

GENE-9310

Intel® Core™ 2 Duo/ Core™ Duo/
Celeron® M Processors
With LVDS, Ethernet,
2 Channel Audio & Mini PCI

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Packing List

Before you begin installing your card, please make sure that the following materials have been shipped:

- 9657666600 Jumper Cap
- Cooler or Heatsink
- Quick Installation Guide
- CD-ROM for manual (in PDF format) and drivers
- GENE-9310 CPU Card

If any of these items should be missing or damaged, please contact your distributor or sales representative immediately.

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Chapter

1

**General
Information**

1.1 Introduction

AAEON Technology is announcing a cutting-edge 3.5" and ECX form factor single board computer, GENE-9310 which supports the innovative Intel® Core™ 2 Duo/Core™ Duo/Celeron® M (65nm) processors. As a leading Industrial PC manufacturer, AAEON initiates the new product to fulfill the needs from versatile market segments.

GENE-9310 features one DDR SODIMM that supports DDRII 400/533/667 up to 2 GB. The VGA/ LCD controller integrated in the Mobile Intel® 945GME Express chipset which supports dual view/simultaneous display on the configuration of CRT/LCD, CRT/TV, LCD/TV. This controller supports up to 24-bit dual channel LVDS. In addition, GENE-9310 offers two COM ports through one D-sub connector and the other internal pin-header. Furthermore, through expansion interface, customers can get four additional COM ports. Concerning the USB ports, GENE-9310 features a total of five USB 2.0 ports. Two are standard ports, and two are internal pin headers with the last one is extended from the extension card.

The GENE-9310 offers one of the best combinations in revolutionary dual-core performance and breakthrough processor energy efficiency for versatile applications.

1.2 Features

- Intel® Core™ 2 Duo/ Core™ Duo/ Celeron® M (65nm) Processor Up To 2.16 GHz
- Intel 945GME + ICH7M
- SODIMM DDR2 400/533/667, Max. 2 GB
- Gigabit Ethernet x 1
- CRT, TV-out, 24-bit Dual-Channel LVDS LCD
- AC97 2.3 Codec 2CH Audio Codec
- EIDE x 1 SATA I x 2, CompactFlash™ x 1
- 8-bit Digital I/O, USB x 4, COM x 2
- Flexible Expansion: Mini-PCI Socket And ECX Proprietary Expansion Connector
- +12V Only Operation
- Optional Extension Board Supports: 24-bit Dual-Channel LVDS or DVI, USB x 1, SATA x 2 (Support RAID 0 & RAID 1 Functions), PCI-E[x1] x 1, COM x 4, LPC x 1, PCI x 1

1.3 Specifications

System

- Processor Socket-478M or onboard Intel® Core™ 2 Duo/ Core™ Duo/Celeron® M Processor up to 2.16 GHz, FSB 533/667MHz
- System Memory 200-pin DDR2 SODIMM x 1, Max. 2 GB (DDR2 400/533/667)
- Chipset Intel® 945GME + ICH7M
- I/O Chipset ITE IT8712
- Ethernet Intel® 82573L, 10/100/1000Base-TX,RJ-45 x 1
- BIOS Award Plug & Play BIOS – 1 MB Flash
- Wake On LAN Yes
- Watchdog Timer Generates a Time-out System Reset
- H/W Status Monitoring Supports Power Supply Voltages, Fan Speed and Temperatures Monitoring
- Expansion Interface Mini PCI x 1, ECX Proprietary Expansion Connector x 1
- Battery Lithium battery
- Power Requirement +12V, AT/ATX
- Power Consumption Intel® Core™ 2 Duo/ T7400 2.16 GHz, DDR2 667 1GB
+12V @ 3.89A
- Board Size 5.75”(L) x 4”(W) (146mm x 101.6mm)
- Gross Weight 0.88lb (0.4kg)

- Operating Temperature 32°F~140°F (0°C~60°C)
- Storage Temperature -40°F~176°F (-40°C~80°C)
- Operating Humidity 0%~90% relative humidity, non-condensing
- MTBF (Hours) 70,000

Display: Supports CRT/LCD, CRT/TV, LCD/TV, simultaneous /dual view displays

- Chipset Intel[®] 945GME integrated
- Memory Shared System Memory Up to 224MB with DVMT 3.0
- Resolutions Up to 2048x1536 for CRT
Up to 1920x1200 for LCD
- LCD Interface Up to 24-bit Dual-channel LVDS
- TV-Out Supports NTSC and PAL Standard, S-terminal and Composite Video

I/O

- Storage EIDE x 1 (UDMA 33 for two devices), SATA I x 2, Type II CompactFlash™ x 1
- Serial Port RS-232 x 1, RS-232/422/485 (Auto flow) x 1
- USB USB2.0 x 4
- PS/2 Port Keyboard x 1, Mouse x 1
- Digital I/O Supports 8-bit (Programmable)
- Audio MIC-in, Line-in, Line-out, CD-in, S/PDIF in/out

Chapter

2

Quick Installation Guide

Notice:

The Quick Installation Guide is derived from Chapter 2 of user manual. For other chapters and further installation instructions, please refer to the user manual CD-ROM that came with the product.



2.1 Safety Precautions

Warning!

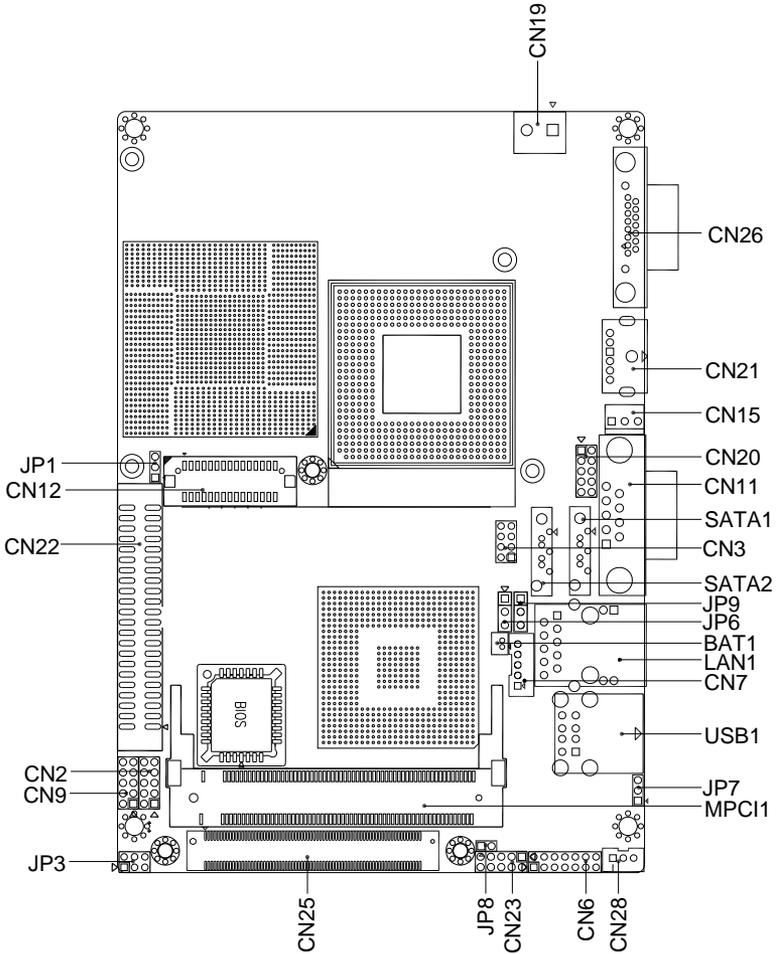
Always completely disconnect the power cord from your board whenever you are working on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.

Caution!

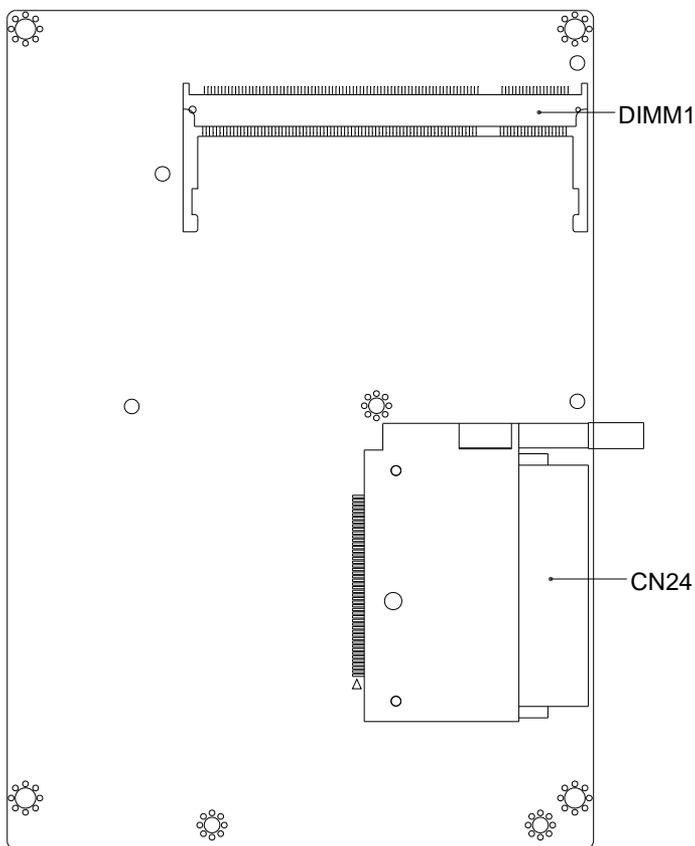
Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not in the chassis

2.2 Location of Connectors and Jumpers

Component Side

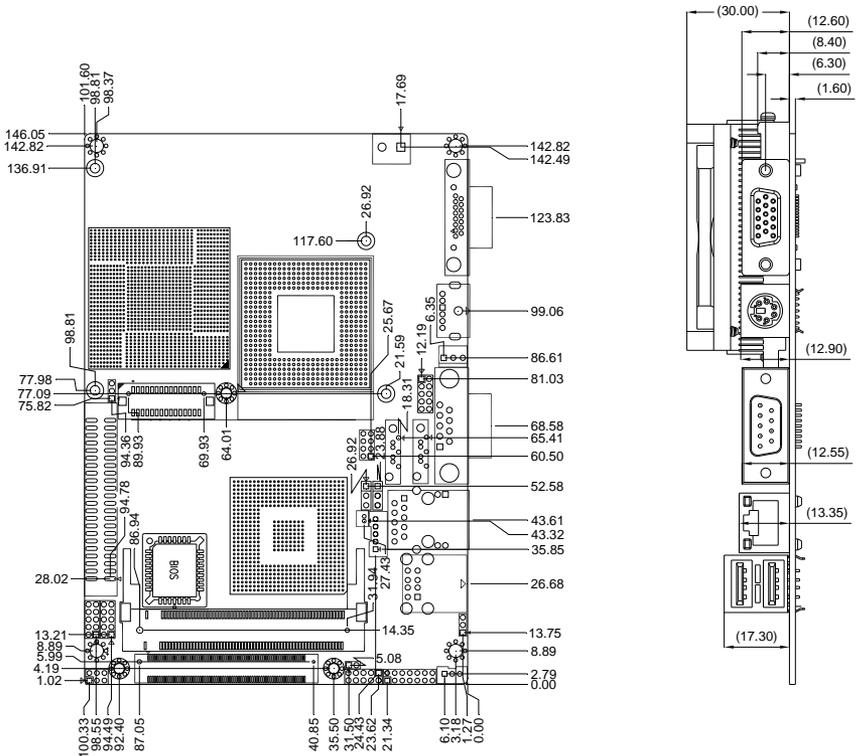


Solder Side

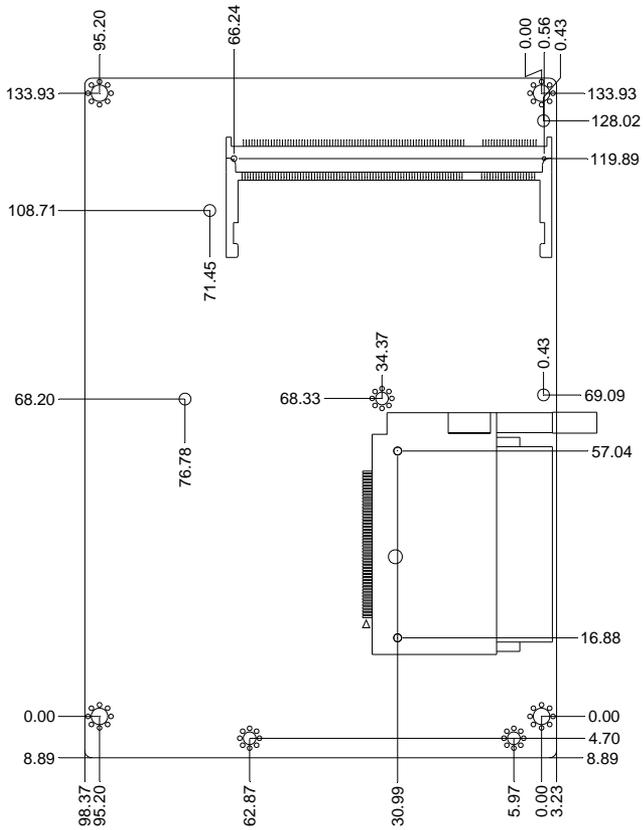


2.3 Mechanical Drawing

Component Side



Solder Side



2.4 List of Jumpers

The board has a number of jumpers that allow you to configure your system to suit your application.

The table below shows the function of each of the board's jumpers:

Jumpers

Label	Function
JP1	LVDS(1)-LCD(CN12) Voltage Selection
JP3	COM2 Ring/+5V/+12V Selection
JP6	Clear CMOS
JP7	AT/ATX Power Mode Selection
JP8	Buzzer Header
JP9	LCD Inverter/Backlight +5V/+12V Selection

2.5 List of Connectors

The board has a number of connectors that allow you to configure your system to suit your application. The table below shows the function of each board's connectors:

Connectors

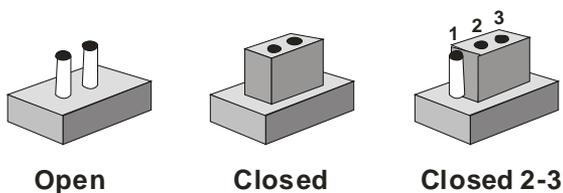
Label	Function
CN2	Digital I/O Connector
CN3	TV-Out Connector
CN6	Audio Connector
CN7	LCD Inverter/Backlight Connector
CN9	COM2 RS-232/422/485 Serial Port Connector
CN11	COM1 RS-232 Serial Port Connector
CN12	LVDS (1)-LCD Connector
CN15	Fan Connector
CN19	DC12V Power Connector
CN20	USB Connector
CN21	PS2 Keyboard/Mouse Connector
CN22	EIDE Connector
CN23	Front Panel Connector
CN24	Compact Flash Slot
CN25	Expansion board 140Pins slot
CN26	VGA Display Connector
CN28	SPDIF IN/OUT Connector
LAN1	10 /100 /1000 Base-TX Ethernet Connector
USB1	USB Connector

BAT1	RTC BATTERY Connector
MPC11	Mini PCI Slot
SATA1	Primary Serial ATA Connector
SATA2	Secondary Serial ATA Connector
DIMM1	DDR2 SODIMM Slot

2.6 Setting Jumpers

You configure your card to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To “close” a jumper you connect the pins with the clip.

To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2 or 2 and 3.



A pair of needle-nose pliers may be helpful when working with jumpers.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any change.

Generally, you simply need a standard cable to make most connections.

2.7 LVDS(1)-LCD(CN12) Voltage Selection (JP1)

JP1	Function
1-2	+5V
2-3	+3.3V (Default)

2.8 COM2 Ring/+5V/+12V Selection (JP3)

JP3	Function
1-2	+12V
3-4	+5V
5-6	Ring (Default)

2.9 Clear CMOS (JP6)

JP6	Function
1-2	Protected (Default)
2-3	Clear

2.10 AT/ATX Power Mode Selection (JP7)

JP7	Function
1-2	AT Power Mode (Default)
2-3	ATX Power Mode

2.11 Buzzer Header (JP8)

JP8	Function
Pin1	External Buzzer (+)
Pin2	External Buzzer (-)

2.12 LCD Backlight +5V/+12V Selection (JP9)

JP9	Function
1-2	+12V
2-3	+5V (Default)

2.13 Digital I/O Connector (CN2)

This connector offers 4-pair of digital I/O functions and address is 801H. The pin definitions are illustrated below:

Pin	Signal	Pin	Signal
1	DIO1-1	2	DIO1-2
3	DIO1-3	4	DIO1-4
5	DIO1-5	6	DIO1-6
7	DIO1-7	8	DIO1-8
9	+5V	10	GND

The pin definitions and registers mapping are illustrated below:

Address: **801H**

BIOS Setting	Connector Definition	Address	IT8712F/ KX GPIO Setting
DIO1-1	CN2 Pin1	Bit0	U4 Pin27 (GPIO20)
DIO1-2	CN2 Pin2	Bit1	U4 Pin26 (GPIO21)
DIO1-3	CN2 Pin3	Bit2	U4 Pin25 (GPIO22)
DIO1-4	CN2 Pin4	Bit3	U4 Pin24 (GPIO23)
DIO1-5	CN2 Pin5	Bit4	U4 Pin23 (GPIO24)
DIO1-6	CN2 Pin6	Bit5	U4 Pin22 (GPIO25)
DIO1-7	CN2 Pin7	Bit6	U4 Pin21 (GPIO26)

DIO1-8 CN2 Pin8 Bit7 U4 Pin20 (GPIO27)

2.14 TV_Out Connector (CN3)

Pin	Name	Pin	Name
1	Y	2	CVBS
3	GND	4	GND
5	C	6	N.C.
7	GND	8	N.C.

2.15 AC97 Audio Connector (CN6)

Pin	Signal	Pin	Signal
1	First MIC_IN	2	Secondary MIC_IN
3	LINE_IN_GND	4	CD_GND
5	LINE_IN_L	6	CD_IN_L
7	LINE_IN_R	8	CD_GND
9	LINE_IN_GND	10	CD_IN_R
11	LINE_OUT_L	12	LINE_OUT_R
13	LINE_OUT_GND	14	LINE_OUT_GND

2.16 LCD Inverter/ Backlight Connector (CN7)

Pin	Signal
1	+5V (Default) / +12V input
2	BKL_CON
3	GND
4	GND
5	INV_EN

2.17 COM2 RS-232/422/485 Serial Port Connector (CN9)

Pin	Signal	Pin	Signal
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI/VCC12/VCC5	10	N.C.

2.18 COM1 RS-232 Serial Port Connector (CN11)

Pin	Signal	Pin	Signal
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10.11	GND

2.19 LVDS (1)-LCD Connector (CN12)

Pin	Signal	Pin	Signal
1	BKLTEN	2	BKLTCTL
3	PPVCC	4	GND
5	LVDS1_TXCLK-	6	LVDS1_TXCLK+
7	PPVCC	8	GND
9	LVDS1_TX0-	10	LVDS1_TX0+
11	LVDS1_TX1-	12	LVDS1_TX1+
13	LVDS1_TX2-	14	LVDS1_TX2+
15	LVDS1_TX3-	16	LVDS1_TX3+
17	I2C_DATA	18	I2C_CLK

19	LVDS2_TX0-	20	LVDS2_TX0+
21	LVDS2_TX1-	22	LVDS2_TX1+
23	LVDS2_TX2-	24	LVDS2_TX2+
25	LVDS2_TX3-	26	LVDS2_TX3+
27	PPVCC	28	GND
29	LVDS2_TXCLK-	30	LVDS2_TXCLK+

2.20 Fan Connector (CN15)

Pin	Signal
1	GND
2	Speed Control +12V (Default) or +5V
3	Speed Sense

2.21 DC12V Power Connector (CN19)

Pin	Signal	Pin	Signal
1	+12V	2	GND

2.22 USB Connector (CN20)

Pin	Signal	Pin	Signal
1	+5V	2	GND
3	USBD2-	4	GND
5	USBD2+	6	USBD3+
7	GND	8	USBD3-
9	GND	10	+5V

2.23 PS2 Keyboard/Mouse Connector (CN21)

Pin	Signal	Pin	Signal
1	KBDAT	2	MSDAT

3	GND	5	VCC_KB
6	KBCLK	8	MSCLK
H1	GND	H1	GND
H3	GND		

2.24 EIDE Connector (CN22)

Pin	Signal	Pin	Signal
1	IDE RESET	2	GND
3	DATA7	4	DATA8
5	DATA6	6	DATA9
7	DATA5	8	DATA10
9	DATA4	10	DATA11
11	DATA3	12	DATA12
13	DATA2	14	DATA13
15	DATA1	16	DATA14
17	DATA0	18	DATA15
19	GND	20	N.C.
21	REQ	22	GND
23	IO WRITE	24	GND
25	IO READ	26	GND
27	IO READY	28	GND
29	DACK	30	GND
31	IRQ14	32	N.C.
33	ADDR1	34	UDMA DETECT
35	ADDR0	36	ADDR2
37	CS#1	38	CS#3
39	HD LED	40	GND
41	+5V	42	+5V
43	GND	44	N.C.

2.25 Front Panel Connector (CN23)

Pin	Signal	Pin	Signal
1	Power On Button (-)	2	Power On Button (+)
3	IDE LED (-)	4	IDE LED (+)
5	External Buzzer (-)	6	External Buzzer (+)
7	Power LED (-)	8	Power LED (+)
9	Reset Switch (-)	10	Reset Switch (+)

2.26 Compact Flash Slot (CN24)

Pin	Signal	Pin	Signal
1	GND	2	DATA3
3	DATA4	4	DATA5
5	DATA6	6	DATA7
7	CS#1	8	GND
9	GND	10	GND
11	GND	12	GND
13	+5V/+3.3V	14	GND
15	GND	16	GND
17	GND	18	ADDR2
19	ADDR1	20	ADDR0
21	DATA0	22	DATA1
23	DATA2	24	N.C.
25	GND	26	GND
27	DATA11	28	DATA12
29	DATA13	30	DATA14
31	DATA15	32	CS#3.
33	GND	34	IO READ
35	IO WRITE	36	+5V/+3.3V

37	IRQ14	38	+5V/+3.3V
39	GND	40	N.C.
41	CFDRST	42	IO READY
43	REQ	44	DACK
45	LED	46	UDMA DETECT
47	DATA8	48	DATA9
49	DATA10	50	GND

2.27 Expansion Board 140-pin Slot (CN25)

Pin	Signal	Pin	Signal
1	+2.5V	2	SDVOB_CLKN
3	+2.5V	4	SDVOB_CLKP
5	+2.5V	6	GND
7	ICH_RI#	8	SDVOB_BLUE#
9	INT_SERIRQ	10	SDVOB_BLUE
11	PCI_SLOT_RST#	12	SDVOB_GREEN#
13	PCI_GNT#2	14	SDVOB_GREEN
15	PCI_GNT#1	16	SDVOB_RED#
17	PCI_AD11	18	SDVOB_RED
19	PCI_AD13	20	GND
21	PCI_TRDY#	22	SDVOB_INT#
23	PCI_FRAME#	24	SDVOB_INT
25	PCI_AD24	26	GND
27	INT_PIRQC#	28	SDVO_SPC
29	PCI_PME#	30	SDVO_SPD
31	PCI_AD28	32	SDVO_FLDSTALL#
33	PCI_REQ#1	34	SDVO_FLDSTALL
35	PCI_AD22	36	GND

37	PCI_PAR	38	+5V
39	INT_PIRQD#	40	+5V
41	PCI_SLOT2_CLK33	42	+5V
43	PCI_SLOT1_CLK33	44	GND
45	PCI_AD16	46	SMBCLK_SBY
47	PCI_REQ#2	48	SMBDAT_SBY
49	PCI_AD26	50	GND
51	PCI_AD30	52	PCIE_WAKE#
53	PCI_AD31	54	PCIE_RST#
55	PCI_AD29	56	GND
57	PCI_STOP#	58	PCIE_TXP
59	PCI_AD18	60	PCIE_TXN
61	PCI_AD27	62	PCIE_RXP
63	PCI_AD25	64	PCIE_RXN
65	PCI_C/BE#0	66	GND
67	IDSEL0(PCI_AD27)	68	PCIESLOT1_CLK
69	PCI_C/BE#3	70	PCIESLOT1_CLK#
71	PCI_AD23	72	GND
73	IDSEL1(PCI_AD25)	74	LPC_AD3
75	PCI_AD20	76	LPC_AD2
77	PCI_DEVSEL#	78	LPC_AD1
79	PCI_AD21	80	LPC_AD0
81	PCI_AD19	82	ICH_DRQ#1
83	PCI_AD17	84	LPC_FRAME#
85	PCI_C/BE#2	86	GND
87	PCI_IRDY#	88	+3.3V_DUAL
89	PCI_AD4	90	+3.3V_DUAL
91	PCI_AD9	92	+3.3V_DUAL

93	PCI_AD15	94	GND
95	PM_CLKRUN#	96	PM_SLP_S3#
97	PCI_SERR#	98	PM_SLP_S4#
99	PCI_AD6	100	PM_SLP_S5#
101	PCI_PERR#	102	INT_BAT#
103	PCI_C/BE#1	104	+5V_DUAL
105	PCI_AD0	106	+5V_DUAL
107	PCI_AD2	108	+5V_DUAL
109	PCI_AD14	110	N.C.
111	PCI_LOCK#	112	N.C.
113	INT_PIRQB#	114	N.C.
115	PCI_AD12	116	N.C.
117	PCI_AD10	118	N.C.
119	PCI_AD8	120	N.C.
121	PCI_AD7	122	N.C.
123	INT_PIRQA#	124	N.C.
125	PCI_AD3	126	N.C.
127	PCI_AD5	128	GND
129	PCI_AD1	130	CLK48
131	+3.3V	132	CLK33
133	+3.3V	134	GND
135	+3.3V	136	USBPN
137	GND	138	USBPP
139	GND	140	OC#

2.28 VGA Display Connector (CN26)

Pin	Signal	Pin	Signal
1	RED	2	GREEN

3	BLUE	4	N.C.
5	GND	6	CRT_PLUG
7	GND	8	GND
9	+5V	10	GND
11	N.C.	12	DDCDAT
13	HSYNC	14	VSYNC
15	DDCCLK	H1, H2	GND
H3, H4	N.C.		

2.29 SPDIF IN/OUT Connector (CN28)

Pin	Signal	Pin	Signal
1	SPDIF-OUT	2	GND
3	SPDIF-IN		

2.30 RTC BATTERY Connector (BAT1)

Pin	Signal	Pin	Signal
1	Battery	2	GND

Below Table for China RoHS Requirements

产品中有毒有害物质或元素名称及含量

AAEON Main Board/ Daughter Board/ Backplane

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板 及其电子组件	×	○	○	○	○	○
外部信号 连接器及线材	×	○	○	○	○	○
<p>O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。</p> <p>X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求。</p> <p>备注: 此产品所标示之环保使用期限, 系指在一般正常使用状况下。</p>						

Chapter

3

**Award
BIOS Setup**

3.1 System Test and Initialization

These routines test and initialize board hardware. If the routines encounter an error during the tests, you will either hear a few short beeps or see an error message on the screen. There are two kinds of errors: fatal and non-fatal. The system can usually continue the boot up sequence with non-fatal errors. Non-fatal error messages usually appear on the screen along with the following instructions:

Press <F1> to RESUME

Write down the message and press the F1 key to continue the boot up sequence.

System configuration verification

These routines check the current system configuration against the values stored in the CMOS memory. If they do not match, the program outputs an error message. You will then need to run the BIOS setup program to set the configuration information in memory.

There are three situations in which you will need to change the CMOS settings:

1. You are starting your system for the first time
2. You have changed the hardware attached to your system
3. The CMOS memory has lost power and the configuration information has been erased.

The GENE-9310 CMOS memory has an integral lithium battery backup for data retention. However, you will need to replace the complete unit when it finally runs down.

3.2 Award BIOS Setup

Awards BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM so that it retains the Setup information when the power is turned off.

Entering Setup

Power on the computer and press immediately. This will allow you to enter Setup.



Standard CMOS Features

Use this menu for basic system configuration. (Date, time, IDE, etc.)

Advanced BIOS Features

Use this menu to set the advanced features available on your system.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals. (Primary slave, secondary slave, keyboard, mouse etc.)

Power Management Setup

Use this menu to specify your settings for power management. (HDD power down, power on by ring, KB wake up, etc.)

PnP/PCI Configurations

This entry appears if your system supports PnP/PCI.

PC Health Status

This menu allows you to set the shutdown temperature for your system.

Frequency/Voltage Control

Use this menu to specify your settings for auto detect DIMM/PCI clock and spread spectrum.

Load Fail-Safe Defaults

Use this menu to load the BIOS default values for the minimal/stable performance for your system to operate.

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory settings for optimal performance system operations.

While AWARD has designated the custom BIOS to maximize performance, the factory has the right to change these defaults to meet their needs.

Set Supervisor/User Password

Use this menu to set Supervisor/User Passwords.

Save and Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

You can refer to the "AAEON BIOS Item Description.pdf" file in the CD for the meaning of each setting in this chapter.

Chapter

4

**Driver
Installation**

The GENE-9310 comes with a CD-ROM that contains all drivers and utilities that meet your needs.

Follow the sequence below to install the drivers:

Step 1 – Install Intel® INF Driver

Step 2 – Install Intel® VGA Driver

Step 3 – Install Intel® LAN Driver

Step 4 – Install Realtek Audio Driver

Step 5 – Install SATA Driver

USB 2.0 Drivers are available for download using Windows Update for both Windows XP and Windows 2000. For additional information regarding USB 2.0 support in Windows XP and Windows 2000, please visit www.microsoft.com/hwdev/usb/.

Please read instructions below for further detailed installations.

4.1 Installation:

Insert the GENE-9310 CD-ROM into the CD-ROM Drive. And install the drivers from Step 1 to Step 5 in order.

Step 1 – Install Intel INF Driver

1. Click on the **Step 1-Intel Inf Driver** folder and then double click on the **Setup.exe**
2. Follow the instructions that the window shows
3. The system will help you install the driver automatically

Step 2 – Install Intel VGA Driver

1. Click on the **Step 2-Intel VGA Driver** folder and select the OS folder your system is
2. Double click on the **.exe** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 3 – Install Intel LAN Driver

1. Click on the **Step 3-Intel LAN Driver** folder and select the OS folder your system is
2. Double click on the **.exe** file located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 4 – Install Realtek Audio Driver

1. Click on the **Step 4-Realtek Audio Driver** folder and select the OS folder your system is

2. Double click on the **setup.exe** located in each OS folder
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 5 – Install SATA Driver

Place the Driver CD-ROM into your CD-ROM drive and pull up the CD-ROM file on your screen.

1. Click on **Start** button
2. Click on **Settings** button
3. Click on **Control Panel** button
4. Click on **System** button
5. Select **Hardware** and click on **Device Manager...**
6. Double click on **SCSI and RAID Controller**
7. Click on **Update Driver...**
8. Click on **Next**
9. Select **Search for a suitable driver...**, then click on **Next**
10. Select **Specify a location**, then click on **Next**
11. Click on **Browse**
12. Select “**silicon Image Sil3132 SATALink Controller**” file from CD-ROM (**Driver/Step 5-Sil3132 SATA Driver**) then click on **Open**
13. Click on **OK**
14. Click on **Next**
15. Click on **Yes**
16. Click on **Finish**

Appendix

A

Programming the Watchdog Timer

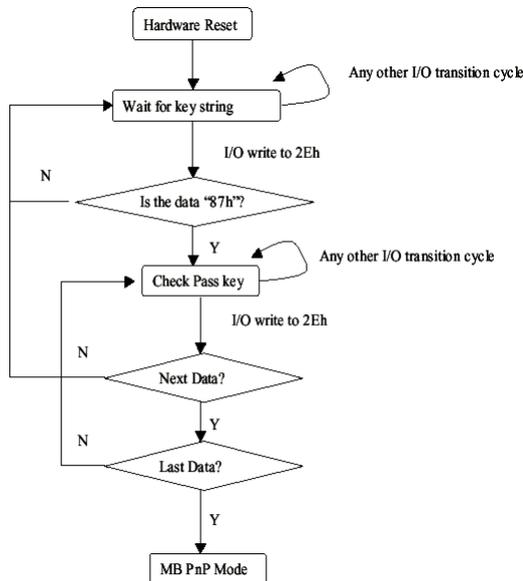
A.1 Programming

GENE-9310 utilizes ITE 8712 chipset as its watchdog timer controller.

Below are the procedures to complete its configuration and the AAEON initial watchdog timer program is also attached based on which you can develop customized program to fit your application.

Configuring Sequence Description

After the hardware reset or power-on reset, the ITE 8712 enters the normal mode with all logical devices disabled except KBC. The initial state (enable bit) of this logical device (KBC) is determined by the state of pin 121 (DTR1#) at the falling edge of the system reset during power-on reset.



There are three steps to complete the configuration setup: (1) Enter the MB PnP Mode; (2) Modify the data of configuration

registers; (3) Exit the MB PnP Mode. Undesired result may occur if the MB PnP Mode is not exited normally.

(1) Enter the MB PnP Mode

To enter the MB PnP Mode, four special I/O write operations are to be performed during Wait for Key state. To ensure the initial state of the key-check logic, it is necessary to perform four write operations to the Special Address port (2EH). Two different enter keys are provided to select configuration ports (2Eh/2Fh) of the next step.

	Address Port	Data Port
87h, 01h, 55h, 55h:	2Eh	2Fh

(2) Modify the Data of the Registers

All configuration registers can be accessed after entering the MB PnP Mode. Before accessing a selected register, the content of Index 07h must be changed to the LDN to which the register belongs, except some Global registers.

(3) Exit the MB PnP Mode

Set bit 1 of the configure control register (Index=02h) to 1 to exit the MB PnP Mode.

WatchDog Timer Configuration Registers

LDN	Index	R/W	Reset	Configuration Register or Action
All	02H	W	N/A	Configure Control
07H	71H	R/W	00H	WatchDog Timer Control Register
07H	72H	R/W	00H	WatchDog Timer Configuration Register
07H	73H	R/W	00H	WatchDog Timer Time-out Value Register

Configure Control (Index=02h)

This register is write only. Its values are not sticky; that is to say, a hardware reset will automatically clear the bits, and does not require the software to clear them.

Bit	Description
7-2	Reserved
1	Returns to the Wait for Key state. This bit is used when the configuration sequence is completed
0	Resets all logical devices and restores configuration registers to their power-on states.

WatchDog Timer Control Register (Index=71h, Default=00h)

Bit	Description
7	WDT is reset upon a CIR interrupt
6	WDT is reset upon a KBC (mouse) interrupt
5	WDT is reset upon a KBC (keyboard) interrupt
4	WDT is reset upon a read or a write to the Game Port base address
3-2	Reserved
1	Force Time-out. This bit is self-clearing
0	WDT Status
	1: WDT value reaches 0.
	0: WDT value is not 0

WatchDog Timer Configuration Register (Index=72h, Default=00h)

Bit	Description
7	WDT Time-out value select
	1: Second
	0: Minute
6	WDT output through KRST (pulse) enable
5-4	Reserved
3-0	Select the interrupt level ^{Note} for WDT

WatchDog Timer Time-out Value Register (Index=73h, Default=00h)

Bit	Description
7-0	WDT Time-out value 7-0

A.2 IT8712 Watchdog Timer Initial Program

```
.MODEL SMALL
```

```
.CODE
```

Main:

```
CALL Enter_Configuration_mode
```

```
CALL Check_Chip
```

```
mov cl, 7
```

```
call Set_Logic_Device
```

```
;time setting
```

```
mov cl, 10 ; 10 Sec
```

```
dec al
```

Watch_Dog_Setting:

```
;Timer setting
```

```
mov al, cl
```

```
mov cl, 73h
```

```
call Superio_Set_Reg
```

```
;Clear by keyboard or mouse interrupt
```

```
mov al, 0f0h
```

```
mov cl, 71h
```

```
call Superio_Set_Reg
```

```
;unit is second.
```

```
mov al, 0C0H
```

```
mov cl, 72h
```

```
call Superio_Set_Reg
```

```
; game port enable
mov cl, 9
call Set_Logic_Device
```

```
Initial_OK:
CALL Exit_Configuration_mode
MOV AH,4Ch
INT 21h
```

```
Enter_Configuration_Mode PROC NEAR
MOV SI,WORD PTR CS:[Offset Cfg_Port]
```

```
MOV DX,02Eh
MOV CX,04h
Init_1:
MOV AL,BYTE PTR CS:[SI]
OUT DX,AL
INC SI
LOOP Init_1
RET
Enter_Configuration_Mode ENDP
```

```
Exit_Configuration_Mode PROC NEAR
MOV AX,0202h
CALL Write_Configuration_Data
```

RET

Exit_Configuration_Mode ENDP

Check_Chip PROC NEAR

MOV AL,20h

CALL Read_Configuration_Data

CMP AL,87h

JNE Not_Initial

MOV AL,21h

CALL Read_Configuration_Data

CMP AL,12h

JNE Not_Initial

Need_Initial:

STC

RET

Not_Initial:

CLC

RET

Check_Chip ENDP

Read_Configuration_Data PROC NEAR

MOV DX,WORD PTR CS:[Cfg_Port+04h]

OUT DX,AL

```
MOV DX,WORD PTR CS:[Cfg_Port+06h]
IN AL,DX
RET
Read_Configuration_Data ENDP
```

```
Write_Configuration_Data PROC NEAR
MOV DX,WORD PTR CS:[Cfg_Port+04h]
OUT DX,AL
XCHG AL,AH
MOV DX,WORD PTR CS:[Cfg_Port+06h]
OUT DX,AL
RET
Write_Configuration_Data ENDP
```

```
Superio_Set_Reg proc near
push ax
MOV DX,WORD PTR CS:[Cfg_Port+04h]
mov al,cl
out dx,al
pop ax
inc dx
out dx,al
ret
Superio_Set_Reg endp.Set_Logic_Device proc near
Set_Logic_Device proc near
```

```
push ax
push cx
xchg al,cl
mov cl,07h
call Superio_Set_Reg
pop cx
pop ax
ret
Set_Logic_Device endp
```

```
;Select 02Eh->Index Port, 02Fh->Data Port
Cfg_Port DB 087h,001h,055h,055h
```

```
DW 02Eh,02Fh
```

END Main

Note: Interrupt level mapping

0Fh-Dh: not valid

0Ch: IRQ12

.

.

03h: IRQ3

02h: not valid

01h: IRQ1

00h: no interrupt selected

Appendix

B

I/O Information

B.1 I/O Address Map

Address Range	Device Name
[00000000 - 0000000F]	Direct memory access controller
[00000000 - 00000CF7]	PCI bus
[00000010 - 0000001F]	Motherboard resources
[00000020 - 00000021]	Programmable interrupt controller
[00000022 - 0000003F]	Motherboard resources
[00000040 - 00000043]	System timer
[00000044 - 0000005F]	Motherboard resources
[00000060 - 00000060]	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
[00000061 - 00000061]	System speaker
[00000062 - 00000063]	Motherboard resources
[00000064 - 00000064]	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
[00000065 - 0000006F]	Motherboard resources
[00000070 - 00000073]	System CMOS/real time clock
[00000074 - 0000007F]	Motherboard resources
[00000080 - 00000090]	Direct memory access controller
[00000091 - 00000093]	Motherboard resources
[00000094 - 0000009F]	Direct memory access controller
[000000A0 - 000000A1]	Programmable interrupt controller
[000000A2 - 000000BF]	Motherboard resources
[000000C0 - 000000DF]	Direct memory access controller
[000000E0 - 000000EF]	Motherboard resources
[000000F0 - 000000FF]	Numeric data processor
[00000170 - 00000177]	Secondary IDE Channel
[000001F0 - 000001F7]	Primary IDE Channel
[00000274 - 00000277]	ISAPNP Read Data Port
[00000279 - 00000279]	ISAPNP Read Data Port
[00000290 - 0000029F]	Motherboard resources
[000002E0 - 000002E7]	Communications Port (COM5)
[000002E8 - 000002EF]	Communications Port (COM4)
[000002F0 - 000002F7]	Communications Port (COM6)
[000002F8 - 000002FF]	Communications Port (COM2)
[00000376 - 00000376]	Secondary IDE Channel
[000003B0 - 000003BB]	Mobile Intel(R) 945GM Express Chipset Family
[000003C0 - 000003DF]	Mobile Intel(R) 945GM Express Chipset Family
[000003E8 - 000003EF]	Communications Port (COM3)
[000003F0 - 000003F5]	Standard floppy disk controller
[000003F6 - 000003F6]	Primary IDE Channel
[000003F7 - 000003F7]	Standard floppy disk controller
[000003F8 - 000003FF]	Communications Port (COM1)
[00000400 - 000004BF]	Motherboard resources
[000004D0 - 000004D1]	Motherboard resources
[00000500 - 0000051F]	Intel(R) 82801G (ICH7 Family) SMBus Controller - 27DA
[00000800 - 0000087F]	Motherboard resources
[00000880 - 0000088F]	Motherboard resources
[00000A79 - 00000A79]	ISAPNP Read Data Port
[00000D00 - 0000FFFF]	PCI bus
[00009000 - 00009FFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
[00009F00 - 00009F1F]	Intel(R) PRO/1000 PL Network Connection
[0000B000 - 0000BFFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D6
[0000C000 - 0000CFFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D4
[0000D000 - 0000DFFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
[0000DF00 - 0000DF7F]	Silicon Image SII 3132 SATALink Controller
[0000F000 - 0000F0FF]	Realtek AC'97 Audio
[0000F800 - 0000F80F]	Intel(R) 82801G (ICH7 Family) Ultra ATA Storage Controllers - 27DF
[0000FA00 - 0000FA3F]	Realtek AC'97 Audio
[0000FB00 - 0000FB1F]	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CB
[0000FC00 - 0000FC1F]	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CA
[0000FD00 - 0000FD1F]	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C9
[0000FE00 - 0000FE1F]	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C8
[0000FF00 - 0000FF07]	Mobile Intel(R) 945GM Express Chipset Family

B.2 1st MB Memory Address Map

Address Range	Device Name
[00000000 - 0009FFFF]	System board
[000A0000 - 000BFFFF]	Mobile Intel(R) 945GM Express Chipset Family
[000A0000 - 000BFFFF]	PCI bus
[000C0000 - 000DFFFF]	PCI bus
[000E0000 - 000EFFFF]	System board
[000F0000 - 000FFFFF]	System board
[00100000 - 1F6DFFFF]	System board
[1F6E0000 - 1F6FFFFF]	System board
[1F700000 - FEBFFFFF]	PCI bus
[D0000000 - DFFFFFFF]	Mobile Intel(R) 945GM Express Chipset Family
[E0000000 - EFFFFFFF]	Motherboard resources
[FD400000 - FD4FFFFFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
[FD500000 - FD5FFFFFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
[FD5F8000 - FD5FBFFF]	Silicon Image SII 3132 SATALink Controller
[FD5FF000 - FD5FF07F]	Silicon Image SII 3132 SATALink Controller
[FD600000 - FD6FFFFFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
[FD900000 - FD9FFFFFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
[FD9E0000 - FD9FFFFFF]	Intel(R) PRO/1000 PL Network Connection
[FDA00000 - FDAFFFFFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D6
[FDB00000 - FDBFFFFFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D6
[FDC00000 - FDCFFFFFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D4
[FDD00000 - FDDFFFFFF]	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D4
[FDE80000 - FDEFFFFFF]	Mobile Intel(R) 945GM Express Chipset Family
[FDF00000 - FDF7FFFF]	Mobile Intel(R) 945GM Express Chipset Family
[FDF80000 - FDFBFFFF]	Mobile Intel(R) 945GM Express Chipset Family
[FDFFD000 - FDFFD0FF]	Realtek AC'97 Audio
[FDFFE000 - FDFFE1FF]	Realtek AC'97 Audio
[FEBFFC00 - FEBFFFFF]	Intel(R) 82801G (ICH7 Family) USB2 Enhanced Host Controller - 27CC
[FEC00000 - FEC00FFF]	System board
[FED13000 - FED1DFFF]	System board
[FED20000 - FED8FFFF]	System board
[FEE00000 - FEE0FFFF]	System board
[FFB80000 - FFB7FFFF]	System board
[FFB80000 - FFB7FFFF]	Intel(r) 82802 Firmware Hub Device
[FFF00000 - FFFFFFFF]	System board

B.3 IRQ Mapping Chart

Interrupt request (IRQ)	
(ISA) 0	System timer
(ISA) 1	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
(ISA) 3	Communications Port (COM2)
(ISA) 4	Communications Port (COM1)
(ISA) 6	Standard floppy disk controller
(ISA) 8	System CMOS/real time clock
(ISA) 9	Microsoft ACPI-Compliant System
(ISA) 10	Communications Port (COM3)
(ISA) 10	Communications Port (COM5)
(ISA) 11	Communications Port (COM4)
(ISA) 11	Communications Port (COM6)
(ISA) 12	PS/2 Compatible Mouse
(ISA) 13	Numeric data processor
(ISA) 14	Primary IDE Channel
(ISA) 15	Secondary IDE Channel
(PCI) 5	Intel(R) 82801G (ICH7 Family) SMBus Controller - 27DA
(PCI) 16	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
(PCI) 16	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CB
(PCI) 16	Intel(R) PRO/1000 PL Network Connection
(PCI) 16	Mobile Intel(R) 945GM Express Chipset Family
(PCI) 17	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
(PCI) 17	Realtek AC'97 Audio
(PCI) 17	Silicon Image SII 3132 SATALink Controller
(PCI) 18	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D4
(PCI) 18	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CA
(PCI) 19	Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D6
(PCI) 19	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C9
(PCI) 23	Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C8
(PCI) 23	Intel(R) 82801G (ICH7 Family) USB2 Enhanced Host Controller - 27CC

B.4 DMA Channel Assignments

Direct memory access (DMA)	
2	Standard floppy disk controller
4	Direct memory access controller

Appendix

C

Mating Connector

C.1 List of Mating Connectors and Cables

The table notes mating connectors and available cables.

Connect or Label	Function	Mating Connector		Available Cable	Cable P/N
		Vendor	Model no		
CN2	Digital I/O Connector	CATCH	2.00mm Pitch 10 pins (CATCH H754-2x5 or compatible)	Digital I/O Cable	N/A
CN3	TV-Out Connector	CATCH	2.00mm Pitch 8 pins (CATCH H754-2x4 or compatible)	TV-Out Cable	1700080180
CN6	Audio Connector	CATCH	2.00mm Pitch 14 pins (CATCH H709-2 or compatible)	Audio Cable	1700140510
CN9	COM2 Connector	CATCH	2.00mm Pitch 10 pins (CATCH H754-2x5 or compatible)	Serial Port Cable	1701100206
CN12	LVDS(1)-L CD Connector	CATCH	1.25mm Pitch 30 pins (CATCH H716 or	LVDS Cable	N/A

			compatible)		
CN20	USB Connector	CATCH	2.00mm Pitch 10 pins (CATCH H754-2x5 or compatible)	USB Cable	1709100201
CN21	PS2 Keyboard/ Mouse Connector	CATCH	(CATCH MD-6PS or compatible)	Keyboard / Mouse Cable	1700060192
CN22	EIDE Connector	CATCH	2.00mm Pitch 44 pins (CATCH H820-2 or compatible)	EIDE Cable	1701440500
CN23	Front Panel Connector	CATCH	2.00mm Pitch 10 pins (CATCH H754-2x5 or compatible)	Front Panel Cable	N/A
CN25	Expansion board Connector	Hirose	0.6mm Pitch 140 pins (Hirose FX8C-140P-SV6(93)	Board to Board Connector	N/A
CN28	SPDIF IN/OUT Connector	CATCH	2.00mm Pitch 3 pins (CATCH H732-03 or	SPDIF Cable	1709030150

			compatible)		
SATA1	Primary Serial ATA Connector	CATCH	1.27mm Pitch 7 pins (CATCH SA07FGP002X or compatible)	SATA Cable	1709070500
SATA2	Secondary Serial ATA Connector	CATCH	1.27mm Pitch 7 pins (CATCH SA07FGP002X or compatible)	SATA Cable	1709070500