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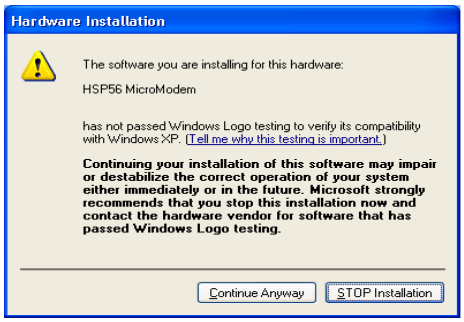
M902 Series, V1.1C
I845D/March 2002

Notice:

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



2. USB 2.0 Driver Limitations:
   - 2-1 After restarting Microsoft Windows XP operating system, USB device disappears or an exclamatory mark pops out (for example, SB HDD); please disconnect, and hot plug USB device again to get back normal function.
   - 2-2 While you are installing USB 2.0 driver under Windows XP, USB Keyboard and USB Mouse can't work out, but as the driver's installation is completed, they will resume working. Therefore, we strongly recommend you use PS2 Keyboard or PS2 Mouse while installing USB 2.0 driver.
   - 2-3 USB 2.0 port, under Microsoft operating systems, does neither support S1, S3, S4 (hibernate) Wake-Up nor S5 power-saving Sleeping modes while connecting any USB peripheries.
   - 2-4 If under DOS modes (DOS 6.x, Suspend To DOS and Window Return), USB 2.0 port doesn't support any USB peripheries.

Currently, we are working on such limitations' solution. As soon as the solution is done, the updated USB drive will be released to our website: www.pcchips.com.tw for your downloading.

Table of Contents

Chapter 1

Introduction

This mainboard has a **Socket-478** support for **Intel Pentium4** processors with front-side bus (FSB) speeds up to **400 MHz**.

This mainboard has the **Intel 845D** chipset that contains Intel 82845 Memory Controller Hub and Intel 82801BA I/O Controller Hub. It supports **AC 97 audio codec** and provides **Ultra DMA** 33/66/**100** function. This mainboard has five 32-bit PCI, one 4**xAGP** and one **CNR** (Communications and Networking Riser) slot. There is a full set of I/O ports including two PS/2 ports for mouse and keyboard, two serial ports, one parallel port, one MIDI/ game port and maximum six USB ports. By means of the Extended USB Module connected to the mainboard, you can make maximum four extra USB ports.

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

Key Features

This mainboard has these key features:

Socket-478 Processor

- Supports **Intel Pentium 4 series** CPUs
- Supports up to 400 MHz Front-Side Bus

Memory Support

- Two 168-pin DIMM slots for SDRAM memory modules
- Two 184-pin DIMM slots for DDR SDRAM memory modules
- Support SDRAM up to 133 MHz/DDR up to 266 MHz memory bus
- Maximum installed memory is 2GB

Notice: YOU can NOT work SDRAM and DDR simultaneously.

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:

- Four 32-bit PCI Master slots(PCI 1~4) and one Slave slot(PCI5)
- Supports IDE Ultra DMA bus mastering with transfer rates of 33/66/100 MB/sec
- One 4x AGP slot **only supports** 1.5V 4x AGP card
- 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
- Two serial ports
- One parallel port
- One MIDI/game port
- Six USB ports (two back-panel USB 2.0 ports, onboard USB headers providing maximum four extra ports: header JUSB2 for USB 2.0 and header USB2 for USB 1.1)
- Audio jacks for microphone, line-in and line-out

Fast Ethernet LAN

- Built-in **10BaseT/100BaseTX Ethernet LAN**
- Integrated Fast Ethernet MAC and full compliance with IEEE 802.3u 100 Base-T specifications and IEEE 802.3x Full Duplex Flow Control
- In compliance with ACPI 1.0 and the Network Device Class Power Management 1.0
- High Performance achieved by 100Mbps clock generator and data recovery circuit for 100Mbps receiver

USB 2.0 (optional VT6202)

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

BIOS Firmware

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

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

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

Bundled Software

- **PC-Cillin 2000** provides automatic virus protection under Windows 98/ME/NT/2000/XP
- **MediaRing Talk** provides PC to PC or PC to Phone internet phone communication
- **3Deep** delivers the precise imagery and displays accurate color in your monitor
- **Recovery Genius 21st V5.0** provides the function to recover, reserve and transfer hard disk data.
- **CD Ghost** is the software stimulating a real CD-ROM to perform equivalent function.
- **Language Genius 21st** is the software to provides learning tools of language and singing.
- **PC DJ** is a dual-MP3 player that enables users to actually mix music right on their own personal computers.
- **Adobe Acrobat Reader V5.0** is the software to help users read .PDF files.

Dimensions

- ATX form factor of 305 x 244mm

Package Contents

Attention: This mainboard serial has three models, M902LR (LAN Ready), M902 and M902ULR (USB 2.0, LAN Ready). Please contact your local supplier for more information about your purchased model. Each model will support different specification listed as below:

Model	Specification
M902LR	Onboard LAN PHY chipset (U3), USB connector only.
M902	Support USB connector only
M902ULR	Onboard VT6202 USB 2.0 chipset (U9), RTL8100 LAN chipset (U3), support USB + RJ-45 LAN connector

Your mainboard package contains the following items:

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

Optional Accessories

You can purchase the following optional accessories for this mainboard.

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

Static Electricity Precautions

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

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

Pre-Installation Inspection

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

Chapter 2
Mainboard Installation

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

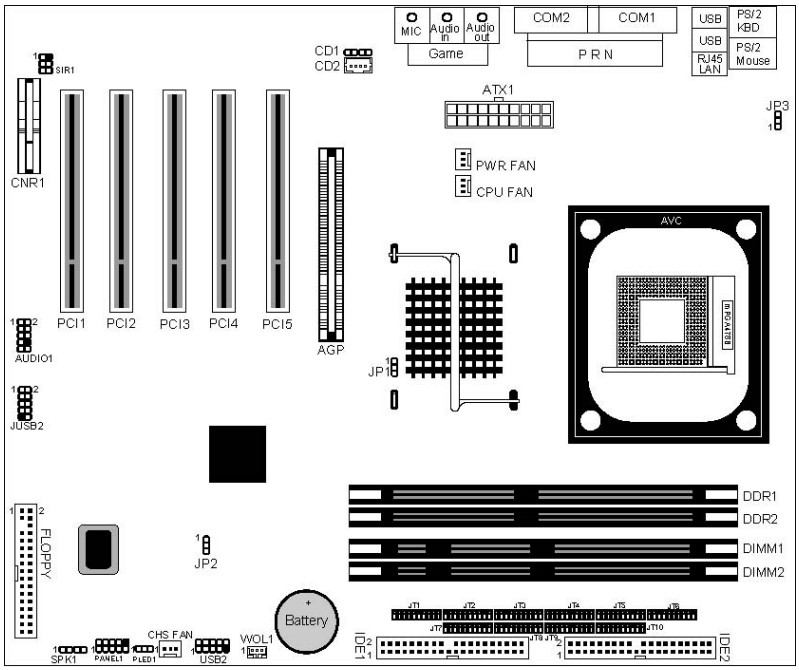
- Identify the mainboard components
- Install a CPU
- Install one or more system memory modules
- Make sure all jumpers and switches are set correctly
- Install this mainboard in a system chassis (case)
- Connect any extension brackets or cables to connecting headers on the mainboard
- Install other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

Note:

1. Before installing this mainboard, make sure jumper JP2 is under Normal setting. See this chapter for information about locating JP2 and the setting options.
2. Never connect power to the system during installation; otherwise, it may damage the mainboard.

Mainboard Components

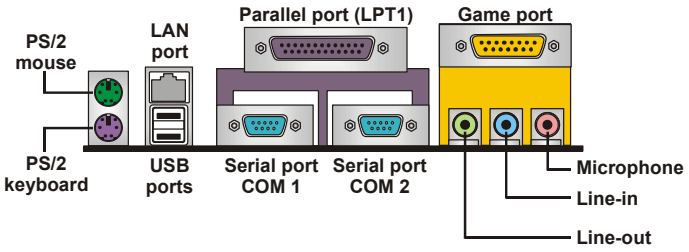
Identify major components on the mainboard via this diagram underneath.



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

I/O Ports

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



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

Installing the Processor

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

CPU Installation Procedure

Follow these instructions to install the CPU:

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

Installing Memory Modules

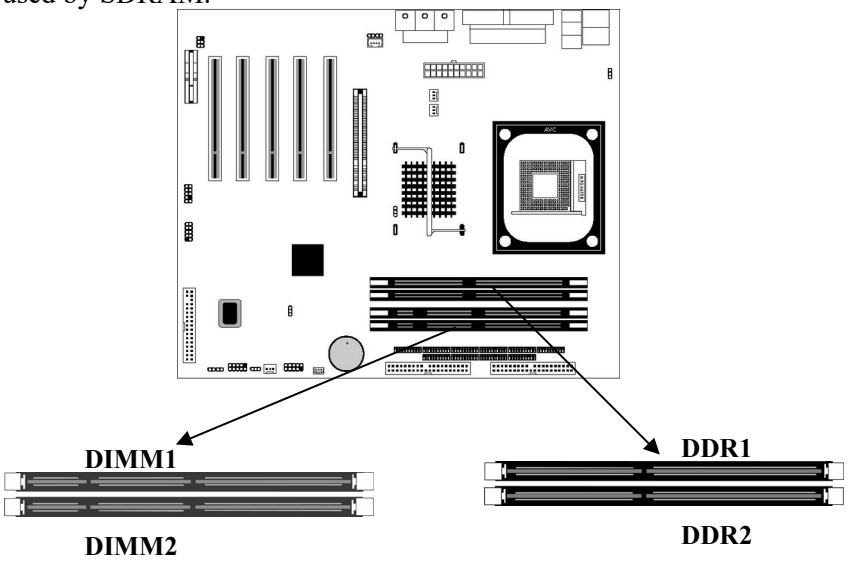
This mainboard accommodates 168-pin 3.3V/184-pin 2.5V unbuffered SDRAM memory modules. The memory chips must be standard or registered SDRAM (Synchronous Dynamic Random Access Memory).

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

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

Note: Please be noted you must set up the correct jumper settings (JP1 and JT1~JT10) as described in page 13 of this chapter.

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

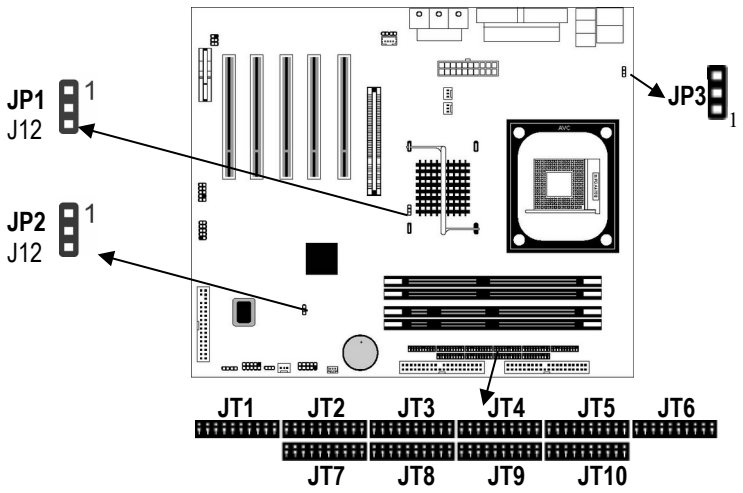


Installation Procedure

The mainboard accommodates two memory modules. You must install at least one module in any of the three slots. Each module can be installed with up to 2 GB system memory.
Refer to the following to install the memory modules.

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

Jumper Settings



JP1: DDR/SDR DRAM Type Selector

This jumper enables to select DDR or SDR DRAM type.

Function	Jumper Setting
SDRAM	Short Pins 1-2
DDR	Short Pins 2-3

JT1~JT10: DDR/SDR DRAM Type Selector

This jumper enables to select DDR or SDR DRAM type.

Function	Jumper Setting
SDRAM	Open all JT1~JT10 pins
DDR	Short all JT1~JT10 pins

JP2: Clear CMOS Jumper

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

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

JP3: Keyboard Power On

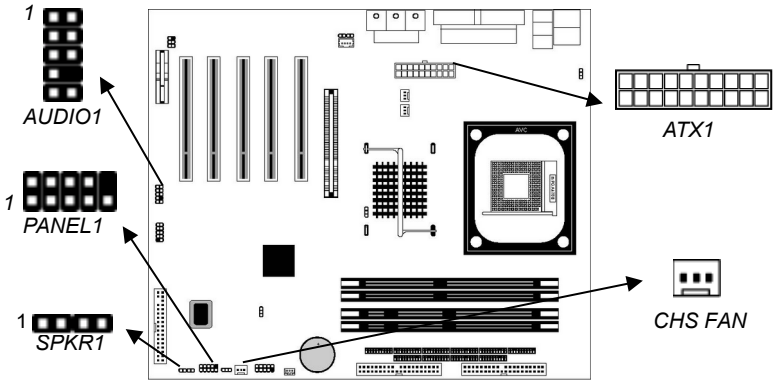
If the Keyboard Power On is enabled, hot keys on the keyboard can work as a power on/off switch for the system.

Function	Jumper Setting
Disabled	Short Pins 1-2
Enabled	Short Pins 2-3

Note: The system must supply at least 1A on the +5VSB (+5V Standby) signal before enabling the Keyboard Power On function.

Install the Mainboard

Install the mainboard in a system chassis (case). The board is an ATX size mainboard with a twin-tier of I/O ports. You can install this mainboard in an ATX case. Ensure that your case has an I/O cover plate that matches the ports on this mainboard.
Install the mainboard in a case. Follow the instructions provided by the case manufacturer using the hardware and internal mounting points on the chassis.



Connect the power connector from the power supply to the **ATX1** connector on the mainboard.
If there is a cooling fan installed in the system chassis, connect the cable from the cooling fan to the **CHS FAN** fan power connector on the mainboard.
Connect the cable from the PC speaker to the **SPKR1** header on the mainboard.

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

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

Pin	Signal	Pin	Signal
1	HDD_LED_P	2	ACPI-LED
3	HDD_LED_N	4	ACPI-LED
5	RESET_SW_N	6	POWER-BT
7	RESET_SW_P	8	POWER-BT
9	KEY	10	KEY

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

Pin	Signal	Pin	Signal
1	AUD_MIC	2	AUD_GND
3	AUD_MIC_BIAS	4	AUD_VCC
5	AUD_FPOUT_R	6	GND
7	HP_ON	8	KEY
9	AUD_FPOUT_L	10	GND

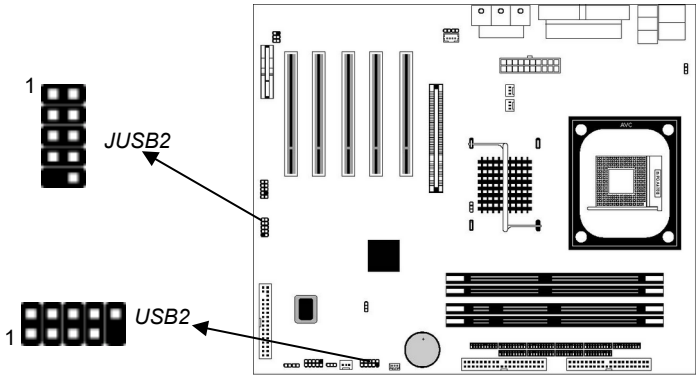
Optional Extension Brackets

For this mainboard, you can also obtain a USB module extension bracket for more USB ports. Install them by following the steps below.

Note: *All the ribbon cables used on the extension brackets have a red stripe on the Pin-1 side of the cable.*

Extended USB Module

This module bracket has four USB ports for more USB devices (USB port JUSB2, USB2).

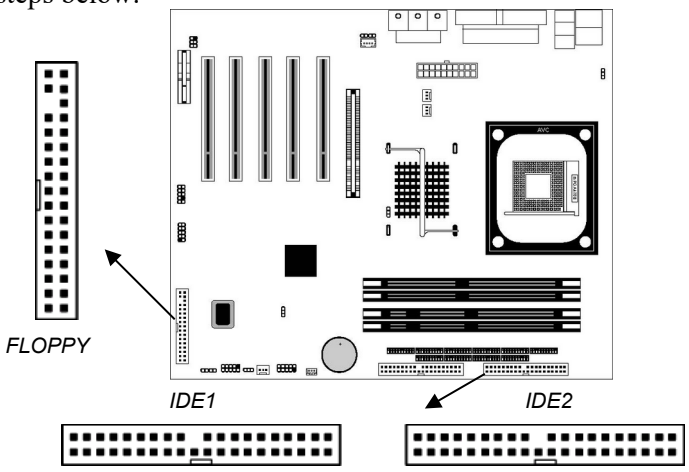


Pin	Signal	Pin	Signal
1	VERG_FP_USBPWR0	2	VERG_FP_USBPWR0
3	USB_FP_P0-	4	USB_FP_P1-
5	USB_FP_P0+	6	USB_FP_P1+
7	GROUND	8	GROUND
9	KEY	10	USB_FP_OC0

1. Locate the JUSB2/USB2 header on the mainboard.
2. Plug the bracket cable onto the JUSB2/USB2 header.
3. In the system chassis, remove a slot cover from one of the expansion slots and install the extension bracket in the opening. Use the screw that held the slot cover in place to secure the extension bracket to the chassis.

Install Other Devices

Install and connect any other devices in the system following the steps below.



Floppy Disk Drive

The mainboard ships with a floppy disk drive cable that can support one or two drives. Drives can be 3.5" or 5.25" wide, with capacities of 360K, 720K, 1.2MB, 1.44MB, or 2.88MB.
Install your drives and connect power from the system power supply. Use the cable provided to connect the drives to the floppy disk drive connector **FLOPPY**.

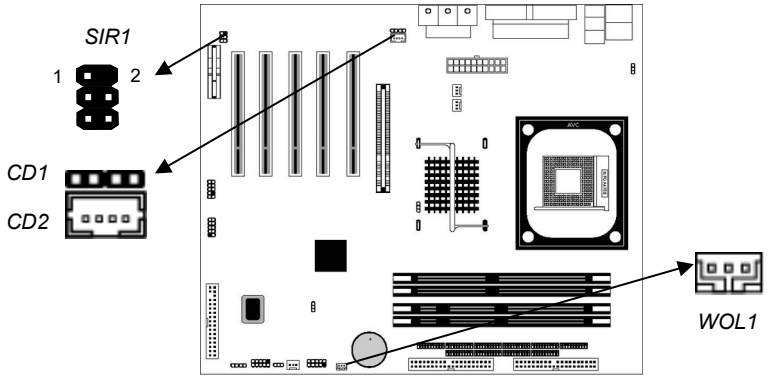
IDE Devices

IDE devices include hard disk drives, high-density diskette drives, and CD-ROM or DVD-ROM drives, among others.
The mainboard ships with an IDE cable that can support one or two IDE devices. If you connect two devices to a single cable, you must configure one of the drives as Master and one of the drives as Slave. The documentation of the IDE device will tell you how to configure the device as a Master or Slave device. The Master device connects to the end of the cable.
Install the device(s) and connect power from the system power supply. Use the cable provided to connect the device(s) to the Primary IDE channel connector **IDE1** on the mainboard.

If you want to install more IDE devices, you can purchase a second IDE cable and connect one or two devices to the Secondary IDE channel connector **IDE2** on the mainboard. If you have two devices on the cable, one must be Master and one must be Slave.

Internal Sound Connections

If you have installed a CD-ROM drive or DVD-ROM drive, you can connect the drive audio cable to the onboard sound system.



On the mainboard, locate the two 4-pin connectors **CD1** and **CD2**. There are two kinds of connector because different brands of CD-ROM drive have different kinds of audio cable connectors. Connect the cable to the appropriate connector.

CD1

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

CD2

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

WOL1: Wake On LAN

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.

Pin	Signal
1	5VSB
2	GND
3	-RING

Infrared Port

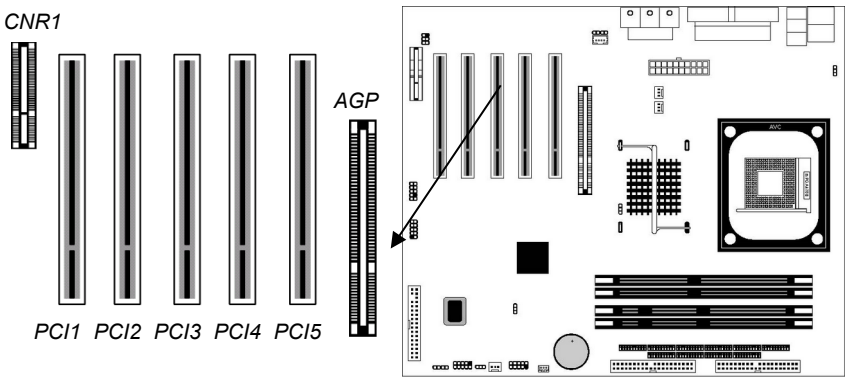
You can connect an infrared port to the mainboard. You can purchase this option from third-party vendors.

1. Locate the infrared port **SIR1** header on the mainboard.
2. If you are adding an infrared port, connect the ribbon cable from the port to the IR header and then secure the port to an appropriate place in your system chassis.

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

Expansion Slots

This mainboard has one AGP, one CNR and five 32-bit PCI slots.



Follow the steps below to install an AGP/CNR/PCI expansion card.

1. Locate the AGP, CNR or PCI slots on the mainboard.
2. Remove the slot cover for this slot from the system chassis.
3. Insert the expansion card edge connector into the slot and press it firmly down into it so that it is fully inserted.
4. Secure the expansion card bracket to the system chassis using the screw that held the slot cover in place.

PCI Slots

You can install 32-bit PCI interface expansion cards in PCI slots. Slot1 only supports PC5 Slave mode. It is recommended you give first priority to PCI 1~4 slots while inserting cards.

4x AGP Slot

The 4x AGP slot is used to install a graphics adapter that supports the 4xAGP specification and has a 4x AGP edge connector.
The 4x AGP slot only supports 1.5V 4x AGP card.
Warning: Please be sure DO NOT install 3.3V AGP 4X VGA card on the mainboard, because it may cause the malfunction.

CNR Slot

This slot is used to insert CNR(Communications and Networking Riser) cards including LAN, Modem, and Audio functions.

Chapter 3
BIOS Setup Utility

Introduction

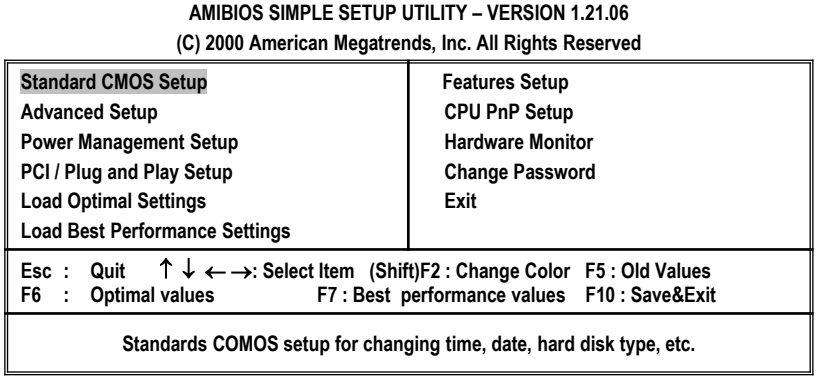
The BIOS Setup Utility records settings and information of your computer, such as date and time, the type of hardware installed, and various configuration settings. Your computer applies those information to initialize all the components when booting up and basic functions of coordination between system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

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

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

Running the Setup Utility

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



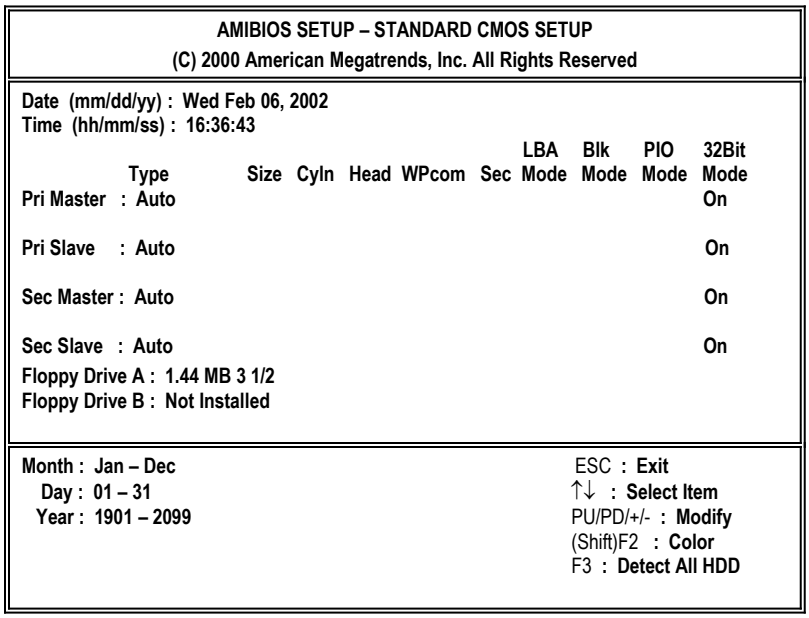
You can use cursor arrow keys to highlight anyone of options on the main menu page. Press **Enter** to select the highlighted option. Press the **Escape** key to leave the setup utility. Hold down the **Shift** key and press **F2** to cycle through the Setup Utility's optional color schemes.

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

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

Standard CMOS Setup Page

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



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

Advanced Setup Page

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

AMIBIOS SETUP – ADVANCED SETUP (C) 2000 American Megatrends, Inc. All Rights Reserved		
Quick Boot	Enabled	
1st Boot Device	IDE-0	
2nd Boot Device	Floppy	
3rd Boot Device	CDROM	
Try Other Boot Devices	Yes	
S.M.A.R.T. for Hard Disks	Disabled	
Floppy Drive Swap	Disabled	
Floppy Drive Seek	Disabled	
PS/2 Mouse Support	Enabled	
Password Check	Setup	ESC : Quit ↑↓←→ : Select Item
L2 Cache	Enabled	F1 : Help PU/PD/+/- : Modify
System BIOS Cacheable	Enabled	F5 : Old Values (Shift)F2 : Color
SDRAM Timing by SPD	Enables	F6 : Load BIOS Defaults
SDRAM CAS# Latency	3 Clocks	F7 : Load Setup Defaults
SDRAM RAS# Precharge	3 Clocks	
SDRAM RAS# to CAS# Delay	3 Clocks	
SDRAM Precharge Delay	7 Clocks	
Auto detect DIMM/PCI Clk	Enabled	
CLK Gen Spread Spectrum	Disabled	

Quick Boot	If you enable this item, the system starts up more quickly be elimination some of the power on test routines.
1st Boot Device **2nd Boot Device** **3rd Boot Device**	Use these items to determine the device order the computer uses to look for an operating system to load at start-up time.
Try Other Boot Device	If you enable this item, the system will also search for other boot devices if it fails to find an operating system from the first two locations.
S.M.A.R.T. for Hard Disks	Enable this item if any IDE hard disks support the S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) feature.
Floppy Drive Swap	If you have two diskette drives installed and you enable this item, drive A becomes drive B and drive B becomes drive A.
Floppy Drive Seek	If you enable this item, your system will check all floppy disk drives at start up. Disable this item unless you are using an old 360KB drive.
PS/2 Mouse Support	Enable this item if you plan to use a PS/2 mouse.
Password Check	If you have entered a password for the system, use this item to determine, if the password is required to enter the Setup Utility (*Setup*) or required both at start-up and to enter the Setup Utility (*Always*).
L2 Cache	Leave these items enabled since all the processors that can be installed on this board have internal L2 cache memory.
System BIOS Cacheable	If you enable this item, a segment of the system BIOS will be copied to main memory for faster execution.
SDRAM Timing By SPD	This item allows you to enable or disable the SDRAM timing defined by the Serial Presence Detect electrical.

SDRAM CAS# Latency	This item determines the operation of SDRAM memory CAS (column address strobe). It is recommended that you leave this item at the default value. The 2T setting requires faster memory that specifically supports this mode.
SDRAM RAS# Precharge	Select the number of CPU clocks allocated for the Row Address Strobe (RAS#) signal to accumulate its charge before the SDRAM is refreshed. If insufficient time is allowed, refresh may be incomplete and data lost.
SDRAM RAS# to CAS# Delay	This field lets you insert a timing delay between the CAS and RAS strobe signals, used when SDRAM is written to, read from, or refreshed. Disabled gives faster performance; and Enabled gives more stable performance.
SDRAM RAS# Precharge Delay	The precharge time is the number of cycles it takes for SDRAM to accumulate its charge before refresh.
Auto detect DIMM/PCI Clock	When this item is enabled, BIOS will disable the clock signal of free DIMM/PCI slots.
CLK Spread Spectrum	Use this item to set the system bus spread spectrum for the installed processor.

Power Management Setup Page

This page sets some parameters for system power management operation.

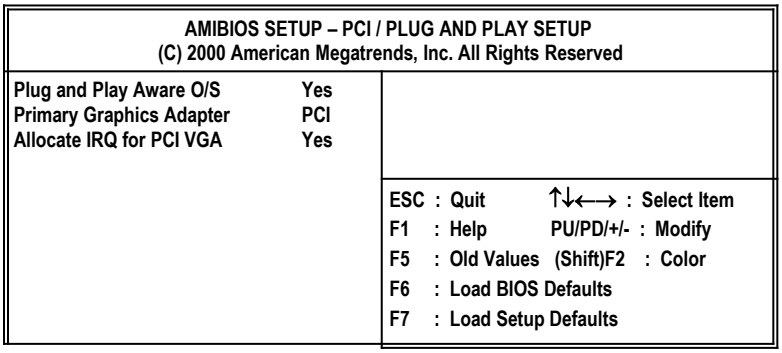
AMIBIOS SETUP – POWER MANAGEMENT SETUP (C) 2000 American Megatrends, Inc. All Rights Reserved		
Keyboard Power On Function	Disabled	
Specific Key for PowerOn	N/A	
Mouse PowerOn Function	Disabled	
ACPI Aware O/S	Yes	
Power Management/APM	Enabled	
Hard Disk Time Out (Minute)	Disabled	
Suspend Time Out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

Keyboard Power On Function	If you enable this item, you can turn the system on and off by pressing hot keys on the keyboard. You must enable the Keyboard Power On jumper and use an ATX power supply in order to use this feature.
Specific Key for PowerOn	When the Power On function is set to Password, use this item to set the password.
Mouse PowerOn Function	Enable this item if you plan to use a keyboard connected through the USB port in a legacy operating system.
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.
Hard Disk Time Out (Minute)	This sets the timeout to power down the hard disk drive, if the time selected passes without any hard disk activity.
Suspend Time Out (Minute)	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.
LAN/Ring PowerOn	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.

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.

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.



Plug and Play Aware O/S	Enable this item if you are using an O/S that supports Plug and Play such as Windows 95 or 98.
Primary Graphics Adapter	This item indicates if the primary graphics adapter uses the PCI or the AGP bus. The default AGP setting still lets the onboard display work and allows the use of a second display card installed in an AGP slot.
Allocate IRQ for PCI VGA	If this item is enabled, an IRQ will be assigned to the PCI VGA graphics system. You set this value to No to free up an IRQ.

Load Optimal Settings

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

Load Best Performance Settings

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

Features Setup Page

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

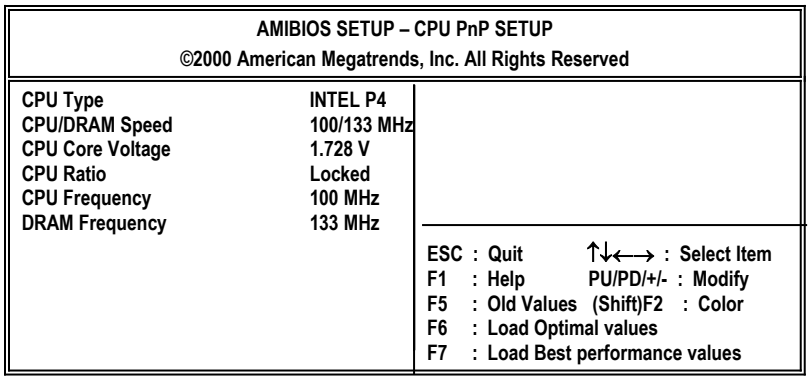
AMIBIOS SETUP – FEATURES SETUP (C) 2000 American Megatrends, Inc. All Rights Reserved		
USB Function Support	Enabled	
USB Function For DOS	Disabled	
ThumbDrive Support For DOS	Disabled	
OnBoard IDE	Both	
OnBoard AC'97 Audio	Auto	
OnBoard MC'97 Modem	Auto	
OnBoard FDC	Enabled	
OnBoard Serial PortA	3F8/COM1	ESC : Quit ↑↓←→ : Select Item
OnBoard Serial PortB	2F8/COM2	F1 : Help PU/PD/+/- : Modify
Serial Port B Mode	Normal	F5 : Old Values (Shift)F2 : Color
IR Duplex Mode	Half Duplex	F6 : Load BIOS Defaults
IR Pin Select	IRRX/IRTX	F7 : Load Setup Defaults
OnBoard Parallel Port	378	
Parallel Port Mode	ECP	
EPP Version	N/A	
Parallel Port IRQ	7	
Parallel Port DMA	3	
OnBoard MIDI Port	300	
MIDI IRQ Select	5	
OnBoard Game Port	201	

USB Function Support	Enable this item if you plan to use the USB ports on this mainboard.
USB Function For DOS	Enable this item if you plan to use the USB ports on this mainboard in a DOS environment.
ThumbDrive Support For DOS	Enable this item to make a small portion of memory storage device for the USB ports.
OnBoard IDE	Use this item to enable or disable the onboard IDE channel.
OnBoard AC'97 Audio	This item enables or disables the AC'97 audio chip.
OnBoard MC'97 Modem	This item enables or disables the MC'97 modem chip.
OnBoard FDC	Use this item to enable or disable the onboard floppy disk drive interface.
OnBoard Serial PortA/B	Use these items to enable or disable the onboard COM1/2 serial port, and to assign a port address.
Onboard Parallel Port	Use this item to enable or disable the onboard LPT1 parallel port, and to assign a port address. The Auto setting will detect and available address.
Parallel Port Mode	Use this item to set the parallel port mode. You can select SPP (Standard Parallel Port), ECP (Extended Capabilities Port), EPP (Enhanced Parallel Port), or ECP + EPP.
Parallel Port IRQ	Use this item to assign IRQ to the parallel port.
Parallel Port DMA	Use this item to assign a DMA channel to the parallel port.
OnBoard MIDI Port	Use this item to enable or disable the onboard MIDI port, and to assign a port address.
MIDI IRQ	Use this item to assign IRQ 5 to the

Select	parallel port.
OnBoard Game Port	This item enables or disables the I/O address for the game port.

CPU PnP Setup Page

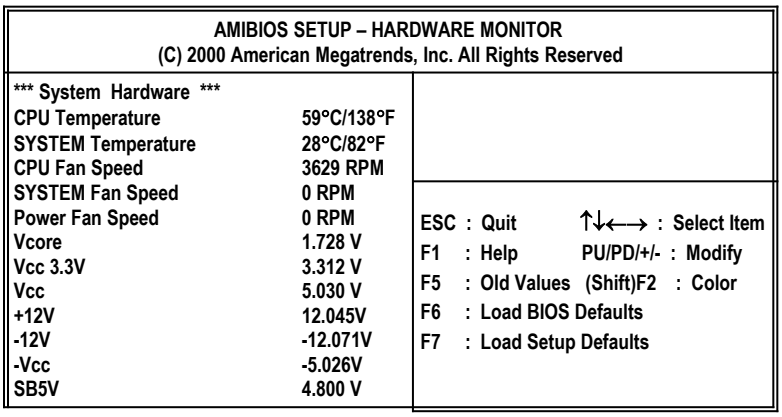
This page helps you manually configure the CPU of this mainboard. The system will automatically detect the type of installed CPU and make the appropriate adjustments to these items on this page.



CPU Type/ Core Voltage/Ratio / Frequency	These items show the type, core voltage, ratio and frequency of CPU installed in your system.
DRAM Speed/ Frequency	These items decide DRAM speed /frequency installed in your system.

Hardware Monitor Page

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



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
Software & Applications

Introduction

This chapter describes the contents of the support CD-ROM that comes with the mainboard package.

The support CD-ROM contains all useful software, necessary drivers and utility programs to properly run our products. More program information is available in a README file, located in the same directory as the software.

To run the support CD, simply insert the CD into your CD-ROM drive. An Auto Setup screen automatically pops out, and then you can go on the auto-installing or manual installation depending on your operating system.

If your operating system is Windows 98/ME/2000/XP, it will automatically install all the drivers and utilities for your mainboard; if Windows NT or manual installation, please follow the instructions described as the Installing under Windows NT or Manual Installation section.

Installing Support Software

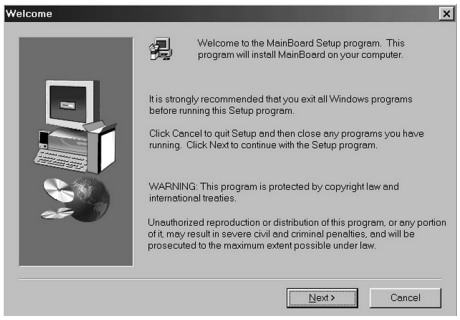
1.Insert the support CD-ROM disc in the CD-ROM drive.
2.When you insert the CD-ROM disc in the system CD-ROM drive, the CD automatically displays an Auto Setup screen.
3.The screen displays three buttons of **Setup**, **Browse CD** and **Exit** on the right side, and three others **Setup**, **Application** and **ReadMe** at the bottom. Please see the following illustration.

The **Setup** button runs the software auto-installing program as explained in next section.
The **Browse CD** button is a standard Windows command that you can check the contents of the disc with the Windows 98 file browsing interface.
The **Exit** button closes the Auto Setup window. To run the program again, reinsert the CD-ROM disc in the drive; or click the CD-ROM driver from the Windows Explorer, and click the Setup icon.
The **Application** button brings up a software menu. It shows the bundled software that this mainboard supports.
The **ReadMe** brings you to the Install Path where you can find out path names of software driver.

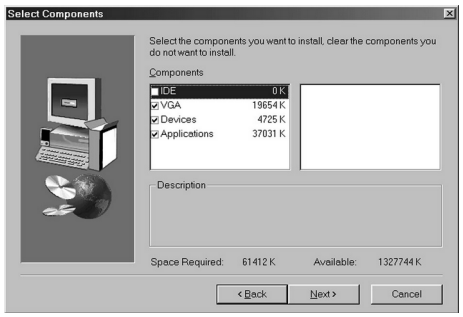
Auto-Installing under Windows 98/ME/2000/XP

If you are under Windows 98/ME/2000/XP, please click the **Setup** button to run the software auto-installing program while the Auto Setup screen pops out after inserting the support CD-ROM:

1. The installation program loads and displays the following screen. Click the **Next** button.



2. Select the items that you want to setup by clicking on it (the default options are recommended). Click the **Next** button to proceed.



3. The support software will automatically install.

Once any of the installation procedures start, software is automatically installed in sequence. You need to follow the onscreen instructions, confirm commands and allow the computer to restart as few times as needed to complete installing whatever software you selected. When the process is finished, all the support software will be installed and start working.

Installing under Windows NT or Manual Installation

If you are under Windows NT, the auto-installing program doesn't work out; or you have to do the manual installation, please follow this procedure while the Auto Setup screen pops out after inserting the support CD-ROM:

1. Click the **ReadMe** to bring up a screen, and then click the Install Path at the bottom of the screen.
2. Find out your mainboard model name and click on it to obtain its correct driver directory.
3. Install each software in accordance with the corresponding driver path.

Bundled Software Installation

All bundled software available on the CD-ROM is for users' convenience. You can install bundled software as follows:

1. Click the **Application** button while the Auto Setup screen pops out after inserting the support CD-ROM.
2. A software menu appears. Click the software you want to install.
3. Follow onscreen instructions to install the software program step by step until finished.