

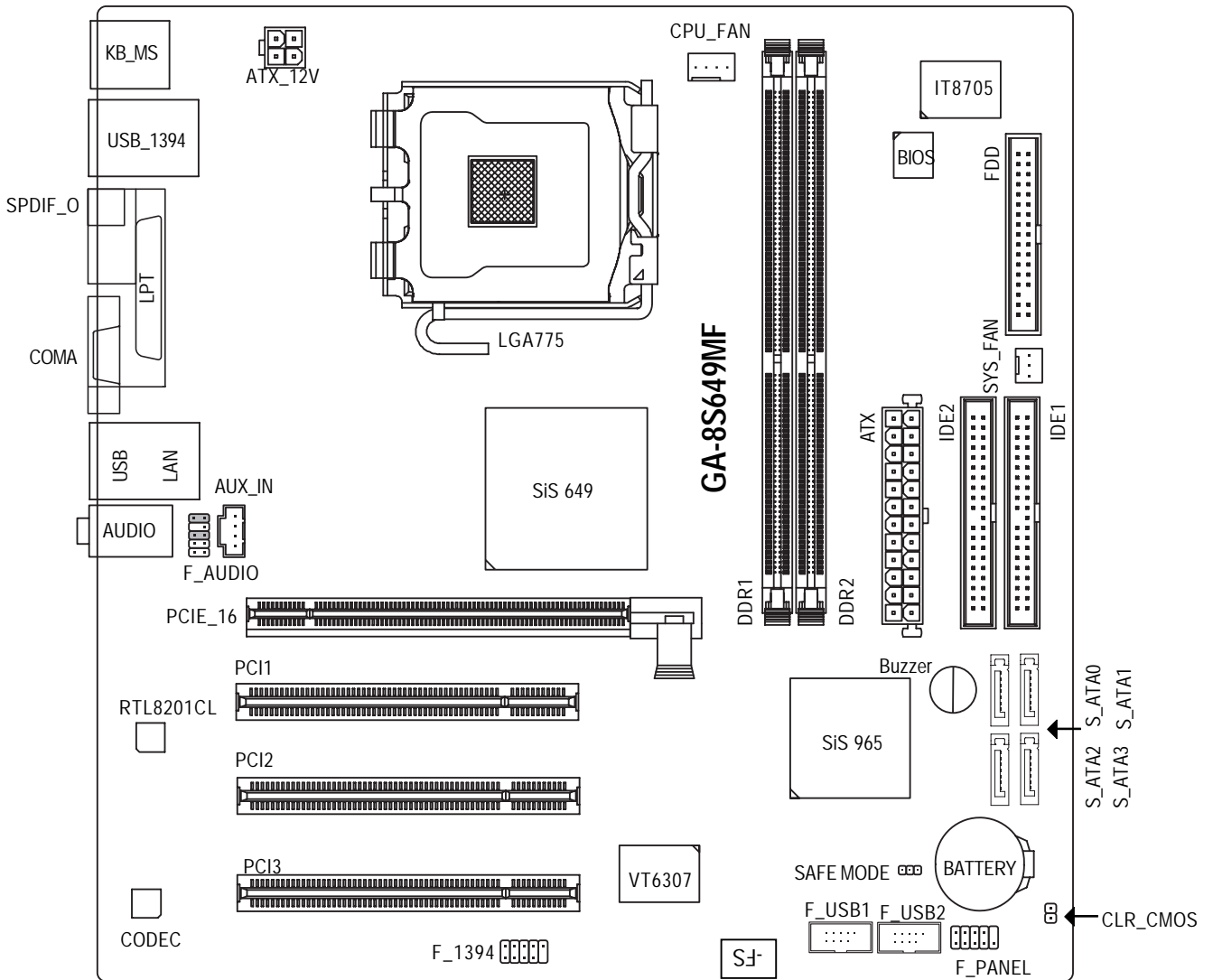
GA-8S649MF-FS

Intel® Pentium® 4 LGA775 Processor Motherboard

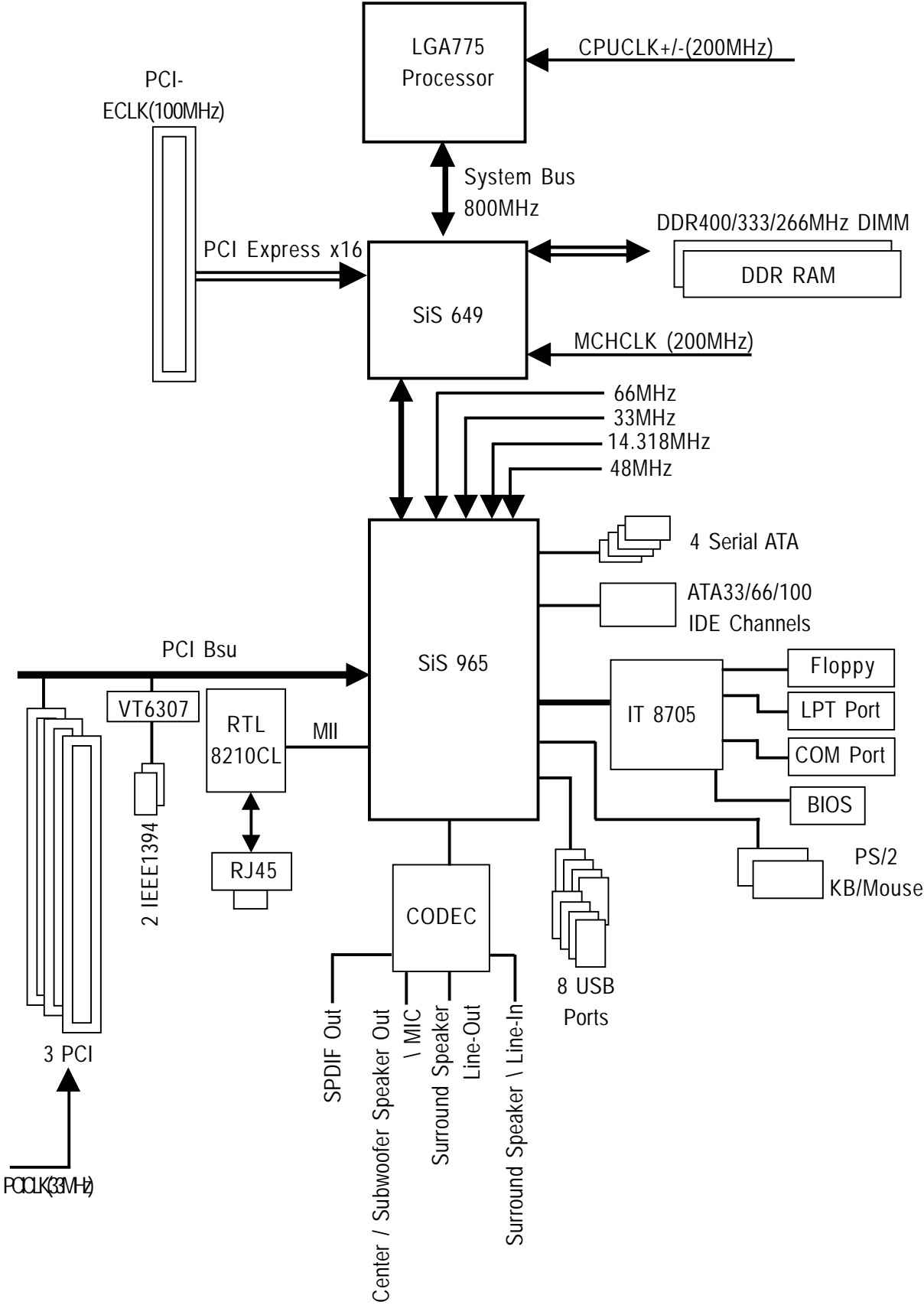
User's Manual

Rev. 1001

GA-8S649MF-FS Motherboard Layout



Block Diagram

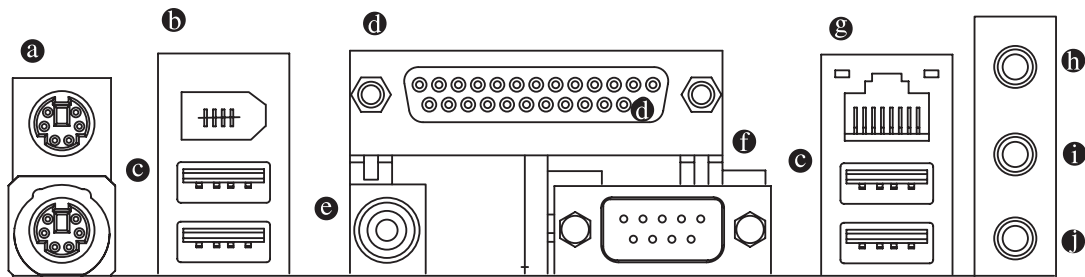


Chapter 1 Hardware Installation

1-1 Feature Summary

CPU	<ul style="list-style-type: none"> ◆ Supports the latest Intel® Pentium® 4 LGA775 CPU ◆ Supports Intel Pentium 4 series CPU with Hyper-Threading Technology ◆ Supports FSB up to 800MHz ◆ L2 cache varies with CPU
Chipset	<ul style="list-style-type: none"> ◆ Northbridge: SiS® 649 Host / Memory Controller chipset ◆ Southbridge: SiS® 965 MuTIOL
Memory	<ul style="list-style-type: none"> ◆ 2 DDR DIMM memory slots (supports up to 2GB memory) ◆ Supports DDR400/333/266 DIMM ◆ Supports 2.5V DDR DIMM
Slots	<ul style="list-style-type: none"> ◆ 1 PCI Express x 16 slot ◆ 3 PCI slots
IDE Connections	<ul style="list-style-type: none"> ◆ 2 IDE connection (UDMA 33/ATA 66/ATA 100), allows connection of 4 IDE devices
FDD Connections	<ul style="list-style-type: none"> ◆ 1 FDD connection
Onboard SATA	<ul style="list-style-type: none"> ◆ 4 Serial ATA connections
Peripherals	<ul style="list-style-type: none"> ◆ 1 parallel port supporting Normal/EPP/ECP mode ◆ 1 COMA port ◆ 8 USB 2.0/1.1 ports (rear x 4, front x 4 via cable) ◆ 1 front audio connector ◆ 2 IEEE1394 ports (rear x 1, front x 1 via cable) ◆ 1 PS/2 keyboard port ◆ 1 PS/2 mouse port
Onboard LAN	<ul style="list-style-type: none"> ◆ Onboard Realtek 8201CL chip (10/100 Mbit) ◆ 1 RJ 45 port
Onboard Audio	<ul style="list-style-type: none"> ◆ ALC655 CODEC ◆ Supports Jack Sensing function ◆ Center/Subwoofer Speaker Out ; MIC ; Front Speaker \ Line Out ;Surround Speaker \ Line In ◆ AUX In \ SPDIF_O
I/O Control	<ul style="list-style-type: none"> ◆ IT8705
Hardware Monitor	<ul style="list-style-type: none"> ◆ System voltage detection ◆ CPU temperature detection ◆ CPU / System fan speed detection ◆ CPU warning temperature ◆ CPU / System fan failure warning
BIOS	<ul style="list-style-type: none"> ◆ Use of licensed AWARD BIOS
Additional Features	<ul style="list-style-type: none"> ◆ Supports @BIOS
Form Factor	<ul style="list-style-type: none"> ◆ Micro ATX form factor; 24.4 cm x 24.4cm

1-2 I/O Back Panel Introduction

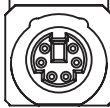


1 PS/2 Keyboard and PS/2 Mouse Connector



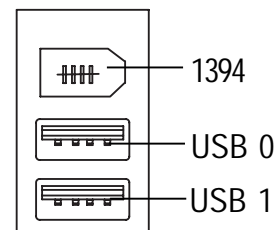
PS/2 Mouse Connector
(6 pin Female)

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



PS/2 Keyboard Connector
(6 pin Female)

3 USB / 1394 Connector



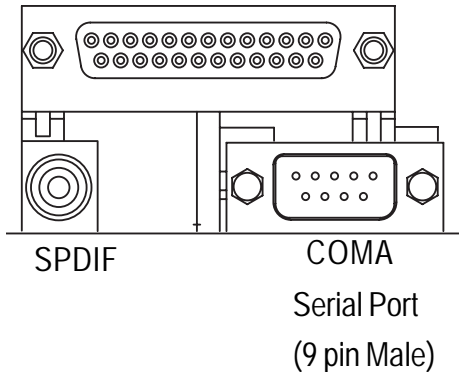
- Before you connect your device(s) into USB connector(s), please make sure your device(s) such as USB keyboard, mouse, scanner, zip, speaker..etc. Have a standard USB interface. Also make sure your OS supports USB controller.

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.

- Serial interface standard set by Institute of Electrical and Electronics Engineers, which has features like high speed, high bandwidth and hot plug. Be careful with the polarity of the IEEE1394 connector. Check the pin assignment carefully while you connect the IEEE1394 cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional IEEE1394 cable, please contact your local dealer.

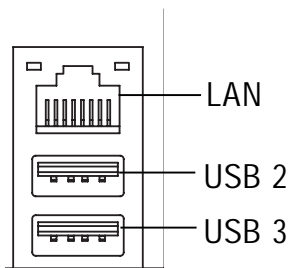
③ Parallel Port, Serial Port and SPDIF (LPT/COMA/SPDIF)

Parallel Port
(25 pin Female)



- This connector supports 1 standard COM port ,1 Parallel port and 1 SPDIF. Device like printer can be connected to Parallel port; mouse and modem etc can be connected to Serial ports. The SPDIF output is capable of providing digital audio to external speakers or compressed AC3 data to an external Dolby Digital Decoder.

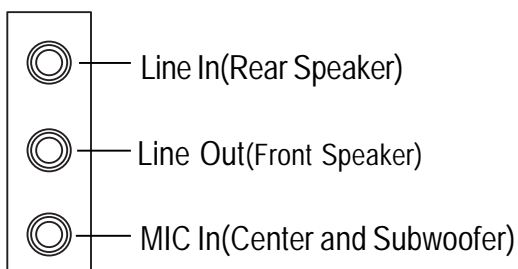
④ USB / LAN Connector



- LAN is fast Ethernet with 10/100 Mbps speed.
- 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.

⑤ Audio Connectors



- After install onboard audio driver, you may connect speaker to Line Out jack, micro phone to MIC In jack. Device like CD-ROM , walkman etc can be connected to Line-In jack.

Please note:

You are able to use 2-/4-/6- channel audio feature by S/W selection.

1-3 Installation of the CPU and Heatsink



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

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



HT functionality requirement content :

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

1-3-1 Installation of the CPU

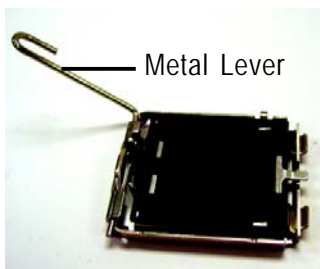


Fig. 1
Gently lift the metal lever located on the CPU socket to the upright position.

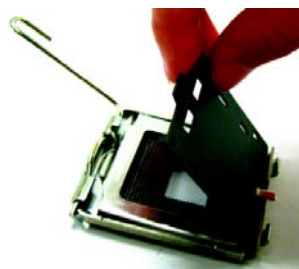


Fig. 2
Remove the plastic covering on the CPU socket.

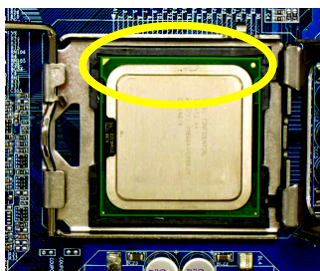


Fig. 3
Notice the small gold colored triangle located on the edge of the CPU socket. Align the

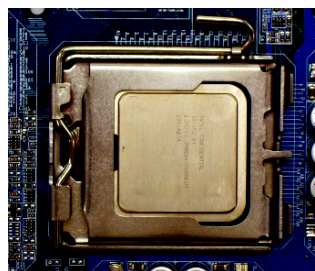


Fig. 4
Once the CPU is properly inserted, please replace the plastic covering and push the metal lever back into its original position.

indented corner of the CPU with the triangle and gently insert the CPU into position. (Grasping the CPU firmly between your thumb and forefinger, carefully place it into the socket in a straight and downwards motion. Avoid twisting or bending motions that might cause damage to the CPU during installation.)

1-3-2 Installation of the Heatsink



Fig. 1
Please apply an even layer of heatsink paste on the surface of the installed CPU.

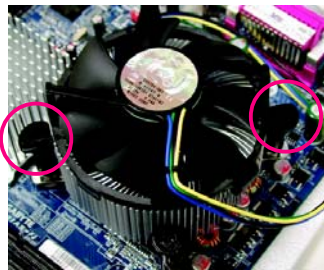


Fig. 3
Place the heatsink atop the CPU and make sure the push pins aim to the pin hole on the motherboard. Pressing down the push pins diagonally.

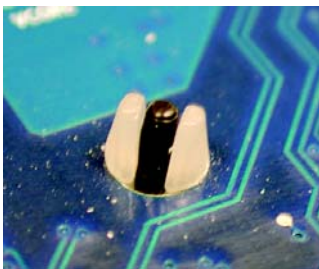


Fig. 5
Please check the back of motherboard after installing. If the push pin is inserted as the picture, the installation is complete.

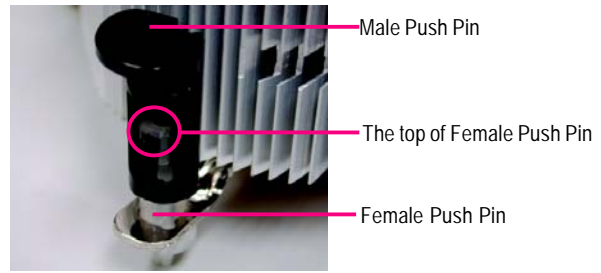


Fig. 2
(Turning the push pin along the direction of arrow is to remove the heatsink, on the contrary, is to install.)
Please note the direction of arrow sign on the male push pin doesn't face inwards before installation. (This instruction is only for Intel boxed fan)

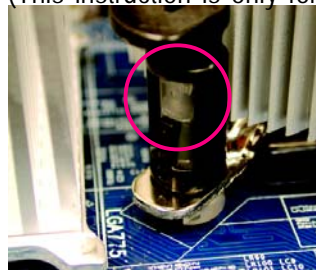


Fig. 4
Please make sure the Male and Female push pin are joined closely. (for detailed installation instructions, please refer to the heatsink installation section of the user manual)

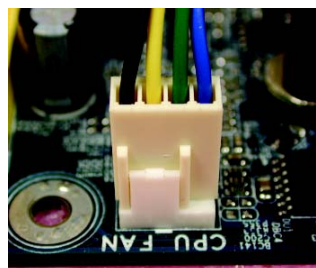


Fig. 6
Finally, please attach the power connector of the heatsink to the CPU fan header located on the motherboard.



The heatsink may adhere to the CPU as a result of hardening of the heatsink paste. To prevent such an occurrence, it is suggested that either thermal tape rather than heat sink paste be used for heat dissipation or using extreme care when removing the heatsink.

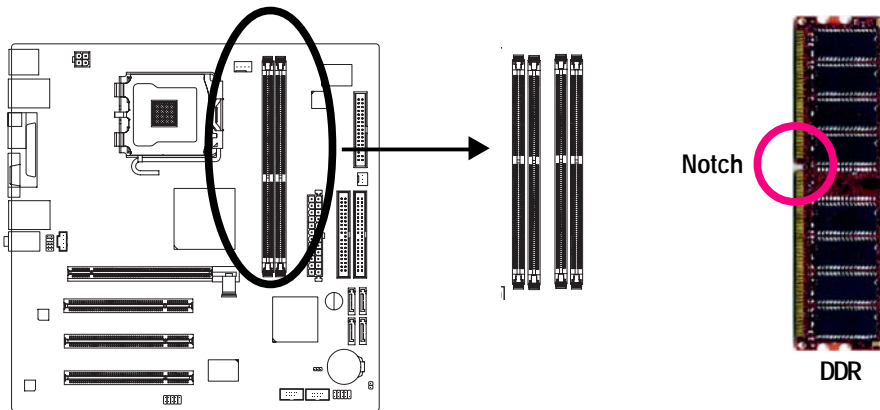
1-4 Installation of Memory



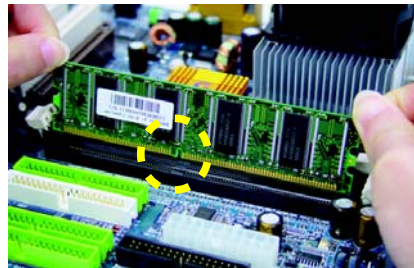
Before installing the memory modules, please comply with the following conditions:

1. Please make sure that the memory used is supported by the motherboard. It is recommended that memory of similar capacity, specifications and brand be used.
2. Before installing or removing memory modules, please make sure that the computer power is switched off to prevent hardware damage.
3. Memory modules have a foolproof insertion design. A memory module can be installed in only one direction. If you are unable to insert the module, please switch the direction.

The motherboard supports DDR memory modules, whereby BIOS will automatically detect memory capacity and specifications. Memory modules are designed so that they can be inserted only in one direction. The memory capacity used can differ with each slot.



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



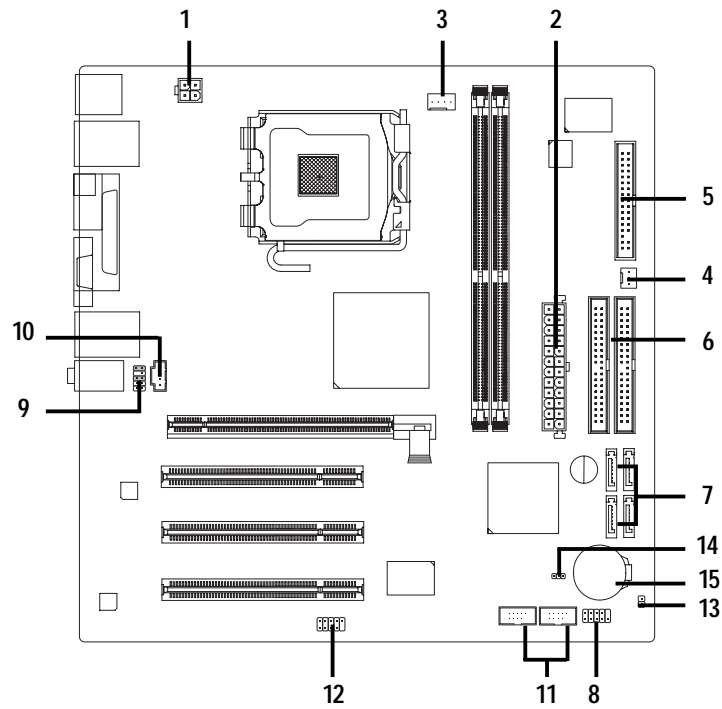
2. Insert the DIMM memory module vertically into the DIMM slot. Then push it down.



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



1-5 Connectors Introduction



1) ATX_12V	8) F_PANEL
2) ATX (Power Connector)	9) F_AUDIO
3) CPU_FAN	10) AUX_IN
4) SYS_FAN	11) F_USB1 / F_USB2
5) FDD	12) F_1394
6) IDE1 / IDE2	13) CLR_CMOS
7) S_ATA0 / S_ATA1 / S_ATA2 / S_ATA3	14) SAFE MODE
	15) Battery

1/2 ATX_12V/ATX (Power Connector)

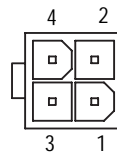
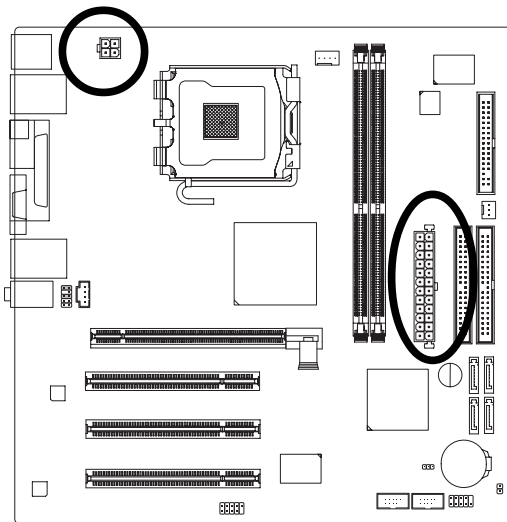
With the use of the power connector, the power supply can supply enough stable power to all the components on the motherboard. Before connecting the power connector, please make sure that all components and devices are properly installed. Align the power connector with its proper location on the motherboard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

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

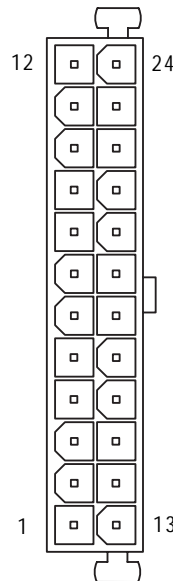
Caution!

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

If you use a 24-pin ATX power supply, please remove the small cover on the power connector on the motherboard before plugging in the power cord ; Otherwise, please do not remove it.



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



Pin No.	Definition
1	3.3V
2	3.3V
3	GND
4	VCC
5	GND
6	VCC
7	GND
8	Power Good
9	5V SB(stand by +5V)
10	+12V
11	+12V
12	3.3V(Only for 24pins ATX)
13	3.3V
14	-12V
15	GND
16	PS_ON(soft On/Off)
17	GND
18	GND
19	GND
20	-5V
21	VCC
22	VCC
23	VCC
24	GND

3/4) CPU_FAN / SYS_FAN (Cooler Fan Power Connector)

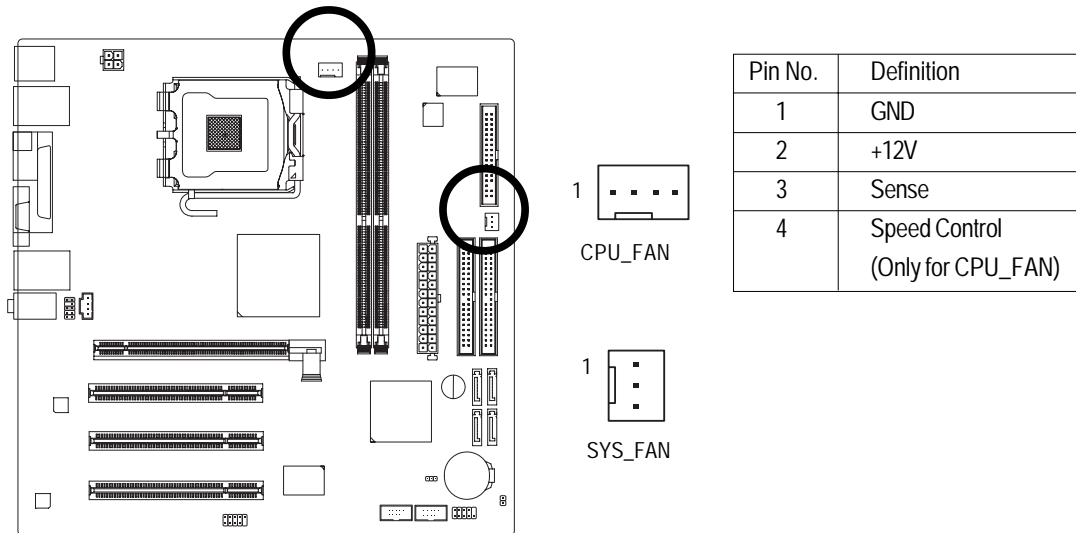
The cooler fan power connector supplies a +12V power voltage via a 3-pin/4-pin (only for CPU_FAN) power connector and possesses a foolproof connection design.

Most coolers are designed with color-coded power connector wires. A red power connector wire indicates a positive connection and requires a +12V power voltage. The black connector wire is the ground wire (GND).

Please remember to connect the power to the cooler to prevent system overheating and failure.

Caution!

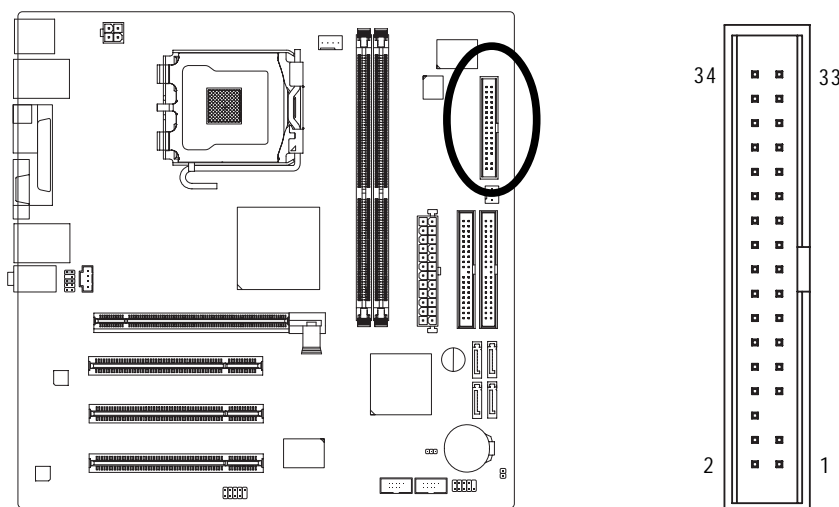
Please remember to connect the power to the CPU fan to prevent CPU overheating and failure.



5) FDD (Floppy Connector)

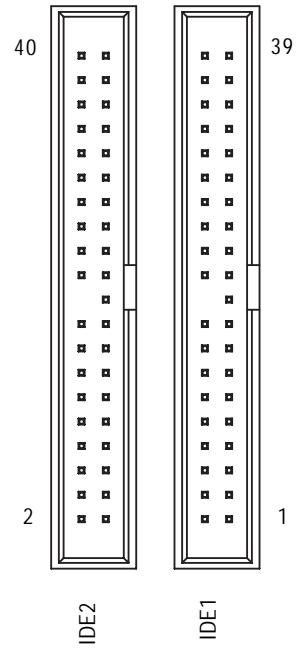
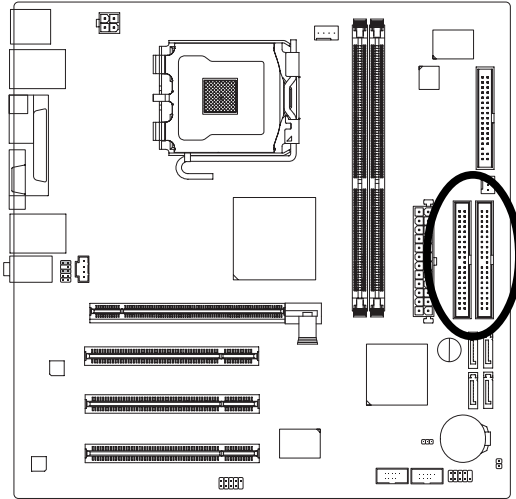
The FDD connector is used to connect the FDD cable while the other end of the cable connects to the FDD drive. The types of FDD drives supported are: 360KB, 720KB, 1.2MB, 1.44MB and 2.88MB.

Please connect the red power connector wire to the pin1 position.



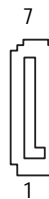
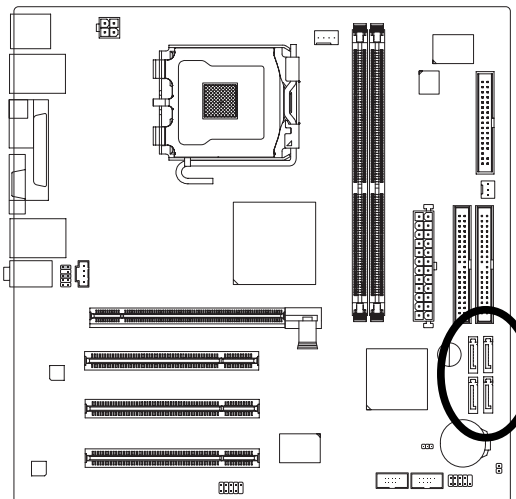
6) IDE1/IDE2 (IDE1 / IDE2 Connectors)

Each IDE connector can connect with one IDE cable to connect the IDE hard drive to the computer. It is recommended that the first hard drive be connected to the IDE1 connector while the disk drive be connected to the IDE2 connector.



7) S_ATA0 / S_ATA1 / S_ATA2 / S_ATA3

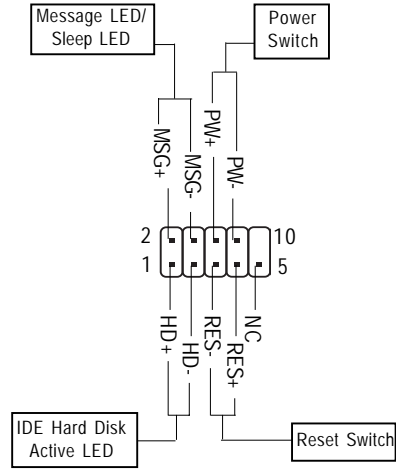
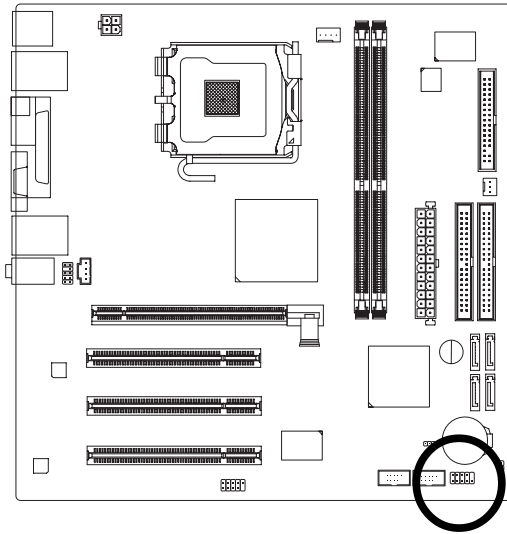
Serial ATA can provide 150MB/s transfer rate. Please refer to the BIOS setting for the Serial ATA and install the proper driver in order to work properly.



Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

8) F_PANEL (Front Panel Jumper)

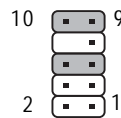
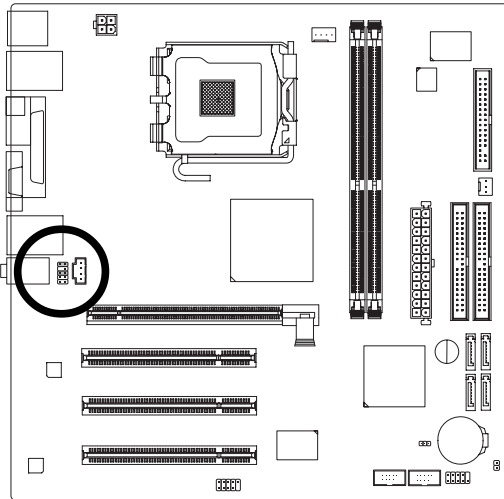
Please connect the LED, reset switch and power switch etc. of your chassis front panel to the F_PANEL connector according to the pin assignment below.



HD (IDE Hard Disk Active LED)	Pin 1: LED anode(+) Pin 2: LED cathode(-)
RES (Reset Switch)	Open: Normal Operation Close: Reset Hardware System
PW (Power Switch)	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 Panel Connector)

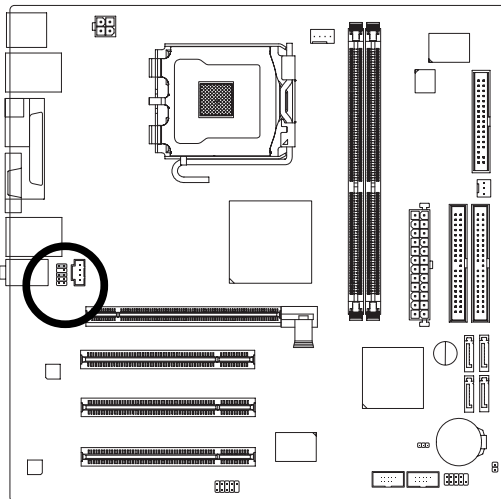
Please make sure the pin assignments on the cable are the same as the pin assignments of the F_AUDIO connector on the motherboard. To find out if the chassis you are buying support front audio panel connector, please contact your dealer. If you want to use "Front Audio" connector, you must remove the jumpers on pin 5-6, 9-10.



Pin No.	Definition
1	MIC
2	GND
3	REF
4	POWER
5	FrontAudio(R)
6	Rear Audio (R)/ Return R
7	NC
8	No Pin
9	FrontAudio (L)
10	Rear Audio (L)/ Return L

10) AUX_IN

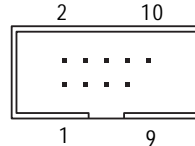
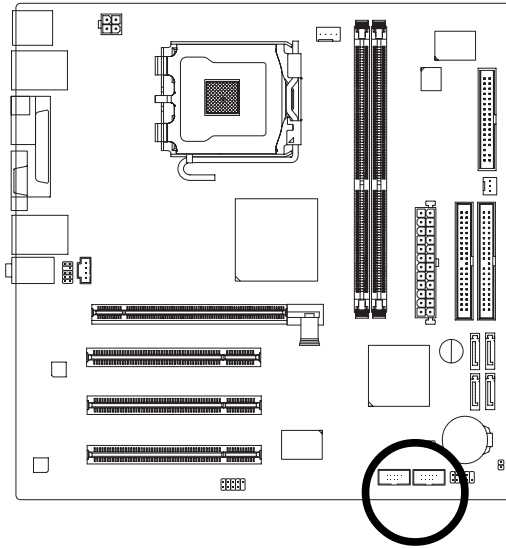
Connect other device (such as PCI TV Tuner audio out) to the connector.



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

11) 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.

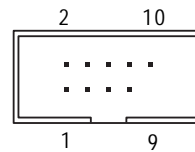
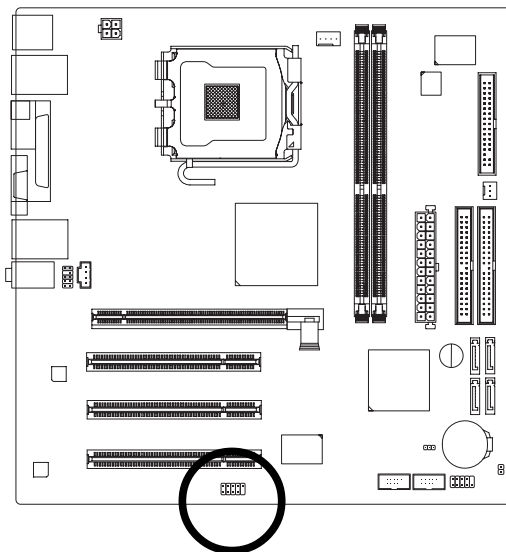


Pin No.	Definition
1	Power
2	Power
3	USB DX-
4	USB Dy-
5	USB DX+
6	USB Dy+
7	GND
8	GND
9	No Pin
10	NC

16) F1_1394 (IEEE 1394 Connector)

Serial interface standard set by Institute of Electrical and Electronics Engineers, which has features like high speed, high bandwidth and hot plug. Be careful with the polarity of the IEEE1394 connector.

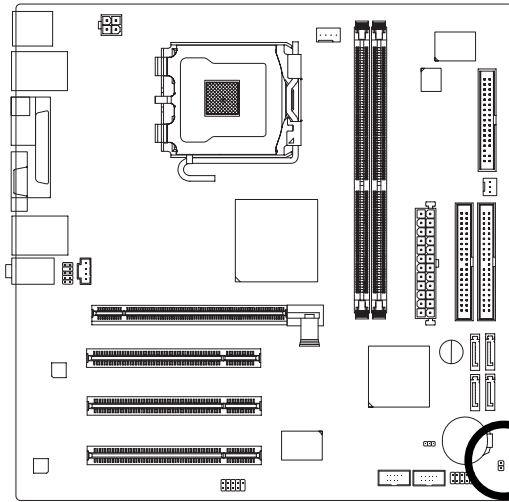
Check the pin assignment carefully while you connect the IEEE1394 cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional IEEE1394 cable, please contact your local dealer.



Pin No.	Definition
1	TPA2+
2	TPA2-
3	GND
4	GND
5	TPB2+
6	TPB2-
7	Power
8	Power
9	No Pin
10	GND

13) CLR_CMOS (Clear CMOS)

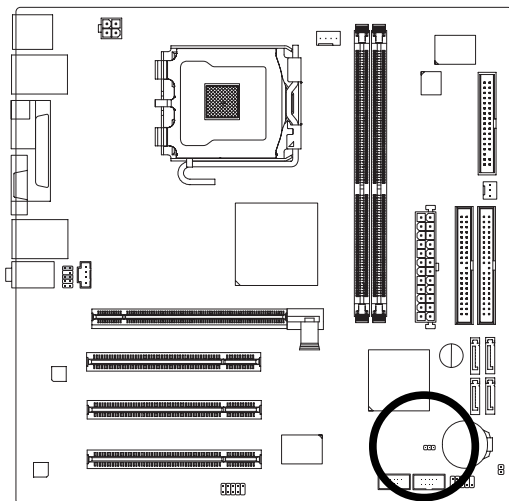
You may clear the CMOS data to its default values by this jumper. To clear CMOS, temporarily short 1-2 pin. Default doesn't include the "Shunter" to prevent from improper use this jumper.



Open: Normal
1

Short: Clear CMOS
1

14) SAFE MODE

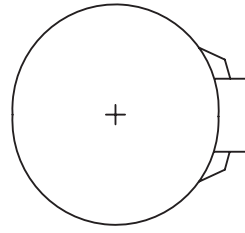
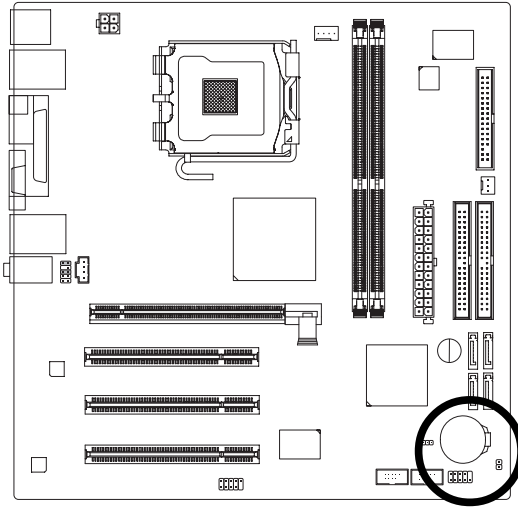


1 1-2 Short: Normal (Default)

1 2-3 Short: SAFE MODE
System runs into BIOS setup
screen directly without POST

1 Open: Recovery
System runs into floppy and
proceed the recovery routine

15) Battery



- ❖ 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 seconds.
3. Re-install the battery.
4. Plug the power cord and turn ON the computer.

Chapter 2 BIOS Setup

BIOS (Basic Input and Output System) includes a CMOS SETUP utility which allows user to configure required settings or to activate certain system features.

The CMOS SETUP saves the configuration in the CMOS SRAM of the motherboard.

When the power is turned off, the battery on the motherboard supplies the necessary power to the CMOS SRAM.

When the power is turned on, pushing the button during the BIOS POST (Power-On Self Test) will take you to the CMOS SETUP screen. You can enter the BIOS setup screen by pressing "Ctrl + F1". When setting up BIOS for the first time, it is recommended that you save the current BIOS to a disk in the event that BIOS needs to be reset to its original settings. If you wish to upgrade to a new BIOS, either Gigabyte's Q-Flash or @BIOS utility can be used.

Q-Flash allows the user to quickly and easily update or backup BIOS without entering the operating system.

@BIOS is a Windows-based utility that does not require users to boot to DOS before upgrading BIOS but directly download and update BIOS from the Internet.

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
<Page Up>	Increase the numeric value or make changes
<Page Down>	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

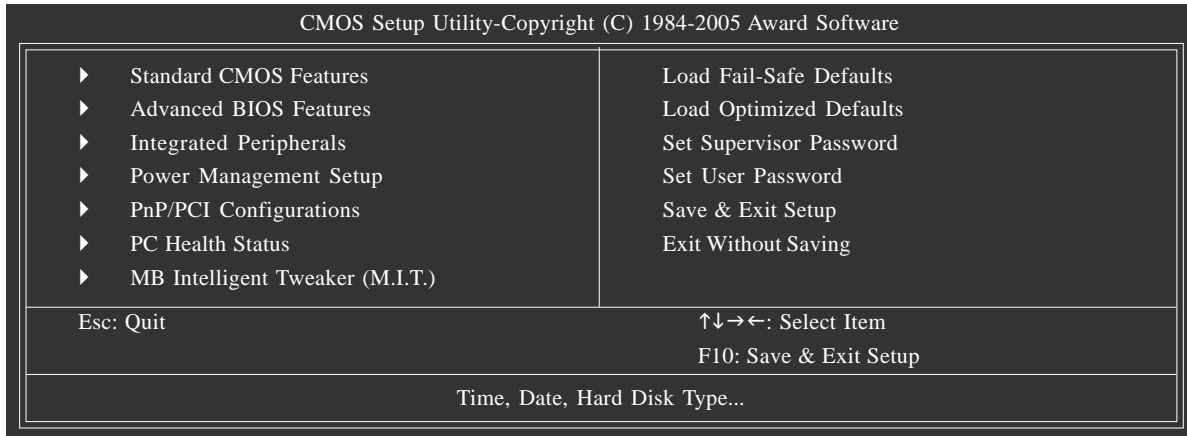
The on-line description of the highlighted setup function is displayed at the bottom of the screen.

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. : E17)

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



NOTE

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

■ Standard CMOS Features

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

■ Advanced BIOS Features

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

■ Integrated Peripherals

This setup page includes all onboard peripherals.

■ 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 includes information about the CPU autodetected temperature, voltage, and fan, speed.

■ MB Intelligent Tweaker (M.I.T.)

This setup page is to control CPU clock and frequency.

■ Load Fail-Safe Defaults

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

■ Load Optimized Defaults

Optimized Defaults refers to the value of the system parameters with 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.

2-1 Standard CMOS Features

CMOS Setup Utility-Copyright (C) 1984-2005 Award Software		
Standard CMOS Features		
Date (mm:dd:yy)	Fri, Oct 1 2005	Item Help
Time (hh:mm:ss)	10:11:24	Menu Level ▶
▶ IDE Channel 0 Master	[None]	Change the day, month, year
▶ IDE Channel 0 Slave	[None]	<Week>
▶ IDE Channel 1 Master	[None]	Sun. to Sat.
▶ IDE Channel 1 Slave	[None]	<Month>
▶ IDE Channel 2 Master	[None]	Jan. to Dec.
▶ IDE Channel 2 Slave	[None]	<Day>
▶ IDE Channel 3 Master	[None]	1 to 31 (or maximum allowed in the month)
▶ IDE Channel 3 Slave	[None]	<Year>
Drive A	[1.44M, 3.5"]	1999 to 2098
Halt On	[All, But Keyboard]	
Base Memory	640K	
Extended Memory	127M	
Total Memory	128M	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Default F7: Optimized Defaults		

☞ Date

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

- ▶▶ Week The weekday, from Sun. to Sat., is determined by the BIOS and displayed only.
- ▶▶ Month The month, from Jan. to Dec.
- ▶▶ Day The date, 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 based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

☞ IDE Channel 0~3 Master, Slave

- ▶▶ IDE HDD Auto-Detection Press "Enter" to select this option for automatic device detection.
- ▶▶ IDE Channel 0~3 Master(Slave) setup You can use one of the three methods below:
 - Auto Allows BIOS to automatically detect IDE devices during POST. (Default value)
 - None Select this if no IDE devices are used and the system will skip the automatic detection step and allow for faster system start up.
 - Manual User can manually input the correct settings
- ▶▶ Access Mode Use this to set the access mode for the hard drive. The four options are: CHS/LBA/Large/Auto (Default:Auto)
- ▶▶ Capacity Capacity of currently installed hard disk.

Hard drive information should be labeled on the outside drive casing.

Enter the appropriate option based on this information.

- ▶▶ Cylinder Number of cylinders
- ▶▶ Head Number of heads
- ▶▶ Precomp Write precomp
- ▶▶ Landing Zone Landing zone
- ▶▶ Sector Number of sectors

☞ Drive A

The category identifies the types of floppy disk drive A 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. (Default value)

- ▶▶ 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.
- ▶▶ 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 and is determined by POST (Power On Self Test) of the BIOS.

▶▶ Base Memory

The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system.

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

▶▶ Extended Memory

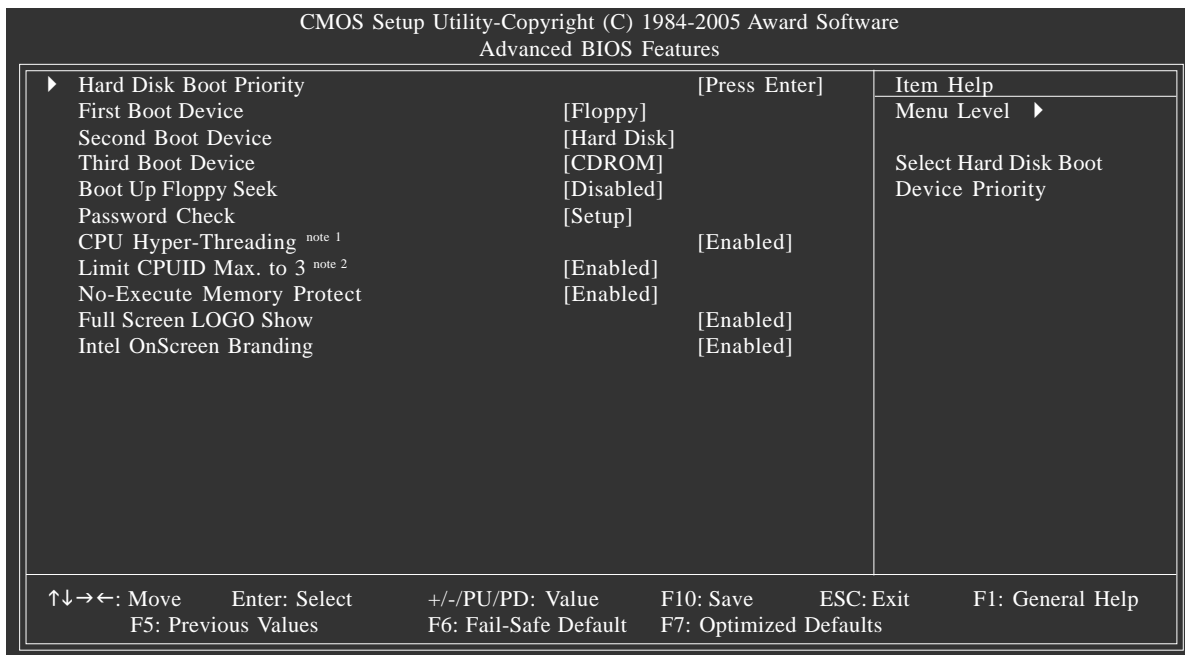
The BIOS determines how much extended memory is present during the POST.

This is the amount of memory located above 1 MB in the CPU's memory address map.

▶▶ Total Memory

This item displays the memory size that used.

2-2 Advanced BIOS Features



Note 1: This option is available only when the processor you install supports Intel® Hyper-Threading Technology.

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

☞ Hard Disk Boot Priority

Select boot sequence for onboard (or add-on cards) SCSI, RAID, etc.

Use <↑> or <↓> to select a device, then press<+> to move it up, or <-> to move it down the list. Press <ESC> to exit this menu.

☞ First / Second / Third Boot Device

- ▶ Floppy Select your boot device priority by Floppy.
- ▶ LS120 Select your boot device priority by LS120.
- ▶ Hard Disk Select your boot device priority by Hard Disk.
- ▶ 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 Disabled this function.

☞ **Boot Up Floppy Seek**

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

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

☞ **Password Check**

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

If you want to cancel the setting of password, please just press ENTER to make [SETUP] empty.

☞ **CPU Hyper-Threading**

This option appears only when the processor you install supports Intel® Hyper-Threading Technology.

- ▶▶ Enabled Enable CPU Hyper-Threading feature. Please note that this feature only works for operating system with multiprocessors mode supported. (Default value)
- ▶▶ Disabled Disable CPU Hyper-Threading.

☞ **Limit CPUID Max. to 3**

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

- ▶▶ Enabled Limit CPUID Maximum value to 3 when using older OS like NT4. (Default value)
- ▶▶ Disabled Disable CPUID Limit for Windows XP.

☞ **Full Screen LOGO Show**

- ▶▶ Disabled Don't display full screen logo show during POST.
- ▶▶ Enabled Display full screen logo show during POST. (Default value)

☞ **Intel OnScreen Branding**

- ▶▶ Disabled Don't display Intel brand logo.
- ▶▶ Enabled Display Intel onscreen branding. (Default value)

2-3 Integrated Peripherals

CMOS Setup Utility-Copyright (C) 1984-2004 Award Software Integrated Peripherals		
IDE1 Conductor Cable	[Auto]	Item Help
IDE2 Conductor Cable	[Auto]	Menu Level ▶
On-Chip Primary PCI IDE	[Enabled]	
On-Chip Secondary PCI IDE	[Enabled]	[Auto]
AC97 Audio	[Enabled]	Auto-detect IDE cable type
Onboard LAN device	[Enabled]	
USB Controller	[Enabled]	
USB Legacy Support	[Disabled]	[ATA 66/100/133]
Onboard 1394 Function	[Enabled]	Set Conductor Cable to ATA66/100/133 (80 Pins)
SiS Serial ATA Controller	[Enabled]	
SiS Serial ATA Mode	[RAID]	
Onboard Serial Port 1	[3F8/IRQ4]	
Onboard Parallel Port	[378/IRQ7]	[Disabled]
Parallel Port Mode	[ECP]	Set Conductor Cable ATA33 (40 Pins)
ECP Mode Use DMA	[3]	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F5: Previous Values F6: Fail-Safe Default F7: Optimized Defaults		

☞ IDE1 Conductor Cable

- ▶▶ Auto BIOS autodetects IDE1 conductor cable .(Default Value)
- ▶▶ ATA66/100/133 Set IDE1 Conductor Cable to ATA66/100/133 (Please make sure your IDE device and cable are compatible with ATA66/100/133).
- ▶▶ ATA33 Set IDE1 Conductor Cable to ATA33. (Please make sure your IDE device and cable are compatible with ATA33)

☞ IDE2 Conductor Cable

- ▶▶ Auto BIOS autodetects IDE2 conductor cable. (Default Value)
- ▶▶ ATA66/100/133 Set IDE2 Conductor Cable to ATA66/100/133. (Please make sure your IDE device and cable are compatible with ATA66/100/133)
- ▶▶ ATA33 Set IDE2 Conductor Cable to ATA33. (Please make sure your IDE device and cable are 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.

☞ AC97 Audio

- ▶▶ Enabled Autodetect AC97 audio function. (Default value)
- ▶▶ Disabled Disable AC97 audio function.

☞ Onboard LAN device

- ▶▶ Enabled Enable Onboard LAN device function. (Default value)
- ▶▶ Disabled Disable this function.

☞ **USB Controller**

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

☞ **USB Legacy Support**

- ▶▶ Enabled Enable USB Legacy Support.
- ▶▶ Disabled Disable USB Legacy Support. (Default value)

☞ **Onboard 1394 Function**

- ▶▶ Enabled Enable onboard 1394 function. (Default value)
- ▶▶ Disabled Disable onboard 1394 function.

☞ **SiS Serial ATA Controller**

- ▶▶ Enabled Enable SiS Serial ATA Controller.(Default value)
- ▶▶ Disabled Disable SiS Serial ATA Controller.

☞ **SiS Serial ATA Mode**

- ▶▶ IDE Set SiS Serial ATA Mode to IDE.
- ▶▶ RAID Set SiS Serial ATA Mode to RAID (Default value).

☞ **Onboard Serial Port 1**

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

☞ **Onboard Parallel Port**

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

☞ **Parallel Port Mode**

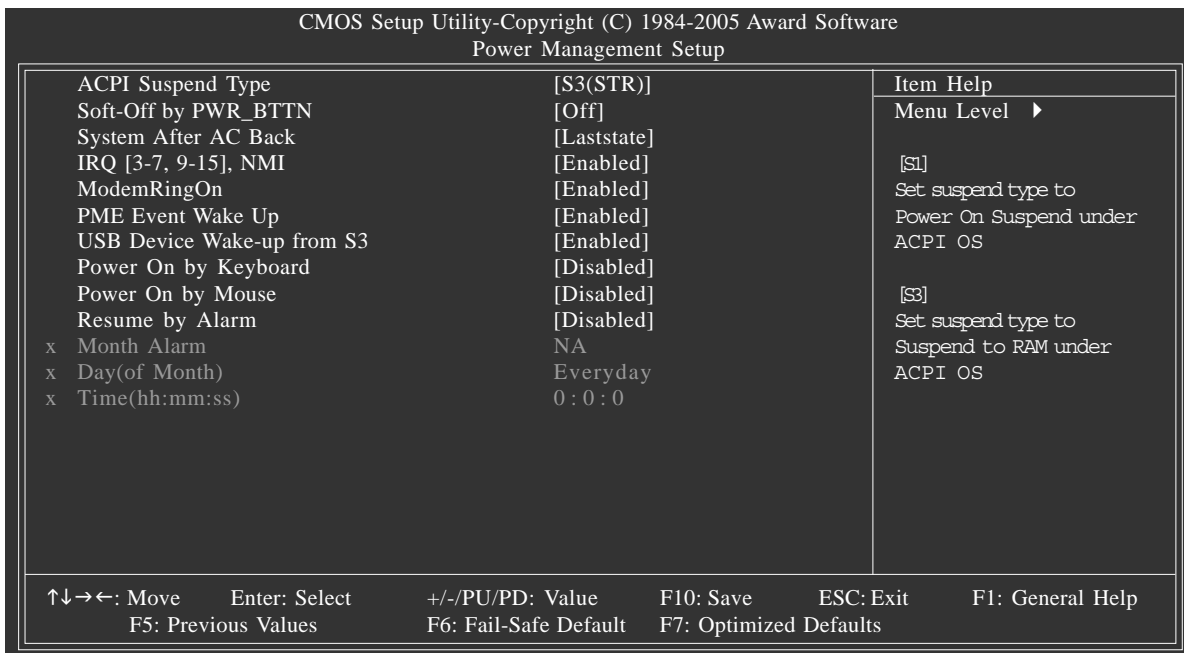
- ▶▶ SPP Use Parallel port as Standard Parallel Port.
- ▶▶ EPP Use Parallel port as Enhanced Parallel Port.
- ▶▶ ECP Use Parallel port as Extended Capabilities Port. (Default value)
- ▶▶ ECP+EPP Use Parallel port as ECP & EPP mode.

☞ **ECP Mode Use DMA**

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

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

2-4 Power Management Setup



ACPI Suspend Type

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

Soft-Off by PWR-BTTN

- ▶▶ Off Press power button to turn off the system instantly. (Default value)
- ▶▶ Suspend Press power button for 4 seconds to turn off the system. The system will enter suspend mode if the button is pressed for less than 4 seconds.

System After AC Back

- ▶▶ Off When AC-power is back to the system, the system will be in "Off" state.
- ▶▶ On When AC-power is back to the system, the system will be always in "On" state.
- ▶▶ Laststate When AC-power is back to the system, the system will return to the last state before AC-power was off.(Default value)

IRQ [3-7, 9-15], NMI

When IRQ [3-7, 9-15] or NMI triggered, the suspend timer will be reloaded to prevent system from getting into green mode.

- ▶▶ Disabled Don't monitor IRQ [3-7, 9-15] or NMI.
- ▶▶ Enabled Monitor IRQ [3-7, 9-15] or NMI. (Default value)

ModemRingOn

- ▶▶ Disabled Disable ModemRingOn function.
- ▶▶ Enabled Enable ModemRingOn function. (Default value)

PME Event Wake Up

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

USB Device Wake-up from S3

- ▶▶ Disabled Disable this function.
- ▶▶ Enabled Enable USB device wake-up from S3. (Default value)

☞ **Power On by Keyboard**

- ▶▶ Password Enter one to five characters to set the Keyboard Power On password.
- ▶▶ Disabled Disabled this function. (Default value)
- ▶▶ Any Key Press any key to turn on the computer.

☞ **Power On by Mouse**

- ▶▶ Disabled Disable this function. (Default value)
- ▶▶ Enabled Move or click the mouse to turn on the computer.

☞ **Resume by Alarm**

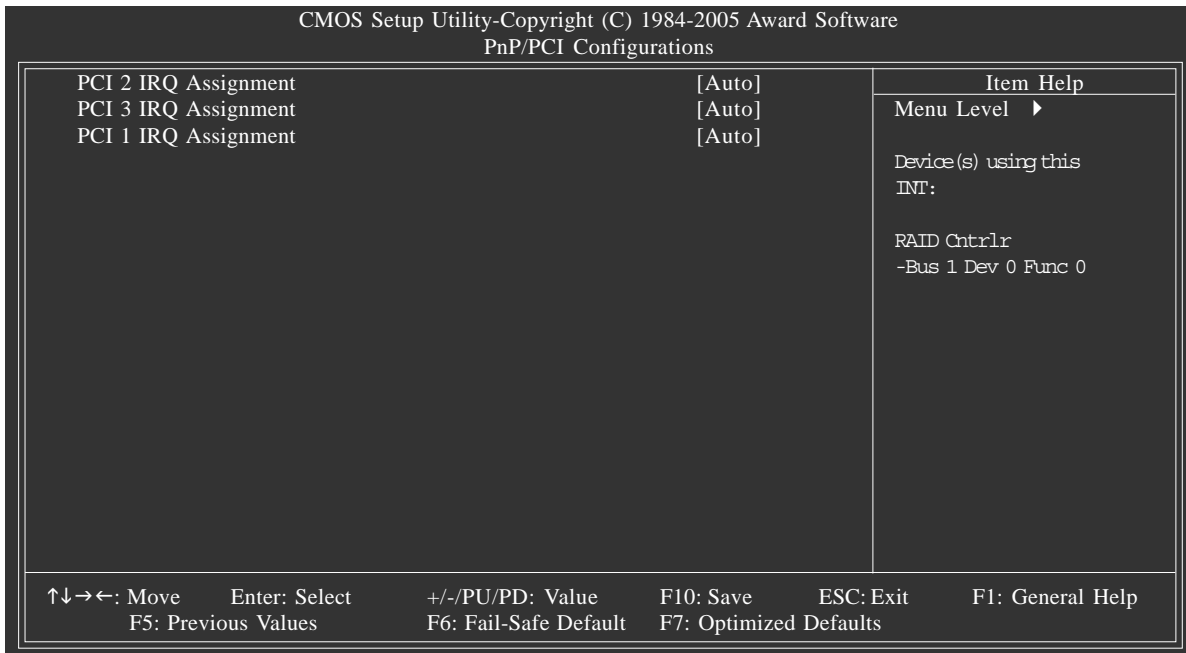
You can enable **Resume by Alarm** and set date/time to turn on your system.

- ▶▶ Disabled Disable this function. (Default value)
- ▶▶ Enabled Enable **Resume by Alarm** function to turn on system.

If **Resume by Alarm** is Enabled:

- ▶▶ Month Alarm: N/A, 1~12
- ▶▶ Day (of Month): Everyday, 1~31
- ▶▶ Time (hh: mm: ss): (0~23) : (0~59) : (0~59)

2-5 PnP/PCI Configurations



☞ 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.

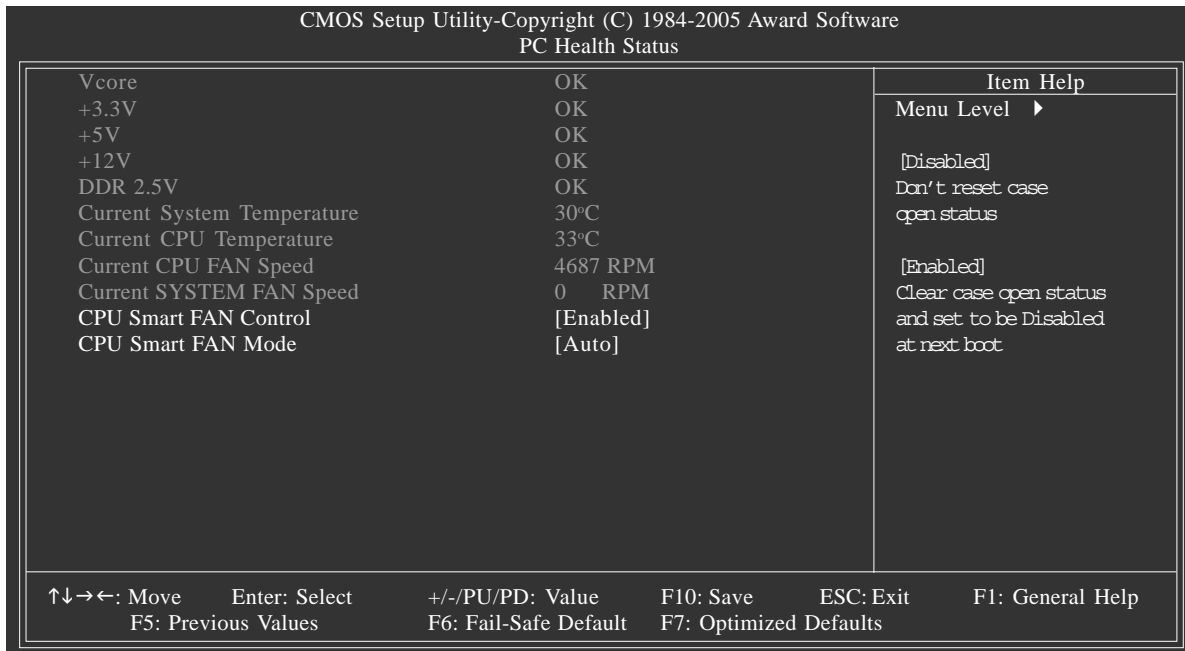
☞ PCI 3 IRQ Assignment

- ▶▶ 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.

☞ 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.

2-6 PC Health Status



☞ Current Voltage(V) Vcore / DDR 2.5V / +3.3V / +12V / +5V

▶▶ Detect system's voltage status automatically.

☞ Current CPU/SYSTEM Temperature

▶▶ Detect CPU/System temperature automatically.

☞ Current CPU/SYSTEM FAN Speed (RPM)

▶▶ Detect CPU/SYSTEM fan speed status automatically.

☞ CPU Smart FAN Control

- ▶▶ Eabled Enable the **CPU Smart FAN Control** function. (Default Value)
 - a. When the CPU temperature is higher than 65 degrees Celsius, CPU fan will operate at full speed.
 - b. When the CPU temperature is between 20 and 65 degrees Celsius, the CPU fan speed will change depending on the actual CPU temperature.
 - c. When the CPU temperature is lower than 20 degrees Celsius, CPU fan will stop spinning.
- ▶▶ Disabled Disable the **CPU Smart FAN Control** function.

☞ CPU Smart FAN Mode

This option is available only when **CPU Smart FAN Control** is enabled.

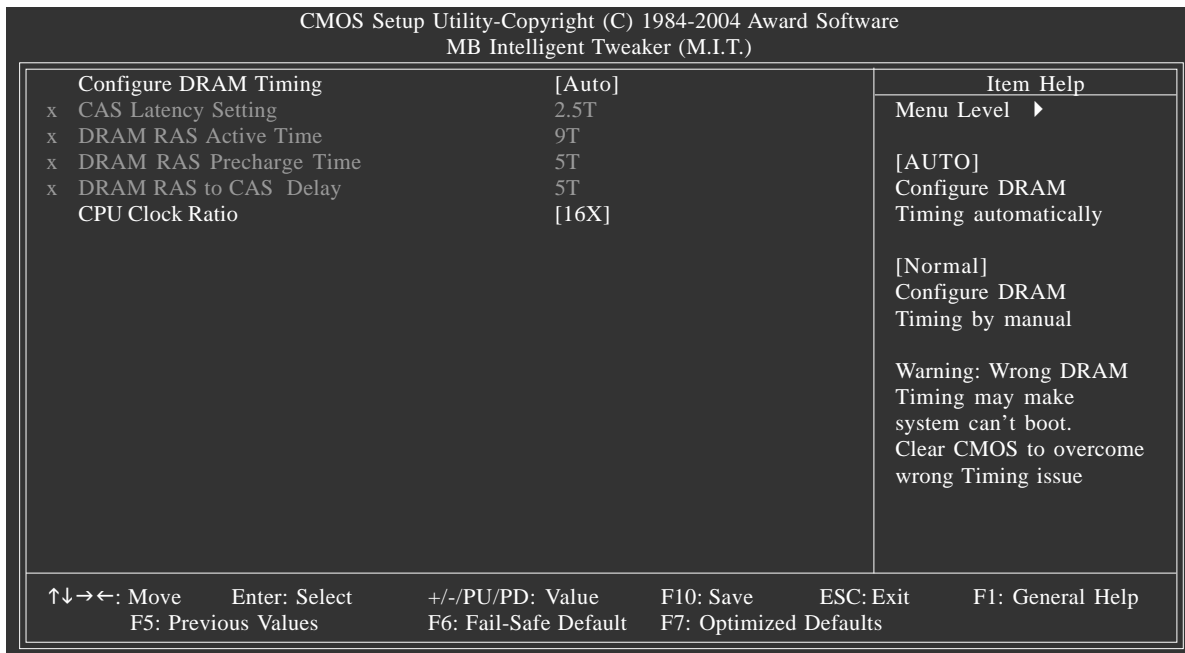
- ▶▶ Auto BIOS autodetects the type of CPU fan you installed and sets the optimal CPU Smart FAN control mode for it. (Default Value)
- ▶▶ Voltage Set to Voltage when you use a CPU fan with a 3-pin fan power cable.
- ▶▶ PWM Set to PWM when you use a CPU fan with a 4-pin fan power cable.



NOTE

In fact, the Voltage option can be used for CPU fans with 3-pin or 4-pin power cables. However, some 4-pin CPU fan power cables are not designed following Intel 4-wire fans PWM control specifications. With such CPU fans, selecting PWM will not effectively reduce the fan speed.

2-7 MB Intelligent Tweaker (M.I.T.)



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

☞ Configure DRAM Timing

- ▶▶ Auto BIOS will automatically set up the DRAM Timing by DRAM SPD data. (Default value)
- ▶▶ Manual This item allows user to set DRAM Timing manually.

☞ CAS Latency Setting

- ▶▶ 2T/2.5T/3T Set CAS Latency to 2T/2.5T/3T (Default value is 3T).
- ▶▶ Auto BIOS will automatically detect CAS Latency.

☞ DRAM RAS Active Time

- ▶▶ 4T/5T/6T/7T/8T/9T Set DRAM RAS Active Time to 4T/5T/6T/7T/8T/9T. (Default value:9T)

☞ DRAM RAS Precharge Time

- ▶▶ 3T/2T/4T/5T Set DRAM RAS Precharge time to 2T/3T/4T/5T. (Default value:5T)

☞ DRAM RAS to CAS Delay

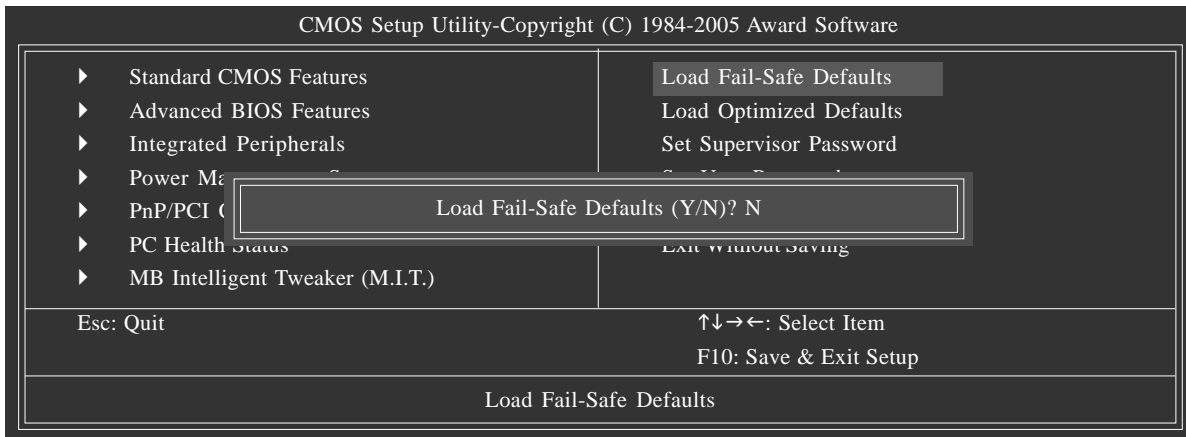
- ▶▶ 3T/2T/4T/5T Set DRAM RAS to CAS Delay to 3T/2T/4T/5T. (Default value:5T)

☞ CPU Clock Ratio (MHz)

This setup option will be automatically assigned by CPU detection.

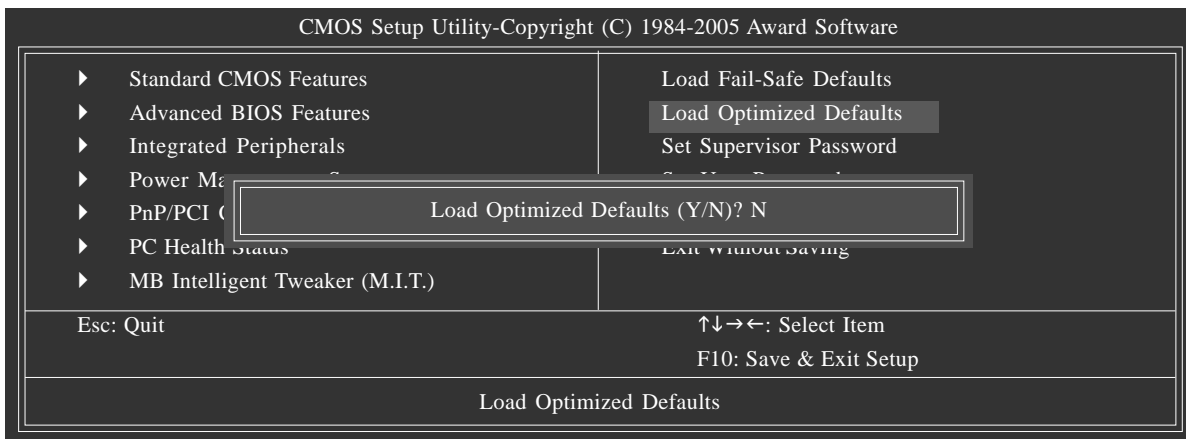
The option will display "Locked" and read only if the CPU ratio is not changeable.

2-9 Load Fail-Safe Defaults



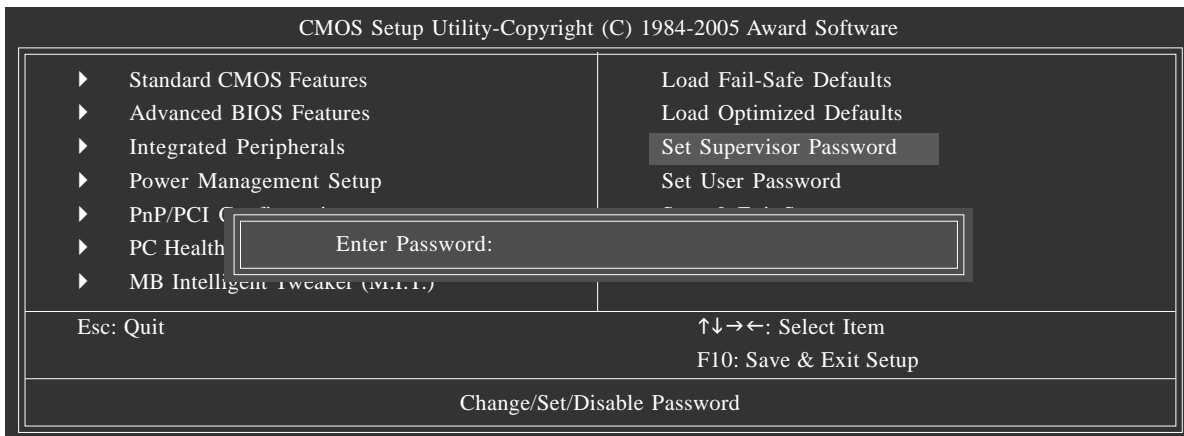
Fail-Safe defaults contain the most appropriate values of the system parameters that allow minimum system performance.

2-10 Load Optimized Defaults



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

2-11 Set Supervisor/User Password



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

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.

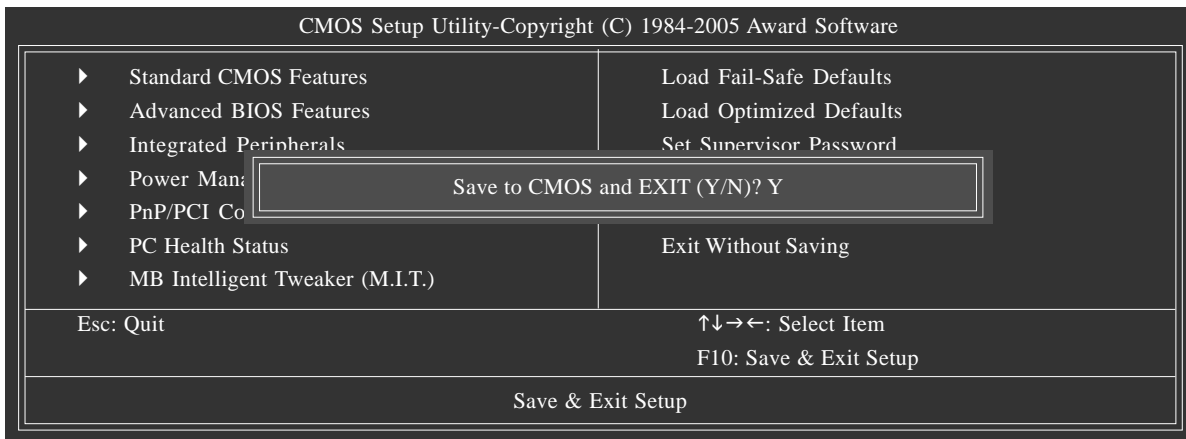
The BIOS Setup program allows you to specify two separate passwords:

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.

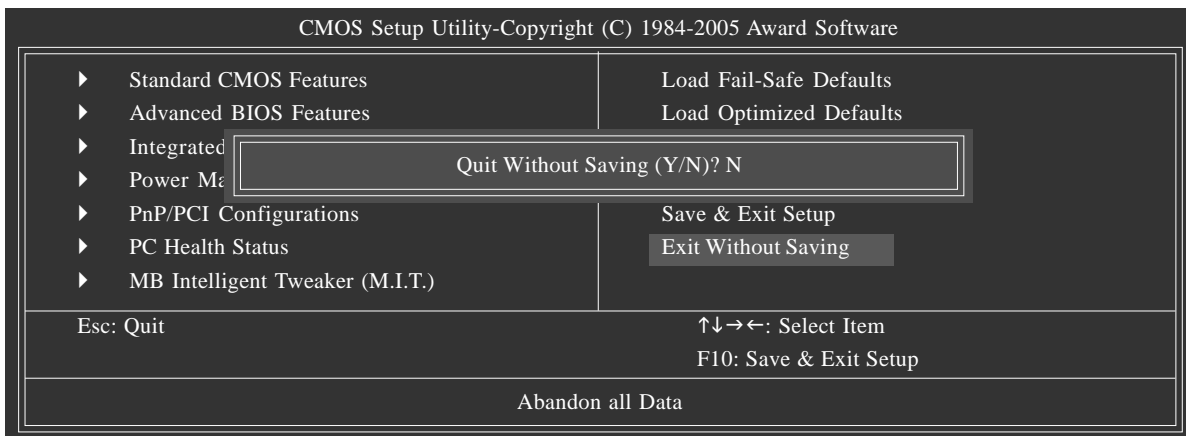
If you select "Setup" at "Password Check" in Advance BIOS Features Menu, you will be prompted only when you try to enter Setup.

2-12 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.

2-13 Exit Without Saving



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