GENE-APL5

Thermal Image Analysis Report

Summary	☐ **Pass** ☐ **Fail** ☑ **Pass with Deviation** **Comment:, Temperature at 3 component was estimated to be in marginal temperature point in comparison with component datasheet.**

Test Result Summary				
	Critical	Major	Minor	Enhancement
Defect Found	0	0	0	3
Defect Unsolved	0	0	0	3

Issue date	QE Manager	Test Engineer
2016 / 12 /16	KJ Wang	Rex Chen/Juno Cheng

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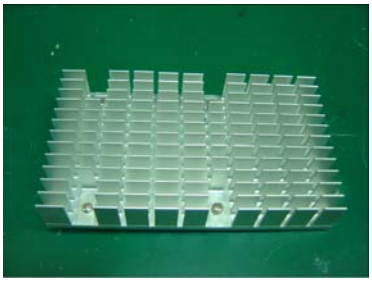
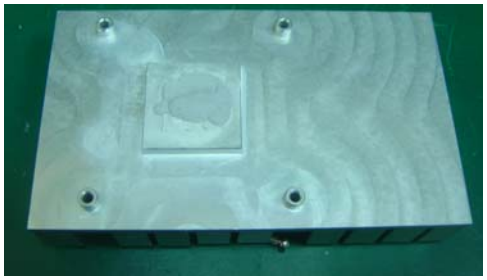
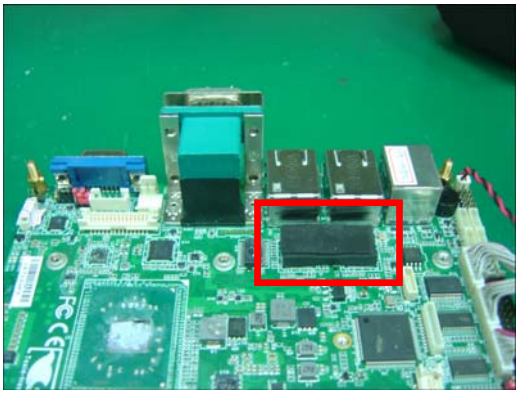
Sample Configuration & Quantity Under Test

- **Model name : GENE-APL5 Rev.1.0**
- **CPU : Intel ® Pentium ® CPU N4200 @1.10GHz**
- **Memory : Transcend DDR3L-1600 8GB(SEC 443 BYKO K4B4G0846B)**
- **2.5” HDD : TOSHIBA MQ01ACF050/ 500GB**
- **BIOS：GENE-APL5 R0.7 (GAP5AM07) (11/21/2016)**
- **Test Software : Windows 10 / Run Run BurnIn test 8.1**
- **AT Power：Zippy HG2-6400P**
- **Heat Sink and Thermal Pad :**







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Thermal Image Analysis

1. Test Date: 2016-12-15

2. Test Product: GENE-APL5

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: 2016/09/10

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: 2016/11/29

Serial Number: 1051444

5. Test Condition:

Test by DA-100: 23.0℃ with CPU Cooler

6. Take Picture Time:

After power on 2 hours

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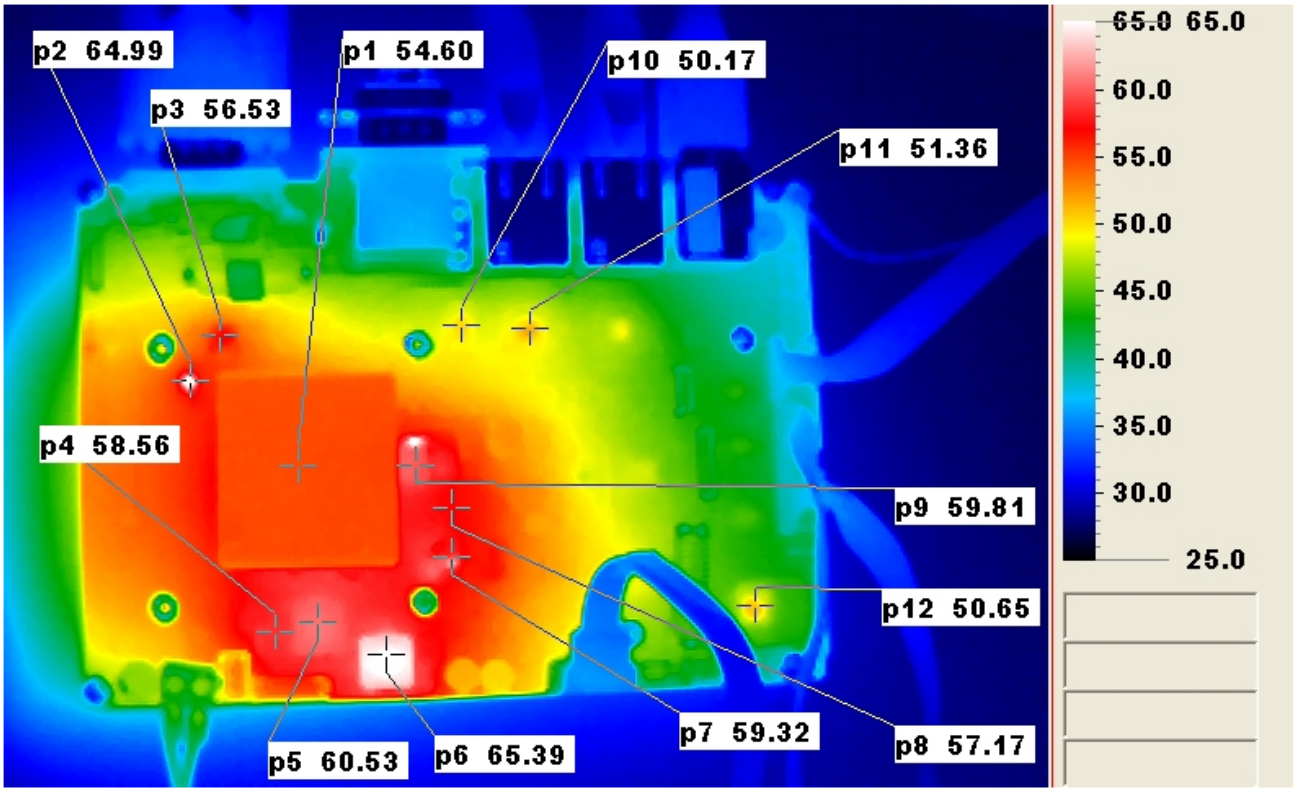
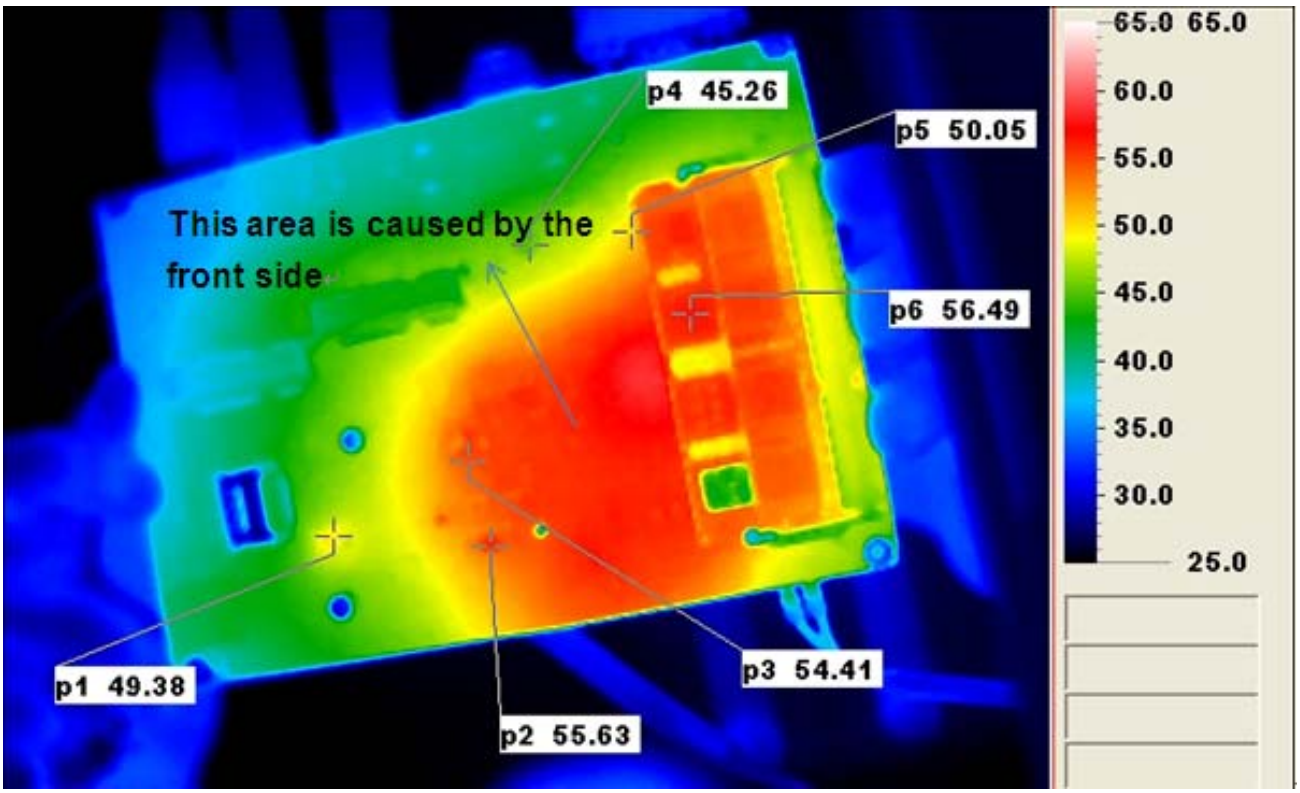
Temperature Profile Test:

Component Side:





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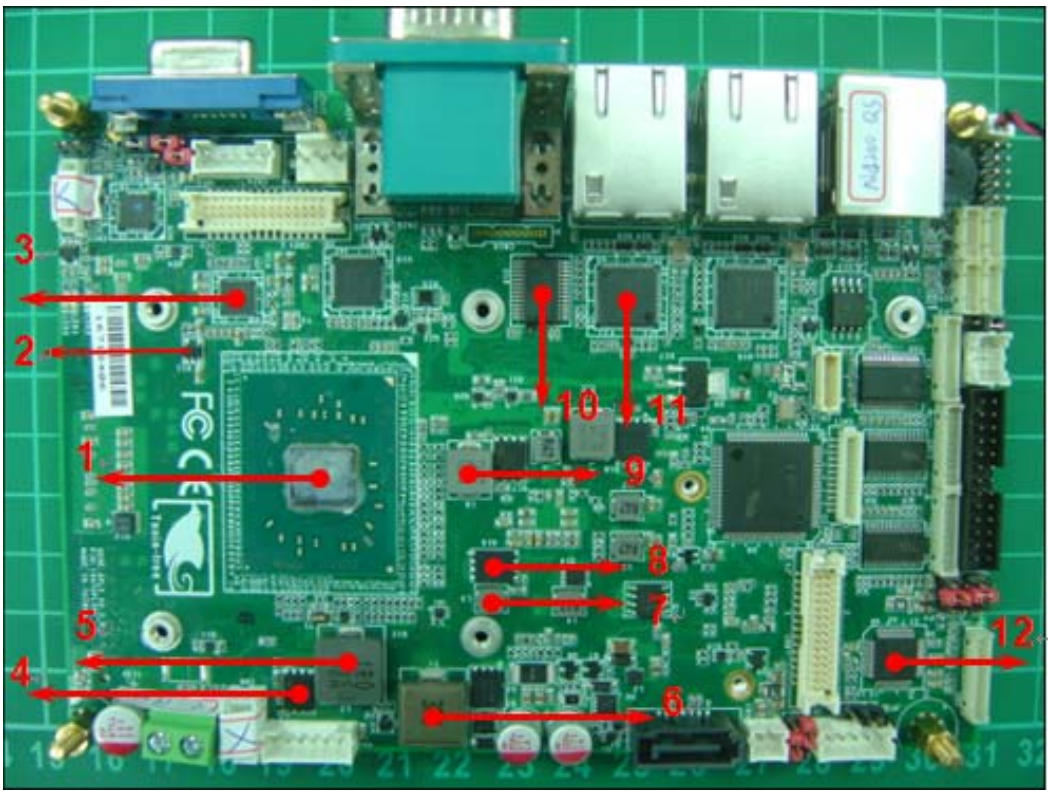
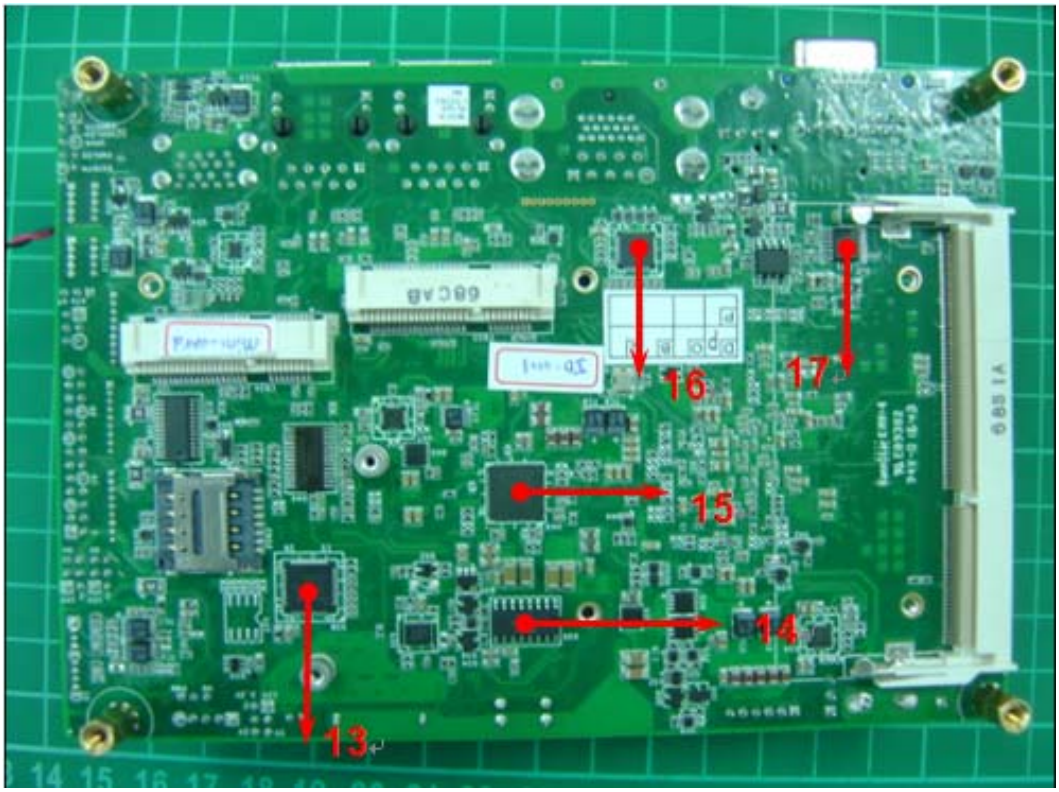
Terminal Recorder:

Measuring Thermal Couple Position：





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

Point	Position	Describe	Tc (*1) (℃)	TAT(*2)	TPT(*3)	Note
				25.0℃	60℃	
1	U7	Intel Apllo Lake N4200	105	51.9	86.9	
2	U11	IC.LDO.SMD.ANPEC.APL5325BI-TRG	105	63.1	98.1	Note 4
3	U14	IC.DisplayPort to VGA Converter.CH7517A-BF	105	56.9	91.1	
4	Q5	DualN-MOSFET. Power 56.SMD.FAIRCHILD.FDMS3660S	125	54.7	89.7	
5	L3	COIL.CYNTEC.PCME104T-1R0MS2R307	125	56.2	91.2	
6	L1	COIL..ZenithTek.ZPWM-1040MB-3R3M	125	59.0	94.0	
7	L5	Coil.SMD.GOTREND.GSTD4020PE-R47	125	56.3	91.3	
8	Q15	PWR.SMD.PMPAK5X6 DUAL FAIRCHILD.FDMS7620S	125	53.4	89.3	
9	L8	COIL.CYNTEC.PCMB063T-R22MS	125	55.2	90.2	
10	U18	IC.RS232 Driver/Receiver..SMD.TI.TRS213IDBR	125	49.2	84.2	
11	U17	IC.PCI-E GigaBit Ethernet Chipset.Intel.I211AT	85	49.1	84.1	Note 4
12	U2	IC.Audio Codec.LQFP REALTEK.ALC892-CG	100.5	46.5	81.5	
13	U38	IC.Display Port to LVDS Converter.QFN.NXP.PTN3460IBS/F2MP	98.6	45.8	80.8	
14	U36	IC. Control IC.SOIC 16P.SMD.MICREL.MIC2185YM	105	54.2	89.2	
15	U43	IC.PMIC.Intel Apollo Lake..TPS650942A0RSKR	105	54.1	89.1	
16	U52	IC.HDMI/DVI Level Shifter.NXP.PTN3366BSMP	105	46.7	81.7	
17	U55	IC.SMD.QSOP .CMD.CM2009-02QR	125	50.8	85.8	
18		DIMM	**95**	55.5	90.5	Note 4

Note(*):

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

2. "TAT" indicates the actual measured temperature under product specification.

3. "TPT" indicates the predicted temperature under 25℃ working environmental.

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. : E160405LABD02

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