

SubCompact Board

GENE-6350

GENE-6350

Intel® Ultra Low Voltage
Celeron® 400/650MHz Processor
SubCompact Board
With LCD, Ethernet,
6 Channel Audio & Mini-PCI

GENE-6350 Rev. A Manual 5th Ed.
Dec. 2006

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Packing List

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

- 1 GENE-6350 CPU Card
- 1 IDE cable
- 1 FDD cable
- 1 PS/2 KB mouse cable
- 2 USB cables
- 1 Audio cable
- 1 5.1 channel Audio cable
- 3 COM Port cables
- 1 TV-Out cable (For TV-Out Model Only)
- 1 DVI cable (For DVI Model Only)
- 1 Parallel Port cable
- 1 Jumper Cap
- 1 Quick Installation Guide
- 1 CD-ROM for manual (in PDF format) and drivers

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

GENE-6350 is AAEON's subcompact board which provides higher performance, multi-functional choice and develops comprehensive applications of 3.5" board.

High stability computing platform

GENE-6350 applies for Intel® Ultra Low Voltage Celeron® 400/650MHz processor owning the Intel processor style which is high-performance and high-stable feature. Compared with other same level processors, Intel® Ultra Low Voltage Celeron® 400/650 can support higher computing ability but the power consumption won't increase for the sake of the high performance. The processor will be your best choice in the pursuit of high performance with low power consumption.

Your marvelous choice for compact multi-media platform

GENE-6350 not only plays DVD format but also supports 5.1 channel sound effect output which makes your multi-media platform offer the excellent video display and 3D surrounding audio qualities. Undoubtedly, GENE-6350 is the model with multi-orientation. Besides, it provides several display interfaces including CRT, LCD, TV, DVI. Furthermore, under the CRT/LCD, LCD/TV, LCD/DVI configuration, the model can show the different contents in two separate display monitor. For the merits of multi-media platform, GENE-6350 is your marvelous and unique choice.

Extensive possibility

GENE-6350 supports comprehensive functions even it is just a 3.5" size embedded board. All functions and applications you need have almost integrated to the model. But it can still be expanded other function on it, which minimize your effort. Onboard Type-III Mini-PCI is right for you to have the quick and cheap expandable program.

Mini-PCI is a standard expanded interface. The users can purchase Mini-PCI easily from the retail market to go with wireless LAN, modem, capture card, etc. It will upgrade largely the capability and efficiency for your application. The merits mentioned above have broken the stereotype that the compact size board lacks of the expansion possibility. We believe that GENE-6350 is exactly the perfect model for your choice.

1.2 Features

- Onboard Intel® Ultra Low Voltage Celeron® Processor
- Up to 24-bit TTL TFT LCD
- 10/100Mbps Fast Ethernet
- AC-97 3D surround 5.1 channel Audio
- Supports Type II CompactFlash™ Memory
- 4 COM / 4 USB 2.0 / TV-out / Mini PCI / Digital I/O
- +5V only operation

1.3 Specifications

System

- CPU: Onboard Intel[®] Ultra Low Voltage Celeron[®] 400 /650MHz Processor
- Memory: 200-pin DDR SODIMM x 1, Max. 512MB (DDR 266MHz)
- Chipset: VIA CLE 266 + VIA VT8235
- Ethernet: Realtek RTL8100BL, 10/100Base-TX RJ-45 connector x 1
- BIOS: AWARD 256KB FLASH ROM
- Watchdog Timer: Generates a time-out system reset
- H/W Status Supports power supply voltages, Monitoring and temperatures monitoring
- SSD: Type II CompactFlash slot x 1
- Expansion Interface: Type III Mini PCI socket x 1
- Battery: Lithium battery
- Power Supply Voltage: +5V. AT/ATX
- 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)

Display

- Chipset: VIA CLE 266
- Memory size: Shared system memory up to 64 MB
- Resolutions: Up to 1280 X 1024 @ 32 bit colors for CRT; Up to 1024 X 768 @ 24 bpp colors for LCD
- TV-Out: Supports NTSC and PAL Standard; Supports CRT/LCD, CRT/TV, LCD/TV, CRT/DVI (Optional) & LCD/DVI (Optional) Simultaneous display Supports CRT/LCD, LCD/TV, LCD/DVI (optional) dual view (Win 98 / XP Only)
- DVI: Manufacturer option

I/O

- MIO: EIDE x 1(UDMA100 x 1), FDD x 1, KB x 1, Mouse x 1, RS-232 x 3, RS-232/422/485 x 1, Parallel x 1
- IrDA: One IrDA Tx/Rx header

- Audio: MIC-in, Line-in, Line-out /
Speaker-out 5.1 output / CD-in,
S/P DIF in/out
- USB: Two 5 x 2 pin headers support 4
USB 2.0 ports
- Digital I/O Supports 8 ports of digital I/O,
and each port can be set to
Input or Output.

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!

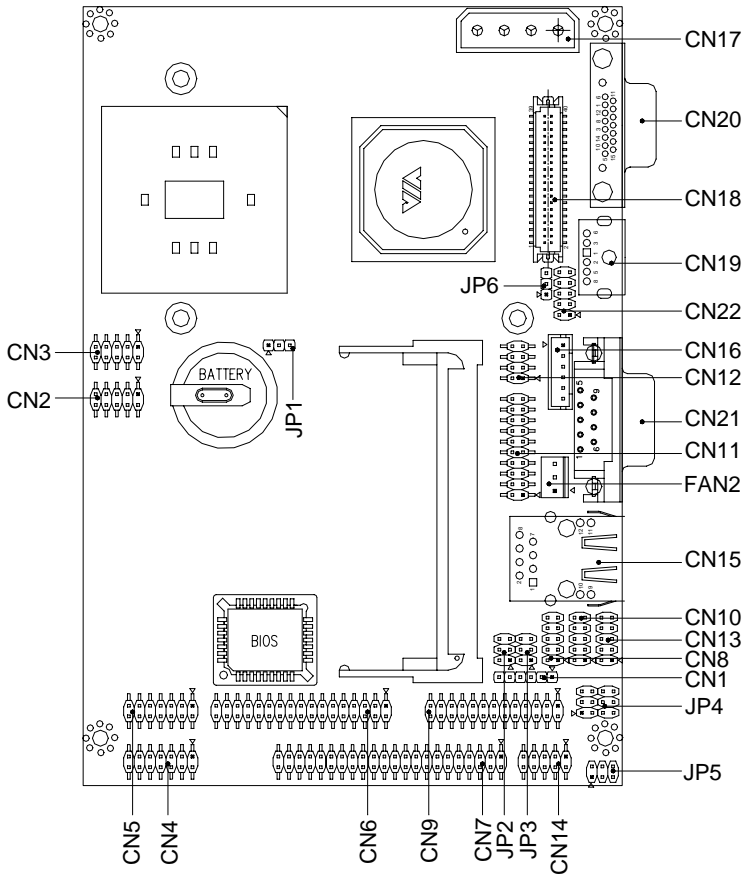
Always completely disconnect the power cord from your board whenever you are working on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.

Caution!

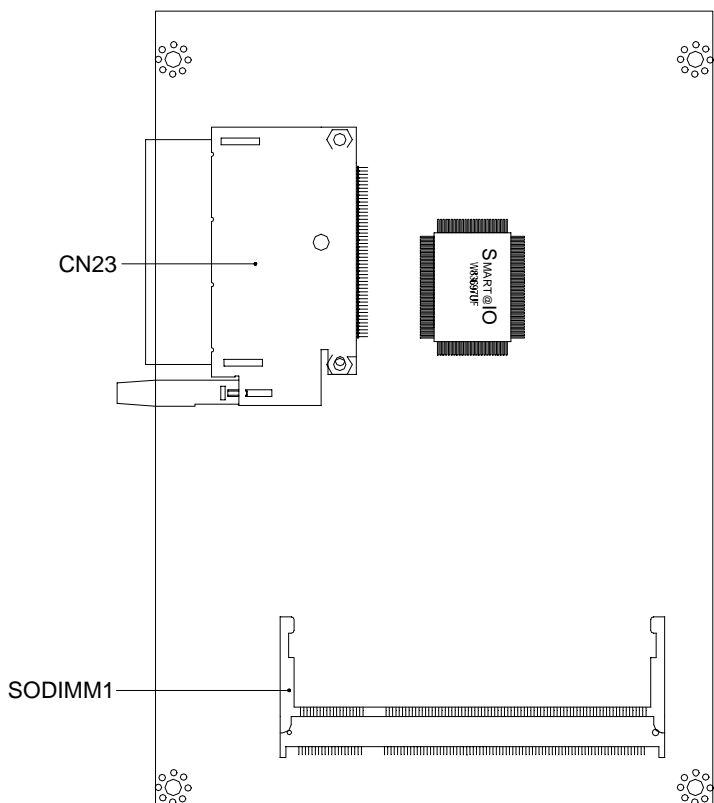
Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not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

2.2 Location of Connectors and Jumpers

Component Side

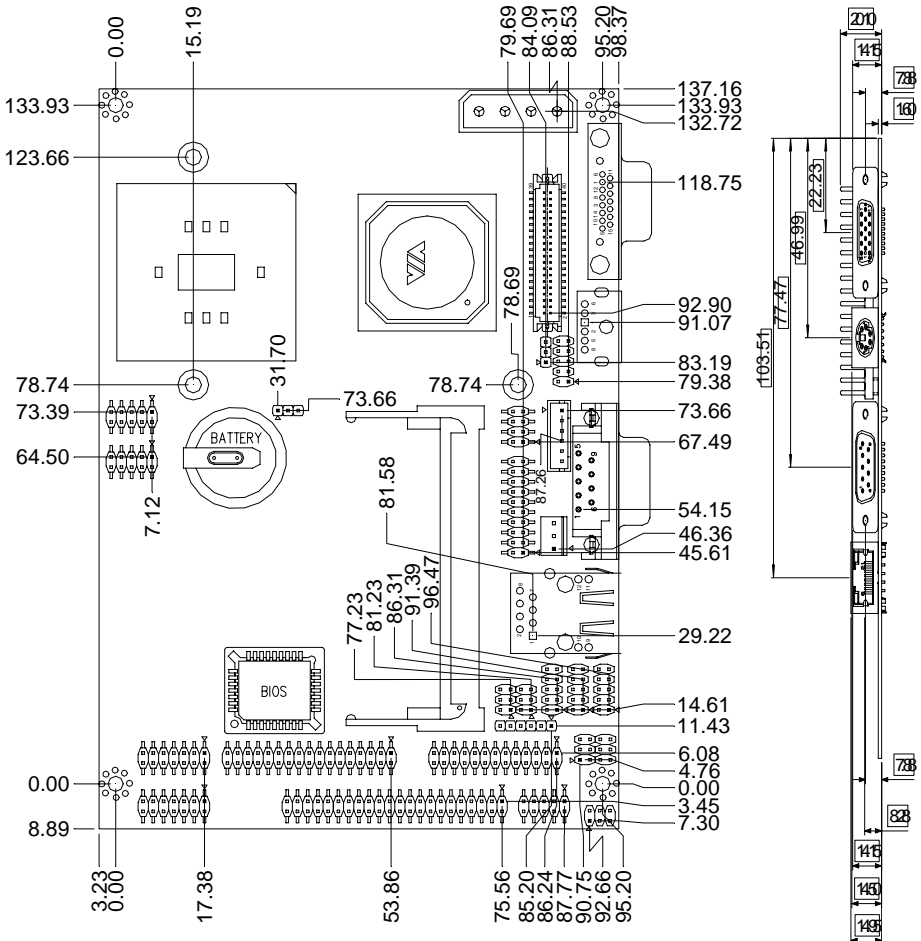


Solder Side

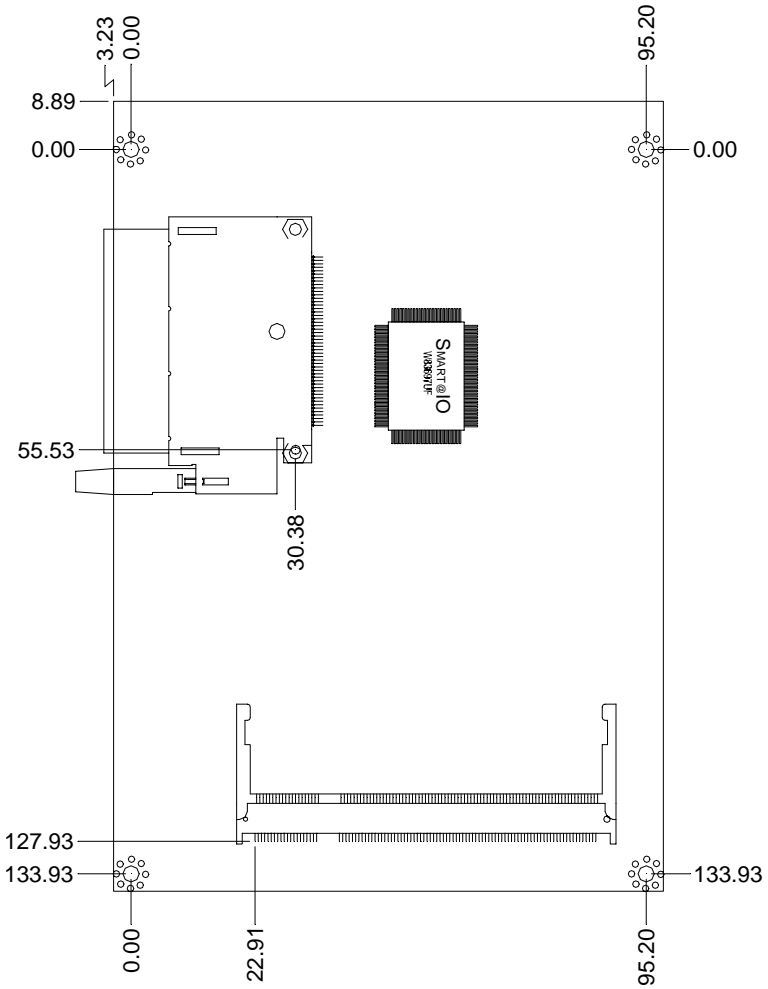


2.3 Mechanical Drawing

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	Clear CMOS
JP2	COM3 Ring/+5V/+12V Selection
JP3	COM4 Ring/+5V/+12V Selection
JP4	COM2 RS-232/422/485 Mode Selection – 1
JP5	COM2 RS-232/422/485 Mode Selection – 2
JP6	TTL-LCD Clock 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

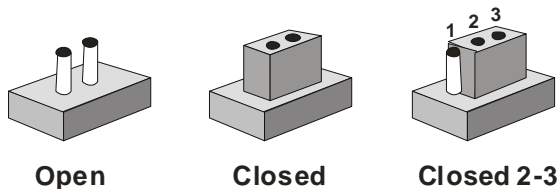
Label	Function
CN1	SIR Connector
CN2 (USB3, USB4)	USB Connector
CN3 (USB1, USB2)	USB Connector
CN4	Audio Input/Output Connector
CN5	Audio 5.1 Channel Connector
CN6	Floppy Drive Connector
CN7	Primary IDE Hard Drive Connector
CN8	Digital IO Connector
CN9	LPT Port Connector
CN10 (COM3)	RS-232 Serial Port Connector
CN11	DVI Connector
CN12	TV out Connector
CN13 (COM4)	RS-232 Serial Port Connector
CN14 (COM2)	RS-232/422/485 Serial Port Connector
CN15 (LAN)	Ethernet 10/100 Base-T RJ-45 Phone Jack
CN16	Option ATX Power Connector
CN17	Big 4 Pin Power Connector

CN18	TTL_LCD Connector
CN19	PS/2 Keyboard/ Mouse Connector
CN20	CRT Display Connector
CN21 (COM1)	RS-232 Serial Port Connector
CN22	Front Panel
CN23	CompactFlash Disk Connector
FAN2	System Fan Connector
MPCI1	MINI PCI Connector
SODIMM1	DDR SODIMM Connector

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 Clear CMOS Selection (JP1)

JP1	Function
1-2	Protected (Default)
2-3	Clear

2.8 COM3 Ring/+5V/+12V Selection (JP2)

JP2	Function
1-2	+12V
3-4	+5V
5-6	Ring (Default)

2.9 COM4 Ring/+5V/+12V Selection (JP3)

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

2.10 COM2 RS-232/422/485 Selection (JP4 & JP5)

JP4	JP5	Function
1-2, 4-5, 7-8, 10-11	1-2	RS-232 (Default)
2-3, 5-6, 8-9, 11-12	3-4	RS-422
2-3, 5-6, 8-9, 11-12	5-6	RS-485

2.11 TFT_LCD Clock Selection (JP6)

JP6	Function
1-2	CLK (Default)
2-3	Reverse CLK

2.12 SIR Connector (CN1)

Pin	Signal
1	+5V
2	N.C.
3	IRRX
4	GND
5	IRTX
6	N.C.

2.13 USB Connector (CN2)

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

2.14 USB Connector (CN3)

Pin	Signal	Pin	Signal
1	+5V	2	GND
3	USBD0-	4	GND

5	USBD0+	6	USBD1+
7	GND	8	USBD1-
9	GND	10	+5V

2.15 Audio Input/Output Connector (CN4)

Pin	Signal	Pin	Signal
1	MIC in	2	MIC Vcc
3	Audio Ground	4	CD_GND
5	LINE_in L	6	CD_L
7	LINE_in R	8	CD_GND
9	Audio Ground	10	CD_R
11	LINE_out L	12	LINE_out R
13	Audio Ground	14	Audio Ground

2.16 Audio 5.1 Channel Connector (CN5)

Pin	Signal	Pin	Signal
1	Front out R	2	Audio Ground
3	Front out L	4	Audio Ground
5	Surround out R	6	Audio Ground
7	Surround out L	8	Audio Ground
9	Low Frequency Effect out	10	Audio Ground
11	Center out	12	Audio Ground
13	S/PDIF out	14	S/PDIF in

2.17 Floppy Connector (CN6)

Pin	Signal	Pin	Signal
1	GND	2	#REDWC
3	GND	4	N.C.
5	GND	6	#DS1
7	GND	8	#INDEX
9	GND	10	#MOTOR A
11	GND	12	#DRIVE SELECT B
13	GND	14	#DRIVE SELECT A
15	GND	16	#MOTOR B
17	GND	18	#DIR
19	GND	20	#STEP
21	GND	22	#WRITE DATA
23	GND	24	#WRITE GATE
25	GND	26	#TRACK0
27	GND	28	#WRITE PROTECT
29	GND	30	#READ DATA
31	GND	32	#SIDE1
33	GND	34	#DISK CHANGE

2.18 Primary IDE Hard Drive Connector (CN7)

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 READ	28	GND
29	DACK	30	GND
31	IRQ 14	32	N.C.
33	ADDR1	34	UDMA DETECT
35	ADDR0	36	ADDR2
37	CS#1	38	CS#3
39	LED	40	GND
41	+5V	42	+5V
43	GND	44	N.C.

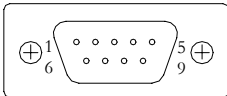
2.19 Digital IO Connector (CN8)

Pin	Signal	Pin	Signal
1	IN1	2	IN2
3	IN3	4	IN4
5	OUT1	6	OUT2
7	OUT3	8	OUT4
9	+5V	10	GND

2.20 LPT Port Connector (CN9)

Pin	Signal	Pin	Signal
1	#STROBE	14	#AFD
2	DATA0	15	#ERROR
3	DATA1	16	#INIT
4	DATA2	17	#SLIN
5	DATA3	18	GND
6	DATA4	19	GND
7	DATA5	20	GND
8	DATA6	21	GND
9	DATA7	22	GND
10	#ACK	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SELECT	26	N.C.

2.21 RS-232 Serial Port Connector (CN10, CN13 & CN21)



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

2.22 DVI Connector (CN11)

Pin	Signal	Pin	Signal
1	DVI_TX1+	2	DVI_TX1-
3	GND	4	GND
5	DVI_TXCLK+	6	DVI_TXCLK-
7	GND	8	+5V
9	HPDET	10	+5V
11	DVI_TX2+	12	DVI_TX2-
13	GND	14	GND
15	DVI_TX0+	16	DVI_TX0-
17	N.C.	18	N.C.
19	SM_DAT	20	SM_CLK

2.23 TV-out Connector (CN12)

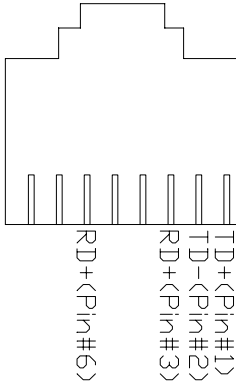
Pin	Signal	Pin	Signal
1	Y	2	CVBS
3	GND	4	GND
5	C	6	N.C.
7	GND	8	N.C.

2.24 RS-232/422/485 Serial Port Connector (CN14)

Pin	Signal	Pin	Signal
1	DCD (422TXD-/485DATA-)	2	RXD (422RXD+)
3	TXD (422TXD+/485DATA+)	4	DTR (422RXD-)
5	GND	6	DSR

7	RTS	8	CTS
9	RI/+12V	10	N.C.

2.25 10/100 Base-TX Ethernet Connector (CN15)



Pin	Signal	Pin	Signal
1	TX+	2	TX-
3	TCT	4	N.C.
5	N.C.	6	RCT
7	RX+	8	RX-
9	ACT_LED	10	+3.3V
11	LINK_LED	12	+3.3V

2.26 Option ATX Power Connector (CN16)

Pin	Signal
1	N.C.
2	GND
3	N.C.
4	GND
5	PS-ON
6	+5VSB

2.27 Big 4P Power Connector (CN17)

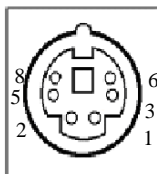
Pin	Signal
1	+5V
2	GND
3	GND
4	+12V

2.28 TTL_LCD Connector (CN18)

Pin	Signal	Pin	Signal
1	+5V	2	+5V
3	GND	4	GND
5	+3.3V	6	+3.3V
7	ENBKL	8	GND
9	B0	10	B1
11	B2	12	B3
13	B4	14	B5
15	B6	16	B7
17	G0	18	G1
19	G2	20	G3
21	G4	22	G5
23	G6	24	G7
25	R0	26	R1
27	R2	28	R3
29	R4	30	R5
31	R6	32	R7
33	GND	34	GND

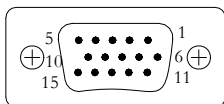
35	DOT_CLOCK	36	VSYNC
37	DE	38	HSYNC
39	N.C.	40	ENAVEE

2.29 PS/2 Keyboard / Mouse Connector (CN19)



Pin	Signal
8	MS_CLK
5	+5VSB
2	MS-DATA
1	KB_DATA
3	GND
6	KB_CLK

2.30 CRT Display Connector (CN20)



Pin	Signal	Pin	Signal
1	RED	2	GREEN
3	BLUE	4	N.C.
5	GND	6	GND
7	GND	8	GND
9	+5V	10	GND
11	N.C.	12	DDCDAT
13	HSYNC	14	VSYNC
15	DDCCLK	16	GND

2.31 Front Panel Connector (CN22)

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 (+)

2.32 CompactFlash Disk Connector (CN23)

Pin	Signal	Pin	Signal
1	GND	26	GND
2	DATA3	27	DATA11
3	DATA4	28	DATA12
4	DATA5	29	DATA13
5	DATA6	30	DATA14
6	DATA7	31	DATA15
7	CS#1	32	CS#3
8	GND	33	GND
9	GND	34	IO READ
10	GND	35	IO WRITE
11	GND	36	+5V
12	GND	37	IRQ15
13	+5V	38	+5V
14	GND	39	CSEL
15	GND	40	N.C.
16	GND	41	IDE RESET
17	GND	42	IO READY
18	ADDR2	43	N.C.

19	ADDR1	44	+5V
20	ADDR0	45	DASP
21	DATA0	46	DIAG
22	DATA1	47	DATA8
23	DATA2	48	DATA9
24	N.C.	49	DATA10
25	GND	50	GND

2.33 Fan Connector (Fan2)

Pin	Signal
1	Speed Sense
2	+5V
3	GND

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-6350 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-6350 comes with an AutoRun CD-ROM that contains all drivers and utilities that can help you to install the driver automatically.

Insert the driver CD, the driver CD-title will auto start and show the installation guide. If not, please follow the sequence below to install the drivers.

Follow the sequence below to install the drivers:

Step 1 – Install VIA 4 in 1 Driver

Step 2 – Install VIA CLE 266 VGA Driver

Step 3 – Install Audio ALC650 Driver

Step 4 – Install LAN RTL8100BL Driver

Step 5 – Install VIA8235 USB2.0 for Win98SE 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-6350 CD-ROM into the CD-ROM drive and install the drivers from Step 1 to Step 4 in order.

Step 1 – Install VIA 4 in 1 Driver

1. Click on the **Step-01_VIA 4IN 1 DRIVER** folder
2. Double click on **VIAHyperion4in1456v** file
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 2 – Install VIA CLE 266 VGA Driver

1. Click on the **Step-02_VIA CLE 266 VGA** folder
2. Choose the OS your system is
3. Double click on the **Setup** file located in each OS folder
4. Follow the instructions that the window shows
5. The system will help you install the driver automatically

Step 3 –Install Audio ALC650 Driver

1. Click on the **Step-03_AUDIO ALC650** folder
2. Double click on **wdm_a371** file
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 4 – Install LAN RTL8100BL Driver

1. Click on the **Step-04_LAN RTL8100BL** folder and select the folder of **RTLan Setup_v621_050418**
2. Double click on **Setup** file
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Step 5 – Install VIA 8235 USB2.0 for Win98SE Driver

1. Click on the **Step-05_VIA 8235 USB2.0 for Win98SE** folder
2. Double click on **Setup** file
3. Follow the instructions that the window shows
4. The system will help you install the driver automatically

Appendix

A

Programming the Watchdog Timer

A.1 Programming

GENE-6350 utilizes Winbond W83697UF 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.

WatchDog Timer Configuration Registers

Logical Device 8

CRF3---Select WDTO count mode

CRF4---Default 0X00

CRF5—Watch Dog Timer status

CRF3 (PLED mode register. Default 0 x 00)

Bit Reserved

[7:3]:

Bit 2: select WDTO count mode.

0 second

1 minute

CRF4---Default 0X00

Watchdog Timer Time-out value. Writing a non-zero value to this register causes the counter to load the value to watchdog counter and start counting down. Reading this register returns current value in watchdog counter instead of watchdog timer time-out value.

Bit [7:0]: = 0 x 00 Time-out Disable

= 0 x 01 Time-out occurs after 1 second/minute

= 0 x 02 Time-out occurs after 2 second/minutes

= 0 x 03 Time-out occurs after 3 second/minutes

.....

= 0 x FF Time-out occurs after 255 second/minutes

CF5 (Default 0 x 00)

Bit [7]: Reserved.

Bit [6]: invert Watchdog Timer Status

Bit 5: Force Watchdog Timer Time-out, Write only

- 1 Force Watchdog Timer Time-out event; this bit is self-clearing.

Bit 4: Watchdog Timer Status, R/W

- 1 Watchdog Timer Time-out occurred.
- 0 Watchdog Timer counting

.

You can use DEBUG commands to test watchdog function. Some examples are listed as below :

```
-o 4e 87          Enter W83697UF configuration mode
-o 4e 87
-o 4e 07          logic device register
-o 4f 08          logic device number
-o 4e f3          select register CRF3
-i 4f            read F1 value
-00              F3 value ; Bit 2=0 ----second
                  1 ----minute
-o 4e f4          select register CRF4
-i 4f 0a         input timeout value , example:10 seconds
```


Digital IO control process:

The GENE-6350 digital IO interface are controlled by the W83697UF. The GPIO port locates on Logical Device 7. The CRF1 register can read or write the data of digital I/O, and please read the following information for your reference.

F1 register	Digital IO interface
Bit0	Port 1 in
Bit1	Port 2 in
Bit2	Port 3 in
Bit3	Port 4 in
Bit4	Port 5 out
Bit5	Port 6 out
Bit6	Port 7 out
Bit7	Port 8 out

You can try the GENE-6350 digital io interface with some simple tests

using DEBUG commands. Some examples are listed as below:

-o 4e 87 Enter W83697UF configuration mode

-o 4e 87

-o 4e 7 logic device register

-o 4f 7 logic device number

-o 4e f1 select register CRF1

-i 4f read F1 value

-0f F1 value

-o 4f,1f output "high" to port 5

-o 4f,3f output "high" to port 5 and port 6

-i 4f

-0e if input port 1 to "low",then you can read data become to 0e

-0d if input port 2 to "low",then you can read data become to 0d

The another method : You and setup a base address to digital IO in BIOS,and have four selection : 280h , 290h , 2A0h , 2B0h .

Example : select 280h

-o 280 1f output "high" to port 5

-o 280 3f output "high" to port 5 and port 6

-i 280

-0e if input port 1 to "low",then you can read data become to 0e

-0d if input port 2 to "low",then you can read data become to 0d

A.2 W83697UF Watchdog Timer Initial Program

-----Enter W83697UF configuration mode

```
mov    al,87h    ;Unlock 83697UF register
out    4eh,al
out    4eh,al
```

-----Select Logic device 8(Watch dog device)

```
mov    al,07     ;logic device register
out    4eh,al
mov    al,8      ;logic device 8
out    4fh,al
```

-----Select CRF3 (Set unit to minute or second)

```
mov    al,0f3h
out    4eh,al
in     al,4fh
or     al,1111011b ;bit 2 :0-> second
                        ;      :1-> minute
                        ;Select second in this example
```

-----Select CRF4 (Set timeout value)

```
mov    al,0f4h
out    4eh,al
mov    al,0ah    ;10 seconds in this example
                        ;Set this value to 0 disable timeout
out    4fh,al
```

-----Exit configuration mode

```
mov    al,0aah
```

```
out    4eh,al
```

Appendix

B

I/O Information

B.1 I/O Address Map

Address	Description	User Address
000-01F	DMA Controller #1	000-000F
020-03F	Interrupt Controller #1, Master	020-021
040-05F	System Time	040-043
060-06F	8042 (Keyboard Controller)	060-064
070-07F	Real time Clock, NMI (non-maskable Interrupt) Mask	070-073
080-09F	DMA Page Register	080-08F
0A0-0BF	Interrupt Controller #2	0A0-0A1
0C0-0DF	DMA Controller #2	0C0-0DF
0F0-0FF	Math Coprocessor	0F0-0FF
170-177	Secondary IDE Channel	170-177
1F0-1F7	Primary IDE Channel	1F0-1F7
2E8-2EF	Serial Port 4	2E8-2EF
2F8-2FF	Serial Port 2	2F8-2FF
378-37F	Parallel Printer Port 1	378-37F
3B0-3DF	EGA / VGA card	3B0-3DF
3E8-3EF	Serial Port 3	3E8-3EF
3F0-3F7	Diskette Controller	3F2-3F7
3F8-3FF	Serial Port 1	3F8-3FF

B.2 1st MB Memory Address Map

Memory Address	Description
00000-9FFFF	System memory
A0000-BFFFF	VGA buffer
C0000-CFFFF	VGA BIOS
E0000-FFFFFF	System BIOS

B.3 IRQ Mapping Chart

IRQ0	System Timer	IRQ8	System CMOS / Real time clock
IRQ1	Keyboard	IRQ9	Microsoft ACPI – Compliant system
IRQ2	Cascade to IRQ Controller	IRQ10	COM4
IRQ3	COM2	IRQ11	COM3
IRQ4	COM1	IRQ12	PS/2 mouse
IRQ5	Unused	IRQ13	FPU
IRQ6	Floppy Disk Controller	IRQ14	Primary IDE
IRQ7	Printer	IRQ15	Secondary IDE

B.4 DMA Channel Assignments

DMA Channel	Function
0	Available
1	Available
2	Standard Floppy Disk Controller
3	Available
4	Direct Memory Access Controller
5	Available
6	Available
7	Available