GA-8I945P Dual Graphic
GA-8I945P Dual Graphic-R

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

User's Manual

Rev. 1004

12ME-945PDG-1004

This product must not be disposed of with your other household waste and must be handed over to a designated collection point for the recycling of waste electrical and electronic equipment !

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-8I945P Dual Graphic
is in conformity with
(reference to the specification under which conformity is declared)
in accordance with 89/336 EEC-EMC Directive

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

☒ **CE marking** CE (EC conformity marking)

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

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

Manufacturer/Importer

(Stamp)

Date : May 05, 2005

Signature : Timmy Huang

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-8I945P Dual Graphic

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: May 05, 2005

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-8I945P Dual Graphic-R
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(reference to the specification under which conformity is declared)
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Manufacturer/Importer

(Stamp)

Date : Jun. 03, 2005

Signature : Timmy Huang

Name : Timmy Huang

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2.1077(a)

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Address: 17358 Railroad Street
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Phone/Fax No: (818) 854-9338/ (818) 854-9339

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Representative Person's Name: ERIC LU

Signature: Eric Lu

Date: Jun. 03, 2005

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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 quick installation, please refer to the "Hardware Installation Guide" included with the product.
- For detailed product information and specifications, please carefully read the "Product User Manual".
- For detailed information related to Gigabyte's unique features, please go to "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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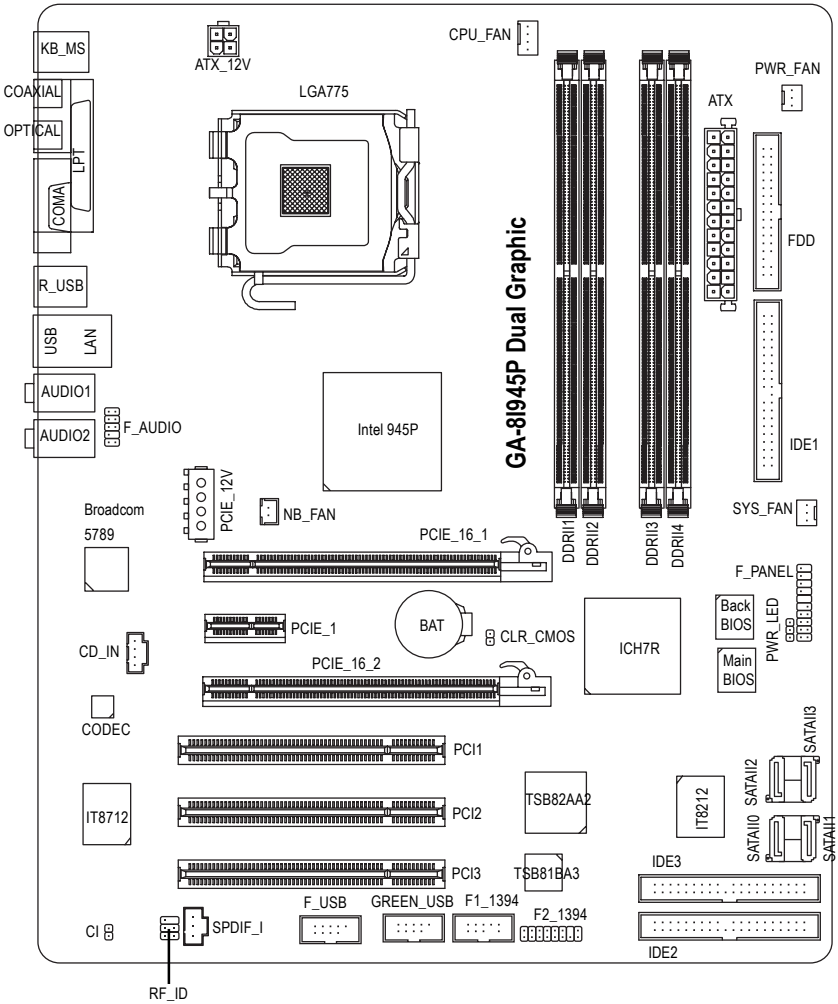
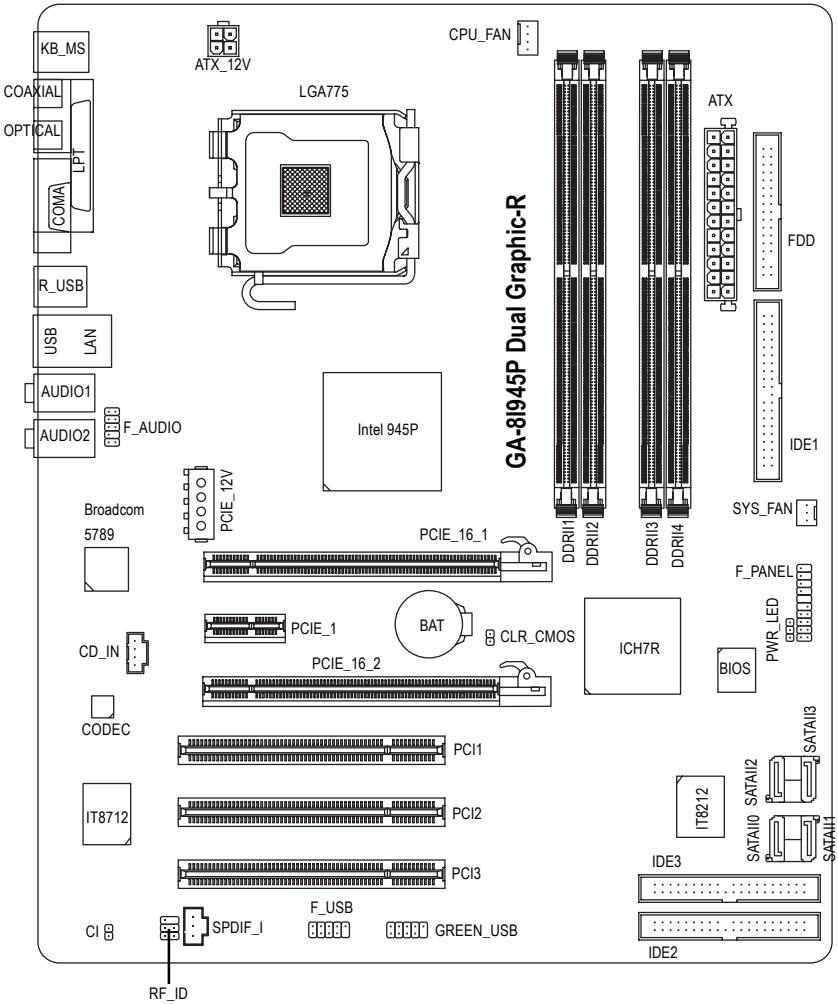
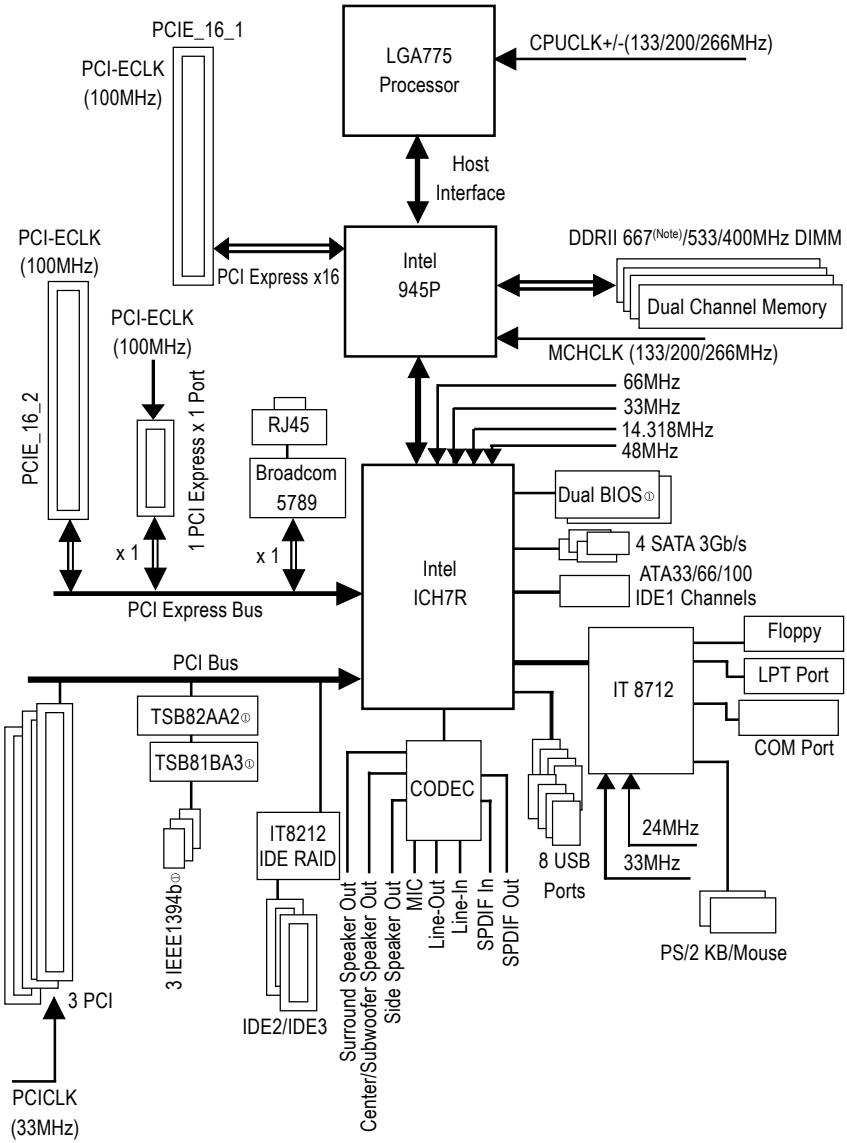
GA-8I945P Dual Graphic Motherboard Layout



GA-8I945P Dual Graphic-R Motherboard Layout



Block Diagram



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

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Chapter 1 Hardware Installation

1-1 Considerations Prior to Installation

Preparing Your Computer

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

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

Installation Notices

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

Instances of Non-Warranty

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

1-2 Feature Summary

CPU	◆ Supports Intel® Pentium® D / Pentium® 4 LGA775 CPU(Note 1) ◆ Supports 1066/800/533MHz FSB ◆ L2 cache varies with CPU
Chipset	◆ Northbridge: Intel® 945P Express Chipset ◆ Southbridge: Intel® ICH7R ◆ Supported on the Win 2000/XP operating systems
Memory	◆ 4 DDR II DIMM memory slots (supports up to 4GB memory) (Note 2) ◆ Supports 1.8V DDR II DIMM ◆ Supports dual channel DDR II 667(Note 3)/533/400 DIMM
Slots	◆ 2 PCI Express x 16 slot ◆ 1 PCI Express x 1 slot ◆ 3 PCI slots
IDE Connections	◆ 1 IDE connection (UDMA 33/ATA 66/ATA 100), allows connection of 2 IDE devices(IDE1) - Supported on the Win 2000/XP operating systems ◆ 2 IDE connection (UDMA 33/ATA 66/ATA 100/ATA 133), compatible with RAID, allows connection of 4 IDE devices(IDE2,IDE3)
FDD Connections	◆ 1 FDD connection, allows connection of 2 FDD devices
Onboard SATA 3Gb/s	◆ 4 SATA 3Gb/s connections ◆ Supported on the Win 2000/XP operating systems
Peripherals	◆ 1 parallel port supporting Normal/EPP/ECP mode ◆ 1 Serial port (COMA) ◆ 8 USB 2.0/1.1 ports (rear x 4, front x 4 via cable) ◆ 3 IEEE1394b ports (requires cable) ① ◆ 1 front audio connector ◆ 1 PS/2 keyboard port ◆ 1 PS/2 mouse port
Onboard LAN	◆ Onboard Broadcom 5789 chip (10/100/1000 Mbit) ◆ 1 RJ 45 port ◆ Supported on the Win 2000/XP operating systems

(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 .

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Onboard Audio	◆ ALC882 CODEC ◆ High Definition Audio ◆ Supports 2 / 4 / 6 / 8 channel audio ◆ Supports Line In ; Line Out (Front Speaker Out) ; MIC ; Surround Speaker Out (Rear Speaker Out) ; Center/Subwoofer Speaker Out ; Side Speaker Out connection ◆ SPDIF In connection ◆ SPDIF Out connection (coaxial+optical) ◆ CD In ◆ Supported on the Win 2000/XP operating systems
On-Board SATA 3Gb/s RAID	◆ Onboard ICH7R chipset ◆ supports data striping (RAID 0) or mirroring (RAID 1) function or striping + mirroring (RAID 0+1) or RAID 5 function ◆ supports data transfer rate of up 300 MB/s ◆ supports a maximum of 4 SATA 3Gb/s connections ◆ supported on the Win 2000/XP operating systems
On-Board IDE RAID (IDE2, IDE3)	◆ Onboard GigaRAID IT8212 chipset ◆ Supports disk striping (RAID 0) or disk mirroring (RAID 1) or striping + mirroring (RAID 0 + RAID 1) ◆ Supports JBOD function ◆ Supports concurrent dual ATA133 IDE controller operation ◆ Supports ATAPI mode for HDD ◆ Supports IDE bus master operation ◆ Supports ATA133/RAID mode switch by BIOS ◆ Displays status and error checking messages during boot-up ◆ Mirroring supports automatic background rebuilds ◆ Features LBA and Extended Interrupt 13 drive translation in controller onboard BIOS
I/O Control	◆ IT8712
Hardware Monitor	◆ System voltage detection ◆ CPU temperature detection ◆ CPU / System / Power ① fan speed detection ◆ CPU warning temperature ◆ CPU / System / Power ① fan failure warning ◆ CPU smart fan control
BIOS	◆ Use of licensed AWARD BIOS ◆ Supports Q-Flash / Dual BIOS ①
Additional Features	◆ Supports @BIOS ◆ Supports EasyTune 5
Overclocking	◆ Over Voltage via BIOS (CPU/DDR/PCIE/FSB) ◆ Over Clock via BIOS (CPU/DDR/PCIE)
Form Factor	◆ ATX form factor; 30.5cm x 23.4cm

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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

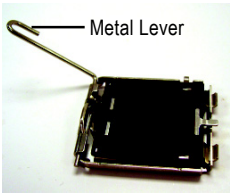


Fig. 1
Gently lift the metal lever located on the CPU socket to the upright position.

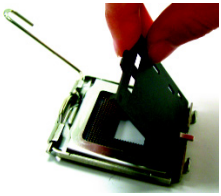


Fig. 2
Remove the plastic covering on the CPU socket.

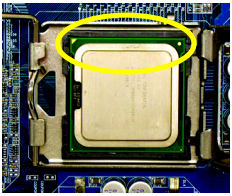


Fig. 3
Notice the small gold colored triangle located on the edge of the CPU socket. Align the indented corner of the CPU with the triangle and gently insert the CPU into position. (Grasping the CPU firmly between your thumb and forefinger, carefully place it into the socket in a straight and downwards 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 load plate 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.

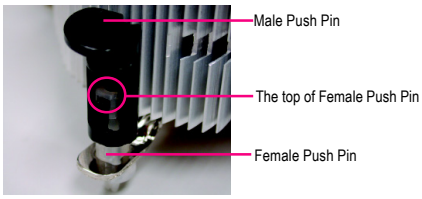


Fig. 2
(Turning the push pin along the direction of arrow is to remove the heatsink, on the contrary, is to install.) Please note the direction of arrow sign on the male push pin doesn't face inwards before installation. (This instruction is only for Intel boxed fan)

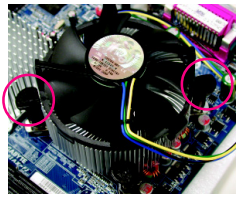


Fig. 3
Place the heatsink atop the CPU and make sure the push pins aim to the pin hole on the motherboard.Pressing down the push pins diagonally.

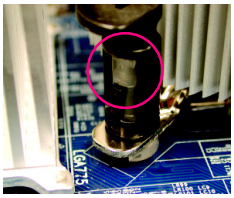


Fig. 4
Please make sure the Male and Female push pin are joined closely. (for detailed installation instructions, please refer to the heatsink installation section of the user manual)

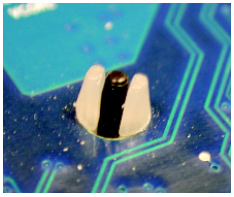


Fig. 5
Please check the back of motherboard after installing. If the push pin is inserted as the picture, the installation is complete.

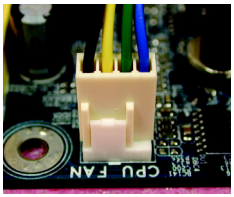


Fig. 6
Finally, please attach the power connector of the heatsink to the CPU fan header located on the motherboard.

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 Installing/Removing Cool-Plus (Northbridge Cooling Fan) ①

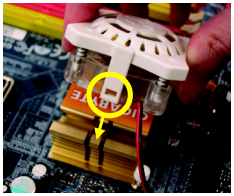


Fig.1
To attach Cool-Plus to a heatsink, align the extensions on both sides with the grooves in the heatsink as shown. Firmly press down until it snaps into position.

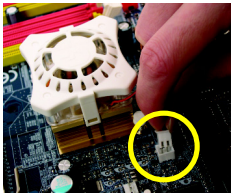


Fig.2
Once the fan is properly affixed onto the heatsink, plug the power cable into the NB_FAN connector.

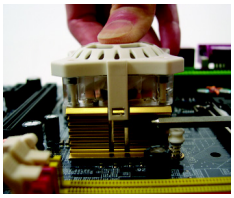


Fig.3
Before proceeding, first check to make sure that the fan's power cable is disconnected. Then, while applying pressure to the top of the fan, carefully use a screwdriver to dislodge the extension on one side.

CAUTION

Exerting too much pressure on the fan during removal might cause the side extensions to break-off.

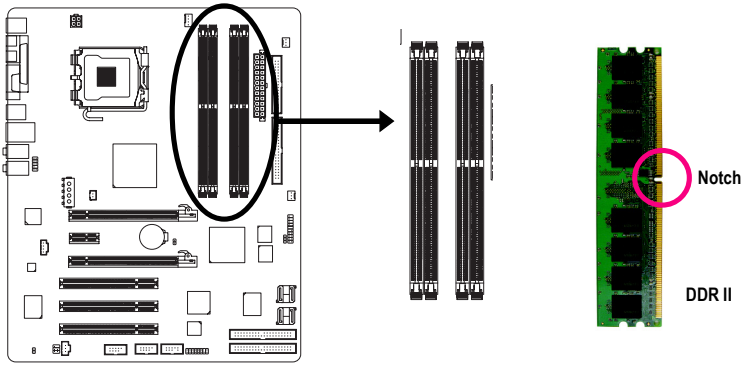
1-5 Installation of Memory

CAUTION

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.



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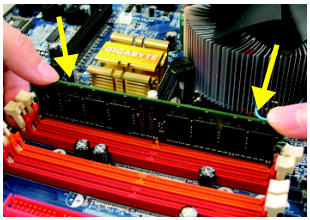


Fig.1
The DIMM socket has a notch, so the DIMM memory module can only fit in one direction. Insert the DIMM memory module vertically into the DIMM socket. Then push it down.

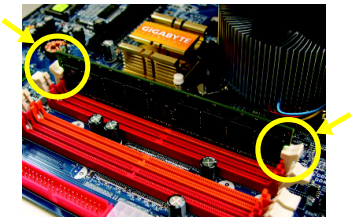


Fig.2
Close the plastic clip at both edges of the DIMM sockets to lock the DIMM module.
Reverse the installation steps when you wish to remove the DIMM module.

Dual Channel Memory Configuration

GA-8I945P Dual Graphic(-R) supports the Dual Channel Technology. After operating the Dual Channel Technology, the bandwidth of Memory Bus will add double. GA-8I945P Dual Graphic(-R) 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 mode will not be enabled if only one DDR II memory module is installed.
2. To enable Dual Channel mode with two or four memory modules (it is recommended to use memory modules of identical brand, size, chips, and speed), you must install them into DIMM sockets of the same color.

The following is a Dual Channel Memory configuration table: (DS: Double Side, SS: Single Side)

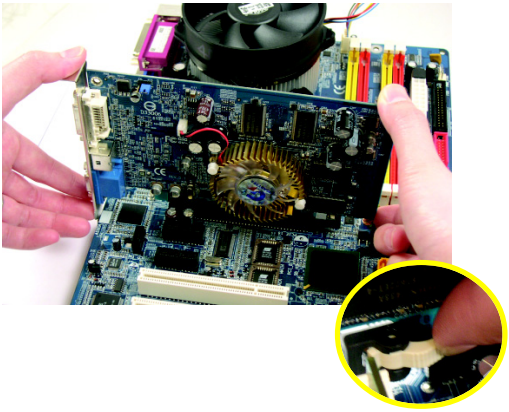
	DDR II 1	DDR II 2	DDR II 3	DDR II 4
2 memory modules	DS/SS	X	DS/SS	X
	X	DS/SS	X	DS/SS
4 memory modules	DS/SS	DS/SS	DS/SS	DS/SS

1-6 Installation of Expansion Cards

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

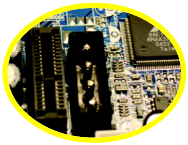
1. Read the related expansion card's instruction document before install the expansion card into the computer.
2. Remove your computer's chassis cover, screws and slot bracket from the computer.
3. Press the expansion card firmly into expansion slot in motherboard.
4. Be sure the metal contacts on the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

Installing a PCI Express x 16 expansion card:



CAUTION

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 latch at the end of the PCI Express x 16 slot. When you try uninstall the VGA card, please press the latch as the picture to the left shows to release the card.



NOTE

The PCIE_12V power connector supplies extra power to the PCIEx 16 slots. Connect this connector depending on your system requirements.

1-7 Configuring a Quad View System

This function is supported only on Windows XP operating system.

With Quad View technology from GIGABYTE, Dual Graphic enabled motherboards offer multiple display support on up to four separate monitors. This improves the capabilities and productivity of the user by allowing them to spread multiple windows over four monitors and view them simultaneously. For users, Quad View technology takes the immersive experience to new heights with the ability to open "control" and "telemetry" windows on dedicated screens.

Multiple display support for increasing productivity

Multiple display support for immersive video / gaming experience

Before you begin--

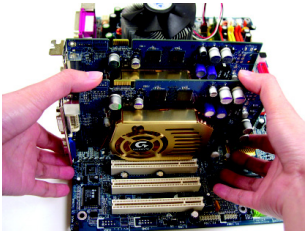
NOTE The exact power requirement will depend on your overall system configurations. You need a power supply that can provide sufficient and stable power to your system and the two graphics cards. We recommend a power supply that supplies 400W (or above) and 25A (or above) +12V current.

If you want to enable the Quad View function, install two similar graphics cards into PCIE x 16 slots (it is recommended to use graphics cards of identical brand and chips. For example: GIGABYTE GV-NX66T128D). If you want to set up a single graphics card system, we recommend installing the graphics card on the PCIE_16_1 slot to ensure better display performance.

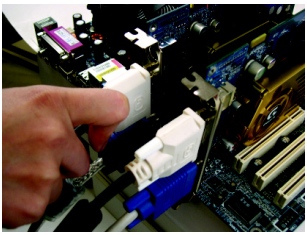
Enabling Quad View Mode--

Step 1: Install your graphics cards to PCIE_16_1 and PCIE_16_2 slots.

Step 1-1: Observe the steps in "1-6 Installation of Expansion Cards" and install two similar graphics cards to PCIE_16_1 and PCIE_16_2 slots.



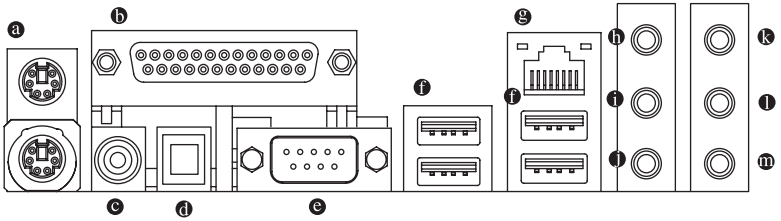
Step 1-2: In order to enable the Quad View function correctly, you must connect four different monitors to all four video output ports (D-Sub/DVI). If you want to install only one graphics card to your system and install it in the PCIE_16_1 slot, set the **Init Display First** item under the **Advanced BIOS Features** menu in BIOS Setup to **PEG**; set this item to **PEG2** if the card is installed in the PCIE_16_2 slot.



Step 2: Graphics Cards Driver Setting

For detailed information about how to install the graphics card driver, please refer to the user's manual for your graphics card.

1-8 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 COAXIAL (SPDIF Out)

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

d OPTICAL (SPDIF Out)

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

e COM A (Serial Port)

Connects to serial-based mouse or data processing devices.

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 LAN Port

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

h Line In

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

i Line Out (Front Speaker Out)

The default Line Out (Front Speaker Out) jack. Stereo speakers, earphone or front surround speakers can be connected to Line Out (Front Speaker Out) jack.

j MIC In

The default MIC In jack. Microphone must be connected to MIC In jack.

k Surround Speaker Out (Rear Speaker Out)

The default Surround Speaker Out (Rear Speaker Out) jack. Rear surround speakers can be connected to Surround Speaker Out (Rear Speaker Out) jack.

⓫ Center/Subwoofer Speaker Out

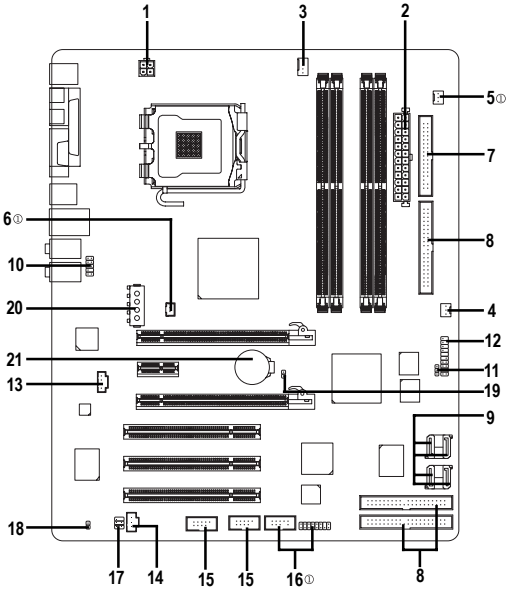
The default Center/Subwoofer Speaker Out jack. Center/Subwoofer speakers can be connected to Center/Subwoofer Speaker Out jack.

⓬ Side Speaker Out

The default Side Speaker Out jack. Surround side speakers can be connected to Side Speaker Out jack.

NOTE In addition to the default speakers settings, the ⓫~⓬ 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 (⓫) . Please refer to the 2-/4-/6-/8- channel audio setup steps for detailed software configuration information.

1-9 Connectors Introduction



1)	ATX_12V	12)	F_PANEL
2)	ATX (Power Connector)	13)	CD_IN
3)	CPU_FAN	14)	SPDIF_I
4)	SYS_FAN	15)	F_USB/GREEN_USB
5)	PWR_FAN ①	16)	F1_1394/F2_1394 ①
6)	NB_FAN ①	17)	RF_ID
7)	FDD	18)	CI
8)	IDE1 / IDE2 / IDE3	19)	CLR_CMOS
9)	SATAII0 / SATAII1 / SATAII2 / SATAII3	20)	PCIE_12V
10)	F_AUDIO	21)	BAT
11)	PWR_LED		

① Only for GA-8I945P Dual Graphic.

1/2) ATX_12V/ATX (Power Connector)

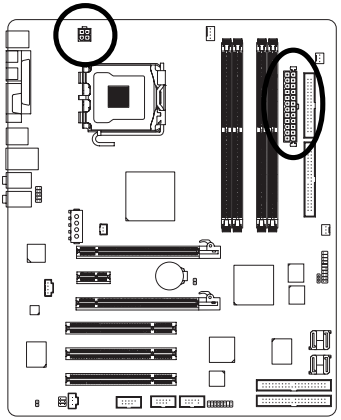
With the use of the power connector, the power supply can supply enough stable power to all the components on the motherboard. Before connecting the power connector, please make sure that all components and devices are properly installed. Align the power connector with its proper location on the motherboard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

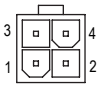
The ATX_12V power connector mainly supplies power to the CPU. If the ATX_12V power connector is not connected, the system will not start.

Caution!

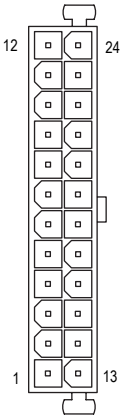
Please use a power supply that is able to handle the system voltage requirements. It is recommended that a power supply that can withstand high power consumption be used (300W or greater). If a power supply is used that does not provide the required power, the result can lead to an unstable system or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

3/4/5) CPU_FAN / SYS_FAN / PWR_FAN ① (Cooler Fan Power Connector)

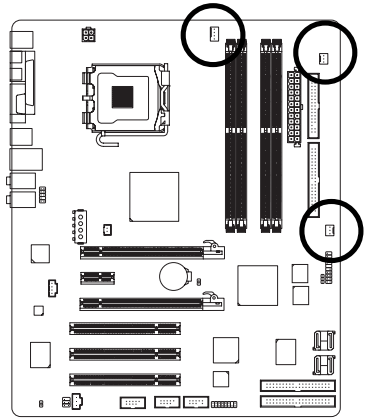
The cooler fan power connector supplies a +12V power voltage via a 3-pin/4-pin (only for CPU_FAN) power connector and possesses a foolproof connection design.

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

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

Caution!

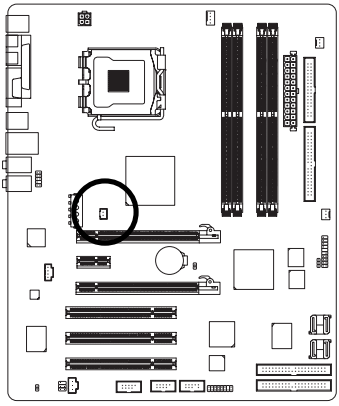
Please remember to connect the power to the CPU fan to prevent CPU overheating and failure.



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

6) NB_FAN (Chip Fan Connector) ①

If you installed wrong direction, the chip fan will not work. Sometimes will damage the chip fan. (Usually black cable is GND)

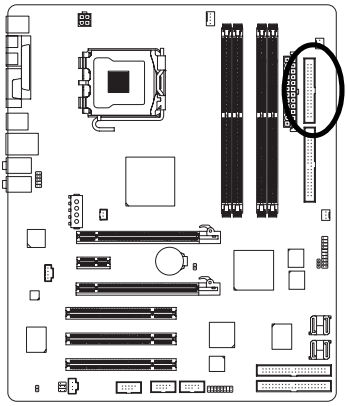


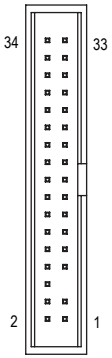
Pin No.	Definition
1	+12V
2	GND

① Only for GA-8I945P Dual Graphic.

7) FDD (Floppy Connector)

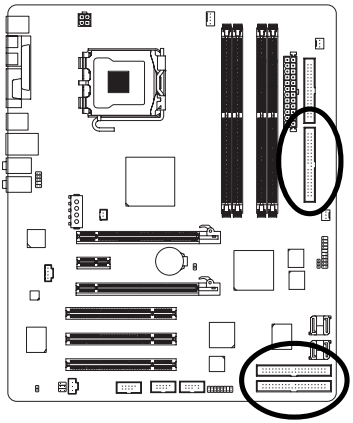
The FDD connector is used to connect the FDD cable while the other end of the cable connects to the FDD drive. The types of FDD drives supported are: 360KB, 720KB, 1.2MB, 1.44MB and 2.88MB. Please connect the red power connector wire to the pin1 position.

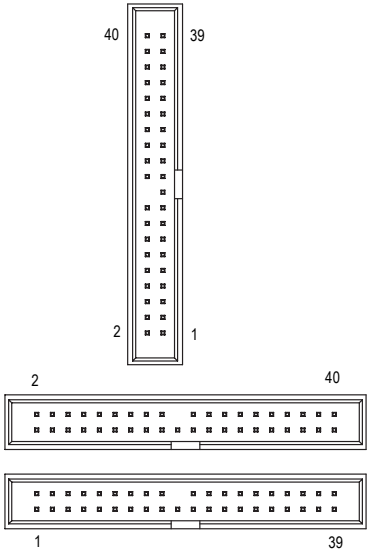




8) IDE1/IDE2/IDE3 (IDE Connector)

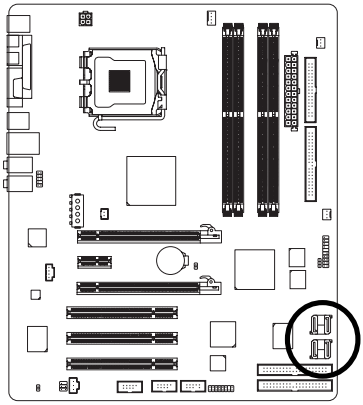
An IDE device connects to the computer via an IDE connector. One IDE connector can connect to one IDE cable, and the single IDE cable can then connect to two IDE devices (hard drive or optical drive). If you wish to connect two IDE devices, please set the jumper on one IDE device as Master and the other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

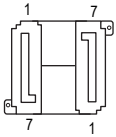




9) SATAII0/SATAII1/SATAII2/SATAII3 (SATA 3Gb/s Connector)

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.

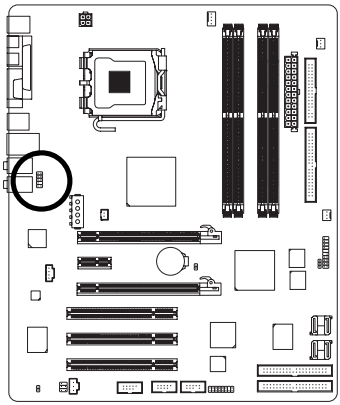




Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

10) 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

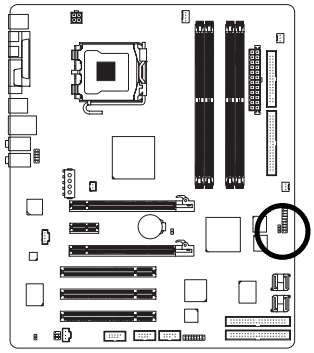
AC'97 Audio:

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 80 about the software settings.

11) PWR_LED

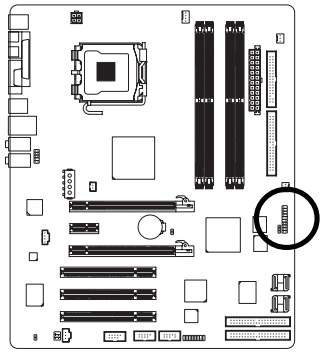
PWR_LED is connect with the system power indicator to indicate whether the system is on/off. It will blink when the system enters suspend mode.

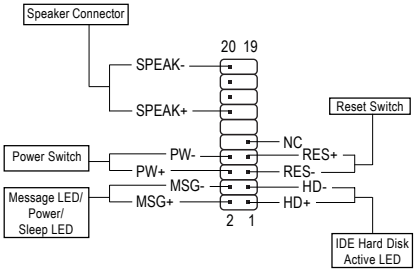


Pin No.	Definition
1	MPD+
2	MPD-
3	MPD-

12) 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.

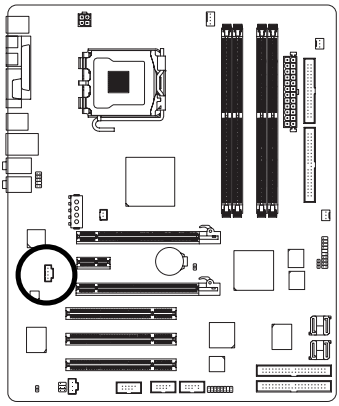




HD (IDE Hard Disk Active LED) (Blue)	Pin 1: LED anode(+) Pin 2: LED cathode(-)
SPEAK (Speaker Connector) (Amber)	Pin 1: Power Pin 2- Pin 3: NC Pin 4: Data(-)
RES (Reset Switch) (Green)	Open: Normal Close: Reset Hardware System
PW (Power Switch) (Red)	Open: Normal Close: Power On/Off
MSG(Message LED/Power/Sleep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

13) CD_IN (CD IN)

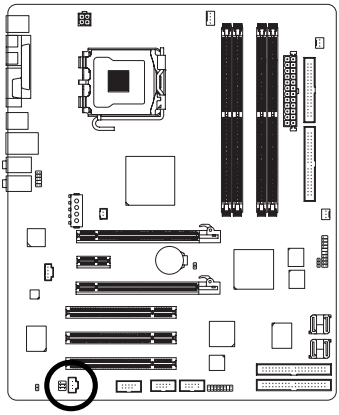
Connect CD-ROM or DVD-ROM audio out to the connector.



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

14) SPDIF_I (SPDIF In)

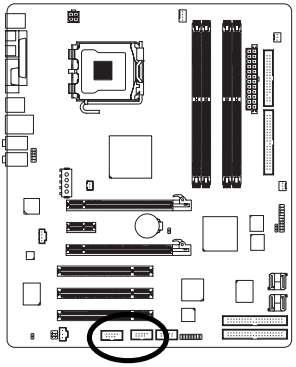
Use SPDIF IN feature only when your device has digital output function. Be careful with the polarity of the SPDIF_IN connector. Check the pin assignment carefully while you connect the SPDIF cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional SPDIF cable, please contact your local dealer.



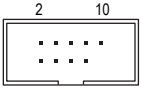
Pin No.	Definition
1	Power
2	SPDIFI
3	GND

15) F_ USB/GREEN_USB (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. The GREEN_USB connector provides no standby power when system is off and it does not support USB device to wake up from S3 mode. Users who wish to shut down the standby power(note) for their USB devices during system power-off can connect the devices to this connector via the optional front USB cable.



GA-8I945P Dual Graphic

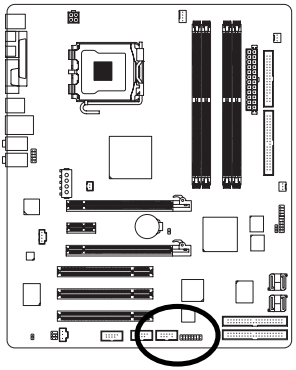


GA-8I945P Dual Graphic-R

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

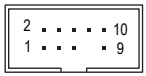
16) F1_1394/F2_1394 (IEEE 1394 Connector) ①

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.IEEE1394b can approach the maximum speed to 800Mb/S, but the speed can be achieved only when you use particular IEEE1394b cable.



F2_1394

F1_1394



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

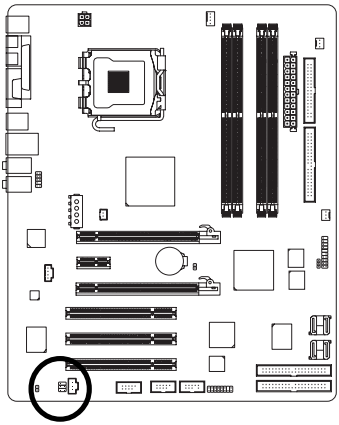
Pin No.	Definition
1	Power
2	Power
3	TPA0+
4	TPA0-
5	GND
6	GND
7	TPB0+
8	TPB0-
9	Power
10	Power
11	TPA1+
12	TPA1-
13	GND
14	No Pin
15	TPB1+
16	TPB1-

① Only for GA-8I945P Dual Graphic.

(Note) When the standby power is shut down, USB devices (example: optical mouses) will not light on during system power-off.

17) RF_ID

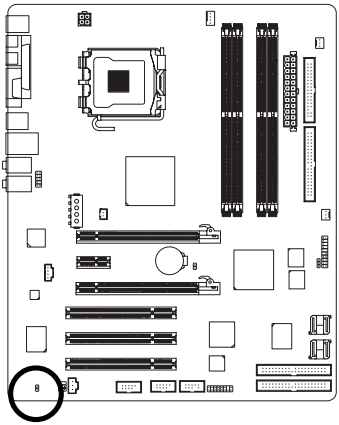
This connector allows you to connect external devices to use extra function. Check the pin assignments before you connect the external device cable. Please contact your nearest dealer for the optional GIGABYTE external device.



Pin No.	Definition
1	Power
2	RFID_RI-
3	RF_TXD
4	RF_RXD
5	NC
6	GND

18) CI (Chassis Intrusion, Case Open)

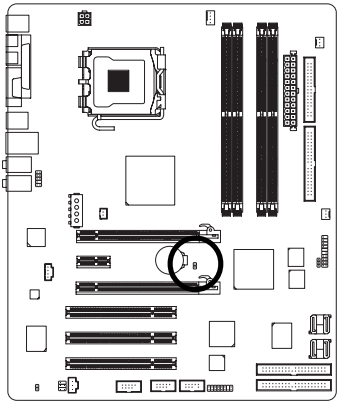
This 2-pin connector allows your system to detect if the chassis cover is removed. You can check the "Case Opened" status in BIOS Setup.



Pin No.	Definition
1	Signal
2	GND

19) CLR_CMOS (Clear CMOS)

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

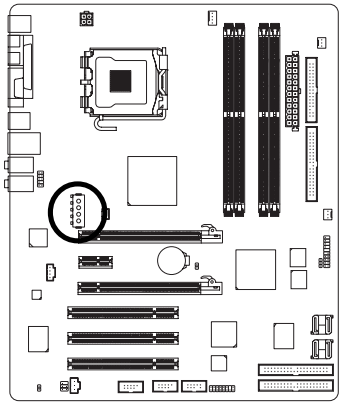


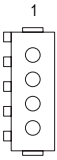
Open: Normal

Short: Clear CMOS

20) PCIE_12V (Power Connector)

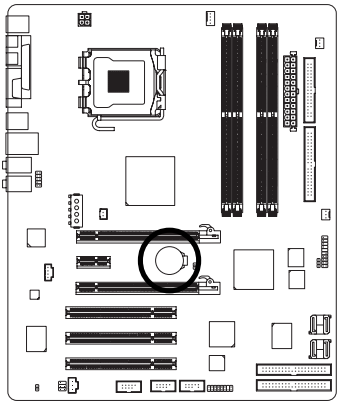
The PCIE_12V power connector supplies extra power to the PCIEx 16 slots. Connect this connector depending on your system requirements.

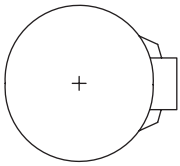




Plin No.	Definition
1	NC
2	GND
3	GND
4	+12V

21) 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>	Dual BIOS① /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

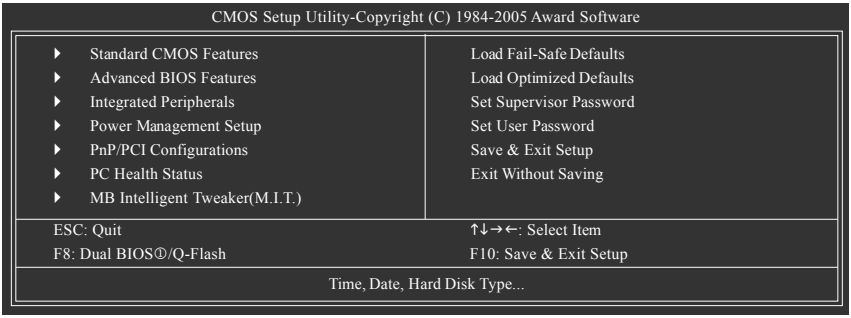
Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc>.

① Only for GA-8I945P Dual Graphic.

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

The Main Menu (For example: GA-8I945P Dual Graphic /BIOS Ver. : F2b)

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.

- **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.
- **MB Intelligent Tweaker(M.I.T.)**
  This setup page is control CPU clock and frequency ratio.

① Only for GA-8I945P Dual Graphic.

- **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.

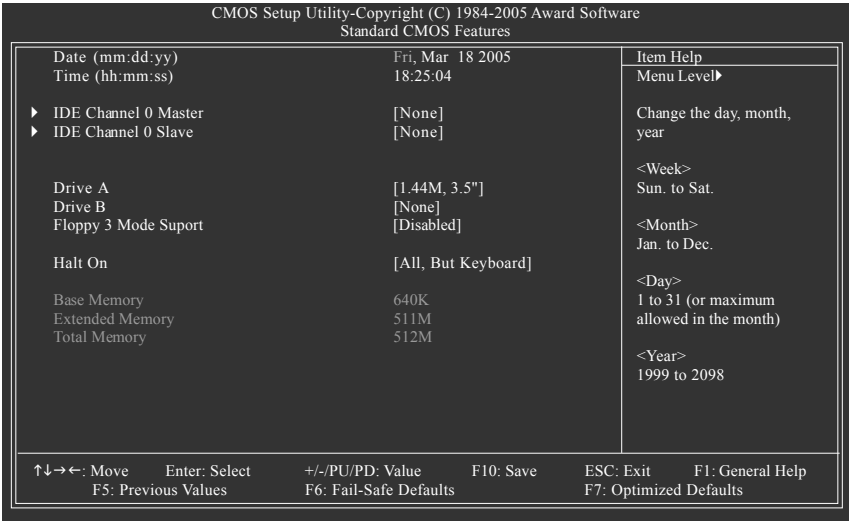
- **Save & Exit Setup**

  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



☞ **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 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)
- ⏩ Capacity — Capacity of currently installed hard disk.

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

- ⏩ Cylinder — Number of cylinders
- ⏩ Head — Number of heads
- ⏩ Precomp — Write precomp

- Landing Zone Landing zone
- Sector Number of sectors

☞ **Drive A / Drive B**

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

- None No floppy drive installed
- 360K, 5.25" 5.25 inch PC-type standard drive; 360K byte capacity.
- 1.2M, 5.25" 5.25 inch AT-type high-density drive; 1.2M byte capacity (3.5 inch when 3 Mode is Enabled).
- 720K, 3.5" 3.5 inch double-sided drive; 720K byte capacity
- 1.44M, 3.5" 3.5 inch double-sided drive; 1.44M byte capacity.
- 2.88M, 3.5" 3.5 inch double-sided drive; 2.88M byte capacity.

☞ **Floppy 3 Mode Support (for Japan Area)**

- Disabled Normal Floppy Drive. (Default value)
- Drive A Drive A is 3 mode Floppy Drive.
- Drive B Drive B is 3 mode Floppy Drive.
- Both Drive A & B are 3 mode Floppy Drives.

☞ **Halt on**

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

- No Errors The system boot will not stop for any error that may be detected and you will be prompted.
- All Errors Whenever the BIOS detects a non-fatal error the system will be stopped.
- All, But Keyboard The system boot will not stop for a keyboard error; it will stop for all other errors. (Default value)
- All, But Diskette The system boot will not stop for a disk error; it will stop for all other errors.
- All, But Disk/Key The system boot will not stop for a keyboard or disk error; it will stop for all other errors.

☞ **Memory**

The category is display-only which is determined by POST (Power On Self Test) of the BIOS.

Base Memory

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

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

Extended Memory

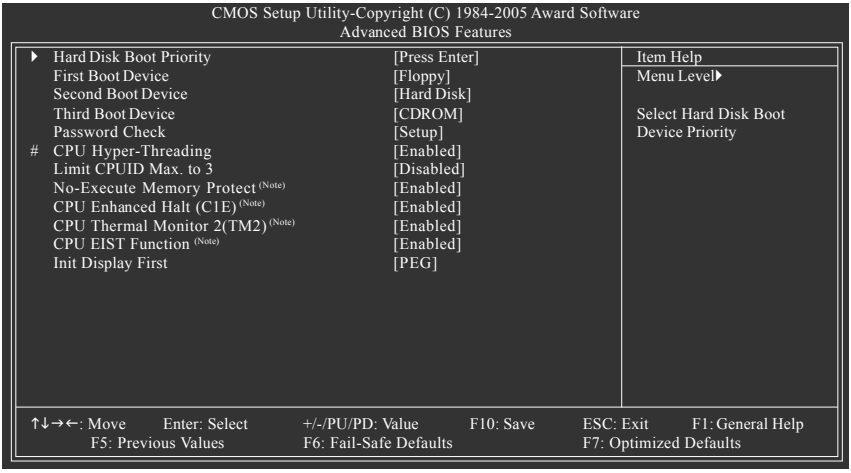
The BIOS determines how much extended memory is present during the POST.

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

Total Memory

This item displays the memory size that used.

2-2 Advanced BIOS Features



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	Select your boot device priority by Disabled.

☞ Password Check

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

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

(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.

☞ **Init Display First**

This feature allows you to select the first initiation of the monitor display from which card when you install a PCI card and a PCI Express VGA card on the motherboard.

In order to enable the Dual Graphic function correctly, you have to connect the display cable to the graphic card in the PCIE_16_2 slot and set this item to PEG2.

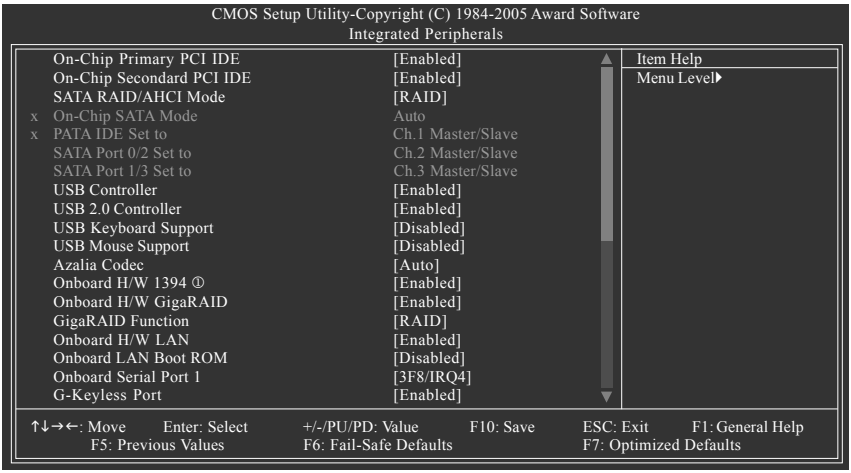
⏩ PCI Set Init Display First to PCI VGA card.

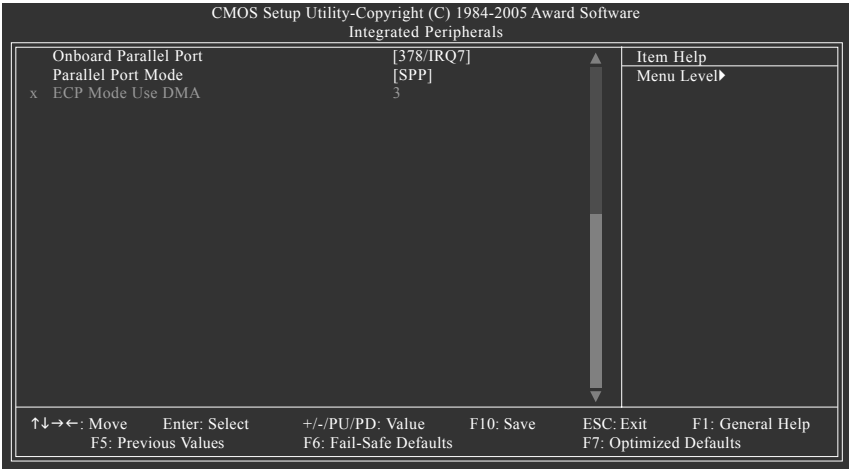
⏩ PEG Set Init Display First to PCI Express VGA card (Slot1). (Default value)

⏩ PEG2 Set Init Display First to PCI Express VGA card (Slot2) card.

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

2-3 Integrated Peripherals





☞ **On-Chip Primary PCI IDE**

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

☞ **On-Chip Secondary PCI IDE**

- ⏩ Enabled — Enable onboard 2nd channel IDE port. (Default value)
- ⏩ Disabled — Disable onboard 2nd channel IDE port.

① Only for GA-8I945P Dual Graphic.

☞ **SATA RAID / AHCI Mode**

- ⏩ RAID — Set the onboard SATA controller to RAID mode. (Default value)
- ⏩ 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.

☞ **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)

☞ **Azalia Codec**

- ⏩ Auto — Auto detect Azalia audio function. (Default value)
- ⏩ Disabled — Disable Azalia audio function.

☞ **Onboard H/W 1394** ①

- ⏩ Enabled — Enable onboard IEEE 1394 function.(Default value)
- ⏩ Disabled — Disable this function.

☞ **Onboard H/W GigaRAID**

- ⏩ Enabled — Enable Onboard H/W GigaRAID function. (Default value)
- ⏩ Disabled — Disable this function.

☞ **GigaRAID Function**

- ⏩ RAID — Select onboard GigaRAID chip function as RAID. (Default value)
- ⏩ ATA — Select onboard GigaRAID chip function asa ATA.

☞ **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.

☞ **G-Keyless Port**

- ⏩ Enabled — Enable G-Keyless port function. (Default value)
- ⏩ Disabled — Disable this function.

☞ **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**

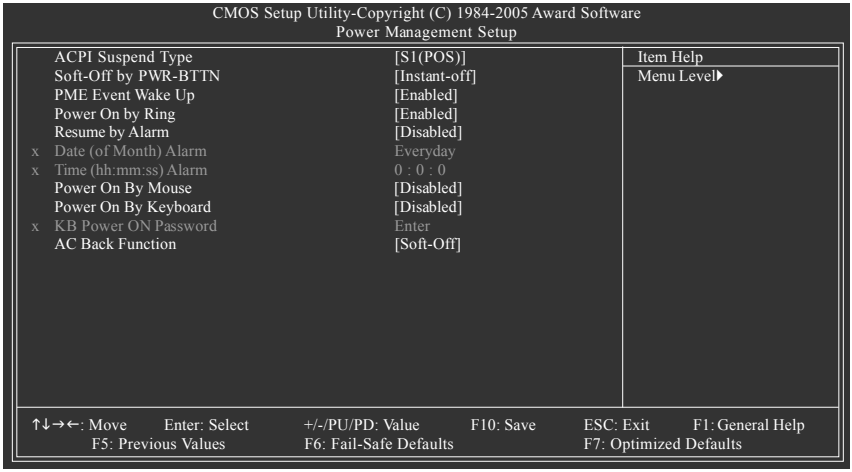
- ⏩ SPP — Using Parallel port as Standard Parallel Port. (Default value)
- ⏩ EPP — Using Parallel port as Enhanced Parallel Port.
- ⏩ ECP — Using Parallel port as Extended Capabilities Port.
- ⏩ ECP+EPP — Using Parallel port as ECP & EPP mode.

☞ **ECP Mode Use DMA**

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

① Only for GA-8I945P Dual Graphic.

2-4 Power Management Setup



☞ **ACPI Suspend Type**

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

☞ **Soft-off by PWR-BTTN**

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

☞ **PME Event Wake Up**

- ⏩ Disabled Disable this function.
- ⏩ Enabled Enable PME 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 Date/time to power on system.

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

If Resume by Alarm is Enabled.

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

☞ **Power On By Mouse**

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

☞ **Power On By Keyboard**

- ⏩ 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**

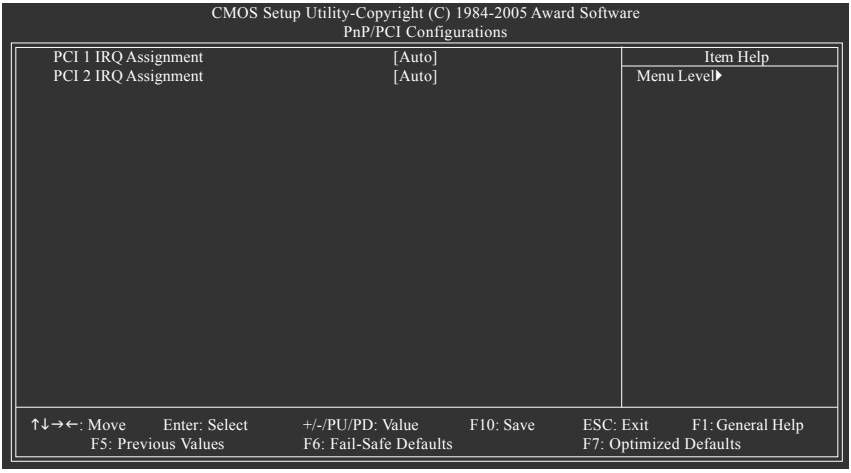
When "Power On by Keyboard" set at Password, you can set the password here.

- ⏩ 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



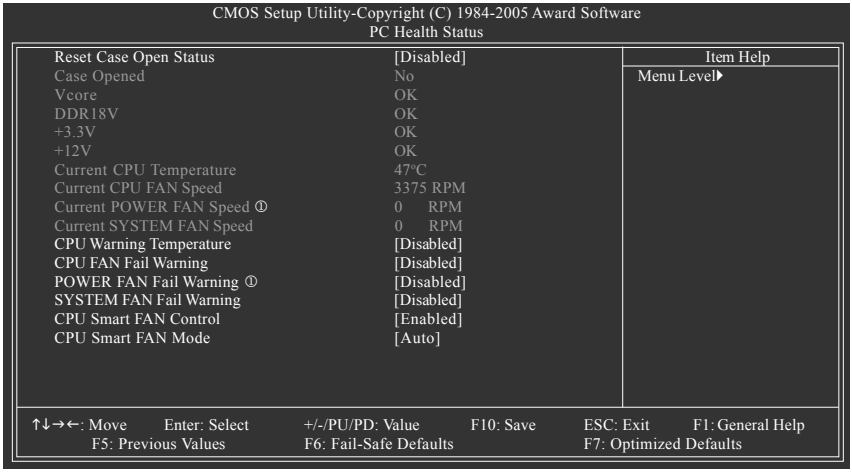
☞ **PCI 1 IRQ Assignment**

- ⏩ 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



☞ **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 / DDR18V / +3.3V / +12V**

- Detect system's voltage status automatically.

☞ **Current CPU Temperature**

- Detect CPU temperature automatically.

☞ **Current CPU/POWER①/SYSTEM FAN Speed (RPM)**

- Detect CPU/POWER①/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/POWER①/SYSTEM FAN Fail Warning**

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

① Only for GA-8I945P Dual Graphic.

☞ **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)

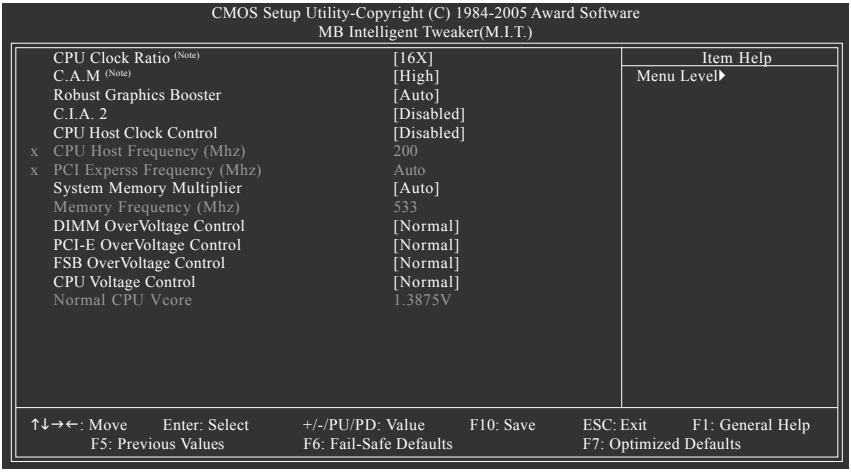
☞ **CPU Smart FAN Mode**

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 MB Intelligent Tweaker(M.I.T.)



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.

☞ **C.A.M (Note)**

- ⏩ High — Set clock ratio for frequency-locked CPU to High. (Default value)
- ⏩ Low — Set clock ratio for frequency-locked CPU to Low.

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

☞ **Robust Graphics Booster**

Select the options can enhance the VGA graphics card bandwidth to get higher performance.

- ⏩ Auto — Set Robust Graphics Booster to Auto. (Default value)
- ⏩ Fast — Set Robust Graphics Booster to Fast.
- ⏩ Turbo — Set Robust Graphics Booster to Turbo.

☞ **C.I.A.2**

C.I.A.2 (CPU Intelligent Acelerator 2) is designed to detect CPU loading during software program executing, and automatically adjust CPU computing power to maximize system performance.

- ⏩ Disabled — Disable this function. (Default value)
- ⏩ Cruise — Set C.I.A.2 to Cruise. (Automatically increase CPU frequency(5%,7%) by CPU loading.
- ⏩ Sports — Set C.I.A.2 to Sports. (Automatically increase CPU frequency(7%,9%) by CPU loading.
- ⏩ Racing — Set C.I.A.2 to Racing. (Automatically increase CPU frequency(9%,11%) by CPU loading.
- ⏩ Turbo — Set C.I.A.2 to Turbo. (Automatically increase CPU frequency(15%,17%) by CPU loading.
- ⏩ Full Thrust — Set C.I.A.2 to Full Thrust. (Automatically increase CPU frequency(17%, 19%) by CPU loading.

Warning: Stability is highly dependent on system components.

☞ **CPU Host Clock Control**

Please note that if your system is overclocked and cannot restart, please wait 20secs. for automatic system restart or clear the CMOS setup data and perform a safe restart.

- ⏩ Disabled — Disable CPU Host Clock Control. (Default value)
- ⏩ Enabled — Enable CPU Host Clock Control.

☞ **CPU Host Frequency (Mhz)**

⏩ 100MHz ~ 600MHz — Set CPU Host Frequency from 100MHz to 600MHz.

If you use FSB533 Pentium 4 processor, please set "CPU Host Frequency" to 133MHz.If you use FSB800 Pentium 4 processor, please set "CPU Host Frequency" to 200MHz.

Incorrect using it may cause your system broken. For power End-User use only!

☞ **PCI Experss Frequency (Mhz)**

- ⏩ Auto — Set PCI Express frequency automatically. (Default value)
- ⏩ 90~150 — Set PCI Express frequency from 90MHz to 150MHz.

☞ **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 **CPU Host Frequency (Mhz)** and **System Memory Multiplier** setting.

☞ **DIMM OverVoltage Control**

Please note that by overclocking your system through the increase of the DIMM voltage, damage to the memory may occur.

- Normal Set DIMM OverVoltage Control to Normal. (Default value)
- +0.1V Set DIMM OverVoltage Control to +0.1V.
- +0.2V Set DIMM OverVoltage Control to +0.2V.
- +0.3V Set DIMM OverVoltage Control to +0.3V.
- +0.4V Set DIMM OverVoltage Control to +0.4V.
- +0.5V Set DIMM OverVoltage Control to +0.5V.
- +0.6V Set DIMM OverVoltage Control to +0.6V.

Incorrect using it may cause your system broken. For power End-User use only!

☞ **PCI-E OverVoltage Control**

- Normal Set PCI-E OverVoltrage Control to Normal. (Default value)
- +0.1V Set PCI-E OverVoltrage Control to +0.1V.
- +0.2V Set PCI-E OverVoltrage Control to +0.2V.
- +0.3V Set PCI-E OverVoltrage Control to +0.3V.

Incorrect using it may cause your system broken. For power End-User use only!

☞ **FSB OverVoltage Control**

- Normal Set FSB OverVoltage Control to Normal. (Default value)
- +0.1V Set FSB OverVoltage Control to +0.1V.
- +0.2V Set FSB OverVoltage Control to +0.2V.
- +0.3V Set FSB OverVoltage Control to +0.3V.

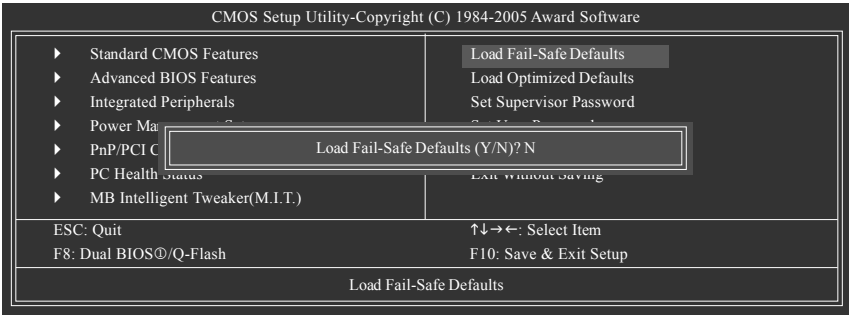
☞ **CPU Voltage Control**

- Supports adjustable CPU Vcore from 0.8375V to 1.6000V. (Default value: Normal)

☞ **Normal CPU Vcore**

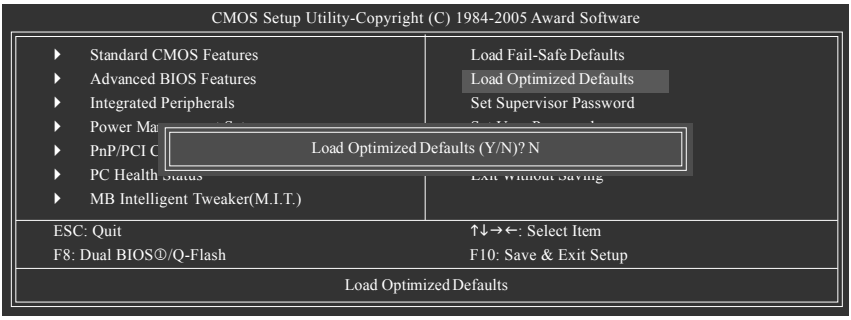
Display your CPU Vcore Voltage.

2-8 Load Fail-Safe Defaults



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

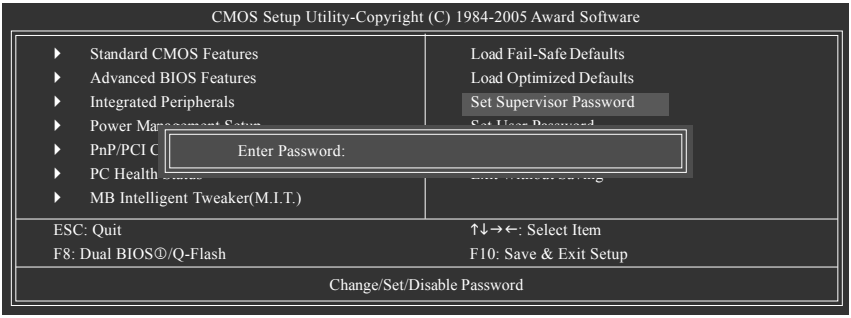
2-9 Load Optimized Defaults



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

① Only for GA-8I945P Dual Graphic.

2-10 Set Supervisor/User Password



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

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

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

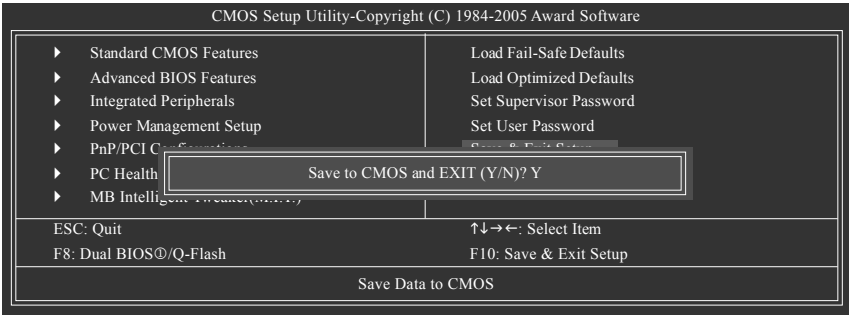
The BIOS Setup program allows you to specify two separate passwords:
SUPERVISOR PASSWORD and a USER PASSWORD. When disabled, anyone may access all BIOS Setup program function. When enabled, the Supervisor password is required for entering the BIOS Setup program and having full configuration fields, the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

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

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

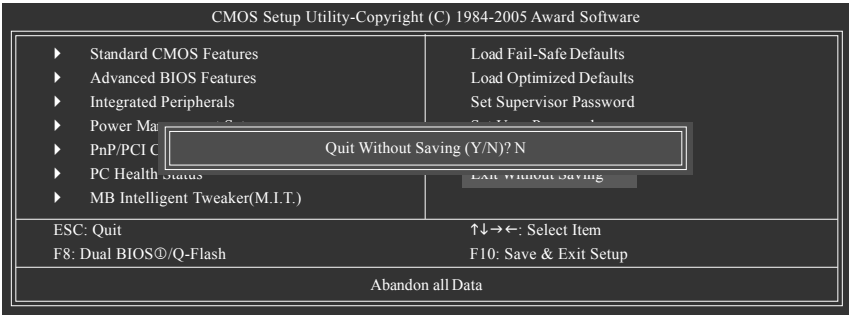
① Only for GA-8I945P Dual Graphic.

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.

① Only for GA-8I945P Dual Graphic.

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

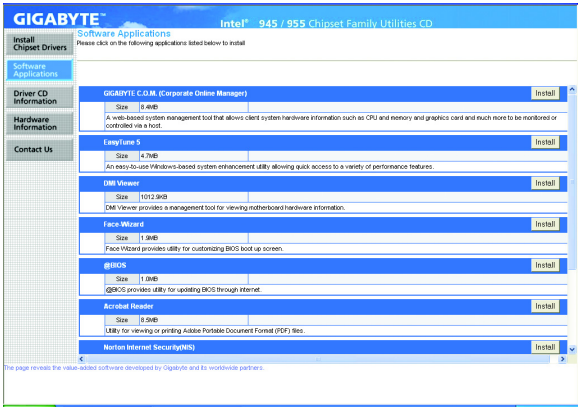
Some device drivers will restart your system automatically. After restarting your system the "Xpress Install" will continue to install other drivers. System will reboot automatically after install the drivers, afterward you can install others application.

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).

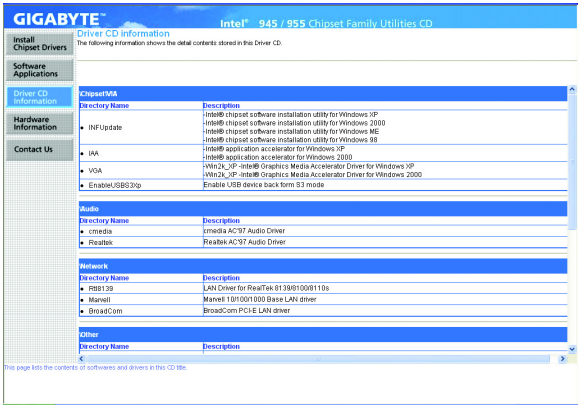
3-2 Software Applications

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.



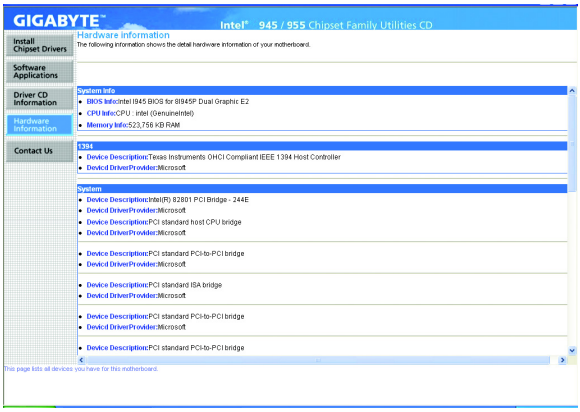
3-3 Driver CD Information

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 Recovery Introduction

What is Xpress Recovery ?

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

CAUTION

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

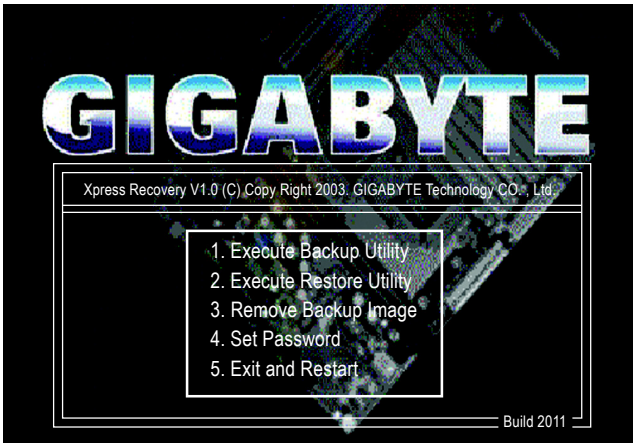
How to use the Xpress Recovery

1. Boot from CD-ROM (BMP Mode)

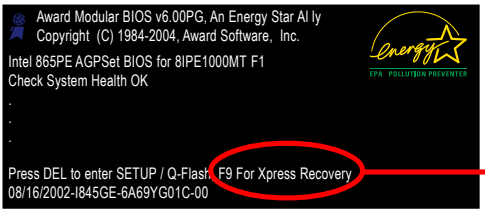
   Enter the BIOS menu, select "Advanced BIOS Feature" and set to boot from CD-ROM. Insert the provided driver CD into your CD drive, then save and exit the BIOS menu. Once the computer has restarted, the phrase "Boot from CD:" will appear at the bottom left-hand corner of the screen. When "Boot from CD:"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

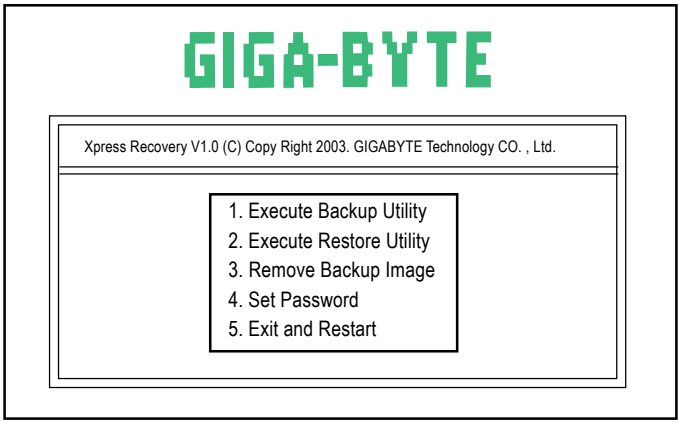
   Once you have completed this step, subsequent access to Xpress Recovery can also function by pressing the F9 key during computer power on.

Boot from CD:



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





NOTE

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

1. Execute Backup Utility:

Press B to Backup your System or Esc to Exit

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

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

2. Execute Restore Utility:

This program will recover your system to factory default.

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

Restores backup image to original state.

3. Remove Backup Image:

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

Remove the backup image.

4. Set Password:

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

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

5. Exit and Restart:

Exit and restart your computer.

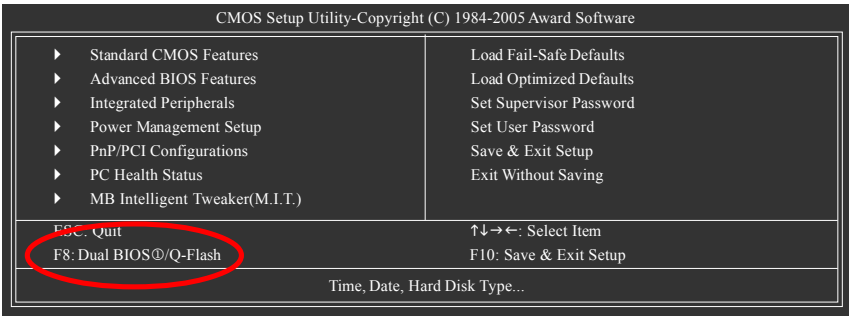
4-1-3 Flash BIOS Method Introduction

A. What is Dual BIOS① Technology ?

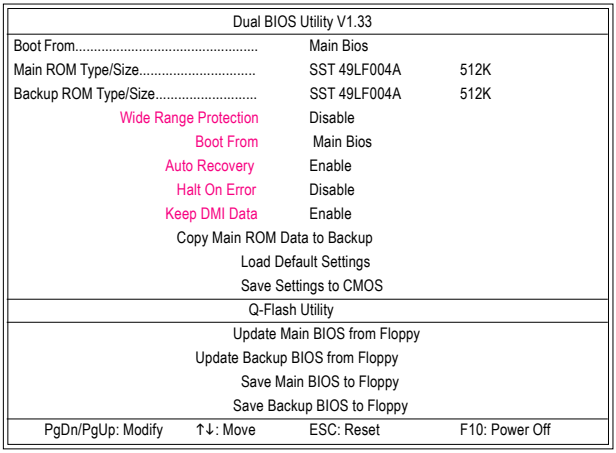
Dual BIOS means that there are two system BIOS (ROM) on the motherboard, one is the Main BIOS and the other is Backup BIOS. Under the normal circumstances, the system works on the Main BIOS. If the Main BIOS is corrupted or damaged, the Backup BIOS can take over while the system is powered on. This means that your PC will still be able to run stably as if nothing has happened in your BIOS.

B. How to use Dual BIOS① and Q-Flash Utility?

a. After power on the computer, pressing <Del> immediately during POST (Power On Self Test) it will allow you to enter Award BIOS CMOS SETUP, then press <F8> to enter Flash utility.



b. Dual BIOS / Q-Flash Programming Utility



① Only for GA-8I945P Dual Graphic.

c. Dual BIOS Item explanation:

Wide Range Protection: Disable(Default), Enable

Status 1:

If any failure (ex. Update ESCD failure, checksum error or reset? occurs in the Main BIOS, just before the Operating System is loaded and after the power is on, and that the Wide Range Protection is set to "Enable", the PC will boot from Backup BIOS automatically.

Status 2:

If the ROM BIOS on peripherals cards(ex. SCSI Cards, LAN Cards,..) emits signals torequest restart of the system after the user make any alteration on it, the boot up BIOS will not be changed to the Backup BIOS.

Boot From : Main BIOS(Default), Backup BIOS

Status 1:

The user can set to boot from main BIOS or Backup BIOS.

Status 2:

If one of the main BIOS or the Backup BIOS fails, this item "Boot From : Main BIOS(Default)" will become gray and will not be changed by user.

Auto Recovery : Enable(Default), Disable

When one of the Main BIOS or Backup BIOS occurs checksum failure, the working BIOS will automatically recover the BIOS of checksum failure.

(In the Power Management Setup of the BIOS Setting, if ACPI Suspend Type is set to Suspend to RAM, the Auto Recovery will be set to Enable automatically.)

(If you want to enter the BIOS setting, please press "Del" key when the boot screen appears.)

Halt On Error : Disable(Default), Enable

If the BIOS occurs a checksum error or the Main BIOS occurs a WIDE RANGE PROTECTION error and Halt On Error set to Enable, the PC will show messages on the boot screen, and the system will pause and wait for the user's instruction.

If Auto Recovery :Disable, it will show <or the other key to continue.>

If Auto Recovery :Enable, it will show <or the other key to Auto Recover.>

Keep DMI Data : Enable(Default), Disable

Enable: The DMI data won't be replaced by flashing new BIOS.(recommend)

Disable: The DMI data will be replaced by flashing new BIOS.

Copy Main ROM Data to Backup

(If you boot from Backup ROM, this item will change to Copy Backup ROM Data to Main)

Auto recovery message:

BIOS Recovery: Main to Backup

The means that the Main BIOS works normally and could automatically recover the Backup BIOS.

BIOS Recovery: Backup to Main

The means that the Backup BIOS works normally and could automatically recover the Main BIOS.

(This auto recovery utility is set by system automatically and can't be changed by user.)

Load Default Settings

Load dual BIOS default value.

Save Settings to CMOS

Save revised setting.

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.

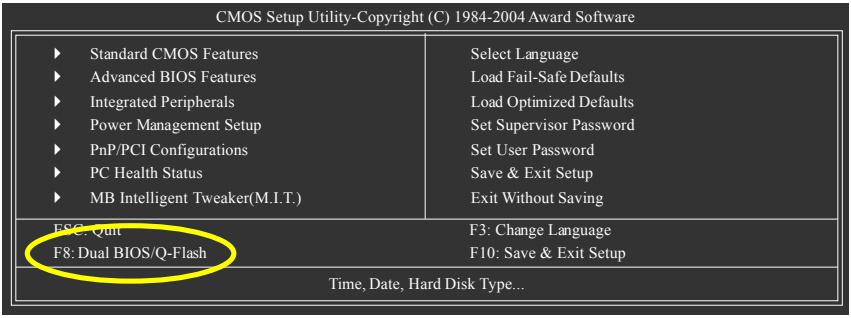
Some of Gigabyte motherboards are equipped with dual BIOS. In the BIOS menu of the motherboards supporting Q-Flash and Dual BIOS, the Q-Flash utility and Dual BIOS utility are combined in the same screen. This section only deals with how to use Q-Flash utility.

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:

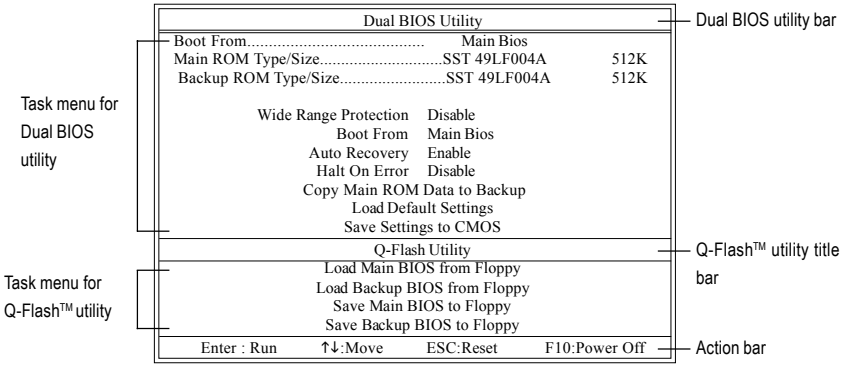
Step1: To use Q-Flash utility, you must press **Del** in the boot screen to enter BIOS menu.



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:

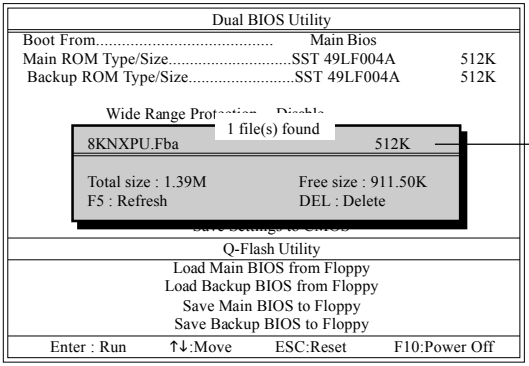
1. Press arrow buttons on your keyboard to move the light bar to "Load Main BIOS from Floppy" item in the Q-Flash menu and press Enter button.
   Later, you will see a box pop up showing the BIOS files you previously downloaded to the floppy disk.

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**.

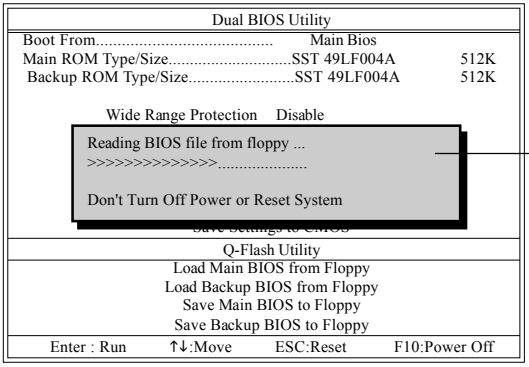
In this example, we only download one BIOS file to the floppy disk so only one BIOS file, 8KNXPU.Fba, is listed.

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.



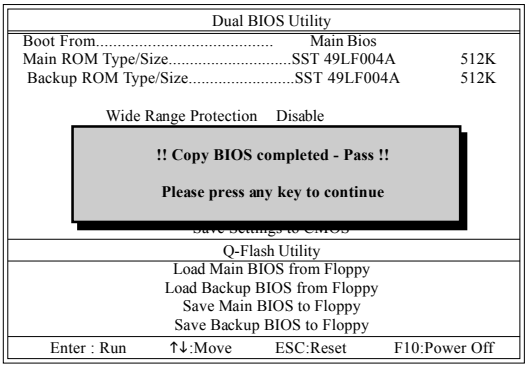
CAUTION Do not turn off power or reset your system at this stage!!

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.

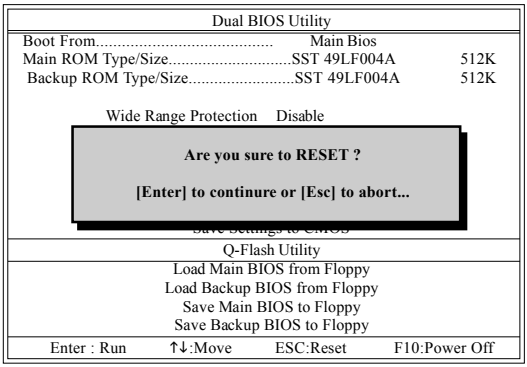
CAUTION Please do not take out the floppy disk when it begins flashing BIOS.

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



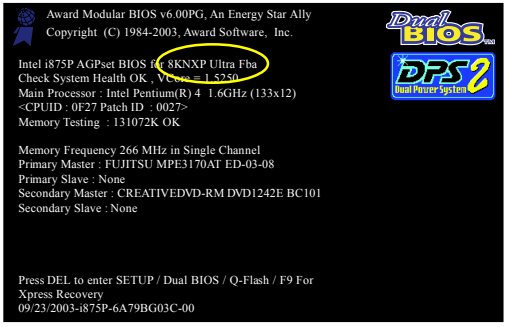
NOTE You can repeat Step 1 to 4 to flash the backup BIOS, too.

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

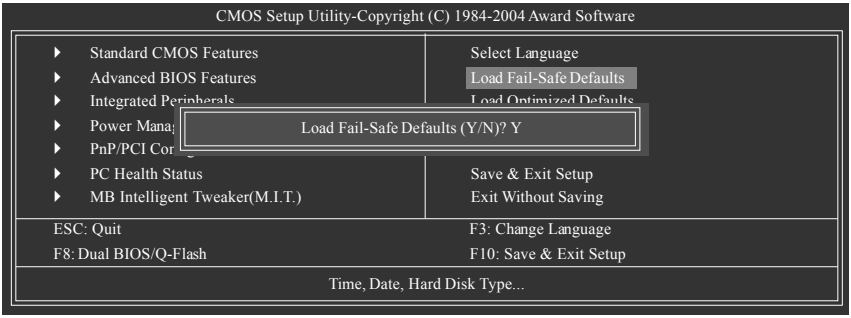


After system reboots, you may find the BIOS version on your boot screen becomes the one you flashed.

The BIOS file becomes Fab after updating.

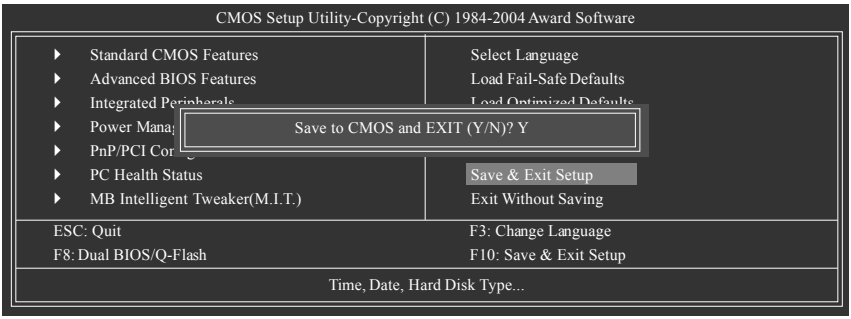


6. Press **Del** to enter BIOS menu after system reboots. When you are in BIOS menu, move to **Load Fail-Safe Defaults** item and press **Enter** to load BIOS Fail-Safe Defaults. Normally the system redetects all devices after BIOS has been upgraded. Therefore, we highly recommend reloading the BIOS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

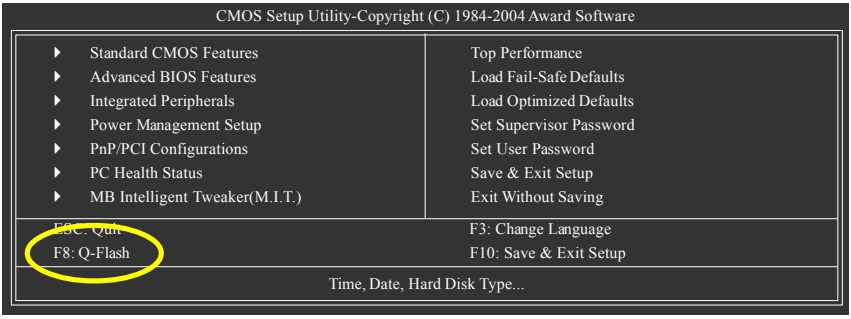


Press **Y** on your keyboard to save and exit.

Part Two:

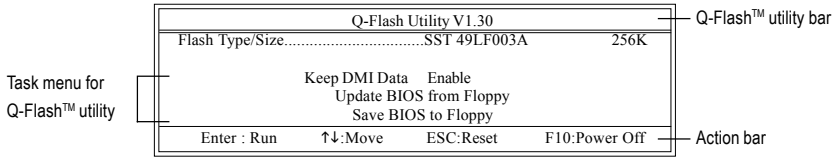
Updating BIOS with Q-Flash™ Utility on Single-BIOS Motherboards.

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.

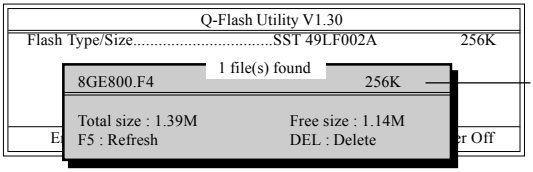
Steps:

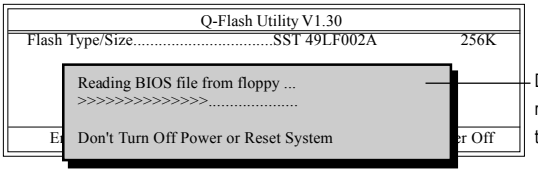
1. Press arrow buttons on your keyboard to move the light bar to "Update BIOS from Floppy" item in the Q-Flash menu and press Enter button.
   Later, you will see a box pop up showing the BIOS files you previously downloaded to the floppy disk.

   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.

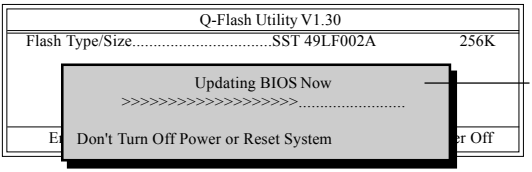




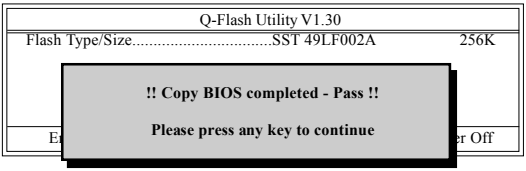
After BIOS file is read, you'll see a confirmation dialog box asking you "Are you sure to update BIOS?"

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

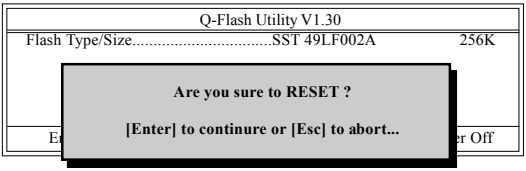
3. Press Y button on your keyboard after you are sure to update BIOS.
   Then it will begin to update BIOS. The progress of updating BIOS will be shown at the same time.



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

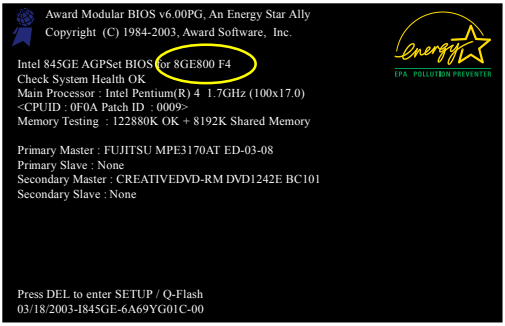


5. Press Esc and then Y button to exit the Q-Flash utility. The computer will restart automatically after you exit Q-Flash.



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

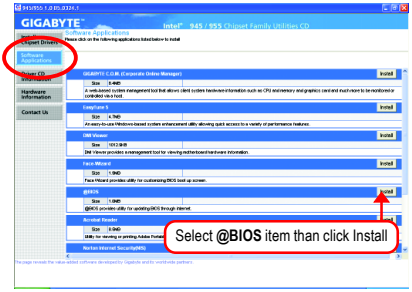


Fig 2. Installation Complete and Run @BIOS

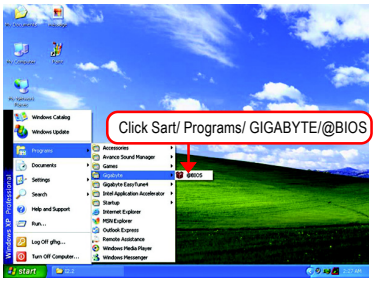


Fig 3. The @BIOS Utility

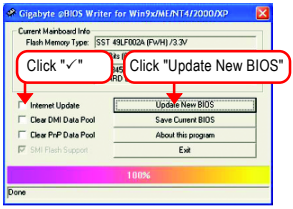
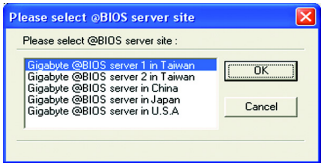


Fig 4. Select the desired @BIOS server



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: 8I945P Dual Graphic.F1).
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 Serial ATA BIOS Setting Utility Introduction

RAID Levels

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

Hard disk drives can be combined together through a few different methods. The different methods are referred to as different RAID levels. Different RAID levels represent different performance levels, security levels and implementation costs. The RAID levels which the Intel® ICH7R chipset supports are RAID 0, RAID 1, RAID 0+1 and RAID 5.

RAID 0 (Striping)

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

RAID 1 (Mirroring)

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

RAID 0+1 (Striping + Mirroring)

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

RAID 5 (Striping with Parity)

RAID 5 provides good fault tolerance and allows for overlapped I/O operations.

Under a RAID 5 setup, data and parity information are equally distributed to each disk member in the array. If any one of the drives fails, the remaining drive will continue to function. After replacing the failed drive, you can rebuild the data from the remaining data and parity.

Only one drive can safely crash without any data loss.

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

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

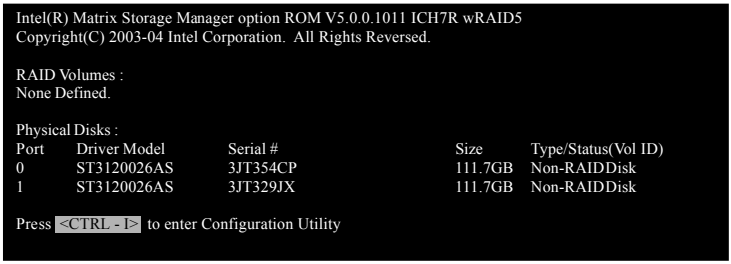
More information on steps 4 and 5 is provided.

Configuring the Intel RAID BIOS

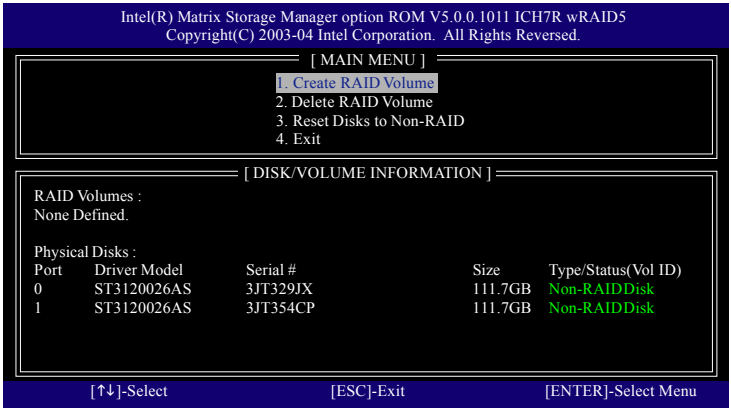
The Intel RAID BIOS setup lets you choose the RAID array type and which hard drives you want to make part of the array.

Entering the RAID BIOS Setup

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

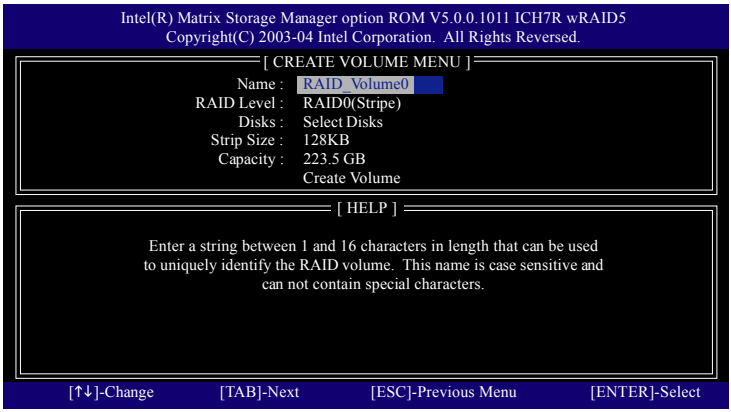


Press Ctrl + I. The Intel RAID Utility - Create RAID Volume window appears (as Figure below).



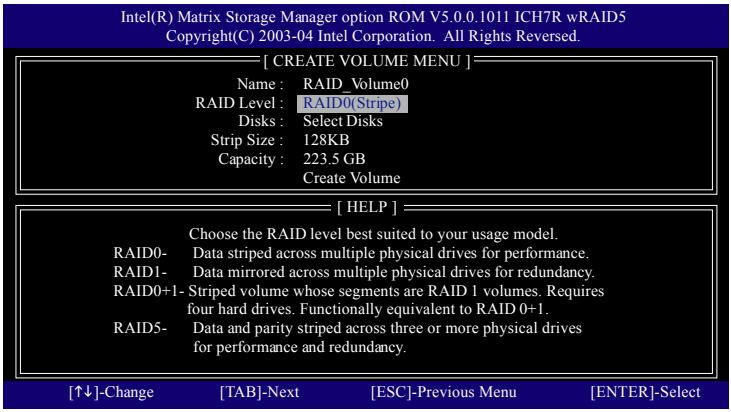
Create RAID Volume

Press **Enter** under **Create RAID Volume** to set up RAID.



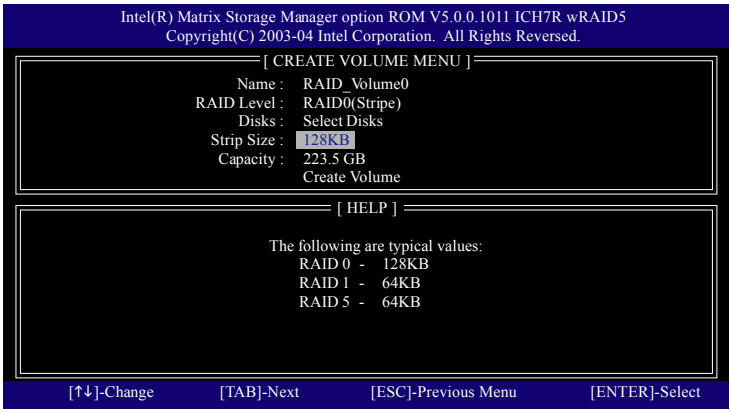
After entering the Create Volume Menu, you can set disk name with 1~16 letters (letters cannot be special characters) under **Name** item.

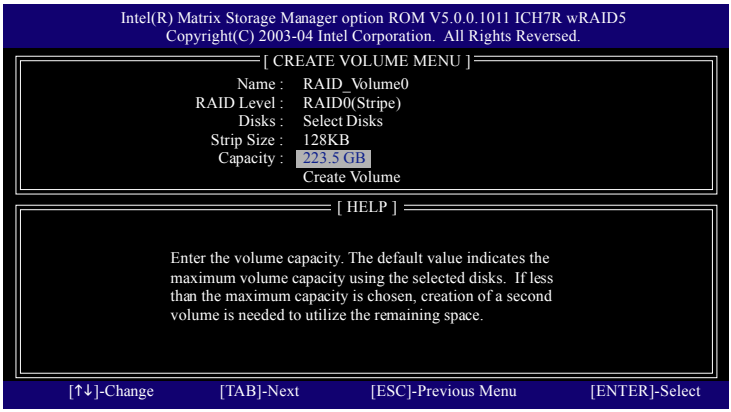
After setting disk name, press **Enter** to select **RAID Level**.



There are four RAID levels: RAID0(Stripe), RAID1(Mirror), RAID 0+1 (Striping + Mirroring) and RAID5. After selecting the RAID level, press **Enter** to select **Strip Size**.

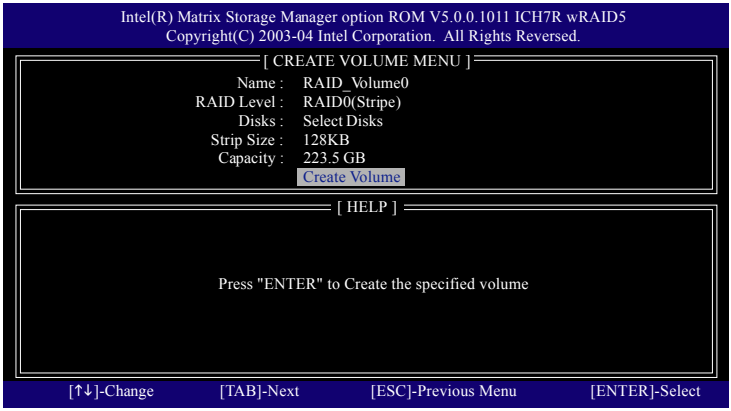
The KB is a unit of Strip Size. You can set disk block size with this item.
The disk block size can be set from 4KB to 128KB. After you set disk block size, press **Enter** to set disk **Capacity**.



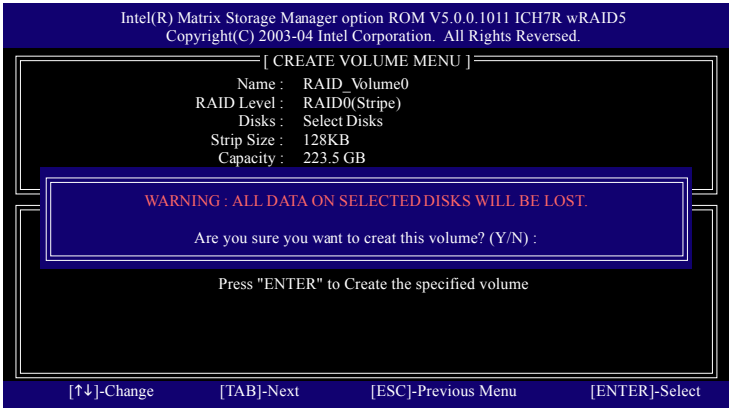


Press **Enter** to enter **Create Volume** after setting disk capacity.

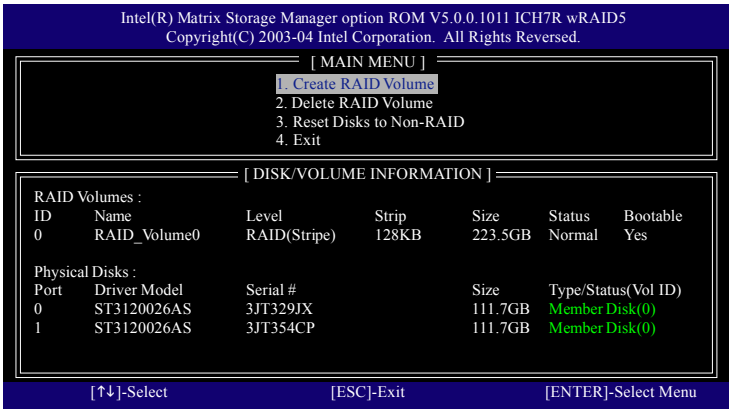
Press **Enter** under the **Create Volume** item.



An alert bar will be displayed warning you that all data on selected disks will be lost. Please press **Y** to complete the set-up of RAID.

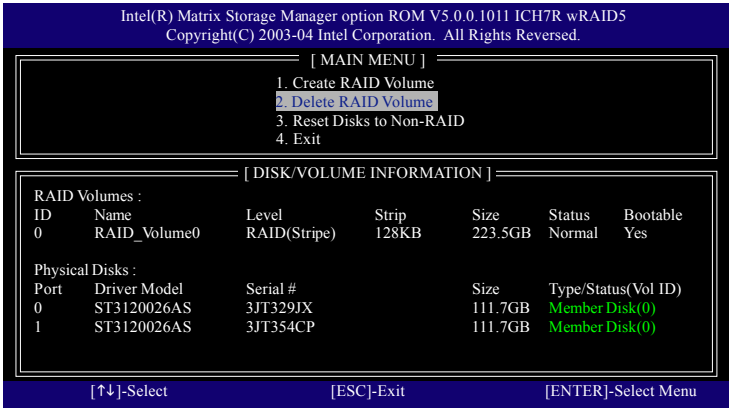


After the completion, you will see the detailed information about the RAID, such as RAID level, disk block size, disk name and disk capacity, etc.



Delete RAID Volume

If you want to delete a RAID volume, please select the **Delete RAID Volume** option. Press **Enter** key and follow the instructions on the screen.



Installing the RAID drivers

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.1):

```
cd bootdrv
menu
```

Step 2: When the controller menu (Fig.2) appears, remove the startup disk and insert the blank formatted disk. Select the controller driver by pressing the corresponding letter from the menu. Your system will then automatically zip and transfer this driver file to the floppy disk. Press 0 to exit when finished.

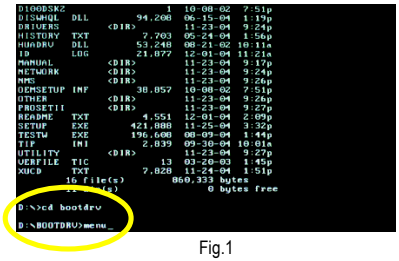


Fig.1

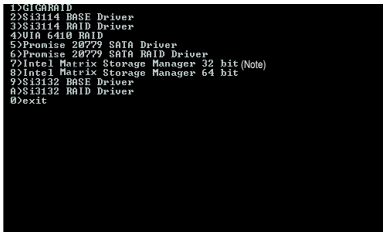


Fig. 2

Step 3: After completing the steps, boot from the Windows installation disk to install the RAID drivers. Press **F6** as soon as you see the "Press F6 if you need to install a third party SCSI or RAID driver" message, then supply serial ATA controller driver by this floppy disk. Follow the on-screen instructions to complete the installation.

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

NOTE

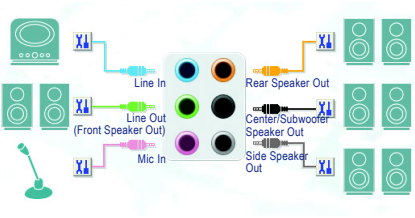
(Note 1): For users without a startup disk.
Use an alternative system and insert the GIGABYTE motherboard drive CD-ROM. From the CD-ROM drive (example: D:\) double click the **MENU.exe** file in the **BootDrv** folder. A command prompt window will open similar to that in Fig. 2.

Note: In the menu list, Intel Matrix Storage Manager is Intel ICH7R chipset.

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

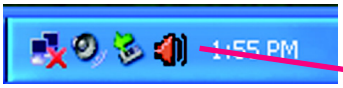
With multiple built-in high quality digital-to-analog converters (DACs) that support audio output at up to 192 kHz/24-bit quality and multi-streaming applications, HD Audio is able to handle multiple audio streams (in and out) simultaneously. Multi-channel audio experiences have become a reality so you 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.

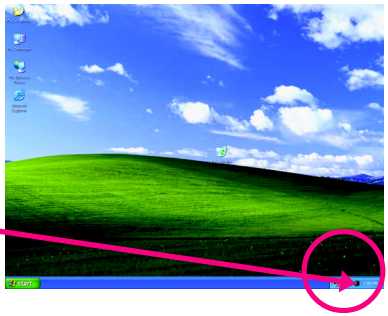
Stereo Speakers Connection and Settings:

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

STEP 1 :

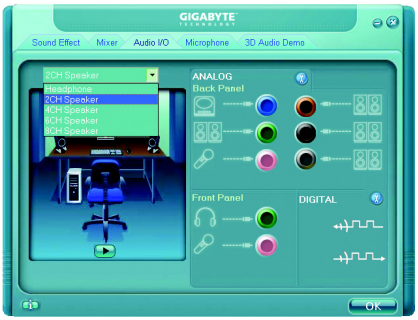
After installation of the audio driver, you should find an Audio Manager icon in your system tray (you can also find the icon in Control Panel). Double-click the icon to open the Audio Control Panel.





STEP 2:

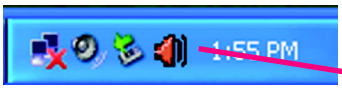
In the Audio Control Panel, click the **Audio I/O** tab. In the upper left list, click **2CH Speaker**.

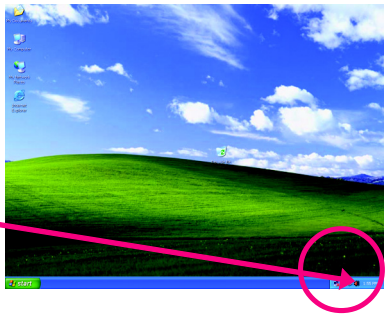


STEP 3:
After a speaker or headphone is plugged into the rear Line Out jack, a small window will pop up and ask you what type of equipment is connected. Choose **Headphone** or **Line Out** depending on the device connected and click **OK**. The 2-channel audio setup is completed.

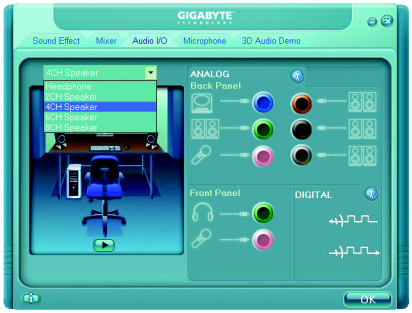
4 Channel Audio Setup

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**.

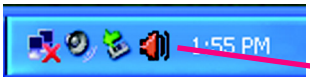


STEP 3:
After plugging in 4-channel speakers to the rear speaker jacks, a small window will pop up and ask you what type of equipment is connected. Choose a device depending on the type of speaker connected (4-channel audio consists of Front Speaker Out (Line Out) and Rear Speaker Out and then click **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**.

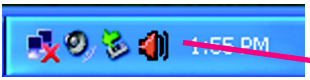
STEP 3:

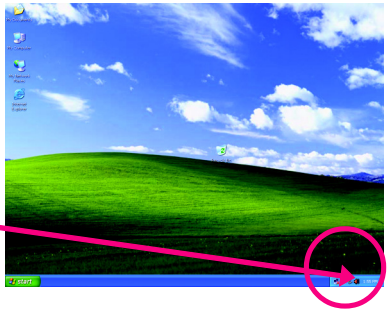
After plugging in 6-channel speakers to the rear speaker jacks, a small window will pop up and ask you what type of equipment is connected. Choose a device depending on the type of speaker connected (6-channel audio consists of Front Speaker Out (Line Out), Rear Speaker Out, and Center/Subwoofer Speaker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

8 Channel Audio Setup

STEP 1 :

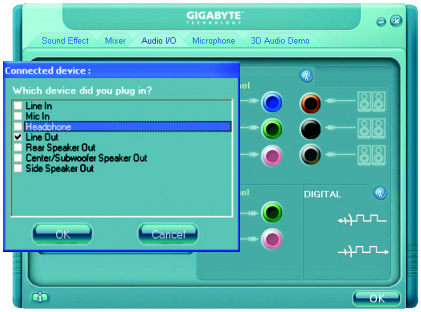
After installation of the audio driver, you should find an Audio Manager icon in your system tray (you can also find the icon in Control Panel). Double-click the icon to open the Audio Control Panel.





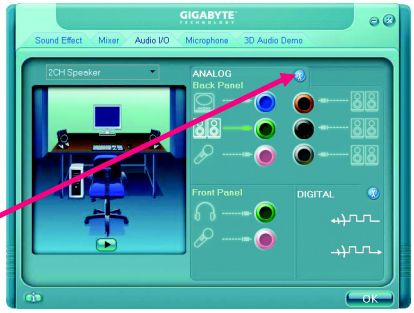
STEP 2:
In the Audio Control Panel, click the **Audio I/O** tab. In the upper left list, click **8CH Speaker**.

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

- **Taiwan (Headquarters)**

GIGA-BYTE TECHNOLOGY CO., LTD.
Address: No.6, Bau Chiang Road, Hsin-Tien, Taipei 231, Taiwan
TEL: +886-2-8912-4888
FAX: +886-2-8912-4003
Tech. Support :
http://tw.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
http://ggts.gigabyte.com.tw/nontech.asp
WEB address (English): http://www.gigabyte.com.tw
WEB address (Chinese): http://chinese.giga-byte.com

- **U.S.A.**

G.B.T. INC.
TEL: +1-626-854-9338
FAX: +1-626-854-9339
Tech. Support :
http://tw.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
http://ggts.gigabyte.com.tw/nontech.asp
WEB address : http://www.giga-byte.com

- **Germany**

G.B.T. TECHNOLOGY TRADING GMBH
TEL: +49-40-2533040 (Sales)
+49-1803-428468 (Tech.)
FAX: +49-40-25492343 (Sales)
+49-1803-428329 (Tech.)
Tech. Support :
http://tw.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
http://ggts.gigabyte.com.tw/nontech.asp
WEB address : http://www.gigabyte.de

- **Japan**

NIPPON GIGA-BYTE CORPORATION
WEB address : http://www.gigabyte.co.jp

- **Singapore**

GIGA-BYTE SINGAPORE PTE. LTD.
Tech. Support :
http://tw.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
http://ggts.gigabyte.com.tw/nontech.asp
WEB address: http://www.gigabyte.com.sg

- **U.K.**

G.B.T. TECH. CO., LTD.
Tech. Support :
http://tw.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
http://ggts.gigabyte.com.tw/nontech.asp
WEB address : http://uk.giga-byte.com

- **The Netherlands**

GIGA-BYTE TECHNOLOGY B.V.
TEL: +31-40-290-2088
NL Tech.Support: 0900-GIGABYTE (0900-44422983)
BE Tech.Support: 0900-84034
FAX: +31-40-290-2089
Tech. Support :
http://tw.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
http://ggts.gigabyte.com.tw/nontech.asp
WEB address : http://www.giga-byte.nl

- **China**

NINGBO G.B.T. TECH. TRADING CO., LTD.
Tech. Support :
http://tw.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
http://ggts.gigabyte.com.tw/nontech.asp
WEB address : http://www.gigabyte.com.cn

Shanghai
TEL: +86-021-63410999
FAX: +86-021-63410100

Beijing
TEL: +86-10-62102838
FAX: +86-10-62102848

Wuhan
TEL: +86-27-87851061
FAX: +86-27-87851330

GuangZhou
TEL: +86-20-87586074
FAX: +86-20-85517843

Chengdu
TEL: +86-28-85236930
FAX: +86-28-85256822

Xian
TEL: +86-29-85531943
FAX: +86-29-85539821

Shenyang
TEL: +86-24-23960918
FAX: +86-24-23960918-809

- **Australia**

GIGABYTE TECHNOLOGY PTY. LTD.
Tech. Support :
http://tw.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
http://ggts.gigabyte.com.tw/nontech.asp
WEB address : http://www.giga-byte.com.au

- **France**

GIGABYTE TECHNOLOGY FRANCE S.A.R.L.
Tech. Support :
http://tw.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
http://ggts.gigabyte.com.tw/nontech.asp
WEB address : http://www.gigabyte.fr

- **Russia**

Moscow Representative Office Of GIGA-BYTE Technology Co., Ltd.
Tech. Support :
http://tw.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
http://ggts.gigabyte.com.tw/nontech.asp
WEB address : http://www.gigabyte.ru

- **Poland**

Office of GIGA-BYTE TECHNOLOGY Co., Ltd. in POLAND
Tech. Support :
http://tw.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
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WEB address : http://www.gigabyte.pl

- **Serbia & Montenegro**

Representative Office Of GIGA-BYTE Technology Co., Ltd. in SERBIA & MONTENEGRO
Tech. Support :
http://tw.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
http://ggts.gigabyte.com.tw/nontech.asp
WEB address: http://www.gigabyte.co.yu

- **Czech Republic**

Representative Office Of GIGA-BYTE Technology Co., Ltd. in CZECH REPUBLIC
Tech. Support :
http://tw.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
http://ggts.gigabyte.com.tw/nontech.asp
WEB address: http://www.gigabyte.cz

- **Romania**

Representative Office Of GIGA-BYTE Technology Co., Ltd. in Romania
Tech. Support :
http://tw.giga-byte.com/TechSupport/ServiceCenter.htm
Non-Tech. Support(Sales/Marketing) :
http://ggts.gigabyte.com.tw/nontech.asp
WEB address: http://www.gigabyte.com.ro