GA-7N400S / GA-7N400S-L

AMD Sempron™ / Athlon™ XP / Athlon™ / Duron™ Socket A Processor Motherboard

User's Manual

Rev. 1003
12ME-7N400S-1003

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)

Motherboard
GA-7N400S

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

☐ EN 55011	Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM) high frequency equipment	☒ EN 61000-3-2 Disturbances in supply systems caused by household appliances and similar electrical equipment "Voltage fluctuations"
		☒ EN 61000-3-3
☐ EN 55013	Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment	☒ EN 55024 Information Technology equipment-Immunity characteristics-Limits and methods of measurement
☐ EN 55014-1	Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, portable tools and similar electrical apparatus	☐ EN 50082-1 Generic immunity standard Part 1: Residual, commercial and light industry
		☐ EN 50082-2 Generic immunity standard Part 2: Industrial environment
☐ EN 55015	Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaries	☐ EN 55014-2 Immunity requirements for household appliances tools and similar apparatus
☐ EN 55020	Immunity from radio interference of broadcast receivers and associated equipment	☐ EN 50091-2 EMC requirements for uninterruptible power systems (UPS)
☒ EN 55022	Limits and methods of measurement of radio disturbance characteristics of information technology equipment	
☐ DIN VDE 0855 ☐ part 10 ☐ part 12	Cabled distribution systems; Equipment for receiving and/or distribution from sound and television signals	
☒ CE marking	CE (EC conformity marking)	

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

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

Manufacturer/Importer

Signature : *Timmy Huang*

Name : Timmy Huang

(Stamp)   Date : Oct. 18, 2004

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: GA-7N400S

Conforms to the following specifications:

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

Supplementary Information:

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

Representative Person's Name: ERIC LU

Signature: *Eric Lu*

Date: Oct. 18, 2004

Copyright

Notice

Product Manual Classification

In order to assist in the use of this product, Gigabyte has categorized the user manual in the following:

- ■ For quick installation, please refer to the "Hardware Installation Guide" included with the product.

- ■ For detailed product information and specifications, please carefully read the "Product User Manual".

- ■ For detailed information related to Gigabyte's unique features, please go to the "Technology Guide" section on Gigabyte's website to read or download the information you need.
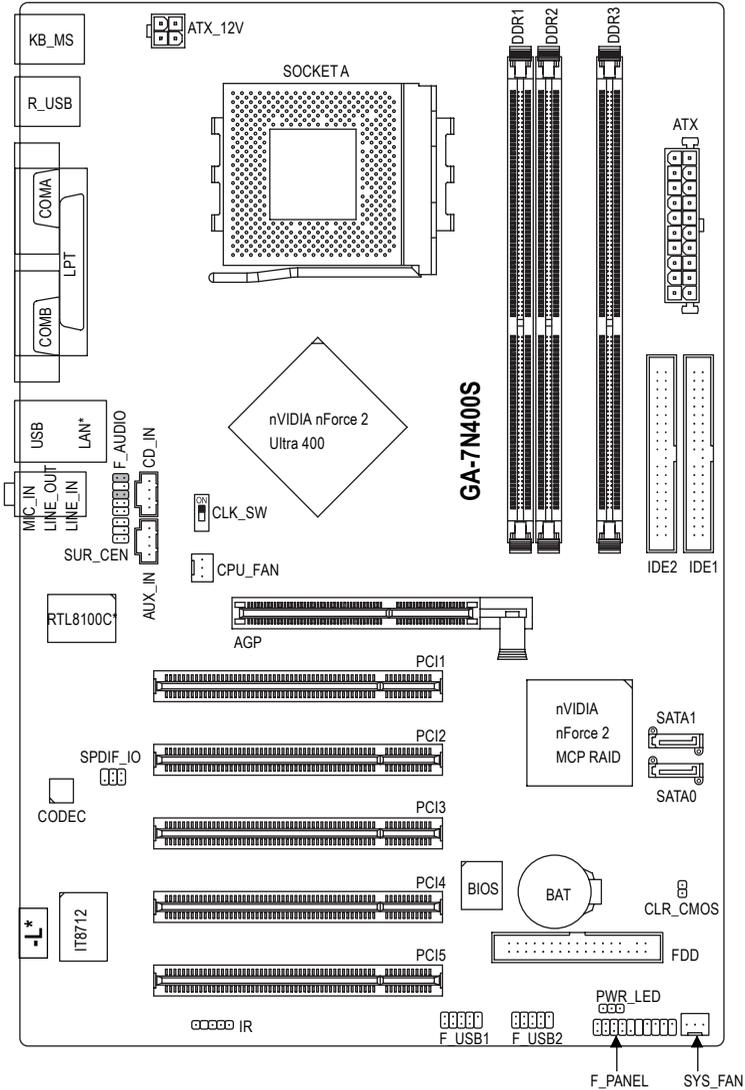
Fore more product details, please click onto Gigabyte's website at www.gigabyte.com.tw

Table of Contents

GA-7N400S/GA-7N400S-L Motherboard Layout

* Only for GA-7N400S-L.

Block Diagram

AMD-K7 CPU

CPUCLK+/-(100/133/166/200MHz)

AGP 4X/8X

DDR 400/333/266MHz DIMM

nVIDIA nForce 2 Ultra 400

DDR

AGPCLK 66MHz

HCLK+/- (100/133/166/200MHz)

NBGCLK 66 MHz

RJ45*

5 PCI

RTL8100C*

33MHz
14.318MHz
48MHz

PCI Bus 33MHz

nVIDIA nForce 2 MCP RAID

BIOS

AC97 Link

IT8712

Floppy

LPT Port

2 COM Ports

PCICLK (33MHz)

CODEC

2 Serial ATA

8 USB Ports

ATA33/66/100/ 133 IDE Channels

24MHz

33MHz

PS/2 KB/Mouse

Mic In

Line In

Line Out

* Only for GA-7N400S-L.

Chapter 1 Hardware Installation

1-1 Considerations Prior to Installation

Preparing Your Computer

The motherboard contains numerous delicate electronic circuits and components which can become damaged as a result of electrostatic discharge (ESD). Thus, prior to installation, please follow the instructions below:

1. Please turn off the computer and unplug its power cord.
2. When handling the motherboard, avoid touching any metal leads or connectors.
3. It is best to wear an electrostatic discharge (ESD) cuff when handling electronic components (CPU, RAM).
4. Prior to installing the electronic components, please have these items on top of an antistatic pad or within a electrostatic shielding container.
5. Please verify that the power supply is switched off before unplugging the power supply connector from the motherboard.

Installation Notices

1. Prior to installation, please do not remove the stickers on the motherboard. These stickers are required for warranty validation.
2. Prior to the installation of the motherboard or any hardware, please first carefully read the information in the provided manual.
3. Before using the product, please verify that all cables and power connectors are connected.
4. To prevent damage to the motherboard, please do not allow screws to come in contact with the motherboard circuit or its components.
5. Please make sure there are no leftover screws or metal components placed on the motherboard or within the computer casing.
6. Please do not place the computer system on an uneven surface.
7. Turning on the computer power during the installation process can lead to damage to system components as well as physical harm to the user.
8. If you are uncertain about any installation steps or have a problem related to the use of the product, please consult a certified computer technician.

Instances of Non-Warranty

1. Damage due to natural disaster, accident or human cause.
2. Damage as a result of violating the conditions recommended in the user manual.
3. Damage due to improper installation.
4. Damage due to use of uncertified components.
5. Damage due to use exceeding the permitted parameters.
6. Product determined to be an unofficial Gigabyte product.
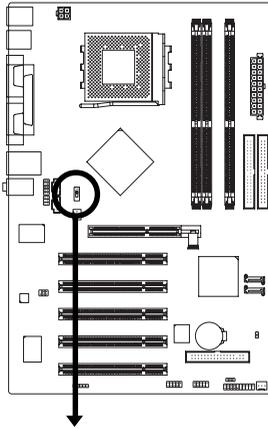
1-2   Feature Summary

Motherboard	◆ GA-7N400S or GA-7N400S-L
CPU	◆ Socket A for AMD Sempron™ / Athlon™ XP / Athlon™ / Duron™ processor
	◆ Supports 200/266/333/400MHz FSB
	◆ Supports 1.4GHz and faster
Chipset	◆ Northbridge: nVIDIA® nForce™ 2 Ultra 400
	◆ Southbridge: nVIDIA® nForce™ 2 MCP RAID
Memory	◆ 3 DDR DIMM memory slots (supports up to 3GB memory)
	◆ Supports dual channel DDR 400/333/266 DIMM
	◆ Supports 2.5V DDR DIMM
Slots	◆ 1 AGP slot supoorts 8X/4X(1.5V) mode
	◆ 5 PCI slots
IDE Connections	◆ 2 IDE connections (UDMA 33/ATA 66/ATA 100/ATA 133), allows connection of 4 IDE devices
FDD Connections	◆ 1 FDD connection, allows connection of 2 FDD devices
Onboard SATA	◆ 2 Serial ATA ports from nVIDIA® nForce™ 2 MCP RAID (SATA0, SATA1)
	◆ Supports data striping (RAID 0) or mirroring (RAID 1) function
Peripherals	◆ 1 parallel port supporting Normal/EPP/ECP mode
	◆ 2 serial ports (COMA, COMB)
	◆ 8 USB 2.0/1.1 ports (rear x 4, front x 4 via cable)
	◆ 1 front audio connector
	◆ 1 IR connector
	◆ 1 PS/2 keyboard port
	◆ 1 PS/2 mouse port
Onboard LAN*	◆ Onboard RTL8100C chip (10/100 Mbit)*
	◆ 1 RJ 45 port*
Onboard Audio	◆ ALC655 CODEC
	◆ Supports Jack Sensing function
	◆ Supports 2 / 4 / 6 channel audio
	◆ Supports Line In (Rear Speaker Out) ; Line Out (Front Speaker Out) ; MIC In (Center/Subwoofer Speaker Out)
	◆ SPDIF In/Out connection
	◆ CD In/Aux In connection
I/O Control	◆ IT8712
Hardware Monitor	◆ System voltage detection
	◆ CPU / System temperature detection
	◆ CPU / System fan speed detection
	◆ Thermal shutdown function
BIOS	◆ Use of licensed AWARD BIOS
	◆ Supports Q-Flash
Additional Features	◆ Supports @BIOS
	◆ Supports EasyTune 5 (Note)
Overclocking	◆ Over Clock via BIOS (CPU/ DDR/ AGP)
Form Factor	◆ ATX form factor; 30.5cm x 21.0cm

* Only for GA-7N400S-L.

(Note) If you want to use EasyTune utility, please set **Memory Frequency** under **Advanced Chipset Features** to **Auto** in BIOS Setup (refer to page 34). You also have to use DDR memory module(s) with frequencies equal to or faster than the FSB frequency of the CPU you install. For example, when using a CPU with 333Mhz FSB, you have to install DDR333 or DDR400 memory module(s).

1-3 Set System Clock (CLK_SW)

The system bus frequency can be switched at 100/133/166/200MHz by adjusting CLK_SW.
(The internal frequency depend on CPU.)

ON

ON: Auto (133/166/200MHz, supports the 266/333/400MHz FSB CPU, Default)

OFF

ON

OFF: FORCE 100MHz (supports the 200MHz FSB CPU)

OFF

When you use a CPU with 200MHz FSB, please do set the CLK_SW to OFF (100MHz).

CAUTION

CLK_SW
Default setting: ON

1-4 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.

1-4-1 Installation of the CPU

Position lever at a
90-degree angle

Pin 1(indented corner)
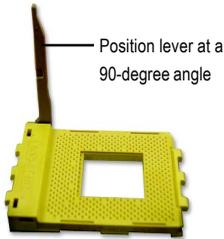
indented corner

Fig. 1

Gently lift the CPU socket lever and up to a 90-degree angle.
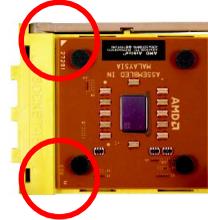
Fig. 2

A gold-colored triangle is marked one edge of the CPU. Please align this edge with the socket edge closest to the CPU lever. Gently place the CPU into position making sure that the CPU pins fit perfectly into their holes.

Once the CPU is positioned into it socket, gently press the metal lever back into its original position.

NOTE A Socket A CPU has two indented corners and these corners must be properly positioned during installation.

1-4-2 Installation of the Heatsink

Fig. 1

Before installing the heat sink, please first add an even layer of heat sink paste on the surface of the CPU. Install all the heat sink components (Please refer to the heat sink manual for detailed installation instructions).

Fig. 2

Please connect the heat sink power connector to the CPU_FAN connector located on the motherboard so that the heat sink can properly function to prevent CPU overheating.

NOTE 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.

1-5   Installation of Memory

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

CAUTION

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.

Notch

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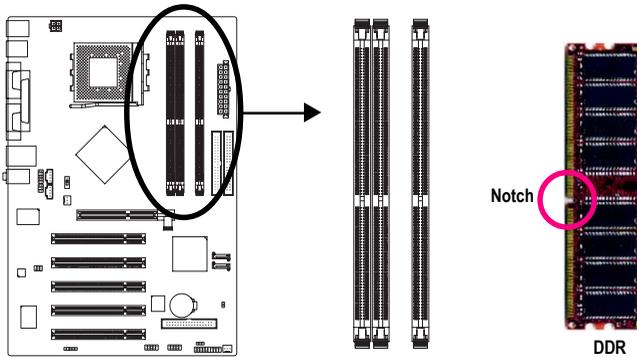
Fig.1
The DIMM socket has a notch, so the DIMM memory module can only fit in one direction. Insert the DIMM memory module vertically into the DIMM socket. Then push it down.

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

Dual Channel DDR

GA-7N400S / GA-7N400S-L supports the Dual Channel Technology. After operating the Dual Channel Technology, the bandwidth of Memory Bus will add double up to 6.4GB/s(DDR400) or 5.3GB/s(DDR333).

GA-7N400S / GA-7N400S-L includes 3 DIMM sockets as following:
- Channel A : DDR 1, DDR 2
- Channel B : DDR 3

If you want to operate the Dual Channel Technology, please note the following explanations due to the limitation of Intel chipset specifications.

1. Dual channel memory cannot be used if one DDR memory module is installed.
2. If two DDR memory modules are installed (same storage capacity), one must be added to the Channel A slot and the other in the Channel B slot in order to use dual channel memory. Dual channel memory cannot function if both DDR memory modules are installed on the same channel.
3. If three DDR memory modules are installed, please use memory of the same storage capacity in order to use dual channel memory and for BIOS to detect all the DDR memory modules.

We'll strongly recommend our user to slot two DDR memory modules into the DIMMs with the same color in order for Dual Channel Technology to work.

The following table is for Dual Channel Technology combination: (DS: Double Side, SS: Single Side)

	DDR 1	DDR 2	DDR 3
2 memory module	DS/SS	X	DS/SS
	X	DS/SS	DS/SS
3 memory module	DS/SS	DS/SS	DS/SS

1-6   Installation of Expansion Cards

You can install your expansion card by following the steps outlined below:

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

Installing a AGP VGA card:

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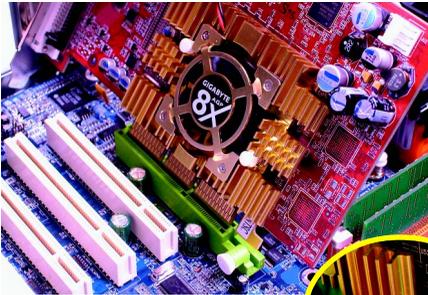
Please carefully pull out the small white-drawable bar at the end of the AGP slot when you try to install/uninstall the VGA card. Please align the VGA card to the onboard AGP slot and press firmly down on the slot. Make sure your VGA card is locked by the small white-drawable bar.

1-7   I/O Back Panel Introduction
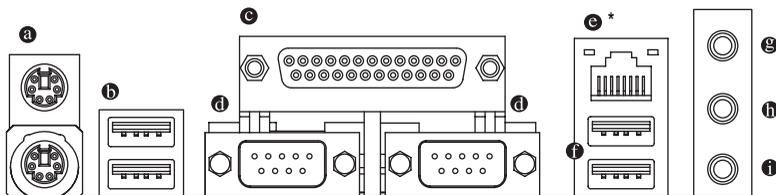
ⓐ **PS/2 Keyboard and PS/2 Mouse Connector**

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

ⓑ ⓕ **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 ven dor for possible patch or driver upgrade. For more information please contact your OS or device(s) vendors.

ⓒ **Parallel Port**

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

ⓓ **COM A / COM B (Serial Port)**

Connects to serial-based mouse or data processing devices.

ⓔ **LAN Port ***

The provided Internet connection is fast Ethernet, providing data transfer speeds of 10/100Mbps.

ⓖ **Line In**

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

ⓗ **Line Out**

Connect the stereo speakers or earphone to this connector.

ⓘ **MIC In**

Microphone can be connected to MIC In jack.

You can use audio software to configure 2-/4-/6-channel audio functioning.

* Only for GA-7N400S-L.

1-8 Connectors Introduction
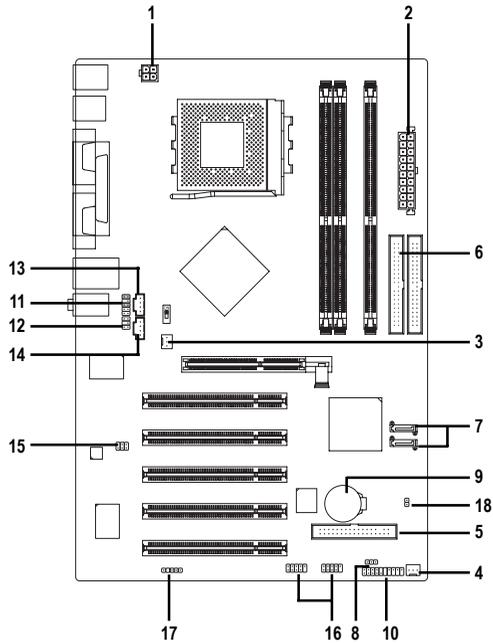
1)	ATX_12V	10)	F_PANEL
2)	ATX (Power Connector)	11)	F_AUDIO
3)	CPU_FAN	12)	SUR_CEN
4)	SYS_FAN	13)	CD_IN
5)	FDD	14)	AUX_IN
6)	IDE1 / IDE2	15)	SPDIF_IO
7)	SATA0 / SATA1	16)	F_USB1 / F_USB2
8)	PWR_LED	17)	IR
9)	BAT	18)	CLR_CMOS

1/2) ATX_12V / ATX (Power Connector)

With the use of the power connector, the power supply can supply enough stable power to all the components on the motherboard. Before connecting the power connector, please make sure that all components and devices are properly installed. Align the power connector with its proper location on the motherboard and connect tightly. The ATX_12V power connector mainly supplies power to the CPU. If the ATX_12V power connector is not connected, the system will not start.

Caution!

Please use a power supply that is able to handle the system voltage requirements. It is recommended that a power supply that can withstand high power consumption be used (300W or greater). If a power supply is used that does not provide the required power, the result can lead to an unstable system or a system that is unable to start.
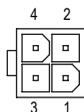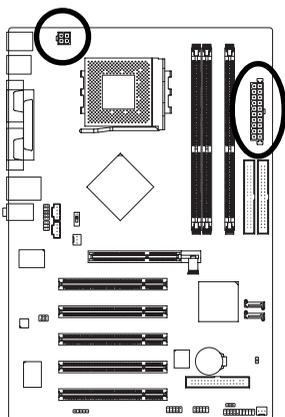
Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V
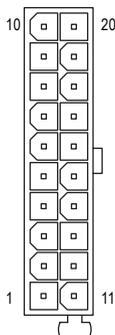
Pin No.	Definition
1	3.3V
2	3.3V
3	GND
4	VCC
5	GND
6	VCC
7	GND
8	Power Good
9	5V SB (stand by +5V)
10	+12V
11	3.3V
12	-12V
13	GND
14	PS_ON(soft on/off)
15	GND
16	GND
17	GND
18	-5V
19	VCC
20	VCC

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

The cooler fan power connector supplies a +12V power voltage via a 3-pin 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.

1

CPU_FAN

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

1

SYS_FAN
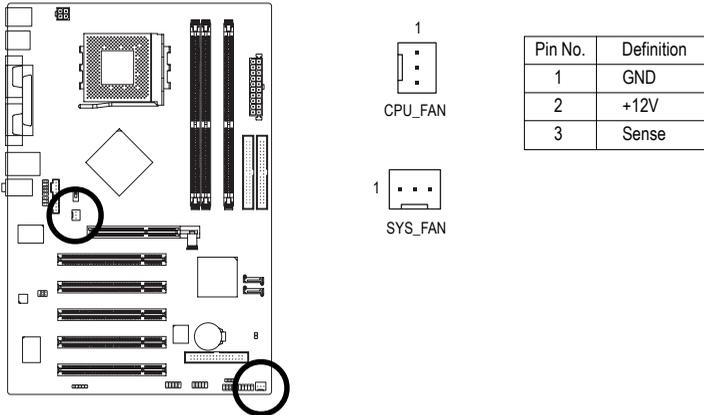
5) FDD (FDD Connector)

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.

33   1

34   2
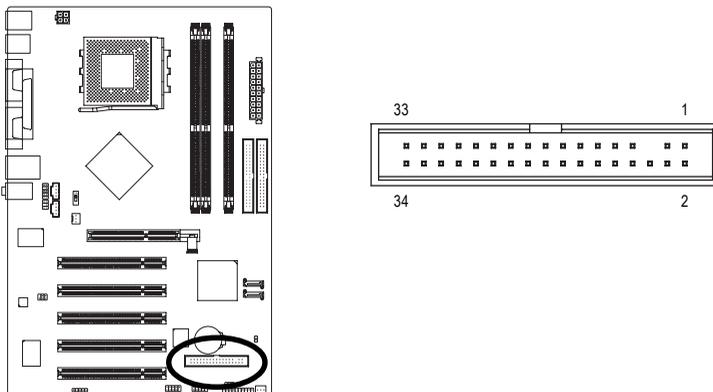
6) IDE1 / IDE2 (IDE Connector)

An IDE device connects to the computer via an IDE connector. One IDE connector can connect to one IDE cable, and the single IDE cable can then connect to two IDE devices (hard drive or optical drive). If you wish to connect two IDE devices, please set the jumper on one IDE device as Master and the other as Slave (for information on settings, please refer to the instructions located on the IDE device).
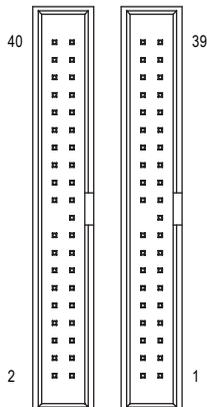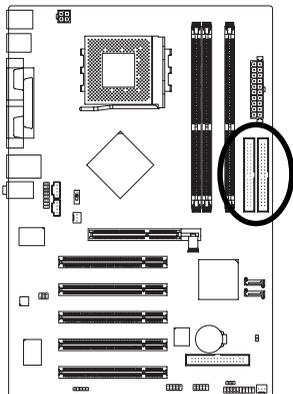
7) SATA0 / SATA1 (Serial ATA Connector)

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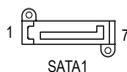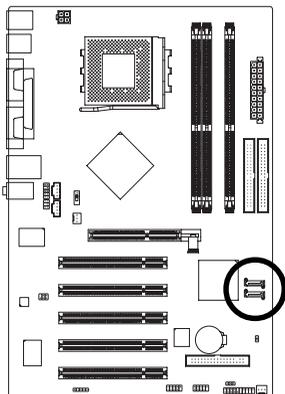
Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

8) 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.

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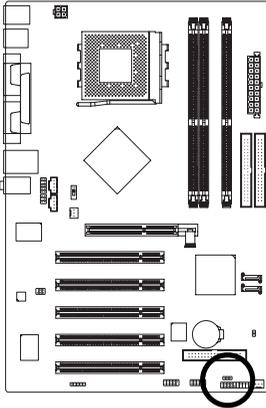
Pin No.	Definition
1	MPD+
2	MPD-
3	MPD-

9) BAT(Battery)
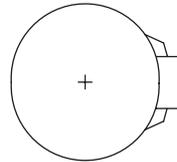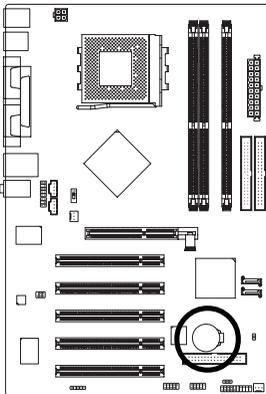
❖ Danger of explosion if battery is incorrectly replaced.

❖ 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. Take out the battery gently and put it aside for about 10 minutes.
3. Re-install the battery.
4. Plug the power cord and turn ON the computer.

10) F_PANEL (Front Panel Jumper)

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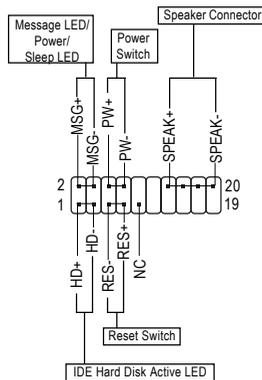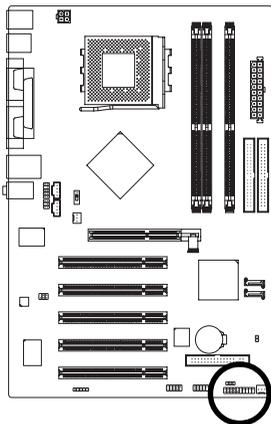
MSG (Message LED/Power/Sleep LED)	Pin 1: LED anode(+)
	Pin 2: LED cathode(-)
PW (Power Switch)	Open: Normal Operation
	Close: Power On/Off
SPEAK (Speaker Connector)	Pin 1: VCC(+)
	Pin 2- Pin 3: NC
	Pin 4: Data(-)
HD (IDE Hard Disk Active LED)	Pin 1: LED anode(+)
	Pin 2: LED cathode(-)
RES (Reset Switch)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

11) F_AUDIO (Front Audio Panel 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.
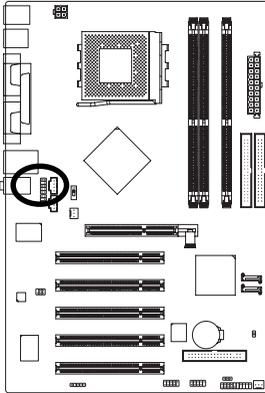
Pin No.	Definition
1	MIC
2	GND
3	MIC_BIAS
4	Power
5	Front Audio (R)
6	Rear Audio (R)
7	Reserved
8	No Pin
9	Front Audio (L)
10	Rear Audio (L)

12) SUR_CEN (Surround Center Connector)

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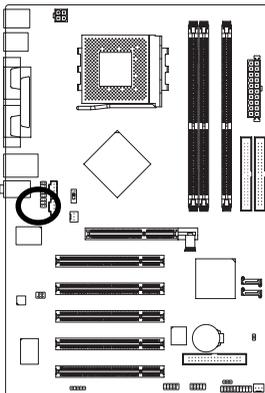
Pin No.	Definition
1	SUR OUTL
2	SUR OUTR
3	GND
4	No Pin
5	CENTER_OUT
6	LFE_OUT

13/14) CD_IN (CD In Connector, black) / AUX_IN (AUX In Connector, white)

Connect CD-ROM or DVD-ROM audio out to the CD_IN connector. Connect other device(such as PCI TV Tunner audio out) to the AUX_IN connector.

(CD_IN, black)
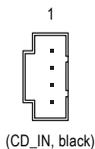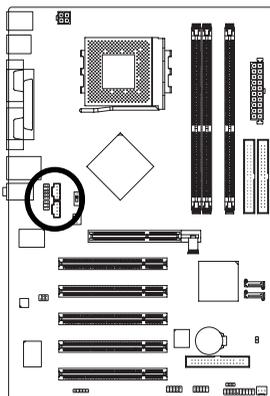
Pin No.	Definition
1	CD-L
2	GND
3	GND
4	CD-R

(AUX_IN, white)
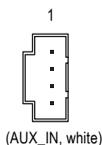
Pin No.	Definition
1	AUX-L
2	GND
3	GND
4	AUX-R

15) 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_IO cable, please contact your local dealer.
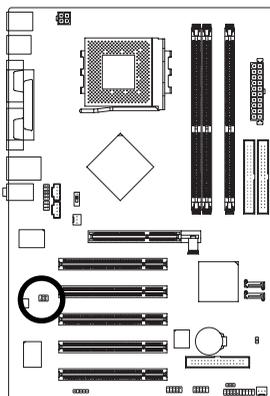
Pin No.	Definition
1	VCC
2	No Pin
3	SPDIF
4	SPDIFI
5	GND
6	GND

16) 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.

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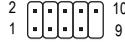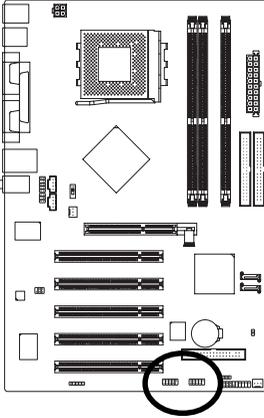
Pin No.	Definition
1	Power
2	Power
3	USB DX-
4	USB Dy-
5	USB DX+
6	USB Dy+
7	GND
8	GND
9	No Pin
10	NC

17) IR

Be careful with the polarity of the IR connector while you connect the IR. Please contact your nearest dealer for optional IR device.

1
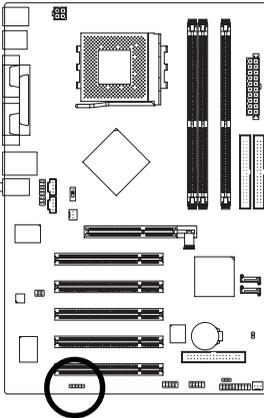
Pin No.	Definition
1	VCC
2	No Pin
3	IR RX
4	GND
5	IR TX

18) 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.
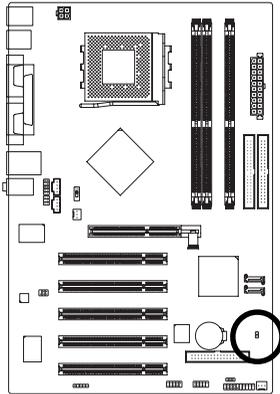
Open: Normal

Short: Clear CMOS

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 <Del> 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.

CMOS Setup Utility-Copyright (C) 1984-2004 Award Software	
▶ Standard CMOS Features	Load Fail-Safe Defaults
▶ Advanced BIOS Features	Load Optimized Defaults
▶ Advanced Chipset Features	Set Supervisor Password
▶ Integrated Peripherals	Set User Password
▶ Power Management Setup	Save & Exit Setup
▶ PnP/PCI Configurations	Exit Without Saving
▶ PC Health Status	
ESC: Quit	↑↓→←: Select Item
F8: Q-Flash	F10: Save & Exit Setup
Time, Date, Hard Disk Type...	

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.

■ **Advanced Chipset Features**

This setup page includes all the items of Chipset 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.

■ **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.

2-1 Standard CMOS Features

```
CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
                    Standard CMOS Features
   Date (mm:dd:yy)                    Tue, Sep  21  2004      Item Help
   Time (hh:mm:ss)                    22:31:24                Menu Level▶

►  IDE Channel 0 Master              [None]                   Change the day, month,
►  IDE Channel 0 Slave               [None]                   year
►  IDE Channel 1 Master              [None]
►  IDE Channel 1 Slave               [None]                   <Week>
►  IDE Channel 2 Master              [None]                   Sun. to Sat.
►  IDE Channel 3 Master              [None]
                                                              <Month>
   Drive A                           [1.44M, 3.5"]            Jan. to Dec.
   Drive B                           [None]
   Floppy 3 Mode Suport              [Disabled]               <Day>
                                                              1 to 31 (or maximum
   Halt On                           [All, But Keyboard]      allowed in the month)

   Base Memory                       640K                     <Year>
   Extended Memory                   239M                     1999 to 2098
   Total Memory                      240M
↑↓→←: Move     Enter: Select    +/-/PU/PD: Value    F10: Save     ESC: Exit    F1: General Help
     F5: Previous Values         F6: Fail-Save Defaults          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 Channel 0 Master/Slave; IDE Channel 1 Master/Slave; IDE Channel 2/3 Master**

- ▶ IDE HDD Auto-Detection Press "Enter" to select this option for automatic device detection.
- ▶ IDE Channel 0 Master/Slave; IDE Channel 1 Master/Slave; IDE Channel 2/3 Master
  IDE and SATA devices setup. You can use one of three methods:
  - Auto   Allows BIOS to automatically detect IDE devices during POST. (Default value)
  - None   Select this if no IDE devices are used and the system will skip the automatic detection step and allow for faster system start up.
  - Manual   User can manually input the correct settings.
- ▶ Access Mode Use this to set the access mode for the hard drive. The four options are:
                 CHS/LBA/Large/Auto(default:Auto)

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

- ▶ 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.

▶ **Total Memory**

This item displays the memory size that used.

2-2   Advanced BIOS Features

```
                     CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
                                   Advanced BIOS Features
┌─────────────────────────────────────────────────────────────────────────────┐
│  ▶  Hard Disk Boot Priority              [Press Enter]        Item Help        │
│     First Boot Device                    [Floppy]             Menu Level▶      │
│     Second Boot Device                   [Hard Disk]                           │
│     Third Boot Device                    [CDROM]              Select Hard Disk Boot │
│     Boot Up Floppy Seek                  [Disabled]           Device Priority  │
│     Password Check                       [Setup]                               │
│     Init Display First                   [PCI Slot]                            │
│                                                                               │
│                                                                               │
│                                                                               │
│                                                                               │
│                                                                               │
│                                                                               │
│                                                                               │
│                                                                               │
├─────────────────────────────────────────────────────────────────────────────┤
│  ↑↓→←: Move     Enter: Select      +/-/PU/PD: Value    F10: Save   ESC: Exit   F1: General Help │
│       F5: Previous Values          F6: Fail-Save Defaults         F7: Optimized Defaults │
└─────────────────────────────────────────────────────────────────────────────┘
```

☞ **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	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**
  ▶ 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.

☞ **Init Display First**
  This feature allows you to select the first initiation of the monitor display from which card when you
  install an AGP card and a PCI VGA card on board.
  ▶ PCI Slot   Set initial display first to PCI slot. (Default value)
  ▶ Onboard/AGP   Set initial display first to AGP.

2-3 Advanced Chipset Features

```
                    CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
                                 Advanced Chipset Features
     System Performance              [Normal]                     Item Help
     FSB Frequency                   [100MHz]                     Menu Level▶
  x  Memory Frequency                By SPD
     Resulting Frequency             266MHz                       [Normal]
     AGP Frequency                   [Normal]                     Use the most stable settings

                                                                  [Turbo]
                                                                  Use over clocked settings for
                                                                  higher performance but with
                                                                  higher risk of instability

                                                                  [Manual]
                                                                  Allows full customization of
                                                                  performance options
                                                                  Advanced users only



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

⚠ **CAUTION** Incorrect using these features may cause your system broken. For power end-user use only.

☞ **System Performance**
  ▸ Normal   Set system at the most stable settings. (Default value)
  ▸ Turbo   Use overclock settings for higher performance but with higher risk of instability.
  ▸ Manual   Allows full customization of performance options.

☞ **FSB Frequency**
  ▸ 100MHz   Set FSB frequency at 100MHz. (Default value)
  ▸ 133MHz   Set FSB frequency at 133MHz.
  ▸ 166MHz   Set FSB frequency at 166MHz.
  ▸ 200MHz   Set FSB frequency at 200MHz.

☞ **Memory Frequency (Note)**
  ▸ By SPD   Set memory frequency by SPD. (Default value)
  ▸ 50% ~ 200%   Set memory frequency manually.
  ▸ Auto   Set the best memory frequency for system.

☞ **Resulting Frequency**
  ▸ The value depends on FSB/Memory Frequency settings.

☞ **AGP Frequency**
  ▸ Normal   Set the best AGP frequency for system. (Default value)
  ▸ 50MHz ~ 100MHz   Set AGP frequency manually.

(Note) If you want to use EasyTune utility, please set **Memory Frequency** to **Auto**. You also have to use DDR memory module(s) with frequencies equal to or faster than the FSB frequency of the CPU you install. For example, when using a CPU with 333Mhz FSB, you have to install DDR333 or DDR400 memory module(s).

2-4 Integrated Peripherals

```
                CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
                               Integrated Peripherals
  ▶ IDE Function Setup              [Press Enter]              Item Help
  ▶ RAID Config                     [Press Enter]              Menu Level▶
    OnChip USB                      [V1.1+V2.0]
    USB Keyboard Support            [Disabled]
    USB Mouse Support               [Disabled]
    AC97 Audio                      [Auto]
    Onboard H/W LAN*                [Enabled]
    Onboard Serial Port 1           [3F8/IRQ4]
    Onboard Serial Port 2           [2F8/IRQ3]
    UART Mode Select                [Normal]
  x UR2 Duplex Mode                  Half
    Onboard Parallel Port           [378/IRQ7]
    Parallel Port Mode              [ECP]
    ECP Mode Use DMA                [3]
    Game Port Address               [201]
    Midi Port Address               [Disabled]
  x Midi Port IRQ                    10


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

☞ **IDE Function Setup**

```
                CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
                                IDE Function Setup
    On-Chip Primary PCI IDE         [Enabled]                  Item Help
    On-Chip Secondary PCI IDE       [Enabled]                  Menu Level▶
    Serial ATA                      [Enabled]
    SATA DMA Transfer               [Enabled]
    SATA Spread Spectrum            [Disabled]










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

☞ **On-Chip Primary PCI IDE**

When set at "Enabled", it allows you to use the onboard primary IDE. If a hard disk controller card is used, please set at "Disabled".

▶ Enabled   Enable onboard first channel IDE port. (Default value)
▶ Disabled   Disable onboard first channel IDE port.

☞ **On-Chip Secondary PCI IDE**

When set at "Enabled", it allows you to use the onboard secondary IDE. If a hard disk controller card is used, please set at "Disabled".

▶ Enabled   Enable onboard secondary channel IDE port. (Default value)
▶ Disabled   Disable onboard secondary channel IDE port.

☞ **Serial ATA**

▶ Enabled   Enable Serial ATA controller function. (Default value)
▶ Disabled   Disable this function.

* Only for GA-7N400S-L.

☞ **SATA DMA Transfer**
- ▶ Enabled   Enable Serial ATA transfer function. (Default value)
- ▶ Disabled   Disable this function.

☞ **SATA Spread Spectrum**
- ▶ Enabled   Enable Serial ATA spread spectrum function.
- ▶ Disabled   Disable this function. (Default value)

☞ **RAID Config**

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

 IDE Channel0 Master RAID        [Disabled]          Item Help
 IDE Channel0 Slave RAID         [Disabled]          Menu Level▶
 IDE Channel1 Master RAID        [Disabled]
 IDE Channel1 Slave RAID         [Disabled]
 SATA Primary Master RAID        [Disabled]
 SATA Secndry Master RAID        [Disabled]




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

☞ **IDE Channel0 Master RAID**
- ▶ Enabled   Enable first master channel IDE RAID function.
- ▶ Disabled   Disable this function. (Default value)

☞ **IDE Channel0 Slave RAID**
- ▶ Enabled   Enable first slave channel IDE RAID function.
- ▶ Disabled   Disable this function. (Default value)

☞ **IDE Channel1 Master RAID**
- ▶ Enabled   Enable secondary master channel IDE RAID function.
- ▶ Disabled   Disable this function. (Default value)

☞ **IDE Channel1 Slave RAID**
- ▶ Enabled   Enable secondary slave channel IDE RAID function.
- ▶ Disabled   Disable this function. (Default value)

☞ **SATA Primary Master RAID**
- ▶ Enabled   Enable first SATA RAID function.
- ▶ Disabled   Disable this function. (Default value)

☞ **SATA Secndry Master RAID**
- ▶ Enabled   Enable secondary SATA RAID function.
- ▶ Disabled   Disable this function. (Default value)

☞ **OnChip USB**
  ▶ Disabled   Disable USB controller.
  ▶ V1.1+V2.0   Set USB controller at USB1.1 and USB2.0. (Default value)
  ▶ V1.1   Set USB controller at USB1.1.

☞ **USB Keyboard Support**
  ▶ Enabled   Enable USB keyboard support.
  ▶ Disabled   Disable USB keyboard support. (Default value)

☞ **USB Mouse Support**
  ▶ Enabled   Enable USB mouse support.
  ▶ Disabled   Disable USB mouse support. (Default value)

☞ **AC97 Audio**
  ▶ Auto   Auto detect AC97 audio function. (Default value)
  ▶ Disabled   Disable AC97 audio function.

☞ **Onboard H/W LAN***
  ▶ Enabled   Enable onboard H/W LAN function. (Default value)
  ▶ Disabled   Disable this function.

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

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

☞ **UART Mode Select**
  This item allows you to determine which Infra Red(IR) function of Onboard I/O chip.
  ▶ Normal   Set onboard I/O chip UART to normal mode. (Default value)
  ▶ IrDA   Set onboard I/O chip UART to IrDA mode.
  ▶ ASKIR   Set onboard I/O chip UART to ASKIR mode.

☞ **UR2 Duplex Mode**
  This feature allows you to seclect IR mode.
  This function will available when "UART Mode Select" doesn't set at Normal.
  ▶ Half   IR Function Duplex Half. (Default value)
  ▶ Full   IR Function Duplex Full.

* Only for GA-7N400S-L.

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

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

 Game Port Address
   ▶▶ 201   Set Game Port Address to 201. (Default value)
   ▶▶ 209   Set Game Port Address to 209.
   ▶▶ Disabled   Disable this function.

 Midi Port Address
   ▶▶ 300   Set Midi Port Address to 300.
   ▶▶ 330   Set Midi Port Address to 330.
   ▶▶ Disabled   Disable this function. (Default value)

 Midi Port IRQ
   ▶▶ 5   Set Midi Port IRQ to 5.
   ▶▶ 10   Set Midi Port IRQ to 10. (Default value)

2-5 Power Management Setup

```
                          CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
                                          Power Management Setup
   ACPI Suspend Type                            [S1(POS)]                    Item Help
   Soft-Off by PWR-BTTN                         [Instant-off]                Menu Level▶
   PME Event Wake Up                            [Enabled]
   ModemRingOn                                  [Enabled]
   S3 Resume by USB                             [Disabled]
   Resume by Alarm                              [Disabled]
 x Date (of Month) Alarm                        Everyday
 x Time (hh:mm:ss) Alarm                        0 : 0 : 0
   Power On by Mouse                            [Disabled]
   Power On by Keyboard                         [Disabled]
 x KB Power ON Password                         Enter
   AC BACK Function                             [Soft-Off]




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

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

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

✆ **PME Event Wake Up**
  This feature requires an ATX power supply that provides at least 1A on the 5VSB lead.
  ▶▶ Disabled   Disable this function.
  ▶▶ Enabled   Enable PME as wake up event. (Default value)

✆ **ModemRingOn**
  An incoming call via modem or an input signal comes from the other client server on the LAN can awake
  the system from any suspend state.
  ▶▶ Disabled   Disable Modem Ring on function.
  ▶▶ Enabled   Enable Modem Ring on function. (Default value)

✆ **S3 Resume by USB**
  This feature allows you to resume the system from USB device.
  ▶▶ Disabled   Disable this function. (Default value)
  ▶▶ Enabled   Enable this funcion.

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

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

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

☞ **KB Power ON Password**
When "Power On by Keyboard" set at Password, you can set the password here.
- ▶ Enter   Input password (from 1 to 5 characters) and press Enter to set the keyboard power on password.

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

2-6 PnP/PCI Configurations

```
                CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
                              PnP/PCI Configurations
    PCI 1/5 IRQ Assignment              [Auto]                       Item Help
    PCI 2 IRQ Assignment                [Auto]              Menu Level▶
    PCI 3 IRQ Assignment                [Auto]
    PCI 4 IRQ Assignment                [Auto]              Device(s) using this
                                                            INT:




    ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value   F10: Save    ESC: Exit    F1: General Help
         F5: Previous Values         F6: Fail-Save Defaults          F7: Optimized Defaults
```
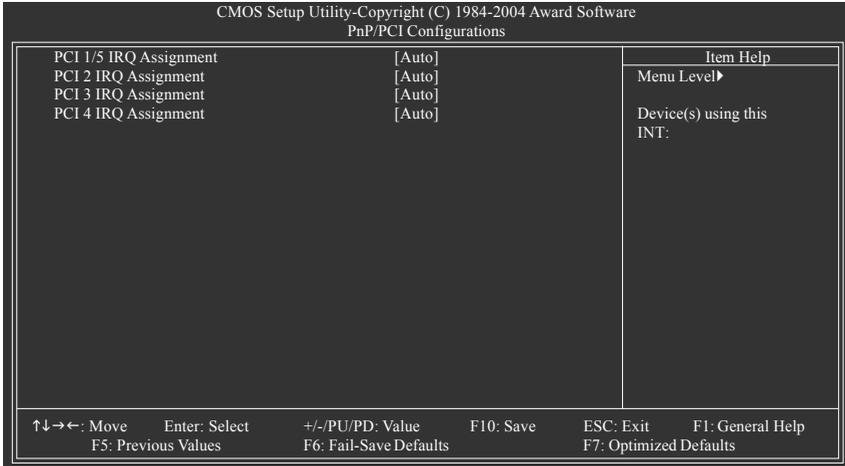
☞ **PCI 1/5 IRQ Assignment**
   ▶ Auto   Auto assign IRQ to PCI 1/5. (Default value)
   ▶ 3,4,5,7,9,10,11,12,14,15 Set IRQ 3,4,5,7,9,10,11,12,14,15 to PCI 1/5.

☞ **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 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.

2-7 PC Health Status

```
                    CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
                                      PC Health Status
  Vcore                              OK                        |       Item Help
  DDR25V                             OK                        | Menu Level▶
  +3.3V                              OK                        |
  +12V                               OK                        |
  Current System Temperature         32ºC                      |
  Current CPU Temperature            45ºC                      |
  Current CPU FAN Speed              4687 RPM                  |
  Current SYSTEM FAN Speed              0 RPM                  |
  
  
  
  
  
  
  
  
  
  ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
      F5: Previous Values         F6: Fail-Save Defaults         F7: Optimized Defaults
```

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

☞ **Current System/CPU Temperature**
  ▶ Detect System/CPU temperature automatically.

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

2-8 Load Fail-Safe Defaults

CMOS Setup Utility-Copyright (C) 1984-2004 Award Software	
▸ Standard CMOS Features	Load Fail-Safe Defaults
▸ Advanced BIOS Features	Load Optimized Defaults
▸ Advanced Chipset Features	Set Supervisor Password
▸ Integrated Peripherals	
▸ Power Ma	Load Fail-Safe Defaults (Y/N)? N
▸ PnP/PCI Configurations	Exit Without Saving
▸ PC Health Status	
ESC: Quit	↑↓→←: Select Item
F8: Q-Flash	F10: Save & Exit Setup
Load Fail-Safe Defaults	

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

2-9 Load Optimized Defaults
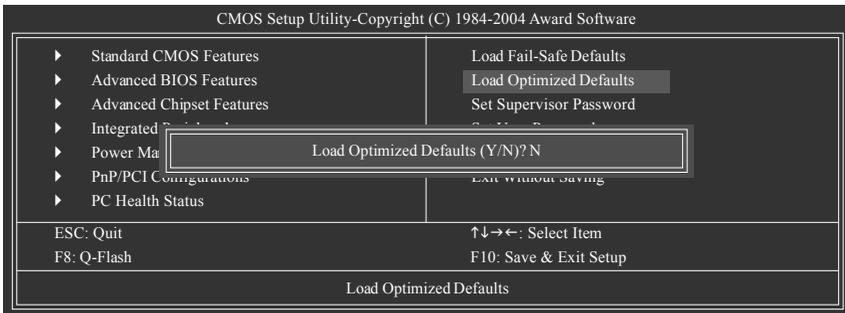
CMOS Setup Utility-Copyright (C) 1984-2004 Award Software	
▸ Standard CMOS Features	Load Fail-Safe Defaults
▸ Advanced BIOS Features	Load Optimized Defaults
▸ Advanced Chipset Features	Set Supervisor Password
▸ Integrated Peripherals	
▸ Power Ma	Load Optimized Defaults (Y/N)? N
▸ PnP/PCI Configurations	Exit Without Saving
▸ PC Health Status	
ESC: Quit	↑↓→←: Select Item
F8: Q-Flash	F10: Save & Exit Setup
Load Optimized Defaults	

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

2-10 Set Supervisor/User Password
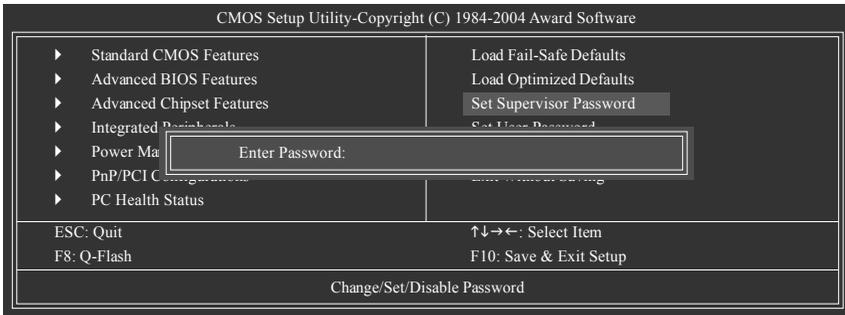
```
        CMOS Setup Utility-Copyright (C) 1984-2004 Award Software
 ┌─────────────────────────────────────────────────────────────────────┐
 │   ▶  Standard CMOS Features          Load Fail-Safe Defaults          │
 │   ▶  Advanced BIOS Features          Load Optimized Defaults          │
 │   ▶  Advanced Chipset Features       Set Supervisor Password          │
 │   ▶  Integrated Peripherals          Set User Password                │
 │   ▶  Power Ma┌──────────────────────────────────────┐                 │
 │   ▶  PnP/PCI C│    Enter Password:                   │                 │
 │   ▶  PC Health└──────────────────────────────────────┘ithout Saving   │
 │                                                                       │
 │   ESC: Quit                          ↑↓→←: Select Item                 │
 │   F8: Q-Flash                        F10: Save & Exit Setup            │
 │                    Change/Set/Disable 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.

2-11 Save & Exit Setup

CMOS Setup Utility-Copyright (C) 1984-2004 Award Software	
▶ Standard CMOS Features	Load Fail-Safe Defaults
▶ Advanced BIOS Features	Load Optimized Defaults
▶ Advanced Chipset Features	Set Supervisor Password
▶ Integrated Peripherals	Set User Password
▶ Power Management Setup	Save & Exit Setup
▶ PnP/PCI C	Save to CMOS and EXIT (Y/N)? Y
▶ PC Health Status	
ESC: Quit	↑↓→←: Select Item
F8: Q-Flash	F10: Save & Exit Setup
Save & Exit Setup	

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

2-12 Exit Without Saving

CMOS Setup Utility-Copyright (C) 1984-2004 Award Software	
▶ Standard CMOS Features	Load Fail-Safe Defaults
▶ Advanced BIOS Features	Load Optimized Defaults
▶ Advanced Chipset Features	Set Supervisor Password
▶ Integrated Peripherals	Set User Password
▶ Power Ma	Quit Without Saving (Y/N)? N
▶ PnP/PCI Configurations	Exit Without Saving
▶ PC Health Status	
ESC: Quit	↑↓→←: Select Item
F8: Q-Flash	F10: Save & Exit Setup
Abandon all Data	

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

Chapter 3 Drivers Installation

![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.

3-1 Install Chipset Drivers

After insert the driver CD, "Xpress Install" will scan automatically the system and then list all the drivers that recommended to install. 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 automatically.
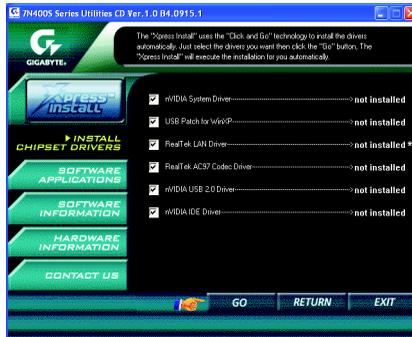
![NOTE] Some device drivers will restart your system automatically. After restarting your system the "Xpress Install" will continue to install other drivers.

System will reboot automatically after install the drivers, afterward you can install others application.

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

* Only for GA-7N400S-L.

3-2   Software Application

This page displays all the tools that Gigabyte developed and some free software, you can choose anyone you want and press "install" to install them.

3-3   Software Information

This page lists the contents of software and drivers in this CD-title.

3-4   Hardware Information

This page lists all device you have for this motherboard.

3-5   Contact Us

Please see the last page for details.
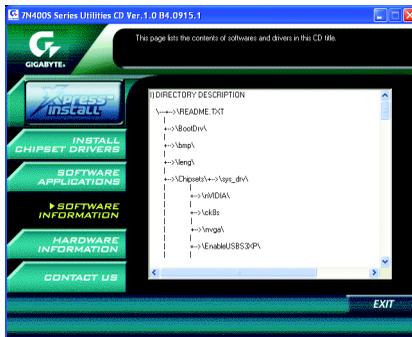
Chapter 4 Appendix

4-1 Unique Software Utilities

4-1-1 Xpress Recovery Introduction

What is Xpress Recovery ?

Xpress Recovery is a utility used to back up and restore an OS partition. If the hard drive is not working properly, the user can restore the drive to its original state.

CAUTION

1. Supports FAT16, FAT32, and NTFS formats
2. Must be connected to the IDE1 Master
3. Allows installation of only one OS
4. Must be used with an IDE hard disk supporting HPA
5. The first partition must be set as the boot partition. When the boot partition is backed up, please do not alter its size.
6. Xpress Recovery is recommended when using Ghost to return boot manager to NTFS format.

How to use the Xpress Recovery

1. Boot from CD-ROM (BMP Mode)

   Enter the BIOS menu, select "Advanced BIOS Feature" and set to boot from CD-ROM. Insert the provided driver CD into your CD drive, then save and exit the BIOS menu. Once the computer has restarted, the phrase "Boot from CD:" will appear at the bottom left-hand corner of the screen. When "Boot from CD:" appears, press any key to enter Xpress Recovery.

   Once you have completed this step, subsequent access to Xpress Recovery can also function by pressing the F9 key during computer power on.

   .
   .
   .
   Verifying DMI Pool Data
   Boot from CD: **Boot from CD:**

Xpress Recovery V1.0 (C) Copy Right 2003. GIGABYTE Technology CO., Ltd.

1. Execute Backup Utility
2. Execute Restore Utility
3. Remove Backup Image
4. Set Password
5. Exit and Restart

Build 2011
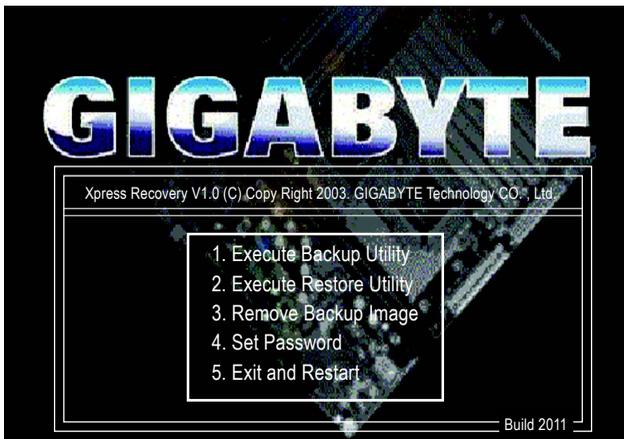
2. Press F9 during powering on the computer. (Text Mode)
    Press F9 during powering on the computer .

Award Modular BIOS v6.00PG, An Energy Star Al ly
Copyright (C) 1984-2004, Award Software, Inc.

Intel 865PE AGPSet BIOS for 8IPE1000MT F1
Check System Health OK
.
.
.
Press DEL to enter SETUP / Q-Flash F9 For Xpress Recovery
08/16/2002-I845GE-6A69YG01C-00

F9 For Xpress Recovery

GIGA-BYTE

Xpress Recovery V1.0 (C) Copy Right 2003. GIGABYTE Technology CO. , Ltd.

1. Execute Backup Utility
2. Execute Restore Utility
3. Remove Backup Image
4. Set Password
5. Exit and Restart

NOTE

1. If you have already entered Xpress Recovery by booting from the CD-ROM, you can enter
    Xpress Recovery in the future by pressing the F9 key.
2. System storage capacity as well as drive reading/writing speed will affect backup speed.
3. It is recommended that Xpress Recovery be immediately installed after OS and all required
    driver and software installations are complete.

1. Execute Backup Utility:

📎 **Press B to Backup your System or Esc to Exit**

The backup utility will automatically scan your system and back up data as a backup image in your hard drive.

⚠️ CAUTION

Not all systems support access to Xpress Recovery by pressing the F9 key during computer power on. If this is the case, please use the boot from CD-ROM method to enter Xpress Recovery.

2. Execute Restore Utility:

📎 **This program will recover your system to factory default.**

Press R to restore your system back to factory default or press Esc to exit

Restores backup image to original state.

3. Remove Backup Image:

📎 **Remove backup image. Are you sure? (Y/N)**

Remove the backup image.

4. Set Password:

📎 **Please input a 4-16 character long password (a-z or 0-9) or press Esc to exit**

You can set a password to enter Xpress Recovery to protect your hard disk data. Once this is done, password input will be required to enter Xpress Recovery during the next as well as subsequent system restarts. If you wish to remove the need for password entry, please select "Set Password" and under "New Password/Confirm Password", make sure there is no entry and then press "Enter" to remove password requirement.

5. Exit and Restart:

Exit and restart your computer.

4-1-2 Flash BIOS Method Introduction

Method 1 : Q-Flash™ Utility

Q-Flash™ is a BIOS flash utility embedded in Flash ROM. With this utility, users only have to stay in the BIOS menu when they want to update BIOS. Q-Flash™ allows users to flash BIOS without any utility in DOS or Windows. Using Q-Flash™ indicating no more fooling around with any complicated instructions and operating system since it is in the BIOS menu.

⚠️ **CAUTION** Please note that because updating BIOS has potential risk, please do it with caution!! We are sorry that Gigabyte Technology Co., Ltd is not responsible for damages of system because of incorrect manipulation of updating BIOS to avoid any claims from end-users.

Before You Begin:

Before you start updating BIOS with the Q-Flash™ utility, please follow the steps below first.

1. Download the latest BIOS for your motherboard from Gigabyte's website.
2. Extract the BIOS file downloaded and save the BIOS file (the one with model name.Fxx. For example, 8KNXPU.Fba) to a floppy disk.
3. Reboot your PC and press **Del** to enter BIOS menu.

The BIOS upgrading guides below are separated into two parts.
If your motherboard has dual-BIOS, please refer to **Part One**.
If your motherboard has single-BIOS, please refer to **Part Two**.

Part One:

Updating BIOS with Q-Flash™ Utility on Dual BIOS Motherboards.

Some of Gigabyte motherboards are equipped with dual BIOS. In the BIOS menu of the motherboards supporting Q-Flash and Dual BIOS, the Q-Flash utility and Dual BIOS utility are combined in the same screen. This section only deals with how to use Q-Flash utility.
In the following sections, we take GA-8KNXP Ultra as the example to guide you how to flash BIOS from an older version to the latest version. For example, from Fa3 to Fba.

The BIOS file is Fa3 before updating

```
Award Modular BIOS v6.00PG, An Energy Star Ally
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Intel i875P AGPset BIOS for 8KNXP Ultra Fa3
Check System Health OK , Vcore = 1.5250
Main Processor : Intel Pentium(R) 4  1.6GHz (133x12)
<CPUID : 0F27 Patch ID : 0027>
Memory Testing  : 131072K OK

Memory Frequency 266 MHz in Single Channel
Primary Master : FUJITSU MPE3170AT ED-03-08
Primary Slave : None
Secondary Master : CREATIVEDVD-RM DVD1242E BC101
Secondary Slave : None

Press DEL to enter SETUP / Dual BIOS / Q-Flash / F9 For Xpress Recovery
08/07/2003-i875P-6A79BG03C-00
```

Entering the Q-Flash™ utility:

Step1: To use Q-Flash utility, you must press **Del** in the boot screen to enter BIOS menu.

CMOS Setup Utility-Copyright (C) 1984-2004 Award Software	
▸ Standard CMOS Features	Select Language
▸ Advanced BIOS Features	Load Fail-Safe Defaults
▸ Integrated Peripherals	Load Optimized Defaults
▸ Power Management Setup	Set Supervisor Password
▸ PnP/PCI Configurations	Set User Password
▸ PC Health Status	Save & Exit Setup
▸ MB Intelligent Tweaker(M.I.T.)	Exit Without Saving
ESC: Quit	F3: Change Language
F8: Dual BIOS/Q-Flash	F10: Save & Exit Setup
Time, Date, Hard Disk Type...	

Step 2: Press **F8** button on your keyboard and then **Y** button to enter the Dual BIOS/Q-Flash utility.

Exploring the Q-Flash™ / Dual BIOS utility screen

The Q-Flash / Dual BIOS utility screen consists of the following key components.

Task menu for Dual BIOS utility

Task menu for Q-Flash™ utility

Dual BIOS utility bar

Q-Flash™ utility title bar

Action bar

```
                    Dual BIOS Utility
   Boot From.........................            Main Bios
   Main ROM Type/Size...........................SST 49LF003A      512K
   Backup ROM Type/Size.........................SST 49LF003A      512K

              Wide Range Protection     Disable
                         Boot From     Main Bios
                    Auto Recovery     Enable
                    Halt On Error     Disable
              Copy Main ROM Data to Backup
                    Load Default Settings
                    Save Settings to CMOS
                    Q-Flash Utility
              Load Main BIOS from Floppy
              Load Backup BIOS from Floppy
              Save Main BIOS to Floppy
              Save Backup BIOS to Floppy
   Enter : Run      ↑↓:Move      ESC:Reset      F10:Power Off
```

Task menu for Dual BIOS utility:

Contains the names of eight tasks and two item showing information about the BIOS ROM type. Blocking a task and pressing Enter key on your keyboard to enable execution of the task.

Task menu for Q-Flash utility:

Contains the names of four tasks. Blocking a task and pressing Enter key on your keyboard to enable execution of the task.
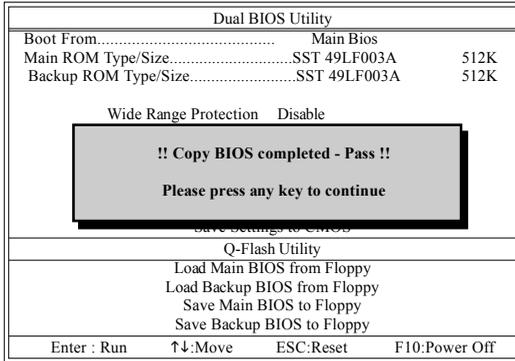
Action bar:

Contains the names of four actions needed to operate the Q-Flash/Dual BIOS utility. Pressing the buttons mentioned on your keyboards to perform these actions.

Using the Q-Flash™ utility:

This section tells you how to update BIOS using the Q-Flash utility. As described in the "Before you begin" section above, you must prepare a floppy disk having the BIOS file for your motherboard and insert it to your computer. If you have already put the floppy disk into your system and have entered the Q-Flash utility, please follow the steps below to flash BIOS.

Steps:

1. Press arrow buttons on your keyboard to move the light bar to "Load Main BIOS from Floppy" item in the Q-Flash menu and press Enter button.

   Later, you will see a box pop up showing the BIOS files you previously downloaded to the floppy disk.

   NOTE If you want to save the current BIOS for backup purpose, you can begin Step 1 with "Save Main BIOS to Floppy" item.

2. Move to the BIOS file you want to flash and press **Enter**.

   In this example, we only download one BIOS file to the floppy disk so only one BIOS file, 8KNXPU.Fba, is listed.

   CAUTION Please confirm again you have the correct BIOS file for your motherboard.

Dual BIOS Utility
Boot From.. Main Bios
Main ROM Type/Size............................SST 49LF003A   512K
Backup ROM Type/Size.........................SST 49LF003A   512K
Wide Range Protection   Disable
1 file(s) found
8KNXPU.Fba   512K
Total size : 1.39M   Free size : 911.50K
F5 : Refresh   DEL : Delete
Save Settings to CMOS
Q-Flash Utility
Load Main BIOS from Floppy
Load Backup BIOS from Floppy
Save Main BIOS to Floppy
Save Backup BIOS to Floppy
Enter : Run   ↑↓:Move   ESC:Reset   F10:Power Off

   — BIOS file in the floppy disk.

After pressing **Enter**, you'll then see the progress of reading the BIOS file from the floppy disk.

Dual BIOS Utility
Boot From.. Main Bios
Main ROM Type/Size............................SST 49LF003A   512K
Backup ROM Type/Size.........................SST 49LF003A   512K
Wide Range Protection   Disable
Reading BIOS file from floppy ...
>>>>>>>>>>>>>>>......................
Don't Turn Off Power or Reset System
Save Settings to CMOS
Q-Flash Utility
Load Main BIOS from Floppy
Load Backup BIOS from Floppy
Save Main BIOS to Floppy
Save Backup BIOS to Floppy
Enter : Run   ↑↓:Move   ESC:Reset   F10:Power Off

   CAUTION Do not trun off power or reset your system at this stage!!

After BIOS file is read, you'll see a confirmation dialog box asking you "Are you sure to update BIOS?"

3. Press Y button on your keyboard after you are sure to update BIOS.

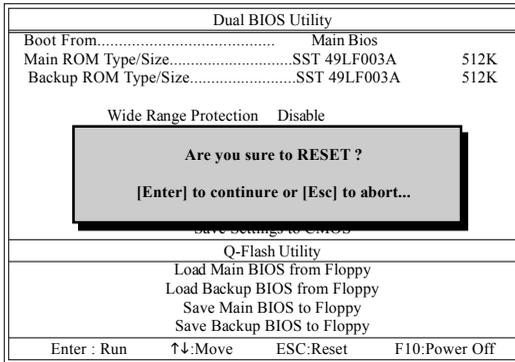Then it will begin to update BIOS. The progress of updating BIOS will be displayed.

⚠ Please do not take out the floppy disk when it begins flashing BIOS.

4. Press any keys to return to the Q-Flash menu when the BIOS updating procedure is completed.
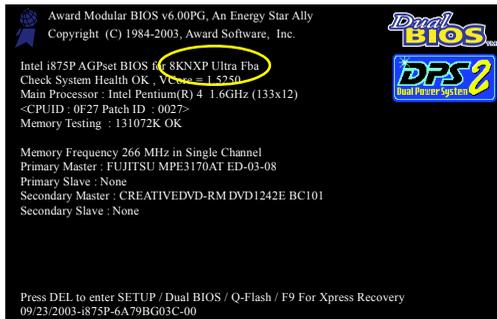
Dual BIOS Utility		
Boot From..	Main Bios	
Main ROM Type/Size............................SST 49LF003A		512K
Backup ROM Type/Size........................SST 49LF003A		512K
Wide Range Protection Disable		
!! Copy BIOS completed - Pass !!		
Please press any key to continue		
Save Settings to CMOS		
Q-Flash Utility		
Load Main BIOS from Floppy		
Load Backup BIOS from Floppy		
Save Main BIOS to Floppy		
Save Backup BIOS to Floppy		
Enter : Run ↑↓:Move ESC:Reset F10:Power Off		

⊙ NOTE

You can repeat Step 1 to 4 to flash the backup BIOS, too.

5. Press Esc and then Y button to exit the Q-Flash utility. The computer will restart automatically after you exit Q-Flash.

Dual BIOS Utility		
Boot From..	Main Bios	
Main ROM Type/Size............................SST 49LF003A		512K
Backup ROM Type/Size........................SST 49LF003A		512K
Wide Range Protection Disable		
Are you sure to RESET ?		
[Enter] to continure or [Esc] to abort...		
Save Settings to CMOS		
Q-Flash Utility		
Load Main BIOS from Floppy		
Load Backup BIOS from Floppy		
Save Main BIOS to Floppy		
Save Backup BIOS to Floppy		
Enter : Run ↑↓:Move ESC:Reset F10:Power Off		

After system reboots, you may find the BIOS version on your boot screen becomes the one you flashed.

The BIOS file becomes Fba after updating.

Award Modular BIOS v6.00PG, An Energy Star Ally
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Intel i875P AGPset BIOS for 8KNXP Ultra Fba
Check System Health OK , VCore = 1.5250
Main Processor : Intel Pentium(R) 4 1.6GHz (133x12)
<CPUID : 0F27 Patch ID : 0027>
Memory Testing : 131072K OK

Memory Frequency 266 MHz in Single Channel
Primary Master : FUJITSU MPE3170AT ED-03-08
Primary Slave : None
Secondary Master : CREATIVEDVD-RM DVD1242E BC101
Secondary Slave : None

Press DEL to enter SETUP / Dual BIOS / Q-Flash / F9 For Xpress Recovery
09/23/2003-i875P-6A79BG03C-00

English

6. Press **Del** to enter BIOS menu after system reboots. When you are in BIOS menu, move to **Load Fail-Safe Defaults** item and press **Enter** to load BIOS Fail-Safe Defaults. Normally the system redetects all devices after BIOS has been upgraded. Therefore, we highly recommend reloading the BIOS defaults after BIOS has been upgraded.

CMOS Setup Utility-Copyright (C) 1984-2004 Award Software	
▶ Standard CMOS Features	Select Language
▶ Advanced BIOS Features	Load Fail-Safe Defaults
▶ Integrated Peripherals	Load Optimized Defaults
▶ Power Mana[Load Fail-Safe Defaults (Y/N)? Y	
▶ PnP/PCI Con	
▶ PC Health Status	Save & Exit Setup
▶ MB Intelligent Tweaker(M.I.T.)	Exit Without Saving
ESC: Quit	F3: Change Language
F8: Dual BIOS/Q-Flash	F10: Save & Exit Setup
Time, Date, Hard Disk Type...	

Press **Y** on your keyboard to load defaults.

7. Select **Save & Exit Setup** item to save the settings to CMOS and exit the BIOS menu. System will reboot after you exit the BIOS menu. The procedure is completed.

CMOS Setup Utility-Copyright (C) 1984-2004 Award Software	
▶ Standard CMOS Features	Select Language
▶ Advanced BIOS Features	Load Fail-Safe Defaults
▶ Integrated Peripherals	Load Optimized Defaults
▶ Power Mana[Save to CMOS and EXIT (Y/N)? Y	
▶ PnP/PCI Con	
▶ PC Health Status	Save & Exit Setup
▶ MB Intelligent Tweaker(M.I.T.)	Exit Without Saving
ESC: Quit	F3: Change Language
F8: Dual BIOS/Q-Flash	F10: Save & Exit Setup
Time, Date, Hard Disk Type...	

Press **Y** on your keyboard to save and exit.

Part Two:

Updating BIOS with Q-Flash™ Utility on Single-BIOS Motherboards.

This part guides users of single-BIOS motherboards how to update BIOS using the Q-Flash™ utility.

CMOS Setup Utility-Copyright (C) 1984-2004 Award Software	
▶ Standard CMOS Features	Top Performance
▶ Advanced BIOS Features	Load Fail-Safe Defaults
▶ Integrated Peripherals	Load Optimized Defaults
▶ Power Management Setup	Set Supervisor Password
▶ PnP/PCI Configurations	Set User Password
▶ PC Health Status	Save & Exit Setup
▶ MB Intelligent Tweaker(M.I.T.)	Exit Without Saving
ESC: Quit	F3: Change Language
F8: Q-Flash	F10: Save & Exit Setup
Time, Date, Hard Disk Type...	

GA-7N400S(-L) Motherboard   - 58 -

Exploring the Q-Flash™ utility screen

The Q-FlashBIOS utility screen consists of the following key components.

```
                    Q-Flash Utility V1.30                          Q-Flash™ utility bar
      Flash Type/Size.................................SST 49LF003A         256K

                     Keep DMI Data    Enable
Task menu for             Update BIOS from Floppy
Q-Flash™ utility            Save BIOS to Floppy
      Enter : Run      ↑↓:Move       ESC:Reset      F10:Power Off        Action bar
```
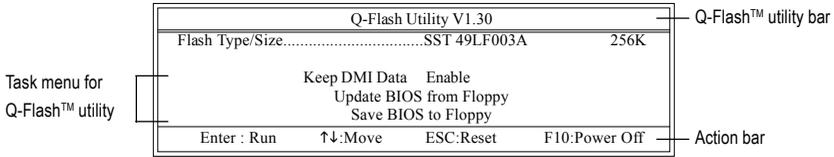
Task menu for Q-Flash utility:

Contains the names of three tasks. Blocking a task and pressing Enter key on your keyboard to enable execution of the task.

Action bar:

Contains the names of four actions needed to operate the Q-Flash utility. Pressing the buttons mentioned on your keyboards to perform these actions.

Using the Q-Flash™ utility:

This section tells you how to update BIOS using the Q-Flash utility. As described in the "Before you begin" section above, you must prepare a floppy disk having the BIOS file for your motherboard and insert it to your computer. If you have already put the floppy disk into your system and have entered the Q-Flash utility, please follow the steps below to flash BIOS.

Steps:

1. Press arrow buttons on your keyboard to move the light bar to "Update BIOS from Floppy" item in the Q-Flash menu and press Enter button.

   Later, you will see a box pop up showing the BIOS files you previously downloaded to the floppy disk.

   NOTE If you want to save the current BIOS for backup purpose, you can begin Step 1 with "Save BIOS to Floppy" item.

2. Move to the BIOS file you want to flash and press Enter.

   In this example, we only download one BIOS file to the floppy disk so only one BIOS file, 8GE800.F4, is listed.

   ⚠ **CAUTION** Please confirm again you have the correct BIOS file for your motherboard.

```
                    Q-Flash Utility V1.30
      Flash Type/Size.................................SST 49LF003A         256K
                         1 file(s) found
      8GE800.F4                              256K                   BIOS file in the floppy
                                                                    disk.
      Total size : 1.39M          Free size : 1.14M
   E  F5 : Refresh                 DEL : Delete         er Off
```

```
                    Q-Flash Utility V1.30                          ⚠ CAUTION
      Flash Type/Size.................................SST 49LF003A         256K

      Reading BIOS file from floppy ...                             Do not trun off power or
      >>>>>>>>>>>>>>......................                          reset your system at
   E  Don't Turn Off Power or Reset System                er Off   this stage!!
```
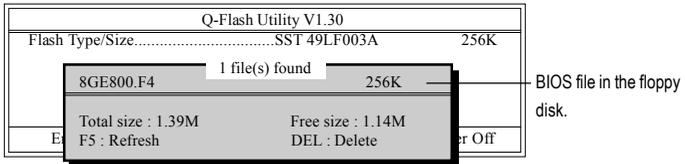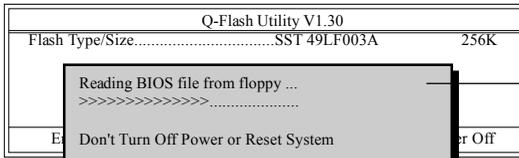
After BIOS file is read, you'll see a confirmation dialog box asking you "Are you sure to update BIOS?"

⚠ **CAUTION** Please do not take out the floppy disk when it begins flashing BIOS.

3. Press Y button on your keyboard after you are sure to update BIOS.
   Then it will begin to update BIOS. The progress of updating BIOS will be shown at the same time.
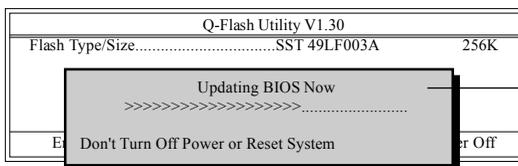
```
                  Q-Flash Utility V1.30
Flash Type/Size................................SST 49LF003A          256K

                     Updating BIOS Now
           >>>>>>>>>>>>>>>>>>>..........................

  En    Don't Turn Off Power or Reset System        er Off
```

⚠ CAUTION

Do not trun off power or reset your system at this stage!!

4. Press any keys to return to the Q-Flash menu when the BIOS updating procedure is completed.

```
                  Q-Flash Utility V1.30
Flash Type/Size................................SST 49LF003A          256K

              !! Copy BIOS completed - Pass !!

             Please press any key to continue
  En                                                 er Off
```

5. Press Esc and then Y button to exit the Q-Flash utility. The computer will restart automatically after you exit Q-Flash.

```
                  Q-Flash Utility V1.30
Flash Type/Size................................SST 49LF003A          256K

                  Are you sure to RESET ?

            [Enter] to continure or [Esc] to abort...
  En                                                 er Off
```
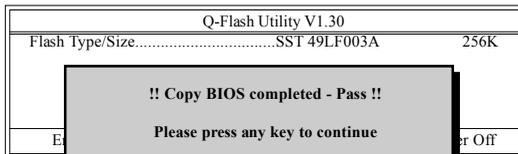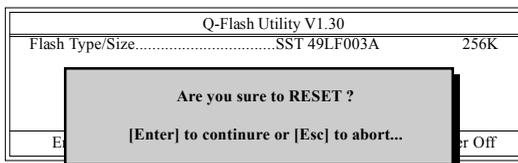
After system reboots, you may find the BIOS version on your boot screen becomes the one you flashed.

The BIOS file becomes F4 after updating

```
     Award Modular BIOS v6.00PG, An Energy Star Ally
     Copyright  (C) 1984-2003, Award Software,  Inc.

Intel 845GE AGPSet BIOS for 8GE800 F4                  energy
Check System Health OK                                 EPA  POLLUTION PREVENTER
Main Processor : Intel Pentium(R) 4  1.7GHz (100x17.0)
<CPUID : 0F0A Patch ID  : 0009>
Memory Testing : 122880K OK + 8192K Shared Memory

Primary Master : FUJITSU MPE3170AT ED-03-08
Primary Slave : None
Secondary Master : CREATIVEDVD-RM DVD1242E BC101
Secondary Slave : None



Press DEL to enter SETUP / Q-Flash
03/18/2003-I845GE-6A69YG01C-00
```

6. Press Del to enter BIOS menu after system reboots and "Load BIOS Fail-Safe Defaults". See how to Load BIOS Fail-Safe Defaults, please kindly refer to Step 6 to 7 in **Part One**.

   Congratulation!! You have updated BIOS successfully!!

Method 2 : @BIOS™ Utility

If you do not have a DOS startup disk, we recommend that you use the new @BIOS utility. @BIOS allows users to update their BIOS under Windows. Just select the desired @BIOS server to download the latest version of BIOS.

Fig 1. Installing the @BIOS utility
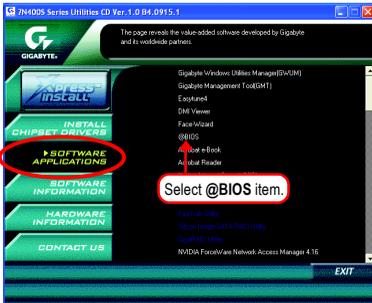
Select **@BIOS** item.

Fig 2. Installation complete and run @BIOS

Click Sart/ Programs/ GIGABYTE/@BIOS

Fig 3. The @BIOS utility
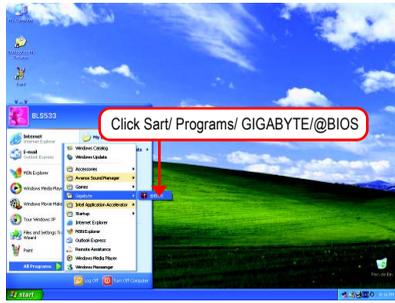
Click "✓"   Click "Update New BIOS"
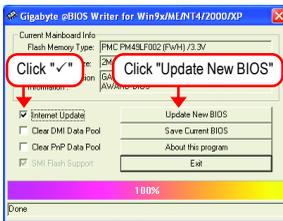
Fig 4. Select the desired @BIOS server

1. Methods and steps:

I. Update BIOS through Internet:
   a. Click "Internet Update" icon.
   b. Click "Update New BIOS" icon.
   c. Select @BIOS™ sever.
   d. Select the exact model name on your motherboard.
   e. System will automatically download and update the BIOS.

II. Update BIOS NOT through Internet:
   a. Do not click "Internet Update" icon.
   b. Click "Update New BIOS".
   c. Please select "All Files" in dialog box while opening the old file.
   d. Please search for BIOS unzip file, downloading from internet or any other methods (such as: 7N400SL.E17).
   e. Complete update process following the instruction.

III. Save BIOS:

In the very beginning, there is "Save Current BIOS" icon shown in dialog box. It means to save the current BIOS version.

IV. Check out supported motherboard and Flash ROM:

In the very beginning, there is "About this program" icon shown in dialog box. It can help you check out which kind of motherboard and which brand of Flash ROM are supported.

2. Note:

I.   In method I, if it shows two or more motherboard's model names to be selected, please make sure your motherboard's model name again. Selecting wrong model name will cause the system unbooted.

II. In method II, be sure that motherboard's model name in BIOS unzip file are the same as your motherboard's. Otherwise, your system won't boot.

III. In method I, if the BIOS file you need cannot be found in @BIOS™ server, please go onto Gigabyte's website for downloading and updating it according to method II.

IV. Please note that any interruption during updating will cause system unbooted.

4-1-3   Serial ATA BIOS Setting Utility Introduction

RAID Levels

RAID (Redundant Array of Independent Disks) is a method of combining two hard disk drives into one logical unit. The advantage of an Array is to provide better performance or data fault tolerance. Fault tolerance is achieved through data redundant operation, where if one drives fails, a mirrored copy of the data can be found on another drive. This can prevent data loss if the operating system fails or hangs. The individual disk drives in an array are called members. The configuration information of each member is recorded in the reserved sector that identifies the drive as a member. All disk members in a formed disk array are recognized as a single physical drive to the operating system.

Hard disk drives can be combined together through a few different methods. The different methods are referred to as different RAID levels. Different RAID levels represent different performance levels, security levels and implementation costs. The RAID levels which the nVIDIA® nForce™ 2 MCP RAID chipset supports are RAID 0, RAID 1, RAID 0+RAID 1 and JBOD.

RAID 0 (Striping)

RAID 0 reads and writes sectors of data interleaved between multiple drives. If any disk member fails, it affects the entire array. The disk array data capacity is equal to the number of drive members times the capacity of the smallest member. The striping block size can be set from 4KB to 64KB. RAID 0 does not support fault tolerance.

RAID 1 (Mirroring)

RAID 1 writes duplicate data onto a pair of drives and reads both sets of data in parallel. If one of the mirrored drives suffers a mechanical failure or does not respond, the remaining drive will continue to function. Due to redundancy, the drive capacity of the array is the capacity of the smallest drive. Under a RAID 1 setup, an extra drive called the spare drive can be attached. Such a drive will be activated to replace a failed drive that is part of a mirrored array. Due to the fault tolerance, if any RAID 1 drive fails, data access will not be affected as long as there are other working drives in the array.

RAID 0+1 (Striping + Mirroring)

RAID 0+1 combines the performance of data striping (RAID 0) and the fault tolerance of disk mirroring (RAID 1). Data is striped across multiple drives and duplicated on another set of drives.

JBOD (Spanning)

A spanning disk array is equal to the sum of the all drives when the drives used are having different capacities. Spanning stores data onto a drive until it is full, then proceeds to store files onto the next drive in the array. When any disk member fails, the failure affects the entire array. JBOD is not really a RAID and does not support fault tolerance.

Please follow the steps below to construct a complete RAID array:

1) Have ready your hard drives for RAID construction.
   Note: To achieve best performance, it is recommended that the hard drives used are of similar make and storage capacity.
2) Please attach the hard drive connectors to their appropriate location on the motherboard ie. IDE, SCSI, or SATA.
3) Enter the motherboard BIOS and locate RAID setup (Please refer to the section on Integrated Peripherals).
4) Enter RAID setup in the BIOS and select the RAID type (For instance, enter F10 to select NVIDIA RAID; Ctrl + S to select Silicon Image).
5) Complete driver installation.
6) Complete RAID utility installation.

More information on steps 4 and 5 is provided. (For more detailed setup information, please visit "Support\ Motherboard\ Technology Guide section" on our website at http:\\www.gigabyte.com.tw to read or download the information you need.)

Configuring the nVIDIA RAID BIOS

The NVRAID BIOS setup lets you choose the RAID array type and which hard drives you want to make part of the array.

Entering the RAID BIOS Setup

1. After rebooting your computer, wait until you see the RAID software prompting you to press **F10**. The RAID prompt appears as part of the system POST and boot process prior to loading the OS. You have a few seconds to press **F10** before the window disappears.

```
NVIDIA RAID IDE ROM BIOS 4.60
Copyright (C) 2004 NVIDIA Corp.

Detecting array ...

Press F10 to enter RAID setup utility ...
```

Press **F10**.
The NVIDIA RAID Utility - **Define a New Array** window appears (as Figure below).

NVIDIA RAID Utility   Aug 24 2004
- Define a New Array -

RAID Mode: Mirroring   Striping Block: Optimal

Free Disks
Loc   Disk Model Name
1.0.M   ST3120026AS
1.1.M   ST3120026AS   [→] Add

                              [←] Del

Array Disks
Loc   Disk Model Name

[F6] Back   [F7] Finish   [TAB] Navigate   [↑↓] Select   [ENTER] Popup
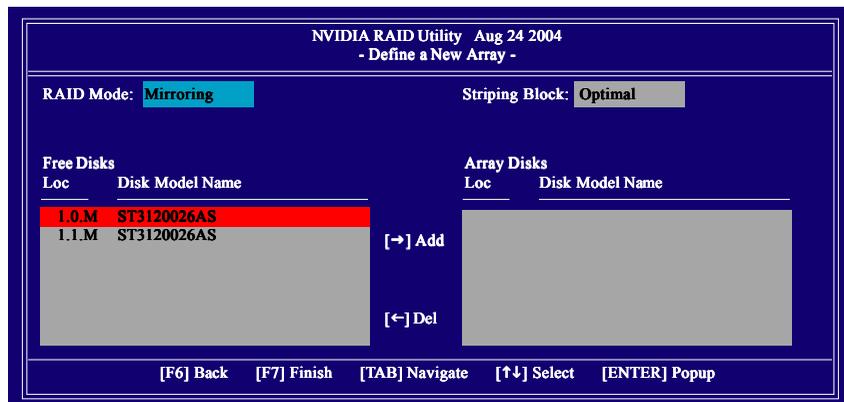
Using the "Define a New Array" Window

If necessary, press the tab key to move from field to field until the appropriate field is highlighted.

Selecting the RAID Mode

By default, this is set to Mirroring. To change to a different RAID mode, press the down arrow key until the mode that you want appears in the RAID Mode box - either Mirroring, Striping, Spanning, or Stripe Mirroring.

Selecting the Striping Block Size

Striping block size is given in kilobytes, and affects how data is arranged on the disk. It is recommended to leave this value at the default Optimal, which is 32KB, but the values can be between 4 KB and 128 KB.

Assigning the Disks

The disks that you enabled from the RAID Config BIOS setup page appear in the Free Disks block. These are the drives that are available for use as RAID array disks. To designate a free disk to be used as a RAID array disk,

1. Tab to the Free Disks section. The first disk in the list is selected.
2. Move it from the Free Disks block to the Array Disks block by pressing the rightarrow key (→). The first disk in the list is moved, and the next disk in the list is selected and ready to be moved.
3. Continue pressing the right-arrow key (→) until all the disks that you want to use as RAID array disks appear in the Array Disks block.

```
                    NVIDIA RAID Utility   Aug 24 2004
                          - Define a New Array -

 RAID Mode: Mirroring                    Striping Block: Optimal


 Free Disks                              Array Disks
 Loc      Disk Model Name                Loc       Disk Model Name


                                         1.0.M    ST3120026AS
                               [→] Add   1.1.M    ST3120026AS



                               [←] Del


         [F6] Back    [F7] Finish    [TAB] Navigate    [↑↓] Select    [ENTER] Popup
```
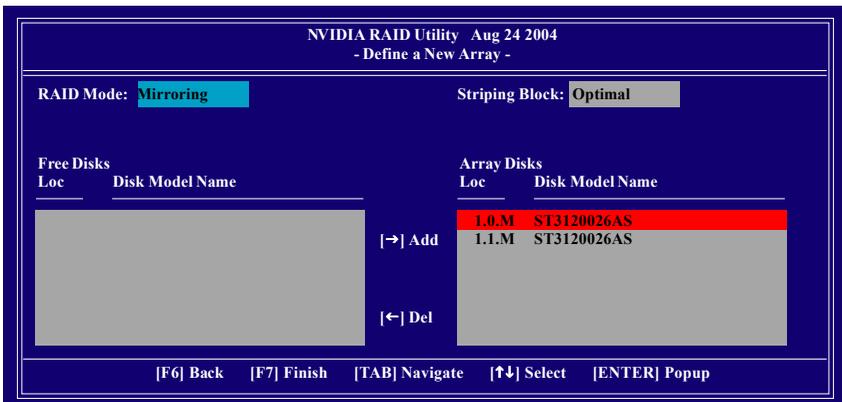
Completing the RAID BIOS Setup

After assigning your RAID array disks, press F7. The **Clear disk data** prompt appears.

```
                    NVIDIA RAID Utility   Aug 24 2004
                           - Define a New Array -

RAID Mode:  Mirroring                    Striping Block:  Optimal


Free Disks                    Clear disk data ?
Loc      Disk Model Name                              Disk Model Name

                                                       T3120026AS
                              [Y] YES    [N] NO         T3120026AS


                                  [←] Del

          [F6] Back    [F7] Finish   [TAB] Navigate   [↑↓] Select   [ENTER] Popup
```
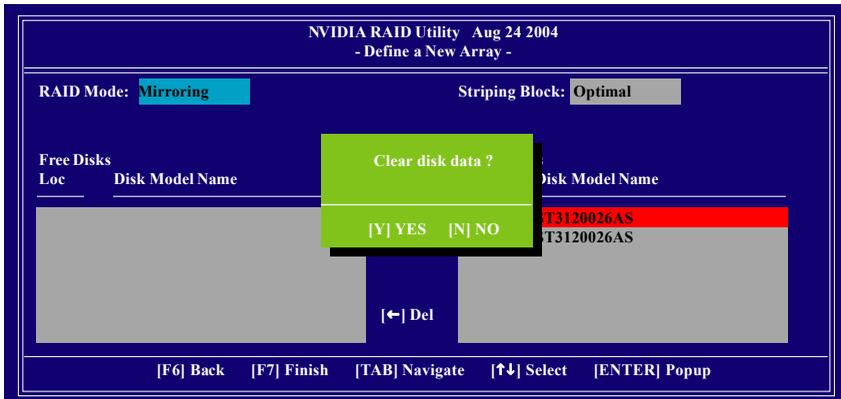
Press **Y** if you want to wipe out all the data from the RAID array, otherwise press **N**. You must choose **Yes** if the drives were previously used as RAID drives. The **Array List** window appears, where you can review the RAID arrays that you have set up.

You can select a disk array as boot device if you want to boot operating system from an array. Use the arrow keys to select the array, then press **B** to specify the array as bootable.

```
                    NVIDIA RAID Utility   Aug 24 2004
                           - Array List -

           Boot    Id    Status    Vendor     Array Model Name

           BBS     2     Healthy   NVIDIA     MIRROR   111.79G







        [Ctrl-X] Exit    [↑↓] Select    [B] Set Boot   [N] New Array   [ENTER] Detail
```
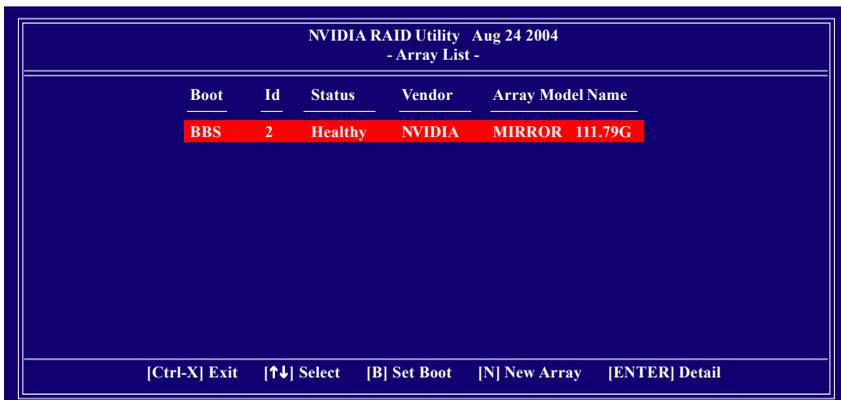
Press **Enter** to view and verify details. The **Array Detail** screen appears.
The Array Detail screen shows various information about the array that you selected, such as Striping Block used, RAID Mode, Striping Width, Disk Model Name, and disk capacity.

Array 2 : NVIDIA MIRROR 111.79G **- Array Detail -**					

RAID Mode: Mirroring
Striping Width : 1   **Striping Block:**

Adapt	Channel	M/S	Index	Disk Model Name	Capacity
1	0	Master	0	ST3120026AS	111.79GB
1	1	Master	1	ST3120026AS	111.79GB

[R] Rebuild   [D] Delete   [C] Clear Disk   [ENTER] Return

If you want to mark this disk as empty and wipe out all its contents, press **C**.
At the prompt, press Y to wipe out all the data, otherwise press **N**.
Press **Enter** again to go back to the previous screen and then press **Ctrl + X** to exit the RAID setup.

Now that the RAID setup has been configured from the RAID BIOS, the next step is to configure and load drivers under Windows.

Installing the RAID drivers

To install Windows 2000/XP onto a Serial ATA hard disk sucessfully, you need to install required driver for the SATA controller on your motherboard during OS installation. Without the driver, the hard disk may not be recognized during the Windows setup process.

First of all, you have to copy the driver for the SATA controller on your motherboard from the motherboard driver CD to a floppy disk. See the instructions below about how to copy the driver.

Step 1: Find an available Operation System and insert the motherboard driver CD into the CD-ROM drive. The installation utility will appear automatically soon after you insert the driver CD. Quit the installation utility first. Insert a blank formatted floppy disk into the floppy disk drive.

Step 2: Go to My Computer and right-click the CD-ROM icon (This procedure assumes Drive D) and select Open. Then you will see folders and files contained in the driver CD. Double-click the BootDrv folder icon and select **MENU.exe** (refer to Fig.1).
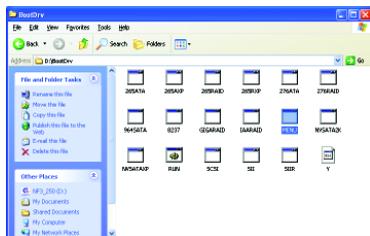
Fig.1   Fig.2

Step 3:

A MS-DOS prompt screen will appear. Information on all chipsets should be listed on the screen (Refer to Fig.2), please select the proper chipset model.

Your system will then automatically zip and transfer this driver file to the floppy disk.

After you complete the steps, boot from the Windows CD to install the RAID drivers.

When install Windows 2000 or Windows XP from HDDs in serial ATA controller, press **F6** as Win2000 or XP boots up, then supply serial ATA controller driver by this floppy disk. Follow on-screen instructions to complete installation.

(Each time you add a new hard drive to a RAID array, the RAID driver will have to be installed under Windows once for that hard drive. After that, the driver will not have to be installed.)

Note: In the menu list, IAA_RAID is Intel ICH5R chipset.

4-1-4   2- / 4- / 6- Channel Audio Function Introduction

The following setup is for Windows 98SE/2000/ME/XP. Please follow the steps below to enable the function!

2 Channel Audio Setup

We recommend that you use speakers with amplifier to get the best sound effect if the stereo output is applied.

STEP 1:
Connect the stereo speakers or earphone to "Line Out".


Line Out

STEP 2:
After installing the audio driver, you'll find a Sound Effect icon on the lower right hand taskbar. Click the icon to select the function.

STEP 3:
On the AC97 Audio Configuration menu, click the **Speaker Configuration** tab and select the **2-channel mode for stereo speaker output** check box.
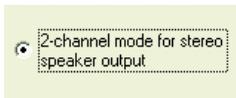
4 Channel Audio Setup

STEP 1:
Connect the front channels to "Line Out", the rear channels to "Line In".

Line In (Rear Speaker Out)
Line Out (Front Speaker Out)

STEP 2:
After installing the audio driver, you'll find a Sound Effect icon on the lower right hand taskbar. Click the icon to select the function.

Sound Effect
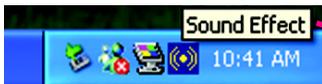
STEP 3:
On the AC97 Audio Configuration menu, click the **Speaker Configuration** tab and select the **4-channel mode for 4 speaker output** check box. Clear the **Only SURROUND-KIT** check box and press **OK.**

4-channel mode for 4 speaker output

When the **Environment** setting is **None**, the sound would be performed as stereo mode (2-channel output). Please select other settings (ex: **Living Room**) for 4-channel output.
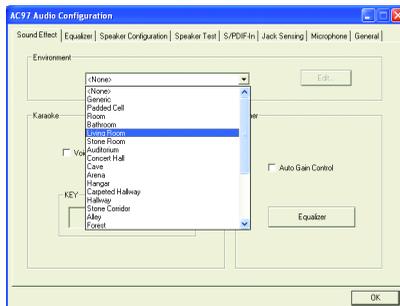
Basic 6 Channel Audio Setup

Use the back audio panel to connect the audio output without any additional module.

STEP 1:
Connect the front channels to "Line Out", the rear channels to "Line In", and the Center/Subwoofer channels to "MIC In".

Line In (Rear Speaker Out)
Line Out (Front Speaker Out)
Mic In (Center/Subwoofer Speaker Out)

STEP 2:
After installing the audio driver, you'll find a Sound Effect icon on the lower right hand taskbar. Click the icon to select the function.

STEP 3:
On the AC97 Audio Configuration menu, click the **Speaker Configuration** tab and select the **6-channel mode for 5.1 speaker output** check box. Clear the **Only SURROUND-KIT** check box and press **OK.**

6-channel mode for 5.1 speaker output
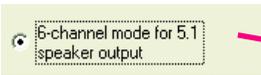
Advanced 6 Channel Audio Setup (using Audio Combo Kit, optional device) :

Audio Combo Kit offers SPDIF output, an optical and coaxial cable and a Surround-Kit. The Surround-Kit offers R/L surround and center/subwoofer output.

SURROUND-KIT access analog output to rear channels and Center/Subwoofer channels. It is the best solution if you need 6 channel output, Line In and MIC at the same time. "SURROUND-KIT" is included in the GIGABYTE unique "Audio Combo Kit" as picture.

STEP 1:
Secure the metal bracket of the "Surround Kit" to the chassis back panel with a screw.
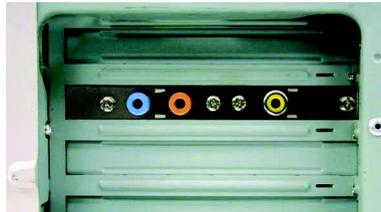
STEP 2:
Connect the "SURROUND-KIT" cable to the SUR_CEN connector on the motherboard.
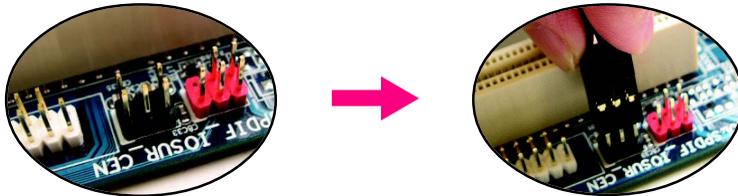
STEP 3 :
Connect the front channels to back audio panel's "Line Out", the rear channels to SURROUND-KIT's REAR R/L, and the Center/Subwoofer channels to SURROUND-KIT's SUB CENTER.
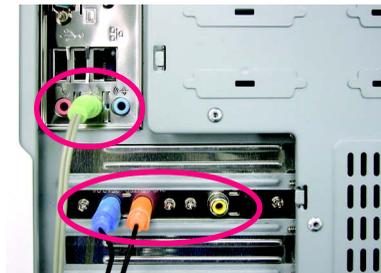
STEP 4:

After installing the audio driver, you'll find a Sound Effect icon on the lower right hand taskbar. Click the icon to select the function.
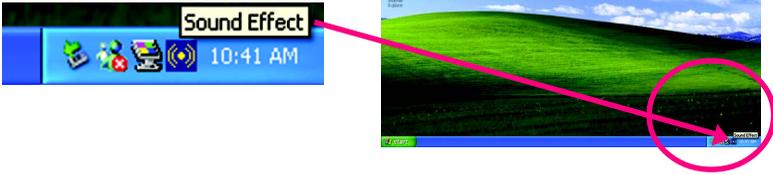
STEP 5:

On the AC97 Audio Configuration menu, click the **Speaker Configuration** tab and select the **6-channel mode for 5.1 speaker output** check box. Select the **Only SURROUND-KIT** check box and press **OK.**
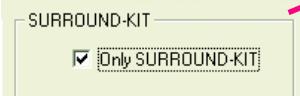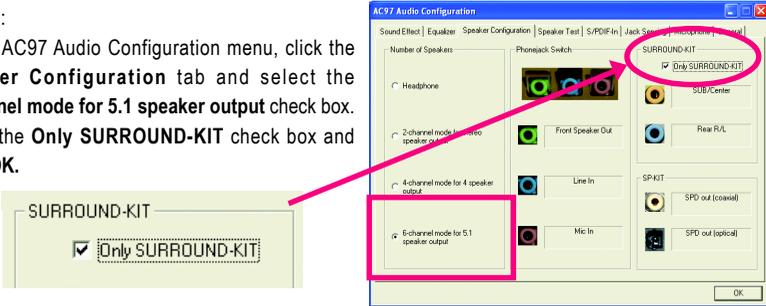
Basic & Advanced 6 Channel Audio Output Mode Notes:

When the **Environment** setting is **None**, the sound would be performed as stereo mode (2-channel output). Please select the other settings for 6 channels output.

English
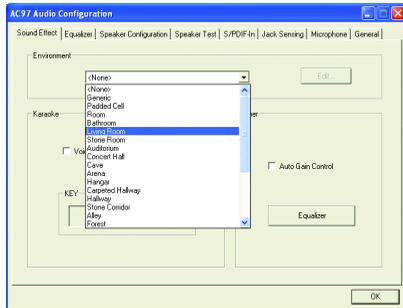
SPDIF Output Device (Optional Device)

A "SPDIF output" device is an optional device. The
SPDIF_IO cable with rear bracket could link to the
"SPDIF_IO" connector (As picture.) For the further
linkage to decoder, rear bracket provides coaxial cable
and Fiber connecting port.

STEP 1:
Secure the metal bracket of the SPDIF Output
device to the chassis back panel with a screw.

STEP 2:
Connect the SPDIF device cable to the SPDIF_IO
connector on the motherboard.
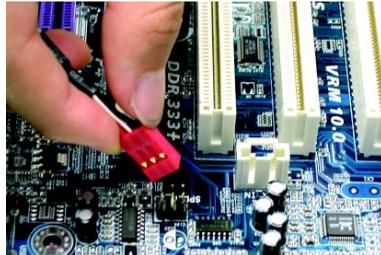
STEP 3:
Connect SPDIF to the SPDIF decoder.

Jack-Sensing Introduction

Jack-Sensing provides audio connectors error-detection function.

 Install Microsoft DirectX8.1 or later version before to enable Jack-Sensing support for Windows 98/ 98SE/ 2000/ ME.

Jack-Sensing includes 2 parts: AUTO and MANUAL. Following is an example for 2 channels (Following pictures are in Windows XP):

Introduction of audio connectors
You may connect CDROM, Walkman or others audio input devices to Line In jack, speakers, earphone or others output devices to Line Out jack, and micro-phone to MIC In jack.
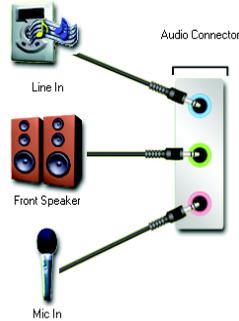
Auto-detecting:
Please connect the devices to the right jacks as above. A window will appear as right picture if you setup the devices properly.
Please note that 3D audio function will only appear when 3D audio inputs.

If you set wrong with the connectors, the warning message will come out as right picture.
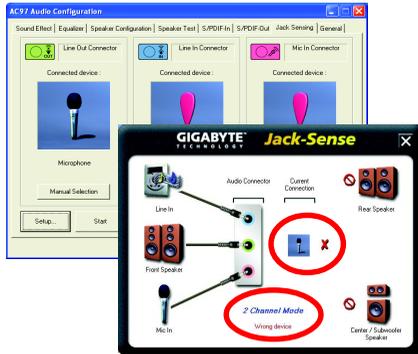
Manual setting:

If the device picture shows different from what you set, please press "Manual Selection" to set.
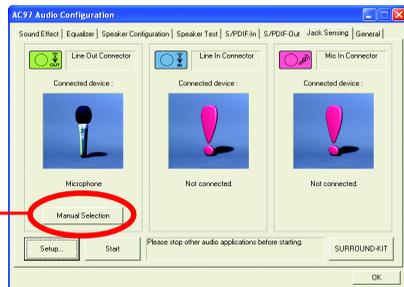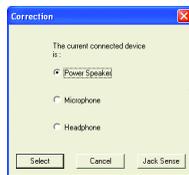
4-2   Troubleshooting

Below is a collection of general asked questions. To check general asked questions based on a specific motherboard model, please log on to http://www.gigabyte.com.tw

Question 1: I cannot see some options that were included in previous BIOS after updating BIOS. Why?
Answer: Some advanced options are hidden in new BIOS version. Please press Ctrl and F1 keys after entering BIOS menu and you will be able to see these options.

Questions 2: Why is the light of my keyboard/optical mouse still on after computer shuts down?
Answer: In some boards, a small amount of electricity is kept on standby after computer shuts down and that's why the light is still on.

Question 3: How do I clear CMOS?
Answer: If your board has a Clear CMOS jumper, please refer to the Clear CMOS steps in the manual. If your board doesn't have such jumper, you can take off the on-board battery to leak voltage to clear CMOS. Please refer to the steps below:
    Steps:
    1.   Turn off power.
    2.   Disconnect the power cord from MB.
    3.   Take out the battery gently and put it aside for about 10 minutes (Or you can use a metal object to connect the positive and negative pins in the battery holder to makethem short for one minute).
    4.   Re-insert the battery to the battery holder.
    5.   Connect power cord to MB again and turn on power.
    6.   Press Del to enter BIOS and load Fail-Safe Defaults(or load Optimized Defaults).
    7.   Save changes and reboot the system.

Question 4: Why do I still get a weak sound after turning up the speaker to the maximum volume?
Answer: Please make sure the speaker you are using is equipped with an internal amplifier. If not, please change another speaker with power/amplifier and try again later.

Question 5: Sometimes I hear different continuous beeps from computer after system boots up. What do these beeps usually stand for?
Answer: The beep codes below may help you identify the possible computer problems. However, they are only for reference purposes. The situations might differ from case to case.

→AMI BIOS Beep Codes
*Computer gives 1 short beep when system boots successfully.
*Except for beep code 8, these codes are always fatal.
    1 beep Refresh failure
    2 beeps Parity error
    3 beeps Base 64K memory failure
    4 beeps Timer not operational
    5 beeps Processor error
    6 beeps 8042 - gate A20 failure
    7 beeps Processor exception interrupt error
    8 beeps Display memory read/write failure
    9 beeps ROM checksum error
    10 beeps CMOS shutdown register read/write error
    11 beeps Cache memory bad

→   AWARD BIOS Beep Codes
    1 short: System boots successfully
    2 short: CMOS setting error
    1 long 1 short: DRAM or M/B error
    1 long 2 short: Monitor or display card error
    1 long 3 short: Keyboard error
    1 long 9 short: BIOS ROM error
    Continuous long beeps: DRAM error
    Continuous short beeps: Power error

English

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