8I845GVM-RZ / 8I845GVM-RZ-C

Intel® Pentium® 4 Processor Motherboard

User's Manual

Rev. 1001

12ME-845GVMRZ-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
8I845GVM-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* ☒ EN 61000-3-2	Disturbances in supply systems cause by household appliances and similar electrical equipment "Harmonics"
☐ EN 55013	Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment	☐ EN 61000-3-3* ☒ EN 61000-3-3	Disturbances in supply systems cause by household appliances and similar electrical equipment "Voltage fluctuations"
☐ EN 55014	Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, portable tools and similar electrical apparatus	☒ EN 50081-1	Generic emission standard Part 1: Residual commercial and light industry
		☒ EN 50082-1	Generic immunity standard Part 1: Residual commercial and light industry
☐ EN 55015	Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaries	☐ EN 50081-2	Generic emission standard Part 2: Industrial environment
☐ EN 55020	Immunity from radio interference of broadcast receivers and associated equipment	☐ 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	☐ ENV 55104	Immunity requirements for household appliances tools and similar apparatus
☐ DIN VDE 0855 ☐ part 10 ☐ part 12	Cabled distribution systems; Equipment for receiving and/or distribution from sound and television signals	☐ EN50091-2	EMC requirements for uninterruptible power systems (UPS)
☒ CE marking		☐ EN50091-1	General and Safety requirements for uninterruptible power systems (UPS)

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)   Date: Feb. 20, 2004   Signature: *Timmy Huang*

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: 8I845GVM-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: Feb. 20 ,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 Contents

Chapter 1 Introduction

Features Summary

CPU	• Socket 478 for Intel® Pentium® 4(Northwood, Prescott) with HT Technology
	• Intel® Pentium® 4 533/400MHz FSB
	• 2nd cache depends on CPU
Chipset	• Northbridge : Intel® 82845GV GMCH
	• Southbridge : Intel® 82801(ICH4)
Memory	• 2 184-pin DDR DIMM sockets, supports up to 2GB DRAM (Max)
	• Supports DDR333/DDR266/DDR200 DIMM
	• Supports only 2.5V DDR SDRAM
Slots	• 3 PCI slots support 33MHz & PCI 2.2 compliant
On-Board IDE	• 2 IDE controller provide IDE HDD/CD-ROM(IDE1, IDE2) with PIO, Bus Master (Ultra DMA33/ATA66/ATA100) operation modes
	• Can connect up to 4 IDE devices
On-Board Floppy	• 1 Floppy port supports 2 FDD with 360K, 720K,1.2M, 1.44M and 2.88M bytes
On-Board Peripherals	• 1 Parallel port supports Normal/EPP/ECP mode
	• 1 Serial port (COMA), 1 VGA port, Game port, COMB on-board
	• 6 USB 2.0/1.1 ports (2 x Rear, 4 x Front by cable)
	• 1 IrDA connector for IR
	• 1 Front Audio connector
	• 1 PS/2 Keyboard
	• 1 PS/2 Mouse
On-Board VGA	• Built-in Intel® 82845GV
On-Board LAN*	• Builit-in RTL8100C chipset*
	• 1 RJ45 port*
On-Board Sound	• Realtek ALC655 codec
	• Supports 2/4/6-channel
	• Line Out / Line In / Mic In
	• SPDIF In / Out
	• CD In
BIOS	• Licensed AWARD BIOS
	• Supports Q-Flash™
I/O Control	• ITE8712F
Hardware Monitor	• CPU/System fan revolution detect
	• CPU temperature detect
	• CPU warning temperature
	• System voltage detect
	• CPU/System fan fail warning
Additional Features	• Supports @BIOS™
	• Supports EasyTune 4™
Overclocking	• Over clock (CPU/DDR/AGP/PCI) by BIOS
Form Factor	• Micro ATX size form factor, 20.9cm x 24.3cm

"*" For 8I845GVM-RZ only.

8I845GVM-RZ Series Motherboard Layout
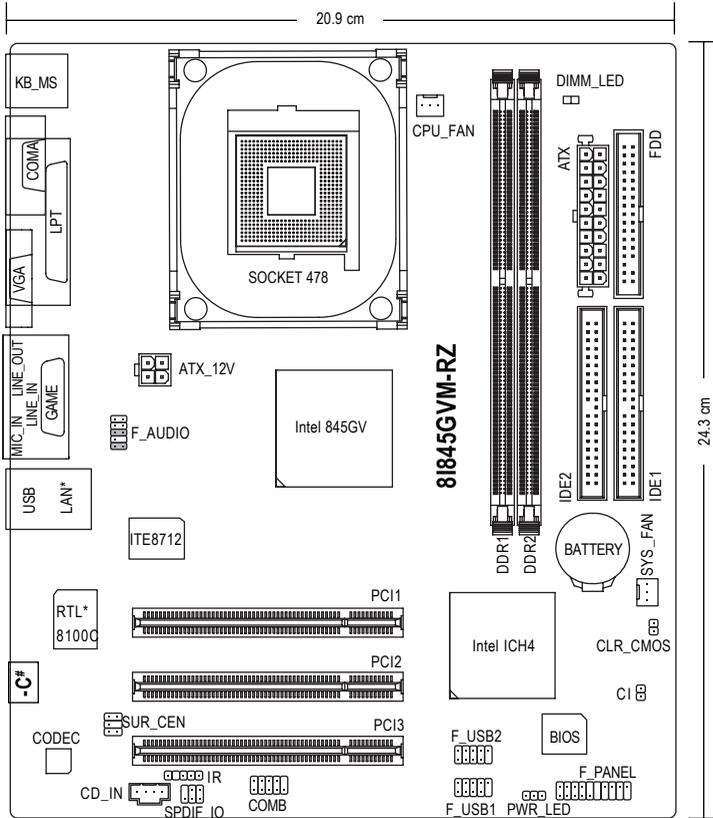
"*" For 8I845GVM-RZ only.

"#" For 8I845GVM-RZ-C only.

Block Diagram
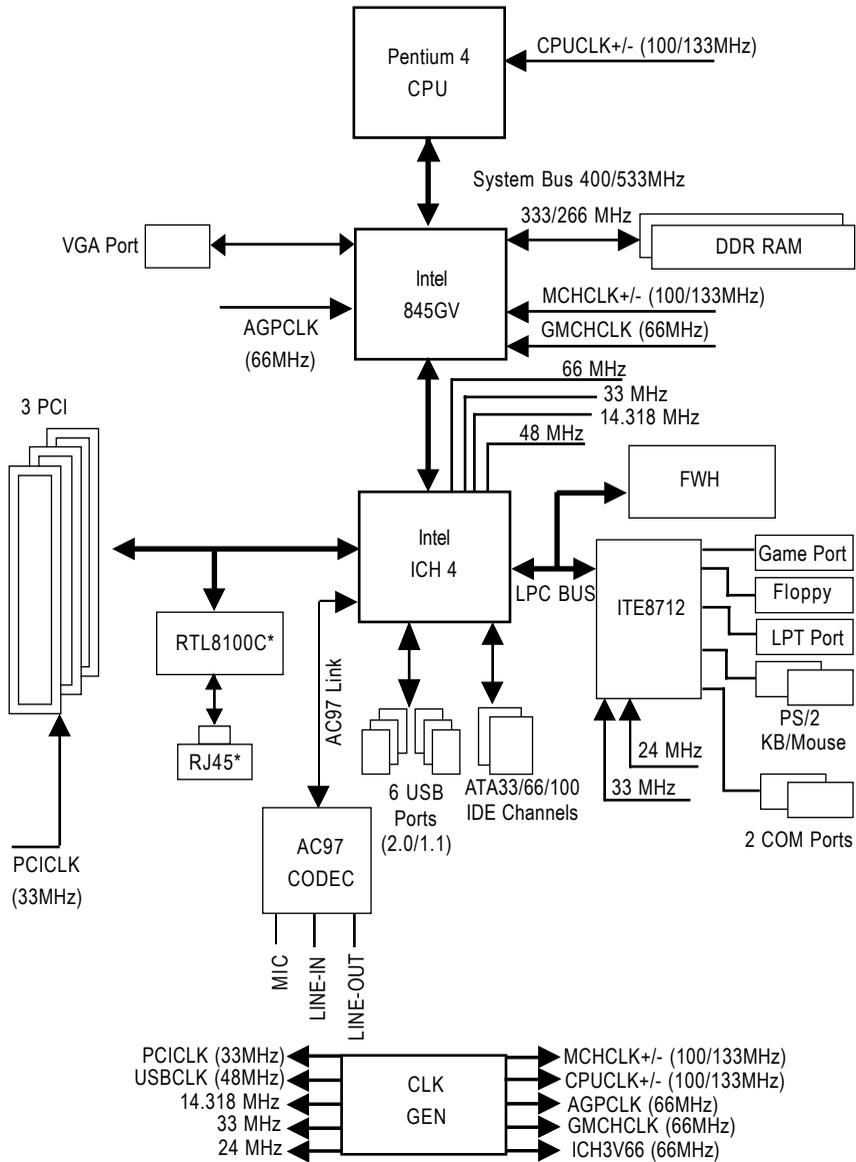
"*" For 8I845GVM-RZ only.

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 4   Step 1   Step 2

Step 4

Step 4

Step 3
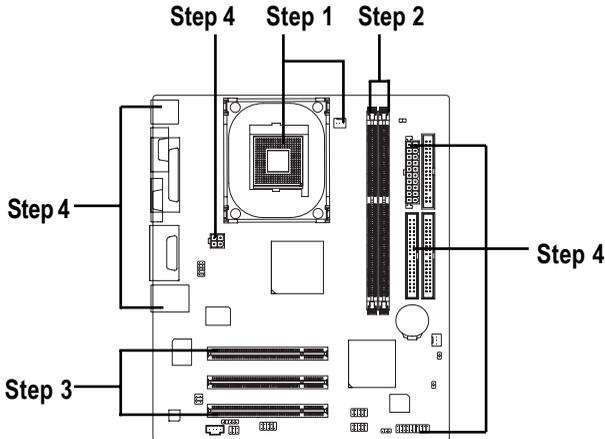
Step 1: Install the Central Processing Unit (CPU)

Before installing the processor, adhere to the following warning:

1. Please make sure the CPU type is supported by the motherboard.

2. The processor will overheat without the heatsink and/or fan, resulting in permanent irreparable damage.

3. If you do not match the CPU socket Pin 1 and CPU cut edge well, it will cause improper installation. Please change the insert orientation.

4. Apply thermal grease between the processor and cooling fan.

5. Never run the processor without the heatsink properly and firmly attached. Permanent damage will result.

6. 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, Memory, Cards...etc.

HT functionality requirement content :

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
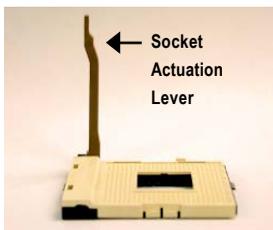
Figure 1.
Pull the rod to the 90-degree directly.

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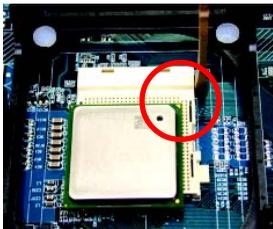
Figure 2.
Locate Pin 1 in the socket and look for a (golden) cut edge on the CPU upper corner. Insert the CPU into the socket. (Do not force the CPU into the socket.) Then move the socket lever to the locked position while holding pressure on the center of the CPU.

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.
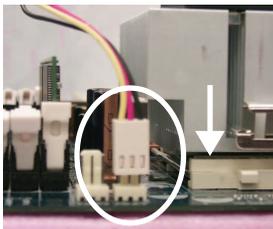
Figure 3.
Make sure the CPU fan is plugged to the CPU fan connector, than install completely.

Step 2: Install Memory Modules

Before installing the memory modules, adhere to the following warning:

1. When DIMM LED is ON, do not install / remove DIMM from socket.

2. Please note that the DIMM module can only fit in one direction due to the one notch. Wrong orientation will cause improper installation. Please change the insert orientation.

The motherboard has 2 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
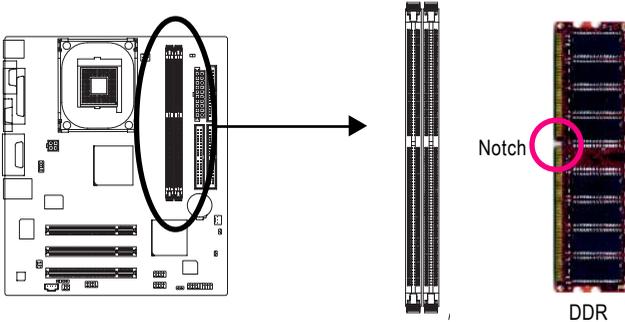
1. The DIMM socket has a notch, so the DIMM memory module can only fit in one direction.

2. Insert the DIMM memory module vertically into the DIMM socket. Then push it down.

3. 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.

Step 3: Install Expansion Card

1. Read the related expansion card's instruction document before install the expansion card into the computer.
2. Remove your computer's chassis cover, screws and slot bracket from the computer.
3. Press the expansion card firmly into expansion slot in motherboard.
4. Be sure the metal contacts on the card are indeed seated in the slot.
5. Replace the screw to secure the slot bracket of the expansion card.
6. Replace your computer's chassis cover.
7. Power on the computer, if necessary, setup BIOS utility of expansion card from BIOS.
8. Install related driver from the operating system.

Step 4: Install I/O Peripherals Cables

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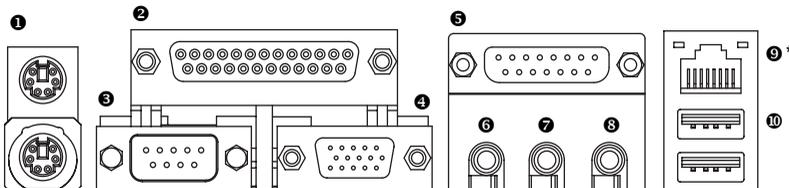
❶ **PS/2 Keyboard and PS/2 Mouse connector**

This connector supports standard PS/2 keyboard and PS/2 mouse.

❷ **Parallel port (LPT)**

Device like printer can be connected to Parallel port.

❸ **Serial port (COMA)**

Mouse and modem etc. can be connected to Serial port.

❹ **VGA port**

Monitor can be connected to VGA port.

❺ **Game/MIDI port**

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

❻ **Line Out jack**

Connect the stereo speakers or earphone to this connector.

❼ **Line In jack**

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

❽ **MIC In jack**

Microphone can be connect to MIC In jack.

After installation of the audio driver, you are able to use 2/4/6-channel audio feature by software selection. You can connect "Front speaker" to "Line Out" jack, Connect "Rear speaker" to "Line In" jack and connect "Center/Subwoofer" to "MIC In" jack.

❾ **LAN port***

LAN is fast Ethernet with 10/100Mbps speed.

"*" For 8I845GVM-RZ only.

⑩ **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
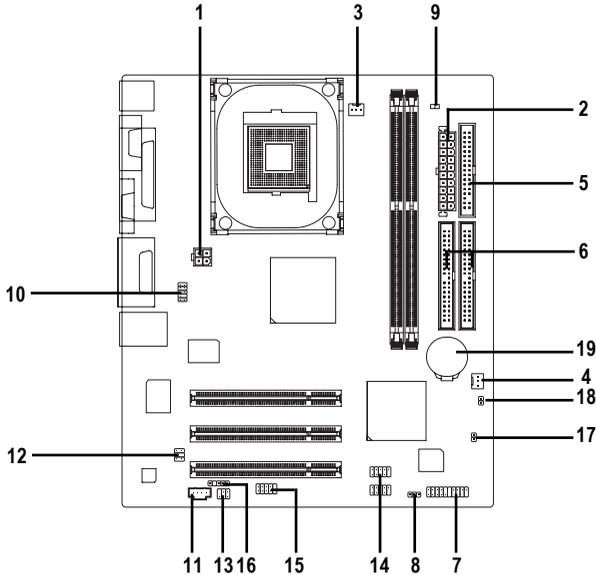
1)	**ATX_12V**	**11)**	**CD_IN**
2)	**ATX**	**12)**	**SUR_CEN**
3)	**CPU_FAN**	**13)**	**SPDIF_IO**
4)	**SYS_FAN**	**14)**	**F_USB1 / F_USB2**
5)	**FDD**	**15)**	**COMB**
6)	**IDE1 / IDE2**	**16)**	**IR**
7)	**F_PANEL**	**17)**	**CI**
8)	**PWR_LED**	**18)**	**CLR_CMOS**
9)	**DIMM_LED**	**19)**	**BAT**
10)	**F_AUDIO**		

1) ATX_12V (+12V Power Connector)

This connector (ATX_12V) supplies the CPU operation voltage (Vcore).

If this "ATX_12V connector" is not connected, system cannot boot.
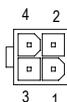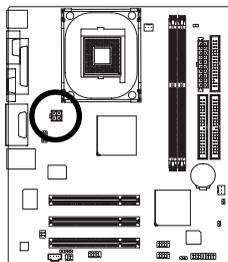
Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V

2) ATX (ATX Power)

AC power cord should only be connected to your power supply unit after ATX power cable and other related devices are firmly connected to the mainboard.
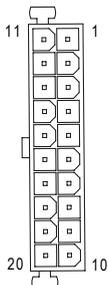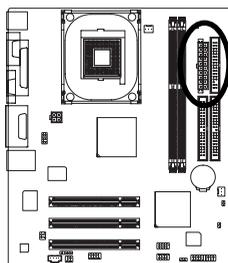
Pin No.	Definition	Pin No.	Definition
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	VCC	14	PS_ON(soft on/off)
5	GND	15	GND
6	VCC	16	GND
7	GND	17	GND
8	Power Good	18	-5V
9	5V SB (stand by +5V)	19	VCC
10	+12V	20	VCC

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

- 13 -   Hardware Installation Process
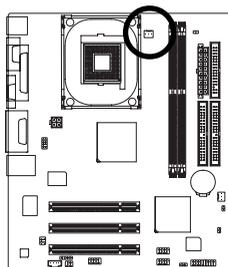
4) SYS_FAN (System Fan Connector)

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

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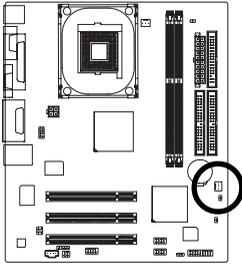
Pin No.	Definition
1	GND
2	+12V
3	Sense

5) FDD (Floppy Connector)

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

The red stripe of the ribbon cable must be the same side with the Pin1.

34 33

2 1
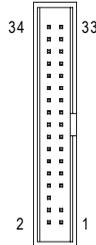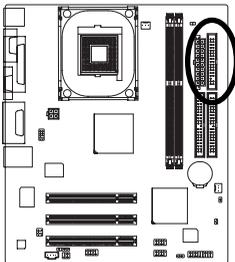
6) IDE1 / IDE2 (IDE1 / IDE2 Connector)

Please connect first hard disk to IDE1 and connect CD-ROM to IDE2.
The red stripe of the ribbon cable must be the same side with the Pin1.

40 39

2 1

IDE2 IDE1
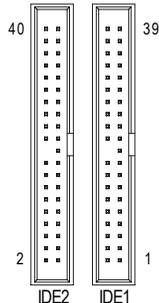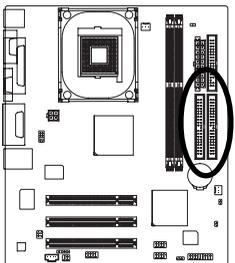
7) F_PANEL (2 x 10 pins Connector)

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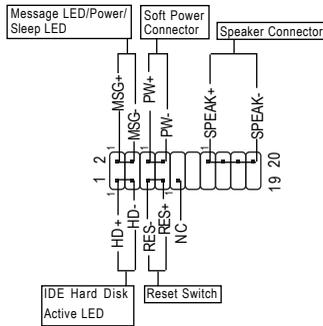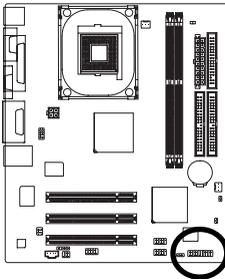
HD (IDE Hard Disk Active LED)	Pin 1: LED anode(+)
	Pin 2: LED cathode(-)
SPK (Speaker Connector)	Pin 1: VCC(+)
	Pin 2- Pin 3: NC
	Pin 4: Data(-)
RES (Reset Switch)	Open: Normal Operation
	Close: Reset Hardware System
PW (Soft Power Connector)	Open: Normal Operation
	Close: Power On/Off
MSG (Message LED/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

8) PWR_LED

PWR_LED is connect with the system power indicator to indicate whether the system is on/off. It will blink when the system enters suspend mode.
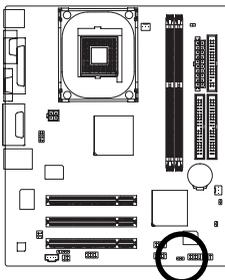
Pin No.	Definition
1	MPD+
2	MPD-
3	MPD-

9) DIMM_LED

Do not remove memory modules while DIMM_LED is on. It might cause short or other unexpected damages due to the stand by voltage. Remove memory modules only when AC power cord is disconnected.

+ ▭ −
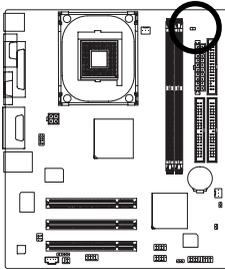
10) F_AUDIO (Front Audio Connector)

If you want to use Front Audio connector, you must remove 5-6, 9-10 Jumper.

In order to utilize the front audio header, your chassis must have front audio connector. Also please make sure the pin assigment on the cable is the same as the pin assigment 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.
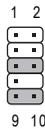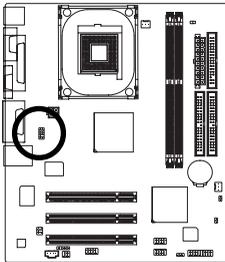
Pin No.	Definition
1	MIC
2	GND
3	REF
4	Power
5	Front Audio (R)
6	Rear Audio (R)
7	Reserved
8	No Pin
9	Front Audio (L)
10	Rear Audio (L)

11) CD_IN (CD In Connector)

Connect CD-ROM or DVD-ROM audio out to the connector.
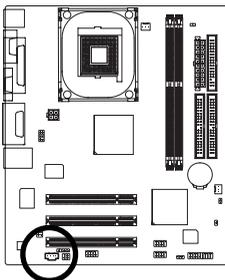
Pin No.	Definition
1	CD-L
2	GND
3	GND
4	CD-R

12) SUR_CEN (Surround Center Connector)

Please contact your nearest dealer for optional SUR_CEN cable.
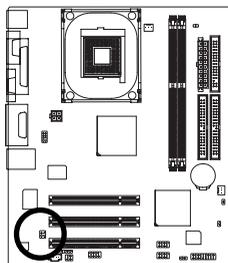
Pin No.	Definition
1	SUR OUTL
2	SUR OUTR
3	GND
4	No Pin
5	CENTER_OUT
6	BASS_OUT

13) 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. Be careful with the polarity of the SPDIF_IO connector. Check the pin assignment carefully while you connect the SPDIF cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional SPDIF cable, please contact your local dealer.
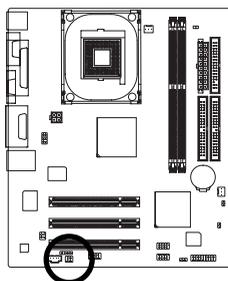
Pin No.	Definition
1	VCC
2	No Pin
3	SPDIF
4	SPDIFI
5	GND
6	GND

14) F_USB1 / F_USB2 (Front USB Connector)

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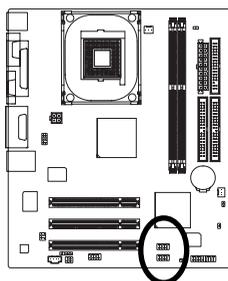
Pin No.	Definition
1	Power
2	Power
3	USB Dx-
4	USB Dy-
5	USB Dx+
6	USB Dy+
7	GND
8	GND
9	No Pin
10	NC

15) COMB (COM B Connector)

Be careful with the polarity of the COMB connector. Check the pin assignment carefully while you connect the COMB cable, 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.
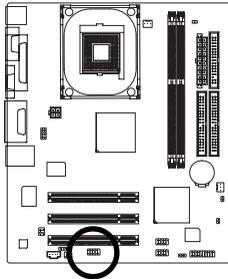
Pin No.	Definition
1	NDCDB-
2	NSINB
3	NSOUTB
4	NDTRB-
5	GND
6	NDSRB-
7	NRTSB-
8	NCTSB-
9	NRIB-
10	No Pin

16) IR

Make sure the pin 1 on the IR device is aling with pin one the connector. To enable the IR function on the board, you are required to purchase an option IR module. Be careful with the polarity of the IR connector. Check the pin assignment carefully while you connect the IR cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional IR cable, please contact your local dealer.
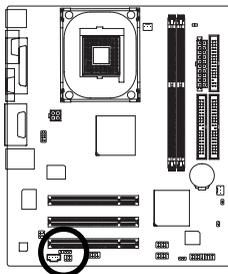
Pin No.	Definition
1	VCC(+5V)
2	No Pin
3	IR Data Input
4	GND
5	IR Data Output

17) CI (CASE OPEN)

This 2-pin connector allows your system to enable or disable the "Case Open" item in BIOS, if the system case begin remove.
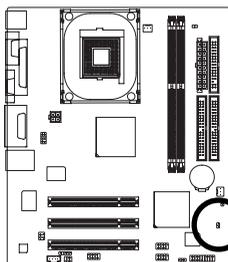
Pin No.	Definition
1	Signal
2	GND

18) CLR_CMOS (Clear CMOS)

You may clear the CMOS data to its default values by this jumper. To clear CMOS, temporarily shor 1-2 pin. Default doesn't include the "Shunter" to prevent from improper use this jumper.
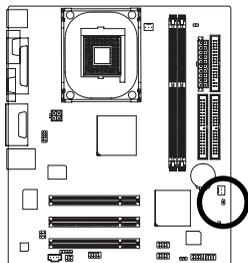
1-2 close: Clear CMOS

Open: Normal

19) BAT (BATTERY)

+
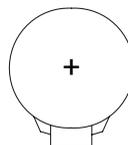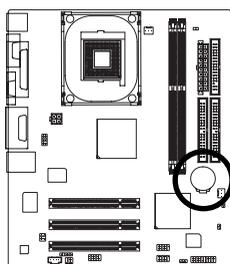
CAUTION

❖ 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.

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Chapter 2 BIOS Setup

BIOS Setup is an overview of the BIOS Setup Program. The 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

Powering ON the computer and pressing <Del> immediately will allow you to enter Setup. If you require more advanced BIOS settings, please go to "Advanced BIOS" setting menu. To enter Advanced BIOS setting menu, press "Ctrl+F1" key on the BIOS screen.

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. : E4)

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

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

              Time, Date, Hard Disk Type...
```

- **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.
- **Power Management Setup**
  This setup page includes all the items of Green function features.
- **PnP/PCI Configuration**
  This setup page includes all the configurations of PCI & PnP ISA resources.
- **PC Health Status**
  This setup page is the System auto detect Temperature, voltage, fan, speed.
- **Frequency/Voltage Control**
  This setup page is control CPU clock and frequency ratio.
- **Top Performance**
  If you wish to maximize the performance of your system, set "Top Performance" as "Enabled".
- **Load Fail-Safe Defaults**
  Fail-Safe Defaults indicates the value of the system parameters 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 Setup, or just to 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 setup.
- **Exit Without Saving**
  Abandon all CMOS value changes and exit 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 Suport                 [Disabled]             │                          │
 │                                                              │  <Day>                   │
 │  Holt 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-Save Default          F7: Optimized Defaults      │
 └──────────────────────────────────────────────────────────────────────────────────────────┘
```

☞ **Date**

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

    ▶ Week   The week, from Sun to Sat, determined by the BIOS and is display only

    ▶ Month   The month, Jan. Through Dec.

    ▶ Day   The day, from 1 to 31 (or the maximum allowed in the month)

    ▶ Year   The year, from 1999 through 2098

☞ **Time**

The times format in <hour> <minute> <second>. The time is calculated base on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

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

The category identifies the types of hard disk from drive C to F that has been installed in the computer. There are two types: auto type, and manual type. Manual type is user-definable; Auto type which will automatically detect HDD type.

Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category.

If you select User Type, related information will be asked to enter to the following items. Enter the information directly from the keyboard and press <Enter>. Such information should be provided in the documentation form your hard disk vendor or the system manufacturer.

    ▶ Cylinder   Number of cylinders

    ▶ Head   Number of heads

    ▶ Precomp   Write precomp

    ▶ Landing Zone Landing zone

    ▶ Sector   Number of sectors

If a hard disk has not been installed, select NONE and press <Enter>.

☞ **Drive A / Drive B**

The category identifies the types of floppy disk drive A or drive B that has been installed in the computer.

- ▶ None   No floppy drive 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   Drive A is 3 mode Floppy Drive.
- ▶ Drive B   Drive B is 3 mode Floppy Drive.
- ▶ Both   Drive A & B are 3 mode Floppy Drives.

☞ **Halt on**

The category determines whether the computer will stop if an error is detected during power up.

- ▶ No Errors   The system boot will not stop for any error that may be detected and you
                 will be prompted.
- ▶ All Errors   Whenever the BIOS detects a non-fatal error the system will be stopped.
- ▶ 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.

Advanced BIOS Features

```
               CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
                              Advanced BIOS Features
┌──────────────────────────────────────────────────────────┬─────────────────────┐
│ First Boot Device              [Floppy]                    │     Item Help       │
│ Second Boot Device             [HDD-0]                     │ Menu Level▶         │
│ Third Boot Device              [CDROM]                     │ Select Boot Device  │
│ Boot Up Floppy Seek            [Disabled]                  │ priority            │
│ Password Check                 [Setup]                     │                     │
│ CPU Hyper-Threading #          [Enabled]                   │ [Floppy]            │
│ Init Display First             [Onboard/AGP]               │ Boot from floppy    │
│ Graphics Aperture Size         [128MB]                     │                     │
│ Graphics Share Memory          [8MB]                       │ [LS120]             │
│                                                            │ Boot from LS120     │
│                                                            │                     │
│                                                            │ [HDD-0]             │
│                                                            │ 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-Save Default         F7: Optimized Defaults       │
└──────────────────────────────────────────────────────────────────────────────────────────┘
```

" # " System will detect automatically and show up when you install the Intel® Pentium® 4 processor
with HT Technology.

☞ **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.
- ▶ Enabled   BIOS searches for floppy disk drive to determine 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.
- ▶ 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)

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

 CPU Hyper-Threading
- ▶▶ Enabled   Enables CPU Hyper Threading Feature. Please note that this feature is only working for operating system with multi processors mode supported. (Default value)
- ▶▶ Disabled   Disables CPU Hyper Threading.

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

 Graphics Memory Size
- ▶▶ 128MB   Driver use selected sized of system memory for 3D texturing to increase graphics performance. (Default value)
- ▶▶ Disabled   Disable this function.

 Graphics Share Memory
- ▶▶ 8MB   Share 8MB system memory preallocated for frame buffer. (Default value)
- ▶▶ 1MB   Share 1MB system memory preallocated for frame buffer.

Integrated Peripherals

```
              CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
                              Integrated Peripherals
┌────────────────────────────────────────────────────────┬──────────────────────┐
│   On-Chip Primary PCI IDE          [Enabled]            │      Item Help       │
│   On-Chip Secondary PCI IDE        [Enabled]            │ Menu Level▶          │
│   IDE1 Conductor Cable             [Auto]               │                      │
│   IDE2 Conductor Cable             [Auto]               │ If a hard disk       │
│   USB Controller                   [Enabled]            │ controller card is   │
│   USB Keyboard Support             [Disabled]           │ used, set at Disabled│
│   USB Mouse Support                [Disabled]           │                      │
│   AC97 Audio                       [Auto]               │ [Enabled]            │
│   Onboard H/W LAN *                [Enabled]            │ Enable onboard IDE   │
│   Onboard Serial Port 1            [3F8/IRQ4]           │ channel              │
│   Onboard Serial Port 2            [2F8/IRQ3]           │                      │
│   UART Mode Select                 [Normal]             │ [Disabled]           │
│ x UR2 Duplex Mode                  Half                 │ Disable onboard IDE  │
│   Onboard Parallel Port            [378/IRQ7]           │ channel              │
│   Parallel Port Mode               [SPP]                │                      │
│ x ECP Mode Use DMA                 3                    │                      │
│   Game Port Address                [201]                │                      │
│   Midi Port Address                [330]                │                      │
│   Midi Port IRQ                    [10]                 │                      │
├────────────────────────────────────────────────────────┴──────────────────────┤
│ ↑↓→←: Move    Enter: Select   +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help │
│       F5: Previous Values     F6: Fail-Save Default            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   Will be automatically detected by BIOS. (Default value)
- ▶▶ ATA66/100 Set IDE1 Conductor Cable to ATA66/100 (Please make sure your IDE device and cable is compatible with ATA66/100).

"*" For 8I845GVM-RZ only.

↪ ATA33   Set IDE1 Conductor Cable to ATA33 (Please make sure your IDE device and cable is compatible with ATA33).

⁎ **IDE2 Conductor Cable**
  - ›› Auto   Will be automatically detected by BIOS. (Default value)
  - ›› ATA66/100   Set IDE2 Conductor Cable to ATA66/100 (Please make sure your IDE device and cable is compatible with ATA66/100).
  - ›› ATA33   Set IDE2 Conductor Cable to ATA33 (Please make sure your IDE device and cable is compatible with ATA33).

⁎ **USB Controller**
  - ›› Enabled   Enable USB controller. (Default value)
  - ›› Disabled   Disable USB controller.

⁎ **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   Enable onboard AC'97 audio function. (Default value)
  - ›› Disabled   Disable this function.

⁎ **Onboard H/W LAN ***
  - ›› Enabled   Enable onboard H/W LAN function. (Default value)
  - ›› Disabled   Disable this function.

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

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

⁎ **UART Mode Select**

This item allows you to determine which Infra Red(IR) function of Onboard I/O chip.
  - ›› Normal   Set onboard I/O chip UART to Normal Mode. (Default value)
  - ›› IrDA   Set onboard I/O chip UART to IrDA Mode.
  - ›› ASKIR   Set onboard I/O chip UART to ASKIR Mode.

"*" For 8I845GVM-RZ only.

☞ **UR2 Duplex Mode**

This feature allows you to seclect IR mode.

This function will available when "UART Mode Select" doesn't set at Normal.

   ▸▸ Half   IR Function Duplex Half. (Default value)

   ▸▸ Full   IR Function Duplex Full.

☞ **Onboard Parallel 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.

   ▸▸ Disabled   Disable onboard LPT port.

   ▸▸ 3BC/IRQ7   Enable onboard LPT port and address is 3BC/IRQ7.

☞ **Parallel Port Mode**

   ▸▸ SPP   Using Parallel port as Standard Parallel Port. (Default value)

   ▸▸ EPP   Using Parallel port as Enhanced Parallel Port.

   ▸▸ ECP   Using Parallel port as Extended Capabilities Port.

   ▸▸ ECP+EPP   Using Parallel port as ECP & EPP mode.

☞ **ECP Mode Use DMA**

   ▸▸ 3   Set ECP Mode Use DMA to 3. (Default value)

   ▸▸ 1   Set ECP Mode Use DMA to 1.

☞ **Game Port Address**

   ▸▸ 201   Set Game Port Address to 201. (Default value)

   ▸▸ 209   Set Game Port Address to 209.

   ▸▸ Disabled   Disable this function.

☞ **Midi Port Address**

   ▸▸ 300   Set Midi Port Address to 300.

   ▸▸ 330   Set Midi Port Address to 330. (Default value)

   ▸▸ Disabled   Disable this function.

☞ **Midi Port IRQ**

   ▸▸ 5   Set Midi Port IRQ to 5.

   ▸▸ 10   Set Midi Port 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      │
│  Soft-Off by PWR-BTTN           [Instant-Off]       │ Menu Level▶          │
│  PME Event Wake Up              [Enabled]           │ [S1]                 │
│  ModemRingOn                    [Enabled]           │ Set suspend type to  │
│  Resume by Alarm                [Disabled]          │ Power On Suspend under│
│ x Date (of Month) Alarm          Everyday           │ ACPI OS              │
│ x Time (hh:mm:ss) Alarm          0 : 0 : 0          │                      │
│  Power On by Mouse              [Disabled]          │ [S3]                 │
│  Power On by Keyboard           [Disabled]          │ Set suspend type to  │
│ x KB Power ON Password           Enter              │ Suspend to RAM under │
│  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-Save Default          F7: Optimized Defaults │
└────────────────────────────────────────────────────────────────────────────┘
```

☞ **ACPI Suspend Type**
- ▶ S1(POS)   Set ACPI suspend type to S1/POS (Power On Suspend). (Default value)
- ▶ S3(STR)   Set ACPI suspend type to S3/STR (Suspend To RAM).

☞ **Soft-off by PWR-BTTN**
- ▶ Instant-off   Press power button then Power off instantly. (Default value)
- ▶ Delay 4 Sec. Press power button 4 sec to Power off. Enter suspend if button is pressed less than 4 sec.

☞ **PME Event Wake Up**
- ▶ Disabled   Disable this function.
- ▶ Enabled   Enable PME as wake up event. (Default value)

☞ **ModemRingOn**
- ▶ Disabled   Disable Modem Ring on function.
- ▶ Enabled   Enable Modem Ring on function. (Default value)

☞ **Resume by Alarm**
You can set "Resume by Alarm" item to enabled and key in Data/time to power on system.
- ▶ Disabled   Disable this function. (Default Value)
- ▶ Enabled   Enable alarm function to POWER ON system.
  If RTC Alarm Lead To Power On is Enabled.
  Date (of Month) Alarm :   Everyday, 1~31
  Time (hh: mm: ss) Alarm :   (0~23) : (0~59) : (0~59)

☞ **Power On By Mouse**
- ▶ Disabled   Disabled this function. (Default value)
- ▶ Double Click Double click on PS/2 mouse left button to power on system.

☞ **Power On By Keyboard**
- ▶ Password   Enter from 1 to 5 characters to set the keyboard power on password.
- ▶ Disabled   Disabled this function. (Default value)
- ▶ Keyboard 98   If your keyboard have "POWER Key" button, you can press the key to power on your system.

- **KB Power ON Password**
  - ▶ Enter   Input password (from 1 to 5 characters) and press Enter to set the keyboard power on password.

- **AC Back Function**
  - ▶ Soft-Off   Always in Off state when AC back. (Default value)
  - ▶ Memory   System power on depends on the status before AC lost.
  - ▶ Full-On   Always power on the system when AC back.

PnP/PCI Configurations

```
                    CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
                                      PnP/PCI Configurations
┌──────────────────────────────────────────────────────────────┬─────────────────────────┐
│   PCI 1 IRQ Assignment                    [Auto]               │        Item Help        │
│   PCI 2 IRQ Assignment                    [Auto]               │ Menu Level▶             │
│   PCI 3 IRQ Assignment                    [Auto]               │                         │
│                                                                │ Device(s) using this    │
│                                                                │ INT:                    │
│                                                                │                         │
│                                                                │ Display Cntrlr          │
│                                                                │ -Bus 1 Dev 0 Func 0     │
│                                                                │                         │
│                                                                │                         │
│                                                                │                         │
│                                                                │                         │
│                                                                │                         │
│                                                                │                         │
│                                                                │                         │
├──────────────────────────────────────────────────────────────┴─────────────────────────┤
│ ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help│
│        F5: Previous Values     F6: Fail-Save Default           F7: Optimized Defaults     │
└──────────────────────────────────────────────────────────────────────────────────────────┘
```

- **PCI 1 IRQ Assignment**
  - ▶ Auto   Auto assign IRQ to PCI 1. (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.

- **PCI 2 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.

- **PCI 3 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.

PC Health Status

```
CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
                    PC Health Status
┌─────────────────────────────────────────────────────┬──────────────────┐
│ Reset Case Open Status          [Disabled]           │    Item Help     │
│ Case Opened                     Yes                   │ Menu Level▶      │
│ Vcore                           OK                    │                  │
│ DDR25V                          OK                    │ Don't reset case │
│ +3.3V                           OK                    │ open status      │
│ +12V                            OK                    │                  │
│ Current CPU Temperature         33°C                  │ Clear case open  │
│ Current CPU FAN Speed           4440 RPM              │ status at next boot│
│ Current SYSTEM FAN Speed        0 RPM                 │                  │
│ CPU Warning Temperature         [Disabled]            │                  │
│ CPU FAN Fail Warning            [Disabled]            │                  │
│ SYSTEM FAN Fail Warning         [Disabled]            │                  │
│                                                       │                  │
│                                                       │                  │
│                                                       │                  │
│                                                       │                  │
├─────────────────────────────────────────────────────┴──────────────────┤
│ ↑↓→←: Move   Enter: Select   +/-/PU/PD: Value   F10: Save   ESC: Exit   F1: General Help │
│      F5: Previous Values     F6: Fail-Save Default          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 have been opened, "Case Opened" will show "Yes".
   If you want to reset "Case Opened" value, set "Reset Case Open Status" to "Enabled" and save
   CMOS, your computer will restart.

☞ **Current Voltage (V) Vcore / DDR25V / +3.3V / +12V**
- ▶ Detect system's voltage status automatically.

☞ **Current CPU Temperature**
- ▶ Detect CPU temperature automatically.

☞ **Current CPU/SYSTEM FAN Speed (RPM)**
- ▶ Detect CPU/system Fan speed status automatically.

☞ **CPU Warning Temperature**
- ▶ 60°C / 140°F   Monitor CPU temperature at 60°C / 140°F.
- ▶ 70°C / 158°F   Monitor CPU temperature at 70°C / 158°F.
- ▶ 80°C / 176°F   Monitor CPU temperature at 80°C / 176°F.
- ▶ 90°C / 194°F   Monitor CPU temperature at 90°C / 194°F.
- ▶ Disabled   Disable this function. (Default value)

☞ **CPU FAN Fail Warning**
- ▶ Disabled   Fan warning function disable. (Default value)
- ▶ Enabled   Fan warning function enable.

☞ **SYSTEM FAN Fail Warning**
- ▶ Disabled   Fan warning function disable. (Default value)
- ▶ Enabled   Fan warning function enable.

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]          │ Menu Level▶           │
│ ✕ CPU Host Frequency(Mhz)             100                 │                       │
│ ✕ PCI/AGP Divider                     Disabled            │                       │
│   Host/DRAM Clock ratio               [Auto]              │                       │
│   Memory Frequency(Mhz)               266                 │                       │
│   PCI/AGP Frequency(Mhz)              33/66               │                       │
│                                                           │                       │
│                                                           │                       │
│                                                           │                       │
│                                                           │                       │
│                                                           │                       │
│                                                           │                       │
│                                                           │                       │
│                                                           │                       │
├─────────────────────────────────────────────────────────┴───────────────────────┤
│ ↑↓→←: Move    Enter: Select   +/-/PU/PD: Value   F10: Save    ESC: Exit   F1: General Help │
│      F5: Previous Values      F6: Fail-Save Default          F7: Optimized Defaults │
└───────────────────────────────────────────────────────────────────────────────────┘
```

⚠ **CAUTION** Incorrect using these features may cause your system broken. For power End-User use only!

☞ **CPU Clock Ratio**
This option will not be shown or not be available if you are using a CPU with the locked ratio.
▸ 15X~21X It depends on CPU Clock Ratio.
This setup option will automatically assign by CPU detection.
For Willamette CPU: 8X~23X default: 14X
For C-Stepping P4:   8X, 10X~24X default: 15X
For Northwood CPU: 12X~24X default: 16X
The option will display "Locked" and read only if the CPU ratio is not changeable.

☞ **CPU Host Clock Control**
If system hangs up before enter CMOS setup utility, wait for 20 sec for times out reboot. When time out occur, system will reset and run at CPU default Host clock at next boot.
▸ Disabled   Disable CPU Host Clock Control. (Default value)
▸ Enabled   Enable CPU Host Clock Control.

☞ **CPU Host Frequency (MHz)**
This feature 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 FSB400 Pentium 4 processor, please set "CPU Host Frequency" to 100MHz. If you use FSB533 Pentium 4 processor, please set "CPU Host Frequency" to 133MHz.

☞ **PCI/AGP Divider**
This feature will be available when "CPU Host Clock Control" is set to Enabled.
▸ Disabled   Disable PCI/AGP Divider control. (Default value)
▸ PLL/16, 20, 24, 32, 40 Set PCI/AGP frequency.

○ **Host/DRAM Clock Ratio**

Wrong frequency may make system can't boot, clear CMOS to overcome wrong frequency issue.

▶▶ 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)

○ **Memory Frequency (Mhz)**

▶▶ The values depend on CPU Host Frequency(Mhz).

○ **PCI/AGP Frequency(Mhz)**

▶▶ The values depend on PCI/AGP Divider.

Top Performance

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

  ▶      Standard CMOS Features              Top Performance
  ▶      Advanced BIOS Features              Load Fail-Safe Defaults
  ▶      Integrated Periph                                      aults
  ▶      Power Management      Top Performance                  sword
  ▶      PnP/PCI Configura     Disabled.......................[■]
  ▶      PC Health Status      Enabled........................[ ]
  ▶      Frequency/Voltage
  ───────────────────────
  ESC: Quit                    ↑↓: Move        ENTER: Accept
  F8: Q-Flash                  ESC: Abort                        etup
  ─────────────────────────────────────────────────────────────────
```
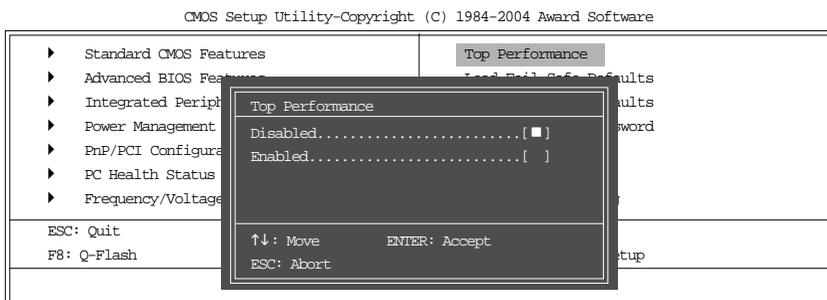
If you wish to maximize the performance of your system, set "Top Performance" as "Enabled".

▶▶ 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 Ma┌──────────────────────────────────────────────┐                  │
│  ▶   PnP/PCI │        Load Fail-Safe Defaults (Y/N)? N       │                  │
│  ▶   PC Heal└──────────────────────────────────────────────┘                   │
│  ▶   Frequency/Voltage Control           Exit Without Saving                    │
├──────────────────────────────────────────────────────────────────────────────┤
│  ESC: Quit                               ↑↓→←: Select Item                      │
│  F8: Q-Flash                             F10: Save & Exit Setup                 │
├──────────────────────────────────────────────────────────────────────────────┤
│                           Load Fail-Safe Defaults                              │
└──────────────────────────────────────────────────────────────────────────────┘
```
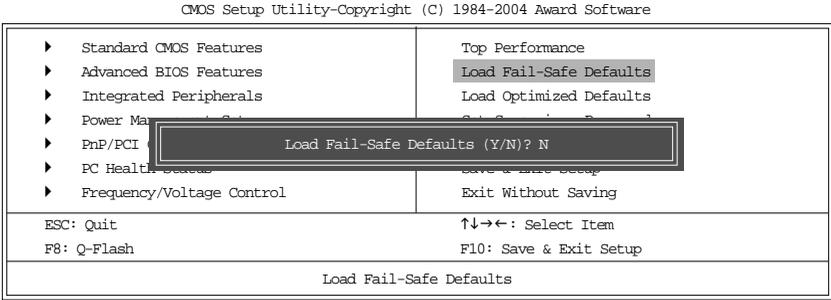
Fail-Safe defaults contain the most appropriate values of the system parameters that allow minimum system performance.

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 Ma┌──────────────────────────────────────────────┐                  │
│  ▶   PnP/PCI │        Load Optimized Defaults (Y/N)? N       │                  │
│  ▶   PC Heal└──────────────────────────────────────────────┘                   │
│  ▶   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 Ma                            
   ▶   PnP/PCI          Enter Password:    
   ▶   PC Health                           
   ▶   Frequency/Voltage Control           Exit 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.

Save & Exit Setup

```
                    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 Ma┌────────────────────────────────────────────────────┐         │
│   ▶   PnP/PCI │       Save to CMOS and EXIT (Y/N)? Y                │         │
│   ▶   PC Healt└────────────────────────────────────────────────────┘         │
│   ▶   Frequency/Voltage Control                 Exit Without Saving           │
│  ESC: Quit                              ↑↓→←: Select Item                     │
│  F8: Q-Flash                            F10: Save & Exit Setup                │
│                              Save & Exit Setup                                │
└─────────────────────────────────────────────────────────────────────────────┘
```

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 Ma┌────────────────────────────────────────────────────┐         │
│   ▶   PnP/PCI │       Quit Without Saving (Y/N)? N                  │         │
│   ▶   PC Healt└────────────────────────────────────────────────────┘         │
│   ▶   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
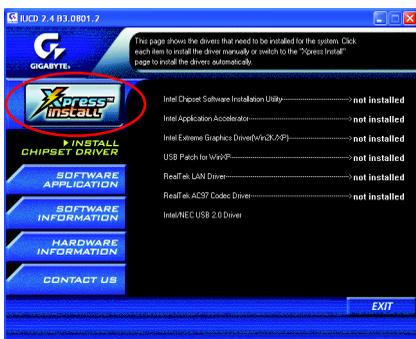
Install Drivers

Pictures below are shown in Windows XP

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 Drivers

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.

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 finish the installation for you automatically.

Massage: Some device drivers will restart your system automatically. After restarting your system the "Xpress Install" will continue to install other drivers.

We recommend that you install all components in the list.
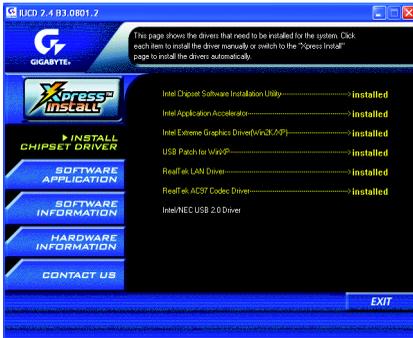
Driver install finished !
You have to reboot system !

NOTE

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

For Intel® 845G/GL/GE/GV Chipsets.

■ USB Patch 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 driver for 81XX series chipset.

■ RealTek AC97 Codec Driver

For Intel® ICH/ICH2/ICH4/ICH5 AC97 audio.

■ USB Driver Patch

This patch driver can help you to resolve some USB device issue on XP.

■ Intel/NEC USB 2.0 Driver

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

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).

"*" For 8I845GVM-RZ only.

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Driver Installation

English

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Fax: 86-20-87544306
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