

PER-C36L

Environment Test Report

Report NO: 13I020031

Summary	<p><input checked="" type="checkbox"/> Pass</p> <p><input type="checkbox"/> Fail</p> <p>Note : There is/are ____ defect(s) not list in the report, please check it in the DTS Website.</p> <p><input type="checkbox"/> Pass with Deviation</p> <p>Comment: _____</p>
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Issue date

2013-11-29

Approval

Tom Lin

Issued by

Juno Cheng

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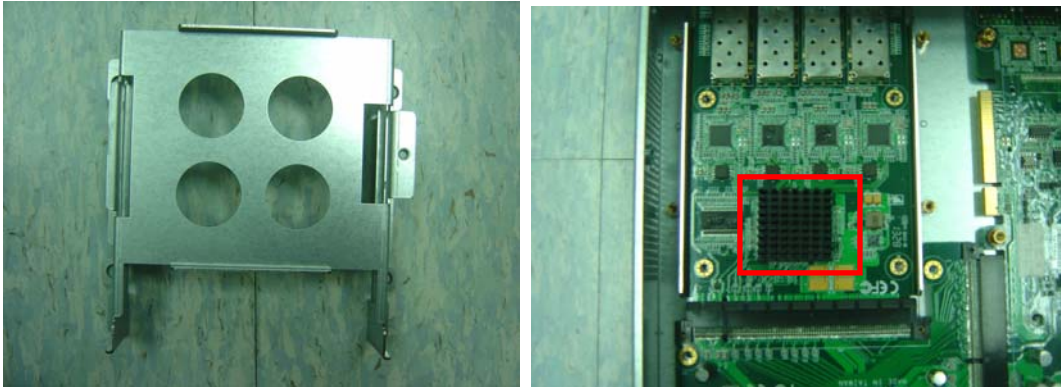
Testing Result

Num	Test item list	Result	Remark
1	Temperature rise test	Pass	
2	Temperature cycle operation test	Pass	
3	High temperature storage test	Pass	
4	Low temperature storage test	Pass	
5	Humidity test	Pass	
6	Cold start and hot start test	Pass	

Configuration of EUT

Num	Item	Spec
1.	PCI-Express Ethernet Module	PER-C36L
2.	Host System:	FWS-7400
	1. Main board	FWB-7810 A1.0
	2. BIOS	FWS-7400 R0.4 (FW74AT04) (08/03/2013)
	3. CPU Type	Intel Core i7-4770s Processor (8M Cache, up to 3.90 GHz)
	4. Memory	Transecnd DDR3L 1600 8GB*2 SEC K4B4B0846B-HYKO
	5. 3.5" SATA HDD	Western Digital WD3200BEVT 2.5" 320GB *1 TOSHIBA MK2576GSXZ 2.5" 250GB *2
	7. Test Software	Windows 7 / Run BurnIn test 7.0 Pro
3.	Power Supply	FSP250-50LC

CPU Cooler



Temperature rise test

Test Date: 11-28-2013

Test Product: PER-C36L

Test Site: AAEON QE Dept.

Test Standard: Refer to EN 61131-2(94), UL508 (94)

Temperature Measurement:

40 Channel Thermal Recorder: (YOKOGAWA Inc.)

Model: DA100-13-1D

Date of Calibration: 10/01/13

Serial Number: 12A323190

IR Scanner: Infrared Camera

NEC Avio Infrared Technologies Co., Ltd.

Model: Thermo GEAR G100W2-D

Date of Calibration: 01/08/13

Serial Number: 1051444

Test Condition:

Ambient temperature: 40°C

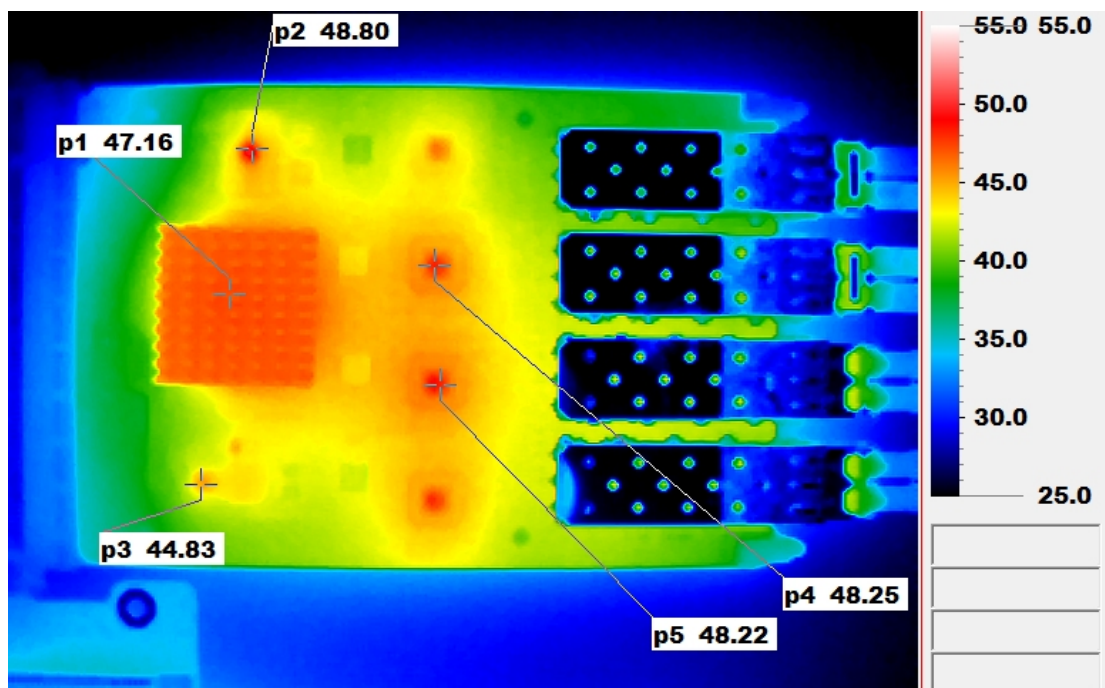
Continuous running till thermal stability (within less than 1°C)

Test Software:

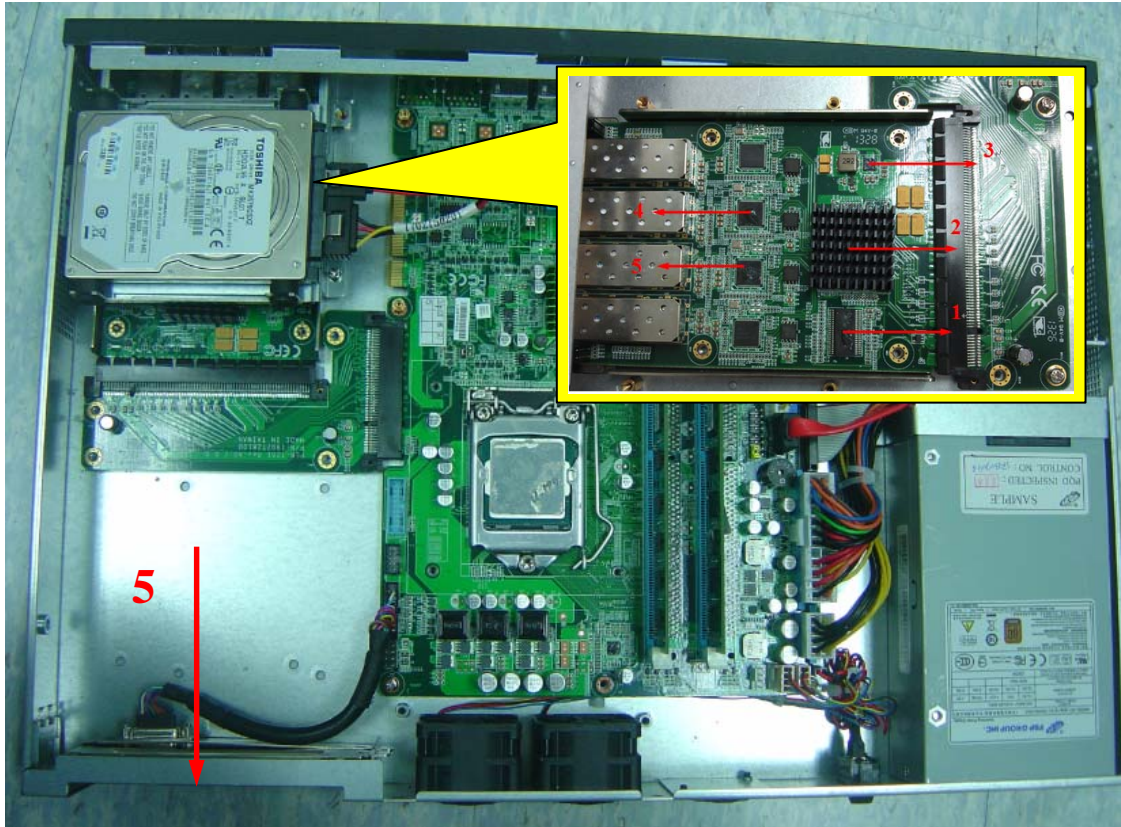
Windows 7 / Run PassMark Burn In Test 7.0 Pro

Terminal Recorder:

IR Thermal



Temperature rise test



Temperature rise test

Thermal profile data:

PER-C36L

Point	Temp. Stage(°C)	Spec	40°C	25°C	Note
01. U6 (TF)IC. Output Differential Buffer.ICS.ICS9DB108BFLF		115	53.9	38.9	
02. U4 (TF)IC. PCI-E Switch Gen 2, 8 Lane.PLX.PEX8608-BA50BC G		85	59.0	44.0	
03. U3 (TF)IC Synchronous Buck Regulator.INTERASIL.ISL8014AIRZ		85	50.2	35.2	
04. U13(TF)IC.PCI-E GigaBit Ethernet Chipset.QFN 64P.SMD.Intel.I210-IS		85	52.8	37.8	
05. U12 (TF)IC.PCI-E GigaBit Ethernet Chipset.QFN 64P.SMD.Intel.I210-IS		85	52.5	37.5	
05. System inside air temperature		N/A	45.6	30.6	
06. Housing surface temperature		N/A	45.3	30.3	

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** : $T_m > T_c$; The measured value is over specification.
- **Margin Pass** : $T_c > T_m > T_c - 5^\circ\text{C}$; The measured value is within specification with margin.
It is strongly recommended to add thermal dissipation design for better reliability.
- **Pass** : $T_m < T_c - 5^\circ\text{C}$; The measured value is with safety margin.

Sample Configuration & Quantity Under Test:

Quantity: 1 (PER-C36L)

Test Result:

No issues were found during the temperature rise operation test.

Temperature cycle test

Test Date : 11-26 ~ 28-2013

Test Product : PER-C36L

Test Site: AAEON QE Dept.

Test Standard: Refer to IEC68-2-14 Testing procedures

Test N: Change of temperature Test

Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)

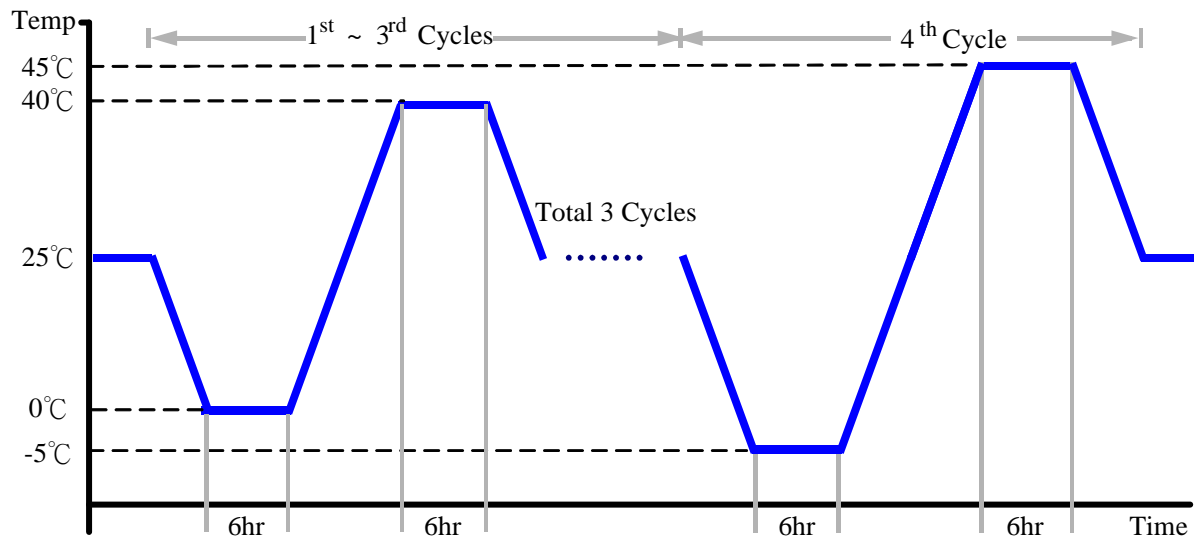
Model: THS-D7S-100+1 N2

Date of Calibration: 09/16/'13

Serial Number: 3898

Test Condition:

1. Test Low Temperature: 0°C (1~3 cycles)
-5°C (4th cycle)
2. Test High Temperature: 40°C (1~3 cycles)
45°C (4th cycle)
3. Test dwell time: 6Hrs
4. Temperature slope: 2°C/min
5. Test cycle: 4 cycles
6. Test Environment Curve:



Sample Configuration & Quantity Under Test:

Quantity: 1 (PER-C36L)

Test Result:

No issues were found during the temperature operation cycle test.

High temperature storage test

Test Date: 11-24 ~ 26-2013

Test Product: PER-C36L

Test Site: AAEON QE Dept.

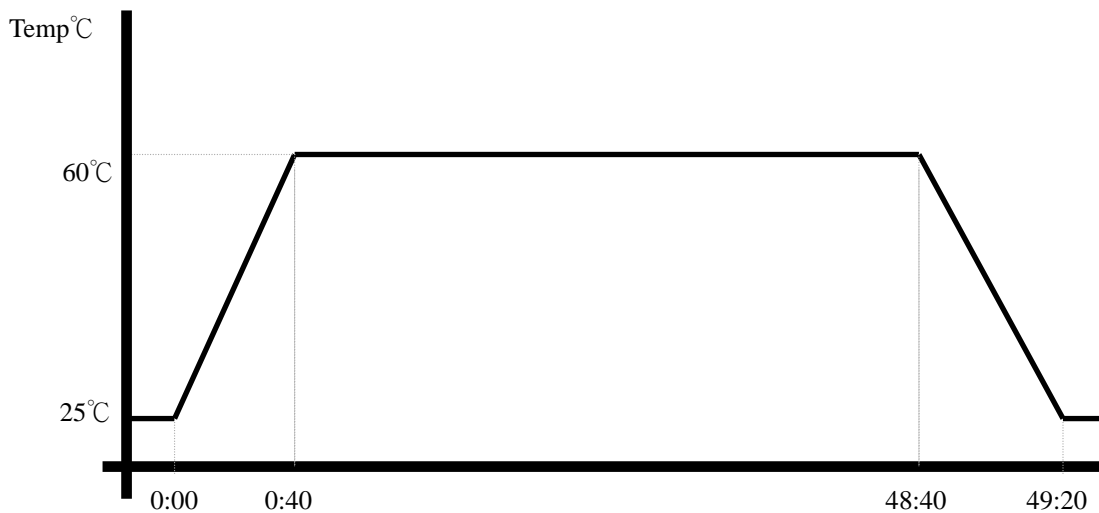
Test Standard: Refer to IEC 68-2-2 Testing procedures
Test Bb: Dry Heat Test (Non-operation)

Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)
Model: THS-D7S-100+1 N2
Date of Calibration: 09/16/'13
Serial Number: 3898

Testing Item:

1. Test Temperature: 60°C
2. Test Times: 48Hrs
3. Test Software: Windows 7 / Run PassMark Burn In Test 7.0 Pro
4. Test Environment Curve:



Sample Configuration & Quantity Under Test:

Quantity: 1 (PER-C36L)

Test Result:

No issues were found after the high temperature storage test.

Low temperature storage test

Test Date: 11-22 ~ 24-2013

Test Product: PER-C36L

Test Site: AAeon QE Dept.

Test Standard: Refer to IEC 68-2-1 Testing procedures
Test Ab: Cold Test (Non-operation)

Test Equipment:

Programmable Temperature & Humidity Chamber (K.SON. INS. TECH. CORP.)
Model: THS-D7S-100+1 N2
Date of Calibration: 09/16/'13
Serial Number: 3898

Testing Item:

1. Test Temperature: -20°C
2. Test Times: 48Hrs
3. Test Software: Windows 7 / Run PassMark Burn In Test 7.0 Pro
4. Test Environment Curve:



Sample Configuration & Quantity Under Test:

Quantity: 1 (PER-C36L)

Test Result:

No issues were found after the low temperature storage test.

Humidity test

Test Date: 11-20 ~ 22-2013

Test Product: PER-C36L

Test Site: AAEON QE Dept.

Test Standard: Refer to IEC 68-2-3 Testing procedures
Test Ca: Damp heat, steady state (Non-operation)

Test Equipment:

Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP.)

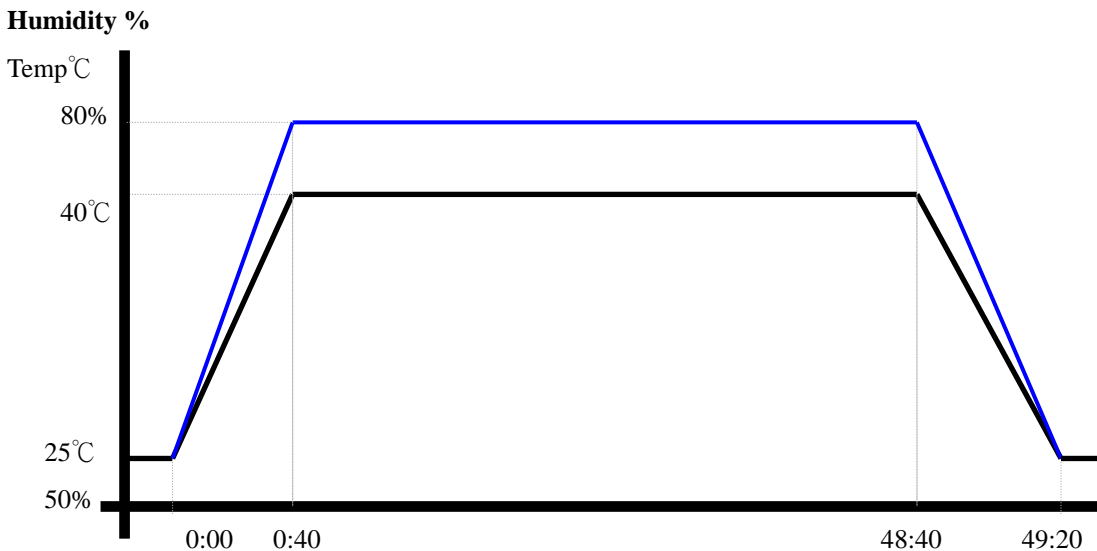
Model: THS-D7S-100+1 N2

Date of Calibration: 09/16/'13

Serial Number: 3898

Testing Item:

1. Test Temperature: 40°C
2. Test Humidity: 80%RH
3. Test Times: 48Hrs
4. Test Software: Windows 7 / Run PassMark Burn In Test 7.0 Pro
5. Test Environment Curve:



Sample Configuration & Quantity Under Test:

Quantity: 1 (PER-C36L)

Test Result:

No issues were found after the humidity storage test.

Cold start and hot start test

Test Date: 11-18~ 20-2013

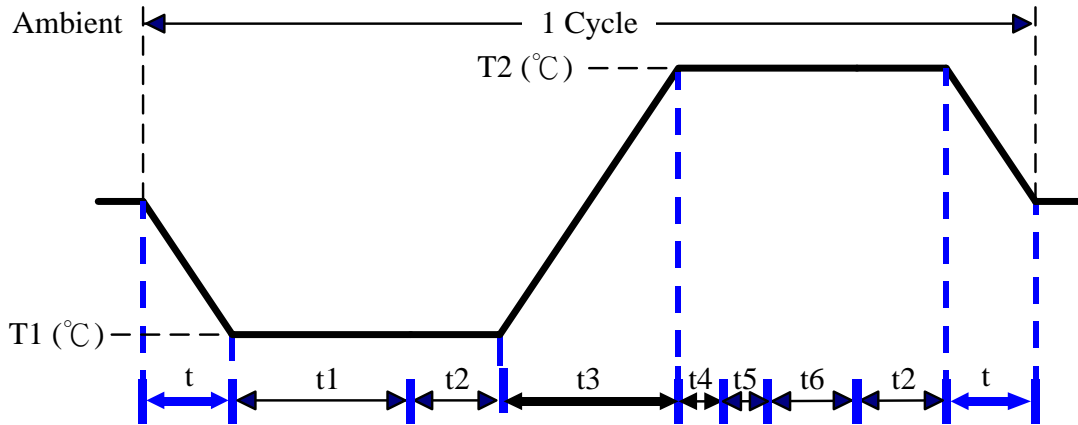
Test Product: PER-C36L

Test Site: AAEON QE Dept.

Test Standard: Refer to IEC 68-2-14 Testing procedures
 Test N: Change of temperature Test

Test Equipment:
 Programmable Temperature & Humidity Chamber: (K.SON. INS. TECH. CORP)
 Model: THS-D7S-100+1 N2
 Date of Calibration: 09/16/'13
 Serial Number: 3898

Test Condition:



Parameters	Description
T1	-5°C
T2	45°C
t1	4 hrs
t2, t6	2 hrs
t4, t5	1hrs
t, t3	2°C/min
n (Cycle)	1

t = temperature slope
 t , t1, t6: Power Off
 t2: Power on/off test 10 times (on 2 min / off 5min)
 t3, t4: Run burn in test 7.0
 t5: Win 7 Software restart test 3 times
 Test Software: Windows 7

Test Result:

- a. No issues were found during the cold start test.
- b. No issues were found during the hot start test.