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

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

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

❧※ **Due to rapid change in technology, some of the specifications might be out of date before publication of this booklet.**

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

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

Achtung: Der Prozessor darf nur in Betrieb genommen werden, wenn der Wärmeableiter ordnungsgemäß und fest angebracht ist. *DIES HAT EINEN PERMANENTEN SCHADEN ZUR FOLGE!*

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

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

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

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

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

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

Declaration of Conformity

We, Manufacturer/Importer

(full address)

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

declare that the product

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

Mother Board

GA-8ST667

is in conformity with

(reference to the specification under which conformity is declared)

in accordance with 89/336 EEC-EMC Directive

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

☒ **CE marking**

$C \epsilon$ (EC conformity marking)

The manufacturer also declares the conformity of above mentioned product

with the actual required safety standards in accordance with LVD 73/23 EEC

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

Manufacturer/Importer

(Stamp)

Date : Aug. 28, 2002

Signature: *Timmy Huang*

Name : Timmy Huang

DECLARATION OF CONFORMITY

Per FCC Part 2 Section 2.1077(a)

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

Address: 17358 Railroad Street

City of Industry, CA 91748

Phone/FaxNo: (818) 854-9338/ (818) 854-9339

hereby declares that the product

Product Name: Motherboard

Model Number: GA-8ST667

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: Aug. 28, 2002

GA-8ST667 Series
P4 Titan-DDR Motherboard

USER'S MANUAL

Table of Content

Item Checklist

- ☑ The GA-8ST667 Series motherboard
- ☑ IDE cable x 2 / Floppy cable x 1
- ☑ CD for motherboard driver & utility (TUCD)
- ☑ GA-8ST667 Series user's manual
- ☑ I/O Shield*
- ☑ Quick PC Installation Guide
- ☐ RAID Manual

- ☑ 2 Port USB Cable x 1
- ☐ 4 Port USB Cable x 1
- ☐ SPDIF KIT x 1 (SPD-KIT)
- ☐ IEEE 1394 Cable x 1
- ☐ Audio Combo Kit x 1
- ☑ Motherboard Settings Label

WARNING!

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

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

Installing the motherboard to the chassis…

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

* Only for GA-8ST667-L.

Chapter 1 Introduction

Features Summary

Form Factor	—	29.5cm x 20.0cm ATX size form factor, 4 layers PCB
Motherboard	—	GA-8ST667 Series Motherboard:
		GA-8ST667 or GA-8ST667-L
CPU	—	Socket 478 for Intel® Micro FC-PGA2 Pentium® 4 processor
	—	Support Intel® Pentium® 4 (Northwood, 0.13µm) processor
	—	Intel® Pentium® 4 400/533MHz FSB
	—	2nd cache depends on CPU
Chipset	—	SiS 645DX Host/Memory controller
	—	SiS 962L MuTIOL Media I/O
Memory	—	3 184-pin DDR DIMM sockets
	—	Supports DDR333/DDR266/DDR200 DIMM
	—	Supports Up to 2 un-buffer DIMM DDR333 or up to 3 un-buffer
		Double-sided DIMM DDR266/200
	—	Supports up to 3GB DRAM (Max)(DDR266/200)
	—	Supports only 2.5V DDR DIMM
I/O Control	—	IT8705F
Slots	—	1 Universal AGP slot (1X/2X/4X) device support
	—	5 PCI slot supports 33MHz & PCI 2.2 compliant
On-Board IDE	—	2 IDE bus master (UDMA33/ATA66/ATA100/ATA133) IDE ports
		for up to 4 ATAPI devices
	—	Supports PIO mode3, 4 (UDMA 33/ATA66/ATA100/ATA133) IDE
		& ATAPICD-ROM
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

|	
Hardware Monitor	– CPU/System Fan Revolution detect
	– CPU Temperature detect
	– System Temperature detect
	– System Voltage detect
	– CPU/System Fan Fail Warning
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
	– CD In / AUX In / Game Port
On-Board LAN*	– Builit in RTL8100BL Chipset
	– 1 RJ45 port
PS/2 Connector	– PS/2 Keyboard interface and PS/2 Mouse interface
BIOS	– Licensed AWARD BIOS, 2M bit Flash ROM
	– Supports Q-Flash
Additional Features	– PS/2 Keyboard power on by password
	– PS/2 Mouse power on
	– STR (Suspend-To-RAM)
	– AC Recovery
	– Supports EasyTune™ 4
	– Supports @BIOS™
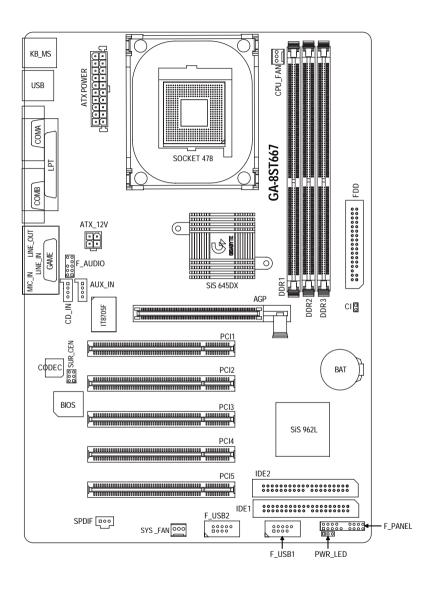
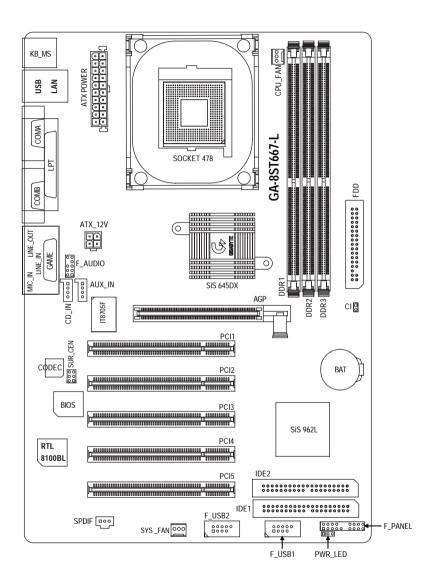Please set the CPU host frequency in accordance with your processor's specifications. We don't recommend you to set the system bus frequency over the CPU's specification because these specific bus frequencies are not the standard specifications for CPU, chipset and most of the peripherals. Whether your system can run under these specific bus frequencies properly will depend on your hardware configurations, including CPU, Chipsets, SDRAM, Cards…etc.

* Only for GA-8ST667-L.

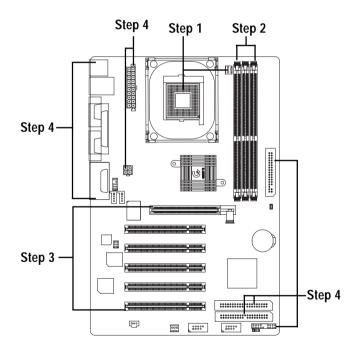# GA-8ST667 Motherboard Layout

GA-8ST667-L 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
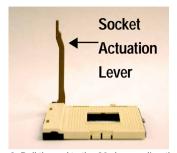
Step 1: Install the Central Processing Unit (CPU)

Step 1-1: CPU Installation

Angling the rod to 65⁰

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

Socket Actuation Lever

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

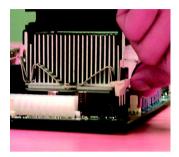**Pin1 indicator**

3. CPU Top View

Pin1 indicator

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

🕭 **Please make sure the CPU type is supported by the motherboard.**

🕭 **If you do not match the CPU socket Pin 1 and CPU cut edge well, it will cause improper installation. Please change the insert orientation.**

Step1-2 : CPU Heat Sink Installation

1. Hook one end of the cooler bracket to the CPU socket first.

2. Hook the other end of the cooler bracket to the CPU socket.
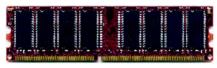
●* **Please use Intel approved cooling fan.**

●* **We recommend you to apply the thermal tape to provide better heat conduction between your CPU and heatsink.**

   (The CPU cooling fan might stick to the CPU due to the hardening of the thermal paste. During this condition if you try to remove the cooling fan, you might pull the processor out of the CPU socket alone with the cooling fan, and might damage the processor. To avoid this from happening, we suggest you to either use thermal tape instead of thermal paste, or remove the cooling fan with extreme caution.)

●* **Make sure the CPU fan power cable is plugged in to the CPU fan connector, this completes the installation.**

●* **Please refer to CPU heat sink user's manual for more detail installation procedure.**

Hardware Installation Process
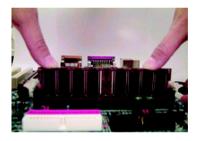
Step 2: Install memory modules

The motherboard has 3 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.

Support Unbuffered DDR DIMM Sizes type:

64 Mbit (2Mx8x4 banks)	64 Mbit (1Mx16x4 banks)	128 Mbit (4Mx8x4 banks)
128 Mbit (2Mx16x4 banks)	256 Mbit (8Mx8x4 banks)	256 Mbit (4Mx16x4 banks)
512 Mbit (16Mx8x4 banks)	512 Mbit (8Mx16x4 banks)	

DDR

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

💣※ **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.**
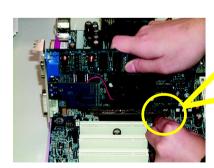
DDR Introduction

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 2.1GB per second, DDR memory enables system OEMs to build high performance and low latency DRAM subsystems that are suitable for servers, workstations, high-end PC's and value desktop SMA systems. With a core voltage of only 2.5 Volts compared to conventional SDRAM's 3.3 volts, DDR memory is a compelling solution for small form factor desktops and notebook applications.

Step 3: Install expansion cards

1. Read the related expansion card's instruction document before install the expansion card into the computer.
2. Remove your computer's chassis cover, necessary screws and slot bracket from the computer.
3. Press the expansion card firmly into expansion slot in motherboard.
4. Be sure the metal contacts on the card are indeed seated in the slot.
5. Replace the screw to secure the slot bracket of the expansion card.
6. Replace your computer's chassis cover.
7. Power on the computer, if necessary, setup BIOS utility of expansion card from BIOS.
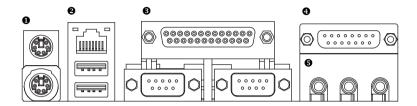8. Install related driver from the operating system.

AGP Card

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

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

Step4-1 : I/O Back Panel Introduction
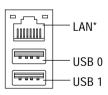

❶ PS/2 Keyboard and PS/2 Mouse Connector

PS/2 Mouse Connector
(6 pin Female)

PS/2 Keyboard Connector
(6 pin Female)

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

❷ USB / LAN* Connector

LAN*

USB 0

USB 1

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

* For GA-8ST667-L Only.

❸ **Parallel Port and Serial Ports (COMA/COMB)**

Parallel Port
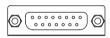(25 pin Female)

➢ 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.
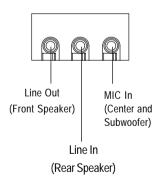
COMA   COMB
Serial Port (9 pin Male)

❹ **Game / MIDI Ports**

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

Joystick/ MIDI (15 pin Female)

❺ **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 2 choose for hardware connection.

Method1:

Connect "Front Speaker" to "Line Out"

Connect "Rear Speaker" to "Line In"
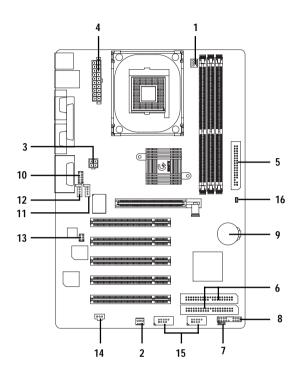
Connect "Center and Subwooferr" to "MIC Out ".

Method2:

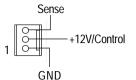You can refer to page 20, and contact your nearest dealer for optional SUR_CEN cable.

Line Out
(Front Speaker)

MIC In
(Center and Subwoofer)

Line In
(Rear Speaker)

If you want the detail information for 2-/4-/6-channel audio setup installation, please refer to page 69.
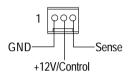
Step 4-2 : Connectors Introduction

1) CPU_FAN	**9) BAT**
2) SYS_FAN	**10) F_AUDIO**
3) ATX_12V	**11) AUX_IN**
4) ATX POWER	**12) CD_IN**
5) FDD	**13) SUR_CEN**
6) IDE1 / IDE2	**14) SPDIF**
7) PWR_LED	**15) F_USB1 / F_USB2**
8) F_PANEL	**16) CI**

1) CPU_FAN (CPU Fan Connector)
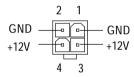
Sense

+12V/Control

1

GND

➢ 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) SYS_FAN (System Fan Connector)

1

GND ———— Sense

+12V/Control

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

3) ATX_12V (+12V Power Connector)

2   1

GND ———— GND

+12V ———— +12V
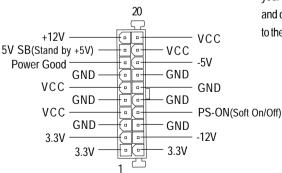
4   3

➢ This connector (ATX +12V) supplies the CPU operation voltage (Vcore).
If this "ATX+ 12V connector" is not connected, system cannot boot.

4) ATX POWER (ATX Power Connector)

20

+12V ———— VCC
5V SB(Stand by +5V) ———— VCC
Power Good ———— -5V
GND ———— GND
VCC ———— GND
GND ———— GND
VCC ———— PS-ON(Soft On/Off)
GND ———— GND
3.3V ———— -12V
3.3V ———— 3.3V

1

➢ 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 motherboard.
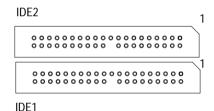
5) FDD (Floppy Connector)

➢ 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.

1

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

IDE2

1

1

IDE1

➢ Important Notice:
Please connect first hard disk to IDE1 and connect CD-ROM to IDE2.
The red stripe of the ribbon cable must be the same side with the Pin1.
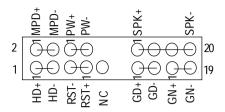
7) PWR_LED

1
MPD+   MPD-
MPD-

➢ PWR_LED is connect with the system power indicator to indicate whether the system is on/off. It will blink when the system enters suspend mode.
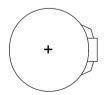If you use dual color LED, power LED will turn to another color.

8) F_PANEL (2x10 Pins Connector)

GN (Green Switch)	Open: Normal Operation
	Close: Entering Green Mode
GD (Green LED)	Pin 1: LED anode(+)
	Pin 2: LED cathode(-)
HD (IDE Hard Disk Active LED)	Pin 1: LED anode(+)
	Pin 2: LED cathode(-)
SPK (Speaker Connector)	Pin 1: VCC(+)
	Pin 2- Pin 3: NC
	Pin 4: Data(-)
RST (Reset Switch)	Open: Normal Operation
	Close: Reset Hardware System
PW (Soft Power Connector)	Open: Normal Operation
	Close: Power On/Off
MPD(Message LED/Power/	Pin 1: LED anode(+)
Sleep LED)	Pin 2: LED cathode(-)
N C	N C

➢ Please connect the power LED, PC speaker, reset switch and power switch etc. of your chassis front panel to the F_PANEL connector according to the pin assignment above.

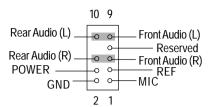## 9) BAT (Battery)

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.

10) F_AUDIO (Front Audio Connector)

10   9

Rear Audio (L) ——— Front Audio (L)
                     ——— Reserved
Rear Audio (R) ——— Front Audio (R)
POWER ——— REF
GND ——— MIC

2   1

➢ If you want to use Front Audio connector, you must remove 5-6, 9-10 Jumper.

In order to utilize the front audio header, your chassis must have front audio connector. Also please make sure the pin assigment on the cable is the same as the pin assigment on the MB header. To find out if the chassis you are buying support front audio connector, please contact your dealer.
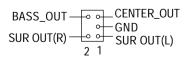
11) AUX_IN (AUX In Connector)

1

AUX_L ———
GND ———
AUX_R ———

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

12) CD_IN (CD Audio In Connector)

1

CD_L ———
GND ———
CD_R ———

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

13) SUR_CEN (Surround Center Connector)

BASS_OUT ——— CENTER_OUT
                     ——— GND
SUR OUT(R) ——— SUR OUT(L)

2   1
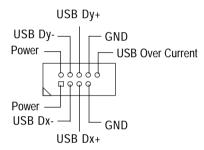
➢ Please contact your nearest dealer for optional SUR_CEN cable.

14) SPDIF (SPDIF)

1 □ ○ ○

VCC ———— GND

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. 6 Channel output : A "S/PDIF output" connector is available on the motherboard. Please contact your nearest dealer for optional SPDIF cable.

15) F_USB1 / F_USB2 (Front USB Connector)
(F_USB1 & F_USB2 connectors in yellow are for USB 2.0)

USB Dy+

USB Dy- ———— GND

Power ———— USB Over Current

○ ○ ○ ○ ○
□ ○ ○ ○

Power ————

USB Dx- ———— GND

USB Dx+

➢ Be careful with the polarity of the front USB connector. Check the pin assignment while you connect the front USB cable. Please contact your nearest dealer for optional front USB 2.0 cable.

16) CI (Case Open)

1 □ —— Signal
  ○ —— GND

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

English

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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>	Q-Flash function
<F9>	Reserved
<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.

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▶ Standard CMOS Features	Top Performance
▶ Advanced BIOS Features	Load Fail-Safe Defaults
▶ Integrated Peripherals	Load Optimized Defaults
▶ Power Management Setup	Set Supervisor Password
▶ PnP/PCI Configurations	Set User Password
▶ PC Health Status	Save & Exit Setup
▶ Frequency/Voltage Control	Exit Without Saving
ESC:Quit	↑↓→←:Select Item
F8: Q-Flash	F10: Save & Exit Setup
Time, Date, Hard Disk Type...	

Figure 1: Main Menu

● **Standard CMOS Features**

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

● **Advanced BIOS Features**

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

● **Integrated Peripherals**

This setup page includes all onboard peripherals.

● **Power Management Setup**

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

● **PnP/PCI Configurations**

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

● **PC Health Status**

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

● **Frequency/Voltage Control**

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

● **Top Performance**

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

● **Load Fail-Safe Defaults**

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

● **Load Optimized Defaults**

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

● **Set Supervisor password**

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

● **Set User password**

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

● **Save & Exit Setup**

Save CMOS value settings to CMOS and exit setup.

● **Exit Without Saving**

Abandon all CMOS value changes and exit setup.

Standard CMOS Features

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Standard CMOS Features

Date (mm:dd:yy)	Thu, Aug 22 2002	Item Help
Time (hh:mm:ss)	17:56:23	Menu Level ▶
		Change the day, month,
▶IDE Primary Master	[None]	year
▶IDE Primary Slave	[None]	
▶IDE Secondary Master	[None]	<Week>
▶IDE Secondary Slave	[None]	Sun. to Sat.
Drive A	[1.44M, 3.5"]	<Month>
Drive B	[None]	Jan. to Dec.
Floppy 3 Mode Support	[Disabled]	
		<Day>
Halt On	[All, But Keyboard]	1 to 31 (or maximum
		allowed in the month)
Base Memory	640K	
Extended Memory	130048K	<Year>
Total Memory	131072K	1999 to 2098
↑↓→←: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help		
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Figure 2: Standard CMOS Features

☞ **Date**

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

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

☞ **Time**

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

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

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

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

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

- ▶ Cylinder   Number of cylinders
- ▶ Head   Number of heads
- ▶ Precomp   Write precomp
- ▶ Landing Zone   Landing zone
- ▶ Sector   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"   5.25 inch PC-type standard drive; 360K byte capacity.
- ▶ 1.2M, 5.25"   5.25 inch AT-type high-density drive; 1.2M byte capacity
                     (3.5 inch when 3 Mode is Enabled).
- ▶ 720K, 3.5"   3.5 inch double-sided drive; 720K byte capacity
- ▶ 1.44M, 3.5"   3.5 inch double-sided drive; 1.44M byte capacity.
- ▶ 2.88M, 3.5"   3.5 inch double-sided drive; 2.88M byte capacity.

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

- ▸ Disabled   Normal Floppy Drive. (Default value)
- ▸ Drive A   Enable Drive A is 3 mode Floppy Drive.
- ▸ Drive B   Enable Drive B is 3 mode Floppy Drive.
- ▸ Both   Enable 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.

- ▸ All Errors   Whenever the BIOS detects a non-fatal error the system will be stopped.
- ▸ NO Errors   The system boot will not stop for any error that may be detected and you will be prompted.
- ▸ 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 1MB in the CPU's memory address map.

Advanced BIOS Features

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Advanced BIOS Features

First Boot Device	[Floppy]	Item Help
Second Boot Device	[HDD-0]	Menu Level ▶
Third Boot Device	[CDROM]	Select Boot Device
Boot Up Floppy Seek	[Disabled]	priority
		[Floppy]
		Boot from floppy
		[LS120]
		Boot from LS120
		[HDD-0]
		Boot from First HDD
		[HDD-1]
		Boot from second HDD
↑↓→←: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help		
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Figure 3: Advanced BIOS Features

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

⊮ 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. 360K type is 40 tracks 720K, 1.2M and 1.44M 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)

▶ 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 80tracks.

Integrated Peripherals

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Integrated Peripherals

		Item Help
IDE1 Conductor Cable	[Auto]	Menu Level ▶
IDE2 Conductor Cable	[Auto]	
On-Chip Primary PCI IDE	[Enabled]	[Auto]
On-Chip Secondary PCI IDE	[Enabled]	Auto-detect IDE
AC97 Audio	[Enabled]	cable type
USB Controller	[Enabled]	
USB Legacy Support	[Disabled]	[ATA66/100/133]
Onboard LAN device*	[Enabled]	Set Conductor cable
Init Display First	[AGP]	to ATA66/100/133(80
Onboard Serial Port 1	[3F8/IRQ4]	-pins)
Onboard Serial Port 2	[2F8/IRQ3]	
Onboard Parallel Port	[378/IRQ7]	[ATA33]
Parallel Port Mode	[SPP]	Set Conductor cable
x ECP Mode Use DMA	3	to ATA33(40-pins)
Game Port Address	[201]	
Midi Port Address	[330]	
Midi Port IRQ	[10]	
↑↓→←: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help		
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Figure 4: Integrated Peripherals

☞ **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).

* Only for GA-8ST667-L.

C **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).

C **On-Chip Primary PCI IDE**

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

C **On-Chip Secondary PCI IDE**

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

C **AC97 Audio**

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

C **USB Controller**

Disable this function if you are not using onboard USB feature.

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

C **USB Legacy Support**

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

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

C **Onboard LAN device***

- ▶ Enabled   Enable Onboard Lan Chip function. (Default Value)
- ▶ Disabled   Disable this function.

* Only for GA-8ST667-L.

 Init Display First

Select the first initation of the monitor display from AGP or PCI VGA card.

- ▶▶ PCI   Set Init Display First to PCI.
- ▶▶ AGP   Set Init Display First to AGP. (Default value)

 Onboard Serial Port 1

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

 Onboard Serial Port 2

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

 Onboard Parallel port

This feature allows you to select from a given set of parameters if the parallel port uses the onboard I/O controller.

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

☞ **Parallel Port Mode**

This feature allows you to connect with an advanced printer via the port mode it supports.

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

➠ EPP   Using Parallel port as Enhanced Parallel Port.

➠ ECP   Using Parallel port as Extended Capabilities Port.

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

☞ **ECP Mode Use DMA**

This feature allows you to select Direct Memory Access(DMA) channel if the ECP mode selected.

➠ 1   Set ECP Mode Use DMA to 1.

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

☞ **Game Port Address**

This feature allows you to select the game port address or disable it.

➠ Disabled   Disable this function.

➠ 201   Set Game port address to 201. (Default Value)

➠ 209   Set Game port address to 209.

☞ **Midi Port Address**

This feature allows you to select the Midi port address or disable it.

➠ Disabled   Disable this function.

➠ 300   Set Midi port address to 300.

➠ 330   Set Midi port address to 330.(Default Value)

☞ **Midi Port IRQ**

➠ 5   Set Midi Port IRQ to 5.

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

Power Management Setup

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Power Management Setup

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

Figure 5: Power Management Setup

☞ ACPI Suspend Type

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

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

☞ Soft-off by PWR_BTTN

▶ Off   User can press Power button to power off system instantly. (Default Value)

▶ Suspend   User can press Power button for 4 seconds to power off system. System will
             enter suspend mode if button is pressed less than 4 seconds.

☞ **System after AC Back**

▸ 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.

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

☞ **IRQ [3-7, 9-15], NMI**

When IRQ[3-7, 9-15] or NMI triggered, the suspend timer will be reloaded to prevent system gets
into green mode.

▸ Disabled   Disable monitor IRQ[3-7, 9-15] or NMI.

▸ Enabled   Enable monitor IRQ[3-7, 9-15] or NMI. (Default value)

☞ **ModemRingOn/WakeOnLAN**

An incoming call via modem can awake the system from any suspend state or an input signal
comes from the other client server on the LAN can awake the system from any suspend state.

▸ Disabled   Disable Modem Ring on/wake on Lan function.

▸ Enabled   Enable Modem Ring on/wake on Lan. (Default Value)

☞ **PME Event Wake Up**

Set PME as wake up event.

▸ Disabled   Disable PME Event wake up function. (Default Value)

▸ Enabled   Enable PME Event wake up.

☞ **Power On by Keyboard**

▸ Any Key   Set keyboard power on by any key.

▸ Password   Input password (from 1 to 8 characters) and press Enter to set the keyboard
power on password.

▸ Disabled   Disable this function. (Default Value)

☞ **Power On by Mouse**

- ▶ Disabled   Disable this function. (Default Value)
- ▶ Enabled   Enable Power On by move or click mouse function.

☞ **Resume by Alarm**

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

- ▶ Disabled   Disable this function. (Default Value)
- ▶ Enabled   Enable alarm function to POWER ON system.

     If RTC Alarm Lead To Power On is Enabled.

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

☞ **Power LED in S1 state**

- ▶ Blinking   In standby mode(S1), power LED will blink. (Default Value)
- ▶ Dual/OFF   In standby mode(S1):

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

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

PnP/PCI Configurations

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PnP/PCI Configurations

PCI 4 IRQ Assignment	[Auto]	Item Help
PCI 1/5 IRQ Assignment	[Auto]	Menu Level ▶
PCI 2 IRQ Assignment	[Auto]	
PCI 3 IRQ Assignment	[Auto]	Device(s) using this INT:
		Display Cntrlr -BUS 1 Dev 0 Func 0
↑↓→←: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help		
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Figure 6: PnP/PCI Configurations

☞ **PCI 4 IRQ Assignment**

▶ Auto	Auto assign IRQ to PCI 4. (Default 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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PC Health Status

Reset Case Open Status	[Disabled]	Item Help
Case Opened	No	Menu Level ▶
VCORE	1.778V	[Disabled]
VCC18	1.856V	Don't reset case
+3.3V	3.2V	open status
+5V	4.945V	
+12V	12.288V	[Enabled]
Current System Temperature	33°C	Clear case open
Current CPU Temperature	68°C	status at next boot
Current CPU FAN Speed	5113 RPM	
Current SYSTEM FAN Speed	0 RPM	
CPU Warning Temperature	[Disabled]	
CPU FAN Fail Warning	[Disabled]	
SYSTEM FAN Fail Warning	[Disabled]	

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

Figure 7: PC Health Status

☞ **Reset Case Open Status**

☞ **Case Opened**

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

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

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

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

▸ Detect system's voltage status automatically.

☞ **Current System / CPU Temperature**

▸ Detect System/CPU temperature automatically.

☞ **Current CPU/SYSTEM FAN Speed (RPM)**

▸ Detect CPU/System Fan speed status automatically.

☞ **CPU Warning Temperature**

▸ Disabled	Don't monitor CPU's temperature. (Default value)
▸ 60°/140°F	Alarm when CPU current temperature over than 60°/140°F.
▸ 70°/158°F	Alarm when CPU current temperature over than 70°/158°F.
▸ 80°/176°F	Alarm when CPU current temperature over than 80°/176°F.
▸ 90°/194°F	Alarm when CPU current temperature over than 90°/194°F.

☞ **CPU FAN Fail Warning**

▸ Disabled	Fan Warning function disable. (Default value)
▸ Enabled	Enalbe FAN warning alarm when FAN stops.

☞ **SYSTEM FAN Fail Warning**

▸ Disabled	Fan Warning function disable. (Default value)
▸ Enabled	Enalbe FAN warning alarm when FAN stops.

Frequency/Voltage Control

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Frequency/Voltage Control

CPU Clock Ratio	[15X]	Item Help
Linear Frequency Control	[Disabled]	Menu Level ▶
x CPU Clock (MHz)	100	
x DRAM Clock (MHz)	AUTO	
x AGP Clock (MHz)	AUTO	
x PCI Clock (MHz)	AUTO	
↑↓→←: Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help		
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults		

Figure 8: Frequency/Voltage Control

☞ **CPU Clock Ratio**

This option will not be shown or not be available if you are using a CPU with the locked ratio.

▸▸ 10X~24X   It's depends on CPU Clock Ratio.

☞ **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)**

This feature allows you to adjust the DRAM frequency, When "Linear Frequency Control" is set to Enabled.

▸▸ Please set DRAM Clock according to your requirement.

If you use DDR200 DRAM module, please set "DRAM Clock(MHz)" to 100. If you use DDR333 DRAM module, please set "DRAM Clock(MHz)" to 166.

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

☞ **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!

Top Performance

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

▶Standard CMOS Features	Top Performance
▶Advanced Chipset Features	Load Fail-Safe Defaults
▶Integrated Pe	**Top Performance**
▶Power Mana	
▶PnP/PCI Con	Disabled..................[■]
▶PC Health St	Enabled...................[ ]
▶Frequency/V	
ESC:Quit	↑↓ : Move ENTER: Accept
F8: Q-Flash	ESC: Abort
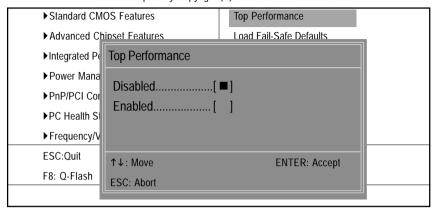
Figure 9: Top Performance

Top Performance

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

▸ Disabled   Disable this function. (Default Value)

▸ Enabled   Enable Top Performance function.

Load Fail-Safe Defaults

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

▶Standard CMOS Features	Top Performance
▶Advanced Chipset Features	Load Fail-Safe Defaults
▶Integrated Peripherals	Load Optimized Defaults
▶Power Mar	Load Fail-Safe Defaults (Y/N) ? N
▶PnP/PCI C	
▶PC Health Status	Save & Exit Setup
▶Frequency/Voltage Control	Exit Without Saving
ESC:Quit	↑↓→←:Select Item
F8: Q-Flash	F10:Save & Exit Setup
Load Fail-Safe Defaults	
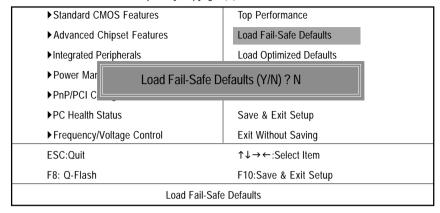
Figure 10: Load Fail-Safe Defaults

Load Fail-Safe Defaults

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

Load Optimized Defaults

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 M.	
▶PnP/PCI	Load Optimized Defaults (Y/N) ? N
▶PC Health Status	Save & Exit Setup
▶Frequency/Voltage Control	Exit Without Saving
ESC:Quit	↑↓→←:Select Item
F8: Q-Flash	F10:Save & Exit Setup
Load Optimized Defaults	
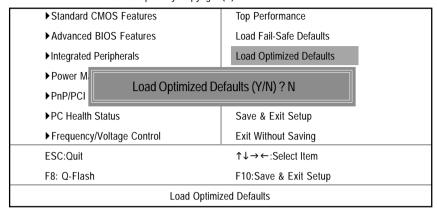
Figure 11: Load Optimized Defaults

Load Optimized Defaults

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

Set Supervisor/User Password

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 Ma	
▶PnP/PCI C	Enter Password:
▶PC Health Status	Save & Exit Setup
▶Frequency/Voltage Control	Exit Without Saving
ESC:Quit	↑↓→←:Select Item
F8: Q-Flash	F10:Save & Exit Setup
Change/Set/Disable Password	

Figure 12: Password Setting

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

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

To disable password, just press <Enter> when you are prompted to enter password. A message "PASSWORD DISABLED" will appear to confirm the password being disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

The BIOS Setup program allows you to specify two separate passwords:

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

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

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

Save & Exit Setup

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

▶Standard CMOS Features	Top Performance
▶Advanced BIOS Features	Load Fail-Safe Defaults
▶Integrated Peripherals	Load Optimized Defaults
▶Power Management Setup	Set Supervisor Password
▶PnP/PCI ⌐	Save to CMOS and EXIT (Y/N) ? Y
▶PC Health	
▶Frequency/Voltage Control	Exit Without Saving
ESC:Quit	↑↓→←:Select Item
F8: Q-Flash	F10:Save & Exit Setup
Save Data to CMOS	
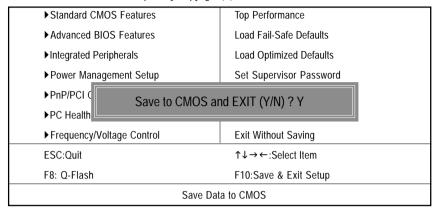
Figure 13: Save & Exit Setup

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

Type "N" will return to Setup Utility.

Exit Without Saving

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

▶Standard CMOS Features	Top Performance
▶Advanced BIOS Features	Load Fail-Safe Defaults
▶Integrated Peripherals	Load Optimized Defaults
▶Power Management Setup	Set Supervisor Password
▶PnP/PCI Co	Quit Without Saving (Y/N) ? N
▶PC Health S	
▶Frequency/Voltage Control	Exit Without Saving
ESC:Quit	↑↓→←:Select Item
F8: Q-Flash	F10:Save & Exit Setup
Abandon all Data	
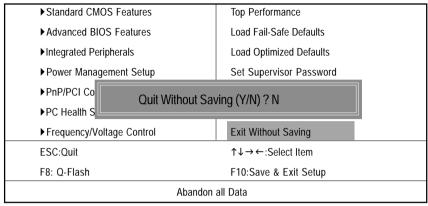
Figure 14: Exit Without Saving
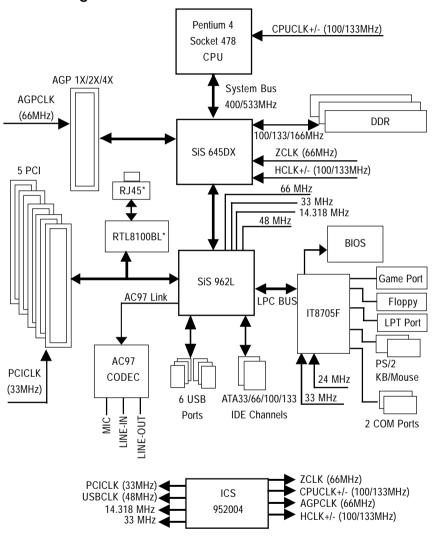
Type "Y" will quit the Setup Utility without saving to RTC CMOS.

Type "N" will return to Setup Utility.

Chapter 4 Technical Reference

Block Diagram

Pentium 4 Socket 478 CPU

CPUCLK+/- (100/133MHz)

AGP 1X/2X/4X

AGPCLK (66MHz)

System Bus 400/533MHz

DDR

SiS 645DX

100/133/166MHz

ZCLK (66MHz)

HCLK+/- (100/133MHz)

5 PCI

RJ45*

66 MHz

33 MHz

14.318 MHz

48 MHz

RTL8100BL*

BIOS

SiS 962L

Game Port

AC97 Link

LPC BUS

Floppy

IT8705F

LPT Port

PCICLK (33MHz)

AC97 CODEC

PS/2 KB/Mouse

6 USB Ports

ATA33/66/100/133 IDE Channels

24 MHz

33 MHz

MIC

LINE-IN

LINE-OUT

2 COM Ports

PCICLK (33MHz)

USBCLK (48MHz)

14.318 MHz

33 MHz

ICS 952004

ZCLK (66MHz)

CPUCLK+/- (100/133MHz)

AGPCLK (66MHz)

HCLK+/- (100/133MHz)

* Only for GA-8ST667-L.

@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 internetand update it. Not like the other BIOS update software, it's a Windows utility. With the help of "@BIOS', BIOS updating is no more than a click.

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

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

EasyTune™ 4 Introduction

Gigabyte announces *EasyTune™ 4*

Windows based Overclocking utility

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

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

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

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

Flash BIOS Method Introduction

Method 1 : Q-Flash

A. 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.

B. How to use Q-Flash?

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 Q-Flash utility.

CMOS Setup Utility-Copyright (C) 1984-2002 Award Software
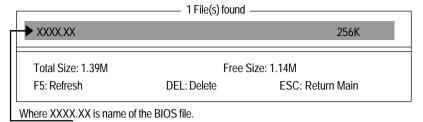
▶Standard CMOS Features	Load Fail-Safe Defaults
▶Advanced BIOS Features	Load Optimized Defaults
▶Integrated Peripherals	Set Supervisor Password
▶Power	Enter Q-Flash Utility (Y/N)? Y
▶PnP/PC	
▶Frequency/Voltage Control	Exit Without Saving
Top Performance	
ESC:Quit	↑↓→←:Select Item
F8: Q-Flash	F10:Save & Exit Setup
Time, Date, Hard Disk Type...	

b. Q-Flash Utility

Q-Flash Utility V3.07		
Flash Type/Size : SST 49LF002A / 256K		
Keep DMI Data : Yes		
	Load BIOS from Floppy	
	Save BIOS to Floppy	
	Space Bar:Change Value	
Enter: Run	ESC: Reset	↑/↓: Select Item

Load BIOS From Floppy

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

```
───────── 1 File(s) found ─────────

▶ XXXX.XX                                        256K


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

Where XXXX.XX is name of the BIOS file.

✐Press Enter to Run.

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

✐Press Enter to Run.

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

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

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 you have set "Auto" for BIOS Feature Setup (BIOS Flash Protection).

(2) 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.shareware.cnet.
    com

STEP 2: Make a DOS boot diskette. (See example: Windows 98 O.S.)
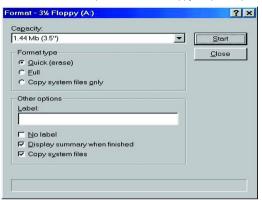
Beware: Windows ME/2000 are not allowed to make a DOS boot diskette.

(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)"

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

Beware: This procedure will erase all the prior data on that floppy, so please proceed accordingly.

(3) After the floppy has been formatted completely, please press "Close".

STEP 3: Download BIOS and BIOS utility program.

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

(2) From Support zone, click the "Motherboards BIOS & Drivers".
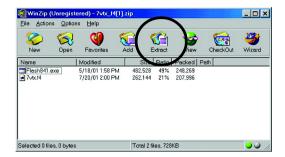
(3) We use GA-7VTX motherboard as example. Please select GA-7VTX by Model or Chipset optional menu to obtain BIOS flash files.
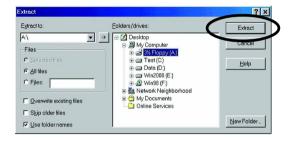
(4) Select an appropriate BIOS version (For example: F4), and click to download the file. It will pop up a file download screen, then select the "Open this file from its current location" and press "OK".

(5) At this time the screen shows the following picture, please click "Extract" button to unzip the files.

(6) Please extract the download files into the clean bootable floppy disk A mentioned in STEP 2, and press "Extract".

STEP 4: Make sure the system will boot from the floppy disk.
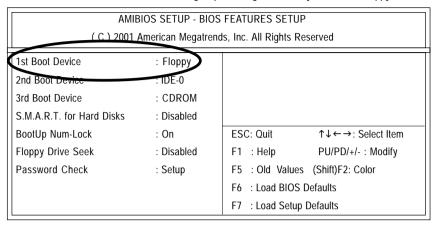
(1) Insert the floppy disk (contains bootable program and unzip file) into the floppy drive A. Then, restart the system. The system will boot from the floppy disk. Please press <DEL> key to enter BIOS setup main menu when system is boot up.

```
American    Release:09/16/99
Megatrends  AMIBIOS (C) 1999 American Megatrend

7VTX F1
Check System Health OK
AMD-Athlon(tm)Processor-900MHz
Checking NVRAM...
262144KB




Wait...
Press F1 to enter Dual BIOS Utility. Press ESC to quit
Press any key to contiune




( C ) American Megatrends Inc.,
63-0001-001199-00101111-071595-VIA_K7-GA7VTX1-F
```

(2) Once you enter the BIOS setup utility, the main menu will appear on the screen. Use the arrows to highlight the item "BIOS FEATURES SETUP".

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

English

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

```
                    AMIBIOS SETUP - BIOS FEATURES SETUP
              ( C ) 2001 American Megatrends, Inc. All Rights Reserved

  1st Boot Device            : Floppy
  2nd Boot Device            : IDE-0
  3rd Boot Device            : CDROM
  S.M.A.R.T. for Hard Disks  : Disabled
  BootUp Num-Lock            : On          ESC: Quit        ↑↓←→: Select Item
  Floppy Drive Seek          : Disabled    F1  : Help       PU/PD/+/- : Modify
  Password Check             : Setup       F5  : Old  Values   (Shift)F2: Color
                                           F6  : Load BIOS Defaults
                                           F7  : Load Setup Defaults
```
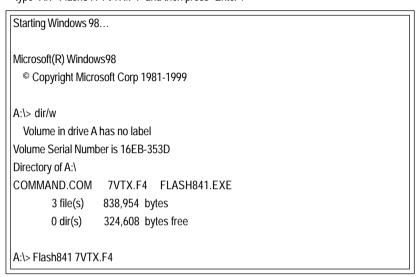
(4) Press "ESC" to go back to previous screen. Use the arrows to highlight the item "SAVE & EXIT SETUP" then press "Enter". System will ask "SAVE to CMOS and EXIT (Y/N)?" Press "Y" and "Enter" keys to confirm. Now the system will reboot automatically, the new BIOS setting will be taken effect next boot-up.

```
              AMIBIOS SIMPLE SETUP UTILITY - VERSION 1.24b
              (C) 2001 American Megatrends, Inc. All Rights Reserved

  STANDARD CMOS SETUP              INTEGRATED PERIPHERALS
  BIOS FEATURES SETUP             HARDWARE MONITOR & MISC SETUP
  CHIPSET FEATURES SETUP          SUPERVISOR PASSWORD
  POWER MANAGEMENT SETUP          USER PASSWORD
  PNP / PCI CONF      Save to CMOS and EXIT (Y/N)? Y
  LOAD BIOS DEFAULTS              SAVE & EXIT SETUP
  LOAD SETUP DEFAULTS             EXIT WITHOUT SAVING

  ESC: Quit     ↑↓←→   : Select Item   (Shift)F2 : Change Color   F5: Old Values
  F6: Load BIOS Defaults      F7: Load Setup Defaults      F10:Save & Exit

                    Save Data to CMOS & Exit SETUP
```

STEP 5: BIOS flashing.

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

```
Starting Windows 98…

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

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

A:\> Flash841 7VTX.F4
```
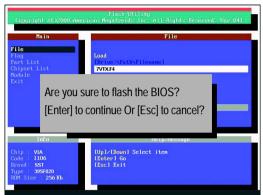
(2) Now screen appears the following Flash Utility main menu. Press "Enter", the highlighted item will locate on the model name of the right-upper screen. Right after that, press "Enter" to start BIOS Flash Utility.
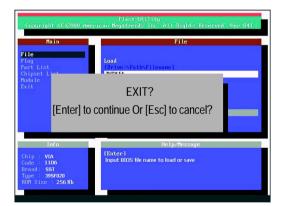
(3) It will pop up a screen and asks "Are you sure to flash the BIOS?" Press [Enter] to continue the procedure, or press [ESC] to quit.

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

(4) The BIOS flash completed. Please press [ESC] to exit Flash Utility.

STEP 6: Load BIOS defaults.
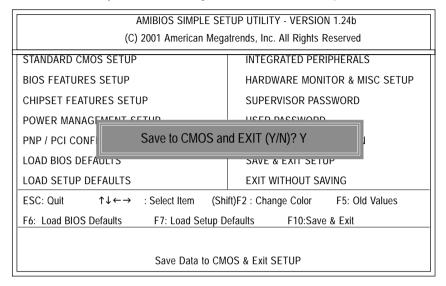
Normally the system redetects all devices after BIOS has been upgraded. Therefore, we highly recommend reloading the BIOS defaults after BIOS has been upgraded. This important step resets everything after the flash.

(1) Take out the floppy diskette from floppy drive, and then restart the system. The boot up screen will indicate your motherboard model and current BIOS version.


```
American      Release:09/16/99
Megatrends  AMIBIOS (C) 1999 American Megatrend

7VTX F4
Check System Health OK
AMD-Athlon(tm)Processor-900MHz
Checking NVRAM...
262144KB

Wait...
Press F1 to enter Dual BIOS Utility. Press ESC to quit
Press any key to contiune

( C ) American Megatrends Inc.,
63-0001-001199-00101111-071595-VIA_K7-GA7VTX1-F
```

(2) Don't forget to press <DEL> key to enter BIOS setup again when system is boot up. Use the arrows to highlight the item "LOAD SETUP DEFAULTS" then press "Enter". System will ask "Load Setup Defaults (Y/N)?" Press "Y" and "Enter" keys to confirm.

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

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

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

(4) Congratulate you have accomplished the BIOS flash procedure.

Method 3 : @BIOS Utility
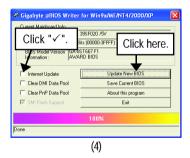
BIOS update procedure:

If your OS is Win9X, we recommend that you used Gigabyte @BIOS™ Program to flash BIOS.

Press "Tools" icon.

1. Click "Gigabyte Utilities".

(1)

2. Click "@BIOS Writer Ver.1.08q".

(2)

@BIOS
Ver.108q
from Gigabyte Technology

(3)

Click "✓".

Click here.

(4)

Methods and steps:

I. Update BIOS through Internet.

  a. Click "Internet Update" icon.

  b. Click "Update New BIOS" icon.

  c. Select @BIOS™ sever.

  d. Select the exact model name on your motherboard.

  e. System will automatically download and update the BIOS.

II. Update BIOS NOT through Internet:

  a. Do not click "Internet Update" icon.

  b. Click "Update New BIOS".

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

  d. Please search for BIOS unzip file, downloading from internet or any other methods (such as: 8ST667.F1).

  e. Complete update process following the instruction.

III. Save BIOS

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

IV. Check out supported motherboard and Flash ROM:

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

Note:

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

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

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

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

2- / 4- / 6-Channel Audio Function Introuction
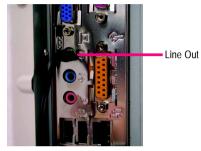
The installation of Windows 98SE/2K/ME/XP is very simple. Please follow next step to install the function!

Stereo Speakers Connection and Settings:

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

STEP 1:

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

Line Out

STEP 2 :

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

STEP 3:

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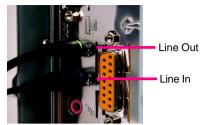
2 channels mode for stereo speakers output

4 Channel Analog Audio Output Mode

STEP 1 :

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

Line Out

Line In

STEP 2 :

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

Sound Effect

10:41 AM

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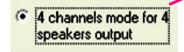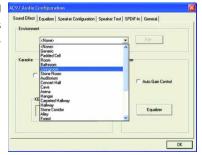
Select "Speaker Configuration", and choose the "4 channels for 4 speakers out put".
Disable "Only SURROUND-KIT",
and press "OK".

4 channels mode for 4 speakers output

When the "Environment settings" is "None", the sound would be performed as stereo mode (2 channels output). Please select the other settings for 4 channels output.
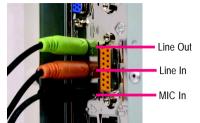
Basic 6 Channel Analog Audio Output Mode

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

STEP 1 :

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

Line Out

Line In

MIC In

STEP 2 :

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

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

STEP 3 :
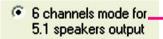
Select "Speaker Configuration", and choose the "6 channels for 5.1 speakers out put".

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

Advanced 6 Channel Analog Audio Output Mode (using SURROUND-KIT):

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

SURROUND-KIT access analog output to rear channels and Center/Subwoofer channels. It is the best solution if you need 6 channel output, Line In and MIC at the same time. "SURROUND-KIT" is included in the GIGABYTE unique "Audio Combo Kit" as picture.
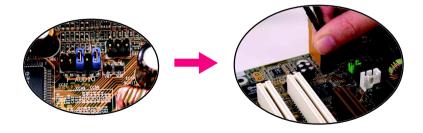
STEP 1 :

Insert the "Audio Combo Kit" in the back of the case, and fix it with the screw.

STEP 2 :

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

STEP 3 :

Connect the front channels to back audio panel's

"Line Out", the rear channels to SURROUND-KIT's REAR R/L, and the Center/Subwoofer channels to SURROUND-KIT's SUB CENTER.

STEP 4 :

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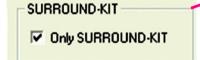
STEP 5 :

Select "Speaker Configuration", and choose the "6 channels for 5.1 speakers out put".
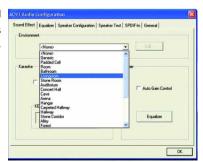
Enable "Only SURROUND-KIT" and press "OK".

Basic & Advanced 6 Channel Analog Audio Output Mode Notes:

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

SPDIF Output Device (Optional Device)
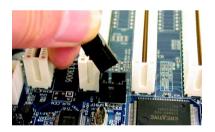
A "S/PDIF output" device is available on the motherboard. Cable with rear bracket is provided and could link to the "S/PDIF output" connector (As picture.) For the further linkage to decoder, rear bracket provides coaxial cable and Fiber connecting port.

1. Connect the SPDIF output device to the rear bracket of PC, and fix it with screw.

2. Connect SPDIF wire to the motherboard.

3. Connect co-axial or optical output to the AC3 decoder.

Chapter 5   Appendix

Picture below are shown in Windows XP (TUCD driver version 2.1)

Appendix A: SiS 645/645DX/648 Chipset Driver Installation
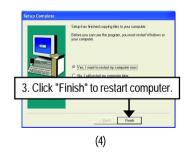
A. SiS AGP Driver:

Insert the driver CD-title that came with your motherboard into your CD-ROM driver, 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.

1. Click "SiS AGP Driver" item.

(1)

2. Click "Next".

(2)

(3)

3. Click "Finish" to restart computer.

(4)

B. USB Patch Driver:

Enable S3 for USB Device Setup is preparing the InstallShield(R) Wizard which will guide you through the setup process.

C. Other Device Drivers: (Only for Windows XP/2000)

Insert the driver CD-title that came with your motherboard into your CD-ROM driver, 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.

1.Click "Other Device Drivers " item.

(1)

2. Click "USB 2.0 Host Controller Driver" item.

(2)

3. Click "Yes" item.

(3)

(4)

4. Click "Yes" to restart computer.

(5)

> **If your CD(TUCD) 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. (www.gigabyte.com.tw)**

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Appendix B: RealTek AC'97 Audio Driver
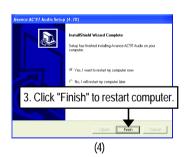
Insert the driver CD-title that came with your motherboard into your CD-ROM driver, the driver CD-title will auto start and show the installation guide. If not, please double click the CD-ROM device icon in "My computer", and execute the setup.exe.

Press "Audio" icon.

1. Click "RealTek AC'97 Audio Driver" item.

(1)

2. Click "Next".

(2)

(3)

3. Click "Finish" to restart computer.

(4)

Appendix C: RealTek 8100/8139 LAN Driver*

For your reference, you can follow the steps to complete the RealTek 8100/8139 LAN Driver Installation.

Press "Network" icon.

RealTek 8100/8139 LAN Driver:

Onboard LAN Device Driver :
RealTek 8100/8139 LAN Driver
Browse this Directory

1. Click "RealTek 8100/8139 LAN Driver" item.

(1)

Welcome to the InstallShield Wizard for RTLSetup

The InstallShield® Wizard will install RTLSetup on your computer. To continue, click Next.

2. Click "Next".

(2)

Setup Status

RTLSetup Setup is performing the requested operations.

Installing:
C:\WINDOWS\OPTIONS\CABS\NETRTS5.INF

100%

(3)

InstallShield Wizard Complete

Setup has finished installing RTLSetup on your computer.

3. Click "Finish".

(4)

* Only for GA-8ST667-L.

Appendix D: EasyTune 4 Utilities Installation

Insert the driver CD-title that came with your motherboard into your CD-ROM driver, 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.

Press "Tools" icon.

1. Click "Gigabyte Utilities".

(1)

2. Click "EasyTune 4 Trial Version".

(2)

(3)

3. Click "Next".

(4)

4. Click "Next".

(5)

(6)

5. Click "Finish" to restart computer.

(7)
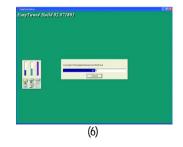
Appendix E: Acronyms

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

Acronyms	Meaning
LBA	Logical Block Addressing
LED	Light Emitting Diode
MHz	Megahertz
MIDI	Musical Instrument Digital Interface
MTH	Memory Translator Hub
MPT	Memory Protocol Translator
NIC	Network Interface Card
OS	Operating System
OEM	Original Equipment Manufacturer
PAC	PCI A.G.P. Controller
POST	Power-On Self Test
PCI	Peripheral Component Interconnect
RIMM	Rambus in-line Memory Module
SCI	Special Circumstance Instructions
SECC	Single Edge Contact Cartridge
SRAM	Static Random Access Memory
SMP	Symmetric Multi-Processing
SMI	System Management Interrupt
USB	Universal Serial Bus
VID	Voltage ID

Technical Support/RMA Sheet

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

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

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

Problem Description:

_____

_____