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Static Electricity Precautions

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 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.

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Notice:

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



Chapter 1 Introduction

This motherboard has a **LGA775 socket** for latest **Intel® Core™ 2 Quad/Intel® Core™ 2 Duo/Pentium® Dual-Core (E21xx series)/Celeron® Dual-Core/Celeron® 4xx series** processors with **Hyper-Threading Technology** and Front-Side Bus (FSB) speeds up to **1333 MHz**. Hyper-Threading Technology, designed to take advantage of the multitasking features, giving you the power to do more things at once.

It integrates the G31 Northbridge and ICH7 Southbridge that supports the Serial ATA 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 **High Definition Audio Codec** and provides **Ultra DMA 100/66** function. It has one **PCI Expressx16**, one **PCI Expressx1** and two 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 VGA port, one LAN port, four back-panel USB 2.0 ports and Audio jacks for microphone, line-in and line-out and onboard USB headers providing extra ports by connecting the Extended USB Module to the motherboard.

It is a **Micro ATX** motherboard and has power connectors for an ATX power supply.

Key Features

The key features of this motherboard include:

LGA775 Socket Processor

- Supports the latest **Intel® Core™ 2 Quad/Intel® Core™ 2 Duo/Pentium® Dual-Core (E21xx series) /Celeron® Dual-Core/Celeron® 4xx series** processors with **Hyper-Threading Technology**
- Supports up to **1333 MHz** Front-Side Bus

Note: **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 **G31 Northbridge** and **ICH7** in the chipsets in accordance with an innovative and scalable architecture with proven reliability and performance.

- Hyper-Threading Technology
- System Memory Controller Support: DDR2 SDRAM with up to maximum memory of 4 GB.
- PCI Express Graphics Interface Support: One PCI Express x16 slot
- PCI Bus Interface Support: PCI Revision 2.3 Specification at 33MHz
- Integrate Serial ATA Host Controller: Independent DMA operation with Data transfer rates up to 3.0 Gb/s
- Integrated IDE Controller: Ultra DMA-100/66 Bus Master EIDE Controller
- USB 2.0: Integrated USB 2.0 interface

Memory Support

- Two 240-pin DIMM sockets for DDR2 SDRAM memory modules
- Supports **DDR2 800/667** with dual-channel architecture
- Maximum installed memory is 4 GB

Expansion Slots

- Two 32-bit PCI slots
- One **PCI Expressx16** slot
- One **PCI Expressx1** slot

Onboard IDE channels

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

Serial ATA

- Four Serial ATA Connectors
- Transfer rate exceeding best ATA (3.0 Gb/s) with scalability to higher rates
- Low pin count for both host and devices

Audio

- 5.1Channel High Definition Audio Codec
- Exceeds Microsoft Windows Logo Program (WLP) Requirements
- ADCs support 44.1K/48K/96K/192KHz sample rate
- Power Support: Digital: 3.3V; Analog: 5.0V

LAN (Optional)

- | |
|---|
| <ul style="list-style-type: none">• Supports 10/100 Mbps Ethernet transceiver• Fully compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab• Wake-On-LAN (WOL) by Magic Packet/ Frame/ Link Change |
| <ul style="list-style-type: none">• Integrated PHY for 10/100/1000 Mbps• IEEE 802.3x compliant flow control support• Three power supplies: 2.5V, 1.8V and 1.2V• PCI Express base 1.1 compliant |

Onboard I/O Ports

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

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.

Dimensions

- Micro ATX form factor of 244 x 200 mm

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

Motherboard User's Guide

Package Contents

Your motherboard package ships with the following items:

- The motherboard
- The User's Guide
- 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 Serial ATA cable
- The Serial ATA power cable

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:

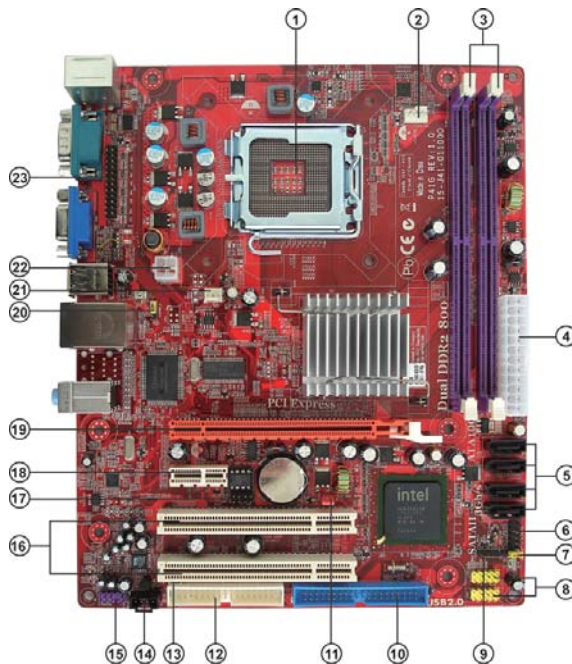
- Identify the motherboard components
- Install a CPU
- Install one or more system memory modules
- Make sure all jumpers and switches are set correctly
- Install this motherboard in a system chassis (case)
- Connect any extension brackets or cables to headers/connectors on the motherboard
- Install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

Note:

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

Motherboard User's Guide

Motherboard Components

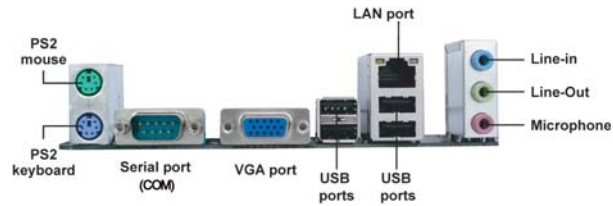


ITEM	LABEL	COMPONENTS
1	CPU Socket	LGA 775 socket for Intel® Core™2 Quad/Intel® Core™2 Duo/Pentium® Dual-Core (E21xx series)/Celeron® Dual-Core/Celeron® 4xx series
2	CPU_FAN	CPU cooling fan connector
3	DIMM1~2	240-pin DDR2 SDRAM slots
4	ATX1	Standard 24-pin ATX power connector
5	SATA1~4	Serial ATA connectors
6	F_PANEL1	Front panel switch/LED header
7	USBPWR_F	Front Panel USB Power Select Jumper
8	F_USB1~2	Front Panel USB headers
9	SPK1	Speaker header
10	IDE	Primary IDE connector
11	CLR_CMOS	Clear CMOS jumper
12	FDD	Floppy disk drive connector
13	SPDIF01	SPDIF out header
14	CD_IN1	Analog audio input connector
15	F_AUDIO1	Front panel audio header
16	PCI~2	32-bit add-on card slots
17	SPI_ROM	SPI ROM header
18	PCI-E1	PCI Express x1 slot
19	PCIEX1	PCI Express slot for graphics interface
20	USBPWR_R	Real Panel USB PS/2 Power Select Jumper
21	SYS_FAN	System cooling fan connector
22	ATX12V1	Auxiliary 4-pin power connector
23	LPT	Onboard parallel port header

Chapter 2: Motherboard Installation

I/O Ports

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



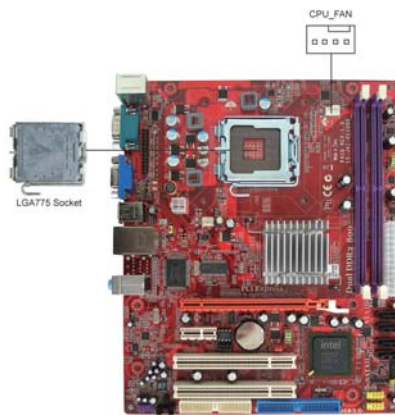
PS/2 Mouse	Use the upper PS/2 port to connect a PS/2 pointing device.
PS/2 Keyboard	Use the lower PS/2 port to connect a PS/2 keyboard.
COM	Use the COM port to connect serial devices such as mice or fax/modems. COM1 is identified by the system as COM.
VGA Port	Use the VGA port to connect VGA devices.
LAN Port	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.
Audio Ports	Use these three audio jacks to connect audio devices. The first jack is for stereo Line-In signal, the second jack for stereo Line-Out signal, and the third jack for Microphone.

Installing the Processor

This motherboard has a **LGA775** socket for the latest **Intel® Core™ 2 Quad/ Intel® Core™ 2 Duo/Pentium® Dual-Core (E21xx series)/Celeron® Dual-Core/Celeron® 4xx series** processors. 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:



- A. Read and follow the instructions shown on the sticker on the CPU cap.
- B. Unload the cap
 - Use thumb & forefinger to hold the lifting tab of the cap.
 - Lift the cap up and remove the cap completely from the socket.
- C. Open the load plate
 - Use thumb & forefinger to hold the hook of the lever, pushing down and pulling aside unlock it.
 - Lift up the lever.
 - Use thumb to open the load plate. Be careful not to touch the contacts.
- D. Install the CPU on the socket
 - Orientate CPU package to the socket. Make sure you match triangle marker to pin 1 location.



Chapter 2: Motherboard Installation

- E. Close the load plate
- Slightly push down the load plate onto the tongue side, and hook the lever.
 - CPU is locked completely.
- F. Apply thermal grease on top of the CPU.
- G. Fasten the cooling fan supporting base onto the CPU socket on the motherboard.
- H. Make sure the CPU fan is plugged to the CPU fan connector. Please refer to the CPU cooling fan user's manual for mor detail installation procedure.



Note 1: To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan with 3800 rpm at least. CPU fan and heatsink installation procedures may vary with the type of CPU fan/heatsink supplied. The form and size of fan/heatsink may also vary.

Note 2: The fan connector supports the CPU cooling fan of 1.1A~2.2A (26.4W max.) at +12V.

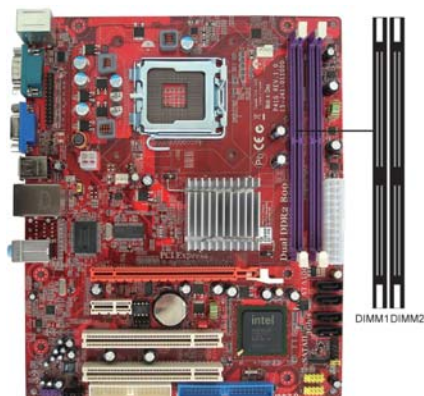
Note 3: Do Not remove the CPU cap from the socket before installing a CPU.

Note 4: Return Material Authorization (RMA) requests will be accepted only if the motherboard comes with the cap on the LGA775 socket.

Installing Memory Modules

This motherboard accommodates two 240-pin DIMM sockets (Dual Inline Memory Module) for **DDR2 800/667** with dual-channel architecture, and maximum 4 GB installed memory.

Over its predecessor, DDR-SDRAM, DDR2-SDRAM offers greater bandwidth and density in a smaller packahe along with a reduction in power consumption. In addition, DDR2-SDRAM offers new features and functions that enable a higher clock rate and data rate operations of 400 MHz, 533 MHz and 667 MHz. DDR2 transfer 64 bits of data twice every clock cycle.



Motherboard User's Guide

Memory Module Installation Procedure

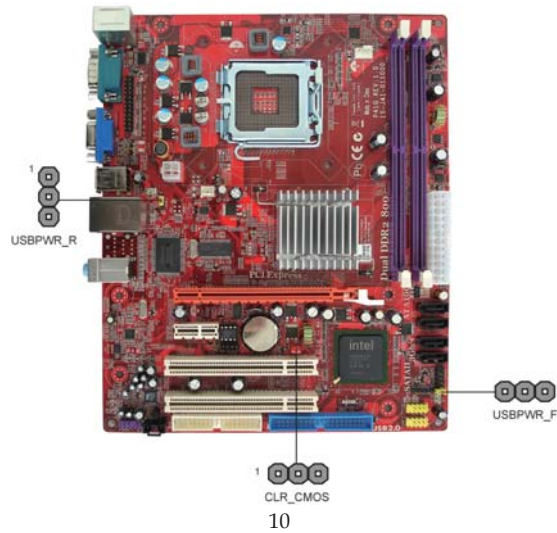
These modules can be installed with up to 4 GB system memory. Refer to the following to install the memory module.

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.



CLR_CMOS: 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

Note: To avoid the system instability after clearing CMOS, we recommend users to enter the main BIOS setting page to “Load Optimal De-faults” and then “Save Changes and Exit”.

USBPWR_F: FRONT PANEL USB POWER SELECT Jumper



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

USBPWR_R: REAR USB PS/2 POWER SELECT Jumper

Use this jumper to set the Rear USB PS/2 Power function.



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

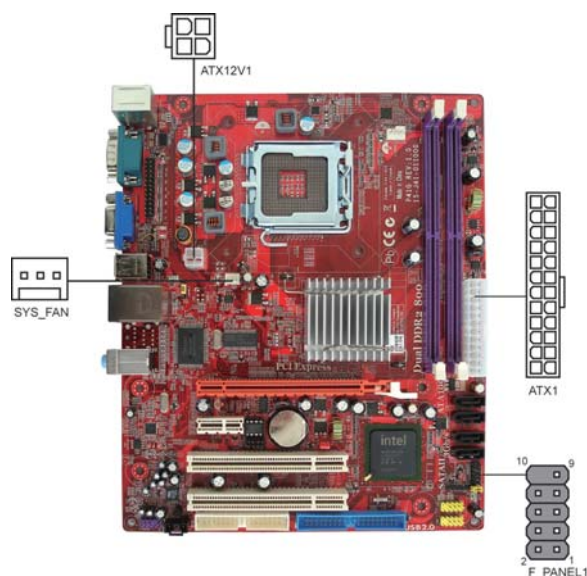
Note: Make sure the power supply provides enough SB5V voltage before selecting the SB5V function.

Motherboard User's Guide

Install the Motherboard

Install the motherboard in a system chassis (case). The board is a Micro 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 **ATX1** connector on the motherboard. The **ATX12V1** 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 **SYS_FAN** fan power connector on the motherboard.

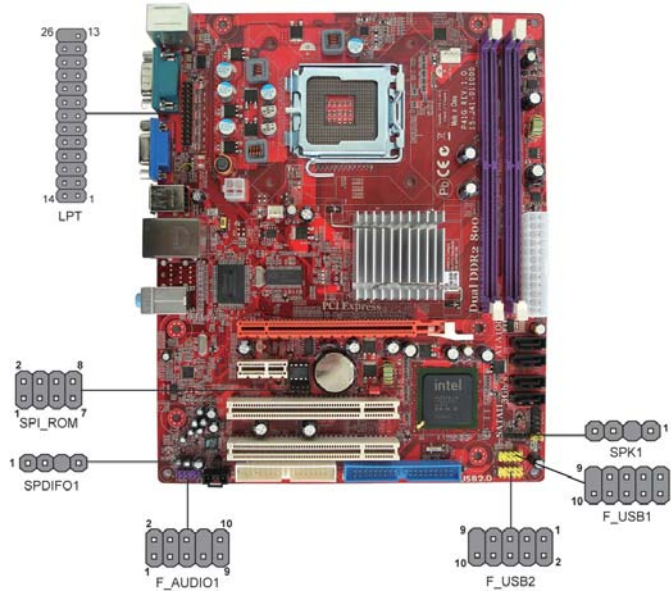
Connect the case switches and indicator LEDs to the **F_PANEL1** header.

Here is a list of the **F_PANEL1** 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 Header

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

Pin	Signal	Pin	Signal
1	VCC	2	Key
3	NC	4	Signal

SPDIF01: S/PIF Out Header

S/PDIF (Sony/Philips Digital Interface) is a standard audio transfer file format and allows the transfer of digital audio signals from one device to another without having to be converted first to an analog format. Via a specific audio cable, you can connect the SPDIF01 header (S/PDIF output) on the motherboard to the S/PDIF digital input on the external speakers or AC Decode devices.

Pin	Signal	Pin	Signal
1	SPDIFOUT	2	5VA
3	KEY	4	GDN

Motherboard User's Guide

F_AUDIO1: Front Panel Audio Header

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

Pin	Signal	Pin	Signal
1	PORT1L	2	GND
3	PORT1R	4	PRESENCE#
5	PORT2R	6	Sense1_return
7	SENSE_SEND	8	KEY
9	PORT2L	10	Sense2_return

F_USB1~USB2: Front panel USB Headers

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 headers F_USB1/F_USB2 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	NC

1. Locate the F_USB1/F_USB2 header on the motherboard.
2. Plug the bracket cable onto the F_USB1/F_USB2 header.
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.

SPI_ROM: SPI ROM Header

This 4 Mb ROM contains the programmable BIOS program.

Pin	Signal	Pin	Signal
1	CHIPSELECT	2	VCC
3	DATAOUTPUT	4	HOLD
5	WRITEPROTECT	6	CLOCK
7	CND	8	DATAINPUT

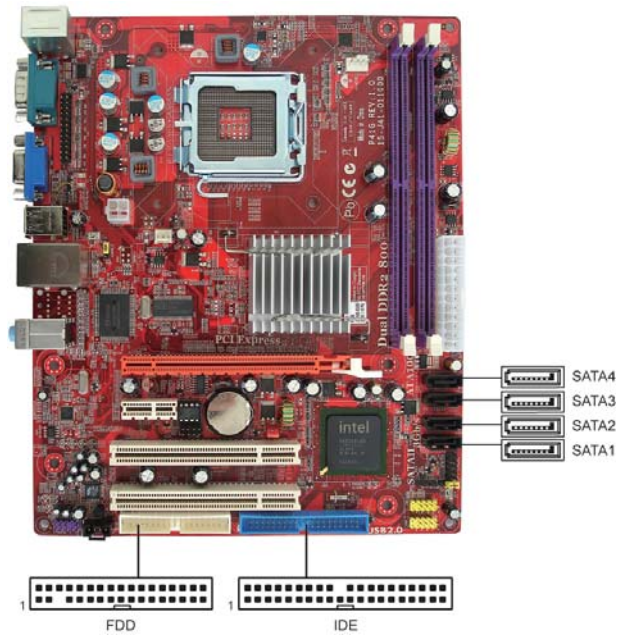
LPT: Onboard parallel port Header

This header allows the user to connect to the printer, scanner or devices.

Pin	Signal	Pin	Signal
1	STROBE	2	PD0
3	PD1	4	PD2
5	PD3	6	PD4
7	PD5	8	PD6
9	PD7	10	ACK
11	BUSK	12	PE
13	SLCT	14	ALF
15	ERROR	16	INIT
17	SLCTIN	18	Ground
19	Ground	20	Ground
21	Ground	22	Ground
23	Ground	24	Ground
25	Ground	26	Key

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 360 K, 720 K, 1.2 MB, 1.44 MB, or 2.88 MB.

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 **FDD**.

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 **IDE** on the motherboard.

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 **3.0 Gb/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 connector on the motherboard.

On the motherboard, locate the Serial ATA connectors **SATA1~4**, 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.

Analog Audio Input Connector

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



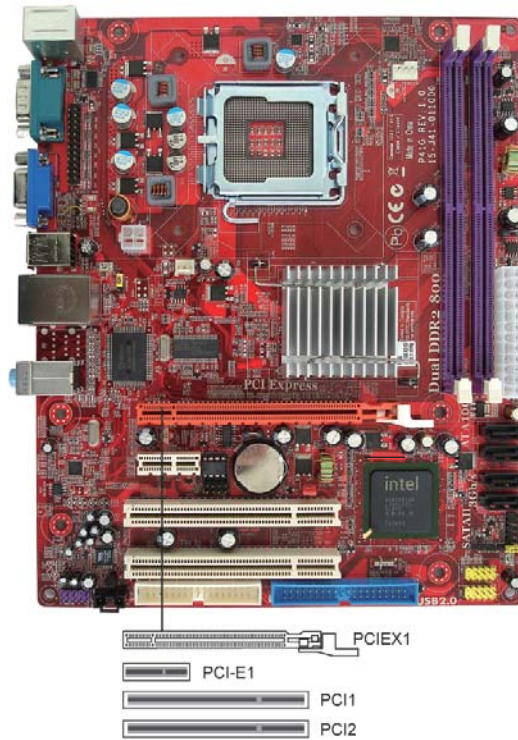
When you first start up your system, the BIOS should automatically detect your CD-ROM/DVD drive. If it doesn't, enter the Setup Utility and configure the CD-ROM/DVD drive that you have installed. On the motherboard, locate the 4-pin connector **CD_IN1**.

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

Motherboard User's Guide

Expansion Slots

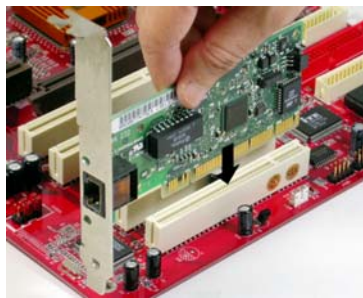
This motherboard has one PCI Ex16, one PCI Ex1 and two 32-bit PCI slots.



Chapter 2: Motherboard Installation

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

- 1 Locate the PCI Express 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.



PCI Express Slot

You can install an external PCI Express graphics card that is fully compliant to the PCI Express Base Specification revision 1.0a.

PCI Slots

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

Chapter 3 BIOS Setup Utility

Introduction

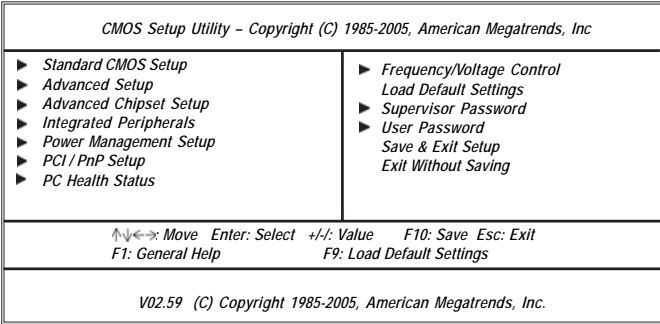
The BIOS Setup Utility records settings and information of your computer, such as date and time, the type of hardware installed, and various configuration settings. Your computer applies the information to initialize all the components when booting up and basic functions of coordination between system 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 if you want to run SETUP”. Whenever you see this message, press the **Delete** key, and the Main menu page of the Setup Utility appears on your monitor.



You can use cursor arrow keys to highlight anyone of options on the main menu page. Press **Enter** to select the highlighted option. Press the **Escape** key to leave the setup utility. Press +/- to modify the selected field's values.

Chapter 3: BIOS Setup Utility

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 OK or Cancel by selecting the **[OK]** or **[Cancel]** key.

If you have already changed the setup utility, press **F10** to save those changes and exit the utility. Press **F1** to display a screen describing all key functions. Press **F9** to load optimal settings.

Standard CMOS Setup Page

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

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc. Standard CMOS Setup		
Date	Tue 02/19/2008	Help Item
Time	01:46:51	
▶ Primary IDE Master	Not Detected	Use [ENTER], [TAB] or [SHIFT-TAB] to select a field. Use [+] or [-] to configure system Date.
▶ Primary IDE Slave	Hard Disk	
▶ Secondary IDE Master	Not Detected	
▶ Secondary IDE Slave	Not Detected	
▶ Third IDE Master	ATAPI CDROM	
▶ Third IDE Slave	Not Detected	
IDE BusMaster	Enabled	
Drive A :	1.44 MB 3 1/2	
↑↓←→: Move Enter: Select +/-: Value F10: Save Esc: Exit F1: General Help F9: Load Default Settings		

Date & Time

These items set up system date and time.

Primary/Secondary/Third IDE Master/ Slave

Use these items to configure devices connected to the 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*.

IDE BusMaster

This item enables or disables the DMA under DOS mode. We recommend you to leave this item at the default value.

Drive A

The item defines the characteristics of any diskette drive attached to the system. You can connect one or two diskette drives.

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.

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc. Advanced Setup		
Thermal Management	Enabled	Help Item
TM Status	TM1	For the processors CPUID belows 0F41h. TM2 only can be enable under below setting. 1.Freq.>=3.6GHz FSB800 2.Freq.>=2.8GHz FSB533
Max CPUID Value Limit	Disabled	
Enhanced Halt (C1E)	Enabled	
Intel XD Bit	Disabled	
Intel EIST	Enabled	
Quick Power on Self Test	Enabled	
Bootup NumLock Status	On	
APIC Mode	Enabled	
1st Boot Device	ST31000340AS	
2nd Boot Device	ASUS DVD-E616P3H	
3rd Boot Device	1st FLOPPY DRIVE	
▶ Hard Disk Drives	Press Enter	
▶ Removable Drives	Press Enter	
▶ CD/DVD Drives	Press Enter	
Boot Other Device	Yes	
↑↓←→ : Move Enter: Select +/-: Value F10: Save Esc: Exit F1: General Help F9: Load Default Settings		

Thermal Management

This item displays CPU's temperature and enables you to set a safe temperature to prescott CPU.

TM Status

This item display CPU Thermal Monitor status.

Max CPUID Value Limit

This item can support Prescott CPUs for old OS. Users please note that under NT 4.0, it must be set "Enabled", while under WinXP, it must be set "Disabled"

Enhanced Halt (C1E)

This item enables or disables enhanced halt (C1E).

Intel XD Bit

This item allows users to enable or disable the Intel XD bit.

Intel EIST

This item allows users to enable or disable the EIST (Enhanced Intel SpeedStep technology).

Quick Power On Self Test

Enable this item to shorten the power on self testing (POST) and have your system start up faster. You might like to enable this item after you confident that your system hardware is operating smoothly.

Boot Up NumLock Status

This item determines if the NumLock key is active or inactive at system start-up time.

APIC Mode

This item allows you to enable or disable the APIC (Advanced Programmable Interrupt Controller) mode. APIC provides symmetric multi-processing (SMP) for systems, allowing support for up to 60 processors.

1st/2nd/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.

► Hard Disk Drives (Press Enter)

Scroll to this item and press <Enter> to view the following screen:

<i>CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.</i> <i>Hard Disk Drives</i>							
<table border="1" style="width: 100%;"> <tr> <th style="text-align: left;"><i>Hard Disk Drives</i></th> <th style="text-align: left;"><i>Help Item</i></th> </tr> <tr> <td style="padding: 5px;"> <table style="width: 100%;"> <tr> <td style="width: 15%;"><i>1st Drive</i></td> <td style="border: 1px solid black; padding: 2px;"><i>ST31000340AS</i></td> </tr> </table> </td> <td style="padding: 5px; vertical-align: top;"> <i>Specifies the boot sequence from the available devices.</i> </td> </tr> </table>	<i>Hard Disk Drives</i>	<i>Help Item</i>	<table style="width: 100%;"> <tr> <td style="width: 15%;"><i>1st Drive</i></td> <td style="border: 1px solid black; padding: 2px;"><i>ST31000340AS</i></td> </tr> </table>	<i>1st Drive</i>	<i>ST31000340AS</i>	<i>Specifies the boot sequence from the available devices.</i>	
<i>Hard Disk Drives</i>	<i>Help Item</i>						
<table style="width: 100%;"> <tr> <td style="width: 15%;"><i>1st Drive</i></td> <td style="border: 1px solid black; padding: 2px;"><i>ST31000340AS</i></td> </tr> </table>	<i>1st Drive</i>	<i>ST31000340AS</i>	<i>Specifies the boot sequence from the available devices.</i>				
<i>1st Drive</i>	<i>ST31000340AS</i>						
↑↓↔ : Move Enter: Select +/-: Value F10: Save Esc: Exit F1: General Help F9: Load Default Settings							

Press <Esc> to return to Advanced Setup screen.

► Removable Drives (Press Enter)

Scroll to this item and press <Enter> to view the following screen:

<i>CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.</i> <i>Removable Drives</i>							
<table border="1" style="width: 100%;"> <tr> <th style="text-align: left;"><i>Removable Drives</i></th> <th style="text-align: left;"><i>Help Item</i></th> </tr> <tr> <td style="padding: 5px;"> <table style="width: 100%;"> <tr> <td style="width: 15%;"><i>1st Drive</i></td> <td style="border: 1px solid black; padding: 2px;"><i>1st FLOPPYDRIVE</i></td> </tr> </table> </td> <td style="padding: 5px; vertical-align: top;"> <i>Specifies the boot sequence from the available devices.</i> </td> </tr> </table>	<i>Removable Drives</i>	<i>Help Item</i>	<table style="width: 100%;"> <tr> <td style="width: 15%;"><i>1st Drive</i></td> <td style="border: 1px solid black; padding: 2px;"><i>1st FLOPPYDRIVE</i></td> </tr> </table>	<i>1st Drive</i>	<i>1st FLOPPYDRIVE</i>	<i>Specifies the boot sequence from the available devices.</i>	
<i>Removable Drives</i>	<i>Help Item</i>						
<table style="width: 100%;"> <tr> <td style="width: 15%;"><i>1st Drive</i></td> <td style="border: 1px solid black; padding: 2px;"><i>1st FLOPPYDRIVE</i></td> </tr> </table>	<i>1st Drive</i>	<i>1st FLOPPYDRIVE</i>	<i>Specifies the boot sequence from the available devices.</i>				
<i>1st Drive</i>	<i>1st FLOPPYDRIVE</i>						
↑↓↔ : Move Enter: Select +/-: Value F10: Save Esc: Exit F1: General Help F9: Load Default Settings							

Press <Esc> to return to Advanced Setup screen.

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► CD/DVD Drives (Press Enter)

Scroll to this item and press <Enter> to view the following screen:

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc. CD/DVD Drives		Help Item
CD-DVD Drives		
1st Drive	ASUS DVD-E616P3H	Specifies the boot sequence from the available devices.
↑↓←→ : Move Enter: Select +/-: Value F10: Save Esc: Exit F1: General Help F9: Load Default Settings		

Press <Esc> to return to Advanced Setup screen.

Boot Other Device

When enabled, the system searches all other possible locations for operating system if it fails to find one in the devices specified under the First, Second, and Third boot devices.

Press <Esc> to return to the main menu page.

Advanced Chipset Setup Page

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

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc. Advanced Chipset Setup		Help Item
DRAM Frequency	Auto	
Configure DRAM Timing by SPD	Enabled	
VGA Share Memory	Enabled, 8MB	Options
DVMT Mode Select	DVMT Mode	Auto
DVMT/FIXED Memory	256MB	667 MHz
HPET	Enabled	800 MHz
↑↓←→ : Move Enter: Select +/-: Value F10: Save Esc: Exit F1: General Help F9: Load Default Settings		

DRAM Frequency

This item enables users to adjust the DRAM frequency. The default setting is auto and we recommend users leave the setting unchanged. Modify it at will may cause the system to be unstable.

Configure DRAM Timing by SPD

When this item is set to enable, the DDR timing is configured using SPD. SPD (Serial Presence Detect) is located on the memory modules, BIOS reads information coded in SPD during system boot up.

VGA Share Memory

This item lets you allocate a portion of the main memory for the onboard VGA display application.

DVMT Mode Select

This item allows you to select the DVMT operating mode.

DVMT/FIXED Memory

When set to Fixed Mode, the graphics driver will reserve a fixed portion of the system memory as graphics memory, according to system and graphics requirements.

HPET

This item enables or disables HPET (High Performance Event Timer) support.

Press <Esc> to return to the main menu page.

Integrated Peripherals Page

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

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc. Integrated Peripherals		
		Help Item
Onboard IDE Controller	Enabled	
OnBoard SATA Controller	Enhanced	
Onboard LAN Function	Enabled	
Onboard LAN Boot ROM	Disabled	DISABLED: disables the integrated IDE Controller.
Onboard AUDIO Function	Enabled	ENABLED: enables both Controllers.
Serial Port1 Address	3F8/IRQ4	
Parallel Port Address	378	
Parallel Port Mode	Normal	
Parallel Port IRQ	IRQ7	
USB Functions	Enabled	
Legacy USB Support	Enabled	

↑↓↔ : Move Enter: Select +/-: Value F10: Save Esc: Exit
 F1: General Help F9: Load Default Settings

OnBoard IDE Controller

Use this item to enable or disable the onboard IDE interface.

OnBoard SATA Controller

Use this item to enable or disable the onboard SATA controller.

OnBoard LAN Function

Use this item to enable or disable the onboard LAN function.

OnBoard LAN Boot ROM

Use this item to enable or disable the booting from the onboard LAN or a network add-in card with a remote boot ROM installed.

OnBoard AUDIO Function

Use this item to enable or disable the onboard audio device.

Serial Port1 Address

Use this item to enable or disable the onboard serial port, and to assign a port address.

Parallel Port Address

Use this item to enable or disable the onboard Parallel port, and to assign a port address.

Parallel Port Mode

Use this item to select the parallel port mode. You can select Normal (Standard Parallel Port), ECP (Extended Capabilities Port), EPP (Enhanced Parallel Port), or BPP (Bi-Directional Parallel Port).

Parallel Port IRQ

Use this item to assign IRQ to the parallel port.

USB Functions

Use this item to enable or disable the USB function.

Legacy USB Support

Use this item to enable or disable support for legacy USB devices. Setting to Auto allows the system to detect the presence of USB device at startup. If detected, the USB controller legacy mode is enabled. If no USB devices is detected, the legacy USB support is disabled.

Press <Esc> to return to the main menu setting page.

Power Management Setup Page

This page sets some parameters for system power management operation.

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc. Power Management Setup		
ACPI Suspend Type	S3	Help Item
Soft-off by PWR-BTTN	Delay 4 Sec	Select the ACPI state used for System Suspend.
PWRON After PWR-Fail	Power Off	
Resume By RING	Disabled	
Resume by PCI/PCI-E/Lan PME	Disabled	
Resume By USB (S3)	Disabled	
Resume By PS2 KB (S3)	Disabled	
Resume By PS2 MS (S3)	Disabled	
Resume on RTC Alarm	Disabled	
↑↓←→: Move Enter: Select +/-: Value F10: Save Esc: Exit F1: General Help F9: Load Default Settings		

ACPI Suspend Type

Use this item to define how your system suspends. In the default, S3 (STR), the suspend mode is a suspend to RAM, i.e., the system shuts down with the exception of a refresh current to the system memory.

Soft-off By PWR- BTTN

If the item is set to Instant-Off, then the power button causes a software power down. If the item is set to Delay 4 Sec. then you have to hold the power button down for four seconds to cause power down.

PWRON After PWR-Fail

This item enables your computer to automatically restart or return to its last operating status.

Resume By Ring

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the Modem. You must use an ATX power supply in order to use this feature.

Resume by PCI/PCI-E/Lan PME

This item specifies whether the system will be awakened from power saving modes when activity or input signal of the specified WOL device is detected.

Resume By USB (S3)

This item allows you to enable or disable the USB device wakeup function from S3 mode.

Motherboard User's Guide

Resume By PS/2 KB (S3)

This item enables or disables you to allow keyboard activity to awaken the system from power saving mode.

Resume By PS/2 MS (S3)

This item enables or disables you to allow mouse activity to awaken the system from power saving mode.

Resume On RTC Alarm

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.

Press <Esc> to return to the main menu setting page.

PCI / PnP Setup Page

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

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.		
PCI / PnP Setup		
Init Display First	PCI	Help Item
Allocate IRQ to PCI VGA	Yes	
		Select which graphics controller to use as the primary boot device.
↑↓←→ : Move Enter: Select +/-: Value F10: Save Esc: Exit		
F1: General Help F9: Load Default Settings		

Init Display First

This item allows you to choose the primary display card.

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.

Press <Esc> to return to the main menu setting page.

PCI Health Status Page

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

CMOS Setup Utility – Copyright (C) 1985-2005, American Megatrends, Inc. PC Health Status		Help Item
Hardware Health Event Monitoring		
▶ Smart Fan Function	Press Enter	
Shutdown Temperature	Disabled	
CPU Temperature	: 62°C/143°F	
CPU Fan Speed	: 3924RPM	
CPU Vcore	: 1.248V	
VDIMM	: 1.880V	
↑↓↔ : Move Enter: Select +/-: Value F10: Save Esc: Exit F1: General Help F9: Load Default Settings		

▶ Smart Fan Function

Scroll to this item and press <Enter> to view the following screen:

CMOS Setup Utility – Copyright (C) 1985-2005, American Megatrends, Inc. Smart Fan Function		Help Item
SMART Fan Control	Enabled	
CPUFAN0 StartUp Value	096	Options
CPUFAN0 TargetTemp Value	050	Disabled
CPUFAN0 Tolerance Value	03	Enabled
CPUFAN0 Stop Value	064	
CPUFAN0 StopTime Value	060	
↑↓↔ : Move Enter: Select +/-: Value F10: Save Esc: Exit F1: General Help F9: Load Default Settings		

SMART Fan Control

This item allows you to enable or disable the control of the system fan speed by changing the fan voltage.

Press <Esc> to return to the PC Health Status page.

Shutdown Temperature

Enable you to set the maximum temperature the system can reach before powering down.

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System Component Characteristics

These fields provide you with information about the system current operating status.

- CPU Temperature
- CPU Fan Speed
- CPU Vorce
- VDIMM

Press <Esc> to return to the main menu setting page.

Frequency/Voltage Control Page

This page helps you to set the clock speed and system bus for your system. The clock speed and system bus are determined by the kind of processor you have installed in your system.

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.	
Frequency/Voltage Control	
Manufacturer : Intel	Help Item
Ratio Status : Unlocked (Min: 12, Max: 17)	
Ratio Actual Value : 17	
CPU Frequency : 200MHz	Options
CPU Over-clocking Func.: Disabled	Disabled
Auto Detect DIMM/PCI Clk : Enabled	Enabled
Spread Spectrum : Enabled	
↑↓←→ : Move Enter: Select +/-: Value F10: Save Esc: Exit	
F1: General Help F9: Load Default Settings	

Manufacturer

This item displays the information of current manufacturer of the CPU installed in your computer.

Ratio Status/Ratio Actual Value

This item shows the locked ratio status and the actual ratio of the CPU installed in your system.

CPU Frequency

This item indicates the current CPU frequency. Users can not make any change to this item. Please noted that the frequency will be varied with different CPU.

CPU Over-clocking Func.

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.

Auto Detect DIMM/PCI Clk

When this item is enabled, BIOS will disable the clock signal of free DIMM/PCI slots.

Spread Spectrum

If you enable spread spectrum, it can significantly reduce the EMI (Electro-Magnetic interface) generated by the system.

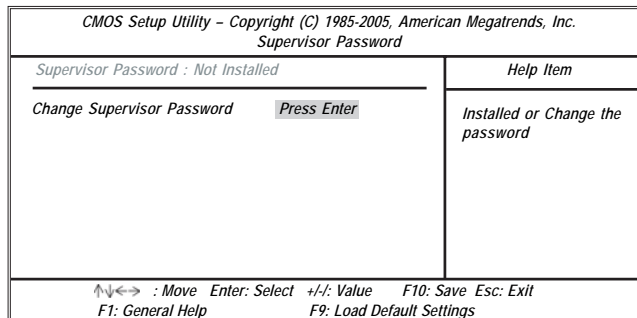
Load Default Settings

This option opens a dialog box to ask if you are sure to install optimized defaults or not. You select [OK], and then <Enter>, the Setup Utility loads all default values; or select [Cancel], and then <Enter>, the Setup Utility does not load default values.

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

Supervisor Password Page

This page helps you set up some parameters for the hardware monitoring function of this motherboard.



Supervisor Password

This item indicates whether a supervisor password has been set. If the password has been installed , Installed displays. If not, Not Installed displays.

Change Supervisor Password

You can select this option and press<Enter> to access the sub menu. You can use the sub menu to change the supervisor password.

Press <Esc> to return to the main menu setting page.

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User Password Page

This page helps you set up some parameters for the hardware monitoring function of this motherboard.

<i>CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.</i>	
<i>User Password</i>	
<i>User Password : Not Installed</i>	<i>Help Item</i>
<i>↑↓←→: Move Enter: Select +/-: Value F10: Save Esc: Exit</i> <i>F1: General Help F9: Load Default Settings</i>	

User Password

This item indicates whether a user password has been set. If the password has been installed, Installed displays. If not, Not Installed displays.

Press <Esc> to return to the main menu setting page.

Save & Exit Setup

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

Exit Without Saving

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

Note: If you have made settings that you do not want to save, use the "Exit Without Saving" item and press [Y] to discard any changes you have made.

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 2000/XP/Vista, it will automatically install all the drivers and utilities for your motherboard.

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 file browsing interface.

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The **Exit** button closes the Auto Setup window. To run the program again, reinsert the CD-ROM disc in the drive; or click the CD-ROM driver from the Windows Explorer, and click the Setup icon.

The **Application** button brings up a software menu. It shows the bundled software that this mainboard supports.

The **ReadMe** brings you to the Install Path where you can find out path names of software driver.

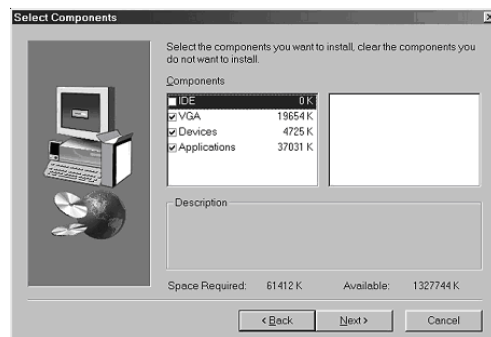
Auto-Installing under Windows 2000/XP/Vista

If you are under Windows 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.



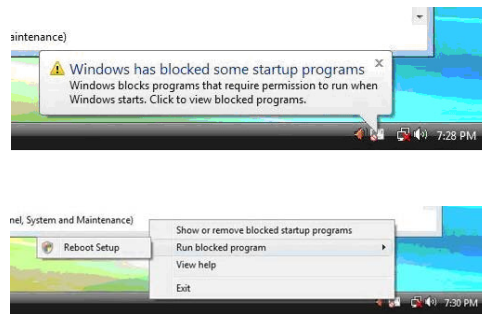
3 The support software will automatically install.

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.

During the Windows Vista Driver Auto Setup Procedure, users should use one of the following two methods to install the driver after the system restart.

Method 1. Run Reboot Setup

Windows Vista will block startup programs by default when installing drivers after the system restart. You must select taskbar icon **Run Blocked Program** and run **Reboot Setup** to install the next driver, until you finish all drivers installation.



Method 2. Disable UAC (User Account Control)

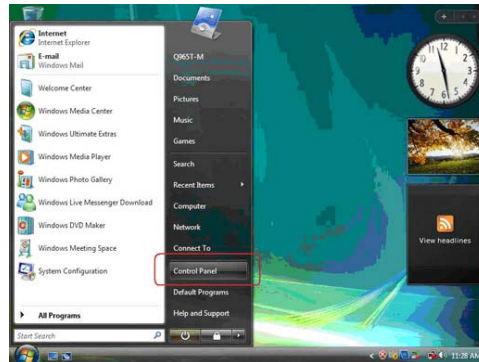
* For administrator account only. Standard user account can only use Method 1.

Disable Vista UAC function before installing drivers, then use CD driver to install drivers, it will continue to install drivers after system restart without running blocked programs.

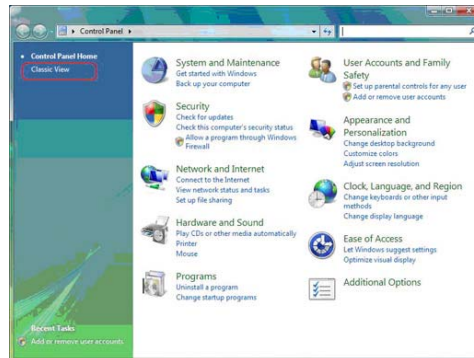
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Follow these instructions to Disable Vista UAC function:

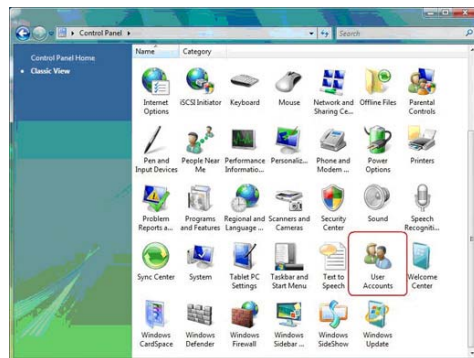
1. Go to **Control Panel**.



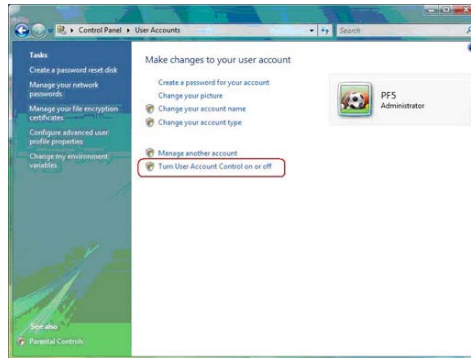
2. Select **Classic View**.



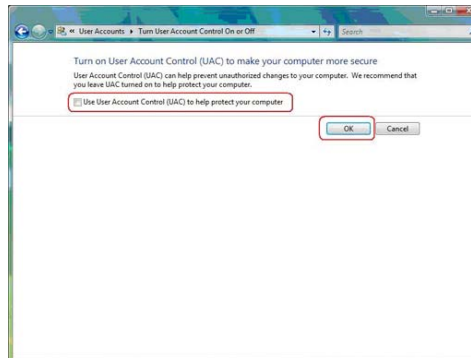
3. Set **User Account**.



4. Select **Turn User Account Control on or off** and press **Continue**.



5. Disable **User Account Control (UAC)** to help protect your computer item and press **OK**, then press **Restart Now**. Then you can restart your computer and continue to install drivers without running blocked programs.



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.