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Table of Contents

Static Electricity Precautions

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

1. Don't take this motherboard 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 motherboard by its edges. Do not touch those components unless it is absolutely necessary. Put this motherboard on the top of a static-protection package with component side facing up while installing.

Pre-Installation Inspection

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

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) pops 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.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.

Chapter 1

Introduction

This motherboard has a **Socket-478** to support **Intel Prescott / Pentium 4** with **Hyper-Threading Technology** processors with Front-Side Bus (FSB) speeds up to **800**/533 **MHz**. The Prescott CPU provides higher power, better voltage regulator tolerance and thermal solution, performing better graphics and audio, speeding up the processor. Hyper-Threading Technology, designed to take advantage of the multitasking features in Windows XP, gives you the power to do more things at once.

It integrates the **VIA PT800** Northbridge along with **VT8237** Southbridge chipsets that supports the **Serial ATA** — a new interface for high-performance and mainstream desktop PCs; the built-in **USB 2.0** providing higher bandwidth, implementing **Universal Serial Bus Specification Revision 2.0** and is compliant with **UHCI 1.1** and **EHCI 1.0**.
It supports **AC'97 Audio Codec** and provides **Ultra DMA** 33/66/100/**133** function. It has one **8x AGP**, one **CNR** (Communications and Networking Riser) and four 32-bit **PCI** slots. There is a full set of I/O ports including two PS/2 ports for mouse and keyboard, one serial port, one parallel port, one LAN port (optional), four back-panel USB2.0 ports and onboard USB connectors USB3/USB2 providing four extra ports by connecting the Extended USB Module to the motherboard.

This motherboard is a **Full ATX** motherboard 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 Page 35 for relative details.

Key Features

This motherboard has these key features:

Socket-478 Processor
♦ Supports **Intel Prescott / Pentium 4 series** CPU with **Hyper-Threading** Technology
♦ Supports up to **800**/533 **MHz** Front-Side Bus

> *Hyper-Threading* technology enables the operating system into thinking it's hooked up to two processors, allowing two threads to be run in parallel, both on separate 'logical' processors within the same physical processor.

Chipset
There are **VIA PT800 Northbridge** and **VIA 8237 Southbridge** in the chipsets in accordance with an innovative and scalable architecture with proven reliability and performance. Here is a list of the chipset arrangement and their respective features:

NB	SB	Function
PT800	**8237**	CPU FSB: **800**/533MHz DDR**400**, maximum eight USB2.0 ports, two **Serial ATA** connectors

♦ Defines Highly Integrated Solutions for Performance PC Desktop Designs--High performance Northbridge with 800/533 MHz Front Side Bus for Pentium 4 plus AGP 8x external bus.
♦ Provide superior performance between the CPU, DRAM, V-Link bus and AGP8X graphics controller bus with pipelined, burst, and concurrent operation.
♦ Full Featured Accelerated Graphics Port (AGP) Controller --AGP v3.0 compliant with 8x transfer mode.
♦ Advanced High-Performance DDR DRAM Controller -- Supports DDR400, DDR333, DDR266, and DDR200 double-data-rate synchronous DRAM.

- ♦ High Bandwidth 533 MB/ sec 8-bit V-Link Host Controller --Configurable outstanding transaction queue for Host to V-Link Client accesses.
- ♦ Advanced System Power Management Support – ACPI 1.0B and PCI Bus Power Management 1.1 compliant.
- ♦ PCI to system memory data streaming up to 132Mbyte/sec (data sent to north bridge via high speed V-Link interface)
- ♦ PCI-2.2 compliant, 32-bit 3.3V PCI interface with 5V tolerant inputs
- ♦ Support up to six PCI master and decoding for all integrated functions and LPC bus.
- ♦ Dual Channel Serial ATA/RAID Controller—Complies with Serial ATA Specification Revision 1.0

Memory Support
- ♦ Two 184-pin DIMM sockets for DDR SDRAM memory modules
- ♦ Supports DDR**400**/333 memory bus
- ♦ Maximum installed memory is 2GB

AC'97 Audio Codec
- ◆ 6- channel and compliant with Intel® AC'97 (REV. 2.3) Spec, meeting with Microsoft® PC2001 requirements
- ◆ Advanced power management and power saving capabilities.
- ◆ Stereo Line-in function shared with Surround out.
- ◆ High quality pseudo-differential analog CD Audio input.
- ◆ S/PDIF Input support: S/PDIF In is featured with interrupt, auto-lock, anti-noise, and anti-distortion functionalities support.
- ◆ Valuable add-on software technology: Support most industry standards of PC 3D sound and unique karaoke function support featured with microphone echo, key shifting, and vocal cancellation.

Expansion Options

The motherboard comes with the following expansion options:

- ♦ Four 32-bit PCI slots
- ♦ One 8x/4xAGP slot
- ♦ One Communications Network Riser (CNR) slot

Onboard IDE

- ♦ Two IDE Connectors
- ♦ Supports PIO (Programmable Input/Output) and DMA (Direct Memory Access) modes
- ♦ Supports IDE Ultra DMA bus mastering with transfer rates of 33/66/100/**133** MB/sec

Serial ATA

- ♦ Two Serial ATA Connectors
- ♦ Transfer rate exceeding best ATA (~150 MB/s) with scalability to higher rates
- ♦ Low pin count for both host and devices

Onboard I/O Ports

The motherboard has a full set of I/O ports and connectors:

- ♦ Two PS/2 ports for mouse and keyboard
- ♦ One serial port
- ♦ One parallel port
- ♦ Four back-panel USB2.0 ports
- ♦ One LAN port (optional)
- ♦ Audio jacks for microphone, line-in and line-out

Fast 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

USB 2.0
- ♦ Compliant with Universal Serial Bus Specification Revision 2.0
- ♦ Compliant with Intel's Enhanced Host Controller Interface Specification Revision 1.0
- ♦ 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 motherboard 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** provides automatic virus protection under Windows 98/ME/NT/2000/XP
- ♦ **Adobe Acrobat Reader** is the software to help users read .PDF files.

Dimensions
- ♦ Full ATX form factor of 305 x 190mm

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

Package Contents

Your motherboard package contains the following items:
- ❑ The motherboard
- ❑ The User's Manual
- ❑ One diskette drive ribbon cable (optional)
- ❑ One IDE drive ribbon cable
- ❑ The Software support CD

Optional Accessories

You can purchase the following optional accessories for this motherboard.
- ❑ The Extended USB module
- ❑ The CNR v.90 56K Fax/Modem card
- ❑ The Card Reader
- ❑ The Serial ATA cable (optional)

> ***Note:*** *You can purchase your own optional accessories from the third party, but please contact your local vendor on any issues of the specification and compatibility.*

Chapter 2

Motherboard Installation

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

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

Note:
1. Before installing this motherboard, 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 motherboard.

Motherboard Components

Identify major components on the motherboard via this diagram underneath.
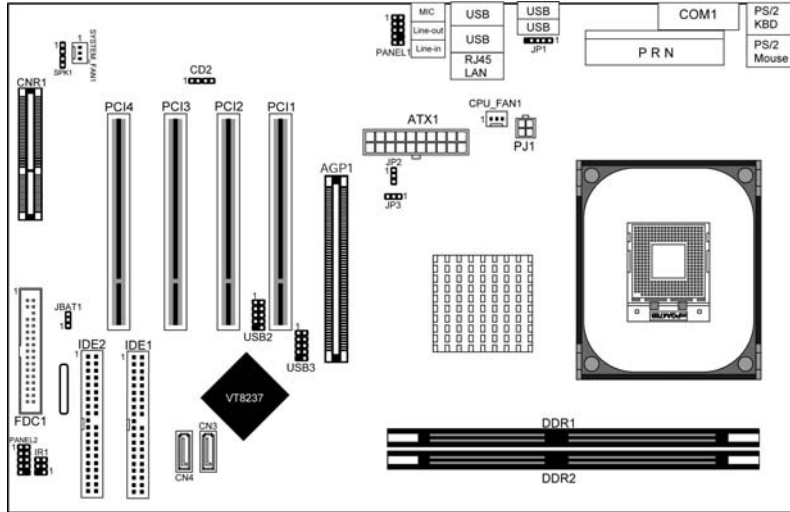
I/O Ports

The illustration below shows a side view of the built-in I/O ports on the motherboard.
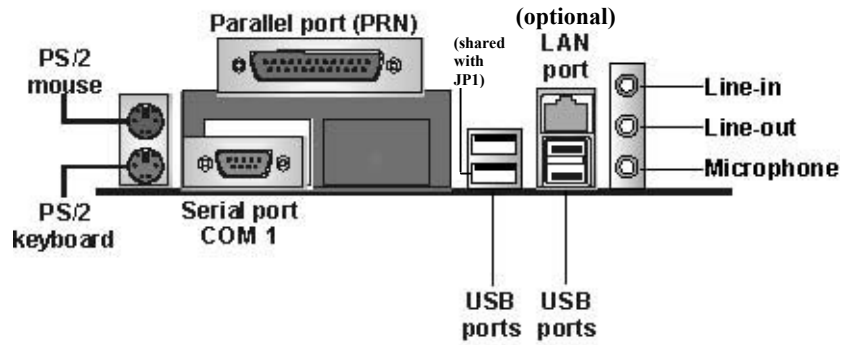
PS/2 Mouse	Use the upper PS/2 port to connect a PS/2 pointing device.
PS/2 Keyboard	Use the lower PS/2 port to connect a PS/2 keyboard.
Parallel Port (PRN)	Use the Parallel port to connect printers or other parallel communications devices.
COM1	Use the COM port to connect serial devices such as mice or fax/modems. COM1 is identified by the system as COM1.
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. *Note: The lower USB port located near the Parallel port is shared with the JP1 connector.*
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 motherboard 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:
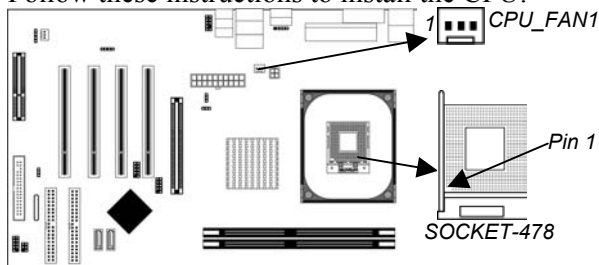
1. Unhook the locking lever of the CPU socket. Pull the locking lever away from the socket and raising it to the upright position.

2. Match the pin1 corner marked as the beveled edge on the CPU with the pin1 corner on the socket. Insert the CPU 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. Install the cooling fan/heatsink unit onto the CPU, and secure them all onto the socket base.
6. Plug the CPU fan power cable into the CPU fan connector (CPU_FAN1) on the motherboard.

Installing Memory Modules

This motherboard accommodates two 184-pin 2.5V DIMM sockets (Dual Inline Memory Module) for unbuffered **DDR400** / 333 memory modules (Double Data Rate SDRAM), and maximum 2.0 GB installed memory.

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 266/333/400 MHz memory bus. DDR SDRAM provides 1.6 GB/s, 2.1 GB/s, 2.7 GB/s or 3.2 GB/s data transfer rate when the bus is 100 MHz, 133 MHz, 166 MHz or 200 MHz, respectively.

DIMM1

DIMM2
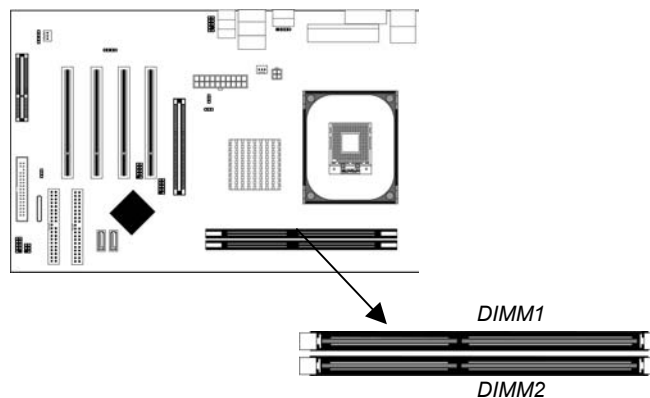
Memory Module Installation Procedure

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

1. Push down the latches on both sides of the DIMM socket.
2. Align the memory module with the socket. There is a notch on the DIMM socket that you can install the DIMM module in the correct direction. Match the cutout on the DIMM module with the notch on the DIMM socket.
3. 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.
4. Install any remaining DIMM modules.

Jumper Settings

Connecting two pins with a jumper cap is SHORT; removing a jumper cap from these pins, OPEN.
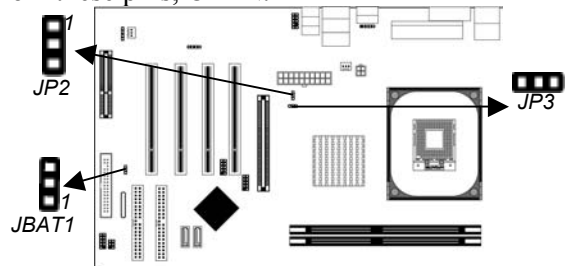
JBAT1: Clear CMOS Jumper

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

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

JP2, JP3: CPU Clock

Use this jumper to enable the selection of the CPU frequency.

CPU Clock	JP2	JP3
100M	Short Pins 2-3	Short Pins 2-3
133M	Short Pins 1-2	Short Pins 2-3
200M	Short Pins 2-3	Short Pins 1-2

Install the Motherboard

Install the motherboard in a system chassis (case). The board is an ATX size motherboard. You can install this motherboard in an ATX case. Make sure your case has an I/O cover plate matching the ports on this motherboard.

Install the motherboard in a case. Follow the case manufacturer's instructions to use the hardware and internal mounting points on the chassis.
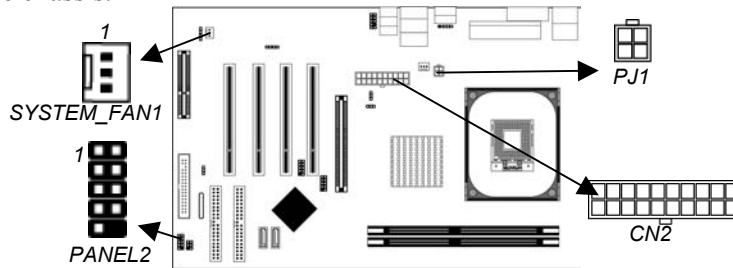
Connect the power connector from the power supply to the **CN2** connector on the motherboard. The **PJ1** is a +12V connector for CPU Vcore power.

If there is a cooling fan installed in the system chassis, connect the cable from the cooling fan to the **SYSTEM_FAN1** fan power connector on the motherboard.

Connect the case switches and indicator LEDs to the **PANEL2** connector. Here is a list of the PANEL2 pin assignments.

Pin	Signal	Pin	Signal
1	HD_LED_P(+)	2	FP PWR/SLP(+)
3	HD_LED_N(-)	4	FP PWR/SLP(-)
5	RESET_SW_N(-)	6	POWER_SW_P(+)
7	RESET_SW_P(+)	8	POWER_SW_N(-)
9	RSVD_DNU	10	KEY

Connecting Optional Devices

Refer to the following for information on connecting the motherboard's optional devices:
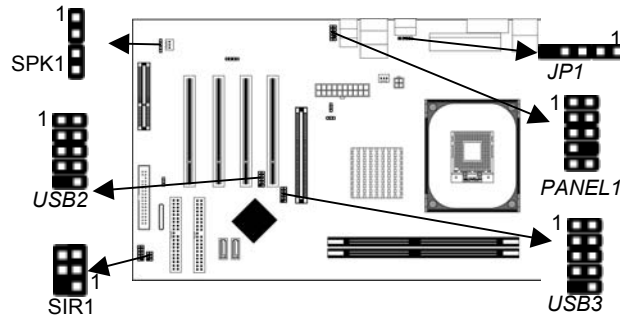
SPK1: Speaker Connector

Connect the cable from the PC speaker to the SPK1 connector on the motherboard.

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

PANEL1: Front Panel Audio Connector

This connector allows the user to install auxiliary front-oriented microphone and line-out ports for easier access.

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

USB2/USB3: Front panel USB Connector

The motherboard has USB ports installed on the rear edge I/O port array. Additionally, some computer cases have USB ports at the front of the case. If you have this kind of case, use auxiliary USB connectors USB2/USB3 to connect the front-mounted ports to the motherboard.

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 USB2/3 connector on the motherboard.
2. Plug the bracket cable onto the USB2/3 connector.
3. Remove a slot cover from one of the expansion slots on the system chassis. Install an extension bracket in the opening. Secure the extension bracket to the chassis with a screw.

JP1: 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	Pin	Signal
1	VCC5	2	USB-
3	USB+	4	GND
5	KEY		

The JP1 is shared with one of the USB ports of the I/O back panel. The USB port is located near the Parallel port connector. See "I/O Ports" for more information.

Please check the pin assignment of the cable and the USB header on the motherboard. 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 misusage of the purchased product.

SIR1: Infrared Port

The infrared port allows 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

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

Install Other Devices

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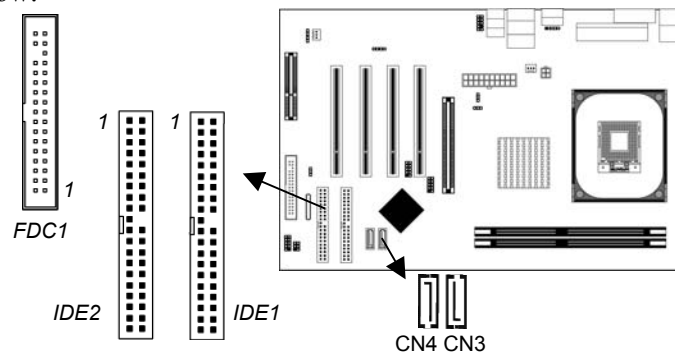
Floppy Disk Drive

The motherboard 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 **FDC1**.

IDE Devices

IDE devices include hard disk drives, high-density diskette drives, and CD-ROM or DVD-ROM drives, among others.

The motherboard 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 motherboard.

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 motherboard. If you have two devices on the cable, one must be Master and one must be Slave.

Serial ATA Devices

The **Serial ATA (Advanced Technology Attachment)** is the standard interface for the IDE hard drives, which is designed to overcome the design limitations while enabling the storage interface to scale with the growing media rate demands of PC platforms. It provides you a faster transfer rate of **150 MB/s**. If you have installed a Serial ATA hard drive, you can connect the Serial ATA cables to the Serial ATA hard drive or the connecter on the motherboard.

On the motherboard, locate the Serial ATA connectors **CN3/CN4**, which support new Serial ATA devices for the highest data transfer rates, simpler disk drive cabling and easier PC assembly.

It eliminates limitations of the current Parallel ATA interface, but maintains register compatibility and software compatibility with Parallel ATA.

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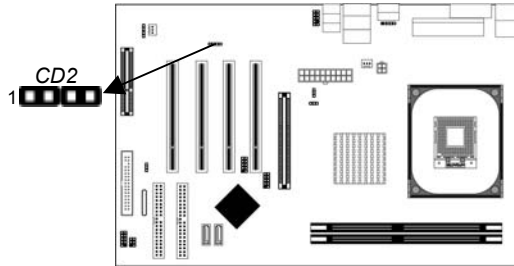
When you first start up your system, the BIOS should automatically detect your CD-ROM/DVD drive. If it doesn't, enter the Setup Utility and configure the CD-ROM/DVD drive that you have installed. On the motherboard, locate the 4-pin connector **CD2**.

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

Expansion Slots

This motherboard has one AGP, one CNR and four 32-bit PCI slots.
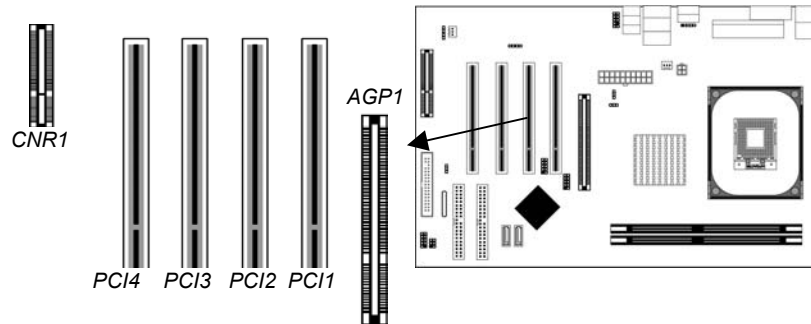
Follow the steps below to install an AGP/CNR/PCI expansion card.
1. Locate the AGP, CNR or PCI slots on the motherboard.
2. Remove the blanking plate of the slot from the system chassis.
3. Install the edge connector of the expansion card into the slot. Ensure the edge connector is correctly seated in the slot.
4. Secure the metal bracket of the card to the system chassis with a screw.

8x/4x AGP Slot
You can install a graphics adapter that supports the 8x/4xAGP specification and has a 8x/4x AGP edge connector in the AGP slot.

CNR Slot
You can install the CNR (Communications and Networking Riser) cards in this slot, including LAN, Modem, and Audio functions.

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

Chapter 3

BIOS Setup Utility

Introduction

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

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

You can run the setup utility and manually change the configuration. You might need to do this to configure some hardware installed in or connected to the motherboard, 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.

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 COMOS setup for changing time, date, hard disk type, etc.

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

Some options on the main menu page lead to tables of items with installed values that you can use cursor arrow keys to highlight one item, and press **PgUp** and **PgDn** keys to cycle through alternative values of that item. The other options on the main menu page lead to dialog boxes 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 displays a table of items defining basic information about your system.

```
┌─────────────────────────────────────────────────────────────────────┐
│                AMIBIOS SETUP – STANDARD CMOS SETUP                    │
│           (C) 2000 American Megatrends, Inc. All Rights Reserved      │
├─────────────────────────────────────────────────────────────────────┤
│ Date  (mm/dd/yy) : Thu Mar 04, 2004                                   │
│ Time  (hh/mm/ss) :  13:16:24                                          │
│                                              LBA   Blk   PIO   32Bit  │
│           Type       Size Cyln Head WPcom Sec Mode  Mode  Mode  Mode  │
│ Pri Master : Not Installed                                            │
│ Pri Slave   : Not Installed                                           │
│ Sec Master : Auto                                                 On  │
│ Sec Slave   : Auto                                                On  │
│ Floppy Drive A : 1.44 MB 3 1/2                                        │
│ Floppy Drive B : Not Installed                                        │
├─────────────────────────────────────────────────────────────────────┤
│ Month : Jan – Dec                          ESC : Exit                 │
│   Day : 01 – 31                            ↑↓  : Select Item          │
│   Year : 1980 – 2099                       PU/PD/+/- : Modify         │
│                                            (Shift)F2 : Color          │
│                                            F3 : Detect All HDD        │
└─────────────────────────────────────────────────────────────────────┘
```

Date & Time	These items set up system date and time.
IDE Pri Master **Pri Slave** **Sec Master** **Sec Slave**	These items 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**	These items set up size and capacity of the floppy diskette drive(s) installed in the system.

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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    Auto Detect DIMM/PCI Clk      Enabled
1st Boot Device               IDE-0      Clk Gen Spread Spectrum       Disabled
2nd Boot Device               Floppy
3rd Boot Device               CD/DVD-0
Try Other Boot Devices        Yes
S.M.A.R.T. for Hard Disks     Disabled
BootUp Num-Lock               On
Floppy Drive Swap             Disabled
Floppy Drive Seek             Disabled
Password Check                Setup      ESC : Quit        ↑↓←→ : Select Item
Boot To OS/2                  No         F1  : Help       PU/PD/+/- : Modify
L2 Cache                      Enabled    F5  : Old Values  (Shift)F2 : Color
System BIOS Cacheable         Enabled    F6  : Load BIOS Defaults
DRAM Timing by SPD            Auto       F7  : Load Setup Defaults
  DRAM CAS#  Latency          2.5
  DRAM Bank Interleave        Disabled
AGP Comp. Driving             Auto
Manual AGP Comp. Driving      CB
AGP Aperture Size             64MB
Hyper-Threading Function      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.

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 (*Setup*) or required both at start-up and to enter the Setup Utility (*Always*).
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 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.

DRAM Bank Interleave	Enable this item to increase SDRAM memory speed. When enabled, separate memory banks are set for odd and even addresses and the next byte of memory can be accessed while the current byte is being refreshed.
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 Aperture Size	This item defines an AGP for the graphics. Leave this item at the default value 64MB.
Hyper-Threading Function	If your P4 CPU is not HT CPU, this item will be hidden. 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.
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 itme 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        │
├──────────────────────────────────┬──────────────────────────────────┤
│ ACPI Aware O/S            Yes     │                                  │
│ Power Management          Enabled │                                  │
│ Suspend Time Out (Minute) Disabled│                                  │
│ Resume On RTC Alarm       Disabled│                                  │
│ RTC Alarm Date            15      │                                  │
│ RTC Alarm Hour            12      │                                  │
│ RTC Alarm Minute          30      │                                  │
│ RTC Alarm Second          30      │ ESC : Quit      ↑↓←→ : Select Item│
│ LAN/Ring Power On         Disabled│ F1  : Help    PU/PD/+/- : Modify │
│ Keyboard Power On         Disabled│ F5  : Old Values (Shift)F2 : Color│
│   Wake-Up Key             Any key │ F6  : Load BIOS Defaults          │
│      Wake-Up Password     N/A     │ F7  : Load Setup Defaults         │
└──────────────────────────────────┴──────────────────────────────────┘
```

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 (Minute)	This item sets up the timeout for Suspend mode in minutes. If the time selected passes without any system activity, the computer will enter power-saving Suspend mode.
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	Your system can enter the software power down. If you enable this item, the system can automatically resume if there is traffic on the network adapter.
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
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 Primary Graphics Adapter      AGP
 Allocate IRQ to PCI VGA       Yes
 PCI IDE BusMaster             Disabled



                                    ESC  : Quit          ↑↓←→  : Select Item
                                    F1   : Help          PU/PD/+/-  : Modify
                                    F5   : Old Values  (Shift)F2  : Color
                                    F6   : Load BIOS Defaults
                                    F7   : Load Setup Defaults
```

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 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
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OnBoard FDC                 Enabled
OnBoard Serial PortA        3F8h/COM1
OnBoard IR Port             Disabled
OnBoard Parallel Port       378h
   Parallel Port Mode       ECP
   Parallel Port IRQ        7
   Parallel Port DMA        3
OnBoard PATA-IDE            Enabled      ESC : Quit         ↑↓←→ : Select
OnBoard SATA-IDE            Enabled      Item
Audio Device                Enabled      F1  : Help       PU/PD/+/-  :  Modify
Modem Device                Auto
Ethernet Device             Enabled      F5  : Old Values  (Shift)F2  : Color
Onboard USB Function        Enabled      F6  : Load BIOS Defaults
USB Function For DOS        Disabled      F7  : Load Setup Defaults
ThumbDrive Support for DOS  Disabled
```

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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 COM1/2 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 PATA-IDE	Use this item to enable or disable the onboard PATA-IDE channel.
OnBoard SATA-IDE	Use this item to enable or disable the onboard SATA-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.
Onboard USB Function	Enable this item if you plan to use the USB ports on this motherboard.
USB Function For DOS	Enable this item if you plan to use the USB ports on this motherboard in a DOS environment.
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 CPU of this motherboard. The system will automatically detect the type of installed CPU and make the appropriate adjustments to these items on this page.

```
┌─────────────────────────────────────────────────────────────┐
│              AMIBIOS SETUP – CPU PnP SETUP                    │
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├──────────────────────────────┬──────────────────────────────┤
│ CPU Ratio              8.0x   │                              │
│ CPU Over-clocking Func. Disabled │                           │
│ CPU Frequency          200 MHz │                             │
│ CPU Over-clocking Freq. N/A    │                             │
│ DRAM Frequency         Auto    │                             │
│                               ├──────────────────────────────┤
│                               │ 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 Ratio/ Frequency	These items show the ratio and frequency of the CPU installed in your system.
CPU Over-clocking Func./ Freq.	This item decides the CPU over-clocking function/frequency installed in your system. If the over-clocking fails, please turn off the system power. And then, hold the PageUp key (similar to the Clear CMOS function) and turn on the power, the BIOS will recover the safe default.
DRAM Frequency	This item shows the frequency of the DRAM in your system.

Hardware Monitor Page

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

AMIBIOS SETUP – HARDWARE MONITOR	
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*** System Hardware ***		
Vcore	1.632V	
Vcc 2.5V	2.496V	
Vcc 3.3V	3.392V	
Vcc 5V	4.972V	
SB5V	5.026V	**ESC : Quit** ↑↓←→ : **Select Item**
VBAT	3.488V	**F1 : Help** PU/PD/+/- : **Modify**
SYSTEM Fan Speed	0 RPM	**F5 : Old Values (Shift)F2 : Color**
CPU Fan Speed	1288 RPM	**F6 : Load BIOS Defaults**
Power Temperature	36°C/96°F	**F7 : Load Setup Defaults**
SYSTEM Temperature	45°C/113°F	
CPU Temperature	40°C/104°F	

CPU / System Temperature	These items display CPU and system temperature measurement.
FAN & 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 motherboard 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 motherboard; 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.
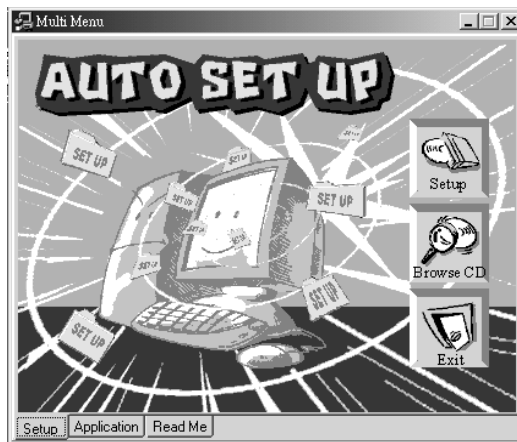
The **Setup** button runs the software auto-installing program as explained in next section.

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 motherboard 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.
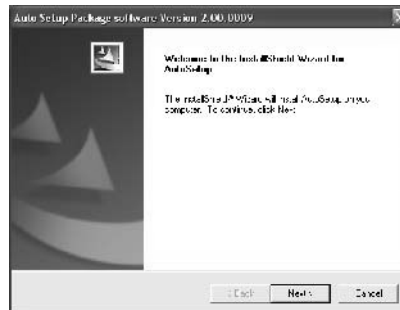
2. Select the items that you want to setup by clicking on it (the default options are recommended). Click the **Next** button to proceed.
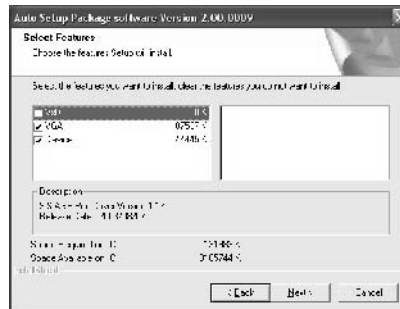
3. The support software will automatically install.

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.

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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 motherboard 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.
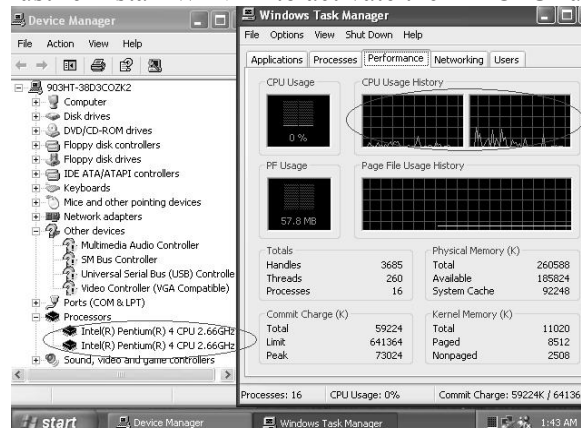
Hyper-Threading CPU

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.*