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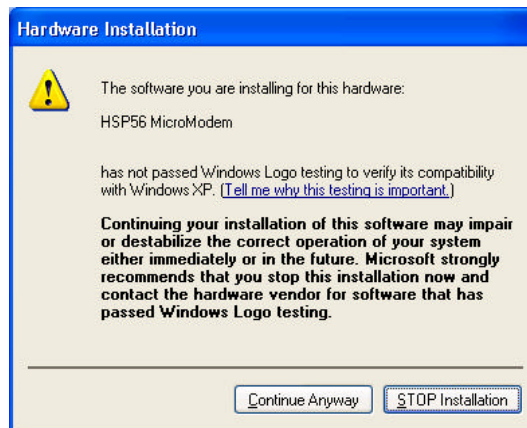
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MS9158E+ Series, V7.3
P4M266A/November 2003

Notice:

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



2. USB 2.0 Driver Limitations:
 - 2-1 The USB 2.0 driver only supports Windows XP and Windows 2000.
 - 2-2 If you connect a USB 2.0 hub to the root hub, plugging USB devices into this hub, the system might not successfully execute certain USB devices' connection because it could not recognize these devices.

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Chapter 1

Introduction

This mainboard has a **Socket 478** for the **Intel Pentium 4** type of processors supporting front side bus (FSB) speeds up to **533/400 MHz**.

This mainboard has the **VIA P4M266A** Northbridge and VT8235 Southbridge chipsets that support **AC 97 audio codec**, and provide **Ultra DMA 133/100/66/33** 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 two 32-bit **PCI** slots, one 4x**AGP** slot, one **CNR** (Communications and Networking Riser) slot, and an onboard **10BaseT/100BaseTX Network** interface (optional). In addition, this mainboard has a full set of I/O ports including two PS/2 ports for mouse and keyboard, one serial port, one VGA port, one parallelport and six USB2.0 ports— four back-panel ports and onboard USB header USB2 providing two extra ports by connecting the Extended USB Module to the mainboard.

This mainboard is a **Micro ATX size** mainboard and has power connectors for an ATX power supply.

Note: You must initiate the HT CPU function through BIOS setup. It is strongly recommended you refer to the Appendix (page 34) for relative details.

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 **533/400 MHz**

Chipset

There are VIA P4M266A 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 266 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 two 184-pin, 2.5V DDR DIMM sockets with a total capacity of 2 GB system memory.
- ◆ Supports DDR 200/**266MHz** memory bus

Built-in Graphics System

- ◆ P4M266A integrates S3®'s Savag8™ graphics accelerator into a single chip. P4M266A 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, P4M266A is an ideal solution for the consumer, corporate mobile users and entry level professionals.
- ◆ Maximum shared memory size is 32 MB.

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

- ◆ Compliant with AC' 97 2.1 specification
- ◆ 16-bit stereo full-duplex CODEC with fixed 48KHz sampling rate
- ◆ 3 analog line-level stereo inputs with 5-bit volume control: LINE-IN, CD-IN, AUX-IN
- ◆ 1 analog line-level mono input: PHONE-IN
- ◆ Three Audio Jacks – Line-Out, Line-In and Microphone-In
- ◆ Sound Blaster, Sound Blaster Pro Compatible
- ◆ Advanced power management support

Expansion Options

The mainboard comes with the following expansion options:

- ◆ Two 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

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
- ◆ Six USB2.0 ports (four back-panel ports, onboard USB header providing two extra ports)
- ◆ Audio jacks for microphone, line-in and line-out

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.

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

Built-in Ethernet LAN (optional)

- ◆ **100Base-TX/10Base-T Physical Layer Solution**
- ◆ Dual Speed – 100/10 Mbps
- ◆ MII Interface to Ethernet Controller/Configuration & Status
- ◆ Auto Negotiation: 10/100, Full/Half Duplex
- ◆ Meet All Applicable IEEE802.3, 10Base-T and 100Base-TX Standards

Bundled Software

- ◆ **PC-Cillin 2002** provides automatic virus protection under Windows 98/ME/NT/2000/XP
- ◆ **Adobe Acrobat Reader V5.0** is the software to help users read .PDF files.

Dimensions

- ◆ Micro ATX form factor of 244 x 200 mm

Note: Hardware specifications and software items are subject to change without notification.

Package Contents

Your mainboard package contains the following items:

- ☐ The mainboard
- ☐ The User's Manual
- ☐ One diskette drive ribbon cable (optional)
- ☐ 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
- ☐ Card Reader (You can buy your own Card Reader from the third party, but please contact your local Card Reader vendor on any issues of the specification and compatibility.)

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

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

Identify the mainboard components

Install a CPU

Install one or more system memory modules

Make sure all jumpers and switches are set correctly

Install this mainboard in a system chassis (case)

Connect any extension brackets or cables to connecting headers on the mainboard

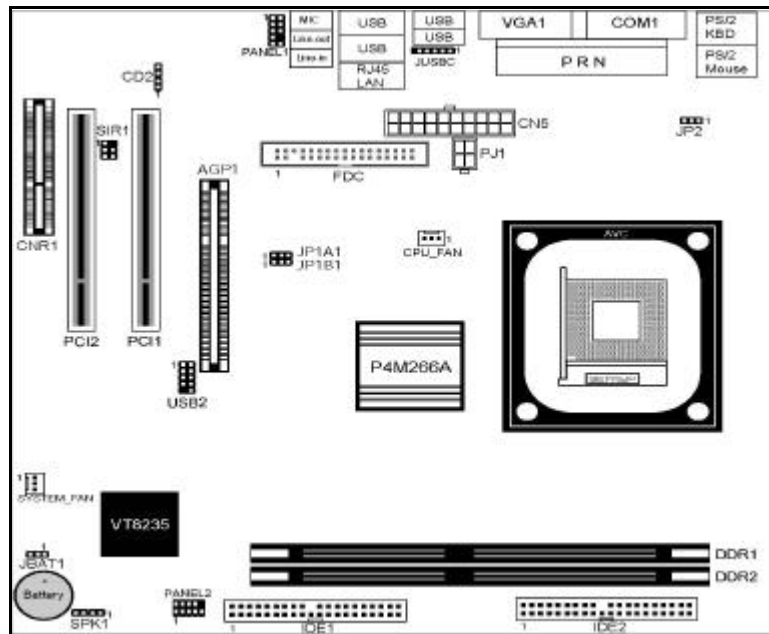
Install other devices and make the appropriate connections to the mainboard connecting headers.

Note:

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

Mainboard Components

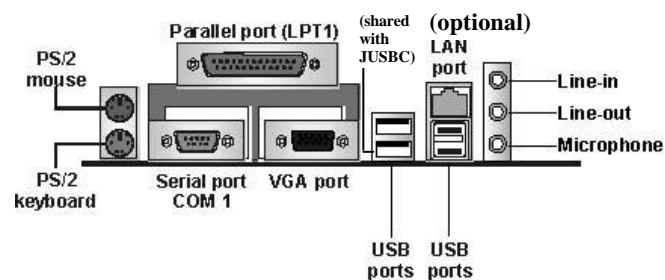
Identify major components on the mainboard via this diagram underneath.



Note: Those jumpers of mainboard not appearing in this illustration are for testing only.

I/O Ports

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



PS/2 Mouse	Use the upper PS/2 port to connect a PS/2 pointing device.
PS/2 Keyboard	Use the lower PS/2 port to connect a PS/2 keyboard.
LPT1	Use LPT1 to connect printers or other parallel communications devices.
COM1	Use the COM port to connect serial devices such as mice or fax/modems. COM1 is identified by the system as COM1.
VGA	Use the VGA port to connect VGA devices.
LAN Port (optional)	Connect an RJ-45 jack to the LAN port to connect your computer to the Network.
USB Ports	Use the USB ports to connect USB devices. <i>Note: The lower USB port located beside the VGA port is shared with the JUSBC connector.</i>
Audio Ports	Use the three audio ports to connect audio devices. The first jack is for stereo Line-In signal. The second jack is for stereo Line-Out signal. The third jack is for Microphone.

Installing the Processor

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

CPU Installation Procedure

Follow these instructions to install the CPU:

1. Unhook the CPU socket's locking lever by pulling it away from socket and raising it to the upright position.
2. Match the pin 1 corner of CPU socket to the one of processor, and insert the processor into the socket. Do not use force.
3. Push the locking lever down and hook it under the latch on the edge of socket.

4. Apply thermal grease to the top of the CPU.
5. Lower the CPU fan/heatsink unit onto the CPU and CPU socket, and then use the retention module clamps to snap the fan/heatsink into place.
6. Plug the CPU fan power cable into the CPU cooling fan power supply (CPU_FAN) on the mainboard.

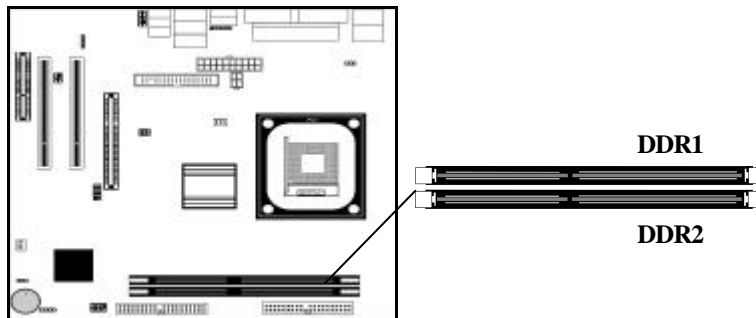
Installing Memory Modules

This mainboard accommodates two 184-pin 2.5V unbuffered Double Data Rate SDRAM (DDR SDRAM) Dual Inline Memory Module (DIMM) sockets, and supports up to 2.0 GB of 200/266 MHz DDR SDRAM.

DDR SDRAM is a type of SDRAM that supports data transfers on both edges of each clock cycle (the rising and falling edges), effectively doubling the memory chip's data throughput. DDR DIMMs can synchronously work with 200 MHz or 266 MHz memory bus.

DDR SDRAM provides 1.6 GB/s or 2.1 GB/s data transfer rate depending on whether the bus is 100 MHz or 133 MHz.

DDR SDRAM uses additional power and ground lines and requires 184-pin 2.5V unbuffered DIMM module.

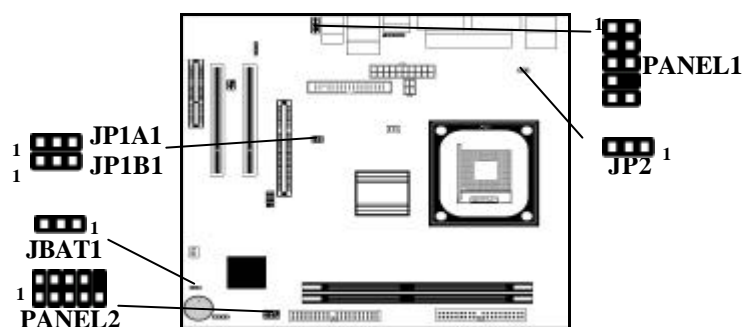


Installation Procedure

These modules can be installed with up to 2 GB system memory. Refer to the following to install the memory module.

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

Jumper Settings



JBAT1: Clear CMOS Jumper

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

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

JP2: Keyboard Power On

This jumper enables any keyboard activity to power up a system previously in a standby or sleep state.

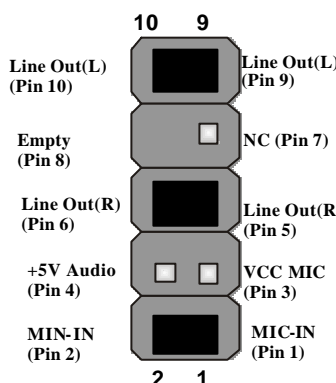
Function	Jumper Setting
5V	Short Pins 1-2
5VSB	Short Pins 2-3

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	Line Out(L) (Pin 10)
Empty	8	Empty (Pin 8)
NC	7	NC (Pin 7)
Line Out (R)	5, 6	Line Out(R) (Pin 6)
+5V Audio	4	+5V Audio (Pin 4)
VCCMIC	3	VCC MIC (Pin 3)
MIC-IN	1,2	MIC-IN (Pin 2)

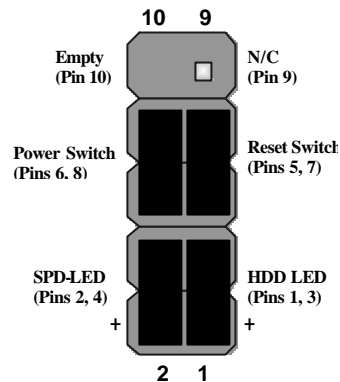


The diagram shows a vertical 10-pin connector. The pins are numbered 10 at the top and 1 at the bottom. The connections are as follows: Pin 10 is Line Out(L); Pin 9 is Line Out(L); Pin 8 is Empty; Pin 7 is NC; Pin 6 is Line Out(R); Pin 5 is Line Out(R); Pin 4 is +5V Audio; Pin 3 is VCC MIC; Pin 2 is MIC-IN; Pin 1 is MIC-IN.

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
SPD-LED Indicator	+2, 4
HDD LED	+1, -3



Other Devices Installation

Floppy Diskette Drive Installation

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

IDE Devices

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

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

IDE devices have jumpers or switches to set the IDE device as MASTER or SLAVE. When installing two IDE devices on one

cable, ensure that one device is set to MASTER and the other one to SLAVE.

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

Expansion Slots Installation

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

4 x AGP (Accelerated Graphics Port) Slot

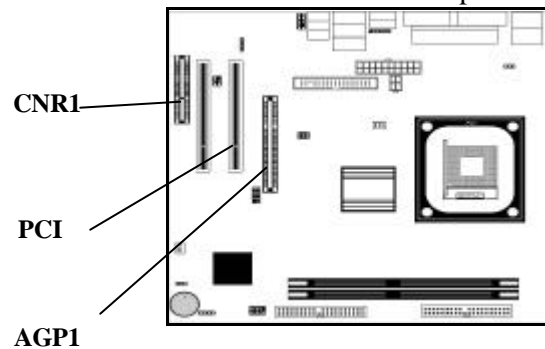
You can install a graphics adapter supporting 4xAGP specification in the AGP slot. This slot has one 4xAGP edge connector.

CNR (Communications Networking Riser) Slot

You can install a CNR (the Communications Networking Riser) card in the CNR slot.

PCI (Peripheral Components Interconnect) Slot

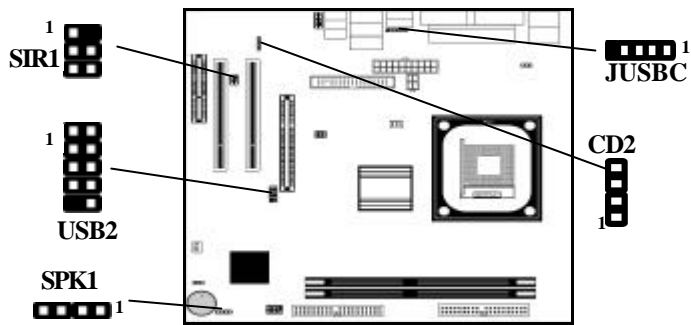
You can install the 32-bit PCI interface expansion cards in the slots.



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:



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

USB2: Front panel USB header

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 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

JUSBC: USB Card Reader Connector (optional)

This connector is for connecting internal USB card reader. You can use a card reader to read or transfer files and digital images to your computer.

Pin	Signal
1	VCC
2	USB-
3	USB+
4	GND
5	KEY

❗ The JUSBC is shared with one of the USB ports of the I/O back panel. The USB port is located beside the VGA port connector. See “I/O Ports” for more information.

❗ Please check the pin assignment of the cable and the USB header on the mainboard. Make sure the pin assignment will match before plugging in. Any incorrect usage may cause unexpected damage to the system. The vendor won't be responsible for any incidental or consequential damage arising from the usage or misuse of the purchased product.

CD2: 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.

When you first start up your system, the BIOS should automatically detect your CD-ROM/DVD drive. If it doesn't, enter the Setup Utility and configure the CD-ROM/DVD drive that you have installed. On the mainboard, locate the 4-pin connector **CD2**.

CD2

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

SIR1: Serial infrared port

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

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

Chapter 3

BIOS Setup Utility

Introduction

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

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

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

Running the Setup Utility

Every time you start your computer, a message appears on the screen before the operating system loading that prompts you to “Hit 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 F6 : Optimal values F7 : Best performance values F10 : Save&Exit	
Standards CMOS setup for changing time, date, hard disk type, etc.	

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

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

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

Standard CMOS Setup Page

This page helps you set up basic information such as the date and time, the IDE devices, and the diskette drives.

AMIBIOS SETUP – STANDARD CMOS SETUP									
(C) 2000 American Megatrends, Inc. All Rights Reserved									
Date (mm/dd/yy) : Mon Apr 28, 2003									
Time (hh/mm/ss) : 17:09:30									
	Type	Size	Cyln	Head	WPcom	Sec	LBA Mode	Blk Mode	PIO 32Bit Mode
Pri Master	: Auto								On
Pri Slave	: Auto								On
Sec Master	: Auto								On
Sec Slave	: Auto								On
Floppy Drive A : 1.44 MB 31/2									
Floppy Drive B : Not Installed									
Month : Jan – Dec							ESC : Exit		
Day : 01 – 31							↑↓ : Select Item		
Year : 1901 – 2099							PU/PD/+/- : Modify		
							(Shift)F2 : Color		
							F3 : Detect All HDD		

Date & Time	Use these items to set up system date and time
IDE Pri Master	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> .
Pri Slave	
Sec Master	
Sec Slave	
Floppy Drive A	Use these items to set up size and capacity of the floppy diskette drive(s) installed in the system.
Floppy Drive B	

Advanced Setup Page

This page sets up more advanced information about your system. Be more careful to this page. Any changes can affect the operation of your computer.

AMIBIOS SETUP – ADVANCED SETUP			
(C) 2000 American Megatrends, Inc. All Rights Reserved			
Quick Boot	Enabled	AGP Aperture Size	64MB
1 st Boot Device	IDE0	Auto detect DIMM/PCI Clk	Enabled
2 nd Boot Device	Floppy	CLK Gen Spread Spectrum	Disabled
3 rd Boot Device	CDROM	Hyper Threading Function	Disabled
Try Other Boot Devices	Yes		
S.M.A.R.T. for Hard Disks	Disabled		
BootUp Num-Lock	On		
Floppy Drive Swap	Disabled		
Floppy Drive Seek	Disabled		
Password Check	Setup		
Boot To OS/2	No		
L2 Cache	Enabled		
System BIOS Cacheable	Enabled		
DRAM Timing by SPD	Disables		
DRAM Frequency	100MHz	ESC : Quit	- → ® : Select Item
DRAM CAS# Latency	2.5	F1 : Help	PU/PD/+/- : Modify
DRAM Bank Interleave	Disabled	F5 : Old Values (Shift)	F2 : Color
AGP Mode	4X	F6 : Load BIOS Defaults	
AGP Comp. Driving	Auto	F7 : Load Setup Defaults	
Manual AGP Comp. Driving	CB		

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

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

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

Hyper Threading Function	<p>If your P4 CPU is not HT CPU, this item will be hidden.</p> <p>If your P4 CPU is HT CPU, BIOS will show this item. You can set "Disabled" or "Enabled" to control HT CPU support in O.S. Set "Enabled" to test HT CPU function.</p>
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Power Management Setup Page

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

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

ACPI Aware O/S	This item supports ACPI (Advanced Configuration and Power management Interface). Use this item to enable or disable the ACPI feature.
Power Management	Use this item to enable or disable a power management scheme. If you enable power management, you can use the items below to set the power management operation. Both APM and ACPI are supported.

Suspend Time Out	This sets the timeout for Suspend mode in minutes. If the time selected passes without any system activity, the computer will enter power-saving Suspend mode.
Hard Disk Time Out	This item sets up the timeout to power down the hard disk drive, if there is no hard disk activity after passing the preset period of time.
Resume On RTC Alarm / Date / Hour / Minute / Second	The system can be turned off with a software command. If you enable this item, the system can automatically resume at a fixed time based on the system's RTC (realtime clock). Use the items below this one to set the date and time of the wake-up alarm. You must use an ATX power supply in order to use this feature.
LAN/Ring Power On	The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the Modem. You must use an ATX power supply in order to use this feature.
Keyboard Power On Wake-Up Key Wake-Up Password	If you enable this item, system can automatically resume by pressing hot keys on the keyboard or typing in the password. You must enable the Keyboard Power On jumper and use an ATX power supply in order to use this feature.

PCI / Plug and Play Setup Page

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

AMIBIOS SETUP – PCI/PLUG AND PLAY SETUP (C) 2000 American Megatrends, Inc. All Rights Reserved		
Plug and Play Aware O/S	Yes	ESC : Quit ← → : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults
Share Memory Size	32MB	
Primary Graphics Adapter	PCI	
Allocate IRQ to PCI VGA	Yes	
PCI IDE BusMaster	Disabled	

Plug and Play Aware O/S	Enable this item if you are using an O/S that supports Plug and Play such as Windows 95 or 98.
Share Memory Size	This item lets you allocate a portion of the main memory for the onboard VGA display application with three options of 8/16/32MB.
Primary Graphics Adapter	This item indicates if the primary graphics adapter uses the PCI or the AGP bus. The default AGP setting still lets the onboard display work and allows the use of a second display card installed in an AGP slot.
Allocate IRQ to PCI VGA	If this item is enabled, an IRQ will be assigned to the PCI VGA graphics system. You set this value to No to free up an IRQ.
PCI IDE BusMaster	This item enables or disables the DMA under DOS mode. We recommend you to leave this item at the default value.

Load Optimal Settings

If you select this item and press **Enter** a dialog box appears. If you press **Y**, and then **Enter**, the Setup Utility loads a set of fail-safe default values. These default values are not very demanding and they should allow your system to function with most kinds of hardware and memory chips.

Note: *It is highly recommended that users enter this option to load optimal values for accessing the best performance.*

Load Best Performance Settings

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

Features Setup Page

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

AMIBIOS SETUP – FEATURES SETUP (C) 2000 American Megatrends, Inc. All Rights Reserved		
OnBoard FDC	Enabled	
OnBoard Serial PortA	3F8h/COM1	
OnBoard IR Port	Disabled	
OnBoard Parallel Port	378h	
Parallel Port Mode	SPP	
Parallel Port IRQ	7	
Parallel Port DMA	N/A	ESC : Quit - - - ® : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults
OnBoard IDE	Both	
Audio Device	Enabled	
Modem Device	Auto	
Ethernet Device	Enabled	
USB Controller	Enabled	
USB Device Legacy Support	Disabled	
ThumbDrive Support for DOS	Disabled	

OnBoard FDC	Use this item to enable or disable the onboard floppy disk drive interface.
OnBoard Serial PortA	Use this item to enable or disable the onboard COM1 serial port, and to assign a port address.
OnBoard IR Port	Use this item to enable or disable the onboard infrared port, and to assign a port address.
Parallel Port Mode	Use this item to set the parallel port mode. You can select SPP (Standard Parallel Port), ECP (Extended Capabilities Port), EPP (Enhanced Parallel Port), or ECP + EPP.
Parallel Port IRQ	Use this item to assign IRQ to the parallel port.
Parallel Port DMA	Use this item to assign a DMA channel to the parallel port.
OnBoard IDE	Use this item to enable or disable the onboard IDE channel.
Audio Device	This item enables or disables the AC' 97 audio chip.
Modem Device	This item enables or disables the MC' 97 modem chip.
Ethernet Device	This item enables or disables the onboard Ethernet LAN.
USB Controller	Use this item to select the USB ports or disabled.
USB Device Legacy Support	This item allows you to enable the USB device, if you have installed a USB device on the system board.
ThumbDrive Support For DOS	Enable this item to make a small portion of memory storage device for the USB ports.

CPU PnP Setup Page

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

AMIBIOS SETUP – CPU PnP SETUP ©2000 American Megatrends, Inc. All Rights Reserved		
CPU BRAND	INTEL	
CPU Type	Pentium 4	
CPU Ratio	8.0x	
CPU Frequency	100MHz	
		ESC : Quit - → ® : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift) F2 : Color F6 : Load Optimal values F7 : Load Best performance values

CPU BRAND/Type/ Core Voltage/Ratio /Frequency	These items show the type, core voltage, ratio and frequency of CPU installed in your system.
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Hardware Monitor Page

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

AMIBIOS SETUP – HARDWARE MONITOR (C) 2000 American Megatrends, Inc. All Rights Reserved		
*** System Hardware ***		
Vcore	1.632V	
Vcc 2.5V	2.496V	
Vcc 3.3V	3.392V	
Vcc 5V	4.945V	
+12V	12.096V	
-12V	-11.968V	
SB5V	5.026V	
VBAT	3.472V	
SYSTEM Fan Speed	0 RPM	
CPU Fan Speed	1308 RPM	
Power Temperature	33°C/91°F	
SYSTEM Temperature	40°C/104°F	
CPU Temperature	36°C/96°F	
		ESC : Quit - → ® : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift) F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults

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

Change Password

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

Exit

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

Chapter 4

About the Software & CD-ROM

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

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

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

Utility Software Reference

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

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

AMI Flash Memory Utility

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

PC-CILLIN 2002

The PC-CILLIN software program provides anti-virus protection for your system. This program is available for Windows XP/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.

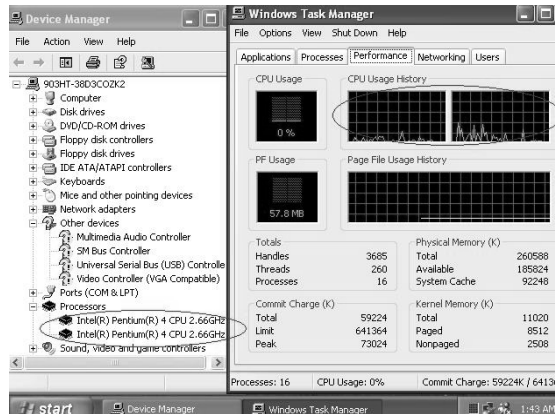
Hyper Threading CPU

You must update BIOS to initiate BIOS Hyper Threading Function and use HT CPU function under WinXP Operating System; if not, please disable this option.

- ◆ When BIOS detects the HT CPU, it shows the “Hyper Threading Function (default Disabled)” option, which you must set Enabled if you want to test HT CPU function. If there is no HT CPU, this option is hidden and default Disabled.



- ◆ You must re-install WINXP to activate the HT CPU function.



While you are in Windows Task Manager, please push down ctrl+Alt Del keys. A dual CPU appears in the CPU Usage History&Device Manager under WinXP.

Note: Hyper Threading Function only works under WINXP Operating System; therefore, disable it under other Operating System.
