GA-8I945GMH-RH

Intel® Pentium® Processor Extreme Edition
Intel® Pentium® D / Pentium® 4 LGA775 Processor Motherboard

User's Manual

Rev. 1001

12ME-945GMHR-1001R

* The WEEE marking on the product indicates this product must not be disposed of with user's other household waste and must be handed over to a designated collection point for the recycling of waste electrical and electronic equipment!!
* The WEEE marking applies only in European Union's member states.

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-8I945GMH-RH

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
		☒ **EN 61000-3-3**	Disturbances in supply systems caused by household appliances and similar electrical equipment "Voltage fluctuations"
☐ **EN 55013**	Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment	☒ **EN 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** (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

(Stamp) Date : Jan. 20, 2006 Name : Timmy Huang

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2.1077(a)

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

Address: 17358 Railroad Street
City of Industry, CA 91748

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

hereby declares that the product

Product Name: Motherboard

Model Number: GA-8I945GMH-RH

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: Jan. 20, 2006

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Product Manual Classification

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

- 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 "Technology Guide" section on Gigabyte's website to read or download the information you need.

For more product details, please click onto Gigabyte's website at www.gigabyte.com.tw

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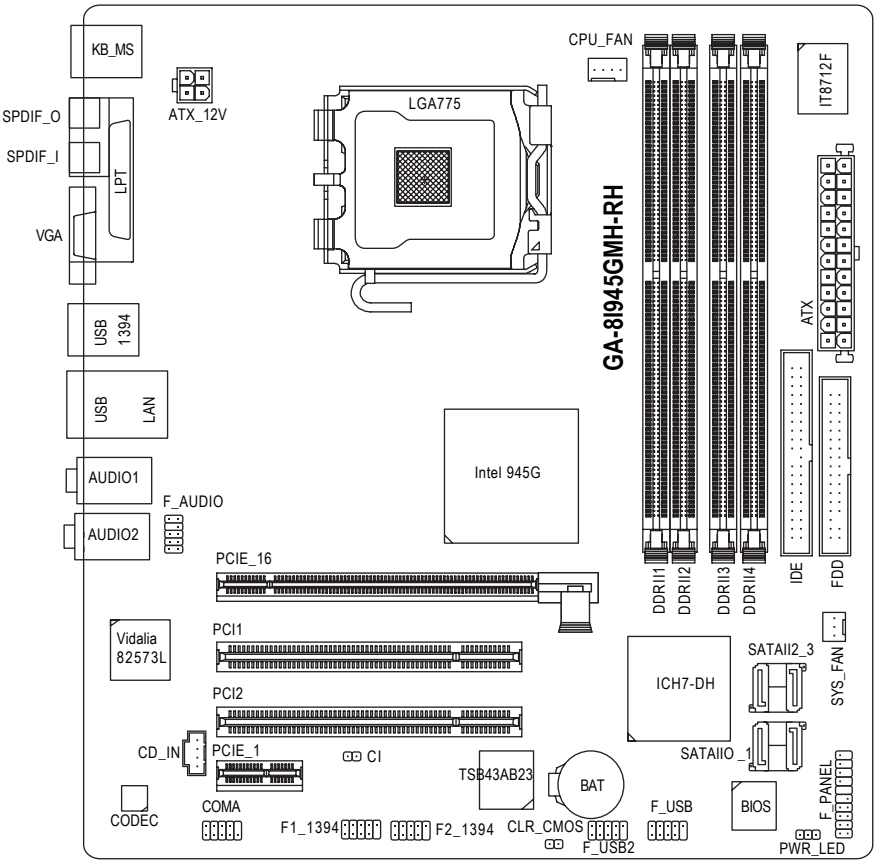
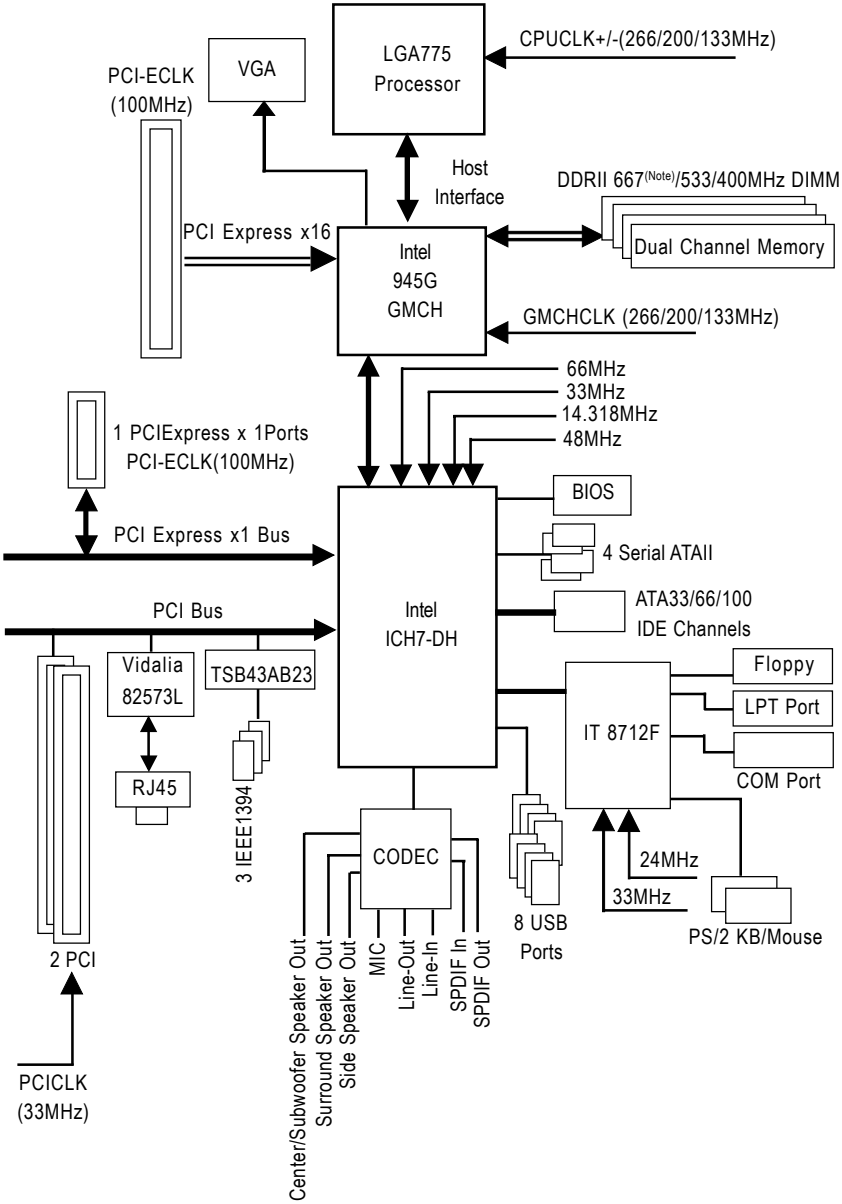
GA-8I945GMH-RH Motherboard Layout



Block Diagram



(Note) To use a DDRII 667 memory module on the motherboard, you must install an 800/1066MHz FSB processor .

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 you 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.

English

1-2 Feature Summary

CPU	◆ Supports LGA775 Intel® Pentium® Processor Extreme Edition/ Pentium® D / Pentium® 4 (Note 1) ◆ L2 cache varies with CPU
Front Side Bus	◆ Supports 1066/800/533MHz FSB
Chipset	◆ Northbridge: Intel® 945G Express Chipset ◆ Southbridge: Intel® ICH7-DH
LAN	◆ Onboard Intel Vidalia 82573L chip (10/100/1000 Mbit)
Audio	◆ Onboard Realtek ALC882 chip ◆ Supports 2 / 4 / 6/ 8 channel audio ◆ Supports SPDIF In/Out connection ◆ Supports CD In connection
IEEE 1394	◆ Onboard TI 1394a chip ◆ 3 IEEE1394a ports
Storage	◆ ICH7-DH Southbrigde - 1 FDD connector, allowing connection of 2 FDD devices - 1 IDE connector (IDE1) with UDMA 33/ATA 66/ATA 100 suppport, allowing connection of 2 IDE devices - 4 SATA 3Gb/s connectors (SATAII0_1, SATAII2_3), allowing connection of 4 SATA devices - Supports data striping (RAID 0), mirroring (RAID 1) or striping + mirroring (RAID 0+1) or RAID 5 for Serial ATA
O.S Support	◆ Microsoft Windows 2000/XP
Memory	◆ 4 DDR II DIMM memory slots (supports up to 4GB memory) (Note 2) ◆ Supports dual channel DDR II 667 (Note 3)/533/400 unbuffered DIMMs ◆ Supports 1.8V DDR II DIMMs
Expanstion Slots	◆ 1 PCI Express x 16 slot ◆ 1 PCI Express x 1 slot ◆ 2 PCI slots
Internal Connectors	◆ 1 24-pin ATX power connector ◆ 1 4-pin ATX 12V power connector ◆ 1 floppy connector ◆ 1 IDE connectors ◆ 4 SATA 3Gb/s connectors ◆ 1 CPU fan connector ◆ 1 system fan connector ◆ 1 front panel connector ◆ 1 front audio connector ◆ 1 CD In connector ◆ 1 COMA connector ◆ 2 USB 2.0/1.1 connectors for additional 4 ports by cables ◆ 2 IEEE1394a connectors for additional 2 ports by cables ◆ 1 CI connector ◆ 1 power LED connector

Rear Panel I/O	◆	1 PS/2 keyboard port
	◆	1 PS/2 mouse port
	◆	1 parallel port
	◆	1 SPDIF Out port
	◆	1 SPDIF In port
	◆	1 VGA port
	◆	4 USB 2.0/1.1 ports
	◆	1 1394 port
	◆	1 RJ-45 port (LAN)
	◆	6 audio jacks (Line In / Line Out / MIC In / Surround Speaker Out (Rear Speaker Out) / Center/Subwoofer Speaker Out / Side Speaker Out)
I/O Control	◆	IT8712 chip
Hardware Monitor	◆	System voltage detection
	◆	CPU temperature detection
	◆	CPU / System fan speed detection
	◆	CPU warning temperature
	◆	CPU / System fan failure warning
	◆	CPU smart fan control
BIOS	◆	1 4M bit flash ROM
	◆	Use of licensed AWARD BIOS
Additional Features	◆	Supports @BIOS
	◆	Supports Download Center
	◆	Supports Q-Flash
	◆	Supports EasyTune (Note 4)
	◆	Supports Xpress Install
	◆	Supports Xpress Recovery2
	◆	Supports Xpress Rescue
Bundle Software	◆	Norton Internet Security (OEM revision)
Form Factor	◆	Mirco ATX form factor; 24.4cm x 24.4cm

(Note 1) For further CPU support information, please go to GIGABYTE's website.

(Note 2) Due to standard PC architecture, a certain amount of memory is reserved for system usage and therefore the actual memory size is less than the stated amount.
For example, 4 GB of memory size will instead be shown as 3.xxGB memory during system startup.

(Note 3) To use a DDRII 667 memory module on the motherboard, you must install an 800/1066MHz FSB processor .

(Note 4) EasyTune functions may vary depending on different motherboards.

1-3 Installation of the CPU and Heatsink

CAUTION

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.

NOTE

HT functionality requirement content :

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

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

1-3-1 Installation of the CPU

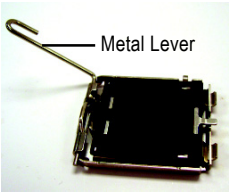


Fig. 1
Gently lift the metal lever located on the CPU socket to the upright position.

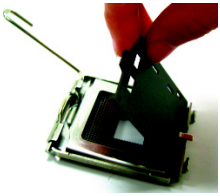


Fig. 2
Remove the plastic covering on the CPU socket.

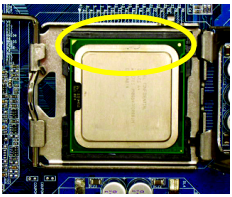


Fig. 3
Notice the small gold colored triangle located on the edge of the CPU socket. Align the indented corner of the CPU with the triangle and gently insert the CPU into position. (Grasping the CPU firmly between your thumb and forefinger, carefully place it into the socket in a straight and downwards motion. Avoid twisting or bending motions that might cause damage to the CPU during installation.)

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

1-3-2 Installation of the Heatsink

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

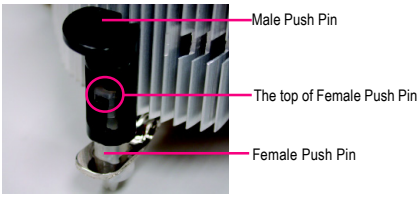


Fig. 2
(Turning the push pin along the direction of arrow is to remove the heatsink, on the contrary, is to install.)Please note the direction of arrow sign on the male push pin doesn't face inwards before installation. (This instruction is only for Intel boxed fan)

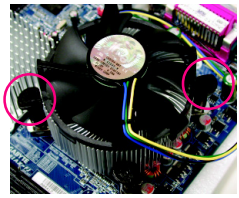


Fig. 3
Place the heatsink atop the CPU and make sure the push pins aim to the pin hole on the motherboard.Pressing down the push pins diagonally.

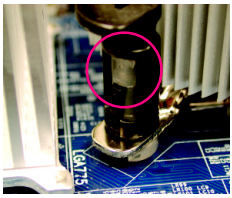


Fig. 4
Please make sure the Male and Female push pin are joined closely. (for detailed installation instructions, please refer to the heatsink installation section of the user manual)

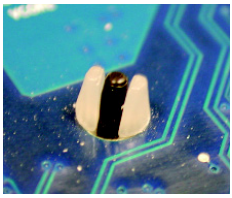


Fig. 5
Please check the back of motherboard after installing. If the push pin is inserted as the picture, the installation is complete.

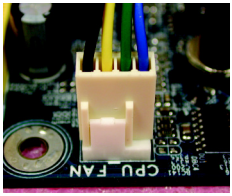


Fig. 6
Finally, please attach the power connector of the heatsink to the CPU fan header located on the motherboard.

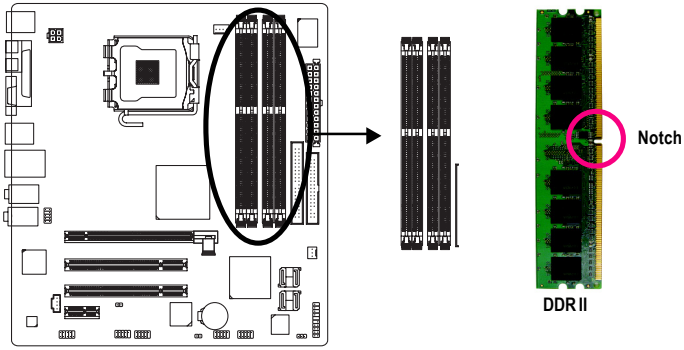
NOTE
The heatsink may adhere to the CPU as a result of hardening of the heatsink paste.To prevent such an occurrence, it is suggested that either thermal tape rather than heat sink paste be used for heat dissipation or using extreme care when removing the heatsink.

1-4 Installation of Memory

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

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

The motherboard supports DDR II 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.



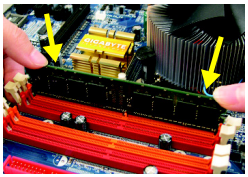


Fig.1
The DIMM socket has a notch, so the DIMM memory module can only fit in one direction. Insert the DIMM memory module vertically into the DIMM socket. Then push it down.

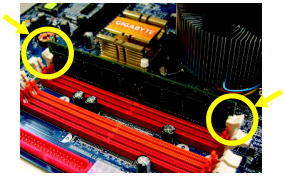


Fig.2
Close the plastic clip at both edges of the DIMM sockets to lock the DIMM module.
Reverse the installation steps when you wish to remove the DIMM module.

Dual Channel DDR II

GA-8I945GMH-RH supports the Dual Channel Technology. After operating the Dual Channel Technology, the bandwidth of Memory Bus will double.

GA-8I945GMH-RH includes 4 DIMM sockets, and each Channel has two DIMM sockets as following:

- Channel A : DDR II 1, DDR II 2
- Channel B : DDR II 3, DDR II 4

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 or three DDR II memory modules are installed.
2. If two DDR II 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 II memory modules are installed on the same channel.
3. If four DDR II 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 II memory modules.

We'll strongly recommend our user to slot two DDR II 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)

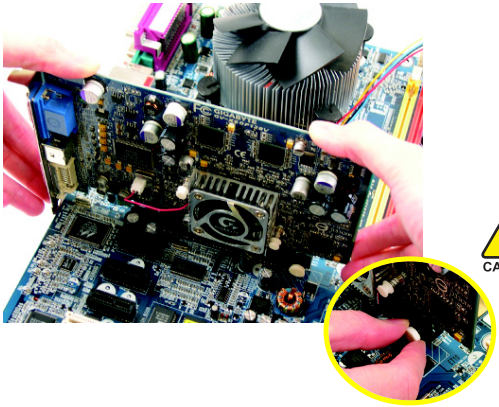
	DDR II 1	DDR II 2	DDR II 3	DDR II 4
2 memory modules	DS/SS	X	DS/SS	X
	X	DS/SS	X	DS/SS
4 memory modules	DS/SS	DS/SS	DS/SS	DS/SS

1-5 Install 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.

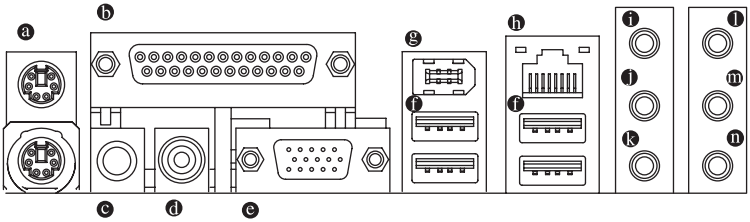
Installing a PCI Express x 16 expansion card:



CAUTION

Please carefully pull out the small white-drawable bar at the end of the PCI Express x 16 slot when you try to install/Uninstall the VGA card. Please align the VGA card to the onboard PCI Express x 16 slot and press firmly down on the slot .Make sure your VGA card is locked by the small white-drawable bar.

1-6 I/O Back Panel Introduction



a 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).

b LPT (Parallel Port)

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

c SPDIF_I

Use SPDIF IN feature only when your device has digital output function.

d SPDIF_O

The SPDIF output port is capable of providing digital audio to external speakers or compressed AC3 data to an external Dolby Digital Decoder via cable.

e VGA Port

Monitor can be connected to VGA port.

f USB Port

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

g IEEE 1394 Port

Serial interface standard set by Institute of Electrical and Electronics Engineers, which has features like high speed, highbandwidth and hot plug. (For optional IEEE1394 cable, please contact your local dealer.)

h LAN Port

The provided Internet connection is Gigabit Ethernet, providing data transfer speeds of 10/100/1000Mbps.

i Line In

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

j Line Out (Front Speaker Out)

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

k MIC In

Microphone can be connected to MIC In jack.

❶ Rear Speaker Out

Connect the rear surround speakers to this connector.

⓫ Center/Subwoofer Speaker Out

Connect the Center/Subwoofer speakers to this connector.

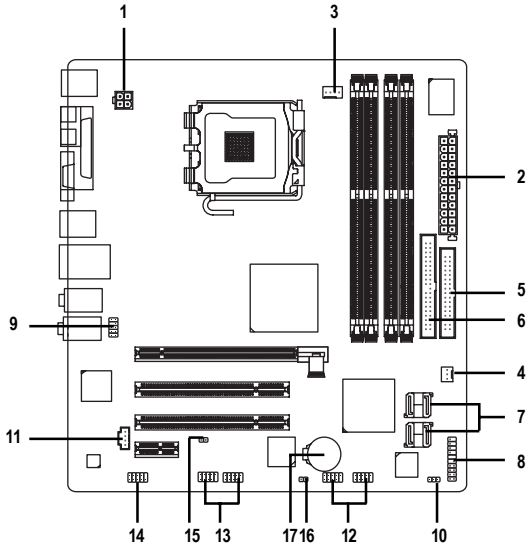
⓫ Side Speaker Out

Connect the side surround speakers to this connector.

NOTE

In addition to the default speakers settings, the ❶ ~ ⓫ audio jacks can be reconfigured to perform different functions via the audio software. Only microphones still MUST be connected to the default Mic In jack (ⓚ) . Please refer to the 2-/4-/6-/8- channel audio setup steps for detailed software configuration information.

1-7 Connectors Introduction



1)	ATX_12V	9)	F_AUDIO
2)	ATX (Power Connector)	10)	PWR_LED
3)	CPU_FAN	11)	CD_IN
4)	SYS_FAN	12)	F_USB / F_USB2
5)	FDD	13)	F1_1394 / F2_1394
6)	IDE	14)	COMA
7)	SATAII0_1 / SATAII2_3	15)	CI
8)	F_PANEL	16)	CLR_CMOS
		17)	BATTERY

1/2) ATX_12V/ATX (Power Connector)

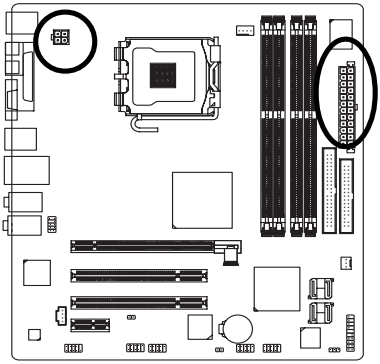
With the use of the power connector, the power supply can supply enough stable power to all the components on the motherboard. Before connecting the power connector, please make sure that all components and devices are properly installed. Align the power connector with its proper location on the motherboard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

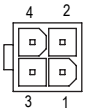
The ATX_12V power connector mainly supplies power to the CPU. If the ATX_12V power connector is not connected, the system will not start.

Caution!

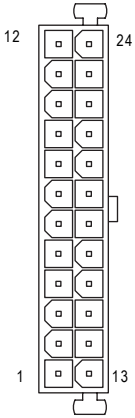
Please use a power supply that is able to handle the system voltage requirements. It is recommended that a power supply that can withstand high power consumption be used (300W or greater). If a power supply is used that does not provide the required power, the result can lead to an unstable system or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

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





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



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

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

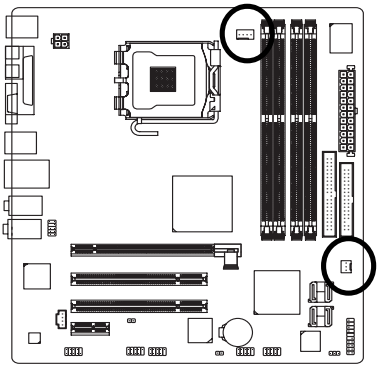
The cooler fan power connector supplies a +12V power voltage via a 3-pin/4-pin (only for CPU_FAN) power connector and possesses a foolproof connection design.

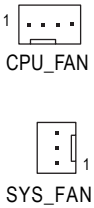
Most coolers are designed with color-coded power connector wires. A red power connector wireindicates a positive connection and requires a +12V power voltage. The black connector wire is the ground wire (GND).

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.



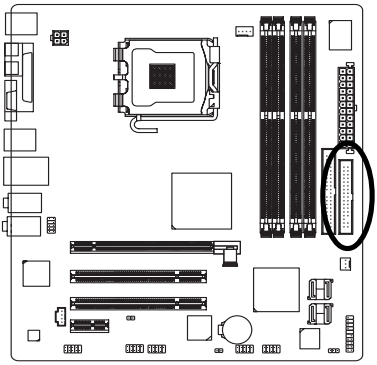


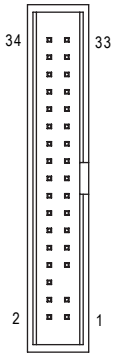
Pin No.	Definition
1	GND
2	+12V
3	Sense
4	Speed Control (Only for CPU_FAN)

5) FDD (Floppy Connector)

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

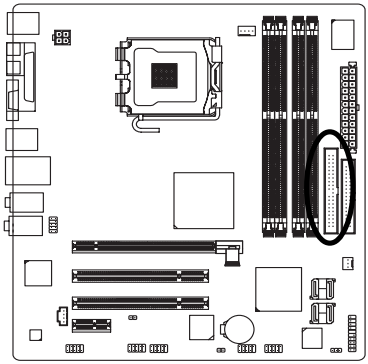
Please connect the red power connector wire to the pin1 position.

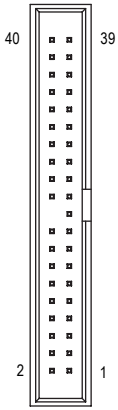




6) IDE (IDE Connector)

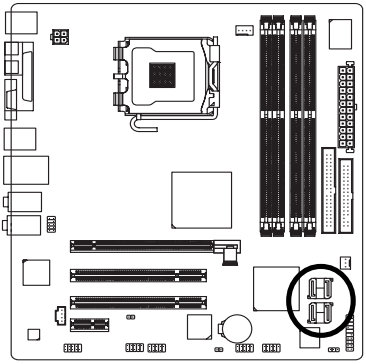
An IDE device connects to the computer via an IDE connector. One IDE connector can connect to one IDE cable, and the single IDE cable can then connect to two IDE devices (hard drive or optical drive). If you wish to connect two IDE devices, please set the jumper on one IDE device as Master and the other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

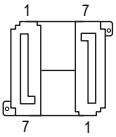




7) SATAII0/SATAII1/SATAII2/SATAII3 (SATA 3Gb/s Connector)

SATA 3Gb/s can provide up to 300MB/s transfer rate. Please refer to the BIOS setting for the Serial ATA and install the proper driver in order to work properly.

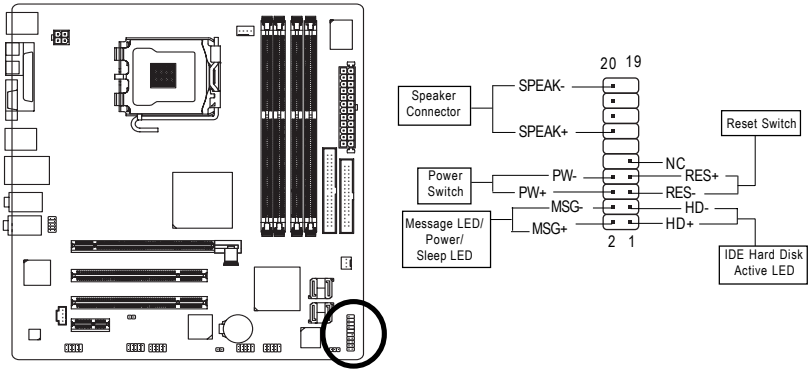




Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

8) F_PANEL (Front Panel Jumper)

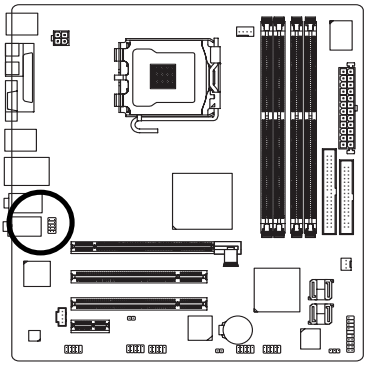
Please connect the power LED, PC speaker, reset switch and power switch etc of your chassis front panel to the F_PANEL connector according to the pin assignment below.



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

9) F_AUDIO (Front Audio Connector)

This connector supports either HD (High Definition) or AC97 front panel audio module. If you wish to use the front audio function, connect the front panel audio module to this connector. Check the pin assignments carefully while you connect the front panel audio module. Incorrect connection between the module and connector will make the audio device unable to work or even damage it. For optional front panel audio module, please contact your chassis manufacturer.



HD Audio:

Pin No.	Definition
1	MIC2_L
2	GND
3	MIC2_R
4	-ACZ_DET
5	Line2_R
6	FSENSE1
7	FAUDIO_JD
8	No Pin
9	LINE2_L
10	FSENSE2

AC'97 Audio:

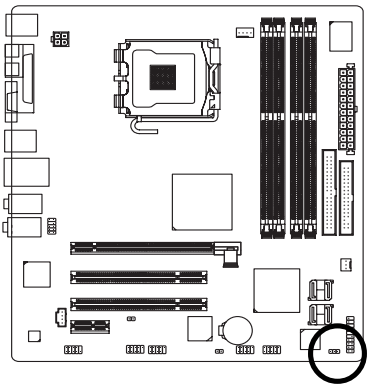
Pin No.	Definition
1	MIC
2	GND
3	MIC Power
4	NC
5	Line Out (R)
6	NC
7	NC
8	No Pin
9	Line Out (L)
10	NC

NOTE

By default, the audio driver is configured to support HD Audio. To connect an AC97 front panel audio module to this connector, please refer to the instructions on Page 77 about the software settings.

10) PWR_LED

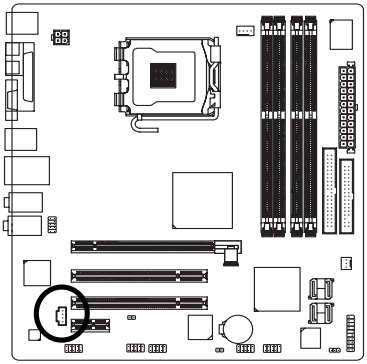
PWR_LED is connect with the system power indicator to indicate whether the system is on/off. It will blink when the system enters suspend mode.



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

11) CD_IN (CD IN)

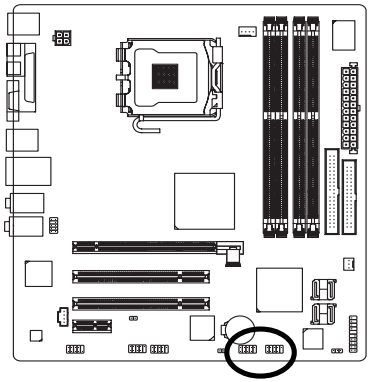
Connect CD-ROM or DVD-ROM audio out to the connector.



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

12) F_ USB / F_USB2 (Front USB Connector)

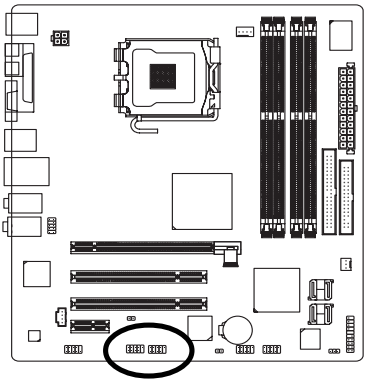
Be careful with the polarity of the front USB connector. Check the pin assignments carefully while you connect the front USB cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional front USB cable, please contact your local dealer.



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

13) F1_1394 / F2_1394 (IEEE 1394 Connector)

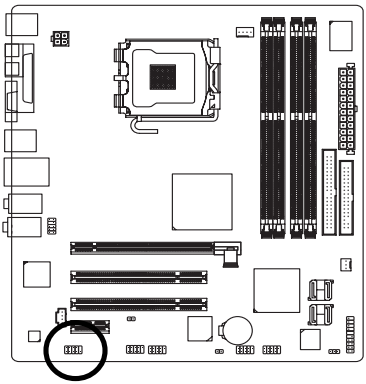
Serial interface standard set by Institute of Electrical and Electronics Engineers, which has features like high speed, highbandwidth and hot plug. Be careful with the polarity of the IEEE1394 connector. Check the pin assignment carefully while you connect the IEEE1394 cable, incorrect connection between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



Pin No.	Definition
1	TPA+
2	TPA-
3	GND
4	GND
5	TPB+
6	TPB-
7	Power(12V)
8	Power(12V)
9	No Pin
10	GND

14) COMA (Serial Port Connector)

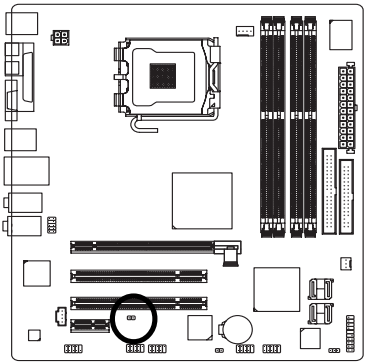
Be careful with the polarity of the COM connector. Check the pin assignment carefully while you connect the COM cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional COM cable, please contact your local dealer.



Pin No.	Definition
1	NDCD A-
2	NSIN A
3	NSOUT A
4	NDTR A-
5	GND
6	NDSR A-
7	NRTS A-
8	NCTS A-
9	NRI A-
10	No Pin

15) CI (Chassis Intrusion, Case Open)

This 2-pin connector allows your system to enable or disable the "Case Open" item in BIOS, if the system case begin remove.

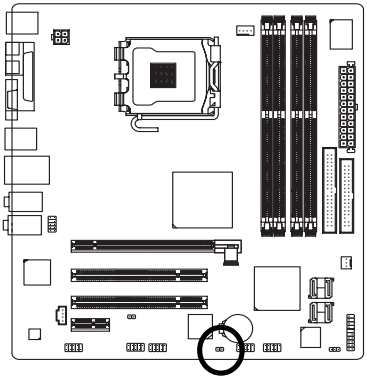


1

Pin No.	Definition
1	Signal
2	GND

16) CLR_CMOS (Clear CMOS)

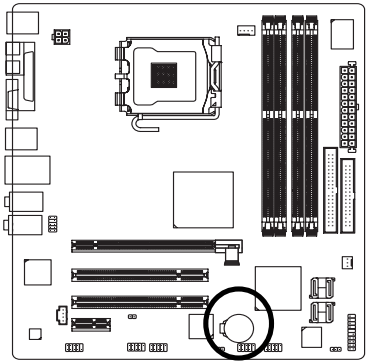
You may clear the CMOS data to its default values by this jumper. To clear CMOS, temporarily short 1-2 pin. Default doesn't include the "Shunter" to prevent from improper use this jumper.

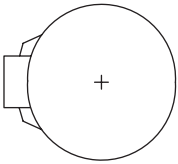


1 Open: Normal

1 Short: Clear CMOS

17) 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 (Or you can use a metal object to connect the positive and negative pins in the battery holder to make them short for one minute).
3. Re-install the battery.
4. Plug the power cord and turn ON the computer.

Chapter 2 BIOS Setup

BIOS (Basic Input and Output System) includes a CMOS SETUP utility which allows user to configure required settings or to activate certain system features.
The CMOS SETUP saves the configuration in the CMOS SRAM of the motherboard.
When the power is turned off, the battery on the motherboard supplies the necessary power to the CMOS SRAM.
When the power is turned on, pushing the <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

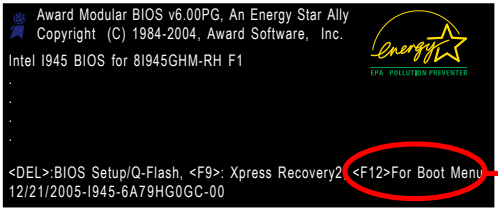
Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc>.

CAUTION

Because BIOS flashing is potentially risky, please do it with caution and avoid inadequate operation that may result in system malfunction.

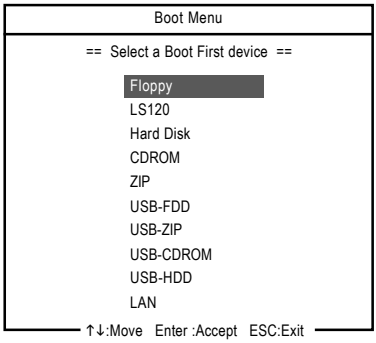
<F12> : For Boot Menu

Select boot sequence for onboard (or add-on cards) device.



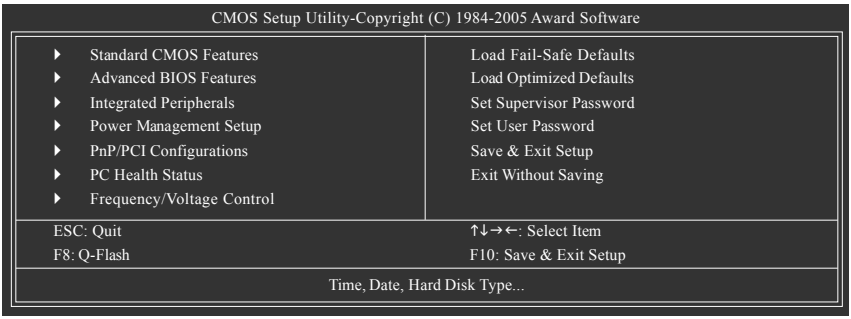
<F12> For Boot Menu

Use <↑> or <↓> to select a device, then press enter to accept . Press <ESC> to exit this menu.



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

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



NOTE

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

Please Load Optimized Defaults in the BIOS when somehow the system works not stable as usual. This action makes the system reset to the default for stability.

The BIOS Setup menus described in this chapter are for reference only and may differ from the exact settings for your motherboard.

- **Standard CMOS Features**

  This setup page includes all the items in standard compatible BIOS.
- **Advanced BIOS Features**

  This setup page includes all the items of Award special enhanced features.
- **Integrated Peripherals**

  This setup page includes all onboard peripherals.
- **Power Management Setup**

  This setup page includes all the items of Green function features.
- **PnP/PCI Configuration**

  This setup page includes all the configurations of PCI & PnP ISA resources.
- **PC Health Status**

  This setup page is the System auto detect Temperature, voltage, fan, speed.
- **Frequency / Voltage Control**

  This setup page is control CPU clock and frequency ratio.
- **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) 1984-2005 Award Software
Standard CMOS Features

Date (mm:dd:yy)                Mon, Mar  28 2005        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

                                                        <Week>
Drive A                        [1.44M, 3.5"]            Sun. to Sat.
Drive  B                       [None]
Floppy 3 Mode Suport           [Disabled]               <Month>
                                                        Jan. to Dec.
Holt On                        [All, But Keyboard]
                                                        <Day>
Base Memory                    640K                     1 to 31 (or maximum
Extended Memory                127M                     allowed in the month)
Total Memory                   128M
                                                        <Year>
                                                        1999 to 2098

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

☞ Date

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

- ▸▸ Week — The week, from Sun to Sat, determined by the BIOS and is display only
- ▸▸ Month — The month, Jan. Through Dec.
- ▸▸ Day — The day, from 1 to 31 (or the maximum allowed in the month)
- ▸▸ Year — The year, from 1999 through 2098

☞ Time

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

☞ IDE Channel 0 Master, Slave

- ▸▸ IDE HDD Auto-Detection Press "Enter" to select this option for automatic device detection.
- ▸▸ IDE Channel 0 Master(Slave) IDE Device Setup. You can use one of three methods:
  - Auto — Allows BIOS to automatically detect IDE devices during POST(default)
  - 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.

2-2 Advanced BIOS Features

```
CMOS Setup Utility-Copyright (C) 1984-2005 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
  Password Check                 [Setup]           Device Priority
# CPU Hyper-Threading            [Enabled]
  Limit CPUID Max. to 3          [Disabled]
  No-Execute Memory Protect (Note) [Enabled]
  CPU Enhanced Halt (C1E) (Note) [Enabled]
  CPU Thermal Monitor 2(TM2) (Note) [Enabled]
  CPU EIST Function (Note)       [Enabled]
  On-Chip Frame Buffer Size      [8MB]

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

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

☞ Hard Disk Boot Priority

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

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

☞ First / Second / Third Boot Device

- ▸▸ Floppy — Select your boot device priority by Floppy.
- ▸▸ LS120 — Select your boot device priority by LS120.
- ▸▸ Hard Disk — Select your boot device priority by Hard Disk.
- ▸▸ CDROM — Select your boot device priority by CDROM.
- ▸▸ ZIP — Select your boot device priority by ZIP.
- ▸▸ USB-FDD — Select your boot device priority by USB-FDD.
- ▸▸ USB-ZIP — Select your boot device priority by USB-ZIP.
- ▸▸ USB-CDROM — Select your boot device priority by USB-CDROM.
- ▸▸ USB-HDD — Select your boot device priority by USB-HDD.
- ▸▸ LAN — Select your boot device priority by LAN.
- ▸▸ Disabled — Disabled this function.

☞ 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.

(Note) This item will show up when you install a processor which supports this function.

☞ CPU Hyper-Threading

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

☞ Limit CPUID Max. to 3

- ▸▸ Enabled — Limit CPUID Maximum value to 3 when use older OS like NT4.
- ▸▸ Disabled — Disables CPUID Limit for windows XP.(Default value)

☞ No-Execute Memory Protect (Note)

- ▸▸ Enabled — Enables No-Execute Memory Protect function. (Default value)
- ▸▸ Disabled — Disables No-Execute Memory Protect function.

☞ CPU Enhanced Halt (C1E) (Note)

- ▸▸ Enabled — Enables CPU Enhanced Halt (C1E) function. (Default value)
- ▸▸ Disabled — Disables CPU Enhanced Halt (C1E) function.

☞ CPU Thermal Monitor 2 (TM2) (Note)

- ▸▸ Enabled — Enable CPU Thermal Monitor 2 (TM2) function. (Default value)
- ▸▸ Disabled — Disable CPU Thermal Monitor 2 (TM2) function.

☞ CPU EIST Function (Note)

- ▸▸ Enabled — Enable CPU EIST function. (Default value)
- ▸▸ Disabled — Disable EIST function.

☞ On-Chip Frame Buffer Size

- ▸▸ 1MB — Set On-chip frame buffer size to 1MB.
- ▸▸ 8MB — Set On-chip frame buffer size to 8MB. (Default value)

(Note) This item will show up when you install a processor which supports this function.

2-3 Integrated Peripherals

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

   On-Chip Primary PCI IDE      [Enabled]          Item Help
   SATA RAID/AHCI Mode          [Disabled]         Menu Level▶
   On-Chip SATA Mode            [Auto]
x  PATA IDE Set to              Ch.1 Master/Slave
   SATA Port 0/2 Set to         Ch.2 Master/Slave
   SATA Port 1/3 Set to         Ch.3 Master/Slave
   USB Controller               [Enabled]
   USB 2.0 Controller           [Enabled]
   USB Keyboard Support         [Disabled]
   USB Mouse Support            [Disabled]
   Legacy USB storage detect    [Enabled]
   Azalia Codec                 [Auto]
   Onboard H/W 1394             [Enabled]
   Onboard H/W LAN              [Enabled]
   Onboard LAN Boot ROM         [Disabled]
   Onboard Serial Port 1        [3F8/IRQ4]
   Onboard Parallel Port        [378/IRQ7]
   Parallel Port Mode           [SPP]
x  ECP Mode Use DMA             3

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

☞ On-Chip Primary PCI IDE

- ▸▸ Enabled — Enable onboard 1st channel IDE port. (Default value)
- ▸▸ Disabled — Disable onboard 1st channel IDE port.

☞ SATA RAID / AHCI Mode

- ▸▸ RAID — Set the onboard SATA controller to RAID mode.
- ▸▸ AHCI — Set the onboard SATA controller to AHCI mode. Advanced Host Controller Interface (AHCI) is an interface specification that allows the storage driver to enable advanced Serial ATA features such as Native Command Queuing and hot plug. For more details about AHCI, please visit Intel's website.
- ▸▸ Disabled — Set the onboard SATA controller to IDE mode.(Default value)

☞ On-Chip SATA Mode

- ▸▸ Disabled — Disable this function.
- ▸▸ Auto — BIOS will auto detect. (Default value)
- ▸▸ Combined — Set On-Chip SATA mode to Combined, you can use up to 4 HDDs on the motherboard; 2 for SATA and the other for PATA IDE.
- ▸▸ Enhanced — Set On-Chip SATA mode to Enhanced, the motherboard allows up to 6 HDDs to use.
- ▸▸ Non-Combined — Set On-Chip SATA mode to Non-Combined, SATA will be simulated to PATA mode.

☞ PATA IDE Set to

- ▸▸ Ch.1 Master/Slave — Set PATA IDE to Ch. 1 Master/Slave. (Default value)
- ▸▸ Ch.0 Master/Slave — Set PATA IDE to Ch. 0 Master/Slave.

☞ SATA Port 0/2 Set to

▸▸ This value will auto make by the setting "On-Chip SATA Mode" and "PATA IDE Set to".

If PATA IDE were set to Ch. 1 Master/Slave, this function will auto set to Ch. 0 Master/Slave.

☞ SATA Port 1/3 Set to

⏩ This value will auto make by the setting "On-Chip SATA Mode" and "PATA IDE Set to".

If PATA IDE were set to Ch. 0 Master/Slave, this function will auto set to Ch. 1 Master/Slave.

☞ USB Controller

⏩ Enabled Enable USB Controller. (Default value)

⏩ Disabled Disable USB Controller.

☞ USB 2.0 Controller

Disable this function if you are not using onboard USB 2.0 feature.

⏩ Enabled Enable USB 2.0 Controller. (Default value)

⏩ Disabled Disable USB 2.0 Controller.

☞ USB Keyboard Support

⏩ Enabled Enable USB Keyboard Support.

⏩ Disabled Disable USB Keyboard Support. (Default value)

☞ USB Mouse Support

⏩ Enabled Enable USB Mouse Support.

⏩ Disabled Disable USB Mouse Support. (Default value)

☞ Legacy USB storage detect

⏩ Enabled Enable USB storage device boot.(Default value)

⏩ Disabled Disable this function.

☞ Azalia Codec

⏩ Auto Auto detect Azalia audio function. (Default value)

⏩ Disabled Disable Azalia audio function.

☞ Onboard H/W 1394

⏩ Enabled Enable onboard IEEE 1394 function.(Default value)

⏩ Disabled Disable this function.

☞ Onboard H/W LAN

⏩ Enabled Enable Onboard H/W LAN function. (Default value)

⏩ Disabled Disable this function.

☞ Onboard LAN Boot ROM

This function decide whether to invoke the boot ROM of the onboard LAN chip.

⏩ Enabled Enable this function.

⏩ Disabled Disable this function. (Default value)

☞ Onboard Serial Port 1

⏩ Auto BIOS will automatically setup the port 1 address.

⏩ 3F8/IRQ4 Enable onboard Serial port 1 and address is 3F8/IRQ4. (Default value)

⏩ 2F8/IRQ3 Enable onboard Serial port 1 and address is 2F8/IRQ3.

⏩ 3E8/IRQ4 Enable onboard Serial port 1 and address is 3E8/IRQ4.

⏩ 2E8/IRQ3 Enable onboard Serial port 1 and address is 2E8/IRQ3.

⏩ Disabled Disable onboard Serial port 1.

☞ Onboard Parallel port

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

☞ Parallel Port Mode

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

☞ ECP Mode Use DMA

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

2-4 Power Management Setup

```
CMOS Setup Utility-Copyright (C) 1984-2005 Award Software
Power Management Setup

   ACPI Suspend Type              [S1(POS)]        Item Help
   Soft-Off by PWR-BTTN           [Instant-off]    Menu Level▶
   Quick Resume Technology        [Disabled]
   PME Event Wake Up              [Enabled]
   Power On by Ring               [Enabled]
   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 Default          F7: Optimized Defaults
```

☞ ACPI Suspend Type

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

☞ Soft-off by PWR-BTTN

- ▸▸ Instant-off Press power button then Power off instantly. (Default value)
- ▸▸ Delay 4 Sec. Press power button 4 sec. to Power off. Enter suspend if button is pressed less than 4 sec.

☞ Quick Resume Technology

- ▸▸ Disabled Disable this function.(Default value)
- ▸▸ Enabled Enable quick resume technology.

☞ PME Event Wake Up

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

☞ Power On by Ring

- ▸▸ Disabled Disable Power on by Ring function.
- ▸▸ Enabled Enable Power on by Ring function. (Default value)

☞ Resume by Alarm

You can set "Resume by Alarm" item to enabled and key in Data/time to power on system.

- ▸▸ Disabled Disable this function. (Default value)
- ▸▸ Enabled Enable alarm function to POWER ON system.

If RTC Alarm Lead To Power On is Enabled.

- ▸▸ Date (of Month) Alarm : Everyday, 1~31
- ▸▸ Time (hh: mm: ss) Alarm : (0~23) : (0~59) : (0~59)

☞ Power On By Mouse

- ▸▸ Disabled — Disable this function. (Default value)
- ▸▸ Double Click — Double click on PS/2 mouse left button to power on the system.

☞ Power On By Keyboard

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

2-5 PnP/PCI Configurations

```
CMOS Setup Utility-Copyright (C) 1984-2005 Award Software
PnP/PCI Configurations

PCI 1 IRQ Assignment        [Auto]        Item Help
PCI 2 IRQ Assignment        [Auto]        Menu Level▶

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

☞ PCI 1 IRQ Assignment

- ▸▸ Auto — Auto assign IRQ to PCI 1. (Default value)
- ▸▸ 3,4,5,7,9,10,11,12,14,15 — Set IRQ 3,4,5,7,9,10,11,12,14,15 to PCI 1.

☞ PCI 2 IRQ Assignment

- ▸▸ Auto — Auto assign IRQ to PCI 2. (Default value)
- ▸▸ 3,4,5,7,9,10,11,12,14,15 — Set IRQ 3,4,5,7,9,10,11,12,14,15 to PCI 2.

2-6 PC Health Status

CMOS Setup Utility-Copyright (C) 1984-2005 Award Software
PC Health Status

		Item Help
Reset Case Open Status	[Disabled]	Menu Level▶
Case Opened	Yes	
Vcore	OK	
DDRV	OK	
+3.3V	OK	
+12V	OK	
Current CPU Temperature	38°C	
Current CPU FAN Speed	4687 RPM	
Current SYSTEM FAN Speed	0 RPM	
CPU Warning Temperature	[Disabled]	
CPU FAN Fail Warning	[Disabled]	
SYSTEM FAN Fail Warning	[Disabled]	
CPU Smart FAN Control	[Enabled]	
CPU Smart FAN Mode	[Auto]	

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

☞ Reset Case Open Status

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

☞ Case Opened

If the case is closed, "Case Opened" will show "No".

If the case have been opened, "Case Opened" will show "Yes".

If you want to reset "Case Opened" value, set "Reset Case Open Status" to "Enabled" and save CMOS, your computer will restart.

☞ Current Voltage(V) Vcore / DDRV / +3.3V / +12V

- ▸▸ Detect system's voltage status automatically.

☞ Current CPU Temperature

- ▸▸ Detect CPU temperature automatically.

☞ Current CPU / System FAN Speed (RPM)

- ▸▸ Detect CPU / System Fan speed status automatically.

☞ CPU Warning Temperature

- ▸▸ 60°C / 140°F — Monitor CPU temperature at 60°C / 140°F.
- ▸▸ 70°C / 158°F — Monitor CPU temperature at 70°C / 158°F.
- ▸▸ 80°C / 176°F — Monitor CPU temperature at 80°C / 176°F.
- ▸▸ 90°C / 194°F — Monitor CPU temperature at 90°C / 194°F.
- ▸▸ Disabled — Disable this function. (Default value)

☞ CPU / System FAN Fail Warning

- ▸▸ Disabled — Fan warning function disable. (Default value)
- ▸▸ Enabled — Fan warning function enable.

☞ CPU Smart FAN Control

- ▸▸ Disabled — Disable this function.
- ▸▸ Enabled — When this function is enabled, CPU fan will run at different speed depending on CPU temperature. Users can adjust the fan speed with Easy Tune based on their requirements. (Default Value)

☞ CPU Smart FAN Mode

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

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

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

2-7 Frequency/Voltage Control

```
CMOS Setup Utility-Copyright (C) 1984-2005 Award Software
Frequency/Voltage Control

CPU Clock Ratio              [16X]        Item Help
System Memory Multiplier     [Auto]       Menu Level▶
Memory Frequency (Mhz)       533
Normal CPU Vcore             1.3875V

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

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

☞ CPU Clock Ratio (Note)

This setup option will automatically assign by CPU detection.
The option will display "Locked" and read only if the CPU ratio is not changeable.

☞ System Memory Multiplier

Wrong frequency may make system can't boot, clear CMOS to overcome wrong frequency issue.
for FSB(Front Side Bus) frequency=533MHz,

- ▸▸ 3 Memory Frequency = Host clock X 3.
- ▸▸ 4 Memory Frequency = Host clock X 4.
- ▸▸ Auto Set Memory frequency by DRAM SPD data. (Default value)

for FSB(Front Side Bus) frequency=800MHz,

- ▸▸ 2.0 Memory Frequency = Host clock X 2.0.
- ▸▸ 2.66 Memory Frequency = Host clock X 2.66.
- ▸▸ 3.33 Memory Frequency = Host clock X 3.33.
- ▸▸ Auto Set Memory frequency by DRAM SPD data. (Default value)

for FSB(Front Side Bus) frequency=1066MHz,

- ▸▸ 1.5 Memory Frequency = Host clock X 1.5.
- ▸▸ 2.0 Memory Frequency = Host clock X 2.0.
- ▸▸ 2.5 Memory Frequency = Host clock X 2.5.
- ▸▸ Auto Set Memory frequency by DRAM SPD data. (Default value)

☞ Memory Frequency (Mhz)

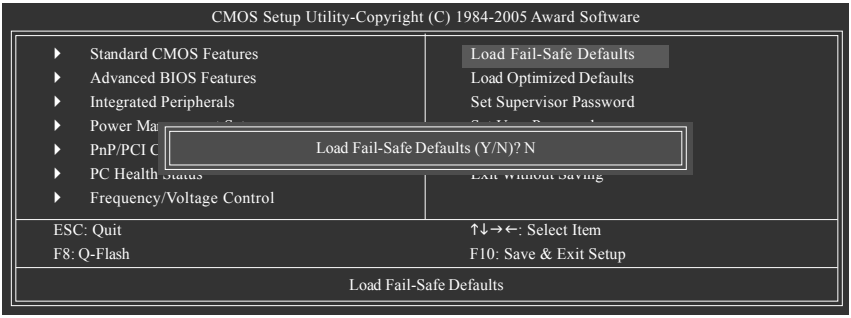
The values depend on "System Memory Multiplier" item.

☞ Normal CPU Vcore

▸▸ Display your CPU's normal voltage.

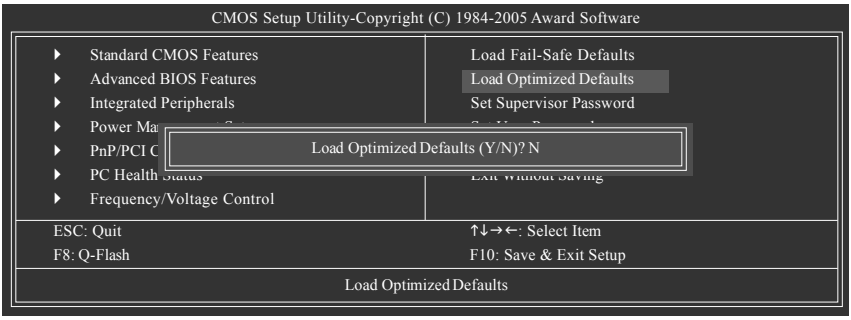
(Note) This item will show up when you install a processor which supports this function.

2-8 Load Fail-Safe Defaults



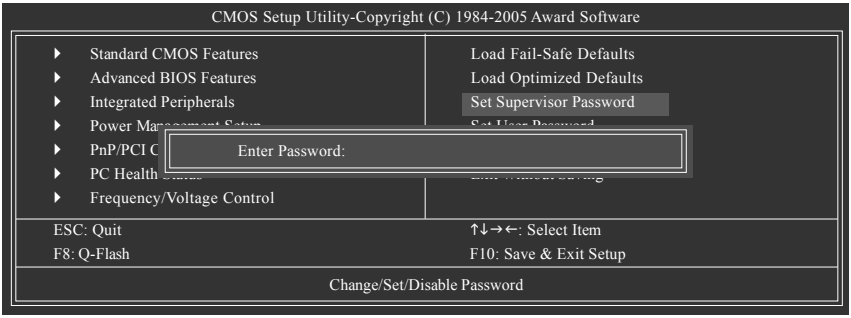
Fail-Safe defaults contain the most appropriate values of the system parameters that allow minimum system performance.

2-9 Load Optimized Defaults



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

2-10 Set Supervisor/User Password



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

When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

Type the password, up to eight characters, and press <Enter>. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

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

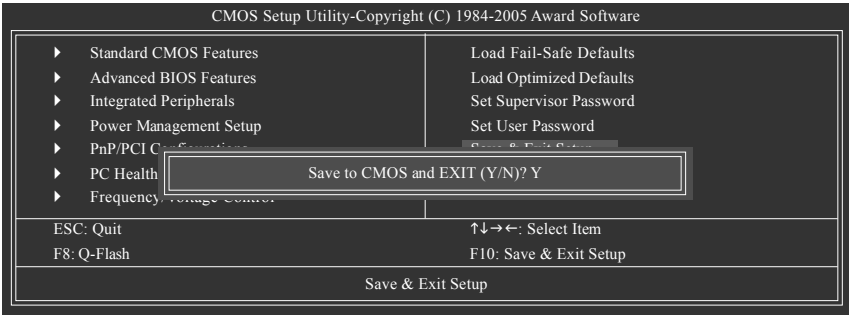
The BIOS Setup program allows you to specify two separate passwords:

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

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

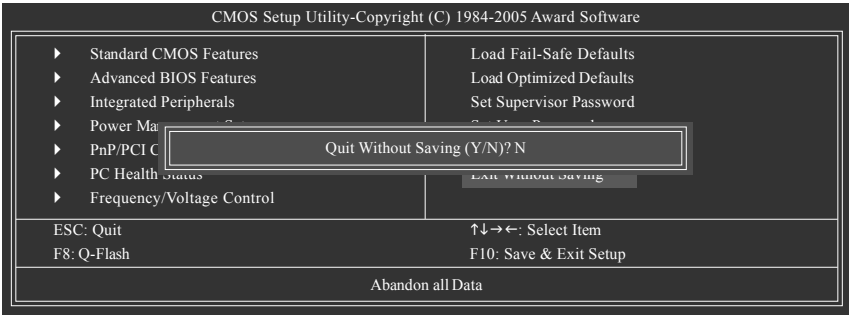
If you select "Setup" at "Password Check" in Advance BIOS Features Menu, you will be prompted only when you try to enter Setup.

2-11 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



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

Chapter 3 Install Drivers

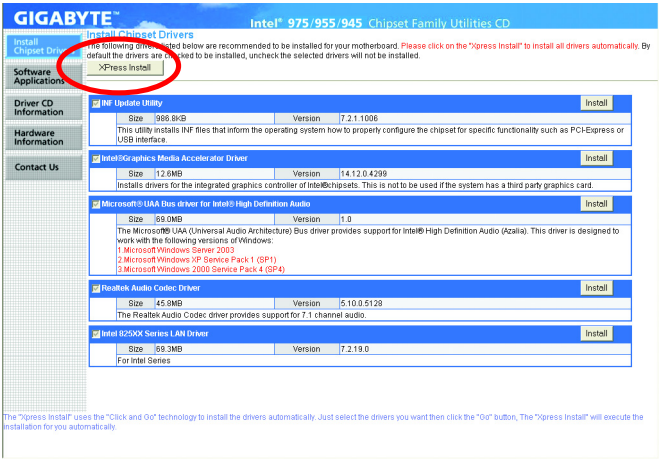
NOTE

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

3-1 Install Chipset Drivers

"Xpress Install " is now analyizing your computer...99%

After insert the driver CD, "Xpress Install" will scan automatically the system and then list all the drivers that recommended to install. Please pick the item that you want and press "install" followed the item; or you can press "Xpress Install" to install all items defaulted.



NOTE

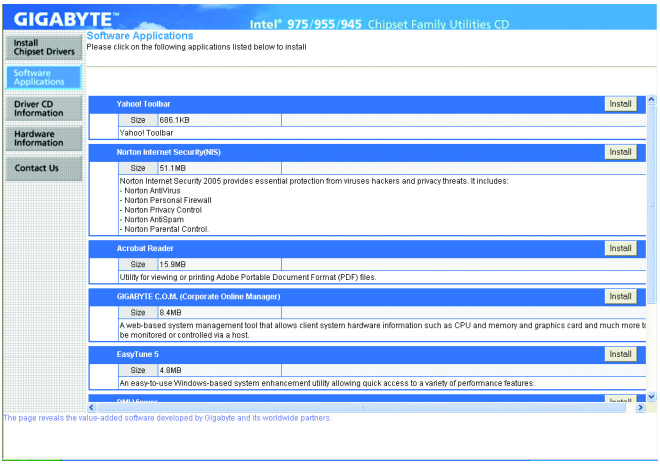
Some device drivers will restart your system automatically. After restarting your system the "Xpress Install" will continue to install other drivers. System will reboot automatically after install the drivers, afterward you can install others application.

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).

3-2 Software Applications

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 Driver CD 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

(Not all model support these Unique Software Utilities, please check your MB features.)

U-PLUS D.P.S. (Universal Plus Dual Power System)

The U-Plus Dual Power System (U-Plus DPS) is a revolutionary eight-phase power circuit built for ultimate system protection. Designed to withstand varying current levels and changes, the U-Plus D.P.S. provides an immensely durable and stable power circuit to the CPU for solid system stability. These characteristics make it the ideal companion with the latest LGA775 Intel® Pentium® 4 Processor as well as future Intel® processors. As well, 4 blue LED's are mounted on the U-Plus D.P.S. for intelligent indication of system loading.

M.I.T. (Motherboard Intelligent Tweaker)

Motherboard Intelligent Tweaker (M.I.T.) allows user to access and change BIOS feature settings with relative speed and ease. Through GIGABYTE M.I.T. feature the user is no longer required to switch into different modes within BIOS setup in order to change system settings such as the CPU system bus, memory timings or to enabled Gigabyte's unique C.I.A. 2 and M.I.B. 2 features. M.I.T.'s integration of all platform performance settings into a single mode now gives any user the ability to control and enhance their computer system to the desired level.

C.I.A.2 (CPU Intelligent Accelerator 2)

GIGABYTE CPU Intelligent Accelerator 2(C.I.A. 2) is designed to automatically adjust CPU computing power to maximize system performance. When enabled, the program detects the current CPU loading and automatically accelerates the CPU computing performance to allow for a faster and smoother execution of programs. When the function is disabled, the CPU is returned to its initial status.

M.I.B.2 (Memory Intelligent Booster 2)

Built on the original M.I.B., the new Memory Intelligent Booster 2 (M.I.B. 2) is designed especially to maximize memory performance and boost memory bandwidth up to 10%. With added branded memory module information, users are able to optimize memory performance by selecting from a recommended memory module list.

S.O.S. (System Overclock Saver)

System Overclock Saver (S.O.S.) is a unique feature that eliminates system boot-up errors resulting from system over-enhancement by the user. With GIGABYTE's proprietary S.O.S. feature, users no longer need to open up the PC chassis and short-circuit the "Clear CMOS" pins or the battery on the motherboard to reset the system back to factory default settings. Instead, S.O.S. automatically resets the overclocked system settings back to their factory defaults to provide a more user-friendly and reliable platform for users.

Download Center

Download Center allows users to quickly download and update their BIOS as well as the latest drivers for their system. Download Center automatically runs a system check of the user PC and provides the user with the current system information as well as displaying a detailed list of all new drivers with the option for download.

C.O.M. (Corporate Online Management)

A web-based system management tool that allows system hardware information such as CPU, memory, graphics card, etc. to be monitored and controlled via the Internet, C.O.M. allows corporate MIS engineers to easily maintain corporate computers such as providing the most up-to-date drivers and BIOS.(Do not use C.O.M. and @BIOS at the same time.)

4-1-1 EasyTune 5 Introduction

EasyTune 5 presents the most convenient Windows based system performance enhancement and manageability utility. Featuring several powerful yet easy to use tools such as 1) Overclocking for enhancing system performance, 2) C.I.A. and M.I.B. for special enhancement for CPU and Memory, 3) Smart-Fan control for managing fan speed control of both CPU cooling fan and North-Bridge Chipset cooling fan, 4) PC health for monitoring system status.(Note)

User Interface Overview

	Button / Display	Description
1.	Overclocking	Enters the Overclocking setting page
2.	C.I.A./C.I.A.2 and M.I.B./M.I.B.2	Enters the C.I.A./2 and M.I.B./2 setting page
3.	Smart-Fan	Enters the Smart-Fan setting page
4.	PC Health	Enters the PC Health setting page
5.	GO	Confirmation and Execution button
6.	"Easy Mode" & "Advance Mode"	Toggles between Easy and Advance Mode
7.	Display screen	Display panel of CPU frequency
8.	Function display LEDs	Shows the current functions status
9.	GIGABYTE Logo	Log on to GIGABYTE website
10.	Help button	Display EasyTune™ 5 Help file
11.	Exit or Minimize button	Quit or Minimize EasyTune™ 5 software

(Note) EasyTune 5 functions may vary depending on different motherboards.

4-1-2 Xpress Recovery2 Introduction

Xpress Recovery2 is designed to provide quick backup and restoration of hard disk data. Supporting Microsoft operating systems including Windows XP/2000/NT/98/Me and DOS, and file systems including FAT16, FAT32, and NTFS, Xpress Recovery2 is able to back up data on hard disks on PATA and SATA IDE controllers. After Xpress Recovery2 is executed from CD-ROM for the first time, it will stay permanent in your hard disk. If you wish to run Xpress Recovery2 later, you can simply press F9 during system bootup to enter Xpress Recovery2 without the CD-ROM.

System requirements:

1. Intel x86 platforms
2. At least 64M bytes of system memory
3. VESA-supported VGA cards

How to use the Xpress Recovery2

Initial access by booting from CD-ROM and subsequent access by pressing the F9 key:

Steps: After entering BIOS Setup, go to **Advanced BIOS Feature** and set to boot from CD-ROM. Save the settings and exit the BIOS Setup. Insert the provided driver CD into your CD-ROM drive. Upon system restart, the message which says "Boot from CD/DVD:" will appear in the bottom left corner of the screen. Press any key to enter Xpress Recovery2.

After the steps above are completed, subsequent access to Xpress Recovery2 can be made by simply pressing the <F9> key during system power-on.

NOTE

1. If you have already entered Xpress Recovery2 by booting from the CD-ROM, you can enter Xpress Recovery2 by pressing the <F9> key in the future.
2. System storage capacity and the reading/writing speed of the hard disk will affect the data backup speed.
3. It is recommended that Xpress Recovery2 be immediately installed once you complete installations of OS and all required drivers as well as software.

The Main Screen of Xpress Recovery2

1. RESTORE:

Restore the backed-up data to your hard disk. (This button will not appear if there is no backup file.)

2. BACKUP:

Back up data from hard disk.

3. REMOVE:

Remove previously-created backup files to release disk space.
(This button will not appear if there is no backup file.)

4. REBOOT:

Exit the main screen and restart the system.

Limitations:

1. Not compatible to Xpress Recovery.
2. For the use of Xpress Recovery2, a primary partition must be reserved.
3. Xpress Recovery2 will store the backup file at the end of the hard disk, so free space available on the hard disk for the backup file must be allocated in advance. (A minimum 4GB is recommended but the actual space is dependent on the size of the data to be backed up)
4. Capable of backing up hard disks installed with Windows operating systems including DOS and Windows XP/2000/NT/9x/Me.
5. USB hard disks are currently not supported.
6. Does not support RAID/AHCI (class code 0104/0106) hard disks.
7. Capable of backing up and restoring only the first physical hard disk.

Hard disks detection sequence is as follows:

a. PATA IDE primary channel
b. PATA IDE secondary channel
c. SATA IDE channel 1
d. SATA IDE channel 2
e. SATA IDE channel 3
f. SATA IDE channel 4

Precautions:

1. When using hard disks with more than 128G under Windows 2000, be sure to execute the EnableBigLba.*exe* program from the driver CD before data backup.
2. It is normal that data backup takes longer time than data restoration.
3. Xpress Recovery2 is compliant with the GPL regulations.
4. On a few motherboards based on Nvidia chipsets, BIOS update is required for Xpress Recovery2 to correctly identify RAID and SATA IDE mode. Please contact your motherboard manufacturer.
5. Xpress Recovery2 supports only PATA hard disks and not SATA hard disks on the following motherboards (As this is a BIOS-related issue, it can be solved by BIOS update)

GA-K8U	GA-K8NXP-9	GA-8N-SLI Royal
GA-K8U-9	GA-K8N Ultra-9	GA-8N-SLI Pro
GA-K8NXP-SLI	GA-K8NF-9 (PCB Ver. 1.0)	GA-8N-SLI
GA-K8N Ultra-SLI	GA-K8NE (PCB Ver. 1.0)	
GA-K8N Pro-SLI	GA-K8NMF-9	

4-1-3 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**.

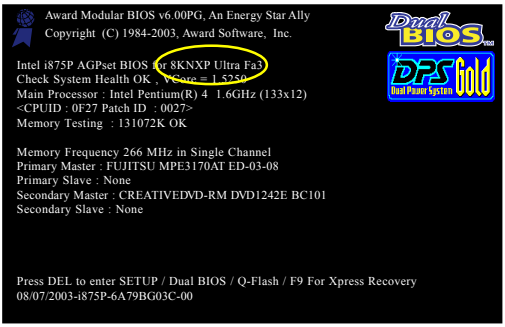
Part One:

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.

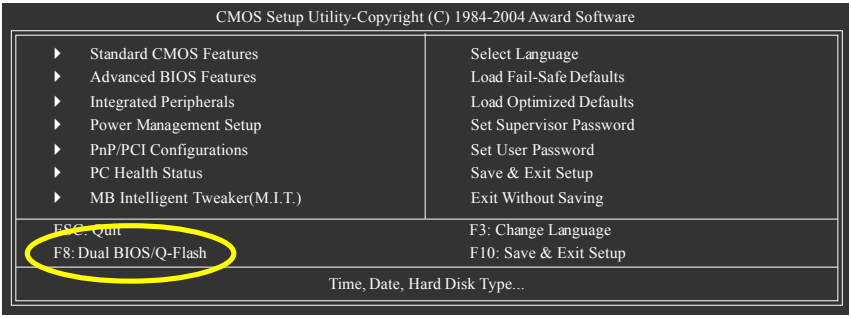
In the following sections, we take GA-8KNXP Ultra as the example to guide you how to flash BIOS from an older version to the latest version. For example, from Fa3 to Fba.

The BIOS file is Fa3 before updating



Entering the Q-Flash™ utility:

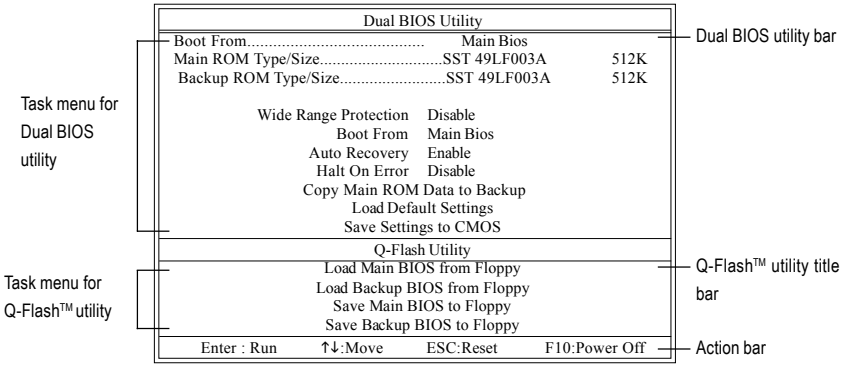
Step1: To use Q-Flash utility, you must press **Del** in the boot screen to enter BIOS menu.



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:

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:

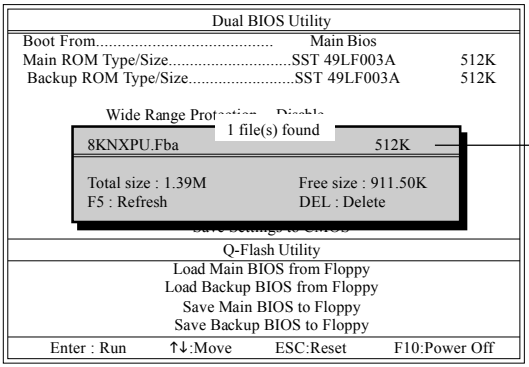
1. Press arrow buttons on your keyboard to move the light bar to "Load Main BIOS from Floppy" item in the Q-Flash menu and press Enter button.
   Later, you will see a box pop up showing the BIOS files you previously downloaded to the floppy disk.

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**.

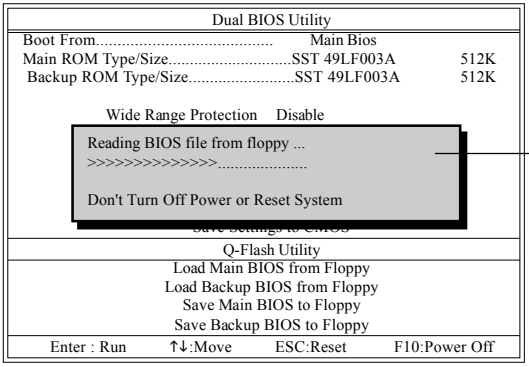
In this example, we only download one BIOS file to the floppy disk so only one BIOS file, 8KNXPU.Fba, is listed.

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



BIOS file in the floppy disk.

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



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.

CAUTION 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

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.

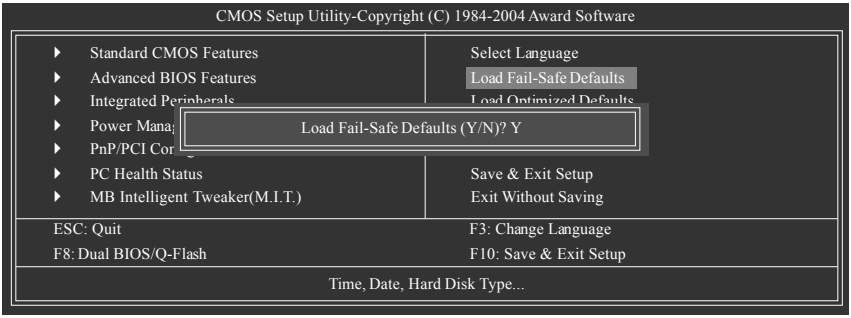
```
Dual BIOS Utility
Boot From.....                    Main Bios
Main ROM Type/Size.............SST 49LF003A        512K
Backup ROM Type/Size..........SST 49LF003A        512K

Wide Range Protection    Disable

Are you sure to RESET ?

[Enter] to continure or [Esc] to abort...

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 Fab after updating.

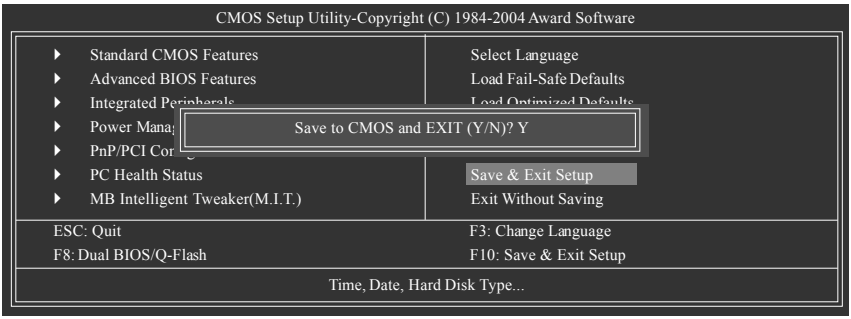
```
Award Modular BIOS v6.00PG, An Energy Star Ally
Copyright (C) 1984-2003, Award Software, Inc.

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
```

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.



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.

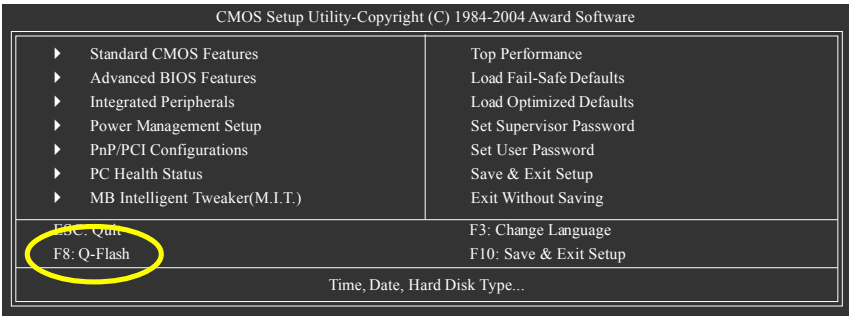


Press **Y** on your keyboard to save and exit.

Part Two:

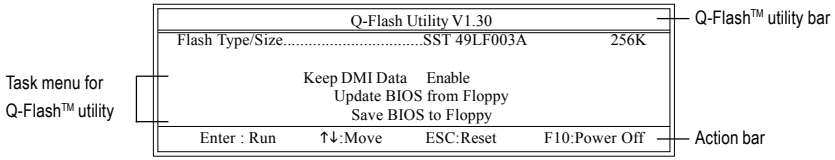
Updating BIOS with Q-Flash™ Utility on Single-BIOS Motherboards.

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



Exploring the Q-Flash™ utility screen

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



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.

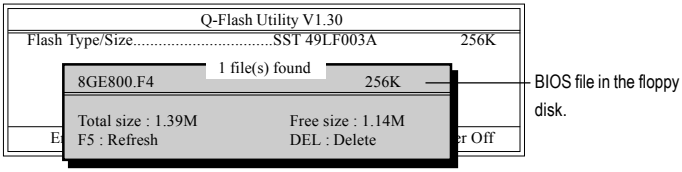
Steps:

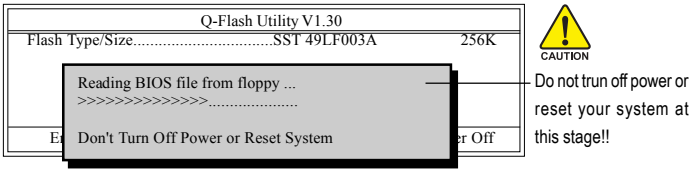
1. Press arrow buttons on your keyboard to move the light bar to "Update BIOS from Floppy" item in the Q-Flash menu and press Enter button.
   Later, you will see a box pop up showing the BIOS files you previously downloaded to the floppy disk.

   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.

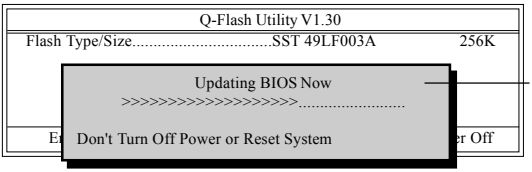




After BIOS file is read, you'll see a confirmation dialog box asking you "Are you sure to update BIOS?"

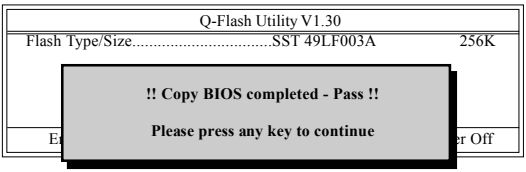
CAUTION Please do not take out the floppy disk when it begins flashing BIOS.

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.

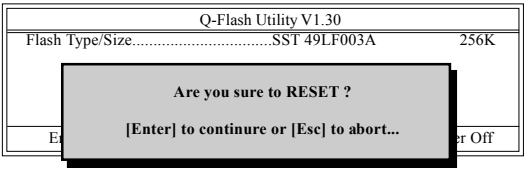


Do not trun off power or reset your system at this stage!!

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

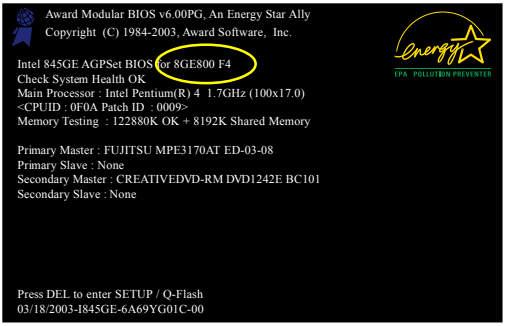


5. Press Esc and then Y button to exit the Q-Flash utility. The computer will restart automatically after you exit Q-Flash.



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



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

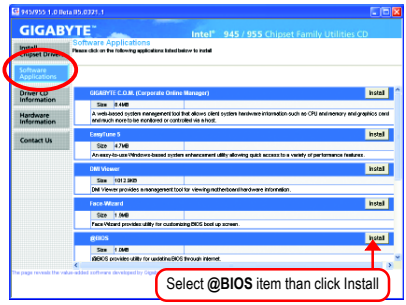


Fig 2. Installation Complete and Run @BIOS

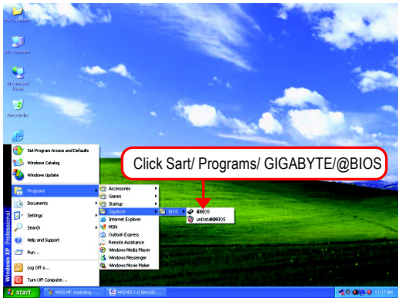


Fig 3. The @BIOS Utility

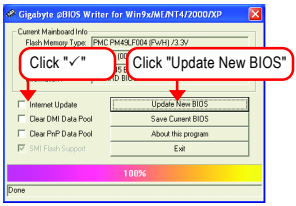
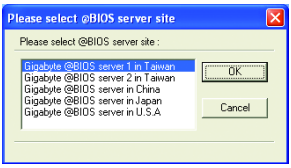


Fig 4. Select the desired @BIOS server



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: 8I945GMHRH.E7).
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 web site for downloading and updating it according to method II.
IV. Please note that any interruption during updating will cause system unbooted.
V. Do not use @BIOS and C.O.M. (Corporate Online Management) at the same time.

4-1-4 Configuring SATA Hard Drive(s) (Controller: Intel ICH7-DH)

To configure SATA hard drive(s), follow the steps below:

(1) Install SATA hard drive(s) in your system.
(2) Configure SATA controller mode and boot sequence in BIOS Setup.
(3)* Configure RAID set in RAID BIOS.
(4) Make a floppy disk containing the SATA controller driver.
(5) Install the SATA controller driver during OS installation.

Before you begin

Please prepare:

(a) Two SATA hard drives (to ensure optimal performance, it is recommended that you use two hard drives with identical model and capacity). If you do not want to create RAID with the SATA controller, you may prepare only one hard drive.
(b) An empty formatted floppy disk.
(c) Windows XP/2000 setup disk.
(d) Driver CD for your motherboard.

(1) Installing SATA hard drive(s) in your computer

Attach one end of the SATA signal cable to the rear of the SATA hard drive and the other end to available SATA 3Gb/s port(s) on the motherboard. Then connect the power connector from your power supply to the hard drive.

"*" Skip this step if you do not want to create RAID array on the SATA controller

(2) Configuring SATA controller mode and boot sequence in BIOS Setup

You have to make sure whether the SATA controller is configured correctly in system BIOS Setup and set BIOS boot sequence for the SATA hard drive(s).

Step 1:

Turn on your computer and press Del to enter BIOS Setup during POST (Power-On Self Test). If you want to create RAID, set **SATA RAID/AHCI Mode** under the **Integrated Peripherals** menu to **RAID** (**Disabled** by default). Then, set **On-Chip SATA Mode** to **Manual** or **Auto** (default) based on your own requirements.

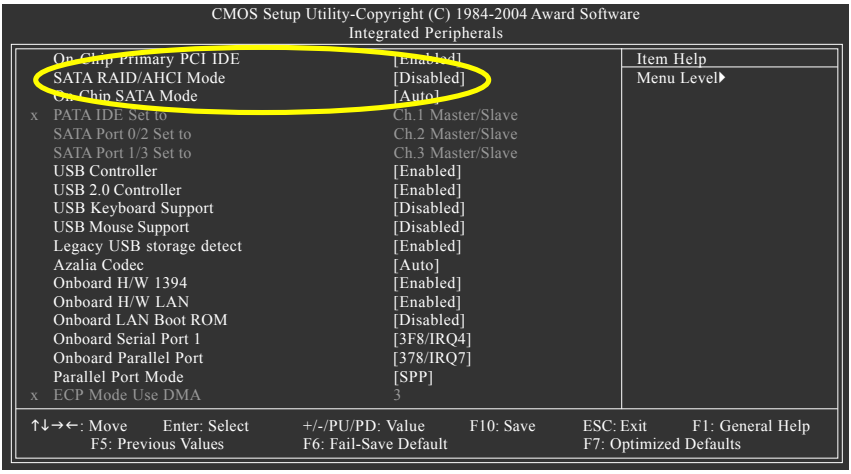


Figure 1

NOTE The BIOS Setup menus described in this section may not show the exact settings for your motherboard. The actual BIOS Setup menu options you will see shall depend on the motherboard you have and the BIOS version.

Step 2:

Later, select **Hard Disk Boot Priority** under the **Advanced BIOS Features** menu. In the **Hard Disk Boot Priority** submenu, select the model of the SATA hard drive onto which you intent to install Microsoft Windows 2000/XP (Figure 2).

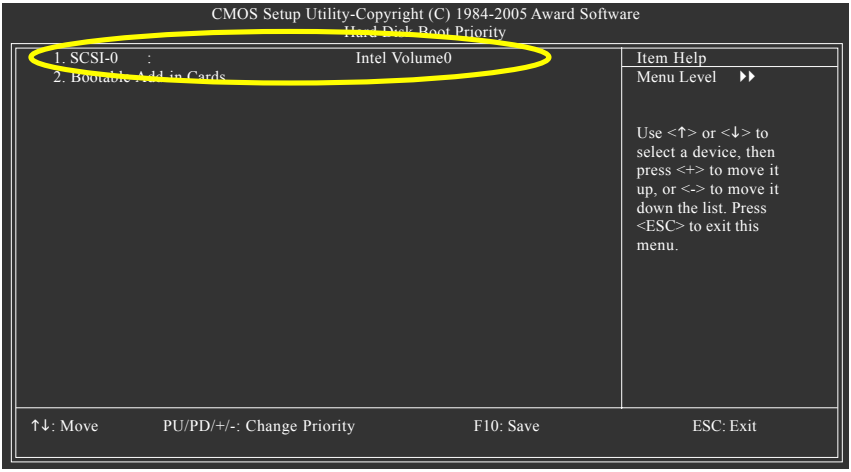


Figure 2

Step 3:

Set **First Boot Device** under the **Advanced BIOS Features** menu to **CD-ROM** to boot from CD-ROM after system restarts (Figure 3).

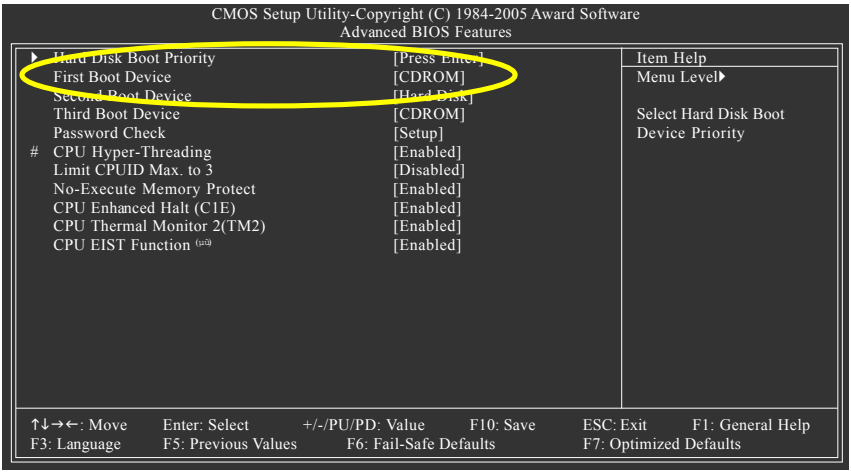


Figure 3

Step 4:

Save and exit BIOS Setup.

(3) Configuring RAID set in RAID BIOS

Enter the RAID BIOS setup utility to configure a RAID array. Skip this step and proceed to Section 4 if you do not want to create RAID.

Step 1:

After the POST memory test begins and before the operating system boot begins, look for a message which says "Press <Ctrl-I> to enter Configuration utility" (Figure 4). Press CTRL+ I to enter the RAID BIOS setup utility.

```
Intel(R) Matrix Storage Manager option ROM V5.0.0.1032 ICH7R wRAID5
Copyright(C) 2003-05 Intel Corporation.  All Rights Reversed.

RAID Volumes :
None Defined.

Physical Disks :
Port     Driver Model        Serial #                    Size       Type/Status(Vol ID)
0        ST3120026AS         3JT354CP                    111.7GB    Non-RAID Disk
1        ST3120026AS         3JT329JX                    111.7GB    Non-RAID Disk

Press  <CTRL - I>  to enter Configuration Utility
```

Figure 4

Step 2:

After you press CTRL+ I, the **Create RAID Volume** screen will appear (Figure 5).

Create RAID Volume¡G

If you want to create RAID array, select **Create RAID Volume** in Main Menu and press ENTER.

```
Intel(R) Matrix Storage Manager option ROM V5.0.0.1032 ICH7R wRAID5
Copyright(C) 2003-05 Intel Corporation.  All Rights Reversed.
                          [ MAIN MENU ]
                     1.Create RAID Volume
                     2. Delete RAID Volume
                     3. Reset Disks to Non-RAID
                     4. Exit
                    [ DISK/VOLUME INFORMATION ]
RAID Volumes :
None Defined.

Physical Disks :
Port     Driver Model        Serial #                    Size       Type/Status(Vol ID)
0        ST3120026AS         3JT354CP                    111.7GB    Non-RAID Disk
1        ST3120026AS         3JT329JX                    111.7GB    Non-RAID Disk

[↑↓]-Select          [ESC]-Exit          [ENTER]-Select Menu
```

Figure 5

Step 3:

After entering the Create Volume Menu screen, name the disk array with 1~16 letters (letters cannot be special characters) under the Name item. When finished, press ENTER to select a RAID level (Figure 6). There are four RAID levels: RAID0, RAID1, RAID10 and RAID5. Select a RAID level and press ENTER.

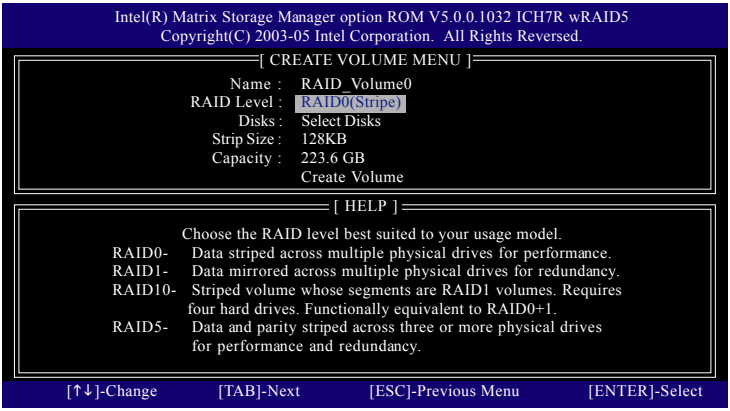


Figure 6

Step 4:

Set the stripe block size (Figure 7). The *KB* is the standard unit of stripe block size. The stripe block size can be set from 4KB to 128KB. After the setting, press ENTER to set array capacity.

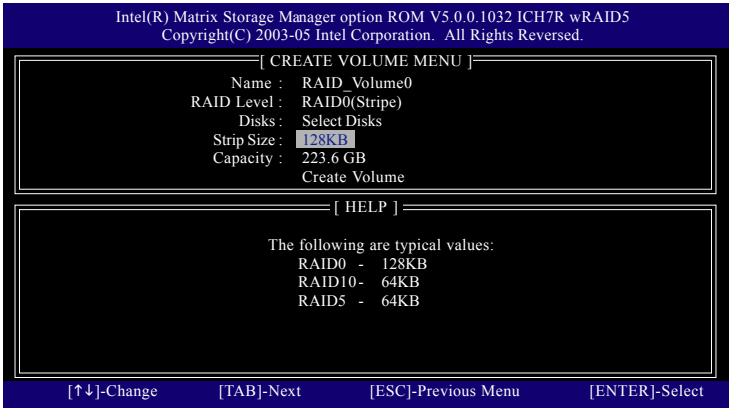


Figure 7

Step 5:

After setting all the items above, select Create Volume and press ENTER (Figure 8) to begin the creation of the RAID array.

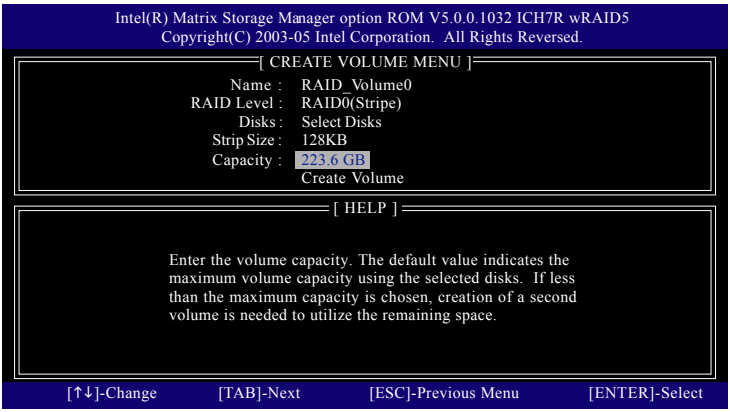


Figure 8

Step 6:

When prompted to confirm whether to create this volume, press Y to create or N to cancel.

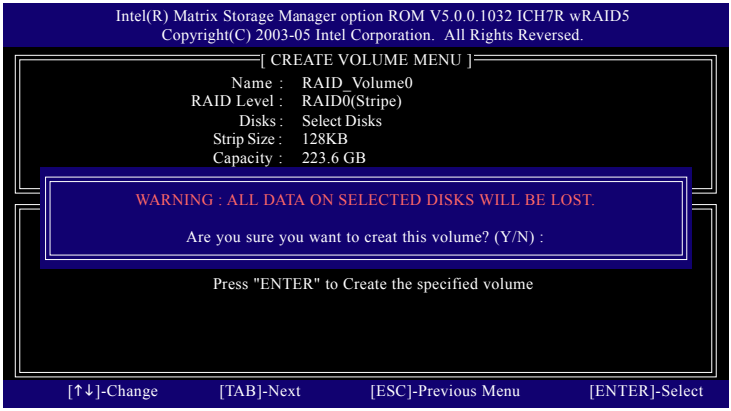


Figure 9

After the creation is completed, you can see detailed information about the RAID Array in the DISK/VOLUME INFORMATION section, including RAID mode, disk block size, disk name, and disk capacity, etc.

```
Intel(R) Matrix Storage Manager option ROM V5.0.0.1032 ICH7R wRAID5
Copyright(C) 2003-05 Intel Corporation.  All Rights Reversed.

[ MAIN MENU ]
1. Create RAID Volume
2. Delete RAID Volume
3. Reset Disks to Non-RAID
4. Exit

[ DISK/VOLUME INFORMATION ]
RAID Volumes :
ID   Name      Level        Strip   Size     Status   Bootable
0    Volume0   RAID(Stripe) 128KB   223.6GB  Normal   Yes

Physical Disks :
Port Driver Model  Serial #   Size     Type/Status(Vol ID)
0    ST3120026AS   3JT354CP   111.8GB  Member Disk(0)
1    ST3120026AS   3JT329JX   111.8GB  Member Disk(0)

[↑↓]-Select        [ESC]-Exit        [ENTER]-Select Menu
```

Figure 10

Delete RAID Volume

If you want to delete a RAID volume, select the Delete RAID Volume option in Main Menu. Press ENTER and follow on-screen instructions.

```
Intel(R) Matrix Storage Manager option ROM V5.0.0.1032 ICH7R wRAID5
Copyright(C) 2003-05 Intel Corporation.  All Rights Reversed.

[ MAIN MENU ]
1. Create RAID Volume
2. Delete RAID Volume
3. Reset Disks to Non-RAID
4. Exit

[ DISK/VOLUME INFORMATION ]
RAID Volumes :
ID   Name      Level        Strip   Size     Status   Bootable
0    Volume0   RAID(Stripe) 128KB   223.6GB  Normal   Yes

Physical Disks :
Port Driver Model  Serial #   Size     Type/Status(Vol ID)
0    ST3120026AS   3JT354CP   111.8GB  Member Disk(0)
1    ST3120026AS   3JT329JX   111.8GB  Member Disk(0)

[↑↓]-Select        [ESC]-Exit        [ENTER]-Select Menu
```

To exit the ICH7R RAID BIOS utility, press ESC in Main Menu.

Now, you can proceed to the installation of the SATA driver and operating system.

(4) Making a SATA Driver Disk

To install operating system onto a serial ATA hard disk successfully, you need to install the SATA controller driver during OS installation. Without the driver, the hard disk may not be recognized during the Windows setup process. First of all, copy the driver for the SATA controller from the motherboard driver CD-ROM to a floppy disk. See the instructions below about how to copy the driver in MS-DOS mode(Note1). Prepare a startup disk that has CD-ROM support and a blank formatted floppy disk.

Step 1: Insert the prepared startup disk and motherboard driver CD-ROM in your system. Boot from the startup disk. Once at the A:\> prompt, change to the CD-ROM drive (example: D:\>). At the D:\> prompt, type the following two commands. Press ENTER after each command (Fig.12):

```
cd bootdrv
menu
```

Step 2: When the controller menu (Fig.13) appears, remove the startup disk and insert the blank formatted disk. Select the controller driver by pressing the corresponding letter from the menu.
For example, from the menu in Figure 13, press 7 to select **Intel Matrix Storage Manager 32 bit** for Windows operating system(Note 2). Your system will then automatically zip and transfer this driver file to the floppy disk. Press 0 to exit when finished.

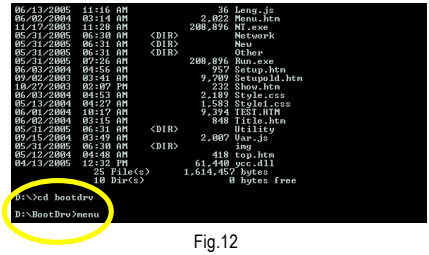


Fig.12

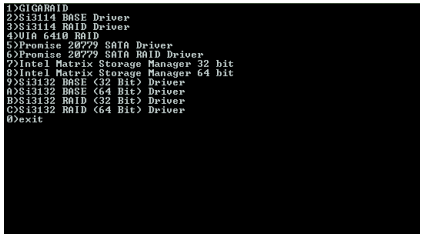


Fig. 13

NOTE

(Note 1) For users without a startup disk:
Use an alternative system and insert the GIGABYTE motherboard driver CD-ROM. From the CD-ROM drive folder, double click the **MENU.exe** file in the **BootDrv** folder (Figure 14). A command prompt window will open similar to that in Fig. 13.

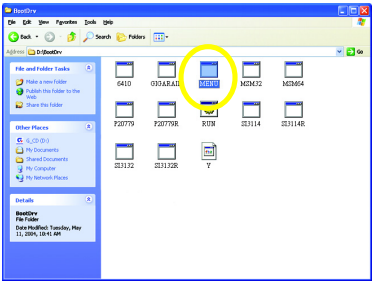


Fig. 14

(Note 2) For 64-bit Windows Operating System, please select **Intel(R) Matrix Storage Manager 64bit.**

(5) Installing SATA controller driver during OS installation

Now that you have prepared the SATA driver disk and configured BIOS settings, you are ready to install Windows 2000/XP onto your SATA hard drive with the SATA driver. The following is an example of Windows XP installation.

Step 1: Restart your system to boot from the Windows 2000/XP Setup disk and press F6 as soon as you see the "Press F6 if you need to install a 3rd party SCSI or RAID driver" message (Figure 15). After pressing F6, there will be a few moments of some files being loaded before you see the next screen.

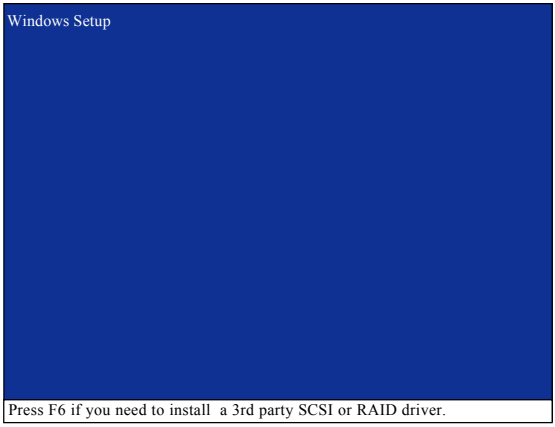


Figure 15

Step 2:
When a screen similar to that below appears, insert the floppy disk containing the SATA driver and press S (Figure 16).

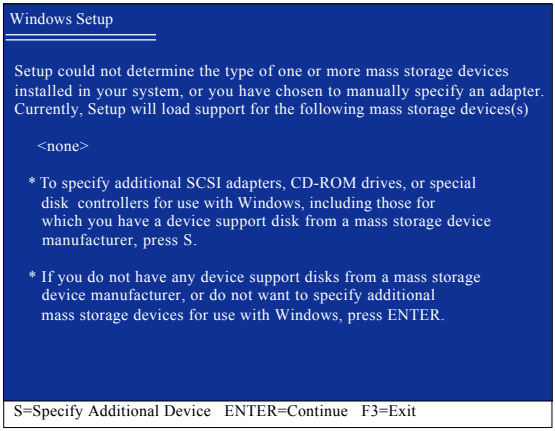


Figure 16

Step 3:

If Setup correctly recognizes the driver in the floppy disk, a controller menu similar to Figure 20 below will appear. Use the ARROW keys to select **Intel(R) 82801 GR/GH SATA RAID Controller (Desktop ICH7R/DH)*** and press ENTER. Then it will begin to load the SATA driver from the floppy disk.

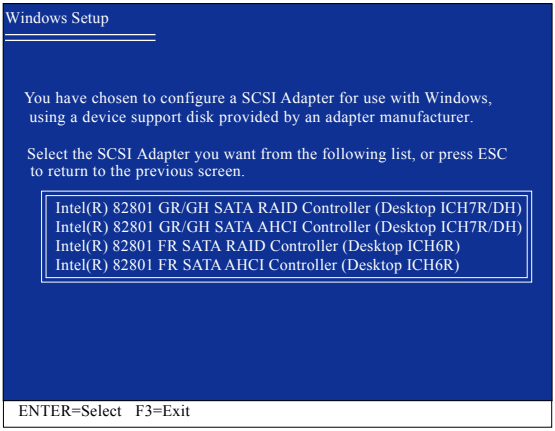


Figure 17

CAUTION

If a message appears saying one or some file(s) cannot be found, please check the floppy disk or copy the correct SATA driver again from the motherboard driver CD.

Step 4:

When the screen as shown below appears, press ENTER to continue the SATA driver installation from the floppy disk. The driver installation will be finished in about one minute.

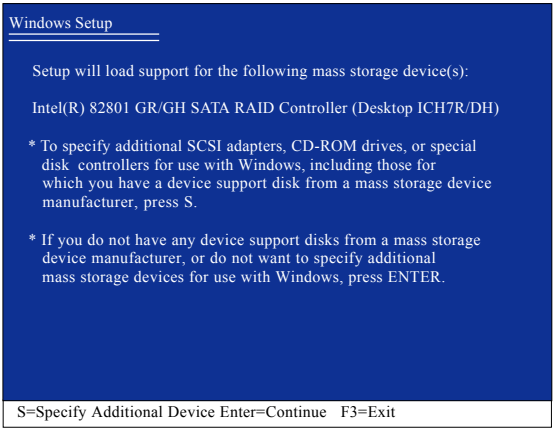


Figure 18

"*" If you wish to install 64-bit Windows Operating System, select **Intel(R) 82801 GR/GH SATA AHCI Controller (Desktop ICH7R/DH).**

After the SATA controller driver installation is completed, you should see a screen as below. It indicates that you have installed the SATA controller driver successfully. You can proceed with the Windows 2000/XP installation.

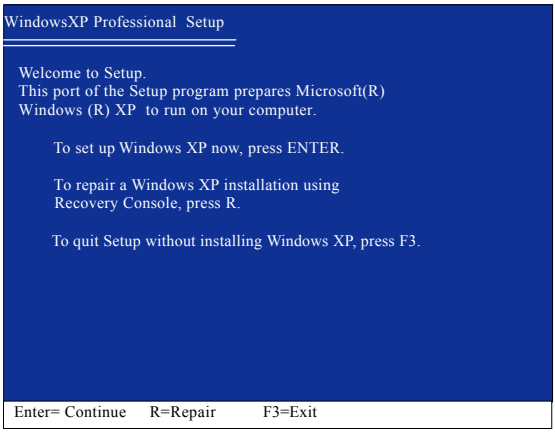


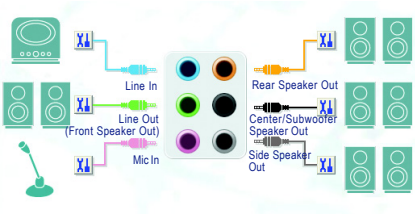
Figure 19

(Note: 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.)

4-1-5 2- / 4- / 6- / 8- Channel Audio Function Introduction

This motherboard provides 6 audio connector. You are able to use 2-/4-/6-/8-channnels audio feature by audio software selection.

The default speaker settings for the 6 audio jacks are as shown in the picture to the right. The jack retasking capability supported by HD Audio allows users to change the function for each audio jack by the audio software provided. For example, if a rear speaker is plugged into the center/subwoofer speaker out jack, you can change the center/ subwoofer speaker out jack to fucntion as a rear speaker out jack via the audio software.



Please follow the steps to install the function. (Following pictures are in Windows XP)

CAUTION Note that if you wish to connect a microphone, you MUST connect it to the default Mic In jack for the microphone to work correctly.

HD Audio

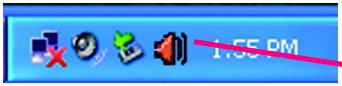
With multiple built-in high quality digital-to-analog converters (DACs) that support audio output at up to 192 kHz/24-bit quality and multi-streaming applications, HD Audio is able to handle multiple audio streams (in and out) simultaneously. Multi-channel audio experiences have become a reality so you can, for instance, listen to MP3 music, have an Internet chat, make a telephone call over the Internet, and etc. all at the same time.

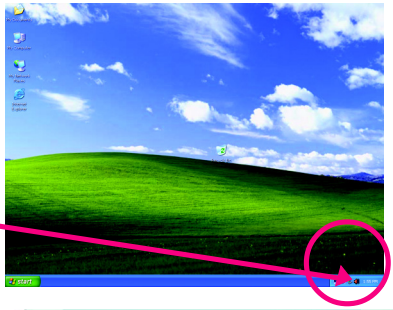
Stereo Speakers Connection and Settings:

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

STEP 1 :

After installation of the audio driver, you should find an Audio Manager icon in your system tray (you can also find the icon in Control Panel). Double-click the icon to open the Audio Control Panel.





STEP 2:

In the Audio Control Panel, click the **Audio I/O** tab. In the upper left list, click **2CH Speaker**.

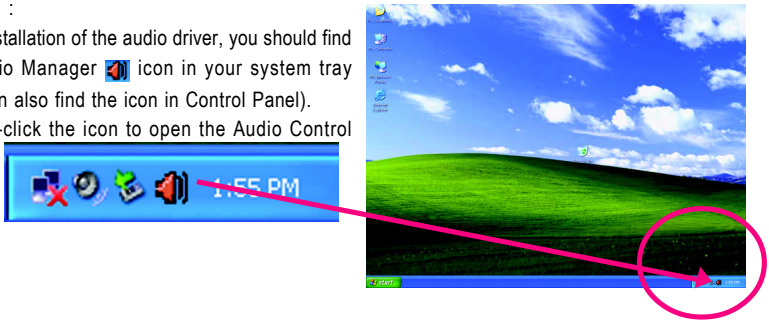
STEP 3:

After a speaker or headphone is plugged into the rear Line Out jack, a small window will pop up and ask you what type of equipment is connected. Choose **Headphone** or **Line Out** depending on the device connected and click **OK**. The 2-channel audio setup is completed.

4 Channel Audio Setup

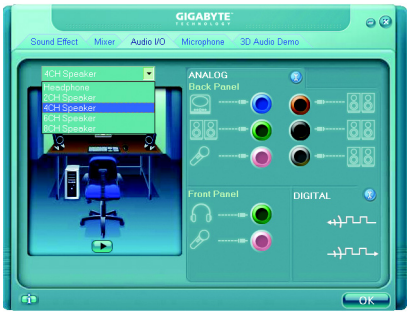
STEP 1 :

After installation of the audio driver, you should find an Audio Manager icon in your system tray (you can also find the icon in Control Panel). Double-click the icon to open the Audio Control Panel.



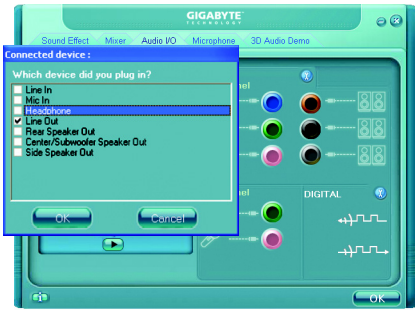
STEP 2:

In the Audio Control Panel, click the **Audio I/O** tab. In the upper left list, click **4CH Speaker**.



STEP 3:

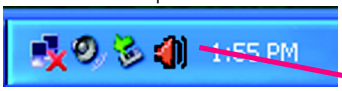
After plugging in 4-channel speakers to the rear speaker jacks, a small window will pop up and ask you what type of equipment is connected. Choose a device depending on the type of speaker connected (4-channel audio consists of Front Speaker Out (Line Out) and Rear Speaker Out and then click **OK**. The 4-channel audio setup is completed.



6 Channel Audio Setup

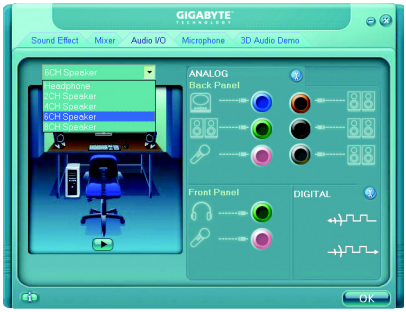
STEP 1 :

After installation of the audio driver, you should find an Audio Manager icon in your system tray (you can also find the icon in Control Panel). Double-click the icon to open the Audio Control Panel.



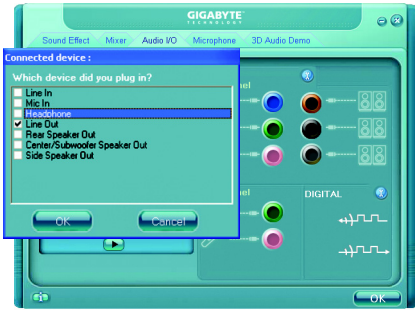
STEP 2:

In the Audio Control Panel, click the **Audio I/O** tab. In the upper left list, click **6CH Speaker**.



STEP 3:

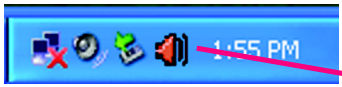
After plugging in 6-channel speakers to the rear speaker jacks, a small window will pop up and ask you what type of equipment is connected. Choose a device depending on the type of speaker connected (6-channel audio consists of Front Speaker Out (Line Out), Rear Speaker Out, and Center/Subwoofer Speaker Out) then click **OK**. The 6-channel audio setup is completed.



8 Channel Audio Setup

STEP 1 :

After installation of the audio driver, you should find an Audio Manager icon in your system tray (you can also find the icon in Control Panel). Double-click the icon to open the Audio Control Panel.

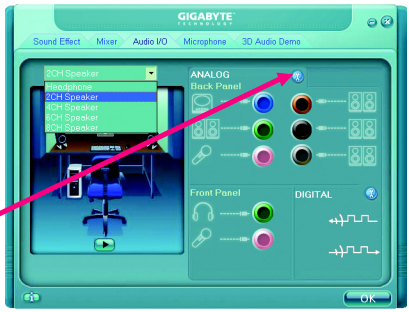


STEP 2:
In the Audio Control Panel, click the **Audio I/O** tab. In the upper left list, click **8CH Speaker**.

STEP 3:
After plugging in 8-channel speakers to the rear speaker jacks, a small window will pop up and ask you what type of equipment is connected. Choose a device depending on the type of speaker connected (8-channel audio consists of Front Speaker Out (Line Out), Rear Speaker Out, Center/Subwoofer Speaker Out, and Side Speaker Out) then click **OK**. The 8-channel audio setup is completed.

Sound Effect Configuration:
At the **Sound Effect** menu, users can adjust sound option settings as desired.

AC'97 Audio Configuration:
To enable the front panel audio connector to support AC97 Audio mode, go to the Audio Control Panel and click the **Audio I/O** tab. In the **ANALOG** area, click the **Tool** icon and then select the **Disable front panel jack detection** check box. This action completes the AC'97 Audio configuration.



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

Contact Us

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- **Japan**

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- **Singapore**

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- **The Netherlands**

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- **Russia**

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- **Poland**

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- **Serbia & Montenegro**

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- **Romania**

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