

GENE-6330

Transmeta Crusoe
SubCompact Board
With LCD, Ethernet, Audio,&
PCMCIA/Mini PCI

GENE-6330 Rev. A Manual 3rd Ed.

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Packing List

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

- 1 GENE-6330 SubCompact board
- 1 Quick Installation Guide
- 1 CD-ROM for manual (in PDF format) drivers, and utility
- 1 IDE flat cable
- 1 FDD cable
- 1 PS/2 keyboard & mouse cable
- 2 USB cable
- 1 Audio Video cable
- 1 serial port cables
- 1 parallel cable
- 1 Jumper kit

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

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Chapter

1

**General
Information**

1.1 Introduction

GENE-6330 is AAEON's first Transmeta solution in SubCompact board series. Slim yet versatile, GENE-6330 is specially designed to serve space-constrained, heat-sensitive, weight-concerned market segments such as ultra dense servers and mobile devices.

Excellent power management

The onboard Transmeta Crusoe TM5400/5800 boasts the industry's highest Performance/Watt ratio. The TM5400/5800 typically operates at less than 1 watt while running ordinary office applications and as little as 60 mW when idle between keystrokes. Heavy-duty applications such as DVD movies consume on average less than 2 watts. These figures show its revolutionary power management technique that much of the processor functionality is implemented in software. This software is designed to deliver performance when necessary and conserves power when processor demand is low. Therefore it can eliminate performance and energy wastage to make the most efficient use of power, for the longest battery life. Likewise, the graphic chip, SMI 712, can monitor the application and optimize the power necessary for that particular application.

The ATX version of GENE-6330 also complies with ACPI standard and supports power-saving features: Standby mode.

With the multi dissipation and power management implementations above, GENE-6330 is ideal for the creation of cooler systems.

Slim form factor

Low power consumption feature enables GENE-6330 to be a fanless platform. Other low-profile designs include onboard 64MB RAM, SODIMM socket, and Mini PCI slot. They make GENE-6330 the thinnest board among AAEON SubCompact Board series, which measures only 2.6 cm high. If you are looking for a slim board for space-constrained applications such as vehicle GPS system, GENE-6330 is the one.

State-of-the-art Display Technology

Onboard SMI 712 LynxEM+ graphic chip provides TFT and DSTN

panel support for typical high-resolution panels and enhanced DSTN display quality by using its 64-color shading. With a single chip, GENE-6330 supports one primary and one secondary display as well as complete dual-display capability to allow two applications to operate at the same time across two display devices such as CRT and LCD. In addition, GENE-6330 allows images on the screen to be quickly rotated to 90°, 180°, and 270°, a function that is very useful in applications such as desktop publishing and word processing.

Expansion

Worried about the limitation or additional cost in implementing add-on modules. GENE-6330 promises you the greatest expansion possibilities with the most cost-effective expansion standards, PCMCIA or Mini PCI. With numerous off-the-shelf PCMCIA/Mini PCI modules, you get easy access to solutions ranging from IEEE 1394, Modem, Storage, Sound Card, SCSI card, Audio/Video capture card, Wireless LAN module, to Blue tooth module. Especially for customers whose application is various or changing, GENE-6330 reserves more than enough flexibility for future expansion.

More

GENE-6330 comes with high-speed serial ports (one RS-232, one RS-232/422/485), one multimode (ECP/EPP/SPP) parallel port, four USB ports, a keyboard/PS/2 mouse interface, two floppy drives and an Ultra DMA33 Enhanced IDE interface. Furthermore, a type II Compact Flash™ slot offers a larger memory bank for data storage of all types. One RJ-45 10/100Base-Tx Ethernet port provides superior networking access ability. And the integrated AC97 2.0/SoundBlaster legacy audio enables better presentation for multimedia application. Besides, the GENE-6330 provides complete OS support under Windows 98, 2000, ME, NT 4.0, XP, WinCE.NET and Linux RedHat 7.2/7.3.

1.2 Features

- Transmeta Crusoe TM5400/5800 series CPU
- 64MB SDRAM onboard
- Supports Type III Mini PCI socket for expansion
- Supports PCMCIA socket for expansion (Optional)
- Supports CRT and 36-bit TFT/24-bit DSTN panels, LCD with rotatable display
- One 10/100 Base-T Fast Ethernet
- LongRun™ Power-saving Technology
- Extremely Low power consumption
- Low profile design

1.3 Specifications

System

- CPU: Transmeta Crusoe TM5400/5800 series CPU
- Memory: 64MB SDRAM onboard + 144-pin SODIMM Socket x 1.
- Chipset: Transmeta Crusoe TM5400/5800 + VIA VT82C686B
- BIOS: Award 2 Mb FLASH BIOS
- Audio: VT82C686B + VIA VT1612A Audio Codec
- SSD: One Type II CompactFlash Card
- Watchdog timer: Can generate a system reset
- DMA: 7 DMA channels (8237 equivalent)
- Interrupt: 15 interrupt levels (8259 equivalent)
- Ethernet: RTL 8139DL, 10/100MB Fast Ethernet Chip, RJ45 connector x 1
- Expansion Interface: Type II PCMCIA x 2(Carbus) or Type III MINI PCI x 1
- H/W status monitoring: Power supply voltages and temperatures monitoring functions are built into VIA VT82C686B chip.
- Battery: Lithium battery for data retention, DIP Type.

- Power supply voltage: +5V, +12V; ATX or AT power supply
- Operating temperature: 32 to 140 °F (0 to 60 °C)
- Board size/Weight: 5.75" (L) x 4" (W) (146 mm x 101.6 mm); 0.88lb(0.4Kg)

Display

- Chipset: SMI 712 LynxEM+,
- Memory size: 4MB integrated
- Resolution: Up to 1280 X 1024 @ 24bpp for CRT; Up to 1024 X 768 @ 24bpp for TFT & DSTN
- Dual display mode: Up to 1024X768 @D1 16bpp, D2 8bpp or D1 8bpp, D2 24bpp
- LCD Interface: Up to 24-bit TTL TFT/DSTN LCD
- Dual Display: **Simultaneous Scan:** CRT+LCD: 1024 x 768 @ 24bpp
Dual View: CRT+LCD: 1024x768 @D1 16bpp, D2 8bpp or D1 @8bpp, D2 @24bpp
- Hardware support for LCD landscape/portrait rotation.

I/O

- MIO: EIDE (Ultra DMA33) x 1, FDD x 1,

- IR interface: RS-232/422/485 x 1, RS-232 x 1, LPT x 1, VGA x 1, External ATX Power Connector x 1, Keyboard/Mouse Connector x 1
- Audio: One IrDA Tx/Rx header
Mic in, Line in, Line out, CD Audio in (7 x 2 pin, 2.0mm),
- USB: Two 5x2 pin headers support 4 USB ports

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!

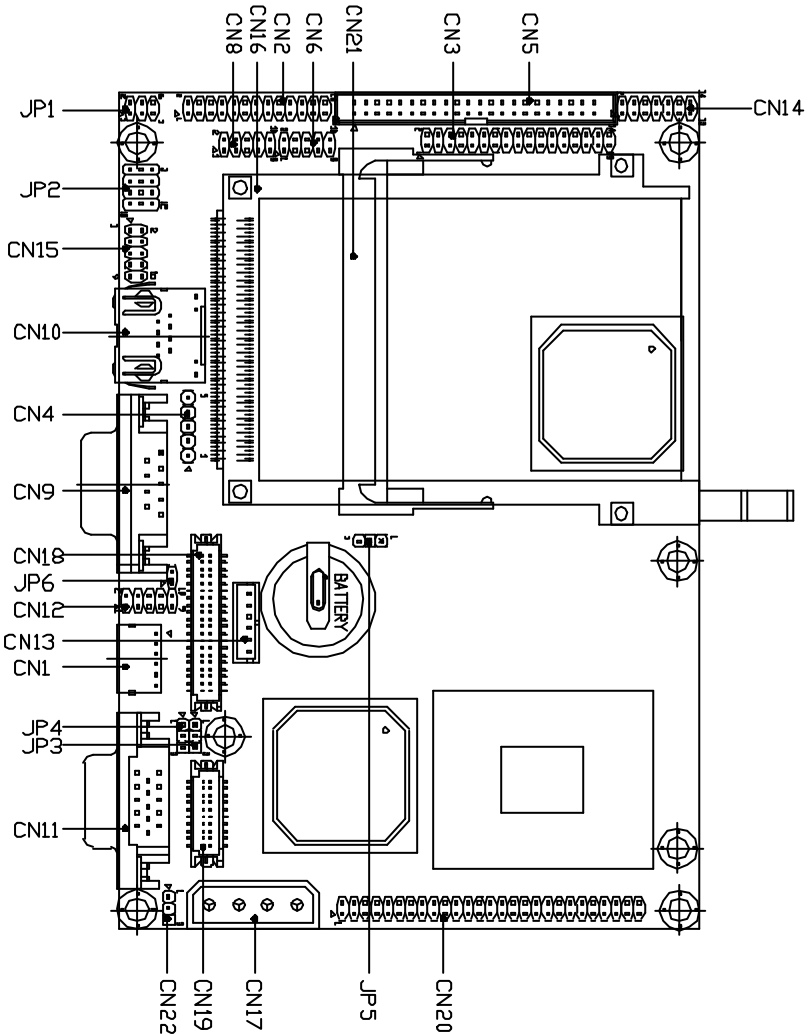
Always completely disconnect the power cord from your board whenever you are working on it. Do not make connections while the power is on, because a sudden rush of power can damage sensitive electronic components.

Caution!

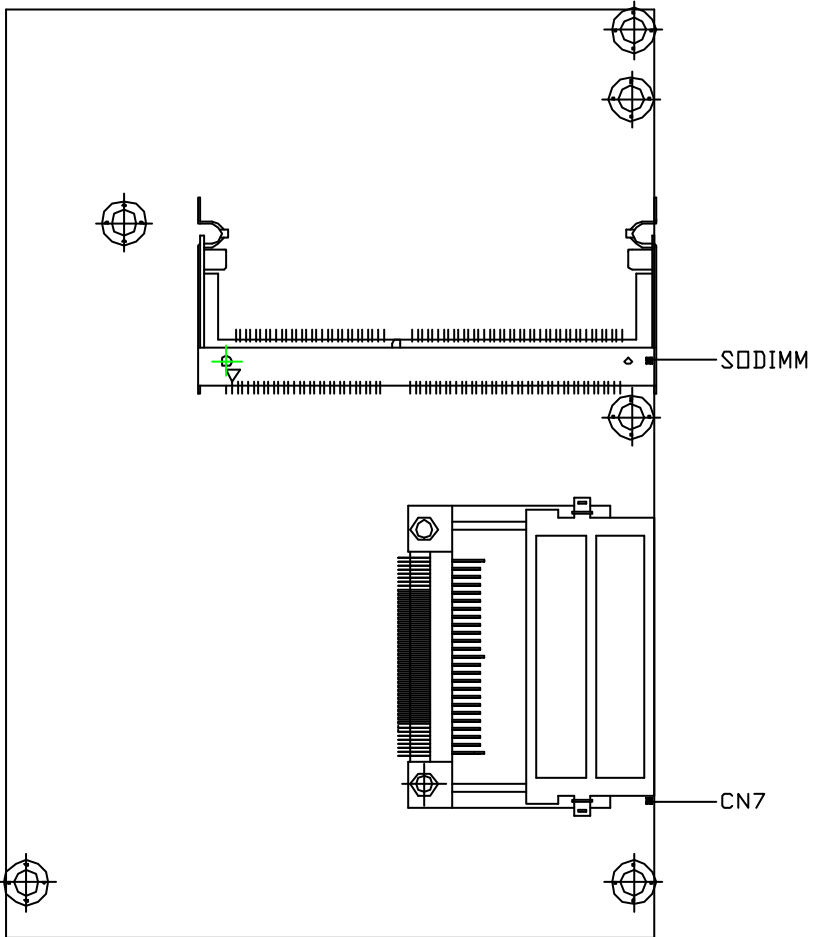
Always ground yourself to remove any static charge before touching the board. Modern electronic devices are very sensitive to static electric charges. Use a grounding wrist strap at all times. Place all electronic components on a static-dissipative surface or in a static-shielded bag when they are not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

2.2 Location of Connectors and Jumpers

Component side

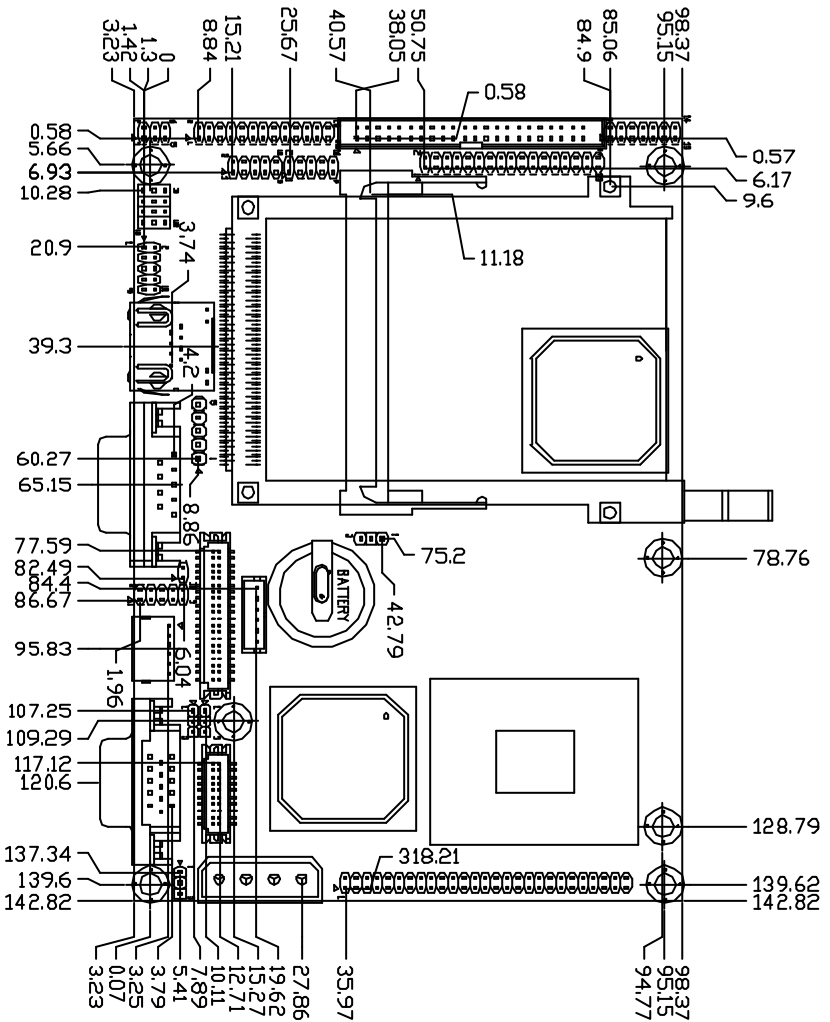


Solder side

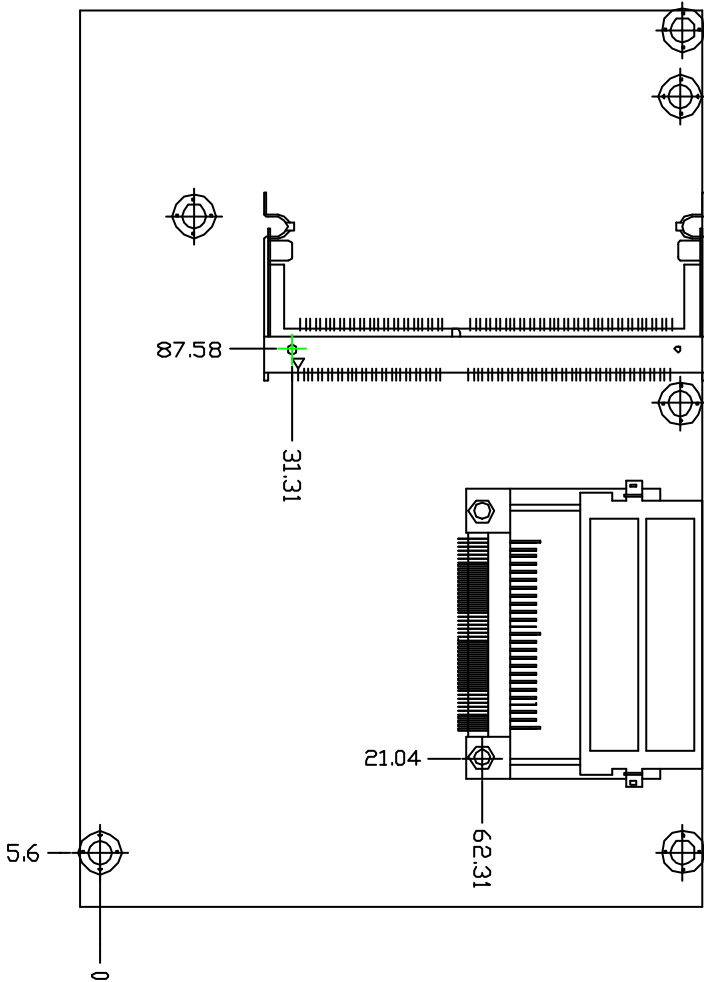


2.3 Mechanical Drawing

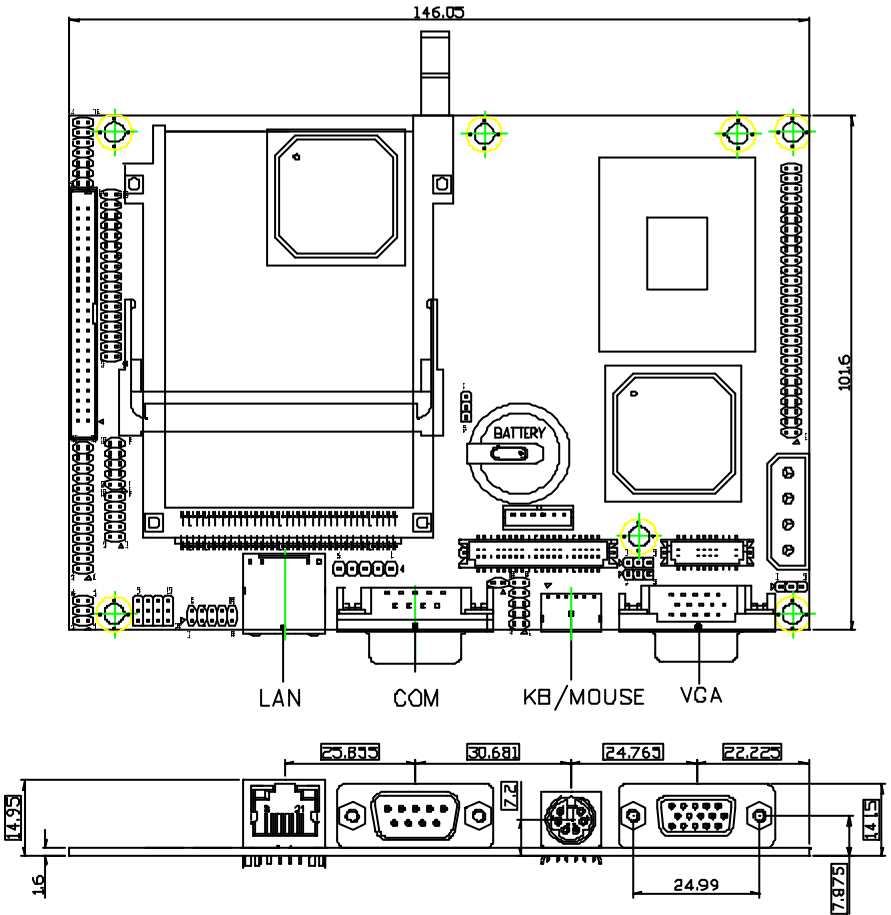
Component side



Solder side



Bracket 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	COM2 RS-232/422/485 Selection
JP2	COM2 RS-232/422/485 Setting
JP3	LCD Voltage Selection
JP4	TTL-LCD Clock Selection
JP5	Clear CMOS
JP6	AT or ATX power setting

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 of the board's connectors:

Connectors

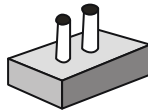
Label	Function
CN1	PS2 Keyboard/Mouse Connector
CN2	LPT Port Connector
CN3	Floppy Connector
CN4	IrDA Connector
CN5	EIDE Connector
CN6	USB1 Connector
CN7	CompactFlash Slot
CN8	USB2 Connector
CN9	COM1 RS-232 Serial Port Connector
CN10	10/100Base-T Ethernet Connector
CN11	VGA Display Connector
CN12	Front Panel Connector
CN13	External ATX Power Connector
CN14	Audio Connector
CN15	COM2 RS-232/422/485 Serial Port Connector
CN16	PCMCIA Slot
CN17	4P Power Connector
CN18	TTL-LCD Connector
CN19	TTL-LCD Connector
CN20	Power Module Connector
CN21	Mini PCI Slot

CN22	Fan Connector
SODIMM	SODIMM slot

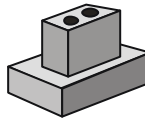
2.6 Jumper Setting

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.

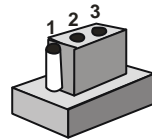
To “open” a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2 or 2 and 3.



Open



Closed



Closed 2-3

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 changes.

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

2.7 COM2 RS-232/422/485 Selection (JP1/JP2)

The COM2 port can be selected as RS-232, RS-422 or RS-485 by setting both JP1 and JP2. The following chart shows the jumper setting.

JP1	JP2	Function
1-2	1-2, 4-5, 7-8, 10-11	RS-232 (Default)
3-4	2-3, 5-6, 8-9, 11-12	RS-422
5-6	2-3, 5-6, 8-9, 11-12	RS-485

2.8 LCD Voltage Selection (JP3)

You can select the LCD voltage situation by setting JP3. The following chart shows the available options.

JP3	Function
1-2	+5V
2-3	+3.3V (Default)

2.9 TTL-LCD Clock Selection (JP4)

You can select the LCD clock situation by setting JP4. The following chart shows the available options.

JP4	Function
1-2	Clock (Default)
2-3	Reverse Clock

2.10 Clear CMOS (JP5)

Warning:

To avoid damaging the computer, always turn off the power supply before setting “Clear CMOS.” Before turning on the power supply, set the jumper back to “Normal.”

JP5	Function
1-2	Active (Default)
2-3	Clear CMOS

2.11 AT or ATX Power Setting (JP6)

You have to change the setting of JP6 to configure your system for different power supply type. Close pin 1 and 2 of JP6 when utilizing an AT power supply; open pin 1 and 2 of JP6 when utilizing ATX power supply.

JP6	Function
1-2	On (for AT power application) (Default)
-	Off (for ATX power application)

2.12 PS2 Keyboard/Mouse Connector (CN1)

The GENE-6330 board provides a pin header keyboard connector, which supports both a keyboard and a PS/2 style mouse.

Pin	Signal
1	MS_CLK
2	KB_CLK
3	+5V
4	GND
5	KB_DATA
6	MS_DATA

2.13 LPT Port Connector (CN2)

Normally, the parallel port is used to connect the board to a printer. The GENE-6330 includes a multi-mode (ECP/EPP/SPP) parallel port. It is accessed via CN2 with a 26-pin flat-cable connector.

You will need an adapter cable if you use a traditional DB-25 connector. The adapter cable should have a 26-pin connector on one end and a DB-25 connector on the other end.

Pin	Signal	Pin	Signal
1	STROBE	2	AFD
3	PTD0	4	ERROR
5	PTD1	6	INIT
7	PTD2	8	SLIN
9	PTD3	10	GND
11	PTD4	12	GND
13	PTD5	14	GND
15	PTD6	16	GND
17	PTD7	18	GND
19	ACK	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SELECT	26	NC

2.14 Floppy Connector (CN3)

With support of different types of floppy, you can simply adopt any of the combinations of 5.25" (360 KB and 1.2 MB) and/or 3.5" (720 KB, 1.44 MB, and 2.88 MB) drives onto the mainboard.

A 34-pin daisy-chain drive connector cable is required for a dual-drive system. On one end of the cable is a 34-pin flat-cable connector. On the other end are two sets of floppy disk drive connectors. Each set consists of a 34-pin flat-cable connector (usually used for 3.5" drives) and a printed-circuit board connector

(usually used for 5.25" drives). Wire number 1 on the cable is normally red or blue, and the other wires are usually gray.

Connecting the floppy drive

1. Plug the 34-pin flat-cable connector into CN3. Make sure that the red or blue wire corresponds to pin 1 on the connector.
2. Attach the appropriate connector on the other end of the cable to the floppy drive(s). You can use only one connector in the set. The set on the end (after the twist in the cable) connects to A: drive. The set in the middle connects to B: drive.
3. If you are connecting a 5.25" floppy drive, line up the slot in the printed circuit board with the blocked-off part of the cable connector.

If you are connecting a 3.5" floppy drive, you may have trouble determining which pin is pin number 1. Look for a number printed on the circuit board indicating pin number 1. Also, the connector on the floppy drive connector may have a slot. When the slot is up, pin number 1 should be on the right. Check the documentation that came with the drive for more information.

If you desire, connect the B: drive to the connectors in the middle of the cable as described above.

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

2.15 IrDA Connector (CN4)

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

2.16 EIDE Connector (CN5)

You can attach up to two Enhanced Integrated Device Electronics hard disk drives to CN5. The IDE controller of GENE-6330 uses a PCI local bus interface. This advanced interface supports faster data transfer.

Connecting the hard drive

Wire number 1 on the cable is normally red or blue, and the other wires are usually gray.

1. Connect one end of the cable to CN5. Make sure that the red wire corresponds to pin 1 on the connector

2. Plug the other end of the cable to the Enhanced IDE hard drive, with pin 1 on the cable corresponding to pin 1 on the hard drives. (See your hard drive's documentation for the location of the connector).

Connect a second drive with another connector on the cable as described above.

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	LED	40	GND
41	+5V	42	+5V
43	GND	44	N.C.

2.17 USB Connector (CN6 & CN8)

The GENE-6330 board provides four USB (Universal Serial Bus) interfaces, which give complete plug and play and also hot attach/detach for up to 127 external devices. The USB interfaces comply with USB specification rev. 1.1 and are fuse protected.

The USB interfaces are accessed through two 10-pin flat-cable connectors, CN6 & CN8. The adapter cable has a 10-pin connector on one end and two USB connectors on the bracket on the other end.

The USB interfaces can be disabled in the system BIOS setup.

USB1 Connector (CN6)

Pin	Signal	Pin	Signal
1	+5V	2	GND
3	USBD0-	4	GND
5	USBD0+	6	USBD1+
7	GND	8	USBD1-
9	GND	10	+5V

USB2 Connector (CN8)

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

2.18 CompactFlash Slot (CN7)

The GENE-6330 is equipped with a CompactFlash slot on the solder side, which supports the IDE interface type I/II CompactFlash card. The slot itself is specially designed to prevent any incorrect installation of the CompactFlash card. When installing or removing the CompactFlash card, please make sure that the system power is off.

The CompactFlash card is defaulted as the secondary master drive in your PC system. To fit the AAEON CompactFlash card into the GENE-6330, simply plug it into the designated connector (do NOT use excessive force).

Pin	Signal	Pin	Signal
1	GND	26	GND
2	DATA3	27	DATA 11
3	DATA 4	28	DATA 12
4	DATA 5	29	DATA 13
5	DATA 6	30	DATA 14
6	DATA 7	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	DATA 0	46	DIAG
22	DATA 1	47	DATA8
23	DATA 2	48	DATA9
24	N.C.	49	DATA10
25	GND	50	GND

2.19 COM1 RS-232 Serial Port Connector (CN9)

Different devices implement the RS-232 standard in different ways. If you are having problems with a serial device, be sure to check the pin assignments below for the connector.

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.

2.20 10/100Base-T Ethernet Connector (CN10)

This 10/100Base-T Ethernet connector is a standard RJ-45 connector. The onboard Realtek RTL8139DL Fast Ethernet controller supports 10Mb/s and 100 Mb/s N-way auto-negotiation operations.

Pin	Signal	Pin	Signal
1	TX+	9	N.C.
2	TX-	10	N.C.
3	RX+	11	GND
4	N.C.	12	GND
5	N.C.	13	+3.3V

6	RX-	14	ACT LED
7	N.C	15	+3.3V
8	N.C.	16	SPEED LED

2.21 VGA Display Connector (CN11)

Pin	Signal	Pin	Signal
1	RED	9	VCC
2	GREEN	10	GND
3	BLUE	11	N.C.
4	N.C.	12	SDA
5	GND	13	HSYNC
6	GND	14	VSYNC
7	GND	15	SCL
8	GND		

2.22 Front Panel Connector (CN12)

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

2.23 External ATX Power Connector (CN13)

For ATX power supply application, you have to set JP6 OFF first and utilize 4P Power Connector (CN17) and External ATX Power Connector (CN13) simultaneously. For AT power supply application, please set JP6 ON and connect your power supply to CN17.

Pin	Signal
1	N.C.
2	GND
3	ATX PWROK
4	GND
5	PS-ON
6	VCC5SBY

2.24 Audio Connector (CN14)

The GENE-6330 provides all major audio signals on a 14-pin flat-cable connector, CN14. Attach the Mic In, Line In, and Audio Out to the corresponding pins as shown in the following table.

Pin	Signal	Pin	Signal
1	MIC IN	2	MIC VCC
3	GND	4	CD-GND
5	LIN-IN L	6	CD-IN L
7	LIN-IN R	8	CD-GND
9	GND	10	CD-IN R
11	LINE-OUT L	12	LINE-OUT R
13	GND	14	GND

2.25 COM2 RS-232/422/485 Serial Port Connector (CN15)

Different devices implement the RS-232/422/485 standard in different ways. If you are having problems with a serial device, be sure to check the pin assignments below for the connector.

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	10	N.C.

2.26 4P Power Connector (CN17)

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

2.27 TTL-LCD Connector (CN18 & CN19)

GENE-6330 onboards two TTL-LCD connectors (CN18 & CN19) for TTL LCD application. Some pin assignments of TTL-LCD connectors vary with different panel types (18/24/36-bit). Please read the description with the sequence. For example, in the LCD1 Connector (CN18) table, Pin 9's signal is BLUE0 for 18-bit, BLUE0 for 24-bit and BLUE A0 for 36-bit display panel respectively.

LCD1 Connector (CN18)

Pin	Signal(18/24/36-bit)	Pin	Signal(18/24/36-bit)
-----	----------------------	-----	----------------------

1	+5V	2	+5V
3	GND	4	GND
5	+3.3V	6	+3.3V
7	BACKLIGHT ENABLE	8	GND
9	BLUE0/BLUE0/BLUE A0	10	BLUE1/BLUE1/BLUE A1
11	BLUE2/BLUE2/BLUE A2	12	BLUE3/BLUE3/BLUE A3
13	BLUE4/BLUE4/BLUE B0	14	BLUE5/BLUE5/BLUE B1
15	N.C./BLUE6/BLUE B2	16	N.C./BLUE7/BLUE B3
17	GREEN0/GREEN0/GREE N A0	18	GREEN1/GREEN1/GREE N A1
19	GREEN2/GREEN2/GREE N A2	20	GREEN3/GREEN3/GREE N A3
21	GREEN4/GREEN4/GREE N B0	22	GREEN5/GREEN5/GREE N B1
23	N.C./GREEN6/GREEN B2	24	N.C./GREEN7/GREEN B3
25	RED0/RED0/RED A0	26	RED1/RED1/RED A1
27	RED2/RED2/RED A2	28	RED3/RED3/RED A3
29	RED4/RED4/RED B0	30	RED5/RED5/RED B1
31	N.C./RED6/RED B2	32	N.C./RED7/RED B3
33	GND	34	GND
35	CLOCK	36	VSYNC
37	DE	38	HSYNC
39	N.C.	40	ENAVEE

LCD2 Connector (CN19)

Pin	Signal(18/24/36-bit)	Pin	Signal(18/24/36-bit)
1	GND	2	GND
3	N.C./N.C./BLUE A4	4	N.C./N.C./BLUE A5
5	N.C./N.C./BLUE B4	6	N.C./N.C./BLUE B5
7	GND	8	GND
9	N.C./N.C./GREEN A4	10	N.C./N.C./GREEN A5

11	N.C./N.C./GREEN B4	12	N.C./N.C./GREEN B5
13	GND	14	GND
15	N.C./N.C./RED A4	16	N.C./N.C./RED A5
17	N.C./N.C./RED B4	18	N.C./N.C./RED B5
19	GND	20	GND

Note: BLUE A0 denotes first pixel of BLUE0 for 2 pixels/clock interface.
 BLUE B0 denotes second pixel of BLUE0 for 2 pixels/clock interface.

2.28 Power Module Connector (CN20)

Pin	Signal	Pin	Signal
1	+5V	2	+5V
3	+5V	4	+5V
5	GND	6	GND
7	GND	8	GND
9	GND	10	GND
11	GND	12	+3.3
13	GND	14	+3.3
15	GND	16	+3.3
17	+2.5	18	+3.3
19	+2.5	20	+3.3
21	GND	22	+3.3
23	GND	24	N.C.
25	GND	26	N.C.
27	GND	28	GND
29	GND	30	GND
31	GND	32	GND
33	GND	34	GND
35	+5V	36	GND
37	+5V	38	GND

39	+5V	40	VCORE
41	N.C.	42	VCORE
43	GND	44	VCORE
45	VID4	46	VCORE
47	VID3	48	VCORE
49	VID2	50	VCORE
51	VID1	52	VCORE
53	VID0	54	VCORE

2.29 Fan Connector (CN22)

Pin	Signal
1	GND
2	+12V
3	CPUFAN

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

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 boards 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.

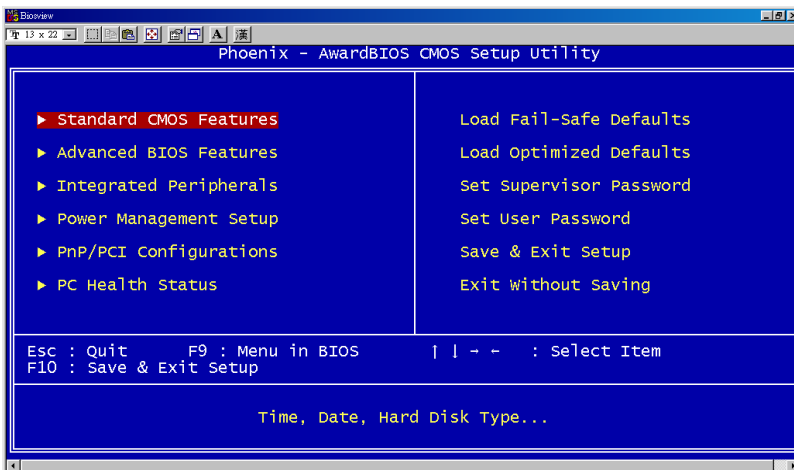
The GENE-6330 CMOS memory has an integral lithium battery backup. The battery backup should last several years in normal service. However, you will need to replace the battery when it finally runs down.

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.

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.

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

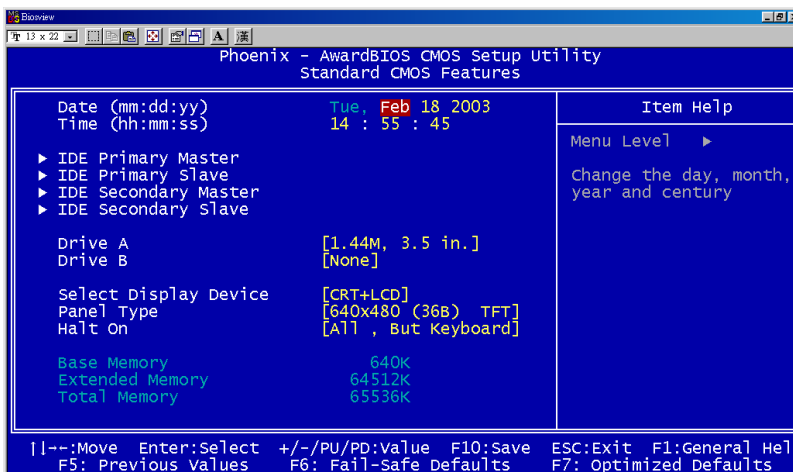
Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

3.3 Standard CMOS Features

When you choose the Standard CMOS Features option from the INITIAL SETUP SCREEN menu, the screen shown below is displayed. This standard Setup Menu allows users to configure system components such as date, time, hard disk drive, floppy drive and display. Once a field is highlighted, on-line help information is displayed in the right box of the Menu screen.



Date and Time Configuration

The BIOS determines the day of the week from the other date information. This field is for information only.

Press the left or right arrow key to move to the desired field (date, month, year). Press the PgUp/- or PgDn/+ key to increment the setting, or type the desired value into the field.

The time format is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00 hours. Press the left or right arrow key to move to the desired field. Press the PgUp/- or PgDn/+ key to increment the setting, or type the desired value into the field.

IDE Primary/Secondary Master/Slave

IDE HDD Auto-Detection

The BIOS supports up to two IDE drives. This section does not show information about other IDE devices, such as a CD-ROM drive, or other hard drive types, such as SCSI drives.

***NOTE:** We recommend that you select type AUTO for all drives.*

The BIOS can automatically detect the specifications and optimal operating mode of almost all IDE hard drives. When you select AUTO for a hard drive, the BIOS will detect its specifications

IDE Primary Master

If you do not want to select "AUTO", other methods of selecting the drive type are available:

- 1.NONE: No drive type to be selected.
- 2.Manual: This will allow you to manually set the drive type you are using in your system. (See as below)

Access Mode

Auto: The BIOS automatically determines the optimal mode.

CHS: This allows the user to enter their own hardware values.

Large: For drives that do not support LBA and have more than 1024 cylinders.

LBA (Logical Block Addressing): During drive access, the IDE controller transforms the data address described by sector, head, and cylinder number into a physical block address, significantly improving data transfer rates for drives with greater than 1024 cylinders.

Here is a brief explanation of drive specifications:

Capacity: Disk drive capacity (approximate). Note that this size is usually slightly greater than the size of a formatted disk given by a disk-checking program.

Cylinder: Number of cylinders.

Head: Number of heads.

Precomp: Write precompensation cylinder .

Landing Zone: Landing zone.

Sector: Number of sectors.

Drive A

Drive B

Select the correct specifications for the diskette drive(s) installed in the computer.

None	No diskette drive installed
360K, 5.25 in	5-1/4 inch PC-type standard drive; 360 kilobyte capacity
1.2M, 5.25 in	5-1/4 inch AT-type high-density drive; 1.2 megabyte capacity
720K, 3.5 in	3-1/2 inch double-sided drive; 720 kilobyte capacity
1.44M, 3.5 in	3-1/2 inch double-sided drive; 1.44 mega byte capacity
2.88M, 3.5 in	3-1/2 inch double-sided drive; 2.88 mega byte capacity

Select Display Device

GENE-6330 can be used with various visual display peripherals. This

function allows the end user to select the type of visual display peripheral they are incorporated with the GENE-6330 single board computer.

The choices: CRT, LCD, CRT+LCD.

Panel Type

When your display devices include LCD panel, you have to select the type of panel you are incorporating with your single board computer. Consult your panel manual for detail information.

The choices: 640x480 (24B) TFT, 800x600 (24B) TFT, 1024x768 (24B) TFT, 640x480 (36B) TFT, 640x480 (36B) DSTN, 800x600 (36B) TFT, 800x600 (36B) DSTN, 1024x768 (36B) TFT, 1024 x768 (36B) DSTN

Halt On

During the power-on-self-test (POST), the computer stops if the BIOS detects a hardware error. You can tell BIOS to ignore certain errors during POST and continue the boot-up process.

The choices: All, But Keyboard; All, But Diskette; All, But Disk/Key; All Errors; No Errors.

Memory

You cannot change any values in the Memory fields; they are only for your information. RAM is counted in kilobytes (KB: approximately one thousand bytes) and megabytes (MB: approximately one million bytes).

RAM is the computer's working memory, where the computer stores programs and data currently being used, so they are accessible to the CPU. Modern personal computers may contain up to 64 MB, 128 MB, or more.

Base Memory

Typically 640 KB. Also called conventional memory. The DOS operating system and conventional applications use this area.

Extended Memory

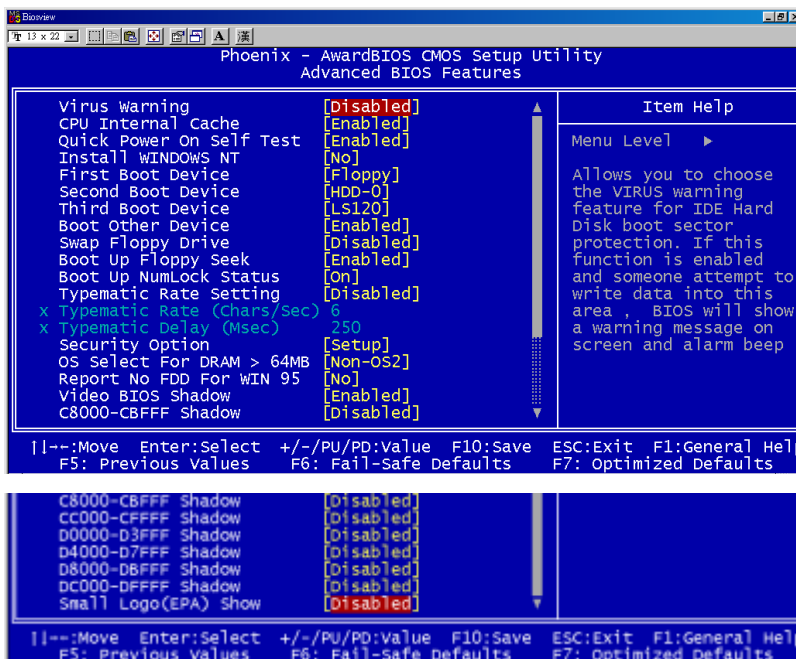
Above the 1-MB boundary. Early IBM personal computers could not use memory above 1 MB, but current PCs and their software can use extended memory.

Total Memory

The fields show the total installed random access memory (RAM).

3.4 Advanced BIOS Features

By choosing the Advanced BIOS Features option from the INITIAL SETUP SCREEN menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the GENE-6330.



Virus Warning

When enabled, you receive a warning message if a program (specifically, a virus) attempts to write to the boot sector or the partition table of the hard disk drive. You should then run an anti-virus program. Keep in mind that this feature protects only the boot sector, not the entire hard drive.

NOTE: Many disk diagnostic programs that access the boot sector

table can trigger the virus-warning message. If you plan to run such a program, we recommend that you first disable the virus warning.

The choices: Enabled, Disabled.

CPU Internal Cache

Enable this function to utilize the CPU Internal Cache memory to enhance computing performance.

The choices: Enabled, Disabled.

Quick Power On Self Test

Select Enabled to reduce the amount of time required to run the power-on-self-test (POST). A quick POST skips certain steps.

The choices: Enabled, Disabled.

Install WINDOWS NT

This BIOS provides special setting under Windows NT. Be sure to select "Yes" before you install Windows NT.

The choices: Yes, No.

First/Second/Third Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items.

The choices: Floppy, LS120, HDD-0, HDD-1, HDD-2, CDROM, ZIP100, Disabled.

Boot Other Device

If your boot device is not included in the following choices Floppy, LS120, HDD0, HDD1, HDD2, SCSI, CDROM, ZIP100, LAN, you may set **First/Second/Third Boot devices to "Disabled"** and **enable the BOOT Other Device function**. The system will automatically boot the other device.

The choices: Enabled, Disabled.

Swap Floppy Drive

This field is effective only in systems with two floppy drives. Selecting enabled assigns physical drive B to logical drive A, and physical drive A to logical drive B.

The choices: Enabled, Disabled.

Boot Up Floppy Seek

When Enabled, the BIOS tests (seeks) floppy drives to determine whether they have 40 or 80 tracks. Only 360-KB floppy drives have 40 tracks; drives with 720 KB, 1.2 MB, and 1.44 MB capacity all have 80 tracks. Because very few modern PCs have 40-track floppy drives, we recommend you to choose "Disabled" to save time.

The choices: Enabled, Disabled.

Boot Up NumLock Status

Toggle between On or Off to control the state of the NumLock key when the system boots. When toggled On, the numeric keypad generates numbers instead of controlling cursor operations.

The choices: On, Off.

Typematic Rate Setting

Keystrokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected.

The choices: Enabled/Disabled.

Typematic Rate (Chars/Sec)

When the typematic rate setting is enabled, you can select a typematic rate (the rate at which character repeats when you hold down a key) of 6, 8, 10, 12, 15, 20, 24, 30.

Typematic Delay (Msec)

When the typematic rate setting is enabled, you can select a typematic delay (the delay before key strokes begin to repeat) of 250, 500, 750 or 1000 milliseconds.

Security Option

If you have set a password, select whether the password is required every time the System boots, or only when you enter Setup.

The choices: Setup, System.

OS Select For DRAM>64MB

Select the operating system that is running with greater than 64MB or RAM on the system.

The choices: Non-OS2, OS2.

Report No FDD For WIN 95

Select "Yes" to release IRQ6 when the system contains no floppy drive, for compatibility with Windows 95 logo certification. In the Integrated Peripherals screen, select Disabled for the Onboard FDD Controller field.

The choices: Yes, No.

Shadow

Software that resides in a read only memory (ROM) chip on a device is called firmware. The Award BIOS permits shadowing of firmware such as the system BIOS, video BIOS, and similar operating instructions that come with some expansion peripherals such as a SCSI adaptor.

Shadowing copies firmware from ROM into system RAM, where the CPU can read it through the 16-bit or 32-bit DRAM bus. Firmware not shadowed must be read by the system through the 8-bit X-bus. Shadowing improves the performance of the system BIOS and similar ROM firmware for expansion peripherals. But it also reduces the amount of high memory (640 KB to 1 MB) available for loading device drivers, etc.

Enable shadowing into each section of memory separately. Many system designers hardwire shadowing of the system BIOS and eliminate a System BIOS Shadow option.

Video BIOS shadows into memory are C0000-C7FFF. The remaining areas shown on the BIOS Features Setup screen may be occupied by other expansion card firmware. If an expansion peripheral in your system contains ROM-based firmware, you need to know the address range the ROM occupies to shadow it into the correct area of RAM.

The choices: Enabled, Disabled.

Small Logo (EPA) Show

If you want to show your logo, please enable it.

The choices: Enabled, Disabled

3.5 Integrated peripherals

By choosing the Integrated Peripherals from the INITIAL SETUP SCREEN menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the GENE-6330.

```

Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals

Onchip IDE Channel0 [Enabled]
Onchip IDE Channel1 [Enabled]
IDE Prefetch Mode [Enabled]
Primary Master PIO [Auto]
Primary Slave PIO [Auto]
Secondary Master PIO [Auto]
Secondary Slave PIO [Auto]
Primary Master UDMA [Auto]
Primary Slave UDMA [Auto]
Secondary Master UDMA [Auto]
Secondary Slave UDMA [Auto]
Onchip USB [Enabled]
USB Keyboard Support [Disabled]
AC97 Audio [Enable]
IDE HDD Block Mode [Enabled]
Onboard FDD Controller [Enabled]
Onboard Serial Port 1 [3F8/IRQ4]
Onboard Serial Port 2 [2F8/IRQ3]
UART 2 Mode [Standard]

Item Help
Menu Level ▶

|--:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults
  
```

```

UART 2 Mode [Standard]
x IR Function Duplex Half
x TX,RX inverting enable No, Yes
Onboard Parallel Port [378/IRQ7]
Onboard Parallel Mode [Normal]
ECP Mode Use DMA [3]
Parallel Port EPP Type [EPP1,9]
Onboard Legacy Audio [Enabled]
Sound Blaster [Disabled]
SB I/O Base Address [220H]
SB IRQ select [IRQ 5]
SB DMA select [DMA 1]
MPU-401 [Disabled]
MPU-401 I/O Address [330-333H]

|--:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults
  
```

On-chip IDE Channel 0/1

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Please select " Enabled" to activate

each channel separately.

The choices: Enabled, Disabled.

IDE Prefetch Mode

The onboard IDE drive interfaces supports IDE prefetching, for faster drive accesses. If you install a primary and/or secondary add-in IDE interface, set this field to Disabled if the interface does not support prefetching.

The choices: Enabled, Disabled.

Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmable Input/Output) fields let you set a PIO mode (0-1) for each of the two IDE devices and the two storage devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

The choices: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

Primary/Secondary Master/Slave UDMA

Ultra DMA33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver. If both your hard drive and IDE cable support Ultra DMA 33 select Auto to enable BIOS support.

The choices: Auto, Disable.

On-chip USB

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals.

The choices: Disabled, Enabled.

USB Keyboard Support

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

The choices: Disabled, Enabled.

AC97 Audio

Select Enabled to use the audio capabilities of your system.

The choices: Disabled, Enable.

IDE HDD Block Mode

Block mode is also called "block transfer", "multiple commands", or "multiple sector read/write". If your IDE hard drive supports block mode (most new drives do), please select "Enabled" for automatic detection of the optimal number of block read/writes per sector the drive can support.

The choices: Enabled, Disabled.

Onboard FDD Controller

Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you install an add-in FDC or the system has no floppy drive, select Disabled in this field.

The choices: Disabled, Enabled.

Onboard Serial Ports 1/2

Normally, the boards' I/O chips will occupy a certain portion of memory space. For each I/O device the computer provides an I/O address. The more devices attached the more address needed to organize the memory storage areas. If all the I/O devices were running through the same address, your devices would come to a

near halt. Also the corresponding interrupt needs to be selected.

The choices: Disabled, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4, 2E8/IRQ3.

UART 2 Mode

If you don't disable Onboard Serial Port 2, you will have to select an operating mode for the second serial port:

Standard: RS-232C serial port

HPSIR: IrDA-compliant serial infrared port

ASKIR: Amplitude shift keyed infrared port

If you select HPSIR or ASKIR, you have to set the following two functions.

IR Function Duplex

Select the value required by the IR device connected to the IR port. Full-duplex mode permits simultaneous two-direction transmission. Half-duplex mode permits transmission in one direction only at a time.

The choices: Full, Half.

Tx, Rx inverting enable

Please consult your IR peripheral documentation to select the correct setting of the TxD and RxD signals.

The choices: Yes/No, Yes/Yes, No/No, No/Yes.

Onboard Parallel Port

Select a logical LPT port address and corresponding interrupt for the physical parallel port

The Choice: 3BC/IRQ7, 378/IRQ7, 278/IRQ5, Disabled.

Onboard Parallel Mode

Two bi-directional parallel ports. Supports Normal, ECP, EPP, ECP/EPP.

The choices: Normal, EPP, ECP, ECP/EPP.

ECP Mode Use DMA

Select a DMA channel for the port.

The choices: 1, 3.

Parallel Port EPP Type

You can use this feature to choose which version of EPP to use. For better performance, use EPP 1.9. If you are facing connection issues, try to set it to EPP 1.7.

The choices: EPP1.9, EPP1.7.

Onboard Legacy Audio

Enable to utilize onboard legacy audio function.

The choice: Enabled, Disabled.

Sound Blaster

Enable to utilize Sound Blaster function.

The choice: Enabled, Disabled.

SB I/O Base Address

Select a base I/O address for the Sound Blaster interface.

The choice: 220H, 240H, 260H, 280H

SB IRQ Select

Select Interrupt for the Sound Blaster interface.

The choice: IRQ5, IRQ7, IRQ9, IRQ10

SB DMA Select

Select DMA mode for the Sound Blaster interface.

The choice: DMA0, DMA1, DMA2, DMA3

MPU-401

Select Enabled to configure the MPU-401 interface.

The choice: Enabled, Disabled.

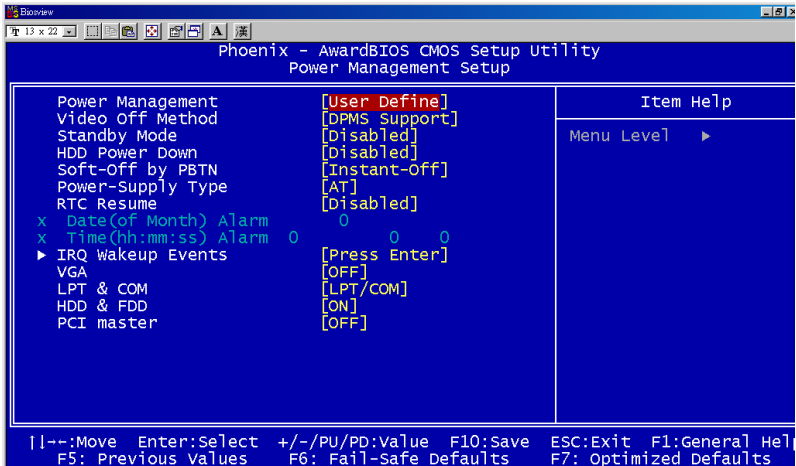
MPU-401 I/O Address

Select a base I/O address for the MPU-401 interface.

The choice: 300-303H, 310-313H, 320-323H, 330-333H.

3.6 Power Management Setup

By choosing the Power Management Setup from the INITIAL SETUP SCREEN menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the GENE-6330.



ACPI Function (only for ATX type)

ACPI (Advanced Configuration and Power Interface) is an open industry specification co-developed by Compaq, Intel, Microsoft, Phoenix, and Toshiba. It establishes industry-standard interfaces for OS-directed configuration and power management on laptops, desktops, and servers.

If you want to manage power consumption well, please "Enable" this item.

The choices: Enabled, Disabled.

Power Management

Select Max Saving mode or Min Saving mode or define desired

Standby Mode and HDD Power Down functions by User Define.

Video Off Method

This determines the manner in which the monitor is blanked.

V/H SYNC+Blank: This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.

DPMS Support: Initial display power management signaling.

Blank Screen: This option only writes blanks to the video buffer.

Suspend Mode

Disable this function or select 30 sec, 1 min, 4 min, 10 min, 20min, 30 min, 1 hour.

HDD Power Down

Disable this function or select from 1 to 15 minutes.

Soft-off by PBTN(only for ATX type)

If you select "Instant -Off", pushing the on/off button will instantly shut down the system. If you select " Delay 4 sec", you have to push the on/off button lasting for 4 seconds to shut down the system. In this mode, one touch on the on/off button won't shut down the system but place it in a very low-power-usage state, with only enough circuitry receiving power to detect power button activity or Resume by Ring activity.

The choices: Instant-Off, Delay 4 Sec.

Power Supply Type

GENE-6330 supports two kinds of power supply types: AT or ATX. Please select the corresponding type of your board in this item. If AT type is chosen, this board will not support several power management functions such as "ACPI", "Soft-off by PBTN", "IRQ

Wakeup Events"etc..

The choices: AT, ATX.

Wake on LAN(only for ATX type)

Enable this function to turn on a computer from another location over a network connection.

The choices: Enabled, Disabled

RTC Resume

When Enabled, your can set the date and time at which the RTC (real-time clock) alarm awakens the system from standby mode.

The choices: Enabled, Disabled

IRQ Wakeup Events(only for ATX type)

You can turn On or Off monitoring of commonly used interrupt requests so they do not awaken the system from, or reset activity timers for Doze and Standby modes.

For example, if you have a modem on IRQ3, you can turn on IRQ3 as a wake-up event, so an interrupt from the modem can wake up the system. Or you may wish to turn Off IRQ12 (the PS/2) mouse as a wake-up event, so accidentally brushing the mouse does not awaken the system.

GENE-6330 offers several ways to awaken the system. Define each way as the wake-up interrupt requests or not.

VGA

The choices: ON, OFF

LPT & COM

The choices: LPT, COM, LPT/COM, NONE

HDD & FDD

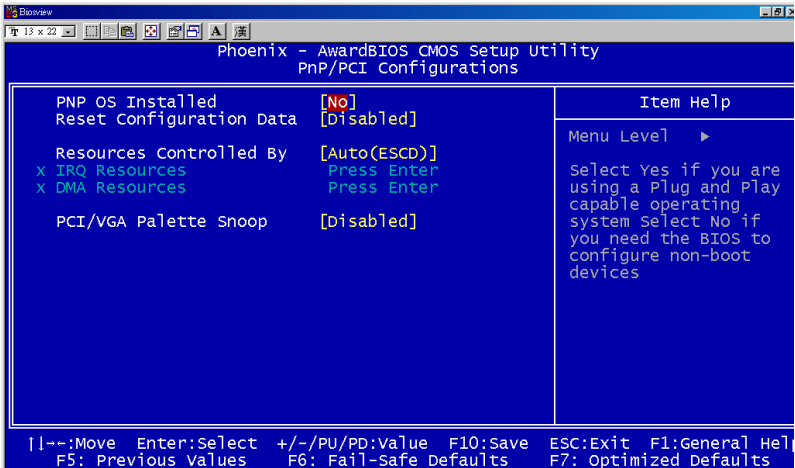
The choices: ON, OFF

PCI Master

The choices: ON, OFF

3.7 PnP/PCI configurations

By choosing the PnP/PCI configurations from the Initial Setup Screen menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the GENE-6330.



PNP OS Installed

Select Yes if the system operating environment is Plug and Play aware, for example Windows 95.

Select No if you need the BIOS to configure non-boot devices.

The choices: No, Yes.

Reset Configuration Data

Normally, you leave this field disabled. Select enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.

The choices: Enabled, Disabled

Resources Controlled By

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows 95. If you set this field to Manual, please choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a ">")

The choices: Auto (ESCD), Manual.

IRQ Resources

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt. There are two types for choice: **Legacy ISA** and **PCI/ISA PnP**.

Legacy ISA: Devices compliant with the original PC AT bus specification, requiring a specific interrupt (such as IRQ4 for serial port 1)

PCI/ISA PnP: Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

DMA Resources

When resources are controlled manually, assign each DMA channel a type, depending on the type of device using the DMA channel. There are two types for choice: **Legacy ISA** and **PCI/ISA PnP**.

Legacy ISA: Devices compliant with the original PC AT bus specification, requiring a specific DMA channel

PCI/ISA PnP: Devices compliant with the Plug and Play standard, whether designed for PCI or ISA bus architecture.

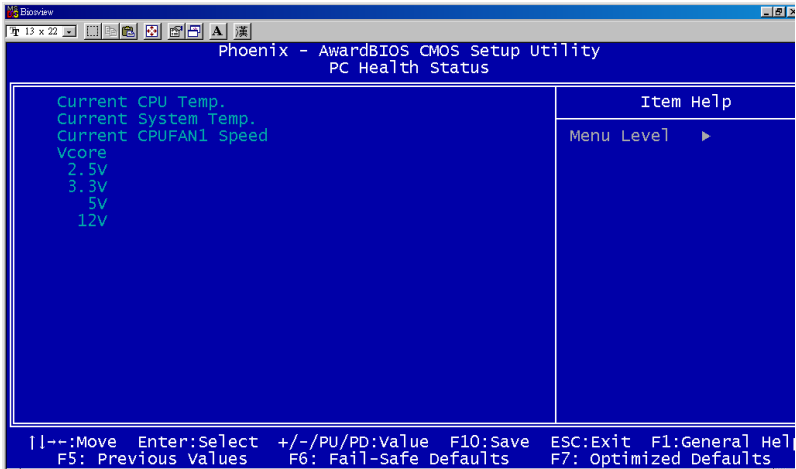
PCI/VGA Palette Snoop

Leave this field at Disabled.

The choices: Enabled, Disabled

3.8 PC Health Status

By choosing the PC Health Status from the Initial Setup Screen menu, the screen below is displayed. This sample screen contains the manufacturer's default values for the GENE-6330.



3.9 Load Fail-safe Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Fail-Safe Default (Y/N)?

Pressing "Y" loads the BIOS default values for the most stable, minimal performance system operations.

3.10 Load Optimized Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N)?

Pressing "Y" loads the default values that are factory settings for optimal performance system operations.

3.11 Set Supervisor/User Password

You can set either SUPERVISOR or USER PASSWORD, or both of them. The difference between the two is that the supervisor password allows unrestricted access to enter and change the options of the setup menus, while the user password only allows entry to the program, but not modify options.

To abort the process at any time, press Esc.

In the Security Option item in the BIOS Features Setup screen, select System or Setup:

System Enter a password each time the system boots and whenever you enter Setup.

Setup Enter a password whenever you enter Setup.

NOTE: To clear the password, simply press Enter when asked to enter a password. Then the password function is disabled.

3.12 Save & Exit setup

If you select this option and press <Enter>, the values entered in the setup utilities will be recorded in the chipset's CMOS memory. The microprocessor will check this every time you turn your system on and compare this to what it finds as it checks the system. This record is required for the system to operate.

3.13 Exit without saving

Selecting this option and pressing <Enter> lets you exit the Setup program without recording any new values or changing old ones.

Chapter

4

**Driver
Installation**

GENE-6330 comes with a CD-ROM which contains most of drivers and utilities you will need.

There are several installation ways that depend on the driver package under different Operating System applications.

We recommend that the system driver installation procedure must be performed first.

If you utilize Windows NT series OS, you are strongly recommended to download the latest version Windows NT Service Pack from Microsoft website and install it before installing any driver.

4.1 Installation 1:

Applicable for Windows 9x/ME/NT 4.0

1. Insert the GENE-6330 CD-ROM into the CD-ROM Drive.
2. From the CD-ROM, select the desired component Driver folder, select the desired Operation System folder to double click on the Setup.exe icon. A driver installation screen will appear.
(Notice: take VGA driver installation under Windows 98 for example, choose the corresponding folder depending on your OS)
3. A driver installation screen will appear, please follow the onscreen instructions to install the driver in sequence and click on the Next button.
(Notice: In some cases the system will ask you to insert Windows 98 CD Diskette and key in its path. Then click on the OK button to key in path.)
4. Click on the **Finish** button to finish installation process. And allow the system to reboot.

4.2 Installation 2:

Applicable for Windows 9x/ME

1. Insert the **GENE-6330 CD-ROM** into the CD-ROM Drive.
2. Click on **Start** button, select the **Settings**, then click on the **Control Panel** icon.
3. Double click on the **Add/Remove Hardware** icon and **Add New Hardware Wizard** will appear. Click on the **Next** button.
4. Select **Search for the best driver for your device (Recommended)** and click on the **Next** button.
5. Select **Specify a location**, click on **Have Disk** button then key in the CD-ROM path and specify component drivers and OS folders. Then click on the **Next** button.
6. The Wizard shows that Windows driver file search for the device: (For example, Ethernet devices, the list appear **Realtek RTL8139/810X Family PCI Fast Ethernet NIC**). Click on the **Next** button.
7. The system will ask you to insert Windows 98 CD Diskette. Click on the **OK** button to insert Diskette and key in path.
8. Click on the **OK** button.
9. Click on the **Finish** button to finish installation process. And allow the system to reboot.

4.3 Installation 3:

Applicable for Windows NT 4.0

1. Insert the **GENE-6330 CD-ROM** into the CD-ROM Drive.
2. Start system with Windows NT 4.0 installed.
IMPORTANT: When the "Please select the operating system to start..." message is displayed, select "Windows NT Workstation Version 4.00 [VGA mode]".
3. From **Start**, select the **Settings group**, then click on the **Control Panel** icon.
4. In the **Control Panel**, select the desired device and click on the icon.
5. Follow the step-by-step instruction and click on **OK** button.
6. Click on the **Have Disk...** button.
7. Key in CD-ROM path and specify component drivers, then click on the **OK** button.
8. From the list of displayed devices, select your desired device.
9. If a message appears stating the driver is already installed on the system, and asks if you want to use the current or new drivers, be sure to select the **New** button.
10. If prompted for the driver diskette a second time, click on the **Continue** button.
(Notice: In some cases the system will ask you to insert Windows NT CD-ROM. Follow its instructions to complete the setup procedures.)
11. When the message **"The drivers were successfully installed"** is displayed, remove the display driver diskette, then click on the **OK** button.
12. Reboot the system.

Appendix

A

**Programming the
Watchdog Timer**

A.1 Watchdog timer of GENE-6330

GENE-6330 is equipped with a watchdog timer that resets the CPU or generates an interrupt if processing comes to a standstill for whatever reason. An on-board watchdog timer reduces the chance of disruptions which CPLD (compact programmable logical device) interference can cause. This is a valuable protective device for standalone or unmanned applications.

A.2 How to program watchdog timer

When the watchdog timer activates (CPU processing has come to a halt), it can reset the system, or generate an interrupt on IRQ10, IRQ11, and NMI. This can be set via I/O Port 444, the functions as following:

0 :	RESET
1 :	NMI
2 :	IRQ10
3 :	IRQ11

If you decide to program the watchdog timer, you must write data to I/O port 443 (hex). The output data is a value timer. You can write from 00 (hex) to FF (hex) for input second data, and the related timer is 10 seconds to 255 seconds.

After data entry, your program must refresh the watchdog timer by rewriting the I/O port 443 (hex) while simultaneously setting it. When you want to disable the watchdog timer, your program should write I/O port 80 (hex) a Hex value.

The following procedure is a sample program for the watchdog timer:

- Type C:\DOS\Debug <ENTER>
- To start watchdog timer and set function "Reset" type;
 - o 444 0 <Enter>; out 444h data 0
- To input Watchdog timers time-out interval of 5 seconds type;
 - o 443 05 <Enter>; out 443h data 05

- To disable the watchdog timer type;
i 80 <Enter>

The time interval data of the watchdog timer is shown in binary code (8 bits).