IMBA-880

Intel Core 2 Duo Industrial ATX Motherboard

Thermal Image Analysis Report

Report NO: 08I080002

Release Date: Mar 19, 2008

2008/03/19	Wenyuan Yang	Eva Yeh
Issue Stamp	**Manager**	**Test Engineer**

Thermal Image Analysis

Ⅰ. Model Name: IMBA-880 B1.0

Ⅱ. Description: Intel Core 2 Duo Industrial ATX Motherboard

Ⅲ. Date: Mar 19, 2008

Ⅳ. Measure Site: AAEON QE Dept.

Ⅴ. Issued by : Eva Yeh

Ⅵ.Equipment:

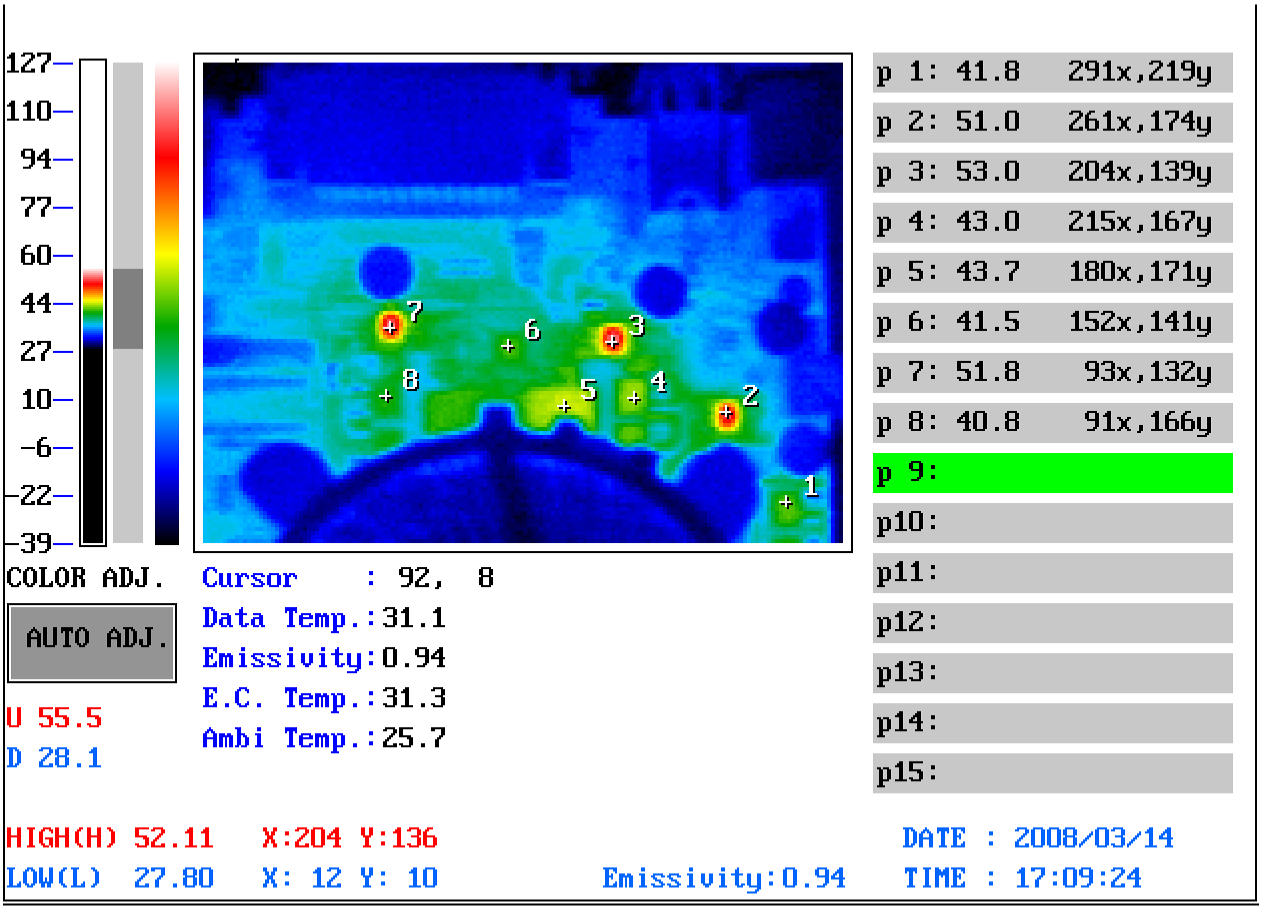
TVS-100 series by NIPPON AVIONICS CO., LTD.

Ⅶ. Simulation Environment:

- **Temperature: Component Side-1 : 25.7℃ , Component Side-2 : 26.1℃ , Component Side-3 : 26.0℃ , Component Side-4 : 25.8℃ , Component Side-5 : 26.2℃**
- **CPU : Intel(R) Core(TM) 2 CPU 6400 2.13GHz**
- **RAM : Kingston DDR2-667 512MB / (HYB18T512800BF3S) x 4 pcs**
- **BIOS : IMBA-880 B BIOS Rev. 1.0 (01/22/2008)**
- **CF Card : N/A**
- **HDD : Seatage ST380815AS 80GB**
- **Application Software: Run Prime95 under Windows XP Professional V2002 Service Pack 2**
- **Take Picture Time: After Power on 2 hours.**

Temperature Profile Test:

Component Side-1:



COLOR ADJ.

AUTO ADJ.

U 55.5
D 28.1

Cursor : 92, 8
Data Temp.:31.1
Emissivity:0.94
E.C. Temp.:31.3
Ambi Temp.:25.7

p 1:	41.8	291x,219y
p 2:	51.0	261x,174y
p 3:	53.0	204x,139y
p 4:	43.0	215x,167y
p 5:	43.7	180x,171y
p 6:	41.5	152x,141y
p 7:	51.8	93x,132y
p 8:	40.8	91x,166y
p 9:		
p10:		
p11:		
p12:		
p13:		
p14:		
p15:		

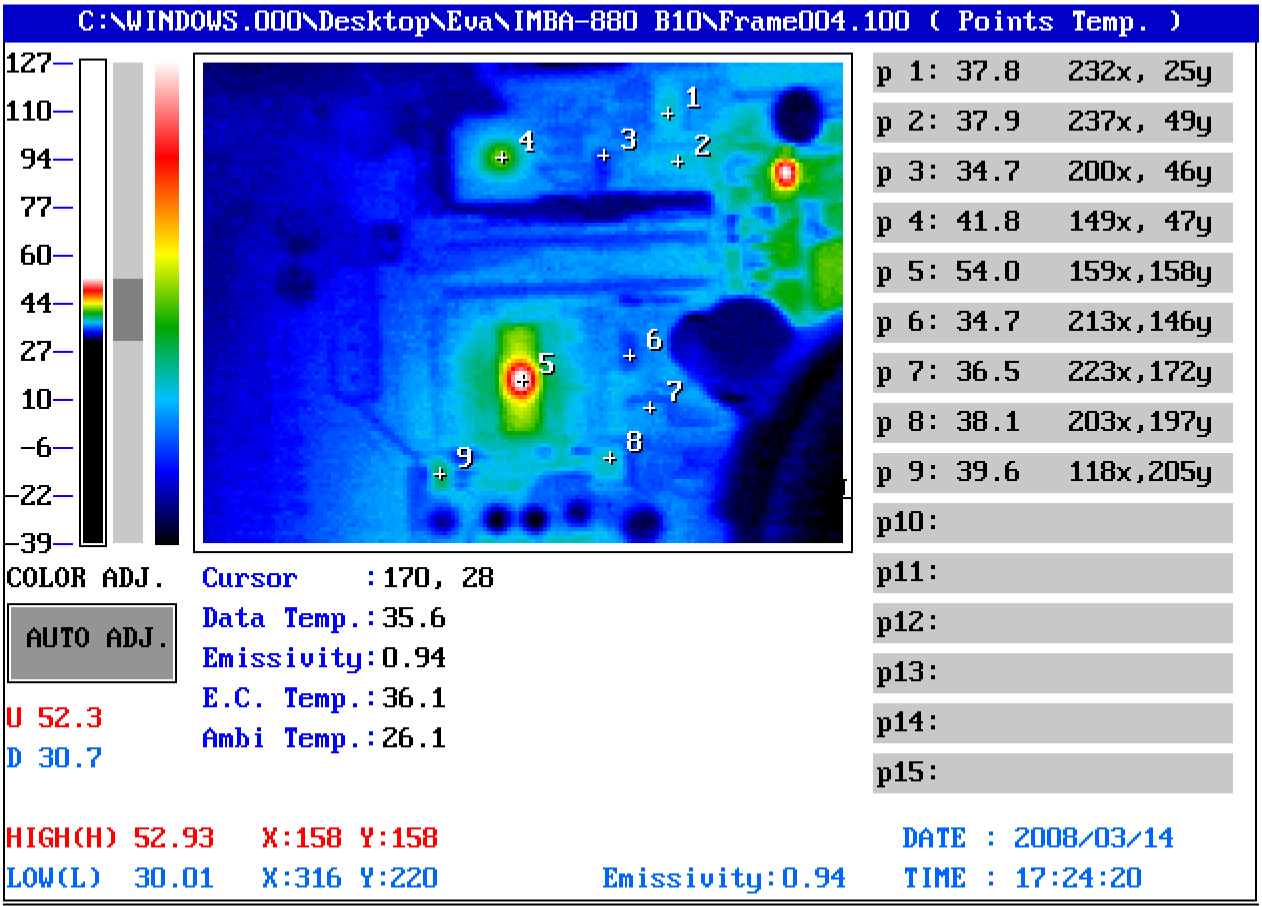
HIGH(H) 52.11 X:204 Y:136
LOW(L) 27.80 X: 12 Y: 10
Emissivity:0.94
DATE : 2008/03/14
TIME : 17:09:24

Point	Position	Describe	Tc (℃)	Tm (25.7℃)	Tm (60℃)	Note
1	Q9	(TF)PWR.SMD.TO-252.N-Channel PowerMosfet.ON SEMI.NTD78N03T4G;EE-A060020;1315780310;TWN	150	41.8	76.1	
2	U16	(TF)IC.SMD.SOIC 8Pin.MOSFET Drivers.INTERSIL.ISL6612ACBZ;EE-A061931;14S9661200;TWN	125	51.0	85.3	
3	U14	(TF)IC.SMD.SOIC 8Pin.MOSFET Drivers.INTERSIL.ISL6612ACBZ;EE-A061931;14S9661200;TWN	125	53.0	87.3	
4	Q4	(TF)PWR.SMD.TO-252.N-Channel PowerMosfet.ON SEMI.NTD78N03T4G;EE-A060020;1315780310;TWN	150	43.0	77.3	
5	L24	(TF)COIL.0.56uH.20%.DIP.35A.GOTREND.GMAT-131210-P-R56-M;EE-A070841;1211105674;TWN	85	43.7	78	
6	U15	(TF)IC.SMD.QFN 40Pin.PWM Controler 4Phase.for P4 CPU VRD10/11.Intelsil.ISL6326CRZ;EE-A061517;14S4632600;TWN	125	41.5	75.8	
7	U13	(TF)IC.SMD.SOIC 8Pin.MOSFET Drivers.INTERSIL.ISL6612ACBZ;EE-A061931;14S9661200;TWN	125	51.8	86.1	

8	**Q6**	**(TF)PWR.SMD.TO-252.N-Channel PowerMosfet.ON SEMI.NTD78N03T4G;EE-A060020;1315780310;TWN**	**150**	**40.8**	**75.1**	

1. Tm (Measured operation temperature) must be less than Tc (Specified case temperature) +5 degree C
2. Any Tm value showed in red words which meaning the value is over the Tc+ 5 degree C of this device specification

Component Side-2:



C:\WINDOWS.000\Desktop\Eva\IMBA-880 B10\Frame004.100 (Points Temp.)

```
p 1: 37.8    232x, 25y
p 2: 37.9    237x, 49y
p 3: 34.7    200x, 46y
p 4: 41.8    149x, 47y
p 5: 54.0    159x,158y
p 6: 34.7    213x,146y
p 7: 36.5    223x,172y
p 8: 38.1    203x,197y
p 9: 39.6    118x,205y
p10:
p11:
p12:
p13:
p14:
p15:
```

U 52.3
D 30.7

Cursor :170, 28
Data Temp.:35.6
Emissivity:0.94
E.C. Temp.:36.1
Ambi Temp.:26.1

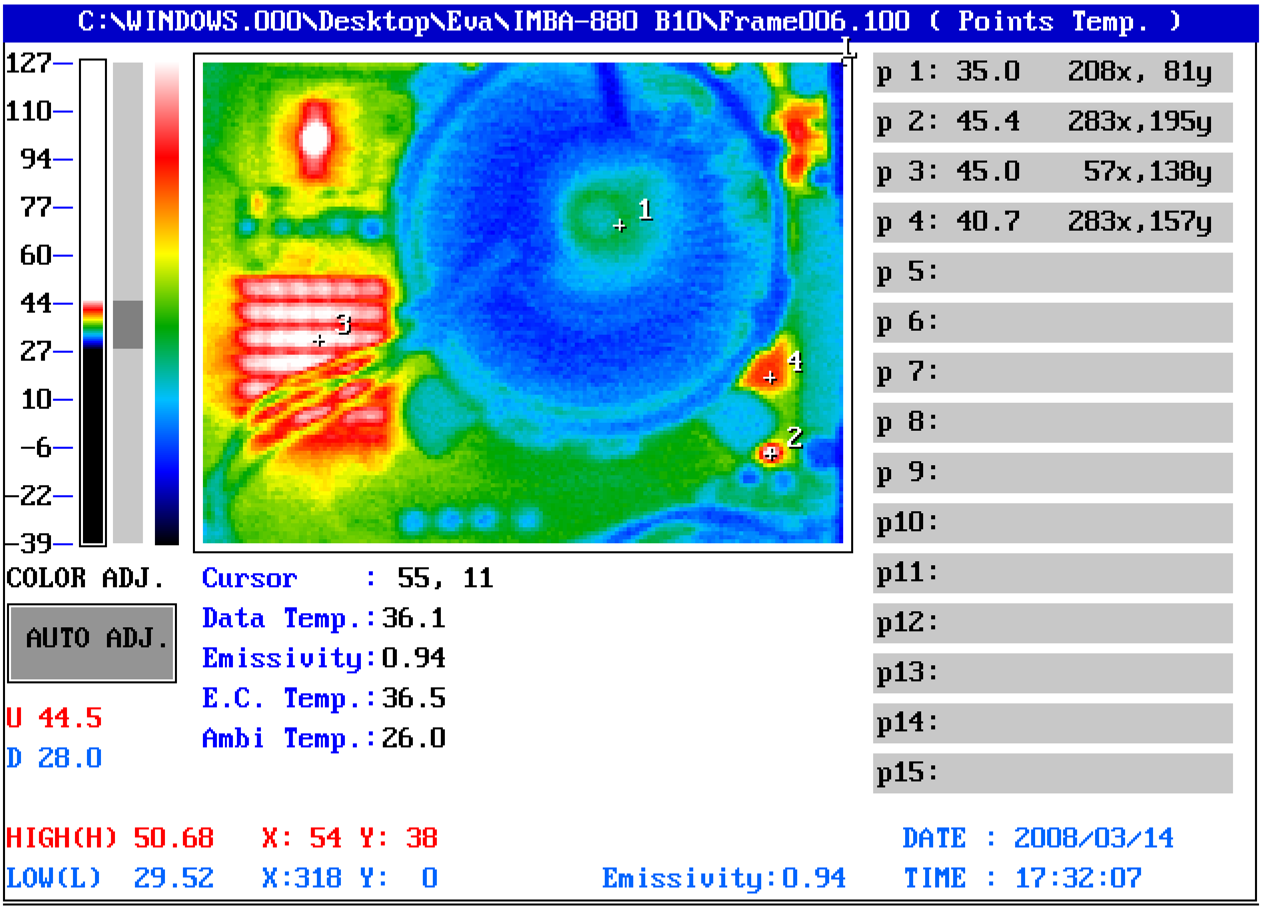
HIGH(H) 52.93 X:158 Y:158
LOW(L) 30.01 X:316 Y:220
Emissivity:0.94
DATE : 2008/03/14
TIME : 17:24:20

Point	Position	Describe	Tc (℃)	Tm (26.1 ℃)	Tm (60℃)	Note
1	U3	(TF)IC.SMD SSOP 28P.RS232 Driver ESD 15KV.INTERSIL.HIN213ECAZ;EE-A000060;14S4021310;TWN	125	37.8	71.7	
2	U10	(TF)IC.SMD.NSOIC 8P.RS-485 Transceivers.SIPEX.SP485ECN-L;EE-940827;14S4048501;TWN	70	37.9	71.8	
3	Y1	(TF)X'TAL SMD.25.000000MHz.6*3.5*1.1mm.2P.亞陶.F62500007;EE-A011418;1231325050;TWN	70	34.7	68.6	
4	U5	(TF)IC.SMD.BGA 196P Ethernet Chipset.Intel.LU82562EZ;EE-A041739;14S4256201;TWN	85	41.8	75.7	
5	U17	(TF)IC.SMD.SSOP56.Clock Generator.ICS. ICS954101DFLF;EE-A050718;14S4410100;TWN	115	54.0	87.9	
6	Y2	(TF)X'TAL SMD.14.31818MHz.6*3.5*1.1mm.2P.亞陶.F61430006;EE-A011471;1231314350;TWN	70	34.7	68.6	
7	C109	(TF)SP CAP.[8.2μF～470μF].[2V～8V].20%.SMD.Panasonic. EEF/ECG 系列(耐溫 26℃);EE-A060158;118*****8*;TWN	105	36.5	70.4	

8	**Q10**	**(TF)PWR.SMD.TO-252.N-Channel PowerMosfet.ON SEMI.NTD60N02RT4G;EE-A060014;1315600210;TWN**	**150**	**38.1**	**72**	
9	**Q11**	**AMS/積甲/(TF)REG.SMD.1A Dropout Regulator.AMS.AMS1117 Series;EE-A990164;131411171*;TWN**	**100**	**39.6**	**73.5**	

1. Tm (Measured operation temperature) must be less than Tc (Specified case temperature) +5 degree C
2. Any Tm value showed in red words which meaning the value is over the Tc+ 5 degree C of this device specification

Component Side-3:



C:\WINDOWS.000\Desktop\Eva\IMBA-880 B10\Frame006.100 (Points Temp.)

p 1: 35.0 208x, 81y
p 2: 45.4 283x,195y
p 3: 45.0 57x,138y
p 4: 40.7 283x,157y
p 5:
p 6:
p 7:
p 8:
p 9:
p10:
p11:
p12:
p13:
p14:
p15:

Cursor : 55, 11
Data Temp.:36.1
Emissivity:0.94
E.C. Temp.:36.5
Ambi Temp.:26.0

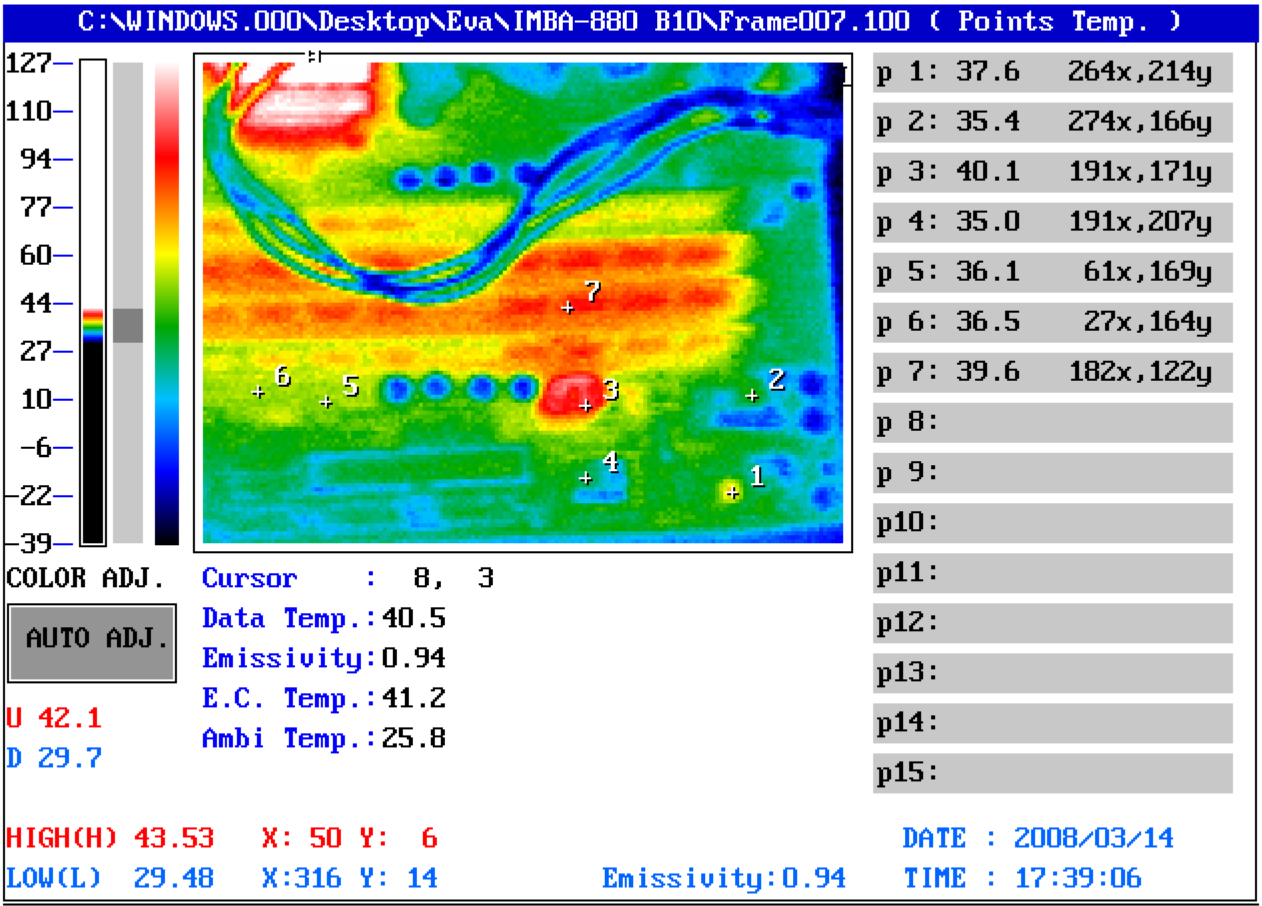
U 44.5
D 28.0

HIGH(H) 50.68 X: 54 Y: 38
LOW(L) 29.52 X:318 Y: 0
Emissivity:0.94
DATE : 2008/03/14
TIME : 17:32:07

Point	Position	Describe	Tc (℃)	Tm (26.0 ℃)	Tm (60℃)	Note
1	CPU1	(TF)ZIF LGA 775 SKT.SMD.775P. FOXCONN.PE077526-1041-0D;EE-A070315;1651612992;TWN	N/A	35.0	69	
2	U19	(TF)IC.SMD.SOIC 8Pin.MOSFET Drivers. INTERSIL.ISL6612ACBZ;EE-A061931;14S9661200;TWN	100	45.4	79.4	
3	U18	(TF)IC.SMD.Chipset LAKEPORT 945G.INTEL.QG82945G SL8FU A2;EE-A051404;14S4294500;TWN	99	45.0	79	
4	L26	(TF)COIL.0.56uH.20%.DIP.35A.GOTREND.GMAT-131210-P-R56-M;EE-A070841;1211105674;TWN	85	40.7	74.7	

1. Tm (Measured operation temperature) must be less than Tc (Specified case temperature) +5 degree C
2. Any Tm value showed in red words which meaning the value is over the Tc+ 5 degree C of this device specification

Component Side-4:



C:\WINDOWS.000\Desktop\Eva\IMBA-880 B10\Frame007.100 (Points Temp.)

p 1: 37.6 264x,214y
p 2: 35.4 274x,166y
p 3: 40.1 191x,171y
p 4: 35.0 191x,207y
p 5: 36.1 61x,169y
p 6: 36.5 27x,164y
p 7: 39.6 182x,122y
p 8:
p 9:
p10:
p11:
p12:
p13:
p14:
p15:

COLOR ADJ.

U 42.1
D 29.7

Cursor : 8, 3
Data Temp.:40.5
Emissivity:0.94
E.C. Temp.:41.2
Ambi Temp.:25.8

HIGH(H) 43.53 X: 50 Y: 6
LOW(L) 29.48 X:316 Y: 14

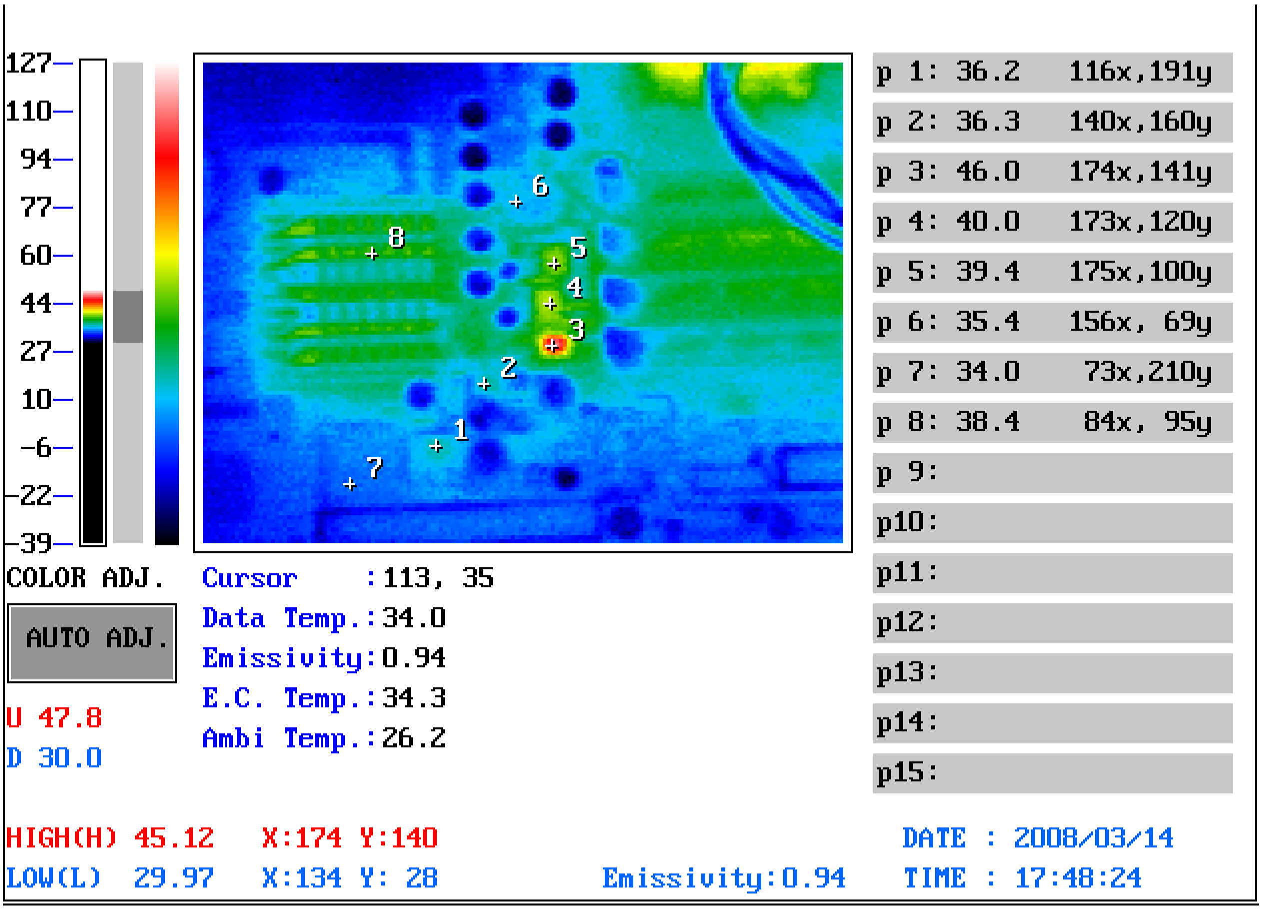
Emissivity:0.94

DATE : 2008/03/14
TIME : 17:39:06

Point	Position	Describe	Tc (℃)	Tm (25.8 ℃)	Tm (60℃)	Note
1	U38	(TF)IC.SMD.QFN 28P.Power Controller.for Dual Channel DDR.INTERSIL.ISL6537ACRZ;EE-A051392;14S4653701;TWN	100	37.6	71.8	
2	Q20	(TF)PWR.SMD.TO-252.N-Channel PowerMosfet.ON SEMI.NTD60N02RT4G;EE-A060014;1315600210;TWN	150	35.4	69.6	
3	L21	(TF)COIL.1.2uH.20%.DIP Wire Size.1.8mm 18 材 3wire 20Amp.TRIO.LG-12AM11C03;EE-A051406;1211101264;TWN	125	40.1	74.3	
4	U37	(TF)IC.SMD.PQFP 128Pin.LPC Super I/O.Winbond. W83627EHG;EE-A050941;14S4362703;TWN	70	35.0	69.2	
5	U34	(TF)IC.SMD.NSOIC 8P.RS-485 Transceivers. SIPEX.SP485ECN-L;EE-940827;14S4048501;TWN	70	36.1	70.3	
6	U31	(TF)IC.SMD SSOP 28P.RS232 Driver ESD 15KV.INTERSIL. HIN213ECAZ;EE-A000060;14S4021310;TWN	70	36.5	70.7	
7	Memory	Kingston DDR2-667 512MB / (HYB18T512800BF3S)	N/A	39.6	73.8	

1. Tm (Measured operation temperature) must be less than Tc (Specified case temperature) +5 degree C
2. Any Tm value showed in red words which meaning the value is over the Tc+ 5 degree C of this device specification

Component Side-5:



p 1:	36.2	116x,191y
p 2:	36.3	140x,160y
p 3:	46.0	174x,141y
p 4:	40.0	173x,120y
p 5:	39.4	175x,100y
p 6:	35.4	156x, 69y
p 7:	34.0	73x,210y
p 8:	38.4	84x, 95y
p 9:		
p10:		
p11:		
p12:		
p13:		
p14:		
p15:		

Cursor :113, 35
Data Temp.:34.0
Emissivity:0.94
E.C. Temp.:34.3
Ambi Temp.:26.2

U 47.8
D 30.0

HIGH(H) 45.12 X:174 Y:140
LOW(L) 29.97 X:134 Y: 28
Emissivity:0.94
DATE : 2008/03/14
TIME : 17:48:24

Point	Position	Describe	Tc (℃)	Tm (26.2 ℃)	Tm (60℃)	Note
1	Q22	(TF)PWR.SMD.TO-252.N-Channel PowerMosfet.ON SEMI.NTD60N02RT4G;EE-A060014;1315600210;TWN	150	36.2	70	
2	Q16	(TF)PWR.SMD.TO-252.N-Channel PowerMosfet.ON SEMI.NTD60N02RT4G;EE-A060014;1315600210;TWN	150	36.3	70.1	
3	U25	(TF)IC.SMD.SOIC 8Pin.MOSFET Drivers. INTERSIL.ISL6612ACBZ;EE-A061931;14S9661200;TWN	100	46.0	79.8	
4	Q15	(TF)PWR.SMD.TO-252.N-Channel PowerMosfet.ON SEMI.NTD78N03T4G;EE-A060020;1315780310;TWN	150	40.0	73.8	
5	Q14	(TF)PWR.SMD.TO-252.N-Channel PowerMosfet.ON SEMI.NTD78N03T4G;EE-A060020;1315780310;TWN	150	39.4	73.2	
6	L15	(TF)COIL.1.0uH.SMD.12.9*12.9*5mm.DCR=2.1m ohm.Idc=29Amp. VISHAY.HLP5050EZER1R0M01;EE-A050183;121110010R;TWN	125	35.4	69.2	
7	U36	(TF)IC.SMD.PLCC 32P.8M Bit Flash Memory. SST.49LF008A-33-4C-NHE;EE-A070587;14S6200800;TWN	115	34.0	67.8	
8	U22	(TF)IC.SMD.Chipset ICH7.INTEL.NH82801GB SL8FX A1; EE-A051402;14S428010C;TWN	99	38.4	72.2	

1. Tm (Measured operation temperature) must be less than Tc (Specified case temperature) +5 degree C
2. Any Tm value showed in red words which meaning the value is over the Tc+ 5 degree C of this device specification