

UPCP-CR-NPL4

Thermal Image Analysis Report

Summary	<input type="checkbox"/> Pass			
	<input type="checkbox"/> Fail Note: There is/are ____ defect(s) not list in the report, please check it in the DTS Website.			
	<input checked="" type="checkbox"/> Pass with Deviation Comment: 1. <u>There are 2 components 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	2
Defect Unsolved	0	0	0	2

Issue date

2019 / 05 / 27

QE Supervisor

Louie Lee

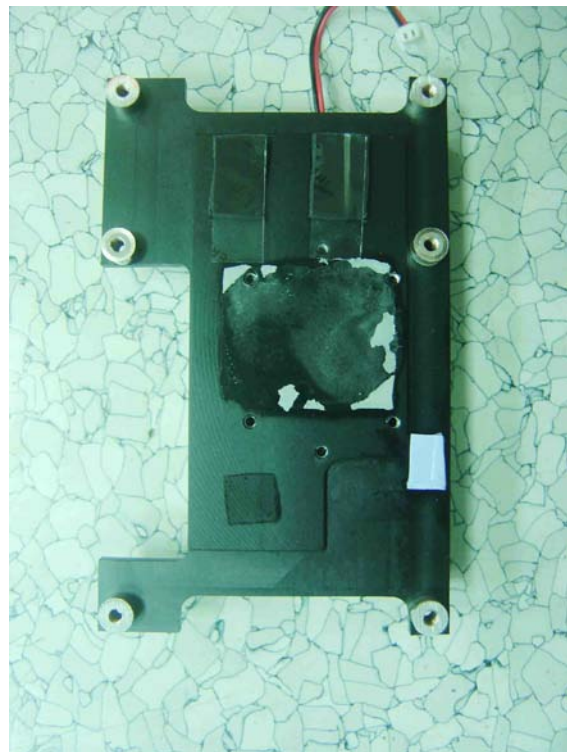
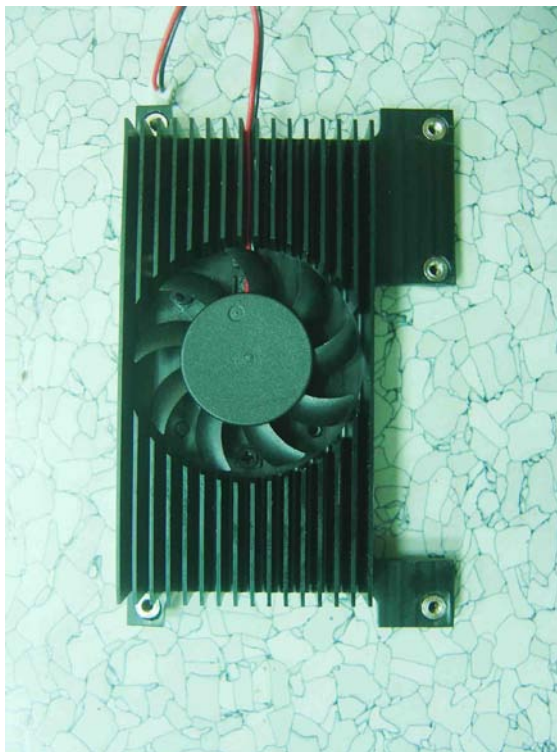
Test Engineer

Rex Chang

Sample Configuration & Quantity Under Test

- **Model name : UPCP-CR-NPL4 A1.0**
 1. Chipset: Intel® I210 Ethernet * 4 & PCI-E Switch
- **Main Board : UPC-PLUS A0.4**
 1. CPU : Intel® Atom Processor E3950 / 1.60 GHz
 2. Chipset: Intel® Apollo Lake
 3. Memory : 8GB / LPDDR4 / SAMSUNG K4F6E304HB-MGCJ
 4. Storage: eMMC 64GB SandiskSDINBDA4-64G-V
 5. BIOS : UPCPSM10
- **Carrier Board : 1. UPC-PSDB00 A0.2**
 2. UPCRST00 A0.2
- **Test Software : Windows 10 / Run PassMark Burn In Test 9.0 Pro (1011)**
- **Adapter: Powertron PS1065-120IB500 / Output: 12V; 5.0A 60W Max**
- **Cooler :**

UPC-PLUS

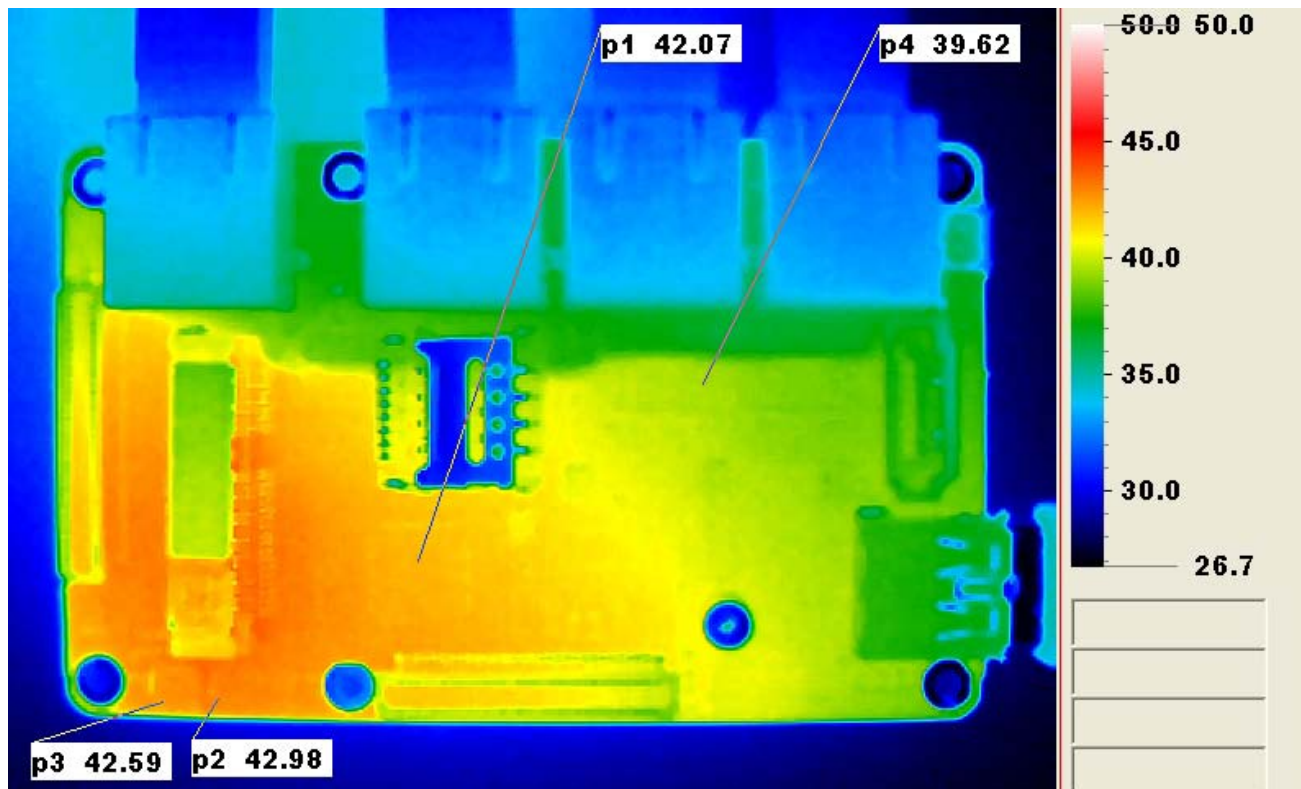
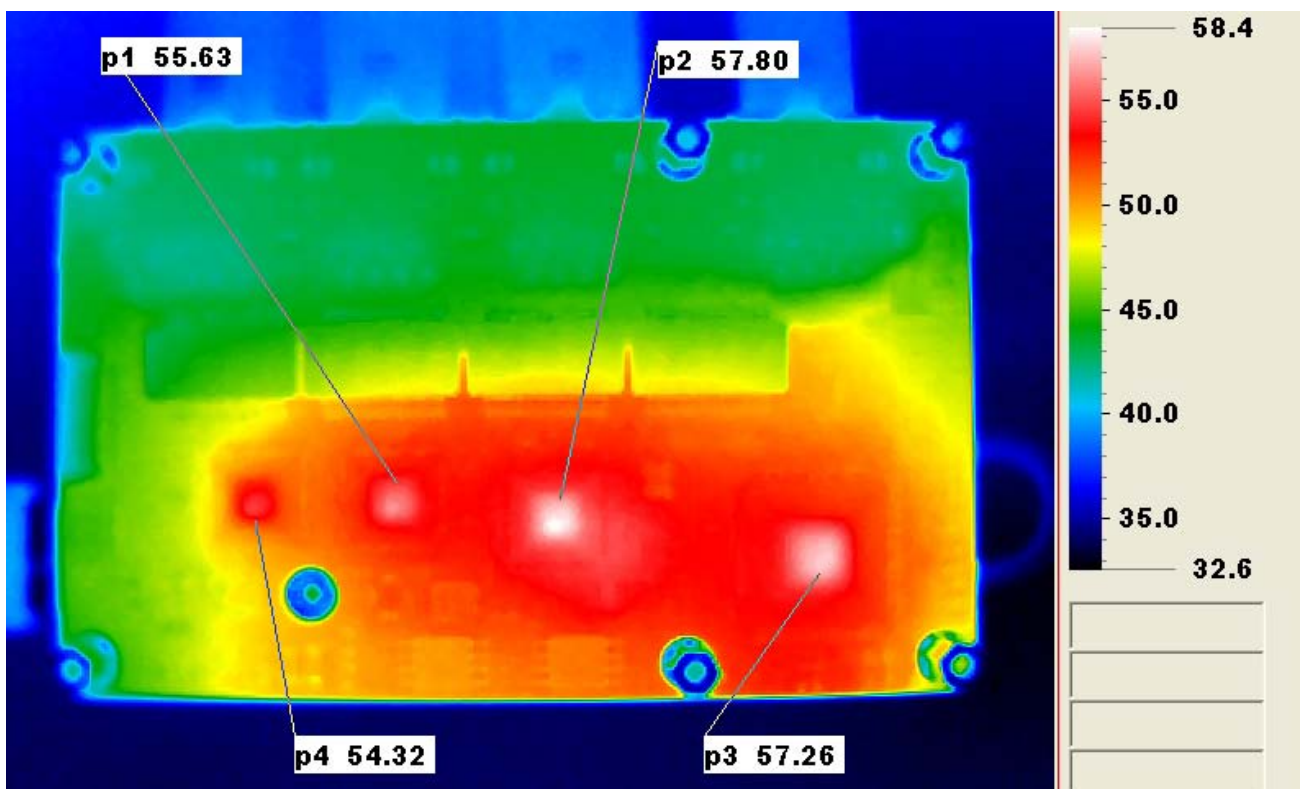


Thermal Image Analysis

1. Test Date: 2019-05-24
2. Test Product: UPCP-CR-NPL4 A1.0
3. Test Site: AAEON QE Dept.
4. Temperature Measurement:
 - 4.1. 40 Channel Thermal Recorder:
 - 4.1.1 YOKOGAWA Inc,
 - 4.1.2 Model: DA100-13-1D
 - Date of Calibration: 09/07/18
 - 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: 11/06/18
 - Serial Number: 1051444
5. Test Condition:

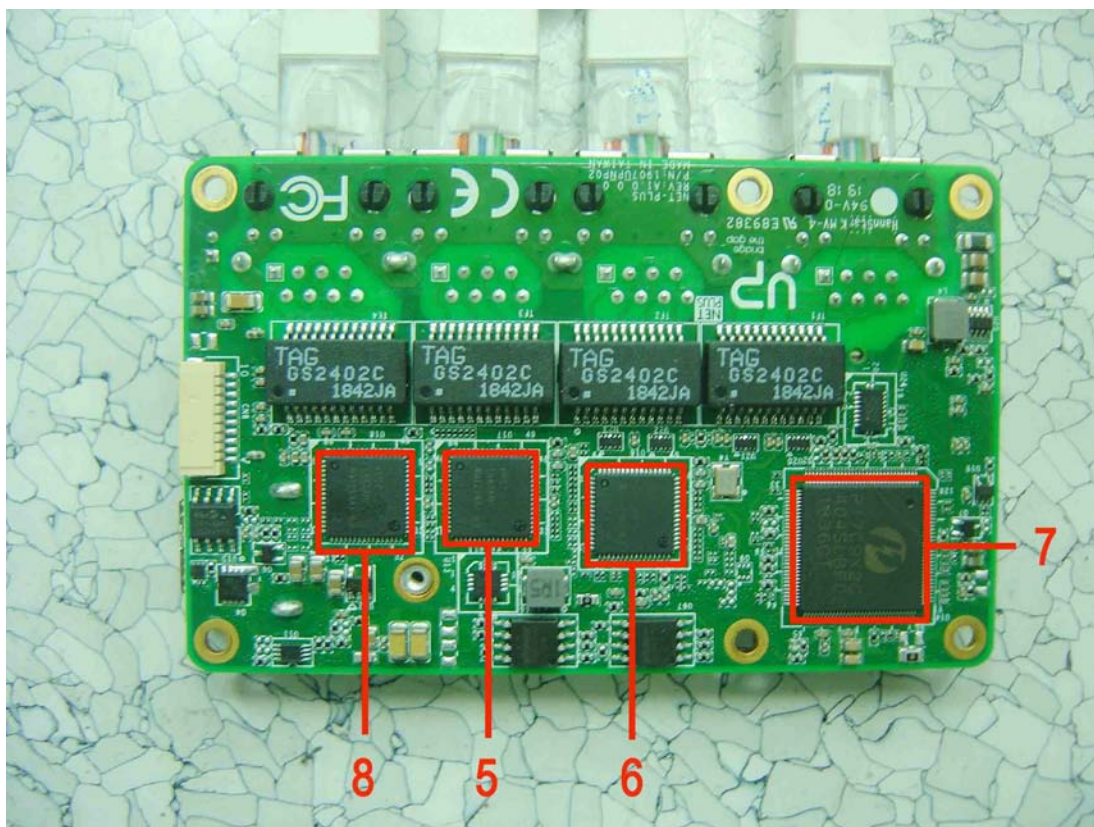
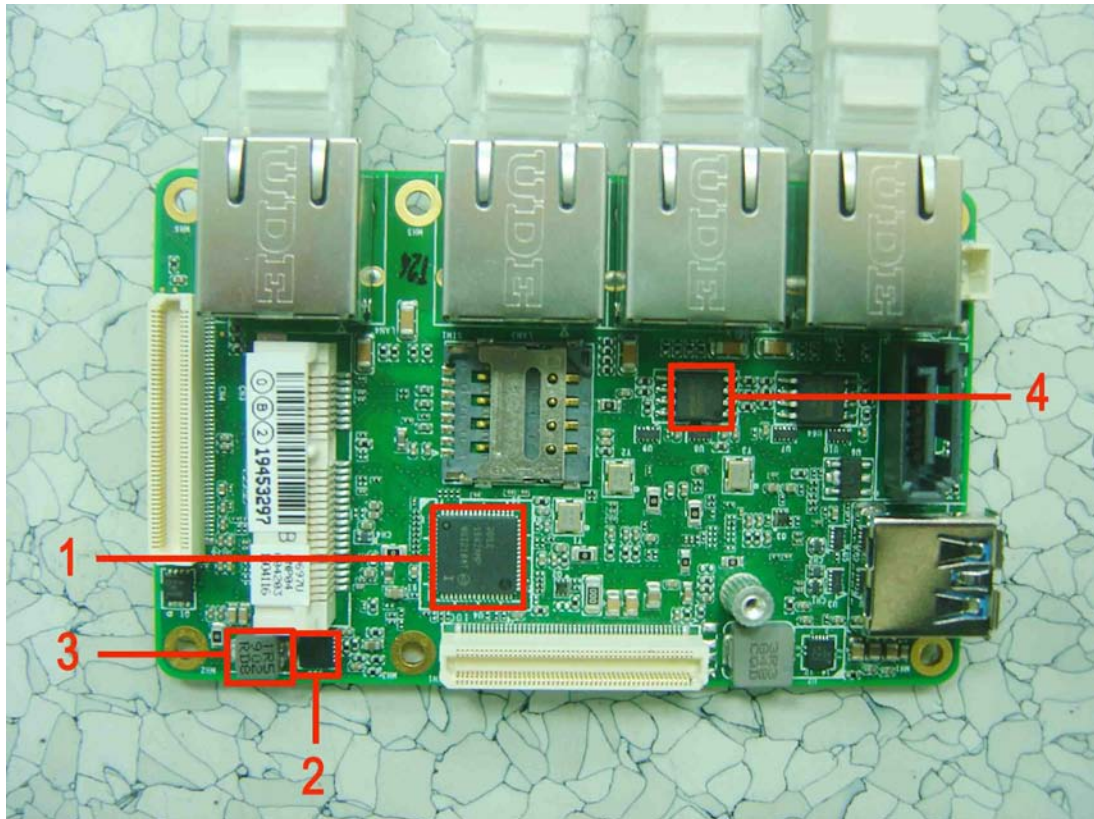
Test by DA-100: 25.0°C with Cooler
6. Take Picture Time:

After power on 2 hours

Temperature Profile Test:**Component Side:****Back Side:**

Terminal Recorder:

Measuring Thermal Couple Position :



Using YOKOGAWA / DA100-13-1D test

Point	Position	Describe	Tc (*1) (°C)	TAT(*2) TPT(*3)		Note
				25°C	60°C	
1	U4	(TF) PCI-E GigaBit Ethernet Chipset.SMD.Intel.WGI210IT	105	49.8	84.9	
2	U58	(TF) Synchronous Step Down.Converter.8A.TI.TPS568215RNNR	125	44.4	79.5	
3	L7	(TF)COIL.1.5uH. CYNTEC.PCMB053T-1R5MS	125	45.3	80.4	
4	U65	(TF) 8 Mbit SPI Flash.Winbond.W25Q80DVSSIG	N/A	44.5	79.6	Note6
5	U17	(TF) PCI-E GigaBit Ethernet Chipset..Intel.WGI210IT	105	48.6	83.7	
6	U16	(TF) PCI-E GigaBit Ethernet Chipset. Intel.WGI210IT	105	50.9	86.0	
7	U14	(TF) PCIe-2.0 4port Switch. PERICOM.PI7C9X2G404SLBFDE	N/A	48.8	83.9	Note6
8	U18	(TF) PCI-E GigaBit Ethernet Chipset. Intel.WGI210IT	105	47.6	82.7	
9		Room Temperature	N/A	24.9	60.0	

Note(*):

- "Tc" indicates the component's case maximum temperature value specified in its datasheet.
- "TAT" indicates the actual measured temperature under product specification.
- "TPT" indicates the predicted temperature under 25°C working environmental.
- Judgment Criteria:**
 - Fail** : $T_m > T_c + 5^{\circ}\text{C}$; The measured value is over specification plus margin.
 - Margin** : $T_c + 5^{\circ}\text{C} > T_m > T_c - 10^{\circ}\text{C}$; 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** : $T_m < T_c - 10^{\circ}\text{C}$; The measured value is with safety margin.
- RTC battery avoid to put on heat position. Please do not exceed battery temperature specification.
- Defect No: [BUL1909LABD01](#)