GA-M51GM-S2G

AMD Socket AM2 Processor Motherboard

User's Manual

Rev. 1002
12ME-M51GMS2G-1002R

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

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

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

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

Motherboard
GA-M51GM-S2G

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

Date : May. 10, 2006

(Stamp)

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-M51GM-S2G

Conforms to the following specifications:

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

Supplementary Information:

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

Representative Person's Name: ERIC LU

Signature: *Eric Lu*

Date: May. 10, 2006

Copyright

Notice

Product Manual Classification

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

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

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

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

Table of Contents

Item Checklist

☑   IDE Cable x 1 & FDD Cable x 1
☑   Serial ATAII Cable x 2
☑   I/O Shield

* 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/ 51R)
◆   4 Ports USB2.0 Cable (Part Number: 12CR1-1UB030-21/ 21R)
◆   COM Port Cable (Part Number: 12CF1-1CM001-31/31R)
◆   SPDIF In and Out Cable (Part Number: 12CR1-1SPINO-11/11R)

GA-M51GM-S2G Motherboard Layout

GA-M51GM-S2G

MS / KB

COMA

LPT

ATX_12V

VGA

CPU_FAN

Socket AM2

USB 1394

USB   LAN

IT8716

AUDIO   F_AUDIO

CI

BIOS

nVIDIA®
GeForce 6100

PCIE_1

Marvell
88E1116

PCIE_16

PCI1

CD_IN

PCI2

TSB43AB23

CODEC

SPDIF_IO   COMB

SYS_FAN   F1_1394   F2_1394   F_USB1   F_USB2

ATX   FDD

DDRII1   DDRII2   DDRII3   DDRII4

IDE2   IDE1

BATTERY

CLR_CMOS

nVIDIA®
nForce 430

SATAII2_3

SATAIIO_1

F PANEL

PWR_LED

Block Diagram

PCI-ECLK
(100MHz)

CPUCLK+/-(200MHz)

AMD
Socket AM2
CPU

VGA

DDRII 800/667/533/400MHz DIMM

Dual Channel Memory

Hyper Transport Bus

PCI Express x 16

nVIDIA®
GeForce 6100

PCI-ECLK
(100MHz)

x 1

1 PCI Express x 1

ATA33/66/100/133
IDE Channels

LAN   RJ45

Marvell
88E1116

4 SATA 3Gb/s

BIOS

PCI Bus

nVIDIA®
nForce 430

Floppy

LPT Port

TSB43AB23

LPC BUS

IT8716

COM Ports

PS/2
KB/Mouse

3 IEEE1394a

CODEC

8 USB
Ports

Surround Speaker Out
Center/Subwoofer Speaker Out
Side Speaker Out
MIC
Line-Out
Line-In
SPDIF In
SPDIF Out

2PCI

PCICLK
(33MHz)

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	◆ 2000MH/z
Chipset	◆ Northbridge: nVIDIA® GeForce 6100
	◆ Southbridge: nVIDIA® nForce 430
LAN	◆ Onboard Marvell 88E1116 PHY(10/100/1000Mbit)
Audio	◆ ALC883 CODEC
	◆ Supports 2 / 4 / 6 / 8 channel audio
	◆ Supports High Definition Audio
	◆ Supports Line In ; Line Out (Front Speaker Out) ; MIC ; Surround Speaker Out (Rear Speaker Out) ; Center/Subwoofer Speaker Out ; Side Speaker Out connection
	◆ SPDIF In/Out connection
	◆ CD In connection
IEEE 1394	◆ Onboard TI TSB43AB23 chip
	◆ 3 IEEE1394a ports
Storage	◆ nVIDIA® nForce 430
	- 1 FDD connector, allowing connection of 1 FDD device
	- 2 IDE connectors (IDE1, IDE2) with UDMA 33/ATA 66/ATA 100/ATA 133 support, allowing connection of 4 IDE devices
	- 4 SATA 3Gb/s connectors (SATAII0_1,SATAII2_3), allowing connection of 4 SATA 3Gb/s devices
	- Supports data striping (RAID 0), mirroring (RAID 1), striping + mirroring (RAID 0+1), and RAID 5 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	◆ 1 PCI Express x 16 slot
	◆ 1 PCI Express x 1 slot
	◆ 2 PCI slots
Internal Connectors	◆ 1 24-pin ATX power connector
	◆ 1 4-pin ATX 12V power connector
	◆ 1 floppy connector
	◆ 2 IDE connectors
	◆ 4 SATA 3Gb/s connectors
	◆ 1 CPU fan connector
	◆ 1 system fan connector
	◆ 1 front panel connector
	◆ 1 front audio connector
	◆ 1 CD In connector
	◆ 2 USB 2.0/1.1 connectors for additional 4 USB 2.0/1.1 ports by cables
	◆ 2 IEEE1394a connectors for additional 2 port by cable

	◆ 1 SPDIF In/Out connector
	◆ 1 Power LED connector
	◆ 1 COMB connector
Rear Panel I/O	◆ 1 PS/2 keyboard port
	◆ 1 PS/2 mouse port
	◆ 1 parallel port
	◆ 1 COMA port
	◆ 1 VGA port
	◆ 4 USB 2.0/1.1 ports
	◆ 1 IEEE1394 port
	◆ 1 RJ-45 port
	◆ 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 / System fan speed detection
	◆ CPU warning temperature
	◆ CPU / System fan failure warning
	◆ Supports CPU / System Smart Fan function(Note 2)
BIOS	◆ 1 4Mbit flash ROM
	◆ Use of licensed AWARD BIOS
Additional Features	◆ Supports @BIOS
	◆ Supports Download Center
	◆ Supports Q-Flash
	◆ Supports EasyTune (only supports Hardware Monitor function)(Note 3)
	◆ Supports Xpress Install
	◆ Supports Xpress Recovery2
	◆ Supports Xpress BIOS Rescue
Bundle Software	◆ Norton Internet Security (OEM version)
Form Factor	◆ Micro ATX form factor; 24.4cm 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.

English

1-3   Installation of the CPU and CPU Cooler

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 hardware 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 (90º 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.
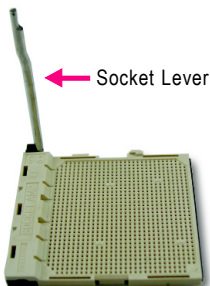
Socket Lever

Fig.1
Position lever at a 90 degree angle.

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

Pin One

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.

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1-3-2 Installation of the CPU cooler
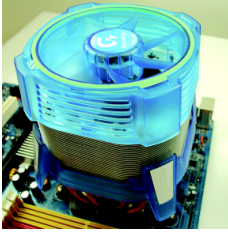
Fig.1
Before installing the CPU cooler, please first add an even layer of heat paste on the surface of the CPU. Install all the CPU cooler components (Please refer to the heat sink manual for detailed installation instructions).
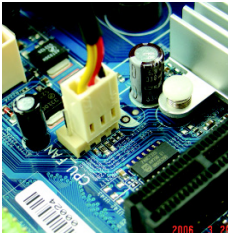
Fig.2
Please connect the CPU cooler power connector to the CPU_FAN connector located on the motherboard so that the CPU cooler can properly function to prevent CPU overheating.

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

Notch

DDR II
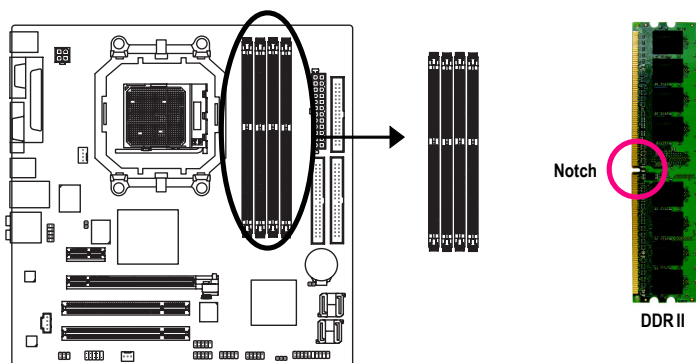
Fig.1
The DIMM socket has a notch, so the DIMM memory module can only fit in one direction. Insert the DIMM memory module vertically into the DIMM socket. Then push it down.
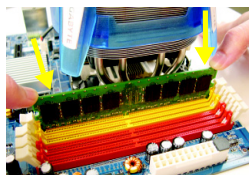
Fig.2
Close the plastic clip at both edges of the DIMM sockets to lock the DIMM module.
Reverse the installation steps when you wish to remove the DIMM module.
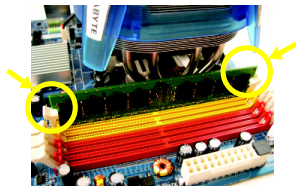
Dual Channel Memory Configuration

The GA-M51GM-S2G supports the Dual Channel Technology. After operating the Dual Channel Technology, the bandwidth of Memory Bus will add 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)

	DDR II 1	DDR II 2	DDR II 3	DDR II 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 x 16 expansion card:

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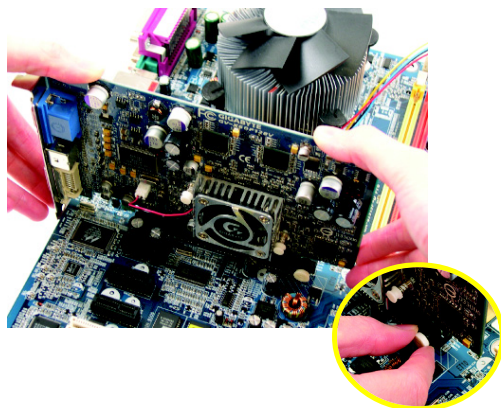
Please carefully pull out the small white-drawable bar at the end of the PCI Express x 16 slot when you try to install/uninstall the VGA card. Please align the VGA card to the onboard PCI Express x 16 slot and press firmly down on the slot. Make sure your VGA card is locked by the small white-drawable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

1-6   I/O Back Panel Introduction
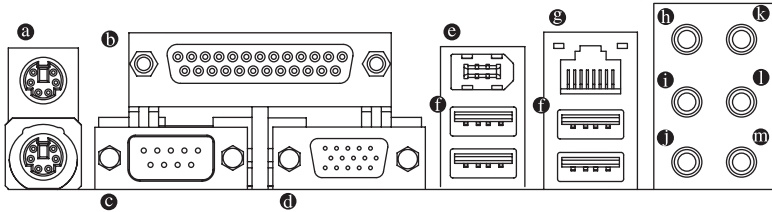
○ⓐ **PS/2 Keyboard and PS/2 Mouse Connector**

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

ⓑ **Parallel Port**

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

ⓒ **COM A (Serial Port)**

   Connects to serial-based mouse or data processing devices.

ⓓ **VGA Port**

   Monitor can be connected to VGA port.

ⓔ **1394 Connector**

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

ⓕ **USB port**

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

ⓖ **LAN Port**

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

ⓗ **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.

- **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.

- **MIC In**

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

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

1-7 Connectors Introduction
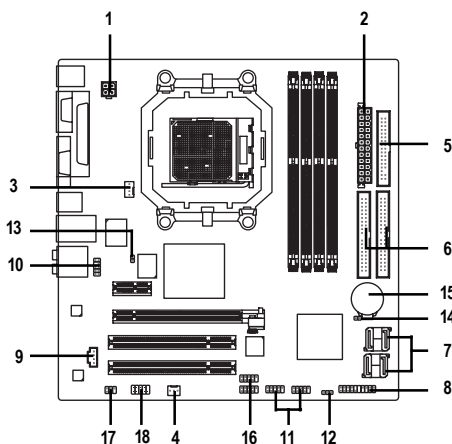
1)	ATX_12V	10)	F_AUDIO
2)	ATX (Power Connector)	11)	F_USB1 / F_USB2
3)	CPU_FAN	12)	POWER_LED
4)	SYS_FAN	13)	CI
5)	FDD	14)	CLR_CMOS
6)	IDE1 / IDE2	15)	BATTERY
7)	SATAII0_1 / SATAII2_3	16)	F1_1394 / F2_1394
8)	F_PANEL	17)	SPDIF_IO
9)	CD_IN	18)	COMB

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1/2) ATX_12V / ATX (Power Connector)

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

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

Caution!

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

If you use a 24-pin ATX power supply, please remove the small cover on the power connector on the motherboard before plugging in the power cord ; Otherwise, please do not remove it.
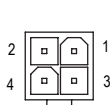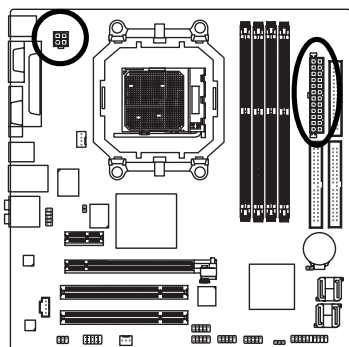
Pin No.	Definition
1	GND
2	GND
3	+12V
4	+12V
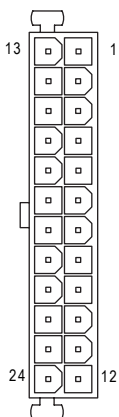
Pin No.	Definition
1	3.3V
2	3.3V
3	GND
4	+5V
5	GND
6	+5V
7	GND
8	Power Good
9	5V SB(stand by +5V)
10	+12V
11	+12V
12	3.3V(Only for 24pins ATX)
13	3.3V
14	-12V
15	GND
16	PS_ON(soft On/Off)
17	GND
18	GND
19	GND
20	-5V
21	+5V
22	+5V
23	+5V
24	GND

Hardware Installation

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

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

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

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.

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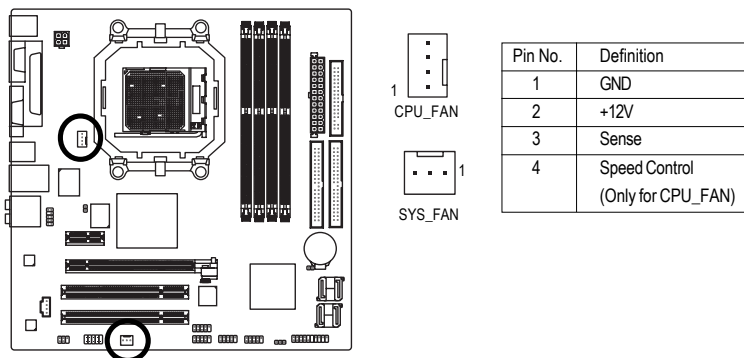
5) FDD (FDD Connector)

The FDD connector is used to connect the FDD cable while the other end of the cable connects to the FDD drive. The types of FDD drives supported are: 360KB, 720KB, 1.2MB, 1.44MB and 2.88MB. Before attaching the FDD cable, please take note of the foolproof groove in the FDD connector.

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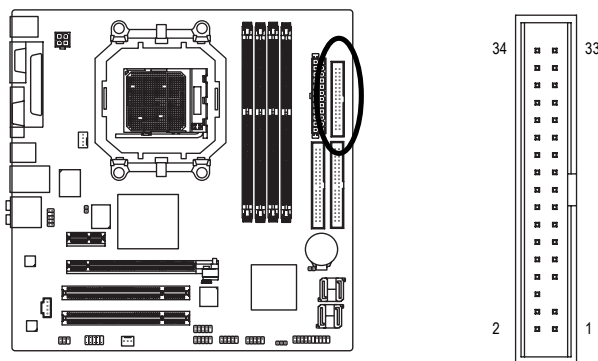
6) IDE1 / IDE2 (IDE Connector)

An IDE device connects to the computer via an IDE connector. One IDE connector can connect to one IDE cable, and the single IDE cable can then connect to two IDE devices (hard drive or optical drive). If you wish to connect two IDE devices, please set the jumper on one IDE device as Master and the other as Slave (for information on settings, please refer to the instructions located on the IDE device). Before attaching the IDE cable, please take note of the foolproof groove in the IDE connector.
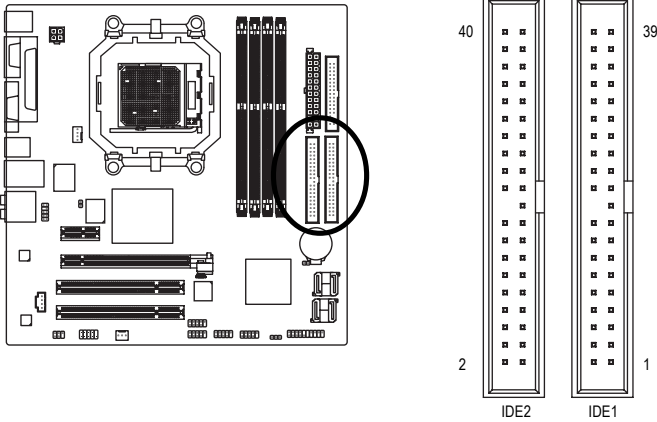
7) SATAII0_1 / SATAII2_3 (SATA 3Gb/s Connectors, Controlled by nForce 430)

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

Pin No.	Definition
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND
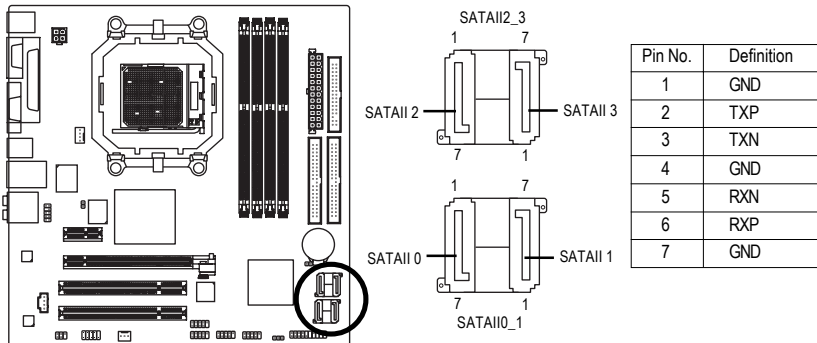
8) F_PANEL (Front Panel Jumper)

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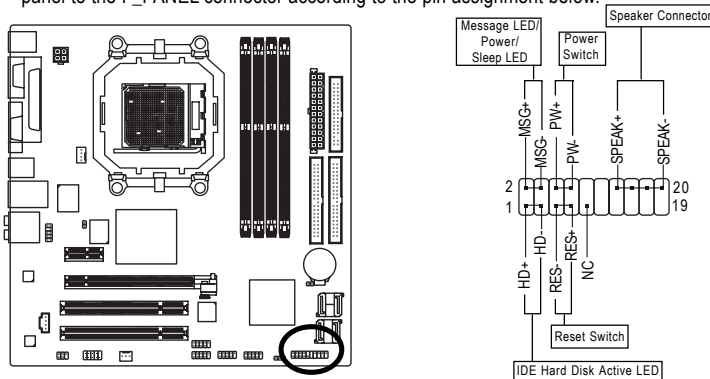
HD (IDE Hard Disk Active LED)	Pin 1: LED anode(+)
	Pin 2: LED cathode(-)
SPEAK (Speaker Connector)	Pin 1: Power
	Pin 2- Pin 3: NC
	Pin 4: Data(-)
RES (Reset Switch)	Open: Normal
	Close: Reset Hardware System
PW (Power Switch)	Open: Normal
	Close: Power On/Off
MSG(Message LED/Power/Sleep LED)	Pin 1: LED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

9) CD_IN (CD In Connector)

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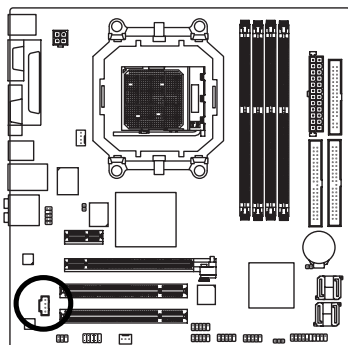
Pin No.	Definition
1	CD-L
2	GND
3	GND
4	CD-R

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10) F_AUDIO (Front Audio Panel Connector)

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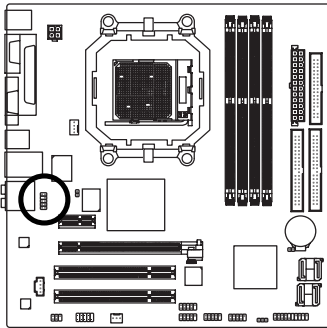
HD Audio:

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

AC'97 Audio:

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

NOTE

By default, the audio driver is configured to support HD Audio. To connect an AC97 front panel audio module to this connector, please refer to the instructions on Page 79 about the software settings.

11) F_ USB1 / F_USB2 (Front USB Connector)

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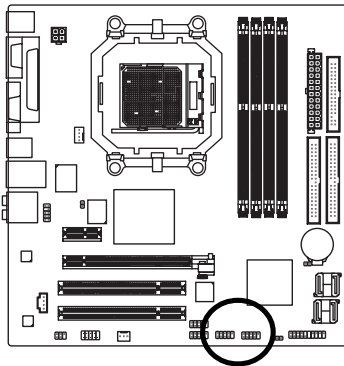
Pin No.	Definition
1	Power (5V)
2	Power (5V)
3	USB DX-
4	USB Dy-
5	USB DX+
6	USB Dy+
7	GND
8	GND
9	No Pin
10	NC

12) POWER_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.
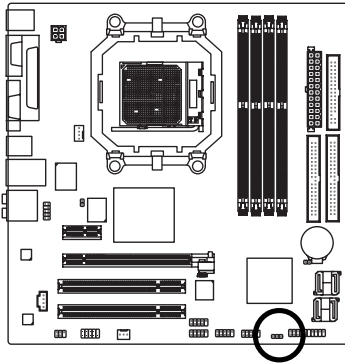
Pin No.	Definition
1	MPD+
2	MPD-
3	MPD-

13) CI (Chassis Intrusion, Case Open)

This 2-pin connector allows your system to detect if the chassis cover is removed. You can check the "Case Opened" status in BIOS Setup.
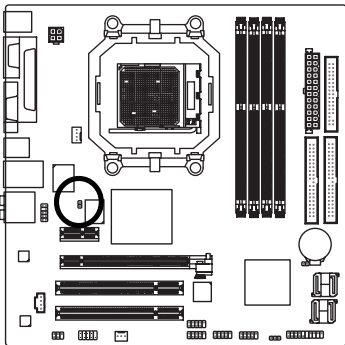
Pin No.	Definition
1	Signal
2	GND

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14) 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.
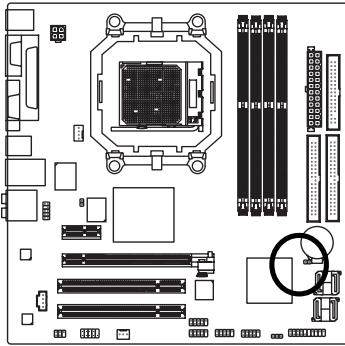
Open: Normal

Short: Clear CMOS

15) BATTERY
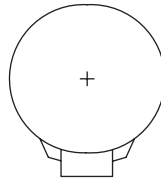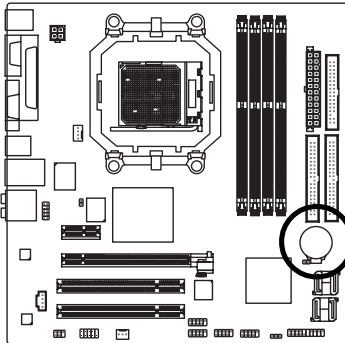
❖ Danger of explosion if battery is incorrectly replaced.

❖ 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.

16) 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.
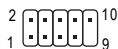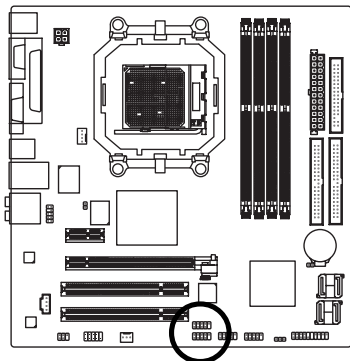
Pin No.	Definition
1	TPA+
2	TPA-
3	GND
4	GND
5	TPB+
6	TPB-
7	Power(12V)
8	Power(12V)
9	No Pin
10	GND

17) SPDIF_IO (SPDIF In/Out)

The SPDIF output is capable of providing digital audio to external speakers or compressed AC3 data to an external Dolby Digital Decoder. Use this feature only when your stereo system has digital input function. Use SPDIF IN feature only when your device has digital output function. Be careful with the polarity of the SPDIF_IO connector. Check the pin assignment carefully while you connect the SPDIF cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional SPDIF cable, please contact your local dealer.
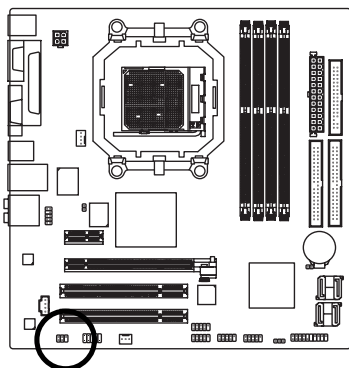
Pin No.	Definition
1	Power
2	No Pin
3	SPDIF
4	SPDIFI
5	GND
6	GND

18) COMB (COMB Connector)

Be careful with the polarity of the COMB connector. Check the pin assignment carefully while you connect the COMB cable, incorrect connection between the cable and connector will make the device unable to work or even damage it. For optional COMB cable, please contact your local dealer.
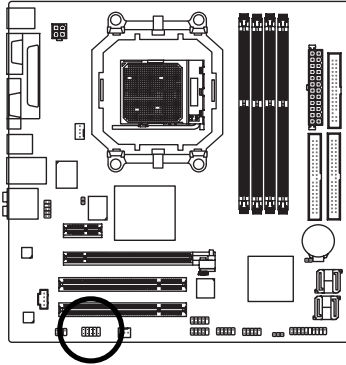
Pin No.	Definition
1	NDCDB-
2	NSINB
3	NSOUTB
4	NDTRB-
5	GND
6	NDSRB-
7	NRTSB-
8	NCTSB-
9	NRIB-
10	No Pin

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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
<F7>	Load the Optimized Defaults
<F8>	Q-Flash utility
<F9>	System Information
<F10>	Save all the CMOS changes, only for Main Menu

Main Menu

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

Status Page Setup Menu / Option Page Setup Menu

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

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

<F12> : For Boot Menu

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

```
Award Modular BIOS v6.00PG, An Energy Star Ally
Copyright  (C) 1984-2005, Award Software,  Inc.

GA-M51GM-S2G E17
.
.
.
.

<DEL>:BIOS Setup/Q-Flash, <F9>: XpressRecovery2, <F12>For Boot Menu        <F12> For Boot Menu
04/03/2006-C51-MCP51-6A61HG0GC-00
```
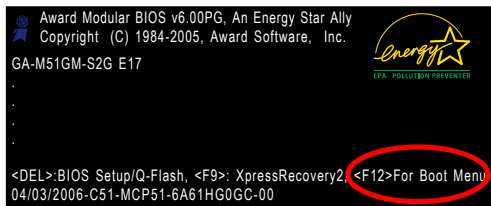
Use < ↑ > or < ↓ > to select a device, then press enter to accept . Press <ESC> to exit this menu.

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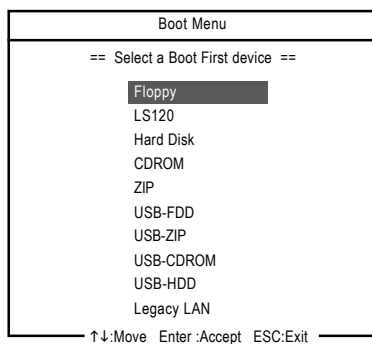
The Main Menu (For example: BIOS Ver. : F2)

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
ESC: Quit	↑↓→←: Select Item
F8: Q-Flash	F10: Save & Exit Setup
Time, Date, Hard Disk Type...	

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

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

■ **Standard CMOS Features**

This setup page includes all the items in standard compatible BIOS.

■ **Advanced BIOS Features**

This setup page includes all the items of Award special enhanced features.

■ **Integrated Peripherals**

This setup page includes all onboard peripherals.

■ **Power Management Setup**

This setup page includes all the items of Green function features.

■ **PnP/PCI Configuration**

This setup page includes all the configurations of PCI & PnP ISA resources.

■ **PC Health Status**

This setup page is the System auto detect Temperature, voltage, fan, speed.

■ **Load Fail-Safe Defaults**

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

■ **Load Optimized Defaults**

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

■ **Set Supervisor Password**

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

■ **Set User Password**

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

■ **Save & Exit Setup**

Save CMOS value settings to CMOS and exit setup.

■ **Exit Without Saving**

Abandon all CMOS value changes and exit setup.

2-1   Standard CMOS Features

```
                CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                                  Standard CMOS Features
    Date (mm:dd:yy)                      Tue, Mar  15  2005       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 1 Master               [None]
 ▶  IDE Channel 1 Slave                [None]                    <Week>
 ▶  IDE Channel 2 Master               [None]                    Sun. to Sat.
 ▶  IDE Channel 3 Master               [None]
 ▶  IDE Channel 4 Master               [None]                    <Month>
 ▶  IDE Channel 5 Master               [None]                    Jan. to Dec.

    Drive A                            [1.44M, 3.5"]             <Day>
    Floppy 3 Mode Support              [Disabled]                1 to 31 (or maximum
                                                                 allowed in the month)
    Halt On                            [All, But Keyboard]
    Base Memory                        640K                      <Year>
    Extended Memory                    511M                      1999 to 2098
    Total Memory                       512M

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

☞ **Date**

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

▸ Week   The week, from Sun to Sat, determined by the BIOS and is display only

▸ Month   The month, Jan. Through Dec.

▸ Day   The day, from 1 to 31 (or the maximum allowed in the month)

▸ Year   The year, from 1999 through 2098

☞ **Time**

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

☞ **IDE Channel 0 Master, Slave, IDE Channel 1 Master, Slave**

▸ IDE 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)

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◦ **IDE Channel 2/3/4/5 Master**
  ▶ IDE HDD Auto-Detection Press "Enter" to select this option for automatic device detection.
  ▶ Extended IDE Drive SATA devices setup. You can use one of two methods:
   Auto   Allows BIOS to automatically detect SATA IDE devices during POST.
                 (Default value)
   None   Select this if no SATA IDE devices are used and the system will skip the
                 automatic detection step and allow for faster system start up.
  ▶ Access Mode Use this to set the access mode for the hard drive. The two options are:
                 Large/Auto(default:Auto)
  ▶ Capacity   Capacity of currently installed hard disk.
  Hard drive information should be labeled on the outside drive casing. Enter the appropriate option
  based on this information.
  ▶ Cylinder   Number of cylinders
  ▶ Head   Number of heads
  ▶ Precomp   Write precomp
  ▶ Landing Zone   Landing zone
  ▶ Sector   Number of sectors

◦ **Drive A**
  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.

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

☞ **Memory**

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

▶ **Base Memory**

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

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

▶ **Extended Memory**

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

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

▶ **Total Memory**

This item displays the memory size that used.

2-2   Advanced BIOS Features

```
                  CMOS Setup Utility-Copyright (C) 1984-2006 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 Floppy Seek                  [Disabled]             Device Priority
    Password Check                       [Setup]
    HDD S.M.A.R.T. Capability            [Disabled]]
    Init Display First                   [PEG]
    Frame Buffer Size                    [64M]
    Onboard GPU                          [Enable If No Ext PEG]






  ↑↓→←: Move     Enter: Select      +/-/PU/PD: Value     F10: Save     ESC: Exit     F1: General Help
                 F5: Previous Values                         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)

 HDD S.M.A.R.T. Capability
  This feature allows your hard disk to report read/write errors and to issue warnings when third-
  party hardware monitor utility is installed.
  ▶ Enabled   Enabled HDD S.M.A.R.T. capability.
  ▶ Disabled   Disabled HDD S.M.A.R.T. capability.(Default value)

 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 VGA card.
  ▶ Onboard VGA   Set Init Display First to onboard VGA.
  ▶ PEG   Set Init Display First to PCI Express VGA card.(Default value)

 Frame Buffer Size
  ▶ 16MB   Set On-chip frame buffer size to 16MB.
  ▶ 32MB   Set On-chip frame buffer size to 32MB.
  ▶ 64MB   Set On-chip frame buffer size to 64MB.(Default value)
  ▶ 128MB   Set On-chip frame buffer size to 128MB.
  ▶ Disabled   Disable this function.

 Onboard GPU
  ▶ Enable If No Ext PEG   Output from the onboard GPU when no PCI Express VGA card is
                           installed. (Default value)
  ▶ Always Enable   Always output from the onboard GPU.

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2-3   Integrated Peripherals

```
                    CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                                        Integrated Peripherals
 ▶  IDE Configuration                          [Press Enter]          Item Help
 ▶  USB Configuration                          [Press Enter]         Menu Level▶
 ▶  SATA-II Configuration                      [Press Enter]
    Onboard Audio Function                     [Auto]
    Onboard LAN Function                       [Auto]
    Onboard LAN Boot ROM                       [Disabled]
 ▶  SMART LAN                                   [Press Enter]
    Onboard 1394 Function                      [Enabled]
    Onboard Serial Port 1                      [3F8/IRQ4]
    Onboard Serial Port 2                      [2F8/IRQ3]
    Onboard Parallel Port                      [378/IRQ7]
    Parallel Port Mode                         [SPP]


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

☞ **IDE Configuration**

```
                    CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                                        IDE Configuration
    On-Chip IDE Channel0                       [Enabled]             Item Help
    On-Chip IDE Channel1                       [Enabled]            Menu Level▶





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

☞ **USB Configuration**

```
                    CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                                        USB Configuration
    On-Chip USB                                [V1.1+V2.0]          Item Help
    USB Keyboard Support                       [Disabled]           Menu Level▶
    USB Mouse Support                          [Disabled]




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

☞ **SATA-II Configuration**

```
                    CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                                        SATA-II Configuration
    SATA-II RAID function                      [Disabled]           Item Help
    SATA-II 1 Controller                       [Enabled]            Menu Level▶
 x  SATA-II 1 Primary RAID                      Disabled
 x  SATA-II 1 Secondary RAID                    Disabled
    SATA-II 2 Controller                       [Enabled]
 x  SATA-II 2 Primary RAID                      Disabled
 x  SATA-II 2 Secondary RAID                    Disabled


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

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

☞ **On-Chip IDE Channel1**
- ▶▶ Enabled   Enable onboard 2nd channel IDE port. (Default value)
- ▶▶ Disabled   Disable onboard 2nd channel IDE port.

☞ **On-Chip USB**
- ▶▶ V1.1+V2.0   Enable USB 1.1 and USB 2.0 controllers. (Default Value)
- ▶▶ V1.1   Enable only USB 1.1 controller
- ▶▶ Disabled   Disable onchip USB support.

☞ **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)

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

☞ **Serial-ATA-II 1 Controller**
- ▶▶ Enabled   Enable Serial-ATAII 1 controller support. (Default Value)
- ▶▶ Disabled   Disable Serial-ATAII 1 controller support.

☞ **SATA-II 1 Primary RAID**
- ▶▶ Enabled   Enable SATAII 1 1st SATA RAID function.
- ▶▶ Disabled   Disable this function. (Default value)

☞ **SATA-II 1 Secondary RAID**
- ▶▶ Enabled   Enable SATAII 1 2nd SATA RAID function.
- ▶▶ Disabled   Disable this function. (Default value)

☞ **Serial-ATA-II 2 Controller**
- ▶▶ Enabled   Enable Serial-ATAII 2 controller support. (Default Value)
- ▶▶ Disabled   Disable Serial-ATAII 2 controller support.

☞ **SATA-II 2 Primary RAID**
- ▶▶ Enabled   Enable SATAII 2 1st SATA RAID function.
- ▶▶ Disabled   Disable this function. (Default value)

☞ **SATA-II 2 Secondary RAID**
- ▶▶ Enabled   Enable SATAII 2 2nd SATA RAID function.
- ▶▶ Disabled   Disable this function. (Default value)

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

☞ **Onboard LAN Function**
- ▶▶ Auto   Auto-detect onboard LAN chip function.(Default value)
- ▶▶ Disabled   Disable onboard LAN chip function.

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☞ **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)

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

```
           CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                                  SMART LAN
   Start detecting at Port.....                                    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




   ↑↓→←: Move      Enter: Select      +/-/PU/PD: Value    F10: Save      ESC: Exit     F1: General Help
        F5: Previous Values              F6: Fail-Safe Defaults         F7: Optimized Defaults
```
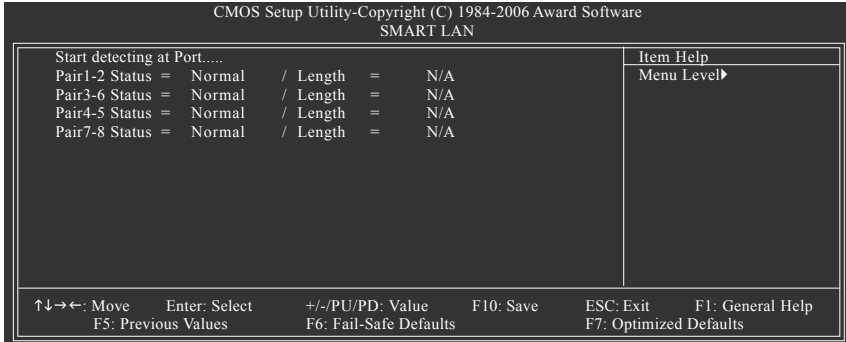
This motherboard incorporates cable diagnostic feature designed to detect the status of the attached LAN cable. This feature will detect cabling issue and report the approximate distance to the fault or short. Refer to the following information for diagnosing your LAN cable:

▸ **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 Function**
    - ▶ Enabled   Enable onboard IEEE1394 function.(Default value)
    - ▶ Disabled   Disable onboard IEEE1394 function.

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

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

- **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.

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                  [Enabled]
   Modem Ring On                      [Enabled]
   USB Resume from Suspend            [Enabled]
   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
                 F5: Previous Values                   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.
 ▶▶ Enabled   Enable PME as wake up event. (Default value)

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

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

⌐ **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   Disabled this function. (Default value)
- ▸ Enabled   Double click on PS/2 mouse left button to power on the system.

◦ **Power On By Keyboard**
- ▸ Password   Enter from 1 to 5 characters to set the Keyboard Power On Password.
- ▸ Any KEY   Press any key to power on the system.
- ▸ Disabled   Disable this function. (Default value)
- ▸ Keyboard 98 If your keyboard have "POWER Key" button, you can press the key to power on the system.

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

◦ **AC BACK Function**
- ▸ Soft-Off   When AC-power back to the system, the system will be in "Off" state. (Default value)
- ▸ Full-On   When AC-power back to the system, the system always in "On" state.

2-5 PnP/PCI Configurations

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




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

☞ **PCI 1 IRQ Assignment**

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

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

☞ **PCI 2 IRQ Assignment**

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

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

2-6　PC Health Status

```
CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                        PC Health Status
Reset Case Open Status            [Disabled]              Item Help
Case Opened                       NO              Menu Level▶
Vcore                             OK
DDR18V                            OK
+3.3V                             OK
+12V                              OK
Current System Temperature        39ºC
Current CPU Temperature           49ºC
Current CPU FAN Speed             3183 RPM
Current System FAN Speed          0    RPM
CPU Warning Temperature           [Disabled]
CPU FAN Fail Warning              [Disabled]
SYSTEM FAN Fail Warning           [Disabled]
CPU Smart FAN Control             [Enabled]
CPU Smart FAN Mode                [Auto]
System Smart FAN Control          [Disabled]



↑↓→←: Move      Enter: Select      +/-/PU/PD: Value      F10: Save      ESC: Exit      F1: General Help
                F5: Previous Values                      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 is opened, **Case Opened** will show "Yes."
  If you want to reset **Case Opened** value, enable **Reset Case Open Status** and save the change
  to CMOS, and then 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 System/CPU FAN Speed (RPM)**
  ▶▶ Detect system/CPU fan speed status automatically.

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

☞ **CPU/SYSEM FAN Fail Warning**
  ▶▶ Disabled　　　　　Fan warning function disable. (Default value)
  ▶▶ Enabled　　　　　Fan warning function enable.

☞ **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)

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⌐ **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.

⌐ **System Smart FAN Control**

➤ Disabled   Disable this function. (Default value)

➤ Enabled   When this function is enabled, system fan will run at different speed depend-
                  ing on system temperature. Users can adjust the fan speed with Easy Tune
                  based on their requirements.

NOTE

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

2-7 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
Esc: Quit	↑↓→←: Select Item
F8: Q-Flash	F10: Save & Exit Setup
Load Fail-Safe Defaults	
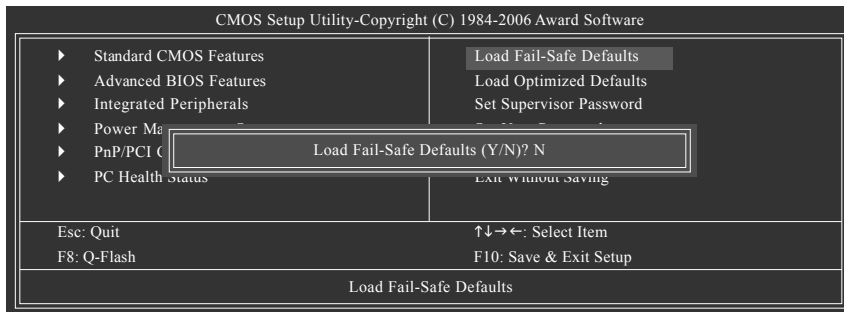
Fail-Safe defaults contain the most appropriate values of the system parameters that allow minimum system performance.

2-8 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
Esc: Quit	↑↓→←: Select Item
F8: Q-Flash	F10: Save & Exit Setup
Load Optimized Defaults	
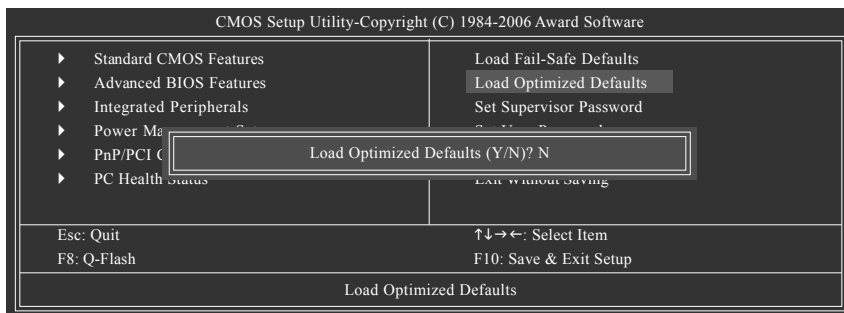
Selecting this field loads the factory defaults for BIOS and Chipset Features which the system automatically detects.

2-9 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 Management Setup	Set User Password
▶ PnP/PCI C	Enter Password:
▶ PC Health	
Esc: Quit	↑↓→←: Select Item
F8: Q-Flash	F10: Save & Exit Setup
Change/Set/Disable Password	
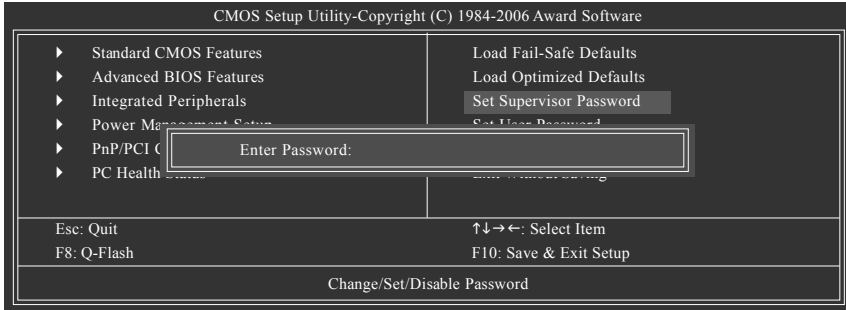
When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

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.

2-10 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 ┌─────────────────────────────────────────────┐
   ▶  Power Ma   │     Save to CMOS and EXIT (Y/N)? Y           │
   ▶  PnP/PCI Configurations       └────── Save & Exit Setup ─────┘
   ▶  PC Health Status                    Exit Without Saving


   Esc: Quit                              ↑↓→←: Select Item
   F8: Q-Flash                            F10: Save & Exit Setup
                        Save & Exit Setup
```
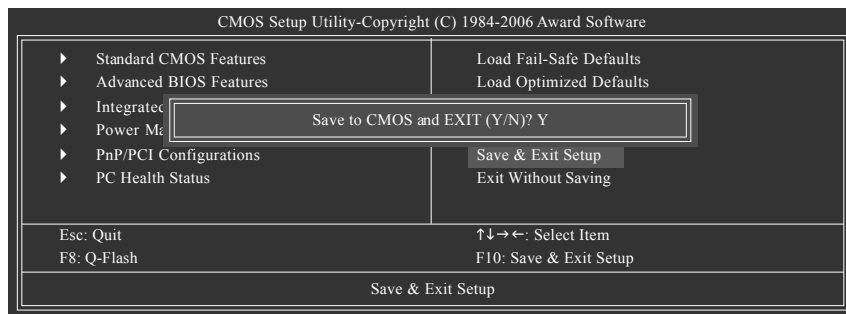
Type "Y" will quit the Setup Utility and save the user setup value to RTC CMOS.
Type "N" will return to Setup Utility.

2-11 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  │     Quit Without Saving (Y/N)? N             │
   ▶  PC Health Status                    Exit Without Saving


   Esc: Quit                              ↑↓→←: Select Item
   F8: Q-Flash                            F10: Save & Exit Setup
                        Abandon all Data
```
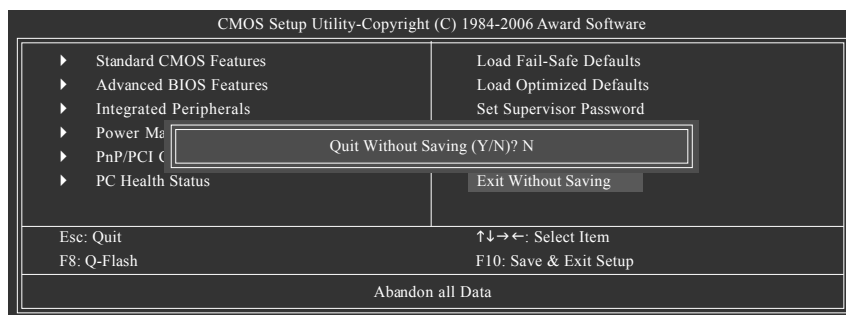
Type "Y" will quit the Setup Utility without saving to RTC CMOS.
Type "N" will return to Setup Utility.

Chapter 3 Drivers Installation

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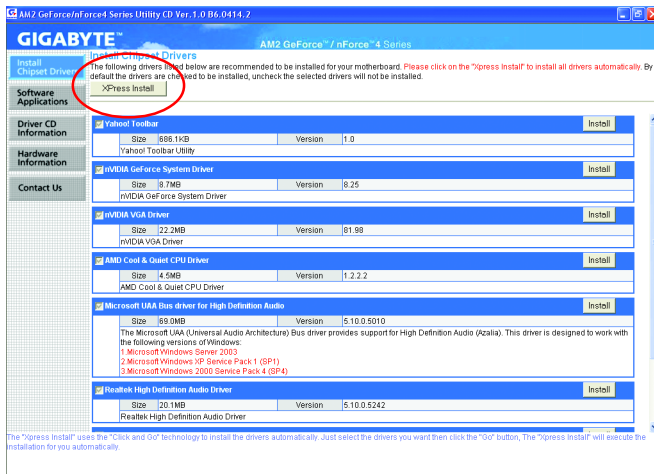
Some device drivers will restart your system automatically. After restarting your system the "Xpress Install" will continue to install other drivers.
System will reboot automatically after install the drivers, afterward you can install others application.

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).

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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.
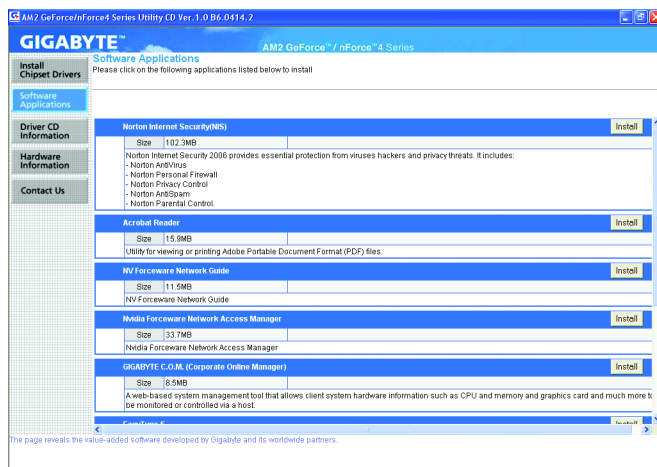
3-3   Driver CD Information

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

English

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.

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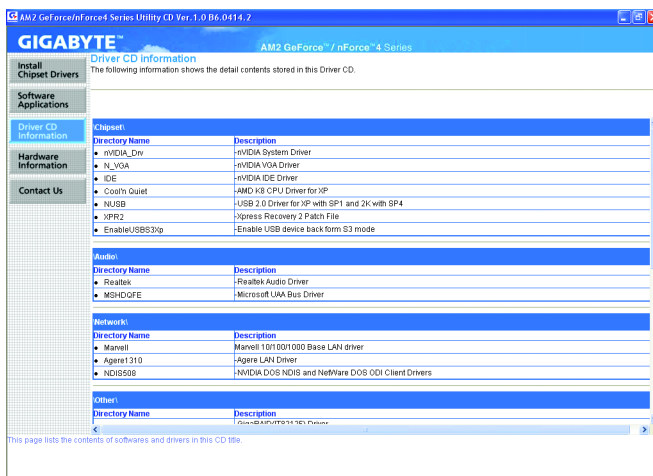
Chapter 4 Appendix

4-1   Unique Software Utilities

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:
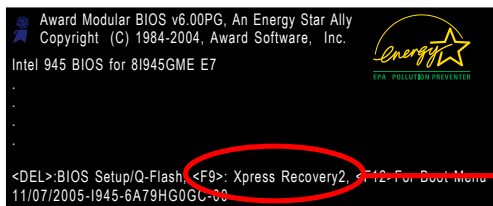
<F9> Xpress Recovery2

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.

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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

Method 1 : Q-Flash™ Utility

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

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

Before You Begin:

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

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

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

Part One:

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

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

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

The BIOS file is Fa3 before updating
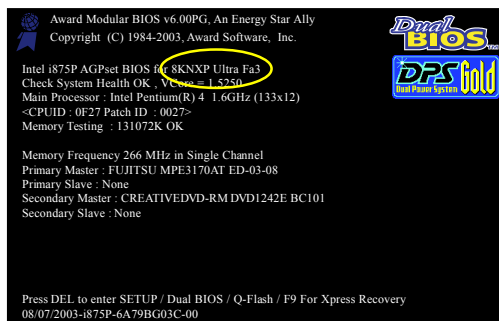
Entering the Q-Flash™ utility:

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

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

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

Exploring the Q-Flash™ / Dual BIOS utility screen

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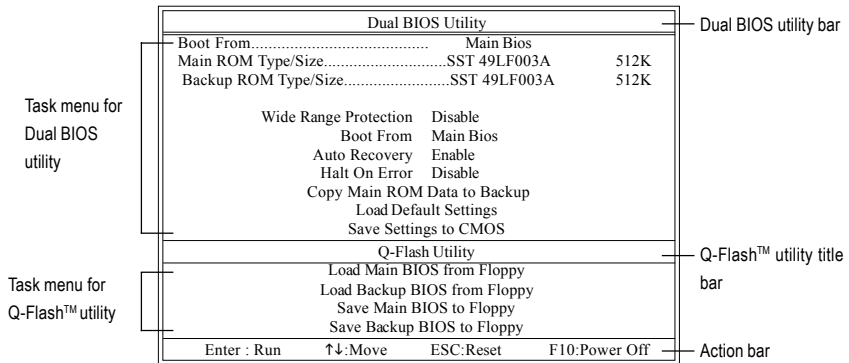
Task menu for Dual BIOS utility:

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

Task menu for Q-Flash utility:

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

Action bar:

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

Using the Q-Flash™ utility:

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

Steps:

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

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

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

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

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

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

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

            Wide Range Protection   Disable
                    1 file(s) found
   8KNXPU.Fba                              512K  ─────────   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 49LF003A          512K
 Backup ROM Type/Size.........................SST 49LF003A         512K

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

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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 49LF003A		512K
Backup ROM Type/Size.........................SST 49LF003A		512K

Wide Range Protection   Disable

!! Copy BIOS completed - Pass !!

Please press any key to continue

Save Settings to CMOS

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

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

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

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

Wide Range Protection   Disable

Are you sure to RESET ?

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

Save Settings to CMOS

Q-Flash Utility
Load Main BIOS from Floppy
Load Backup BIOS from Floppy
Save Main BIOS to Floppy
Save Backup BIOS to Floppy
Enter : Run   ↑↓:Move   ESC:Reset   F10:Power Off
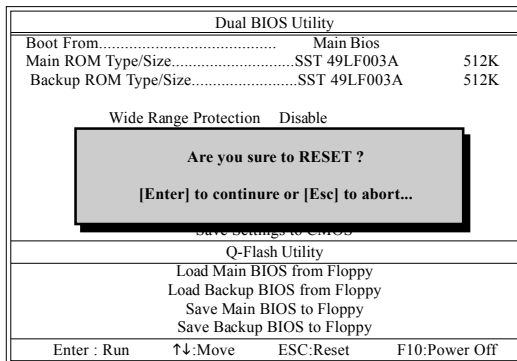
After system reboots, you may find the BIOS version on your boot screen becomes the one you flashed.

The BIOS file becomes Fba after updating.

Award Modular BIOS v6.00PG, An Energy Star Ally
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~~gement Set~~	~~Set Supervisor Pass~~word
▶ PnP/PCI Co~~n~~	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
Time, Date, Hard Disk Type...	

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

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

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

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

Part Two:

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

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

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

Exploring the Q-Flash™ utility screen

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

```
┌─────────────────────────────────────────────────────┐
│            Q-Flash Utility V1.30                      │ ── Q-Flash™ utility bar
│ Flash Type/Size................................SST 49LF003A        256K │
│                                                       │
│               Keep DMI Data    Enable                 │
│                 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 49LF003A        256K │
│  ┌───────────── 1 file(s) found ──────────────┐     │
│  │ 8GE800.F4                          256K     │ ──── BIOS file in the floppy
│  │                                             │      disk.
│  │ Total size : 1.39M        Free size : 1.14M │     │
│ E│ F5 : Refresh              DEL : Delete       │r Off │
│  └─────────────────────────────────────────────┘     │
└─────────────────────────────────────────────────────┘
```

```
┌─────────────────────────────────────────────────────┐
│            Q-Flash Utility V1.30                      │
│ Flash Type/Size................................SST 49LF003A        256K │    ⚠ CAUTION
│  ┌──────────────────────────────────────┐            │
│  │ Reading BIOS file from floppy ...      │ ──── Do not turn off power or
│  │ >>>>>>>>>>>>>>>.....................    │      reset your system at
│ E│ Don't Turn Off Power or Reset System   │r Off │   this stage!!
│  └──────────────────────────────────────┘            │
└─────────────────────────────────────────────────────┘
```

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

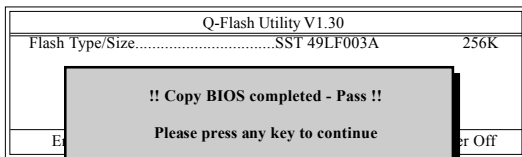⚠ **CAUTION** Please do not take out the floppy disk when it begins flashing BIOS.

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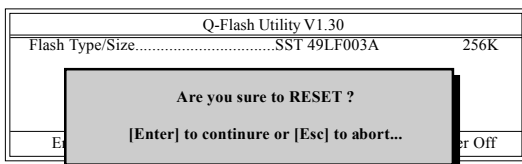   Then it will begin to update BIOS. The progress of updating BIOS will be shown at the same time.

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

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

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

⚠ CAUTION

Do not 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 49LF003A	256K

!! Copy BIOS completed - Pass !!

Please press any key to continue

En   er Off

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

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

Are you sure to RESET ?

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

En   er Off

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

The BIOS file
becomes F4 after
updating

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

Intel 845GE AGPSet BIOS for 8GE800 F4
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!!

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Method 2 : @BIOS™ Utility

If you do not have a DOS startup disk, we recommend that you use the new @BIOS utility. @BIOS allows users to update their BIOS under Windows. Just select the desired @BIOS server to download the latest version of BIOS.
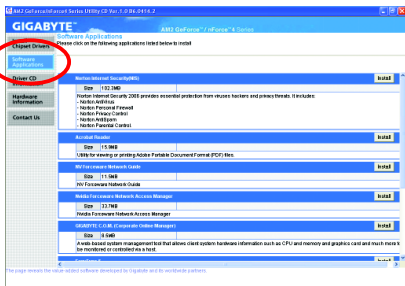
Fig 1. Installing the @BIOS utility

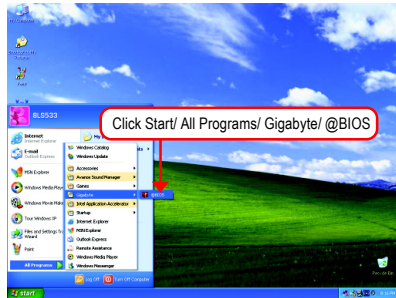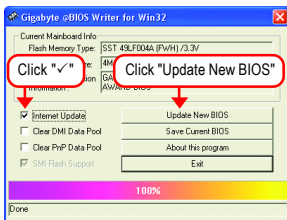Fig 2. Installation complete and run @BIOS

Click Start/ All Programs/ Gigabyte/ @BIOS

Fig 3. The @BIOS utility

Click "✓"   Click "Update New BIOS"

Fig 4. Select the desired @BIOS server

Please select @BIOS server site :

Gigabyte @BIOS server 1 in Taiwan
Gigabyte @BIOS server 2 in Taiwan
Gigabyte @BIOS server in China
Gigabyte @BIOS server in Japan
Gigabyte @BIOS server in U.S.A
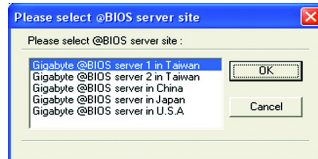
1. Methods and steps:

    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: M51GMS2G.F1).

        e.   Complete update process following the instruction.

III. Save BIOS:

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

IV. Check out supported motherboard and Flash ROM:

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

2. Note:

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

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

III. In method I, if the BIOS file you need cannot be found in @BIOS™ server, please go onto Gigabyte's website 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.

(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 the example in Figure 1, make sure that **SATA-II 1 Controller** or **SATA-II 2 Controller** under the **Integrated Peripherals** menu is enabled (**Serial-ATAII1** controls the SATAII0/1 connectors and **Se-rial-ATAII2** controls the SATAII2/3 connectors). If you wish to create RAID array, press ENTER on the **SATA-II Configuration** item to enter the submenu .

"*"   Skip this step if you do not want to create RAID array on the SATA controller.
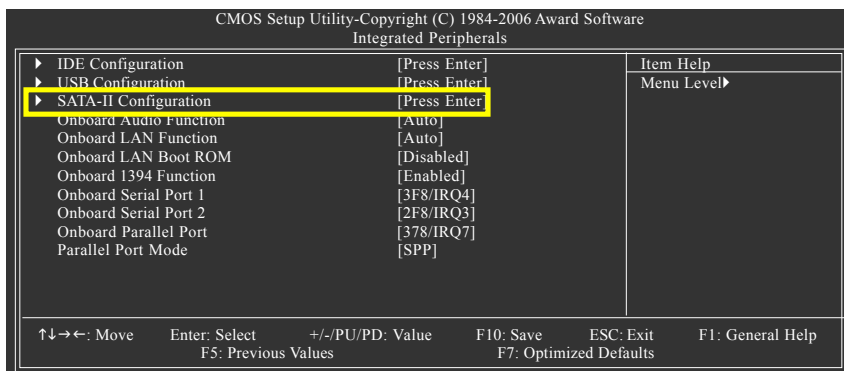
```
                  CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                                   Integrated Peripherals
   ▶  IDE Configuration                      [Press Enter]           Item Help
   ▶  USB Configuration                      [Press Enter]          Menu Level▶
   ▶  SATA-II Configuration                  [Press Enter]
      Onboard Audio Function                 [Auto]
      Onboard LAN Function                   [Auto]
      Onboard LAN Boot ROM                   [Disabled]
      Onboard 1394 Function                  [Enabled]
      Onboard Serial Port 1                  [3F8/IRQ4]
      Onboard Serial Port 2                  [2F8/IRQ3]
      Onboard Parallel Port                  [378/IRQ7]
      Parallel Port Mode                     [SPP]


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

Figure 1

In the **SATA-II Configuration** submenu, enable **SATA-II RAID function**. Then enable the SATA ports with hard disks that you want to use for RAID. In the example in Figure 2, enable **SATA-II 1 Primary/Secondary RAID** or **SATA-II 2 Primary/Secondary RAID**). (For example, if you wish to create RAID with hard disks on the SATAII0 and SATAII1 connectors, set **SATAII 1 Primary/Secondary RAID** to **Enabled)**.

```
                  CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                                   SATA-II Configuration
      SATA-II RAID function                  [Disabled]             Item Help
      SATA-II 1 Controller                   [Enabled]             Menu Level▶
   x  SATA-II 1 Primary RAID                 Disabled
   x  SATA-II 1 Secondary RAID               Disabled
      SATA-II 2 Controller                   [Enabled]
   x  SATA-II 2 Primary RAID                 Disabled
   x  SATA-II 2 Secondary RAID               Disabled


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

Figure 2

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.

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Step 2:

If you do not create RAID, select **Hard Disk Boot Priority** under the **Advanced BIOS Features** menu. In the **Hard Disk Boot Priority** submenu, select the model of the SATA hard drive onto which you wish to install Microsoft Windows 2000/XP. You should see a screen similar to Figure 3 below.
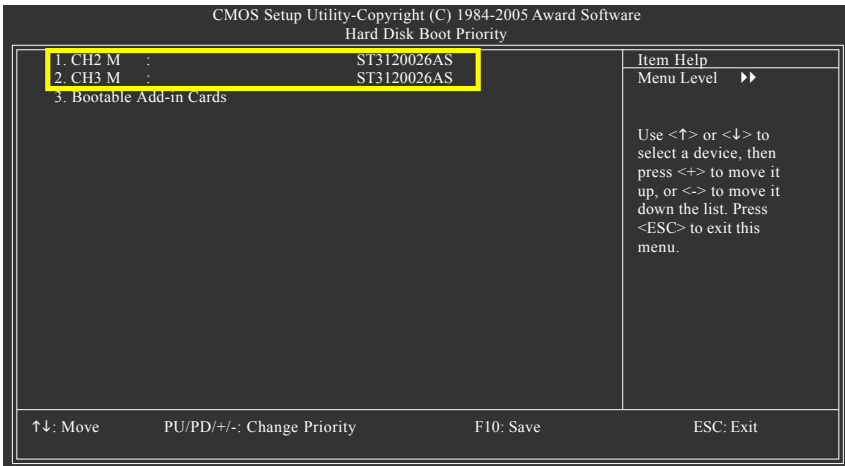
```
                    CMOS Setup Utility-Copyright (C) 1984-2005 Award Software
                                  Hard Disk Boot Priority
    1. CH2 M    :                        ST3120026AS            Item Help
    2. CH3 M    :                        ST3120026AS            Menu Level    ▶▶
    3. Bootable Add-in Cards

                                                                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.




    ↑↓: Move        PU/PD/+/-: Change Priority        F10: Save            ESC: Exit
```

Figure 3

After configuring the SATA controller mode in system BIOS, if you wish to create RAID, save the settings and exit. Then go to RAID BIOS (refer to page 69) to configure the RAID array. After finished, re-enter the system BIOS Setup to set hard disk boot priority before OS installation. Select **Hard Disk Boot Priority** under the **Advanced BIOS Features** menu. In the **Hard Disk Boot Priority** submenu, select the RAID array onto which you wish to install Microsoft Windows 2000/XP (Figure 4).

```
                    CMOS Setup Utility-Copyright (C) 1984-2005 Award Software
                                  Hard Disk Boot Priority
    1. SCSI -0        NVIDIA MIRROR 111.7                       Item Help
    2. Bootable Add-in Cards                                    Menu Level    ▶▶


                                                                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.





    ↑↓: Move        PU/PD/+/-: Change Priority        F10: Save            ESC: Exit
```

Figure 4

English
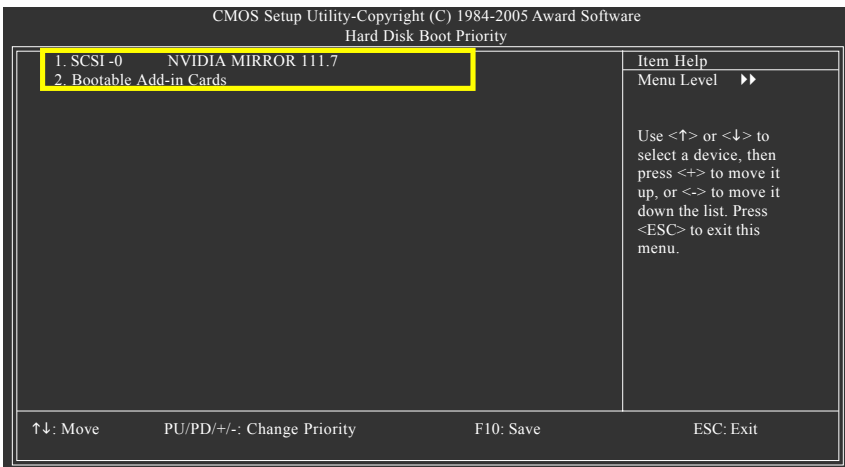
Step 3:
To boot from Windows installation CD-ROM, set **First Boot Device** under the **Advanced BIOS Features** menu to **CD-ROM** (Figure 5).

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




  ↑↓→←: Move    Enter: Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help
  F3: Language    F5: Previous Values    F6: Fail-Safe Defaults         F7: Optimized Defaults
```

Figure 5

Step 4:
Save and exit BIOS Setup.

GA-M51GM-S2G Motherboard   - 68 -

(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 6). Hit the **F10** key to enter the RAID BIOS setup utility.

```
MediaShield IDE ROM BIOS 6.21
Copyright (C) 2005 NVIDIA Corp.

Detecting array ...

Press F10 to enter RAID setup utility ...
```
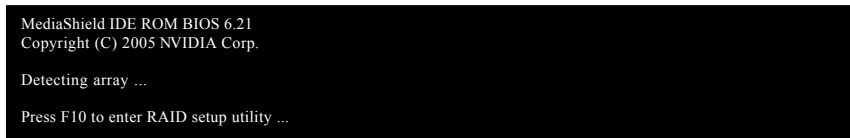
Figure 6

Step 2:

The Define a New Array screen is the first option screen when you enter the NVIDIA RAID setup utility. (Figure 7). 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 RAID Utility  July 27 2005
                               - Define a New Array -

    RAID Mode: Mirroring                        Striping Block: Optimal


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

    2.0.M    ST3120026AS       111.79GB
    2.1.M    ST3120026AS       111.79GB         [→] Add


                                                [←] Del

         [ESC] Quit      [F6] Back     [F7] Finish    [TAB] Navigate    [↑↓] Select    [ENTER] Popup
```
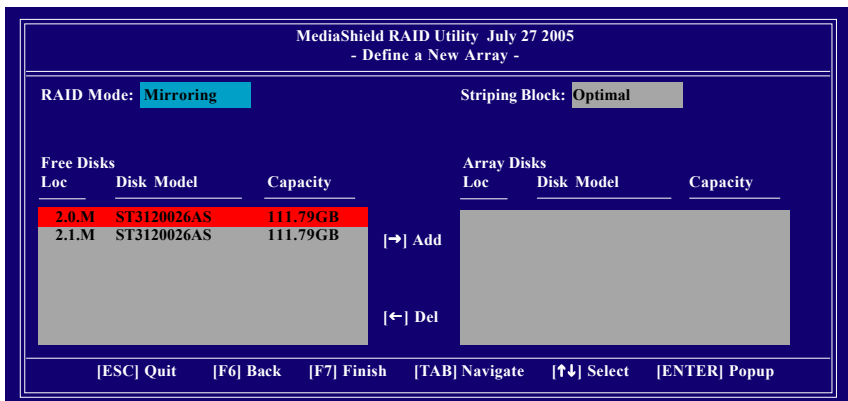
Figure 7

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 8).

```
            MediaShield RAID Utility  July 27 2005
                  - Define a New Array -

 RAID Mode: Striping                    Striping Block: Optimal


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

                                        2.0.M    ST3120026AS
                              [→] Add   2.1.M    ST3120026AS


                              [←] Del

        [ESC] Quit   [F6] Back   [F7] Finish   [TAB] Navigate   [↑↓] Select   [ENTER] Popup
```
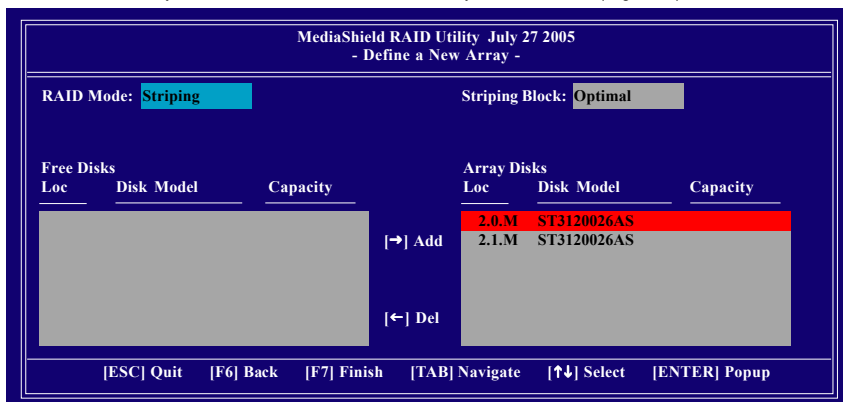
Figure 8

Step 6:

Press F7 after selecting the target hard disks. A message which says "Clear disk data?" will appear (Figure 9). 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.)

```
            MediaShield RAID Utility  July 27 2005
                  - Define a New Array -

 RAID Mode: Striping                    Striping Block: Optimal


 Free Disks                  Clear disk data ?        Disk Model      Capacity
 Loc      Disk Model      Capacity
                                                      T3120026AS
                          [Y] YES    [N] NO           T3120026AS


                              [←] Del

        [ESC] Quit   [F6] Back   [F7] Finish   [TAB] Navigate   [↑↓] Select   [ENTER] Popup
```

Figure 9

GA-M51GM-S2G Motherboard   - 70 -
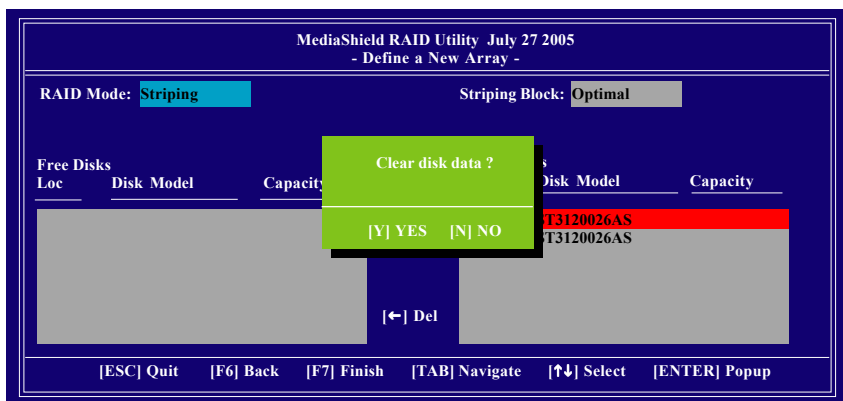
After that, the Array List screen displaying the RAID array you created will appear (Figure 10).
If you want to set the disk array as boot device, use the UP or DOWN ARROW key to select the array and press B. The **Boot** section will show **Yes**.

```
                    MediaShield RAID Utility  July 27 2005
                              - Array List -

                Boot      Id     Status     Vendor     Array  Model Name

                No        2      Healthy    NVIDIA     STRIPE  223.57G




        [Ctrl-X] Exit    [↑↓] Select     [B] Set Boot     [N] New Array     [ENTER] Detail
```

Figure 10

To read more information about the RAID array, press ENTER to enter the Array Detail screen (Figure 11), where you should see detailed information about RAID mode, disk block size, disk model name, and disk capacity, etc.

```
                        Array 2 : NVIDIA STRIPE 223.57.G
                                - Array Detail -

    RAID Mode:  Striping
    Striping Width : 1                          Striping Block: 64K


            Adapt    Channel    M/S      Index    Disk Model        Capacity

            1        0          Master   0        ST3120026AS       111.79GB
            1        1          Master   1        ST3120026AS       111.79GB




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

Figure 11

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 controller 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 12):

```
cd bootdrv
menu
```

Step 2: When the controller menu (Figure 13) appears, remove the startup disk and insert the blank formatted disk. Select the controller driver by pressing the corresponding letter from the menu.
For example, from the menu in Figure 13, press I to select **(I) nVIDIA C51 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 12

Figure 13

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

Figure 14

GA-M51GM-S2G Motherboard　　　　- 72 -
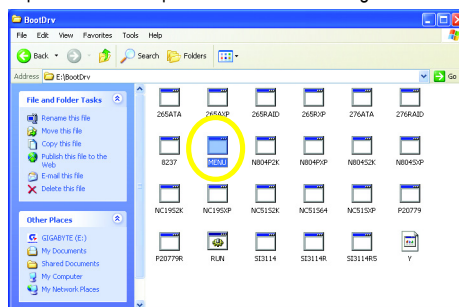
(5)   Installing SATA controller dr7iver during OS installation

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 driver. The following is an example of Windows XP installation.

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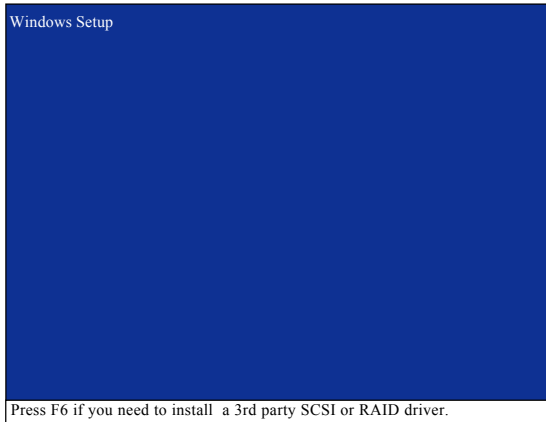
```
Windows Setup







Press F6 if you need to install  a 3rd party SCSI or RAID driver.
```
Figure 15

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

```
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 16

Step 3:

If Setup correctly recognizes the driver in the floppy disk, a controller menu similar to Figure 17 below will appear. Use the ARROW keys to select **NVIDIA RAID CLASS DRIVER*** (Figure 17) 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 17. 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 17

```
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 18

⚠ 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.

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Step 4:
When the next screen (Figure 19) 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 19

After the SATA controller driver installation is completed, you can proceed with the Windows 2000/XP installation.
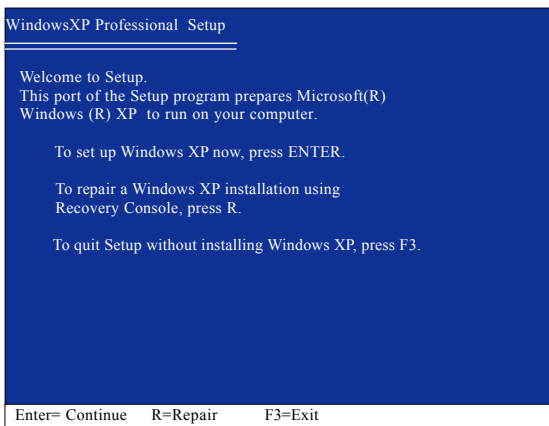
```
WindowsXP Professional  Setup
_____

  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 20

(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.)

(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 21) assure the SATA port connecting the SATA hard disk (the one containing the Windows 2000) is **Enabled** (Figure 21/22). Save settings and exit the BIOS setup.

```
            CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                           Integrated Peripherals
  ▶  IDE Configuration                      [Press Enter]        Item Help
  ▶  USB Configuration                      [Press Enter]        Menu Level▶
  ▶  SATA-II Configuration                  [Press Enter]
     Onboard Audio Function                 [Auto]
     Onboard LAN Function                   [Auto]
     Onboard LAN Boot ROM                   [Disabled]
     Onboard 1394 Function                  [Enabled]
     Onboard Serial Port 1                  [3F8/IRQ4]
     Onboard Serial Port 2                  [2F8/IRQ3]
     Onboard Parallel Port                  [378/IRQ7]
     Parallel Port Mode                     [SPP]



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

Figure 21

```
            CMOS Setup Utility-Copyright (C) 1984-2006 Award Software
                           SATA-II Configuration
     SATA-II RAID function                  [Disabled]           Item Help
     SATA-II 1 Controller                   [Enabled]            Menu Level▶
  x  SATA-II 1 Primary RAID                 Disabled
  x  SATA-II 1 Secondary RAID               Disabled
     SATA-II 2 Controller                   [Enabled]
  x  SATA-II 2 Primary RAID                 Disabled
  x  SATA-II 2 Secondary RAID               Disabled


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

Figure 22

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Step 3:

After system restarts, press F10 to enter the NVIDIA RAID setup utility. Select Striping in the RAID Mode filed (Figure 23). 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.
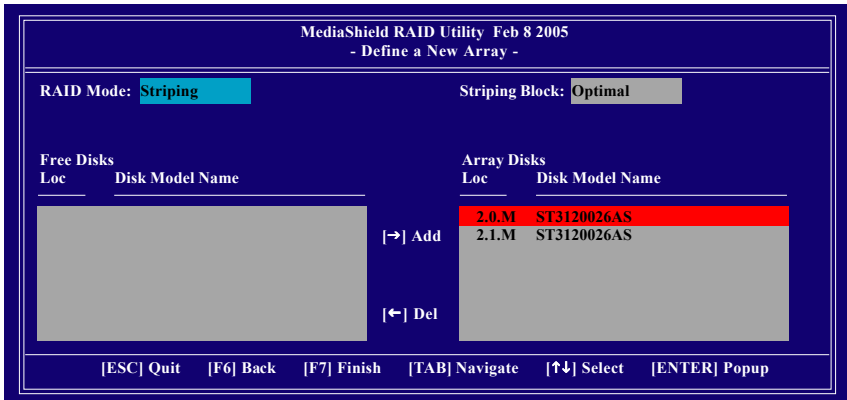
Figure 23

Step 4:

After all the settings, press F7 to complete the configuration. When prompted to **Clear Disk Data** (Figure 24), press N. Then press CTRL+X to exit the NVIDIA RAID BIOS. Restart the computer to boot into Windows 2000.
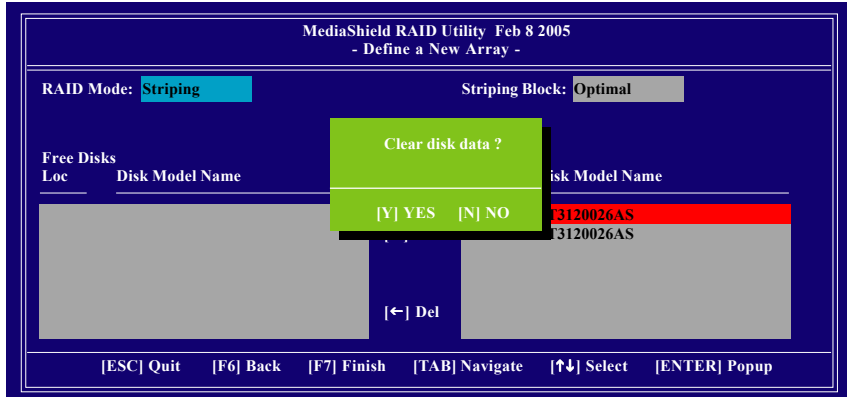
Figure 24

Step 5:

Install the NVIDIA nForce430 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.

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

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

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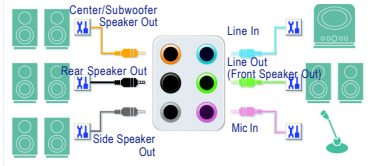
Please follow the steps to install the function. (Following pictures are in Windows XP)

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

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

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

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

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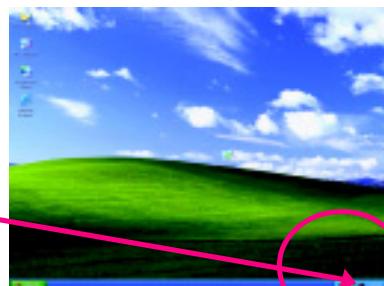In the Audio Control Panel, click the **Audio I/O** tab. In the upper left list, click **2CH Speaker**.

- 79 -   Appendix
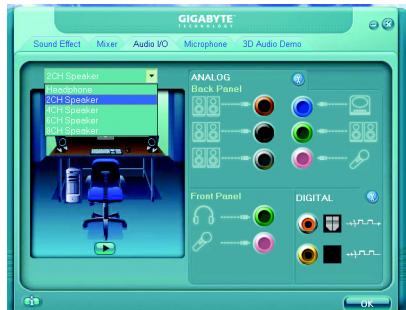
STEP 3:

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.
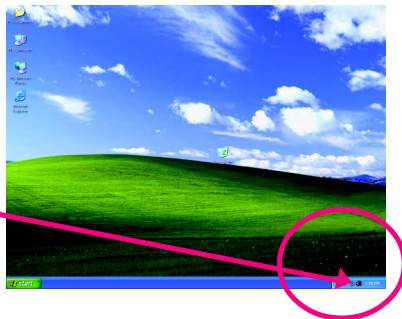
STEP 2:

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.
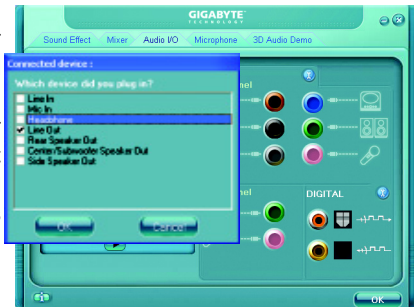
6 Channel Audio Setup

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.
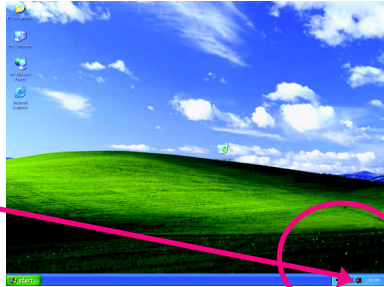
STEP 2:

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.

Appendix

STEP 2:
In the Audio Control Panel, click the **Audio I/O** tab. In the upper left list, click **8CH Speaker**.
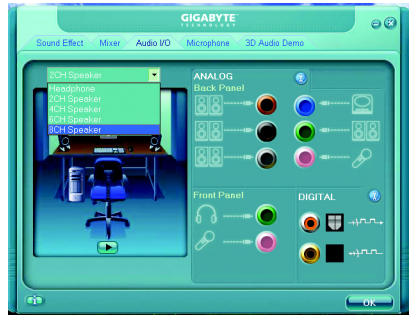
STEP 3:
After plugging in 8-channel speakers to the rear speaker jacks, a small window will pop up and ask you what type of equipment is connected. Choose a device depending on the type of speaker connected (8-channel audio consists of Front Speaker Out (Line Out), Rear Speaker Out, Center/Subwoofer Speaker Out, and Side Speaker Out) then click **OK**. The 8-channel audio setup is completed.
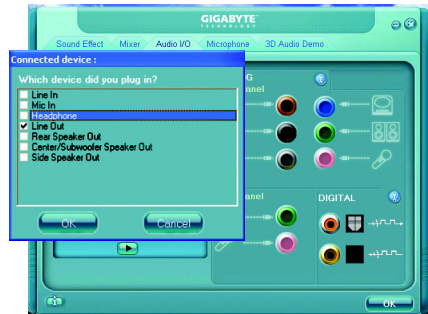
Sound Effect Configuration:
At the **Sound Effect** menu, users can adjust sound option settings as desired.

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.

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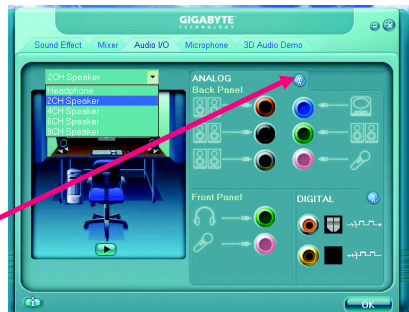
4-2 Troubleshooting

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

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

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

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

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Contact Us

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- **Japan**

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- **Singapore**

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- **U.K.**

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- **The Netherlands**

GIGA-BYTE TECHNOLOGY B.V.

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- **China**

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- **France**

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- **Russia**

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

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http://tw.giga-byte.com/TechSupport/ServiceCenter.htm

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- **Poland**

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

Tech. Support :

http://tw.giga-byte.com/TechSupport/ServiceCenter.htm

Non-Tech. Support(Sales/Marketing) :

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

- **Serbia & Montenegro**

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- **Czech Republic**

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

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

- **Romania**

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

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