

UP-WHL01

Thermal Image Analysis Report

Summary	<input checked="" 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 type="checkbox"/> Pass with Deviation Comment: _____			
Test Result Summary				
	Critical	Major	Minor	Enhancement
Defect Found	0	0	0	0
Defect Unsolved	0	0	0	0

Issue date

2019 / 05 / 31

Supervisor

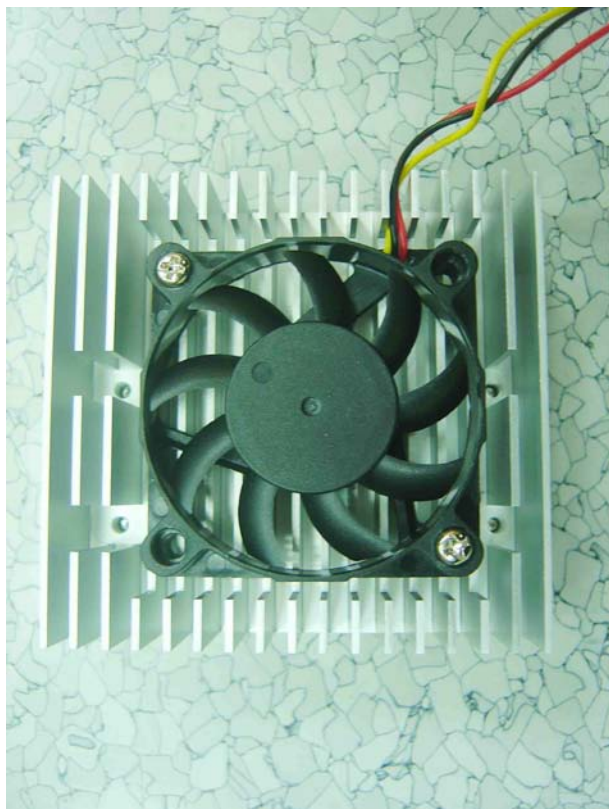
Louie Lee

Test Engineer

Rex Chang

Sample Configuration & Quantity Under Test

- **Model name : UP-WHL01 A0.2**
- **Main Board : UP- WHL01 A0.2**
 1. CPU : Intel Core i7 8665UE / 1.7GHz
 2. Chipset: Intel Whiskey Lake
 3. Memory : Onboard 16GB / SK Hynix.H5ANAG6NAMR
 4. Storage : Transcend 128GB / TS128GSSD230S / 2.5" SATA3 SSD
 5. BIOS : R0.C (UPW1AM0C) (04/19/2019)
- **Test Software : Windows 10 / Run PassMark Burn In Test 8.1 Pro (1011)**
- **Adapter: FSP FSP060-DQAAN2 / Output: 24V/2.5A MAX**
- **Cooler :**



Thermal Image Analysis

1. Test Date: 2019-05-24

2. Test Product: UP-WHL01 A0.2

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

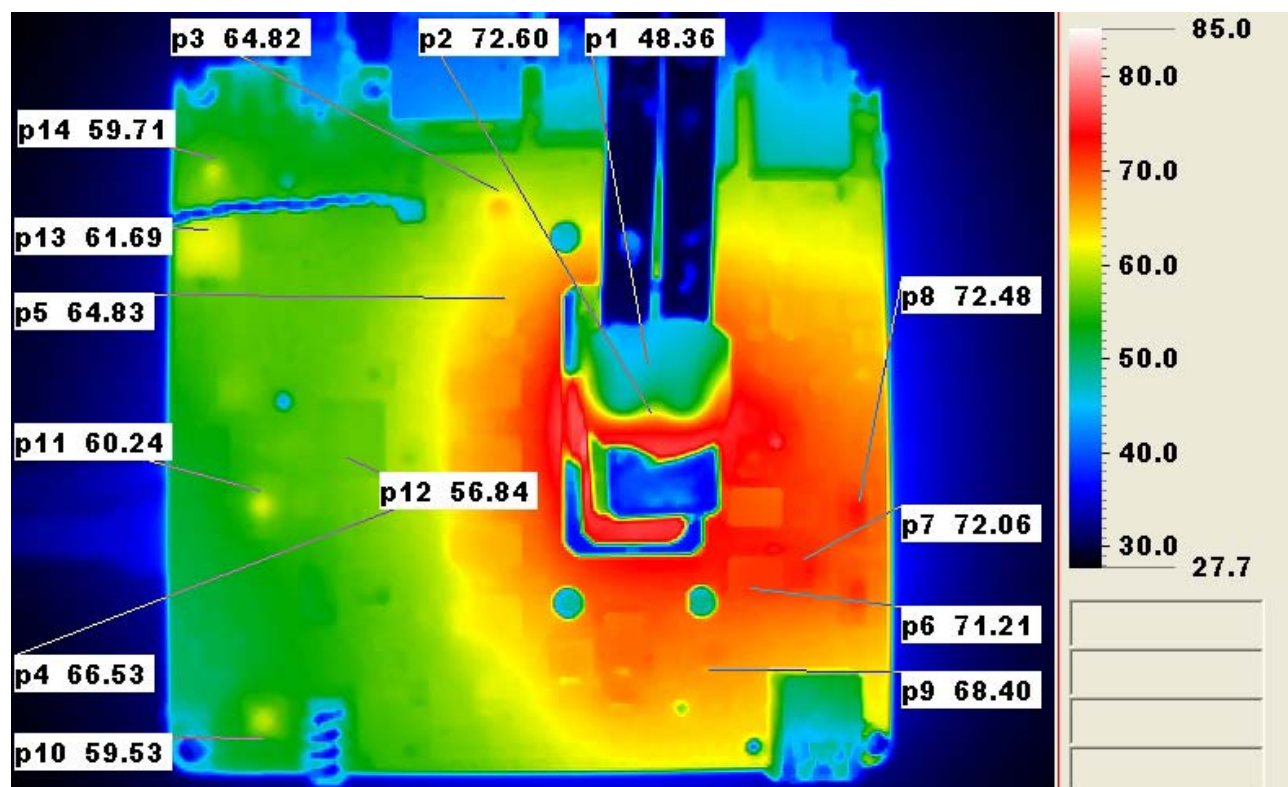
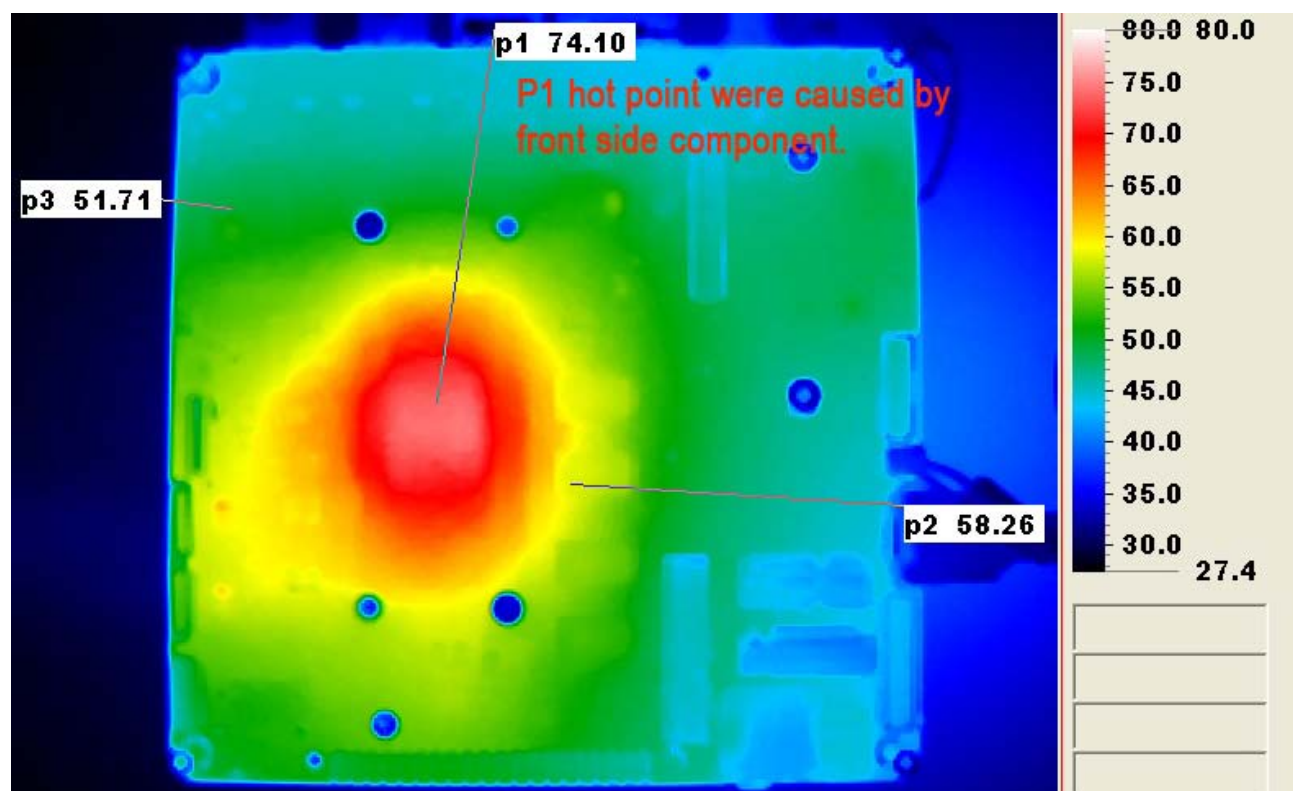
Serial Number: 1051444

5. Test Condition:

Test by DA-100: 25.0°C with Cooler

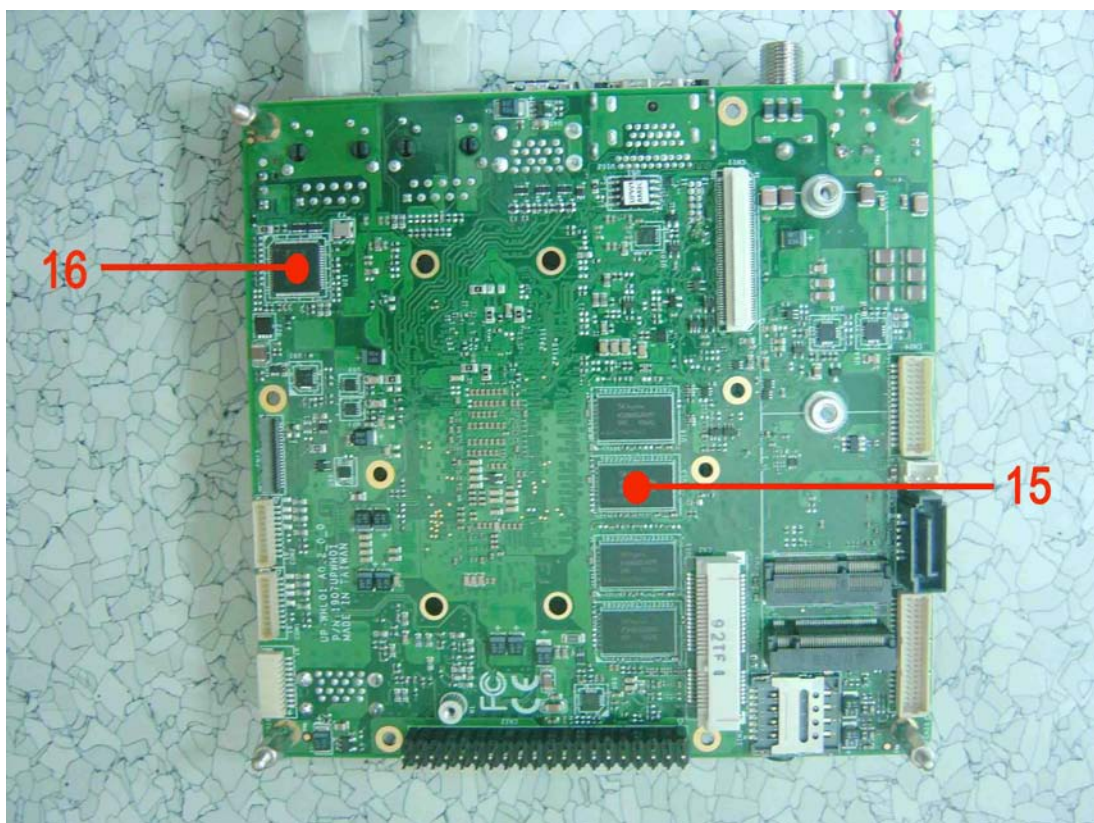
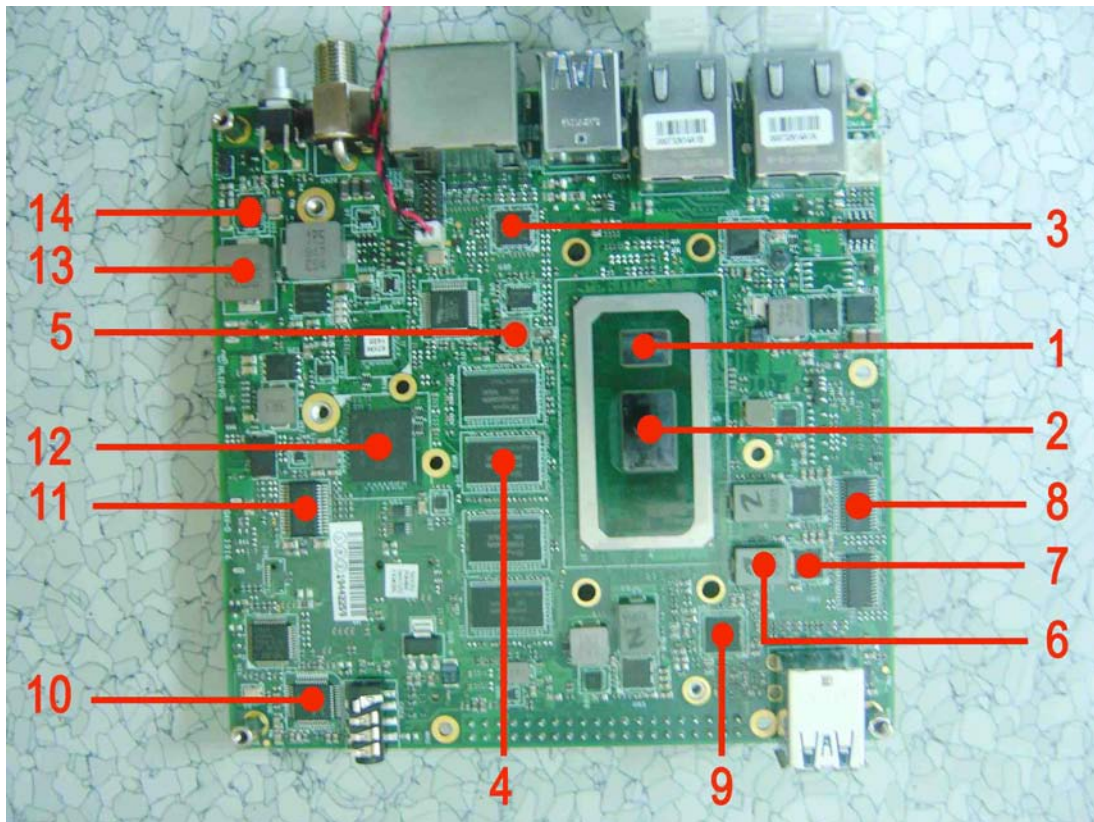
6. Take Picture Time:

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	U1	(TF)INTEL CPU WhiskeyLake-U.1.7GHz.I7-8665UE - 1	100	50.8	85.9	
2	U1	(TF)INTEL CPU WhiskeyLake-U.1.7GHz.I7-8665UE - 2	100	51.1	86.2	
3	U30	(TF) Display Port to HDMI2.0 Level Shifter.PARADE.PS8409AQFN48ITR2-A2	100	45.3	80.4	
4	U14	(TF) DDR4-SDRAM. Hynix.H5ANAG6NAMR-UHC	95	47.4	82.5	
5	L3	(TF)COIL.0.68uH. NEC/TOKIN.MPLCG0530LR68	120	42.4	77.5	
6	L7	(TF)COIL.150nH. ZenithTek.ZPWA-107050R5-R15	125	46.9	82.0	
7	U83	(TF) Integrated Driver and MOSFET. ON Semi.SCP302045MNTWG	125	46.9	82.0	
8	U54	(TF) RS-232/RS-485/RS-422 transceiv.Fintek.F81438G	127	46.0	81.1	
9	U82	(TF) Controller with single. ON.NCP81245MNTXG	100	44.5	79.6	
10	U39	(TF) 7.1+2 Channel.Audio Codec. REALTEK. ALC892-CG	100.5	36.4	71.5	
11	U4	(TF) Clock Buffer.ICS.ICS9DB104FLFT	115	40.9	76.0	
12	U55	(TF) eMMC 5.1 Flash.32GB.3.3V. Sandisk.SDINBDA4-32G-V	115	42.4	77.5	
13	L2	(TF)COIL.2.2uH. CYNTEC.PCMB104T-2R2MS	125	48.6	83.7	
14	U60	(TF) Buck Converter.65V.8A. LINEAR.LT8645SEV#PBF	125	42.3	77.4	
15	U13	(TF) DDR4-SDRAM.Hynix.H5ANAG6NAMR-UHC	95	47.9	83.0	
16	U21	(TF) PCI-E GigaBit Ethernet Chipset. Intel.I210AT	106	40.9	76.0	
17		Room Temperature	-	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: N/A