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Notice:

1. Owing to Microsoft's certifying schedule is various to every supplier, we might have some drivers not certified yet by Microsoft. Therefore, it might happen under Windows XP that a dialogue box (shown as below) pop out warning you this software has not passed Windows Logo testing to verify its compatibility with Windows XP. Please rest assured that our RD department has already tested and verified these drivers. Click the "Continue Anyway" button and go ahead the installation.

2. USB 2.0 Driver Limitations:

   2-1 The USB 2.0 driver only supports Windows XP and Windows 2000.

   2-2 If you connect a USB 2.0 hub to the root hub, plugging USB devices into this hub, the system might not successfully execute certain USB devices' connection because it could not recognize these devices.

Table of Contents

Chapter 1

Introduction

This mainboard has a **Socket-478** processor socket for **Intel Pentium 4** type of processors supporting front side bus (FSB) speeds up to **533 MHz**.

This mainboard has the **VIA P4X333** Northbridge and VT8235/8233ACE Southbridge chipsets that support **AC 97 audio codec**, and provide **Ultra DMA** 33/66/**100/133** function. If the VT8235 SB is installed, the mainboard supports built-in **USB 2.0** providing higher bandwidth, implements **Universal Serial Bus Specification Revision 2.0** and is compliant with **UHCI 1.1** and **EHCI 0.95**; if the 8233ACE SB, it doesn't support USB2.0 and without LAN. This mainboard has four 32-bit PCI slots, one 4x**AGP** slot, one **CNR** (Communications and Networking Riser) slot, and an onboard **10BaseT/100BaseTX Network** interface (optional).

There is a full set of I/O ports including two PS/2 ports for mouse and keyboard, two serial ports, one parallel port, one MIDI/game port and maximum six USB ports --two back-panel ports and onboard USB headers make four extra USB ports by connecting the Extended USB Module to the mainboard.

This mainboard is an **ATX** mainboard that uses a 4-layer printed circuit board and measures 305 x 244mm.

Key Features

This mainboard has these key features:

Socket-478 Processor

- ◆ The PGA Socket 478
- ◆ Supports **Intel Pentium 4 series** CPUs
- ◆ Supports up to 533 MHz Front-Side Bus

Chipset

There are **P4X333 Northbridge** and **VT8235 / 8233ACE Southbridge** in this chipset in accordance with an innovative and scalable architecture with proven reliability and performance. Here is a list of the chipset arrangement and their respective features:

Northbridge	Southbridge	Function
P4X333	VT8235	CPU FSB: 533MHz Ultra DMA ATA133 DDR333
P4X333	**VT8233ACE**	CPU FSB: 533MHz Ultra DMA ATA133 DDR333, **without LAN, without USB 2.0**

A few of the chipset's advanced features are:

- ◆ An advanced V-Link memory controller architecture that provides the bandwidth up to 533 MB/s and performance necessary for even the most demanding Internet and 3D graphics
- ◆ Support for an 4xAGP interface providing vivid 3D graphics and video performance
- ◆ An ATA 133 interface on the chipset, which helps boost system performance by providing a high-speed connection to ATA 133 Hard Disk Drives, delivering maximum sustained data transfer rates of 133 MB/sec

Additional key features include support for six USB ports, an AC 97 link for audio and modem, hardware monitoring, and ACPI/OnNow power management.

Memory Support

♦ The mainboard accommodates 2 DDR + 2 SDR 168 pin, 3.3V DIMM sockets with a total capacity of 1 GB system memory.

♦ Supports DDR up to **333MHz** memory bus

VGA

♦ This mainboard includes a 4xAGP slot that provides four times the bandwidth of the original AGP specification. AGP technology provides a direct connection between the graphics sub-system and memory so that the graphics do not have to compete for processor time with other devices on the PCI bus.

AC'97 Audio Codec

♦ 16-bit stereo full-duplex CODEC with fixed 48KHz sampling rate

♦ 3 analog line-level stereo inputs with 5-bit volume control: LINE-IN, CD-IN, AUX-IN

♦ 1 analog line-level mono input: PHONE-IN

♦ Compliant with AC' 97 2.1 specification

♦ Three Audio Jacks – Line-Out, Line-In and Microphone-In

♦ Sound Blaster, Sound Blaster Pro Compatible

♦ Digital I/O compatible with consumer mode S/PDIF

♦ Advanced power management support

Expansion Options

The mainboard comes with the following expansion options:

♦ Four 32-bit PCI slots capable of Ultra DMA bus mastering with transfer rates of 33/66/100/133 MB/sec

♦ An 4xAGP slot

♦ A CNR (Communications and Networking Riser) slot

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Onboard I/O Ports

The mainboard has a full set of I/O ports and connectors:

♦ Two PS/2 ports for mouse and keyboard
♦ Two serial ports
♦ One parallel port
♦ One MIDI/game port
♦ Six USB ports (two back-panel ports, onboard USB headers providing maximum four extra ports: headers USB1 & USB2)
♦ Audio jacks for microphone, line-in and line-out

Fast Ethernet LAN (for VT8235 SB only)

♦ Built-in **10BaseT/100BaseTX Ethernet LAN**
♦ VT8235 integrates Fast Ethernet MAC and VT6103 LAN PHY in compliance with IEEE802.3u 100BASE-TX, 10BASE-T and ANSI X3.263 TP-PMD standards
♦ In compliance with ACPI 1.0 and the Network Device Class Power Management 1.0
♦ High Performance achieved by 100Mbps clock generator and data recovery circuit for 100Mbps receiver

USB 2.0 (for VT 8235 SB only)

♦ Compliant with Universal Serial Bus Specification Revision 2.0
♦ Compliant with Intel's Enhanced Host Controller Interface Specification Revision 0.95
♦ Compliant with Universal Host Controller Interface Specification Revision 1.1
♦ PCI multi-function device consists of two **UHCI Host Controller** cores for full-/low-speed signaling and one **EHCI Host Controller** core for high-speed signaling
♦ Root hub consists 4 downstream facing ports with integrated physical layer transceivers shared by **UHCI** and **EHCI** Host Controller
♦ Support PCI-Bus Power Management Interface Specification release 1.1
♦ Legacy support for all downstream facing ports

BIOS Firmware

This mainboard uses AMI BIOS that enables users to configure many system features including the following:

- ◆ Power management
- ◆ Wake-up alarms
- ◆ CPU parameters and memory timing
- ◆ CPU and memory timing

The firmware can also be used to set parameters for different processor clock speeds.

Bundled Software

- ◆ **PC-Cillin 2000** provides automatic virus protection under Windows 98/ME/NT/2000/XP
- ◆ **MediaRing Talk** provides PC to PC or PC to Phone internet phone communication
- ◆ **Super Voice** is the data, fax and voice communication software.
- ◆ **Recovery Genius 21st V5.0** provides the function to recover, reserve and transfer hard disk data.
- ◆ **CD Ghost** is the software stimulating a real CD-ROM to perform equivalent function.
- ◆ **Language Genius 21st** is the software to provides learning tools of language and singing.
- ◆ **Page ABC** is the software to help you create your own home page.

Dimensions

- ◆ ATX form factor of 305 x 244mm

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Package Contents

Your mainboard package contains the following items:
- ❑ The mainboard
- ❑ The User's Manual
- ❑ One diskette drive ribbon cable
- ❑ One IDE drive ribbon cable
- ❑ Software support CD

Optional Accessories
You can purchase the following optional accessories for this mainboard.
- ❑ Extended USB module
- ❑ CNR v.90 56K Fax/Modem card

Static Electricity Precautions

Static electricity could damage components on this mainboard.
Take the following precautions while unpacking this mainboard
and installing it in a system.

1. Don't take this mainboard and components out of their original
   static-proof package until you are ready to install them.
2. While installing, please wear a grounded wrist strap if possible.
   If you don't have a wrist strap, discharge static electricity by
   touching the bare metal of the system chassis.
3. Carefully hold this mainboard by its edges. Do not touch those
   components unless it is absolutely necessary. Put this
   mainboard on the top of static-protection package with
   component side facing up while installing.

Pre-Installation Inspection

1. Inspect this mainboard whether there are any damages to
   components and connectors on the board.
2. If you suspect this mainboard has been damaged, do not
   connect power to the system. Contact your mainboard vendor
   about those damages.

Mainboard User's Manual

Chapter 2

Mainboard Installation

To install this mainboard in a system, please follow these instructions in this chapter:

❑ Identify the mainboard components
❑ Install a CPU
❑ Install one or more system memory modules
❑ Make sure all jumpers and switches are set correctly
❑ Install this mainboard in a system chassis (case)
❑ Connect any extension brackets or cables to connecting headers on the mainboard
❑ Install other devices and make the appropriate connections to the mainboard connecting headers

Note:
1. Before installing this mainboard, make sure jumper JBAT1 is under Normal setting. See this chapter for information about locating JBAT1 and the setting options.
2. Never connect power to the system during installation; otherwise, it may damage the mainboard.

Mainboard Components

Identify major components on the mainboard via this diagram underneath.
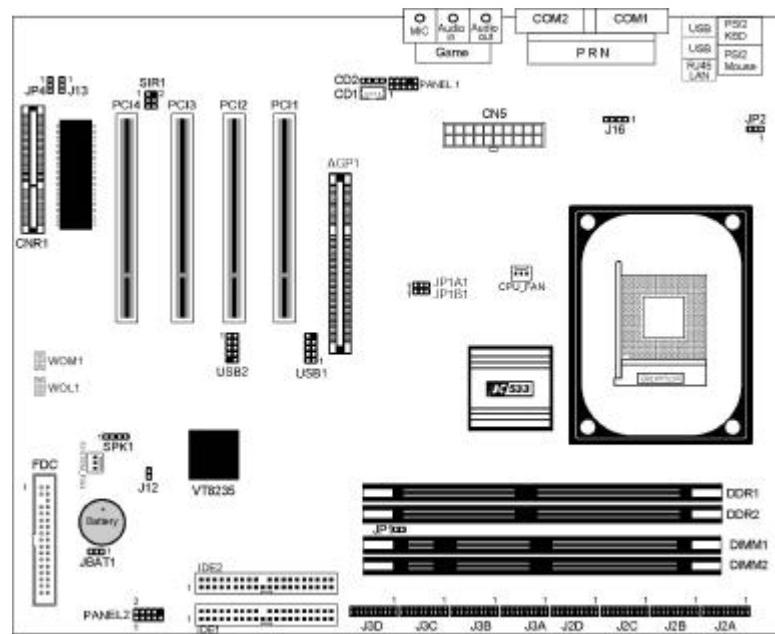
Note: Any jumpers on your mainboard that do not appear in this illustration are for testing only.

I/O Ports

The illustration below shows a side view of the built-in I/O ports on the mainboard.
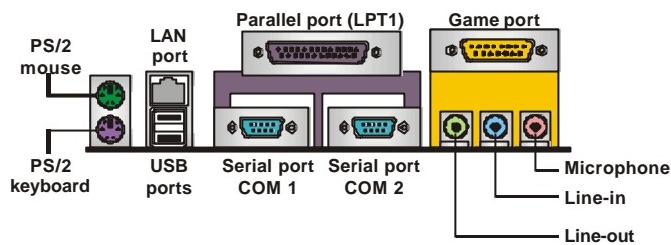
1. The upper PS/2 port connects a PS/2 pointing device.
2. The lower PS/2 port connects a PS/2 keyboard.
3. The USB ports connect USB devices.
4. LPT1 connects printers or other parallel communications devices.
5. The COM ports connect serial devices such as mice or fax/modems. COM1 is identified by the system as COM1/3. COM2 is identified by the system as COM2/4.
6. The game port connects a joystick or a MIDI device.
7. Three audio ports connect audio devices. The left side jack is for a stereo line-out signal. The middle jack is for a stereo line-in signal. The right side jack is for a microphone.
8. LAN port connects the network.

Installing the Processor

This mainboard has a Socket 478 processor socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

CPU Installation Procedure

Follow these instructions to install the CPU:

1. Unhook the CPU socket's locking lever by pulling it away from socket and raising it to the upright position.
2. Match the pin 1 corner of CPU socket to the one of processor, and insert the processor into the socket. Do not use force.
3. Push the locking lever down and hook it under the latch on the edge of socket.
4. Apply thermal grease to the top of the CPU.
5. Lower the CPU fan/heatsink unit onto the CPU and CPU socket, and then use the retention module clamps to snap the fan/heatsink into place.
6. Plug the CPU fan power cable into the CPU cooling fan power supply (CPU_FAN) on the mainboard.

Installing Memory Modules

This mainboard accommodates 168-pin 3.3V/184-pin 2.5V unbuffered SDRAM memory modules. The memory chips must be standard or registered SDRAM (Synchronous Dynamic Random Access Memory).

The CPU supports 100/133MHz system bus. The SDRAM DIMMs and DDRs can synchronously work with 100 MHz or operates over a 133 MHz system bus.

You must install at least one memory module in order to use the mainboard, **either SDRAM or DDR SDRAM, but you cannot use them simultaneously**.

DDR SDRAM provides 800 MB/s or 1 GB/s data transfer corresponding with the bus 100 MHz or 133 MHz. It doubles the rate to 1.6 GB/s and 2.1 GB/s by transferring data on both the rising and falling edges of the clock. DDR SDRAM uses additional power and ground lines and requires 184-pin 2.5V unbuffered DIMM module rather than the 168-pin 3.3V unbuffered DIMMs used by SDRAM.

DIMM1
DIMM2

DDR1
DDR2
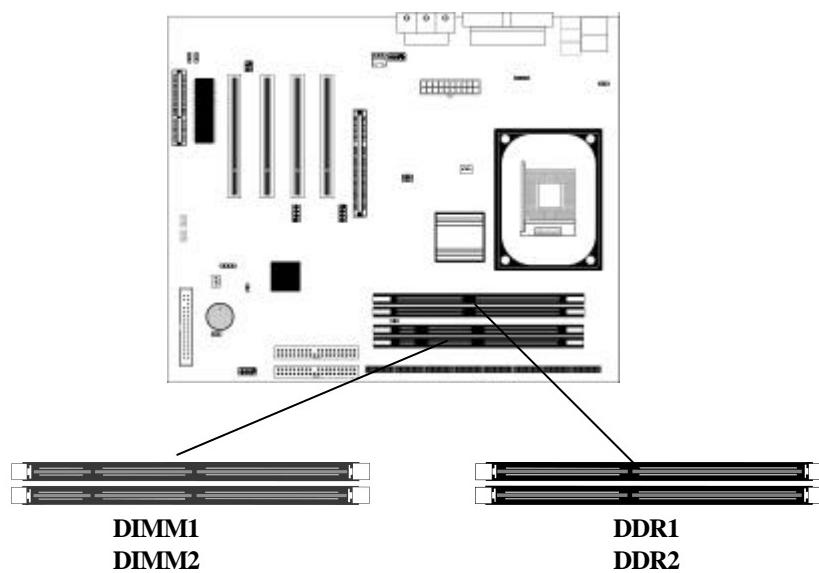
Installation Procedure

The mainboard accommodates two memory modules. You must
install at least one module in any of these sockets. Each module
can be installed with up to 1GB system memory.
Refer to the following to install the memory modules.

1. Push the latches on each side of the DIMM socket
   down.
2. Align the memory module with the socket. The
   DIMM sockets are keyed with notches and the
   DIMMs are keyed with cutouts so that they can
   only be installed correctly.
3. Check that the cutouts on the DIMM module edge
   connector match the notches in the DIMM socket.
4. Install the DIMM module into the slot and press it
   firmly down until it is seated correctly. The socket
   latches are levered upwards and latch on to the
   edges of the DIMM.
5. Install any remaining DIMM modules.
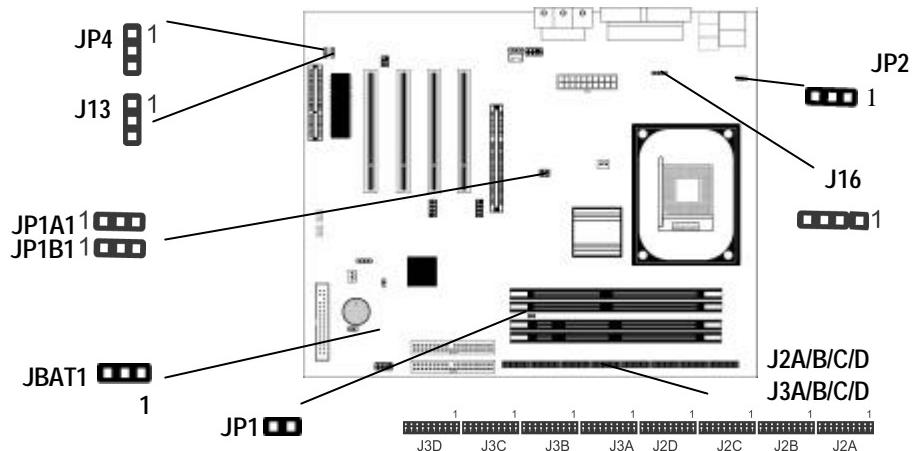
Jumper Settings

JBAT1: Clear CMOS Jumper

Use this jumper to clear the contents of the CMOS memory. You may need to clear the CMOS memory if the settings in the Setup Utility are incorrect and prevent your mainboard from operating. To clear the CMOS memory, disconnect all the power cables from the mainboard and then move the jumper cap into the CLEAR setting for a few seconds.

Function	Jumper Setting
Normal	Short Pins 1-2
Clear CMOS	Short Pins 2-3

JP1A1, JP1B1: CPU Clock

This jumper enables to select CPU frequency.

CPU Clock	JP1A1	JP1B1
100M	Short Pins 1-2	Short Pins 2-3
133M	Short Pins 2-3	Short Pins 1-2

JP1: DRAM Voltage (VCC)
This jumper enables to select voltage of DRAM.

Function	Jumper Setting
2.5V (DDR)	Open Pins 1-2
3V (SDR)	Short Pins 1-2

J2A/B/C/D, J3A/B/C/D: DDR/SDR DRAM Type Selector
This jumper enables to select the type of DDR or SDR DRAM.

Function	Jumper Setting
DDR1,DDR2	Short all J2A/B/C/D and J3A/B/C/D pins
DIMM1, DIMM2	Open all J2A/B/C/D and J3A/B/C/D pins

JP2: Wake on Keyboard/USB activity
This jumper enables any USB keyboard activity to power up a system previously in a standby or sleep state.

Function	Jumper Setting
5V	Short Pins 1-2
5VSB	Short Pins 2-3

J13: Flash ROM Voltage (VCC)
This jumper enables to select voltage of flash ROM.

Function	Jumper Setting
5V	Short Pins 1-2
3V	Short Pins 2-3

JP4: Flash ROM Size
This jumper enables to select size of flash ROM.

Function	Jumper Setting
2M	Short Pins 1-2
4M	Short Pins 2-3

The Panel Connector

PANEL1

If there are a headphone jack or/and a microphone jack on the front panel, connect the cables to the PANEL1 on the mainboard.

Device	Pins
Line Out (L)	9, 10
Empty	8
NC	7
Line Out (R)	5, 6
+5V Audio	4
VCCMIC	3
GND	2
MIC IN	1

```
        10    9
Line Out(L)         Line Out(L)
(Pin 10)            (Pin 9)

Empty              NC (Pin 7)
(Pin 8)

Line Out(R)        Line Out(R)
(Pin 6)            (Pin 5)

+5V Audio          VCC MIC
(Pin 4)            (Pin 3)

GND (Pin 2)        MIC IN
                   (Pin 1)
         2    1
```
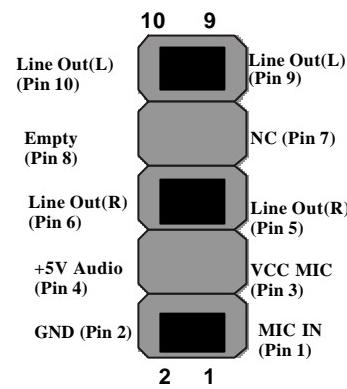
PANEL2

This panel connector provides a set of switch and LED connectors found on ATX case. Refer to the table below for information.

Device	Pins
Empty	10
N/C	9
Power ON/OFF	6, 8
Reset Switch	5, 7
Green LED Indicator	+2, 4
HDD LED +	+1, -3

```
        10    9
Empty              N/C
(Pin 10)           (Pin 9)

Power Switch       Reset Switch
(Pins 6. 8)        (Pins 5, 7)

Green LED          HDD LED
(Pins 2, 4)        (Pins 1, 3)
         2    1
```

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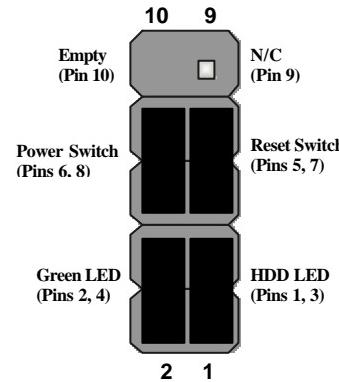
J16: LAN LED Indicator
This connector is attached to LAN device that needs a LED indicator.

Device	Pins	
Link LED	1 □ 2	LINK
ACT LED	+ □ 4	LED
	+ □	ACT
	4 □	LED
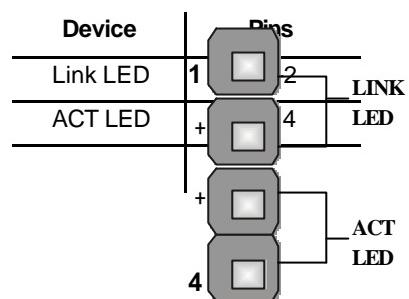
Note: The plus sign (+) indicates a pin which must be connected to a positive voltage.

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Other Devices Installation

Floppy Diskette Drive Installation
The mainboard has a floppy diskette drive (FDC) interface and ships with a diskette drive ribbon cable that supports one or two floppy diskette drives. You can install a 5.25-inch drive and a 3.5-inch drive with various capacities. The floppy diskette drive cable has one type of connector for a 5.25-inch drive and another type of connector for a 3.5-inch drive.

IDE Devices
Your mainboard has a primary and secondary IDE channel interface (IDE1 and IDE2). An IDE ribbon cable supporting two IDE devices is bundled with the mainboard.

If you want to install more than two IDE devices, get a second IDE cable and you can add two more devices to the secondary IDE channel.

IDE devices have jumpers or switches to set the IDE device as MASTER or SLAVE. When installing two IDE devices on one cable, ensure that one device is set to MASTER and the other one to SLAVE.

This mainboard supports Ultra DMA 66/100/133. UDMA is a technology to accelerate devices' performance in the IDE channel. To maximize performance, install IDE devices that support UDMA and use 80-pin IDE cables supporting UDMA 66/100/133.

Expansion Slots Installation

This mainboard has four 32-bit PCI (Peripheral Components Interconnect) expansion slots, one 4xAGP slot, and one CNR slot.

PCI Slots
PCI slots are used to install expansion cards that have the 32-bit PCI interface.

4x AGP Slot
The 4xAGP slot is used to install a graphics adapter that supports the 4xAGP specification and has a 4xAGP edge connector.

CNR Slot
The Communications Networking Riser (CNR) slot can be used to insert a CNR card.
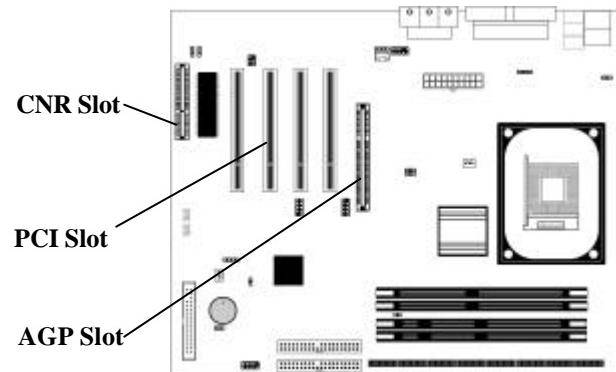
1. Remove a blanking plate from the system case corresponding to the slot you are going to use.
2. Install the edge connector of the expansion card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.
3. Secure the metal bracket of the card to the system case with a screw.

Connecting Optional Devices

Refer to the following for information on connecting the mainboard's optional devices:
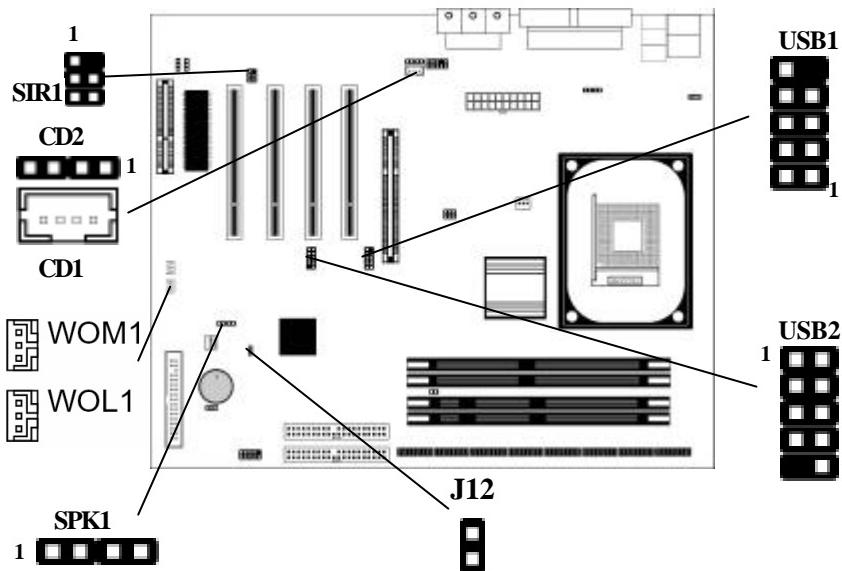
> *Note: If the VT8233ACE Southbridge is installed, the mainboard doesn't support the header USB2.*

J12: Sleep Switch

This header is connected to the sleep button for suspending the computer's activity if pushing the button. Or, the computer is automatically suspended after passing a period of time.

Pin	Signal
1	-EXTSMI
2	GND

SPK1: Speaker Connector

Connect the cable from the PC speaker to the SPK1 header on the mainboard.

Pin	Signal	Pin	Signal
1	SPKR	2	NC
3	GND	4	+5V

USB1/USB2: Front panel USB headers

The mainboard has USB ports installed on the rear edge I/O port array. Some computer cases have a special module that mounts USB ports at the front of the case. If you have this kind of case, use auxiliary USB connectors USB1 and USB2 to connect the fornt-mounted ports the mainboard.

Pin	Signal	Pin	Signal
1	VERG_FP_USBPWR0	2	VERG_FP_USBPWR0
3	USB_FP_P0-	4	USB_FP_P1-
5	USB_FP_P0+	6	USB_FP_P1+
7	GROUND	8	GROUND
9	KEY	10	USB_FP_OC0

Note: It supports USB2.0 only when P4X333 NB+VT8235 SB are installed on the mainboard. If the P4X333 NB+VT8233ACE SB are installed on the mainboard, it doesn't support USB 2.0; meanwhile, it doesn't support the header USB2, either.

WOL1/WOM1: Wake On LAN/Wake On Modem

If you have installed a LAN card, use the cable provided with the card to plug into the mainboard WOL1 connector. This enables the Wake On LAN (WOL1) feature. When your system is in a power-saving mode, any LAN signal automatically resumes the system. You must enable this item using the Power Management page of the Setup Utility.

If you have installed a modem, use the cable provided with the modem to plug into the mainboard WOM1 connector. This enables the Wake On Modem (WOM1) feature.

When your system is in a power-saving mode, any modem signal automatically resumes the system. You must enable this item using the Power Management page of the Setup Utility. See Chapter 3 for more information.

Pin	Signal
1	5VSB
2	GND
3	-RING

CD1/2:CD-ROM/DVD Audio Input Connector

If you have installed a CD-ROM drive or DVD-ROM drive, you can connect the drive audio cable to the onboard sound system. On the mainboard, locate the two 4-pin connectors **CD1** and **CD2**. There are two kinds of connector because different brands of CD-ROM drive have different kinds of audio cable connectors. Connect the cable to the appropriate connector.

CD1

Pin	Signal
1	CD IN L
2	GND
3	GND
4	CD IN R

CD2

Pin	Signal
1	GND
2	CD IN R
3	GND
4	CD IN L

SIR1: Serial infrared port

The mainboard supports a Serial Infrared (SIR1) data port. Infrared ports allow the wireless exchange of information between your computer and similarly equipped devices such as printers, laptops, Personal Digital Assistants (PDAs), and other computers.

Pin	Signal	Pin	Signal
1	NC	2	KEY
3	+5V	4	GND
5	IRTX	6	IRRX

Chapter 3

BIOS Setup Utility

Introduction

The BIOS Setup Utility records settings and information of your computer, such as date and time, the type of hardware installed, and various configuration settings. Your computer applies those information to initialize all the components when booting up and basic functions of coordination between system components.

If the Setup Utility configuration is incorrect, it may cause the system to malfunction. It can even stop your computer booting properly. If it happens, you can use the clear CMOS jumper to clear the CMOS memory which has stored the configuration information; or you can hold down the **Page Up** key while rebooting your computer. Holding down the **Page Up** key also clears the setup information.

You can run the setup utility and manually change the configuration. You might need to do this to configure some hardware installed in or connected to the mainboard, such as the CPU, system memory, disk drives, etc.

Running the Setup Utility

Every time you start your computer, a message appears on the screen before the operating system loading that prompts you to "*Hit <DEL> if you want to run SETUP*". Whenever you see this message, press the **Delete** key, and the Main menu page of the Setup Utility appears on your monitor.

AMIBIOS SIMPLE SETUP UTILITY – VERSION 1.21.12

(C) 2000 American Megatrends, Inc. All Rights Reserved

Standard CMOS Setup	Features Setup
Advanced Setup	CPU PnP Setup
Power Management Setup	Hardware Monitor
PCI / Plug and Play Setup	Change Password
Load Optimal Settings	Exit
Load Best Performance Settings	

Esc : Quit - ¯ ¬ ®: Select Item (Shift)F2 : Change Color F5 : Old Values
F6 : Optimal values F7 : Best performance values F10 : Save&Exit

Standards COMOS setup for changing time, date, hard disk type, etc.

You can use cursor arrow keys to highlight anyone of options on the main menu page. Press **Enter** to select the highlighted option. Press the **Escape** key to leave the setup utility. Hold down the **Shift** key and press **F2** to cycle through the Setup Utility's optional color schemes.

Some options on the main menu page lead to tables of items with installed values that you can use cursor arrow keys to highlight one item, and press **PgUp** and **PgDn** keys to cycle through alternative values of that item. The other options on the main menu page lead to dialog boxes requiring your answer Yes or No by hitting the **Y** or **N** keys.

If you have already changed the setup utility, press **F10** to save those changes and exit the utility. Press **F5** to reset the changes to the original values. Press **F6** to install the setup utility with a set of default values. Press **F7** to install the setup utility with a set of high-performance values.

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Standard CMOS Setup Page

This page displays a table of items defining basic information about your system.

```
┌─────────────────────────────────────────────────────────────────┐
│            AMIBIOS SETUP – STANDARD CMOS SETUP                   │
│       (C) 2000 American Megatrends, Inc. All Rights Reserved      │
├─────────────────────────────────────────────────────────────────┤
│ Date (mm/dd/yy) :  Fri Nov 01, 2002                             │
│ Time (hh/mm/ss) :  14:24:37                                      │
│                                              LBA   Blk   PIO  32Bit│
│          Type           Size Cyln Head WPcom Sec Mode  Mode  Mode Mode│
│ Pri Master  : Auto                                             On  │
│ Pri Slave   : Auto                                             On  │
│ Sec Master : Auto                                              On  │
│ Sec Slave   : Auto                                             On  │
│                                                                  │
│ Floppy Drive A :  1.44 MB 3 1/2                                 │
│ Floppy Drive B :  Not Installed                                 │
│                                                                  │
├─────────────────────────────────────────────────────────────────┤
│ Month :  Jan – Dec                         ESC  :  Exit         │
│   Day :  01 – 31                           ↑↓   :  Select Item   │
│   Year :  1901 – 2099                      PU/PD/+/- :  Modify    │
│                                            (Shift)F2  :  Color    │
│                                            F3  :  Detect All HDD  │
└─────────────────────────────────────────────────────────────────┘
```

Date & Time	Use these items to set up system date and time
IDE Pri Master Pri Slave Sec Master Sec Slave	Use these items to configure devices connected to the Primary and Secondary IDE channels. To configure an IDE hard disk drive, choose *Auto*. If the *Auto* setting fails to find a hard disk drive, set it to *User*, and then fill in the hard disk characteristics (Size, Cyls, etc.) manually. If you have a CD-ROM drive, select the setting *CDROM*. If you have an ATAPI device with removable media (e.g. a ZIP drive or an LS-120), select *Floptical*.
Floppy Drive A Floppy Drive B	Use these items to set up size and capacity of the floppy diskette drive(s) installed in the system.

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Advanced Setup Page

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.

```
┌─────────────────────────────────────────────────────────────────────┐
│              AMIBIOS SETUP – ADVANCED SETUP                          │
│       (C) 2000 American Megatrends, Inc. All Rights Reserved         │
├──────────────────────────────────┬──────────────────────────────────┤
│ Quick Boot              Enabled   │ AGP Aperture Size        64MB     │
│ 1st Boot Device         IDE-0     │ Auto detect DIMM/PCI Clk Disabled │
│ 2nd Boot Device         Floppy    │ CLK Gen Spread Spectrum  Disabled │
│ 3rd Boot Device         CDROM     │                                  │
│ Try Other Boot Devices  Yes       │                                  │
│ S.M.A.R.T. for Hard Disks Disabled│                                  │
│ BootUp Num-Lock         On        │                                  │
│ Floppy Drive Swap       Disabled  │                                  │
│ Floppy Drive Seek       Disabled  ├──────────────────────────────────┤
│ Password Check          Setup     │                                  │
│ Boot To OS/2            No        │ ESC : Quit      - ¯ ¬ ® : Select Item │
│ L2 Cache                Enabled   │ F1  : Help      PU/PD/+/- : Modify │
│ System BIOS Cacheable   Enabled   │ F5  : Old Values (Shift)F2 : Color │
│ SDRAM Timing by SPD     Disables  │ F6  : Load BIOS Defaults          │
│   SDRAM Frequency       100MHz    │ F7  : Load Setup Defaults         │
│   SDRAM CAS# Latency    2.5       │                                  │
│   SDRAM Bank Interleave Disabled  │                                  │
│ AGP Mode                4X        │                                  │
│ AGP Comp. Driving       Auto      │                                  │
│ Manual AGP Comp. Driving CB       │                                  │
└──────────────────────────────────┴──────────────────────────────────┘
```

Quick Boot	If you enable this item, the system starts up more quickly be elimination some of the power on test routines.
1st Boot Device **2nd Boot Device** **3rd Boot Device**	Use these items to determine the device order the computer uses to look for an operating system to load at start-up time.
Try Other Boot Device	If you enable this item, the system will also search for other boot devices if it fails to find an operating system from the first two locations.

S.M.A.R.T. for Hard Disks	Enable this item if any IDE hard disks support the S.M.A.R.T.(Self-Monitoring, Analysis and Reporting Technology) feature.
BootUp Num-Lock	This item determines if the Num Lock key is active or inactive at system start-up time.
Floppy Drive Swap	If you have two diskette drives installed and you enable this item, drive A becomes drive B and drive B becomes drive A.
Floppy Drive Seek	If you enable this item, your system will check all floppy disk drives at start up. Disable this item unless you are using an old 360KB drive.
PS/2 Mouse Support	Enable this item if you plan to use a PS/2 mouse.
Password Check	If you have entered a password for the system, use this item to determine, if the password is required to enter the Setup Utility (*Setup*) or required both at start-up and to enter the Setup Utility (*Always*).
Boot to OS/2	Enable this item if you are booting the OS/2 operating system and you have more than 64MB of system memory installed.
L2 Cache	Leave these items enabled since all the processors that can be installed on this board have internal L2 cache memory.
System BIOS Cacheable	If you enable this item, a segment of the system BIOS will be copied to main memory for faster execution.
SDRAM Timing By SPD	This item allows you to enable or disable the SDRAM timing defined by the Serial Presence Detect electrical.
SDRAM Frequency	This item determines frequency of SDRAM memory.

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SDRAM CAS# Latency	This item determines the operation of SDRAM memory CAS (column address strobe). It is recommended that you leave this item at the default value. The 2T setting requires faster memory that specifically supports this mode.
SDRAM Bank Interleave	Enable this item to increase SDRAM memory speed. When enabled, separate memory banks are set for odd and even addresses and the next byte of memory can be accessed while the current byte is being refreshed.
AGP Comp. Driving	Use this item to signal driving current on AGP cards to auto or manual. Some AGP cards need stronger than normal driving current in order to operate. We recommend that you set this item to the default.
Manual AGP Comp. Driving	When AGP Driving is set to Manual, use this item to set the AGP current driving value.
AGP Mode	This item provides the OnBoard VGA mode with three options of 1,2, 4 multiplied frequency.
AGP Aperture Size	This item defines an AGP for the graphics. Leave this item at the default value 64MB.
Auto detect DIMM/PCI Clock	When this item is enabled, BIOS will disable the clock signal of free DIMM/PCI slots.
CLK GEN Spread Spectrum	Use this item to set the system bus spread spectrum for the installed processor.

Power Management Setup Page

This page sets some parameters for system power management operation.

```
┌─────────────────────────────────────────────────────────────────┐
│              AMIBIOS SETUP – POWER MANAGEMENT SETUP              │
│        (C) 2000 American Megatrends, Inc. All Rights Reserved    │
├────────────────────────────┬────────────────────────────────────┤
│ ACPI Aware O/S      Yes     │                                    │
│ Power Management    Enabled │                                    │
│ Suspend Time Out    Disabled│                                    │
│ Hard Disk Time Out  Standby │                                    │
│ Resume On RTC Alarm Disabled│                                    │
│ RTC Alarm Date      15      │                                    │
│ RTC Alarm Hour      12      │                                    │
│ RTC Alarm Minute    30      │                                    │
│ RTC Alarm Second    30      │ ESC : Quit      – ¯ ¬ ® : Select Item│
│ LAN/Ring Power On   Disabled│ F1  : Help    PU/PD/+/ - : Modify  │
│ Keyboard Power On   Disabled│ F5  : Old Values (Shift)F2 : Color │
│   Wake-Up Key       Any key │ F6  : Load BIOS Defaults            │
│     Wake-Up Password N/A    │ F7  : Load Setup Defaults           │
└────────────────────────────┴────────────────────────────────────┘
```

ACPI Aware O/S	This item supports ACPI (Advanced Configuration and Power management Interface). Use this item to enable or disable the ACPI feature.
Power Management	Use this item to enable or disable a power management scheme. If you enable power management, you can use the items below to set the power management operation. Both APM and ACPI are supported.
Suspend Time Out	This sets the timeout for Suspend mode in minutes. If the time selected passes without any system activity, the computer will enter power-saving Suspend mode.
Hard Disk Time Out	This item sets up the timeout to power down the hard disk drive, if there is no hard disk activity after passing the preset period of time.

Resume On RTC Alarm / Date / Hour / Minute / Second	The system can be turned off with a software command. If you enable this item, the system can automatically resume at a fixed time based on the system' s RTC (realtime clock). Use the items below this one to set the date and time of the wake-up alarm. You must use an ATX power supply in order to use this feature.
LAN/Ring Power On	The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the Modem. You must use an ATX power supply in order to use this feature.
Keyboard Power On Wake-Up Key Wake-Up Password	If you enable this item, system can automatically resume by pressing hot keys on the keyboard or typing in the password. You must enable the Keyboard Power On jumper and use an ATX power supply in order to use this feature.

PCI / Plug and Play Setup Page

This page sets up some parameters for devices installed on the PCI bus and those utilizing the system plug and play capability.

```
AMIBIOS SETUP – PCI / PLUG AND PLAY SETUP
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Plug and Play Aware O/S          Yes
Primary Graphics Adapter         AGP
Allocate IRQ for PCI VGA         Yes
PCI IDE BusMaster                Disabled

                                       ESC : Quit          - ¯ ¬ ® : Select Item
                                       F1  : Help          PU/PD/+/ - : Modify
                                       F5  : Old Values  (Shift)F2  : Color
                                       F6  : Load BIOS Defaults
                                       F7  : Load Setup Defaults
```
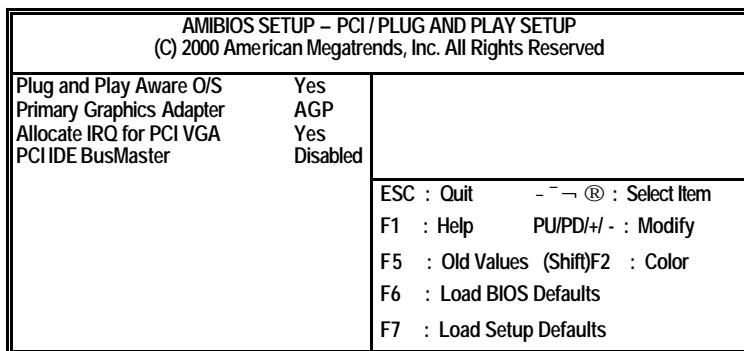
Plug and Play Aware O/S	Enable this item if you are using an O/S that supports Plug and Play such as Windows 95 or 98.
Primary Graphics Adapter	This item indicates if the primary graphics adapter uses the PCI or the AGP bus. The default AGP setting still lets the onboard display work and allows the use of a second display card installed in an AGP slot.
Allocate IRQ for PCI VGA	If this item is enabled, an IRQ will be assigned to the PCI VGA graphics system. You set this value to No to free up an IRQ.
PCI IDE BusMaster	This item enables or disables the DMA under DOS mode. We recommend you to leave this item at the default value.

Load Optimal Settings

If you select this item and press **Enter** a dialog box appears. If you press **Y**, and then **Enter**, the Setup Utility loads a set of fail-safe default values. These default values are not very demanding and they should allow your system to function with most kinds of hardware and memory chips.
Note : It is highly recommend that users enter this option to load optimal values for accessing the best performance.

Load Best Performance Settings

If you select this item and press **Enter** a dialog box appears. If you press **Y**, and then **Enter**, the Setup Utility loads a set of best-performance default values. These default values are quite demanding and your system might not function properly if you are using slower memory chips or other low-performance components.

Features Setup Page

This page sets up some parameters for peripheral devices connected to the system.

```
┌─────────────────────────────────────────────────────────────┐
│              AMIBIOS SETUP – FEATURES SETUP                   │
│       (C) 2000 American Megatrends, Inc. All Rights Reserved  │
├─────────────────────────────────┬───────────────────────────┤
│ OnBoard FDC            Enabled   │                           │
│ OnBoard Serial PortA   3F8h/COM1 │                           │
│ OnBoard Serial PortB   2F8h/COM2 │                           │
│  Serial Port2 Mode     Normal    │                           │
│ OnBoard Parallel Port  378h      │                           │
│  Parallel Port Mode    SPP       │                           │
│  Parallel Port IRQ     7         │                           │
│  Parallel Port DMA     N/A       │ ESC : Quit    - ¯ ¬ ® : Select│
│ OnBoard Game Port      201h      │ Item                      │
│ OnBoard MIDI Port      300h      │ F1  : Help    PU/PD/+/ - : Modify│
│  MIDI Port IRQ         10        │                           │
│ OnBoard IDE            Both      │ F5  : Old Values (Shift)F2 : Color│
│ Audio Device           Enabled   │ F6  : Load BIOS Defaults  │
│ Modem Device           Auto      │                           │
│ Ethernet Device        Enabled   │ F7  : Load Setup Defaults │
│ USB Controller         All USB Port │                        │
│ USB Device Legacy Support  Disabled │                        │
│ ThumbDrive Support for DOS Disabled │                        │
└─────────────────────────────────┴───────────────────────────┘
```

OnBoard FDC	Use this item to enable or disable the onboard floppy disk drive interface.
OnBoard Serial PortA/B	Use these items to enable or disable the onboard COM1/2 serial port, and to assign a port address.
Onboard Parallel Port	Use this item to enable or disable the onboard LPT1 parallel port, and to assign a port address. The Auto setting will detect and available address.
Parallel Port Mode	Use this item to set the parallel port mode. You can select SPP (Standard Parallel Port), ECP (Extended Capabilities Port), EPP (Enhanced Parallel Port), or ECP + EPP.
Parallel Port IRQ	Use this item to assign IRQ to the parallel port.

Parallel Port DMA	Use this item to assign a DMA channel to the parallel port.
OnBoard Game Port	This item enables or disables the I/O address for the game port.
OnBoard MIDI Port	Use this item to enable or disable the onboard MIDI port, and to assign a port address.
MIDI Port IRQ	Use this item to assign IRQ 7 to the parallel port.
OnBoard IDE	Use this item to enable or disable the onboard IDE channel.
Audio Device	This item enables or disables the AC' 97 audio chip.
Modem Device	This item enables or disables the MC' 97 modem chip.
Ethernet Device	This item enables or disables the onboard Ethernet LAN.
USB Controller	Use this item to select the USB ports or disabled.
USB Device Legacy Support	This item allows you to enable the USB device, if you have installed a USB device on the system board.
ThumbDrive Support For DOS	Enable this item to make a small portion of memory storage device for the USB ports.

CPU PnP Setup Page

This page helps you manually configure the CPU of this mainboard. The system will automatically detect the type of installed CPU and make the appropriate adjustments to these items on this page.

```
┌─────────────────────────────────────────────────────────────────┐
│             AMIBIOS SETUP– CPU PnP SETUP                        │
│       ©2000 American Megatrends, Inc. All Rights Reserved       │
├─────────────────────────────────────┬───────────────────────────┤
│ CPU BRAND              INTEL         │                           │
│ CPU Type               Pentium 4     │                           │
│ CPU Ratio              Locked        │                           │
│ CPU Frequency          100 MHz       │                           │
│                                      │                           │
│                                      │                           │
│                                      │ ESC : Quit    - ¯¬ ® : Select Item │
│                                      │ F1  : Help    PU/PD/+/ - : Modify  │
│                                      │ F5  : Old Values  (Shift)F2  : Color │
│                                      │ F6  : Load Optimal values          │
│                                      │ F7  : Load Best performance values │
└─────────────────────────────────────┴───────────────────────────┘
```
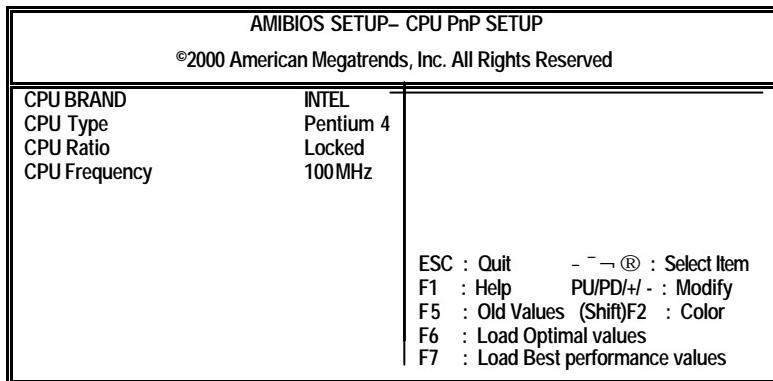
CPU BRAND/Type/ Core Voltage/Ratio /Frequency	These items show the type, core voltage, ratio and frequency of CPU installed in your system.

Hardware Monitor Page

This page sets up some parameters for the hardware monitoring function of this mainboard.

```
┌─────────────────────────────────────────────────────────────────┐
│              AMIBIOS SETUP – HARDWARE MONITOR                    │
│      (C) 2000 American Megatrends, Inc. All Rights Reserved      │
├────────────────────────────────┬────────────────────────────────┤
│ *** System Hardware ***        │                                │
│ Vcore                  1.632V  │                                │
│ Vcc 2.5V               2.496V  │                                │
│ Vcc 3.3V               3.392V  │                                │
│ Vcc 5V                 4.945V  │                                │
│ +12V                  11.968V  │ ESC : Quit      – ‾¬® : Select Item │
│ -12V                  -0.825V  │ F1  : Help    PU/PD/+/ - : Modify │
│ SB5V                   5.026V  │                                │
│ VBAT                   3.488V  │ F5  : Old Values (Shift)F2 : Color │
│ SYSTEM Fan Speed        0 RPM  │ F6  : Load BIOS Defaults        │
│ CPU Fan Speed        1308 RPM  │ F7  : Load Setup Defaults       │
│ Power Temperature    33°C/91°F │                                │
│ SYSTEM Temperature  39°C/102°F │                                │
│ CPU Temperature     56°C/132°F │                                │
└────────────────────────────────┴────────────────────────────────┘
```

CPU / System Temperature	These items display CPU and system temperature measurement.
FANs & Voltage Measurements	These items indicate cooling fan speeds in RPM and the various system voltage measurements.

Change Password

If you highlight this item and press Enter, a dialog box appears that you can enter a Supervisor password. You can enter no more than six letters or numbers. Press Enter after you have typed in the password. There will be the second dialog box asking you to retype the password for confirmation. Press Enter after you have retyped it correctly. Then, the password is required for the access to the Setup Utility or for it at start-up, depending on the setting of the Password Check item in Advanced Setup.

Exit

Highlight this item and press Enter to save the changes that you have made in the Setup Utility configuration and exit the program. When the Save and Exit dialog box appears, press Y to save and exit, or press N to exit without saving.

Mainboard User's Manual

Chapter 4

About the Software CD-ROM

The support software CD-ROM that is included in the mainboard package contains all the drivers and utility programs needed to properly run the bundled products. Below you can find a brief description of each software program, and the location for your mainboard version. More information on some programs is available in a README file, located in the same directory as the software.

Note: Never try to install software from a folder that is not specified for use with your mainboard.

Before installing any software, always inspect the folder for files named README.TXT, INSTALL.TXT, or something similar. These files may contain important information that is not included in this manual.

Utility Software Reference

All the utility software available on the CD-ROM is Windows compliant. It is provided only for the convenience of customers. The following software is furnished under license and may only be used or copied in accordance with the terms of the license.

Note: The software in these folders is subject to change at anytime without prior notice. Please refer to the support CD for available software.

AMI Flash Memory Utility

This utility enables you to erase the system BIOS stored on a Flash Memory chip on the mainboard, and lets you copy an updated version of the BIOS to the chip. Proceed with caution when using this program. If you erase the current BIOS and fail to write a new BIOS, or write a new BIOS that is incorrect, your system will malfunction. Refer to Chapter 3, Using BIOS for more information.

PC-CILLIN

The PC-CILLIN software program provides anti-virus protection for your system. This program is available for Windows 2000/ME/98SE and Windows NT. Be sure to check the readme.txt and install the appropriate anti-virus software for your operating system.

We strongly recommend users to install this free anti-virus software to help protect your system against viruses.

Note: Update your virus software regularly to protect against new viruses.

MediaRing Talk – Telephony Software

To install the MediaRing Talk voice modem software for the built-in modem, run MRTALK-SETUP72.EXE from the following directory:
\UTILITY\MEDIARING TALK

Super Voice – Fax/Modem Software

To install the Super Voice voice, fax, data communication application for use with the built-in fax/modem, run PICSHELL.EXE from the following directory:
\UTILITY\SUPER VOICE

CD Ghost

The CD Ghost software enables you to create a virtual cabinet of CD-ROM drives on your system to help you categorize and organize your CD collection. A user-friendly interface assists you in quickly creating images of both CDs and DVDs onto your system. To install the software, run SETUP.EXE from the following directory:
\UTILITY\CDGHOST\ENG\CDGHOST

Recovery Genius

The Recovery Genius software program is an innovative windows application system that protects your Hard Disk Drive from virus intrusion, accidental deletions, and system corruption. To install the Recovery Genius software program run SETUP.EXE from the following directory
\UTILITY\RECOVERY GENIUS\ENG\RECOVERYGENIUS

Language Genius

The Language Genius is a software-based product that helps you to learn new languages. To install the Language Genius software program run SETUP.EXE from the following directory
\UTILITY\LANGUAGE GENIUS\ENG\LANGUAGEGENIUS

PageABC

The PageABC application software enables you to create your own home page. To install the PageABC, run SETUP.EXE from the following directory:
\UTILITY\PageABC