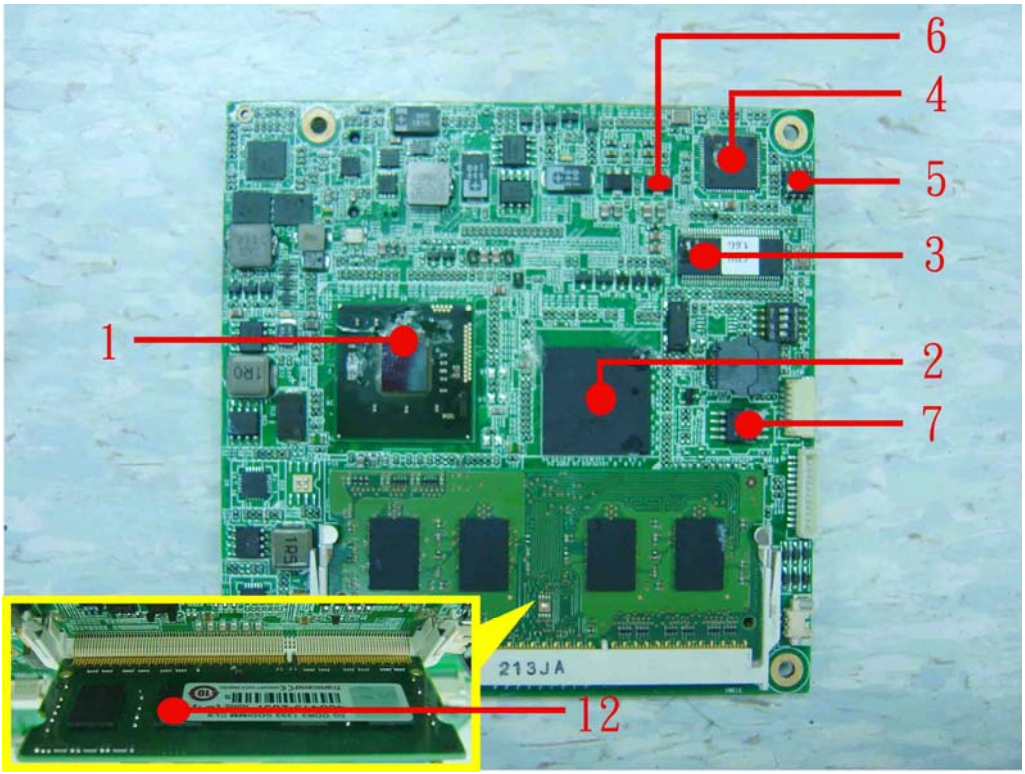
Terminal Recorder:

Measuring Thermal Couple Position：





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Temperature Rise Test:

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

Point	Position	Describe	Tc (*1) (℃)	Tm (*2) Measured Under		Note
				24.9℃	60℃	
1	U14	(TF)INTEL.Cedarview CPU.1.6GHz.N2600.	100	55.2	90.3	
2	U7	(TF)NM10 Express Chipset.INTEL.CG82NM10.SLGXX	115	50.7	85.8	
3	U20	(TF)CLOCK GENERATOR.IDT.9LPRS501PGLF	115	51.4	86.5	
4	U27	(TF)PCI-E GigaBit Ethernet Chipset.Intel.WG82583V	109	60.1	95.2	
5	U40	(TF)SPI Bus Serial EEPROM.ATMEL.AT25080B-SSHL-T	100	55.1	90.2	
6	Q24	(TF)SC-62 Low Frequency Transistor.ROHM.2SB1386T100R	125	61.1	96.2	
7	U12	(TF)16 Mbit SPI Flash.PCT.PCT25VF016B-75-4I-S2AF	100	58.2	93.3	
8	U35	(TF)Embedded Controller.ITE.IT8518E-L	100	57.0	92.1	
9	U41	(TF) PCI Express to SATA II/PATA.Host Controller. JMicron.JMB363-LGAZ0C	85	73.9	109.0	
10	U34	(TF)PWR. P-Channel MOSFET.ANPEC.APM4463KC-TRL	125	66.0	101.1	
11	U33	(TF)REG. Linear Regulator.Diodes.AP1084DG-13	109.2	78.0	113.1	
12	-	Memory chipset	95	56.1	94.1	

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.

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With Air Flow 0.5m/sec Chamber Test:

Using OMRON / ZR-RX25 test

Point	Position	Describe	Tc (*1) (℃)	Tm (*2) Measured Under		Note
				24.9℃	60℃	
1	U14	(TF)INTEL.Cedarview CPU.1.6GHz.N2600.	100	38.3	73.4	
2	U7	(TF)NM10 Express Chipset.INTEL.CG82NM10.SLGXX	115	32.3	67.4	
3	U20	(TF)CLOCK GENERATOR.IDT.9LPRS501PGLF	115	31.8	66.9	
4	U27	(TF)PCI-E GigaBit Ethernet Chipset.Intel.WG82583V	109	41.0	76.1	
5	U40	(TF)SPI Bus Serial EEPROM.ATMEL.AT25080B-SSHL-T	100	35.8	70.9	
6	Q24	(TF)SC-62 Low Frequency Transistor.ROHM.2SB1386T100R	125	42.1	77.7	
7	U12	(TF)16 Mbit SPI Flash.PCT.PCT25VF016B-75-4I-S2AF	100	35.6	70.7	
8	U35	(TF)Embedded Controller.ITE.IT8518E-L	100	36.3	71.4	
9	U41	(TF) PCI Express to SATA II/PATA.Host Controller. JMicron.JMB363-LGAZ0C	85	49.7	84.8	
10	U34	(TF)PWR. P-Channel MOSFET.ANPEC.APM4463KC-TRL	125	38.7	73.8	
11	U33	(TF)REG. Linear Regulator.Diodes.AP1084DG-13	109.2	47.5	82.6	
12	-	Memory chipset	95	36.2	71.3	

Note(*):

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