GA-M59SLI-S5 / GA-M59SLI-S4

AMD Socket AM2 Processor Motherboard

User's Manual

Rev. 1001
12ME-M59SLIS5-1001R

DECLARATION OF CONFORMITY
Per FCC Part 2 Section 2.1077(a)

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

Address: 17358 Railroad Street

City of Industry, CA 91748

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

hereby declares that the product

Product Name: Motherboard

Model Number: GA-M59SLI-S5 /
GA-M59SLI-S4

Conforms to the following specifications:

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

Supplementary Information:

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

Representative Person's Name: ERIC LU

Signature: *Eric Lu*

Date: Jun. 8, 2006

Declaration of Conformity
We, Manufacturer/Importer
(full address)

G.B.T. Technology Trading GMbH
Ausschlager Weg 41, 1F 20537 Hamburg, Germany

declare that the product
(description of the apparatus, system, installation to which it refers)

Motherboard

GA-M59SLI-S5 / GA-M59SLI-S4

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

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

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

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

Manufacturer/Importer

Signature: *Timmy Huang*

Name: Timmy Huang

(Stamp)   Date : Jun. 8, 2006

Copyright

Notice

The written content provided with this product is the property of Gigabyte.

No part of this manual may be reproduced, copied, translated, or transmitted in any form or by any means without Gigabyte's prior written permission. Specifications and features are subject to change without prior notice.

Product Manual Classification

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

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

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

- ■ For detailed information related to Gigabyte's unique features, please go to the "Technology Guide" section on Gigabyte's website to read or download the information you need.

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

Table of Contents

① Only for GA-M59SLI-S5.
② Only for GA-M59SLI-S4.

Item Checklist

☑ IDE Cable x 1 & FDD Cable x 1
☑ SATA 3Gb/s Cable x 4
☑ eSATA adapter package x 1 ①
☑ I/O Shield
☑ SLI Bridge (GC-DGBR2-RH) x 1
☑ Retention Bracket x 1

* The items listed above are for reference only, and are subject to change without notice.
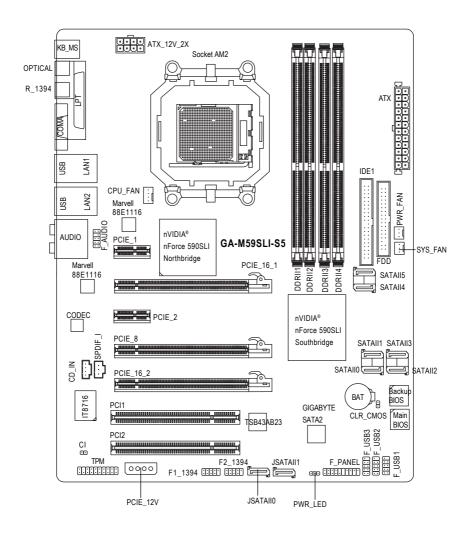
Optional Accessories

◆ 2 Ports USB2.0 Cable (Part Number: 12CR1-1UB030-51/R)
◆ 4 Ports USB2.0 Cable (Part Number: 12CR1-1UB030-21/R)
◆ 2 Ports IEEE1394 Cable (Part Number: 12CF1-1IE008-01R)

① Only for GA-M59SLI-S5.
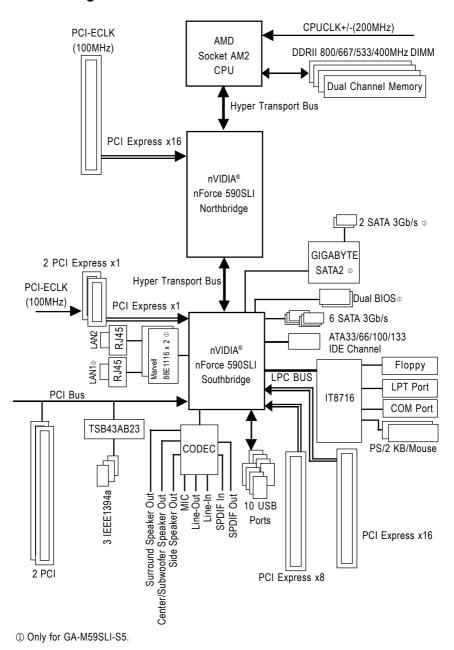
GA-M59SLI-S5 Motherboard Layout

KB_MS
OPTICAL
R_1394
LPT
/COMA
USB LAN1
USB LAN2
AUDIO
F_AUDIO
CD_IN
SPDIF_I
CODEC
IT8716
TPM
CI

ATX_12V_2X
Socket AM2
CPU_FAN
Marvell 88E1116
PCIE_1
nVIDIA® nForce 590SLI Northbridge
Marvell 88E1116
PCIE_2
PCIE_8
PCIE_16_2
PCI1
PCI2
PCIE_12V

F1_1394
F2_1394
TSB43AB23
SATA2
GIGABYTE
JSATAII1
JSATAII0

GA-M59SLI-S5

DDRII1 DDRII2 DDRII3 DDRII4
PCIE_16_1
nVIDIA® nForce 590SLI Southbridge
BAT
CLR_CMOS

ATX
IDE1
PWR_FAN
SYS_FAN
FDD
SATAII5
SATAII4
SATAII1 SATAII3
SATAII0 SATAII2
Backup BIOS
Main BIOS
F_USB3 F_USB2
F_PANEL
F_USB1
PWR_LED

GA-M59SLI-S4 Motherboard Layout

Block Diagram

① Only for GA-M59SLI-S5.

Chapter 1 Hardware Installation

1-1   Considerations Prior to Installation

Preparing Your Computer

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

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

Installation Notices

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

Instances of Non-Warranty

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

1-2   Feature Summary

CPU	◆ Socket AM2 for AMD Athlon™ 64 FX / Athlon™ 64 X2 Dual-Core / Athlon™ 64 / Sempron™ processor
Front Side Bus	◆ 2000MHz
Chipset	◆ nVIDIA® nForce 590SLI
LAN	◆ Marvell 88E1116 phy (10/100/1000Mbit)
Audio	◆ Onboard Realtek ALC888DD CODEC chip ①
	◆ Onboard Realtek ALC883 CODEC chip ②
	◆ Supports High Definition Audio
	◆ Supports 2 / 4 / 6 / 8 channel audio
	◆ Supports SPDIF In / Out connection
	◆ Supports CD In connection
IEEE 1394	◆ Onboard T.I. TSB43AB23 chip
	◆ 3 IEEE1394a ports
Storage	◆ nVIDIA® nForce 590SLI Southbridge
	- 1 FDD connector, allowing connection of 2 FDD device
	- 1 IDE connectors (IDE1) with UDMA 33/ATA 66/ATA 100/ATA 133 support, allowing connection of 2 IDE devices
	- 6 SATA 3Gb/s connectors (SATAII0, SATAII1, SATAII2, SATAII3, SATAII4 , SATAII5), allowing connection of 6 SATA 3Gb/s devices
	- Supports data striping (RAID 0), mirroring (RAID 1), striping+mirroring (RAID 0+1), RAID 5 and JBOD for Serial ATA
	◆ GIGABYTE SATA2 Controller ①
	- 2 SATA 3Gb/s connectors (JSATAII0, JSATAII1), allowing connection of 2 SATA 3Gb/s devices
	- Supports data striping (RAID 0), mirroring (RAID 1) and JBOD for Serial ATA
O.S Support	◆ Microsoft Windows 2000/XP
Memory	◆ 4 DDRII DIMM memory slots (supports up to 16GB memory)[Note 1]
	◆ Supports dual channel DDRII 800/667/533/400 DIMMs
	◆ Supports 1.8V DDRII DIMMs
Expanstion Slots	◆ 2 PCI Express x16 slot
	◆ 1 PCI Express x8 slot
	◆ 2 PCI Express x1 slots
	◆ 2 PCI slots

① Only for GA-M59SLI-S5.
② Only for GA-M59SLI-S4.

Internal Connectors	◆ 1 24-pin ATX power connector
	◆ 1 8-pin ATX 12V power connector ①
	◆ 1 4-pin ATX 12V power connector ②
	◆ 1 4-pin PCIE 12V power connector
	◆ 1 floppy connector
	◆ 1 IDE connector
	◆ 8 SATA 3Gb/s connectors ①
	◆ 6 SATA 3Gb/s connectors ②
	◆ 1 CPU fan connector
	◆ 1 system fan connector
	◆ 1 power fan connector
	◆ 1 SB fan connector ②
	◆ 1 front panel connector
	◆ 1 front audio connector
	◆ 1 CD In connector
	◆ 1 power LED connector
	◆ 3 USB 2.0/1.1 connectors for additional 6 USB 2.0/1.1 ports by cables
	◆ 2 IEEE1394a connectors for additional 2 ports by cable
	◆ 1 SPDIF In connector
	◆ 1 TPM connector ①
Rear Panel I/O	◆ 1 PS/2 keyboard port
	◆ 1 PS/2 mouse port
	◆ 1 parallel port
	◆ 1 IEEE1394a port
	◆ 1 OPTICAL port
	◆ 1 COMA port
	◆ 4 USB 2.0/1.1 ports
	◆ 2 RJ-45 ports ①
	◆ 1 RJ-45 port ②
	◆ 6 audio jacks (Line In / Line Out / MIC In/Surround Speaker Out (Rear Speaker Out)/Center/Subwoofer Speaker Out/Side Speaker Out)
I/O Control	◆ IT8716 chip
Hardware Monitor	◆ System voltage detection
	◆ CPU / System temperature detection
	◆ CPU / Power / System fan speed detection
	◆ System / CPU warning temperature
	◆ CPU fan failure warning
	◆ Supports CPU Smart Fan function[(Note 2)]
BIOS	◆ 2 4Mbit flash ROM ①
	◆ Use of licensed AWARD BIOS
	◆ Supports DualBIOS ①

① Only for GA-M59SLI-S5.
② Only for GA-M59SLI-S4.

Additional Features	◆	Supports @BIOS
	◆	Supports Download Center
	◆	Supports Q-Flash
	◆	Supports EasyTune(Note 3)
	◆	Supports Xpress Install
	◆	Supports Xpress Recovery2
	◆	Supports Xpress BIOS Rescue
Bundle Software	◆	Norton Internet Security (OEM version)
Form Factor	◆	ATX form factor; 30.5cm x 24.4cm

(Note 1) Due to the limitation of Windows 32-bit operating system, when more than 4GB of physical memory is installed, the actual memory available for the operating system will be less than 4GB; Windows 64-bit operating system doesn't have such limitation.
(Note 2) Whether the CPU Smart FAN Control function is supported will depend on the CPU you install.
(Note 3) EasyTune functions may vary depending on different motherboards.
(Note 4) Silent Pipe only for GA-M59SLI-S5.

1-3   Installation of the CPU and CPU Cooler

CAUTION

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

1.   Please make sure that the motherboard supports the CPU.

2.   Please take note of the pin 1 marking (the small triangle) on 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 paste between the CPU and CPU cooler.

4.   Please make sure the CPU cooler 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 specifica- tions 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 hard- ware specifications including the CPU, graphics card, memory, hard drive, etc.

1-3-1   Installation of the CPU

Check the CPU pins to see that none are bent. Move the socket lever to the unlocked position as shown in Fig. 1 (90° to the plane of the motherboard) prior to inserting the CPU. The pin 1 location is designated on the CPU by a small triangle that corresponds to a triangle marking on the socket as shown in Fig. 2. Align the CPU to the socket and gently lower it into place. Do not force the CPU into the socket.

Socket Lever
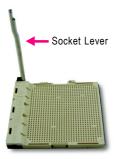
Fig.1
Position lever at a 90 degree angle.

Pin One

Fig.2
Pin 1 location on the socket and CPU.
Gently place the CPU into position making sure that the CPU pins fit perfectly into their holes. Once the CPU is positioned into its socket, place one finger down on the middle of the CPU and gently press the metal lever back into its original position.

CAUTION

Please use extra care when installing the CPU. The CPU will not fit if positioned incorrectly. Rather than applying force, please change the positioning of the CPU.

1-3-2   Installation of the CPU Cooler

Fig.1
Before installing the CPU cooler, please first add an even layer of heat paste on the surface of the CPU. Install all the CPU cooler components (Please refer to the cooler manual for detailed installation instructions).

Fig.2
Please connect the CPU cooler power connector to the CPU_FAN connector located on the motherboard so that the CPU cooler can properly function to prevent CPU overheating.

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

1-4   Installation of Memory

CAUTION

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

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

Notch

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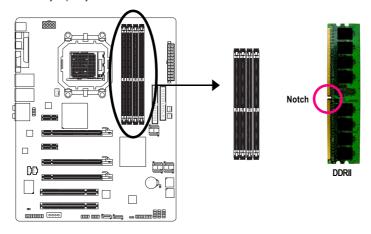
Fig.1
The DIMM socket has a notch, so the DIMM memory module can only fit in one direction. Insert the DIMM memory module vertically into the DIMM socket. Then push it down.

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

Dual Channel Memory Configuration

The GA-M59SLI-S5/GA-M59SLI-S4 supports the Dual Channel Technology. After operating the Dual Channel Technology, the bandwidth of Memory Bus will double.

Due to CPU limitation, if you wish to operate the Dual Channel Technology, follow the guidelines below:
1. Dual Channel mode will not be enabled if only one memory module is installed.
2. To enable Dual Channel mode with two memory modules (it is recommended to use memory modules of identical brand, size, chips, and speed), you must install them into DIMM sockets of the same color.
3. To enable Dual Channel mode with four memory modules, it is recommended to use memory modules of identical brand, size, chips, and speed.

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

DIMM Socket	DDRII_1	DDRII_2	DDRII_3	DDRII_4
2 memory modules	DS/SS	DS/SS	--	--
	--	--	DS/SS	DS/SS
4 memory modules	DS/SS	DS/SS	DS/SS	DS/SS
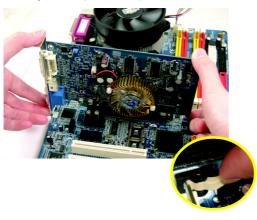
NOTE If two memory modules are to be used to achieve Dual Channel mode, we recommend installing them in DDRII_1 and DDRII_2 DIMM sockets.

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 x16 expansion card:

CAUTION

Please align the VGA card to the onboard PCI Express x16 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 x16 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 Setup of SLI (Scalable Link Interface) Configuration

nVIDIA® nForce 590SLI offers blistering graphics performance with the ability to bridge two NVIDIA SLI-ready PCI Express™ graphics cards! The SLI design takes advantage of the increased bandwidth of the PCI Express™ bus architecture, features hardware and software innovations within NVIDIA GPU (graphics processing unit) and the nVIDIA® nForce 590SLI chipset. Together, the NVIDIA SLI technologies work seamlessly to allow two graphics cards to operate in parallel and share the work and deliver heart-pounding PC performance. This section introduces steps to configure an SLI system on the GA-M59SLI-S5/GA-M59SLI-S4 motherboard.

Before you begin--

NOTE
The exact power requirements will depend on your overall system configurations. You need a power supply that can provide sufficient and stable power to your system and the two SLI graphics cards. Please refer to the table below to check recommended power for different systems.

System configurations	System A	System B
Processors	AMD Athlon 64 FX-53	AMD Athlon 64 4000+
PCIE x 16 video cards	2 NVIDIA 6800 Ultra cards	2 NVIDIA 6600 GT cards
DDR memory modules	4 DIMMs	2 DIMMs
Hard drives/Optical drives	4 hard drives + 2 optical drives	1 hard drives + 1 optical drives
Expansion cards	1 PCIE x1 card + 2 PCI cards	0
USB devices	10	4
IEEE1394 devices	1	0
Required +12V current	**25A or above**	**20A or above**
Power supply requirement	**500W or above**	**350W or above**

If you wish to enable the SLI function, install two SLI-ready graphics cards into the PCIE_16_1 and PCIE_16_2 slots. (It is recommended to use graphics cards of identical brand and chips. For example: GIGABYTE GV-NX76T256D-RH).
If you want to set up a single graphics card system, we recommend installing the graphics card on the PCIE_16_1 slot to ensure better display performance.

Connecting Two Graphics Cards:

Step 1: Observe the steps in "1-5 Installation of Expansion Cards" and install two SLI-ready graphics cards of the same model to the PCIE_16_1 and PCIE_16_2 slots.

Step 2: Insert the SLI bridge (the GC-DGBR2-RH) to the SLI gold edge connector on top of both cards. Make sure the two mini female slots on the bridge connector securely fit onto the SLI gold edge connetors of both cards.

Female slots on the bridge connector
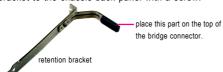
Gold edge connector on the top of graphics card
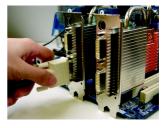
Step 3: In order to securely fix the bridge connector beween the two cards, you must install the retention bracket included with the motherboard and secure the retention bracket to the chassis back panel with a screw.

place this part on the top of the bridge connector.

retention bracket

Step 4: Plug the display cable into the graphics card which on the PCIE_16_1 slot[(Note)].

(Note)   If you want to enable the SLI function, you must plug the display cable into the graphics card which on the PCIE_16_1 slot.

English

Graphics Card Driver Setting:
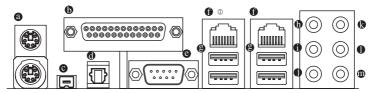
Step 1: After installing graphics card driver in operating system, right-click the NVIDIA icon in your system tray and then select **NVIDIA Display**. The NVIDIA control panel will appear.

Step 2: Select **SLI multi-GPU** from the side menu and then select the **Enable SLI multi-GPU** checkbox in the SLI multi-GPU dialog box. System will restart after you click **Apply**. Then the SLI configuration is completed.

1-7   I/O Back Panel Introduction

○ **PS/2 Keyboard and PS/2 Mouse Connector**

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

○ **Parallel Port**

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

○ **IEEE 1394 Port (4 Pins Connector)**

Serial interface standard set by Institute of Electrical and Electronics Engineers, which has features like high speed, high bandwidth and hot plug.

○ **OPTICAL**

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

○ **COMA (Serial Port)**

Connects to serial-based mouse or data processing devices.

○ **LAN Port**

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

○ **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.

○ **Center/Subwoofer Speaker Out**

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

○ **Surround Speaker Out (Rear Speaker Out)**

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

○ **Side Speaker Out**

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

○ **Line In**

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

① Only for GA-M59SLI-S5.

❿ **Line Out (Front Speaker Out)**

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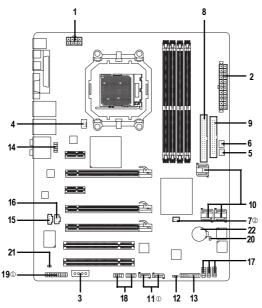
⓫ **MIC In**

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

NOTE

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

1-8   Connectors Introduction

1)	**ATX_12V_2X ① / ATX_12V ②**	12)	**PWR_LED**
2)	**ATX (Power Connector)**	13)	**F_PANEL**
3)	**PCIE_12V**	14)	**F_AUDIO**
4)	**CPU_FAN**	15)	**CD_IN**
5)	**SYS_FAN**	16)	**SPDIF_I**
6)	**PWR_FAN**	17)	**F_USB1 / F_USB2 / F_USB3**
7)	**SB_FAN ②**	18)	**F1_1394 / F2_1394**
8)	**IDE1**	19)	**TPM ①**
9)	**FDD**	20)	**CLR_CMOS**
10)	**SATAII0 / SATAII1 /S ATAII2 / SATAII3 /**	21)	**CI**
	SATAII4 / SATAII5	22)	**BAT**
11)	**JSATAII0 / JSATAII1 ①**		
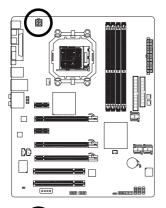
① Only for GA-M59SLI-S5.   ② Only for GA-M59SLI-S4.

1/2)   ATX_12V_2X ①/ ATX_12V ② (Power Connector)

ATX (Power Connector)
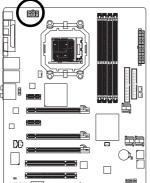
With the use of the power connector, the power supply can supply enough stable power to all the components on the motherboard. Before connecting the power connector, please make sure that all components and devices are properly installed. Align the power connector with its proper location on the motherboard 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. If you wish to install a power supply that provides ATX 12V (2x2) power connector, please connect the ATX 12V power connector to the Pin 3, 4, 7, 8 of the onboard ATX_12V power connector according to the pin definitions.

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 (400W 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 power supply that provides a 24-pin ATX or 2x4 pin ATX 12V power connector, 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

ATX_12V ②
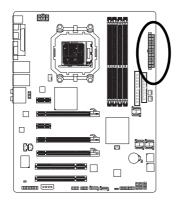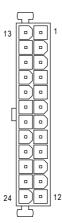
Pin No.	Definition
1	GND
2	GND
3	GND
4	GND
5	+12V
6	+12V
7	+12V
8	+12V

ATX_12V_2X ①

① Only for GA-M59SLI-S5.   ② Only for GA-M59SLI-S4.

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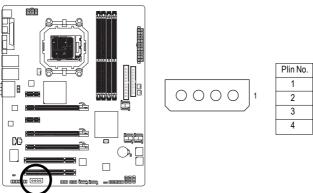
Pin No.	Definition	Pin No.	Definition
1	3.3V	13	3.3V
2	3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PS_ON(soft On/Off)
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	Power Good	20	-5V
9	5V SB(stand by +5V)	21	+5V
10	+12V	22	+5V
11	+12V(Only for 24-pin ATX)	23	+5V (Only for 24-pin ATX)
12	3.3V(Only for 24-pin ATX)	24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

English

3) PCIE_12V (Power Connector)

The PCIE_12V power connector supplies extra power to the PCIE x16 slot. Connect this connector depending on your system requirements.
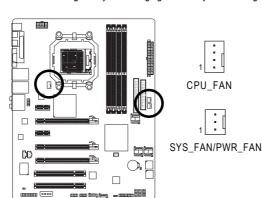
Plin No.	Definition
1	NC
2	GND
3	GND
4	+12V

4/5/6)   CPU_FAN / SYS_FAN / PWR_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).
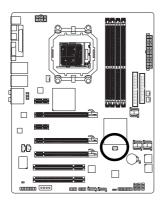
Remember to connect the CPU/system fan cable to the CPU_FAN/SYS_FAN connector to prevent CPU damage or system hanging caused by overheating.

CPU_FAN

SYS_FAN/PWR_FAN

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

- 27 -   Hardware Installation

7) SB_FAN (Chip Fan Connector) ②

If you installed wrong direction, the chip fan will not work. Sometimes will damage the chip fan.
(Usually black cable is GND)
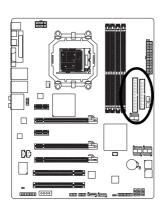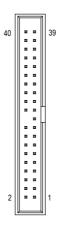
Pin No.	Definition
1	+12V
2	GND

8) IDE1 (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).
Before attaching the IDE cable, please take note of the foolproof groove in the IDE connector.
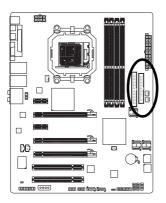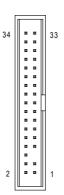
① Only for GA-M59SLI-S4.
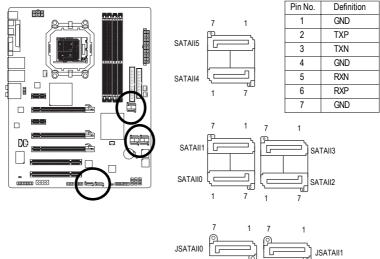
9) FDD (FDD Connector)

The FDD connector is used to connect the FDD cable while the other end of the cable connects to the FDD drive. The types of FDD drives supported are: 360KB, 720KB, 1.2MB, 1.44MB and 2.88MB. Before attaching the FDD cable, please take note of the foolproof groove in the FDD connector.
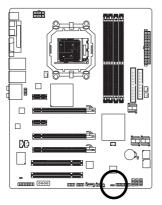
10) SATAII0 / SATAII1 / SATAII2 / SATAII3 / SATAII4 / SATAII5 (SATA 3Gb/s Connectors, Controlled by nVIDIA® nForce 590SLI Southbridge)

11) JSATAII0 / JSATAII1 (SATA 3Gb/s Connectors, Controlled by GIGABYTE SATA2) ①

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

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

① Only for GA-M59SLI-S5.

12) PWR_LED
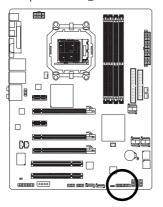
The PWR_LED connector is connected with the system power indicator to indicate whether the system is on/off. It will blink when the system enters suspend mode.

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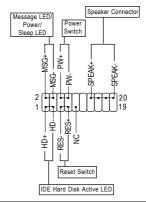
Pin No.	Definition
1	MPD+
2	MPD-
3	MPD-

13) 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.

Message LED/ Power/ Sleep LED
Power Switch
Speaker Connector

MSG+ MSG- PW+ PW- SPEAK+ SPEAK-

2 [pins] 20
1 [pins] 19

HD+ HD- RES- RES+ NC

Reset Switch

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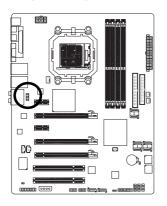
HD (IDE Hard Disk Active LED)	Pin 1: LED anode(+)
(Blue)	Pin 2: LED cathode(-)
SPEAK (Speaker Connector)	Pin 1: Power
(Amber)	Pin 2- Pin 3: NC
	Pin 4: Data(-)
RES (Reset Switch)	Open: Normal
(Green)	Close: Reset Hardware System
PW (Power Switch)	Open: Normal
(Red)	Close: Power On/Off
MSG (Message LED/Power/Sleep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

14) F_AUDIO (Front Audio Connector)

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

```
10 [•••] 9
   [•••]
   [•••]
2  [•••] 1
```

HD Audio:

Pin No.	Definition
1	MIC2_L
2	GND
3	MIC2_R
4	-ACZ_DET
5	LINE2_R
6	FSENSE1
7	FAUDIO_JD
8	No Pin
9	LINE2_L
10	FSENSE2

AC'97 Audio:
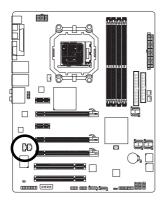
Pin No.	Definition
1	MIC
2	GND
3	MIC Power
4	NC
5	Line Out (R)
6	NC
7	NC
8	No Pin
9	Line Out (L)
10	NC

NOTE: By default, the audio driver is configured to support HD Audio. To connect an AC97 front panel audio module to this connector, please refer to the instructions on Page 106 about the software settings.

15) CD_IN (CD In Connector)

Connect CD-ROM or DVD-ROM audio out to the connector.
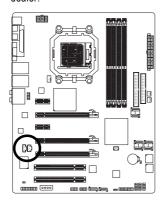
Pin No.	Definition
1	CD-L
2	GND
3	GND
4	CD-R

16) SPDIF_I (SPDIF In)

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

Be careful with the polarity of the SPDIF_IN connector. Check the pin assignment carefully while you connect the SPDIF cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional SPDIF cable, please contact your local dealer.
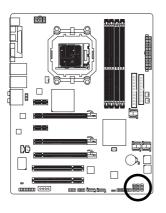
Pin No.	Definition
1	Power
2	SPDIFI
3	GND

17) F_USB1/F_USB2/F_USB3 (Front USB Connectors)

Be careful with the polarity of the front USB connector. Check the pin assignment carefully while you connect the front USB cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional front USB cable, please contact your local dealer.
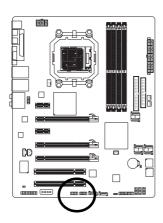
Pin No.	Definition
1	Power (5V)
2	Power (5V)
3	USB DX-
4	USB Dy-
5	USB DX+
6	USB Dy+
7	GND
8	GND
9	No Pin
10	NC

18) F1_1394 / F2_1394(IEEE 1394 Connector)

Serial interface standard set by Institute of Electrical and Electronics Engineers, which has features like high speed, highbandwidth and hot plug. Be careful with the polarity of the IEEE1394 connector. Check the pin assignment carefully while you connect the IEEE1394 cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional IEEE1394 cable, please contact your local dealer.
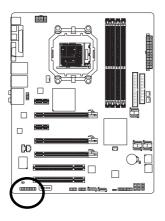
Pin No.	Definition
1	TPA+
2	TPA-
3	GND
4	GND
5	TPB+
6	TPB-
7	Power (12V)
8	Power (12V)
9	No Pin
10	GND

19) TPM Connector (Trusted Platform Module) ①

Please contact your nearest dealer for optional TPM cable.
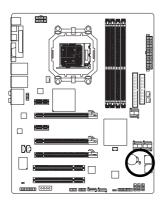
Pin No.	Definition	Pin No.	Definition
1	LCLK	11	LAD0
2	GND	12	GND
3	LFRAME	13	RSVO
4	No Pin	14	RSV1
5	LRESET	15	SB3V
6	VCC5	16	SERIRQ
7	LAD3	17	GND
8	LAD2	18	CLKRUN
9	VCC3	19	LPCPD
10	LAD1	20	RSV2

20) CLR_CMOS (Clear CMOS)

You may clear the CMOS data to its default values by this header. To clear CMOS, temporarily short the two pins. Default doesn't include the jumper to avoid improper use of this header.
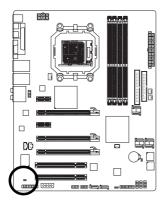
Open: Normal

Short: Clear CMOS

① Only for GA-M59SLI-S5.

21) CI (Chassis Intrusion, Case Open)
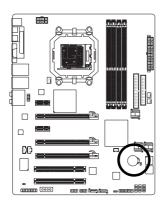
This 2-pin connector allows your system to detect if the chassis cover is removed. You can check the "Case Opened" status in BIOS Setup.

1

Pin No.	Definition
1	Signal
2	GND

22) BATTERY

❖ Danger of explosion if battery is incorrectly replaced.

❖ Replace only with the same or equivalent type recommended by the manufacturer.

❖ Dispose of used batteries according to the manufacturer's instructions.

If you want to erase CMOS...

1. Turn off the computer and unplug the power cord.
2. Gently take out the battery and put it aside for about one minute. (Or you can use a metal object to connect the positive and negative pins in the battery holder to makethem short for five seconds.)
3. Re-install the battery.
4. Plug the power cord in 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, pressing 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".

If you wish to upgrade to a new BIOS, either Gigabyte's Q-Flash or @BIOS utility can be used.

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

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

CONTROL KEYS

< ↑ > < ↓ > < ← > < → >	Move to select item
<Enter>	Select Item
<Esc>	Main Menu - Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu - Exit current page and return to Main Menu
<Page Up>	Increase the numeric value or make changes
<Page Down>	Decrease the numeric value or make changes
<F1>	General help, only for Status Page Setup Menu and Option Page Setup Menu
<F2>	Item Help
<F5>	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
<F6>	Load the fail-safe default CMOS value from BIOS default table
<F7>	Load the Optimized Defaults
<F8>	Dual BIOS ① / Q-Flash utility
<F9>	System Information
<F10>	Save all the CMOS changes, only for Main Menu
<F11>	Save CMOS to BIOS - CMOS Profiles
<F12>	Load CMOS from BIOS - CMOS Profiles

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>.

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

CAUTION

① Only for GA-M59SLI-S5.

<F12> : For Boot Menu

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

Award Modular BIOS v6.00PG, An Energy Star Ally
Copyright (C) 1984-2006, Award Software, Inc.

GA-M59SLI-S5 F2
.
.
.

<DEL>:BIOS Setup/Q-Flash, <F9>: XpressRecovery2, <F12>For Boot Menu
05/29/2006-C51/MCP55-6A61JG03C-00

Press **F12**

```
        Boot Menu
== Select a Boot First device ==
        Floppy
        LS120
        Hard Disk
        CDROM
        ZIP
        USB-FDD
        USB-ZIP
        USB-CDROM
        USB-HDD
        Legacy LAN
↑↓:Move  Enter:Accept  ESC:Exit
```
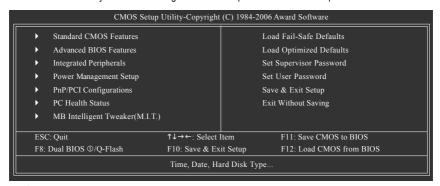
Press <F12> to enter the Boot Menu and use < ↑ > or < ↓ > to select a device, then press enter to accept. Press <ESC> to exit this menu.

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

The Main Menu (For example: 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) 1984-2006 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.)	
ESC: Quit ↑↓→←: Select Item	F11: Save CMOS to BIOS
F8: Dual BIOS ①/Q-Flash F10: Save & Exit Setup	F12: Load CMOS from BIOS
Time, Date, Hard Disk Type...	

NOTE   If you can't find the setting you want, please press "Ctrl+F1" to search the advanced option hidden.Please Load Optimized Defaults in the BIOS when somehow the system works not stable as usual. This action makes the system reset to the default for stability.

BIOS Setting Recovery

▶ F11 : Save CMOS to BIOS

This function allows you to make a record of the current CMOS settings as a profile.
You can create up to 8 profiles (Profile 1-8) and give each of them a name.

▶ F12 : Load CMOS from BIOS

If your system becomes unstable and you load the default BIOS settings, you can use this function to reload the CMOS settings with a CMOS settings profile created before, without the hassles of resetting the CMOS configurations.

① Only for GA-M59SLI-S5.

English

■ **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.
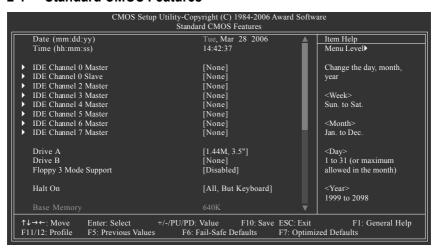
■ **Save & Exit Setup**
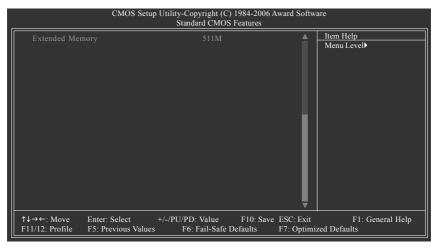
Save CMOS value settings to CMOS and exit setup.

■ **Exit Without Saving**

Abandon all CMOS value changes and exit setup.

- 39 -   BIOS Setup

2-1   Standard CMOS Features

```
                CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                              Standard CMOS Features
    Date (mm:dd:yy)                Tue, Mar  28  2006    ▲  Item Help
    Time (hh:mm:ss)                14:42:37                 Menu Level▶

 ▶  IDE Channel 0 Master          [None]                   Change the day, month,
 ▶  IDE Channel 0 Slave           [None]                   year
 ▶  IDE Channel 2 Master          [None]
 ▶  IDE Channel 3 Master          [None]                   <Week>
 ▶  IDE Channel 4 Master          [None]                   Sun. to Sat.
 ▶  IDE Channel 5 Master          [None]
 ▶  IDE Channel 6 Master          [None]                   <Month>
 ▶  IDE Channel 7 Master          [None]                   Jan. to Dec.

    Drive A                       [1.44M, 3.5"]            <Day>
    Drive B                       [None]                   1 to 31 (or maximum
    Floppy 3 Mode Support         [Disabled]               allowed in the month)

    Halt On                       [All, But Keyboard]      <Year>
                                                           1999 to 2098
    Base Memory                   640K                  ▼
 ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value   F10: Save  ESC: Exit    F1: General Help
 F11/12: Profile   F5: Previous Values   F6: Fail-Safe Defaults   F7: Optimized Defaults
```

```
                CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                              Standard CMOS Features
    Extended Memory               511M                  ▲  Item Help
                                                           Menu Level▶




 ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value   F10: Save  ESC: Exit    F1: General Help
 F11/12: Profile   F5: Previous Values   F6: Fail-Safe Defaults   F7: Optimized Defaults
```

☞ **Date**

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

☊ **Time**

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

☊ **IDE Channel 0 Master, Slave**

▶▶ IDE 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 2/3/4/5/6/7 Master**

▶▶ IDE HDD Auto-Detection Press "Enter" to select this option for automatic device detection.

▶▶ Extended IDE Drive You can use one of the two methods:

    Auto   Allows BIOS to automatically detect IDE devices during POST.

                  (Default value)

    None   Select this if no IDE devices are used and the system will skip the automatic detection step and allow for faster system start up.

▶▶ 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

☊ **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. (Default value)

▶▶ 2.88M, 3.5"   3.5 inch double-sided drive; 2.88M byte capacity.

☞ **Floppy 3 Mode Support (for Japan Area)**
- ▶ Disabled   Normal Floppy Drive. (Default value)
- ▶ Drive A   Drive A is 3 mode Floppy Drive.
- ▶ Drive B   Drive B is 3 mode Floppy Drive.
- ▶ Both   Drive A & B are 3 mode Floppy Drives.

☞ **Halt on**
The category determines whether the computer will stop if an error is detected during power up.
- ▶ No Errors   The system boot will not stop for any error that may be detected and you will be prompted.
- ▶ All Errors   Whenever the BIOS detects a non-fatal error the system will be stopped.
- ▶ All, But Keyboard   The system boot will not stop for a keyboard error; it will stop for all other errors. (Default value)
- ▶ All, But Diskette   The system boot will not stop for a disk error; it will stop for all other errors.
- ▶ All, But Disk/Key   The system boot will not stop for a keyboard or disk error; it will stop for all other errors.

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

▶ **Base Memory**
The POST of the BIOS will determine the amount of base (or conventional) memory installed in the system.
The value of the base memory is typically 512K for systems with 512K memory installed on the motherboard, or 640K for systems with 640K or more memory installed on the motherboard.
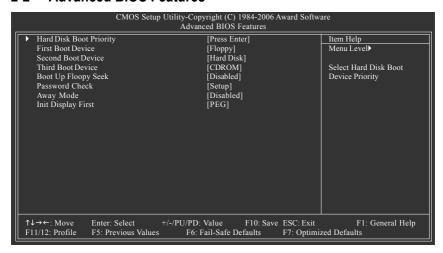
▶ **Extended Memory**
The BIOS determines how much extended memory is present during the POST.
This is the amount of memory located above 1 MB in the CPU's memory address map.

2-2 Advanced BIOS Features

```
                CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                                Advanced BIOS Features
┌─────────────────────────────────────────────────────────────────────────────┐
│  ▶ Hard Disk Boot Priority              [Press Enter]        Item Help        │
│    First Boot Device                    [Floppy]             Menu Level▶      │
│    Second Boot Device                   [Hard Disk]                           │
│    Third Boot Device                    [CDROM]              Select Hard Disk Boot│
│    Boot Up Floopy Seek                  [Disabled]           Device Priority  │
│    Password Check                       [Setup]                               │
│    Away Mode                            [Disabled]                            │
│    Init Display First                   [PEG]                                 │
│                                                                              │
│                                                                              │
│                                                                              │
│                                                                              │
│                                                                              │
│                                                                              │
│                                                                              │
│                                                                              │
│                                                                              │
│ ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save  ESC: Exit    F1: General Help│
│ F11/12: Profile   F5: Previous Values    F6: Fail-Safe Defaults   F7: Optimized Defaults│
└─────────────────────────────────────────────────────────────────────────────┘
```

☞ **Hard Disk Boot Priority**

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

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

☞ **First / Second / Third Boot Device**

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

☞ **Boot Up Floppy Seek**

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

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

☞ **Password Check**
- ▶ System   The system can not boot and can not access to Setup page will be denied if the correct password is not entered at the prompt.
- ▶ Setup   The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt. (Default value)

☞ **Away Mode**
- ▶ Disabled   Disable this function. (Default value)
- ▶ Enabled   Enable Away Mode in Windows XP Media Center operating system.
           (Away Mode: Enables the system to silently perform unattended tasks while in a low-power mode that appears off.)

☞ **Init Display First**
This feature allows you to select the first initiation of the monitor display from which card when you install a PCI card and a PCI Express VGA card on the motherboard.
- ▶ PCI slot   Set Init display first to PCI.
- ▶ PEG   Set Init display first to PCI Express VGA card. (Default value)
- ▶ PEG (Slot2) Set Init display first to PCI Express VGA card(Slot2).
- ▶ PEG (Slot3) Set Init display first to PCI Express VGA card(Slot3).
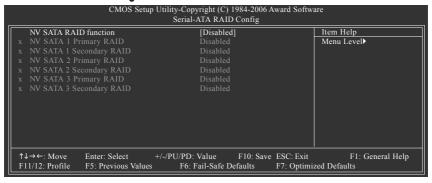
2-3 Integrated Peripherals

```
                    CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                                    Integrated Peripherals
 ▶  Serial-ATA RAID Config                 [Press Enter]              Item Help
    On-Chip IDE Channel0                   [Enabled]                  Menu Level▶
    On-Chip MAC Lan                        [Auto]
    On-Chip MAC1 Lan ①                     [Auto]
    NV Serial-ATA Controller               [All Enabled]
    IDE Prefetch Mode                      [Enabled]
    Onboard Audio Function                 [Auto]
 ▶  SMART LAN                              [Press Enter]
    Onboard 1394                           [Enabled]
    Onboard LAN Boot ROM                   [Disabled]
    Onboard SATA/IDE Ctrl Mode ①           [IDE]
    Onboard Serial Port 1                  [3F8/IRQ4]
    Onboard Parallel Port                  [378/IRQ7]
    Parallel Port Mode                     [SPP]
 x  ECP Mode Use DMA                        3
    On-Chip USB                            [V1.1+V2.0]
    USB Keyboard Support                   [Disabled]
    USB Mouse Support                      [Disabled]
    Legacy USB Storage detect              [Enabled]

 ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save  ESC: Exit      F1: General Help
 F11/12: Profile   F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults
```

 ☞ **Serial-ATA RAID Config**

```
                    CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                                    Serial-ATA RAID Config
    NV SATA RAID function                  [Disabled]                Item Help
 x  NV SATA 1 Primary RAID                  Disabled                 Menu Level▶
 x  NV SATA 1 Secondary RAID                Disabled
 x  NV SATA 2 Primary RAID                  Disabled
 x  NV SATA 2 Secondary RAID                Disabled
 x  NV SATA 3 Primary RAID                  Disabled
 x  NV SATA 3 Secondary RAID                Disabled




 ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save  ESC: Exit      F1: General Help
 F11/12: Profile   F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults
```

① Only for GA-M59SLI-S5.

☞ **NV SATA RAID function**
- ▶▶ Enabled   Enable NV SATA RAID function.
- ▶▶ Disabled   Disable NV SATA RAID function. (Default value)

☞ **NV SATA 1 Primary RAID**
- ▶▶ Enabled   Enable NV SATA 1 primary RAID function.
- ▶▶ Disabled   Disable this function. (Default value)

☞ **NV SATA 1 Secondary RAID**
- ▶▶ Enabled   Enable NV SATA 1 secondary RAID function.
- ▶▶ Disabled   Disable this function. (Default value)

☞ **NV SATA 2 Primary RAID**
- ▶▶ Enabled   Enable NV SATA 2 primary RAID function.
- ▶▶ Disabled   Disable this function. (Default value)

☞ **NV SATA 2 Secondary RAID**
- ▶▶ Enabled   Enable NV SATA 2 secondary RAID function.
- ▶▶ Disabled   Disable this function. (Default value)

☞ **NV SATA 3 Primary RAID**
- ▶▶ Enabled   Enable NV SATA 3 primary RAID function.
- ▶▶ Disabled   Disable this function. (Default value)

☞ **NV SATA 3 Secondary RAID**
- ▶▶ Enabled   Enable NV SATA 3 secondary RAID function.
- ▶▶ Disabled   Disable this function. (Default value)

☞ **On-Chip IDE Channel0**
- ▶▶ Enabled   Enable onboard 1st channel IDE port. (Default value)
- ▶▶ Disabled   Disable onboard 1st channel IDE port.

☞ **On-Chip MAC Lan**
- ▶▶ Auto   Auto-detect onboard LAN chip function. (Default value)
- ▶▶ Disabled   Disable onboard LAN chip function.

☞ **On-Chip MAC1 Lan** ①
- ▶▶ Auto   Auto-detect onboard LAN1 chip function. (Default value)
- ▶▶ Disabled   Disable onboard LAN1 chip function.

☞ **NV Serial-ATA Controller**
- ▶▶ All Enabled   Enable NV Serial-ATA Controller function. (Default value)
- ▶▶ SATA-1   Enable NV SATA-1 function.
- ▶▶ SATA-1+2   Enable NV SATA-1+2 function
- ▶▶ Disabled   Disable this function.

☞ **IDE Prefetch Mode**
- ▶▶ Enabled   Enable IDE Prefetch mode. (Default value)
- ▶▶ Disabled   Disable IDE Prefetch mode.

☞ **Onboard Audio Function**
- ▶▶ Auto   Auto-detect onboard audio function. (Default value)
- ▶▶ Disabled   Disable this function.

① Only for GA-M59SLI-S5.

) **SMART LAN (LAN Cable Diagnostic Function)**

CMOS Setup Utility-Copyright (C) 1984-2006 Award Software	
SMART LAN	
Start detecting at Port 0.	Item Help
Pair1-2 Status = Normal / Length = N/A	Menu Level▶
Pair3-6 Status = Normal / Length = N/A	
Pair4-5 Status = Normal / Length = N/A	
Pair7-8 Status = Normal / Length = N/A	
Start detecting at Port 1. ①	
Pair1-2 Status = Normal / Length = N/A	
Pair3-6 Status = Normal / Length = N/A	
Pair4-5 Status = Normal / Length = N/A	
Pair7-8 Status = Normal / Length = N/A	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help	
F11/12: Profile F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults	

This motherboard incorporates cable diagnostic feature designed to detect the status of the attached LAN cable. This feature will detect cabling issue and report the approximate distance to the fault or short. Refer to the following information for diagnosing your LAN cable:

▸ **When LAN Cable Is Functioning Normally...**
1. If no cable problem is detected on the LAN cable connected to a Gigabit hub, the **Status** fields of Pair 1-2, Pair 3-6, Pair 4-5, and Pair 7-8 will show **Normal** and the **Length** fields will show **N/A ,** as shown in the figure above.
2. If no cable problem is detected on the LAN cable connected to a 10/100 Mbps hub, the **Status** fields of Pair 1-2 and Pair 3-6 will show **Normal** and the **Length** fields will show **N/A**. However, because Pair 4-5 and Pair 7-8 are not used in a 10/100 Mbps environment, their **Status** fields will show **Short** or **Open**, and the length shown is the approximate length of the attached LAN cable.

▸ **When a Cable Problem Occurs...**
If a cable problem occurs on a specified pair of wires, the **Status** field will show **Short** or **Open** and the length shown will be the approximate distance to the fault or short.
For example, if it shows `Pair1-2 Status = Short / Length  =  1.6m,` it means that a fault or short might occur at about 1.6m on Pair 1-2.

▸ **When No LAN Cable Is Attached...**
If no LAN cable is attached to the motherboard, the **Status** fields of all four pairs of wires will show **Open**.

) **Onboard 1394**
  ▸ Enabled   Enable onboard IEEE1394 function. (Default value)
  ▸ Disabled   Disable onboard IEEE1394 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)

① Only for GA-M59SLI-S5.

 Onboard SATA/IDE Ctrl Mode ①
  ▶ RAID   Set the onboard SATA controller to RAID mode.
  ▶ AHCI   Set the onboard SATA controller to AHCI mode. Advanced Host Controller
                Interface (AHCI) is an interface specification that allows the storage driver to
                enable advanced Serial ATA features such as Native Command Queuing and
                hot plug. For more details about AHCI, please visit Intel's website.
  ▶ IDE   Set the onboard SATA controller to IDE mode. (Default value)

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

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

 Parallel Port Mode
  ▶ SPP   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 and EPP mode.

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

 On-Chip USB
  ▶ Disabled   Disable this function if you are not using onboard USB function.
  ▶ V1.1+V2.0   Enable USB 1.1 and USB 2.0 controller. (Default value)
  ▶ V1.1   Enable only USB 1.1 controller.

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

 USB Mouse Support
  ▶ Enabled   Enable USB mouse support.
  ▶ Disabled   Disable USB mouse support. (Default value)
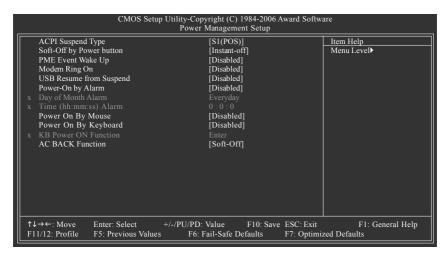
 Legacy USB Storage detect
  ▶ Enabled   Enable USB storage detect function. (Default value)
  ▶ Disabled   Disable this function.

① Only for GA-M59SLI-S5.

2-4 Power Management Setup

```
            CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                          Power Management Setup
 ┌──────────────────────────────────────────────────────────────────────────┐
 │ ACPI Suspend Type                    [S1(POS)]           Item Help         │
 │ Soft-Off by Power button             [Instant-off]       Menu Level▶       │
 │ PME Event Wake Up                    [Disabled]                            │
 │ Modem Ring On                        [Disabled]                            │
 │ USB Resume from Suspend              [Disabled]                            │
 │ Power-On by Alarm                    [Disabled]                            │
 │ x  Day of Month Alarm                Everyday                              │
 │ x  Time (hh:mm:ss) Alarm             0 : 0 : 0                             │
 │ Power On By Mouse                    [Disabled]                            │
 │ Power On By Keyboard                 [Disabled]                            │
 │ x  KB Power ON Function              Enter                                 │
 │ AC BACK Function                     [Soft-Off]                            │
 │                                                                            │
 │                                                                            │
 │                                                                            │
 │                                                                            │
 │                                                                            │
 ├──────────────────────────────────────────────────────────────────────────┤
 │ ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save ESC: Exit    F1: General Help │
 │ F11/12: Profile    F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults │
 └──────────────────────────────────────────────────────────────────────────┘
```

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

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

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

 Modem Ring On
  An incoming call via modem can awake the system from any suspend state.
  ▶ Disabled   Disable Modem Ring on function. (Default value)
  ▶ Enabled   Enable Modem Ring on function.

 USB Resume from Suspend
  ▶ Disabled   Disable this function. (Default value)
  ▶ Enabled   Enable USB device wake up system from suspend type.

 Power-On 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 Power-On by Alarm is Enabled.
  ▶ Day of Month Alarm :   Everyday, 1~31
  ▶ Time (hh: mm: ss) Alarm : (0~23) : (0~59) : (0~59)

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

☞ **Power On By Keyboard**
- ▸ Disabled   Disable this function. (Default value)
- ▸ Password   Enter from 1 to 5 characters to set the Keyboard Power On Password.
- ▸ Any KEY   Press any key to power on the system.
- ▸ 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.
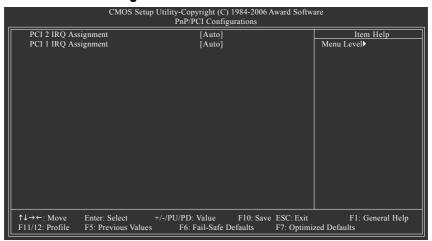
☞ **AC BACK Function**
- ▸ Soft-Off   When AC-power back to the system, the system will be in "Off" state. (Default value)
- ▸ Full-On   When AC-power back to the system, the system always in "On" state.

2-5 PnP/PCI Configurations

```
                    CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                                  PnP/PCI Configurations
     PCI 2 IRQ Assignment                    [Auto]                        Item Help
     PCI 1 IRQ Assignment                    [Auto]                    Menu Level▶










   ↑↓→←: Move      Enter: Select      +/-/PU/PD: Value      F10: Save  ESC: Exit        F1: General Help
   F11/12: Profile    F5: Previous Values      F6: Fail-Safe Defaults      F7: Optimized Defaults
```

☞ **PCI 2 IRQ Assignment**
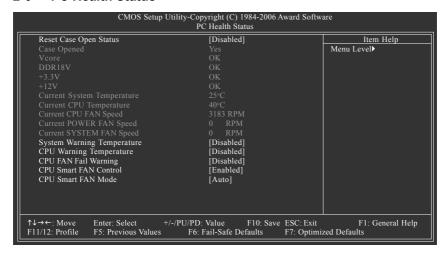
   ▶ Auto   Auto assign IRQ to PCI 2. (Default value)

   ▶ 3,4,5,7,9,10,11,12,14,15   Set IRQ 3,4,5,7,9,10,11,12,14,15 to PCI 2.

☞ **PCI 1 IRQ Assignment**

   ▶ Auto   Auto assign IRQ to PCI 1. (Default value)

   ▶ 3,4,5,7,9,10,11,12,14,15   Set IRQ 3,4,5,7,9,10,11,12,14,15 to PCI 1.

2-6 PC Health Status

```
CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                    PC Health Status

  Reset Case Open Status          [Disabled]              Item Help
  Case Opened                     Yes              Menu Level▶
  Vcore                           OK
  DDR18V                          OK
  +3.3V                           OK
  +12V                            OK
  Current System Temperature      25ºC
  Current CPU Temperature         40ºC
  Current CPU FAN Speed           3183 RPM
  Current POWER FAN Speed         0    RPM
  Current SYSTEM FAN Speed        0    RPM
  System Warning Temperature      [Disabled]
  CPU Warning Temperature         [Disabled]
  CPU FAN Fail Warning            [Disabled]
  CPU Smart FAN Control           [Enabled]
  CPU Smart FAN Mode              [Auto]



↑↓→←: Move     Enter: Select    +/-/PU/PD: Value    F10: Save ESC: Exit        F1: General Help
F11/12: Profile   F5: Previous Values      F6: Fail-Safe Defaults    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 / DDR18V / +3.3V / +12V**
   ▶ Detect system's voltage status automatically.

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

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

⍞ **System/CPU Warning Temperature**
   ▶ 60ºC / 140ºF   Monitor System/CPU temperature at 60ºC / 140ºF.
   ▶ 70ºC / 158ºF   Monitor System/CPU temperature at 70ºC / 158ºF.
   ▶ 80ºC / 176ºF   Monitor System/CPU temperature at 80ºC / 176ºF.
   ▶ 90ºC / 194ºF   Monitor System/CPU temperature at 90ºC / 194ºF.
   ▶ Disabled   Disable this function. (Default value)

⍞ **CPU FAN Fail Warning**
   ▶ Disabled   Disable CPU fan fail warning function. (Default value)
   ▶ Enabled   Enable CPU fan fail warning function.

 CPU Smart FAN Control[(Note)]
  ▶ 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.
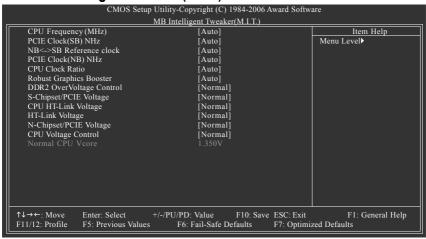
2-7   MB Intelligent Tweaker(M.I.T.)

```
                CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                         MB Intelligent Tweaker(M.I.T.)
   CPU Frequency (MHz)              [Auto]                      Item Help
   PCIE Clock(SB) NHz              [Auto]               Menu Level▶
   NB<->SB Reference clock         [Auto]
   PCIE Clock(NB) NHz             [Auto]
   CPU Clock Ratio                [Auto]
   Robust Graphics Booster         [Auto]
   DDR2 OverVoltage Control        [Normal]
   S-Chipset/PCIE Voltage          [Normal]
   CPU HT-Link Voltage            [Normal]
   HT-Link Voltage               [Normal]
   N-Chipset/PCIE Voltage          [Normal]
   CPU Voltage Control            [Normal]
   Normal CPU Vcore               1.350V




   ↑↓→←: Move      Enter: Select      +/-/PU/PD: Value      F10: Save  ESC: Exit        F1: General Help
   F11/12: Profile    F5: Previous Values      F6: Fail-Safe Defaults      F7: Optimized Defaults
```

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

 CPU Frequency(MHz)
  ▶ Auto   BIOS will automatically setup the CPU Frequency(MHz).
  ▶ 100 ~ 500   Set CPU frequency from 100MHz to 500MHz.

 PCIE Clock(SB) MHz
  ▶ Auto   BIOS will automatically setup the PCIE Clock(SB) MHz.
  ▶ 100Mhz ~ 200Mhz   Set PCIE Clock(SB) MHz) from 100Mhz to 200Mhz.

 NB<->SB Reference clock
  ▶ Auto   BIOS will automatically setup the NB<->SB reference clock.
  ▶ 100 ~ 500   Set NB<->SB reference clock from 200.0 to 500.0.

 PCIE Clock(NB) MHz
  ▶ Auto   BIOS will automatically setup the PCIE Clock(NB) MHz.
  ▶ 100Mhz ~ 200Mhz   Set PCIE Clock(NB) MHz from 100Mhz to 200Mhz.

(Note)   Whether the CPU Smart FAN Control function is supported will depend on the CPU you install.

 CPU Clock Ratio

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

 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.

 DDR2 OverVoltage Control

Please note that by overclocking your system through the increase of the DDR2 voltage, damage to the memory may occur.

▸▸ Normal Set DDR2 voltage to Normal. (Default value)
▸▸ +0.1V Set DDR2 voltage to +0.1V.
▸▸ +0.2V Set DDR2 voltage to +0.2V.
▸▸ +0.3V Set DDR2 voltage to +0.3V.
▸▸ +0.4V Set DDR2 voltage to +0.4V.
▸▸ +0.5V Set DDR2 voltage to +0.5V.
▸▸ +0.6V Set DDR2 voltage to +0.6V.
▸▸ +0.7V Set DDR2 voltage to +0.7V.

 S-Chipset/PCIE Voltage

Set the voltage settings for Southbridge, its PCI Express bus voltage.

▸▸ Normal Set Southbridge/PCIE voltage to Normal. (Default value)
▸▸ +0.1V Set Southbridge/PCIE voltage to +0.1V.
▸▸ +0.2V Set Southbridge/PCIE voltage to +0.2V.
▸▸ +0.3V Set Southbridge/PCIE voltage to +0.3V.

 CPU HT-Link Voltage

Set the voltage settings for the HT-Link between CPU and Northbridge.

▸▸ Normal Set CPU HT-Link voltage to Normal. (Default value)
▸▸ +0.1V Set CPU HT-Link voltage to +0.1V.
▸▸ +0.2V Set CPU HT-Link voltage to +0.2V.
▸▸ +0.3V Set CPU HT-Link voltage to +0.3V.

 HT-Link Voltage

Set the voltage settings for the HT-Link between Southbridge and Northbridge.

▸▸ Normal Set HT-Link voltage to Normal. (Default value)
▸▸ +0.1V Set HT-Link voltage to +0.1V.
▸▸ +0.2V Set HT-Link voltage to +0.2V.
▸▸ +0.3V Set HT-Link voltage to +0.3V.

) **N-Chipset/PCIE Voltage**

Set the voltage settings for Northbridge, its PCI Express bus voltage.

 ▶ Normal   Set Northbridge/PCIE voltage to Normal. (Default value)
 ▶ +0.1V   Set Northbridge/PCIE voltage to +0.1V.
 ▶ +0.2V   Set Northbridge/PCIE voltage to +0.2V.
 ▶ +0.3V   Set Northbridge/PCIE voltage to +0.3V.
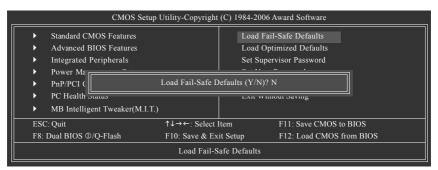
) **CPU Voltage Control**

 ▶ Supports adjustable CPU Vcore from 0.800V to 1.550V. (Default value: Normal)

) **Normal CPU Vcore**
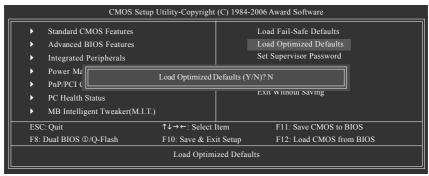
 ▶ Display your CPU Vcore voltage.

2-8   Load Fail-Safe Defaults

```
CMOS Setup Utility-Copyright (C) 1984-2006 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 Defaults (Y/N)? N
    ▶    PC Health Status                    Exit Without Saving
    ▶    MB Intelligent Tweaker(M.I.T.)

    ESC: Quit              ↑↓→←: Select Item       F11: Save CMOS to BIOS
    F8: Dual BIOS ①/Q-Flash    F10: Save & Exit Setup   F12: Load CMOS from BIOS
                         Load Fail-Safe Defaults
```

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

2-9   Load Optimized Defaults

```
CMOS Setup Utility-Copyright (C) 1984-2006 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 Optimized Defaults (Y/N)? N
    ▶    PC Health Status                    Exit Without Saving
    ▶    MB Intelligent Tweaker(M.I.T.)

    ESC: Quit              ↑↓→←: Select Item       F11: Save CMOS to BIOS
    F8: Dual BIOS ①/Q-Flash    F10: Save & Exit Setup   F12: Load CMOS from BIOS
                         Load Optimized Defaults
```

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

① Only for GA-M59SLI-S5.

2-10 Set Supervisor/User Password

CMOS Setup Utility-Copyright (C) 1984-2006 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 │ Enter Password: │	
▶ PC Health Status └─────────────────────────────┘	Exit Without Saving
▶ MB Intelligent Tweaker(M.I.T.)	
ESC: Quit ↑↓→←: Select Item	F11: Save CMOS to BIOS
F8: Dual BIOS ①/Q-Flash F10: Save & Exit Setup	F12: Load CMOS from BIOS
Change/Set/Disable Password	

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

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

To disable password, just press <Enter> when you are prompted to enter password. A message "PASSWORD DISABLED" will appear to confirm the password being disabled. Once the password is disabled, the system will boot and you can enter Setup freely.
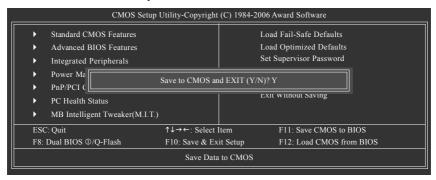
The BIOS Setup program allows you to specify two separate passwords:

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

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

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

① Only for GA-M59SLI-S5.

2-11 Save & Exit Setup

CMOS Setup Utility-Copyright (C) 1984-2006 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	Save to CMOS and EXIT (Y/N)? Y
▶ PC Health Status	Exit Without Saving
▶ MB Intelligent Tweaker(M.I.T.)	
ESC: Quit ↑↓→←: Select Item	F11: Save CMOS to BIOS
F8: Dual BIOS ①/Q-Flash F10: Save & Exit Setup	F12: Load CMOS from BIOS
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-Copyright (C) 1984-2006 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	Quit Without Saving (Y/N)? N
▶ PC Health Status	Exit Without Saving
▶ MB Intelligent Tweaker(M.I.T.)	
ESC: Quit ↑↓→←: Select Item	F11: Save CMOS to BIOS
F8: Dual BIOS ①/Q-Flash F10: Save & Exit Setup	F12: Load CMOS from BIOS
Abandon all Data	

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

① Only for GA-M59SLI-S5.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

BIOS Setup

English

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Chapter 3 Drivers Installation

NOTE

Pictures below are shown in Windows XP.

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

3-1 Install Chipset Drivers

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

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

NOTE

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

CAUTION

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

3-2   Software Applications

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

3-3   Driver CD Information

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

3-4 Hardware Information

This page lists all device you have for this motherboard.

3-5 Contact Us

Please see the last page for details.

Drivers Installation

English

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Chapter 4 Appendix

4-1   Unique Software Utilities

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

4-1-1   EasyTune 5 Introduction

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

User Interface Overview

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

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

4-1-2 Xpress Recovery2 Introduction

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

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

How to use the Xpress Recovery2

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

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

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

```
.
.
Boot from CD/DVD:
Press any key to startup XpressRecovery2.....
```
Boot from CD/DVD:

```
Award Modular BIOS v6.00PG, An Energy Star Ally
Copyright  (C) 1984-2006, Award Software,  Inc.
GA-M59SLI-S5 E18
.
.
.
.
<DEL>:BIOS Setup/Q-Flash, <F9>: Xpress Recovery2, <F12> For Boot Menu
05/02/2006-C51/MCP55-6A61JG93C-00
```
<F9> Xpress Recovery2

NOTE

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

The Main Screen of Xpress Recovery2

1. RESTORE:

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

2. BACKUP:

Back up data from hard disk.

3. REMOVE:

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

4. REBOOT:

Exit the main screen and restart the system.

Limitations:

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

Hard disks detection sequence is as follows:

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

Precautions:

1. When using hard disks with more than 128G under Windows 2000, be sure to execute the EnableBigLba.*exe* program from the driver CD before data backup.
2. It is normal that data backup takes longer time than data restoration.
3. Xpress Recovery2 is compliant with the GPL regulations.
4. On a few motherboards based on Nvidia chipsets, BIOS update is required for Xpress Recovery2 to correctly identify RAID and SATA IDE mode. Please contact your motherboard manufacturer.

4-1-3 Flash BIOS Method Introduction

A. What is Dual BIOS ① Technology ?
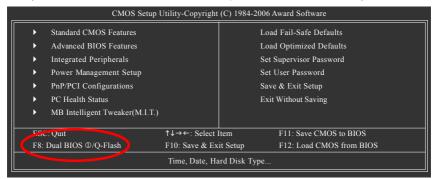
Dual BIOS means that there are two system BIOS (ROM) on the motherboard, one is the Main BIOS and the other is Backup BIOS.

Under the normal circumstances, the system works on the Main BIOS. If the Main BIOS is corrupted or damaged, the Backup BIOS can take over while the system is powered on. This means that your PC will still be able to run stably as if nothing has happened in your BIOS.

B. How to use Dual BIOS ① and Q-Flash Utility?

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

```
CMOS Setup Utility-Copyright (C) 1984-2006 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.)	

ESC: Quit   ↑↓→←: Select Item   F11: Save CMOS to BIOS
F8: Dual BIOS ①/Q-Flash   F10: Save & Exit Setup   F12: Load CMOS from BIOS

Time, Date, Hard Disk Type...

b. Dual BIOS / Q-Flash Programming Utility

Dual BIOS Utility V1.33		
Boot From..	Main Bios	
Main ROM Type/Size..............................	SST 49LF004A	512K
Backup ROM Type/Size...........................	SST 49LF004A	512K
Wide Range Protection	Disable	
Boot From	Main Bios	
Auto Recovery	Enable	
Halt On Error	Disable	
Keep DMI Data	Enable	
Copy Main ROM Data to Backup		
Load Default Settings		
Save Settings to CMOS		
Q-Flash Utility		
Update Main BIOS from Floppy		
Update Backup BIOS from Floppy		
Save Main BIOS to Floppy		
Save Backup BIOS to Floppy		
PgDn/PgUp: Modify ↑↓: Move ESC: Reset F10: Power Off		

① Only for GA-M59SLI-S5.

c. Dual BIOS Item explanation:

Wide Range Protection: Disable(Default), Enable

Status 1:

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

Status 2:

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

Boot From : Main BIOS(Default), Backup BIOS

Status 1:

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

Status 2:

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

Auto Recovery : Enable(Default), Disable

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

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

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

Halt On Error : Disable(Default), Enable

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

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

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

Keep DMI Data : Enable(Default), Disable

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

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

Copy Main ROM Data to Backup

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

Auto recovery message:

BIOS Recovery: Main to Backup

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

BIOS Recovery: Backup to Main

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

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

Load Default Settings

Load dual BIOS default value.

Save Settings to CMOS

Save revised setting.

Method 1 : Q-Flash™ Utility

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

operating system since it is in the BIOS menu.

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

Before You Begin:

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

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

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

Part One:

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

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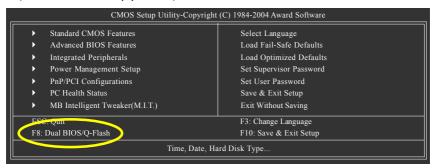
The BIOS file is Fa3
before updating

```
Award Modular BIOS v6.00PG, An Energy Star
Ally
    Copyright  (C) 1984-2003, Award Software,  Inc.
Intel i875P AGPset BIOS for 8KNXP Ultra Fa3
Check System Health OK , VCore = 1.5250
Main Processor : Intel Pentium(R) 4  1.6GHz (133x12)
<CPUID : 0F27 Patch ID  : 0027>
Memory Testing   : 131072K OK

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

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

Entering the Q-Flash™ utility:

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

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

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

Exploring the Q-Flash™ / Dual BIOS utility screen

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

```
                        Dual BIOS Utility                          ──── Dual BIOS utility bar
      Boot From.......................................      Main Bios
      Main ROM Type/Size.............................SST 49LF004A      512K
       Backup ROM Type/Size.........................SST 49LF004A      512K

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

Task menu for Dual BIOS utility

Task menu for Q-Flash™ utility

Task menu for Dual BIOS utility:

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

Task menu for Q-Flash utility:

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

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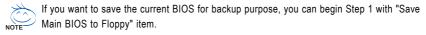
Contains the names of four actions needed to operate the Q-Flash/Dual BIOS utility. Pressing the buttons mentioned on your keyboards to perform these actions.

Using the Q-Flash™ utility:

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

Steps:

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

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

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

2. Move to the BIOS file you want to flash and press **Enter**.
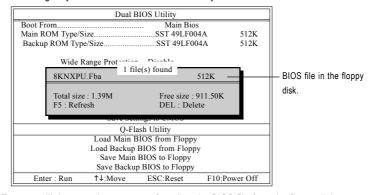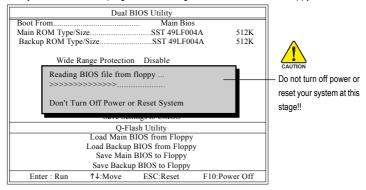
   In this example, we only download one BIOS file to the floppy disk so only one BIOS file, 8KNXPU.Fba, is listed.

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

```
                  Dual BIOS Utility
Boot From..........................        Main Bios
Main ROM Type/Size............SST 49LF004A       512K
 Backup ROM Type/Size........SST 49LF004A       512K

      Wide Range Protection    Disable
                   1 file(s) found
    8KNXPU.Fba                        512K                   BIOS file in the floppy
                                                             disk.
    Total size : 1.39M        Free size : 911.50K
    F5 : Refresh              DEL : Delete

                  Save Settings to CMOS
                   Q-Flash Utility
             Load Main BIOS from Floppy
             Load Backup BIOS from Floppy
              Save Main BIOS to Floppy
             Save Backup BIOS to Floppy
   Enter : Run    ↑↓:Move    ESC:Reset    F10:Power Off
```

After pressing **Enter**, you'll then see the progress of reading the BIOS file from the floppy disk.
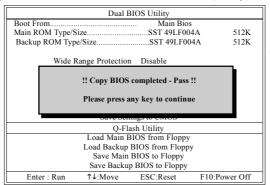
```
                  Dual BIOS Utility
Boot From..........................        Main Bios
Main ROM Type/Size............SST 49LF004A       512K
 Backup ROM Type/Size........SST 49LF004A       512K

      Wide Range Protection    Disable            CAUTION
    Reading BIOS file from floppy ...             Do not turn off power or
    >>>>>>>>>>>>>>>>......................        reset your system at this
                                                 stage!!
    Don't Turn Off Power or Reset System

                  Save Settings to CMOS
                   Q-Flash Utility
             Load Main BIOS from Floppy
             Load Backup BIOS from Floppy
              Save Main BIOS to Floppy
             Save Backup BIOS to Floppy
   Enter : Run    ↑↓:Move    ESC:Reset    F10:Power Off
```

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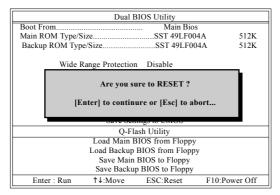
4. Press any keys to return to the Q-Flash menu when the BIOS updating procedure is completed.

Dual BIOS Utility		
Boot From.. Main Bios		
Main ROM Type/Size............................SST 49LF004A	512K	
Backup ROM Type/Size........................SST 49LF004A	512K	
Wide Range Protection Disable		
!! Copy BIOS completed - Pass !!		
Please press any key to continue		
~~Save Settings to CMOS~~		
Q-Flash Utility		
Load Main BIOS from Floppy		
Load Backup BIOS from Floppy		
Save Main BIOS to Floppy		
Save Backup BIOS to Floppy		
Enter : Run ↑↓:Move ESC:Reset F10:Power Off		

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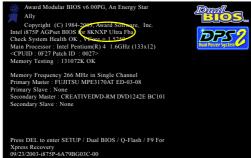
You can repeat Step 1 to 4 to flash the backup BIOS, too.

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

Dual BIOS Utility		
Boot From.. Main Bios		
Main ROM Type/Size............................SST 49LF004A	512K	
Backup ROM Type/Size........................SST 49LF004A	512K	
Wide Range Protection Disable		
Are you sure to RESET ?		
[Enter] to continure or [Esc] to abort...		
~~Save Settings to CMOS~~		
Q-Flash Utility		
Load Main BIOS from Floppy		
Load Backup BIOS from Floppy		
Save Main BIOS to Floppy		
Save Backup BIOS to Floppy		
Enter : Run ↑↓:Move ESC:Reset F10:Power Off		

After system reboots, you may find the BIOS version on your boot screen becomes the one you flashed.
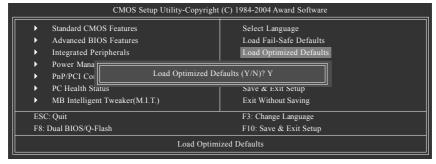
The BIOS file becomes Fab after updating.

Award Modular BIOS v6.00PG, An Energy Star
Ally
Copyright (C) 1984-2003, Award Software, Inc.
Intel i875P AGPset BIOS for 8KNXP Ultra Fba
Check System Health OK , VCore = 1.5250
Main Processor : Intel Pentium(R) 4 1.6GHz (133x12)
<CPUID : 0F27 Patch ID : 0027>
Memory Testing : 131072K OK

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

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

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

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

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

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

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

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

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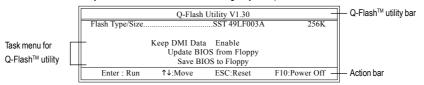
Updating BIOS with Q-Flash™ Utility on Single-BIOS Motherboards.

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

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

Exploring the Q-Flash™ utility screen

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

```
┌─────────────────────────────────────────────────────────────┐   ── Q-Flash™ utility bar
│                  Q-Flash Utility V1.30                        │
│   Flash Type/Size.................................SST 49LF003A        256K │
│                                                               │
│                  Keep DMI Data    Enable                      │
│                   Update BIOS from Floppy                     │
│                    Save BIOS to Floppy                        │
│   Enter : Run      ↑↓:Move      ESC:Reset      F10:Power Off   │   ── Action bar
└─────────────────────────────────────────────────────────────┘
```

Task menu for Q-Flash™ utility

Task menu for Q-Flash utility:

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

Action bar:

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

Using the Q-Flash™ utility:

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

Steps:

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

    Later, you will see a box pop up showing the BIOS files you previously downloaded to the floppy disk.
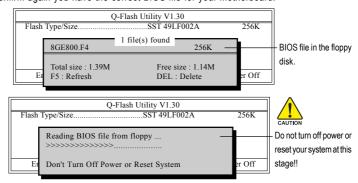
    NOTE   If you want to save the current BIOS for backup purpose, you can begin Step 1 with "Save BIOS to Floppy" item.

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

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

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

```
┌─────────────────────────────────────────────────────────────┐
│                  Q-Flash Utility V1.30                        │
│   Flash Type/Size.................................SST 49LF002A        256K │
│          ┌──────── 1 file(s) found ────────┐                 │
│          │ 8GE800.F4                  256K  │  ── BIOS file in the floppy
│          │                                  │      disk.
│          │ Total size : 1.39M    Free size : 1.14M │
│   En     │ F5 : Refresh          DEL : Delete │  er Off
│          └──────────────────────────────────┘
└─────────────────────────────────────────────────────────────┘
```

```
┌─────────────────────────────────────────────────────────────┐
│                  Q-Flash Utility V1.30                        │
│   Flash Type/Size.................................SST 49LF002A        256K │
│          ┌──────────────────────────────────┐                 │
│          │ Reading BIOS file from floppy ... │                 │
│          │ >>>>>>>>>>>>>>>..................  │                 │
│   En     │ Don't Turn Off Power or Reset System │  er Off
│          └──────────────────────────────────┘
└─────────────────────────────────────────────────────────────┘
```

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

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

CAUTION   Please do not take out the floppy disk when it begins flashing BIOS.
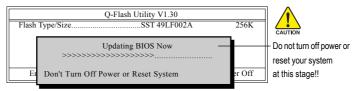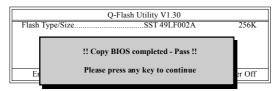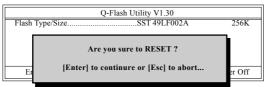
3. Press Y button on your keyboard after you are sure to update BIOS.
    Then it will begin to update BIOS. The progress of updating BIOS will be shown at the same time.

Q-Flash Utility V1.30	
Flash Type/Size.................................SST 49LF002A	256K

Updating BIOS Now

>>>>>>>>>>>>>>>>>>>.........................

Don't Turn Off Power or Reset System

⚠ CAUTION

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

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

Q-Flash Utility V1.30	
Flash Type/Size.................................SST 49LF002A	256K

!! Copy BIOS completed - Pass !!

Please press any key to continue

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

Q-Flash Utility V1.30	
Flash Type/Size.................................SST 49LF002A	256K

Are you sure to RESET ?

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

After system reboots, you may find the BIOS version on your boot screen becomes the one you flashed.
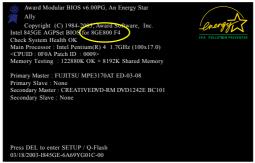
The BIOS file becomes F4 after updating

```
Award Modular BIOS v6.00PG, An Energy Star
Ally
Copyright  (C) 1984-2003, Award Software,  Inc.
Intel 845GE AGPSet BIOS for 8GE800 F4
Check System Health OK
Main Processor : Intel Pentium(R) 4  1.7GHz (100x17.0)
<CPUID : 0F0A Patch ID : 0009>
Memory Testing  : 122880K OK + 8192K Shared Memory

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




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

energy
EPA POLLUTION PREVENTER

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

Congratulation!! You have updated BIOS successfully!!

Method 2 : @BIOS™ Utility

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

Fig 1. Installing the @BIOS utility

Select **@BIOS** item than click Install

Fig 2. Installation Complete and Run @BIOS

Click Sart/ Programs/ GIGABYTE/@BIOS

Fig 3. The @BIOS Utility

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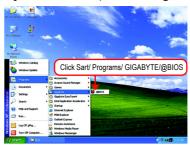
Fig 4. Select the desired @BIOS server

1. Methods and steps:

    I. Update BIOS through Internet

        a.   Click "Internet Update" icon

        b.   Click "Update New BIOS" icon

        c.   Select @BIOS™ sever

        d.   Select the exact model name on your motherboard

        e.   System will automatically download and update the BIOS.

    II. Update BIOS NOT through Internet:

        a.   Do not click "Internet Update" icon

        b.   Click "Update New BIOS"

        c.   Please select "All Files" in dialog box while opening the old file.

        d.   Please search for BIOS unzip file, downloading from internet or any other methods (such as: M59SLI-S5.F2).

        e.   Complete update process following the instruction.

III. Save BIOS

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

IV. Check out supported motherboard and Flash ROM:

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

2. Note:

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

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

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

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

V.   Do not use @BIOS and C.O.M. (Corporate Online Management) at the same time.

4-1-4 Configuring SATA Hard Drive(s)

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

(1) Install SATA hard drive(s) in your system.

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

(3)* Configure RAID set in RAID BIOS.

(4) Make a floppy disk containing the SATA controller driver.

(5) Install the SATA controller driver during OS installation.

Before you begin

Please prepare:

(a) At least two SATA hard drives (to ensure optimal performance, it is recommended that you use two hard drives with identical model and capacity). If you do not want to create RAID, you may prepare only one hard drive.

(b) An empty formatted floppy disk.

(c) Windows XP/2000 setup disk.

(d) Driver CD for your motherboard.

A. nVIDIA® nForce 590SLI Southbridge

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

Attach one end of the SATA signal cable to the rear of the SATA hard drive and the other end to available SATA port(s) on the motherboard. If there are more than one SATA controller on your motherboard, you may refer to the motherboard user's manual to identify the SATA controller for the connector. Then connect the power connector from your power supply to the hard drive.

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

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

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

Step 1:

Turn on your computer and press Del to enter BIOS Setup during POST (Power-On Self Test). In BIOS Setup, go to **Integrated Periperals --> Serial-ATA RAID Config** (Figure 1).

```
              CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                            Integrated Peripherals
 ▶  Serial-ATA RAID Config               [Press Enter]        Item Help
    On-Chip IDE Channel0                 [Enabled]            Menu Level▶
    On-Chip MAC Lan                      [Auto]
    On-Chip MAC1 Lan                     [Auto]
    NV Serial-ATA Controller             [All Enabled]
    IDE Prefetch Mode                    [Enabled]
    Onboard Audio Function               [Auto]
 ▶  SMART LAN                            [Press Enter]
    Onboard 1394                         [Enabled]
    Onboard LAN Boot ROM                 [Disabled]
    Onboard SATA/IDE Ctrl Mode ①         [IDE]
    Onboard Serial Port 1                [3F8/IRQ4]
    Onboard Parallel Port                [378/IRQ7]
    Parallel Port Mode                   [SPP]
 x  ECP Mode Use DMA                     3
    On-Chip USB                          [V1.1+V2.0]
    USB Keyboard Support                 [Disabled]
    USB Mouse Support                    [Disabled]
    Legacy USB Storage detect            [Enabled]
 ↑↓→←: Move      Enter: Select      +/-/PU/PD: Value    F10: Save  ESC: Exit      F1: General Help
 F11/12: Profile   F5: Previous Values      F6: Fail-Safe Defaults      F7: Optimized Defaults
```

Figure 1

Ensure that **NV SATA RAID function** is enabled (Figure 2). For example, if you wish to create RAID with hard disks on the SATAII0 and SATAII1 connectors, ensure that **NV SATA 1 Primary/Secondary RAID** are enabled (Figure 2).
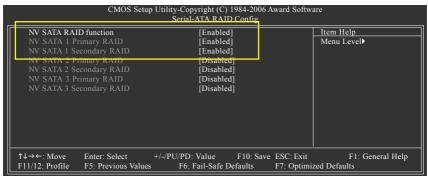
```
              CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                            Serial-ATA RAID Config
    NV SATA RAID function                [Enabled]            Item Help
    NV SATA 1 Primary RAID               [Enabled]            Menu Level▶
    NV SATA 1 Secondary RAID             [Enabled]
    NV SATA 2 Primary RAID               [Disabled]
    NV SATA 2 Secondary RAID             [Disabled]
    NV SATA 3 Primary RAID               [Disabled]
    NV SATA 3 Secondary RAID             [Disabled]




 ↑↓→←: Move      Enter: Select      +/-/PU/PD: Value    F10: Save  ESC: Exit      F1: General Help
 F11/12: Profile   F5: Previous Values      F6: Fail-Safe Defaults      F7: Optimized Defaults
```

Figure 2

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

GA-M59SLI-S5/GA-M59SLI-S4 Motherboard   - 80 -

Step 2:

To boot from Windows installation CD-ROM, set **First Boot Device** under the **Advanced BIOS Features** menu to **CDROM** (Figure 3).

CMOS Setup Utility-Copyright (C) 1984-2006 Award Software Advanced BIOS Features		
▶ Hard Disk Boot Priority	[Press Enter]	Item Help
First Boot Device	[CDROM]	Menu Level▶
Second Boot Device	[Hard Disk]	
Third Boot Device	[CDROM]	Select Hard Disk Boot
Boot Up Floopy Seek	[Disabled]	Device Priority
Password Check	[Setup]	
Away Mode	[Disabled]	
Init Display First	[PCI Slot]	
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help F11/12: Profile F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults		

Figure 3

Step 3:
Save and exit BIOS Setup.

(3) Configuring RAID set in RAID BIOS

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

Step 1:
After the POST memory test begins and before the operating system boot begins, look for a message which says "Press F10 to enter RAID setup utility" (Figure 4). Hit the **F10** key to enter the RAID BIOS setup utility.

```
MediaShield IDE ROM BIOS 6.55
Copyright (C) 2006 NVIDIA Corp.

Detecting array ...

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

<p align="center">Figure 4</p>

Step 2:
The Define a New Array screen is the first option screen when you enter the NVIDIA RAID setup utility. (Figure 5). You can press the TAB key to highlight through options.

Step 3:
In the RAID Mode field, use the UP or DOWN ARROW key to select a RAID mode. The supported RAID modes include Mirroring (default), Striping, Stripe Mirroring, Spanning and RAID 5. The following is an example of RAID 0 array creation.

Step 4:
If RAID 0 (Striping) is selected, you can manually set the striping block size. In the Striping Block field, use the UP or DOWN ARROW key to set the Striping Block size. The *KB* is the standard unit of Striping Block size. We recommend you leaving it to the default setting--Optimal (64K). The size range is from 4K to 128K.

```
                    MediaShield Utility  Mar 22 2006
                         - Define a New Array -

  RAID Mode: Striping              Striping Block: Optimal


  Free Disks                       Array Disks
  Loc        Disk Model     Capacity     Loc      Disk Model     Capacity

  1.0.M   ST3120026AS     111.78GB
  2.1.M   ST3120026AS     111.78GB    [→] Add


                                       [←] Del

     [ESC] Quit     [F6] Back     [F7] Finish     [TAB] Navigate     [↑↓] Select     [ENTER] Popup
```
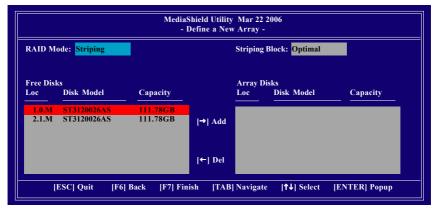
<p align="center">Figure 5</p>

Step 5:

Next, select the hard drives which you wish to be included in the disk array. The Free Disks section displays the information about the currently installed SATA hard drives. Press the TAB key to move to the Free Disks section. Select the target hard drives using the UP or DOWN ARROW key and use the RIGHT ARROW key to add the hard drives to the Array Disks section (Figure 6).
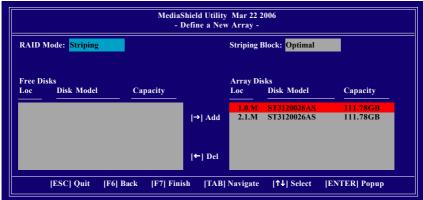
Figure 6

Step 6:

Press F7 after selecting the target hard disks. A message which says "Clear disk data?" will appear (Figure 7). If you are sure to clear the data in the selected hard drives, press Y. (If the hard drives contain previously created RAID array, you need to press Y to clear the data from the hard drives.)
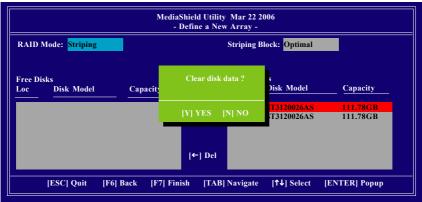
Figure 7

After that, the Array List screen displaying the RAID array you created will appear (Figure 8).
If you want to set the disk array as boot device, use the UP or DOWN ARROW key to select the array
and press B. The **Boot** section will show **Yes**.
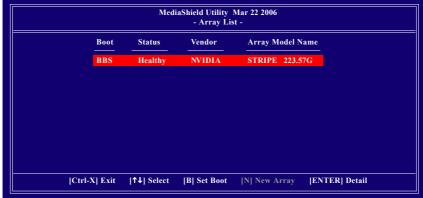
Figure 8

To read more information about the RAID array, press ENTER to enter the Array Detail screen (Figure 9), where you should see detailed information about RAID mode, disk block size, disk model name, and disk capacity, etc.
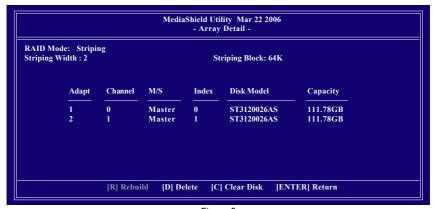
Figure 9

To delete the array, press D in the Array Detail screen. When the "Delete this array?" message appears, press Y to confirm or N to cancel. Press ENTER to return to the Array List screen.

To exit the Nvidia RAID utility, press ESC in the main menu or Ctrl+X in the Array List screen.

Now, you can proceed to install the SATA controller driver and operating system.

(4)   Making a SATA Driver Disk

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

Step 1: Insert the prepared startup disk and motherboard driver CD-ROM in your system. Boot from the startup disk. Once at the A:\> prompt, change to the CD-ROM drive (example: D:\>). At the D:\> prompt, type the following two commands. Press ENTER after each command (Figure 10):

```
cd bootdrv
menu
```

Step 2: When the controller menu (Figure 11) appears, remove the startup disk and insert the blank formatted disk. Select the controller driver by pressing the corresponding letter from the menu.
For example, from the menu in Figure 11, press I to select **H) nVIDIA MCP55 Series Raid (XP)** if you wish to install Windows XP. Your system will then automatically zip and transfer this driver file to the floppy disk. Press 0 to exit when finished.
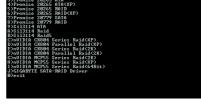
Figure 10   Figure 11

(Note 1) For users without a startup disk:
Use an alternative system and insert the GIGABYTE motherboard driver CD-ROM. From the CD-ROM drive folder, double click the **MENU.exe** file in the **BootDrv** folder (Figure 12). A command prompt window will open similar to that in Figure 11.

Figure 12

(5) Installing SATA controller driver during OS installation

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

Step 1: Restart your system to boot from the Windows 2000/XP Setup disk and press F6 as soon as you see the "Press F6 if you need to install a 3rd party SCSI or RAID driver" message (Figure 13). After pressing F6, there will be a few moments of some files being loaded before you see the next screen.
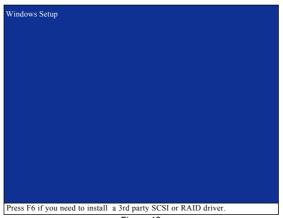
```
Windows Setup




















Press F6 if you need to install  a 3rd party SCSI or RAID driver.
```
Figure 13

Step 2:
When a screen similar to that below appears, insert the floppy disk containing the SATA driver and press S (Figure 14).

```
Windows Setup


  Setup could not determine the type of one or more mass storage devices
  installed in your system, or you have chosen to manually specify an adapter.
  Currently, Setup will load support for the following mass storage devices(s)

     <none>

   * To specify additional SCSI adapters, CD-ROM drives, or special
     disk  controllers for use with Windows, including those for
     which you have a device support disk from a mass storage device
     manufacturer, press S.

   * If you do not have any device support disks from a mass storage
     device manufacturer, or do not want to specify additional
     mass storage devices for use with Windows, press ENTER.



  S=Specify Additional Device   ENTER=Continue   F3=Exit
```
Figure 14

Step 3:

If Setup correctly recognizes the driver in the floppy disk, a controller menu similar to Figure 15 below will appear. Use the ARROW keys to select **NVIDIA RAID CLASS DRIVER*** (Figure 15) and press ENTER. Later, when a screen similar to Figure 18 appears, you must press S to select additional driver. The screen will return to previous screen as shown in Figure 15. Select **NVIDIA nForce Storage Controller** and press ENTER.

```
Windows Setup
─────────────


  You have chosen to configure a SCSI Adapter for use with Windows,
   using a device support disk provided by an adapter manufacturer.

  Select the SCSI Adapter you want from the following list, or press ESC
  to return to the previous screen.

              ┌─────────────────────────────────────────────┐
              │ NVIDIA RAID CLASS DRIVER (required)          │
              │ NVIDIA nForce Storage Controller (required)  │
              └─────────────────────────────────────────────┘







  ENTER=Select   F3=Exit
```

Figure 15

```
Windows Setup
─────────────

   Setup will load support for the following mass storage device(s):

   NVIDIA RAID CLASS DRIVER (required)

  * To specify additional SCSI adapters, CD-ROM drives, or special
    disk  controllers for use with Windows, including those for
    which you have a device support disk from a mass storage device
    manufacturer,  press S.

  * If you do not have any device support disks from a mass storage
    device manufacturer, or do not want to specify additional
    mass storage devices for use with Windows, press ENTER.




 S=Specify Additional Device Enter=Continue   F3=Exit
```

Figure 16

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

"*" If you want to create RAID, select both **NVIDIA RAID CLASS DRIVER** and then **NVIDIA nForce Storage Controller**.
If you do not create RAID, select **NVIDIA nForce Storage Controller** only.

Step 4:
When the next screen (Figure 17) appears, press ENTER to continue the SATA driver installation from the floppy disk.

Windows Setup

Setup will load support for the following mass storage device(s):

NVIDIA RAID CLASS DRIVER (required)
NVIDIA nForce Storage Controller (required)

  * To specify additional SCSI adapters, CD-ROM drives, or special
    disk controllers for use with Windows, including those for
    which you have a device support disk from a mass storage device
    manufacturer, press S.

  * If you do not have any device support disks from a mass storage
    device manufacturer, or do not want to specify additional
    mass storage devices for use with Windows, press ENTER.

S=Specify Additional Device   ENTER=Continue   F3=Exit

Figure 17

After the SATA controller driver installation is completed, you can proceed with the Windows 2000/XP installation.

WindowsXP Professional Setup

Welcome to Setup.
This port of the Setup program prepares Microsoft(R)
Windows (R) XP to run on your computer.

    To set up Windows XP now, press ENTER.

    To repair a Windows XP installation using
    Recovery Console, press R.

    To quit Setup without installing Windows XP, press F3.

Enter= Continue   R=Repair   F3=Exit
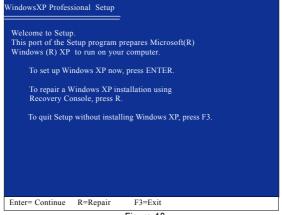
Figure 18

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

GA-M59SLI-S5/GA-M59SLI-S4 Motherboard   - 88 -

(6) Configuring a bootable RAID array with Microsoft Windows 2000

Problem: Users cannot install Windows 2000 with Service Pack 2 (or previous versions) to a bootable RAID volume.

There are two solutions to resolve this issue.

Solutions 1:

Use the NVRAID tool (nForce Driver Version 5.xx) to convert the boot volume to a RAID array. Here are the detailed step-by-step instructions:

Step 1:

Install Windows 2000 onto a selected hard drive. Download and install Windows 2000 Service Pack 4 from Microsoft's website.

Step 2:

After system restarts, press Del to enter system BIOS Setup during POST (Power-On Self Test). Under the **Integrated Peripherals** menu (Figure 19) assure the SATA port connecting the SATA hard disk (the one containing the Windows 2000) is **Enabled** (Figure 19/20). Save settings and exit the BIOS setup.

```
CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                     Integrated Peripherals
 ▶ Serial-ATA RAID Config               [Press Enter]        Item Help
   On-Chip IDE Channel0                 [Enabled]            Menu Level▶
   On-Chip MAC Lan                      [Auto]
   On-Chip MAC1 Lan                     [Auto]
   NV Serial-ATA Controller             [All Enabled]
   IDE Prefetch Mode                    [Enabled]
   Onboard Audio Function               [Auto]
 ▶ SMART LAN                            [Press Enter]
   Onboard 1394                         [Enabled]
   Onboard LAN Boot ROM                 [Disabled]
   Onboard SATA/IDE Ctrl Mode ①         [IDE]
   Onboard Serial Port 1                [3F8/IRQ4]
   Onboard Parallel Port                [378/IRQ7]
   Parallel Port Mode                   [SPP]
 x ECP Mode Use DMA                      3
   On-Chip USB                          [V1.1+V2.0]
   USB Keyboard Support                 [Disabled]
   USB Mouse Support                    [Disabled]
   Legacy USB Storage detect            [Enabled]
 ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save  ESC: Exit    F1: General Help
 F11/12: Profile    F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults
```

Figure 19

```
CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                    Serial-ATA RAID Config
   NV SATA RAID function                [Enabled]            Item Help
   NV SATA 1 Primary RAID               [Enabled]            Menu Level▶
   NV SATA 1 Secondary RAID             [Enabled]
   NV SATA 2 Primary RAID               [Disabled]
   NV SATA 2 Secondary RAID             [Disabled]
   NV SATA 3 Primary RAID               [Disabled]
   NV SATA 3 Secondary RAID             [Disabled]




 ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save  ESC: Exit    F1: General Help
 F11/12: Profile    F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults
```

Figure 20

Step 3:

After system restarts, press F10 to enter the NVIDIA RAID setup utility. Select Striping in the RAID Mode filed (Figure 21). Move to the Free Disks section with the TAB key. Select the desired disk and use the RIGHT ARROW key to add it to Array Disks menu.
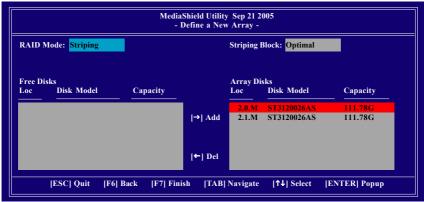
Figure 21

Step 4:

After all the settings, press F7 to complete the configuration. When prompted to **Clear Disk Data** (Figure 22), press N. Then press CTRL+X to exit the NVIDIA RAID BIOS. Restart the computer to boot into Windows 2000.
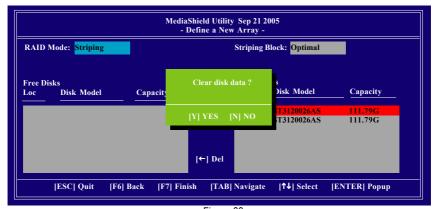
Figure 22

Step 5:
Install the NVIDIA nForce Driver Package while in Windows 2000 and reboot the system. Go to **START> Programs>Nvidia Corporation** and select **NVRAID manager**. You should see the single disk RAID array (in striping mode) that was created from the boot disk. Select the single boot disk RAID Array by clicking on it. Select **Convert Array** under the **System Tasks** and select **Next** following the instructions. Select the desired type of RAID array you want to convert and then select **Next**. You are prompted to select the desired Free Disk(s) to add to the bootable RAID array. Press **Finish** then NVRAID will start converting the single disk RAID array into a multi-disk RAID array in a bootable format.
Note: Conversion may take 1~2 hours depending on disk size.

Solutions 2:
Users must create a combination installation CD that includes Windows 2000 and Service Pack 3 or Service Pack 4 fixes integrated in. To create the combination installation CD, refer to the following website:
http://www.microsoft.com/windows2000/downloads/servicepacks/sp4/HFdeploy.htm

Note: If users choose not to install Windows 2000 Service Pack 3 or 4, RAID is still supported on Windows 2000. However, users will not be able to create a bootable RAID volume.

B. GIGABYTE SATA2 Controller ①

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

Attach one end of the SATA signal cable to the rear of the SATA hard drive and the other end to available SATA port(s) on the motherboard. If there are more than one SATA controller on your motherboard, you may refer to the motherboard user's manual to identify the SATA controller for the connector. Then connect the power connector from your power supply to the hard drive.

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

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

Step 1:

Turn on your computer and press Del to enter BIOS Setup during POST (Power-On Self Test). In BIOS Setup, go to **Integrated Periperals,** set **Onboard SATA/IDE Ctrl Mode** to **RAID** before configuring RAID. If you do not want to create RAID, set this item to **IDE** or **AHCI**, depending on your need (Figure 1).

```
                    CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                                    Integrated Peripherals
 ▶  Serial-ATA RAID Config              [Press Enter]          Item Help
    On-Chip IDE Channel0                [Enabled]              Menu Level▶
    On-Chip MAC Lan                     [Auto]
    On-Chip MAC1 Lan                    [Auto]
    NV Serial-ATA Controller            [All Enabled]
    IDE Prefetch Mode                   [Enabled]
    Onboard Audio Function              [Auto]
 ▶  SMART LAN                           [Press Enter]
    Onboard 1394                        [Enabled]
    Onboard LAN Boot ROM                [Disabled]
    Onboard SATA/IDE Ctrl Mode ①        [RAID]
    Onboard Serial Port 1               [3F8/IRQ4]
    Onboard Parallel Port               [378/IRQ7]
    Parallel Port Mode                  [SPP]
 x  ECP Mode Use DMA                    3
    On-Chip USB                         [V1.1+V2.0]
    USB Keyboard Support                [Disabled]
    USB Mouse Support                   [Disabled]
    Legacy USB Storage detect           [Enabled]
 ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save  ESC: Exit      F1: General Help
 F11/12: Profile   F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults
```

Figure 1

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

① Only for GA-M59SLI-S5.

GA-M59SLI-S5/GA-M59SLI-S4 Motherboard   - 92 -

Step 2:

To boot from Windows installation CD-ROM disk, set **First Boot Device** under the **Advanced BIOS Features** menu to **CD-ROM** (Figure 2).

```
                CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                             Advanced BIOS Features
┌──────────────────────────────────────────────────────────┬──────────────────┐
│ ▶  Hard Disk Boot Priority            [Press Enter]        │ Item Help        │
│    First Boot Device                  [CDROM]              │ Menu Level▶      │
│    Second Boot Device                 [Hard Disk]          │                  │
│    Third Boot Device                  [CDROM]              │ Select Hard Disk Boot │
│    Boot Up Floopy Seek                [Disabled]           │ Device Priority  │
│    Password Check                     [Setup]              │                  │
│    Away Mode                          [Disabled]           │                  │
│    Init Display First                 [PCI Slot]           │                  │
│                                                            │                  │
│                                                            │                  │
│                                                            │                  │
│                                                            │                  │
│                                                            │                  │
│                                                            │                  │
├──────────────────────────────────────────────────────────┴──────────────────┤
│ ↑↓→←: Move   Enter: Select    +/-/PU/PD: Value   F10: Save ESC: Exit    F1: General Help │
│ F11/12: Profile   F5: Previous Values   F6: Fail-Safe Defaults   F7: Optimized Defaults  │
└──────────────────────────────────────────────────────────────────────────────┘
```

Figure 2

Step 3:
Save and exit BIOS Setup.

(3) Configuring RAID array in RAID BIOS

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

Step 1:

After the POST memory test begins and before the operating system boot begins, look for a message which says "Press <Ctrl-G> to enter RAID Setup Utility" (Figure 3). Press CTRL+ G to enter the GIGABYTE SATA2 RAID BIOS setup utility.

```
GIGA-BYTE Technology Corp. PCIE-to-SATAII/IDE RAID Controller BIOS v1.06.12
Copyright (C) 2005 GIGA-BYTE Technology. http://www.giga-byte.com

HDD0  :    ST3120026AS                               120 GB    Non-RAID
HDD1  :    ST3120026AS                               120 GB    Non-RAID

Press <Ctrl-G> to enter RAID Setup Utility ...
```

Figure 3

In the main screen of the GIGABYTE SATA2 RAID BIOS utility (Figure 4), use the UP or DOWN ARROW key to highlight through choices. Highlight the item that you wish to execute and press ENTER.

```
        GIGA-BYTE Technology Corp. PCIE-to-SATAII/IDE RAID Controller BIOS V1.06.12
 ═══ [ Main Menu ] ═══          ═══ [ Hard Disk Drive List ] ═══
     Create RAID Disk Drive            Mode  Name            Capacity      Type/Status
     Delete RAID Disk Drive       HDD0:  ST3120026AS         120 GB        Non-RAID
     Revert HDD to Non-RAID       HDD1:  ST3120026AS         120 GB        Non-RAID
     Solve Mirror Conflict
     Rebuild Mirror Drive
     Save And Exit Setup
     Exit Without Saving

 ═══ [ RAID Disk Drive List ] ═══




    [←→TAB]-Switch Window      [↑↓]-Select ITEM       [ENTER]-Action       [ESC]-Exit
```

Figure 4

Note: In the main screen, you can select a hard disk in the **Hard Disk Drive List** block and press ENTER. This allows you to check detailed information about the selected hard disk.

A. Create Array:

In the main screen, press ENTER on the **Create RAID Disk Drive** item. Then the RAID creation screen appears (Figure 5).

```
    GIGA-BYTE Technology Corp. PCIE-to-SATAII/IDE RAID Controller BIOS V1.06.12
┌─[ Create New RAID ]──────────────┐  ┌─[ Hard Disk Drive List ]──────────────────┐
│                                  │  │                                           │
│ Name:  JRAID                     │  │    Mode Name              Available  Type/Status │
│ Level:  0-Stripe                 │  │ HDD0:  ST3120026AS        120 GB     Non-RAID │
│ Disks:  Select Disk              │  │ HDD1:  ST3120026AS        120 GB     Non-RAID │
│ Block:  128KB                    │  │                                           │
│ Size:   240GB                    │  │                                           │
│                                  │  │                                           │
│   Confirm Creation               │  │                                           │
└──────────────────────────────────┘  └───────────────────────────────────────────┘
┌──[ RAID Disk Drive List ]────────┐  ┌─[ Help ]──────────────────────────────────┐
│                                  │  │              Enter RAID Name               │
│                                  │  │                                           │
│                                  │  │     Enter a string between 1 to 16 characters │
│                                  │  │     in length for the created RAID drive to be │
│                                  │  │     identified by system BIOS or OS.       │
│                                  │  │                                           │
│                                  │  │                                           │
│                                  │  │                                           │
│                                  │  │                                           │
└──────────────────────────────────┘  └───────────────────────────────────────────┘
  [←→]-Move Cursor     [DEL,BS]-Delete Character     [ENTER]-Next     [ESC]-Abort
```

Figure 5

In the RAID creation screen, the **Create New RAID** block displays all the items that need to be set for creating an array (Figure 5). The following procedure uses RAID 0 creation as an example.

Steps:
1. **Enter Array Name:** Under the **Name** item, enter an array name with 1~16 letters (letters cannot be special characters) and press ENTER.
2. **Select RAID Mode:** Under the **Level** item, use UP or DOWN ARROW key to select RAID 0 (Stripe), RAID 1 (Mirror), or JBOD (Figure 6). Then press ENTER to move onto the next step.

```
    GIGA-BYTE Technology Corp. PCIE-to-SATAII/IDE RAID Controller BIOS V1.06.12
┌─[ Create New RAID ]──────────────┐  ┌─[ Hard Disk Drive List ]──────────────────┐
│                                  │  │                                           │
│ Name:  JRAID                     │  │    Mode  Name             Available  Type/Status │
│ Level:  0-Stripe                 │  │ HDD0:  ST3120026AS        120 GB     Non-RAID │
│ Disks:  Select Disk              │  │ HDD1:  ST3120026AS        120 GB     Non-RAID │
│ Block:  128KB                    │  │                                           │
│ Size:   240GB                    │  │                                           │
│                                  │  │                                           │
│   Confirm Creation               │  │                                           │
└──────────────────────────────────┘  └───────────────────────────────────────────┘
┌──[ RAID Disk Drive List ]────────┐  ┌─[ Help ]──────────────────────────────────┐
│                                  │  │              Select RAID Level             │
│                                  │  │                                           │
│                                  │  │     RAID 0  -  Data striped for performance │
│                                  │  │     RAID 1  -  Data mirrored for redundancy │
│                                  │  │     JBOD    -  Data concatenated for huge  │
│                                  │  │                temporarily disk required   │
│                                  │  │                                           │
│                                  │  │                                           │
│                                  │  │                                           │
└──────────────────────────────────┘  └───────────────────────────────────────────┘
  [↑↓]-Switch RAID Level           [ENTER]-Next        [ESC]-Abort
```

Figure 6

3. Assign Array Disks: After RAID mode is selected, RAID BIOS automatically assigns the two hard disks installed as the RAID disks.

4. Set Block Size (only for RAID 0): Under the **Block** item, use the UP or DOWN ARROW key to select the block size (Figure 7), ranging from 4K to 128K. Press ENTER when finished.

```
        GIGA-BYTE Technology Corp. PCIE-to-SATAII/IDE RAID Controller BIOS V1.06.12
==[ Create New RAID ]======          ==[ Hard Disk Drive List ]======

  Name:   JRAID                              Mode Name          Available    Type/Status
  Level:  0-Stripe                    ▶ HDD0:   ST3120026AS     120 GB       Non-RAID
  Disks:  Select Disk                 ▶ HDD1:   ST3120026AS     120 GB       Non-RAID
  Block:  128KB
  Size:   240GB

     Confirm Creation

==[ RAID Disk Drive List ]======     ==[ Help ]======
                                              Setting Stripe Block

                                       Select a stripe size which will be used to
                                       divide data from/to seperate RAID members.
                                       The following are typical values:

                                              RAID 0-128KB


          [↑↓]-Switch RAID Block Size          [ENTER]-Next        [ESC]-Abort
```

Figure 7

5. Set Array Size: Under the **Size** item, type the size of the array (Figure 8), and press ENTER.

```
        GIGA-BYTE Technology Corp. PCIE-to-SATAII/IDE RAID Controller BIOS V1.06.12
==[ Create New RAID ]======          ==[ Hard Disk Drive List ]======

  Name:   JRAID                              Mode Name          Available    Type/Status
  Level:  0-Stripe                    ▶ HDD0:   ST3120026AS     120 GB       Non-RAID
  Disks:  Select Disk                 ▶ HDD1:   ST3120026AS     120 GB       Non-RAID
  Block:  128KB
  Size:   240GB

     Confirm Creation

==[ RAID Disk Drive List ]======     ==[ Help ]======
                                              Setting RAID Capacity

                                       Enter the RAID capacity. The default value
                                       indicates the maximum capacity determined
                                       by the selected members. If less than the
                                       maximum capacity is chosen, the remaining
                                       capacity would be no used.


  [←→]-Switch Unit        [DEL,BS]-Delete Number          [ENTER]-Next       [ESC]-Abort
```
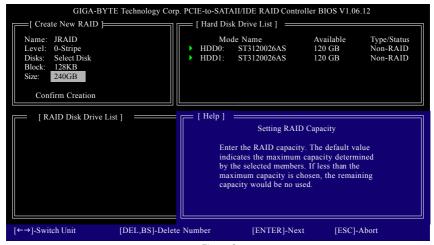
Figure 8

6. Confirm Creation: After all of the items are configured, the selection bar automatically jumps to the **Confirm Creation** item. When prompted to confirm your selections (Figure 9), press Y to confirm or N to abort.
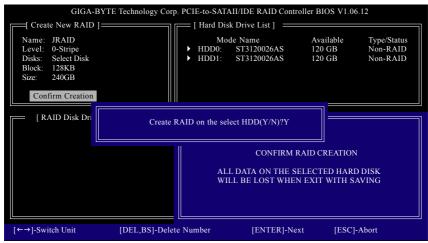
```
         GIGA-BYTE Technology Corp. PCIE-to-SATAII/IDE RAID Controller BIOS V1.06.12
  [ Create New RAID ]                    [ Hard Disk Drive List ]

   Name:  JRAID                            Mode Name          Available    Type/Status
   Level:  0-Stripe               ▶ HDD0:  ST3120026AS       120 GB       Non-RAID
   Disks:  Select Disk            ▶ HDD1:  ST3120026AS       120 GB       Non-RAID
   Block:  128KB
   Size:   240GB

      Confirm Creation

   [ RAID Disk Dri
                         Create RAID on the select HDD(Y/N)?Y


                                          CONFIRM RAID CREATION

                                 ALL DATA ON THE SELECTED HARD DISK
                                 WILL BE LOST WHEN EXIT WITH SAVING



  [←→]-Switch Unit         [DEL,BS]-Delete Number        [ENTER]-Next      [ESC]-Abort
```

Figure 9

When finished, the new RAID array will be displayed in the **RAID Disk Drive List** block (Figure 10).

```
         GIGA-BYTE Technology Corp. PCIE-to-SATAII/IDE RAID Controller BIOS V1.06.12
  [ Main Menu ]                          [ Hard Disk Drive List ]

    Create RAID Disk Drive                Mode Name              Capacity  Type/Status
    Delete RAID Disk Drive                HDD0:  ST3120026AS     120 GB    RAID Inside
    Revert HDD to Non-RAID                HDD1:  ST3120026AS     120 GB    RAID Inside
    Solve Mirror Conflict
    Rebuild Mirror Drive
    Save And Exit Setup
    Exit Without Saving


    [ RAID Disk Drive List ]

     Model Name            RAID Level          Capacity Status      Members(HDDx)
     RDD0: JRAID           0-Stripe            240 GB Normal        01






  [←→TAB]-Switch Window      [↑↓]-Select RAID        [ENTER]-Action    [ESC]-Exit
```

Figure 10

To check more detailed information about the array, use the TAB key while in the **Main Menu** block to move the selection bar to the **RAID Disk Drive List** block. Select the array and press ENTER. A small window displaying the array information will appear in the center of the screen (Figure 11).
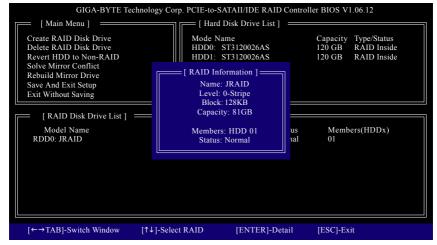
```
        GIGA-BYTE Technology Corp. PCIE-to-SATAII/IDE RAID Controller BIOS V1.06.12
 ══ [ Main Menu ] ═══════════        ══ [ Hard Disk Drive List ] ══════
   Create RAID Disk Drive                Mode Name              Capacity  Type/Status
   Delete RAID Disk Drive             HDD0: ST3120026AS         120 GB    RAID Inside
   Revert HDD to Non-RAID             HDD1: ST3120026AS         120 GB    RAID Inside
   Solve Mirror Conflict          ══ [ RAID Information ] ══
   Rebuild Mirror Drive                Name: JRAID
   Save And Exit Setup                 Level: 0-Stripe
   Exit Without Saving                 Block: 128KB
                                      Capacity: 81GB
 ══ [ RAID Disk Drive List ] ══
      Model Name                     Members: HDD 01      us      Members(HDDx)
   RDD0: JRAID                        Status: Normal      nal     01




   [←→TAB]-Switch Window       [↑↓]-Select RAID        [ENTER]-Detail      [ESC]-Exit
```

Figure 11

After configuring the RAID array, select the **Save And Exit Setup** item in the main screen to save your settings if you wish to exit the RAID BIOS utility, then press Y (Figure 12).

```
        GIGA-BYTE Technology Corp. PCIE-to-SATAII/IDE RAID Controller BIOS V1.06.12
 ══ [ Main Menu ] ═══════════        ══ [ Hard Disk Drive List ] ══════
   Create RAID Disk Drive                Mode  Name             Capacity  Type/Status
   Delete RAID Disk Drive             HDD0: ST3120026AS         120 GB    RAID Inside
   Revert HDD to Non-RAID             HDD1: ST3120026AS         120 GB    RAID Inside
   Solve Mirror Conflict
   Rebuild Mirror Drive
   Save And Exit Setup
   Exit Without Saving
 ══ [ RAID Disk Drive            Save to Disk & Exit (Y/N)?Y
      Model Name                                                     ers(HDDx)
   RDD0: JRAID              0-Stripe          240 GB Normal       01




   [←→TAB]-Switch Window       [↑↓]-Select ITEM        [ENTER]-Action      [ESC]-Exit
```

Figure 12

B. Delete Array:

To delete the array, select **Delete RAID Disk Drive** in the main menu and press ENTER. The selection bar will move to the **RAID Disk Drive List** block. Press the SPACEBAR on the array to be deleted; a small triangle will appear to mark the selected array (Figure 13). Press Del.

```
         GIGA-BYTE Technology Corp. PCIE-to-SATAII/IDE RAID Controller BIOS V1.06.12
  ═ [ Main Menu ] ═                         ═ [ Hard Disk Drive List ] ═
     Create RAID Disk Drive                    Mode  Name           Capacity     Type/Status
     Delete RAID Disk Drive                 HDD0:  ST3120026AS      120 GB       Inside
     Revert HDD to Non-RAID                 HDD1:  ST3120026AS      120 GB       Inside
     Solve Mirror Conflict
     Rebuild Mirror Drive
     Save And Exit Setup
     Exit Without Saving

  ═ [ RAID Disk Drive List ] ═
        Model Name            RAID Level        Capacity Status      Members(HDDx)
   ▸    RDD0: JRAID           0-Stripe          240 GB Normal        01




   [↑↓]-Select RAID       [SPACE]-Mark Delete      [DEL]-Confirm      [ESC]-Abort
```

Figure 13

Press Y to confirm yes to the following message (Figure 14) or N to cancel.

```
         GIGA-BYTE Technology Corp. PCIE-to-SATAII/IDE RAID Controller BIOS V1.06.12
  ═ [ Main Menu ] ═                         ═ [ Hard Disk Drive List ] ═
     Create RAID Disk Drive                    Mode  Name           Capacity     Type/Status
     Delete RAID Disk Drive                 HDD0:  ST3120026AS      120 GB       Inside
     Revert HDD to Non-RAID                 HDD1:  ST3120026AS      120 GB       Inside
     Solve Mirror Conflict
     Rebuild Mirror Drive
     Save And Exit Setup
     Exit Without Saving
                            ALL DATA ON THE RAID WILL LOST!!
  ═ [ RAID Disk Drive List    ARE YOU SURE TO DELETE (Y/N)? N
        Model Name                                           Members(HDDx)
   ▸    RDD0: JRAID                                           01




   [↑↓]-Select RAID       [SPACE]-Mark Delete      [DEL]-Confirm      [ESC]-Abort
```

Figure 14

(4) Making a SATA Driver Disk (Required for AHCI and RAID Mode)

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

Step 1: Insert the prepared startup disk and motherboard driver CD-ROM in your system. Boot from the startup disk. Once at the A:\> prompt, change to the CD-ROM drive (example: D:\>). At the D:\> prompt, type the following two commands. Press ENTER after each command (Figure 15):

```
cd bootdrv
menu
```

Step 2: When the controller menu (Figure 16) appears, remove the startup disk and insert the blank formatted disk. Select the controller driver by pressing the corresponding letter from the menu.
For example, from the menu in Figure 16, press J to select **J) GIGABYTE SATA-RAID Driver** if you wish to install Windows XP. Your system will then automatically zip and transfer this driver file to the floppy disk. Press 0 to exit when finished.

Figure 15   Figure 16

(Note 1) For users without a startup disk:
Use an alternative system and insert the GIGABYTE motherboard driver CD-ROM. From the CD-ROM drive folder, double click the **MENU.exe** file in the **BootDrv** folder (Figure 17). A command prompt window will open similar to that in Figure 16.

Figure 17

(5) Installing SATA controller driver during OS installation
(Required for AHCI and RAID Mode)

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

Step 1: Restart your system to boot from the Windows 2000/XP Setup disk and press F6 as soon as you see the "Press F6 if you need to install a 3rd party SCSI or RAID driver" message (Figure 18). After pressing F6, there will be a few moments of some files being loaded before you see the next screen.

```
Windows Setup









                                                          

Press F6 if you need to install  a 3rd party SCSI or RAID driver.
```
Figure 18

Step 2:
When a screen similar to that below appears, insert the floppy disk containing the SATA driver and press S (Figure 19).

```
Windows Setup


 Setup could not determine the type of one or more mass storage devices
 installed in your system, or you have chosen to manually specify an adapter.
 Currently, Setup will load support for the following mass storage devices(s)

    <none>

  * To specify additional SCSI adapters, CD-ROM drives, or special
    disk  controllers for use with Windows, including those for
    which you have a device support disk from a mass storage device
    manufacturer, press S.

  * If you do not have any device support disks from a mass storage
    device manufacturer, or do not want to specify additional
    mass storage devices for use with Windows, press ENTER.



 S=Specify Additional Device   ENTER=Continue   F3=Exit
```
Figure 19

Step 3:

If Setup correctly recognizes the driver in the floppy disk, a controller menu similar to Figure 20 below will appear. Use the ARROW keys to select

GIGABYTE GBB363 RAID Controller(Windows 2K/XP/2003)* and press ENTER.Then it will begin to load the SATA driver from the floppy disk.

```
Windows Setup


   You have chosen to configure a SCSI Adapter for use with Windows,
    using a device support disk provided by an adapter manufacturer.

   Select the SCSI Adapter you want from the following list, or press ESC
   to return to the previous screen.


        GIGABYTE GBB363 RAID Controller(Windows 2K/XP/2003)
        GIGABYTE GBB363 RAID Controller(Windows XP/2003 64bit)







    ENTER=Select   F3=Exit
```

Figure 20

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

Step 4:

When the next screen (Figure 21) appears, press ENTER to continue the SATA driver installation from the floppy disk.

```
Windows Setup

  Setup will load support for the following mass storage device(s):

  GIGABYTE GBB363 RAID Controller(Windows 2K/XP/2003)

    * To specify additional SCSI adapters, CD-ROM drives, or special
      disk  controllers for use with Windows, including those for
      which you have a device support disk from a mass storage device
      manufacturer, press S.

    * If you do not have any device support disks from a mass storage
      device manufacturer, or do not want to specify additional
      mass storage devices for use with Windows, press ENTER.




  S=Specify Additional Device   ENTER=Continue   F3=Exit
```

Figure 21

"*" If you wish to install 64-bit Windows Operating System,
select **GIGABYTE GBB363 RAID Controller(Windows XP/2003 64bit).**

Step 5:

After the SATA controller driver installation is completed, you can proceed with the Windows XP installation.

WindowsXP Professional Setup

Welcome to Setup.
This port of the Setup program prepares Microsoft(R)
Windows (R) XP to run on your computer.

    To set up Windows XP now, press ENTER.

    To repair a Windows XP installation using
    Recovery Console, press R.

    To quit Setup without installing Windows XP, press F3.

Enter= Continue   R=Repair   F3=Exit
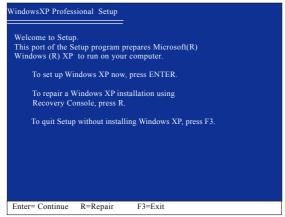
Figure 22

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

A. Realtek ALC888DD CODEC ①

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

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

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

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

Stereo Speakers Connection and Settings:
We recommend that you use the speaker with amplifier to acquire the best sound effect if the stereo output is applied.

STEP 1 :
After installation of the audio driver, you should find an Audio Manager 🔊 icon in your system tray (you can also find the icon in Control Panel). Double-click the icon to open the Audio Control Panel.

① Only for GA-M59SLI-S5.

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

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

4 Channel Audio Setup

STEP 1 :
After installation of the audio driver, you should find
an Audio Manager icon in your system tray (you
can also find the icon in Control Panel). Double-
click the icon to open the Audio Control Panel.

STEP 2:
In the Audio Control Panel, click the **Audio I/O** tab.
In the upper left list, click **4CH Speaker**.

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

6 Channel Audio Setup

STEP 1 :
After installation of the audio driver, you should find an Audio Manager 🔊 icon in your system tray (you can also find the icon in Control Panel). Double-click the icon to open the Audio Control Panel.

STEP 2:
In the Audio Control Panel, click the **Audio I/O** tab. In the upper left list, click **6CH Speaker**.

STEP 3:
After plugging in 6-channel speakers to the rear speaker jacks, a small window will pop up and ask you what type of equipment is connected. Choose a device depending on the type of speaker connected (6-channel audio consists of Front Speaker Out (Line Out), Rear Speaker Out, and Center/Subwoofer Speaker Out) then click **OK**. The 6-channel audio setup is completed.

GA-M59SLI-S5/GA-M59SLI-S4 Motherboard   - 106 -

8 Channel Audio Setup

STEP 1 :

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

STEP 2:

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

STEP 3:

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

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

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

Enabling the DTS (Digital Theater Systems) function

Before DTS is enabled, you would get only 2-channel output signals (from the front speakers) when playing 2-channel music. You must play 4-, 6-, or 8- channel music sources to produce 4-, 6-, or 8- channel audio effects.

With DTS enabled, the system will transform two-channel stereo source material into multi-channel audio output, creating a virtual surround sound environment.

After installing the audio driver, at the center bottom of the Audio Control Panel, you should find the DTS control button as shown below:

DTS control button

1. ⊛ : This button provides you more controls over "dts NEO:PC".
      🎵 Music Mode ; 🌙 Cinema Mode

2. **dts** "dts NEO : PC" :
    Press this button to enable or disable the dts NEO : PC function.
    Enabling dts NEO : PC allows the system to transform ordinary 2-channel stereo content into 4-, 6-, or 8- channel surround sound, depending on your speaker configurations.

3. **dts** "dts INTERACTIVE" :
    If your surround sound system is connected via an external decoder, click the Audio I/O tab in the Audio Control Panel. Either click DTS Interactive in the upper left list or click the dts INTERACTIVE

    button at the center bottom of the Audio Control Panel. And click the dts NEO : PC button.
    The system will then simulate 5.1 channel surround sound playback from two-channel content.

Introduction of Dolby Digital Live:

A real-time encoding technology, Dolby Digital Live converts any audio signal into a Dolby Digital bitstream for transport and playback through a home theater system. With it, your PC or game console can be hooked up to your Dolby Digital-equipped audio/video receiver or digital speaker system via a single digital connection, eliminating the confusion of multiple cables and ensuring the integrity of the audio signal.

In the Audio Control Panel, click the **Audio I/O** tab. Either click **Dolby Digital 5.1** in the upper left list or click the **Dolby Digital Live** button at the center bottom of the Audio Control Panel.

Digital PCM Output Setup:

In the Audio Control Panel, click the Audio I/O tab. In the upper left list, click Digital PCM Output. Enable this function to allow digital audio sources that are not digitally processed by Dolby or DTS encoding to be output from the SPDIF OUT.

B. Realtek ALC883 CODEC ②

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

Center/Subwoofer Speaker Out

Rear Speaker Out

Side Speaker Out

Line In

Line Out (Front Speaker Out)

Mic In

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

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

Stereo Speakers Connection and Settings:
We recommend that you use the speaker with amplifier to acquire the best sound effect if the stereo output is applied.
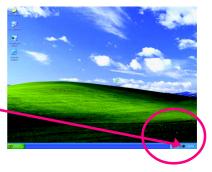
STEP 1 :
After installation of the audio driver, you should find an Audio Manager 🔊 icon in your system tray (you can also find the icon in Control Panel). Double-click the icon to open the Audio Control Panel.

② Only for GA-M59SLI-S4.

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

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

4 Channel Audio Setup

STEP 1 :
After installation of the audio driver, you should find an Audio Manager icon in your system tray (you can also find the icon in Control Panel). Double-click the icon to open the Audio Control Panel.

STEP 2:
In the Audio Control Panel, click the **Audio I/O** tab. In the upper left list, click **4CH Speaker**.

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

6 Channel Audio Setup

STEP 1 :
After installation of the audio driver, you should find an Audio Manager icon in your system tray (you can also find the icon in Control Panel). Double-click the icon to open the Audio Control Panel.

STEP 2:
In the Audio Control Panel, click the **Audio I/O** tab. In the upper left list, click **6CH Speaker**.

STEP 3:
After plugging in 6-channel speakers to the rear speaker jacks, a small window will pop up and ask you what type of equipment is connected. Choose a device depending on the type of speaker connected (6-channel audio consists of Front Speaker Out (Line Out), Rear Speaker Out, and Center/Subwoofer Speaker Out) then click **OK**. The 6-channel audio setup is completed.

8 Channel Audio Setup

STEP 1 :

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

STEP 2:

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

STEP 3:

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

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

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

4-2   Troubleshooting

Below is a collection of general asked questions. To check general asked questions based on a specific motherboard model, please log on to GIGABYTE's website.

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

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

Question 3: How do I clear CMOS?
Answer: If your board has a Clear CMOS jumper, please refer to the Clear CMOS steps in the manual. If your board doesn't have such jumper, you can take off the on-board battery to leak voltage to clear CMOS. Please refer to the steps below:
   Steps:
   1.   Turn off power.
   2.   Disconnect the power cord from MB.
   3.   Take out the battery gently and put it aside for about 1 minute (Or you can use a metal object to connect the positive and negative pins in the battery holder to makethem short for 5 seconds).
   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.

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

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Contact Us

● **Taiwan (Headquarters)**
GIGA-BYTE TECHNOLOGY CO., LTD.
Address: No.6, Bau Chiang Road, Hsin-Tien,
Taipei 231, Taiwan
TEL: +886-2-8912-4888
FAX: +886-2-8912-4003
Tech. and Non-Tech. Support (Sales/Marketing) :
http://ggts.gigabyte.com.tw
WEB address (English): http://www.gigabyte.com.tw
WEB address (Chinese): http://www.gigabyte.tw

● **U.S.A.**
G.B.T. INC.
TEL: +1-626-854-9338
FAX: +1-626-854-9339
Tech. Support:
http://rma.gigabyte-usa.com
Web address: http://www.gigabyte.us

● **Mexico**
G.B.T Inc (USA)
Tel: +1-626-854-9338 x 215 (Soporte de habla hispano)
FAX: +1-626-854-9339
Correo: soporte@gigabyte-usa.com
Tech. Support:
http://rma.gigabyte-usa.com
Web address: http://www.gigabyte-latam.com

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

● **Singapore**
GIGA-BYTE SINGAPORE PTE. LTD.
WEB address : http://www.gigabyte.com.sg

● **China**
NINGBO G.B.T. TECH. TRADING CO., LTD.
WEB address : http://www.gigabyte.cn
Shanghai
TEL: +86-21-63410999
FAX: +86-21-63410100
Beijing
TEL: +86-10-62102838
FAX: +86-10-62102848
Wuhan
TEL: +86-27-87851061
FAX: +86-27-87851330
GuangZhou
TEL: +86-20-87540700
FAX: +86-20-87544306 ext. 333
Chengdu
TEL: +86-28-85236930
FAX: +86-28-85256822 ext. 814
Xian
TEL: +86-29-85531943
FAX: +86-29-85539821
Shenyang
TEL: +86-24-83992901
FAX: +86-24-83992909

● **India**
GIGABYTE TECHNOLOGY (INDIA) LIMITED
WEB address : http://www.gigabyte.in

● **Australia**
GIGABYTE TECHNOLOGY PTY. LTD.
WEB address : http://www.gigabyte.com.au

- **Germany**

G.B.T. TECHNOLOGY TRADING GMBH

WEB address : http://www.gigabyte.de

- **U.K.**

G.B.T. TECH. CO., LTD.

WEB address : http://www.giga-byte.co.uk

- **The Netherlands**

GIGA-BYTE TECHNOLOGY B.V.

WEB address : http://www.giga-byte.nl

- **France**

GIGABYTE TECHNOLOGY FRANCE

WEB address : http://www.gigabyte.fr

- **Italy**

WEB address : http://www.giga-byte.it

- **Spain**

GIGA-BYTE SPAIN

WEB address : http://www.giga-byte.es

- **Czech Republic**

Representative Office Of GIGA-BYTE Technology Co., Ltd. in CZECH REPUBLIC

WEB address : http://www.gigabyte.cz

- **Turkey**

Representative Office Of GIGA-BYTE Technology Co., Ltd. in TURKEY

WEB address : http://www.gigabyte.com.tr

- **Russia**

Moscow Representative Office Of GIGA-BYTE Technology Co., Ltd.

WEB address : http://www.gigabyte.ru

- **Latvia**

GIGA-BYTE Latvia

WEB address : http://www.gigabyte.com.lv

- **Poland**

Office of GIGA-BYTE TECHNOLOGY Co., Ltd. in POLAND

WEB address : http://www.gigabyte.pl

- **Ukraine**

WEB address : http://www.gigabyte.kiev.ua

- **Romania**

Representative Office Of GIGA-BYTE Technology Co., Ltd. in Romania

WEB address : http://www.gigabyte.com.ro

- **Serbia & Montenegro**

Representative Office Of GIGA-BYTE Technology Co., Ltd. in SERBIA & MONTENEGRO

WEB address : http://www.gigabyte.co.yu

- **GIGABYTE Global Service System**

To submit a technical or non-technical (Sales/ Marketing) question, please link to :

http://ggts.gigabyte.com.tw

Then select your language to enter the system.