AAEON Technology INC.
ISO-9001/ISO-14001 Certified
Industrial Automation PCs

GENE-6350 rev:A0.2
Thermal Image Analysis Report

Report No: 04E080005

Release Date: May. 18, 2004

2004-05-18	Wenyuan Yang	Rex Chang
Issue Stamp	**QE Manager**	**Test Engineer**

Thermal Image Analysis

Ⅰ. **Model Name: GENE-6350 Rev.A0.2 (BIOS:1.0)**

Ⅱ. **Description: Intel Low-power SubCompact Board.**

Ⅲ. **Date: May. 14, 2004**

Ⅳ. Measure **Site: AAEON QE Dept.**

Ⅴ. **Issued by : Rex Chang**

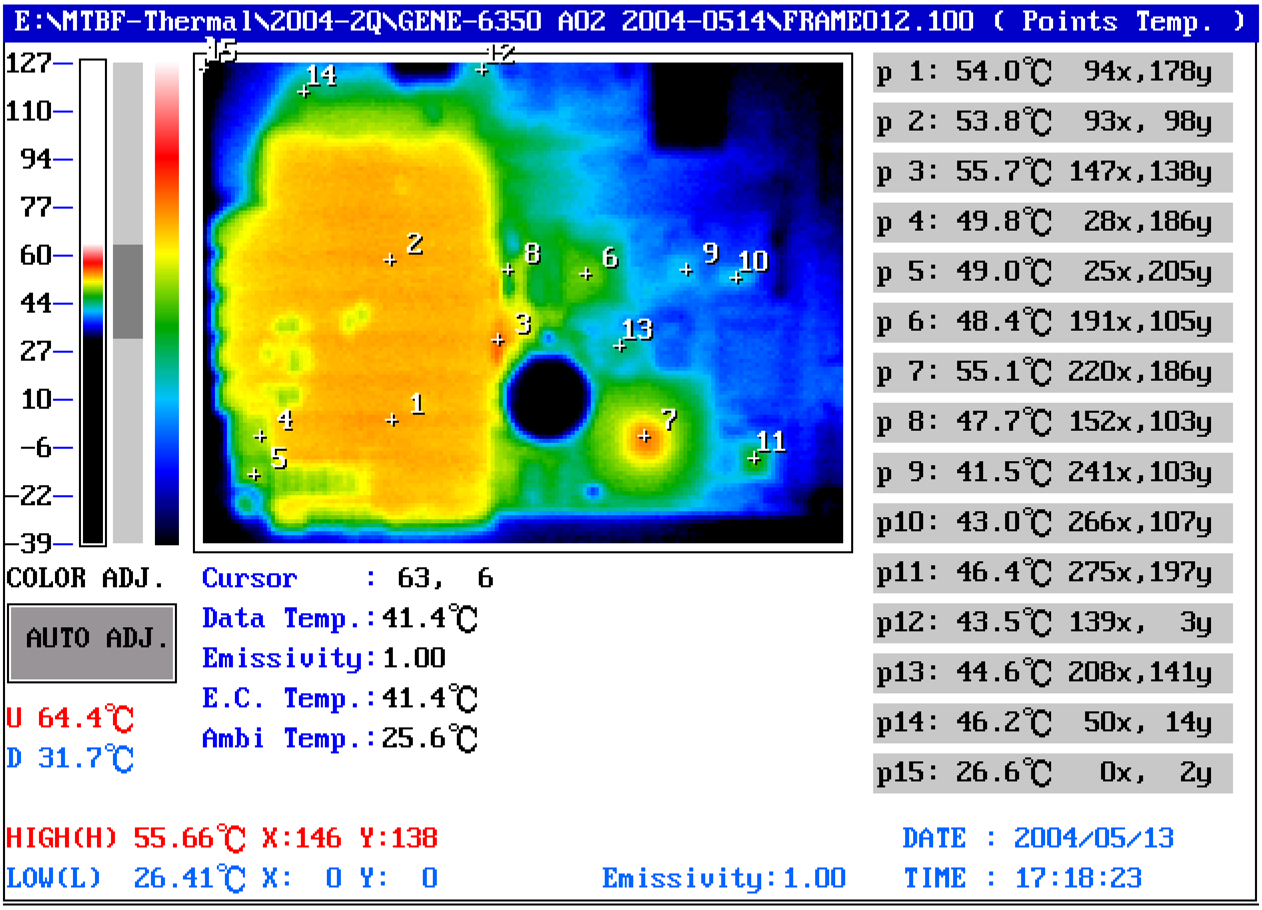
Ⅵ.**Equipment: TVS-100 series by NIPPON AVIONICS CO., LTD.**

Ⅶ. **Simulation Environment:**

- **Temperature: 26.6 degrees C**
- **CPU: Onboard Intel Low Voltage Celeron 400MHz**
- **RAM: 512MB TRANSCEND V58C2256804SAS6 SODIMM(DDR-266)**
- **HDD: Maxtor Fireball 3 ATA/133 HDD 40GB**
- **Application Software: Windows 2000 / Run HCT 9.5**
- **Take Picture Time: Power on 2 hours after**

Temperature Profile Test:

Component Side:



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E:\MTBF-Thermal\2004-2Q\GENE-6350 A02 2004-0514\FRAME012.100 ( Points Temp. )

p 1: 54.0℃  94x,178y
p 2: 53.8℃  93x, 98y
p 3: 55.7℃ 147x,138y
p 4: 49.8℃  28x,186y
p 5: 49.0℃  25x,205y
p 6: 48.4℃ 191x,105y
p 7: 55.1℃ 220x,186y
p 8: 47.7℃ 152x,103y
p 9: 41.5℃ 241x,103y
p10: 43.0℃ 266x,107y
p11: 46.4℃ 275x,197y
p12: 43.5℃ 139x,  3y
p13: 44.6℃ 208x,141y
p14: 46.2℃  50x, 14y
p15: 26.6℃   0x,  2y

Cursor     : 63,  6
Data Temp.:41.4℃
Emissivity:1.00
E.C. Temp.:41.4℃
Ambi Temp.:25.6℃

U 64.4℃
D 31.7℃

HIGH(H) 55.66℃ X:146 Y:138                      DATE : 2004/05/13
LOW(L)  26.41℃ X:  0 Y:  0    Emissivity:1.00   TIME : 17:18:23
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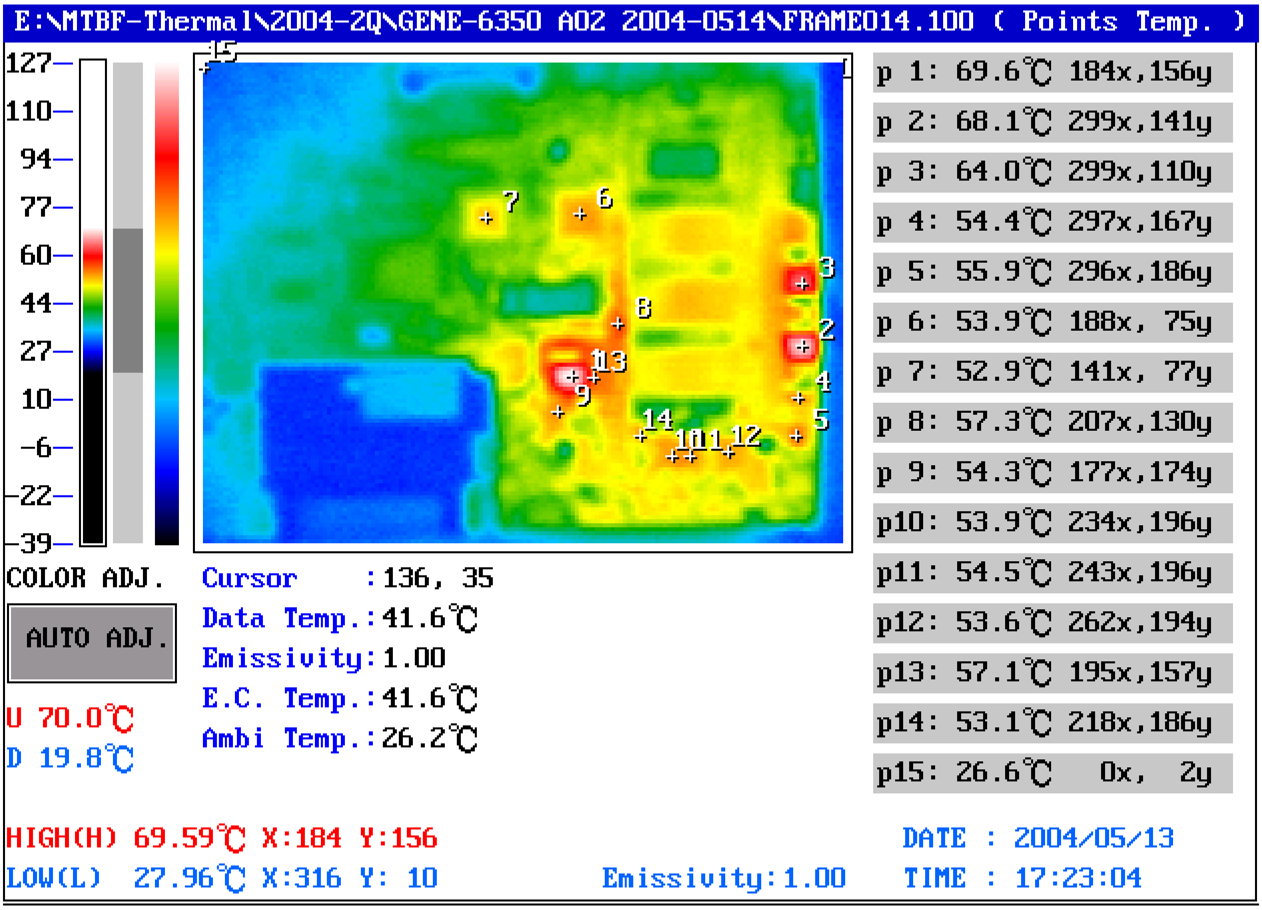
Point	Position	Describe	Ts	Tm	Note
1	U3	INTEL CPU.Celeron.400MHz.Ultra Low Power.Micro FC-BGA		54.0°C	
2	U13	IC.SMD.BGA 548P.Rev.CE.North Bridge Chipset.VIA.VT8623(CLE266)		53.8°C	
3	Q16	Reversed side of PCB (PWR.SMD.TO-252.N-Channel Power MOSFET.APEC.AP9916H)		55.7°C	
4	L5	INDUCTORS.1.6uH 11A.30%.SMD 2pin.高創.GSCDK-106-1R6N		49.8°C	
5	C17	PC-CON.220uF.2V.20%.D(7.3*4.3*2.7mm).10mOhm SMD.Japan Carlit.2SW220M		49.0°C	
6	U10	IC.SMD.LQFP 100P PCI Ethernet CHIP.RELTEK.RTL8100BL		48.4°C	
7	U2	IC.SMD.BGA 487P.South Bridge Chipset.VIA.VT8235		55.1°C	
8	U9	IC.SMD.SSOP 48P.FTG for VIA Pro-266 DDR.CYPRESS.W311		47.7°C	
9	U11	IC.SMD.Status Monitoring 48Pin LQFP.WINBOND.W83781D		41.5°C	
10	U12	IC.SMD.SOP.PHILIPS.N74F07DT		43.0°C	
11	U1	IC.SMD LQFP 48Pin.6 Channel AC'97 Audio Codec.REALTEK.ALC650		46.4°C	
12	U15	IC.SMD SO-8.Supervisory Circuits.ANALOG.ADM706AR		43.5°C	
13	U4	PWR.SMD.SO-8 N-Channel 25V 13A MOSFET.APEC.AP4880M		44.6°C	
14	U14	IC.SMD.DN006.Channel ESD Protection Array.CMD.PACDN006		46.2°C	
15		The Room Temperature		26.6.°C	

1. Operation Temperature (℃):

Ts = Defined by component specification ; Tm = Measured by QE

Temperature Profile Test:

Solder Side – 1:



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E:\MTBF-Thermal\2004-2Q\GENE-6350 A02 2004-0514\FRAME014.100 ( Points Temp. )

p 1: 69.6℃ 184x,156y
p 2: 68.1℃ 299x,141y
p 3: 64.0℃ 299x,110y
p 4: 54.4℃ 297x,167y
p 5: 55.9℃ 296x,186y
p 6: 53.9℃ 188x, 75y
p 7: 52.9℃ 141x, 77y
p 8: 57.3℃ 207x,130y
p 9: 54.3℃ 177x,174y
p10: 53.9℃ 234x,196y
p11: 54.5℃ 243x,196y
p12: 53.6℃ 262x,194y
p13: 57.1℃ 195x,157y
p14: 53.1℃ 218x,186y
p15: 26.6℃   0x,  2y

Cursor      :136, 35
Data Temp.:41.6℃
Emissivity:1.00
E.C. Temp.:41.6℃
Ambi Temp.:26.2℃

U 70.0℃
D 19.8℃

HIGH(H) 69.59℃ X:184 Y:156                         DATE : 2004/05/13
LOW(L)  27.96℃ X:316 Y: 10        Emissivity:1.00  TIME : 17:23:04
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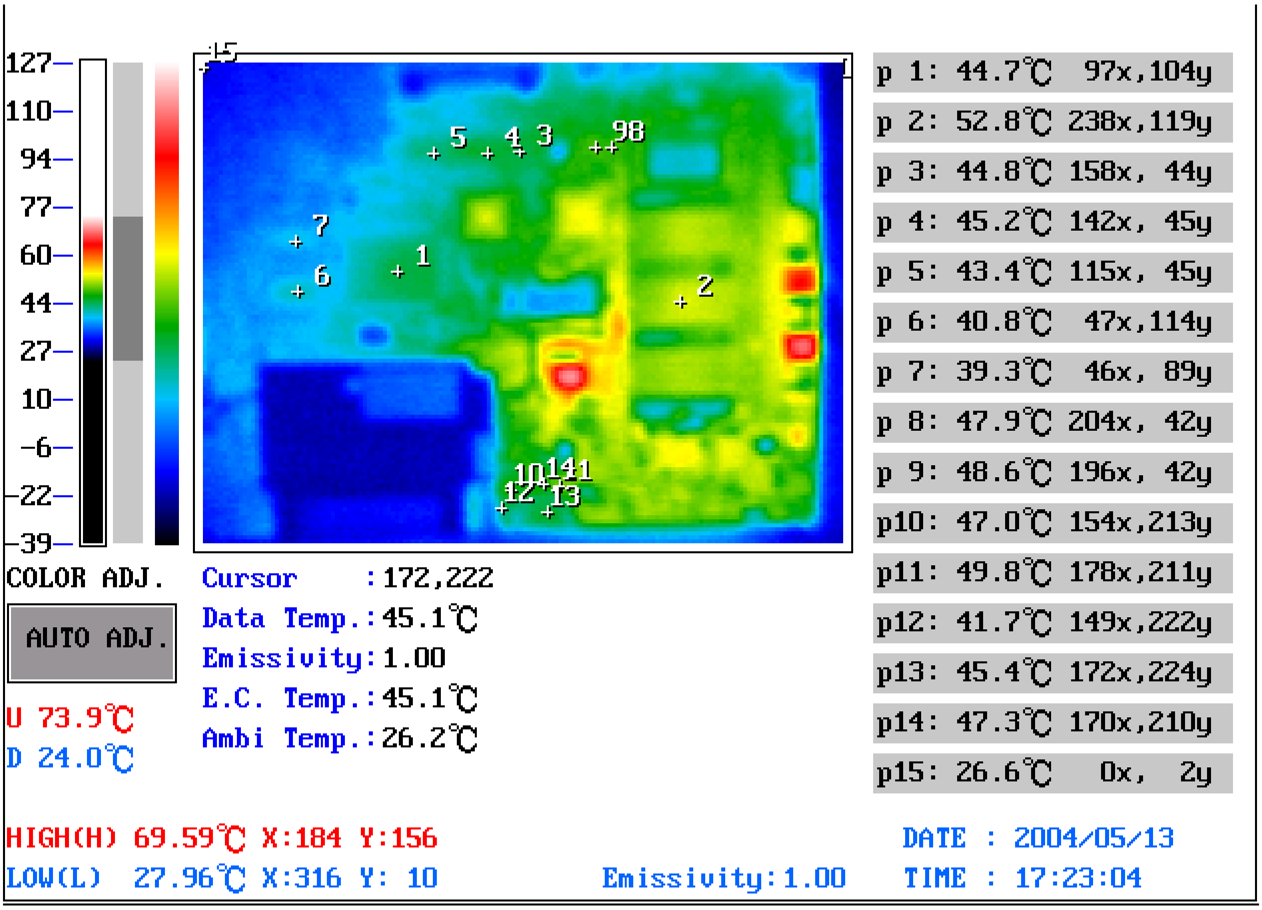
Point	Position	Describe	Ts	Tm	Note
1	Q16	PWR.SMD.TO-252.N-Channel Power MOSFET.APEC.AP9916H		69.9℃	
2	Q13	PWR.SMD.TO-252.N-Channel Power MOSFET.APEC.AP9916H		68.1℃	
3	Q14	PWR.SMD.TO-252.N-Channel Power MOSFET.APEC.AP9916H		64.0℃	
4	Q12	D Schottky.SMD SOT-23.PHILIPS.BAT54C		54.4℃	
5	U19	IC.SMD SOP.8Pin Switching PWM Controller.Intersil.ISL6520A		55.9℃	
6	U34	IC.SMD.TQFP 64P.DVI Transmitter.VIA.VT1632		53.9℃	
7	U32	IC.SMD.TQFP 64P.TV Encoder.VIA.VT1622A		52.9℃	
8	U23	IC.SMD.SSOP 28P.12 Output Buffer.CYPRESS.W256		57.3℃	
9	U20	IC.SMD.SO-8P.Dual Operational Amplifiers.NS.LMV358M		54.3℃	
10	C243	PC-CON.220uF.2V.20%.D(7.3*4.3*2.7mm).10mOhm SMD.Japan Carlit.2SW220M		53.9°C	
11	C242	PC-CON.220uF.2V.20%.D(7.3*4.3*2.7mm).10mOhm SMD.Japan Carlit.2SW220M		54.5℃	
12	C241	SP CAP.33uF.8V.20%.D(7.3*4.3*1.8) 25Ohm.Panasonic.EEFCD0K330R		53.6℃	
13	C390	KO-CAP.330uF.6.3V.20%.D(7.3*4.3*2.8mm).45mOhm SMD.KEMET.T520D337M006AS		57.1℃	
14	U18	REG.SMD.SOT-89 3P.CMOS LDO Regulator.AME.AME8805LEFT		53.1℃	
15		The Room Temperature		26.6℃	

1. Operation Temperature (℃):

Ts = Defined by component specification ; Tm = Measured by QE

Temperature Profile Test:

Solder Side-2:



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U 73.9℃
D 24.0℃

Cursor     :172,222
Data Temp.:45.1℃
Emissivity:1.00
E.C. Temp.:45.1℃
Ambi Temp.:26.2℃

p 1: 44.7℃  97x,104y
p 2: 52.8℃ 238x,119y
p 3: 44.8℃ 158x, 44y
p 4: 45.2℃ 142x, 45y
p 5: 43.4℃ 115x, 45y
p 6: 40.8℃  47x,114y
p 7: 39.3℃  46x, 89y
p 8: 47.9℃ 204x, 42y
p 9: 48.6℃ 196x, 42y
p10: 47.0℃ 154x,213y
p11: 49.8℃ 178x,211y
p12: 41.7℃ 149x,222y
p13: 45.4℃ 172x,224y
p14: 47.3℃ 170x,210y
p15: 26.6℃   0x,  2y

HIGH(H) 69.59℃ X:184 Y:156                         DATE : 2004/05/13
LOW(L)  27.96℃ X:316 Y: 10      Emissivity:1.00    TIME : 17:23:04
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Point	Position	Describe	Ts	Tm	Note
1	U27	IC.SMD.PQFP 128P.Super I/O.Winbond.W83697UF		44.7°C	
2	Non	TRANSCEND V58C2256804SAS6 SODIMM 512MB		52.8°C	
3	U33	PWR.SMD SO-8 P-Channel.2.5V(G-S) 7.7A MOSFET.CET.CEM9424		44.8°C	
4	U36	IC.SMD SSOP.RS232 Driver ESD 15KV.INTERSIL.HIN213ECA-T		45.2°C	
5	U37	IC.SMD SSOP.RS232 Driver ESD 15KV.INTERSIL.HIN213ECA-T		43.4°C	
6	U29	IC.SMD SSOP.RS232 Driver ESD 15KV.INTERSIL.HIN213ECA-T		40.8°C	
7	U26	IC.SMD SSOP.RS232 Driver ESD 15KV.INTERSIL.HIN213ECA-T		39.3°C	
8	Q26	NPN.SMD.3P SOT-23.FAIRCHILD.MMBT3904		47.9°C	
9	Q27	NPN.SMD.3P SOT-23.FAIRCHILD.MMBT3904		48.6°C	
10	U17	IC.SMD.SOIC 8P USB Power Controller.MICREL.MIC2012CM		47.0°C	
11	U16	IC.SMD.SOIC 8P USB Power Controller.MICREL.MIC2012CM		49.8°C	
12	C171	KO-CAP.150uF.6.3V.20%.D(7.3*4.3*1.9mm).45mOhm		41.7°C	
13	C170	KO-CAP.150uF.6.3V.20%.D(7.3*4.3*1.9mm).45mOhm		45.4°C	
14	C173	KO-CAP.150uF.6.3V.20%.D(7.3*4.3*1.9mm).45mOhm		47.3°C	
15		The Room Temperature		26.6°C	

1. Operation Temperature (℃):

Ts = Defined by component specification ; Tm = Measured by QE