

Mainboard User's Manual

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MS9118E Series, V1.1
VT8751/May 2002**

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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. Just click the "Continue Anyway" button and go ahead the installation.



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Chapter 1

Introduction

This mainboard features a **Socket 478** that accommodates the **Intel Pentium 4** type of processors supporting front side bus (FSB) speeds up to **400 MHz**.

This mainboard integrates the **VIA VT8751 (ProSavage P4M266)** Northbridge and VT8233A Southbridge chipsets that support **AC 97 audio codec** and **Ultra DMA 66/100/133** function. There are 32-bit **PCI** slots, one **4xAGP** slot, one **CNR** (Communications and Networking Riser) slot, and an onboard **10BaseT/100BaseTX Network** interface. In addition, a full set of I/O ports consists of two PS/2 ports for mouse and keyboard, one serial port, one VGA port, one parallel port, one MIDI/game port and four USB ports (two backpanel ports and two extra ports with onboard USB headers). Connecting the Extended USB Module to the mainboard can make four extra USB ports.

It is a **Micro ATX size** mainboard with power connectors for an ATX power supply.

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Key Features

This mainboard has these key features:

Socket 478 Processor

- ◆ The PGA **Socket 478**
- ◆ Accommodates **Intel Pentium 4** CPUs
- ◆ Supports a front-side bus (FSB) of **400 MHz**

Chipset

The chipset integrates VT8751 (ProSavage P4M266) Northbridge and VT8233A Southbridge in accordance with an innovative and scalable architecture with proven reliability and performance.

The chipset's advanced features are:

- ◆ An advanced V-Link memory controller architecture with bandwidth up to 266 MB/s and requisite performance of the most demanding Internet and 3D graphics
- ◆ Support for an 4xAGP interface performing vivid 3D graphics and video function
- ◆ An ATA 133 interface on the chipset helps boost system performance via 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 four USB ports, an AC 97 link for audio and modem, hardware monitoring, and ACPI/APM power management.

Memory Support

- ◆ The mainboard accommodates two DDR 184 pin, 2.5V DIMM sockets with a total capacity of 2 GB system memory.

1: Introduction

Built-in Graphics System

- ◆ P4M266 integrates S3®'s Savag4™ graphics accelerator into a single chip. P4M266 brings mainstream graphics performance to the Value PC with leading-edge 2D, 3D and DVD video acceleration into a cost effective package. Based on its capabilities, P4M266 is an ideal solution for the consumer, corporate mobile users and entry level professionals.
- ◆ Maximum shared memory size is 32 MB.

VGA

- ◆ Supports 266 MHz 4x and 133 MHz 2x transfer modes for AD and SBA signaling
- ◆ AGP pipelined split-transaction long-burst transfers up to 1GB/sec
- ◆ 8/16/32 MB frame buffer using system memory
- ◆ Single cycle 128-bit 3D architecture
- ◆ 128-bit 2D graphics engine
- ◆ Full internal AGP 4x performance

AC 97 Audio Codec

- ◆ The AC 97 Audio codec is compliant with the AC 97 2.2 specification, and supports 18-bit ADC (Analog Digital Converter) and DAC (Digital Analog Converter) resolution as well as 18-bit stereo full-duplex codec with independent and variable sampling rates. Further features include support for four analog line-level stereo inputs.

Expansion Options

The mainboard comes with the following expansion options:

- ◆ Three 32-bit PCI slots capable of Ultra DMA bus mastering with transfer rates of 66/100/133 MB/sec
- ◆ One 4xAGP slot
- ◆ One 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
- ◆ One serial port
- ◆ One VGA port
- ◆ One parallel port
- ◆ One MIDI/game port
- ◆ Four USB ports (two backpanel ports and two extra ports with onboard USB headers)
- ◆ Audio jacks for microphone, line-in and line-out

BIOS Firmware

This mainboard uses Award 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.

Built-in Ethernet LAN

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

Bundled Software

- ◆ **PC-Cillin 2000** supports automatic virus protection under Windows 95/98/NT/200/XP
- ◆ **MediaRing Talk** supports PC to PC or PC to Phone internet phone communication
- ◆ **3Deep** delivers the precise imagery and displays accurate color in your monitor

1: Introduction

- ◆ **WinDVD2000** is a DVD playback application (optional)
- ◆ **Recovery Genius 21st V5.0** supports 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 support learning tools of language and singing.

Dimensions

- ◆ **Micro ATX** form factor of 244 x 220 mm

Package Contents

The following items come with your mainboard package:

- ☐ The mainboard
- ☐ The User's Manual
- ☐ One diskette drive ribbon cable
- ☐ One IDE drive ribbon cable
- ☐ Software support CD
- ☐ Module Retention damp

Optional Accessories

You can purchase the following optional accessories for this mainboard.

- ☐ Extended USB module
- ☐ CNR v.90 56K Fax/Modem card

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Static Electricity Precautions

Static electricity could damage components on this mainboard. Take the following precautions while unpacking this mainboard and installing it in the 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 with 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 components and connectors on the board to make sure they are not damaged.
2. If you suspect this mainboard has been damaged, do not connect power to the system. Contact your mainboard vendor about damages.

Chapter 2

Mainboard Installation

To install this mainboard in the 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.

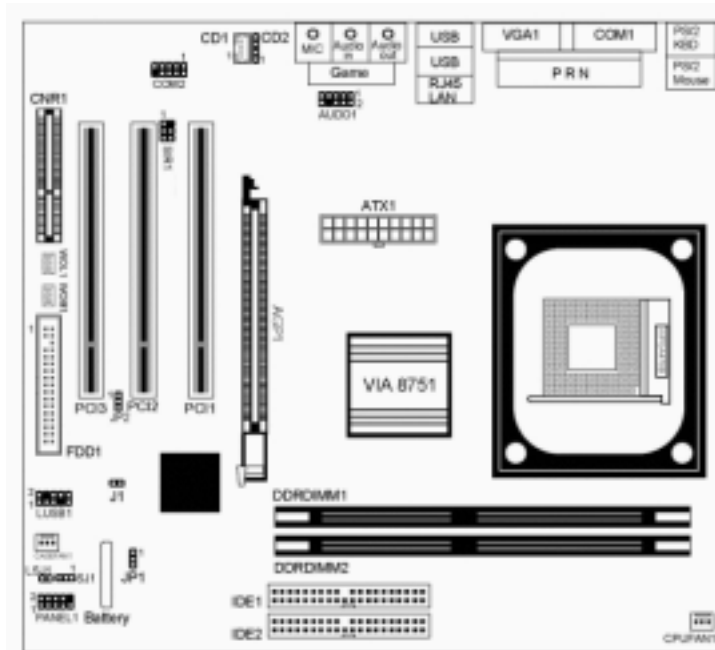
Note:

1. Before installing this mainboard, make sure jumper JP1 is under Normal setting. See this chapter for information about locating JP1 and its setting options.
2. Never connect power to the system during installation; otherwise, it may damage the mainboard.

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Mainboard Components

This diagram underneath helps you identify major components on the mainboard:

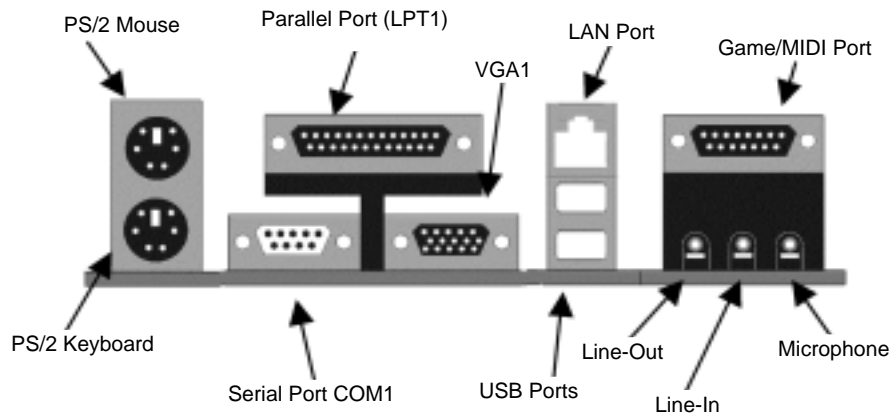


Note: Those jumpers not shown on this illustration are for testing only.

2: Mainboard Installation

I/O Ports

The illustration below shows a side view of the built-in I/O ports on the mainboard.



1. Upper PS/2 port connects a PS/2 pointing device.
2. Lower PS/2 port connects a PS/2 keyboard.
3. USB ports connect USB devices.
4. LPT1 connects printers or other parallel communications devices.
5. COM1 port connects serial devices such as mice or fax/modems; VGA connects graphic display devices.
6. Game port connects a joystick or a MIDI device.
7. Three audio ports connect audio devices. The left jack is for a stereo line-out signal, the middle one for a stereo line-in signal, and the right one for a microphone.
8. LAN port connects the network.

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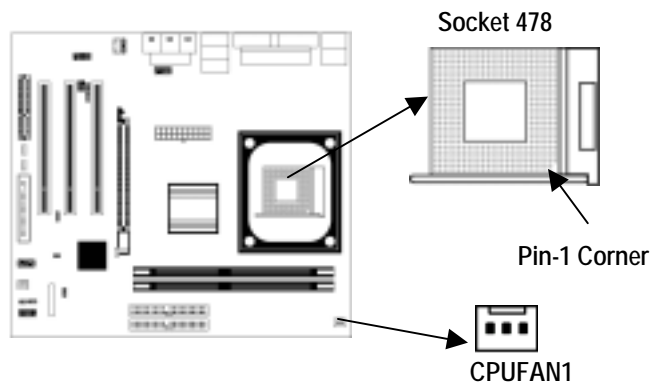
Installing the Processor

This mainboard has a Socket 478 processor socket. Please consider the requirements for the system's performance while choosing a processor. Performance relies on the processor design, clock speed and system bus frequency of the processor, and the size of internal 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 snap the fan/heatsink into place with retention module clamps.
6. Plug the CPU fan power cable into the CPU cooling fan power supply (CPUFAN1) on the mainboard.

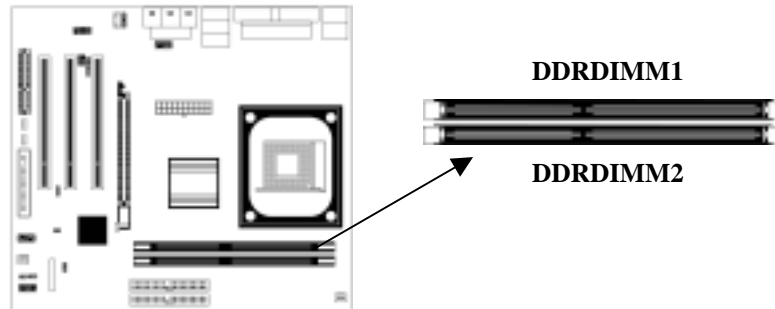
2: Mainboard Installation

Installing Memory Modules

This mainboard accommodates 184-pin 2.5V unbuffered Double Data Rate (DDR) SDRAM memory modules. The memory chips must be standard or registered SDRAM (Synchronous Dynamic Random Access Memory).

The CPU supports 100MHz system bus. The DDR DIMMs can synchronously operate 100 MHz or 266 MHz system bus.

DDR SDRAM performs 800 MBps or 1 GBps data transfer depending on whether the bus is 200 MHz or 266 MHz. It doubles the rate to 1.0 GBps and 2.1 GBps 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.



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Installation Procedure

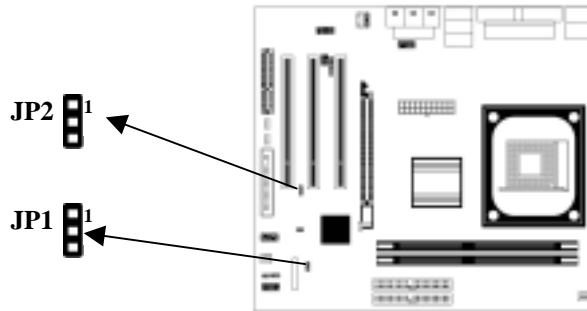
The mainboard accommodates two DDR DIMM memory sockets. Each module can install from 64 MB to 1GB of memory. Total capacity is 2GB system memory.

Refer to the following to install the memory module.

1. Push the latches on each side of the DIMM slot down.
2. Align the memory module with the slot. The DIMM slots are fixed with notches, and the DIMMs with cutouts that they are installed correctly.
3. Make sure 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 seated correctly. The slot latches are levered upwards to fasten the edges of the DIMM.
5. Install any remaining DIMM modules.

2: Mainboard Installation

Jumper Settings



JP1: Clear CMOS Jumper

This jumper is to clear the contents of CMOS memory. You may need to clear the CMOS memory if the settings in the Setup Utility are incorrect that prevents 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

JP2: BIOS Protect

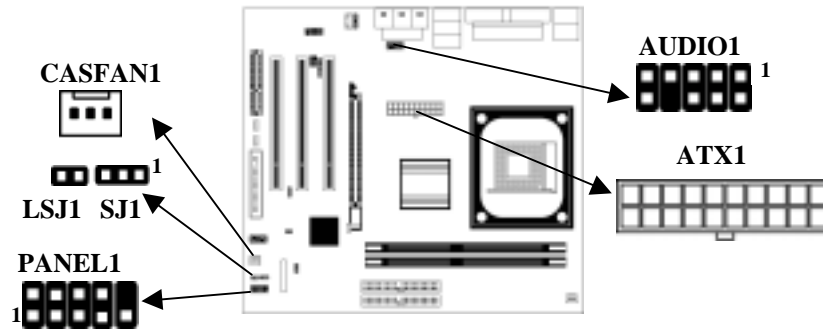
This jumper enables you to prevent BIOS from being flashed. Make the BIOS read-only.

Function	Jumper Setting
Unprotect	Short Pins 1-2
Protect	Short Pins 2-3

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Install the Mainboard

Install the mainboard in an ATX case. Make sure your case has an I/O cover plate matching the ports on this mainboard. Follow the case manufacturer's instructions to use the hardware and internal mounting points on the chassis.



Connect the power supply to **ATX1** connector. If there is a cooling fan installed in the system chassis, connect the cooling fan's cable to **SYSFAN1** fan power connector.

If there is a headphone jack or/and a microphone jack on the front panel, connect cables to the **AUDIO1** header. Here is a list of AUDIO1 header's pin assignments.

Pin	Signal	Pin	Signal
1	FMICIN	2	AUGND
3	Pull-up+5VA	4	+5VA
5	LOUTR	6	C-SPKO-R
7	NC	8	KEY
9	LOUTL	10	C-SPKO-L

Connect the case switches and indicating LEDs to the **PANEL1** header. Here is a list of PANEL1 header's pin assignments.

Pin	Signal	Pin	Signal
1	Pull-up VCC	2	G-LED1
3	HDD-LED	4	G-LED2
5	GND	6	PANSW#
7	-HWRST	8	GND
9	NC	10	KEY

2: Mainboard Installation

The **LSJ1** and **SJ1** are single color LED headers that allow users to install a LED indicator to indicate the computer's mode.

SJ1

Pin	Signal
1	G-LED2
2	G-LED2
3	Pull-up 5VSB

LSJ1

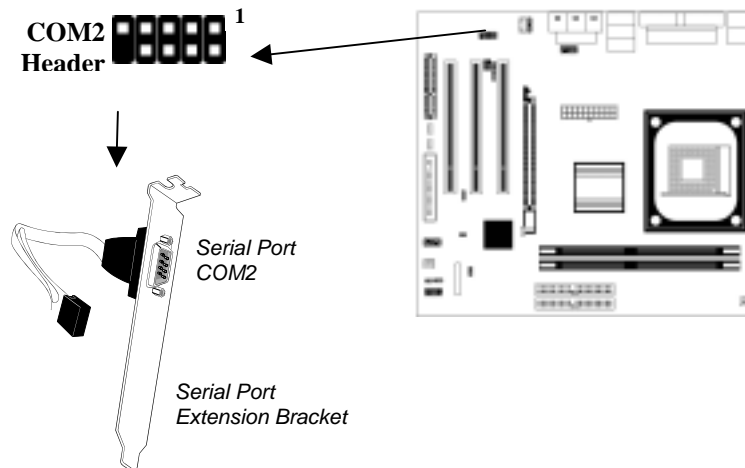
Pin	Signal
1	Pull-up 5VSB
2	G-LED1

Optional Extension Brackets

You can install a serial port extension bracket in this mainboard. Please follow these steps as below to install it.

Serial Port Extension Bracket

This mainboard has one serial port –COM2 (9 pins).



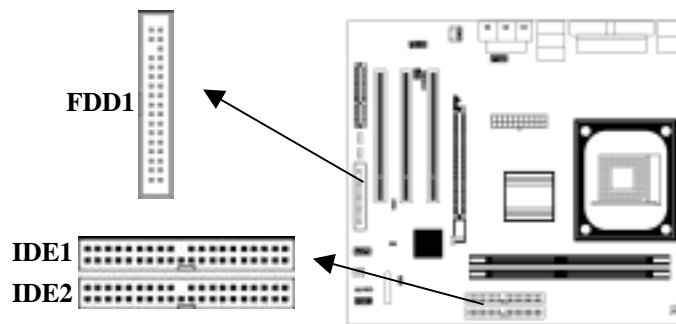
1. On the mainboard, locate the header COM2 for this bracket.
2. Plug the serial cable into COM2.

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3. In the system chassis, remove a blanking plate from one of the expansion slots and install the extension bracket in the slot. Use the screw that held the blanking plate to secure the extension bracket.

Other Devices Installation

Follow the steps below to install and connect other devices.



Floppy Diskette Drive Installation

The mainboard has a floppy diskette drive (FDD1) 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 360K, 720K, 1.2MB, 1.44MB or 2.88MB capacities. Connect the attached cable to the floppy disk drive connector FDD1.

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.

2: Mainboard Installation

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 three 32-bit PCI (Peripheral Components Interconnect), one 4xAGP and one CNR slot.

PCI Slots

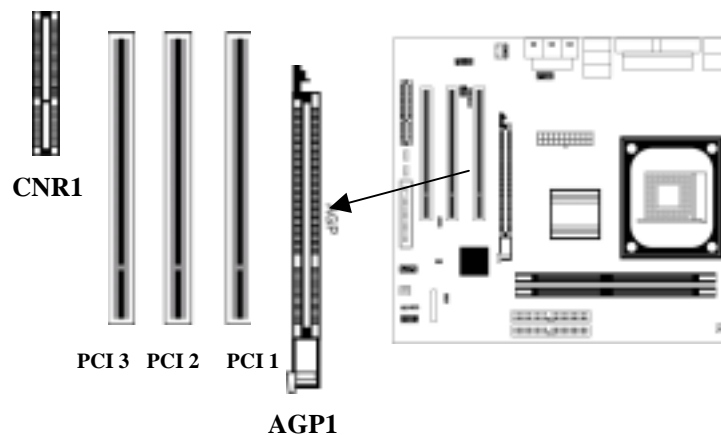
Install expansion cards in PCI slots with 32-bit PCI interface.

4 x AGP Slot

Install a graphic adapter in the 4xAGP slot that supports 4xAGP specification and has a 4xAGP edge connector.

CNR Slot

Insert a CNR card in the Communications Networking Riser (CNR) slot.

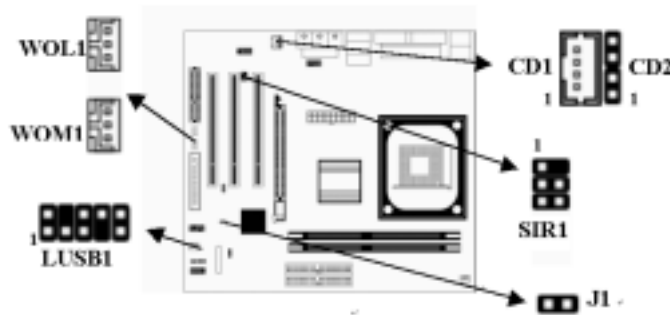


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1. Remove a blanking plate from the system case corresponding to the slot you are going to use.
2. Install the edge connector of the expansion card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.
3. Secure the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



J1: Sleep Switch

Connect this header 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.

J1

Pin	Signal
1	-EXTSMI
2	GND

2: Mainboard Installation

LUSB1: 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 LUSB1 to connect the front-mounted ports to the mainboard.

LUSB1

Pin	Signal	Pin	Signal
1	USBVCC1	2	GND
3	USBDT2-	4	KEY
5	USBDT2+	6	USBDT3+
7	KEY	8	USBDT3-
9	GND	10	USBVCC1

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.

WOL1

Pin	Signal
1	5VSB
2	GND
3	-RING

WOM1

Pin	Signal
1	5VSB
2	GND
3	-RING

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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	CDG
2	CDL
3	CDG
4	CDR

CD2

Pin	Signal
1	CDL
2	CDG
3	CDG
4	CDR

2: Mainboard Installation

SIR1: IR Header

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.

SIR1

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



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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 the 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.

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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 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.

CMOS Setup Utility – Copyright © 1984-2001 Award Software		
▶ <u>Standard CMOS Features</u>	▶ Frequency/Voltage Control	
▶ Advanced BIOS Features	Load Fail-Safe Defaults	
▶ Advanced Chipset Features	Load Optimized Defaults	
▶ Integrated Peripherals	Set Supervisor Password	
▶ Power Management Setup	Set User Password	
▶ PnP/PCI Configurations	Save & Exit Setup	
▶ PC Health Status	Exit Without Saving	
Esc : Quit	F9: Menu in BIOS	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup		
Time, Date, Hard Disk Type...		

The BIOS navigation keys are listed below:

Key	Function
Esc	Escape key: Exits the current menu
← ↓ ↑ →	Cursor keys: Scroll through the items on a menu
+/-/PU/PD	Plus, minus, Page Up and Page Down keys:
D	Modify the selected field's values
F10	F10 key: Saves the current configuration and exits setup
F1	F1 key: Displays a screen that explains all key functions
F5	F5 key: Loads previously saved values to CMOS
F6	F6 key: Loads a best performance configuration for the normal system.
F7	F7 key: Loads an optimum set of values for peak performance

3: BIOS Setup Utility

Standard CMOS Features Page

This page sets up basic information of the date and time, the IDE devices, and the diskette drives.

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Standard CMOS Features

Date (mm:dd:yy)	Thu, Jan 17 2002	Item Help
Time (hh:mm:ss)	18 : 8 : 00	
▶ IDE Primary Master		Menu Level ▶ Change the day, month, year and century.
▶ IDE Primary Slave		
▶ IDE Secondary Master	[None]	
▶ IDE Secondary Slave	[None]	
Drive A	1.44M, 3.5 in.	
Drive B	None	
Floppy 3 Mode Support	[Disabled]	
Video	EGA/VGA	
Halt On	All Errors	
Base Memory	640K	
Extended Memory	65535K	
Total Memory	1024K	

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

Date & Time	Use these items to set the system date and time.
IDE Devices	Your computer has two IDE channels (Primary and Secondary) and each channel can be installed with one or two devices (Master and Slave). Use these items to configure each device on the IDE channel. Press Enter to display the IDE sub-menu. Press Esc to close the IDE device sub-menu and return to the Standard CMOS Features page.
Floppy Drive A Floppy Drive B	Use these items to set the size and capacity of the floppy diskette drive(s) installed in the system.
Video	This item defines the video mode of the system. This mainboard has a built-in VGA graphics system; you must leave this item at the default value.

Halt On	This item defines the operation of the system POST (Power On Self Test) routine. You can use this item to select which types of errors in the POST are sufficient to halt the system.
----------------	---

This page sets up more advanced information about your system. Take some care with this page. Making changes can affect the operation of your computer.

Advanced BIOS Features

Anti-Virus Protection	When enabled, this item provides protection against viruses that try to write to the boot sector and partition table of your hard disk drive. You need to disable this item when installing an operating system. We recommend that you enable this item as soon as you have installed an operating system.
------------------------------	--

3: BIOS Setup Utility

CPU L1 & L2 Cache	All processors that can be installed in this mainboard use internal level 1 (L1) and external level 2 (L2) cache memory to improve performance. Leave this item at the default value for better performance.
CPU L2 Cache ECC Checking	This item enables or disables ECC (Error Correction Code) error checking on the CPU cache memory. We recommend that you leave this item at the default value.
Quick Power On Self Test	You can enable this item to shorten the power on testing (POST) and have your system start up a little faster. You might like to enable this item after you are confident that your system hardware is operating smoothly.
1st/2nd/3rd Boot Device	Use these three items to select the priority and order of the devices that your system searches for an operating system at start-up time.
Boot Other Device	If you enable this item, the system will search all other possible locations for an operating system if it fails to find one in the devices specified under the first, second, and third boot devices.
Swap Floppy Drive	If you have two floppy diskette drives in your system, this item allows you to swap the assigned drive letters so that drive A becomes drive B, and drive B becomes drive A.
Boot Up Floppy Seek	If this item is enabled, it checks the geometry of the floppy disk drives at start-up time. You don't need to enable this item unless you have an old diskette drive with 360K capacity.
Boot Up NumLock Status	This item defines if the keyboard Num Lock key is active when your system is started.
ATA 66/100 IDE Cable Msg.	Enables or disables the display of the ATA 66/100 Cable MSG.
Typematic Rate Setting	If this item is enabled, you can use the following two items to set the typematic rate and the typematic delay settings for your keyboard.

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Typematic Rate (Chars/Sec)/ Delay (Msec)	If the item Typematic Rate Setting is enabled, you can use these items to define how many characters per second are generated by a held-down key and how many milliseconds must elapse before a held-down key begins generating repeat characters.
Security Option	If you have installed password protection, this item defines if the password is required at system start up, or if it is only required when a user tries to enter the Setup Utility.
OS Select For DRAM > 64 MB	This item is only required if you have installed more than 64 MB of memory and you are running the OS/2 operating system. Otherwise, leave this item at the default Non-OS2.
HDD S.M.R.T. Capability	The S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) system is a diagnostics technology that monitors and predicts device performance. S.M.A.R.T. software resides on both the disk drive and the host computer. The disk drive software monitors the internal performance of the motors, media, heads, and electronics of the drive. The host software monitors the overall reliability status of the drive. If a device failure is predicted, the host software, through the Client WORKS S.M.A.R.T applet, warns the user of the impending condition and advises appropriate action to protect the data.
Report No FDD For Win 95	Select Yes to release IRQ6 when the system contains no floppy drive, for compatibility with Windows 95 logo certification. In the Integrated Peripherals screen, select Disabled for the Onboard FDC Controller field.


3: BIOS Setup Utility

Advanced Chipset Features Page

This page sets up some parameters of the mainboard components including the memory, and the system logic.

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Advanced Chipset Features

DRAM Clock/Drive Control	Press Enter		Item Help
AGP & P2P Bridge Control	Press Enter		Menu Level ▶
CPU & PCI Bus Control	Press Enter		
Memory Hole	Disabled		
System BIOS Cacheable	Disabled		
Video RAM Cacheable	Disabled		
Delay Prior To Thermal	16 Min.		
VGA Share Memory Size	32M		
FB Address Conversion	Disabled		
FB Page Close Prediction	Disabled		

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

DRAM Clock/Drive Control	This item allows you to enable or disable the DRAM timing defined by the Serial Presence Detect electrical. It also enables users to set the DRAM Clock.
AGP & P2P Bridge Control	AGP Aperture Size: defines the size of the aperture; AGP Mode: enables or disables the caching of display data for the processor video memory; AGP Driving Control: signals driving current on AGP cards to auto or manual; AGP Fast Write: enables or disables the caching of display data for the video memory of the processor; AGP Master 1 WS Write/Read: implements a single delay when writing/reading to the AGP Bus.
CPU & PCI Bus Control	CPU to PCI Write Buffer: When enabled, writes from the CPU to PCU bus are

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	buffered, to compensate for the speed differences between the CPU and PCI bus; PCI Master 0 WS Write: When enabled, writes to the PCI bus are executed with zero wait states; PCI Delay Transaction: The chipset's embedded 32-bit post write buffer support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1.
Memory Hole	You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements.
System BIOS Cacheable	When enabled, the System BIOS will be cached for faster execution.
Video RAM Cacheable	When enabled, the graphics card's local memory will be cached for faster execution. However, if any program writes to this memory area, a system error may result.
Delay Prior To Thermal	Enables you to set the delay time before the CPU enters auto thermal mode.
VGA Share Memory Size	This item enables you to specify the system memory size to allocate to the video memory.
FB Address Conversion	This feature optimizes the memory address table for VGA frame buffer accesses according to the DRAM page size in use. Enabling this item improves VGA performance especially in tiling address mode. This feature cannot be used simultaneously with CPU direct FB access mode.
FB Page Close Prediction	When enabled, this feature automatically closes frame-buffer DRAM pages no longer needed in tiling address mode. Enabling this item improves DRAM related performance in tiling address mode. This feature has maximum effect when the previous field (FB Address Conversion) is enabled at the same time. Press <Esc> to return to the previous screen.

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Integrated Peripherals Page

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

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Integrated Peripherals		Item Help
VIA OnChip IDE Device	Press Enter	Menu Level ► If you IDE hard drive supports block mode, select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.
VIA OnChip PCI Device	Press Enter	
Super IO Device	Press Enter	
Init Display First	PCI Slot	
OnChip USB Controller	All Enabled	
USB Keyboard Support	Disabled	
USB Mouse Support	Disabled	
IDE HDD Block Mode	Enabled	

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

VIA OnChip IDE Device

On-Chip IDE Channel: enables or disables the PCI IDE channels; **IDE Prefetch Mode:** the onboard IDE drive interfaces supports IDE prefetching, for faster drive access; **IDE Primary/Secondary Master/Slave PIO:** assigns which kind of PIO (Programmed Input/Output) is used by IDE devices; **IDE Primary/Secondary Master/Slave:** Each IDE channel supports a master device and a slave device. This mainboard supports UltraDMA technology, which provides faster access to IDE devices.

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VIA OnChip PCI Device	VIA-3058 AC97 Audio: Enables and disables the onboard audio chip. Disable this item if you are going to install a PCI audio add-on card. VIA-3068 MC97 Modem: Enables and disables the onboard modem. Disable this item if you are going to install an external modem. Onboard Lan Device: Enables and disables the onboard LAN. Onboard Lan Boot Rom: Enables and disables the boot rom of onboard LAN chip.
Super IO Device	Onboard FDC Controller: enables the onboard floppy disk drive controller. Onboard Serial Port1/2: assigns the I/O address and address and interrupt request (IRQ) for onboard serial port 1 (COM1)/port 2 (COM2). UART Mode Select: This field is available if the Onboard Serial Port 2 field is set to any option but Disabled. UART Mode Select enables you to select the infrared communication protocol-Normal (default), IrDA, or ASKIR. IrDA is an infrared communication protocol with a maximum baud rate up to 115.2K bps. ASKIR is Sharp's infrared communication protocol with a maximum baud rate up to 57.6K bps. UR2 Duplex Mode: This field is available when UART 2 Mode is set to either ASKIR or IrDA. This item enables you to determine the infrared (IR) function of the onboard infrared chip. The options are Full and Half (default). Full-duplex means that you can transmit and send information simultaneously. Half-duplex is the transmission of data in both directions, but only one direction at a time. Onboard Parallel Port: assigns the I/O address and interrupt request (IRQ) for the onboard parallel port. Parallel Port Mode: enables to set the data transfer protocol for your parallel port. ECP Mode Use DMA: When the onboard parallel port is ECP mode, the parallel port uses DMA 3 or DMA 1. Game Port Address: sets the I/O address for the game port. Midi Port Address: sets the I/O address for the

3: BIOS Setup Utility

	Midi function. Midi Port IRQ: sets the interrupt request for the Midi function.
Init Display First	This item decides whether your graphics adapter is installed in one of the PCI slots or integrated on the mainboard.
OnChip USB Controller	Enable this item if you plan to use the Universal Serial Bus ports on this mainboard.
USB Keyboard Support	Enable this item if you plan to use a USB mouse.
USB Mouse Support	Enable this item if you plan to use a keyboard connected through the USB port in a legacy operating system (such as DOS) that does not support Plug and Play.
IDE HDD Block Mode	Enable this field if your IDE hard drive supports block mode. Block mode enables BIOS to automatically detect the optimal number of block read and writes per sector that the drive can support and improve the speed of access to IDE devices.

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Power Management Setup Page

This page sets up some parameters for system power management operation.

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Power Management Setup

ACPI Function	Enabled	Item Help
ACPI Suspend Type	S1(POS)	
Power Management Option	User Define	Menu Level ►
HDD Power Down	Disabled	
Suspend Mode	Disabled	
Video Off Option	Suspend -> Off	
Video Off Method	DPMS Support	
MODEM Use IRQ	3	
Soft-Off by PWRBTN	Instant --Off	
Run VGABIOS if S3 Resume	Yes	
PWRON After PWR-Fail	Off	
IRQ/Event Activity Detect	Press Enter	

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

ACPI Function	This item enables or disables the ACPI function.
ACPI Suspend Type	This item defines how your system suspends. In the default, S1 (POS), the suspend mode is equivalent to a software power down. If you select S3 (STR), the suspend mode is a suspend to RAM-the system shuts down with the exception of a refresh current to the system memory.
Power Management Option	This item acts like a master switch for the power-saving modes and hard disk timeouts. If this item is set to Max Saving, power-saving modes occur after a short timeout. If this item is set to Min Saving, power-saving modes occur after a longer timeout. If the item is set to User Define, you can insert your own timeouts for the power-saving modes.
HDD Power Down	The IDE hard drive will spin down if it is not accessed within a specified length of time. Options are from 1 Min to 15 Min and Disable.

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Suspend Mode	The CPU clock will be stopped and the video signal will be suspended if no Power Management events occur for a specified length of time. Full power function will return when a Power Management event is detected. Options are from 1 Min to 1 Hour and Disable.
Video Off Option	This option defines if the video is powered down when the system is put into suspend mode.
Video Off Method	This item defines how the video is powered down to save power.
Modem Use IRQ	If you want an incoming call on a modem to automatically resume the system from a power-saving mode, use this item to specify the interrupt request line (IRQ) that is used by the modem. You might have to connect the fax/modem to the mainboard Wake On Modem connector for this feature to work.
Soft-Off by PWRBTN	Under ACPI (Advanced Configuration and Power management Interface) you can create a software power down. In a software power down, the system can be resumed by Wake Up Alarms. This item lets you install a software power down that is controlled by the normal power button on your system. If the item is set to Instant-Off, then the power button causes a software power down. If the item is set to Delay 4 Sec. then you have to hold the power button down for four seconds to cause a software power down.
Run VGABIOS if S3 Resume	This determines whether or not to enable the system to run the VGA BIOS when resuming from STR/S3.
PWRON After PWR-Fail	This item enables your computer to automatically restart or return to its last operating status after power returns from a power failure.
IRQ/Event Activity Detect	This item opens a submenu to enable you to set up events that will resume the system from a power saving mode. You can set up PS2KB Wakeup Select with Hot Keys; enable or

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disable **PS2KB Wakeup from S3/S4/S5**;
enable or disable **USB Resume from S3**;
VGA: When set to On, the system power will resume the system from a power saving mode if there is any VGA activity; **LPT & COM**: When this item is enabled, the system will restart the power-saving timeout counters when any activity is detected on the serial ports, or the parallel port; **HDD & FDD**: When this item is enabled, the system will restart the power-saving timeout counters when any activity is detected on the hard disk drive or the floppy diskette drive; **PCI Master**: When set to Off, any PCI device set as the Master will not power on the system; **PowerOn by PCI Card**: this item enables PCI activity to wakeup the system from a power saving mode; **WOL/WOM/Ring Resume**: this item enables LAN or modem activity to wakeup the system from a power saving mode; **RTC Alarm Resume**: When set to Enabled, the following two fields become available and you can set the date (day of the month), hour, minute and second to turn on your system. When set to 0 (zero) for the day of the month, the alarm will power on your system every day at the specified time; **IRQs Activity Monitoring**: enables your to set up IRQs that will resume the system from a power saving mode.

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PnP/PCI Configurations Page

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

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PnP/PCI Configurations

PNP OS Installed	No	Item Help
Reset Configuration Data	Disabled	
Resources Controlled by	Auto(ESCD)	Menu Level ►
x IRQ Resources	Press Enter	Select Yes if you are using a Plug and Play capable operating system Select No if you need the BIOS to configure non-boot devices.
PCI/VGA Palette Snoop	Disabled	
Assign IRQ For VGA	Enabled	
Assign IRQ For USB	Enabled	
INT Pin 1 Assignment	Auto	
INT Pin 2 Assignment	Auto	
INT Pin 3 Assignment	Auto	
INT Pin 4 Assignment	Auto	

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

PNP OS Installed	Setting this option to “Yes” allows the PnP OS (instead of BIOS) to assign the system resources such as IRQ and I/O address to the ISA PnP device.
Reset Configuration Data	If you enable this item and restart the system, any PnP configuration data stored in the BIOS setup is cleared from memory. New updated data is created.
Resources Controlled By	You should leave this item at the default Auto (ESCD). Under this setting, the system dynamically allocates resources to plug and play devices as they are required. If you cannot get a legacy ISA (Industry Standard Architecture) expansion card to work properly, you might be able to solve the problem by changing this item to Manual, and then opening up the <i>IRQ Resources</i> and <i>Memory Resources</i> sub-menus. In the <i>IRQ Resources</i> sub-menu, if you change any of the IRQ assignments to Legacy ISA, then that Interrupt Request Line

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	is reserved for a legacy ISA expansion card. Press Esc to close the IRQ Resources sub-menu.
PCI/VGA Palette Snoop	This item is designed to overcome some problems that can be caused by some non-standard VGA cards. This board includes a built-in VGA system that does not require palette snooping so you must leave this item disabled.
Assign IRQ For VGA/USB	Names the interrupt request (IRQ) line assigned to the USB/VGA (if any) on your system. Activity of the selected IRQ always awakens the system.
INT Pin 1 ~4 Assignment	Names the interrupt request (IRQ) line assigned to a device connected to the PCI interface on your system.

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PC Health Status

This page lets you monitor the parameters for critical voltages, critical temperatures, and fan speeds.

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PC Health Status

Shutdown Temperature	[Disabled]	Item Help
CPU VCORE		Menu Level ►
2.50V		
3.30V		
5.00V		
12.00V		
Voltage Battery		
Current System Temp		
Current CPU Temp		
CPU FAN Speed		
CASE FAN Speed		

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

Shutdown Temperature	Enables you to set the maximum temperature the system can reach before powering down.
System Component Characteristics	These fields provide you with information about the systems current operating status. You cannot make changes to these fields.

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Frequency/Voltage Control Page

This page sets up some parameters for frequency and voltage control.

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Frequency/Voltage Control

CPU Clock Ratio	[8 X]	Item Help
Auto Detect PCI DIMM Clk	[Enabled]	Menu Level ►
Spread Spectrum	[Enabled]	
CPU Host/DIMM/PCI Clock	[Default]	

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

CPU Clock Ratio	This item selects a multiplier for the system front-side bus (FSB) frequency.
Auto Detect PCI/DIMM Clk	When this item is enabled, BIOS will disable the clock signal of free DIMM and PCI slots.
Spread Spectrum	Use this item to set the system bus spread spectrum for the installed processor.
CPU Host/DIMM/PCI Clock	The CPU Host Clock sets the front-side bus frequency for the installed processor.

3: BIOS Setup Utility

Load Fail-Safe Defaults Option

This option opens a dialog box that lets you install fail-safe defaults for all appropriate items in the Setup Utility: Press <Y> and then <Enter> to install the defaults. Press <N> and then <Enter> to not install the defaults. The fail-safe defaults place no great demands on the system and are generally stable. If your system is not functioning correctly, try installing the fail-safe defaults as a first step in getting your system working properly again. If you only want to install fail-safe defaults for a specific option, select and display that option, and then press <F6>.

Load Optimized Defaults Option

This option opens a dialog box that lets you install optimized defaults for all appropriate items in the Setup Utility. Press <Y> and then <Enter> to install the defaults. Press <N> and then <Enter> to not install the defaults. The optimized defaults place demands on the system that may be greater than the performance level of the components, such as the CPU and the memory. You can cause fatal errors or instability if you install the optimized defaults when your hardware does not support them. If you only want to install setup defaults for a specific option, select and display that option, and then press <F7>.

Set Supervisor and User Passwords Options

These items install a password. A Supervisor password takes precedence over a User password, and the Supervisor can limit the activities of a User. Follow these steps to install a password:

1. Highlight the item Set Supervisor/User Password on the main menu and press <Enter>.
2. The password dialog box appears.

Enter Password:

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3. If you are installing a new password, type in the password. The password is not longer than eight characters or numbers. The Set Password item differentiates between upper and lower case characters. Press <Enter> after you have typed in the password. If you are deleting a password already installed, press <Enter> when the password dialog box appears. A message indicates the password has been disabled.

PASSWORD DISABLED !!!
Press any key to continue . . .

4. Press any key. You are prompted to confirm the password:

Confirm Password:

5. Type the password again and press <Enter>, or press <Enter> if you are deleting a password already installed.
6. If you typed the password correctly, the password will be installed.

Save & Exit Setup

Highlight this item and press <Enter> to save the changes that you have made in the Setup Utility and exit the Setup Utility. When the Save and Exit dialog box appears, press <Y> to save and exit, or press <N> to return to the main menu.

Exit Without Saving

Highlight this item and press <Enter> to discard any changes that you have made in the Setup Utility and exit the Setup Utility. When the Exit Without Saving dialog box appears, press <Y> to discard changes and exit, or press <N> to return to the main menu.

Chapter 4 Using the Mainboard Software

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 from this page is Windows compliant. They are provided only for the convenience of the users. The following software is furnished under license and may only be used or copies in accordance with the terms of the license.

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

Award Flash Memory Utility

This utility lets you 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/98 SE 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.

MediaRing Talk – Telephony Software

To install the MediaRing Talk voice modem software for the built-in modem, go to the directory \UTILITY\MEDIARING TALK, then run MRTALK-SETUP72.EXE to install the application software.

Super Voice – Fax/Modem Software

To install the Super Voice voice, fax, data communication application for use with the built-in fax/modem, go to the directory \UTILITY\SUPER_VOICE, then run PICSHELL.EXE to install the application software.

4: Using the Mainboard Software

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\CEGHOST

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 from 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 very own home page. To install the PageABC, go to the directory \UTILITYPageABC, and then run SETUP.EXE to install the application software.

This concludes Chapter 4.