GENE-APL7

Thermal Image Analysis Report

Test Cause
For ATRF No.QE170921 Request

Summary	☐ **Pass** ☐ **Fail** ☑ **Pass with Deviation** **Comment:** There is one temperature point marginal passed, the system works properly.,

Test Result Summary

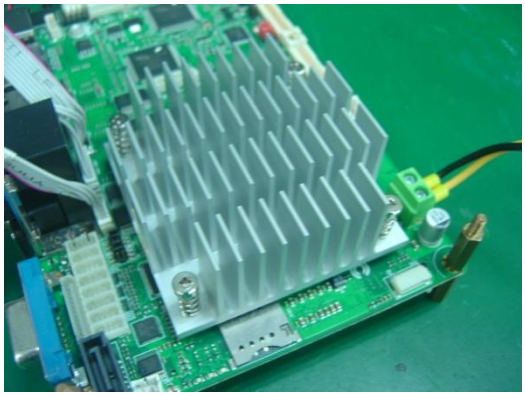
	Critical	Major	Minor	Enhancement
Defect Found	0	0	0	1
Defect Unsolved	0	0	0	1

Issue date	QE Manager	Test Engineer
2017 / 11 / 17	KJ Wang	Ben Sun

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 : GENE-APL7 A1.0**
- **CPU : Intel Atom N4200 1.1GHz**
- **Memory : Innodisk DDR3L-1600 8GB**
- **2.5” SATA HDD : Toshiba MK1060GSC 100GB**
- **BIOS : GAP7AM06**
- **Test Software : Windows 10 / Run PassMark Burn In Test 8.1 Pro**
- **Power : ZKS-300W**
- **Heat Sink:**



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Thermal Image Analysis

1. Test Date: 2017-11-20

2. Test Product: GENE-APL7 A1.0

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: 2017/09/18

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: 2016/11/30

Serial Number: 1051444

5. Test Condition:

Test by DA-100: 25.5℃ with Heat Sink

6. Take Picture Time:

After power on 2 hours

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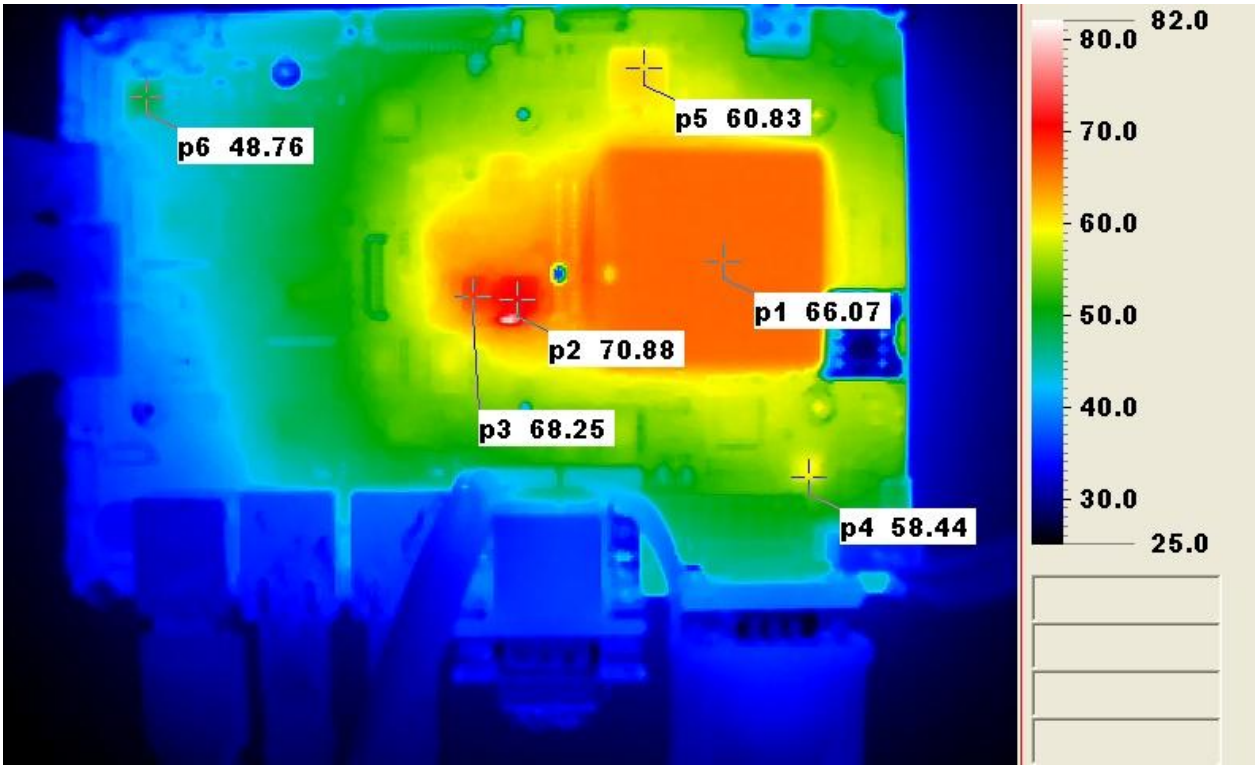
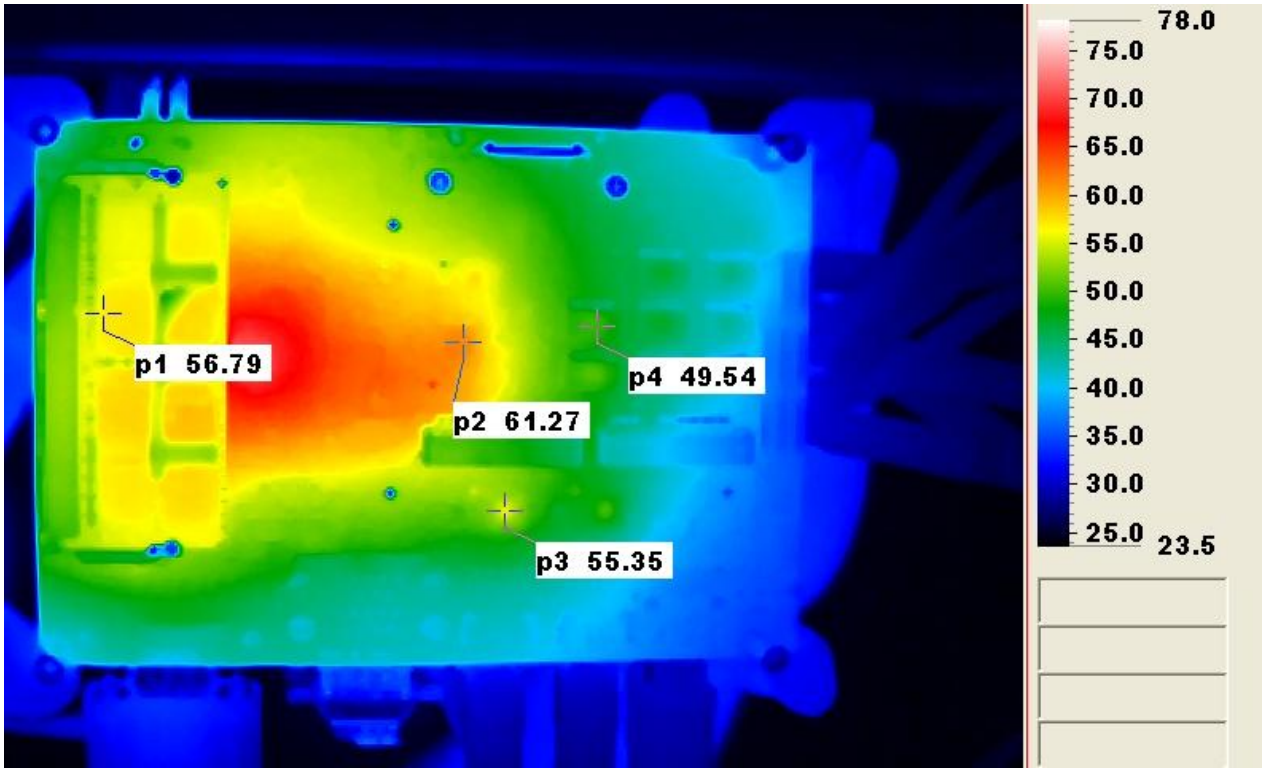
Temperature Profile Test:

Component Side:





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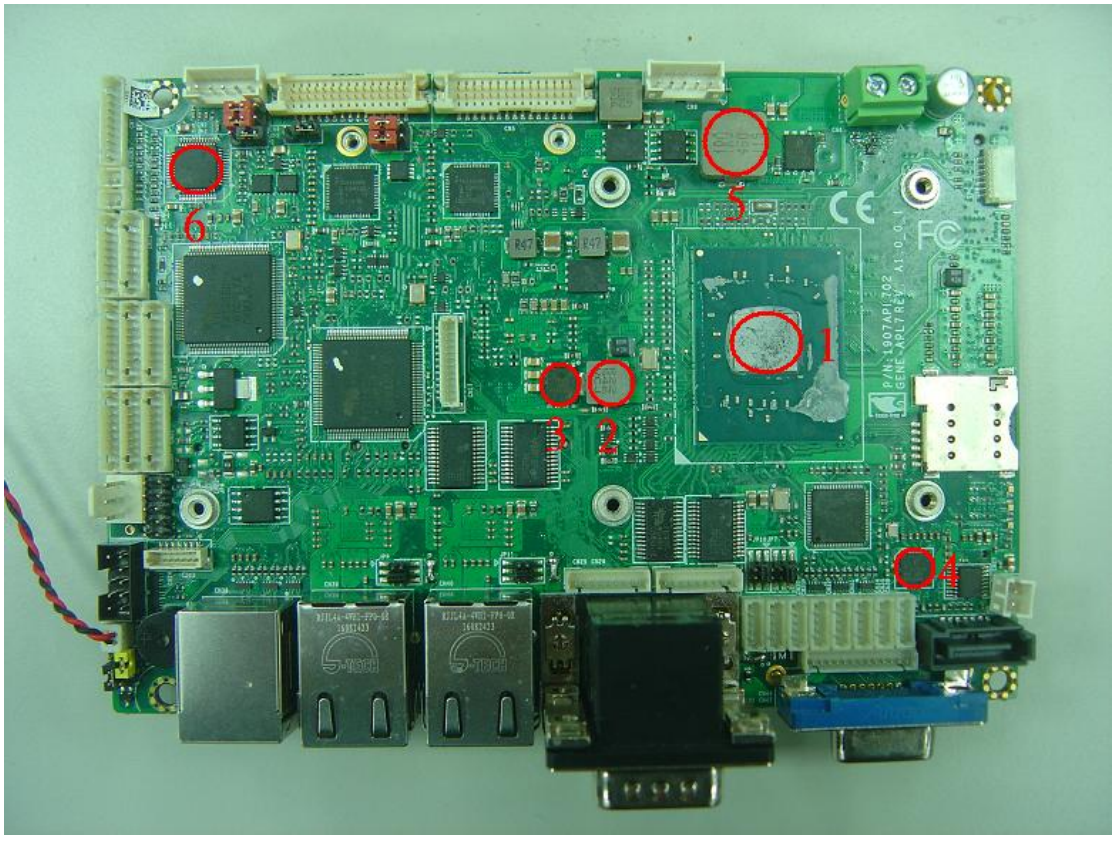
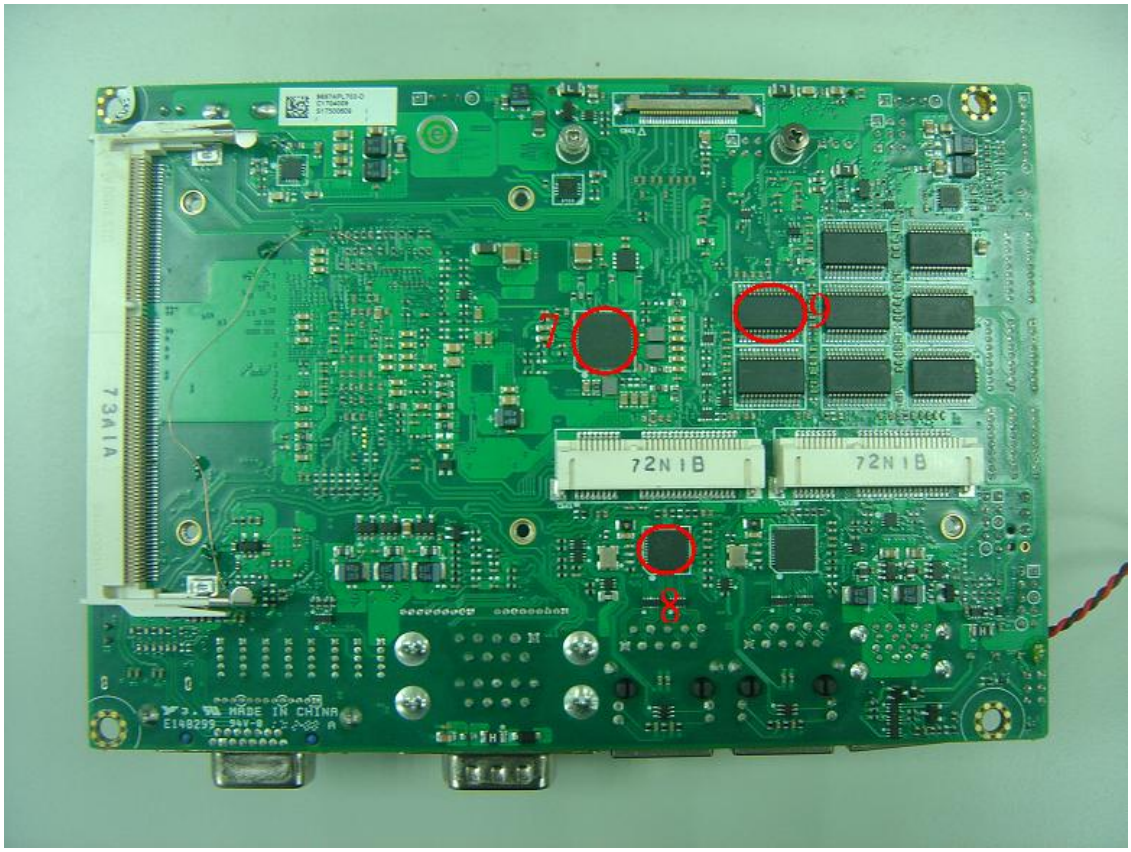
Terminal Recorder:

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	U1	CPU - Intel Pentium N4200 / 1.10 GHz	105	56.1	91.1	
2	L5	COIL.0.22uH.DCR=2.8mohm.Idc=23Amp.20%.SMD.6.95x6.6x2.8mm.CYNTEC.PCMB063T-R22MS	125	56.2	91.2	
3	Q20	DualN-MOSFET.Vds=30V.Vgs=(+/-)20V/12 Ids=13/30A Rds=11/2.2mohm.Power 56.SMD.FAIRCHILD FDMS3660S	125	56.0	91.0	
4	U28	IC.DisplayPort to VGA Converter.QFN 40P	125	56.8	91.8	
5	L2	COIL.1uH.25A.2.3mohm.20% SMD 11.5*10.3*4mm CYNTEC PCME104T-1R0MS2R307	150	56.0	91.0	
6	U4	Audio Codec.LQFP 48P.SMD.REALTEK ALC892-CG	100.5	50.0	85.0	
7	U46	IC.PMIC.Intel Apollo Lake.DDR=1.35V.VQFN 64P.SMD.TI TPS650942A0RSKR	100	56.2	91.2	
8	U45	IC.RS232 Driver/Receiver.15KV ESD.SSOP 28P.SMD TI.TRS213IDBR	125	54.1	89.1	
9	U56	PCI-express.Gigabit Ethernet Chip.QFN 48P.SMD REALTEK.RTL8111E-VL-CG	150	48.5	83.5	
10		RAM	95	59.4	94.4	NOTE4

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.

4. Defect NO.

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