FCC Compliance Statement:

This equipment has been tested and found to comply with limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in residential installations. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television equipment reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna

-Move the equipment away from the receiver

-Plug the equipment into an outlet on a circuit different from that to which the receiver is connected

-Consult the dealer or an experienced radio/television technician for additional suggestions

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void Your authority to operate such equipment.

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

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-7DXR+

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*** ☒ **EN60555-2**	Disturbances in supply systems caused by household appliances and similar electrical equipment "Harmonics"
☐ **EN55013**	Limits and methods of measurement of radio disturbance characteristics of broadcast receivers and associated equipment	☐ **EN61000-3-3*** ☒ **EN60555-3**	Disturbances in supply systems caused 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 immunity 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	☐ **EN 50091- 2**	EMC requirements for uninterruptible power systems (UPS)

☒ **CE marking**

CE (EC conformity marking)

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

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

Manufacturer/Importer

Signature : *Timmy Huang*

(Stamp)

Date : Dec. 14, 2001   Name : _____ Timmy Huang _____

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

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

Mother Board
GA-7DX+

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(reference to the specification under which conformity is declared)
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		☒ EN 50082-1	Generic immunity standard Part 1: Residual, commercial and light industry	
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☐ EN 55020	Immunity from radio interference of broadcast receivers and associated equipment	☐ EN 55082-2	Generic immunity 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	☐ EN 50091- 2	EMC requirements for uninterruptible power systems (UPS)	

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☐ EN 60335	Safety of household and similar electrical appliances	☐ EN 50091-1	General and Safety requirements for uninterruptible power systems (UPS)

Manufacturer/Importer

Signature : *Timmy Huang*

(Stamp)   Date : Jan. 4, 2002   Name :   Timmy Huang

7DXR+/7DX+

AMD Athlon™/Athlon™ XP/Duron™ Socket A
Processor Motherboard

USER'S MANUAL

How This Manual Is Organized

This manual is divided into the following sections:

1) Revision List	Manual revision information
2) Item Checklist	Product item list
3) Features	Product information & specification
4) Installation Guide	Instructions on CPU & Memory Installation
5) Block Diagram	Product block diagram
6) Suspend to RAM & **Dual BIOS/Q-Flash**	Instructions on STR & Dual BIOS/Q-Flash installation
7) Four Speaker & SPDIF*	Four Speaker & SPDIF introduction
8) @BIOS™ & EasyTuneIII™	@BIOS™ & EasyTuneIII™ introduction
9) RAID*	Instructions on RAID
10) BIOS Setup	Instructions on setting up the BIOS software
11) Technical Support/RMA Sheet	Document equipment used for after sales service
12) Appendix	General reference

"*" For GA-7DXR+ only.

Table Of Content

"*" **For GA-7DXR+ only.**

Revision History

Revision	Revision Note	Date
1.0	Initial release of the 7DXR+ motherboard user's manual.	Dec. 2001
1.0	Second release of the 7DXR+/7DX+ motherboard user's manual.	Dec. 2001
1.0	Third release of the 7DXR+/7DX+ motherboard user's manual.	Jan. 2002

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.

Jan. 14, 2002 Taipei, Taiwan, R.O.C

Item Checklist

- ☑ The 7DXR+ or 7DX+ Motherboard
- ☑ IDE cable x 1 or x 2* (Green for ATA133, Red for ATA100)
- ☑ Floppy cable x 1
- ☑ CD for motherboard utilities
- ☑ 7DXR+/7DX+ User's Manual
- ☑ 4-Port USB Cable x 1(for USB2.0)*
- ☑ Quick PC Installation Guide

"*" For GA-7DXR+ only.

Features Summary

Form Factor	•	30.5 cm x 24.5 cm ATX size form factor, 4 layers PCB.
CPU	•	Socket A processor AMD Athlon™/Athlon™ XP/Duron™ (K7) Socket A processor 128K L1 & 256K/64K L2 cache on die
	•	Supports 1.4GHz and faster
	•	200/266MHz FSB and DDR bus speeds (PCI 33MHz)
Chipset		7DXR+/7DX+, consisting of:
	•	AMD 761 Memory/PCI/AGP Controller
	•	VT82C686B PCI Super-I/O Integrated Peripheral Controller (PSIPC)
Memory	•	3 184-pin DDR DIMM sockets
	•	Supports PC1600 DDR or PC2100 DDR SDRAM
	•	Supports up to 3GB DRAM (Max)
	•	Supports only 2.5V DDR SDRAM
	•	Supports 64bit ECC type DRAM integrity mode
I/O Control	•	VT82C686B
Slots	•	1 AGP slot supports 4X mode & AGP 2.0 compliant**
	•	1 Universal AGP Pro slot 4X/2X (1.5V/3.3V) device support*
	•	5 PCI slots supports 33MHz & PCI 2.2 compliant
	•	1 AMR (Audio Modem Riser) slot
On-Board IDE	•	IDE 1and IDE 2 Supports PIO mode 3, 4 UDMA 33 / ATA 66 / ATA100 IDE & ATAPI CD-ROM
	•	IDE3 and IDE4 Compatible with RAID, Ultra ATA133 /100, EIDE (without support CD-ROM and ATAPI)*
	•	4 IDE bus master IDE ports for up to 8 devices*
On-Board Peripherals	•	1 floppy port supports 2 FDD with 360K, 720K, 1.2M, 1.44M and 2.88M bytes
	•	1 parallel ports supports Normal/EPP/ECP mode
	•	2 serial ports (COM A & COM B)
	•	4 x USB 2.0*, 2 x USB 1.1 by cable and 2 x USB 1.1 onboard
	•	1 IrDA connector for IR

To be continued…

"*" For GA-7DXR+ only.   **"**" For GA-7DX+ only.**

On-Board RAID*	• Onbard Promise PDC20276
	• Supports data striping (RAID 0) or mirroring (RAID 1)
	• Supports concurrent dual IDE controller operation
	• Supports IDE bus master operation
	• 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 USB 2.0*	• NEC D720100AS1 Chipset
Hardware Monitor	• CPU/System fan revolution detect
	• CPU/System temperature detect
	• System voltage detect
	• CPU overheat warning detect
On-Board Sound	• CODEC Audio
	• Creative CT5880 sound*
	Line In/Line Out/Mic In/CD_In/Game Port/
	Four Speaker* & SPDIF*
PS/2 Connector	• PS/2® Keyboard interface and PS/2® Mouse interface
BIOS	• Licensed AWARD BIOS, 2M bit flash ROM
	• Support Dual BIOS
Additional Features	• Support Wake-On-LAN (WOL)
	• Support External Modem Ring On
	• Support USB & PS/2 KB Wake up from S3
	• Includes 4 fan power connectors
	• Poly fuse for keyboard over-current protection
	• Support STR (Suspend-To-RAM) function
	• Support @BIOS™ and EasyTuneIII™

"*" For GA-7DXR+ only.

7DXR+/7DX+ Motherboard Layout
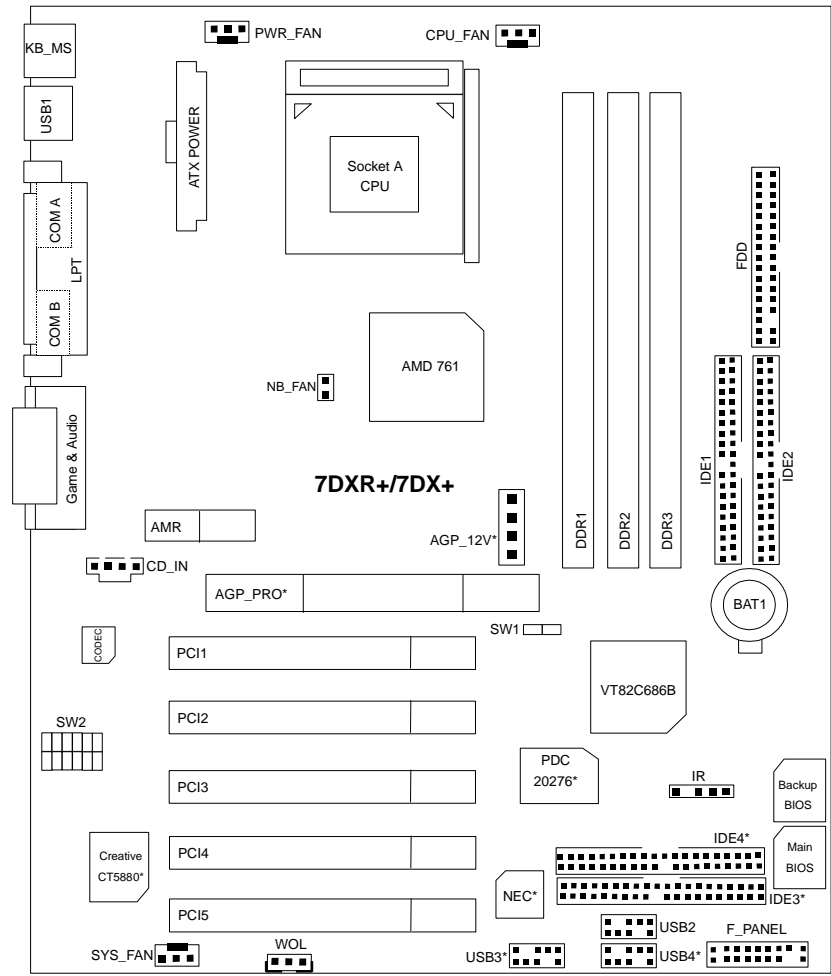
Note: GA-7DX+ support AGP 4X slot.

"*" For GA-7DXR+ only.

Installation Guide

Getting Started

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.

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

- Step 1 - Set system jumpers
- Step 2- Install the Central Processing Unit (CPU)
- Step 3-Install memory modules
- Step 4-Install expansion cards
- Step 5-Connect ribbon cables, cabinet wires, and power supply
- Step 6-Set up BIOS software
- Step 7-Install supporting software tools
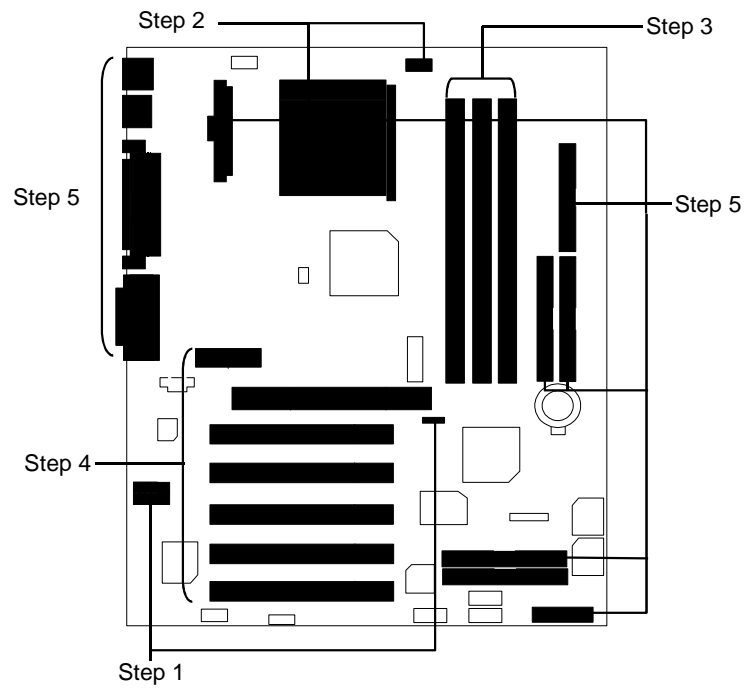
CPU Speed Setup

The system bus speed is selectable at 100/133MHz. The user can select the system bus speed by DIP switch **SW1** (For 100MHz or 133MHz). (The frequency ratio depend on CPU)

SW1: CPU FREQ.

100 MHz (Default)

133 MHz

	OFF	ON
2	100MHz	133MHz
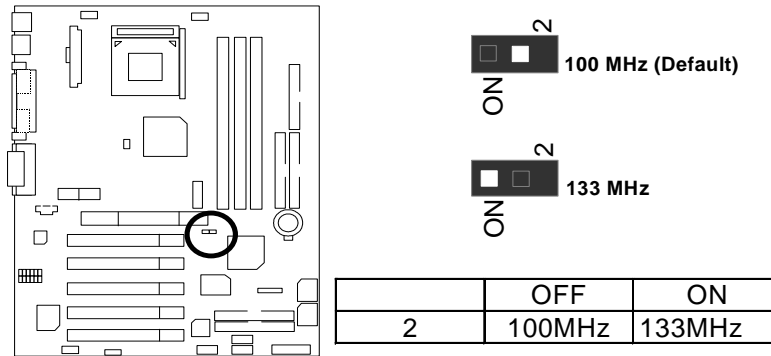
✱**Please depend on your CPU frequency to setup.**

SW2 Select the CPU frequency Override: O: ON, X: OFF

Ratio	1	2	3	4	5
Auto (Default)	X	X	X	X	O
5X	O	O	X	O	X
5.5X	X	O	X	O	X
6X	O	X	X	O	X
6.5X	X	X	X	O	X
7X	O	O	O	X	X
7.5X	X	O	O	X	X
8X	O	X	O	X	X
8.5X	X	X	O	X	X
9X	O	O	X	X	X
9.5X	X	O	X	X	X
10X	O	X	X	X	X
10.5X	X	X	X	X	X
11X	O	O	O	O	X
11.5X	X	O	O	O	X
12X	O	X	O	O	X
12.5X	X	X	O	O	X

✱This function will not be available if you are using a CPU with locked ratio.

8

CPU Installation

Please make sure the CPU should be supported to the motherboard.
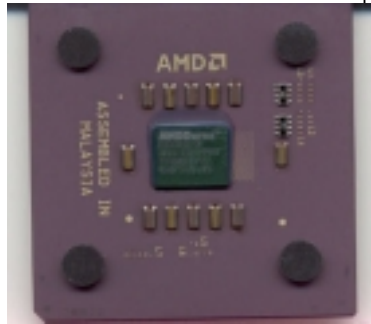
CPU Top View   CPU Bottom View

Socket Actuation Lever
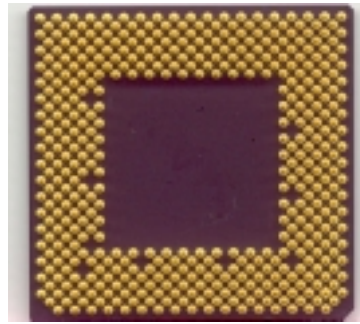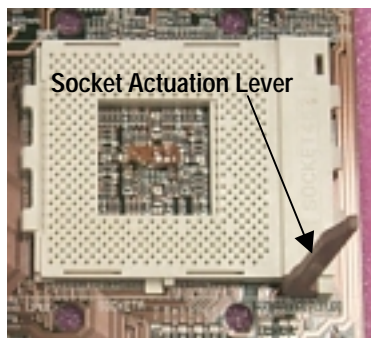
1. Pull up the CPU socket lever and up to 90-degree angle.
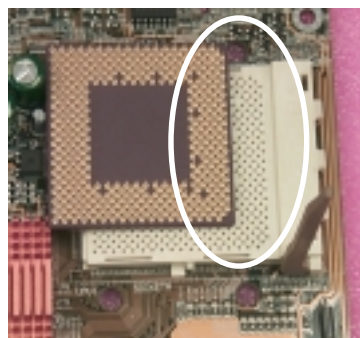
2. Locate Pin 1 in the socket and look for a (golden) cut edge on the CPU upper corner. Then insert the CPU into the socket.

CPU Heat Sink Installation:

Beware: Please check that the heat sink is in good contact with the CPU before you turn on your system. **The poor contact will cause over heat, and might cause damage to your processor!**
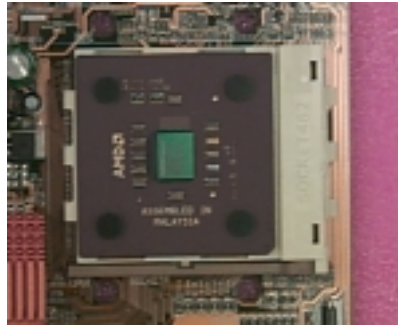
3.Align CPU and insert it

(Please refer to your heatsink installation manual for application of thermal grease to provide better heat conduction between your CPU and heatsink.)
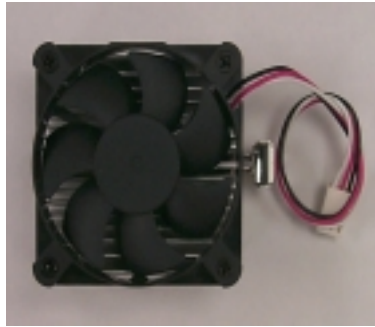
4.Use compliant fan approved by AMD.
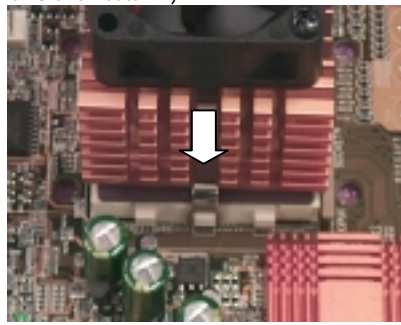
5.Hook one end of the cooler bracket to the CPU socket.
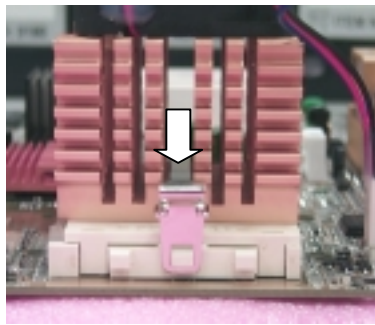
6. Hook the other end of the cooler bracket to the CPU socket.

 (Please refer to the cooler's installation manual for detailed installation steps)

Memory Installation

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 Slot .The DIMM module can only fit in one direction due to the notch. Memory size can vary between sockets.

Total Memory Sizes With Registered DDR DIMM

Devices used on DIMM	1 DIMM x64/x72	2 DIMMs x64/x72	3 DIMMs x64/x72
64 Mbit (4Mx4x4 banks)	256 MBytes	512 MBytes	768 MBytes
64 Mbit (2Mx8x4 banks)	128 MBytes	256 MBytes	384 MBytes
64 Mbit (1Mx16x4 banks)	64 MBytes	128 MBytes	192 MBytes
128 Mbit (8Mx4x4 banks)	512 MBytes	1 GBytes	1.5 GBytes
128 Mbit (4Mx8x4 banks)	256 MBytes	512 MBytes	768 MBytes
128 Mbit (2Mx16x4 banks)	128 MBytes	256 MBytes	384 MBytes
256 Mbit (16Mx4x4 banks)	1 GBytes	2 GBytes	3 GBytes
256 Mbit (8Mx8x4 banks)	512 MBytes	1 GBytes	1.5 GBytes
256 Mbit (4Mx16x4 banks)	256 MBytes	512 MBytes	768 MBytes
512 Mbit (16Mx8x4 banks)	1 GBytes	2 GBytes	3 GBytes
512 Mbit (8Mx16x4 banks)	512 MBytes	1 GBytes	1.5 GBytes

Total Memory Sizes With Unbuffered DDR DIMM

Devices used on DIMM	1 DIMM x64/x72	2 DIMMs x64/x72	3 DIMMs x64/x72
64 Mbit (2Mx8x4 banks)	128 MBytes	256 MBytes	384 MBytes
64 Mbit (1Mx16x4 banks)	64 MBytes	128 MBytes	192 MBytes
128 Mbit (4Mx8x4 banks)	256 MBytes	512 MBytes	768 MBytes
128 Mbit (2Mx16x4 banks)	128 MBytes	256 MBytes	384 MBytes
256 Mbit (8Mx8x4 banks)	512 MBytes	1 GBytes	1.5 GBytes
256 Mbit (4Mx16x4 banks)	256 MBytes	512 MBytes	768 MBytes
512 Mbit (16Mx8x4 banks)	1 GBytes	2 GBytes	3 GBytes
512 Mbit (8Mx16x4 banks)	512 MBytes	1 GBytes	1.5 GBytes
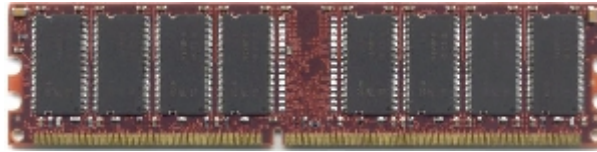
DDR
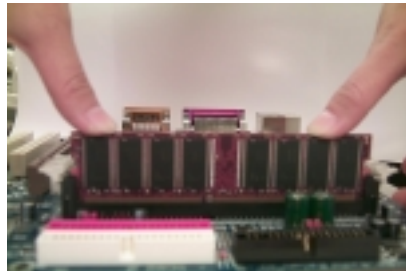
1. The DIMM slot has a notch, so the DIMM memory module can only fit in one direction.
2. Insert the DIMM memory module vertically into the DIMM slot. Then push it down.
3. Close the plastic clip at both edges of the DIMM slots to lock the DIMM module.

Reverse the installation steps when you wish to remove the DIMM module.

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.

"*" For GA-7DXR+ only.

Connectors

ATX Power
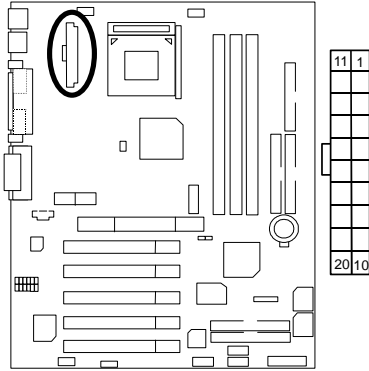
Pin No.	Definition
3,5,7,13,15-17	GND
1,2,11	3.3V
4,6,19,20	VCC
10	+12V
12	-12V
18	-5V
8	Power Good
9	5V SB (stand by+5V)
14	PS-ON(Soft On/Off)

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

COM A / COM B / LPT Port

LPT Port

COM A   COM B
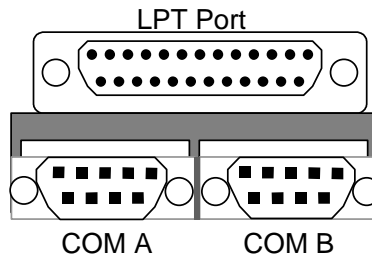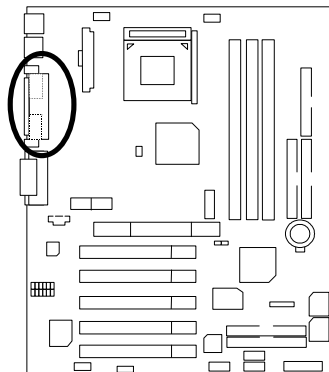
Please note:
This mainboard supports 2 standard COM ports and 1 LPT port. Device like printer can be connected to LPT port ; mouse and modem etc can be connected to COM ports.

PS/2 Keyboard & PS/2 Mouse Connector

PS/2 Mouse

PS/2 Keyboard

PS/2 Mouse/ Keyboard	
Pin No.	Definition
1	Data
2	NC
3	GND
4	POWER
5	Clock
6	NC
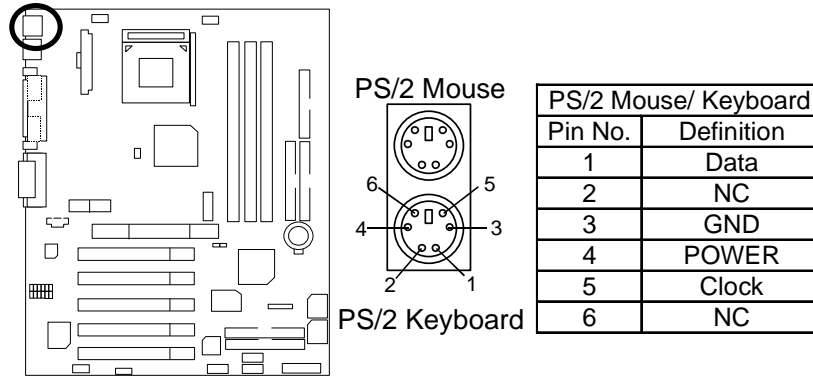
Please note:
This mainboard supports standard PS/2 keyboard and PS/2 mouse interface commector.

USB1: Rear USB Connector

5 6 7 8

1 2 3 4

Pin No.	Definition
1	USB Power
2	USB D0-
3	USB D0+
4	GND
5	USB Power
6	USB D1-
7	USB D1+
8	GND
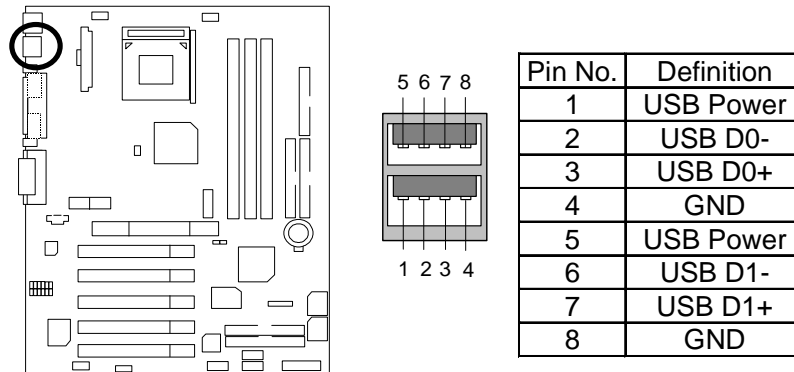
Please note:
Before you connect your device(s) into USB connector(s), please make sure your device(s) has a standard USB interface like, USB keyboard, mouse, scanner, zip, speaker… Also make sure your OS supports USB controller (Win 95 w/ USB supperment, Win98, Windows 2000, Windows ME, Win NT w/ SP 6). If your OS does not support USB controller, please contact OS vander for passible patch or driver upgrade. For more information please contact your OS or device(s) vanders.

USB2/USB3*/USB4*: USB Connector (USB3 & 4 connectors in orange are for USB 2.0)
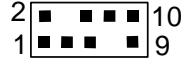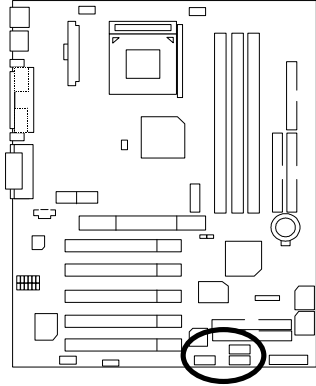
Pin No.	Definition
1	POWER
2	GND
3	USB D2-
4	NC
5	USB D2+
6	USB D3+
7	NC
8	USB D3-
9	GND
10	POWER

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

Floppy Port

RED LINE

"*" **For GA-7DXR+ only.**

17

Game & Audio Port

Game
Port

Line Out 1   MIC In
          Line In/Line Out 2
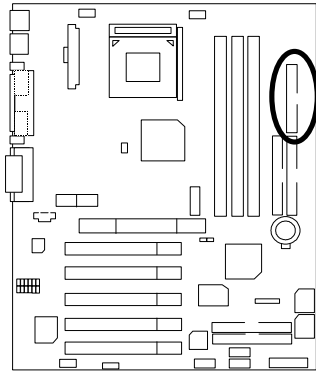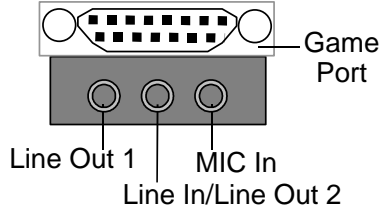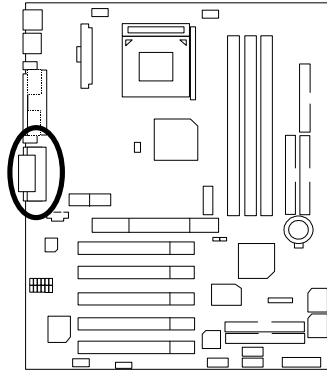
Please note:
Line Out 1: Line Out or SPDIF (The SPDIF output is capable of providing digital audio to external speakers or compressed AC3 data to an external Dolby digital decoder). To enable SPDIF, simply insert SPDIF connector into Line Out1. Line Out1 will become SPDIF Out automatically. (see page 43 for more information). To enable Four Speaker (for Creative 5880 audio only), simply follow instructions on page 40 and Line In will become Line Out2 to support second pair of stereo speakers.

IDE1 (Primary), IDE2 (Secondary) Port
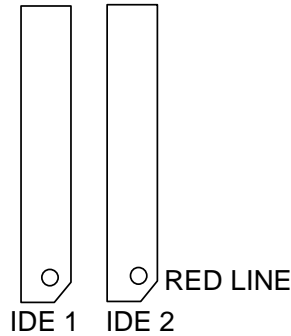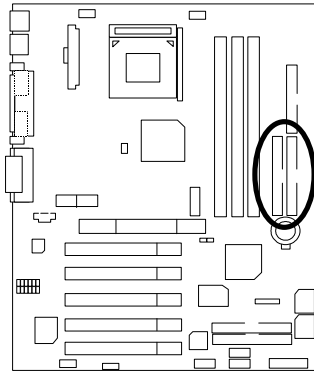
RED LINE
IDE 1   IDE 2

IDE3/IDE4 (RAID/ATA133) Port*

RED LINE

IDE 4

IDE 3
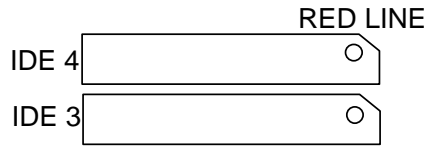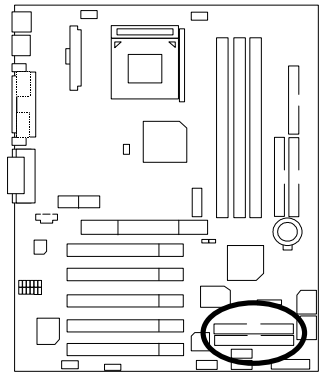
CD_IN: CD Audio Line In

1
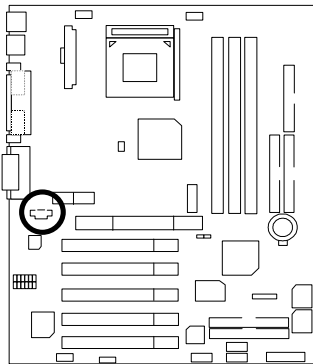
Pin No.	Definition
1	CD-L
2	GND
3	GND
4	CD-R

"*" For GA-7DXR+ only.

PWR_FAN: Power Fan
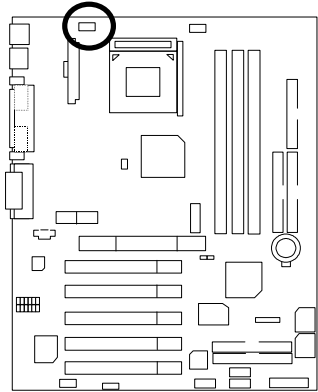
Pin No.	Definition
1	Control
2	+12V
3	SENSE

CPU_FAN: CPU Fan
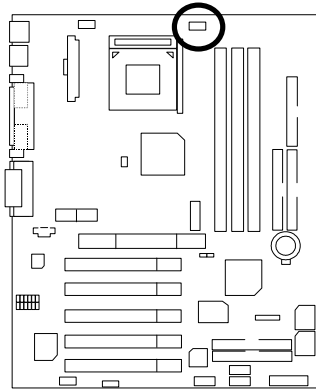
Pin No.	Definition
1	Control
2	+12V
3	SENSE

Please note:
A proper installation of the CPU cooler is essential to prevent the CPU from running under abnormal condition or damaged by overheating.

SYS_FAN: System Fan
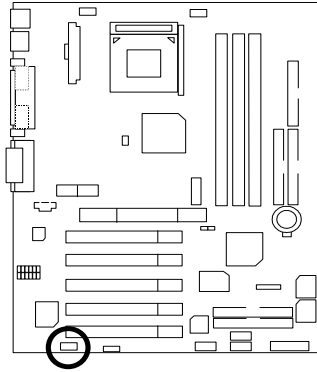
Pin No.	Definition
1	Control
2	+12V
3	SENSE

WOL: Wake on LAN
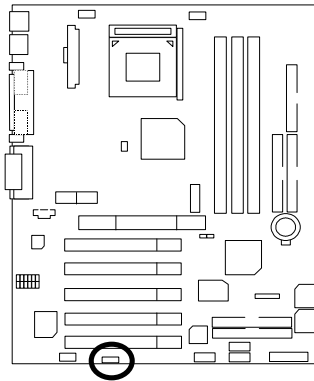
Pin No.	Definition
1	+5V SB
2	GND
3	Signal

IR: IR Header

1
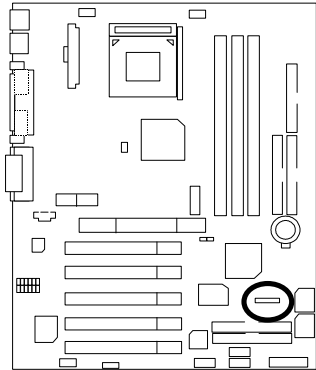
Pin No.	Definition
1	VCC (+5V)
2	NC
3	IR Data Input
4	GND
5	IR Data Output

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

AGP_12V: Power for AGP Pro*

1
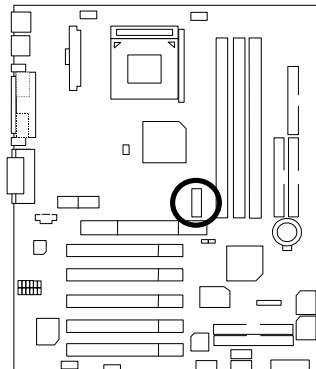
Pin No.	Definition
1	+5V
2	GND
3	GND
4	+12V

Please note:
When using the AGP Pro Card, you must use the power connector (As the other one for HDD). Otherwise, AGP Pro Card will not work.

"*" For GA-7DXR+ only.

NB_FAN: CHIP FAN
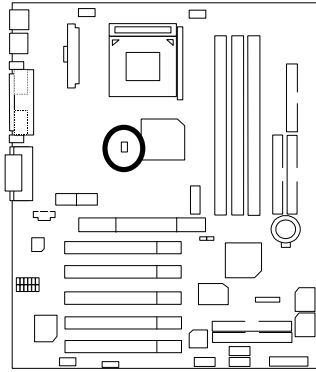
Pin No.	Definition
1	GND
2	+12V

Please note:
If installed wrong direction, the Chip Fan will not work. Sometimes will damage the Chip Fan. (Usually black cable is GND)

Panel And Jumper Definition

F_PANEL: For 2X11 Pins Jumper
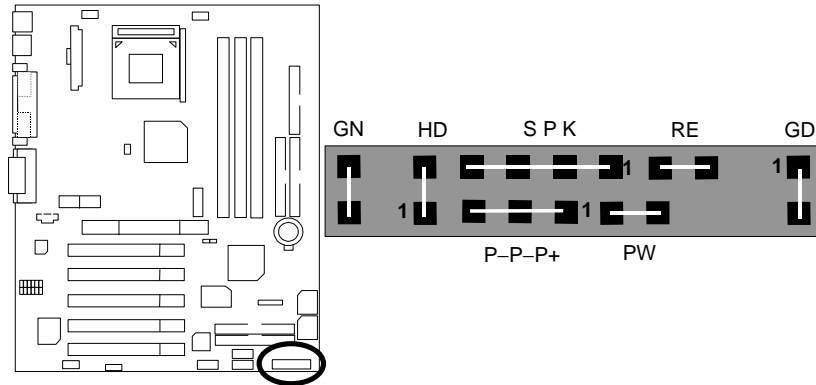
GN (Green Switch)	Open: Normal Operation Close: Entering Green Mode
GD (Green LED)	Pin 1: LED anode(+) Pin 2: LED cathode(–)
HD (IDE Hard Disk Active LED)	Pin 1: LED anode(+) Pin 2: LED cathode(–)
SPK (Speaker Connector)	Pin 1: VCC(+) Pin 2- Pin 3: NC Pin 4: Data(–)
RE (Reset Switch)	Open: Normal Operation Close: Reset Hardware System
P+P–P–(Power LED)	Pin 1: LED anode(+) Pin 2: LED cathode(–) Pin 3: LED cathode(–)
PW (Soft Power Connector)	Open: Normal Operation Close: Power On/Off

Please note:
Please connect the power LED, PC speaker, reset switch and power switch etc of your chassis front panel to the front panel jumper according to the pin assignment above.

BAT1: Battery
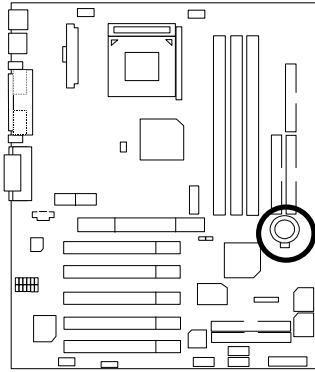
CAUTION

- 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.

Block Diagram

AMD-K7™

CPUCLK (100/133MHz)

AGP
2X*/4X

AGPCLK (66MHz)

System Bus 100/133MHz

AMD
761

2.5V DDR SDRAM

100/133MHz

HCLK (100/133MHz)

NPCLK (33MHz)

AGPCLK (66MHz)

PCI Bus 33MHz

33MHz

14.318MHz

48MHz

CT5880
*

VT82C
686B

NEC
USB 2.0*

AC-Link

Option

AC97
CODEC

PS/2   Floppy   LPT Port

4 USB Ports

4 USB2.0
Ports*

5 PCI

AMR

COM Ports

ATA66/100 IDE
Channels

PCI (33MHz)

PDC
20276*

Game Port

ATA133/RAID IDE
Channels*

AGPCLK (66MHz)

HCLK (100/133MHz)

PCI (33MHz)

NPCLK (33MHz)

48MHz

ICS
94240

AGPCLK (66MHz)

14.318MHz

CPUCLK (100/133MHz)

33MHz

"*" For GA-7DXR+ only.

Suspend To RAM Installation

A.1 Introduce STR function:

Suspend-to-RAM (STR) is a Windows 98/ME/2000 ACPI sleep mode function. When recovering from STR (S3) sleep mode, the system is able, in just a few seconds, to retrieve the last "state" of the system before it went to sleep and recover to that state. The "state" is stored in memory (RAM) before the system goes to sleep. During STR sleep mode, your system uses only enough energy to maintain critical information and system functions, primarily the system state and the ability to recognize various "wake up" triggers or signals, respectively.

A.2 STR function Installation

Please use the following steps to complete the STR function installation.

Step-By-Step Setup

Step 1:

To utilize the STR function, the system must be in Windows 98/ME/2000 ACPI mode.

Putting Windows 98/ME/2000 into ACPI mode is fairly easy.

Setup with Windows 98/ME/2000 CD:

A.   Insert the Windows 98/ME/2000 CD into your CD-ROM drive, select Start, and then Run.

B.   Type (without quotes) **"D:\setup "** in the window provided. Hit the enter key or click OK.

C.   After setup completes, remove the CD, and reboot your system

   (This manual assumes that your CD-ROM device drive letter is D:).

Step 2:

Power on the computer and as soon as memory counting starts, press <Del>. You will enter BIOS Setup. Select the item **"POWER MANAGEMENT SETUP"**, then select **"ACPI Sleep Type: S3(STR)"**. Remember to save the settings by pressing "ESC" and choose the **"SAVE & EXIT SETUP"** option.

Congratulation! You have completed the installation and now can use the STR function.

A.3 How to put your system into STR mode? (For example: Windows ME)

There are two ways to accomplish this:

1.   Choose the "Stand by" item in the "Shut Down Windows" area.

   A.   Press the "Start" button and then select "Shut Down"
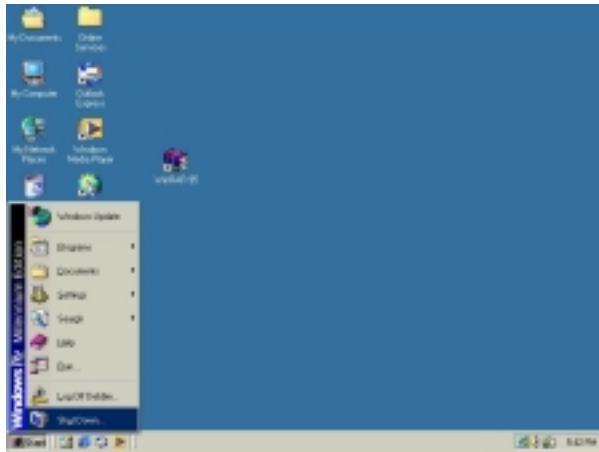
   B. Choose the "Stand by" item and press "OK"

2.　　Define the system "power on" button to initiate STR sleep mode:

A.　Double click "My Computer" and then "Control Panel"
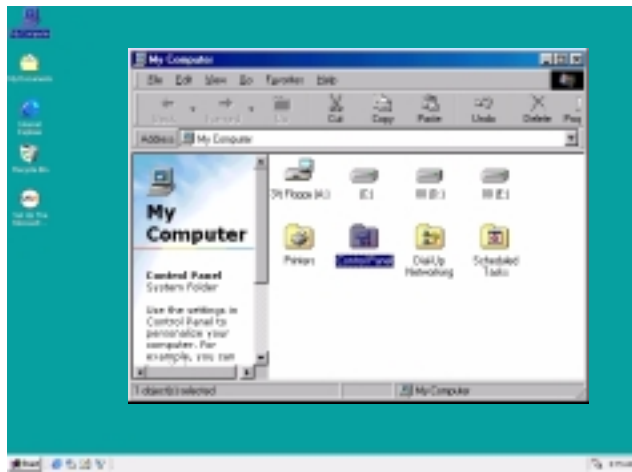
B.　Double click the " Power Management" item.
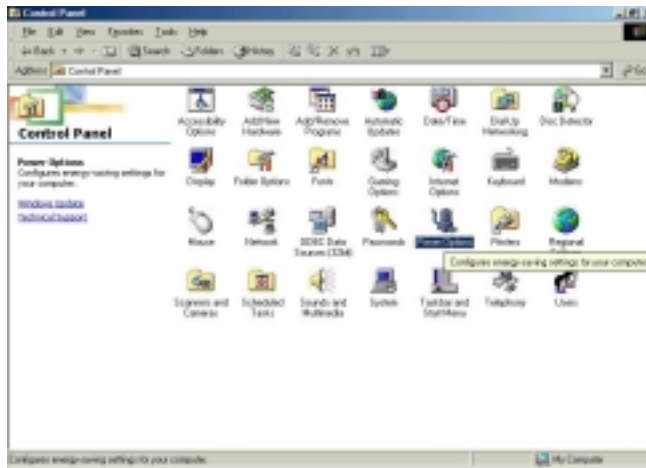
C.   Select the "Advanced" tab and "Standby" mode in Power Buttons.
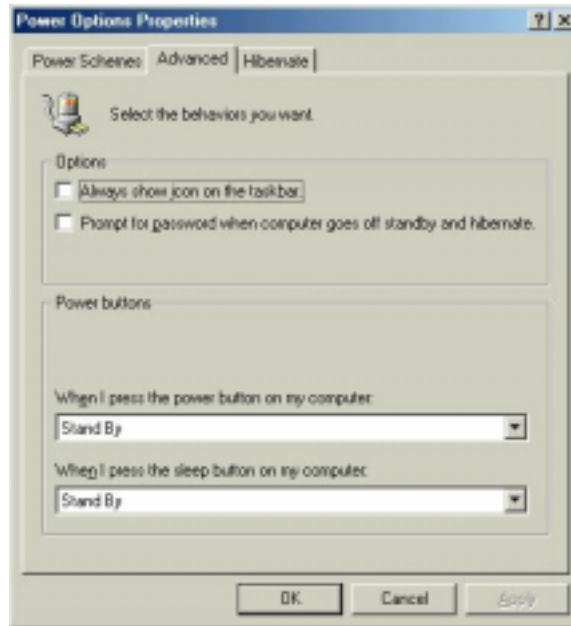
D.   Restart your computer to complete setup.

Now when you want to enter STR sleep mode, just momentarily press the "Power on" button.

A.4 How to recover from the STR sleep mode?

There are four ways to "wake up" the system:

1.   Press the "Power On" button.
2.   Use the "Resume by Alarm" function.
3.   Use the "Wake On LAN" function.
4.   Use the "USB Device Wake up" function.

A.5 Notices:

1. In order for STR to function properly, several hardware and software requirements must be satisfied:

    A. Your ATX power supply must comply with the ATX 2.01 specification (provide more than 720 mA 5V Stand-By current).

    B. Your DDR SDRAM must be DDR-200 or DDR-266 compliant.

Dual BIOS/Q-Flash Introduction

A. What is Dual BIOS Technology?

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

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

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

```
┌─────────────────────────────────────────────────────────────────┐
│         CMOS Setup Utility-Copyright( C ) 1984-2001 Award Software │
├─────────────────────────────────────────────────────────────────┤
│  ▸ Standard CMOS Features          ▸ Frequency/Voltage Control    │
│                                                                   │
│  ▸ Advanced BIOS Features          Load Fail-Safe Defaults        │
│                                                                   │
│  ▸ Advanced Chipset Features       Load Optimized Defaults        │
│                                                                   │
│  ▸ Integrate    Enter Dual BIOS/Q-Flash Utility (Y/N)? Y          │
│                                                                   │
│  ▸ Power M                                                        │
│                                                                   │
│  ▸ PnP/PCI Configurations          Save & Exit Setup              │
│                                                                   │
│  ▸ PC Health Status                Exit Without Saving            │
├─────────────────────────────────────────────────────────────────┤
│  ESC:Quit                    ↑↓→←  : Select Item                   │
│  F8: Dual BIOS/Q-Flash       F10:Save & Exit Setup                │
├─────────────────────────────────────────────────────────────────┤
│                  Time, Date, Hard Disk Type…                      │
└─────────────────────────────────────────────────────────────────┘
```

b. Award Dual BIOS Flash ROM Programming Utility

```
┌────────────────────────────────────────────────────────┐
│            Dual BIOS Utility V.AMD761.P1                 │
│         (C) 2001, Gigabyte Technology Co., LTD.          │
├────────────────────────────────────────────────────────┤
│ Wide Range Protection              :Disabled            │
│ Halt On BIOS Defects               :Disabled            │
│ Auto Recovery                      :Enabled             │
│ Boot From                          :Main BIOS           │
│ BIOS Recovery                      :Main to Backup      │
├────────────────────────────────────────────────────────┤
│ F3: Load Default        F5: Start BIOS Recovery         │
│ F7: Save And Restart    F9: Exit Without Saving         │
│ F8: Update BIOS from disk   F10: Recovery from Disk     │
│                                                          │
│ Use <Space> key to toggle setup                         │
├────────────────────────────────────────────────────────┤
│                                                          │
└────────────────────────────────────────────────────────┘
```

c. Dual BIOS Item explanation:

Wide Range Protection: Disabled (Default), Enabled

Status 1:

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

Status 2:

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

Halt On BIOS Defects: Disabled (Default), Enabled

If the BIOS occurs a checksum error or the Main BIOS occurs a WIDE RANGE PROTECTION error and Halt On BIOS Defects 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: **Disabled**, it will show *<or the other key to continue.>*
If Auto Recovery: **Enabled**, it will show *<or the other key to Auto Recover.>*

Auto Recovery: Enabled (Default), Disabled

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.)

Boot From: Main BIOS (Default), Backup BIOS

Status 1:

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

Status 2:

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

BIOS Recovery: Main to Backup

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.)

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?

F3: Load Default Load current BIOS default value.	**F5: Start BIOS Recovery** Press F5 to recovery new BIOS version.
F7: Save And Restart Save revised setting and restart the computer.	**F9: Exit Without Saving** Exit without changing.
F8: Update BIOS from disk Update BIOS from disk.	**F10: Recovery from Disk** Recovery from disk.

 DualBIOS^{TM} Technology FAQ

GIGABYTE Technology is pleased to introduce DualBIOS technology, a hot spare for your system BIOS.   This newest "Value-added" feature, in a long series of innovations from GIGABYTE, is available on GA-7DXR+/GA-7DX+ motherboard. Future GIGABYTE motherboards will also incorporate this innovation.

What's DualBIOS^{TM}?

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

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

II. Q: Why does anyone need a motherboard with DualBIOS™ technology?
Answer:
In today's systems there are more and more BIOS failures. The most common reasons are virus attacks, BIOS upgrade failures, and/or deterioration of the BIOS (ROM) chip itself.
1. New computer viruses are being found that attack and destroy the system BIOS. They may corrupt your BIOS code, causing your PC to be unstable or even not boot normally.
2. BIOS data will be corrupted if a power loss/surge occurs, or if a user resets the system, or if the power button is pressed during the process of performing a system BIOS upgrade.
3. If a user mistakenly updates their mainboard with the incorrect BIOS file, then the system may not be able to boot correctly. This may cause the PC system hang in operation or during boot.
4. A flash ROM's life cycle is limited according to electronic characteristics. The modern PC utilizes the Plug and Play BIOS, and is updated regularly. If a user changes peripherals often, there is a slight chance of damage to the flash ROM.

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

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

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

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

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

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

IV. Q: Who Needs DualBIOS™ technology?
Answer:

1. Every user should have DualBIOS™ technology due to the advancement of computer viruses.
   Everyday, there are new BIOS-type viruses discovered that will destroy your system BIOS. Most commercial products on the market do not have solutions to guard against this type of virus intrusion. The DualBIOS™ technology will provide a state-of-the-art solution to protect your PC:
   Case I.) Vicious computer viruses may wipe out your entire system BIOS. With a conventional single system BIOS PC, the PC will not be functional until it is sent for repairs.
   Case II.) If the "Auto Recovery" option is enabled in the DualBIOS™ utility, and if a virus corrupts your system BIOS, the backup BIOS will automatically reboot the system and correct the main BIOS.
   Case III.) A user may override booting from the main system BIOS. The DualBIOS™ utility may be entered to manually change the boot sequence to boot from the backup BIOS.

2. During or after a BIOS upgrade, if DualBIOS^{TM} 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^{TM} 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^{TM} 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^{TM} 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.

Four Speaker & SPDIF Introduction*

Four Speaker Introduction

A.   What is Four Speaker?

The Creative CT5880 audio chip can support up to 4 speaker output. If you select "Four speaker out" Line In will be reconfigured as another line out to support a second pair of speakers.

B.   How to use Four Speaker?

Microsoft Windows 98 Second Edition setup procedure:

a. Click the audio icon along the task bar and select "Configure 3D Audio"
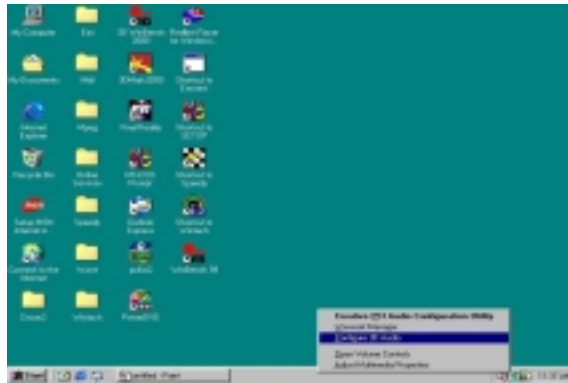
b. Select two speaker (Default)

"*" For GA-7DXR+ only.

c. Select "Four speaker" item.
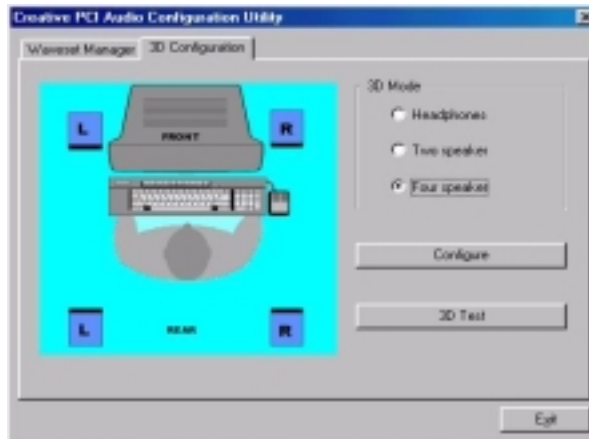
Microsoft Windows Me setup procedure:

a. Go to "Control Panel"

Double click "Sounds and Multimedia".
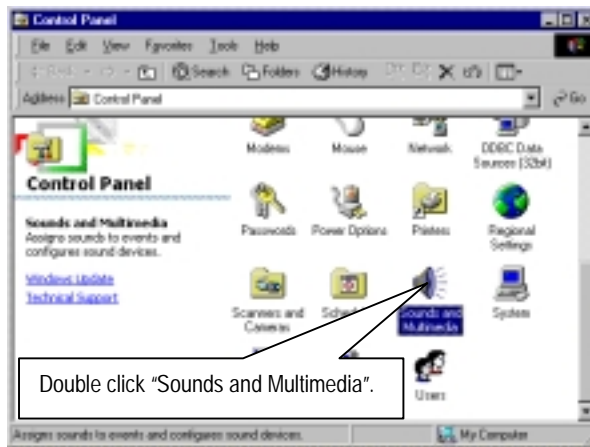
b. Select "Audio" Page, and click "Advanced" button.
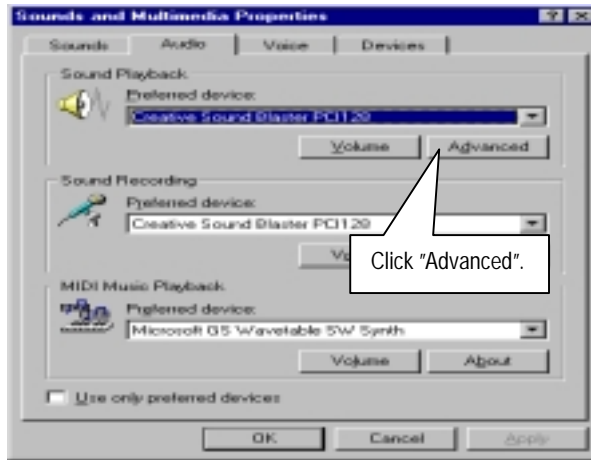
c. Select "Quadraphonic Speakers" and click ok.

C. Four Speaker Application

The four speaker function will only be supported in application softwares that use Microsoft DirectX and Creative EAX, for example, the game titles, software DVD player and MP3 player.

SPDIF Introduction

A.   What is SPDIF?

The SPDIF output is capable of providing digital signal to AC3 decoder which can support upto 5.1 speakers.

B.   How to use SPDIF?

a. Click your mouse right button in "My Computer" and select the "Properties" item.
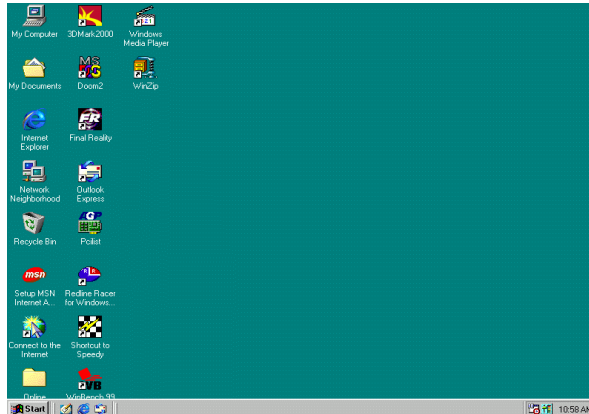
b. Click "Device Manager" item.
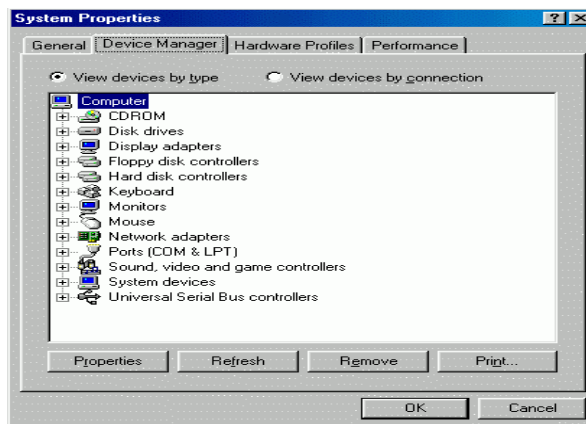
c. Click "Sound, video and game controllers" item and select the "Creative Sound Blaster PCI128" item.
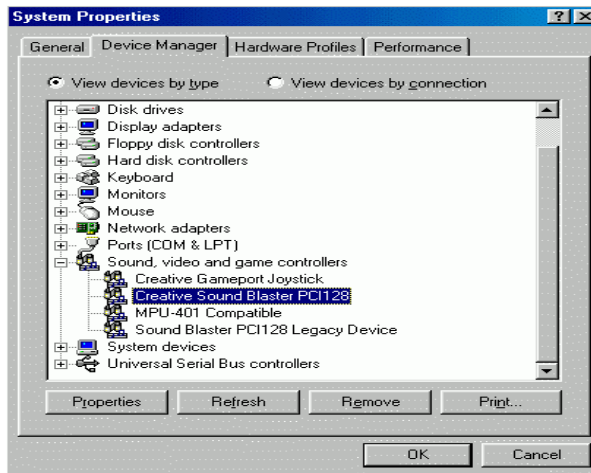
d. Click "Settings" item and select the "Output Mode" item.
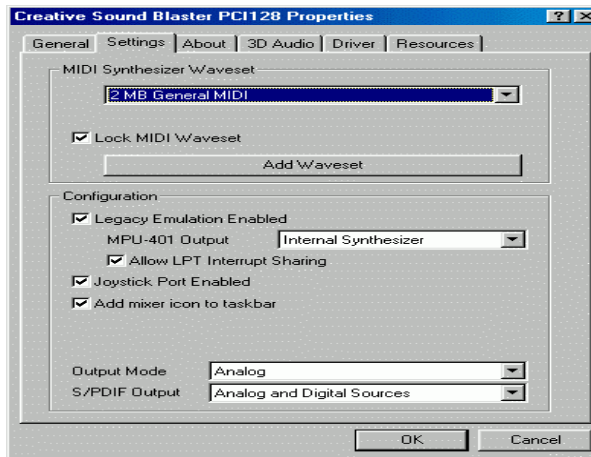
e. Click "Digital" item, Line Out will be reconfigure to SPDIF Out.
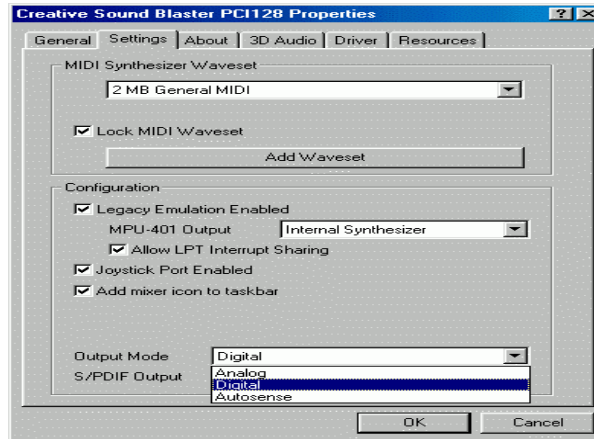
f. Recommend you to select "Autosense", It will automatically detect the type (mono or stereo) of the audio connector that you plug into Line Out audio jack, then configure Line Out to either SPDIF or Speaker accordingly.

@BIOS^{TM} Introduction

Gigabyte announces @BIOS™
Windows BIOS live update utility

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

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

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

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

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

EasyTune**III**™ Introduction

Gigabyte announces **EasyTuneIII™**
Windows overdrive utility

"Overdrive" might be one of the most common issues in computer field. But have many users ever tried it? The answer is probably "no". Because "overdrive" is thought to be very difficult and includes a lot of technical know-how, sometimes "overdrive" is even considered as special skills found only in some enthusiasts.

But as to the experts in "overdrive", what's the truth? They may spend quite a lot of time and money to study, try and use many different hardware and software tools to do "overdrive". And even with these technologies, they still learn that it's quite a risk because the safety and stability of an "overdrive" system is unknown.

Now everything is different because of a Windows overdrive utility EasyTune**III**™--announced by Gigabyte. This utility has totally changed the gaming rule of "overdrive". This is the first overdrive utility suitable for both normal and power users. Users can choose either "Easy Mode" or "Advanced Mode" to run "overdrive" at their convenience. For users who choose "Easy Mode", they just need to click "Auto Optimize" to have auto and immediate CPU overclocking. This software will then overdrive CPU speed automatically with the result being shown in the control panel. If someone prefers to "overdrive" by oneself, there is also another choice. Click "Advanced Mode" to enjoy "sport drive" class overclocking. In "Advanced Mode", one can change the system bus speed in small increments to get ultimate system performance. And no matter which mainboard is used, if it's a Gigabyte's product*, EasyTune**III**™ helps to perform the best of system.

Besides, different from other traditional over-clocking methods, EasyTune**III**™ doesn't require users to change neither BIOS nor hardware switch/ jumper setting; on the other hand, they can do "overdrive" at only one click. Therefore, this is a safer way for "overdrive" as nothing is changed on software or hardware. If user runs EasyTune**III**™ 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 been tested in EasyTune**III**™, user can "Save" this bus speed and "Load" it in next time. Obviously, Gigabyte EasyTune**III**™ has already turned the "overdrive" technology toward to a newer generation.

This wonderful software is now free bundled in Gigabyte motherboard attached driver CD. Users may make a test drive of "EasyTune**III**^{TM}" to find out more amazing features by themselves.

For further technical information, please link to: http://www.gigabyte.com.tw

※ **Note: For the latest version of EasyTuneIII^{TM}, please visit our website.**

RAID Introduction*

What is RAID?

This motherboard implements two different types of RAID levels as follows:

RAID 0 (stripe)

For capacity -- The motherboard array will be as big as the smallest HDD in the array times however many HDDs are in the array. Any larger HDDs will simply be truncated. The truncated space on the bigger HDDs will then be unusable.

For sustained data transfers -- A RAID 0 array consisting of two HDDs will transfer at about twice the speed of the slowest HDD in the array. A RAID 0 array consisting of four HDDs will transfer at about three times the speed of the slowest HDD in the array.

RAID 1 (mirror)

For capacity – This Motherboard array will be as big as the smallest HDD in the array. The larger HDD will simply be truncated. The truncated space on the bigger HDD will then be unusable.

For sustained data transfers -- This motherboard array will write data at the rate of the slowest HDD in the array. This motherboard array will read data at twice the rate of the slowest HDD in the array.

"*" For GA-7DXR+ only.

About RAID Levels

Striping (RAID 0)

Reads and writes sectors of data interleaved between multiple drives. When any disk member fails, it affects the entire array. Performance is better than a single drive since the workload is balanced between the array members. This array type is for high performance systems. Identical drives are recommended for performance as well as data storage efficiency. The disk array data capacity is equal to the number of drive members times the smallest member capacity. For example, one 1GB and three 1.2GB drives will form a 4GB (4 x 1GB) disk array.
Stripe Size - a value can be set from 1KB to 1024KB sector size. The size can directly affect performance. In the FastBuild BIOS, the "Desktop" default is 8KB while "Server" and "A/V Editing" are 64KB.
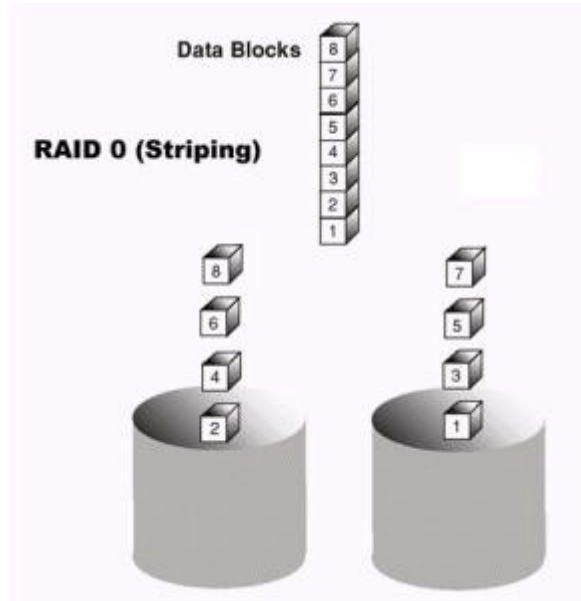
Mirroring (RAID 1)

Writes duplicate data on to a pair of drives while reads are performed in parallel. ATA RAID 1 is fault tolerant because each drive of a mirrored pair is installed on separate IDE channels. If one of the mirrored drives suffers a mechanical failure (e.g. spindle failure) or does not respond, the remaining drive will continue to function. This is called *Fault Tolerance*. If one drive has a physical sector error, the mirrored drive will continue to function.

RAID 1 (Mirroring)
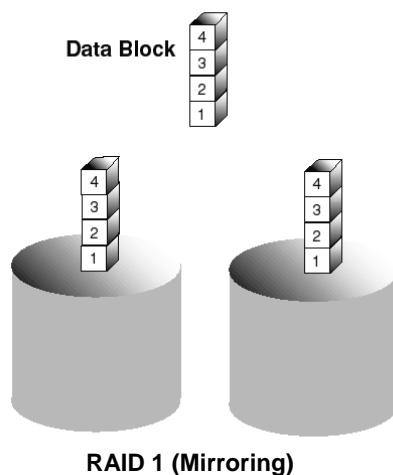
On the next reboot, the FastBuild^{TM} utility will display an error in the array and recommend to replace the failed drive. Users may choose to continue using their PC, however Promise recommends replacing the failed drive as soon as possible. See Chapter 4 for a functional description.

Due to redundancy, the drive capacity of the array is half the total drive capacity. For example, two 1GB drives that have a combined capacity of 2GB would have 1GB of usable storage. With drives of different capacities, there may be unused capacity on the larger drive.

Creating Your Disk Array

You will now use the FastBuild BIOS utility to create your array using the attached drives. There are two different scenarios in creating this array. You can create an array for performance, you can create a Security array using new hard drives (recommended).

> ⚠️ *WARNING: If creating a Security array using an existing hard drive, backup any necessary data. Failure to follow this accepted PC practice could result in data loss.*

1. Boot your system. If this is the first time you have booted with RAID, the FastBuild BIOS will display the following screen.

```
MBFastTrak133 Lite (tm) BIOS Version 2.00.0.XX
(c) 1995-2001 Promise Technology, Inc. All Rights Reserved

   No array defined . . .

Press <Ctrl-F> to enter FastBuild (tm) Utility
Or press <ESC> key to continue booting the system.
```

2. Press <Ctrl-F> keys to display the FastBuild (tm) Utility Main Menu

3. Press "1" to display the Auto Setup Menu below. This is the fastest and easiest method to creating your first array.

```
            FastBuild (tm) Utility 1.32 (c) 1996-2001 Promise Technology, Inc.
                             [Auto Setup Options Menu]

      Optimize Array for:          Performance
      Typical Application usage:     DESKTOP

                         [ Auto Setup Configuration ]

         Mode................................................Stripe
         Spare Driver…………………………………..0
         Drives used in Array.................................2
         Array Disk Capacity(size in MB).. ...160107

                            [ Keys Available ]

       [↑] Up [↓] Down   [←, →, Space] Change Option   [ESC  Exit     [Ctrl-Y] Save
```

Creating an Array for Performance

NOTE: This motherboard allows users to create striped arrays with 1, 2 drives.

To create an array for best performance, follow these steps:

1. Using the Spacebar, choose "Performance" under the **Optimize Array for** section.

2. Select how you will use your PC most under the **Typical Application usage** section The choices are A/V Editing, Server, and Desktop (the default).

3. Press <Ctrl-Y> keys to Save and create the array.

4. Reboot your system.

5. Once the array has been created, you will need to FDISK and format the array as if it were a new single hard drive.

6. Proceed to Installing Drivers section of the manual (see **RAID Manual of the CD**).

Creating a Security Array With New Drives

NOTE: This motherboard permit only two drives to be used for a single Mirrored array in Auto Setup.

To create an array for data protection using new hard drives, follow these steps:

1. Using the Spacebar, choose "Security" under the **Optimize Array for** section.

2. Press <Ctrl-Y> keys to Save your selection.

3. The window below will appear.

```
Do you want the disk image to be duplicated to another? (Yes/No)
Y - Create and Duplicate
N - Create Only
```

4. Press "N" for the Create Only option.

5. A window will appear almost immediately confirming that your Security array has been created. Press any key to reboot the system

```
            Array has been created.
            <Press Any Key to Reboot>
```

6. Proceed with normal FDISK and format procedures as if you had just installed a new hard drive.

7. Once the arrayed drives have been formatted, proceed to the **Installing Driver** chapter (see **RAID Manual of the CD**) to install your operating system.

Creating a Security Array With An Existing Data Drive

NOTE: This motherboard permits only two drives to be used for a single Mirrored array in Auto Setup.

You would use this method if you wish to use a drive that already contains data and/or is the bootable system drive in your system. You will need another drive of identical or larger storage capacity.

WARNING: Backup any necessary data before proceeding. Failure to follow this accepted PC practice could result in data loss.

*WARNING: If you wish to include your current bootable drive using the Windows NT 4.x or Windows 2000 operating system as part of a bootable Mirrored (RAID 1) array on your system, do NOT connect the hard drive to the motherboard controller yet. You MUST install the Windows NT4 or 2000 driver software first (see **RAID Manual of the CD**) to this drive while it is still attached to your existing hard drive controller. For all other Operating Systems, proceed here.*

Follow these steps:

1. Using the Spacebar, choose "Security" under the **Optimize Array for** section.

2. Press <Ctrl-Y> keys to Save your selection. The window below will appear.

```
Do you want the disk image to be duplicated to another? (Yes/No)
Y - Create and Duplicate
N - Create Only
```

3. Press "Y" for the Create and Duplicate option. The window below will appear asking you to select the Source drive to use. FastBuild will copy all data from the Source drive to the Target drive.

```
                        Source Disk
Channel:ID          Drive Model               apacity (MB)

                        Target Disk
Channel:ID          Drive Model               Capacity (MB)

                 [Please Select A Source Disk]
  Channel:ID          Drive Model             apacity (MB)
  1 :Master     QUANTUMCR8.4A                 3063
  2 :Master     QUANTUMCR8.4A                 3063

              [↑] Up [↓] Down   [ESC] Exit   [Enter Select
```

4. Use the arrow keys to choose which drive contains the existing data to be copied.

5. Press [Enter] keys to Save selection and start duplication. The following progress screen will appear.

> Start to duplicate the image . . .
> Do you want to continue? (Yes/No)
> Y – Continue   N - Abort

6. Select "Y" to continue. If you choose "N", you will be returned to step 1.

7. Once complete, the following screen will appear confirming that your Security array has been created. Press any key to reboot the system

> Array has been created.
> <Press Any Key to Reboot>

8. Proceed to the **Installing Driver** chapter (see **RAID Manual of the CD**) to install the RAID driver and/or operating system.

Using FastBuild™ Configuration Utility

The FastBuild^{TM} Configuration Utility offers several menu choices to create and manage the drive array on the motherboard. For purposes of this manual, it is assumed you have already created an array in the previous chapter and now wish to make a change to the array or view other options.

Viewing BIOS Screen

When you boot your system with the RAID function and drives installed, the FastBuild BIOS will detect the drives attached and show the following screen.

```
MBFastTrak133 Lite (tm) BIOS Version 2.00.0.XX
(c) 1995-2001 Promise Technology, Inc. All Rights Reserved.

Scanning IDE drives . . . . .
```

If an array exists already, the BIOS will display the following screen showing the BIOS version and status of the array.

```
MBFastTrak133 Lite (tm) BIOS Version 2.00.0.xx
(c) 1995-2001 Promise Technology, Inc. All Rights Reserved.

  ID          MODE        SIZE TRACK-MAPPING      ST \TUS

  1 *        2+0 Stripe   16126M        611/128/32     Fur tional


Press <Ctrl-F> to enter FastBuild (tm) Utility....
```

The array status consists of three possible conditions: *Functional, Critical, Offline*.

Functional - The array is operational.

Critical - A mirrored array contains a drive that has failed or disconnected. The remaining drive member in the array is functional. However, the array has temporarily lost its ability to provide fault tolerance. The user should identify the failed drive through the FastBuild™ Setup utility, and then replace the problem drive.

Offline - A striped array has 1 drive that has failed or been disconnected. When the array condition is "offline," the user must replace the failed drive(s), then restore data from a backup source.

Navigating the FastBuild™ Setup Menu

When using the menus, these are some of the basic navigation tips: Arrow keys highlights through choices; [Space] bar key allows to cycle through options;
[Enter] key selects an option; [ESC] key is used to abort or exit the current menu.

Using the Main Menu

This is the first option screen when entering the FastBuild^{TM} Setup.

```
      FastBuild (tm) Utility 1.xx (c) 1996-2001 Promise Technology, Inc.
                              [ Main Menu ]

      Auto Setup .......................................................[  ]
      View Drive Assignments...................................[  ]
      View Array ......................................................[  ]
      Delete Array....................................................[  ]
      Rebuild Array ..................................................[  ]
      Controller Configuration ...................................[  ]


                            [ Keys Available ]
               Press 1...6 to Select Option      [ESC] Exit
```
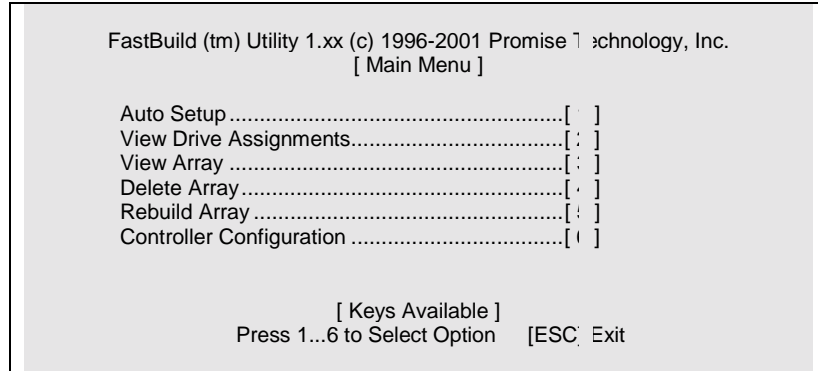
To create a new array automatically, follow the steps under "Creating Arrays Automatically" on page 58. Promise recommends this option for most users.

To view drives assigned to arrays, see "Viewing Drive Assignments" on page 60.

To delete an array (but not delete the data contained on the array), select "Deleting An Array" on page 62.

To rebuild a mirrored array, see "Rebuilding an Array" on page 64.

To view controller settings, see "Viewing Controller Configuration" on page 66.

> *NOTE*: *After configuring an array using FastBuild, you should FDISK and format the arrayed drive(s) if you are using new, blank drives. Depending on the type of array you are using.*

Creating Arrays Automatically

The Auto Setup <1> selection from the Main Menu can intuitively help create your disk array. It will assign all available drives appropriate for the disk array you are creating. After making all selections, use Ctrl-Y to Save selections. FastBuild will automatically build the array.

```
        FastBuild (tm) Utility 1.32 (c) 1996-2001 Promise Technology, Inc.
                            [Auto Setup Options Menu]

     Optimize Array for:          Performance
     Typical Application usage:    DESKTOP

                        [ Auto Setup Configuration ]

     Mode................................................Stripe
     Spare Driver…………………………………..0
     Drives used in Array................................2
     Array Disk Capacity(size in MB).. ... 160107


                            [ Keys Available ]


     [↑] Up [↓] Down   [←, →, Space] Change Option   [ESC] Exit    [Ctrl-Y] Save
```

Optimize Array For

Select whether you want Performance (RAID 0), Security (RAID 1) under the "Optimize Array for" setting.

Performance (RAID 0 Striping)
Supports the maximum performance. The storage capacity equals the number of drives times the capacity of the smallest drive in the disk array.

NOTE: This motherboard permits striped arrays using 1, 2 drive attached in Auto Setup mode.

Security (RAID 1 Mirroring)
Creates a mirrored (or fault tolerant) array for data security.

NOTE: Under the Security setting, This motherboard permits two drives to be used for a single Mirrored array only.

Defining Typical Application Usage

Allows the user to choose the type of PC usage that will be performed in order to optimize how *This motherboard* handles data blocks to enhance performance. Your choice will determine the block size used. You may choose from: A/V Editing (for audio/video applications, or any similar application that requires large file transfers), Server (for numerous small file transfers), or Desktop (a combination of large and small file sizes).

Viewing Drive Assignments

The View Drive Assignments <2> option in the Main Menu displays whether drives are assigned to a disk arrays or are unassigned.

The menu also displays the data transfer mode that relates to speed used by each drive (U6 refers to 133MB/sec transfers, U5 refers to 100MB/sec transfers, U4 refers to 66MB/sec transfers, etc...)

```
      FastBuild (tm) Utility 1.32 (c) 1996-2001 Promise Technology, Inc.
                       [ View Drive Assignments ]

Channel:ID    Drive Model      Capacity(MB)    Assignment     Mode
1 : Master    QUANTUMCR8.4A        8063        Array 1         U5
2 : Master    QUANTUMCR8.4A        8063        Array 1         U5

                         [ Keys Available ]

        [↑] Up [↓] Down   [ESC] Exit    Mode (P=PIO, D=DMA, U=UDMA)
```

How Orders Arrays

During startup, the disk arrays on the motherboard are recognized in this order: 1) The array set to bootable in the FastBuild^{TM} Setup, and 2) the Array number (i.e. Array 0, Array 1…). This would be involved in determining which drive letters will be assigned to each disk array.

How Saves Array Information

All disk array data is saved into the reserved sector on each array member. We suggests that users record their disk array information for future reference.

Another feature of the motherboard disk array system is to recognize drive members even if drives are moved between different motherboard connectors(IDE3&IDE4). Since each drive's array data identifies itself to the array, it is possible to move or swap drives without modifying the array setup. This is valuable when adding drives, or during a rebuild.

Deleting An Array

The Delete Array <4> Menu option allows for deletion of disk array assignments. This is not the same as deleting data from the drives themselves. If you delete an array by accident (and before it has been used again), the array can normally be recovered by defining the array identically as the deleted array.

WARNING: *Deleting an existing disk array could result in its data loss. Make sure to record all array information including the array type, the disk members, and stripe block size in case you wish to undo a deletion.*

```
        FastBuild (tm) Utility 1.32 (c) 1996-2001 Promise Te  hnology, Inc.
                            [ Delete Array Menu ]

Array No      RAID Mode        Total Drv        Capacity(M  )       Status
Array 1       Stripe           2                16126              Functional
Array 2       ——               ——               ——                 ——
Array 3       ——               ——               ——                 ——
Array 4       ——               ——               ——                 ——
                            [ Keys Available ]

            [↑] Up [↓] Down       [ESC] Exit      [Del] D  lete
```

1.   To delete an array, highlight the Array you wish to delete and press the [Del] key.

2.   The View Array Definition menu will appear (see below) showing which drives are assigned to this array.

```
        FastBuild (tm) Utility 1.32 (c) 1996-2001 Promise Te  hnology, Inc.
                            [ Define Array Menu ]

Array No      RAID Mode        Total Drv        Capacity(MB        Status
Array 1       ——               ——               ——                 ——

Stripe Block:    64 KB
                            [ Drive Assignments ]

Channel:ID          Drive Model          Capacity (M  3)     Assignment
 1 : Master         QUANTUMCR8.4A          8063               Y
 2 : Master         QUANTUMCR8.4A          8063               Y
```

3. Confirm yes to the following warning message with the <Ctrl-Y> key to continue array deletion:

> Are you sure you want to delete this array?
> Press Ctrl-Y to Delete, others to Abort

4. After deleting the array, you should create a new array using Auto Setup or the Define Array menu from the FastBuild Main Menu.

Rebuilding A Mirrored Array

The Rebuild Array <5> Menu option is necessary to recover from an error in a mirrored disk array. You will receive an error message when booting your system from the BIOS.

NOTE: Drives MUST be replaced if they contain any physical errors.

Follow these steps BEFORE using the Rebuild Array menu option:

1.   On bootup, the system Startup BIOS will display an error message identifying which drive has failed.

2.   Press <Ctrl-F> keys to enter FastBuild Main Menu.

3.   Select submenu Define Array <3>.

4.   Select the failed array and identify the Channel and ID of the failed drive.

5.   Power off and physically remove the failed drive.

6.   Replace the drive with an identical model.

7.   Reboot the system and enter the FastBuild Main Menu.

8.   Select the <5> Rebuild Array option. The following screen will appear.

```
        FastBuild (tm) Utility 1.32 (c) 1996-2001 Promise Technology, Inc.
                              [ Rebuild Array Menu ]

   Array No      RAID Mode        Total Drv      Capacity(MB)      Status
   Array 1       Mirror               2            16126           Critical
   Array 2       ——                ——            ——            ——
   Array 3       ——                ——            ——            ——
   Array 4       ——                ——            ——            ——

                              [ Keys Available ]

                 [↑] Up [↓] Down      [ESC] Exit      [Enter] Selectt
```

9.   Highlight the array whose Status is "Critical".

10.   Press [Enter]. The following screen will then appear (see next page).

```
The previous recovery is not complete!
<Press Any Key to Restart The Recover  >
```

11. Press any key and confirm that the data will be copied on to the selected drive. All data on the replacement drive will be written over with mirrored information from the array drive. A progress bar will appear as below.

```
Please Wait While Duplicating The Image
  [████        ]
10% Complete
```
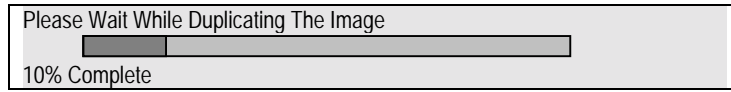
12. Once the rebuild process is complete, the user will be asked to reboot the system.

Viewing Controller Settings

The Controller Configuration <6> menu selection allows you to enable or disable the BIOS from halting (the default) if it detects an error on boot up. You may also view the system resources (Interrupt and I/O port address) of data channels.

```
          FastBuild (tm) Utility 1.32 (c) 1996-2001 Promise Te  nnology, Inc.
                          [ Adapter Configuration - Options ]

                          Halt On Error:          Enable

                          [ System Resources Configuration ]

     Channel 1 (IDE1)          Interrupt : A   I/O Port : 9800
     Channel 2 (IDE2)          Interrupt : A   I/O Port : A000

                                  [ Keys Available ]

                     [←, →, Space] Change Option     [ESC] E  it
```
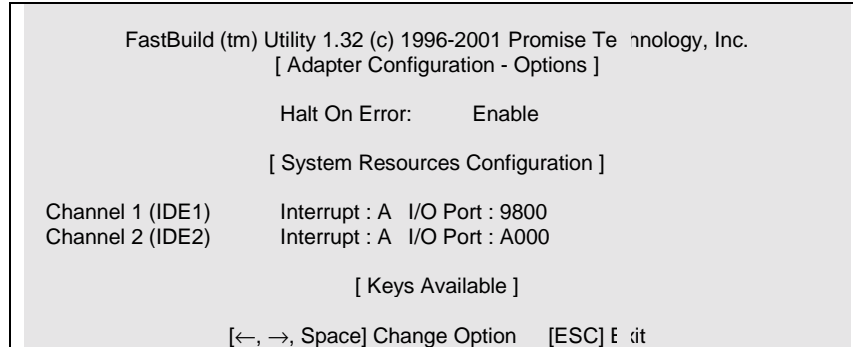
Halting BIOS On Bootup Errors
The [Adapter Configuration – Options] section allows you to enable or disable The system to Halt operation at the BIOS startup screen should an error be detected. This is the only option that can be changed on this screen.

Viewing System Resources

The [System Resources Configuration] section of this submenu displays the PCI slot interrupt and port address used by the system. The resources used are determined by the Mainboard PCI PnP BIOS for the PCI slot in which the system resides.

In the rare case that there is a resource conflict, refer to the Mainboard BIOS documentation on changes on resources allocated to the system PCI slot.

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BIOS Setup

BIOS Setup is an overview of the BIOS Setup Interface. The interface allows users to modify the basic system configuration, which is stored in battery-backed CMOS RAM so that the Setup information can be retained when the power is turned off.

ENTERING SETUP

Power ON the computer and press <Del> immediately will allow you to enter Setup.

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
<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>	Reserved
<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
<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. : 7DXR+: F1/7DX: 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 nine 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 ) 1984-2001 Award Software
┌─────────────────────────────────────────────────────────────────────┐
│                                                                       │
│  ▶ Standard CMOS Features          ▶ Frequency/Voltage Control        │
│                                                                       │
│  ▶ Advanced BIOS Features            Load Fail-Safe Defaults          │
│                                                                       │
│  ▶ Advanced Chipset Features         Load Optimized Defaults          │
│                                                                       │
│  ▶ Integrated Peripherals            Set Supervisor Password          │
│                                                                       │
│  ▶ Power Management Setup            Set User Password                 │
│                                                                       │
│  ▶ PnP/PCI Configurations            Save & Exit Setup                │
│                                                                       │
│  ▶ PC Health Status                  Exit Without Saving              │
├───────────────────────────────┬───────────────────────────────────────┤
│ ESC:Quit                       │  ↑↓→ ← : Select Item                  │
│ F8: Dual BIOS/Q-Flash          │  F10:Save & Exit Setup                │
├────────────────────────────────────────────────────────────────────┤
│                                                                       │
│                   Time, Date, Hard Disk Type…                         │
└─────────────────────────────────────────────────────────────────────┘
```

Figure 1: Main Menu

- **Standard CMOS Features**

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

- **Advanced BIOS Features**

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

- **Advanced Chipset Features**

    This setup page includes all the adjustable items of chipset special features.

- **Integrated Peripherals**

    This setup page includes all onboard peripherals.

- **Power Management Setup**

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

- **PnP/PCI Configurations**

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

- **PC Health Status**

    This setup page is for monitoring system status such as temperature, voltage, and fan speed.

- **Frequency/Voltage Control**

    This setup page is for controlling CPU clock and frequency ratio.

- **Load Fail-Safe Defaults**

    Load Fail-Safe Defaults option loads preset system parameter values to set the system in its most stable configurations.

- **Load Optimized Defaults**

    Load Optimized Defaults option loads preset system parameter values to set the system in its highest performance configurations.

- **Set Supervisor Password**

    Set Change or disable password. It allows you to limit access to the system and/or BIOS setup.

- **Set User Password**

  Set Change 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

The items in Standard CMOS Setup Menu (Figure 2) are divided into 9 categories. Each category includes none, one or more than one setup items. Use the arrows to highlight the item and then use the <PgUp> or <PgDn> keys to select the value in each item.

```
         CMOS Setup Utility-Copyright( C ) 1984-2001 Award Software
                        Standard CMOS Features
 ┌──────────────────────────────────────────────┬──────────────────────┐
 │ Date (mm:dd:yy)        Wed, Feb 28  2001       │     Item Help        │
 │ Time (hh:mm:ss)          2  :  31  :  24       │                      │
 │                                                 │ Menu Level ▶         │
 │ ▶ IDE Primary Master   None                     │ Change the day, month,│
 │ ▶ IDE Primary Slave    None                     │ year                 │
 │ ▶ IDE Secondary Master None                     │                      │
 │ ▶ IDE Secondary Slave  None                     │ <Week>               │
 │                                                 │ Sun. to Sat.         │
 │   Drive A              1.44M,  3.5 in.          │                      │
 │   Drive B              None                     │ <Month>              │
 │   Floppy 3 Mode Support Disabled                │ Jan. to Dec.         │
 │                                                 │                      │
 │                                                 │ <Day>                │
 │   Halt On             All, But Keyboard         │ 1 to 31 (or maximum  │
 │                                                 │ Allowed in the month)│
 │   Base Memory Size    640K                      │                      │
 │   Extended Memory Size 63488K                   │ <Year>               │
 │   Total Memory         64512K                   │ 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 based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

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

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

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

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

CYLS.	Number of cylinders
HEADS	number of heads
PRECOMP	write precomp
LANDZONE	Landing zone
SECTORS	number of sectors

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

- **Drive A / Drive B**

    The category identifies the type 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.
All Errors	The system boot will stop on any error detected.
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 Size

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

  > 640 K for systems with 640 K or more memory installed on the motherboard.

  Extended Memory Size

  > 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

CMOS Setup Utility-Copyright(C) 1984-2001 Award Software		
Advanced BIOS Features		
BIOS Flash Protection	Auto	Item Help
RAID/SCSI Boot Order	RAID, SCSI*	
First Boot Device	Floppy	Menu Level ▸
Second Boot Device	HDD-0	[Auto]
Third Boot Device	CDROM	Allows BIOS to
Boot Up Floppy Seek	Disabled	update flash data
BootUp Num-Lock	On	during POST. It still
Password Check	Setup	prevents other
Interrupt Mode	APIC	unauthorized utilities
Boot to OS2 or DR-DOS	No	to update flash
HDD S.M.A.R.T Capability	Disabled	
		[Enabled]
		Always prevents BIOS
		and unauthorized
		utilities to update
		flash

Figure 3: Advanced BIOS Features

- **BIOS Flash Protection**

   This field lets you determine the states that flash BIOS

Auto	BIOS enables flash write access automatically when updating BIOS data/DMI/ESCD. **(Default Value)**
Enabled	During POST, DMI/ESCD would not be updated. But flash tools can update BIOS always.

- **RAID/SCSI Boot Order***

RAID, SCSI	Select Boot first from RAID/ATA100 device on board. **(Default value)**
SCSI, RAID	Select Boot first from SCSI device on the add-on PCI SCSI card.

"*" For GA-7DXR+ only.

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● **First / Second / Third Boot Device**

Floppy	Set your boot device priority to Floppy.
LS120	Set your boot device priority to LS120.
HDD-0~3	Set your boot device priority to HDD-0~3.
SCSI	Set your boot device priority to SCSI.
CDROM	Set your boot device priority to CDROM.
ZIP	Set your boot device priority to ZIP.
Disabled	Disable this function.
USB-FDD	Set your boot device priority to USB-FDD.
USB-ZIP	Set your boot device priority to USB-ZIP.
USB-CDROM	Set your boot device priority to USB-CDROM.
USB-HDD	Set your boot device priority to USB-HDD.
LAN	Set your boot device priority to LAN.

● **Boot Up Floppy Seek**

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

Enabled	BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks. Note that BIOS can't differentiate between from 720, 1.2 or 1.44 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. **(Default Value)**

● **BootUp Num-Lock**

On	Keypad is number keys. **(Default value)**
Off	Keypad is arrow keys.

● **Password Check**

Please refer to the detail on P.100.

System	The user must enter correct password in order to access the system and/or BIOS Setup.
Setup	The user must enter correct password in order to access BIOS setup utility. **(Default Value)**

- **Interrupt Mode**

APIC	Through IOAPIC generate more IRQ for system use. **(Default value)**
PIC	Use AT standard IRQ controllers to generate IRQ.

When you already have IOAPIC enable system and want to upgrade the system please note, since running an IOAPIC enabled OS (like Windows NT, Windows 2000, Windows XP...) system with none IOAPIC HW support will cause the system to hang. Following are some situations users might run into:

1.An IOAPIC enabled OS and change the BIOS setting from IOAPIC to PIC, this will cause your system to hang.

- **Boot to OS2 or DR-DOS**

Yes	System can success boot to OS2 or DR-DOS.
No	Disable this function. **(Default value)**

- **HDD S.M.A.R.T. Capability**

Enabled	Enable HDD S.M.A.R.T. Capability.
Disabled	Disable HDD S.M.A.R.T. Capability. **(Default value)**

Advanced Chipset Features

▶ We would not suggest you change the chipset default setting unless you really need it.

```
          CMOS Setup Utility-Copyright( C ) 1984-2001 Award Software
                          Advanced Chipset Features
┌──────────────────────────────────────────────────┬──────────────────┐
│  Top Performance              Disabled            │    Item Help     │
│  AGP Aperture Size            64                   │                  │
│  AGP Fast Write               Enabled             │  Menu Level  ▶   │
│  AGP Mode                     4X                   │                  │
│  AGP Always Compensate        Enabled             │                  │
│  SDRAM ECC Setting            Disabled            │                  │
│  DRAM Timing setting by       Auto                │                  │
│  X DRAM PH Limit              8 Cycle             │                  │
│  X DRAM Idle Limit            8 Cycle             │                  │
│  X DRAM Trc Timing Value      7 Cycle             │                  │
│  X DRAM Trp Timing Value      2 Cycle             │                  │
│  X DRAM Tras Timing Value     5 Cycle             │                  │
│  X DRAM CAS Latency           2 Cycle             │                  │
│  X SDRAM Trcd Timing Value    2 Cycle             │                  │
│                                                    │                  │
│                                                    │                  │
└──────────────────────────────────────────────────┴──────────────────┘
  ↑↓→ ←: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: Advanced Chipset Features

- **Top Performance**

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

Disabled	Top Performance Disable. **(Default Value)**
Enabled	Top Performance Enable.

- **AGP Aperture Size**

32MB	Display AGP Aperture Size is 32.
64MB	Display AGP Aperture Size is 6MB. **(Default Value)**
128MB	Display AGP Aperture Size is 128
256MB	Display AGP Aperture Size is 256

- **AGP Fast Write**

Enabled	Enable this function only if the AGP Card support Fast Write Function. (Enable this function can increase AGP performance). **(Default Value)**
Disabled	Disable this function.

- **AGP Mode**

4X	Set AGP Mode to 4X (Only if the AGP Card support 4X Rate). **(Default Value)**
1X/2X	Set AGP Mode to 1X/2X.

- **AGP Always Compensate**

Enabled	Enable AGP Always Compensate function. **(Default Value)**
Disabled	Disable this function.

- **SDRAM ECC Setting**

Disabled	Disable DRAM ECC Setting function. **(Default Value)**
Check Only	Set DRAM ECC Setting to Check Only. Enable DRAM error checking function.
Correct Error	Set DRAM ECC Setting to Correct Errors. Enable DRAM 1 bit error checking and correcting in CPU/AGP/PCI.
Correct + Scrub	Set DRAM ECC Setting to Correct+Scrub. Enable DRAM 1bit error checking and correcting in CPU/AGP/PCI and DRAM.

- **DRAM Timing setting by**

Auto	Set DRAM Timing setting to Auto. **(Default value)**
Manual	Set DRAM Timing setting to Manual.

- **DRAM PH Limit**

This function specify the number of consecutive Page-Hit requests to allow before choosing a non-Page-Hit request.

1 Cycle	Set DRAM PH Limit to 1 Cycle.
4 Cycle	Set DRAM PH Limit to 4 Cycle.
8 Cycle	Set DRAM PH Limit to 8 Cycle.
16 Cycle	Set DRAM PH Limit to 16 Cycle.

- **DRAM Idle Limit**

This function specify the number of idle cycles to wait before precharging an idle bank.(Idle cycles are defined as cycles where no valid request is asserted to the MCT.)

0 Cycle	Set DRAM Idle Limit to 0 Cycle.
8 Cycle	Set DRAM Idle Limit to 8 Cycle.
12 Cycle	Set DRAM Idle Limit to 12 Cycle.

16 Cycle	Set DRAM Idle Limit to 16 Cycle.
24 Cycle	Set DRAM Idle Limit to 24 Cycle.
32 Cycle	Set DRAM Idle Limit to 32 Cycle.
48 Cycle	Set DRAM Idle Limit to 48 Cycle.
Disabled	Disable this function.

- **DRAM Trc Timing Value**

  This function specify the minimum time from activate to activate of the same bank.

3 Cycle	Set DRAM Trc Timing Value to 3 Cycle.
4 Cycle	Set DRAM Trc Timing Value to 4 Cycle.
5 Cycle	Set DRAM Trc Timing Value to 5 Cycle.
6 Cycle	Set DRAM Trc Timing Value to 6 Cycle.
7 Cycle	Set DRAM Trc Timing Value to 7 Cycle.
8 Cycle	Set DRAM Trc Timing Value to 8 Cycle.
9 Cycle	Set DRAM Trc Timing Value to 9 Cycle.
10 Cycle	Set DRAM Trc Timing Value to 10 Cycle.

- **DRAM Trp Timing Value**

  This function specify the delay from precharge command to activate command.

1 Cycle	Set DRAM Trp Timing Value to 1 Cycle.
2 Cycle	Set DRAM Trp Timing Value to 2 Cycle.
3 Cycle	Set DRAM Trp Timing Value to 3 Cycle.
4 Cycle	Set DRAM Trp Timing Value to 4 Cycle.

- **DRAM Tras Timing Value**

  This function specifies the minimum bank (active time: time from active to precharge of same bank).

2 Cycle	Set DRAM Tras Timing Value to 2 Cycle.
3 Cycle	Set DRAM Tras Timing Value to 3 Cycle.
4 Cycle	Set DRAM Tras Timing Value to 4 Cycle.
5 Cycle	Set DRAM Tras Timing Value to 5 Cycle.
6 Cycle	Set DRAM Tras Timing Value to 6 Cycle.
7 Cycle	Set DRAM Tras Timing Value to 7 Cycle.
8 Cycle	Set DRAM Tras Timing Value to 8 Cycle.
9 Cycle	Set DRAM Tras Timing Value to 9 Cycle.

- **DRAM CAS Latency**

   This function specify the DRAM CAS Latency.

2 Cycle	Set DRAM CAS Latency to 2 Cycle.
2.5 Cycle	Set DRAM CAS Latency to 2.5 Cycle.

- **SDRAM Trcd Timing Value**

   This function specifies the delay from the activation of a bank to the time that a read or write command is accepted.

1 Cycle	Set SDRAM Trcd Timing Value to 1 Cycle.
2 Cycle	Set SDRAM Trcd Timing Value to 2 Cycle.
3 Cycle	Set SDRAM Trcd Timing Value to 3 Cycle.
4 Cycle	Set SDRAM Trcd Timing Value to 4 Cycle.

Integrated Peripherals

```
┌────────────────────────────────────────────────────────────────────┐
│            CMOS Setup Utility-Copyright( C ) 1984-2001 Award Software │
│                        Integrated Peripherals                        │
├──────────────────────────────────────────┬─────────────────────────┤
│ IDE1 Conductor Cable            Auto      │       Item Help          │
│ IDE2 Conductor Cable            Auto      │                          │
│ OnBoard IDE1                    Enabled   │  Menu Level  ▸           │
│ OnBoard IDE2                    Enabled   │  [Auto]                  │
│ VGA Boot from                   AGP       │  Auto-detect IDE         │
│ Onboard Sound Chip              Enabled*  │  cable type              │
│ Onboard Promise Function        Enabled*  │                          │
│ Onboard USB2.0 Function         Enabled*  │  [ATA66/100]             │
│ USB Controller 1                Enabled   │  Set Conductor Cable     │
│ USB Controller 2                Enabled   │  to ATA66/100            │
│ USB Legacy Support              Disabled  │                          │
│ AC97 Audio                      Auto      │  [ATA33]                 │
│ AC97 Modem                      Auto      │  Set Conductor Cable     │
│ Onboard FDD Controller          Enabled   │  to ATA33                │
│ Onboard Serial Port A           Auto      │                          │
│ Onboard Serial Port B           Auto      │                          │
│ Serial Port B Mode              Normal    │                          │
│ ※Duplex Mode                    Half      │                          │
│ Onboard Parallel Port           378/IRQ7  │                          │
│ Onboard Parallel Mode           ECP       │                          │
│ ECP Mode Use DMA                3         │                          │
│ ✽ Parallel Port EPP Type        EPP1.9    │                          │
│   Onboard Legacy Audio          Enabled** │                          │
│   Sound Blaster                 Disabled**│                          │
│   SB I/O Base Address           220H**    │                          │
│   SB IRQ Select                 IRQ5**    │                          │
│   SB DMA Select                 DMA1**    │                          │
│   MPU-401                       Disabled**│                          │
│   MPU-401 I/O Address           330-333H**│                          │
│   Game Port (200-207H)          Enabled** │                          │
├──────────────────────────────────────────┴─────────────────────────┤
│ ↑↓→←: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: Integrated Peripherals

※ This item will be available when "Serial Port B Mode" is set to HPSIR or ASKIR.

✽ This item will be available when "Onboard Parallel Mode" is set to ECP/EPP.

♣ These eight items will not be shown when there is sound chip onboard.

"*" For GA-7DXR+ only.   "**" For GA-7DX+ only.

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- **IDE1 Conductor Cable**

Auto	Will be automatically detected by BIOS. **(Default Value)**
ATA66/100	Set IDE1 Conductor Cable to ATA66/100 (Please make sure your IDE device and cable is compatible with ATA66/100).
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	Set IDE2 Conductor Cable to ATA66/100 (Please make sure your IDE device and cable is compatible with ATA66/100).
ATA33	Set IDE2 Conductor Cable to ATA33 (Please make sure your IDE device and cable is compatible with ATA33).

- **OnBoard IDE1**

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

- **OnBoard IDE2**

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

- **VGA Boot from**

PCI Slot	Set VGA Boot from PCI VGA Card.
AGP	Set VGA Boot from AGP VGA Card. **(Default value)**

- **Onboard Sound Chip***

Enabled	Enable Onboard Sound Chip function. **(Default Value)**
Disabled	Disable this function.

- **Onboard Promise Function***

Enabled	Enable Onboard Promise function. **(Default Value)**
Disabled	Disable this function.

"*" For GA-7DXR+ only.

- **Onboard USB2.0 Function***

Enabled	Enable Onboard USB2.0 function. **(Default Value)**
Disabled	Disable this function.

- **USB Controller 1**

Enabled	Enable USB Controller 1. **(Default value)**
Disabled	Disable USB Controller 1.

- **USB Controller 2**

Enabled	Enable USB Controller 2. **(Default value)**
Disabled	Disable USB Controller 2.

- **USB Legacy Support**

Enabled	Enable USB Device (Such as USB KB, Mouse) support in Legacy Mode, eg. DOS. Win NT4.0.
Disabled	Disable OnBoard Legacy Audio. **(Default Value)**

- **AC97 Audio**

Auto	Enable onboard AC'97 audio function. **(Default Value)**
Disabled	Disable this function.

- **AC97 Modem**

Auto	BIOS will search MC97 Codec (AMR Modem Card). If found, MC97 function will be enabled. If no MC97 Codec found, MC97 function will be disabled. **(Default Value)**
Disabled	Disable this function.

- **Onboard FDD Controller**

Enabled	Enable on board floppy disk controller. **(Default value)**
Disabled	Disable this function.

"*" **For GA-7DXR+ only.**

- **Onboard Serial Port A**

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

- **Onboard Serial Port B**

Auto	BIOS will automatically setup the port B address. **(Default Value)**
3F8/IRQ4	Enable onboard Serial port B and address is 3F8.
2F8/IRQ3	Enable onboard Serial port B and address is 2F8.
3E8/IRQ4	Enable onboard Serial port B and address is 3E8.
2E8/IRQ3	Enable onboard Serial port B and address is 2E8.
Disabled	Disable onboard Serial port B.

- **Serial Port B Mode**

  (This item allows you to determine which serial port B Mode of onboard I/O chip)

Normal	Normal serial port B operation. **(Default Value)**
HPSIR	Set onboard I/O chip serial port B to HPSIR Mode.
ASKIR	Set onboard I/O chip serial port B to ASKIR Mode.

- **Duplex Mode**

Half	Half Duplex Mode. **(Default Value)**
Full	Full Duplex Mode.

- **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.

- **Onboard Parallel Mode**

Normal	Normal Operation.
EPP	Using Parallel port as Enhanced Parallel Port.
ECP	Using Parallel port as Extended Capabilities Port. **(Default value)**

| ECP/EPP | Using Parallel port as ECP & EPP mode. |

● **ECP Mode Use DMA**

3	Set ECP Mode Use DMA to 3. **(Default Value)**
1	Set ECP Mode Use DMA to 1.

● **Parallel Port EPP Type**

EPP 1.9	Set Parallel Port EPP Type to EPP 1.9. **(Default value)**
EPP 1.7	Set Parallel Port EPP Type to EPP 1.7.

● **Onboard Legacy Audio****

Enabled	Enable onboard legacy audio function. **(Default Value)**
Disabled	Disable this function.

● **Sound Blaster****

Enabled	Enable Sound Blaster.
Disabled	Disable Sound Blaster. **(Default Value)**

● **SB I/O Base Address****

220H	Set SB I/O Base Address to 220H. **(Default Value)**
240H	Set SB I/O Base Address to 240H.
260H	Set SB I/O Base Address to 260H.
280H	Set SB I/O Base Address to 280H.

● **SB IRQ Select****

| IRQ 5 / 7 / 9 / 10. **(Default Value: 5)** |

● **SB DMA Select****

| DMA 0 / 1 / 2 / 3. **(Default Value: 1)** |

● **MPU-401****

Enabled	Enable MPU-401.
Disabled	Disable MPU-401. **(Default Value)**

Ps. When Force Feedback joystick is used, MPU-401 needs to be Enable.

"**" For GA-7DX+ only.

- **MPU-401 I/O Address**

330-333H	Set MPU-401 I/O Address to 330-333H. **(Default Value)**
300-303H	Set MPU-401 I/O Address to 300-303H.
310-313H	Set MPU-401 I/O Address to 310-313H.
320-323H	Set MPU-401 I/O Address to 320-323H.

- **Game Port (200-207H)**

Disabled	Disable Game Port (200-207H).
Enabled	Enable Game Port (200-207H). **(Default Value)**

"" For GA-7DX+ only.**

Power Management Setup

```
CMOS Setup Utility-Copyright( C ) 1984-2001 Award Software
                  Power Management Setup
ACPI Sleep Type              S1(POS)          │  Item Help
Suspend Time Out (Minute)    Disabled         │
Soft-Off by PBTN             Instant-off      │  Menu Level  ▸
System after AC Back         Off              │
PME Event Wake Up            Enabled          │
USB Dev Wakeup from S3-S5    Disabled         │
ModemRingOn/WakeOnLan        Enabled          │
MODEM Use IRQ                3                │
Resume by RTC Alarm          Disabled         │
X Date (of Month) Alarm      0                │
X Time (hh:mm:ss) Alarm      0    0    0      │
▸IRQ Wakeup Events           Press Enter      │
VGA                          OFF              │
LPT & COM                    LPT/COM          │
HDD & FDD                    ON               │
PCI master                   OFF              │

↑↓→←: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: Power Management Setup

- **ACPI Sleep Type**

S1 (POS)	Set ACPI Sleep Type to S1 (Power On Suspend). **(Default value)**
S3 (STR)	Set ACPI Sleep Type to S3 (Suspend to RAM).

- **Suspend Time Out (Minute)**

Disabled	Disable Suspend Time Out Function. **(Default Value)**
30 Sec - 1 Hour	Set the timer to enter Suspend Time Out.

- **Soft-off by PBTN**

Instant-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**

Last State	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.

- **PME Event Wake Up**

Disabled	Disable PME event wake up function.
Enabled	The PME event wake up will bring the system out of soft-off or suspend state if this option is set "Enabled". **(Default Value)**

- **USB Dev Wakeup from S3-S5**

Enabled	Enable USB Device Wakeup from ACPI S3, S4 and S5 mode.
Disabled	Disable USB Device Wakeup from ACPI S3, S4 and S5 mode. **(Default Value)**

- **ModemRingOn/WakeOnLan**

Disabled	Disable Modem Ring On / Wake On LAN function.
Enabled	The modem ring / LAN wake up will bring the system out of soft-off or suspend state if this option is set "Enabled". **(Default Value)**

- **MODEM Use IRQ**

NA	Set MODEM Use IRQ to NA.
3	Set MODEM Use IRQ to 3. **(Default value)**
4	Set MODEM Use IRQ to 4.
5	Set MODEM Use IRQ to 5.
7	Set MODEM Use IRQ to 7.
9	Set MODEM Use IRQ to 9.
10	Set MODEM Use IRQ to 10.
11	Set MODEM Use IRQ to 11.

● **Resume by RTC Alarm**

You can set "Resume by RTC Alarm" item to Enabled and key in date/time to power on system.

Disabled	Disable this function. **(Default value)**
Enabled	Enable alarm function to POWER ON system or wake up system from sleep mode.

If the default value is Enabled.

Date (of Month) Alarm :	0~31
Time (hh: mm: ss) Alarm :	(0~23) : (0~59) : (0~59)

● **IRQs Activity**

Disabled	Disable this function.
Primary	The resource is used by Primary device. **(Default value)**
Secondary	The resource is used by Secondary device.

● **IRQ [3-15]**

Disabled	Disable specified IRQ to Wake up system from sleep mode or Reload PM Timer to prevent system to enter sleep mode.
Enabled	Enable specified IRQ to Wake up system from sleep mode or Reload PM Timer to prevent system to enter sleep mode.

● **VGA**

OFF	Disable monitor VGA activity to prevent system to enter sleep mode. **(Default value)**
ON	Enable monitor VGA activity to prevent system to enter sleep mode.

● **LPT & COM**

LPT/COM	Enable LPT/COM Ports Activity to Wake up system from sleep mode or prevent system to enter sleep mode. **(Default value)**
NONE	Normal Operation.
LPT	Enable LPT Ports Activity to Wake up system from sleep mode or prevent system to enter sleep mode.
COM	Enable COM Ports Activity to Wake up system from sleep mode or prevent system to enter sleep mode.

- **HDD & FDD**

ON	Enable HDD & FDD Ports Activity to Wake up system from sleep mode or prevent system to enter sleep mode. **(Default value)**
OFF	Disable HDD & FDD Ports Activity to Wake up system from sleep mode or prevent system to enter sleep mode.

- **PCI master**

ON	Enable PCI master Activity to Wake up system from sleep mode or prevent system to enter sleep mode.
OFF	Disable PCI master Activity to Wake up system from sleep mode or prevent system to enter sleep mode. **(Default value)**

PnP/PCI Configurations

```
         CMOS Setup Utility-Copyright( C ) 1984-2001 Award Software
                         PnP/PCI Configurations
┌──────────────────────────────────────────────┬─────────────────────┐
│ Resources Controlled By        Auto           │      Item Help      │
│ X IRQ Resources                Press Enter     │                     │
│ PCI 4 IRQ Assignment           Auto            │  Menu Level  ▸      │
│ PCI 1/5 IRQ Assignment         Auto            │  [Auto]             │
│ PCI 2 IRQ Assignment           Auto            │  Assign PnP resource │
│ PCI 3 IRQ Assignment           Auto            │  (I/O address, IRQ & │
│                                                │  DMA channels) for Plug │
│                                                │  and Play compatible │
│                                                │  devices automatically │
│                                                │                     │
│                                                │  [Manual]           │
│                                                │  Assign resource    │
│                                                │  manually           │
│                                                │                     │
│                                                │                     │
│                                                │                     │
├──────────────────────────────────────────────┴─────────────────────┤
│ ↑↓→ ←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: PnP/PCI Configurations

- **Resources Controlled by**

Manual	User can set the PnP resource (I/O Address, IRQ & DMA channels) used by legacy ISA DEVICE.
Auto(ESCD)	BIOS automatically use these PnP rescuers. **(Default value)**

- **IRQ (3, 4, 5, 7, 9, 10, 11, 12, 14, 15)**

PCI Device	The resource is used by PCI device. **(Default value)**
Reserved	Set the resource to reserved.

- **PCI 4 IRQ Assignment**

Auto	Auto assign IRQ to PCI4. (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 PCI4.

- **PCI 1/5 IRQ Assignment**

Auto	Auto assign IRQ to PCI1/5. (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 PCI1/5.

- **PCI 2 IRQ Assignment**

Auto	Auto assign IRQ to PCI2. (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 PCI2.

- **PCI 3 IRQ Assignment**

Auto	Auto assign IRQ to PCI3. (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 PCI3.

PC Health Status

```
┌···································································································┐
          CMOS Setup Utility-Copyright( C ) 1984-2001 Award Software
                               PC Health Status
 ┌──────────────────────────────────────────────────┬──────────────────┐
 │ Current CPU Temp.              57°C/134°F          │    Item Help     │
 │ Current System Temp.           31°C/87°F           ├──────────────────┤
 │ Current CPU Fan Speed          5553 RPM            │  Menu Level  ▶   │
 │ Current System Fan Speed       0 RPM               │                  │
 │ Vcore                          3.10V               │                  │
 │ 3.3V                           3.31V               │                  │
 │ 5V                             5.10V               │                  │
 │ 12V                            12.42V              │                  │
 │ CPU Warning Temperature        Disabled            │                  │
 │ CPU Fan Warning                No                  │                  │
 │ System Fan Warning             No                  │                  │
 │                                                    │                  │
 │                                                    │                  │
 │                                                    │                  │
 │                                                    │                  │
 │                                                    │                  │
 │                                                    │                  │
 └──────────────────────────────────────────────────┴──────────────────┘
 ↑↓→ ←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: PC Health Status

- **Current CPU Temp. (°C / °F)**

  Detect CPU Temperature automatically.

- **Current System Temp. (°C / °F)**

  Detect System Temperature automatically.

- **Current CPU Fan / System Fan Speed (RPM)**

  Detect Fan speed status automatically.

- **Voltage (V) Vcore / 3.3V / 5V / 12V**

  Detect system's voltage status automatically.

- **CPU Warning Temperature (°C / °F)**

60°C / 140°F	Monitor CPU Temp. at 60°C / 140°F.
70°C / 158°F	Monitor CPU Temp. at 70°C / 158°F.
80°C / 176°F	Monitor CPU Temp. at 80°C / 176°F.
90°C / 194°F	Monitor CPU Temp. at 90°C / 194°F.
Disabled	Disable this function. **(Default value)**

- **CPU Fan Warning**

No	Disable this function. **(Default value)**
Yes	Enable CPU Fan Warning function to display warning message when CPU Fan speed is under lower limit RPM.

- **System Fan Warning**

No	Disable this function. **(Default value)**
Yes	Enable System Fan Warning function to display warning message when System Fan speed is under a lower limit RPM.

Frequency/Voltage Control

```
CMOS Setup Utility-Copyright( C ) 1984-2001 Award Software
                  Frequency/Voltage Control
┌──────────────────────────────────────────┬─────────────────────┐
│ AGP Voltage Control            Normal     │      Item Help      │
│ DDR Voltage Control            Normal     │                     │
│ CPU Frequency Control          Disabled   │   Menu Level  ▶     │
│ X CPU Clock                    100        │                     │
│ CPU OverVoltage Control        Normal     │                     │
│ Normal CPU Vcore               1.600V     │                     │
│                                           │                     │
│                                           │                     │
│                                           │                     │
│                                           │                     │
│                                           │                     │
│                                           │                     │
│                                           │                     │
│                                           │                     │
└──────────────────────────────────────────┴─────────────────────┘
  ↑↓→ ←Move Enter:Select +/-/PU/PD:Value  F10:Save  ESC:Exit   F1:General Help
        F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults
```

Figure 9: Frequency/Voltage Control

- **AGP Voltage Control**

Normal	Normal Operation. **(Default value)**
1.6V	Set AGP Voltage Control to 1.6V.
1.7V	Set AGP Voltage Control to 1.7V.

- **DDR Voltage Control**

Normal	Normal Operation. **(Default value)**
2.73V	Set DDR Voltage Control to 2.73V.
2.83V	Set DDR Voltage Control to 2.83V.

- **CPU Frequency Control**

Disabled	Disable this function. **(Default value)**
Enabled	Enable this function to setup your CPU clock.

- **CPU Clock**

    This item will be available when ″CPU Frequency″ is set to Enabled.

- **CPU OverVoltage Control**

    Supports adjustable CPU Vcore from 1.100V to 1.850V by 0.025V step.

    (Default value: Normal)

- **Normal CPU Vcore**

    CPU Vcore.

Load Fail-Safe Defaults

```
        CMOS Setup Utility-Copyright( C ) 1984-2001 Award Software

    ▸ Standard CMOS Features          ▸ Frequency/Voltage Control

    ▸ Advanced BIOS Features          Load Fail - Safe Defaults

    ▸ Advanced Chipset Features       Load Optimized Defaults

    ▸ Integrated Peripherals          Set Supervisor Password

    ▸ Power Ma
                      Load Fail-Safe Defaults (Y/N)? N
    ▸ PnP/PCI C

    ▸ PC Health Status                Exit Without Saving

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

                    Load Fail-Safe Defaults
```
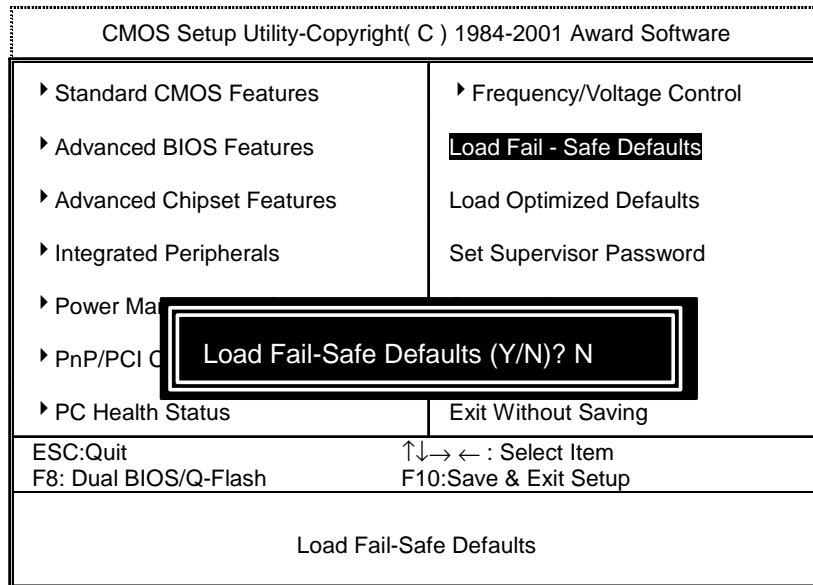
Figure 10: Load Fail-Safe Defaults

- **Load Fail-Safe Defaults**

    Fail–Safe defaults contain the most appropriate system parameter values of to configure
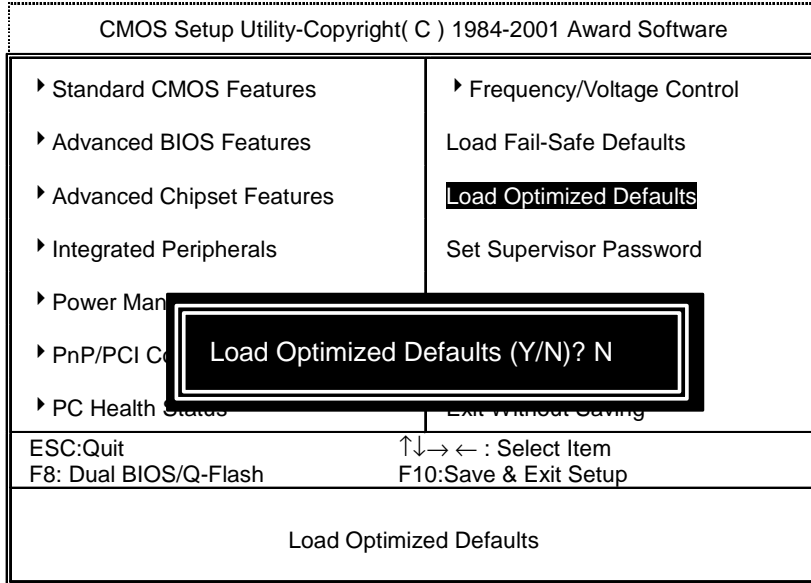   the system to achieve maximum stability.

Load Optimized Defaults

```
........................................................................
:        CMOS Setup Utility-Copyright( C ) 1984-2001 Award Software      :
 ┌──────────────────────────────────┬──────────────────────────────────┐
 │  ▶ Standard CMOS Features        │  ▶ Frequency/Voltage Control      │
 │                                   │                                   │
 │  ▶ Advanced BIOS Features        │    Load Fail-Safe Defaults         │
 │                                   │                                   │
 │  ▶ Advanced Chipset Features     │    Load Optimized Defaults         │
 │                                   │                                   │
 │  ▶ Integrated Peripherals        │    Set Supervisor Password         │
 │                                   │                                   │
 │  ▶ Power Man┌─────────────────────────────────────┐                  │
 │             │                                     │                  │
 │  ▶ PnP/PCI C│   Load Optimized Defaults (Y/N)? N   │                  │
 │             │                                     │                  │
 │  ▶ PC Health└─────────────────────────────────────┘                  │
 ├──────────────────────────────────┴──────────────────────────────────┤
 │  ESC:Quit                        ↑↓→ ← : Select Item                 │
 │  F8: Dual BIOS/Q-Flash           F10:Save & Exit Setup               │
 ├──────────────────────────────────────────────────────────────────────┤
 │                         Load Optimized Defaults                        │
 └──────────────────────────────────────────────────────────────────────┘
```

Figure 11: Load Optimized Defaults

● **Load Optimized Defaults**

Optimized defaults contain the most appropriate system parameter values to configure the system to achieve maximum performance.

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.
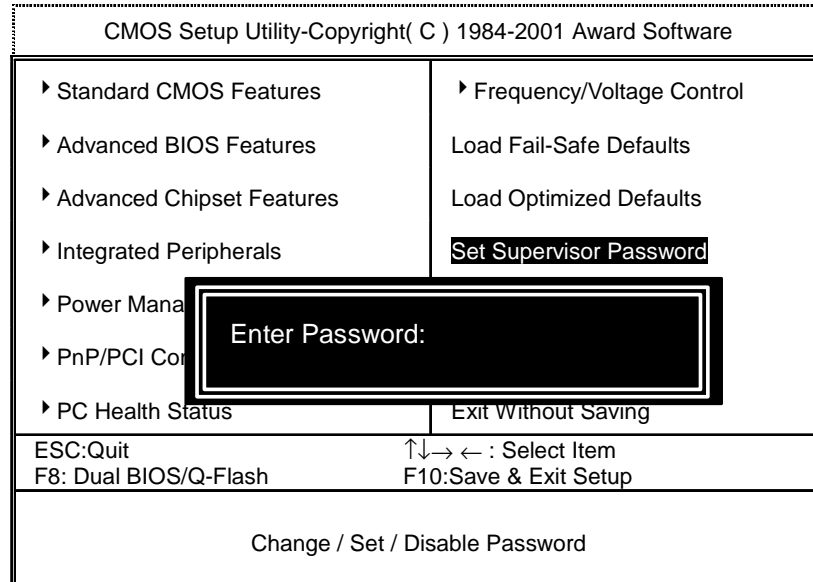
```
         CMOS Setup Utility-Copyright( C ) 1984-2001 Award Software

   ▶ Standard CMOS Features           ▶ Frequency/Voltage Control

   ▶ Advanced BIOS Features           Load Fail-Safe Defaults

   ▶ Advanced Chipset Features        Load Optimized Defaults

   ▶ Integrated Peripherals           Set Supervisor Password

   ▶ Power Mana┌─────────────────────────────────┐
               │                                 │
   ▶ PnP/PCI Co │    Enter Password:              │
               │                                 │
   ▶ PC Health S└─────────────────────────────────┘ing

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

                Change / Set / Disable Password
```

Figure 12: Password Setting

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: a **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 Advanced BIOS Feature 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 Advanced BIOS Feature Menu, you will be prompted only when you try to enter Setup.
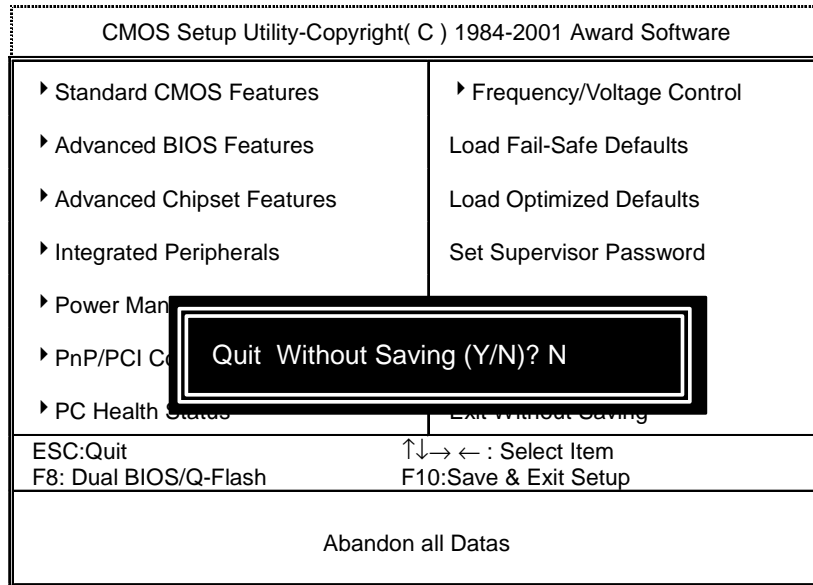
Save & Exit Setup

```
┌·····································································┐
:          CMOS Setup Utility-Copyright( C ) 1984-2001 Award Software          :
└·····································································┘
┌──────────────────────────────────────────────────────────────────┐
│  ▶ Standard CMOS Features          │    ▶ Frequency/Voltage Control   │
│                                    │                                  │
│  ▶ Advanced BIOS Features          │    Load Fail-Safe Defaults       │
│                                    │                                  │
│  ▶ Advanced Chipset Features       │    Load Optimized Defaults       │
│                                    │                                  │
│  ▶ Integrated Peripherals          │    Set Supervisor Password       │
│                                    │                                  │
│  ▶ Power Man ┌──────────────────────────────────────┐              │
│              │                                        │              │
│  ▶ PnP/PCI C │   SAVE to CMOS and EXIT (Y/N)? Y      │              │
│              │                                        │              │
│  ▶ PC Health │                                        │              │
├──────────────└──────────────────────────────────────┘──────────────┤
│  ESC:Quit                          ↑↓→ ← : Select Item              │
│  F8: Dual BIOS/Q-Flash             F10:Save & Exit Setup            │
├──────────────────────────────────────────────────────────────────┤
│                                                                    │
│                       Save Data to CMOS                            │
└──────────────────────────────────────────────────────────────────┘
```

Figure 13: Save & Exit Setup

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

Type "N" will return to Setup Utility.

Exit Without Saving

```
┌─────────────────────────────────────────────────────────────┐
│      CMOS Setup Utility-Copyright( C ) 1984-2001 Award Software      │
├──────────────────────────────┬──────────────────────────────┤
│ ▶ Standard CMOS Features     │  ▶ Frequency/Voltage Control  │
│                              │                              │
│ ▶ Advanced BIOS Features     │    Load Fail-Safe Defaults    │
│                              │                              │
│ ▶ Advanced Chipset Features  │    Load Optimized Defaults    │
│                              │                              │
│ ▶ Integrated Peripherals     │    Set Supervisor Password    │
│                              │                              │
│ ▶ Power Man┌───────────────────────────────────────┐        │
│            │                                       │        │
│ ▶ PnP/PCI C│   Quit  Without Saving (Y/N)? N       │        │
│            │                                       │        │
│ ▶ PC Health└───────────────────────────────────────┘ving    │
├──────────────────────────────┴──────────────────────────────┤
│ ESC:Quit                  ↑↓→ ← : Select Item               │
│ F8: Dual BIOS/Q-Flash     F10:Save & Exit Setup             │
├─────────────────────────────────────────────────────────────┤
│                    Abandon all Datas                        │
└─────────────────────────────────────────────────────────────┘
```

Figure 14: Exit Without Saving

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

Type "N" will return to Setup Utility.

Technical Support / RMA Sheet

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

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

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

 Problem Description:

_____

_____

Appendix

Picture below are shown in Windows ME (TUCD driver version: 1.91)

Appendix A: AMD 761_VIA 686A/B Chipsets Driver Installation

A.AMD AGP Miniport Driver (Win98/SE/ME only):

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.
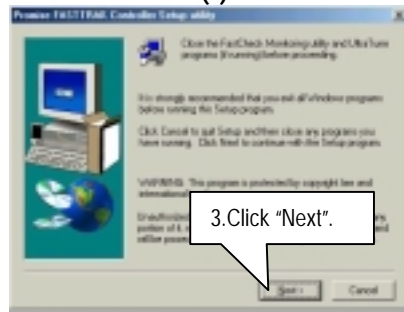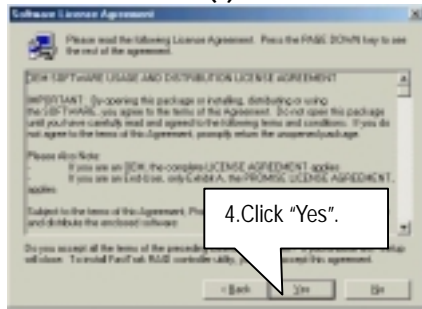

1.Click "AMD AGP Miniport Driver" item.

(1)

2.Click "Next".

(2)

(3)

3.Click "Finish".

(4)

4.Click "OK" to restart computer.
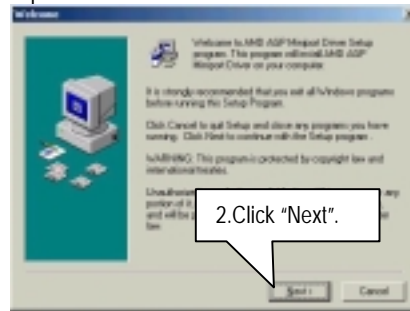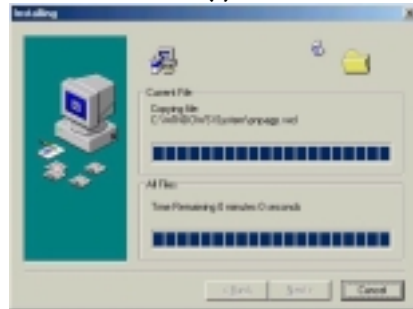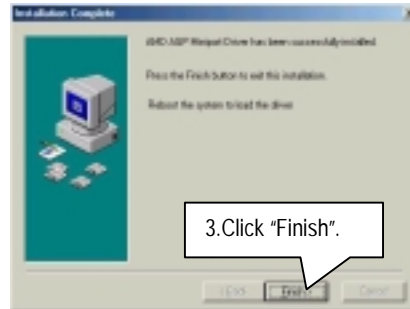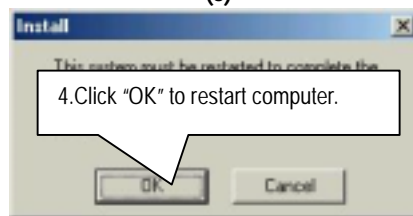
(5)

B: VIA Bus Master IDE Filter Driver 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.
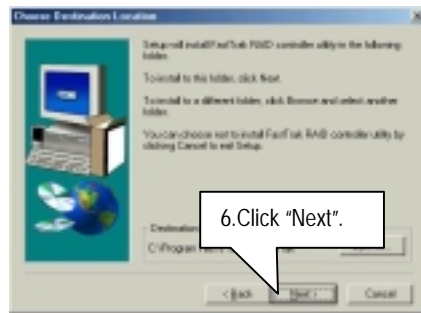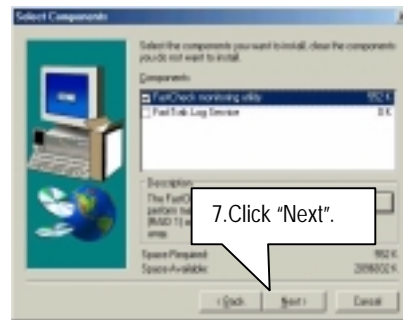

1.Click "VIA Bus Master IDE Filter Driver" item.

(1)

2.Click "Next".

(2)

3.Click "Next".

(3)

4.Click "Finish" to restart computer.
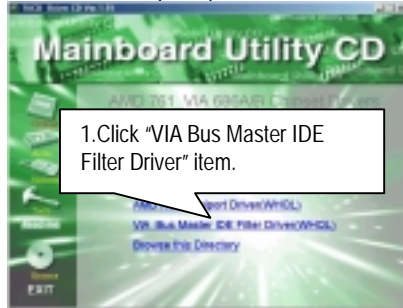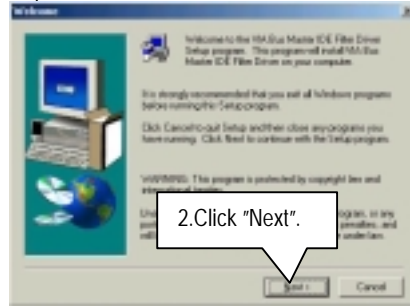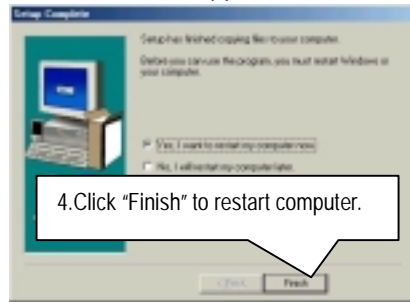
(4)

Appendix B: Promise 276 RAID and usb Driver Installation* ("*" For GA-7DXR+ only.)

A. Promise RAID Driver 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.

1.Click "Other Device".

(1)

2. Refer "Driver Information" to setup your system.
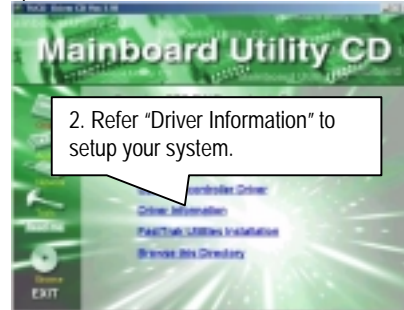
(2)

For your reference, you can use the following steps to complete the Promise RAID Driver Installation.

3.Click "Control Panel".

(3)

4.Click "System".

(4)

5.Click here.

6.Click here.

(5)

7.Click here.

(6)

(7)

8.Click here.

9.Click "Next".

(8)

10.Click here.

11.Click "Next".

(9)

12.Click "SCSI controllers".

13.Click "Next".

(10)

14.Click "Have Disk".

(11)

16.Click "OK".

15.Type"D:\Other\Promise\20276\Ideraid\
win9x-ME"
(This manual assumes that your CD-ROM
device drive letter is D:).

(12)

17.Click "Next".

(13)

18.Click "Next".

(14)

19.Click "Finish".

20.Click "Yes" to restart computer.
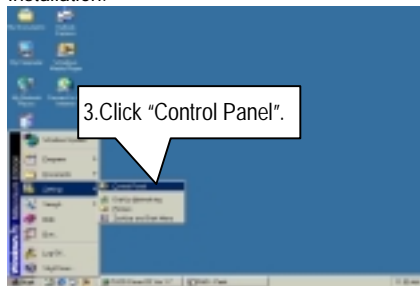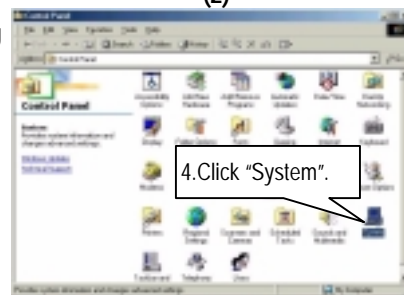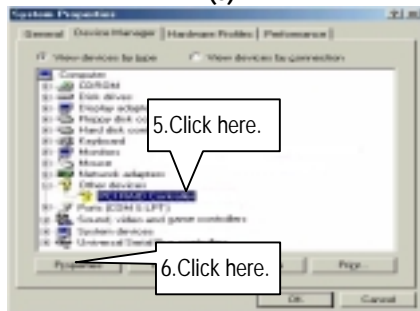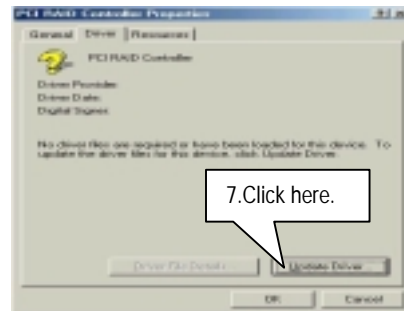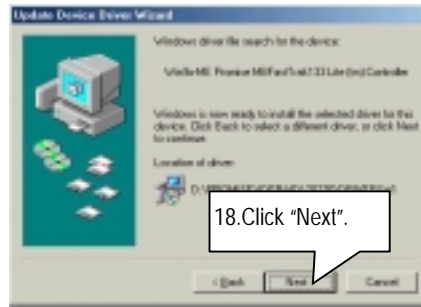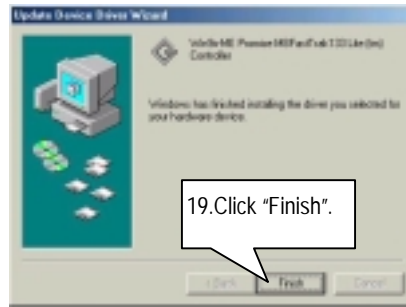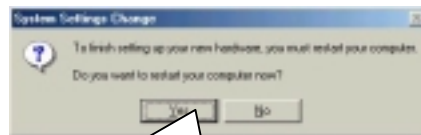
(15)

▶**If you want to realize the setup information in detail, please refer to the "Driver Information" for setting your system completely.**

B. FastTrak 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.
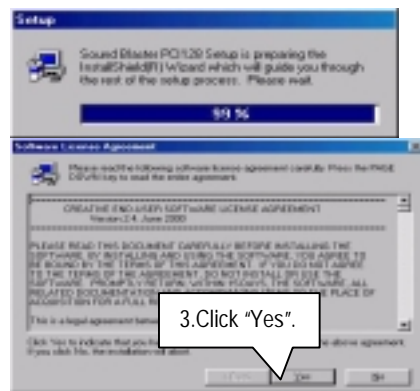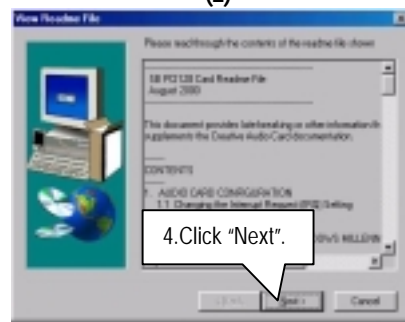

1.Click "Other Device".

(1)

2.Click "FastTrak Utilities Installation".

(2)

(3)

3.Click "Next".

(4)

4.Click "Yes".

(5)

5.Click "Next".

(6)

(7)

(8)

6.Click "Next".

7.Click "Next".

(9)

(10)

8.Click "Next".

9.Click "Next".

(11)

(12)

10.Click "Next".

11.Click "Finish" to restart computer.
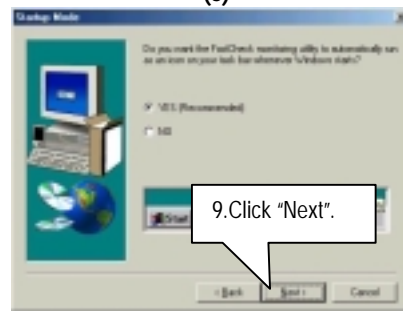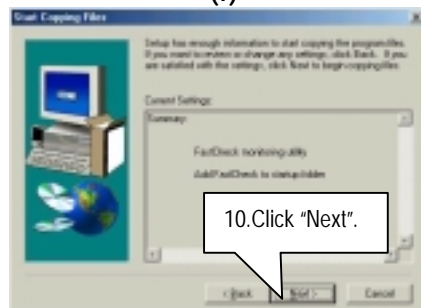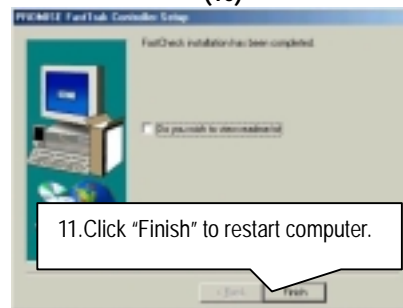
C. Usb Host Controller Driver:

If you would like to install Usb driver, please refer to attached README.txt file for detail instruction. Please install the driver through CD-ROM by the path D:\Other\USB2v11 (This manual assumes that your CD-ROM device drive letter is D:).

1.Click "Other Device".

(1)

2.Click "Usb Host controller Driver".
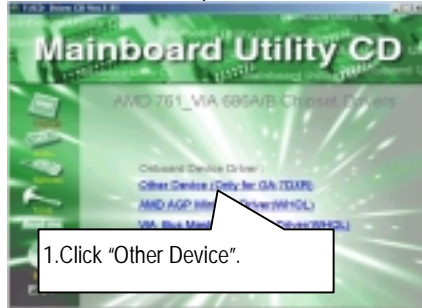
(2)
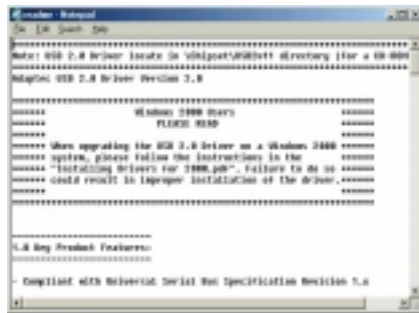
(3)

Appendix C: Creative Sound Driver 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 "Audio" icon.

1.Click "Creative 5880 Sound Driver".

(1)

2.Click "OK".

If "Oozic Player 3.0" item is selected, it will automatically be installed right after "Creative Sound Blaster PCI128 Software" installation.

(2)

3.Click "Yes".

(3)
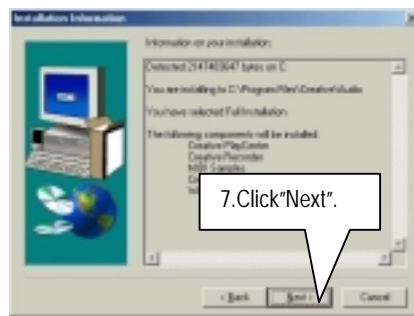

4.Click "Next".

(4)

"*" For GA-7DXR+ only.

(5) 5.Click "Next".

(6) 6.Click here.

(7) 7.Click"Next".

(8)

(9) 8.Click "Finish" to complete setup.
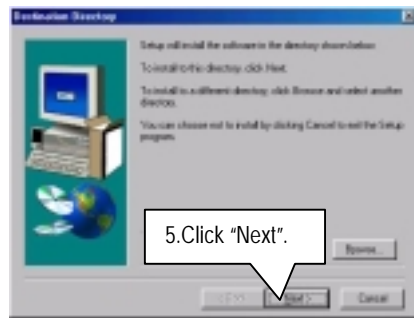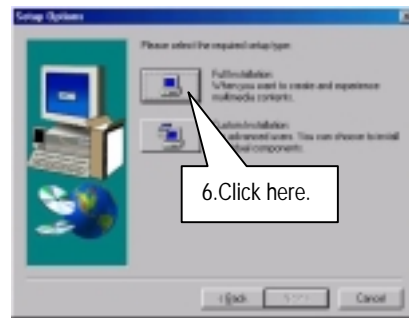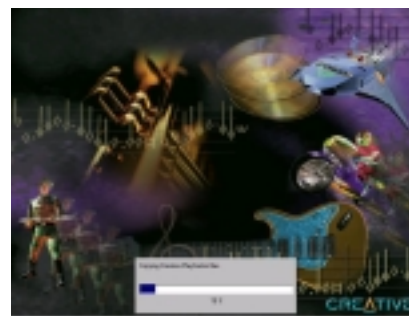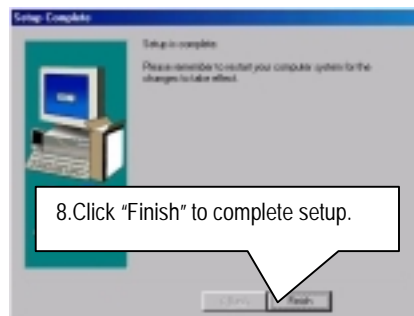
Oozic Player Installation:

(1)

1.Click "Next".
(2)

2.Click "Yes".
(3)

3.Click "Next".
(4)

4.Click "Next".
(5)

(6)

5.Click "Next".
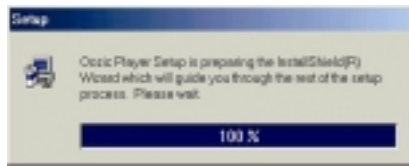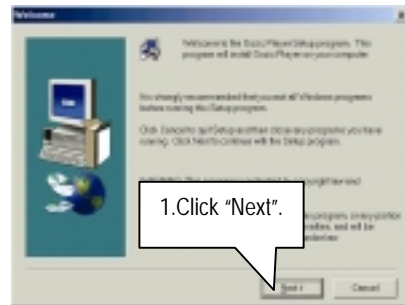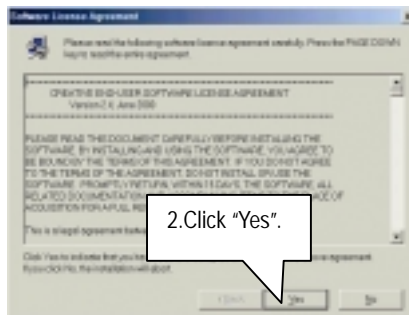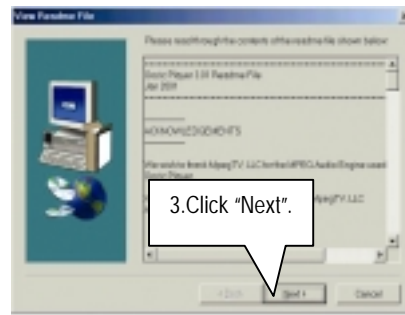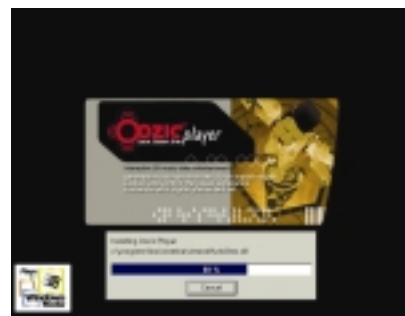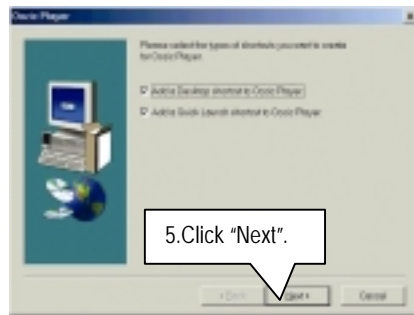
(7)
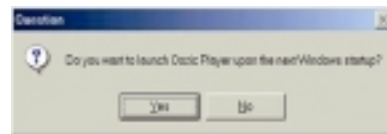
Please base on your actual requirement, select "Yes" or "No" accordingly.

(8)

6. Click "Finish" to restart computer.
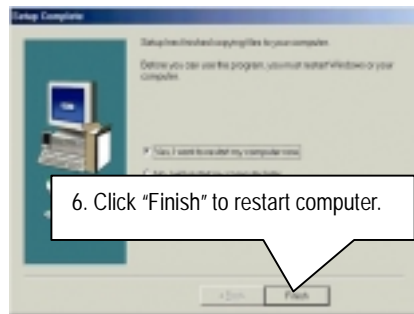
(9)

Appendix D: EasyTune**III** 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 "EasyTuneIII Ver.3.3".

(2)

3.Click "Next".

(3)

4. Please enter your name and company name, then click "Next".

(4)

5.Click "Next".

(5)

6.Click "Next".

(6)

(7)

7. Click "Finish" to restart computer.
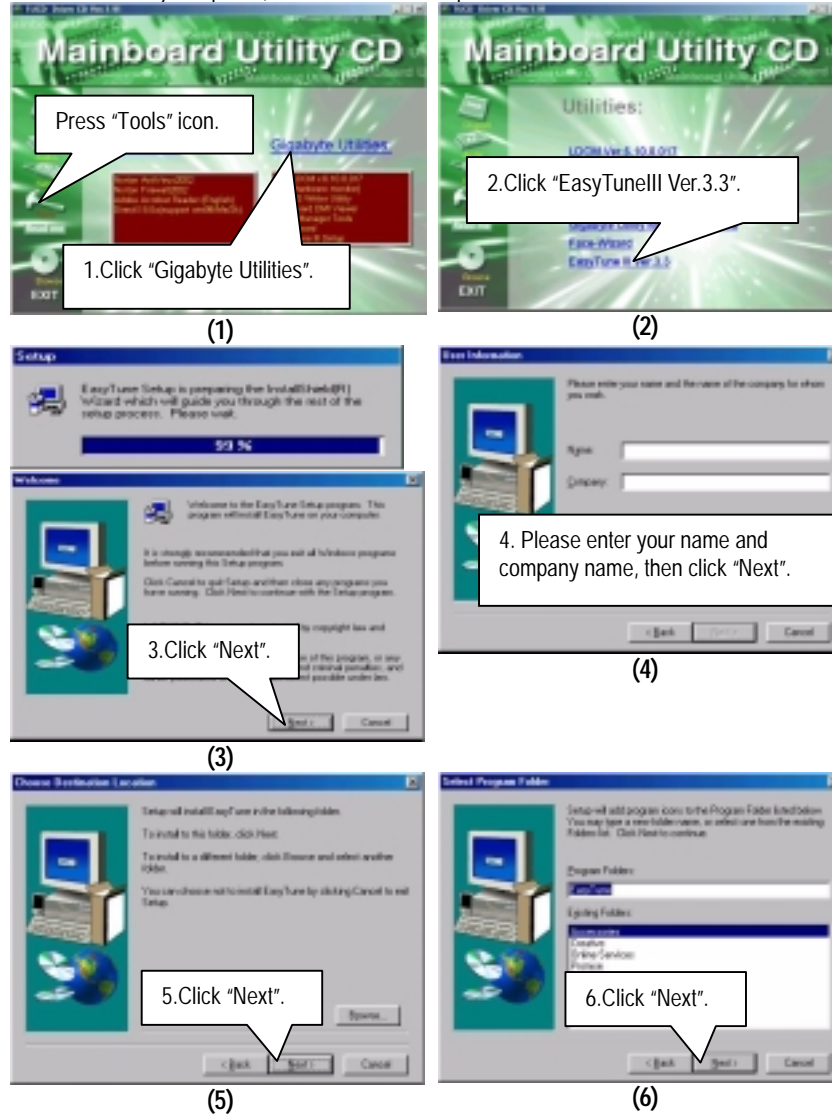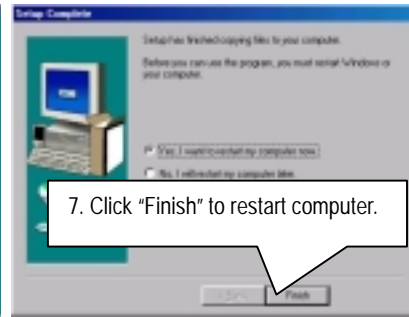
(8)

Appendix E: BIOS Flash Procedure

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 v1.08L".

(2)

Click "✓".   Click Here.

(3)
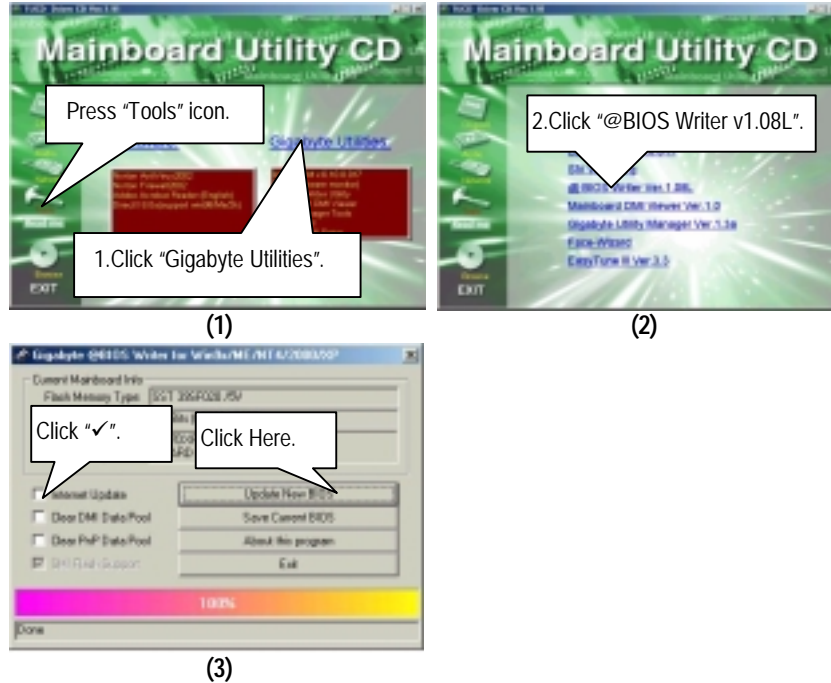
Methods and steps:

I. Update BIOS through Internet

a. Click "Internet Update" icon

b. Click "Update New BIOS" icon

c. Select @BIOS™ sever ("Gigabyte @BIOS™ sever 1 in Taiwan" and "Gigabyte @BIOS™ sever 2 in Taiwan" are available for now, the others will be completed soon)

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: 7DXR+.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 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

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). For more detail please refer to page 75.

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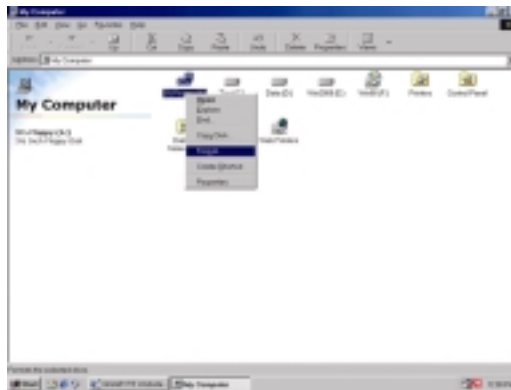
(2) Select the "Quick (erase)" for Format Type, and pick both "Display summary when finished" and "Copy system files", after that press "Start".   That will format the floppy and transfer the needed system files to it.

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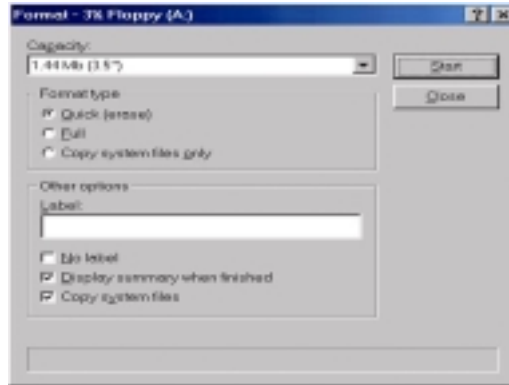
(3) After the floppy has been formatted completely, please press "Close".
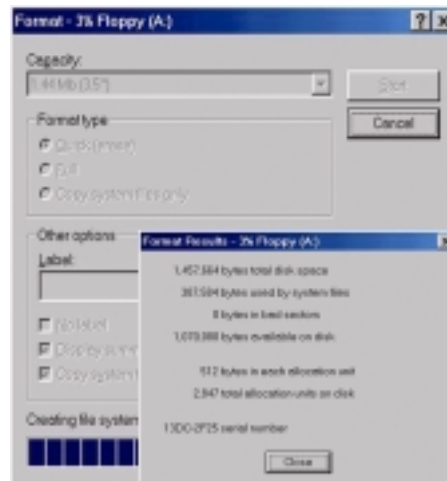
STEP 3: Download BIOS and BIOS utility program.

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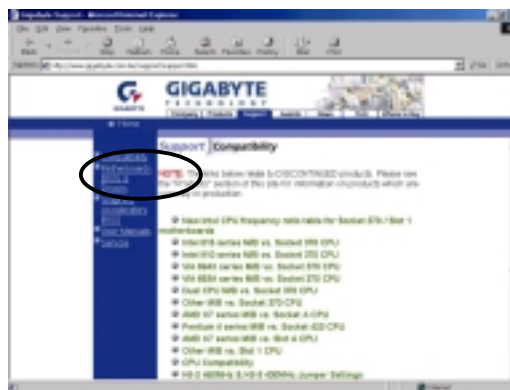
(3) We use GA-7VTX motherboard as example. Please select GA-7VTX by Model or Chipset optional menu to obtain BIOS flash files.
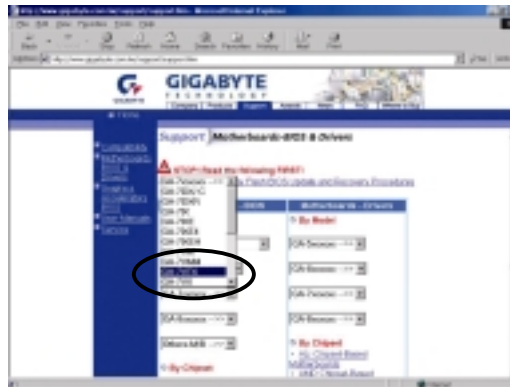
(4) Select an appropriate BIOS version (For example: F4), and click to download the file. It will pop up a file download screen, then select the "Open this file from its current location" and press "OK".
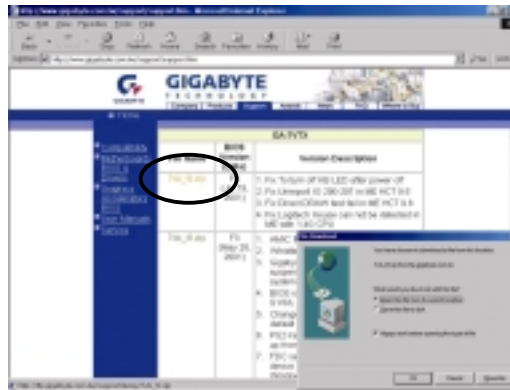
(5) At this time the screen shows the following picture, please click "Extract" button to unzip the files.
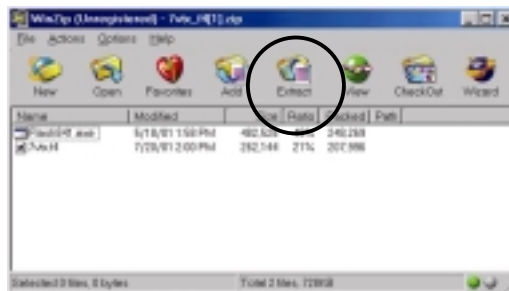
(6) Please extract the download files into the clean bootable floppy disk A mentioned in STEP 2, and press "Extract".
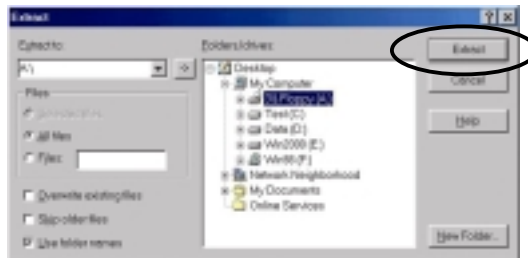
STEP 4: Make sure the system will boot from the floppy disk.

(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 Megatrends
7VTX F1
Check System Health ok,
AMD-Athlon™ Processor-900MHz
Check 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
```
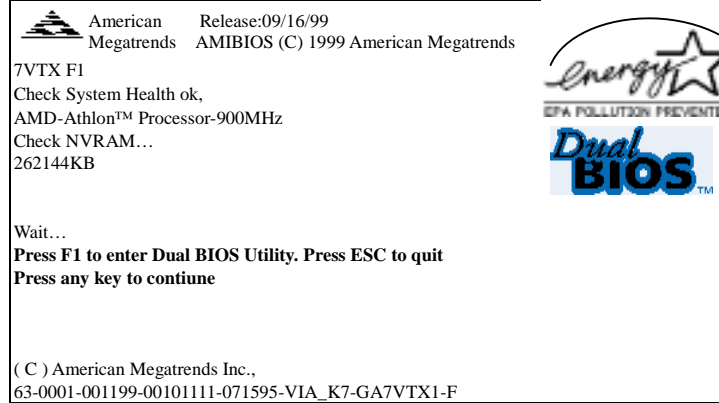
(2) Once you enter the BIOS setup utility, the main menu will appear on the screen. Use the arrows to highlight the item "BIOS FEATURES SETUP".

```
┌─────────────────────────────────────────────────────────────────┐
│            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, …                   │
└─────────────────────────────────────────────────────────────────┘
```

(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 CMOS SETUP
( C ) 1999 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
Floppy Drive Seek        :Disabled
Password Check           :Setup




                                     ESC :Quit          ↑↓←→: Select Item
                                     F1  : Help          PU/PD/+/- : Modify
                                     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 ) 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 MANAGEME
                    SAVE to CMOS and EXIT(Y/N)? Y
PNP/PCI CONFIGURA                              ON

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
```

126
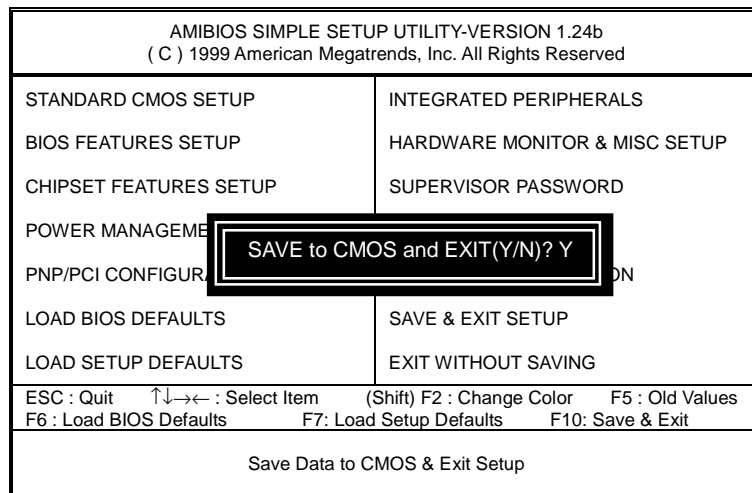
STEP 5: BIOS flashing.

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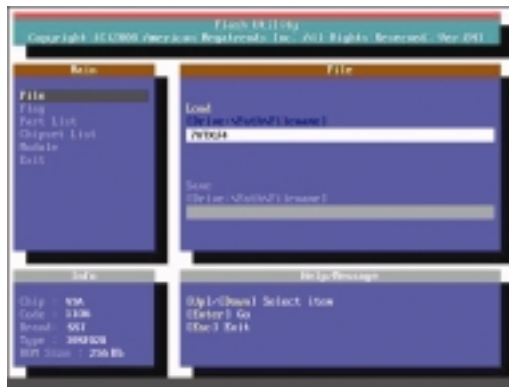
(3) It will pop up a screen and asks "Are you sure to flash the BIOS?" Press [Enter] to continue the procedure, or press [ESC] to quit.

Beware: Please do not turn off the system while you are upgrading BIOS. It will render your BIOS corrupted and system totally inoperative.
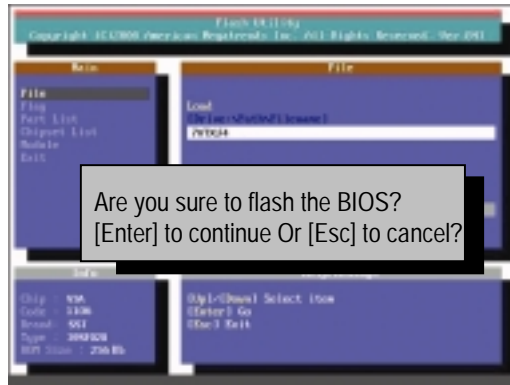
(4) The BIOS flash completed. Please press [ESC] to exit Flash Utility.

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.

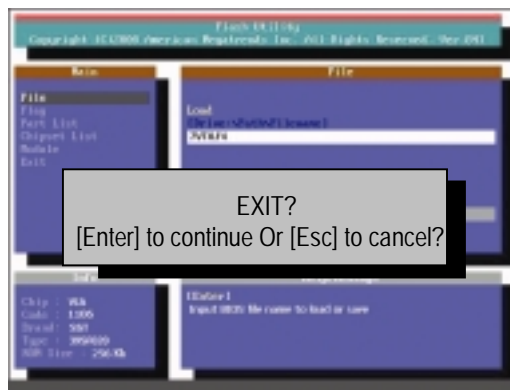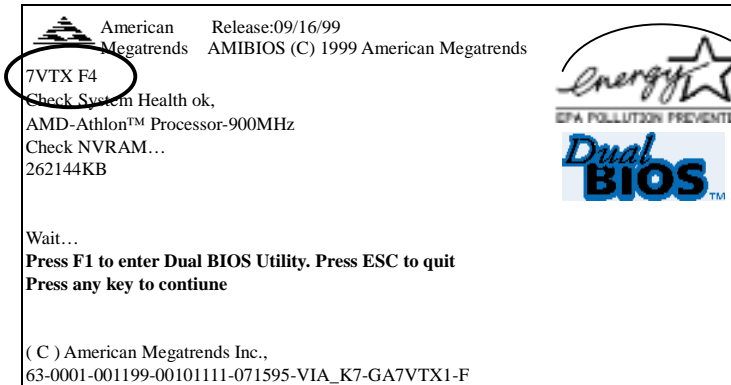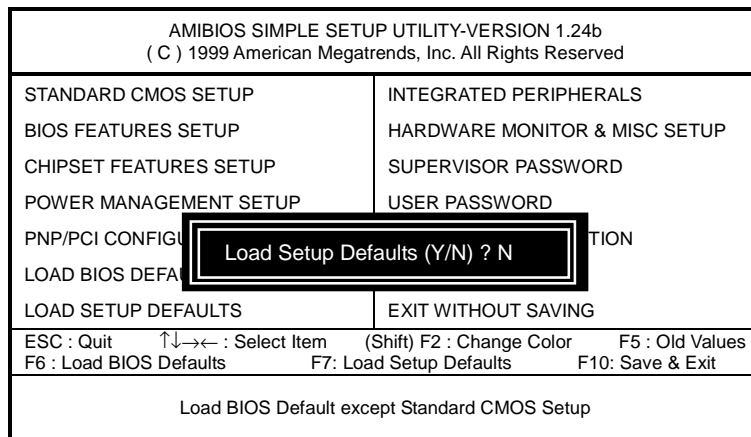(1) Take out the floppy diskette from floppy drive, and then restart the system. The boot up screen will indicate your motherboard model and current BIOS version.

```
   American      Release:09/16/99
   Megatrends   AMIBIOS (C) 1999 American Megatrends
7VTX F4
Check System Health ok,
AMD-Athlon™ Processor-900MHz
Check 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 ) 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 CONFIGU┌──────────────────────────────┐TION
               │  Load Setup Defaults (Y/N) ? N │
LOAD BIOS DEFA └──────────────────────────────┘

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 BIOS Default except Standard CMOS Setup
```

(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 ) 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 MANAGEME
                   SAVE to CMOS and EXIT(Y/N)? Y
PNP/PCI CONFIGURA                                    ON

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.

Appendix F: 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
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

To be continued…

Acronyms	Meaning
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