When 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).

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Due to rapid change in technology, some of the specifications might be out of date before publication of this booklet.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

We, Manufacturer/Importer

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

declare that the product

Mother Board
GA-SINXP1394

is in conformity with

in accordance with 89/336 EEC-EMC Directive

- EN 55011 Limits and methods of measurement of radio disturbance characteristics of industrial, scientific and medical (ISM) high frequency equipment
- EN 61000-3-2 Disturbances in supply systems caused by household appliances and similar electrical equipment "Harmonics"
- EN 61000-3-3 Disturbances in supply systems caused by household appliances and similar electrical equipment "Voltage fluctuations"
- EN 55013 Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment
- EN 60555-2 Generic emission standard Part 1: Residual commercial and light industry
- EN 55014 Limits and methods of measurement of radio disturbance characteristics of household electrical appliances, portable tools and similar electrical apparatus
- EN 60555-3 Generic emission standard Part 1: Residual commercial and light industry
- EN 60555-4 Limits and methods of measurement of radio disturbance characteristics of fluorescent lamps and luminaries
- EN 60555-5 Generic emission standard Part 2: Industrial environment
- EN 60555-6 Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment
- EN 60555-8 Immunity from radio interference of broadcast receivers and associated equipment
- EN 60555-9 Limits and methods of measurement of radio disturbance characteristics of information technology equipment
- EN 50081-1 Generic emission standard Part 1: Residual commercial and light industry
- EN 50082-1 Generic emission standard Part 2: Industrial environment
- EN 55081-2 Generic emission standard Part 2: Industrial environment
- EN 55022 Limits and methods of measurement of radio disturbance characteristics of information technology equipment
- EN 55020 Immunity requirements for household appliances tools and similar apparatus
- EN 55035-1 Immunity requirements for household appliances tools and similar apparatus

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

- EN 60950 Safety requirements for mains operated electronic and related apparatus for household and similar general use
- EN 60065 Safety for information technology equipment including electrical business equipment
- EN 60335 Safety of household and similar electrical appliances
- EN 60891-1 General and Safety requirements for uninterruptible power systems (UPS)

CE marking

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

Manufacturer/Importer

Signature:  
Name: Timmy Huang

Date: January 6, 2002
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
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### Item Checklist

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<tr>
<th>✓ The GA-SINXP1394 motherboard</th>
<th>□ 2 Port USB Cable x 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ CD for motherboard driver &amp; utility</td>
<td>✓ 4 Port USB Cable x 1</td>
</tr>
<tr>
<td>✓ GA-SINXP1394 user's manual</td>
<td>✓ SPDIF Kit x 1 (SPD-KIT)</td>
</tr>
<tr>
<td>✓ Quick PC Installation Guide</td>
<td>✓ SATA cable x 2</td>
</tr>
<tr>
<td>✓ ITE RAID Manual</td>
<td>✓ IO Shield</td>
</tr>
<tr>
<td>✓ SATA RAID Manual</td>
<td>✓ Motherboard Settings Label</td>
</tr>
<tr>
<td>✓ IDE cable x 3 / Floppy cable x 1</td>
<td>✓ GC-S1394 Card (Optional)</td>
</tr>
<tr>
<td>□ GC-SATA Card (Optional)</td>
<td>(Manual; SATA cable x 1; Power cable x 1)</td>
</tr>
</tbody>
</table>

### 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 anti-static 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 the fixing hole. Be careful, don't let the screw contact any printed circuit wire 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

<table>
<thead>
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<th>Feature</th>
<th>Details</th>
</tr>
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<tbody>
<tr>
<td><strong>Form Factor</strong></td>
<td>30.5cm x 24.4cm ATX size form factor, 6 layers PCB.</td>
</tr>
</tbody>
</table>
| **CPU**               | • Socket 478 for Intel® Micro FC-PGA2 Pentium® 4 processor  
                         • Support Intel® Pentium® 4 (Northwood, 0.13μm) 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 MultiTOL 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 SiI3112A                                                                                               |

(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 x Front 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
- Supports ATAPI mode for HDD
- Supports IDE bus master operation
- SupportATA133/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**
- Built-in Intel® RC82540EM (KENAI 32) Chipset
- 1 RJ45 port

**PS/2 Connector**
- PS/2 Keyboard interface and PS/2 Mouse interface

---

_to be continued....._
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)**

**Step 1-1: CPU Installation**

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.

2. Pull the rod to the 90-degree directly.

3. CPU Top View

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.
Step 1: 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.

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 2.664 GB per second, DDR memory enables system OEMs to build high performance and low latency DRAM subsystems that are suitable for servers, workstations, high-end PCs 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 in 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)](image)

<table>
<thead>
<tr>
<th>DIMM1</th>
<th>DIMM2</th>
<th>DIMM3</th>
<th>DIMM4</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 memory modules</td>
<td>DS/SS</td>
<td>X</td>
<td>DS/SS</td>
</tr>
<tr>
<td></td>
<td>DS/SS</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>DS/SS</td>
<td>DS/SS</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>DS/SS</td>
<td>X</td>
</tr>
<tr>
<td>3 memory modules</td>
<td>DS/SS</td>
<td>DS/SS</td>
<td>DS/SS</td>
</tr>
<tr>
<td></td>
<td>DS/SS</td>
<td>DS/SS</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>DS/SS</td>
<td>X</td>
<td>DS/SS</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>DS/SS</td>
<td>DS/SS</td>
</tr>
<tr>
<td>4 memory modules</td>
<td>DS/SS</td>
<td>DS/SS</td>
<td>DS/SS</td>
</tr>
</tbody>
</table>
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.

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

<table>
<thead>
<tr>
<th>DIMM 1</th>
<th>DIMM 2</th>
<th>DIMM 3</th>
<th>DIMM 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 memory module</td>
<td>DS/SS</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>DS/SS</td>
<td>X</td>
</tr>
<tr>
<td>2 memory modules</td>
<td>DS/SS</td>
<td>DS/SS</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>X</td>
<td>DS/SS</td>
</tr>
</tbody>
</table>

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 6-phase power circuit.

How to install a DPVRM?

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 motherboard 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

- **PS/2 Keyboard and PS/2 Mouse Connector**
  - PS/2 Mouse Connector (6 pin Female)
  - PS/2 Keyboard Connector (6 pin Female)

- **Parallel Port and Serial Ports (COMA/COMB)**
  - Parallel Port (25 pin Female)
  - Serial Port (9 pin Male)

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

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.
Game /MIDI Ports

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

Audio Connectors

After install onboard audio driver, you may connect speaker to Line Out jack, microphone 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 to choose hardware connection.

Method 1:
Connect "Front Speaker" to "Line Out"
Connect "Rear Speaker" to "Line In"
Connect "Center and Subwoofer" to "MIC Out".

Method 2:
You can refer to page 23, and contact your nearest dealer for optional SUR_CEN cable.

USB & LAN Connector

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
2) PWR_FAN
3) SYS_FAN
4) NB_FAN
5) ATX_12V
6) ATX
7) FDD
8) IDE1/IDE2
9) IDE3/IDE4
10) S_ATA1/S_ATA2
11) LED
12) PWR_LED
13) F_PANEL
14) BAT
15) F_AUDIO
16) SUR_CEN
17) CD_IN
18) AUX_IN
19) SPDIF_O
20) SPDIF_IN
21) F_USB1/F_USB2
22) SMB_CONN
23) 1394
24) IR
25) CI
26) WOL
1) CPU_FAN (CPU FAN Connector)

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)

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)

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)

If you installed wrong direction, the Chip Fan will not work. Sometimes will damage the Chip Fan. (Usually black cable is GND)
5) ATX_12V (+12V Power Connector) ➢ 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.

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)]

> Important Notice:
Please connect first hard disk to IDE1 and connect CDROM to IDE2.
The red stripe of the ribbon cable must be on the same side with the Pin1.

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

> Important Notice:
The red stripe of the ribbon cable must be on 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)

> 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

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)

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.

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HD  (IDE Hard Disk Active LED) (Blue)</td>
<td>Pin 1: LED anode(+) Pin 2: LED cathode(-)</td>
</tr>
<tr>
<td>SPK (Speaker Connector) (Amber)</td>
<td>Pin 1: VCC(+) Pin 2- Pin 3: NC Pin 4: Data(-)</td>
</tr>
<tr>
<td>RES (Reset Switch) (Green)</td>
<td>Open: Normal Operation Close: Reset Hardware System</td>
</tr>
<tr>
<td>PW (Soft Power Connector) (Red)</td>
<td>Open: Normal Operation Close: Power On/Off</td>
</tr>
<tr>
<td>MSG (Message LED/Power/Sleep LED) (Yellow)</td>
<td>Pin 1: LED anode(+) Pin 2: LED cathode(-)</td>
</tr>
<tr>
<td>NC (Purple)</td>
<td>NC</td>
</tr>
</tbody>
</table>
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)

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

16) SUR_CEN

Please contact your nearest dealer for optional SUR_CEN cable.

17) CD_IN (CD Audio Line In)

Connect CD-ROM or DVD-ROM audio out to the connector.
18) AUX_IN (AUX In Connector)  ➢ Connect other device(such as PCITV Tunner audio out) to the connector.

19) SPDIF_O (SPDIF Out)  ➢ The SPDIF output is capable of providing digital audio to external speakers or compressed AC3 data to an external Dolby Digital Decoder. Use this feature only when your stereo system has digital input function.

20) SPDIF_IN (SPDIF In)  ➢ Use this feature only when your device has digital output function.

21) F_USB1/F_USB2 (Front USB Connector)  ➢ 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

![Diagram of SMB_CONN connector]

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 hotplug.

![Diagram of 1394 connector]

24) IR (IR Connector)

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

![Diagram of IR connector]
25) CI (CASE OPEN)

![Diagram with 2-pin connector]

- This 2 pin connector allows your system to enable or disable the "Case Open" item in BIOS if the system case begins to remove.

26) WOL (Wake on LAN)

![Diagram with 4-pin connector and labels +5V SB, Signal, GND]

- This connector allows the remote server to manage the system that installed this motherboard 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

<table>
<thead>
<tr>
<th>Function</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard CMOS Features</td>
<td>Top Performance</td>
</tr>
<tr>
<td>Advanced BIOS Features</td>
<td>Load Fail-Safe Defaults</td>
</tr>
<tr>
<td>Integrated Peripherals</td>
<td>Load Optimized Defaults</td>
</tr>
<tr>
<td>Power Management Setup</td>
<td>Set Supervisor Password</td>
</tr>
<tr>
<td>PnP/PCI Configurations</td>
<td>Set User Password</td>
</tr>
<tr>
<td>PC Health Status</td>
<td>Save &amp; Exit Setup</td>
</tr>
<tr>
<td>Frequency/Voltage Control</td>
<td>Exit Without Saving</td>
</tr>
</tbody>
</table>

ESC: Quit  F8: Dual BIOS/Q-Flash  F10: Save & Exit Setup  F1: Select Item

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 window.

° 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

## Date

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

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week</td>
<td>Sun to Sat.</td>
</tr>
<tr>
<td>Month</td>
<td>Jan. to Dec.</td>
</tr>
<tr>
<td>Day</td>
<td>1 to 31 (or maximum allowed in the month)</td>
</tr>
<tr>
<td>Year</td>
<td>1999 to 2098</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDE Primary Master</td>
<td>None</td>
</tr>
<tr>
<td>IDE Primary Slave</td>
<td>None</td>
</tr>
<tr>
<td>IDE Secondary Master</td>
<td>None</td>
</tr>
<tr>
<td>IDE Secondary Slave</td>
<td>None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive A</td>
<td>1.44M, 3.5 in.</td>
</tr>
<tr>
<td>Drive B</td>
<td>None</td>
</tr>
<tr>
<td>Floppy 3 Mode Support</td>
<td>Disabled</td>
</tr>
<tr>
<td>Halt On</td>
<td>All, But Keyboard</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Memory</td>
<td>640K</td>
</tr>
<tr>
<td>Extended Memory</td>
<td>130048K</td>
</tr>
<tr>
<td>Total Memory</td>
<td>131072K</td>
</tr>
</tbody>
</table>

---

**Figure 2: Standard CMOS Features**
"Time"

The time format is in <hour> <minute> <second>. The time is calculated based 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 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 from 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 512K for systems with 512K memory installed on the motherboard, or 640K for systems with 640K or more memory installed on the motherboard.

Extended Memory

The BIOS determines how much extended memory is present during the POST. This is the amount of memory located above 1 MB in the CPU’s memory address map.
## Advanced BIOS Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Setting</th>
<th>Item Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>SATA/RAID/SCSI Boot Order</td>
<td>[SCSI]</td>
<td>Menu Level ▶ Select onboard RAID or order</td>
</tr>
<tr>
<td>First Boot Device</td>
<td>[Floppy]</td>
<td></td>
</tr>
<tr>
<td>Second Boot Device</td>
<td>[HDD-0]</td>
<td></td>
</tr>
<tr>
<td>Third Boot Device</td>
<td>[CDROM]</td>
<td></td>
</tr>
<tr>
<td>Boot Up Floppy Seek</td>
<td>[Disabled]</td>
<td></td>
</tr>
<tr>
<td>Password Check</td>
<td>[Setup]</td>
<td></td>
</tr>
<tr>
<td># CPU Hyper-Threading</td>
<td>[Disabled]</td>
<td></td>
</tr>
<tr>
<td>Flexible AGP 8X</td>
<td>[Auto]</td>
<td></td>
</tr>
<tr>
<td>Init Display First</td>
<td>[AGP]</td>
<td></td>
</tr>
</tbody>
</table>

### 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 value)
- **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 value)
- **PCI**
  - Set Init Display First to PCI.
### Integrated Peripherals

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#### Integrated Peripherals

<table>
<thead>
<tr>
<th>Option</th>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDE1 Conductor Cable</td>
<td>[Auto]</td>
<td>Menu Level ▼</td>
</tr>
<tr>
<td>IDE2 Conductor Cable</td>
<td>[Auto]</td>
<td></td>
</tr>
<tr>
<td>On-Chip Primary PCI IDE</td>
<td>[Enabled]</td>
<td>Auto-detect IDE</td>
</tr>
<tr>
<td>On-Chip Secondary PCI IDE</td>
<td>[Enabled]</td>
<td></td>
</tr>
<tr>
<td>AC97 Audio</td>
<td>[Enabled]</td>
<td></td>
</tr>
<tr>
<td>USB Controller</td>
<td>[Enabled]</td>
<td></td>
</tr>
<tr>
<td>USB Legacy Support</td>
<td>[Disabled]</td>
<td>[ATA66/100/133]</td>
</tr>
<tr>
<td>Onboard RAID device</td>
<td>[Enabled]</td>
<td>Set Conductor cable to ATA66/100/133(80-pins)</td>
</tr>
<tr>
<td>Onboard LAN device</td>
<td>[Enabled]</td>
<td>to ATA66/100/133(80-pins)</td>
</tr>
<tr>
<td>Onboard Serial ATA</td>
<td>[Enabled]</td>
<td></td>
</tr>
<tr>
<td>Serial ATA Function</td>
<td>[RAID]</td>
<td>[ATA33]</td>
</tr>
<tr>
<td>Onboard Serial Port 1</td>
<td>[3F8/IRQ4]</td>
<td>Set Conductor cable to ATA33(40-pins)</td>
</tr>
<tr>
<td>Onboard Serial Port 2</td>
<td>[2F8/IRQ3]</td>
<td></td>
</tr>
<tr>
<td>Onboard Parallel Port</td>
<td>[378/IRQ7]</td>
<td></td>
</tr>
<tr>
<td>Parallel Port Mode</td>
<td>[SPP]</td>
<td></td>
</tr>
<tr>
<td>ECP Mode Use DMA</td>
<td>[3]</td>
<td></td>
</tr>
<tr>
<td>Game Port Address</td>
<td>[201]</td>
<td></td>
</tr>
<tr>
<td>Midi Port Address</td>
<td>[330]</td>
<td></td>
</tr>
<tr>
<td>Midi Port IRQ</td>
<td>[10]</td>
<td></td>
</tr>
</tbody>
</table>

↑↓→←>: 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**

**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**

- **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 HW Serial ATA support. (Default value)
  ➤ Disabled: Disable Onboard HW 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

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPP</td>
<td>Using Parallel port as Standard Parallel Port.</td>
</tr>
<tr>
<td>EPP</td>
<td>Using Parallel port as Enhanced Parallel Port.</td>
</tr>
<tr>
<td>ECP</td>
<td>Using Parallel port as Extended Capabilities Port.</td>
</tr>
<tr>
<td>ECP+EPP</td>
<td>Using Parallel port as ECP &amp; EPP mode.</td>
</tr>
</tbody>
</table>

### ECP Mode Use DMA

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Set ECP Mode Use DMA to 3. (Default Value)</td>
</tr>
<tr>
<td>1</td>
<td>Set ECP Mode Use DMA to 1.</td>
</tr>
</tbody>
</table>

### Game Port Address

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>201</td>
<td>Set Game Port Address to 201. (Default Value)</td>
</tr>
<tr>
<td>209</td>
<td>Set Game Port Address to 209.</td>
</tr>
<tr>
<td></td>
<td>Disabled Disable this function.</td>
</tr>
</tbody>
</table>

### Midi Port Address

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>300</td>
<td>Set Midi Port Address to 300.</td>
</tr>
<tr>
<td>330</td>
<td>Set Midi Port Address to 330. (Default Value)</td>
</tr>
<tr>
<td></td>
<td>Disabled Disable this function.</td>
</tr>
</tbody>
</table>

### Midi Port IRQ

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Set Midi Port IRQ to 5.</td>
</tr>
<tr>
<td>10</td>
<td>Set Midi Port IRQ to 10. (Default Value)</td>
</tr>
</tbody>
</table>
Power Management Setup

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Power Management Setup

<table>
<thead>
<tr>
<th>Item Help</th>
<th>Item Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACPI Suspend Type</td>
<td>Soft-Off by PWR_BTIN</td>
</tr>
<tr>
<td>[S1(POS)]</td>
<td>[Off]</td>
</tr>
<tr>
<td>System After AC Back</td>
<td>IRQ [3-7, 9-15], NMI</td>
</tr>
<tr>
<td>[Off]</td>
<td>[Enabled]</td>
</tr>
<tr>
<td>ModernRingOn</td>
<td>PME Event Wake Up</td>
</tr>
<tr>
<td>[Enabled]</td>
<td>[Enabled]</td>
</tr>
<tr>
<td>Power On by Keyboard</td>
<td>Power On by Mouse</td>
</tr>
<tr>
<td>[Disabled]</td>
<td>[Disabled]</td>
</tr>
<tr>
<td>Resume by Alarm</td>
<td>x Month Alarm</td>
</tr>
<tr>
<td>[Disabled]</td>
<td>NA</td>
</tr>
<tr>
<td>x Day (of Month)</td>
<td>x Time (hh:mm:ss)</td>
</tr>
<tr>
<td>0</td>
<td>0 0</td>
</tr>
<tr>
<td>Power LED in S1 state</td>
<td>ACPI OS</td>
</tr>
<tr>
<td>[Blinking]</td>
<td></td>
</tr>
</tbody>
</table>

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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<table>
<thead>
<tr>
<th>Configuration</th>
<th>Value</th>
<th>Item Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCI 4 IRQ Assignment</td>
<td>[Auto]</td>
<td>Menul Level</td>
</tr>
<tr>
<td>PCI 1/5 IRQ Assignment</td>
<td>[Auto]</td>
<td></td>
</tr>
<tr>
<td>PCI 2 IRQ Assignment</td>
<td>[Auto]</td>
<td></td>
</tr>
<tr>
<td>PCI 3 IRQ Assignment</td>
<td>[Auto]</td>
<td></td>
</tr>
</tbody>
</table>

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>↑ ↓ → ←</td>
<td>Move</td>
<td>Enter:Select</td>
</tr>
<tr>
<td></td>
<td>F5:Previous Values</td>
<td>F6:Fail-Safe Defaults</td>
</tr>
</tbody>
</table>

Figure 6: PnP/PCI Configurations

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

#### PCI 1/5 IRQ Assignment
- **Auto**: Auto assign IRQ to PCI 1/5. (Default value)
- **3,4,5,7,9,10,11,12,14,15**: Set IRQ 3,4,5,7,9,10,11,12,14,15 to PCI 1/5.

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

#### PCI 3 IRQ Assignment
- **Auto**: Auto assign IRQ to PCI 3. (Default value)
- **3,4,5,7,9,10,11,12,14,15**: Set IRQ 3,4,5,7,9,10,11,12,14,15 to PCI 3.
PC Health Status

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<table>
<thead>
<tr>
<th>PC Health Status</th>
<th>Item Help</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reset Case Open Status</td>
<td>[Disabled]</td>
</tr>
<tr>
<td>Case Opened</td>
<td>No</td>
</tr>
<tr>
<td>VCORE</td>
<td>1.778V</td>
</tr>
<tr>
<td>VCC18</td>
<td>1.856V</td>
</tr>
<tr>
<td>+3.3V</td>
<td>3.2V</td>
</tr>
<tr>
<td>+5V</td>
<td>4.945V</td>
</tr>
<tr>
<td>+12V</td>
<td>12.286V</td>
</tr>
<tr>
<td>Current CPU Temperature</td>
<td>49°C</td>
</tr>
<tr>
<td>Current CPU FAN Speed</td>
<td>5113 RPM</td>
</tr>
<tr>
<td>Current System FAN Speed</td>
<td>0 RPM</td>
</tr>
<tr>
<td>CPU Warning Temperature</td>
<td>[Disabled]</td>
</tr>
<tr>
<td>CPU FAN Fail Warning</td>
<td>[Disabled]</td>
</tr>
<tr>
<td>System FAN Fail Warning</td>
<td>[Disabled]</td>
</tr>
</tbody>
</table>

- 45 - BIOS Setup

**Figure 7: PC Health Status**

- **Reset Case Open Status**

  - **Case Opened**

    If the case is closed, "Case Opened" will show "No".
    If the case has 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: Enable Fan warning alarm when Fan stops.

- System Fan Fail Warning
  - Disabled: Fan Warning function disable. (Default value)
  - Enabled: Enable Fan warning alarm when Fan stops.
Frequency/Voltage Control

This setup option will automatically assign by CPU detection.

For Williamette 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

This setup option will automatically assign by CPU detection.

For Williamette 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)

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" 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.

"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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<table>
<thead>
<tr>
<th>Menu Item</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard CMOS Features</td>
<td>Top Performance</td>
</tr>
<tr>
<td>Advanced BIOS Features</td>
<td>Load Fail-Safe Defaults</td>
</tr>
<tr>
<td>Integrated Peripherals</td>
<td>Load Optimized Defaults</td>
</tr>
<tr>
<td>Power Management</td>
<td></td>
</tr>
<tr>
<td>PnP/PCI Configuration</td>
<td></td>
</tr>
<tr>
<td>PC health Status</td>
<td>Save &amp; Exit Setup</td>
</tr>
<tr>
<td>Frequency/Voltage Control</td>
<td>Exit Without Saving</td>
</tr>
</tbody>
</table>

ESC: Quit        F8: Dual BIOS/Q-Flash
†↓←→: Select Item  F10: Save & Exit Setup

Load Fail-Safe Defaults? (Y/N)? Y

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

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  
- PnP/PCI Configurations  
- 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

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.
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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<table>
<thead>
<tr>
<th>Standard CMOS Features</th>
<th>Top Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced BIOS Features</td>
<td>Load Fail-Safe Defaults</td>
</tr>
<tr>
<td>Integrated Peripherals</td>
<td>Load Optimized Defaults</td>
</tr>
<tr>
<td>Power Management Setup</td>
<td>Set Supervisor Password</td>
</tr>
<tr>
<td>PnP/PCI Config</td>
<td></td>
</tr>
<tr>
<td>PC Health Status</td>
<td></td>
</tr>
<tr>
<td>Frequency/Voltage Control</td>
<td>Exit Without Saving</td>
</tr>
</tbody>
</table>

ESC: Quit  
F8: Dual BIOS/Q-Flash  
F10: Save & Exit Setup

Abandon all Data

Type "Y" will quit the Setup Utility without saving to RTC CMOS.  
Type "N" will return to Setup Utility.
Chapter 4 Technical Reference

Block Diagram

Pentium 4
Socket 478
CPU

CPUCLK+/- (100/133MHz)

System Bus
400/533MHz

SIS 655

266/333MHz
ZCLK (66/133MHz)
HCLK+/- (100/133MHz)

DDR

SIS 963

66/133 MHz
33 MHz
14.318 MHz

ZCLK (66/133MHz)
CPUCLK+/- (100/133MHz)
AGPCLK (66MHz)
HCLK+/- (100/133MHz)

AGP 4X/8X

AGPCLK
(66MHz)

5 PCI

RJ45

Intel KEN632

PCICLK
(33MHz)

5 USB

2.0/1.1

6 USB
(2.0/1.1)

Ports

ATA33/66/100
IDE Channels

BIOS

IT8705F

Game Port

Floppy

LPT Port

PS/2
KB/Mouse

COM Ports

GigaRAID

IT8212F

Serial ATA

ATA33/66/100
IDE Channels

AC97

CODEC

6 USB
(2.0/1.1)

Ports

ATA33/66/100
IDE Channels

Serial ATA

Serial ATA

Channels

Serial ATA

Channels

PCICLK (33MHz)
USBCLK (48MHz)
14.318 MHz
33 MHz

CLK GEN

ZCLK (66/133MHz)
CPUCLK+/- (100/133MHz)
AGPCLK (66MHz)
HCLK+/- (100/133MHz)

PCICLK (33MHz)
USBCLK (48MHz)
14.318 MHz
33 MHz

AGP 4X/8X

AGPCLK
(66MHz)

5 PCI

Serial ATA

Serial AT
@ 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 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.

Overclocking might be one of the most common issues in the computer field. But have many users ever tried it? The answer is probably "no". Because "Overclocking" is thought to be very difficult and includes a lot of technical know-how, sometimes "Overclocking" is even considered as special skills found only in some enthusiasts. But as to the experts in "Overclocking", 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 "Overclocking". And even with these technologies, they still learn that it's quite a risk because the safety and stability of an "Overclocking" 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 "Overclocking". 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 auted and immediate CPU overclocking. This software will then overdrive CPU speed automatically with the result being shown in the control panel. If users prefer "Overclocking" by themselves, 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 "Overclocking" at easy step. Therefore, this is a safer way for "Overclocking" as nothing is changed on software or hardware. If user runs EasyTune 4 over system's limitation, the biggest risk is only to restart the computer again and the side effects 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 "Overclocking" 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 which gives you a total of 6-phase power circuit design. Providing 2 extra phase power circuits that motherboard design guidelines 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.
b. Award Dual BIOS Flash ROM Programming Utility

<table>
<thead>
<tr>
<th>Dual BIOS Utility V1.20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boot From:..................</td>
</tr>
<tr>
<td>Main ROM Type/Size:........</td>
</tr>
<tr>
<td>Backup ROM Type/Size:......</td>
</tr>
<tr>
<td>Wide Range Protection:.....</td>
</tr>
<tr>
<td>BootFrom:..................</td>
</tr>
<tr>
<td>Auto Recovery:.............</td>
</tr>
<tr>
<td>Halt On Error:...............</td>
</tr>
<tr>
<td>Keep DMI Data:...............</td>
</tr>
<tr>
<td>Copy Main ROM Data to Backup</td>
</tr>
<tr>
<td>Load Default Settings</td>
</tr>
<tr>
<td>Save Settings to CMOS</td>
</tr>
<tr>
<td>Q-Flash Utility</td>
</tr>
<tr>
<td>Load Main BIOS from Floppy</td>
</tr>
<tr>
<td>Load Backup BIOS from Floppy</td>
</tr>
<tr>
<td>Save Main BIOS to Floppy</td>
</tr>
<tr>
<td>Save Backup BIOS to Floppy</td>
</tr>
</tbody>
</table>

PgDn/PgUp: Modify  ↑↓: Move  ESC: Reset  F10: Power Off

<table>
<thead>
<tr>
<th>Dual BIOS Item explanation:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wide Range Protection:</strong> Disable(Default), Enable</td>
</tr>
<tr>
<td><strong>Status 1:</strong> 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.</td>
</tr>
<tr>
<td><strong>Status 2:</strong> 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 bootup BIOS will not be changed to the Backup BIOS.</td>
</tr>
<tr>
<td><strong>Boot From:</strong> Main BIOS(Default), Backup BIOS</td>
</tr>
<tr>
<td><strong>Status 1:</strong> The user can set to boot from main BIOS or Backup BIOS.</td>
</tr>
<tr>
<td><strong>Status 2:</strong> 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.</td>
</tr>
</tbody>
</table>
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.

Where XXXXX is name of the BIOS file.

Are you sure to update BIOS?
[Enter] to continue Or [ESC] to abort...

!! 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.

File name: XXXXX
Total Size: 1.39M  Free Size: 1.39M
F5: Refresh  DEL: Delete  TAB: Switch

To name the file.

Congratulations you have accomplished the saving.

CONTROL KEYS

<Page Down/Page Up> Make changes
<↑> Move to previous item
<↓> Move to next item
<Esc> Reset
<F10> Power Off
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 motherboard will operate normally with the main BIOS, however, if the main BIOS is corrupted 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 bootup 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)"

![My Computer Icon](image.png)
(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.


(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".

<table>
<thead>
<tr>
<th>AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.24b</th>
</tr>
</thead>
<tbody>
<tr>
<td>(C) 1999 American Megatrends, Inc. All Rights Reserved</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STANDARD CMOS SETUP</th>
<th>INTEGRATED PERIPHERALS</th>
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<tbody>
<tr>
<td>BIOS FEATURES SETUP</td>
<td>HARDWARE MONITOR &amp; MISC SETUP</td>
</tr>
<tr>
<td>CHIPSET FEATURES SETUP</td>
<td>SUPERVISOR PASSWORD</td>
</tr>
<tr>
<td>POWER MANAGEMENT SETUP</td>
<td>USER PASSWORD</td>
</tr>
<tr>
<td>PNP / PCI CONFIGURATION</td>
<td>IDE HDD AUTO DETECTION</td>
</tr>
<tr>
<td>LOAD BIOS DEFAULTS</td>
<td>SAVE &amp; EXIT SETUP</td>
</tr>
<tr>
<td>LOAD SETUP DEFAULTS</td>
<td>EXIT WITHOUT SAVING</td>
</tr>
</tbody>
</table>

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".

(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.
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.

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 bootup. 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.

```
Load Setup Defaults

Load Setup Defaults? (Y/N)?N
```
(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.

(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 use Gigabyte @BIOS™ program to flash BIOS.

Methods and steps:
1. Update BIOS through Internet
   a. Click "Internet Update" icon
   b. Click "Update New BIOS" icon
   c. Select @BIOS™ server
   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 Introduction

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 acquire the best sound effect if the stereo output is applied.

**STEP 1:**
Connect the stereo speakers or earphone to "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 output".
4 Channel Analog Audio Output Mode

STEP 1:
Connect the front channels to "Line Out", the rear channels to "Line 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 "4 channels for 4 speakers output". Disable "Only SURROUND-KIT", and press "OK".

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".

**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 output". Disable "Only SURROUND-KIT" and press "OK".
STEP 1:
Insert the "SURROUND-KIT" in the back of the case and fix it with the screw.

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 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 output". Enable "Only SURROUND-KIT" and press "OK".

Basic & Advanced 6 Channel Analog Audio Output Mode:
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.
Appendix

Chapter 5 Appendix

Install Drivers

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

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 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 will execute the installation for you by itself.

We recommend that you install all components in the list.

Click "GO".
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 Device.

For top performance and compatibility, it is recommend to use the SATA daughter Card which has Silicon Image Chipset.
SOFTWARE INFORMATION

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

HARDWARE INFORMATION

This page lists all devices you have for this motherboard.
# Acronyms

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

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

<table>
<thead>
<tr>
<th>Customer/Country:</th>
<th>Company:</th>
<th>Phone No.:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Person:</td>
<td>E-mail Add.:</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Model name/Lot Number:</th>
<th>PCB revision:</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS version:</td>
<td>O.S./A.S.:</td>
</tr>
</tbody>
</table>

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

## Problem Description:

________________________________________________________________________________________

________________________________________________________________________________________
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 shorted.

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.
Appendix

- Failure has been excluded.
- Yes
- No
- Failure has been excluded.
- Yes
- No
- Failure has been excluded.
- Yes
- No
- Failure has been excluded.
- Yes
- No
- Failure has been excluded.
- Yes
- No
- Failure has been excluded.

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.
CONTACT US

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

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