

Mainboard User's Manual

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M846 Series, V1.3
S745/May 2002**

Mainboard User's Manual

Notice:

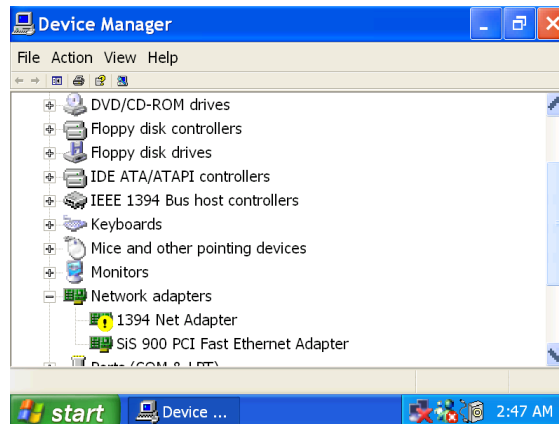
Drivers Tested and Verified Compatible With Windows XP

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.



IEEE1394a Not Support LAN Under Windows XP

The IEEE1394a doesn't support the LAN solution that can't connect other devices through network under WIN XP operating system. An exclamatory mark pops out on the 1394a net adapter icon under a file browser window (as the illustration below). Please rest assured it is normal.



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Chapter 1

Introduction

This mainboard has a **Socket-462** processor socket supporting the **AMD K7** type of processors. You can install any of these processors on this mainboard. This mainboard supports front-side bus speed of **200/266MHz**.

This mainboard uses **SiS745** chipset that supports a **DDR** interface, **Ultra DMA 33/66/100** function and remarkably high system performance under all types of system operations. This mainboard has a built-in **AC97 Codec**, providing a **CNR** (Communication and Networking Riser) slot and a built-in **10BaseT/100BaseTX Network Interface**. This mainboard also supports the optional built-in IEEE1394a function. There is an extended set of **ATX I/O Ports** including PS/2 keyboard and mouse ports, two back-panel USB ports, one parallel port, and two serial ports. Connecting the Extended USB Module to this mainboard can add two extra USB ports(onboard USB header USB2).

This mainboard has all features you need to develop a powerful multimedia workstation. The board is **ATX size** and has power connectors for an **ATX** power supply.

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Key Features

The key features of this mainboard include:

Socket-462 Processor Support

- ◆ Supports AMD **Athlon XP/Athlon/Duron** processors
- ◆ Supports 200/**266** MHz Front-Side Bus

Memory Support

- ◆ Three 184-pin DIMM slots (DIMM1 ~ DIMM3) for DDR memory modules
- ◆ Support up to 2 unbuffered DIMM DDR333 (only DIMM1 and DIMM2) or up to 3 unbuffered DIMM DDR266
- ◆ Maximum installed memory is 3GB

Expansion Slots

- ◆ One CNR (Communication and Networking Riser) slot
- ◆ One 4x AGP slot
- ◆ Five 32-bit PCI slots for PCI 2.2-compliant bus interface

Onboard IDE channels

- ◆ Primary and Secondary PCI IDE channels
- ◆ Support for PIO (programmable input/output) modes
- ◆ Support for Multiword DMA modes
- ◆ Support for Bus Mastering and Ultra DMA 33/**66/100** modes

Power Supply and Power Management

- ◆ ATX power supply connector
- ◆ Meets ACPI 1.0b and APM 1.2 requirements, keyboard power on/off
- ◆ Supports Suspend, Shutdown, Wake on LAN, Wake on Modem, Wake on Alarm, Interrupt Wake-up from Keyboard/Mouse

1: Introduction

AC97 Audio Codec: CMI9738

- ◆ Compliant with AC'97 2.2 specification
- ◆ Full-duplex Codec with independent and variable sampling rate
- ◆ Earphone Buffer Built-In, SNR up to 90db
- ◆ 4Ch DAC, support 4-channel speak-out
- ◆ Advanced power management support

Built-in Ethernet LAN

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

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
- ◆ Four USB ports (two back-panel ports, onboard USB headers providing two extra ports)
- ◆ Audio jacks for microphone, line-in and line-out

Hardware Monitoring

- ◆ Built-in Hardware Monitor circuit supports Thermal, Power and Fan Speed monitor

Onboard Flash ROM

- ◆ Supports Plug and Play configuration of peripheral devices and expansion cards

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IEEE 1394a (Optional)

- ◆ Fully supports provisions of IEEE1394a-1995 for high-performance serial bus and the P1394a draft 2.0 standard
- ◆ Provides three fully compliant cables ports at 100/200/400 Mbits/s and available with one, two or three ports
- ◆ Supports optional 1394a Annex J electrical isolation barrier at PHY-link interface
- ◆ Supports power-down feature to conserve energy in battery powered application
- ◆ Node power-class information signaling for system power management

Bundled Software

- ◆ **PC-Cillin2000** 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 (30.5cm x 24.4cm)

1: Introduction

Package Contents

Attention: This mainboard series consists of three models, M846LR (LAN Ready), M846FLR (IEEE1394a ports, LAN Ready) and M846 (without LAN).

Please contact your local supplier for more information about your purchased model. Each model supports different specification listed as below:

Model	Specification
M846LR	Onboard LAN PHY(U17) and LAN (RJ45) connector
M846FLR	Onboard LAN PHY(U17), IEEE1394a PHY(U2) and LAN (RJ45) connector
M846	---

Your mainboard package ships with the following items:

- The mainboard
- This User's Guide
- 1 UDMA/66 IDE cable
- 1 Floppy disk drive cable
- Support software on CD-ROM disk

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 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 the instructions in this chapter:

- ❑ Identify the mainboard components
- ❑ Install a CPU
- ❑ Install one or more system memory modules
- ❑ Verify that all jumpers or switches are set correctly
- ❑ Install the 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.

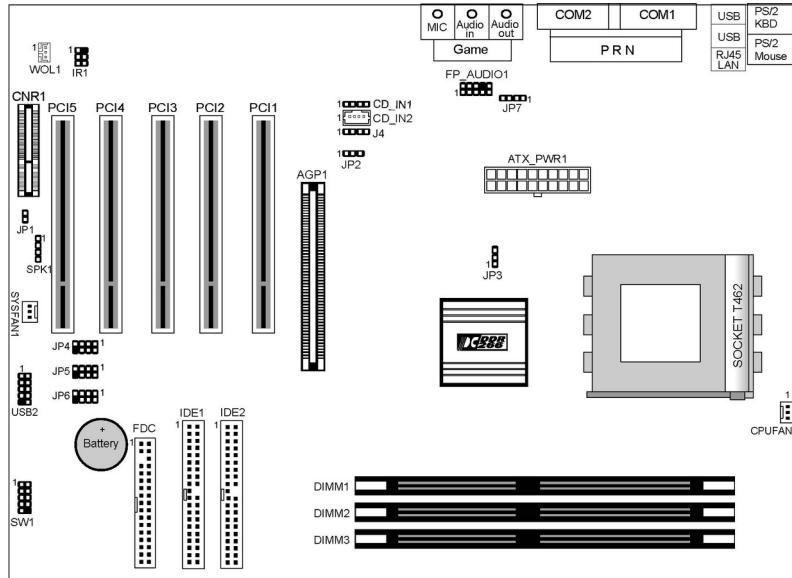
Note:

1. Before installing this mainboard, make sure jumper JP3 is under Normal setting. See this chapter for information about locating JP3 and the 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 below identifies major components on the mainboard.

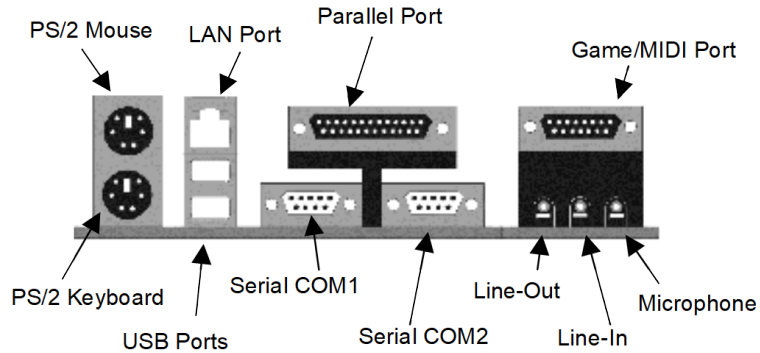


Note: Any jumpers on your mainboard that do not appear in the illustration above are for testing only.

2: Mainboard Installation

I/O Ports

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



Install A CPU

This mainboard has a Socket-462 that supports AMD K7 processors.

To ensure reliability, ensure that your processor has a heatsink/cooling fan assembly.

Do not try to install a Socket-370/Socket-7 processor in the Socket-462. A Socket-370/Socket-7 processor such as the PPGA Celeron, FCPGA Pentium-III, Pentium-MMX, or the AMD K5/K6 does not fit in the Socket-462.

The following list indicates these processors are currently supported by this mainboard.

Athlon XP: 1500+ ~ 2200+; FSB: 266 MHz

Athlon: 650MHz ~ 1.4GHz; FSB: 200 MHz, 266 MHz

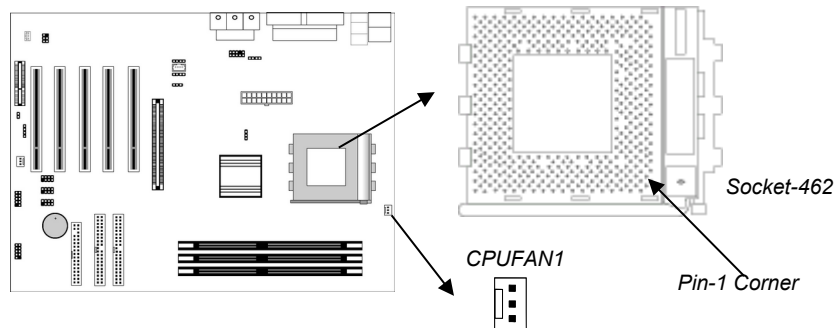
Duron: 550MHz ~ 950MHz; FSB: 200 MHz

Mainboard User's Manual

Installing a Socket-462 Processor

Install a processor into the ZIF (Zero Insertion Force) Socket-462 on the mainboard.

1. Locate the Socket-462 and CPUFAN. Pull the locking lever out slightly from the socket and raise it to the upright position.



2. On the processor, identify the Pin-1 corner by its beveled edge.
3. On the Socket-462, identify the Pin-1 corner. The Pin-1 corner is at the top of the locking lever when it is locked.
4. Match the Pin-1 corners and insert the processor into the socket. No force is required and the processor should drop into place freely.
5. Swing the locking lever down and hook it under the catch on the side of the socket. This secures the CPU in the socket.
6. All processors should be installed with a combination heatsink/cooling fan, connect the cable from the fan to the CPU fan power connector CPUFAN1.

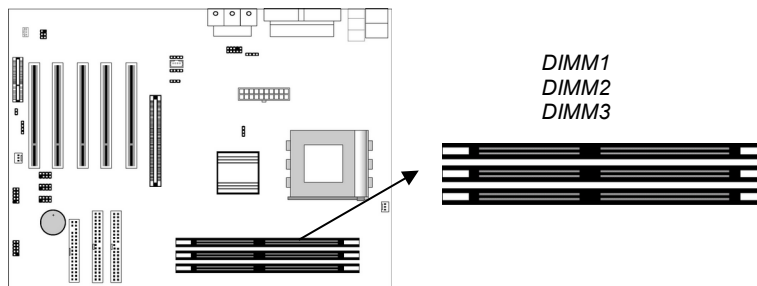
2: Mainboard Installation

Install Memory

The mainboard accommodates 184-pin DIMM sockets for DDR (Double Data Rate) SDRAM system memory modules (Only DIMM1 and DIMM2 support DDR333). You must install at least one memory module in order to work out the mainboard.

SDRAM provides 800 MB/s or 1 GB/s data transfer rate corresponding with the bus 100 MHz or 266 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.



For this mainboard, the maximum memory size is 3GB.

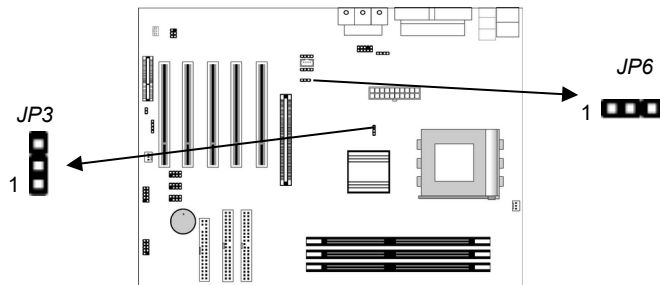
There are cutouts, on the edge connectors of memory modules, coinciding with spacers in the DIMM sockets so that memory modules are only installed in the correct orientation.

To install a module, push the retaining latches at either end of the socket outwards. Position the memory module correctly and insert it into the DIMM socket. Press the module down into the socket so that the retaining latches rotate up and secure the module in place by fitting into notches on the edge of the module.

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Setting Jumper Switches

Jumpers are sets of pins that can be connected together with jumper caps. Jumper caps change the operating way of the mainboard by changing the electronic circuits. If a jumper cap connects two pins, these pins are SHORT; if it is removed, these pins are OPEN.



Jumper JP3: Clear CMOS Memory

This jumper can 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
Clear CMOS Memory	Short Pins 1-2
Normal Operation	Short Pins 2-3

Jumper JP6: Onboard LAN Selector

This 3-pin jumper enables or disables the onboard network adapter.

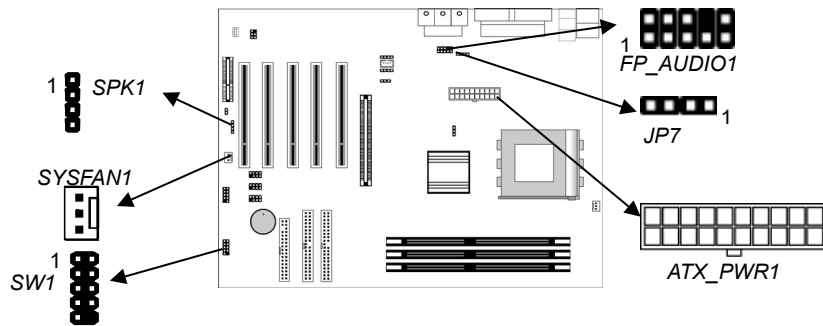
Function	Jumper Setting
Enable	Short Pins 1-2
Disable	Short Pins 2-3

2: Mainboard Installation

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 **ATX_PWR1** connector on the mainboard.

If there is a cooling fan installed in the system chassis, connect the cable from the cooling fan to the **SYSFAN1** fan power connector on the mainboard.

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

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Connect the case switches and indicator LEDs to the **SW1** header.
Here is a list of SW1 header's pin assignments

Pin	Signal	Pin	Signal
1	HD_LED_P	2	SUSPEND_LED
3	HD_LED_N	4	SUSPEND_LED
5	RESET_SWITCH	6	POWER_BUTTON
7	RESET_SWITCH	8	POWER_BUTTON
9	NC	10	KEY

If there are a headphone jack or/and a microphone jack on the front panel, connect the cables to the **FP_AUDIO1** header on the mainboard. Here is a list of FP_AUDIO1 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	AUD_RET_R
7	HP_ON	8	KEY
9	AUD_FPOUT_L	10	AUD_RET_L

This connector JP7(LAN LED indicator) is attached to LAN device that needs a LED indicator.

Pin	Signal	Pin	Signal
1	ACT_LED	2	ACT_LED (+)
3	Link_LED (+)	4	Link_LED

2: Mainboard Installation

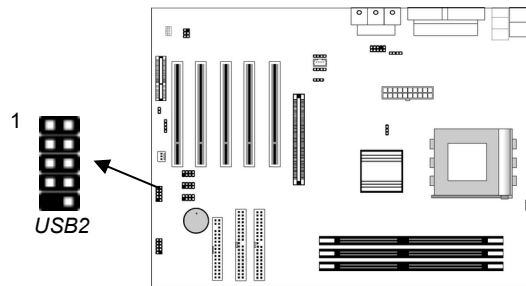
Optional Extension Brackets

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 two USB ports for more USB devices (USB port 3-4).



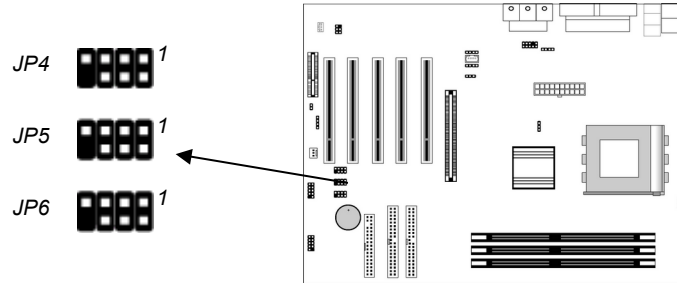
Pin	Signal	Pin	Signal
1	VERG FP USBPWR0	2	VERG FP USBPWR0
3	USB FP P0-	4	USB FP P1-
5	USB FP P0+	6	USB FP P1+
7	GROUND	8	GROUND
9	KEY	10	USB FP OC0

1. Locate the USB2 header on the mainboard.
2. Plug the bracket cable onto the 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. Secure the extension bracket in the chassis with a screw.

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Extended IEEE1394a Headers (Optional)

You can obtain three optional IEEE1394 headers, and install them by following the steps below.



JP4

Pin	Signal	Pin	Signal
1	CPWR	2	GND
3	XTPB0-	4	XTPB0+
5	XTPA0-	6	XTPA0+
7	SHIELD	8	KEY

JP5

Pin	Signal	Pin	Signal
1	CPWR	2	GND
3	XTPB1-	4	XTPB1+
5	XTPA1-	6	XTPA1+
7	SHIELD	8	KEY

JP6

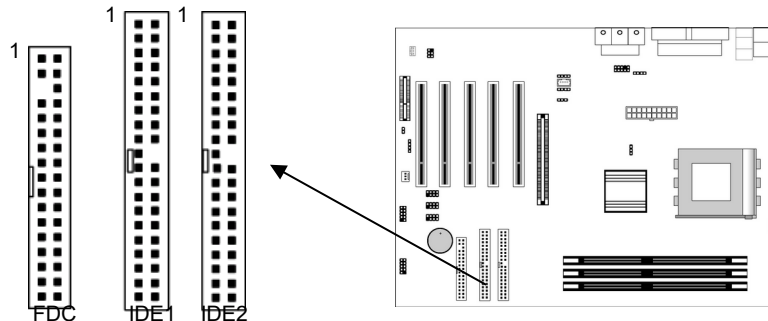
Pin	Signal	Pin	Signal
1	CPWR	2	GND
3	XTPB2-	4	XTPB2+
5	XTPA2-	6	XTPA2+
7	SHIELD	8	KEY

1. Locate the JP4/JP5/JP6 header on the mainboard.
2. Plug the bracket cable onto the JP4/JP5/JP6 header.
3. In the system chassis, remove the blanking plate from the corresponding expansion slot you want to use, and install an extension bracket in there. Secure the extension bracket in the chassis with a screw.

2: Mainboard Installation

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 **FDC**.

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.

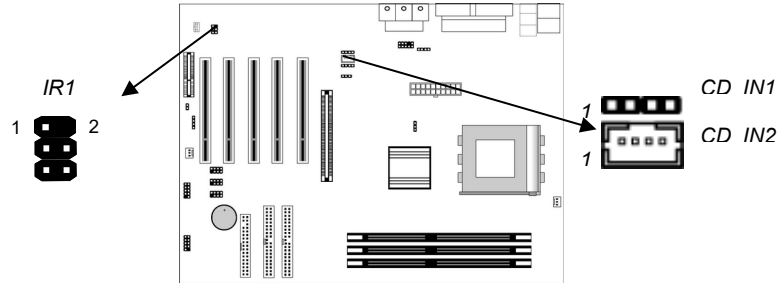
Install the device(s) and connect power from the system power supply. Use the cable provided to connect the device(s) to the Primary IDE channel connector **IDE1** on the mainboard.

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.

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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 **CD_IN1** and **CD_IN2**. There are two kinds of connectors because different brands of CD-ROM drives have different kinds of audio cable connectors. Connect the cable to the appropriate connector.

CD_IN1

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

CD_IN2

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

2: Mainboard Installation

Infrared Port

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

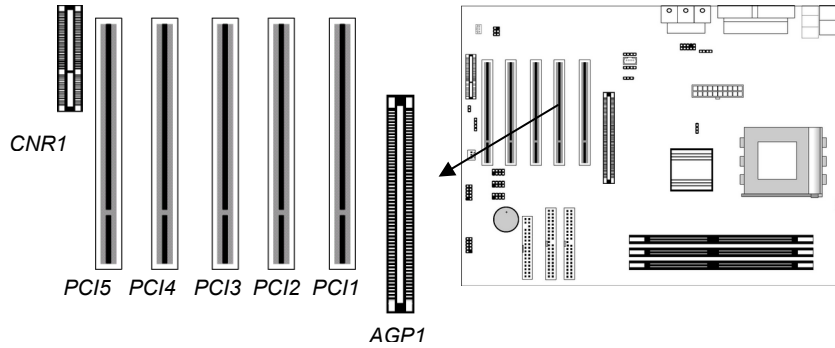
1. Locate the infrared port **IR1** header on the mainboard.
2. If you are adding an infrared port, connect the ribbon cable from the port to the IR1 header and then secure the port to an appropriate place in your system chassis.

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

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Expansion Slots

This mainboard has three 32-bit PCI slots and one AMR slot.



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

1. Locate the CNR, PCI or AGP slots on the mainboard.
2. Remove slot cover from the system chassis.
3. Insert edge connector of expansion card into the slot, press down firmly inside until fully inserted.
4. Secure the expansion card bracket to the system chassis with a screw.

CNR Slot

The CNR (Communication and Networking Riser) slot allows for the installation of a CNR card. You can purchase an approved CNR card in your area and install it directly into the CNR slot

Chapter 3

BIOS Setup Utility

Introduction

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

If the Setup Utility configuration is incorrect, it may cause system's malfunction. It can even keep your computer from booting properly. If it happens, you can use the clear CMOS jumper to clear the CMOS memory that has stored the configuration information.

You can run the setup utility and manually make changes to the configuration. You might need to do this to configure some of the hardware that you install on or connect to the mainboard, such as the CPU, system memory, disk drives, etc.

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Running the Setup Utility

Each time your computer starts, before the operating system loads, a message appears on the screen that prompts you to “Hit if you want to run SETUP”. When 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 1.21.10
(C) 2000 American Megatrends, Inc. All Rights Reserved

Standard CMOS Setup	Features Setup
Advanced Setup	CPU PnP Setup
Power Management Setup	Hardware Monitor
PCI / Plug and Play Setup	Change Password
Load Optimal Settings	Exit
Load Best Performance Settings	
Esc : Quit ↑ ↓ ← →: Select Item (Shift)F2 : Change Color F5 : Old Values F6 : Optimal values F7 : Best performance values F10 : Save&Exit	
Standards CMOS setup for changing time, date, hard disk type, etc.	

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

Some of the options on the main menu page lead to tables of items with installed values. In these pages, use the cursor arrow keys to highlight the items, and then use the **PgUp** and **PgDn** keys to cycle through the alternate values for each of the items. Other options on the main menu page lead to dialog boxes which require you to answer Yes or No by hitting the **Y** or **N** keys.

If you have already made changes to 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.

3: BIOS Setup Utility

Standard CMOS Setup Page

Use this page to set basic information such as the date, the time, the IDE devices, and the diskette drives. If you press the F3 key, the system will automatically detect and configure the hard disks on the IDE channels.

AMIBIOS SETUP – STANDARD CMOS SETUP										
(C) 2000 American Megatrends, Inc. All Rights Reserved										
Date (mm/dd/yy) : Mon April 15, 2002										
Time (hh/mm/ss) : 14:44:57										
	Type	Size	Cyln	Head	WPcom	Sec	LBA Mode	Blk Mode	PIO Mode	32Bit Mode
Pri Master	: Auto									On
Pri Slave	: Auto									On
Sec Master	: Auto									On
Sec Slave	: Auto									On
Floppy Drive A : 1.44 MB 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 the system date and time
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 the size and capacity of the floppy diskette drive(s) installed in the system.
Floppy Drive B	

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Advanced Setup Page

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

AMIBIOS SETUP – ADVANCED SETUP		
(C) 2000 American Megatrends, Inc. All Rights Reserved		
Quick Boot	Enabled	
1 st Boot Device	IDE-0	
2 nd Boot Device	Floppy	
3 rd Boot Device	CDROM	
Try Other Boot Devices	Yes	
S.M.A.R.T. for Hard Disks	Disabled	
BootUp Num-Lock	On	
Floppy Drive Swap	Disabled	ESC : Quit ↑↓←→ : Select Item
Floppy Drive Seek	Disabled	F1 : Help PU/PD/+/- : Modify
Password Check	Setup	F5 : Old Values (Shift)F2 : Color
Boot To OS/2	No	F6 : Load BIOS Defaults
System BIOS Cacheable	Enabled	F7 : Load Setup Defaults
RAS to CAS Delay	3T	
RAS Precharge Time	4T	
CAS Latency	2.5T	
DRAM Timing Configuration	Normal Mode	
Graphic Win Size	64M	
Auto Detect DIMM/PCI Clk	Enabled	
Clk Gen Spread Spectrum	Disabled	

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 Devices	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.

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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	Enable this item if you are booting the OS/2 operating system and you have more than 64MB of system memory installed.
System BIOS Cacheable	If you enable this item, a segment of the system BIOS will be cached to main memory for faster execution.
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.
RAS Precharge Time	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.
CAS Latency	This item determines the operation of the SDRAM / DDR memory CAS (column address strobe). We recommend that you leave this item at the default value. The 2T setting requires faster memory that specifically supports this mode.
DRAM Timing Configuration	This item can determine the DRAM timing configuration mode of the memory, four options of Normal, Fast, Ultra and Safe modes. We recommend that you leave this item at the default value.
Graphic Win Size	This item defines the size of aperture if you use a graphic adapter.
Auto Detect DIMM/PCI Clk	Use this item to enable the DIMMs or PCI slots to detect automatically device then generating clock.
Clk Gen Spread Spectrum	Use this item to enable the clock to generate spread spectrum.

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Power Management Setup Page

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

AMIBIOS SETUP – POWER MANAGEMENT SETUP (C) 2000 American Megatrends, Inc. All Rights Reserved		
ACPI Aware O/S	Yes	
Power Management	Enabled	
Suspend Time Out	Disabled	
Hard Disk Time Out	Disabled	
Resume RTC Alarm Power On	Disabled	
RTC Alarm Date	Every Day	
RTC Alarm Hour	12	ESC : Quit ↑↓←→ : Select Item
RTC Alarm Minute	30	F1 : Help PU/PD/+/- : Modify
RTC Alarm Second	00	F5 : Old Values (Shift)F2 : Color
LAN/Ring Power On	Disabled	F6 : Load BIOS Defaults
Keyboard PowerOn Function	Disabked	F7 : Load Setup Defaults

ACPI Aware O/S	Enable this item if you are using an O/S that supports ACPI function such as Windows 98/ME / 2000.
Power Management	Use this item to select a power management scheme. 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 sets the timeout to power down the hard disk drive, if the time selected passes without any hard disk activity.
Resume RTC Alarm Power On / 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.

3: BIOS Setup Utility

LAN/Ring Power On	Your system can enter a software power down. If you enable this item, the system can automatically resume if there is traffic on the network adapter.
Keyboard PowerOn 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.

PCI / Plug and Play Setup Page

This page sets up some of the parameters for devices installed on the PCI bus and devices that use 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
AGP Select	4X
Primary Graphics Adapter	PCI
Allocate IRQ to PCI VGA	Yes
ESC : Quit ↑↓←→ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults	

Plug and Play Aware O/S	Enable this item if you are using an O/S that supports Plug and Play such as Windows 95/98/ME.
AGP Select	This item helps you select 1X, 2X or 4X AGP slot.
Primary Graphics Adapter	This item indicates if the primary graphics adapter uses the PCI or the AGP bus. The default PCI setting still lets the onboard display work and allows the use of a second display card installed in a PCI 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.

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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 some of the parameters for peripheral devices connected to the system.

AMIBIOS SETUP – FEATURES SETUP (C) 2000 American Megatrends, Inc. All Rights Reserved		
OnBoard FDC	Enabled	
OnBoard Serial PortA	3F8h/COM1	
OnBoard Serial PortB	2F8h/COM2	
Serial Port2 Mode	Normal	
OnBoard Parallel Port	378h	
Parallel Port Mode	SPP	ESC : Quit ↑↓←→ : Select Item
Parallel Port IRQ	7	F1 : Help PU/PD/+/- : Modify
Parallel Port DMA	N/A	F5 : Old Values (Shift)F2 : Color
OnBoard Game Port	201h	F6 : Load BIOS Defaults
OnBoard MIDI Port	300h	F7 : Load Setup Defaults
MIDI Port IRQ	10	
OnBoard PCI IDE	Both	
Audio Device	Enabled	
Modem Device	Enabled	
IEEE1394 Device	S400	
USB Function	Enabled	
USB Function for DOS	Disabled	

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ThumbDrive Support for DOS	Disabled	
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OnBoard FDC	This item enables or disables the onboard floppy disk drive interface.
OnBoard Serial PortA/B	These items enable or disable the onboard COM1/2 serial port, and to assign a port address.
Onboard Parallel Port	This item enables or disables the onboard LPT1 parallel port, and to assign a port address. The Auto setting will detect and available address.
Parallel Port Mode	This item decides 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	This item assigns either IRQ 5 or 7 to the parallel port.
Parallel Port DMA	This item assigns a DMA channel to the parallel port. The options are 0, 1 and 3.
OnBoard Game Port	This item enables or disables the onboard Game port.
OnBoard MIDI Port	This item enables or disables the onboard MIDI port, and to assign a port address.
MIDI Port IRQ	This item assigns an IRQ to the MIDI port.
Onboard PCI IDE	This item enables or disables either or both of the onboard Primary and Secondary IDE channels.
Audio Device	This item enables or disables the onboard AC'97 audio chip.
Modem Device	This item enables or disables the onboard AC'97 modem chip.
IEEE1394 Device	This item selects S100, S200, S400 or disables the IEEE1394 device.
USB Function	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.

3: BIOS Setup Utility

CPU PnP Setup Page

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

AMIBIOS SETUP – CPU PnP SETUP	
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CPU BRAND	AMD K7
CPU Type	Athlon
CPU Core Voltage	1.704 V
CPU Ratio	9x
CPU Base Frequency	133 MHz
Host Frequency	133 MHz
DRAM Frequency	133 MHz
ESC : Quit ↑↓←→ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load Optimal values F7 : Load Best performance values	

CPU Brand/Type/ Core Voltage/Ratio /Base Frequency	These items show the kind, core voltage, ratio and base frequency of CPU that has installed in your system.
Host Frequency	This item shows the Front Side Bus frequency of the CPU installed in your system.
DRAM Frequency	Use this item to set the frequency of DRAM that has installed in your system.

Note: If you manually set the wrong speed and the system won't run properly, press the **Page Up** key while the system is booting and a default setting will replace the incorrect CPU setting.

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Hardware Monitor Page

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

AMIBIOS SETUP – HARDWARE MONITOR (C) 2000 American Megatrends, Inc. All Rights Reserved		
*** System Hardware ***		
Vcore	1.720V	ESC : Quit ↑↓←→ : Select Item F1 : Help PU/PD/+/- : Modify F5 : Old Values (Shift)F2 : Color F6 : Load BIOS Defaults F7 : Load Setup Defaults
Vcc 2.5V	2.496V	
Vcc 3V	3.392V	
Vcc	4.972V	
+12V	12.056V	
SB3V	3.488V	
-12V	-11.721V	
SB5V	4.999V	
VBAT	3.488V	
SYSTEM Fan Speed	0 RPM	
CPU Fan Speed	4821 RPM	
SYSTEM Temperature	38°C/100°F	
CPU Temperature	45°C/113°F	

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

Change Password

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

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Change or Remove the Password

Highlight this item, press **Enter** and type in the current password. At the next dialog box, type in the new password, or just press **Enter** to disable password protection.

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.

4: Software & Applications

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.

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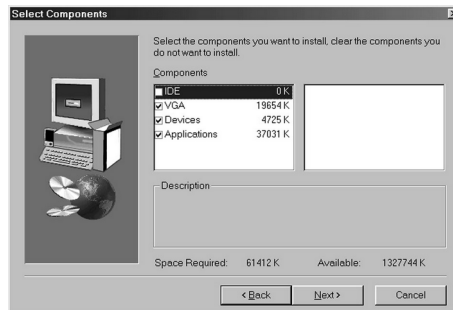
Auto-Installing under Windows 98/ME/2000/XP

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.

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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.