# GA-8I915PL-G

Intel® Pentium® 4 LGA775 Processor Motherboard

User's Manual

Rev. 2001 12ME-8I915PLG-2001

	Name : Timmy Huang	Dute : Apr. 22, 2005	(Stamp)
Date: Apr. 22, 2005	Signature : Finning Hurang	Manufacturer/Importer	
Signature: Eric Lu	General and Safety requirements for uninterruptible power systems (UPS)	Safety of household and similar EK 50091-1 electrical appliances	EN 60335 Safet
Representative Person's Name: ERIC LU	Satety for information technology equipment including electrical business equipment	Sarety requirements for mains operated L EN every electronic and related apparatus for household and similar general use	LI EN 60065 Seret electr house
including that may cause undesired operation.	e mentioned product e with LVD 73/23 EEC	y stand	
subject to the following two conditions: (1) This device may not cause harmful and (2) this device must accent any inference received	(EC conformity marking)		CE marking
This device complies with part 15 of the FCC Rules. Operation is		DIN VDE 0655 Cabled distribution systems. Equipment     part 10 for receiving and/or distribution from     part 12 sound and television signals	DIN VDE 0855 Cable part 10 for ret part 12 sound
(a),Class B Digital Device Supplementary Information:		Limits and methods of measurement of radio disturbance characteristics of information technology equipment	EN 55022 Limits     of rad     inform
FCC Part 15, Subpart B, Section 15.107(a) and Section 15.109	EMC requirements for uninterruptible power systems (UPS)	Immunity from radio interference of EN 50091-2 broadcast receivers and associated equipment	EN 55020 Immunity f     broadcast     equipment
Conforms to the following specifications:	Immunity requirements for household appliances tools and similar apparatus	Limits and methods of measurement    EN 55014-2  Invrescent lamps and luminaries	EN 55015 Limits     of rad     fluore
Product Name: Motherboard	Generic immunity standard Part 2: Industrial environment	portable tools and similar electrical EN 50082-2 apparatus	apparatus
hereby declares that the product	Generic immunity standard Part 1: Residual, commercial and light industry	Limits and methods of measurement of radio disturbance characteristics of household electrical appliances.	EN 55014-1 Limits     of rad     house
City of Industry, CA 91748 Phone/Fax No: (818) 854-9338/ (818) 854-9339	Information Technology equipment Immunity characteristice-Limits and methods of measurement	Limits and methods of measurement I EN 55024 of radio Gisfurbance characteristics of broadcast receivers and associated equipment	EN 55013 Limits and of radio dis broadcast equipment
Address: 17358 Railroad Street	Disturbances in supply systems caused by household appliances and similar electrical equipment "voltage fluctuations"	industrial, scientific and medical (ISM) Intervency equipment	high f
Responsible Party Name: G.B.T. INC. (U.S.A.)	Disturbances in supply systems caused	Limits and methods of measurement III EN 61000-3-2 of radio disturbance characteristics of	EN 55011 Limits     of rad
	ective	<ul> <li>in conformity with outputs of the second seco</li></ul>	
	vrhich it refers)	(description of the apparatus, system, installation to which it refers) Motherboard CA 8(dr.5pl_C	
Per FCC Part 2 Section 2.1077(a)	l Germany	(full address) G.B.T. Technology Trading GMbH Ausschlager Weg 41, 1F 20537 Hamburg, Germany	
DECLARATION OF CONFORMITY	nity		

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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.

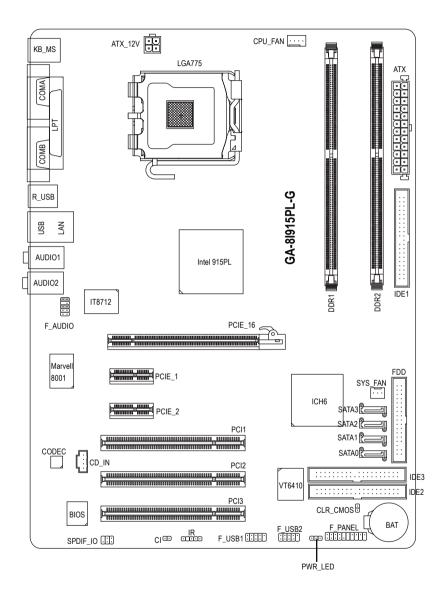
For more product details, please click onto Gigabyte's website at www.gigabyte.com.tw

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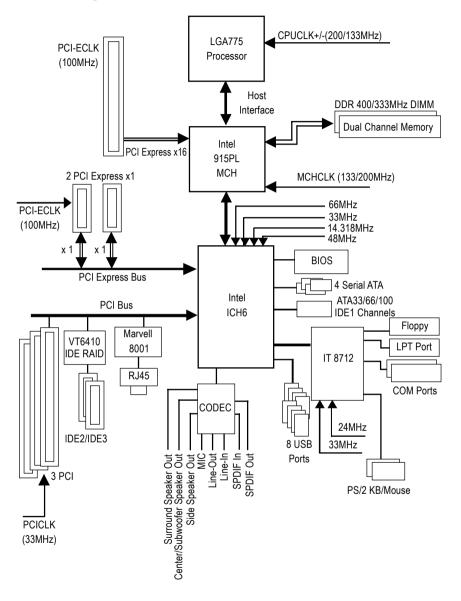
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## GA-8I915PL-G Motherboard Layout



## **Block Diagram**





## 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.
- It is best to wear an electrostatic discharge (ESD) cuff when handling electronic components (CPU, RAM).
- Prior to installing the electronic components, please have these items on top of an antistatic pad or within a electrostatic shielding container.
- 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	<ul> <li>Supports the latest Intel<sup>®</sup> Pentium<sup>®</sup> 4 LGA775 CPU</li> </ul>
	Supports 800/533MHz FSB
	L2 cache varies with CPU
Chipset	Northbridge: Intel <sup>®</sup> 915PL Express Chipset
	Southbridge: Intel <sup>®</sup> ICH6
	<ul> <li>Supported on the Win 2000/XP operating systems</li> </ul>
Memory	2 DDR DIMM memory slots (supports up to 2GB memory)
	Supports 2.5V DDR DIMM
	<ul> <li>Supports dual channel DDR 400/333 DIMM</li> </ul>
Slots	1 PCI Express x 16 slot
	2 PCI Express x 1 slots
	3 PCI slots
IDE Connections	1 IDE connection (UDMA 33/ATA 66/ATA 100), allows connection of 2
	IDE devices(IDE1)
	<ul> <li>Supported on the Win 2000/XP operating systems</li> </ul>
	<ul> <li>2 IDE connection (UDMA 33/ATA 66/ATA 100/ATA 133), compatible with</li> </ul>
	RAID, allows connection of 4 IDE devices(IDE2,IDE3) <sup>(Note 1)</sup>
FDD Connections	1 FDD connection, allows connection of 2 FDD devices
Onboard SATA	4 Serial ATA connections
	<ul> <li>Supported on the Win 2000/XP operating systems</li> </ul>
Peripherals	1 parallel port supporting Normal/EPP/ECP mode
	<ul> <li>2 Serial port (COMA/COMB)</li> </ul>
	<ul> <li>8 USB 2.0/1.1 ports (rear x 4, front x 4 via cable)</li> </ul>
	1 front audio connector
	1 IR connector
	<ul> <li>1 PS/2 keyboard port</li> </ul>
	1 PS/2 mouse port
Onboard LAN	Onboard Marvell 8001 chip (10/100/1000 Mbit)
	<ul> <li>1 RJ 45 port</li> </ul>
Onboard Audio	ALC850 CODEC (UAJ)
	Supports Jack Sensing function
	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
	Supports SPDIF In/Out connection
	CD In

(Note 1) Only support ATAPI mode for HDD.

On-Board IDE RAID	Built-in VT6410 chipset
(IDE2, IDE3)	<ul> <li>Supports disk striping (RAID 0) or disk mirroring (RAID 1) or</li> </ul>
	striping + mirroring (RAID 0 + RAID 1)
	supports JBOD function
	<ul> <li>Supports concurrent dual ATA133 IDE controller operation</li> </ul>
	Supports ATAPI mode for HDD
	Supports IDE bus master operation
	<ul> <li>Displays status and error checking messages during boot-up</li> </ul>
	Mirroring supports automatic background rebuilds
	Features LBA and Extended Interrupt 13 drive translation in
	controller onboard BIOS
I/O Control	<ul> <li>IT8712</li> </ul>
Hardware Monitor	System voltage detection
	CPU temperature detection
	CPU / System fan speed detection
	CPU warning temperature
	CPU / System fan failure warning
	CPU smart fan control
BIOS	Use of licensed AWARD BIOS
	Supports Q-Flash
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 22.0cm

## **1-3** Installation of the CPU and Heatsink



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

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



#### HT functionality requirement content :

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

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

#### 1-3-1 Installation of the CPU

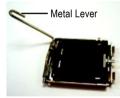


Fig. 1 Gently lift the metal lever located on the CPU socket to the upright position.



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



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



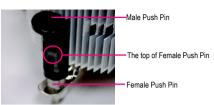
Fig. 4 Once the CPU is properly inserted, please replace the load plate and push the metal lever back into its original position.

#### 1-3-2 Installation of the Heatsink



#### Fig.1

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



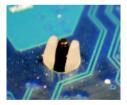
#### Fig. 2

(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. 5

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



#### Fig. 4

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



#### Fig. 6

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



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

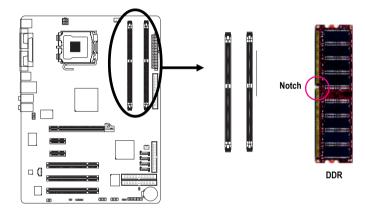
## 1-4 Installation of Memory



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

- 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.
  - Before installing or removing memory modules, please make sure that the computer power is switched off to prevent hardware damage.
  - Memory modules have a foolproof insertion design. A memory module can be installed in only one direction. If you are unable to insert the module, please switch the direction.

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







#### Fig.1

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

#### Fig.2

Close the plastic clip at both edges of the DIMM sockets to lock the DIMM module.

Reverse the installation steps when you wish to remove the DIMM module.

#### **Dual Channel DDR**

GA-8I915PL-G supports the Dual Channel Technology. After operating the Dual Channel Technology, the bandwidth of Memory Bus will add double.

GA-8I915PL-G includes 2 DIMM sockets, and each Channel has two DIMM sockets as following:

- ➡ Channel A : DDR 1
- ➡ Channel B : DDR 2

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

- 1. If one DDR memory modules are installed: The Dual Channel Technolog cannot operate when one DDR memory modules are installed.
- 2. If two DDR memory modules are installed, please use memory of the same storage capacity in order to use dual channel memory and for BIOS to detect all the DDR memory modules.

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

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

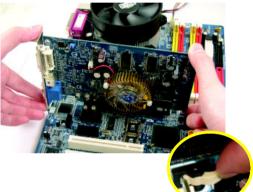
	DDR 1	DDR 2
2 memory modules	DS/SS	DS/SS

## 1-5 Installation of Expansion Cards

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

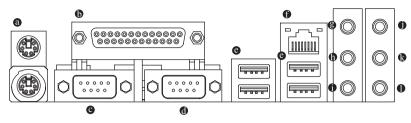
- 1. Read the related expansion card's instruction document before install the expansion card into the computer.
- 2. Remove your computer's chassis cover, screws and slot bracket from the computer.
- 3. Press the expansion card firmly into expansion slot in motherboard.
- 4. Be sure the metal contacts 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:



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.

## 1-6 I/O Back Panel Introduction



#### PS/2 Keyboard and PS/2 Mouse Connector

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

#### Parallel Port

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

#### COM A/COM B (Serial Port)

Connects to serial-based mouse or data processing devices.

#### O 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.

#### LAN Port

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

#### Sector Line In

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

#### Line Out (Front Speaker Out)

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

#### MIC In

Microphone can be connected to MIC In jack.

#### Rear Speaker Out

Connect the rear surround speakers to this connector.

#### Center/Subwoofer Speaker Out

Connect the Center/Subwoofer speakers to this connector.

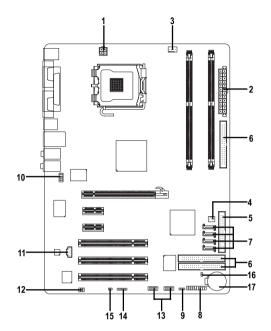
#### Side Speaker Out

Connect the side surround speakers to this connector.



angle You can use audio software to configure 2-/4-/6-/8-channel audio functioning.

## 1-7 Connectors Introduction



1)	ATX_12V	10)	F_AUDIO
2)	ATX (Power Connector)	11)	CD_IN
3)	CPU_FAN	12)	SPDIF_IO
4)	SYS_FAN	13)	F_USB1 / F_USB2
5)	FDD	14)	IR
6)	IDE1/IDE2/IDE3	15)	CI
7)	SATA0 / SATA1 / SATA2 / SATA3	16)	CLR_CMOS
8)	F_PANEL	17)	BAT
9)	PWR_LED		

#### 1/2) ATX\_12V/ATX (Power Connector)

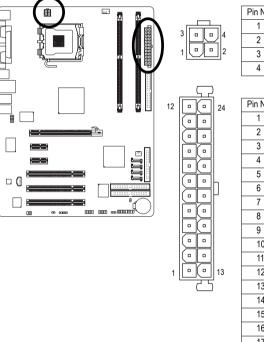
With the use of the power connector, the power supply can supply enough stable power to all the components on the motherboard. Before connecting the power connector, please make sure that all components and devices are properly installed. Align the power connector with its proper location on the motherboard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

The ATX\_12V power connector mainly supplies power to the CPU. If the ATX\_12V power connector is not connected, the system will not start.

Caution!

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

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



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

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

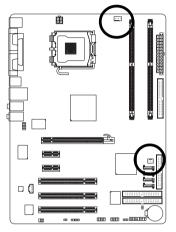
#### 3/4) CPU\_FAN / SYS\_FAN (Cooler Fan Power Connector)

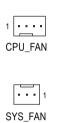
The cooler fan power connector supplies a +12V power voltage via a 3-pin/4-pin (only for CPU\_FAN) power connector and possesses a foolproof connection design.

Most coolers are designed with color-coded power connector wires. A red power connector 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.

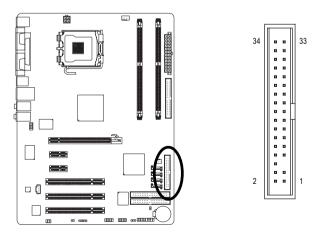




Pin No.	Definition
1	GND
2	+12V
3	Sense
4	Speed Control
	(Only for CPU_FAN)

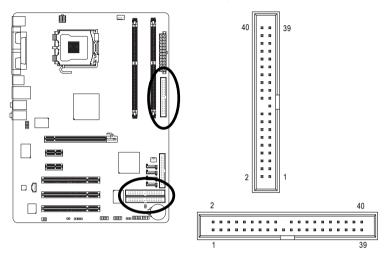
#### 5) FDD (Floppy Connector)

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



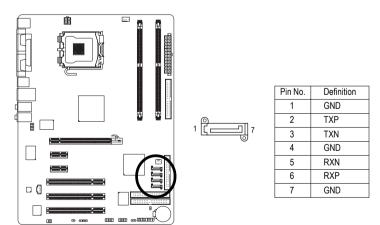
#### 6) IDE1/IDE2/IDE3 (IDE Connector)

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). To ensure that an IDE CD-ROM drive can work properly, please attach it to the IDE 1 connector.



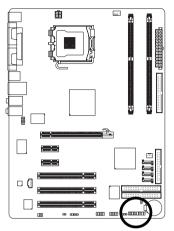
#### 7) SATA0/SATA1/SATA2/SATA3 (Serial ATA Connector)

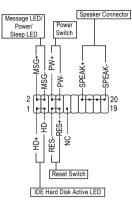
Serial ATA can provide up to150MB/s transfer rate. Please refer to the BIOS setting for the Serial ATA and install the proper driver in order to work properly.



#### 8) F\_PANEL (Front Panel Jumper)

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

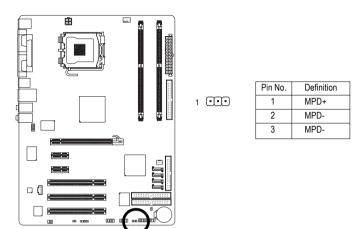




HD (IDE Hard Disk Active LED)	Pin 1: LED anode(+)
(Blue)	Pin 2: LED cathode(-)
SPEAK (Speaker Connector)	Pin 1: Power
(Amber)	Pin 2- Pin 3: NC
	Pin 4: Data(-)
RES (Reset Switch)	Open: Normal
(Green)	Close: Reset Hardware System
PW (Power Switch)	Open: Normal
(Red)	Close: Power On/Off
MSG(Message LED/Power/Sleep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

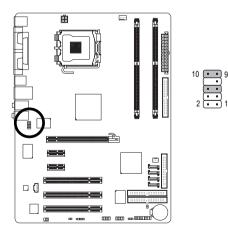
#### 9) PWR\_LED

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.



#### 10) F\_AUDIO (Front Audio Connector)

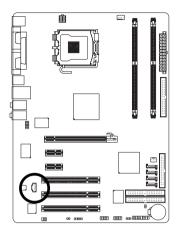
If you want to use Front Audio connector, you must remove 5-6, 9-10 Jumper. In order to utilize the front audio header, your chassis must have front audio connector. Also please make sure the pin assignment on the cable is the same as the pin assignment on the MB header. To find out if the chassis you are buying support front audio connector, please contact your dealer.Please note, you can have the alternative of using front audio connector or of using rear audio connector to play sound.



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

#### 11) CD\_IN (CD IN)

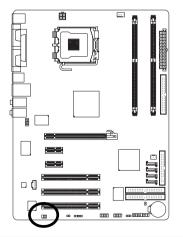
Connect CD-ROM or DVD-ROM audio out to the connector.



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

#### 12) SPDIF\_IO (SPDIF In/Out)

The SPDIF output is capable of providing digital audio to external speakers or compressed AC3 data to an external Dolby Digital Decoder. Use this feature only when your stereo system has digital input function. Use SPDIF IN feature only when your device has digital output function. Be careful with the polarity of the SPDIF\_IO connector. Check the pin assignment carefully while you connect the SPDIF cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional SPDIF cable, please contact your local dealer.



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

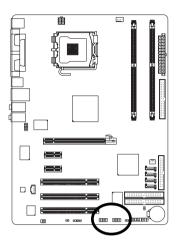
#### 13) F\_USB1 / F\_USB2 (Front USB Connector)

Be careful with the polarity of the front USB connector. Check the pin assignment carefully while you connect the front USB cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional front USB cable, please contact your local dealer. The "USB Device Wake up From S3" is only supported by rear USB ports.

2

10

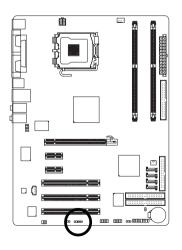
Ü



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

#### 14) IR

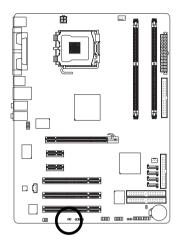
Be careful with the polarity of the IR connector while you connect the IR. Please contact your nearest dealer for optional IR device.



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

#### 15) 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.



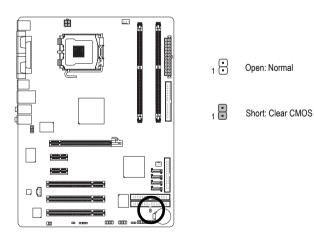
 Pin No.
 Definition

 1
 Signal

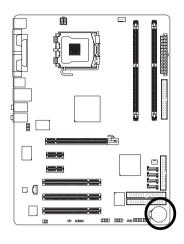
 2
 GND

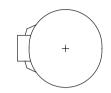
#### 16) CLR\_CMOS (Clear CMOS)

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



#### 17) BAT(Battery)





- Danger of explosion if battery is incorrectly replaced.
- Replace only with the same or equivalent type recommended by the manufacturer.
- Dispose of used batteries according to the manufacturer's instructions.

If you want to erase CMOS ...

- 1. Turn OFF the computer and unplug the power cord.
- 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.

$<\!\!\uparrow\!\!>\!\!<\!\!\downarrow\!\!>\!\!<\!\!\leftrightarrow\!\!>\!\!<\!\!\rightarrow\!\!>$	Move to select item		
<enter></enter>	Select Item		
<esc></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=""></page>	Increase the numeric value or make changes		
<page down=""></page>	Decrease the numeric value or make changes		
<f1></f1>	General help, only for Status Page Setup Menu and Option Page Setup Menu		
<f2></f2>	Item Help		
<f5></f5>	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu		
<f6></f6>	Load the file-safe default CMOS value from BIOS default table		
<f7></f7>	Load the Optimized Defaults		
<f8></f8>	Q-Flash utility		
<f9></f9>	System Information		
<f10></f10>	Save all the CMOS changes, only for Main Menu		

#### CONTROL KEYS

#### Main Menu

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

#### Status Page Setup Menu / Option Page Setup Menu

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

## The Main Menu (For example: BIOS Ver. : F2)

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

	CMOS Setup Utility-Copyright (C) 1984-2005 Award Software			
•	Standard CMOS Features	Load Fail-Safe Defaults		
▶	Advanced BIOS Features	Load Optimized Defaults		
▶	Integrated Peripherals	Set Supervisor Password		
▶	Power Management Setup	Set User Password		
▶	PnP/PCI Configurations	Save & Exit Setup		
▶	PC Health Status	Exit Without Saving		
▶	MB Intelligent Tweaker(M.I.T.)			
ES	C: Quit	↑↓→←: Select Item		
F8:	Q-Flash	F10: Save & Exit Setup		
	Time, Date, Hard Disk Type			



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

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.

#### Load Fail-Safe Defaults

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

#### Load Optimized Defaults

Optimized Defaults indicates the value of the system parameters which the system would be in best performance configuration.

Set Supervisor Password

Change, set, or disable password. It allows you to limit access to the system and Setup, or just to Setup.

Set User Password

Change, set, or disable password. It allows you to limit access to the system.

Save & Exit Setup

Save CMOS value settings to CMOS and exit setup.

#### Exit Without Saving

Abandon all CMOS value changes and exit setup.

### 2-1 Standard CMOS Features

	CMOS Setup Utility-Copyright (C) 1984-2005 Award Software Standard CMOS Features					
	Date (mm:dd:yy) Thu, Jan 6 2005 Item Help					
	Time (hh:mm:ss)	14:9:35		Menu Level		
.∥. ►	IDE Channel 0 Master	[None]		Change the day, month,		
.∥. ►	IDE Channel 0 Slave	[None]		year		
.∥. ►	IDE Channel 2 Master	[None]				
▶	IDE Channel 2 Slave	[None]		<week></week>		
▶	IDE Channel 3 Master	[None]		Sun. to Sat.		
	IDE Channel 3 Slave	[None]				
				<month></month>		
				Jan. to Dec.		
	Drive A	[1.44M, 3.5"]				
	Drive B	[None]		<day></day>		
	Floppy 3 Mode Suport	[Disabled]		1 to 31 (or maximum		
	Halt On			allowed in the month)		
	Hait On	[All, But Keybo	bardj	<year></year>		
	Deea Mamary	640K		1999 to 2098		
	Base Memory Extended Memory	511M		1999 10 2098		
	Total Memory	512M				
	Total Welliory					
1	↓→←: Move Enter: Select F5: Previous Values	+/-/PU/PD: Value F10: F6: Fail-Safe Defaults		Exit F1: General Help ptimized Defaults		

#### Date

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

- ➡ 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)

#### ☞ IDE Channel 2/3 Master, Slave

- ▶ IDE HDD Auto-Detection Press "Enter" to select this option for automatic device detection.
- ▶ Extended IDE Drive SATA devices setup. You can use one of two methods:
  - Auto Allows BIOS to automatically detect SATA IDE devices during POST. (Default value)
  - None Select this if no SATA IDE devices are used and the system will skip the automatic detection step and allow for faster system start up.
- Access Mode Use this to set the access mode for the hard drive. The two options are: 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

#### ー 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

#### · Memory

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

#### 

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.

## 2-2 Advanced BIOS Features

_	CMOS Setup Utility-Copyright (C) 1984-2005 Award Software Advanced BIOS Features					
	#	Hard Disk Boot Priority First Boot Device Second Boot Device Password Check CPU Hyper-Threading Limit CPUID Max. to 3 No-Execute Memory Protect <sup>(Note)</sup> CPU Enhanced Halt (C1E) <sup>(Note)</sup> CPU Thermal Monitor 2(TM2) <sup>(Note)</sup>	[Press Ente [Floppy] [Hard Disk [CDROM] [Setup] [Enabled] [Disabled] [Disabled] [Disabled]	]	Select	lelp Level≯ : Hard Disk Boot e Priority
	ţ.	L→←: Move Enter: Select F5: Previous Values	+/-/PU/PD: Value F6: Fail-Safe Defaults	F10: Save	ESC: Exit F7: Optimized	F1: General Help I Defaults

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

#### Hard Disk Boot Priority

NOTE

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

Use < $\uparrow$ > or < $\downarrow$ > 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	Disable this function.

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

#### Password Check

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

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

#### ∽ 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<sup>(Note)</sup>

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

#### CPU Enhanced Halt (C1E) (Note)

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

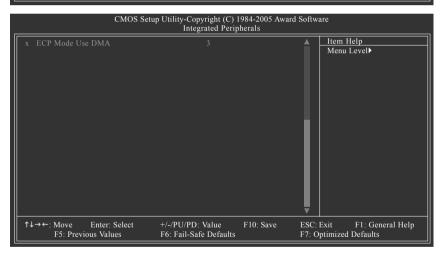
#### CPU Thermal Monitor 2 (TM2) (Note)

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

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

## 2-3 Integrated Peripherals

CMOS Setup Utility-Copyright (C) 1984-2004 Award Software Integrated Peripherals				
On-Chip Primary PCI IDE	[Enabled]		Item Help	
On-Chip SATA Mode	[Auto]		Menu Level	
x PATA IDE Set to	Ch.0 Master/Slave			
SATA Port 0/2 Set to	Ch.2 Master/Slave			
SATA Port 1/3 Set to	Ch.3 Master/Slave			
USB Controller	[Enabled]			
USB 2.0 Controller	[Enabled]			
USB Keyboard Support	[Disabled]			
USB Mouse Support	[Disabled]			
AC97 Audio	[Auto]			
Onboard H/W RAID	[Enabled]			
Onboard H/W LAN	[Enabled]			
Onboard LAN Boot ROM	[Disabled]			
Onboard Serial Port 1	[3F8/IRQ4]			
Onboard Serial Port 2	[2F8/IRQ3]			
UART Mode Select	[Normal]			
x UR2 Duplex Mode				
Onboard Parallel Port	[378/IRQ7]			
Parallel Port Mode	[SPP]	$\overline{\mathbf{v}}$		
↑↓→←: Move Enter: Select F5: Previous Values	+/-/PU/PD: Value F10: Save F6: Fail-Safe Defaults	ESC: I F7: O	Exit F1: General Help ptimized Defaults	



#### ∽ On-Chip Primary PCI IDE

➡ Enabled

Enable onboard 1st channel IDE port. (Default value) Disable onboard 1st channel IDE port.

➡ Disabled

# ∽ On-Chip SATA Mode ▶ Disabled

	➡ 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.
Ċ	PATA IDE Set to	
	➡ Ch.1 Master/Slave	Set PATA IDE to Ch. 1 Master/Slave.
	➡ Ch.0 Master/Slave	Set PATA IDE to Ch. 0 Master/Slave. (Default value)
Ċ	SATA Port 0/2 Set to	
	➡ This value will auto make	e 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.
Ċ	SATA Port 1/3 Set to	
	➡ This value will auto make	e by the setting "On-Chip SATA Mode" and "PATA IDE Set to".
	If PATA IDE were set to C	h. 0 Master/Slave, this function will auto set to Ch. 1 Master/Slave.
Ċ	USB Controller	
	➡ Enabled	Enable USB Controller. (Default value)
	➡ Disabled	Disable USB Controller.
Ċ	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.
Ċ	USB Keyboard Suppor	t
	➡ Enabled	Enable USB Keyboard Support.
	➡ Disabled	Disable USB Keyboard Support. (Default value)
Ċ	USB Mouse Support	
	➡ Enabled	Enable USB Mouse Support.
	➡ Disabled	Disable USB Mouse Support. (Default value)
Ċ	AC97 Audio	
	► Auto	Auto detect AC97 audio function. (Default value)
	Disabled	Disable this function.
Ċ	Onboard H/W RAID	
	➡ Enabled	Enable Onboard H/W RAID function. (Default value)
	➡ Disabled	Disable this function.
Ċ	Onboard H/W LAN	
	➡ Enabled	Enable Onboard H/W LAN function. (Default value)
	Disabled	Disable this function.

Disable this function.

#### ∽ Onboard LAN Boot ROM

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

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

#### Onboard Serial Port 1

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

#### Onboard Serial Port 2

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

#### Output Content of C

This item allows you to determine which Infra Red(IR) function of Onboard I/O chip.

- ▶ Normal Set onboard I/O chip UART to Normal Mode. (Default Value)
- ➡ ASKIR Set onboard I/O chip UART to ASKIR Mode.
- ▶ IrDA Set onboard I/O chip UART to IrDA Mode.

#### ☞ UR2 Duplex Mode

This feature allows you to seclect IR mode.

This function will available when "UART Mode Select" doesn't set at Normal.

- ➡ Half IR Function Duplex Half. (Default value)
- ▶ Full IR Function Duplex Full.

#### ∽ Onboard Parallel port

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

#### ☞ Parallel Port Mode

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

#### ☞ ECP Mode Use DMA

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

# 2-4 Power Management Setup

CMOS Setuj	DUtility-Copyright (C) 1984-2005 Award Se Power Management Setup	oftware
ACPI Suspend Type Soft-Off by PWR-BTTN PME Event Wake Up Power On by Ring Resume by Alarm × Date (of Month) Alarm Time (hh:mm:ss) Alarm Power On By Mouse Power On By Mouse Power On By Keyboard X KB Power ON Password AC Back Function	[S1(POS)] [Instant-off] [Enabled] [Disabled] Everyday 0 : 0 : 0 [Disabled] [Disabled] Enter [Soft-Off]	<u>Item Help</u> Menu Level≯
↑↓→←: Move Enter: Select F5: Previous Values		ESC: Exit F1: General Help 7: Optimized Defaults

#### ☞ ACPI Suspend Type

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

#### ∽ Soft-off by PWR-BTTN

▶ Instant-off Press power button then Power off instantly. (Default value)

✤ Delay 4 Sec. Press power button 4 sec. to Power off. Enter suspend if button is pressed less than 4 sec.

#### ☞ 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

	CMOS Setup Utility-Copyright (C) 1984-20 PnP/PCI Configurations	05 Award Software
PCI 1 IRQ Assignment	[Auto]	Item Help
PCI 2 IRQ Assignment	[Auto]	Menu Level▶
PCI 2 IRQ Assignment	[Auto]	
$\uparrow \downarrow \rightarrow \leftarrow$ : Move Enter: S		
F5: Previous Value	s F6: Fail-Safe Defaults	F7: Optimized Defaults

#### ☞ PCI 1 IRQ Assignment

▶ Auto▶ 3,4,5,7,9,10,11,12,14,15

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

# → PCI 2 IRQ Assignment → Auto → 3,4,5,7,9,10,11,12,14,15

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

#### ☞ PCI 3 IRQ Assignment

► Auto

▶ 3,4,5,7,9,10,11,12,14,15

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

# 2-6 PC Health Status

CMOS Setur	DUtility-Copyright (C) 1984-2005 Award PC Health Status	Software
Reset Case Open Status	[Disabled]	Item Help
Case Opened		Menu Level▶
Vcore	OK	
DDRV	OK	
+3.3V	OK	
+12V	OK	
Current CPU Temperature		
Current CPU FAN Speed	4687 RPM	
Current SYSTEM FAN Speed	0 RPM	
CPU Warning Temperature	[Disabled]	
CPU FAN Fail Warning	[Disabled]	
SYSTEM FAN Fail Warning	[Disabled]	
CPU Smart FAN Control	[Enabled]	
CPU Smart FAN Mode	[Auto]	
↑↓→←: Move Enter: Select F5: Previous Values	+/-/PU/PD: Value F10: Save F6: Fail-Safe Defaults	ESC: Exit F1: General Help F7: Optimized Defaults

#### Reset Case Open Status

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

#### Case Opened

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

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

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

#### ∽ Current Voltage(V) Vcore / DDRV / +3.3V / +12V

➡ Detect system's voltage status automatically.

#### ∽ Current CPU Temperature

▶ Detect CPU temperature automatically.

#### ∽ Current CPU/SYSTEM FAN Speed (RPM)

▶ Detect CPU/SYSTEM Fan speed status automatically.

#### ∽ CPU Warning Temperature

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

#### CPU/SYSTEM FAN Fail Warning

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

#### CPU Smart FAN Control

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

#### ☞ CPU Smart FAN Mode

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

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

▶ PWM Set to PWM when you use a CPU fan with a 4-pin fan power cable.

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

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

CMOS Setu	Dutility-Copyright (C) 1984-2005 Award Soft MB Intelligent Tweaker(M.I.T.)	ware
CPU Clock Ratio Robust Graphics Booster C.I.A. 2 CPU Host Clock Control × CPU Host Frequency (Mhz) × PCI Experss Frequency (Mhz) Memory Frequency (Mhz) DIMM OverVoltage Control PCI-E OverVoltage Control FSB OverVoltage Control CPU Voltage Control Normal CPU Vcore	[15X] [Auto] [Disabled] 200 Auto [Auto] 533 [Norma1] [Norma1] [Norma1] [Norma1] 1.5750V	Item Help Menu Levei≯
↑↓→←: Move Enter: Select F5: Previous Values		2: Exit F1: General Help Optimized Defaults



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

#### CPU Clock Ratio

This setup option will automatically assign by CPU detection.

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

#### Construction 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.

#### ☞ Memory Frequency For

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

- ▶ 2.5 Memory Frequency = Host clock X 2.5
- ▶ 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,

- ▶ 1.66 Memory Frequency = Host clock X 1.66.
- ▶ 2.0 Memory Frequency = Host clock X 2.0.
- ▶ 2.66 Memory Frequency = Host clock X 2.66.
- ✤ Auto Set Memory frequency by DRAM SPD data. (Default value)

#### ∽ Memory Frequency (Mhz)

The values depend on "Memory Frequency For" item.

#### ∽ 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

	CMOS Setup Utility-Copyright	(C) 1984-2005 Award Software
•	Standard CMOS Features	Load Fail-Safe Defaults
•	Advanced BIOS Features	Load Optimized Defaults
▶	Integrated Peripherals	Set Supervisor Password
▶	Power Ma	
▶	PnP/PCI C Load Fail-Safe I	Defaults (Y/N)? N
•	PC Health Jacus	LAR WILLOU Saving
	MB Intelligent Tweaker(M.I.T.)	
ESC	C: Quit	↑↓→←: Select Item
F8:	Q-Flash	F10: Save & Exit Setup
	Load Fail-S	Safe Defaults

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

### 2-9 Load Optimized Defaults

CMOS Setup 1	Utility-Copyright	(C) 1984-2005 Award Software
Standard CMOS Features     Advanced BIOS Features     Integrated Peripherals     Power Ma		Load Fail-Safe Defaults Load Optimized Defaults Set Supervisor Password
<ul> <li>PnP/PCI C</li> <li>PC Health stratus</li> <li>MB Intelligent Tweaker(M.I.T.)</li> </ul>	Load Optimized I	Defaults (Y/N)? N
ESC: Quit F8: Q-Flash		↑↓→←: Select Item F10: Save & Exit Setup
	Load Optim	ized Defaults

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

# 2-10 Set Supervisor/User Password

CMOS Setup Utility-Copyright	(C) 1984-2005 Award Software
Standard CMOS Features     Advanced BIOS Features     Integrated Peripherals     Power Management Contemponent     PnP/PC1 C Enter Password:     PC Health Contemponent     MB Intelligent Tweaker(M.I.T.)	Load Fail-Safe Defaults Load Optimized Defaults Set Supervisor Password
ESC: Quit F8: Q-Flash Change/Set/Di	↑↓→←: Select Item F10: Save & Exit Setup sable 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.

# 2-11 Save & Exit Setup

CMOS Setup Utility-Copyright	(C) 1984-2005 Award Software
<ul> <li>Standard CMOS Features</li> <li>Advanced BIOS Features</li> </ul>	Load Fail-Safe Defaults Load Optimized Defaults
<ul> <li>Integrated Peripherals</li> </ul>	Set Supervisor Password
<ul> <li>Power Management Setup</li> </ul>	Set User Password
► PnP/PCI C	
<ul> <li>PC Health Save to CMOS an</li> </ul>	d EXIT (Y/N)? Y
MB Intelligent i meanor(191.1.1.)	
ESC: Quit	↑↓→←: Select Item
F8: Q-Flash	F10: Save & Exit Setup
Save Data	to CMOS

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

## 2-12 Exit Without Saving

CMOS Setup Utility-Copyri	ght (C) 1984-2005 Award Software
Standard CMOS Features     Advanced BIOS Features     Integrated Peripherals	Load Fail-Safe Defaults Load Optimized Defaults Set Supervisor Password
Power Ma     PnP/PCI C     Quit Without     PC Health Status     MB Intelligent Tweaker(M.I.T.)	at Saving (Y/N)? N
ESC: Quit F8: Q-Flash	↑↓→←: Select Item F10: Save & Exit Setup
Aban	don all Data

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

# **Chapter 3 Install Drivers**



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.

#### **Install Chipset Drivers** 3-1

"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.

iss         2.96         Vesso         9.10         The disk visual is Pile is bet involved in gradies of the pile of a gradie functionally such as IP-Express or UBB inferios.           Vesso         Pile isste is babit Chapted Inter pile of a gradie is a gradie functionally such as IP-Express or UBB inferios.         Inferios         Inferios         Inferios         Inferios           Vesso         Pile isste is babit Chapted Inter pile of a gradie isste isst isst	Constant Constant Constant         The use is rule in the information the specific system how the project sortigates the depend or specific functionally such as IPGE-preses or USE Presence Constant and Constant Alline Constant Constant and Consta	NF files that inform the operating sys let Driver 16 chipset driver provides support for	tem how to properly Version 5.1	configure the chipset for specifi	ic functionality such as PCI-Express or	_
Viewer Auto Chapter (1944)         Verson         510.9541         18402           Star         Star         1010         1010         1010           Viewer Auto Chapter (1944)         Verson         510.9541         18402           Viewer Auto Chapter (1944)         Verson         510.9541         18402           Star         7.966         Verson         5.22         18402           Viewer Viewer Of Marc Chapter (1940)         Verson         5.22         18402           Star         19.966         Verson         5.22         18402           Viewer Viewer Of Marc Chapter (1940)         Verson         5.21         18402	Opmation         c)Restrict Autor Object Driver         Institution           Institution         Size (22.06)         Version (50.05%)           Institution         Size (22.06)         Version (50.05%)           Institution         Size (22.06)         Version (50.05%)           VMemory Value Object LAN Object         Institution         Institution           VMemory Value Object LAN Object         Version (52.25%)         Institution           Value Virtution Object LAN Object         Version (52.25%)         Institution           Size (12.06)         Version (510.45%)         Institution           Size (12.06)         Version (510.45%)         Institution	B chipset driver provides support for		0.0.5761		Install
Ster.         IX.200         Yearson         IX.10.2011           The Treads Audio Cloped on the provides apport for 71 charant audio         Instead         Instead           If Ammed Yulices Cloped LLM (Instead         Instead         Instead           Star.         7.960         Version         Is.32           Instead         Version         Is.32         Instead           VMXV1619 (INAC Contractor Driver)         Testead         Instead           Star.         11.300         Version         Is.32	Star:         10 20 300         Version         10 10 5111           CI Monstl Yukan Capital LAN Chapter         Isold Star         Isold Star           CI Monstl Yukan Capital LAN Chapter         Isold Star         Isold Star           CI Monstl Yukan Capital LAN Chapter         Isold Star         Isold Star           Star         10 300 Clefforder Debre         Isold Star           CV V11415 RAD Clefforder Debre         Isold Star         Isold Star	B chipset driver provides support for		0.0.5761		
If Marvel's Hulen Regular LIN (hove:         Install           Star         (7.96)         Version         (9.32)           Install Add Control Systel LIN Clound:         Install         Install           VMXV15119 (MAD Controls on New )         Install         Install           Star         (1.36)         Version         (3.32)	Important Control and the provide supports of 1 down adua         Important Control and the provide supports of 1 down adua           Important Control and the provide support of 1 down adua         Important Control and the provide support of 1 down adua           Important Control aduated Link Control         Important Control aduated Link Control           Important Control aduated Link Control         Important Control aduated Link Control           Important Control aduated Down         Important Control aduated Down           Important Control aduated Down         <		1 channel audio			
Star         7.96         Version         8.32           juidat driver for New Gopbil LASI Opput.         Install         Install           VM V/1510 PARIO Controller Driver         Install           Star         17.06         Version         310A	Size         7.96         Version         5.22           Tuthat sizer is Mareid Gajati LAD Objoint.	sit LAN Driver				
Valida Svim Sto Markin Gogala UAI Olgani.           VMAV VT6110 ALAD Centrale Univer           State:         11.386	Vedale driver for Marved Opplict LAN Chores. V VA V16410 AADL Controller Driver V VA V16410 AADL Controller Driver State (11 200 Version   10A					Install
VM V16410 RAD Controller Driver         Install           Sze         11.240         Version         3.104	VIA V16410 RAD Centroller Driver         Install           Size         11.246         Version         310A	9	Version 6.3	2		
Size 11.2MB Version 3.10A	Size 11.2MB Version 3.10A	Marvell Gigabit LAN Chipset.				
		ntroller Driver				Install
The VALYTINTO RAD controller of wer provides support for ATA133 mode and RAD 0 RAD 1 RAD 0-1 and 2000	The VMA VTENUDRAD controller of the provides support for ATA133 mode and FABD 0 RAD 1, RAD DH and 2800.	10	Version 3.1	DA.		
		RAID controller driver provides suppo	rt for ATA133 mode	and RAID 0 /RAID 1 /RAID 0+1 an	NI JBOD.	
			MB	1B Version 3.1	MB Version 3.10A	MB Version 3.10A



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



For USB2.0 driver support under Windows XP operating system, please use Windows Service Pack. After install Windows Service Pack, it will show AUTION a guestion 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.

	oftware Applications ease click on the following applications listed below to instal	
Software Applications		
Driver CD	GIGABYTE C.O.M. (Corporate Online Manager	the stall st
information	Size 8.4MB	
Hardware Information	A web-based system management tool that allows controlled via a host.	client system hardware information such as CPU and memory and graphics card and much more to be monitored or
Contact Us	EasyTune 5	Install
contact Us	Size 4.7MB	
	An easy-to-use Windows-based system enhanced	sent utility allowing quick access to a variety of performance features.
	DMI Viewer	Install
	Size 1012.9KB	
	DMI Viewer provides a management tool for viewin	g motherboard hardware information.
	Face-Wizard	Install
	Size 1.9MB	
	Face Wizard provides utility for oustomizing BIOS to	oot up soreen.
	geos	Install
	Size 1.0MB	
	gelios provides utility for updating BIOS through in	terret.
	Acrobat Reader	Install
	Size 8.5MB	
	Utility for viewing or printing Adolee Portable Docum	ent Format (PDF) files.
	Norton Internet Security(NIS)	Install
	died software developed by Glosbyte and its worldwide p	

## 3-3 Driver CD Information

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

Install Chipset Drivers	Driver CD information The following information shows	the detail contents stored in this Driver CD.	
Software Applications			
Driver CD	Chipset MA		
Information	Directory Name	Description	
Hardware Information	• INFUpdate	Intel® chipset software installation utility for Virindows XP Intel® chipset software installation utility for Virindows 2000 Intel® chipset software installation utility for Virindows ME Intel® chipset software installation utility for Virindows 98	
Contact Us	• IAA	Intel® application accelerator for Windows XP Intel® application accelerator for Windows 2000	
	• VGA	-Win2k_XP -Intel® Graphics Media Accelerator Driver for Windows XP -Win2k_XP -Intel® Graphics Media Accelerator Driver for Windows 2000	
	EnableUSBS30tp	Enable USB device back form S3 mode	
	Audio		
	Directory Name	Description	
	<ul> <li>cmedia</li> </ul>	cmedia AC197 Audio Driver	
	Realtek	Realtek AC'97 Audio Driver	
	Network		
	Directory Name	Description	
	<ul> <li>Rtl8139</li> </ul>	LAN Driver for RealTek 8139/8100/8110s	
	Marvell	Marvell 10/100/1000 Base LAN driver	
	BroadCom	BroadCom PCI-E LAN driver	
	Other		
	Directory Name	Description	
			2

# 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.

#### 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.<sup>(Note)</sup>

#### **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.

- 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
  - The first partition must be set as the boot partition. When the boot partition is backed up, please do not alter its size.
  - Xpress Recovery is recommended when using Ghost to return boot manager to NTFS format.

#### How to use the Xpress Recovery

1. Boot from CD-ROM (BMP Mode)

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

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

Verifying DMI Pool Data Boot from CD:		Boot from CD:
		Server and a server and a server and a server a
G	GABY	
Xpress Recove	ery V1.0 (C) Copy Right 2003. GIGABYTE Te	echnology CO., Ltd.
	1. Execute Backup Utility	
	2. Execute Restore Utility 3. Remove Backup Image	
	4. Set Password	
	5. Exit and Restart	
		Build 2011

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



Xpress Recovery V1.0 (C) Copy Right 2003. GIGABYTE 1	E.	
	chnology CO., I	Ltd.
<ol> <li>Execute Backup Utility</li> <li>Execute Restore Utility</li> <li>Remove Backup Image</li> <li>Set Password</li> <li>Exit and Restart</li> </ol>		



- 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.
- 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



#### Method 1 : Q-Flash™ Utility

Q-Flash<sup>™</sup> 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.



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.
- 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<sup>™</sup> utility:

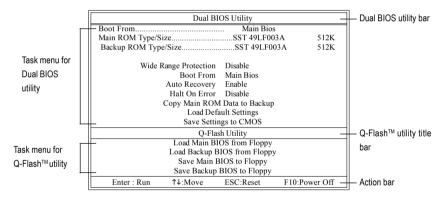
Step1: To use Q-Flash utility, you must press Del in the boot screen to enter BIOS menu.

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

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

#### Exploring the Q-Flash<sup>™</sup> / 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<sup>™</sup> 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.



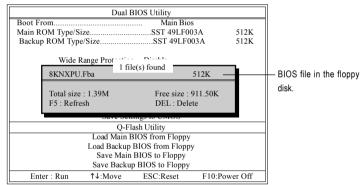
If you want to save the current BIOS for backup purpose, you can begin Step 1 with "Save Main BIOS to Floppy" item.

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

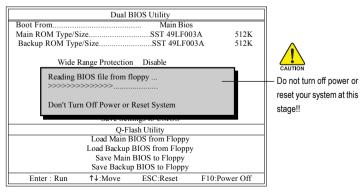
# In this example, we only download one BIOS file to the floppy disk so only one BIOS file, 8KNXPU.Fba, is listed.



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



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



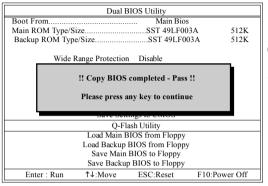
After BIOS file is read, you'll see a confirmation dialog box asking you "Are you sure to update BIOS?"

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

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

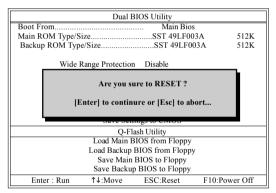
Please do not take out the floppy disk when it begins flashing BIOS.

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



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

 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.	Award Modular BIOS v6.00PG, An Energy Star Ally Copyright (C) 1984-2003, Award Software, Inc. Intel 1875P AGPset BIOS (fr.KKNYP Ultra Fba Check System Health OK, Yoo <u>x = 1.5550</u> Main Processor : Intel Pentium(R) 4 1.6GHz (133x12) <cpuid: 0027="" 0f27="" :="" id="" patch=""> Memory Frequency 266 MHz in Single Channel Primary Master : FUITSU MPE3170AT ED-03-08 Primary Slave : None Secondary Master : CREATIVEDVD-RM DVD1242E BC101 Secondary Slave : None</cpuid:>	
	Press DEL to enter SETUP / Dual BIOS / Q-Flash / F9 For Xpress Recovery 09/23/2003-1875P-6A79BG03C-00	

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

CMOS Setup Utility-Copyright (C) 1984-2004 Award Software				
Standard CMOS Features     Advanced BIOS Features     Integrated Perinharate     Power Mana <sub>1</sub> Load Fail-Safe Def	Select Language Load Fail-Safe Defaults Load Ontimized Dafaulte aults (Y/N)? Y			
<ul> <li>PnP/PCI Cor</li> <li>PC Health Status</li> <li>MB Intelligent Tweaker(M.I.T.)</li> </ul>	Save & Exit Setup Exit Without Saving			
ESC: Quit F8: Dual BIOS/Q-Flash	F3: Change Language F10: Save & Exit Setup			
Time, Date, Hard Disk Type				

Press Y on your keyboard to load defaults.

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

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

Press Y on your keyboard to save and exit.

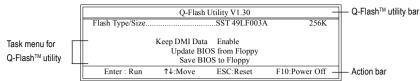
#### Part Two:

#### Updating BIOS with Q-Flash<sup>™</sup> Utility on Single-BIOS Motherboards.

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

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

#### Exploring the Q-Flash<sup>™</sup> 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<sup>™</sup> 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.

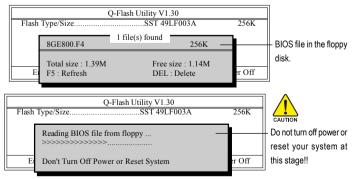


If you want to save the current BIOS for backup purpose, you can begin Step 1 with "Save BIOS to Floppy" item.

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.

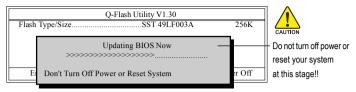
Please confirm again you have the correct BIOS file for your motherboard.



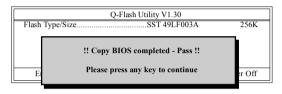
After BIOS file is read, you'll see a confirmation dialog box asking you "Are you sure to update BIOS?"

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

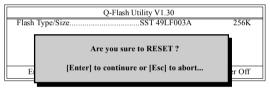
Press Y button on your keyboard after you are sure to update BIOS. 3. Then it will begin to update BIOS. The progress of updating BIOS will be shown at the same time.



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.



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!!

updating



#### 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 3. The @BIOS Utility



#### 1. Methods and steps:

- I. Update BIOS through Internet
  - a. Click "Internet Update" icon
  - b. Click "Update New BIOS" icon
  - c. Select @BIOSTM 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.
  - Please search for BIOS unzip file, downloading from internet or any other methods (such as: 8I915PL-G.F2).
  - e. Complete update process following the instruction.

Fig 2. Installation Complete and Run @BIOS



#### Fig 4. Select the desired @BIOS server



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:

- 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 @BIOSTM 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



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

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

#### Introduction of audio connectors:

You may connect CD-ROM/DVD-ROM, walkman or others audio input to Line In. The front channels or earphone can be connected to Line Out (Front Speaker Out). Connect microphone to Mic In. Connect the rear channels to Rear Speaker Out. Connect the Center/Subwoofer channels to Center/ Subwoofer Speaker Out. Connect the side channels to Side Speaker Out.

Following pictures are in Windows XP.

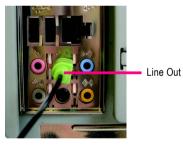


#### Stereo Speakers Connection and Settings:

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

#### STEP 1:

Connect the stereo speakers or earphone to "Line Out".



#### STEP 2 :

Following installation of the audio driver, you find a Sound Effect ion icon on the lower right hand taskbar. Click the icon to select the function.





Appendix

#### STEP 3:

Click "Speaker Configuration" then click on the left selection bar and select "2CH Speaker" to complete 2 channel audio configuration.

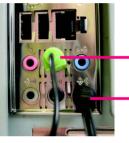




#### 4 Channel Audio Setup

#### STEP 1 :

Connect the front channels to "Front Speaker Out", the rear channels to "Rear Speaker Out".



Front Speaker Out

#### Rear Speaker Out

#### STEP 2 :

Following installation of the audio driver, you find a Sound Effect icon on the lower right hand taskbar. Click the icon to select the function.





#### STEP 3:

Click "Speaker Configuration" then click on the left selection bar and select "4CH Speaker" to complete 4 channel audio configuration.

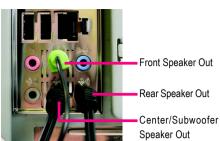
(		_
	4CH Speaker 📃 💌	
	Headphone	
	2CH Speaker	$\boldsymbol{V}$
	4CH Speaker	
	6CH Speaker	
	8CH Speaker	



#### 6 Channel Audio Setup

#### STEP 1 :

Connect the front channels to "Front Speaker Out", the rear channels to "Rear Speaker Out", and the Center/Subwoofer channels to "Center/Subwoofer Speaker Out".



#### STEP 2 :

Following installation of the audio driver, you find a Sound Effect icon on the lower right hand taskbar. Click the icon to select the function.





#### STEP 3:

Click "Speaker Configuration" then click on the left selection bar and select "6CH Speaker" to complete 6 channel audio configuration.

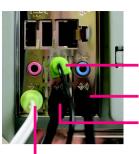
6CH Speaker	•	
Headphone 2CH Speaker 4CH Speaker		
6CH Speaker 8CH Speaker		ŧ



#### 8 Channel Audio Setup

#### STEP 1 :

Connect the front channels to "Front Speaker Out", the rear channels to "Rear Speaker Out", the Center/ Subwoofer channels to "Center/Subwoofer Speaker Out", and the side channels to "Side Speaker Out".



Front Speaker Out

Rear Speaker Out

Center/Subwoofer Speaker Out Side Speaker Out

#### STEP 2 :

Following installation of the audio driver, you find a Sound Effect (() icon on the lower right hand taskbar. Click the icon to select the function.



#### STEP 3:

Click "Speaker Configuration" then click on the left selection bar and select "6CH Speaker" to complete 6 channel audio configuration.

8CH Speaker Headphone 2CH Speaker 4CH Speaker 6CH Speaker Speake



Sound Effect Configuration:

At the sound effect menu, users can adjust sound option settings as desired.



### 4-1-5 Jack-Sensing and UAJ Introduction

Jack-Sensing provides audio connectors error-detection function.

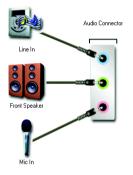


Install Microsoft DirectX8.1 or later version before to enable Jack-Sensing support for Windows 98/98SE/2000/ME.

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

Introduction of audio connectors

You may connect CDROM, Walkman or others audio input devices to Line In jack, speakers, earphone or others output devices to Line Out jack, and microphone to MIC In jack.



Auto-detecting:

Please connect the devices to the right jacks as above. A window will appear as right picture if you setup the devices properly. Please note that 3D audio function will only appear when 3D audio inputs.

Sourd Effect Sourd and Configuration Control of Control
Urversia Audo Jack (UA) Consected Device:

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



.........

#### Manual setting:

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



GIGABYTE

#### UAJ Introduction

UAJ (Universal Audio Jack) has a very smart feature: It will switch signal automatically when user plugs his audio device to the wrong jack (Line-in/ Line-out). That means users do not need to worry the audio device should be plug in Line-in or Line-out jack, the device will work perfectly after UAJ is activated.

#### Enable UAJ function:

You can click "UAJ Automatic" button to enable UAJ function.

Sourd Effect SPCIF	30 Audo Derro General
Ditibution of the last feet	Esch P LUA Actende De Carlos de Speder DU De Carlos de Speder DU

# 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.
- 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


- 75 -	Appendix


- 77 -	Appondix
- / / -	Appendix




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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.gjgabyte.com.tw/nontech.asp WEB address : http://www.gigabyte.com.cn Shanghai TEL: +86-021-63410999 FAX: +86-021-63410100 Beiiina 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://gqts.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) :

http://ggts.gigabyte.com.tw/nontech.asp 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