

## **Mainboard User's Manual**

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MS9147C Series, V5.0  
VT8753/August 2002**

## Mainboard User's Manual

### Notice:

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.



## Mainboard User's Manual

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## Chapter 1

### Introduction

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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 VT8753E (P4X266E)** Northbridge and **VT8235** Southbridge chipsets that support **AC 97 audio codec**, and provide **Ultra DMA 33/66/100/133** function. It supports built-in **USB 2.0** providing higher bandwidth. It implements **Universal Serial Bus Specification Revision 2.0** and is compliant with **UHCI 1.1** and **EHCI 0.95**. This mainboard has four 32-bit PCI slots, one **4xAGP** 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 (**USB 2.0**) --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.

## Mainboard User's Manual

### 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 VT8753E Northbridge and VT8235 Southbridge in this chipset in accordance with an innovative and scalable architecture with proven reliability and performance. 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.

## 1: Introduction

### 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: VT1612A

- ◆ 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

### 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) — all support **USB 2.0**
- ◆ Audio jacks for microphone, line-in and line-out

## Mainboard User's Manual

### Fast Ethernet LAN

- ◆ Built-in **10BaseT/100BaseTX Ethernet LAN**
- ◆ VT8235 integrates Fast Ethernet MAC and VT6013 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

- ◆ 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.

## 1: Introduction

### 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
- ◆ **3Deep** delivers the precise imagery and displays accurate color in your monitor
- ◆ **Recovery Genius 21<sup>st</sup> 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 21<sup>st</sup>** is the software to provides learning tools of language and singing.
- ◆ **PC DJ** is a dual-MP3 player that enables users to actually mix music right on their own personal computers.
- ◆ **Adobe Acrobat Reader V5.0** is the software to help users read .PDF files.

### Dimensions

- ◆ ATX form factor of 305 x 244mm

## **Mainboard User's Manual**

### 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.

## Chapter 2

### Mainboard Installation

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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

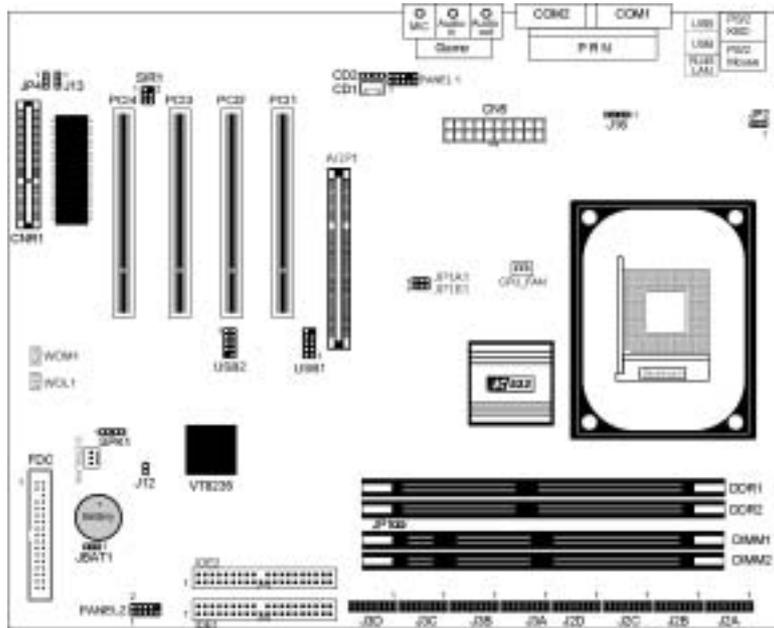
**Note:**

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 User's Manual

### Mainboard Components

Identify major components on the mainboard via this diagram underneath.

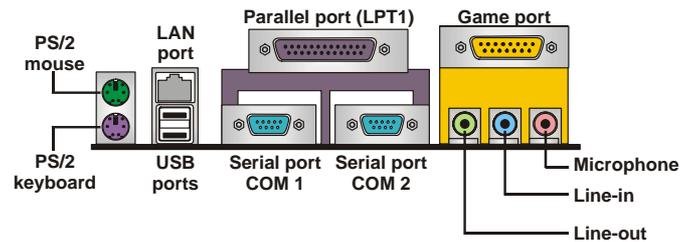


**Note:** Any jumpers on your mainboard that do not appear in this illustration are for testing only.

### 3: BIOS Setup Utility

#### 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.

## **Mainboard User's Manual**

### **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.

### 3: BIOS Setup Utility

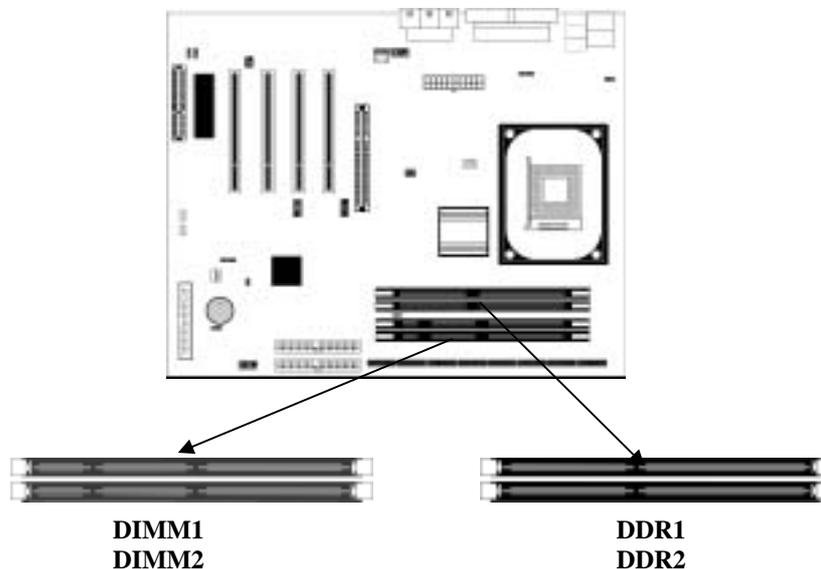
#### Installing Memory Modules

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.



## **Mainboard User's Manual**

### **Installation Procedure**

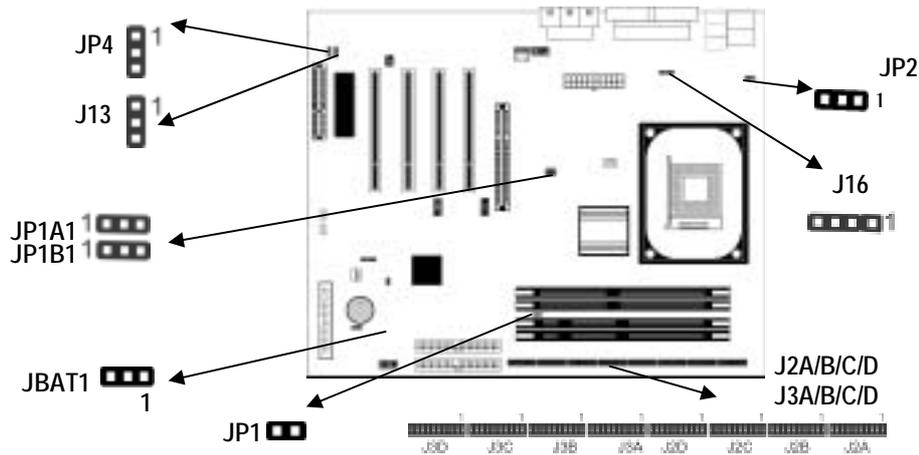
The mainboard accommodates two memory modules. You must install at least one module in any of the three slots. Each module can be installed with up to 1GB system memory.

Refer to the following to install the memory modules.

1. Push the latches on each side of the DIMM slot down.
2. Align the memory module with the slot. The DIMM slots 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 slot.
4. Install the DIMM module into the slot and press it firmly down until it seats correctly. The slot latches are levered upwards and latch on to the edges of the DIMM.
5. Install any remaining DIMM modules.

### 3: BIOS Setup Utility

#### 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 |

## Mainboard User's Manual

### 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 |

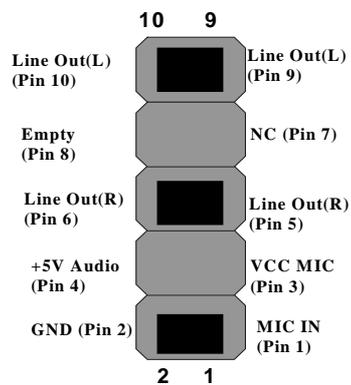
### 3: BIOS Setup Utility

#### 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.

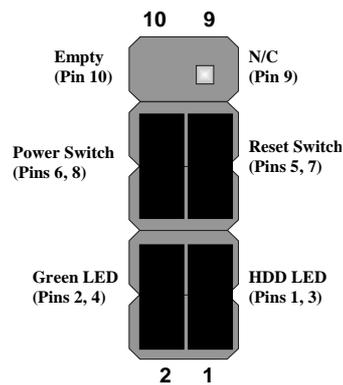
| Device       | Pins  |
|--------------|-------|
| Line Out (L) | 9, 10 |
| Empty        | 8     |
| NC           | 7     |
| Line Out (R) | 5, 6  |
| +5V Audio    | 4     |
| VCCMIC       | 3     |
| GND          | 2     |
| MIC IN       | 1     |



##### PANEL2

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

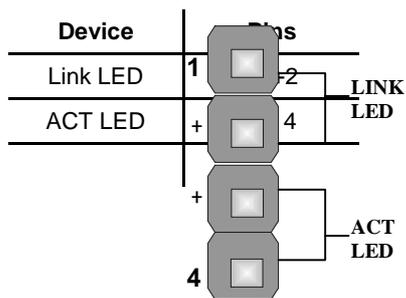
| Device               | Pins   |
|----------------------|--------|
| Empty                | 10     |
| N/C                  | 9      |
| Power ON/OFF         | 6, 8   |
| Reset Switch         | 5, 7   |
| Green LED Indicator  | +2, 4  |
| HDD LED <sup>+</sup> | +1, -3 |



## Mainboard User's Manual

### J16: LAN LED Indicator

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



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**Note:** The plus sign (+) indicates a pin which must be connected to a positive voltage.

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### 3: BIOS Setup Utility

#### 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.

## Mainboard User's Manual

### Expansion Slots Installation

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

#### PCI Slots

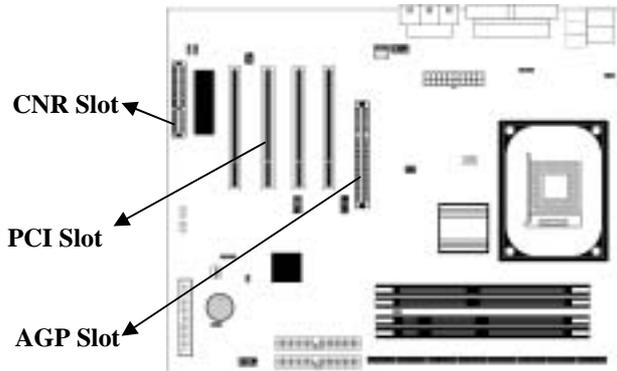
PCI slots are used to install expansion cards that have the 32-bit PCI interface.

#### 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.

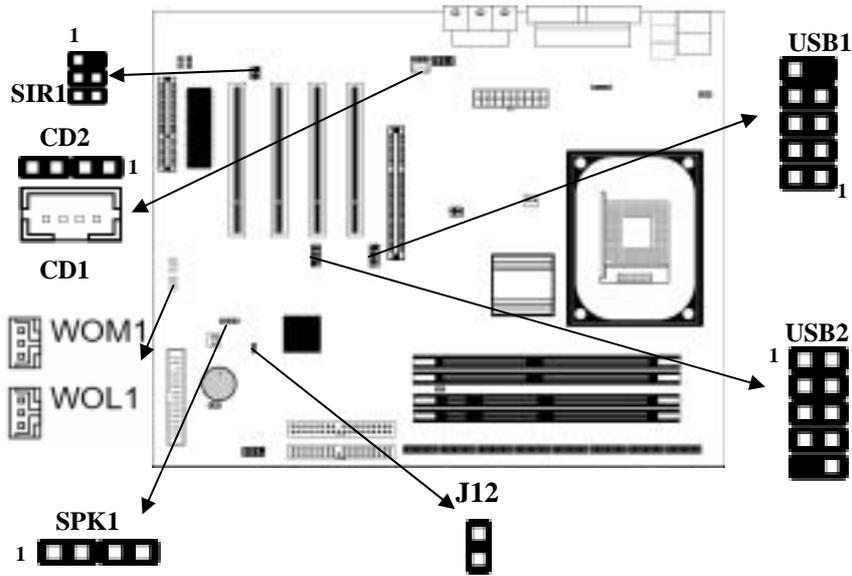


1. Remove a blanking plate from the system case corresponding to the slot you are going to use.
2. Install the edge connector of the expansion card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.
3. Secure the metal bracket of the card to the system case with a screw.

### 3: BIOS Setup Utility

#### Connecting Optional Devices

Refer to the following for information on connecting the mainboard's optional devices:



## Mainboard User's Manual

### 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(USB 2.0): 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 front-mounted ports to 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      |

### 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.

### 3: BIOS Setup Utility

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.

### 3: BIOS Setup Utility

#### 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  
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|  |                  |
|--|------------------|
| 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<br>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 that require 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.

## Mainboard User's Manual

### 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 Aug 09, 2001                     |        |      |      |      |   |     |          |          |          |            |
| Time (hh/mm/ss) : 13:41:05                             |        |      |      |      |   |     |          |          |          |            |
|  | Type   | Size | Cyln | Head | WPcom                                   | Sec | LBA Mode | Blk Mode | PIO Mode | 32Bit 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<br>(Shift)F2 : Color |     |          |          |          |            |
|  |        |      |      |      | F3 : Detect All HDD                     |     |          |          |          |            |

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

### 3: BIOS Setup Utility

#### 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.

| AMBIOS SETUP – ADVANCED SETUP                          |          |                          |                    |
|--|----------|--------------------------|--------------------|
| (C) 2000 American Megatrends, Inc. All Rights Reserved |          |                          |                    |
| Quick Boot   | Enabled  | AGP Aperture Size        | 64MB               |
| 1 <sup>st</sup> Boot Device                            | IDE-0    | Auto detect DIMM/PCI Clk | Disabled           |
| 2 <sup>nd</sup> Boot Device                            | Floppy   | CLK Gen Spread Spectrum  | Disabled           |
| 3 <sup>rd</sup> 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    | ESC : Quit               | ↑↓←→ : Select Item |
| Boot To OS/2 > 64MB                                    | No       | F1 : Help                | PU/PD/+/- : Modify |
| L2 Cache   | Disabled | F5 : Old Values (Shift)  | F2 : Color         |
| System BIOS Cacheable                                  | Enabled  | F6 : Load BIOS Defaults  |                    |
| SDRAM Timing by SPD                                    | Disables | F7 : Load Setup Defaults |                    |
| SDRAM Frequency  | 100MHz   |                          |                    |
| SDRAM CAS# Latency                                     | 2.5      |                          |                    |
| SDRAM Bank Interleave                                  | Disabled |                          |                    |
| AGP Mode   | 4X       |                          |                    |
| AGP Comp. Driving                                      | Auto     |                          |                    |
| Manual AGP Comp. Driving                               | CB       |                          |                    |

|                                   |   |
|-----------------------------------|---|
| <b>Quick Boot</b>                 | If you enable this item, the system starts up more quickly by elimination of some of the power on test routines.                                  |
| <b>1<sup>st</sup> Boot Device</b> | Use these items to determine the device order the computer uses to look for an operating system to load at start-up time.                         |
| <b>2<sup>nd</sup> Boot Device</b> |   |
| <b>3<sup>rd</sup> Boot Device</b> |   |
| <b>Try Other Boot Device</b>      | 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. |

## Mainboard User's Manual

|                                  |   |
|----------------------------------|---|
| <b>S.M.A.R.T. for Hard Disks</b> | Enable this item if any IDE hard disks support the S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) feature.   |
| <b>BootUp Num-Lock</b>           | This item determines if the Num Lock key is active or inactive at system start-up time.   |
| <b>Floppy Drive Swap</b>         | If you have two diskette drives installed and you enable this item, drive A becomes drive B and drive B becomes drive A.  |
| <b>Floppy Drive Seek</b>         | 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.  |
| <b>Password Check</b>            | If you have entered a password for the system, use this item to determine, if the password is required to enter the Setup Utility ( <i>Setup</i> ) or required both at start-up and to enter the Setup Utility ( <i>Always</i> ). |
| <b>Boot to OS/2 &gt; 64MB</b>    | Enable this item if you are booting the OS/2 operating system and you have more than 64MB of system memory installed.   |
| <b>L1/L2 Cache</b>               | Leave these items enabled since all the processors that can be installed on this board have internal L1/L2 cache memory.  |
| <b>System BIOS Cacheable</b>     | If you enable this item, a segment of the system BIOS will be copied to main memory for faster execution.   |
| <b>SDRAM Timing By SPD</b>       | This item allows you to enable or disable the SDRAM timing defined by the Serial Presence Detect electrical.  |
| <b>SDRAM Frequency</b>           | This item determines frequency of SDRAM memory.   |

### 3: BIOS Setup Utility

|                                   |  |
|-----------------------------------|--|
| <b>SDRAM CAS# Latency</b>         | 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. |
| <b>SDRAM Bank Interleave</b>      | 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.               |
| <b>AGP Comp. Driving</b>          | 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.                    |
| <b>Manual AGP Comp. Driving</b>   | When AGP Driving is set to Manual, use this item to set the AGP current driving value.   |
| <b>AGP Mode</b>                   | This item provides the OnBoard VGA mode with three options of 1,2, 4 multiplied frequency.   |
| <b>AGP Aperture Size</b>          | This item defines an AGP for the graphics. Leave this item at the default value 64MB.  |
| <b>Auto detect DIMM/PCI Clock</b> | When this item is enabled, BIOS will disable the clock signal of free DIMM/PCI slots.  |
| <b>CLK GEN Spread Spectrum</b>    | Use this item to set the system bus spread spectrum for the installed processor.   |

## Mainboard User's Manual

### Power Management Setup Page

This page sets some parameters for system power management operation.

| AMBIOS SETUP - POWER MANAGEMENT SETUP<br>(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           |

|                           |   |
|---------------------------|---|
| <b>ACPI Aware O/S</b>     | This item supports ACPI (Advanced Configuration and Power management Interface). Use this item to enable or disable the ACPI feature.   |
| <b>Power Management</b>   | 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. |
| <b>Suspend Time Out</b>   | 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.                                    |
| <b>Hard Disk Time Out</b> | 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.   |

### 3: BIOS Setup Utility

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|  |   |
|--|---|
| <b>Resume On<br/>RTC Alarm /<br/>Date / Hour /<br/>Minute /<br/>Second</b> | 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. |
| <b>LAN/Ring<br/>Power On</b>   | 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.  |
| <b>Keyboard<br/>Power On<br/>Wake-Up Key<br/>Wake-Up<br/>Password</b>      | 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.   |

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## Mainboard User's Manual

### 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<br>(C) 2000 American Megatrends, Inc. All Rights Reserved |          |                                    |
|---|----------|------------------------------------|
| 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           |

|                                 |  |
|---------------------------------|--|
| <b>Plug and Play Aware O/S</b>  | Enable this item if you are using an O/S that supports Plug and Play such as Windows 95 or 98.   |
| <b>Primary Graphics Adapter</b> | 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. |
| <b>Allocate IRQ for PCI VGA</b> | 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.   |
| <b>PCI IDE BusMaster</b>        | This item enables or disables the DMA under DOS mode. We recommend you to leave this item at the default value.  |

### 3: BIOS Setup Utility

#### 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.

## Mainboard User's Manual

### Features Setup Page

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

| AMIBIOS SETUP – FEATURES SETUP<br>(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       |                                   |
| OnBoard Game Port  | 201h      | ESC : Quit    ↑↓←→ : Select Item  |
| OnBoard MIDI Port  | 300h      | F1 : Help    PU/PD/+/- : Modify   |
| MIDI Port IRQ  | 10        | F5 : Old Values (Shift)F2 : Color |
| OnBoard IDE  | Both      | F6 : Load BIOS Defaults           |
| Audio Device   | Enabled   | F7 : Load Setup Defaults          |
| Modem Device   | Auto      |                                   |
| Ethernet Device  | Enabled   |                                   |
| USB Controller   | Enabled   |                                   |
| USB Device Legacy Support  | Disabled  |                                   |
| ThumbDrive Support for DOS   | Disabled  |                                   |

|                               |   |
|-------------------------------|---|
| <b>OnBoard FDC</b>            | Use this item to enable or disable the onboard floppy disk drive interface.   |
| <b>OnBoard Serial PortA/B</b> | Use these items to enable or disable the onboard COM1/2 serial port, and to assign a port address.  |
| <b>Onboard Parallel Port</b>  | 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.                    |
| <b>Parallel Port Mode</b>     | 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. |
| <b>Parallel Port IRQ</b>      | Use this item to assign IRQ to the parallel port.   |

### 3: BIOS Setup Utility

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

## Mainboard User's Manual

### 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.

| AMBIOS SETUP – CPU PnP SETUP  |           |
|---|-----------|
| ©2000 American Megatrends, Inc. All Rights Reserved   |           |
| CPU BRAND   | INTEL     |
| CPU Type  | Pentium 4 |
| CPU Speed   | 800 MHz   |
| CPU Ratio   | 8.0x      |
| CPU Frequency   | 100 MHz   |
| ESC : Quit      ↑↓←→ : Select Item<br>F1 : Help      PU/PD/+/- : Modify<br>F5 : Old Values (Shift)F2 : Color<br>F6 : Load Optimal values<br>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.

---

**CPU Speed**      This item decides CPU speed installed in your system.

---

### 3: BIOS Setup Utility

#### Hardware Monitor Page

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

| AMIBIOS SETUP – HARDWARE MONITOR<br>(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   | 4.972V     |                                    |
| +12V   | 11.968V    |                                    |
| -12V   | -0.907V    | ESC : Quit      ↑↓←→ : Select Item |
| SB5V   | 5.053V     | F1 : Help      PU/PD/+/- : Modify  |
| VBAT   | 3.488V     | F5 : Old Values (Shift)F2 : Color  |
| SYSTEM Fan Speed   | 0 RPM      | F6 : Load BIOS Defaults            |
| CPU Fan Speed  | 1350 RPM   | F7 : Load Setup Defaults           |
| Power Temperature  | 32°C/89°F  |                                    |
| SYSTEM Temperature   | 39°C/102°F |                                    |
| CPU Temperature  | 55°C/131°F |                                    |

|  |   |
|--|---|
| <b>CPU / System Temperature</b>        | These items display CPU and system temperature measurement.                                 |
| <b>FANs &amp; Voltage Measurements</b> | These items indicate cooling fan speeds in RPM and the various system voltage measurements. |

## **Mainboard User's Manual**

### **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.

## Chapter 4

### **About the Software CD-ROM**

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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

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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

## 4: Software & Applications

### **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