When you installing AGP card, please make sure the following notice is fully understood and practiced. If your AGP card has "AGP 4X/8X(1.5V) notch"(show below), please make sure your AGP card is AGP 4X/8X(1.5V).

AGP 2X notch   AGP 4X/8X notch

Caution: AGP 2X card is not supported by SiS® 655. You might experience system unable to boot up normally. Please insert an AGP 4X/8X card.

Example 1: Diamond Vipper V770 golden finger is compatible with 2X/4X mode AGP slot. It can be switched between AGP 2X(3.3V) or 4X(1.5V) mode by adjusting the jumper. The factory default for this card is 2X(3.3V). The GA-GA-SINXP1394 (or any AGP 4X only) motherboards might not function properly, if you install this card without switching the jumper to 4X(1.5) mode in it.

Example 2: Some ATi Rage 128 Pro graphics cards made by "Power Color", the graphics card manufacturer & some SiS 305 cards, their golden finger is compatible with 2X(3.3V)/4X(1.5V) mode AGP slot, but they support 2X(3.3V) only. The GA-SINXP1394 (or any AGP 4X only) motherboards might not function properly, If you install this card in it.

Note : Although Gigabyte's AG32S(G) graphics card is based on ATi Rage 128 Pro chip, the design of AG32S(G) is compliance with AGP 4X(1.5V) specification. Therefore, AG32S (G)will work fine with SiS® 648 based motherboards.

Before you install PCI cards, please remove the Dual BIOS label from PCI slots if there is one.

- ☀ **The author assumes no responsibility for any errors or omissions that may appear in this document nor does the author make a commitment to update the information contained herein.**

- ☀ **Third-party brands and names are the property of their respective owners.**

- ☀ **Please do not remove any labels on motherboard, this may void the warranty of this motherboard.**

- ☀ **Due to rapid change in technology, some of the specifications might be out of date before publication of this booklet.**

WARNING: Never run the processor without the heatsink properly and firmly attached. PERMANENT DAMAGE WILL RESULT!

Mise en garde : Ne faites jamais tourner le processeur sans que le dissipateur de chaleur soit fix correctement et fermement. UN DOMMAGE PERMANENT EN RÉSULTERA !

Achtung: Der Prozessor darf nur in Betrieb genommen werden, wenn der W rmeableiter ordnungsgem β und fest angebracht ist. DIES HAT EINEN PERMANENTEN SCHADEN ZUR FOLGE!

Advertencia: Nunca haga funcionar el procesador sin el disipador de calor instalado correcta y firmemente. ¡SE PRODUCIRÁ UN DAÑO PERMANENTE!

Aviso: Nunca execute o processador sem o dissipador de calor estar adequado e firmemente conectado. O RESULTADO SERÁ UM DANO PERMANENTE!

警告： 将散热板牢固地安装到处理器上之前，不要运行处理器。过热将永远损坏处理器!

警告： 將散熱器牢固地安裝到處理器上之前，不要運行處理器。過熱將永遠損壞處理器!

경고: 히트싱크를 제대로 또 단단히 부착시키지 않은 채 프로세서를 구동시키지 마십시오. 영구적 고장이 발생합니다!

警告： 永久的な損傷を防ぐため、ヒートシンクを正しくしっかりと取り付けるまでは、プロセッサを動作させないようにしてください。

Declaration of Conformity

We, Manufacturer/Importer

(full address)

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

declare that the product

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

Mother Board

GA-SINXP1394

is in conformity with

(reference to the specification under which conformity is declared)

in accordance with 89/336 EEC-EMC Directive

☐ EN 55011	Limits and methods of measurement of radio disturbance characteristics of industrial,scientific and medical (ISM high frequency equipment	☐ EN 61000-3-2* ☒ EN 60555-2	Disturbances in supply systems cause by household appliances and similar electrical equipment "Harmonics"
☐ EN 55013	Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment	☐ EN 61000-3-3* ☒ EN 60555-3	Disturbances in supply systems cause by household appliances and similar electrical equipment "Voltage fluctuations"
☐ EN 55014	Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, portable tools and similar electrical apparatus	☒ EN 50081-1 ☒ EN 50082-1	Generic emission standard Part 1: Residual commercial and light industry Generic immunity standard Part 1: Residual commercial and light industry
☐ EN 55015	Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaries	☐ EN 55081-2	Generic emission standard Part 2: Industrial environment
☐ EN 55020	Immunity from radio interference of broadcast receivers and associated equipment	☐ EN 55082-2	Generic emission standard Part 2: Industrial environment
☒ EN 55022	Limits and methods of measurement of radio disturbance characteristics of information technology equipment	☐ ENV 55104	Immunity requirements for household appliances tools and similar apparatus
☐ DIN VDE 0855 ☐ part 10 ☐ part 12	Cabled distribution systems; Equipment for receiving and/or **distribution** from sound and television signals	☐ EN50091-2	EMC requirements for uninterruptible power systems (UPS)

☒ **CE marking** ⬡ C E (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 bussiness equipment
☐ EN 60335	Safety of household and similar electrical appliances	☐ EN 50091-1	General and Safety requirements for uninterruptible power systems (UPS)

Manufacturer/Importer

(Stamp)

Date : January 6, 2002

Signature: *Timmy Huang*

Name: Timmy Huang

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2.1077(a)

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

Address: **17358 Railroad Street**

City of Industry, CA 91748

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

hereby declares that the product

Product Name: **Motherboard**

Model Number: **GA-SINXP1394**

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: January 6, 2002

GA-SINXP1394
P4 Titan DDR Motherboard

USER'S MANUAL

Table of Content

Item Checklist

☑ The GA-SINXP1394 motherboard
☑ CD for motherboard driver & utility
☑ GA-SINXP1394 user's manual
☑ Quick PC Installation Guide
☑ ITE RAID Manual
☑ SATA RAID Manual
☑ IDE cable x3 / Floppy cable x 1
☐ GC-SATA Card (Optional)
    (Manual ; SATA cable x1 ; Power cable x 1)

☐ 2 Port USB Cable x 1
☑ 4 Port USB Cable x 1
☑ SPDIF Kit x 1(SPD-KIT)
☑ SATA cable x2
☑ I/O Shield
☑ Motherboard Settings Label
☐ GC-S1394 Card (Optional)
    (Manual)

⚠ WARNING!

Computer motherboards and expansion cards contain very delicate Integrated Circuit (IC) chips. To protect them against damage from static electricity, you should follow some precautions whenever you work on your computer.

1. Unplug your computer when working on the inside.
2. Use a grounded wrist strap before handling computer components. If you do not have one, touch both of your hands to a safely grounded object or to a metal object, such as the power supply case.
3. Hold components by the edges and try not touch the IC chips, leads or connectors, or other components.
4. Place components on a grounded antistatic pad or on the bag that came with the components whenever the components are separated from the system.
5. Ensure that the ATX power supply is switched off before you plug in or remove the ATX power connector on the motherboard.

Installing the motherboard to the chassis…

If the motherboard has mounting holes, but they don't line up with the holes on the base and there are no slots to attach the spacers, do not become alarmed you can still attach the spacers to the mounting holes. Just cut the bottom portion of the spacers (the spacer may be a little hard to cut off, so be careful of your hands). In this way you can still attach the motherboard to the base without worrying about short circuits. Sometimes you may need to use the plastic springs to isolate the screw from the motherboard PCB surface, because the circuit wire may be near by the hole. Be careful, don't let the screw contact any printed circuit write or parts on the PCB that are near the fixing hole, otherwise it may damage the board or cause board malfunctioning.

Chapter 1   Introduction

Features Summary

Form Factor	• 30.5cm x 24.4cm ATX size form factor, 6 layers PCB.
CPU	• Socket478 for Intel® Micro FC-PGA2 Pentium® 4 processor
	• Support Intel ® Pentium ® 4 (Northwood, 0.13 µm) processor
	• Support Intel ® Pentium ® 4 Processor with HT Technology
	• Intel Pentium®4 400/533MHz FSB
	• 2nd cache depends on CPU
Chipset	• SiS 655 Host/Memory controller
	• SiS 963 MuTIOL Media I/O
Memory	• 4 184-pin DDR DIMM sockets
	• Supports Dual channel DDR400<Note 1>/DDR333/DDR266 DIMM
	• Supports 128MB/256MB/512MB/1GB unbuffered DRAM
	• Supports up to 4GB DRAM (Max)
	• Supports only 2.5V DDR DIMM
I/O Control	• IT8705F
Slots	• 1 AGP 3.0 slot supports 8X/4X mode
	• 5 PCI slot supports 33MHz & PCI 2.2 compliant
On-Board IDE	• 2 IDE controllers provides IDE HDD/CD-ROM (IDE1, IDE2) with PIO, Bus Master (Ultra DMA33/ATA66/ATA100/ATA133) operation modes
	• IDE3 and IDE4 Compatible with RAID,Ultra ATA133/100, EIDE
Serial ATA	• 2 Serial ATA connectors in 150 MB/s operation mode
	• Controlled by Silicon Image Sil3112A

to be continued......

<Note 1> DDR400 recommended memory modules are listed in GIGABYTE website.

On-Board Peripherals	• 1 Floppy port supports 2 FDD with 360K, 720K,1.2M, 1.44M and 2.88M bytes.
	• 1 Parallel port supports Normal/EPP/ECP mode
	• 2 Serial ports (COMA&COMB)
	• 6 USB 2.0/1.1 ports (2 x Rear, 4 xFront by cable)
	• 1 Front Audio Connector
	• 1 IrDA connector for IR
Hardware Monitor	• CPU/System Fan Revolution detect
	• CPU/System Fan Fail Warning
	• CPU Overheat Warning
	• System Voltage Detect
On-Board Sound	• Realtek ALC650 CODEC
	• Line Out/ 2 front speaker
	• Line In / 2 rear speaker(by s/w switch)
	• Mic In / center& subwoofer(by s/w switch)
	• SPDIF out /SPDIF IN
	• CD In / AUX_IN / Game Port
On-Board RAID	• Onboard ITE IT8212F
	• Supports data striping (RAID 0) or mirroring (RAID 1) or striping+mirroring (RAID 0+RAID 1)
	• Supports JBOD function
	• Supports concurrent dual ATA133 IDE controller operation
	• Support ATAPI mode for HDD
	• Supports IDE bus master operation
	• Support ATA133/RAID mode switch by BIOS
	• Displays status and error checking messages during boot-up
	• Mirroring supports automatic background rebuilds
	• Features LBA and Extended Interrupt 13 drive translation in controller onboard BIOS
On-Board LAN	• Builit in Intel® RC82540EM (KENAI 32) Chipset
	• 1 RJ45 port
PS/2 Connector	• PS/2 Keyboard interface and PS/2 Mouse interface

to be continued......

BIOS	• Licensed AWARD BIOS, 2M bit Flash ROM
	• Supports Dual BIOS / Q-Flash
Additional Features	• PS/2 Keyboard power on by password
	• PS/2 Mouse power on
	• STR(Suspend-To-RAM)
	• AC Recovery
	• USB KB/Mouse wake up from S3
	• Poly fuse for keyboard over-current protection
	• Supports EasyTune 4
	• Supports @BIOS
Overclocking	• Over Voltage (CPU/DRAM/AGP) by BIOS

HT functionality requirement content

"Enabling the functionality of Hyper-Threading Technology for your computer system requires all of the following platform components:
- CPU: An Intel® Pentium 4 Processor with HT Technology
- Chipset: An SiS® Chipset that supports HT Technology
- BIOS: A BIOS that supports HT Technology and has it enabled
- OS: An operation system that has optimizations for HT Technology

Please set the CPU host frequency in accordance with your processor's specifications. We don't recommend you to set the system bus frequency over the CPU's specification because these specific bus frequencies are not the standard specifications for CPU, chipset and most of the peripherals. Whether your system can run under these specific bus frequencies properly will depend on your hardware configurations, including CPU, Chipsets, SDRAM, Cards….etc.

GA-SINXP1394 Motherboard Layout
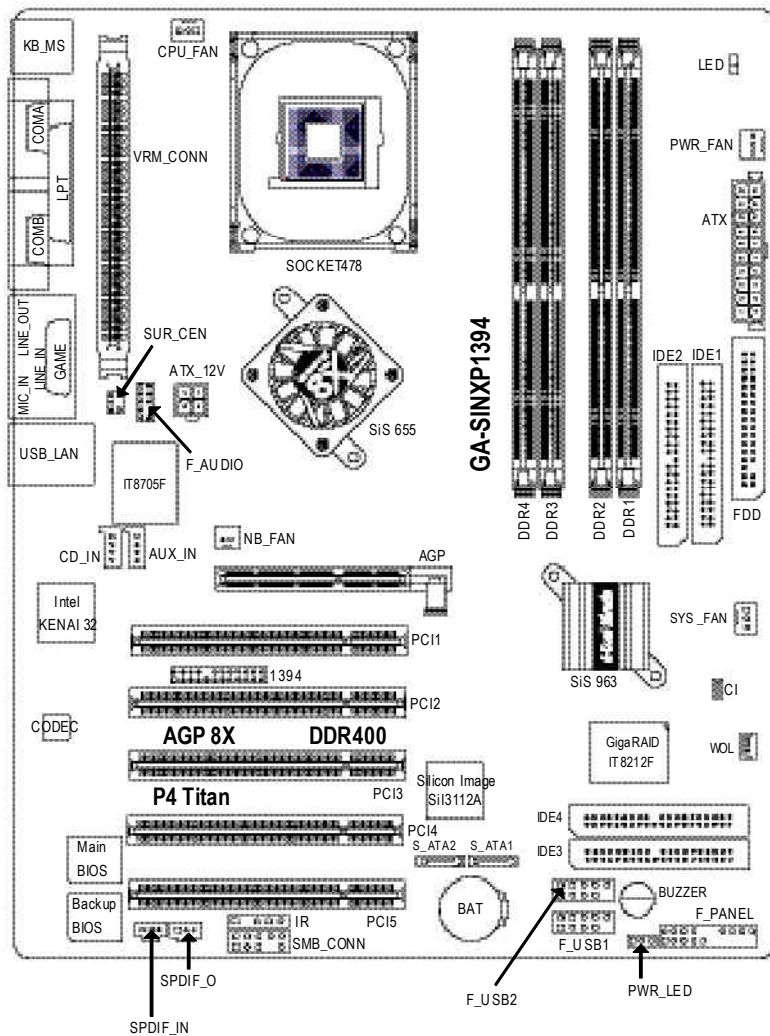
Chapter 2   Hardware Installation Process

To set up your computer, you must complete the following steps:

Step 1 - Install the Central Processing Unit (CPU)

Step 2 - Install memory modules

Step 3 - Install expansion cards

Step 4 - Connect ribbon cables, cabinet wires, and power supply

Step 5 - Setup BIOS software

Step 6 - Install supporting software tools
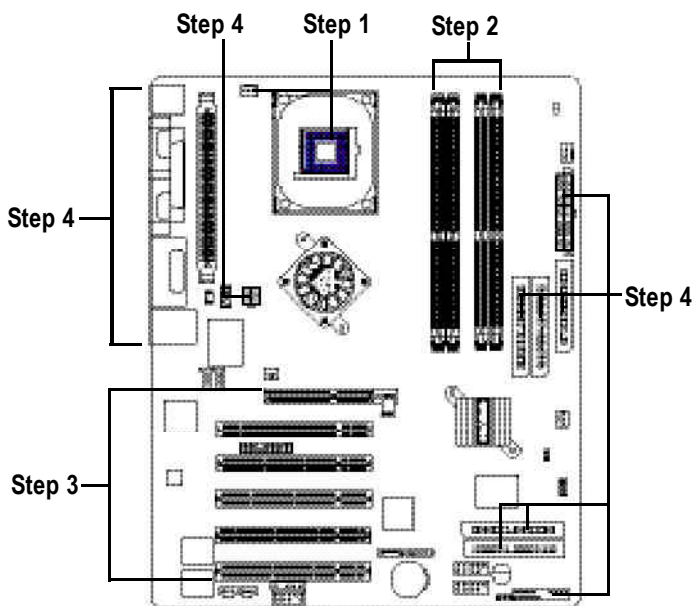
Step 1: Install the Central Processing Unit (CPU)

Step1-1 : CPU Installation

Angling the rod to 65⁰
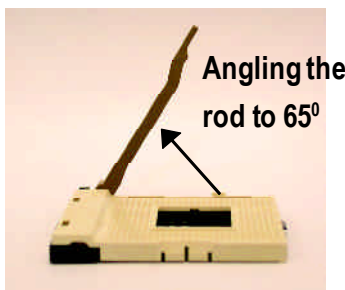
1. Angling the rod to 65-degree maybe feel a kind of tight, and then continue pull the rod to 90-degree when a noise "cough" made.

Socket Actuation Lever
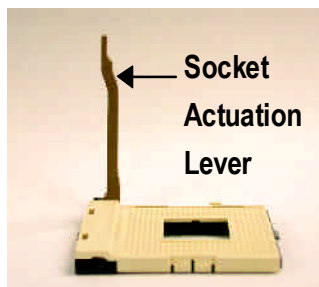
2. Pull the rod to the 90-degree directly.

Pin1 indicator

3. CPU Top View

Pin1 indicator
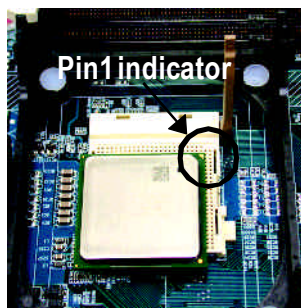
4. Locate Pin 1 in the socket and look for a (golden) cut edge on the CPU upper corner. Then insert the CPU into the socket.

- ☀ **Please make sure the CPU type is supported by the motherboard.**
- ☀ **If you do not match the CPU socket Pin 1 and CPU cut edge well, it will cause improper installation. Please change the insert orientation.**

Step1-2 : CPU Heat Sink Installation
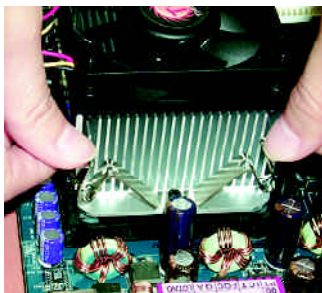
1. Hook one end of the cooler bracket to the CPU socket first.
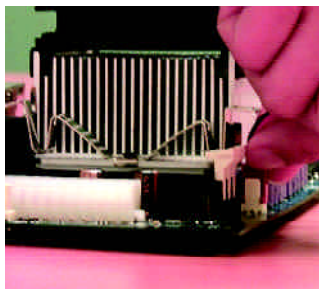
2. Hook the other end of the cooler bracket to the CPU socket.

- 💣 **Please use Intel approved cooling fan.**
- 💣 **We recommend you to apply the thermal tape to provide better heat conduction between your CPU and heatsink.**
  (The CPU cooling fan might stick to the CPU due to the hardening of the thermal paste. During this condition if you try to remove the cooling fan, you might pull the processor out of the CPU socket alone with the cooling fan, and might damage the processor. To avoid this from happening, we suggest you to either use thermal tape instead of thermal paste, or remove the cooling fan with extreme caution.)
- 💣 **Make sure the CPU fan power cable is plugged in to the CPU fan connector, this completes the installation.**
- 💣 **Please refer to CPU heat sink user's manual for more detail installation procedure.**

Step 2: Install memory modules

The motherboard has 4 dual inline memory module (DIMM) sockets. The BIOS will automatically detects memory type and size. To install the memory module, just push it vertically into the DIMM socket. The DIMM module can only fit in one direction due to the notch. Memory size can vary between sockets.
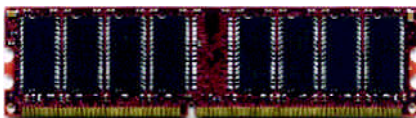
DDR
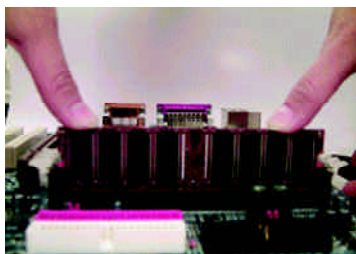
1. The DIMM socket has a notch, so the DIMM memory module can only fit in one direction.
2. Insert the DIMM memory module vertically into the DIMM socket. Then push it down.
3. Close the plastic clip at both edges of the DIMM sockets to lock the DIMM module.
   Reverse the installation steps when you wish to remove the DIMM module.

💣 **When LED is ON, do not install/remove DIMM from socket.**

💣 **Please note that the DIMM module can only fit in one direction due to the one notches. Wrong orientation will cause improper installation. Please change the insert orientation.**

DDR Introduction

Established on the existing SDRAM industry infrastructure, DDR (Double Data Rate) memory is a high performance and cost-effective solution that allows easy adoption for memory vendors, OEMs and system integrators.

DDR memory is a sensible evolutionary solution for the PC industry that builds on the existing SDRAM infrastructure, yet makes awesome advances in solving the system performance bottleneck by doubling the memory bandwidth. DDR SDRAM will offer a superior solution and migration path from existing SDRAM designs due to its availability, pricing and overall market support. PC2100 DDR memory (DDR266) doubles the data rate through reading and writing at both the rising and falling edge of the clock, achieving data bandwidth 2X greater than PC133 when running with the same DRAM clock frequency. With peak bandwidth of 2.664GB per second, DDR memory enables system OEMs to build high performance and low latency DRAM subsystems that are suitable for servers, workstations, high-end PC's and value desktop SMA systems. With a core voltage of only 2.5 Volts compared to conventional SDRAM's 3.3 volts, DDR memory is a compelling solution for small form factor desktops and notebook applications.

GA-SINXP1394 supports the Dual Channel Technology. After operating the Dual Channel Technology, the bandwidth of Memory Bus will add double up to 5.4GB/s.

GA-SINXP1394 includes 4 DIMM sockets, and each Channel has two DIMM sockets as following:

   ▸   Channel A : DIMM 1, DIMM 2

   ▸   Channel B : DIMM 3, DIMM 4

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

1. Only one DDR memory module is installed: The Dual Channel Technology can't operate when only one DDR memory module is installed.

2. Two DDR memory modules are installed (the same memory size and type): The Dual Channel Technology will operate when two memory modules are inserted individually into Channel A and B. If you install two memory modules in the same channel, the Dual Channel Technology will not operate. Additionally, you can boot the system only when one of the memory modules is inserted into Channel A or Channel B. On the other hand, the memory module must be inserted into any sockets.

3. Three DDR memory modules are installed: If you install three memory modules at the same time, the Dual Channel Technology will operate only when those modules have the same memory size and type.

4. Four DDR memory modules are installed: If you install four memory modules at the same time, the Dual Channel Technology will operate only when those modules have the same memory size and type.

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

The following tables include all memory-installed combination types:

(Please note that those types not in the tables will not boot up.)

● Figure 1: Dual Channel Technology (DS: Double Side, SS: Single Side)

	DIMM 1	DIMM 2	DIMM 3	DIMM 4
2 memory modules	DS/SS	X	DS/SS	X
	DS/SS	X	X	DS/SS
	X	DS/SS	DS/SS	X
	X	DS/SS	X	DS/SS
3 memory modules	DS/SS	DS/SS	DS/SS	X
	DS/SS	DS/SS	X	DS/SS
	DS/SS	X	DS/SS	DS/SS
	X	DS/SS	DS/SS	DS/SS
4 memory modules	DS/SS	DS/SS	DS/SS	DS/SS

● Figure 2: Don't operate Dual Channel Technology (DS: Double Side, SS: Single Side)

	DIMM 1	DIMM 2	DIMM 3	DIMM 4
1 memory module	DS/SS	X	X	X
	X	DS/SS	X	X
	X	X	DS/SS	X
	X	X	X	DS/SS
2 memory modules	DS/SS	DS/SS	X	X
	X	X	DS/SS	DS/SS

Step 3: Install expansion cards

Step 3-1: AGP Card Installation

1. Read the related expansion card's instruction document before install the expansion card into the computer.
2. Remove your computer's chassis cover, necessary 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.
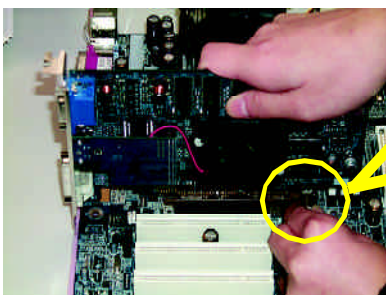
AGP Card

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

Step 3-2: DPVRM (Dual Power Voltage Regulator Module) Installation

What is DPVRM ?

DPVRM (Dual Power Voltage Regulator Module) is a daughter card which can provide you the DPS (Dual Power System) function. A cool stylish neon blue DPVRM that supply a total 6-phase power circuit design, delivers a high durable power design for the new generation Intel® platform.
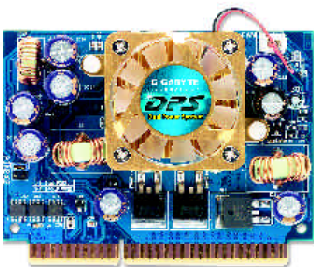
The DPVRM can work in a Dual Power System:
• Parallel Mode :
  DPVRM and motherboard CPU power can work simultaneously, providing a total of 6-phase power circuit.

How to install a DPVRM ?
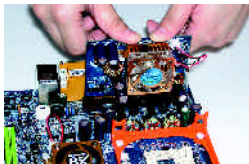
Step 1

Step 2

Step 3

1. The DPVRM connector has a notch, so the DPVRM can only fit in one direction.
2. Insert the DPVRM vertically into the socket and then push it down.
3. Fix the DPVRM on the motherbard with the clip.
4. Reverse the installation steps if you want to remove the DPVRM.

Step 4: Connect ribbon cables, cabinet wires, and power supply

Step 4-1: I/O Back Panel Introduction
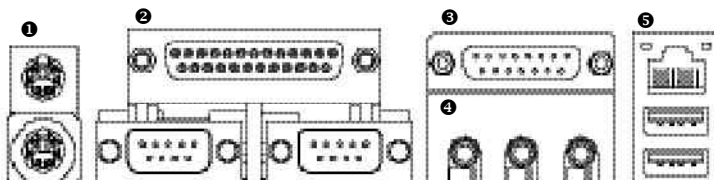
❶ PS/2 Keyboard and PS/2 Mouse Connector
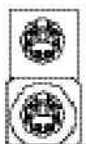
PS/2 Mouse Connector
(6 pin Female)

PS/2 Keyboard Connector
(6 pin Female)

➢ This connector supports standard PS/2 keyboard and PS/2 mouse.

❷ Parallel Port and Serial Ports (COMA/COMB)

Parallel Port
(25 pin Female)
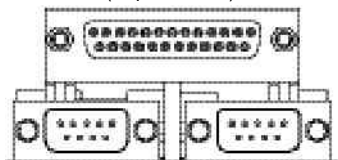
COMA   COMB

Serial Port (9 pin Male)

➢ This connector supports 2 standard COM ports and 1 Parallel port. Device like printer can be connected to Parallel port; mouse and modem etc can be connected to Serial ports.

❸ Game /MIDI Ports
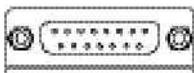
Joystick/ MIDI (15 pin Female)

➢ This connector supports joystick, MIDI keyboard and other relate audio devices.

❹ Audio Connectors
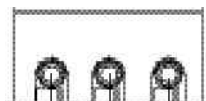
Line Out
(Front Speaker)

MIC In
(Center and Subwoofer)

Line In
(Rear Speaker)

➢ After install onboard audio driver, you may connect speaker to Line Out jack, micro phone to MIC In jack.
Device like CD-ROM , walkman etc can be connected to Line-In jack.
Please note:
You are able to use 2-/4-/6-channel audio feature by S/W selection.
If you want to enable 6-channel function, you have 2 choose for hardware connection.
Method1:
Connect "Front Speaker" to "Line Out"
Connect "Rear Speaker" to "Line In"
Connect "Center and Subwoofer" to "MIC Out".
Method2:
You can refer to page 23, and contact your nearest dealer for optional SUR_CEN cable.

❺ USB & LAN Connector
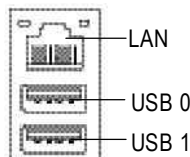
LAN

USB 0

USB 1

➢ 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.

If you want the detail information for 2-/4-/6-channel audio setup installation, please refer to page 82.

Step 4-2: Connectors Introduction
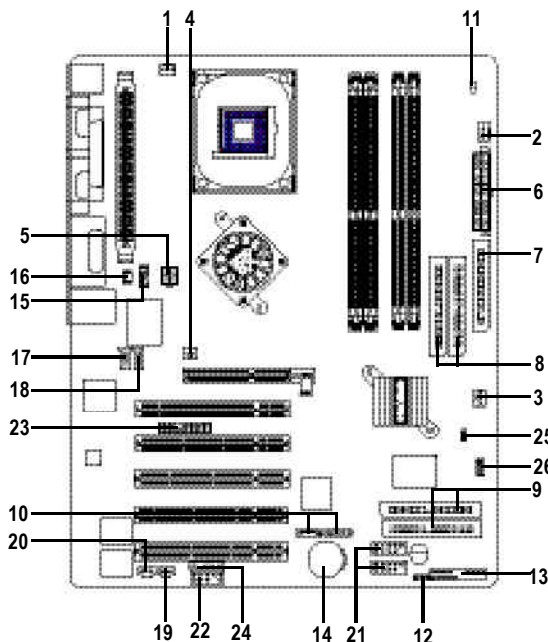
1) CPU_FAN	**15) F_AUDIO**
2) PWR_FAN	**16) SUR_CEN**
3) SYS_FAN	**17) CD_IN**
4) NB_FAN	**18) AUX_IN**
5) ATX_12V	**19) SPDIF_O**
6) ATX	**20) SPDIF_IN**
7) FDD	**21) F_USB1/F_USB2**
8) IDE1/IDE2	**22) SMB_CONN**
9) IDE3/IDE4	**23) 1394**
10) S_ATA1/S_ATA2	**24) I R**
11) LED	**25) C I**
12) PWR_LED	**26) WOL**
13) F_PANEL	
14) BAT	

1) CPU_FAN (CPU FAN Connector)

```
      ┌─────┐
  ┌───┤ ▫ ▫ ▫│1
Sense─┘     └─┬─ GND
         +12V
```
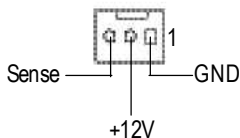
➤ Please note, a proper installation of the CPU cooler is essential to prevent the CPU from running under abnormal condition or damaged by overheating. The CPU fan connector supports Max. current up to 600 mA.

2) PWR_FAN (Power Fan Connector)
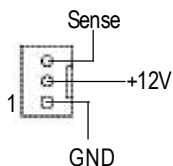
```
      Sense
   ┌──────┐
   │ ▫    │
   │ ▫    ├─ +12V
 1 │ ▫    │
   └──┬───┘
     GND
```

➤ This connector allows you to link with the cooling fan on the system case to lower the system temperature.

3) SYS_FAN (System FAN Connector)
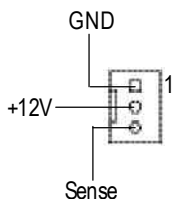
```
      GND
    ┌────────┐
    │      ▫ │1
+12V┤      ▫ │
    │      ▫ │
    └───┬────┘
      Sense
```

➤ This connector allows you to link with the cooling fan on the system case to lower the system temperature.

4) NB_FAN (Chip FAN Connector)

```
   ┌─────┐
   │ ▫ ▫ │1
   └──┬──┘
    +12V
     GND
```
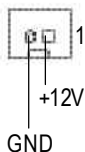
➤ If you installed wrong direction, the Chip Fan will not work. Sometimes will damage the Chip Fan. (Usually black cable is GND)

Hardware Installation Process

5) ATX_12V (+12V Power Connector)

```
    2   1
GND ──┐ ┌── GND
+12V ─┘ └── +12V
    4   3
```
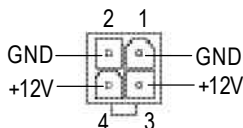
➢ This connector (ATX_12V) supplies the CPU operation voltage (Vcore).
If this "ATX_12V connector" is not connected, system cannot boot.

6) ATX (ATX Power)

➢ AC power cord should only be connected to your power supply unit after ATX power cable and other related devices are firmly connected to the mainboard.

```
              20
+12V ─────────────── VCC
5V SB (Stand by +5V) ─── VCC
Power Good ─────────── -5V
GND ─────────────── GND
VCC ─────────────── GND
GND ─────────────── GND
VCC ─────────────── PS-ON(Soft On/Off)
GND ─────────────── GND
3.3V ─────────────── -12V
3.3V ─────────────── 3.3V
               1
```
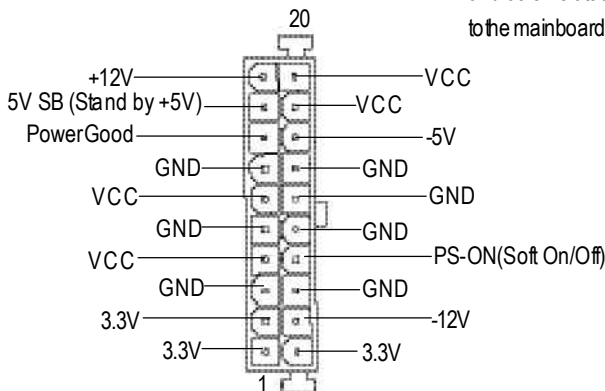
7) FDD (Floppy Connector)
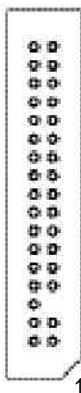
➢ Please connect the floppy drive ribbon cables to FDD. It supports 360K,1.2M, 720K, 1.44M and 2.88M bytes floppy disk types.
The red stripe of the ribbon cable must be the same side with the Pin1.

8) IDE1/ IDE2 [IDE1 / IDE2 Connector(Primary/Secondary)]

IDE2   IDE1

1   1
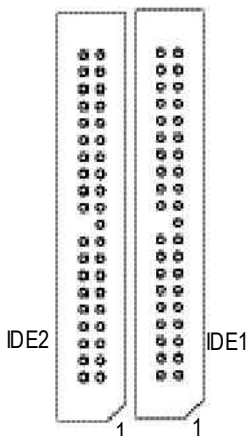
➢ Important Notice:
Please connect first harddisk to IDE1 and connect CDROM to IDE2.
The red stripe of the ribbon cable must be the same side with the Pin1.

9) IDE3 / IDE4 (RAID/ATA133, Green Connector)

IDE4

1

1   IDE3
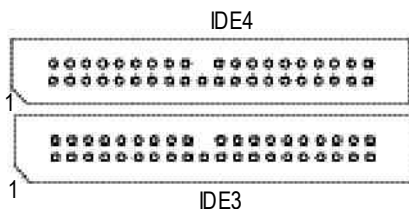
➢ Important Notice:
The red stripe of the ribbon cable must be the same side with the Pin1.
If you wish to use IDE3 and IDE4, please use it in unity with BIOS (either RAID or ATA133). Then, install the correct driver to have proper operation. For details, please refer to the ITE RAID manual.

10) S_ATA1/S_ATA2 (Serial ATA Connector)

7 ┌─────┐ 1
GND ──────── GND
RXP ──────── TXP
RXN ──────── TXN
GND
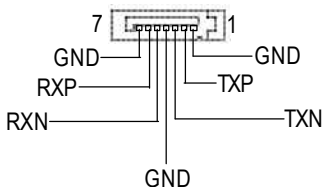
➢ You can connect the Serial ATA device to this connector, it provides you high speed transfer rates(150MB/sec).

11) LED

-

+

➢ Do not remove memory modules while LED is on. It might cause short or other unexpected damages due to the 2.5V stand by voltage. Remove memory modules only when system is power off.

12) PWR_LED

1 ⊙ ⊙ ⊙

MPD+

MPD-

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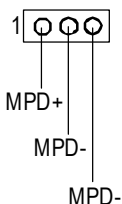
➢ PWR_LED is connect with the system power indicator to indicate whether the system is on/off. It will blink when the system enters suspend mode.

If you use dual color LED, power LED will turn to another color.

13) F_PANEL (2x10 pins connector)
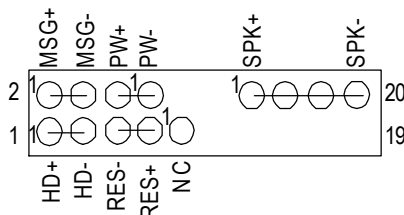
HD (IDE Hard Disk Active LED)	Pin 1: LED anode(+)
(Blue)	Pin 2: LED cathode(-)
SPK (Speaker Connector)	Pin 1: VCC(+)
(Amber)	Pin 2 - Pin 3: NC
	Pin 4: Data(-)
RES (Reset Switch)	Open: Normal Operation
(Green)	Close: Reset Hardware System
PW (Soft Power Connector)	Open: Normal Operation
(Red)	Close: Power On/Off
MSG (Message LED/Power/	Pin 1: LED anode(+)
Sleep LED)(Yellow)	Pin 2: LED cathode(-)
NC(Purple)	N C

➢ 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 above.

14) BAT (Battery)

+
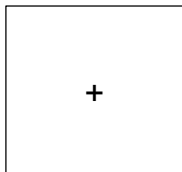
CAUTION

❖ 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. Remove the battery, wait for 30 second.
3. Re-install the battery.
4. Plug the power cord and turn ON the computer.

15) F_AUDIO (Front Audio Connector)

```
              1    2
MIC ─────────⊖  ⊖───────── GND
REF ─────────⊖  ⊖───────── POWER
FrontAudio (R) ─⊙  ⊙── RearAudio (R)
Reserved ──────⊖
FrontAudio (L) ─⊙  ⊙── RearAudio (L)
              9    10
```
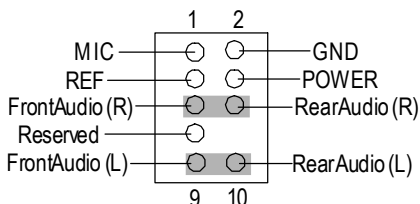
➢ If you want to use "Front Audio" connector, you must remove 5-6, 9-10 Jumper. In order to utilize the front audio header, your chassis must have front audio connector. Also please make sure the pin assigment on the cable is the same as the pin assigment on the MB header. To find out if the chassis you are buying support front audio connector, please contact your dealer. Please note, you can have the of using front audio connector or of using rear audio connector to play sound.

16) SUR_CEN

```
                1
SUR OUTL ──⊙⊙── SUR OUTR
GND ──────⊙
CENTER_OUT ─⊙⊙── BASS_OUT
```
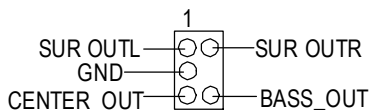
➢ Please contact your nearest dealer for optional SUR_CEN cable.

17) CD_IN (CD Audio Line In)

```
CD-L ────▣ 1
GND ────▣
CD-R ────▣
```
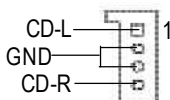
➢ Connect CD-ROM or DVD-ROM audio out to the connector.

Hardware Installation Process

18) AUX_IN (AUX In Connector)

➤ Connect other device(such as PCI TV Tunner audio out)to the connector.

```
AUX-L ────┐ 1
GND ──────
AUX-R ────
```
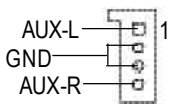
19) SPDIF_O (SPDIF Out)

➤ The SPDIF output is capable of providing digital audio to external speakers or com pressed AC3 data to an external Dolby Digital Decoder. Use this feature only when your stereo system has digital input function.

```
1
VCC ──┐  ┌── GND
      SPDIF Out
```
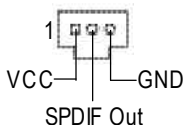
20) SPDIF_IN (SPDIF In)

➤ Use this feature only when your device has digital output function.

```
1
VCC ──┐  ┌── GND
      SPDIF IN
```
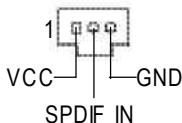
21) F_USB1/F_USB2 (Front USB Connector)

```
            USB Dy+
USB Dy- ──┐      ┌── GND
Power ────┐      ┌── NC
        ○ ○ ○ ○ ○
    1   ○ ○ ○ ○
Power ──┐
USB Dx- ──┘  └── GND
        USB Dx+
```

➤ Be careful with the polarity of the front USB connector. Check the pin assignment while you connect the front USB cable. Please contact your nearest dealer for optional front USB cable.
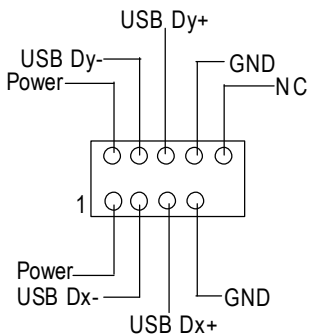
22) SMB_CONN
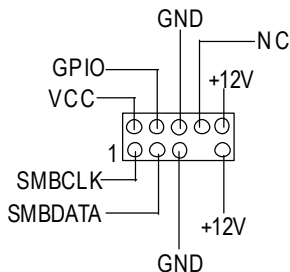
23) 1394 (IEEE1394 Connector)
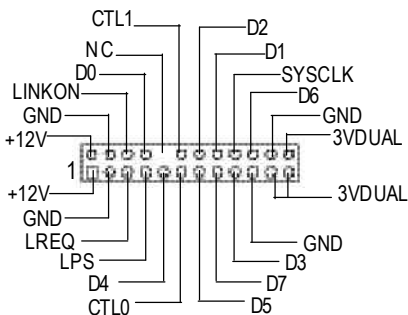
➢ Please Note: Serial interface standard set by Institute of Electrical and Electronics Engineers, which has features like high speed, high bandwidth and hot plug.

24) IR (IR Connector)
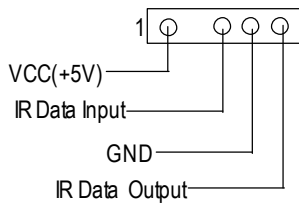
➢ Be careful with the polarity of the IR connector while you connect the IR. Please contact you nearest dealer for optional IR device.

25) CI (CASE OPEN)

1 ⭕ ── Signal
⭕ ── GND
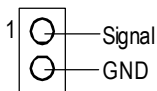
➢ This 2 pin connector allows your system to enable or disable the "Case Open" item in BIOS if the system case begin remove.

26) WOL (Wake on LAN)

1
+5V SB
GND
Signal
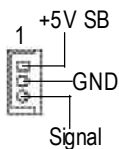
➢ This connector allows the remove servers to manage the system that installed this mainboard via your network adapter which also supports WOL.

Chapter 3   BIOS Setup

BIOS Setup is an overview of the BIOS Setup Program. The program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM so that it retains the Setup information when the power is turned off.

ENTERING SETUP

Powering ON the computer and pressing <Del> immediately will allow you to enter Setup. If you require more advanced BIOS settings, please go to "Advanced BIOS" setting menu. To enter Advanced BIOS setting menu, press "Ctrl+F1" key on the BIOS screen.

CONTROL KEYS

<↑>	Move to previous item
<↓>	Move to next item
<←>	Move to the item in the left hand
<→>	Move to the item in the right hand
<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
<+/PgUp>	Increase the numeric value or make changes
<-/PgDn>	Decrease the numeric value or make changes
<F1>	General help, only for Status Page Setup Menu and Option Page Setup Menu
<F2>	Item Help
<F3>	Reserved
<F4>	Reserved
<F5>	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
<F6>	Load the file-safe default CMOS value from BIOS default table
<F7>	Load the Optimized Defaults
<F8>	Dual BIOS/Q-Flash function
<F9>	System Information
<F10>	Save all the CMOS changes, only for Main Menu

GETTING HELP

Main Menu

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

Status Page Setup Menu / Option Page Setup Menu

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

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

Once you enter Award BIOS CMOS Setup Utility, the Main Menu (Figure 1) will appear on the screen. The Main Menu allows you to select from eight setup functions and two exit choices. Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

CMOS Setup Utility -Copyright (C) 1984-2002 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
▶Frequency/Voltage Control	Exit Without Saving
ESC:Quit	↑↓→←:Select Item
F8: Dual BIOS/Q-Flash	F10:Save & Exit Setup
Time, Date, Hard Disk Type...	

Figure 1: Main Menu

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

● **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 Configurations**

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

● **PC Health Status**

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

● **Frequency/Voltage Control**

This setup page is control CPU's clock and frequency ratio.

● **Top Performance**

If you wish to maximize the performance of your system, set "Top Performance" as "Enabled".

● **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.

Standard CMOS Features

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Standard CMOS Features

Date (mm:dd:yy)	Fri, May 3 2002	Item Help
Time (hh:mm:ss)	17:56:23	Menu Level ▶
		Change the day, month,
▶IDE Primary Master	None	year
▶IDE Primary Slave	None	
▶IDE Secondary Master	None	<Week>
▶IDE Secondary Slave	None	Sun. to Sat.
Drive A	1.44M, 3.5 in.	<Month>
Drive B	None	Jan. to Dec.
Floppy 3 Mode Support	Disabled	
		<Day>
Halt On	All, But Keyboard	1 to 31 (or maximum
		allowed in the month)
Base Memory	640K	
Extended Memory	130048K	<Year>
Total Memory	131072K	1999 to 2098
↑↓→←: 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: Standard CMOS Features

✎ **Date**

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

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

        ▶▶Month   The month, Jan. Through Dec.

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

        ▶▶Year   The year, from 1999 through 2098

✏ **Time**

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

✏ **IDE Primary Master, Slave / IDE Secondary Master, Slave**

The category identifies the types of hard disk from drive C to F that has been installed in the computer. There are two types: auto type, and manual type. Manual type is user-definable; Auto type which will automatically detect HDD type.

Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category.

If you select User Type, related information will be asked to enter to the following items. Enter the information directly from the keyboard and press <Enter>. Such information should be provided in the documentation form your hard disk vendor or the system manufacturer.

    ▸▸ CYLS.   Number of cylinders

    ▸▸ HEADS   Number of heads

    ▸▸ PRECOMP   Write precomp

    ▸▸ LANDZONE   Landing zone

    ▸▸ SECTORS Number of sectors

If a hard disk has not been installed select NONE and press <Enter>.

✏ **Drive A / Drive B**

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

    ▸▸ None   No floppy drive installed

    ▸▸ 360K, 5.25 in.   5.25 inch PC-type standard drive; 360K byte capacity.

    ▸▸ 1.2M, 5.25 in.   5.25 inch AT-type high-density drive; 1.2M byte capacity

                             (3.5 inch when 3 Mode is Enabled).

    ▸▸ 720K, 3.5 in.   3.5 inch double-sided drive; 720K byte capacity

    ▸▸ 1.44M, 3.5 in.   3.5 inch double-sided drive; 1.44M byte capacity.

    ▸▸ 2.88M, 3.5 in.   3.5 inch double-sided drive; 2.88M byte capacity.

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

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

✑ **Halt on**

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

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

✑ **Memory**

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

Base Memory

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

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

Advanced BIOS Features

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Advanced BIOS Features

		Item Help
SATA/RAID/SCSI Boot Order	[SCSI]	
First Boot Device	[Floppy]	Menu Level ▶
Second Boot Device	[HDD-0]	Select onboard RAID or
Third Boot Device	[CDROM]	PCI SCSI boot rom
Boot Up Floppy Seek	[Disabled]	order
Password Check	[Setup]	
# CPU Hyper-Threading	[Disabled]	
Flexible AGP 8X	[Auto]	
Init Display First	[AGP]	
↑↓→←: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help		
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Figure 3: Advanced BIOS Features

" # " System will detect automatically and show up when you install the Intel® Pentium® 4 processor with HT Technology. When this function is set to "Enabled", the item "Power Management Setup", and the option, "USB Legacy support" (in the "Integrated peripherals"), will not be provided to support.

☞ **SATA/RAID / SCSI Boot Order**

♦ This feature allows you to select the boot order SATA or RAID or SCSI device.

 ▶SATA   Select your boot device priority by SATA.
 ▶RAID   Select your boot device priority by RAID.
 ▶SCSI   Select your boot device priority by SCSI.

✑ **First / Second / Third Boot Device**

☻ This feature allows you to select the boot device priority.

　　▸▸ Floppy　　　　　Select your boot device priority by Floppy.

　　▸▸ LS120　　　　　Select your boot device priority by LS120.

　　▸▸ HDD-0~3　　　　Select your boot device priority by HDD-0~3.

　　▸▸ SCSI　　　　　Select your boot device priority by SCSI.

　　▸▸ CDROM　　　　Select your boot device priority by CDROM.

　　▸▸ ZIP　　　　　　Select your boot device priority by ZIP.

　　▸▸ USB-FDD　　　Select your boot device priority by USB-FDD.

　　▸▸ USB-ZIP　　　Select your boot device priority by USB-ZIP.

　　▸▸ USB-CDROM　　Select your boot device priority by USB-CDROM.

　　▸▸ USB-HDD　　　Select your boot device priority by USB-HDD.

　　▸▸ LAN　　　　　Select your boot device priority by LAN.

　　▸▸ Disabled　　　Select your boot device priority by Disabled.

✑ **Boot Up Floppy Seek**

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

✑ **CPU Hyper-Threading**

　　▸▸ Enabled　　　　Enables CPU Hyper Threading Feature. Please note that this feature is only
　　　　　　　　　　　working for operating system with multi processors mode supported.

　　▸▸ Disabled　　　Disables CPU Hyper Threading. (Default value)

Flexible AGP 8X

    ▶ Auto   Automatically set AGP transfer rate according to AGP compatibility and stability.

                        (Default v alue)

    ▶ 4X   Set AGP transfer rate to 4X mode no matter what the AGP transfer rate the card is.

Init Display First

    ▶ AGP   Set Init Display First to AGP. (Default v alue)

    ▶ PCI   Set Init Display First to PCI.

Integrated Peripherals

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Integrated Peripherals

		Item Help
IDE1 Conductor Cable	[Auto]	
IDE2 Conductor Cable	[Auto]	Menu Level ▶
On-Chip Primary PCI IDE	[Enabled]	[Auto]
On-Chip Secondary PCI IDE	[Enabled]	Auto-detect IDE
AC97 Audio	[Enabled]	cable type
USB Controller	[Enabled]	
USB Legacy Support	[Disabled]	[ATA66/100/133]
Onboard RAID device	[Enabled]	Set Conductor cable
Onboard LAN device	[Enabled]	to ATA66/100/133(80-pins)
Onboard Serial ATA	[Enabled]	
Serial ATA Function	[RAID]	[ATA33]
Onboard Serial Port 1	[3F8/IRQ4]	Set Conductor cable
Onboard Serial Port 2	[2F8/IRQ3]	to ATA33(40-pins)
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[SPP]	
x ECP Mode Use DMA	3	
Game Port Address	[201]	
Midi Port Address	[330]	
Midi Port IRQ	[10]	

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

Figure 4: Integrated Peripherals

ᘉ **IDE1 Conductor Cable**

   ▸Auto   Will be automatically detected by BIOS. (Default Value)

   ▸ATA66/100/133   Set IDE1 Conductor Cable to ATA66/100/133 (Please make sure your IDE

                            device and cable is compatible with ATA66/100/133).

   ▸ATA33   Set IDE1 Conductor Cable to ATA33 (Please make sure your IDE device and

                            cable is compatible with ATA33).

▣ **IDE2 Conductor Cable**

- ▶▶Auto Will be automatically detected by BIOS. (Default Value)
- ▶▶ATA66/100/133 Set IDE2 Conductor Cable to ATA66/100/133 (Please make sure your IDE device and cable is compatible with ATA66/100/133).
- ▶▶ATA33 Set IDE2 Conductor Cable to ATA33 (Please make sure your IDE device and cable is compatible with ATA33).

▣ **On-Chip Primary PCI IDE**

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

▣ **On-Chip Secondary PCI IDE**

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

▣ **AC97 Audio**

- ▶▶Enabled Enable onboard AC'97 audio function. (Default value)
- ▶▶Disabled Disable this function.

▣ **USB Controller**

- ▶▶Enabled Enable USB Controller. (Default value)
- ▶▶Disabled Disable USB Controller.

▣ **USB Legacy Support**

When USB keyboard or mouse is installed, please set at Enabled.

- ▶▶Enabled Enabled USB keyboard or mouse support.
- ▶▶Disabled Disabled USB keyboard or mouse support. (Default value)

▣ **Onboard RAID device**

● If you don't set any HDD Device in IDE3 or 4 but enable the function, the normal message "MBUltra133 BIOS is not installed becasue there are no drives attached" will come out. Ignore this message or set the option disable to make the message disappear.

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

❐ **Onboard LAN device**

▶ Enabled   Enable onboard LAN function. (Default value)

▶ Disabled   Disable onboard LAN function.

❐ **Onboard Serial ATA**

●※Disable this option if you are not using the onboard Serial ATA feature.

▶ Enabled   Enable Onboard H/W Serial ATA support. (Default value)

▶ Disabled   Disable Onboard H/W Serial ATA .

❐ **Serial ATA Function**

▶ RAID   Select onboard Serial ATA chip function as RAID. (Default value)

▶ BASE   Select onboard Serial ATA chip function as BASE.

❐ **Onboard Serial Port 1**

▶ Auto   BIOS will automatically setup the port 1 address.

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

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

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

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

▶ 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.

▶ 2F8/IRQ3   Enable onboard Serial port 2 and address is 2F8. (Default value)

▶ 3E8/IRQ4   Enable onboard Serial port 2 and address is 3E8.

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

▶ Disabled   Disable onboard Serial port 2.

❐ **Onboard Parallel 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.

▶ Disabled   Disable onboard LPT port.

▶ 3BC/IRQ7   Enable onboard LPT port and address is 3BC/IRQ7.

⌐ **Parallel Port Mode**

    ‣SPP   Using Parallel port as Standard Parallel Port. (Default Value)

    ‣EPP   Using Parallel port as Enhanced Parallel Port.

    ‣ECP   Using Parallel port as Extended Capabilities Port.

    ‣ECP+EPP   Using Parallel port as ECP & EPP mode.

⌐ **ECP Mode Use DMA**

    ‣3   Set ECP Mode Use DMA to 3. (Default Value)

    ‣1   Set ECP Mode Use DMA to 1.

⌐ **Game Port Address**

    ‣201   Set Game Port Address to 201. (Default Value)

    ‣209   Set Game Port Address to 209.

    ‣Disabled   Disable this function.

⌐ **Midi Port Address**

    ‣300   Set Midi Port Address to 300.

    ‣330   Set Midi Port Address to 330.(Default Value)

    ‣Disabled   Disable this function.

⌐ **Midi Port IRQ**

    ‣5   Set Midi Port IRQ to 5.

    ‣10   Set Midi Port IRQ to 10. (Default Value)

Power Management Setup

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Power Management Setup

		Item Help
ACPI Suspend Type	[S1(POS)]	
Soft-Off by PWR_BTTN	[Off]	Menu Level ▶
System After AC Back	[Off]	[S1]
IRQ [3-7, 9-15], NMI	[Enabled]	Set suspend type to
ModemRingOn	[Enabled]	Power On Suspend under
PME Event Wake Up	[Enabled]	ACPI OS
Power On by Keyboard	[Disabled]	
Power On by Mouse	[Disabled]	[S3]
Resume by Alarm	[Disabled]	Set suspend type to
x Month Alarm	NA	Suspend to RAM under
x Day (of Month)	0	ACPI OS
x Time (hh:mm:ss)	0 0 0	
Power LED in S1 state	[Blinking]	
↑↓→←: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help		
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Figure 5: Power Management Setup

⌦ ACPI Suspend Type

▶S1(POS)   Set ACPI suspend type to S1. (Default Value)

▶S3(STR)   Set ACPI suspend type to S3.

⌦ Soft-off by PWR_BTIN

▶Off   The user press the power button once, he can turn off the system.
(Default Value)

▶Suspend   The user press the power button once, then he can enter suspend mode.

⌦ System after AC Back

▶LastState   When AC-power back to the system, the system will return to the Last state
before AC-power off.

▶Off   When AC-power back to the system, the system will be in "Off" state.
(Default Value)

▶On   When AC-power back to the system, the system will be in "On" state.

□ **IRQ [3-7, 9-15], NMI**

▶Disabled   Disable this function.

▶Enabled   Enable this function. (Default value)

□ **ModemRingOn**

▶Disabled   Disable Modem Ring on function.

▶Enabled   Enable Modem Ring on function. (Default Value)

□ **PME Event Wake Up**

▶Disabled   Disable this function.

▶Enabled   Enable PME Event Wake up. (Default Value)

□ **Power On by Keyboard**

▶Password   Input password (from 1 to 8 characters) and press Enter to set the Keyboard Power On Password.

▶Any Key   Set Keyboard power on by any key.

▶Disabled   Disable this function. (Default Value)

□ **Power On by Mouse**

▶Enabled   Enable Power On by Mouse function.

▶Disabled   Disable this function. (Default Value)

□ **Resume by Alarm**

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

▶Disabled   Disable this function. (Default Value)

▶Enabled   Enable alarm function to POWER ON system.

If RTC Alarm Lead To Power On is Enabled.

Month Alarm :	NA, 1~12
Day (of Month) :	1~31
Time (hh: mm: ss) :	(0~23) : (0~59) : (0~59)

□ **Power LED in S1 state**

▶Blinking   In standby mode(S1), power LED will blink. (Default Value)

▶Dual/OFF   In standby mode(S1)):

        a. If use single color LED, power LED will turn off.

        b. If use dual color LED, power LED will turn to another color.

PnP/PCI Configurations

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PnP/PCI Configurations

PCI 4 IRQ Assignment	[Auto]	Item Help
PCI 1/5 IRQ Assignment	[Auto]	Menu Lev el ▶
PCI 2 IRQ Assignment	[Auto]	
PCI 3 IRQ Assignment	[Auto]	

↑↓→←: Mov e   Enter:Select   +/-/PU/PD:Value   F10:Sav e   ESC:Ex it   F1:General Help
F5:Prev ious Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Figure 6: PnP/PCI Configurations

PCI 4 IRQ Assignment

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

PCI 1/5 IRQ Assignment

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

PCI 2 IRQ Assignment

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

PCI 3 IRQ Assignment

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

PC Health Status

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PC Health Status

Reset Case Open Status	[Disabled]	Item Help
Case Opened	No	Menu Level ▶
VCORE	1.778V	[Disabled]
VCC18	1.856V	Don't reset case
+3.3V	3.2V	open status
+5V	4.945V	
+12V	12.288V	[Enabled]
Current CPU Temperature	49°C	Clear case open
Current CPU FAN Speed	5113 RPM	status at next boot
Current System FAN Speed	0 RPM	
CPU Warning Temperature	[Disabled]	
CPU FAN Fail Warning	[Disabled]	
System FAN Fail Warning	[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 7: PC Health Status

⌕ **Reset Case Open Status**

⌕ **Case Opened**

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

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

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

⌕ **Current Voltage (V) VCORE/ VCC18 / +3.3V / +5V / +12V**

▸Detect system's voltage status automatically.

❑ **Current CPU Temperature**

▶Detect CPU temperature automatically.

❑ **Current CPU/System FAN Speed (RPM)**

▶ Detect CPU/System Fan speed status automatically.

❑ **CPU Warning Temperature**

▶ Disabled   Don't monitor CPU's temperature. (Default value)

▶ 60°/140°F   Alarm when CPU current temperature over than 60°/140°F.

▶ 70°/158°F   Alarm when CPU current temperature over than 70°/158°F.

▶ 80°/176°F   Alarm when CPU current temperature over than 80°/176°F.

▶ 90°/194°F   Alarm when CPU current temperature over than 90°/194°F.

❑ **CPU FAN Fail Warning**

▶ Disabled   Fan Warning function disable. (Default value)

▶ Enabled   Enalbe FAN warning alarm when FAN stops.

❑ **System FAN Fail Warning**

▶ Disabled   Fan Warning function disable. (Default value)

▶ Enabled   Enalbe FAN warning alarm when FAN stops.

Frequency/Voltage Control

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Frequency/Voltage Control

CPU Clock Ratio	[10X]	Item Help
Linear Frequency Control	[Disabled]	Menu Level ▶
x CPU Clock (MHz)	100	
x DRAM Clock (MHz)	AUTO	
AGP/PCI Clock Control	[AUTO]	
x AGP Clock (MHz)	66	
x PCI Clock (MHz)	33	
AGP Voltage Control	[Normal]	
DRAM Voltage Control	[Normal]	
CPU Voltage Control	[Normal]	
↑↓→←: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help		
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Figure 8: Frequency/Voltage Control

∷ **CPU Clock Ratio**

This setup option will automatically assign by CPU detection.

For Willamette CPU:
8X~23X default: 14X
For C-Stepping P4:
8X,10X~24X default: 15X
For Northwood CPU:
12X~24X default: 16X

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

∷ **Linear Frequency Control**

▸ Disabled   Disable this function. (Default value)

▸ Enabled   Enable this function.

∷ **CPU Clock (MHz)**

▸ 100~355   Select CPU Clock to 100MHz~355MHz.

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

⊡ **DRAM Clock (MHz)**

▸Please set DRAM Clock according to your requirement.

If you use DDR266 DRAM module, please set "DRAM Clock(MHz)" to Auto or 266. If you use

DDR333 DRAM module, please set "DRAM Clock(MHz)" to Auto or 333.

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

⊡ **AGP/PCI Clock Control**

▸AUTO   Set AGP/PCI Clock Control to AUTO. (Default value)

▸Manual   Set AGP/PCI Clock Control to Manual.

⊡ **AGP Clock (MHz)**

▸Please set AGP Clock according to your requirement.

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

⊡ **PCI Clock (MHz)**

▸Please set PCI Clock according to your requirement.

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

⊡ **AGP Voltage Control**

▸Normal   Set AGP Voltage Control to Normal. (Default value)

▸▸+0.1V   Set AGP Voltage Control to +0.1V.

⊡ **DRAM Voltage Control**

▸Normal   Set DRAM Voltage Control to Normal. (Default value)

▸▸+0.1V   Set DRAM Voltage Control to +0.1V.

⊡ **CPU Voltage Control**

▸▸ Supports adjustable CPU Vcore from 1.550V to 1.750V by 0.025V step.

 (Default value: Normal)

Top Performance

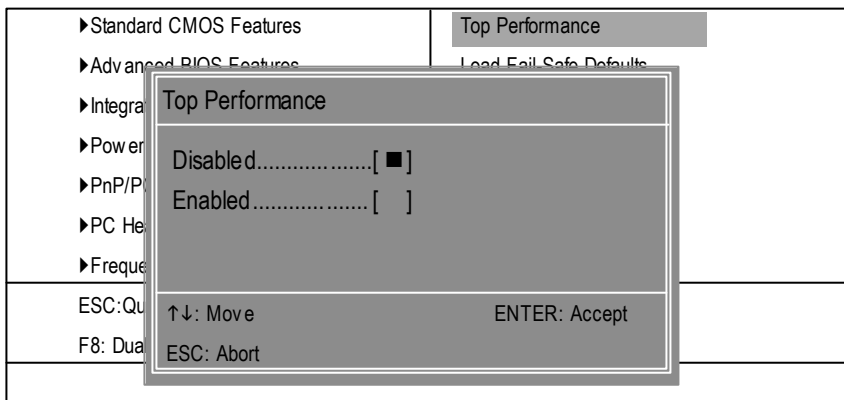CMOS Setup Utility -Copyright (C) 1984-2002 Award Software

| ▶Standard CMOS Features | Top Performance |
| ▶Advanced BIOS Features | Load Fail-Safe Defaults |

Top Performance

Disabled...................[■]
Enabled...................[   ]

↑↓: Move   ENTER: Accept
ESC: Abort

Figure 9: Top Performance

Top Performance

If you wish to maximize the performance of your system, set "Top Performance" as "Enabled".

▶Disabled   Disable this function. (Default Value)

▶Enabled   Enable Top Performance function.

"Top Performance" will increase H/W working speed. Different system configuration (both H/W component and OS) will effect the result. For example, the same H/W configuration might not run properly with Windows XP, but works smoothly with Windows NT. Therefore, if your system is not perform enough, the reliability or stability problem will appear sometimes, and we will recommend you disabling the option to avoid the problem as mentioned above.

Load Fail-Safe Defaults

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▶Standard CMOS Features	Top Performance
▶Advanced BIOS Features	Load Fail-Safe Defaults
▶Integrated Peripherals	Load Optimized Defaults
▶Power Ma	Load Fail-Safe Defaults? (Y/N)?Y
▶PnP/PCI C	
▶PC Health Status	Save & Exit Setup
▶Frequency /Voltage Control	Exit Without Saving
ESC:Quit	↑↓→←:Select Item
F8: Dual BIOS/Q-Flash	F10:Save & Exit Setup
Load Fail-Safe Defaults	

Figure 10: Load Fail-Safe Defaults

Load Fail-Safe Defaults

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

Load Optimized Defaults

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▶Standard CMOS Features	Top Performance
▶Advanced BIOS Features	Load Fail-Safe Defaults
▶Integrated Peripherals	Load Optimized Defaults
▶Power M	
▶PnP/PCI	Load Optimized Defaults? (Y/N)?Y
▶PC Health Status	Save & Exit Setup
▶Frequency/Voltage Control	Exit Without Saving
ESC:Quit	↑↓→←:Select Item
F8: Dual BIOS/Q-Flash	F10:Save & Exit Setup
Load Optimized Defaults	

Figure 11: Load Optimized Defaults

Load Optimized Defaults

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

Set Supervisor/User Password

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▶Standard CMOS Features	Top Performance
▶Advanced BIOS Features	Load Fail-Safe Defaults
▶Integrated Peripherals	Load Optimized Defaults
▶Power Ma	
▶PnP/PCI C	Enter Password:
▶PC Health Status	Save & Exit Setup
▶Frequency/Voltage Control	Exit Without Saving
ESC:Quit	↑↓→←:Select Item
F8: Dual BIOS/Q-Flash	F10:Save & Exit Setup
Change/Set/Disable Password	

Figure 12: Password Setting

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.

Save & Exit Setup

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▶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	Save to CMOS and EXIT (Y/N)? Y
▶PC Health	
▶Frequency /Voltage Control	Exit Without Saving
ESC:Quit	↑↓→←:Select Item
F8: Dual BIOS/Q-Flash	F10:Save & Exit Setup
Save Data to CMOS	

Figure 13: 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.

Exit Without Saving

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| ▶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 Co	Quit Without Saving (Y/N)? N
▶PC Health S	
▶Frequency /Voltage Control	Exit Without Saving
ESC:Quit	↑↓→←:Select Item
F8: Dual BIOS/Q-Flash	F10:Save & Exit Setup
Abandon all Data	

Figure 14: Exit Without Saving

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

Type "N" will return to Setup Utility.

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Chapter 4 Technical Reference

Block Diagram
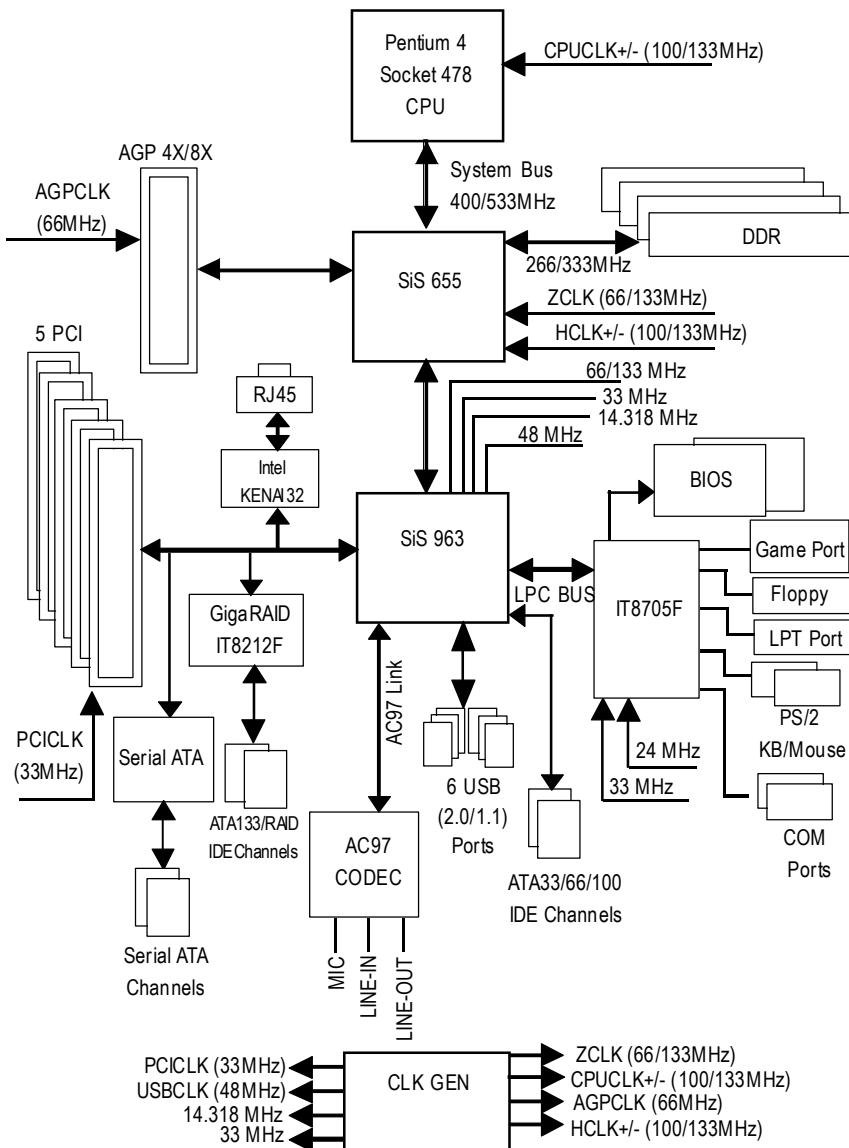
@ BIOS™ Introduction

Gigabyte announces @ BIOS
Windows BIOS live update utility

Have you ever updated BIOS by yourself? Or like many other people, you just know what BIOS is, but always hesitate to update it? Because you think updating newest BIOS is unnecessary and actually you don't know how to update it.

Maybe not like others, you are very experienced in BIOS updating and spend quite a lot of time to do it. But of course you don't like to do it too much. First, download different BIOS from website and then switch the operating system to DOS mode. Secondly, use different flash utility to update BIOS. The above process is not a interesting job. Besides, always be carefully to store the BIOS source code correctly in your disks as if you update the wrong BIOS, it will be a nightmare.

Certainly, you wonder why motherboard vendors could not just do something right to save your time and effort and save you from the lousy BIOS updating work? Here it comes! Now Gigabyte announces @BIOS—the first Windows BIOS live update utility. This is a smart BIOS update software. It could help you to download the BIOS from internet and update it. Not like the other BIOS update software, it's a Windows utility. With the help of "@BIOS", BIOS updating is no more than a click.

Besides, no matter which mainboard you are using, if it's a Gigabyte's product*, @BIOS help you to maintain the BIOS. This utility could detect your correct mainboard model and help you to choose the BIOS accordingly. It then downloads the BIOS from the nearest Gigabyte ftp site automatically. There are several different choices; you could use "Internet Update" to download and update your BIOS directly. Or you may want to keep a backup for your current BIOS, just choose "Save Current BIOS" to save it first. You make a wise choice to use Gigabyte, and @BIOS update your BIOS smartly. You are now worry free from updating wrong BIOS, and capable to maintain and manage your BIOS easily. Again, Gigabyte's innovative product erects a milestone in mainboard industries.

For such a wonderful software, how much it costs? Impossible! It's free! Now, if you buy a Gigabyte's motherboard, you could find this amazing software in the attached driver CD. But please remember, connected to internet at first, then you could have a internet BIOS update from your Gigabyte @BIOS.

Easy Tune™ 4 Introduction

Gigabyte announces *EasyTune™ 4*

Windows based Overclocking utility

EasyTune 4 carries on the heritage so as to pave the way for future generations.

Overclock" might be one of the most common issues in computer field. But have many users ever tried it? The answer is probably "no". Because "Overclock" is thought to be very difficult and includes a lot of technical know-how, sometimes "Overclock" is even considered as special skills found only in some enthusiasts. But as to the experts in "Overclock", what's the truth? They may spend quite a lot of time and money to study, try and use many different hardware or BIOS tools to do "Overclock". And even with these technologies, they still learn that it's quite a risk because the safety and stability of an "Overclock" system is unknown. Now everything is different because of a Windows based overclocking utility "EasyTune 4" --announced by Gigabyte. This windows based utility has totally changed the gaming rule of "Overclock". This is the first windows based overclocking utility is suitable for both normal and power users. Users can choose either "Easy Mode" or "Advanced Mode" for overclocking at their convenience. For users who choose "Easy Mode", they just need to click "Auto Optimize" to have autoed and immediate CPU overclocking. This software will then overdrive CPU speed automatically with the result being shown in the control panel. If users prefer "Overclock" by them, there is also another choice. Click "Advanced Mode" to enjoy "sport drive" class Overclocking user interface. "Advanced Mode", allows users to change the system bus / AGP / Memory working frequency in small increments to get ultimate system performance. It operates in coordination with Gigabyte motherboards. Besides, it is different from other traditional over-clocking methods, EasyTune 4 doesn't require users to change neither BIOS nor hardware switch/jumper setting; on the other hand, they can do "Overclock" at easy step. Therefore, this is a safer way for "Overclock" as nothing is changed on software or hardware. If user runs EasyTune 4 over system's limitation, the biggest lost is only to restart the computer again and the side effect is then well controlled. Moreover, if one well-performed system speed has been tested in EasyTune 4, user can "Save" this setting and "Load" it in next time. Obviously, Gigabyte EasyTune 4 has already turned the "Overclock" technology toward to a newer generation. This wonderful software is now free bundled in Gigabyte motherboard attached in driver CD. Users may make a test drive of "EasyTune 4" to find out more amazing features by themselves.

*Some Gigabyte products are not fully supported by EasyTune 4. Please find the products supported list in the web site.

*Any "Overclocking action" is at user's risk, Gigabyte Technology will not be responsible for any damage or instability to your processor, motherboard, or any other components.

DPS (Dual Power System) Introduction

DPS - A new innovation technology from Gigabyte Technology in which gives you a total of 6-phase power circuit design. Providing 2 extra phase power circuits that motherboard design guideline recommended. In a DPS (Dual Power System) designed motherboard, an additional 3-phase power circuit DPVRM (Dual Power Voltage Regulator Module) daughter card is added on the motherboard. Providing a more durable and stable power circuit to sustain a larger electric current up to 150A. DPS (Dual Power System) specially design for the future coming processor, which demands a higher working frequency and a more stable and durable power circuit.
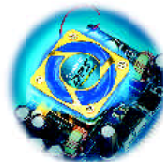
Working mode in a Dual Power System:

Parallel Mode:

Both DPVRM (Dual Power Voltage Regulator Module) and onboard power circuit working simultaneously, providing a total of 6-phase power circuit. If any power circuit fails, the remaining power circuit will keep working as main power circuit.
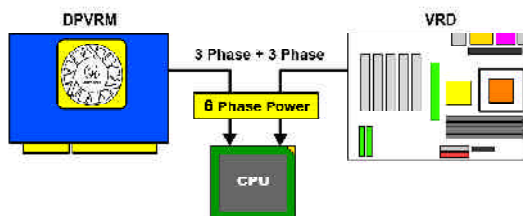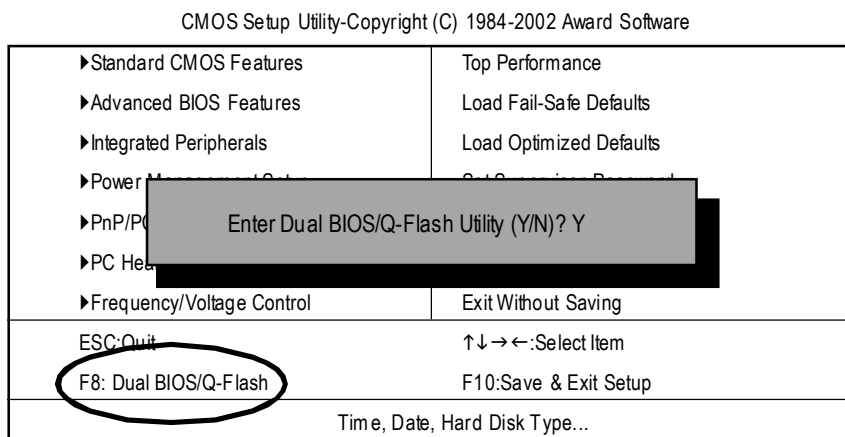
Dual BIOS/Q-Flash Introduction

Method 1: Dual BIOS/Q-Flash

A. What is Dual BIOS Technology?

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

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

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

CMOS Setup Utility-Copyright (C) 1984-2002 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	Enter Dual BIOS/Q-Flash Utility (Y/N)? Y
▶PC Health	
▶Frequency/Voltage Control	Exit Without Saving
ESC:Quit	↑↓→←:Select Item
F8: Dual BIOS/Q-Flash	F10:Save & Exit Setup
Time, Date, Hard Disk Type...	

b. Award Dual BIOS Flash ROM Programming Utility

Dual BIOS Utility V1.20			
Boot From..	Main Bios		
Main ROM Type/Size................................	SST49LF003A	384K	
Backup ROM Type/Size............................	SST49LF003A	384K	
Wide Range Protection	:Disable		
Boot From	:Main BIOS		
Auto Recovery	:Enable		
Halt On Error	:Disable		
Keep DMI Data	:Enable		
	Copy Main ROM Data to Backup		
	Load Default Settings		
	Save Settings to CMOS		
Q-Flash Utility			
	Load Main BIOS from Floppy		
	Load Backup BIOS from Floppy		
	Save Main BIOS to Floppy		
	Save Backup BIOS to Floppy		
PgDn/PgUp: Modify	↑↓: Move	ESC: Reset	F10: Power Off

c. Dual BIOS Item explanation:

Wide Range Protection: Disable(Default), Enable

Status 1:

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

Status 2:

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

Boot From : Main BIOS(Default), Backup BIOS

Status 1:

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

Status 2:

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

Auto Recovery : Enable(Default), Disable

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

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

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

Halt On Error : Disable(Default), Enable

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

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

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

Keep DMI Data : Enable(Default), Disable

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

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

Copy Main ROM Data to Backup

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

Auto recovery message:

BIOS Recovery: Main to Backup

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

BIOS Recovery: Backup to Main

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

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

Load Default Settings

Load dual BIOS default value.

Save Settings to CMOS

Save revised setting.

C. What is Q-Flash Utility?

Q-Flash utility is a pre-O.S. BIOS flash utility enables users to update its BIOS within BIOS mode, no more fooling around any OS.

D. How to use Q-Flash?

Load Main BIOS from Floppy / Load Backup BIOS from Floppy

✎ In the A:drive, insert the "BIOS" diskette, then Press Enter to Run.

```
                    1 File(s) found
 ▶ XXXX.XX                                          256K

   Total Size: 1.39M                  Free Size: 1.14M
   F5:Refresh              DEL:Delete           ESC: Return Main
```

Where XXXX.XX is name of the BIOS file.

✎ Press Enter to Run.

```
                Are you sure to update BIOS?
                [Enter] to contiune Or [ESC] ot abort...
```

✎ Press Enter to Run.

```
                !! COPY BIOS Completed -Pass !!
                Please press any key to continue
```

Congratulation! You have completed the flashed and now can restart system.

Save Main BIOS to Floppy / Save Backup BIOS to Floppy

✐ In the A:drive, insert the floppy disk, then Press Enter to Run.

```
┌──────────────────── TYPE FILE NAME ────────────────────┐
│ ►File name: XXXX.XX                                     │
│                                                         │
│  Total Size: 1.39M              Free Size: 1.39M        │
│  F5:Refresh          DEL: Delete         TAB: Switch    │
└─────────────────────────────────────────────────────────┘
```

To name the file.

Congratulate you have accomplished the saving.

CONTROL KEYS

<PgDn/PgUp>	Make changes
<↑>	Move to previous item
<↓>	Move to next item
<Esc>	Reset
<F10>	Power Off

DualBIOS™ Technology FAQ

GIGABYTE Technology is pleased to introduce DualBIOS technology, a hot spare for your system BIOS. This newest "Value-added" feature, in a long series of innovations from GIGABYTE, is available on this motherboard. Future GIGABYTE motherboards will also incorporate this innovation.

What's DualBIOS™?

On GIGABYTE motherboards with DualBIOS there are physically two BIOS chips. For simplicity we'll call one your "Main BIOS" and the other we'll call your "Backup" BIOS (your "hot spare"). If your Main BIOS fails, the Backup BIOS almost automatically takes over on your next system boot. Almost automatically and with virtually zero down time! Whether the problem is a failure in flashing your BIOS or a virus or a catastrophic failure of the Main BIOS chip, the result is the same - the Backup BIOS backs you up, almost automatically.

I. Q: What is DualBIOS™ technology?

Answer:

DualBIOS technology is a patented technology from Giga-Byte Technology. The concept of this technology is based on the redundancy and fault tolerance theory. DualBIOS™ technology simply means there are two system BIOSes (ROM) integrated onto the motherboard. One is a main BIOS, and the other is a backup BIOS. The mainboard will operate normally with the main BIOS, however, if the main BIOS is corrupt or damaged for various reasons, the backup BIOS will be automatically used when the system powered-On. Your PC will operate as before the main BIOS was damaged, and is completely transparent to the user.

II. Q: Why does anyone need a motherboard with DualBIOS™ technology?
Answer:

In today's systems there are more and more BIOS failures. The most common reasons are virus attacks, BIOS upgrade failures, and/or deterioration of the BIOS (ROM) chip itself.

1.   New computer viruses are being found that attack and destroy the system BIOS. They may corrupt your BIOS code, causing your PC to be unstable or even not boot normally.

2.   BIOS data will be corrupted if a power loss/surge occurs, or if a user resets the system, or if the power button is pressed during the process of performing a system BIOS upgrade.

3.   If a user mistakenly updates their mainboard with the incorrect BIOS file, then the system may not be able to boot correctly. This may cause the PC system hang in operation or during boot.

4.   A flash ROM's life cycle is limited according to electronic characteristics. The modern PC utilizes the Plug and Play BIOS, and is updated regularly. If a user changes peripherals often, there is a slight chance of damage to the flash ROM.

With Giga-Byte Technology's patented DualBIOS™ technology you can reduce the possibility of hangs during system boot up, and/or loss BIOS data due to above reasons. This new technology will eliminate valuable system down time and costly repair bills cause by BIOS failures.

III. Q: How does DualBIOS™ technology work?
Answer:

1.   DualBIOS™ technology provides a wide range of protection during the boot up procedure. It protects your BIOS during system POST, ESCD update, and even all the way to PNP detection/assignment.

2.   DualBIOS™ provides automatic recovery for the BIOS. When the first BIOS used during boot up does not complete or if a BIOS checksum error occurs, boot-up is still possible. In the DualBIOS™ utility, the "Auto Recovery" option will guarantee that if either the main BIOS or backup BIOS is corrupted, the DualBIOS™ technology will use the good BIOS and correct the wrong BIOS automatically.

3.   DualBIOS™ provides manual recovery for the BIOS. DualBIOS™ technology contains a built-in flash utility, which can flash your system BIOS from backup to main and/or visa versa. There is no need for an OS-dependent flash utility program.

4.   DualBIOS™ contains a one-way flash utility. The built-in one-way flash utility will ensure that the corrupt BIOS is not mistaken as the good BIOS during recovery and that the correct BIOS (main vs. backup) will be flashed. This will prevent the good BIOS from being flashed.

IV. Q: Who Needs DualBIOS™ technology?

Answer:

1. Every user should have DualBIOS™ technology due to the advancement of computer viruses.

    Everyday, there are new BIOS-type viruses discovered that will destroy your system BIOS. Most commercial products on the market do not have solutions to guard against this type of virus intrusion. The DualBIOS™ technology will provide a state-of-the-art solution to protect your PC:

    Case I.) Vicious computer viruses may wipe out your entire system BIOS. With a conventional single system BIOS PC, the PC will not be functional until it is sent for repairs.

    Case II.) If the "Auto Recovery" option is enabled in the DualBIOS™ utility, and if a virus corrupts your system BIOS, the backup BIOS will automatically reboot the system and correct the main BIOS.

    Case III.) A user may override booting from the main system BIOS. The DualBIOS™ utility may be entered to manually change the boot sequence to boot from the backup BIOS.

2. During or after a BIOS upgrade, if DualBIOS™ detects that the main BIOS is corrupt, the backup BIOS will take over the boot-up process automatically. Moreover, it will verify the main and backup BIOS checksums when booting-up. DualBIOS™ technology examines the checksum of the main and backup BIOS while the system is powered on to guarantee your BIOS operates properly.

3. Power Users will have the advantage of having two BIOS versions on their mainboard. The benefit is being able to select either version BIOS to suit the performance system needs.

4. Flexibility for high-end desktop PCs and workstation/servers. In the DualBIOS™ utility, the option can be set, "Halt On When BIOS Defects," to be enabled to halt your system with a warning message that the main BIOS has been corrupted. Most workstation/servers require constant operation to guarantee services have not been interrupted. In this situation, the "Halt On When BIOS Defects" message may be disabled to avoid system pauses during normal booting. Another advantage you gain from Giga-Byte's DualBIOS™ technology is the ability to upgrade from dual 2 Mbit BIOS to dual 4 Mbit BIOS in the future if extra BIOS storage is need.

Method 2: BIOS Flash Utility

BIOS Flash Procedure

We use GA-7VTX motherboard and Flash841 BIOS flash utility as example.

Please flash the BIOS according to the following procedures if you are now under the DOS mode.

Flash BIOS Procedure:

STEP 1:

(1) Please make sure your system has installed the extraction utility such as winzip or pkunzip.
    Firstly you have to install the extraction utility such as winzip or pkunzip for unzip the files. Both of
    these utilities are available on many shareware download pages like
    http://www.cnet.tw

STEP 2: Make a DOS boot diskette. (See example: Windows 98 O.S.)

Beware: Windows ME/2000 are not allowed to make a DOS boot diskette.

(1) With an available floppy disk in the floppy drive. Please leave the diskette "UN-write protected" type.
Double click the "My Computer" icon from Desktop, then click "3.5 diskette (A)" and right click to select
"Format (M)"

Technical Reference
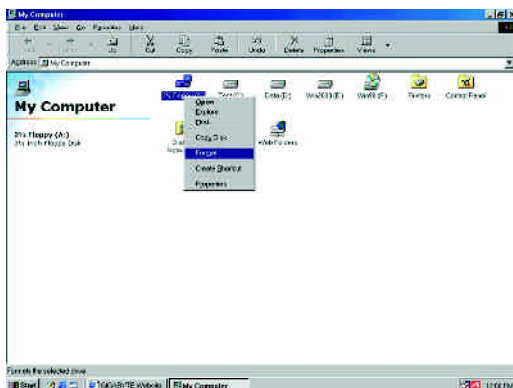
(2) Select the "Quick (erase)" for Format Type, and pick both "Display summary when finished" and "Copy system files", after that press "Start". That will format the floppy and transfer the needed system files to it.

Beware: This procedure will erase all the prior data on that floppy, so please proceed accordingly.
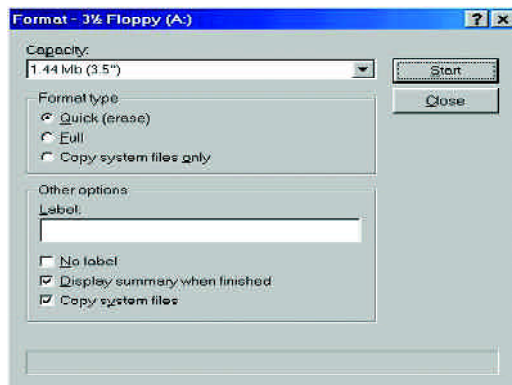
(3) After the floppy has been formatted completely, please press "Close".
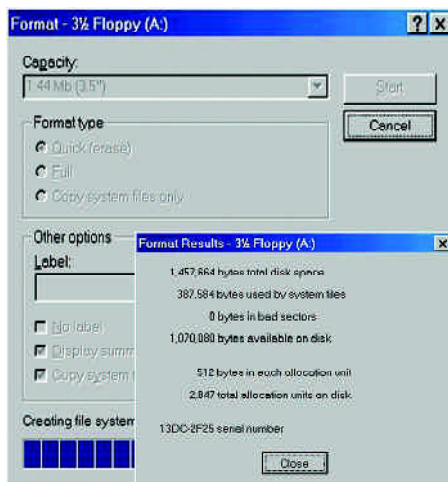
STEP 3: Download BIOS and BIOS utility program.

(1) Please go to Gigabyte website http://www.gigabyte.com.tw/index.html, and click "Support".

(2) From Support zone, click the "Motherboards BIOS & Drivers".
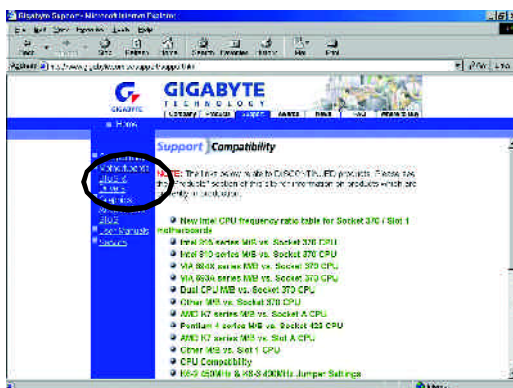
(3) We use GA-7VTX motherboard as example. Please select GA-7VTX by Model or Chipset optional menu to obtain BIOS flash files.
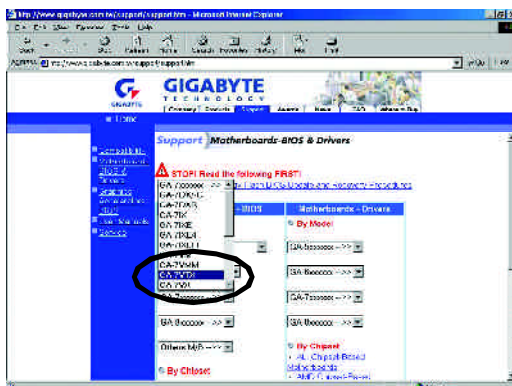
(4) Select an appropriate BIOS version (For example: F4), and click to download the file. It will pop up a file download screen, then select the "Open this file from its current location" and press "OK".
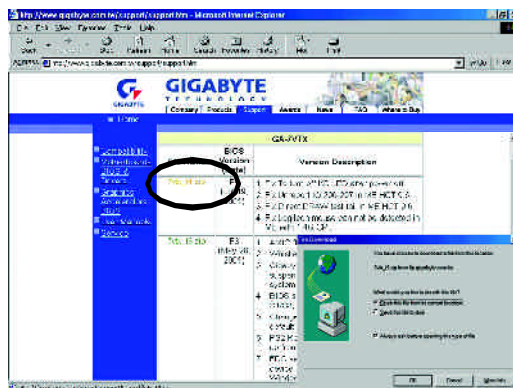
(5) At this time the screen shows the following picture, please click "Extract" button to unzip the files.
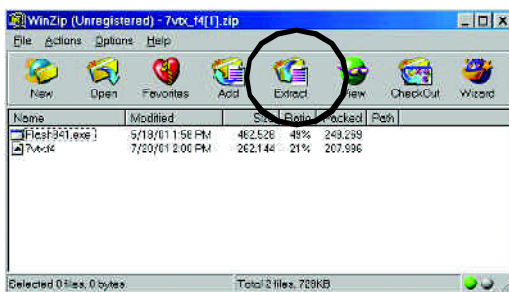
(6) Please extract the download files into the clean bootable floppy disk A mentioned in STEP 2, and press "Extract".
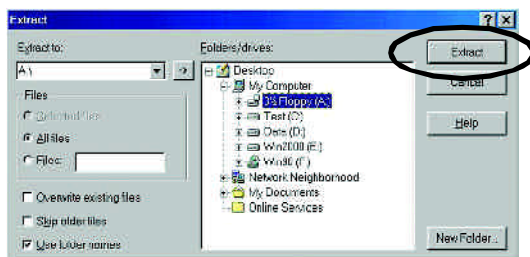
STEP 4: Make sure the system will boot from the floppy disk.

(1) Insert the floppy disk (contains bootable program and unzip file) into the floppy drive A. Then, restart the system. The system will boot from the floppy disk. Please press <DEL> key to enter BIOS setup main menu when system is bootup.
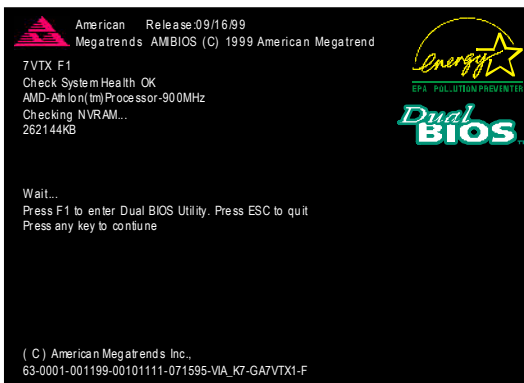
(2) Once you enter the BIOS setup utility, the main menu will appear on the screen. Use the arrows to highlight the item "BIOS FEATURES SETUP".

AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.24b	
(C) 1999 American Megatrends, Inc. All Rights Reserved	
STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	HARDWARE MONITOR & MISC SETUP
CHIPSET FEATURES SETUP	SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP	USER PASSWORD
PNP / PCI CONFIGURATION	IDE HDD AUTO DETECTION
LOAD BIOS DEFAULTS	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
ESC: Quit ↑↓←→ : Select Item (Shift)F2 : Change Color F5: Old Values	
F6: Load BIOS Defaults F7: Load Setup Defaults F10:Save & Exit	
Time, Date , Hard Disk Type…	

(3) Press "Enter" to enter "BIOS FEATURES SETUP" menu. Use the arrows to highlight the item "1st Boot Device", and then use the "Page Up" or "Page Down" keys to select "Floppy".

AMIBIOS SETUP - BIOS FEATURES SETUP	
(C) 2001 American Megatrends, Inc. All Rights Reserved	
1st Boot Device : Floppy	
2nd Boot Device : IDE-0	
3rd Boot Device : CDROM	
S.M.A.R.T. for Hard Disks : Disabled	
BootUp Num-Lock : On	ESC: Quit ↑↓←→: Select Item
Floppy Drive Seek : Disabled	F1 : Help PU/PD/+/- : Modify
Password Check : Setup	F5 : Old Values (Shift)F2: Color
	F6 : Load BIOS Defaults
	F7 : Load Setup Defaults

(4) Press "ESC" to go back to previous screen. Use the arrows to highlight the item "SAVE & EXIT SETUP" then press "Enter". System will ask "SAVE to CMOS and EXIT (Y/N)?" Press "Y" and "Enter" keys to confirm. Now the system will reboot automatically, the new BIOS setting will be taken effect next boot-up.

AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.24b	
(C) 2001 American Megatrends, Inc. All Rights Reserved	
STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	HARDWARE MONITOR & MISC SETUP
CHIPSET FEATURES SETUP	SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP	USER PASSWORD
PNP / PCI CONF	Save to CMOS and EXIT (Y/N)? Y
LOAD BIOS DEFAULTS	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
ESC: Quit ↑↓←→ : Select Item (Shift)F2 : Change Color F5: Old Values	
F6: Load BIOS Defaults F7: Load Setup Defaults F10:Save & Exit	
Save Data to CMOS & Exit SETUP	

STEP 5: BIOS flashing.

(1) After the system boot from floppy disk, type "A:\> dir/w" and press "Enter" to check the entire files in floppy A. Then type the "BIOS flash utility" and "BIOS file" after A:\>. In this case you have to type "A:\> Flash841 7VTX.F4" and then press "Enter".

```
Starting Windows 98…

Microsoft(R) Windows98
  © Copyright Microsoft Corp 1981-1999

A:\> dir/w
   Volume in drive A has no label
Volume Serial Number is 16EB-353D
Directory of A:\
COMMAND.COM     7VTX.F4    FLASH841.EXE
        3 file(s)      838,954  bytes
        0 dir(s)     324,608  bytes free

A:\> Flash841 7VTX.F4
```
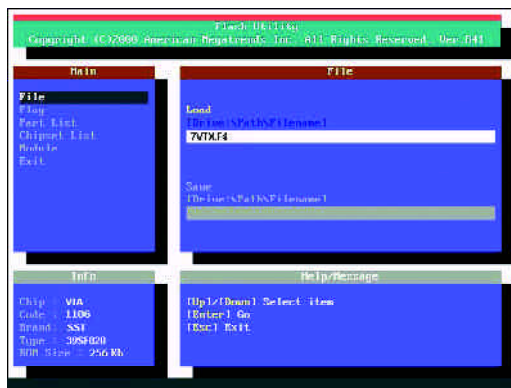
(2) Now screen appears the following Flash Utility main menu. Press "Enter", the highlighted item will locate on the model name of the right-upper screen. Right after that, press "Enter" to start BIOS Flash Utility.

(3) It will pop up a screen and asks "Are you sure to flash the BIOS?" Press [Enter] to continue the procedure, or press [ESC] to quit.

Beware: Please do not turn off the system while you are upgrading BIOS. It will render your BIOS corrupted and system totally inoperative.
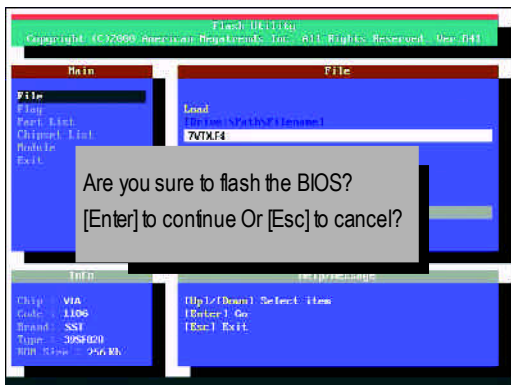

(4) The BIOS flash completed. Please press [ESC] to exit Flash Utility.
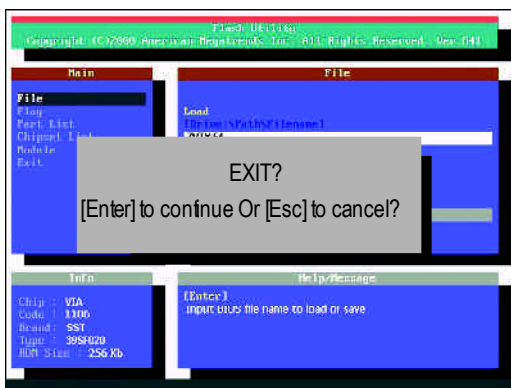
STEP 6: Load BIOS defaults.

Normally the system redetects all devices after BIOS has been upgraded. Therefore, we highly recommend reloading the BIOS defaults after BIOS has been upgraded. This important step resets everything after the flash.

(1) Take out the floppy diskette from floppy drive, and then restart the system. The boot up screen will indicate your motherboard model and current BIOS version.
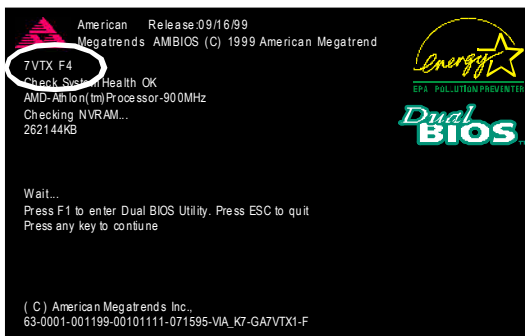
(2) Don't forget to press <DEL> key to enter BIOS setup again when system is boot up. Use the arrows to highlight the item "LOAD SETUP DEFAULTS" then press "Enter". System will ask "Load Setup Defaults (Y/N)?" Press "Y" and "Enter" keys to confirm.

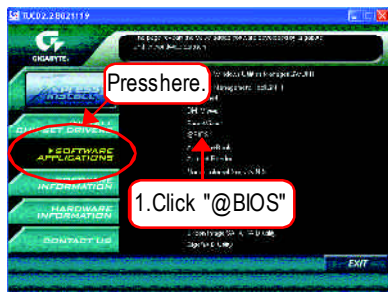| AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.24b	
(C) 2001 American Megatrends, Inc. All Rights Reserved	
STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	HARDWARE MONITOR & MISC SETUP
CHIPSET FEATURES SETUP	SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP	USER PASSWORD
PNP / PCI CONFIG	Load Setup Defaults? (Y/N)?N
LOAD BIOS DEFAULTS	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
ESC: Quit ↑↓←→ : Select Item (Shift)F2 : Change Color F5: Old Values	
F6: Load BIOS Defaults F7: Load Setup Defaults F10:Save & Exit	
Load Setup Defaults	

(3) Use the arrows to highlight the item "SAVE & EXIT SETUP" and press "Enter". System will ask "SAVE to CMOS and EXIT (Y/N)?" Press "Y" and "Enter" keys to confirm. Now the system will reboot automatically, the new BIOS setting will be taken effect next boot-up.

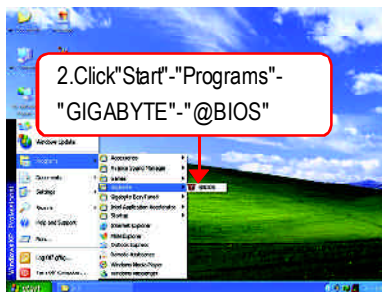| AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.24b	
(C) 2001 American Megatrends, Inc. All Rights Reserved	
STANDARD CMOS SETUP	INTEGRATED PERIPHERALS
BIOS FEATURES SETUP	HARDWARE MONITOR & MISC SETUP
CHIPSET FEATURES SETUP	SUPERVISOR PASSWORD
POWER MANAGEMENT SETUP	USER PASSWORD
PNP / PCI CONF Save to CMOS and EXIT (Y/N)? Y	N
LOAD BIOS DEFAULTS	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING
ESC: Quit ↑↓←→ : Select Item (Shift)F2 : Change Color F5: Old Values	
F6: Load BIOS Defaults F7: Load Setup Defaults F10:Save & Exit	
Save Data to CMOS & Exit SETUP	

(4) Congratulate you have accomplished the BIOS flash procedure.
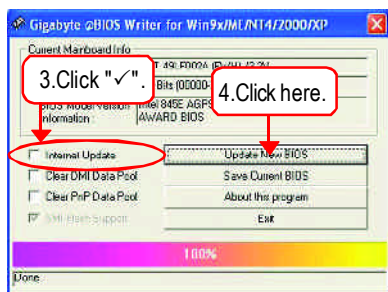
Method 3: @ BIOS Utility

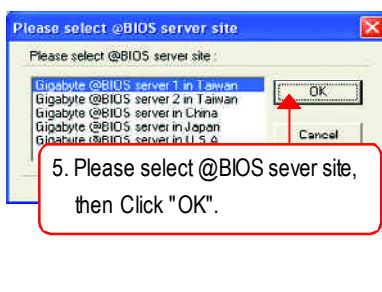If you don't have DOS boot disk, we recommend that you used Gigabyte @BIOS™ program to flash BIOS.

Press here.

1.Click "@BIOS"

(1)

2.Click"Start"-"Programs"-"GIGABYTE"-"@BIOS"

(2)

3.Click "✓".

4.Click here.

(3)

5. Please select @BIOS sever site, then Click "OK".

(4)

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: SINXP1394.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.

Note:

  a. 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.

  b. 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.

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

  d. Please note that any interruption during updating will cause system unbooted
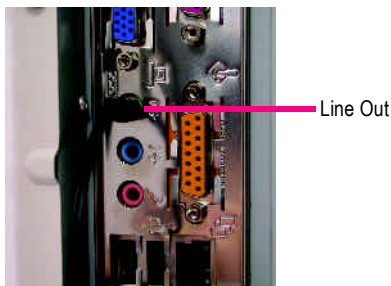
2-/4-/6-Channel Audio Function Introuction

The installation of windows 98SE/2K/ME/XP is very simple. Please follow next step to install the function!

Stereo Speakers Connection and Settings:

We recommend that you use the speaker with amplifier to acqiire the best sound effect if the stereo output is applied.
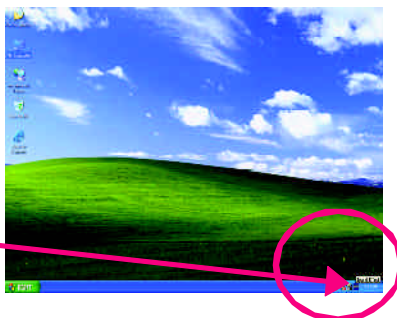
STEP 1:

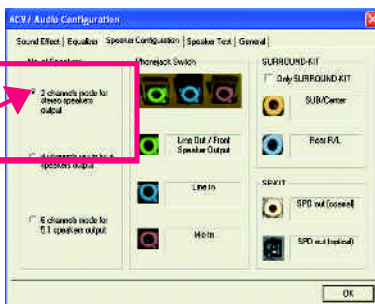Connect the stereo speakers or earphone to "Line Out".

Line Out

STEP 2 :

After installation of the audio driver, you'll find an

 icon on the taskbar's status area. Click the audio icon "Sound Effect" from the windows tray at the bottom of the screen.
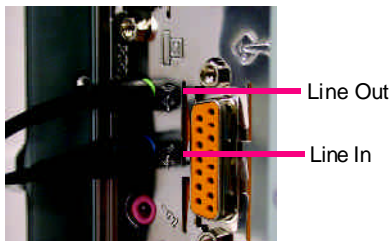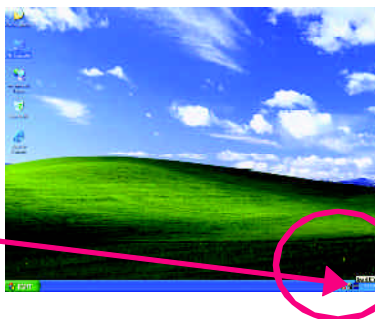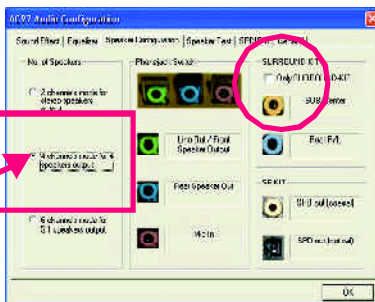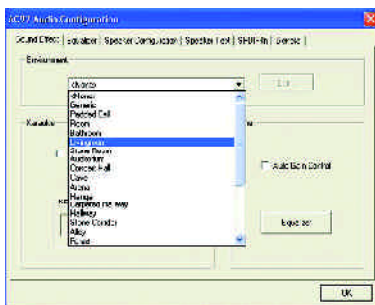
STEP 3:

Select "Speaker Configuration", and choose the "2 channels for stereo speakers out put".

⊙ 2 channels mode for stereo speakers output

4 Channel Analog Audio Output Mode

STEP 1 :
Connect the front channels to "Line Out",
the rear channels to "Line In".

Line Out

Line In

STEP 2 :

After installation of the audio driver, you'll find an
[icon] icon on the taskbar's status area. Click the
audio icon "Sound Effect" from the windows tray at
the bottom of the screen.

Sound Effect

10:41 AM

STEP 3 :
Select "Speaker Configuration", and choose the "4
channels for 4 speakers out put".
Disable "Only SURROUND-KIT", and press
"OK".

○ **4 channels mode for 4
speakers output**

When the "Environment settings" is "None", the
sound would be performed as stereo mode
(2 channels output). Please select the other
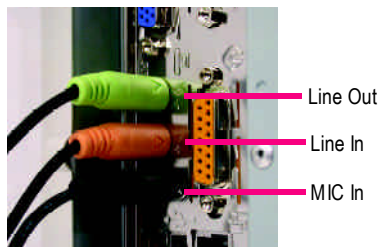settings for 4 channels output.

Basic 6 Channel Analog Audio Output Mode

Use the back audio panel to connect the audio output without any additional module.

STEP 1 :

Connect the front channels to "Line Out",the rear channels to "Line In", and the Center/Subwoofer channels to "MIC In".

Line Out

Line In

MIC In

STEP 2 :

After installation of the audio driver, you'll find an

 icon on the taskbar's status area. Click the audio icon "Sound Effect" from the windows tray at the bottom of the screen.

STEP 3 :

Select "Speaker Configuration", and choose the

"6 channels for 5.1 speakers out put".

Disable "Only SURROUND-KIT" and pess "OK".

⦿ 6 channels mode for
5.1 speakers output
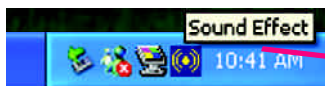
Advanced 6 Channel Analog Audio Output Mode (using Audio Combo Kit,Optional Device):

(Audio Combo Kit provides SPDIF output port : optical & coaxis and SURROUND-KIT : Rear R/L & CEN /Subwoofer)

SURROUND-KIT access analog output to rear

channels and Center/Subwoofer channels. It is the best solution if you need 6 channel output, Line In and MIC at the same time. "SURROUND-KIT" is included in the GIGABYTE unique "Audio Combo Kit" as picture.

STEP 1 :

Insert the "SURROUND-KIT" in the back of the case ,and fix it with the screw.

STEP 2 :

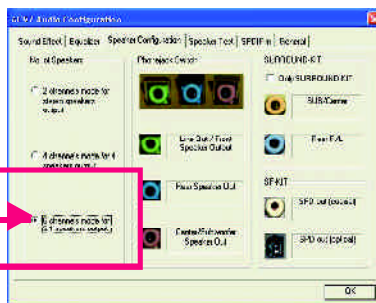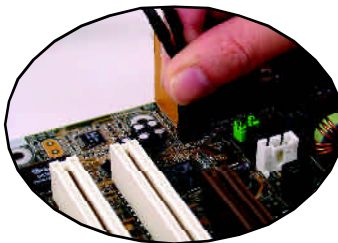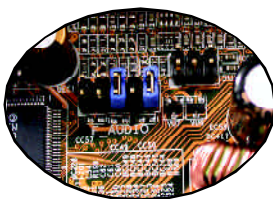Connect the "SURROUND-KIT" to SUR_CEN on the M/B.

STEP 3 :

Connect the front channels to back audio panel's "Line Out", the rear channels to SURROUND-KIT's REAR R/L, and the Center/Subwoofer channels to SURROUND-KIT's SUB CENTER.
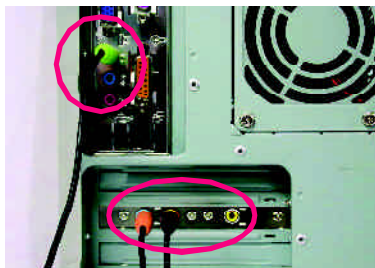
STEP 4 :

Click the audio icon "Sound Effect" from the windows tray at the bottom of the screen.
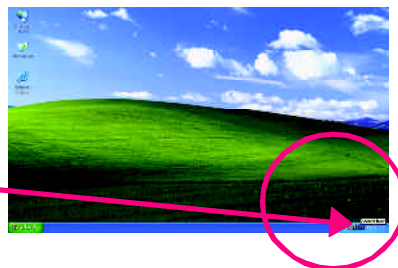
STEP 5 :

Select "Speaker Configuration", and choose the "6 channels for 5.1 speakers out put".

Enable "Only SURROUND-KIT" and press "OK".
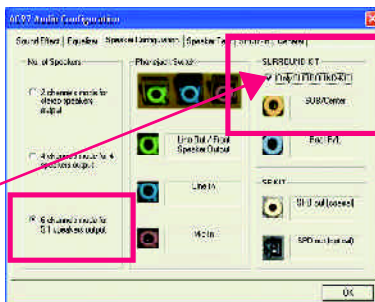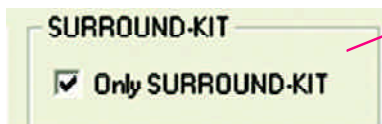
Basic & Advanced 6 Channel Analog Audio Output Mode Notes:

When the "Environment settings" is "None", the sound would be performed as stereo mode(2 channels output). Please select the other settings for 6 channels output.
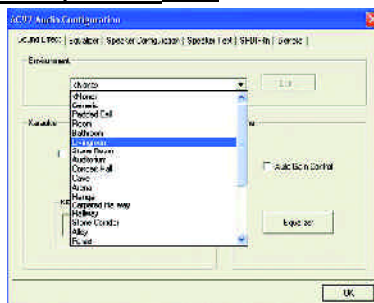
SPDIF Output Device (Optional Device)

A "SPDIF output" device is available on the
motherboard. Cable with rear bracket is provided
and could link to the "SPDIF output" connector (As
picture.) For the further linkage to decoder, rear
bracket provides coaxial cable and Fiber
connecting port.
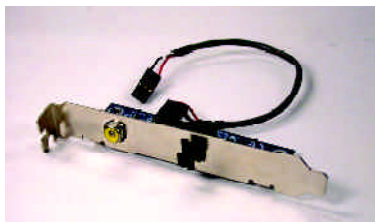
1. Connect the SPDIF output device to the rear
   bracket of PC, and fix it with screw.

2. Connect SPDIF device to the motherboard.
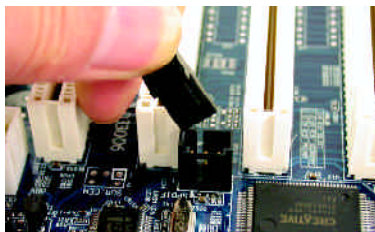
3. Connect SPDIF to the SPDIF decoder.

English

Chapter 5 Appendix

Install Drivers

Pictures below are shown in Windows XP (CD ver. 2.2)

NOTE 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 setup.exe.

INSTALL CHIPSET DRIVER

This page shows the drivers that need to be installed for the system. Click each item to install the driver manually or switch to the [Xpress Install] to install the drivers automatically.
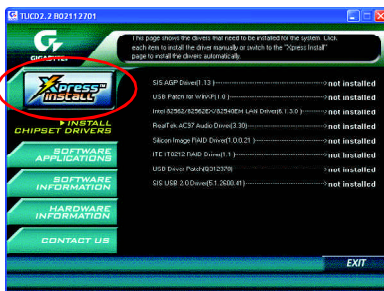
Massage: Some device drivers will restart your system automatically. After restarting your system the "Xpress Install" will continue to install other drivers.

The "Xpress Install" uses the "Click and Forget" technology to install the drivers automatically. Just select the drivers you want then click the "GO" button. The [Xpress Install] will execute the installation for you by itself.

We recommend that you install all components in the list.
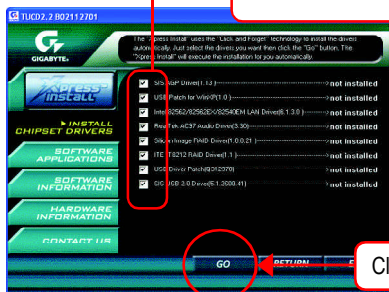
Click "GO".
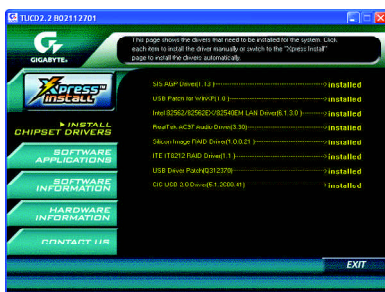
Driver install finished!! you have to reboot system!!

Item Description

■ SIS AGP Driver

Install SIS AGP Driver.

■ USB Patch for WinXP

This patch driver can help you to resolve the USB device wake up S3 hang up issue in XP.

■ Intel 82562/82562EX/82540EM LAN Driver

For Intel® PRO/10/100/1000/Wireless Ethernet connections

■ RealTek AC97 Audio Driver

Install RealTek AC97 audio driver.

■ Silicon Image RAID Driver

Serial-ATA RAID Driver from Silicon Image.

■ ITE IT8212 RAID Driver

ITE IT8212 RAID Driver.

■ USB Driver Patch

This patch driver can help you to resolve some USB device issue on XP.

■ SIS USB 2.0 Driver

It is recommended that you use the Microsoft Windows update for the most updated driver for XP/2K.

> **If your CD doesn't have SiS® USB2.0 driver, please download the USB2.0 driver from Microsoft® website (www.microsoft.com) for USB2.0 devices support.**
> **Please also note that Microsoft® USB2.0 driver is currently supported by Windows XP and Windows 2000 only.**
> **Once we get the latest SiS® USB2.0 driver for Windows 98 and Windows ME, we will put the driver on GIGABYTE website asap. (http://www.gigabyte.com.tw).**

SOFTWARE APPLICATION

This page reveals the value-added software developed by Gigabyte and its worldwide partners.
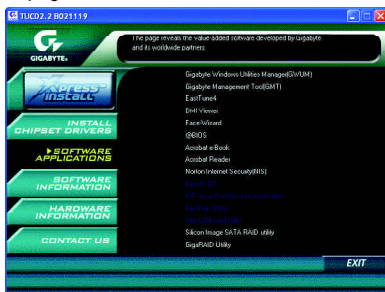
■ Gigabyte Windows Utilities Manager(GWUM)

This utility can integrate the Gigabyte's applications in the system tray.

■ Gigabyte Management Tool(GMT)

A useful tool which can manage the computer via the network.

■ EasyTune4

Powerful utility that integrates the overclocking and hardware monitoring functions.

■ DMI Viewer

Windows based utility which is used to browse the DMI/SMBIOS information of the system.

■ Face-Wizard

New utility for adding BIOS logo.

■ @BIOS

Gigabyte windows flash BIOS utility.

■ Acrobat e-Book

Useful utility from Adobe.

■ Acrobat Reader

Popular utility from Adobe for reading .PDF file format documents.

■ Norton Internet Security(NIS)

Integrated utility which includes anti-virus, ad control, etc.

■ Silicon Image SATA RAID utility

RAID utility for Silicon Image Serial-ATA 3112.

■ Giga RAID Utility

RAID utility for ITE IT8212.

Please do not install "Silicon Image SIL3112 SATA RAID Driver Utility" under WIN98 or WIN ME

if there is no Serial ATA Deivce.

For top performance and compatibility, it is recommend to use the SATA daughter Card which has

Silcon Image Chipset.

SOFTWARE INFORMATION

This page list the contects of softwares and drivers in this CD title.

HARDWARE INFORMATION

This page lists all device you have for this motherboard.
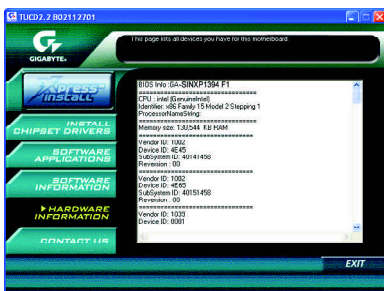
<u>Acronyms</u>

Acronyms	Meaning
ACPI	Advanced Configuration and Power Interface
APM	Advanced Power Management
AGP	Accelerated Graphics Port
AMR	Audio Modem Riser
ACR	Advanced Communications Riser
BIOS	Basic Input / Output System
CPU	Central Processing Unit
CMOS	Complementary Metal Oxide Semiconductor
CRIMM	Continuity RIMM
CNR	Communication and Networking Riser
DMA	Direct Memory Access
DMI	Desktop Management Interface
DIMM	Dual Inline Memory Module
DRM	Dual Retention Mechanism
DRAM	Dynamic Random Access Memory
DDR	Double Data Rate
ECP	Extended Capabilities Port
ESCD	Extended System Configuration Data
ECC	Error Checking and Correcting
EMC	Electromagnetic Compatibility
EPP	Enhanced Parallel Port
ESD	Electrostatic Discharge
FDD	Floppy Disk Device
FSB	Front Side Bus
HDD	Hard Disk Device
IDE	Integrated Dual Channel Enhanced
IRQ	Interrupt Request

to be continued......

Acronyms	Meaning
IOAPIC	Input Output Advanced Programmable Input Controller
ISA	Industry Standard Architecture
LAN	Local Area Network
I/O	Input / Output
LBA	Logical Block Addressing
LED	Light Emitting Diode
MHz	Megahertz
MIDI	Musical Instrument Digital Interface
MTH	Memory Translator Hub
MPT	Memory Protocol Translator
NIC	Network Interface Card
OS	Operating System
OEM	Original Equipment Manufacturer
PAC	PCI A.G.P. Controller
POST	Power-On Self Test
PCI	Peripheral Component Interconnect
RIMM	Rambus in-line Memory Module
SCI	Special Circumstance Instructions
SECC	Single Edge Contact Cartridge
SRAM	Static Random Access Memory

Technical Support/RMA Sheet

Customer/Country:		Company:	Phone No.:
Contact Person:	E-mail Add. :		

Model name/Lot Number:			PCB revision:
BIOS version:	O.S./A.S.:		

Hardware Configuration	Mfs.	Model name	Size:	Driver/Utility:
CPU				
Memory Brand				
Video Card				
Audio Card				
HDD				
CD-ROM / DVD-ROM				
Modem				
Network				
AMR / CNR				
Keyboard				
Mouse				
Power supply				
Other Device				

Problem Description:

Appendix

Troubleshooting

If you encounter any trouble during boot up, please follow the
troubleshooting procedures .

```
                    ( START )
                         │
                         ▼
┌─────────────────────────────────────────────────────────┐
│ Turn off the power and unplug the AC power cable, then    │
│ remove all of the add-on cards and cables from motherboard.│
└─────────────────────────────────────────────────────────┘
                         │
                         ▼
```

Please make sure motherboard & chassis are not short ? ──Yes──▶ Please isolate the short pin.

No

Failure has been excluded.

Please make sure all jumper settings (such as CPU system bus speed, frequency ratio, voltage and etc.) are set properly. ──No──▶ Make sure the jumper setting are correct.

Yes

Failure has been excluded.

Check if the CPU cooling fan attached to CPU properly. Is CPU cooling fan power connected to CPU_FAN properly? ──No──▶ Plug the CPU cooling fan power in the CPU fan connector. Plug in the AC power connector.

Yes

Failure has been excluded.

Check if the memory install properly into the DIMM slot. ──No──▶ Insert and push the memory module vertically into the DIMM slot.

Yes

Failure has been excluded.

```
┌─────────────────────────────────────────────────────────┐
│ Insert the VGA card.  Then plug in ATX power cable and    │
│ turn on the system.                                        │
└─────────────────────────────────────────────────────────┘
                         │
                         ▼
                       ( A )
```

A

Is memory LED on and CPU fan running? — No → The problem could be caused by power supply, CPU, memory or CPU/memory socket itself.

Yes

Failure has been excluded.

Check if there is display. — No → Perhaps your VGA card / VGA slot or monitor is defective.

Yes

Failure has been excluded.

Turn off the system. Reboot after keyboard and mouse have been plugged in.

Check if keyboard is working properly. — No → It is possible that your keyboard or keyboard connector is defective.

Yes

Press <Del> to enter BIOS setup. Choose "Load Optimized Defaults" and save then exit setup.

Failure has been excluded.

Turn off the system and re-connect the IDE cable. Check if the system can reboot successfully. — No → The problem was probably caused by the IDE device / connector or cable.

Yes

Reinstall Windows OS, and reinstall add-on cards and cables. Then try to reboot the system.

Failure has been excluded.

END

If the above procedure unable to solve your problem, please contact with your local retailer or national distributor for help. Or, you could submit your question to the service mail via Gigabyte website technical support zone
(http://www.gigabyte.com.tw). The appropriate response will be provided ASAP.

Memo

English

Memo

Memo

English

Memo

CONTACT US

Contact us via the information in this page all over the world.

● Taiwan

Gigabyte Technology Co., Ltd.

Address: No.6, Bau Chiang Road, Hsin-Tien, Taipei Hsien, Taiwan, R.O.C.

TEL: 886 (2) 8912-4888 (50 lines)

FAX: 886 (2) 8912-4004

Technical issue:

http://tw.giga-byte.com/support/service_main.htm

Non-Technical issue:

smsupport@gigabyte.com.tw

Web Address: http://www.gigabyte.com.tw

● USA

G.B.T. INC.

Address: 17358 Railroad St, City of Industry, CA 91748.

Tel: 1 (626) 854-9338

Fax: 1 (626) 854-9339

E-mail: sales@giga-byte.com

        support@giga-byte.com

Web Address: www.giga-byte.com

● Germany

G.B.T. Technology Trading GmbH

Tel: 49-40-2533040

Fax: 49-40-25492343 (Sales)

Tel: 49-01803-428468 (Tech.)

Fax: 49-01803-428329 (Tech.)

E-mail: support@gigabyte.de

Web Address: www.gigabyte.de

● JAPAN/Nippon Giga-Byte Corporation

Fax: 81-3-5791-5439

Web Address: www.gigabyte.co.jp

● U.K

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

Tel: 44-1908-362700

Fax: 44-1908-362709

E-mail: support@gbt-tech.co.uk

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E-mail: info@giga-byte.nl

Web Address: http://www.giga-byte.nl

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Shanghai Office

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Web Address: www.gigabyte.com.cn

GuangZhou Office

Tel: 86-20-87586273

Fax: 86-20-87544306

Web Address: www.gigabyte.com.cn

Beijing Office

Tel: 86-10-82856054

    86-10-82856064

    86-10-82856094

Fax: 86-10-82856575

Web Address: www.gigabyte.com.cn

E-mail: bjsupport@gigabyte.com.cn

Chengdu Office

Tel: 86-28-85236930

Fax: 86-28-85256822

Web Address: www.gigabyte.com.cn