8S648-RZ / 8S648-RZ-C

Intel® Pentium® 4 Processor Motherboard

User's Manual

Rev. 1001

12ME-8S648RZ-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

8S648-RZ

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

☐ EN55011	Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM) high frequency equipment	☐ EN61000-3-2* ☒ EN 60555-2	Disturbances in supply systems caused by household appliances and similar electrical equipment "Harmonics"
☐ EN55013	Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment	☐ EN61000-3-3* ☒ EN 60555-3	Disturbances in supply systems caused by household appliances and similar electrical equipment "Voltage fluctuations"
☐ EN55014	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
☐ EN55015	Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaries	☒ EN 50082-1	Generic immunity standard Part 1: Residual commercial and light industry
☐ EN55020	Immunity from radio interference of broadcast receivers and associated equipment	☐ EN 50081-2	Generic emission standard Part 2: Industrial environment
☒ EN55022	Limits and methods of measurement of radio disturbance characteristics of information technology equipment	☐ EN 50082-2	Generic emission standard Part 2: Industrial environment
☐ DIN VDE 0855 ☐ part 10 ☐ part 12	Cable distribution systems; Equipment for receiving and distribution from sound and television signals	☐ ENV 50104	Immunity requirements for household appliances tools and similar apparatus
		☐ EN50081-2	EN requirements for uninterruptible power systems (UPS)

☒ CE marking — CE (CE 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

☐ EN60065	Safety requirements for mains operated electronic and related apparatus for household and similar general use	☐ EN 60950	Safety of information technology equipment including electrical business equipment
☐ EN60335	Safety of household and similar electrical appliances	☐ EN 50091-1	General and Safety requirements for uninterruptible power systems (UPS)

Manufacturer/Importer

(Stamp)

Date: Mar. 20, 2004

Signature: *Tiemmy Huang*

Name: Tiemmy Huang

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2.1077(a)

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: 8S648-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: Mar. 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.

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.

English

Table of Contents

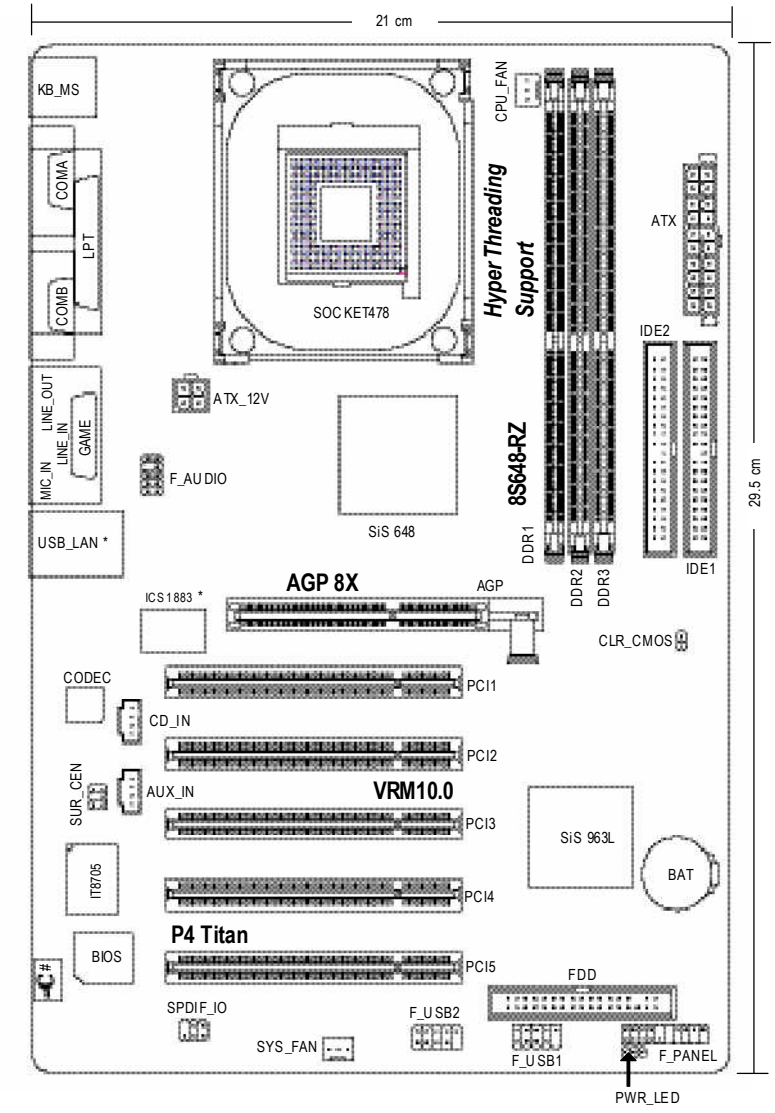
Chapter 1 Introduction

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	• North Bridge: SiS 648 • South Bridge: SiS 963L
Memory	• 3 184-pin DDR DIMM sockets, supports up to 3GB DRAM (Max) • Supports DDR333/DDR266 DIMM • Supports Up to 2 un-buffer DIMM DDR333 or up to 3 un-buffer Double-sided DIMM DDR266 • Supports only 2.5V DDR SDRAM
Slots	• 1 AGP slot 8X/4X(1.5V) device support • 5 PCI slots support
On-Board IDE	• 2 IDE controller provide IDE HDD/CD-ROM(IDE1, IDE2) with PIO, Bus Master (Ultra DMA33/ATA66/ATA100/ATA133) 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 • 2 Serial port (COMA/COMB) • 6 USB 2.0/1.1 ports (2 x Rear, 4 x Front by cable) • 1 Front Audio connector • 1 PS/2 Keyboard • 1 PS/2 Mouse
On-Board LAN *	• Build in ICS 1883 Chipset (10/100 Mbit) * • 1 RJ45 port *
On-Board Sound	• CMedia 9761 CODEC • Support 2/4/6 channel • Line Out / Line In / Mic In • SPDIF Out /SPDIF In • CD In/ AUX_IN/ Game Port
BIOS	• Licensed AWARD BIOS • Supports Q-Flash™
I/O Control	• IT8705
Hardware Monitor	• CPU/System Fan Revolution detect • CPU/System Fan Fail Warning • CPU Temperature Detect • System Voltage Detect
Additional Features	• Supports @BIOS™ • Supports EasyTune 4™
Overclocking	• Over Voltage (DDR/AGP) by BIOS • Over Clock (DDR/AGP/CPU/PCI) by BIOS
Form Factor	• ATX size form factor, 29.5cm x 21cm

"*" Only for 8S648-RZ.

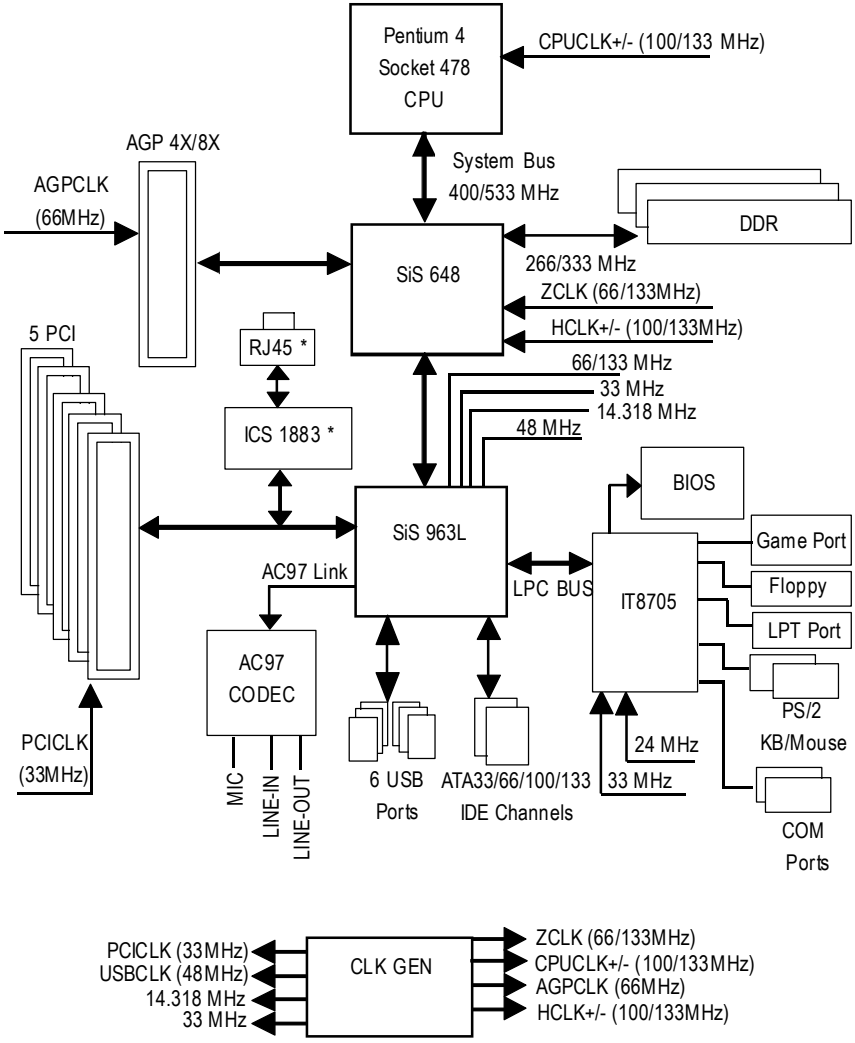
8S648-RZ Series Motherboard Layout



"*" Only for 8S648-RZ.

"#" Only for 8S648-RZ-C.

Block Diagram



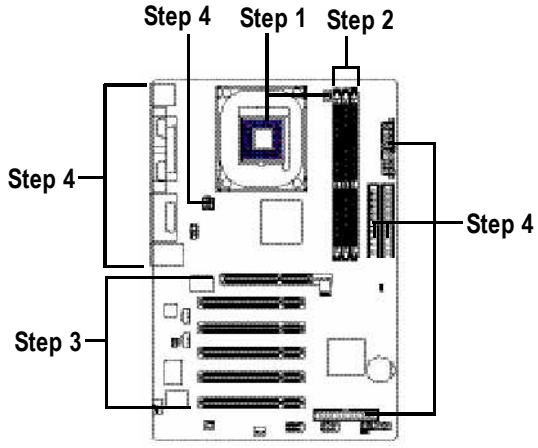
"*" Only for 8S648-RZ.

English

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)

CAUTION

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.

NOTE

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 SiS® 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

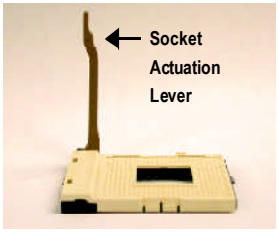


Figure 1.
Pull the rod to the 90-degree directly.

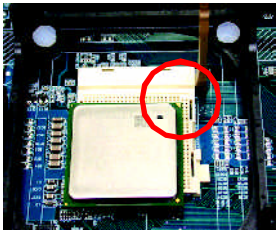


Figure 2.
Locate Pin 1 in the socket and look for a (golden) cut edge on the CPU upper corner. Insert the CPU into the socket. (Do not force the CPU into the socket.) Then move the socket lever to the locked position while holding pressure on the center of the CPU.

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.

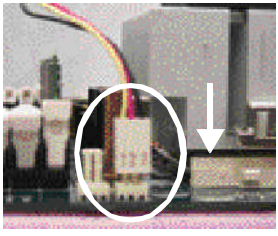


Figure 3.
Make sure the CPU fan is plugged to the CPU fan connector, than install complete.

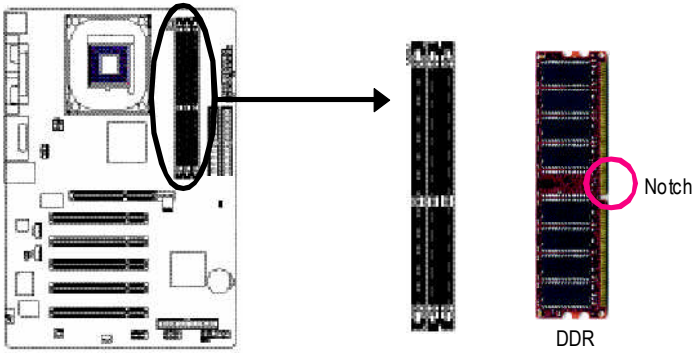
Step 2: Install Memory Modules

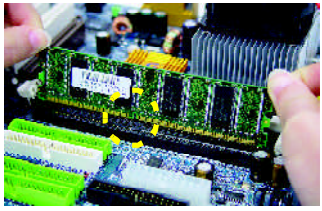
CAUTION

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

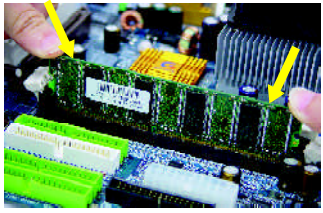
1. Please note that the DIMM module can only fit in one direction due to the one notch. Wrong orientation will cause improper installation. Please change the insert orientation.

The motherboard has 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.





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



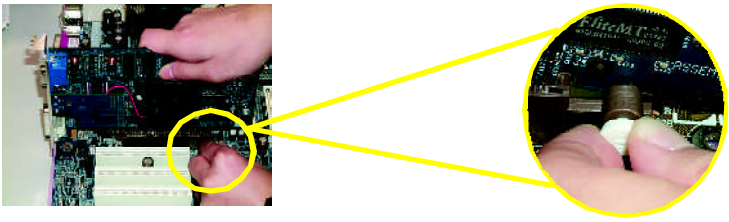
2. Insert the DIMM memory module vertically into the DIMM socket. Then push it down.

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 AGP Card

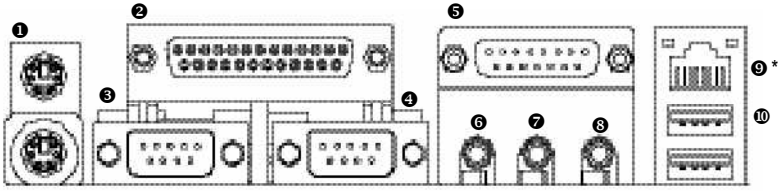
1. Read the relateAGP card's instruction document before install the AGP card into the computer.
2. If your AGP card has "AGP 8X/4X(1.5V) notch" (show below), please make sure your AGP card is AGP 8X/4X(1.5V).

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.



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.

❸/❹ **Serial port (COMA/COMB)**
Mouse and modem etc. can be connected to Serial 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.

"*" Only for 8S648-RZ.

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.

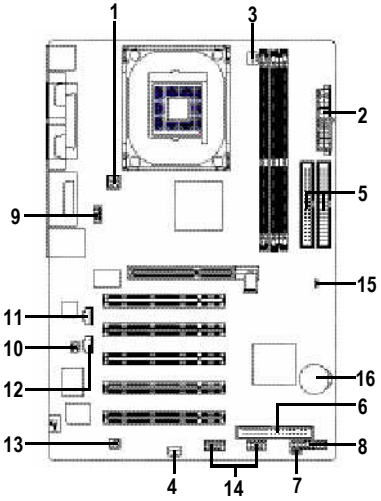
❾ **LAN port ***

LAN is fast Ethernet with 10/100Mbps speed.

❿ **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	9) F_AUDIO
2) ATX	10) SUR_CEN
3) CPU_FAN	11) CD_IN
4) SYS_FAN	12) AUX_IN
5) IDE1 / IDE2	13) SPDIF_IO
6) FDD	14) F_USB1 / F_USB2
7) PWR_LED	15) CLR_CMOS
8) F_PANEL	16) BAT

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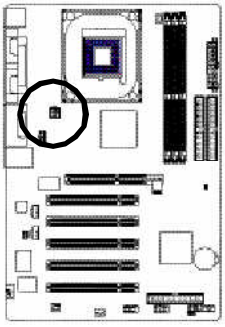
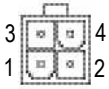
1) ATX_12V (+12V Power Connector)

This connector (ATX_12V) supplies the CPU operation voltage (Vcore).
If this "ATX_12V connector" is not connected, system cannot boot.

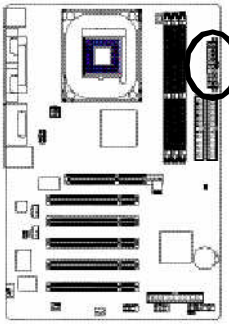


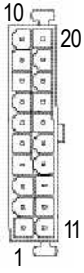


Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V

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.

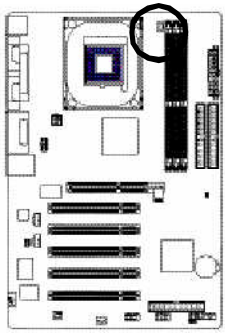




Pin No.	Definition	Pin No.	Definition
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	VCC	14	PS_ON(softon/off)
5	GND	15	GND
6	VCC	16	GND
7	GND	17	GND
8	PowerGood	18	-5V
9	5VSB (stand by +5V)	19	VCC
10	+12V	20	VCC

3) CPU_FAN (CPU Fan Connector)

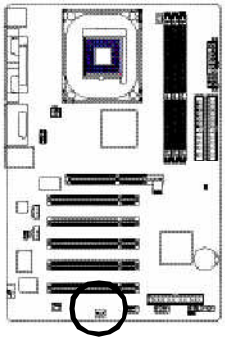
Please note, a proper installation of the CPU cooler is essential to prevent the CPU from running under abnormal condition or damaged by overheating. The CPU fan connector supports Max. current up to 600 mA.



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

4) SYS_FAN (System Fan Connector)

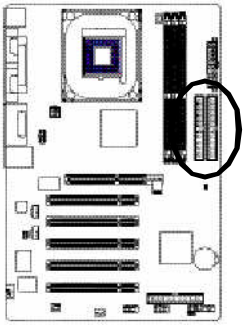
This connector allows you to link with the cooling fan on the system case to lower the system temperature.

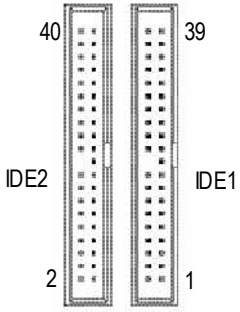


Pin No.	Definition
1	GND
2	+12V
3	Sense

5) IDE1 / IDE2 (IDE1 / IDE2 Connector)

Important Notice: 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.

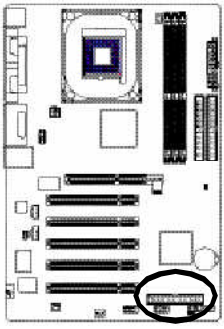


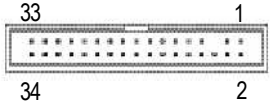


6) FDD (Floppy Connector)

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

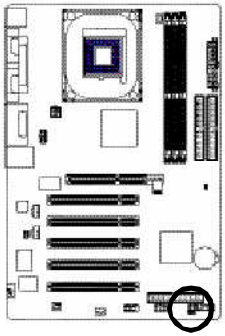
The red stripe of the ribbon cable must be the same side with the Pin1.





7) PWR_LED

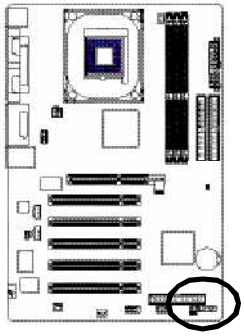
PWR_LED is connect with the system power indicator to indicate whether the system is on/off. It will blink when the system enters suspend mode. If you use dual color LED, power LED will turn to another color.

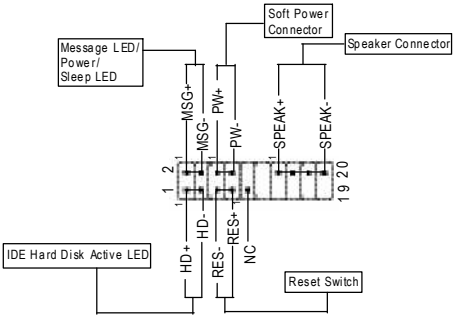


Pin No.	Definition
1	MPD+
2	MPD-
3	MPD-

8) 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.



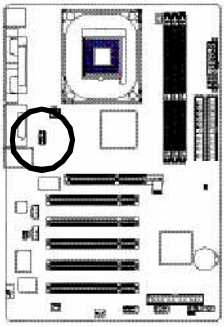


HD (IDE Hard Disk Active LED)	Pin 1: LED anode(+) Pin 2: LED cathode(-)
SPK(Speaker Connector)	Pin 1: VCC(+) Pin 2- Pin 3: NC Pin 4: Data(-)
RES(Reset Switch)	Open: Normal Operation Close: Reset Hardware System
PW (Soft Power Connector)	Open: Normal Operation Close: Power On/Off
MSG (Message LED/Power/Sleep LED)	Pin 1: LED anode(+) Pin 2: LED cathode(-)
NC	NC

9) F_AUDIO (Front Audio Connector)

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

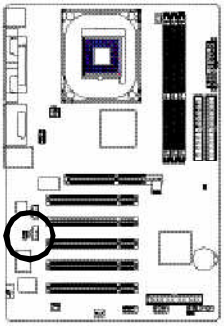
In order to utilize the front audio header, your chassis must have front audio connector. Also please make sure the pin assigment on the cable is the same as the pin assigment on the MB header. To find out if the chassis you are buying support front audio connector, please contact your dealer. Please 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)

10) SUR_CEN (Surround Center Connector)

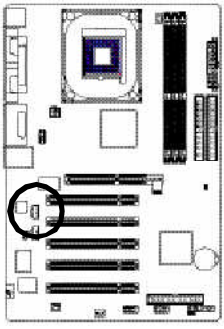
Please contact your nearest dealer for optional SUR_CEN cable.

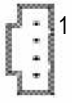


Pin No.	Definition
1	SUROUT L
2	SUROUT R
3	GND
4	No Pin
5	CENTER_OUT
6	BASS_OUT

11) CD_IN (CD In Connector)

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

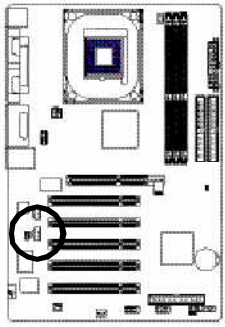


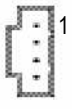


Pin No.	Definition
1	CD-L
2	GND
3	GND
4	CD-R

12) AUX_IN (AUX In Connector)

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

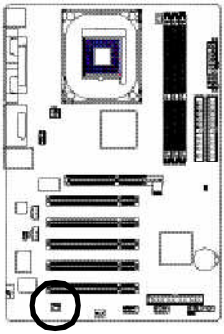




Pin No.	Definition
1	AUX-L
2	GND
3	GND
4	AUX-R

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.

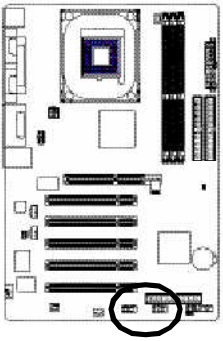


Pin No.	Definition
1	VCC
2	No Pin
3	SPDIF
4	SPDIFI
5	GND
6	GND

English

14) F_USB1 / F_USB2 (Front USB Connector)

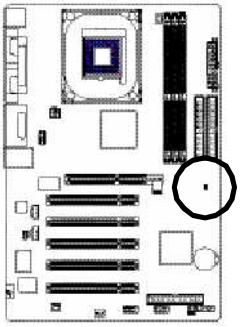
Be careful with the polarity of the front USB connector. Check the pin assignment carefully while you connect the front USB cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional front USB cable, please contact your local dealer.



Pin No.	Definition
1	Power
2	Power
3	USBDX-
4	USBDy-
5	USBDX+
6	USBDy+
7	GND
8	GND
9	No Pin
10	NC

15) CLR_CMOS (Clear CMOS)

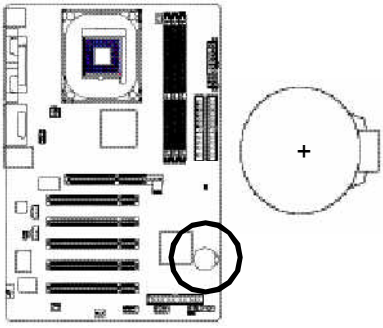
You may clear the CMOS data to its default values by this jumper. To clear CMOS, temporarily shor 1-2 pin. Default doesn't include the "Shunter" to prevent from improper use this jumper.



Open: Normal

Short: Clear CMOS

16) 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.

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

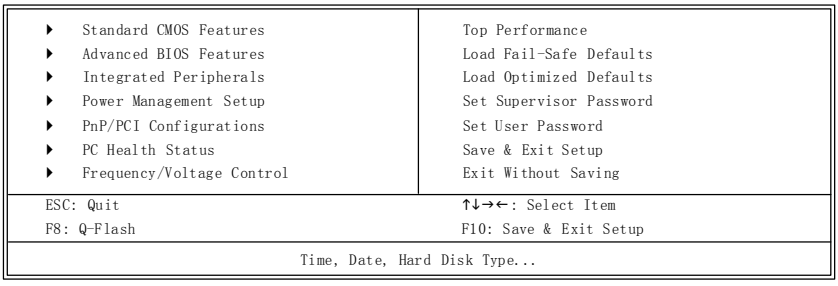
The on-line description of the highlighted setup function is displayed at the bottom of the screen.

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. : F7d)

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.



If you can't find the setting you want, please press "Ctrl+F1" to search the advanced option hidden.

- **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, year
▸ IDE Primary Master	[None]	
▸ 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.

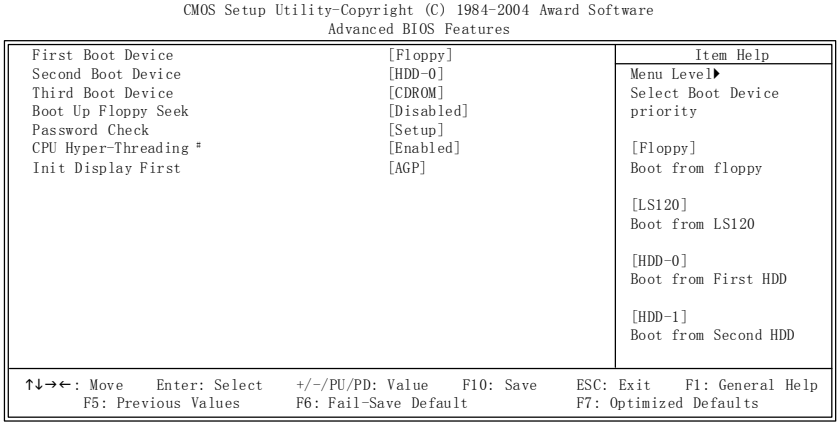
The value of the base memory is typically 512K for systems with 512K memory installed on the motherboard, or 640K for systems with 640K or more memory installed on the motherboard.

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



" # " 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.

- AGP — Set Init display first to AGP. (Default value)
- PCI — Set Init display first to PCI.

Integrated Peripherals

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Integrated Peripherals

			Item Help
	IDE1 Conductor Cable	[Auto]	Menu Level▶
	IDE2 Conductor Cable	[Auto]	[Auto]
	On-Chip Primary PCI IDE	[Enabled]	Auto-detect IDE
	On-Chip Secondary PCI IDE	[Enabled]	cable type
	AC97 Audio	[Enabled]	
	Onboard LAN device *	[Enabled]	
	USB Controller	[Enabled]	[ATA66/100/133]
	USB Legacy Support	[Disabled]	Set Conductor cable
	Onboard Serial Port 1	[3F8/IRQ4]	to ATA66/100/133(80
	Onboard Serial Port 2	[2F8/IRQ3]	-pins)
	Onboard Parallel Port	[378/IRQ7]	
	Parallel Port Mode	[SPP]	[ATA33]
x	ECP Mode Use DMA	3	Set Conductor cable
	Game Port Address	[201]	to ATA33(40-pins)
	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

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).
- 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).

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.

"*" Only for 8S648-RZ.

AC97 Audio
- Enabled — Enable onboard AC'97 audio function. (Default value)
- Disabled — Disable this function.

On Board LAN device *
- Disabled — Disable this function.
- Enabled — Enable Onboard Lan Chip device. (Default value)

USB Controller
- Enabled — Enable USB Controller. (Default value)
- Disabled — Disable USB Controller.

USB Legacy Support
When USB keyboard or mouse is installed, please set at Enabled.
- Enabled — Enable USB keyboard or mouse support.
- Disabled — Disable USB keyboard or mouse support. (Default value)

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.

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.

"*" Only for 8S648-RZ.

- **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

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Power Management Setup

			Item Help
	ACPI Suspend Type	[S1(POS)]	Menu Level▸
	Soft-Off by PWR_BTTN	[Off]	[S1]
	System After AC Back	[Off]	Set suspend type to
	IRQ [3-7, 9-15], NMI	[Enabled]	Power On Suspend under
	ModemRingOn	[Enabled]	ACPI OS
	PME Event Wake Up	[Enabled]	
	Power On by Keyboard	[Disabled]	[S3]
	Power On by Mouse	[Disabled]	Set suspend type to
	Resume by Alarm	[Disabled]	Suspend to RAM under
x	Month Alarm	NA	ACPI OS
x	Day (of Month)	0	
x	Time (hh:mm:ss)	0 0 0	

↑↓→←: 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. (Default value)
  - S3(STR) Set ACPI suspend type to S3.
- **Soft-off by PWR-BTTN**
  - Off The user press the power button once, he can turn off the system. (Default value)
  - Suspend The user press the power button once, then he can enter suspend mode.
- **System after AC Back**
  - LastState When AC-power back to the system, the system will return to the Last state before AC-power off.
  - Off When AC-power back to the system, the system will be in "Off" state. (Default value)
  - On When AC-power back to the system, the system will be in "On" state.

- **IRQ [3-7, 9-15], NMI**
  - Disabled — Disable this function.
  - Enabled — Enable this function. (Default value)
- **ModemRingOn**
  - Disabled — Disable Modem Ring on function.
  - Enabled — Enable Modem Ring on function. (Default value)
- **PME Event Wake Up**
  - Disabled — Disable this function.
  - Enabled — Enable PME as wake up event. (Default value)
- **Power On by Keyboard**
  - Password — Enter from 1 to 8 characters to set the keyboard power on password.
  - Disabled — Disabled this function. (Default value)
  - Any Key — Set Keyboard power on by any key.
- **Power On by Mouse**
  - Enabled — Enable Power On by Mouse function.
  - Disabled — Disable this 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.

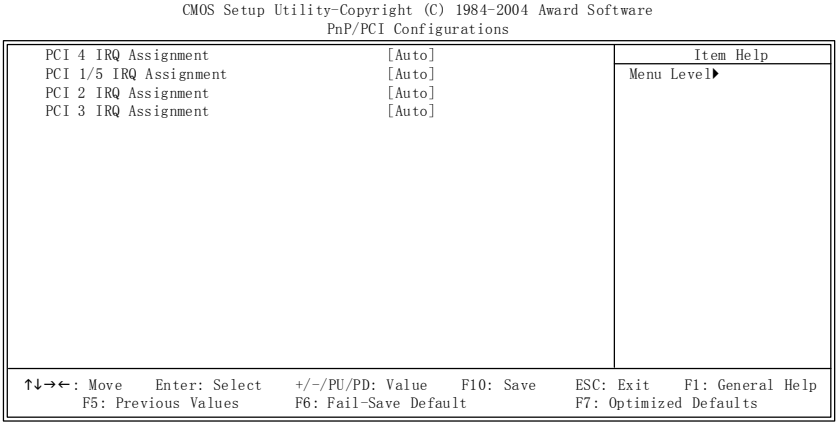
    If RTC Alarm Lead To Power On is Enabled.

    Month Alarm : NA, 1~12

    Day (of Month) : 0~31

    Time (hh: mm: ss) : (0~23) : (0~59) : (0~59)

PnP/PCI Configurations



☞ PCI 4 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 4.

☞ PCI 1/PCI 5 IRQ Assignment

▸▸ Auto	Auto assign IRQ to PCI 1/PCI 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/PCI 5.

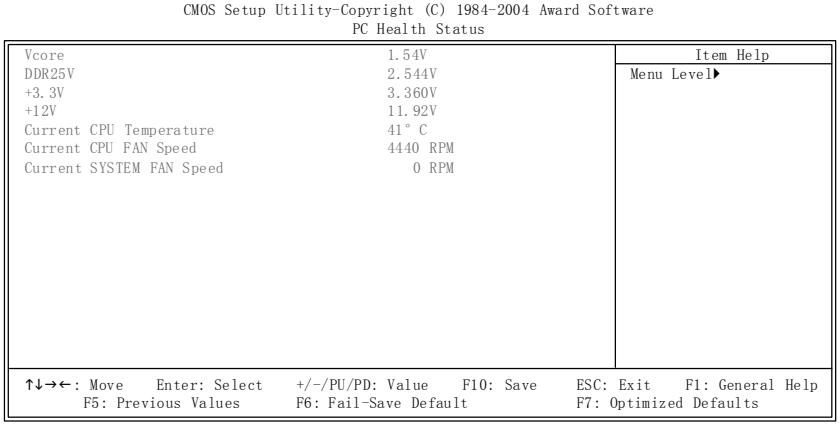
☞ PCI 2 IRQ Assignment

▸▸ 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

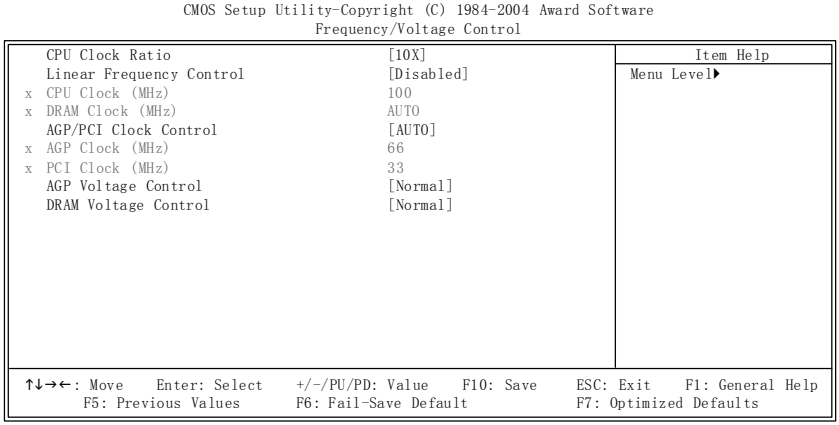
▸▸ Auto	Auto assign IRQ to PCI 3. (Default value)
▸▸ 3,4,5,7,9,10,11,12,14,15	Set IRQ 3,4,5,7,9,10,11,12,14,15 to PCI 3.

PC Health Status



- **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.

Frequency/Voltage Control



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.

Linear Frequency Control

- Disabled — Disable this function. (Default value)
- Enabled — Enable this function.

CPU Clock (MHz)

- 100MHz ~ 355MHz — Set CPU Host Clock from 100MHz to 355MHz.

If you use FSB400 Pentium 4 processor, please set "CPU Clock" to 100MHz.If you use FSB533 Pentium 4 processor, please set "CPU Clock" to 133MHz. If you use FSB800 Pentium 4 processor, please set "CPU Clock" to 200MHz.
Incorrect using it may cause your system broken. For power End-User use only!

DRAM Clock (MHz)

- Please set DRAM Clock according to your requirement.

If you use DDR266 DRAM module, please set "DRAM Clock(MHz)" to Auto or 266. If you use DDR333 DRAM module, please set "DRAM Clock(MHz)" to Auto or 333.
Incorrect using it may cause your system broken. For power End-User use only!

AGP/PCI Clock Control

- AUTO — Set AGP/PCI Clock Control to AUTO. (Default value)
- Manual — Set AGP/PCI Clock Control to Manual.

☞ **AGP Clock (MHz)**

⏩ Please set AGP Clock according to your requirement.
Incorrect using it may cause your system broken. For power End-User use only!

☞ **PCI Clock (MHz)**

⏩ Please set PCI Clock according to your requirement.
Incorrect using it may cause your system broken. For power End-User use only!

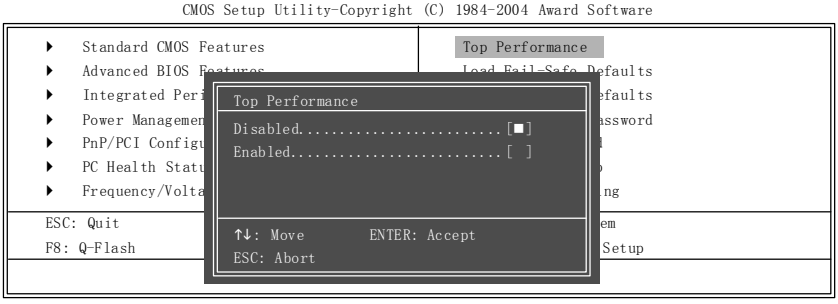
☞ **AGP Voltage Control**

⏩ Normal Set AGP Voltage Control to Normal. (Default value)
⏩ +0.1V Set AGP Voltage Control to +0.1V.

☞ **DRAM Voltage Control**

⏩ Normal Set DRAM Voltage Control to Normal. (Default value)
⏩ +0.1V Set DRAM Voltage Control to +0.1V.

Top Performance

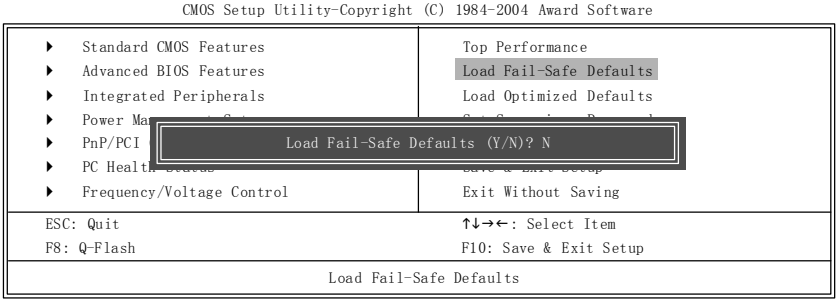


If you wish to maximize the performance of your system, set "Top Performance" as "Enabled".

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

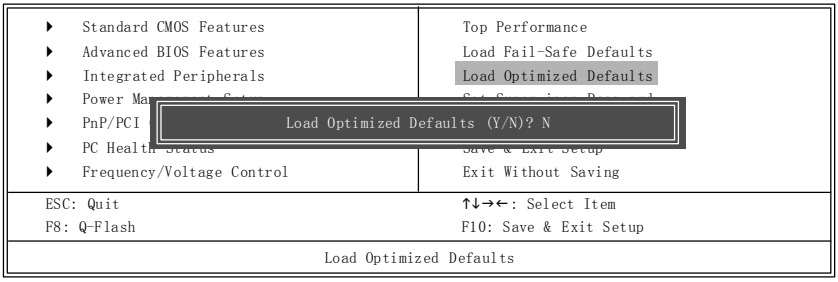
☞ "Top Performance" will increase H/W working speed. Different system configuration (both H/W component and OS) will effect the result. For example, the same H/W configuration might not run properly with Windows XP, but works smoothly with Windows NT. Therefore, if your system is not perform enough, 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



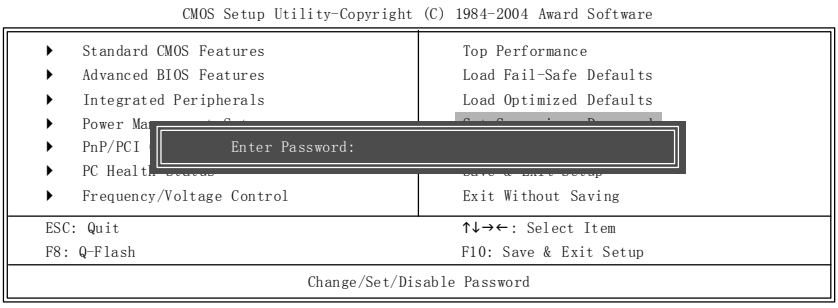
Fail-Safe defaults contain the most appropriate values of the system parameters that allow minimum system performance.

Load Optimized Defaults



Selecting this field loads the factory defaults for BIOS and Chipset Features which the system automatically detects.

Set Supervisor/User 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.

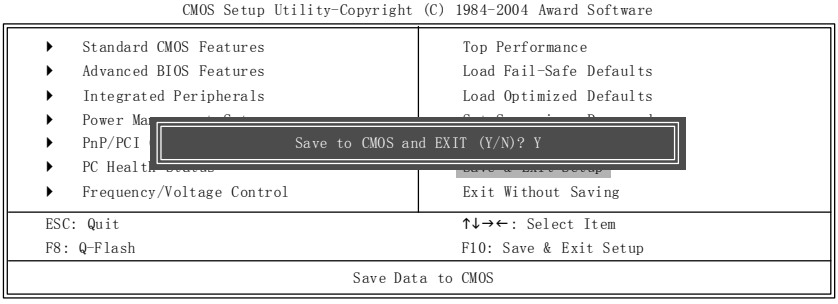
To disable password, just press <Enter> when you are prompted to enter password. A message "PASSWORD DISABLED" will appear to confirm the password being disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

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.

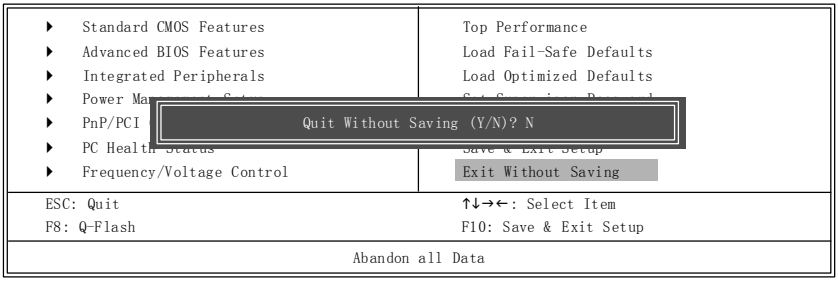
If you select "Setup" at "Password Check" in Advance BIOS Features Menu, you will be prompted only when you try to enter Setup.

Save & Exit Setup



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



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

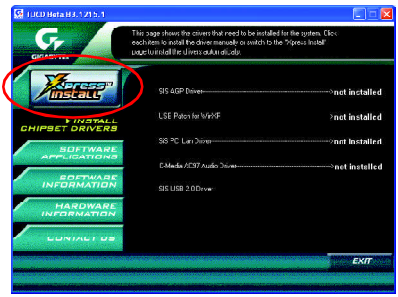
NOTE

Pictures below are shown in Windows XP

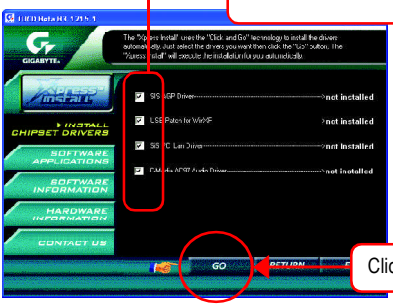
Insert the driver CD-title that came with your motherboard into your CD-ROM drive, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

INSTALL CHIPSET DRIVER

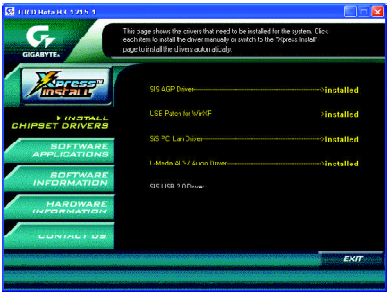
This page shows the drivers that need to be installed for the system. Click each item to install the driver manually or switch to the Xpress Install to install the drivers automatically.



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.



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



Driver install finished!! you have to reboot system!!

Item Description

- SIS AGP Driver
  Install SIS AGP Driver.
- USB Patch for WinXP
  This patch driver can help you to resolve the USB device wake up S3 hang up issue in XP.
- SiS PCI Lan Driver *
  For SiS series Lan driver.
- C-Media AC97 Audio Driver
  Install C-Media AC97 audio driver.
- SIS USB 2.0 Driver
  It is recommended that you use the Microsoft Windows update for the most updated driver for XP/2K.

"*" Only for 8S648-RZ.

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BE Tech.Support : 0900-84034 (€0.4/M)
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Tech. Support:
http://nz.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support (Sales/Marketing issues):
http://ggts.gigabyte.com.tw/nontech.asp
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