8I845GE-RZ / 8I845GE-RZ-C

Intel® Pentium® 4 Processor Motherboard

User's Manual

Rev. 1001
12ME-I845GERZ-1001

Declaration of Conformity
We, Manufacturer/Importer
(full address)

G.B.T. Technology Trading GMbH
Ausschlager Weg 41, 1F 20537 Hamburg, Germany

declare that the product
(description of the apparatus, system, installation to which it refers)

Mother Board
8I845GE-RZ

is in conformity with
(reference to the specification under which conformity is declared)
in accordance with 89/336 EEC-EMC Directive

☐ EN 55011	Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM) high frequency equipment	☐ EN 61000-3-2	Disturbances in supply systems caused by household appliances and similar electrical equipment "Voltage fluctuations"
☐ EN 55013	Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment	☐ EN 61000-3-3	
☐ EN 55014		☒ EN 55024	Information Technology equipment-Immunity characteristics-Limits and methods of measurement
☐ EN 55014-1	Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, portable tools and similar electrical apparatus	☐ EN 50082-1	Generic immunity standard Part 1: Residual, commercial and light industry
		☐ EN 50082-2	Generic immunity standard Part 2 Industrial environment
☒ EN 55022	Limits and methods of measurement of radio disturbance characteristics of information technology equipment	☐ EN 55104-2	Immunity requirements for household appliances tools and similar apparatus
☐ EN 55020	Immunity from radio interference of broadcast receivers and associated equipment	☐ EN 60555-2	EMC requirements for uninterruptible power systems (UPS)
☐ DIN VDE 0855 part 10 part 12	Cabled distribution systems; Equipment for receiving and/or distribution from sound and television signals	
☒ CE marking			CE (EC conformity marking)

The manufacturer also declares the conformity of above mentioned product with the actual required safety standards in accordance with LVD 73/23 EEC

☐ EN 60065	Safety requirements for mains operated electronic and related apparatus for household and similar general use	☐ EN 60950	Safety for information technology equipment including electrical business equipment
☐ EN 60335	Safety of household and similar electrical appliances	☐ EN 50091-1	General and Safety requirements for uninterruptible power systems (UPS)

Manufacturer/Importer		
(Stamp)	Signature :	_Timmy Huang_
Date : Oct. 15, 2004	Name :	Timmy Huang

DECLARATION OF CONFORMITY
Per FCC Part 2 Section 2.1077(a)

FC

Responsible Party Name: G.B.T. INC. (U.S.A.)

Address: 17358 Railroad Street
City of Industry, CA 91748

Phone/Fax No: (818) 854-9338/ (818) 854-9339

hereby declares that the product

Product Name: **Motherboard**

Model Number: **8I845GE-RZ**

Conforms to the following specifications:

FCC Part 15, Subpart B, Section 15.107(a) and Section 15.109
(a),Class B Digital Device

Supplementary Information:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful and (2) this device must accept any inference received, including that may cause undesired operation.

Representative Person's Name: ERIC LU

Signature: _Eric Lu_

Date: Oct. 15 ,2004

Preparing Your Computer

Computer motherboards and expansion cards contain very delicate Integrated Circuit (IC) chips. To protect them against damage from static electricity, you should follow some precautions whenever you work on your computer.

1. Unplug your computer when working on the inside.
2. Use a grounded wrist strap before handling computer components. If you do not have one, touch both of your hands to a safely grounded object or to a metal object, such as the power supply case.
3. Hold components by the edges and try not touch the IC chips, leads or connectors, or other components.
4. Place components on a grounded antistatic pad or on the bag that came with the components whenever the components are separated from the system.
5. Ensure that the ATX power supply is switched off before you plug in or remove the ATX power connector on the motherboard.

CAUTION

Installing the motherboard to the chassis

If the motherboard has mounting holes, but they don't line up with the holes on the base and there are no slots to attach the spacers, do not become alarmed you can still attach the spacers to the mounting holes. Just cut the bottom portion of the spacers (the spacer may be a little hard to cut off, so be careful of your hands). In this way you can still attach the motherboard to the base without worrying about short circuits. Sometimes you may need to use the plastic springs to isolate the screw from the motherboard PCB surface, because the circuit wire may be near by the hole. Be careful, don't let the screw contact any printed circuit write or parts on the PCB that are near the fixing hole, otherwise it may damage the board or cause board malfunctioning.

Table of Content

Chapter 1 Introduction

Features Summary

CPU	• Socket 478 for Intel® Pentium® 4 (Northwood, Prescott(note 1)) processor with HT Technology
	• Supports 533/400MHz FSB
	• L2 cache varies with processors
Chipset	• North Bridge:Intel® 845GE
	• South Bridge: Intel® ICH4
Memory	• 3 184-pin DDR sockets
	• Supports DDR333/DDR266 DIMMs(note 2)
	• Supports up to 2GB (Max.)
	• Supports only 2.5V DDR SDRAM
Slots	• 1 AGP slot 4X (1.5V) device support
	• 5 PCI slots
IDE Connections	• 2 IDE connection (UDMA 33/ATA 66/ATA 100), allows connection of 4 IDE devices
FDD Connections	• 1 FDD connection, allows connection of 2 FDD devices
Peripherals	• 1 parallel port supporting Normal/EPP/ECP mode
	• 1 VGA port, 1 COMA port, onboard COMB connection
	• 6 USB 2.0/1.1 ports (rear x 2, front x 4 via cable)
	• 1 front audio connector
	• 1 PS/2 keyboard port
	• 1 PS/2 mouse port
Onboard VGA	• Built-in Intel® 82845GE Chipset
Onboard LAN	• RLT8100C*
	• 1 RJ45 port*
Onboard Audio	• C-Media 9761A CODEC
	• Supports Line In ; Line Out ; MIC In
	• Supports 2 / 4 / 6 channel audio
	• Supports SPDIF In/Out connection
	• CD In/AUX In/Game Port
BIOS	• Use of licensed AWARD BIOS
	• Supports Q-Flash

to be continued......

(Note 1) Prescotts processors with up to 533MHz FSB are supported.
(Note 2) Due to (Intel 845PE/GE/GV) chipset architecture limitation, DDR333 memory modules are supported only when you install a Pentium 4 processor with 533MHz FSB.
A Pentium 4 processor with 400MHz FSB will support DDR266 memory modules.
"*" For 8I845GE-RZ only.

I/O Control	• IT8712
Hardware Monitor	• CPU / System fan speed detection
	• System voltage detection
	• CPU temperature detection
	• CPU/System fan fail warning
	• CPU overheating warning
Additional Features	• Supports EasyTune 4
	• Supports @BIOS
Form Factor	• ATX form factor; 29.5cm x 21cm

Please set the CPU host frequency in accordance with your processor's specifications. We don't recommend you to set the system bus frequency over the CPU's specification because these specific bus frequencies are not the standard specifications for CPU, chipset and most of the peripherals. Whether your system can run under these specific bus frequencies properly will depend on your hardware configurations, including CPU, Chipsets, Memory, Cards….etc.

8I845GE-RZ Series Motherboard Layout

Motherboard layout showing components including KB_MS, CPU_FAN, Socket 478, DDR1, DDR2, DDR3, ATX, FDD, COMA, LPT, VGA, ATX_12V, Intel 845GE, LINE_OUT, LINE_IN, MIC_IN, Game, SUR_CEN, F_AUDIO, USB, LAN*, AGP, RTLB100C*, CODEC, CD_IN, AUX_IN, IT8712, -C#, SPDIF_IO, CI, COMB, F_USB1, F_USB2, F_PANEL, PWR_LED, IDE1, IDE2, BIOS, BAT, Intel ICH4, SYS_FAN, CLR_CMOS, PCI1, PCI2, PCI3, PCI4, PCI5, 8I845GE-RZ
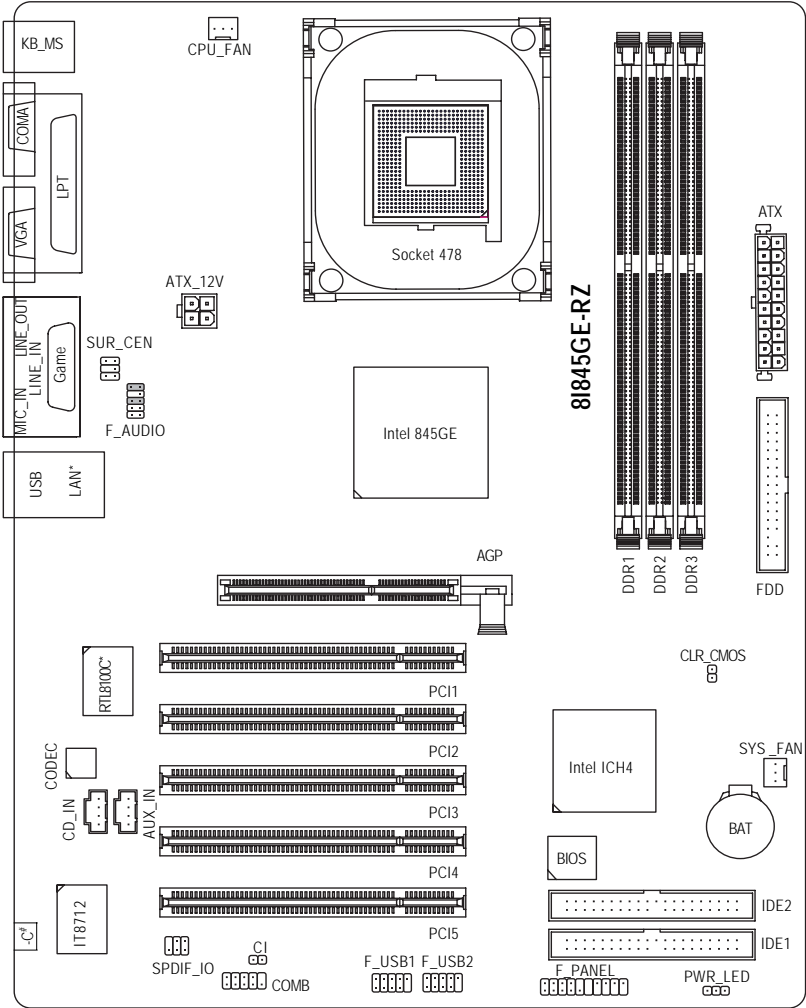
"*" For 8I845GE-RZ only.

"#" For 8I845GE-RZ-C only.

Block Diagram

```
                              Socket 478        CPUCLK+/- (100/133MHz)
                              Processor

      AGP 4X
AGPCLK          VGA Port       Host
(66MHz)                        Interface              266/333MHz
                                                      DDR RAM
                          Intel 82845GE
                                          GMCHCLK(66MHz)
                                          HCLK+/- (100/133MHz)
  5 PCI
                                          66 MHz
                                          33 MHz
                                          14.318 MHz
                                          48 MHz

                          Intel ICH4        BIOS      Game Port
                                          LPC BUS              Floppy
                                                     IT8712
          RTL8100C*                                          LPT Port
                      AC97 Link           24 MHz
                                                              COM
          RJ45*     AC97                                      Ports
PCICLK              CODEC    6 USB   ATA33/66/100   33 MHz
(33MHz)                      Ports   IDE Channels
                    MIC                                       PS/2
                    LINE-IN                                   KB/Mouse
                    LINE-OUT
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"*" For 8I845GE-RZ only.

8I845GE-RZ Series Motherboard   - 8 -

Hardware Installation Process

To set up your computer, you must complete the following steps:

    Step 1- Install the Central Processing Unit (CPU)

    Step 2- Install memory modules

    Step 3- Install expansion cards

    Step 4- Install I/O Peripherals cables

Step 1: Install the Central Processing Unit (CPU)

Before installing the CPU, please comply with the following conditions:

CAUTION

1. Please make sure that the motherboard supports the CPU.
2. Please take note of the one indented corner of the CPU. If you install the CPU in the wrong direction, the CPU will not insert properly. If this occurs, please change the insert direction of the CPU.
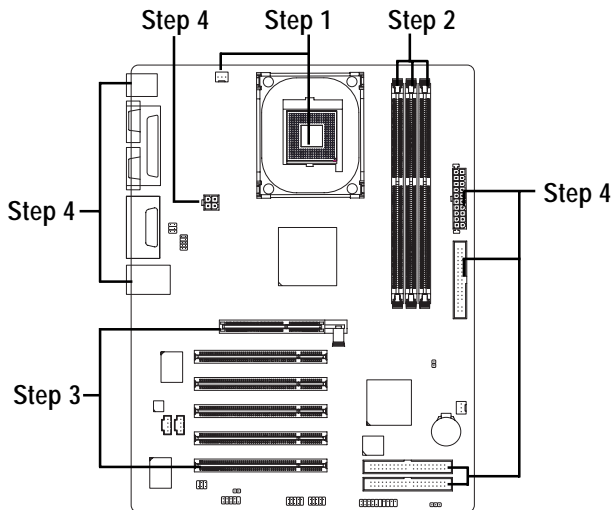3. Please add an even layer of heat sink paste between the CPU and heatsink.
4. Please make sure the heatsink is installed on the CPU prior to system use, otherwise overheating and permanent damage of the CPU may occur.
5. Please set the CPU host frequency in accordance with the processor specifications. It is not recommended that the system bus frequency be set beyond hardware specifications since it does not meet the required standards for the peripherals. If you wish to set the frequency beyond the proper specifications, please do so according to your hardware specifications including the CPU, graphics card, memory, hard drive, etc.

HT functionality requirement content :

NOTE

Enabling the functionality of Hyper-Threading Technology for your computer system requires all of the following platform components:

- CPU: An Intel® Pentium 4 Processor with HT Technology
- Chipset: An Intel® Chipset that supports HT Technology
- BIOS: A BIOS that supports HT Technology and has it enabled
- OS: An operation system that has optimizations for HT Technology

Step 1-1: CPU Installation
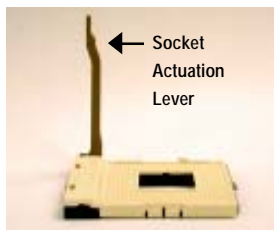
Figure 1.
Pull the rod to the 90-degree directly.

Socket Actuation Lever
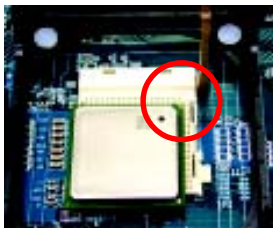
Figure 2.
Locate Pin 1 in the socket and look for a (golden) cut edge on the CPU upper corner. Insert the CPU into the socket. (Do not force the CPU into the socket.) Then move the socket lever to the locked position while holding pressure on the center of the CPU.

Step 1-2: CPU Cooling Fan Installation

Figure 1.
Apply the thermal tape(or grease) to provide better heat conduction between your CPU and cooling fan.

Figure 2.
Fasten the cooling fan supporting-base onto the CPU socket on the motherboard.
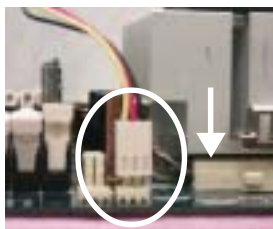
Figure 3.
Make sure the CPU fan is plugged to the CPU fan connector, and then the installation is completed.

Step 2: Install Memory Modules

Before installing the memory modules, please comply with the following conditions:
1. Please make sure that the memory used is supported by the motherboard. It is recommended that memory of similar capacity, specifications and brand be used.
2. Before installing or removing memory modules, please make sure that the computer power is switched off to prevent hardware damage.
3. Memory modules have a foolproof insertion design. A memory module can be installed in only one direction. If you are unable to insert the module, please switch the direction.
4. Because of chipset (Intel 845PE/GE) limitations, DDR333 memory modules are supported only when you install a Pentium 4 processor with 533MHz FSB. A Pentium 4 processor with 400MHz FSB will support DDR266 memory modules.

The motherboard has 3 dual inline memory module (DIMM) sockets. The BIOS will automatically detects memory type and size. To install the memory module, just push it vertically into the DIMM socket. The DIMM module can only fit in one direction due to the notch. Memory size can vary between sockets.

notch
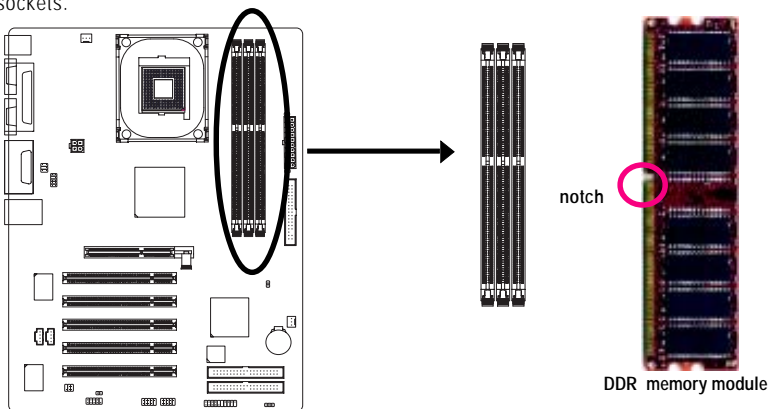
DDR memory module

Fig.1
The DIMM socket has a notch, so the DIMM memory module can only fit in one direction. Insert the DIMM memory module vertically into the DIMM socket. Then push it down.

Fig. 1

Fig.2
Close the plastic clip at both edges of the DIMM sockets to lock the DIMM module.
Reverse the installation steps when you wish to remove the DIMM module.

Fig. 2

Step 3: Install AGP Card

1. Read the related expansion card's instruction document before installing the expansion card into the computer.
2. Please make sure your AGP card is AGP 4X (1.5V).

3. Please carefully pull out the small white- drawable bar at the end of the AGP slot when you try to install/ Uninstall the AGP card. Please align the AGP card to the onboard AGP slot and press firmly down on the slot .Make sure your AGP card is locked by the small white- drawable bar.
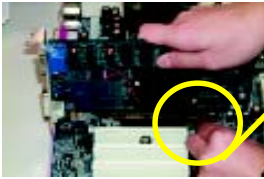
AGP Card

Step 4: Install I/O Peripherals Cables

Step 4-1: I/O Back Panel Introduction
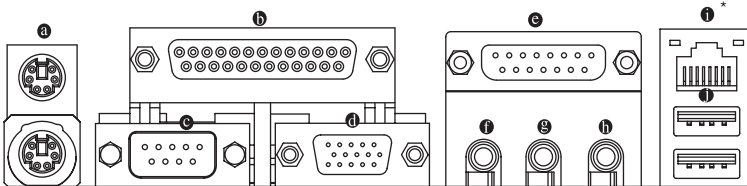
ⓐ **PS/2 Keyboard and PS/2 Mouse Connector**

To install a PS/2 port keyboard and mouse, plug the mouse to the upper port (green) and the keyboard to the lower port (purple).

ⓑ **Parallel Port**

The parallel port allows connection of a printer, scanner and other peripheral devices.

ⓒ **Serial Port**

Devices like mouses, modems, and etc. can be connected to Serial port.

ⓓ **VGA Port**

Monitor can be connected to VGA port.

ⓔ **Game/MIDI port**

This connector supports joystick, MIDI keyboard and other related audio devices.

ⓕ **Line Out (Front Speaker Out)**

Connect the stereo speakers, earphone or front surround channels to this connector.

"*" For 8I845GE-RZ only.

- ☻ **Line In**

  Devices like CD-ROM, walkman etc. can be connected to Line In jack.

- ⓪ **MIC In**

  Microphone can be connected to MIC In jack.

- ❶ **LAN Port ***

  The LAN port provides Internet connection.

- ❶ **USB port**

  Before you connect your device(s) into USB connector(s), please make sure your device(s) such as USB keyboard, mouse, scanner, zip, speaker...etc. have a standard USB interface. Also make sure your OS supports USB controller. If your OS does not support USB controller, please contact OS vendor for possible patch or driver upgrade. For more information please contact your OS or device(s) vendors.

Step 4-2: Connectors Introduction
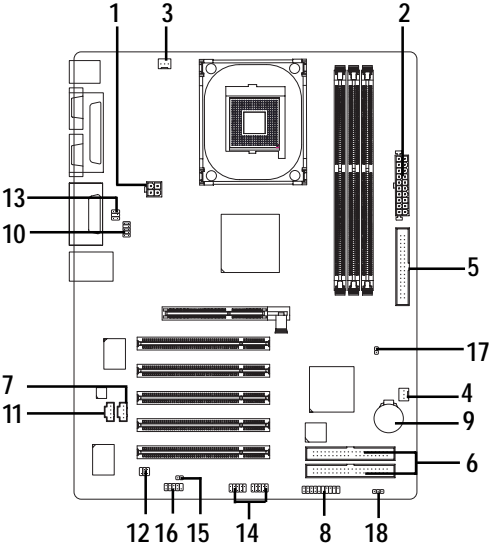
1) ATX_12V	10) F_AUDIO
2) ATX	11) CD_IN
3) CPU_FAN	12) SPDIF_IO
4) SYS_FAN	13) SUR_CEN
5) FDD	14) F_USB1 / F_USB2
6) IDE1 / IDE2	15) CI
7) AUX_IN	16) COMB
8) F_PANEL	17) CLR_CMOS
9) BAT	18) PWR_LED

"*" For 8I845GE-RZ only.

1/2) ATX_12V/ATX (Power Connector)

With the use of the power connector, the power supply can supply enough stable power to all the components on the motherboard. Before connecting the power connector, please make sure that all components and devices are properly installed. Align the power connector with its proper location on the motherboard and connect tightly.

The ATX_12V power connector mainly supplies power to the CPU. If the ATX_12V power connector is not connected, the system will not start.

Caution!

Please use a power supply that is able to handle the system voltage requirements. It is recommended that a power supply that can withstand high power consumption be used (300W or greater). If a power supply is used that does not provide the required power, the result can lead to an unstable system or a system that is unable to start.

Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V

Pin No.	Definition	Pin No.	Definition
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	VCC	14	PS_ON(soft on/off)
5	GND	15	GND
6	VCC	16	GND
7	GND	17	GND
8	Power Good	18	-5V
9	5V SB (stand by +5V)	19	VCC
10	+12V	20	VCC
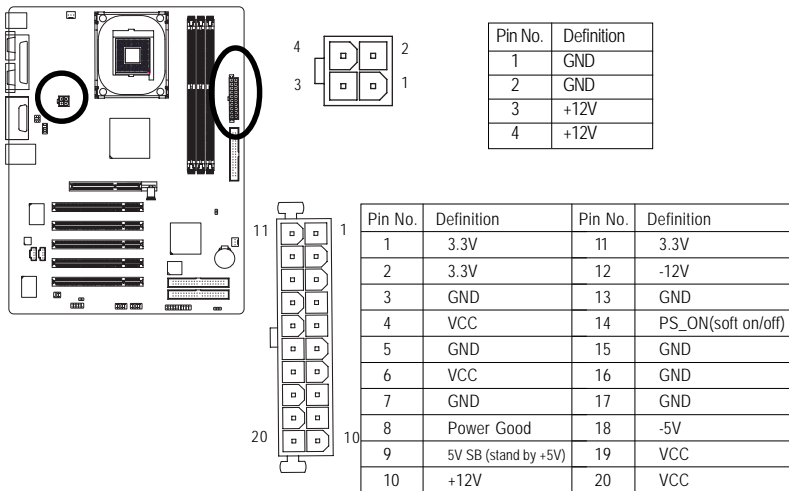
3) CPU_FAN (CPU FAN Connector)

Please note, a proper installation of the CPU cooler is essential to prevent the CPU from running under abnormal condition or damaged by overheating.The CPU fan connector supports Max. current up to 600 mA.

Pin No.	Definition
1	GND
2	+12V
3	Sense

8I845GE-RZ Series Motherboard   - 14 -
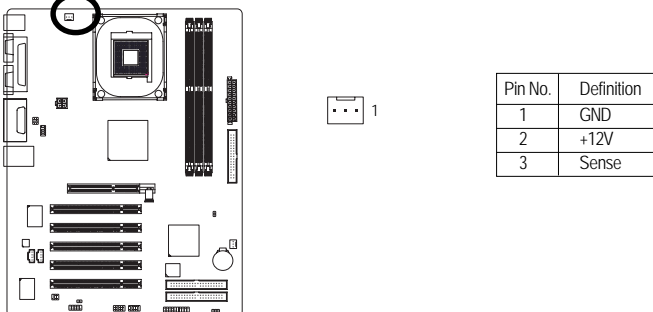
4) SYS_FAN (System FAN Connector)

This connector allows you to link with the cooling fan on the system case to lower the system temperature.

Pin No.	Definition
1	GND
2	+12V
3	Sense
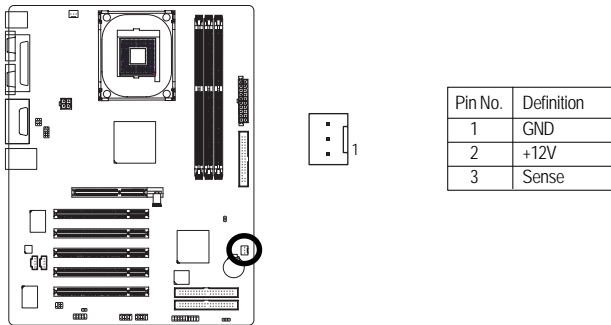
5) FDD (Floppy Connector)

Please connect the floppy drive ribbon cables to FDD. It supports 360K,720K,1.2M,1.44M and 2.88Mbytes floppy disk types.

The red stripe of the ribbon cable must be the same side with the Pin1.
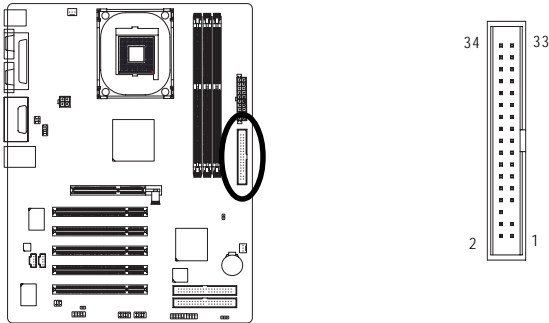
6) IDE1/ IDE2 (IDE1/IDE2 Connector)

Please connect first harddisk to IDE1 and connect CDROM to IDE2.

The red stripe of the ribbon cable must be the same side with the Pin1.
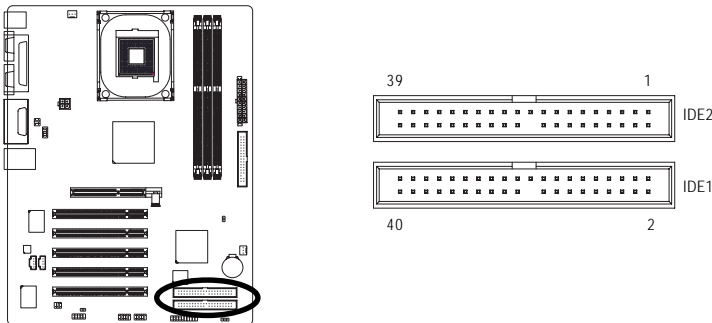
7) AUX_IN (AUX In Connector)

Connect other device (such as PCI TV Tunner audio out) to the connector.

1
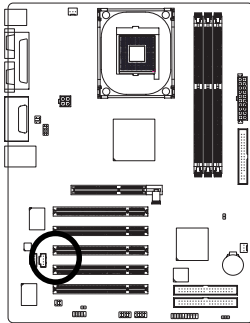
Pin No.	Definition
1	AUX-L
2	GND
3	GND
4	AUX-R

8) F_PANEL (2x10 pins connector)

Please connect the power LED, PC peaker, reset switch and power switch etc. of your chassis front panel to the F_PANEL connector according to the pin assignment above.
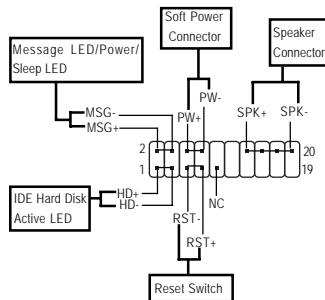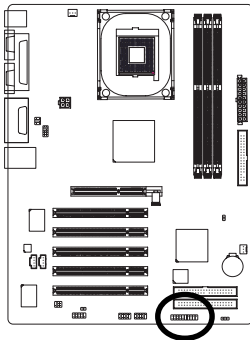
HD (IDE Hard Disk Active LED)	Pin 1: LED anode(+)
	Pin 2: LED cathode(-)
SPK (Speaker Connector)	Pin 1: VCC(+)
	Pin 2- Pin 3: NC
	Pin 4: Data(-)
RST (Reset Switch)	Open: Normal Operation
	Close: Reset Hardware System
PW (Soft Power Connector)	Open: Normal Operation
	Close: Power On/Off
MSG (Message LED/Power/	Pin 1: LED anode(+)
Sleep LED)	Pin 2: LED cathode(-)
NC	NC

9) BAT (Battery)
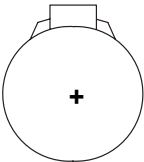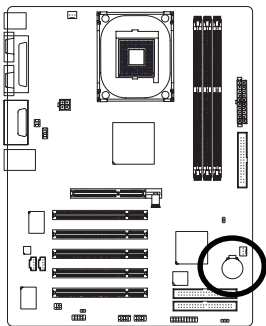
CAUTION

❖ Danger of explosion if battery is incorrectly replaced.

❖ Replace only with the same or equivalent type recommended by the manufacturer.

❖ Dispose of used batteries according to the manufacturer's instructions.

If you want to erase CMOS...

1. Turn OFF the computer and unplug the power cord.
2. Remove the battery, wait for 30 second.
3. Re-install the battery.
4. Plug the power cord and turn ON the computer.

10) F_AUDIO (Front Audio Panel Connector)

If you want to use Front Audio connector, you must remove jumpers on pins 5-6, 9-10. In order to utilize the front audio header, your chassis must have front audio connector. Also please make sure the pin assigments on the cable are the same as the pin assigments on the MB header. To find out if the chassis you are buying support front audio connector, please contact your dealer. Please note, you can have the alternative of using front audio connector or of using rear audio connector to play sound.
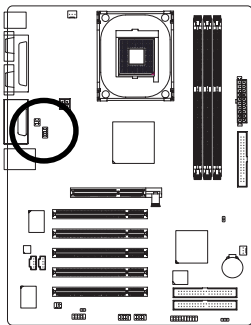
Pin No.	Definition
1	MIC
2	GND
3	REF
4	POWER
5	FrontAudio(R)
6	RearAudio(R)
7	Reserved
8	No Pin
9	FrontAudio (L)
10	RearAudio(L)

11) CD_IN (CD In Connector)

Connect CD-ROM or DVD-ROM audio out to the connector.

1
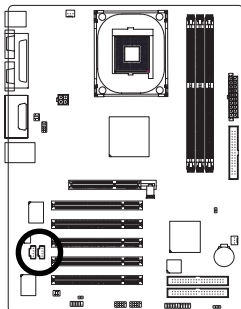
Pin No.	Definition
1	CD-L
2	GND
3	GND
4	CD-R

12) SPDIF_IO (SPDIF In/Out Connector)

The SPDIF output is capable of providing digital audio to external speakers or compressed AC3 data to an external Dolby Digital Decoder. Use this feature only when your stereo system has digital input function. Use SPDIF IN feature only when your device has digital output function.Be careful with the polarity of the SPDIF_IO connector. Check the pin assignment carefully while you connect the SPDIF_IO cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional SPDIF_IO cable, please contact your local dealer.

2   6

1   5
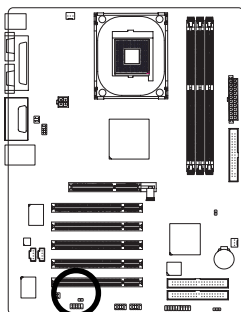
Pin No.	Definition
1	VCC
2	No Pin
3	SPDIF
4	SPDIFI
5	GND
6	GND

13) SUR_CEN (Surround Center Connector)

Please contact your nearest dealer for optional SUR_CEN cable.

6   5

2   1
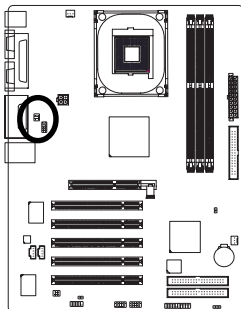
Pin No.	Definition
1	SUR OUTL
2	SUR OUTR
3	GND
4	No Pin
5	CENTER_OUT
6	BASS_OUT

English

14) F_ USB1 / F_USB2 (Front USB Connector)

Be careful with the polarity of the F_USB connector. Check the pin assignment carefully while you connect the F_USB cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional F_USB cable, please contact your local dealer.
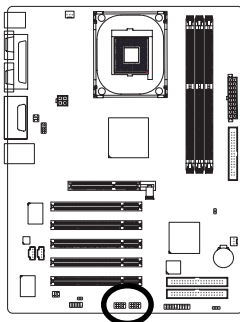
Pin No.	Definition
1	Power
2	Power
3	USB DX-
4	USB Dy-
5	USB DX+
6	USB Dy+
7	GND
8	GND
9	No Pin
10	NC

15) CI (Chassis Intrusion, Case Open)

This 2-pin connector allows your system to detect if the chassis cover is removed. You can check the "Case Open" status in BIOS.
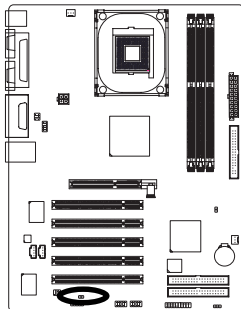
Pin No.	Definition
1	Signal
2	GND

16) COMB (COMB Connector)

Be careful with the polarity of the COMB connector. Check the pin assignment carefully while you connect the COMB cable because incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional COMB cable, please contact your local dealer.
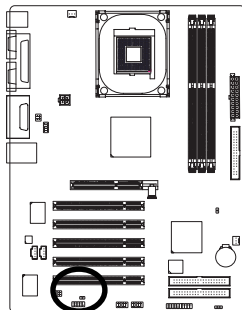
Pin No.	Definition
1	NDCDB-
2	NSINB
3	NSOUTB
4	NDTRB-
5	GND
6	NDSRB-
7	NRTSB-
8	NCTSB-
9	NRIB-
10	No Pin

17) CLR_CMOS (Clear CMOS)

You may clear the CMOS data to its default values by this jumper. To clear CMOS, temporarily short pins 1-2. Default doesn't include a jumper on pins 1-2 to prevent improper use of this header.
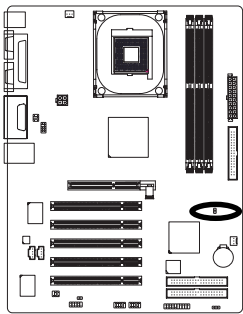
1

Open: Normal

1

Short: Clear CMOS

18) PWR_LED

PWR_LED is connected with the system power indicator to indicate whether the system is on/off. It will blink when the system enters suspend mode. If you use dual color LED, power LED will turn to another color.

1
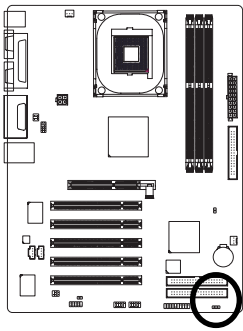
Pin No.	Definition
1	MPD+
2	MPD-
3	MPD-

Chapter 2   BIOS Setup

Chapter 2 provides an overview of the BIOS Setup Program, which allows users to modify the basic system configurations. 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 BIOS Setup

Turning on the computer and pressing <Del> immediately allow you to enter BIOS Setup. If you need more advanced BIOS settings, please press **Ctrl** and **F1** keys on the BIOS main screen to access the the advanced BIOS settings.

CONTROL KEYS

<↑><↓><←><→>	Move to select item
<Enter>	Select Item
<Esc>	Main Menu - Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu - Exit current page and return to Main Menu
<+/PgUp>	Increase the numeric value or make changes
<-/PgDn>	Decrease the numeric value or make changes
<F1>	General help, only for Status Page Setup Menu and Option Page Setup Menu
<F2>	Item Help
<F5>	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
<F6>	Load the file-safe default CMOS value from BIOS default table
<F7>	Load the Optimized Defaults
<F8>	Q-Flash utility
<F9>	System Information
<F10>	Save all the CMOS changes, only for Main Menu

Main Menu

The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu / Option Page Setup Menu

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press <Esc>.

The Main Menu (For example: BIOS Ver. : F1)

Once you enter Award BIOS CMOS Setup Utility, the Main Menu (as figure below) will appear on the screen. The Main Menu allows you to select from eight setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

```
              CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
┌─────────────────────────────────────────────────────────────────────────────┐
│                                                                               │
│    ▶   Standard CMOS Features            Top Performance                       │
│    ▶   Advanced BIOS Features            Load Fail-Safe Defaults               │
│    ▶   Integrated Peripherals            Load Optimized Defaults               │
│    ▶   Power Management Setup            Set Supervisor Password               │
│    ▶   PnP/PCI Configurations            Set User Password                     │
│    ▶   PC Health Status                  Save & Exit Setup                     │
│    ▶   Frequency/Voltage Control         Exit Without Saving                   │
│                                                                               │
├─────────────────────────────────────────────────────────────────────────────┤
│    Ese: Quit                             ↑↓→←: Select Item                     │
│    F8: Q-Flash                           F10: Save & Exit Setup               │
├─────────────────────────────────────────────────────────────────────────────┤
│                      Time, Date, Hard Disk Type...                            │
└─────────────────────────────────────────────────────────────────────────────┘
```

If you can't find the settings you want, press Ctrl and F1 in BIOS main menu to access the hidden advanced options.

- **Standard CMOS Features**

  This setup page includes all the items in standard compatible BIOS.

- **Advanced BIOS Features**

  This setup page includes all the items of Award special enhanced features.

- **Integrated Peripherals**

  This setup page includes all onboard peripherals settings.

- **Power Management Setup**

  This setup page includes all the items of Green function features.

- **PnP/PCI Configurations**

  This setup page includes all the configurations of PCI & PnP ISA resources.

- **PC Health Status**

  This setup page includes the information of the system auto-detected temperature, voltage, and fan speed.

- **Frequency/Voltage Control**

  This setup page allows to control CPU clock and frequency ratio.

- **Top Performance**

  If you wish to maximize the performance of your system, try to enable **Top Performance**.

- **Load Fail-Safe Defaults**

  Fail-Safe Defaults indicates the value of the system parameters with which the system would be in safe configuration.

- **Load Optimized Defaults**

  Optimized Defaults indicates the value of the system parameters which the system would be in best performance configuration.

- **Set Supervisor Password**

  Change, set, or disable password. It allows you to limit access to the system and BIOS Setup, or just to BIOS Setup.

- **Set User Password**

  Change, set, or disable password. It allows you to limit access to the system.

- **Save & Exit Setup**

  Save CMOS value settings to CMOS and exit BIOS Setup.

- **Exit Without Saving**

  Abandon all CMOS value changes and exit BIOS Setup.

Standard CMOS Features

```
               CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
                             Standard CMOS Features
┌──────────────────────────────────────────────────────────┬──────────────────┐
│   Date (mm:dd:yy)                Fri, Jan 9 2004           │    Item Help     │
│   Time (hh:mm:ss)                22:31:24                  │ Menu Level   ▶   │
│                                                            │ Change the day, month,│
│ ▶ IDE Primary Master            [None]                     │ year             │
│ ▶ IDE Primary Slave             [None]                     │                  │
│ ▶ IDE Secondary Master          [None]                     │ <Week>           │
│ ▶ IDE Secondary Slave           [None]                     │ Sun. to Sat.     │
│                                                            │                  │
│   Drive A                       [1.44M, 3.5"]              │ <Month>          │
│   Drive B                       [None]                     │ Jan. to Dec.     │
│   Floppy 3 Mode Support         [Disabled]                 │                  │
│                                                            │ <Day>            │
│   Halt On                       [All, But Keyboard]        │ 1 to 31 (or maximum│
│                                                            │ allowed in the month)│
│   Base Memory                   640K                       │                  │
│   Extended Memory               127M                       │ <Year>           │
│   Total Memory                  128M                       │ 1999 to 2098     │
├──────────────────────────────────────────────────────────┴──────────────────┤
│ ↑↓→←: Move   Enter: Select   +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help│
│      F5: Previous Values      F6: Fail-Safe Defaults       F7: Optimized Defaults│
└──────────────────────────────────────────────────────────────────────────────┘
```

☞ **Date**

The date format is <week>, <month>, <day>, <year>.

- ▶ Week   From Sun. to Sat., determined by the BIOS and for display only.
- ▶ Month   From Jan. to Dec.
- ▶ Day   From 1st to 31st (or the maximum allowed in the month).
- ▶ Year   From Year 1999 to 2098.

☞ **Time**

The format used to express time is hours:minutes:seconds. The time is calculated based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

☞ **IDE Primary Master, Slave / IDE Secondary Master, Slave**

- ▶ IDE HDD Auto-Detection   Press "Enter" to select this option for automatic device detection.
- ▶ IDE Primary/Secondary Master(Slave) setup   You can use one of the three methods below:
  - Auto   Allows BIOS to automatically detect IDE devices during POST. (Default value)
  - None   Select this if no IDE devices are used and the system will skip the automatic detection step and allow for faster system start up.
  - Manual   User can manually input the correct settings
- ▶ Access Mode Use this to set the access mode for the hard drive. The four options are: CHS/LBA/Large/Auto (Default:Auto)

Hard drive information should be labeled on the outside drive casing.
Enter the appropriate option based on this information.

- ▶ Capacity   Capacity of currently installed hard disk.
- ▶ Cylinder   Number of cylinders
- ▶ Head   Number of heads
- ▶ Precomp   Write precomp
- ▶ Landing Zone Landing zone
- ▶ Sector   Number of sectors

☞ **Drive A / Drive B**

The category identifies the types of floppy disk (drive A and drive B) installed in the computer.
- ▸ None   No floppy disk is installed
- ▸ 360K, 5.25"   5.25 inch PC-type standard drive; 360K byte capacity.
- ▸ 1.2M, 5.25"   5.25 inch AT-type high-density drive; 1.2M byte capacity
                         (3.5 inch when 3 Mode is Enabled).
- ▸ 720K, 3.5"   3.5 inch double-sided drive; 720K byte capacity
- ▸ 1.44M, 3.5"   3.5 inch double-sided drive; 1.44M byte capacity.
- ▸ 2.88M, 3.5"   3.5 inch double-sided drive; 2.88M byte capacity.

☞ **Floppy 3 Mode Support (for Japan Area)**
- ▸ Disabled   Normal Floppy Drive. (Default value)
- ▸ Drive A   Enable Drive A 3 Mode support.
- ▸ Drive B   Enable Drive B 3 Mode support.
- ▸ Both   Enable both Drive A and B 3 Mode support.

☞ **Halt on**

The category determines whether the computer will stop if an error is detected during power up.
- ▸ All Errors   Whenever the BIOS detects a non-fatal error the system will stop.
- ▸ No Errors   The system boot will not stop for any error that may be detected and you
                         will be prompted.
- ▸ All, But Keyboard   The system boot will not stop for a keyboard error; it will stop for all other
                         errors. (Default value)
- ▸ All, But Diskette   The system boot will not stop for a disk error; it will stop for all other errors.
- ▸ All, But Disk/Key   The system boot will not stop for a keyboard or disk error; it will stop for all
                         other errors.

☞ **Memory**

The category is display-only which is determined by POST (Power On Self Test) of the BIOS.

▸ **Base Memory**

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system.
The value of the base memory is typically 512K for systems with 512K memory installed on the motherboard, or 640K for systems with 640K or more memory installed on the motherboard.

▸ **Extended Memory**

The BIOS determines how much extended memory is present during the POST.
This is the amount of memory located above 1 MB in the CPU's memory address map.

▸ **Total Memory**

This item displays the memory size that used.

Advanced BIOS Features

```
CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
                   Advanced BIOS Features
```

			Item Help
First Boot Device	[Floppy]		Menu Level ▶
Second Boot Device	[HDD-0]		
Third Boot Device	[CDROM]		Select Boot Device
Boot Up Floppy Seek	[Disabled]		Priority
Password Check	[Setup]		[Floppy]
CPU Hyper-Threading note 1	[Enabled]		Boot from floppy
Limit CPUID Max. to 3 note 2	[Enabled]		[LS120]
Init Display First	[Onboard/AGP]		Boot from LS120
Graphics Aperture Size note 3	[128MB]		[HDD-0]
Graphics Share Memory note 4	[8M]		Boot from First HDD
			[HDD-1]
			Boot from second HDD

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

Note 1: This option appears only when the Intel Pentium® 4 processor you install on the system supports the Hyper-Threading Technology.

Note 2: This option is available only when you install an Intel® Prescott processor

Note 3/4: This option is available only when you use the onboard VGA function.

☞ **First / Second / Third Boot Device**

- ➡ Floppy   Select your boot device priority by Floppy.
- ➡ LS120   Select your boot device priority by LS120.
- ➡ HDD-0~3   Select your boot device priority by HDD-0~3.
- ➡ SCSI   Select your boot device priority by SCSI.
- ➡ CDROM   Select your boot device priority by CDROM.
- ➡ ZIP   Select your boot device priority by ZIP.
- ➡ USB-FDD   Select your boot device priority by USB-FDD.
- ➡ USB-ZIP   Select your boot device priority by USB-ZIP.
- ➡ USB-CDROM   Select your boot device priority by USB-CDROM.
- ➡ USB-HDD   Select your boot device priority by USB-HDD.
- ➡ LAN   Select your boot device priority by LAN.
- ➡ Disabled   Select your boot device priority by Disabled.

☞ **Boot Up Floppy Seek**

During POST, BIOS will determine the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks 720K, 1.2M and 1.44M are all 80 tracks.

- ➡ Disabled   BIOS will not search for the type of floppy disk drive by track number. Note that there will not be any warning message if the drive installed is 360K. (Default value)
- ➡ Enabled   BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks. Note that BIOS can not tell from 720K, 1.2M or 1.44M drive type as they are all 80 tracks.

☞ **Password Check**
- ▶ Setup   The system will boot but will not access to Setup page if the correct password is not entered at the prompt. (Default value)
- ▶ System   The system will not boot and will not access to Setup page if the correct password is not entered at the prompt.

☞ **CPU Hyper-Threading**
This option is available only when you install an Intel® Hyper-Threading processor.
- ▶ Disabled   Disable CPU Hyper Threading.
- ▶ Enabled   Enable CPU Hyper Threading Feature. Please note that this feature is only working for operating system with multi processors mode supported. (Default value)

☞ **Limit CPUID Max. to 3**
This option is available only when you install an Intel® Prescott processor.
- ▶ Enabled   Limit CPUID Maximum value to 3 when using older OS like NT4. (Defaults value)
- ▶ Disabled   Disable CPUID Limit for Windows XP.

☞ **Init Display First**
Select the first initation of the monitor display from onboard/AGP or PCI VGA card.
- ▶ PCI   Set Init Display First to PCI.
- ▶ Onboard/AGP Set Init Display First to onboard/AGP. (Default value)

☞ **Graphics Aperture Size**
This option is available only when you use the onboard VGA function.
- ▶ 128MB   Set Graphics Aperture Size to 128MB. (Default value)
- ▶ Disabled   Disable this function.

☞ **Graphics Share Memory**
This option is available only when you use the onboard VGA function.
- ▶ 8MB   Set Graphics Share Memory to 8MB. (Default value)
- ▶ 1MB   Set Graphics Share Memory to 1MB.

Integrated Peripherals

```
CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
                  Integrated Peripherals
┌─────────────────────────────────────────────────────────────────────────────┐
│   On-Chip Primary PCI IDE                    [Enabled]    │                   │
│   On-Chip Secondary PCI IDE                  [Enabled]    │    Item Help      │
│   IDE1 Conductor Cable                       [Auto]       │ Menu Level ▶      │
│   IDE2 Conductor Cable                       [Auto]       │                   │
│   USB Controller                             [Enabled]    │  If a hard disk   │
│   USB Keyboard Support                       [Disabled]   │  controller card is│
│   USB Mouse Support                          [Disabled]   │  used, set at Disabled│
│   AC97 Audio                                 [Auto]       │                   │
│   Onboard H/W LAN *                          [Enabled]    │  [Enabled]        │
│   Onboard LAN Boot ROM *                     [Disabled]   │  Enable onboard IDE│
│   Onboard Serial Port 1                      [3F8/IRQ4]   │  PORT             │
│   Onboard Serial Port 2                      [2F8/IRQ3]   │                   │
│   Onboard Parallel Port                      [378/IRQ7]   │  [Disabled]       │
│   Parallel Port Mode                         [SPP]        │  Disable onboard IDE│
│ x ECP Mode Use DMA                            3           │  PORT             │
│   Game Port Address                          [201]        │                   │
│   Midi Port Address                          [Disabled]   │                   │
│ x Midi Port IRQ                               10          │                   │
│                                                           │                   │
│                                                           │                   │
├─────────────────────────────────────────────────────────────────────────────┤
│ ↑↓→←: 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 Primary PCI IDE**
   ➡ Enabled   Enable onboard 1st channel IDE port. (Default value)
   ➡ Disabled   Disable onboard 1st channel IDE port.

☞ **On-Chip Secondary PCI IDE**

   ➡ Enabled   Enable onboard 2nd channel IDE port. (Default value)
   ➡ Disabled   Disable onboard 2nd channel IDE port.

☞ **IDE1 Conductor Cable**
   ➡ Auto   BIOS autodetects IDE1 conductor cable. (Default Value)
   ➡ ATA66/100   Set IDE1 Conductor Cable to ATA66/100 (80-pin). Please make sure your IDE
                      device and cable is compatible with ATA66/100.
   ➡ ATA33   Set IDE1 Conductor Cable to ATA33 (40-pin). Please make sure your IDE
                      device and cable is compatible with ATA33.

☞ **IDE2 Conductor Cable**
   ➡ Auto   BIOS autodetects IDE2 conductor cable. (Default Value)
   ➡ ATA66/100   Set IDE2 Conductor Cable to ATA66/100 (80-pin). Please make sure your IDE
                      device and cable is compatible with ATA66/100.
   ➡ ATA33   Set IDE2 Conductor Cable to ATA33 (40-pin). Please make sure your IDE
                      device and cable is compatible with ATA33.

☞ **USB Controller**
   ➡ Enabled   Enable USB Controller. (Default value)
   ➡ Disabled   Disable USB Controller.

"*" For 8I845GE-RZ only.

⟜ **USB Keyboard Support**

- ⊮ Enabled   Enable USB Keyboard Support.
- ⊮ Disabled   Disable USB Keyboard Support. (Default value)

⟜ **USB Mouse Support**

- ⊮ Enabled   Enable USB Mouse Support.
- ⊮ Disabled   Disable USB Mouse Support. (Default value)

⟜ **AC97 Audio**

- ⊮ Auto   Autodetect onboard AC'97 audio function. (Default value)
- ⊮ Disabled   Disable this function.

⟜ **Onboard H/W LAN ***

- ⊮ Enabled   Enabled onboard LAN function. (Default value)
- ⊮ Disabled   Disable this function.

⟜ **Onboard LAN Boot ROM ***

- ⊮ Enabled   Enable to invoke the boot ROM of the onboard LAN chip.
- ⊮ Disabled   Disable this function. (Default value)

⟜ **Onboard Serial Port 1**

- ⊮ Disabled   Disable onboard Serial port 1.
- ⊮ 3F8/IRQ4   Enable onboard Serial port 1 and address is 3F8/IRQ4. (Default value)
- ⊮ 2F8/IRQ3   Enable onboard Serial port 1 and address is 2F8/IRQ3.
- ⊮ 3E8/IRQ4   Enable onboard Serial port 1 and address is 3E8/IRQ4.
- ⊮ 2E8/IRQ3   Enable onboard Serial port 1 and address is 2E8/IRQ3.
- ⊮ Auto   BIOS will automatically setup the Port 1 address.

⟜ **Onboard Serial Port 2**

- ⊮ Disabled   Disable onboard Serial port 2
- ⊮ 3F8/IRQ4   Enable onboard Serial port 2 and address is 3F8/IRQ4.
- ⊮ 2F8/IRQ3   Enable onboard Serial port 2 and address is 2F8/IRQ3. (Default value)
- ⊮ 3E8/IRQ4   Enable onboard Serial port 2 and address is 3E8/IRQ4.
- ⊮ 2E8/IRQ3   Enable onboard Serial port 2 and address is 2E8/IRQ3.
- ⊮ Auto   BIOS will automatically setup the Port 2 address.   .

⟜ **Onboard Parallel Port**

- ⊮ Disabled   Disable onboard LPT port.
- ⊮ 378/IRQ7   Enable onboard LPT port and address is 378/IRQ7. (Default Value)
- ⊮ 278/IRQ5   Enable onboard LPT port and address is 278/IRQ5.
- ⊮ 3BC/IRQ7   Enable onboard LPT port and address is 3BC/IRQ7.

⟜ **Parallel Port Mode**

- ⊮ SPP   Use Parallel port as Standard Parallel Port. (Default Value)
- ⊮ EPP   Use Parallel port as Enhanced Parallel Port.
- ⊮ ECP   Use Parallel port as Extended Capabilities Port.
- ⊮ ECP+EPP   Use Parallel port as ECP & EPP mode.

"*" For 8I845GE-RZ only.

ECP Mode Use DMA

This feature allows you to select Direct Memory Access(DMA) channel if the ECP mode selected.

This option is available only when **Parallel Port Mode** is set to ECP or ECP+EPP.

- ▶ 1 Set ECP Mode Use DMA to 1.
- ▶ 3 Set ECP Mode Use DMA to 3. (Default value)

Game Port Address

- ▶ Disabled Disable this function
- ▶ 201 Enable this function and set gameport address to 201. (Default value)
- ▶ 209 Enable this function and set gameport address to 209.

Midi Port Address

- ▶ Disabled Disable this function. (Default value)
- ▶ 330 Enable this function and set midiport address to 330.
- ▶ 300 Enable this function and set midiport address to 300.

Midi Port IRQ

This option is available when the Midi Port Address is not set to "Disabled."

- ▶ 5 Set midiport IRQ to 5.
- ▶ 10 Set midiport IRQ to 10. (Default value)

Power Management Setup

CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
Power Management Setup

```
┌─────────────────────────────────────────────────────────────────────────────┐
│  ACPI Suspend Type              [S1(POS)]            │      Item Help          │
│  Power LED in S1 state          [Blinking]           │  Menu Level  ▶          │
│  Soft-Off by PWR-BTTN           [Instant-Off]        │  [S1]                   │
│  PME Event Wake Up              [Enabled]            │  Set suspend type to    │
│  ModemRingOn                    [Enabled]            │  Power On Suspend under │
│  Resume by Alarm                [Disabled]           │  ACPI OS                │
│  x Date (of Month) Alarm          Everyday           │                         │
│  x Time (hh:mm:ss) Alarm          0 : 0 : 0          │  [S3]                   │
│  Power On by Mouse              [Disabled]           │  Set suspend type to    │
│  Power On by Keyboard           [Disabled]           │  Suspend to RAM under   │
│  x KB Power ON Password           Enter              │                         │
│  AC BACK Function               [Soft-Off]           │  ACPI OS                │
│                                                      │                         │
├─────────────────────────────────────────────────────────────────────────────┤
│ ↑↓→←: Move    Enter: Select   +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help │
│        F5: Previous Values     F6: Fail-Safe Defaults        F7: Optimized Defaults       │
└─────────────────────────────────────────────────────────────────────────────┘
```

ACPI Suspend Type

- ▶ S1(POS) Set ACPI suspend type to S1. (Default Value)
- ▶ S3(STR) Set ACPI suspend type to S3.

Power LED in S1 state

- ▶ Blinking The Power LED will be blinking during S1 state. (Default value)
- ▶ Dual/OFF The Power LED will be turned off or change color.

☞ Soft-off by PWR-BTTN

▶ Instant -Off   Once a user presses the power button, the system will be turned off instantly. (Default Value)
▶ Delay 4 sec.   Press power button for 4 seconds to turn off the system. System enters suspend mode if the power button is pressed for less than 4 seconds.

☞ PME Event Wake Up

▶ Disabled   Disable this function.
▶ Enabled   Enable PME Event Wake up. (Default Value)

☞ ModemRingOn

▶ Disabled   Disable Modem Ring on function.
▶ Enabled   Enable Modem Ring on function. (Default Value)

☞ Resume by Alarm

You can enable **Resume by Alarm** and key in month/date/time to turn on system.
▶ Disabled   Disable this function. (Default Value)
▶ Enabled   Enable alarm function to POWER ON system.
If Resume by Alarm is Enabled.
Date (of Month) Alarm: Everyday, 0~31
Time (hh: mm: ss) Alarm: (0~23) : (0~59) : (0~59)

☞ Power On by Mouse

▶ Double Click   Double-click the mouse to turn on the system.
▶ Disabled   Disable this function. (Default Value)

☞ Power On by Keyboard

▶ Keyboard 98   If your keyboard has a "Power" button, enable this function to press the button to turn off the system.
▶ Password   Input password (from 1 to 5 characters) and press Enter to set the Keyboard Power On Password.
▶ Disabled   Disable this function. (Default Value)

☞ KB Power On Password

When "Power On by Keyboard" is set at Password, you can set the password here.
▶ Enter   Input password (from 1 to 5 characters) and press Enter to set the Keyboard Power On password.

☞ AC BACK Function

▶ Soft-Off   When AC-power back to the system, the system will be in "Off" state. (Default value)
▶ Full-On   When AC-power back to the system, the system always in "On" state.
▶ Memory   When AC-power back to the system, the system will return to the Last state before AC-power off.

English

PnP/PCI Configurations

English

```
                     CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
                                     PnP/PCI Configurations
┌─────────────────────────────────────────────────────────────┬─────────────────────────┐
│  PCI1/5 IRQ Assignment            [Auto]                      │        Item Help        │
│  PCI2 IRQ Assignment              [Auto]                      │ Menu Level  ▶           │
│  PCI3 IRQ Assignment              [Auto]                      │                         │
│  PCI4 IRQ Assignment              [Auto]                      │ Device(s) using this    │
│                                                               │ INT:                    │
│                                                               │                         │
│                                                               │ USB 1.1 Host Cntrlr     │
│                                                               │ -Bus 0 Dev29 Func 2     │
│                                                               │                         │
│                                                               │                         │
│                                                               │                         │
│                                                               │                         │
│                                                               │                         │
│                                                               │                         │
│                                                               │                         │
├─────────────────────────────────────────────────────────────┴─────────────────────────┤
│ ↑↓→←: Move    Enter: Select   +/-/PU/PD: Value   F10: Save    ESC: Exit   F1: General Help│
│        F5: Previous Values     F6: Fail-Safe Defaults         F7: Optimized Defaults     │
└──────────────────────────────────────────────────────────────────────────────────────┘
```

☞ **PCI1/5 IRQ Assignment**

    ➧ Auto   Auto assign IRQ to PCI 1/5. (Default value)

    ➧ 3,4,5,7,9,10,11,12,14,15   Set IRQ 3,4,5,7,9,10,11,12,14,15 to PCI 1/5.

☞ **PCI2 IRQ Assignment**

    ➧ Auto   Auto assign IRQ to PCI 2. (Default value)

    ➧ 3,4,5,7,9,10,11,12,14,15   Set IRQ 3,4,5,7,9,10,11,12,14,15 to PCI 2.

☞ **PCI3 IRQ Assignment**

    ➧ Auto   Auto assign IRQ to PCI 3. (Default value)

    ➧ 3,4,5,7,9,10,11,12,14,15   Set IRQ 3,4,5,7,9,10,11,12,14,15 to PCI 3.

☞ **PCI4 IRQ Assignment**

    ➧ Auto   Auto assign IRQ to PCI 4. (Default value)

    ➧ 3,4,5,7,9,10,11,12,14,15   Set IRQ 3,4,5,7,9,10,11,12,14,15 to PCI 3.

PC Health Status

CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
PC Health Status

Reset Case Open Status	[Disabled]	Item Help
Case Opened	No	Menu Level ▶
Vcore	1.348V	
DDR25V	2.544V	[Disabled]
+3.3V	3.360V	Don't reset case
+12V	11.858V	open status
Current CPU Temperature	27° C	
Current CPU FAN Speed	4821 RPM	[Enabled]
Current SYSTEM FAN Speed	0 RPM	Clear case open status
CPU Warning Temperature	[Disabled]	and set to be Disabled at
CPU FAN Fail Warning	[Disabled]	next boot
System FAN Fail Warning	[Disabled]	

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

☞ **Reset Case Open Status**

  ▶ Disabled   Don't reset case open status. (Default value)
  ▶ Enabled   Clear case open status at next boot.

☞ **Case Opened**

  If the case is closed, **Case Opened** will show "No."
  If the case is opened, **Case Opened** will show "Yes."
  If you want to reset **Case Opened** value, enable **Reset Case Open Status** and save the change
  to CMOS, and then your computer will restart.

☞ **Current Voltage (V) Vcore/+3.3V/DDR25V/+12V**

  ▶ Detect system's voltage status automatically.

☞ **Current CPU Temperature**

  ▶ Detect CPU Temp. automatically.

☞ **Current CPU/SYSTEM FAN Speed (RPM)**

  ▶ Detect CPU/SYSTEM Fan speed status automatically.

☞ **CPU Warning Temperature**

  Alarm occurs when the current CPU temperature is higher than the selected temperature.

  ▶ 60ºC / 140ºF   Monitor CPU temperature at 60ºC / 140ºF.
  ▶ 70ºC / 158ºF   Monitor CPU temperature at 70ºC / 158ºF.
  ▶ 80ºC / 176ºF   Monitor CPU temperature at 80ºC / 176ºF.
  ▶ 90ºC / 194ºF   Monitor CPU temperature at 90ºC / 194ºF.
  ▶ Disabled   Disable this function. (Default value)

☞ **CPU/SYSTEM FAN Fail Warning**

  ▶ Disabled   Disable fan warning function . (Default value)
  ▶ Enabled   Enable fan warning function. Alarm occurs when FAN stops.

Frequency/Voltage Control

```
                        CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
                                        Frequency/Voltage Control
┌─────────────────────────────────────────────────────────────┬───────────────────────────┐
│   CPU Clock Ratio                          [15X]              │        Item Help          │
│   CPU Host Clock Control                   [Disabled]         │                           │
│ x CPU Host Frequency (Mhz)                 133                │   Menu Level  ▶           │
│ x Fixed PCI/AGP Frequency                  33/66             │                           │
│   Host/DRAM Clock ratio                    [Auto]             │   Set CPU Ratio if CPU    │
│   Memory Frequency (Mhz)                   333               │   Ratio is unclocked      │
│   PCI/AGP Frequency (Mhz)                  33/66             │                           │
│                                                              │                           │
│                                                              │                           │
│                                                              │                           │
│                                                              │                           │
│                                                              │                           │
│                                                              │                           │
│                                                              │                           │
│                                                              │                           │
├─────────────────────────────────────────────────────────────┴───────────────────────────┤
│ ↑↓→←: Move    Enter: Select   +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help │
│         F5: Previous Values       F6: Fail-Safe Defaults         F7: Optimized Defaults   │
└──────────────────────────────────────────────────────────────────────────────────────────┘
```

⚠ Incorrect using these features may cause your system broken. For power users only.

☞ **CPU Clock Ratio**
This setup option will be automatically assigned by CPU detection.
The option will display "Locked" and read only if the CPU ratio is not changeable.

☞ **CPU Host Clock Control**
Please note that if your system is overclocked and cannot restart, please wait 20 secs.
for automatic system restart or clear the CMOS setup data and perform a safe restart.
▶▶ Disabled   Disable CPU Host Clock Control. (Default value)
▶▶ Enabled   Enable CPU Host Clock Control.

☞ **CPU Host Frequency (Mhz)**
This item will be available when "CPU Host Clock Control" is set to Enabled.
▶▶ 100MHz ~ 355MHz   Set CPU Host Clock from 100MHz to 355MHz.
If you use a Pentium 4 CPU with FSB 533MHz, please set "CPU Clock" to 133MHz. For a P4 CPU
with FSB 400MHz, please set it to 100MHz.
Inappropriate using it may cause your system corrupted. For power End-User use only!

☞ **Fixed PCI/AGP Frequency**
You can choose those modes to adjust PCI/AGP frequency. (Select PCI/AGP frequency
asynchronous with CPU frequency).

☞ **Host/DRAM Clock ratio**
For FSB (Front Side Bus) frequency=400MHz,
▶▶ 2.0   Memory Frequency = Host clock X 2.0.
▶▶ 2.66   Memory Frequency = Host clock X 2.66.
▶▶ Auto   Set Memory frequency by DRAM SPD data. (Default value)
For FSB (Front Side Bus) frequency=533MHz,
▶▶ 2.0   Memory Frequency = Host clock X 2.0.
▶▶ 2.5   Memory Frequency = Host clock X 2.5.
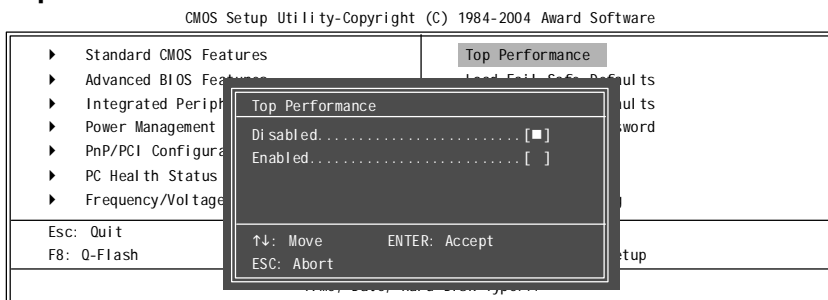▶▶ Auto   Set Memory frequency by DRAM SPD data. (Default value)

☞ Memory Frequency (Mhz)

The values depend on CPU Host Frequency.

☞ PCI/AGP Frequency (Mhz)

The values depend on Fixed PCI/AGP Frequency.

Top Performance

```
          CMOS Setup Utility-Copyright (C) 1984-2004 Award Software

    ▶    Standard CMOS Features                 Top Performance
    ▶    Advanced BIOS Fea                      Load Fail-Safe Defaults
    ▶    Integrated Periph  ┌──────────────────────────────┐ults
    ▶    Power Management    │ Top Performance              │ sword
    ▶    PnP/PCI Configura   │                              │
    ▶    PC Health Status    │ Disabled...............[■]   │
    ▶    Frequency/Voltage   │ Enabled................[ ]   │
                             │                              │
    Esc: Quit                │                              │
    F8: Q-Flash              │ ↑↓: Move      ENTER: Accept  │ etup
                             │ ESC: Abort                   │
                             └──────────────────────────────┘
                      Time, Date, Hard Disk Type...
```
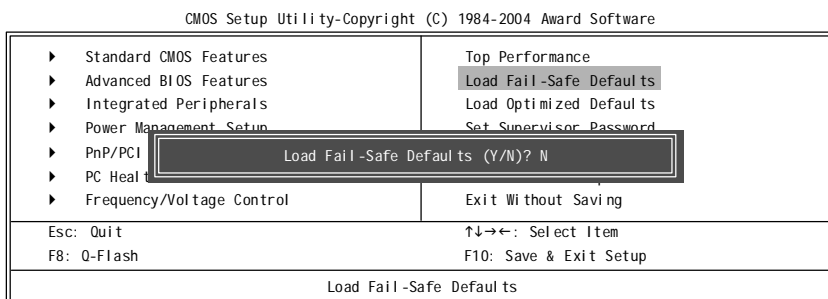
If you wish to maximize the performance of your system, enable "Top Performance."

▶▶ Disabled   Disable this function. (Default Value)
▶▶ Enabled   Enable Top Performance function.

✍ "Top Performance" will increase H/W working speed. Different system configuration (both H/W component and OS) will effect the result. For example, the same H/W configuration might not run properly with Windows XP, but works smoothly with Windows NT. Therefore, if your system is not perform enough, the reliability or stability problem will appear sometimes, and we will recommend you disabling the option to avoid the problem as mentioned above.

Load Fail-Safe Defaults

```
          CMOS Setup Utility-Copyright (C) 1984-2004 Award Software

    ▶    Standard CMOS Features                 Top Performance
    ▶    Advanced BIOS Features                 Load Fail-Safe Defaults
    ▶    Integrated Peripherals                 Load Optimized Defaults
    ▶    Power Management Setup                  Set Supervisor Password
    ▶    PnP/PCI  ┌──────────────────────────────────────────┐
    ▶    PC Healt │    Load Fail-Safe Defaults (Y/N)? N       │
    ▶    Frequency/Voltage Control              Exit Without Saving

    Esc: Quit                                   ↑↓→←: Select Item
    F8: Q-Flash                                 F10: Save & Exit Setup
                         Load Fail-Safe Defaults
```

Fail-Safe defaults contain the most appropriate values of the system parameters that allow minimum system performance.

Load Optimized Defaults

```
              CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
┌──────────────────────────────────────────────────────────────────────────────┐
│  ▶   Standard CMOS Features              Top Performance                        │
│  ▶   Advanced BIOS Features              Load Fail-Safe Defaults                │
│  ▶   Integrated Peripherals              Load Optimized Defaults                │
│  ▶   Power Man┌──────────────────────────────────────────┐                      │
│  ▶   PnP/PCI  │     Load Optimized Defaults (Y/N)? N      │                      │
│  ▶   PC Healt └──────────────────────────────────────────┘                      │
│  ▶   Frequency/Voltage Control           Exit Without Saving                    │
├──────────────────────────────────────────────────────────────────────────────┤
│  Esc: Quit                               ↑↓→←: Select Item                      │
│  F8: Q-Flash                             F10: Save & Exit Setup                 │
├──────────────────────────────────────────────────────────────────────────────┤
│                          Load Optimized Defaults                                │
└──────────────────────────────────────────────────────────────────────────────┘
```
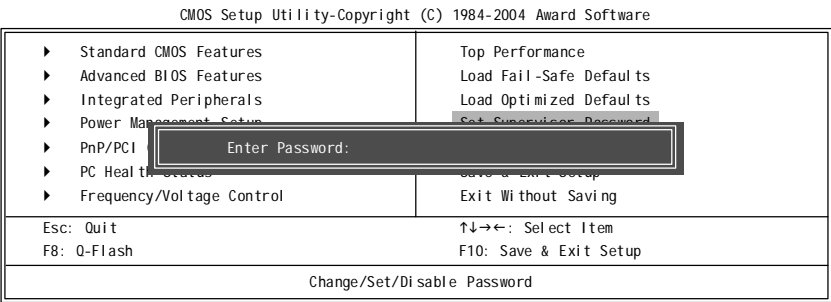
Selecting this field loads the factory defaults for BIOS and Chipset Features which the system automatically detects.

Set Supervisor/User Password

```
              CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
┌──────────────────────────────────────────────────────────────────────────────┐
│  ▶   Standard CMOS Features              Top Performance                        │
│  ▶   Advanced BIOS Features              Load Fail-Safe Defaults                │
│  ▶   Integrated Peripherals              Load Optimized Defaults                │
│  ▶   Power Management Setup              Set Supervisor Password                │
│  ▶   PnP/PCI  ┌──────────────────────────────────────────┐                      │
│  ▶   PC Healt │       Enter Password:                     │                      │
│  ▶   Frequenc └──────────────────────────────────────────┘  Without Saving      │
├──────────────────────────────────────────────────────────────────────────────┤
│  Esc: Quit                               ↑↓→←: Select Item                      │
│  F8: Q-Flash                             F10: Save & Exit Setup                 │
├──────────────────────────────────────────────────────────────────────────────┤
│                          Change/Set/Disable Password                            │
└──────────────────────────────────────────────────────────────────────────────┘
```

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.
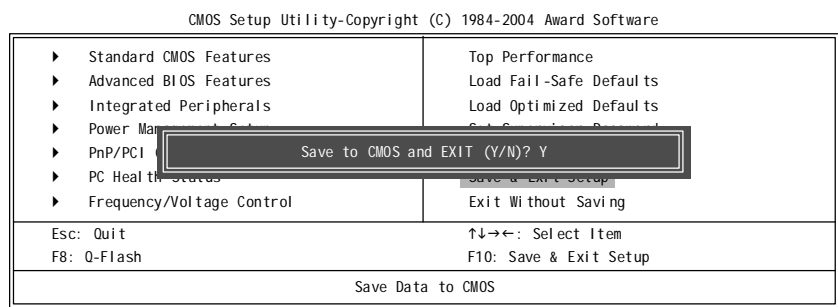
Type the password, up to eight characters, and press <Enter>. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.To disable password, just press <Enter> when you are prompted to enter password. A message "PASSWORD DISABLED" will appear to confirm the password being disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

The BIOS Setup program allows you to specify two separate passwords:

SUPERVISOR PASSWORD and a USER PASSWORD. When disabled, anyone may access all BIOS Setup program function. When enabled, the Supervisor password is required for entering the BIOS Setup program and having full configuration fields, the User password is required to access only basic items.

If you select "System" at "Password Check" in Advance BIOS Features Menu, you will be prompted for the password every time the system is rebooted or any time you try to enter Setup Menu.
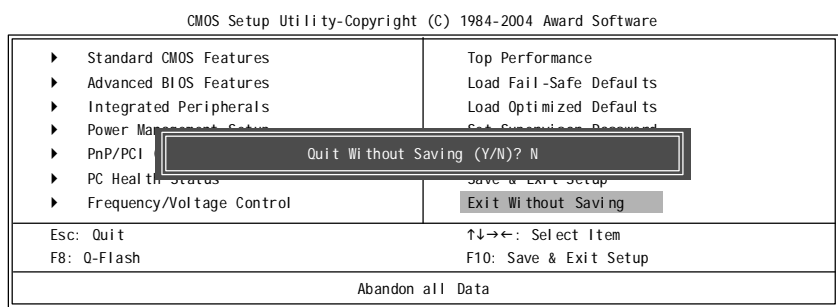
If you select "Setup" at "Password Check" in Advance BIOS Features Menu, you will be prompted only when you try to enter Setup.you try to enter Setup.

Save & Exit Setup

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▶ Standard CMOS Features	Top Performance
▶ Advanced BIOS Features	Load Fail-Safe Defaults
▶ Integrated Peripherals	Load Optimized Defaults
▶ Power Man...	...
▶ PnP/PCI	Save to CMOS and EXIT (Y/N)? Y
▶ PC Health Status	Save & Exit Setup
▶ Frequency/Voltage Control	Exit Without Saving

Esc: Quit	↑↓→←: Select Item
F8: Q-Flash	F10: Save & Exit Setup

Save Data to CMOS

Type "Y" will quit the Setup Utility and save the user setup value to RTC CMOS.
Type "N" will return to Setup Utility.

Exit Without Saving

CMOS Setup Utility-Copyright (C) 1984-2004 Award Software

▶ Standard CMOS Features	Top Performance
▶ Advanced BIOS Features	Load Fail-Safe Defaults
▶ Integrated Peripherals	Load Optimized Defaults
▶ Power Man...	...
▶ PnP/PCI	Quit Without Saving (Y/N)? N
▶ PC Health Status	Save & Exit Setup
▶ Frequency/Voltage Control	Exit Without Saving

Esc: Quit	↑↓→←: Select Item
F8: Q-Flash	F10: Save & Exit Setup

Abandon all Data

Type "Y" will quit the Setup Utility without saving to RTC CMOS.
Type "N" will return to Setup Utility.

Chapter 3   Install Drivers

Install Drivers

Pictures below are shown in Windows XP

NOTE

Insert the driver CD-title that came with your motherboard into your CD-ROM drive, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

INSTALL CHIPSET DRIVER

This page shows the drivers that need to be installed for the system. Click each item to install the driver manually or switch to the [Xpress Install] to install the drivers automatically.
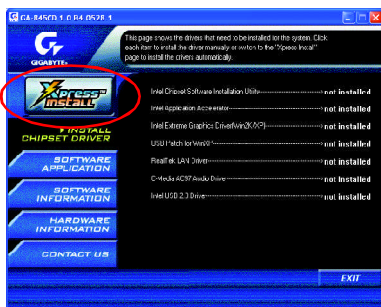
Massage: Some device drivers will restart your system automatically. After restarting your system the "Xpress Install" will continue to install other drivers.

The "Xpress Install" uses the"Click and Go" technology to install the drivers automatically. Just select the drivers you want then click the "GO" button. The [Xpress Install] will execute the installation for you by itself.

We recommend that you install all components in the list.

Click "GO".

CAUTION
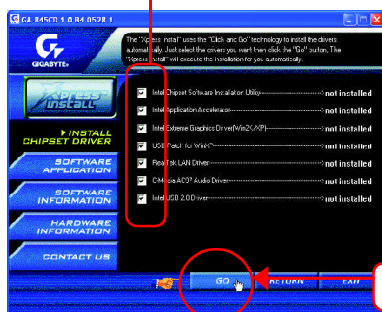
For USB2.0 driver support under Windows XP operating system, please use Windows Service Pack. After install Windows Service Pack, it will show a question mark "?" in "Universal Serial Bus controller" under "Device Manager". Please remove the question mark and restart the system (System will auto-detect the right USB2.0 driver).
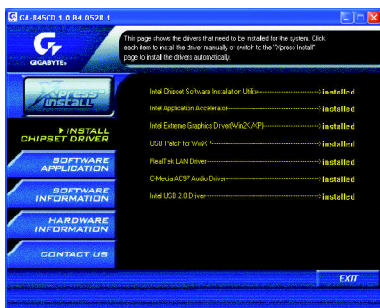
You have completed drivers installation.

Item Description

■ Intel Chipset Software Installation Utility

Tell the operating system how the chipset components will be configured.

■ Intel Application Accelerator

Designed to improve performance of the storage sub-system and overall system performance.

■ Intel Extreme Graphics Driver (Win2K/XP)

For Intel® 845G/GL/GE/GV Chipsets.

■ USB Pacth for WinXP

This patch driver can help you to resolve the USB device wake up S3 hang up issue in XP.

■ RealTek LAN Driver*

RealTek 10/100 LAN driver for 81xx series chips.

■ C-Media AC97 Audio Driver

Install C-Media AC97 audio driver.

■ Intel USB 2.0 Driver

It is recommended that you use the Microsoft Windows update for the most updated driver for XP/2K.

"*" For 8I845GE-RZ only.

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