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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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P47G Series, V1.0
March 2009

Table of Contents

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 Duo/Pentium® Dual-Core/Celeron® 4xx Series** processors with Front-Side Bus (FSB) speeds up to **1333/1066/800 MHz.**

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 **USB 2.0 EHCI.** It supports **High Definition Audio Codec** and provides **Ultra DMA 100**/66/33 function. It has one **PCI Expressx16**, one **PCI Expressx1** and one 32-bit **PCI** slot. There is a full set of I/O ports including two PS/2 ports for mouse and keyboard, 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 Duo/Pentium® Dual-Core/Celeron® 4xx Series** processors
- Supports **1333/1066/800 MHz** Front-Side Bus

Chipset

There are **G31 Northbridge** and **ICH7 Southbridge** in the chipsets in accordance with an innovative and scalable architecture with proven reliability and performance.

- High Performance Host Interface: Supports **Intel® Core™ 2 Duo/ Pentium® Dual-Core/Celeron® 4xx Series** processor family with FSB1333 MHz
- System Memory Controller Support: DDR2 SDRAM with up to maximum memory of 4 GB.
- PCI Express Graphics Interface Support: One PCI Express x16 port
- PCI Bus Interface Support: PCI Revision 2.3 Specification at 33MHz
- Integrade Serial ATA Host Controller with Data transfer rates up to 3.0 Gb/s
- Intgrated IDE Controller: Ultra DMA-100/66/33 Bus Master EIDE Controller
- USB 2.0: Integrated USB 2.0 interface, supporting up to six functional ports

Memory Support

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

Expansion Slots

- One 32-bit PCI slot
- One **PCI Express x16** slot
- One **PCI Express x1** 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**/66/33 MB/sec

Serial ATA

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

Audio

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

LAN

- Supports 10/100 Mbps Ethernet Transceiver
- Fully compliant with IEEE802.3, IEEE802.3u, IEEE802.3ab
- Wake-On-LAN (WOL) by Magic Packet/Frame/Link Change

Onboard I/O Ports

- Two PS/2 ports for mouse and keyboard
- 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
- CPU and memory timing

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

Dimensions

- Micro ATX form factor of 225 x 170 mm

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

Package Contents

Your motherboard package ships with the following items:

- ❑ The motherboard
- ❑ The User's Guide
- ❑ 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 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 Components
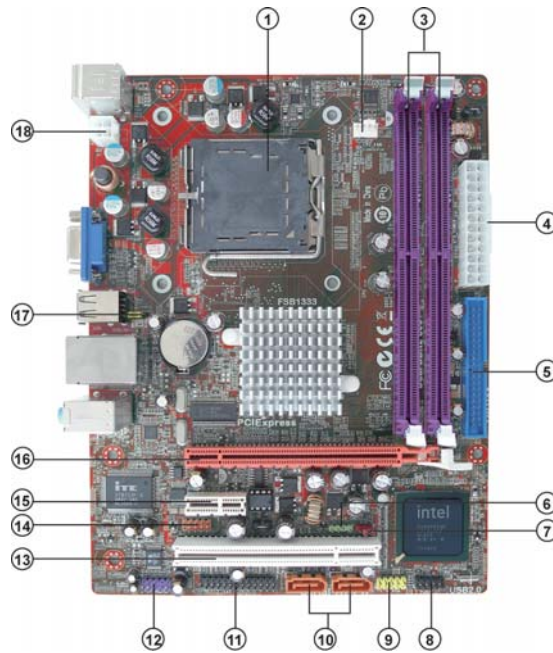
LABEL	COMPONENTS
1. CPU Socket	LGA775 socket for Intel® Core™ 2 Duo/ Pentium® Dual-Core/Celeron® 4xx Series processors
2. CPU_FAN	CPU cooling fan connector
3. DDR2_1~2	240-pin DDR2 SDRAM slots
4. ATX_POWER	Standard 24-pin ATX power connector
5. IDE	Primary IDE channel
6. SPK	Speaker header
7. CLR_CMOS	Clear CMOS jumper
8. F_PANEL	Front Panel switch/LED header
9. F_USB	Front Panel USB header
10. SATA1~2	Serial ATA connectors
11. LPT	Onboard parallel port header
12. F_AUDIO	Front panel audio header
13. PCI1	32-bit add-on card slot
14. COM	Onboard serial port header
15. PCIE	PCI Express x1 slot
16. PCIEX16	PCI Express x16 graphics card slot
17. KBMPWR	Rear Panel USB PS/2 Power Select Jumper (for PS/2 S3 wake-up only)
18. ATX12V	4-pin +12V power connector

I/O Ports

The illustration below shows a side view of the built-in I/O ports on the motherboard.
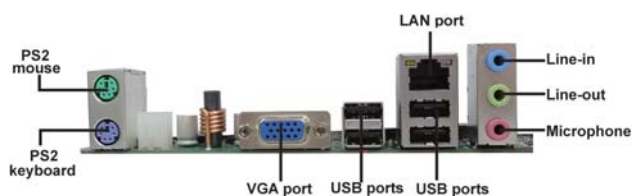
PS/2 Mouse	Use the upper PS/2 port to connect a PS/2 pointing device.
PS/2 Keyboard	Use the low er PS/2 port to connect a PS/2 keyboard.
VGA Port	Use the VGA port to connect VGA devices.
LAN Port	Connect an RJ-45 jack to the LAN port to connect your computer to the Netw ork.
USB Ports	Use the USB ports 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.

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Installing the Processor

This motherboard has a **LGA775** socket for the latest **Intel® Core™ 2 Duo/ Pentium® 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:
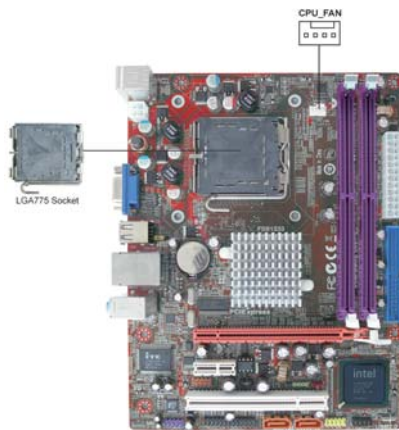
A. Read and follow the instructions shown on the sticker on the CPU cap.

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.

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 for unbuffered **DDR2 800**/667 memory modules, and maximum 4 GB installed memory.

Over its predecessor, DDR-SDRAM, DDR2-SDRAM offers greater bandwith 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 667 MHz, 800 MHz. DDR2 transfer 64 bits of data twice every clock cycle.

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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.

Table A: DDR2 (memory module) QVL (Qualified Vendor List)

The following DDR2 800/667 memory modules have been tested and qualified for use with this motherboard.

Type	Size	Vendor	Module Name
DDR2 667	**512 MB**	Apacer	78.91G92.9K5
		Micron	MT4HTF6464AY-667E1
		PSC	AL6E8E63J-6E1
		Ramxel	RML1520M38D6F-667
		Samsung	PC2-5300U-555-12-D3
	1 GB	Apacer	AU01GE667C5KBGC
			78.01G9O.9K5
			1GB UNB PC2-5300 CL5
		Corsair	VS1GB667D2
		Hexon	HYNT7AUDR-30M48
		Kingston	KVR667D2N5
		Micron	MT8HTF12864AY-667E1
		PSC	AL7E8E63B-6E1T
			AL7E8F63J-6E1
			AL7E8F73C-6E1
		Samsung	GOLD BAR M378T2863DZS 0742
	2 GB	Aeneon	AET860UD00-30DB08X
		Apacer	78.A1G9O.9K4
		Hynix	HYMP125U64AP8-Y5 AB-A 0623
		Hexon	HYNT8AUDR-30M88
		Kingston	KVR667D2N5/2G
		LeadMax	PC2-5300U
		PSC	AL8E8F73C-6E1
		Qimonda	HYS64T256020EU-3S-C2
	4 GB	Aeneon	AET960UD00-30D

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Type	Size	Vendor	Module Name
DDR2 800	**512 MB**	Kingston	KVR800D2N5/512 1.8V 9905315-019.A02LF
		Micron	MT8HTF6464AY-80ED4
		Qimonda	HYS72T64000HU-2.5-B
	1 GB	A-DATA	M2GVD6G3I41P0U1E5E
		Aeneon	AET760UD00-30DB97X
		Aeneon	AET760UD00-25DC08X
		Apacer	AU01GE800C5KBGC
		Apacer	78.01GAO.9K5
		APOGEE	AU1G082-800P000
		Geil	GEIL MILLENARY
		Hexon	ELPT7AUDR-25M48
		Infinity	04701G16CZ5U2G
		Kingston	KVR800D2N5/1G 1.8V 9905316-054.A01LF
		Nanya	NT1GT64U88D0BY-AD
		PSC	AL7E8F73C-8E1
		Ramaxel	RML1320EH38D7F-800
		Samsung	GOLD BAR M378T2953EZ3-CE7 0726
		Samsung	M378T2863EHS-CF7 0849
		Silicon Power	SP001GBLRU800S01
		Transcend	507301-1571
		Unifosa	GU341G0ALEPR6B2C6CE
	2 GB	A-DATA	RED A-DATAM2OMI6H3J4720L1C5Z
		Aeneon	AET860UD00-25DC08X
		Apacer	78.A1GAO.9K4
		CORSAIR	CM2X2048-6400C5
		Geil	PLATINUM EDITION/Geil/BOXED/2GB/DS
		Hexon	ELPT8AUDR-25M88
		Kingston	KVR800D2N6/2G-SP
		Kingston	KVR800D2N5/2G
		Micron	MT16HTF25664AY-800E1
		Nanya	NT2GT64U8HD0BY-AD
		PSC	AL8E8F73C-8E1
		Qimonda	HYS64T256020EU-25F-C2
		Samsung	M378T5663QZ3-CF7
		Silicon Power	SP002GBLRU800S01
		Samsung	M378T5663EH3-CF7 0849
		Unifosa	GU342G0ALEPR692C6CE
	4 GB	Aeneon	AET960UD00-25D
		Samsung	M378T5263AZ3-CF7 0819
DDR2 1066	**1 GB**	Aeneon	AXT760UD00-19DC97X//7/1GB
		Infinity	04701G16CY5U2A
		OCZ	OCZ2RPR10662GK

Users please note that: According to Intel G31 Chipset Specification, the frequency of memory will downgrade to 800 MHz when using DDR2 1066.

Jumper Settings

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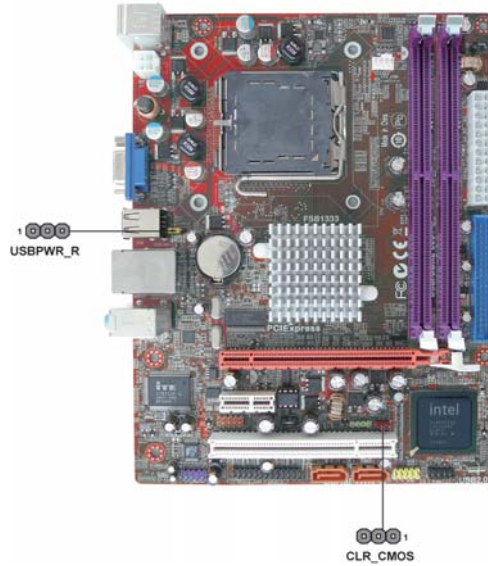
CLR_CMOS: Clear CMOS Jumper

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 unstability after clearing CMOS, we recommend users to enter the main BIOS setting page to "Load Optimal Defaults" and then "Save Changes and Exit".

KBMPWR: Rear USB PS/2 Power Select Jumper (for PS/2 S3 wakeup only)

1 ○○○

KBMPWR

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

Notes: 1. Make sure the power supply provides enough SB5V voltage before selecting the SB5V function.

2. To wake up the computer by USB/PS2 KB/Mouse in S3 status, users have to place the KBMPWR cap onto 2-3 pin instead of 1-2 as default, and then press into BIOS *"Power Management Setup"* page to choose the functions (USB/PS2KB/MS) you want to enable.

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.
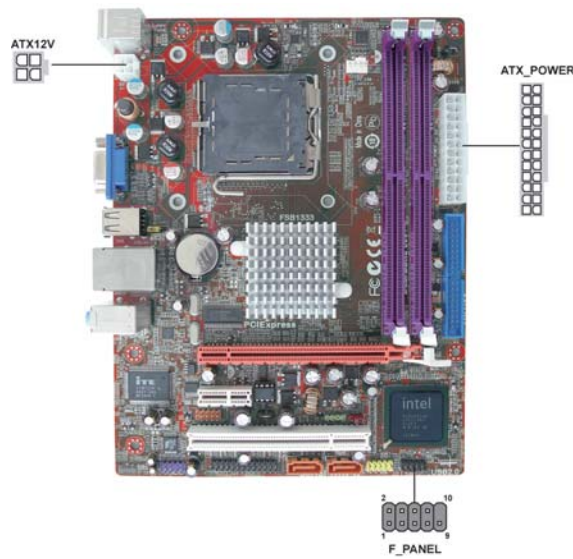
Connect the power connector from the power supply to the **ATX_POWER** connector on the motherboard. The **ATX12V** is a +12V connector for CPU Vcore power.

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

Here is a list of the F_PANEL 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

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Connecting Optional Devices

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

SPK: Speaker Header

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

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

COM: Onboard serial port header

Connect a serial port extension bracket to this header to add a second serial port to your system.

Pin	Signal	Pin	Signal
1	DCDB	2	SINB
3	SOUTB	4	DTRB
5	GND	6	DSRB
7	RTSB	8	CTSB
9	RI	10	KEY

F_AUDIO: 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_USB: Front panel USB Header

The motherboard has four 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 header F_USB to connect the front-mounted ports to the motherboard.

Pin	Signal	Pin	Signal
1	USBPWR0	2	USBPWR1
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_USB header on the motherboard.
2. Plug the bracket cable onto the F_USB 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.

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

17

Install Other Devices

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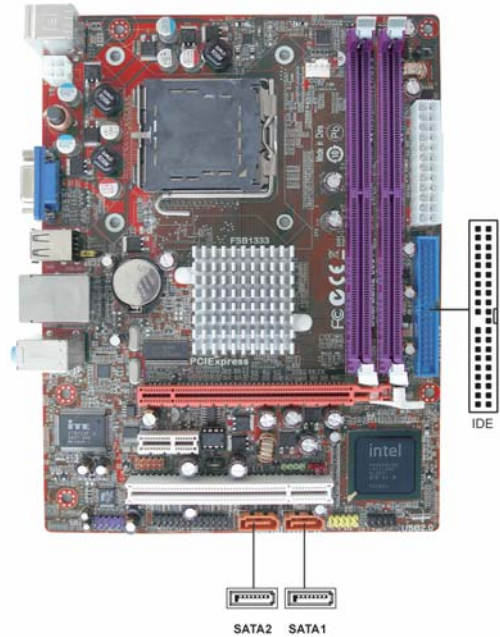
IDE Devices

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 **SATA1~2**, 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.

Expansion Slots

This motherboard has one PCI Express x16, one PCI Express x1 and one 32-bit PCI slots.
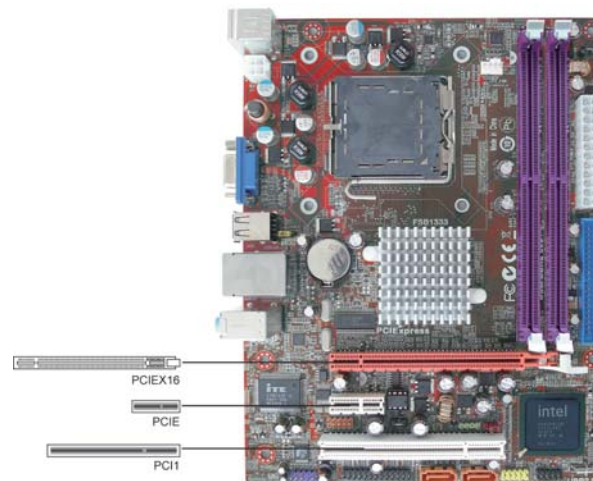
Follow the steps below to install an PCI Express/CNR/PCI expansion card.

1   Locate the PCI Express, 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.

PCI Express Slot

You can install an external PCI Express graphics card that is fully compliant to the PCI Express Base Specification revsion 1.1.

PCI Slot

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

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.

```
CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc

►  Standard CMOS Setup            ►  Frequency/Voltage Control
►  Advanced Setup                    Load Default Settings
►  Advanced Chipset Setup         ►  Supervisor Password
►  Integrated Peripherals         ►  User Password
►  Power Management Setup             Save & Exit Setup
►  PCI/PnP Setup                      Exit Without Saving
►  PC Health Status

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

          V02.59  (C) Copyright 1985-2005, American Megatrends, Inc.
```

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.

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                          Wed 12/24/2008  │        Help Item         │
 │ Time                          00 :  02  : 00  │                          │
 │                                               ├──────────────────────────┤
 │ ▶ Primary IDE Master          Not Detected    │ User [Enter], [TAB]      │
 │ ▶ Primary IDE Slave           Not Detected    │ or [SHIFT-TAB] to        │
 │ ▶ SATA1                       Not Detected    │ select a field.          │
 │ ▶ SATA2                       Not Detected    │                          │
 │                                               │ Use [+] or [-] to        │
 │   IDE BusMaster               Enabled         │ configure system Date.   │
 │                                               │                          │
 ├───────────────────────────────────────────────┴─────────────────────────┤
 │  ↑↓←→  : 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 IDE Master/Primary IDE Slave

Use these items to configure devices connected to the Primary 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*.

SATA1/2

These items display the status of auto detection of sata devices when "Onboard SATA-IDE" sets to "IDE".

22

IDE BusMaster

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

▶ **IDE Devices**

Your computer has one IDE channel which can be installed with one or two devices (Master and Slave). In addition, this motherboard supports two SATA channels and each channel allows one SATA device to be installed. Use these items to configure each device on the IDE channel.

```
┌──────────────────────────────────────────────────────────────┐
│     CMOS SETUP UTILITY – Copyright (C) 1985-2005, American Megatrends, Inc.  │
│                          Primary IDE Master                    │
├──────────────────────────────────────────┬───────────────────┤
│   Primary IDE Master                      │                   │
│                                           │     Help Item     │
│  Device :    Not Detected                 ├───────────────────┤
│                                           │ Disabled: Disables LBA │
│   LBA/Large Mode                    Auto  │ Mode.             │
│   Block (Multi-Sector Transfer      Auto  │ Auto: Enables LBA │
│   PIO Mode                          Auto  │ Mode if the device │
│   DMA Mode                          Auto  │ supports it and the │
│   S.M.A.R.T                         Auto  │ device is not already │
│   32Bit Data Transfer            Enabled  │ formatted with LBA │
│                                           │ Mode disabled.    │
│                                           │                   │
├──────────────────────────────────────────┴───────────────────┤
│  ↑↓→←: Move    Enter : Select   +/-: Value   F10: Save  ESC: Exit │
│              F1: General Help       F9: Load Default Settings  │
└──────────────────────────────────────────────────────────────┘
```

LBA/Large Mode

Use this item to set the LAB/Large mode to enhance hard disk performance by optimizing the area the hard disk is visited each time.

Block (Multi-Sector Transfer

If the feature is enabled, it will enhance hard disk performance by reading or writing more data during each transfer.

PIO Mode

Use this item to set the PIO mode to enhance hard disk performance by optimizing the hard disk timing.

DMA Mode

DMA capability allows user to improve the transfer-speed and data-integrity for compatible IDE devices.

S.M.A.R.T.

The S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) system is a diagnostics technology that monitors and predicts device performance. S.M.A.R.T. software resides on both the disk drive and the host computer.

32Bit Data Transfer

Use this item to set the onboard SATA-IDE channel to be disabled, IDE, or RAID.

Press <Esc> to return to the Standard CMOS Setup page.

23

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/TM2
   Max CPUID Value Limit               Disabled       For the processor its
   Enhanced Halt (C1E)                 Enabled        CPUID belows 0F14h.
   Intel XD Bit                        Disabled       TM2 only can be enable
   Intel EIST                          Enabled        under below settings.
   Quick Power on Self Test            Enabled        1.Freq.>=3.6GHz FSB800
   Boot Up Numlock Status              On             2.Freq.>=2.8GHz FSB533
   APIC Mode                           Enabled
   1st Boot Device                     Hard Drive
   2nd Boot Device                     CD/DVD
   3rd Boot Device                     Removable Dev.
   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 displays CPU Monitor status.

Max CPUID Value Limit

Use this item to enable or disable the Max CPU ID value limit. When supports Prescott and LGA775 CPUs, enables this to prevent the system from "rebooting" when trying to install Windows NT 4.0.

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.

Boot Other Device

When it is set to "Yes", 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.

25

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                 Options
VGA Share Memory                    Enabled, 8MB
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 Precision 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

  Onboard  IDE  Controller        Enabled          Help Item
  OnBoard  SATA  Controller       Enhanced
  Onboard  LAN  Function          Enabled
  Onboard  LAN  Boot  ROM         Disabled      DISABLED: disables the
  Onboard  AUDIO  Function        Enabled       integrated  IDE
  Serial  Port1  Address          3F8/IRQ4      Controller.
  Parallel  Port  Address         378           ENABLED: enables both
     Parallel Port Mode           ECP           Controllers.
        ECP Mode DMA Channel       DMA3
     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

This item allows you 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 COM1 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).

ECP Mode DMA Channel

Use this item to assign the DMA Channel under ECP Mode function.

27

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 device 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
PWRON  After PWR-Fail          Power Off
Resume By RING                 Disabled         Select the ACPI
Resume By PCI/PCI-E/Lan  PME   Disabled         state used for
Resume By PS2 KB (S3)          Disabled         System Suspend.
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

Under ACPI (Advanced Configuration and Power management Interface) you can create a software power down. In a software power down, the system can be resumed by Wake Up Alarms. This item lets you install a software power down that is controlled by the power button on your system. 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 a software power down.

PWRON After PWR-Fail

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

Resume By RING

An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state.

Resume By PCI/PCI-E/Lan PME

These items specify whether the system will be awakened from power saving modes when activity or input signal of the specified hardware peripheral or component is detected.

Resume By PS2 KB (S3)

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

Resume By PS2 MS (S3)

This item enable or disable 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 Dispaly First

This item allows you to choose the primary display card.

29

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

   Hardware Health Event Monitoring                    Help Item
 ▶ Smart Fan Function              Press Enter
   Shutdown Temperature            Disabled
   CPU  Temperature                : 42°C/107°F
   CPU  Fan  Speed                 : 4470 RPM
   CPU  Vcore                      : 1.296  V
   VDIMM                           : 1.840  V




      ↑↓←→ : 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              Disabled
                                                          Options

                                                        Disabled
                                                        Enabled




      ↑↓ → ← : Move    Enter : Select   +/-/: Value   F10: Save  ESC: Exit
           F1: General Help            F9: Load Default Settings
```

SMART Fan Control

This item allows you to enable/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.

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.
                    Frequncey/Voltage Control

  Manufacturer :  Intel                              Help Item
  Ratio Status: Unlocked (Min:06, Max:09)
  Ratio Actual Value :  9                            Options
  CPU  Frequency         :          200MHz
  Auto Detect  DIMM/PCI CIK          Enabled      Disabled
  Spread Spectrum                    Enabled      Enabled




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

Manufacturer

This item indicates the brand of the CPU installed in your system.

Ratio Status

This item shows the Locked/Unlocked ratio status of CPU installation in your system.

Ratio Actual Value

This item shows 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.

31

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 Interference) generated by the system.

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

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.

```
CMOS Setup Utility – Copyright (C) 1985-2005, American Megatrends, Inc.
                        Supervisor Password
┌─────────────────────────────────────────────┬──────────────────────┐
│ Supervisor Password : Not Installed          │     Help Item        │
├─────────────────────────────────────────────┤                      │
│ Change Supervisor Password    Press Enter    │ Installed or Change the │
│                                              │ password.            │
│                                              │                      │
│                                              │                      │
│                                              │                      │
│                                              │                      │
│                                              │                      │
├─────────────────────────────────────────────┴──────────────────────┤
│  ↑↓←→  : Move  Enter: Select  +/-/: Value    F10: Save   Esc: Exit   │
│       F1: General Help              F9: Load Default Settings        │
└─────────────────────────────────────────────────────────────────────┘
```

Supervisor Password

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

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.

User Password Page

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

```
CMOS Setup Utility – Copyright (C) 1985-2005, American Megatrends, Inc.
                          User Password
┌─────────────────────────────────────────────┬────────────────────────┐
│ User Password : Not Installed                │      Help Item         │
│                                              │                        │
│                                              │                        │
│                                              │                        │
│                                              │                        │
│                                              │                        │
│                                              │                        │
│                                              │                        │
├──────────────────────────────────────────────────────────────────────┤
│     ↑↓←→: Move  Enter: Select  +/-: Value   F10: Save   Esc: Exit      │
│          F1: General Help              F9: Load Default Settings       │
└──────────────────────────────────────────────────────────────────────┘
```

User Password

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

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 [OK] to save and exit, or press [Cancel] 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 [OK] to discard changes and exit, or press [Cancel] 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 presst [OK] 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 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.

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 XP/Vista

If you are under Windows XP/Vista, 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.

35
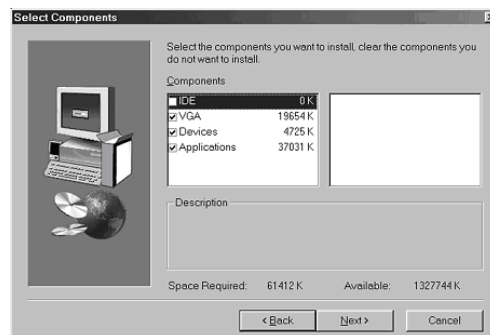
3 The support software will automatically install.

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.
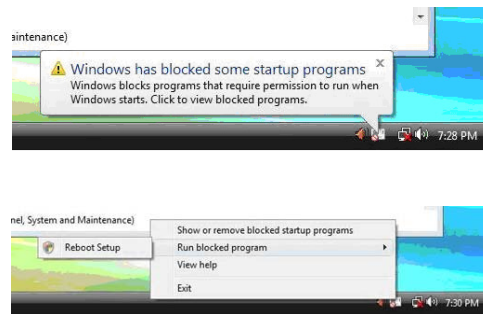
Method 2. Disable UAC (User Account Control)

* 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.
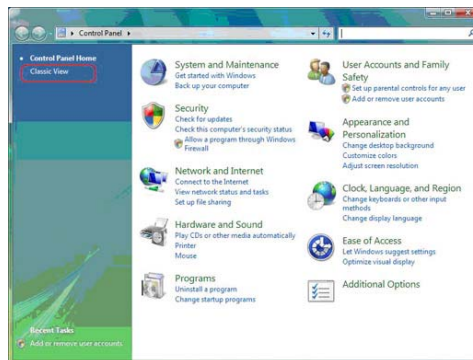
Follow these instructions to Disable Vista UAC function:

1. *Go to* **Control Panel***.*
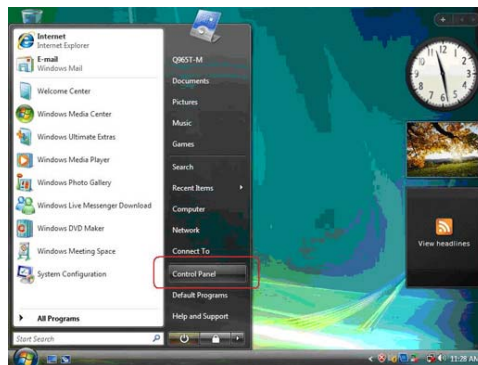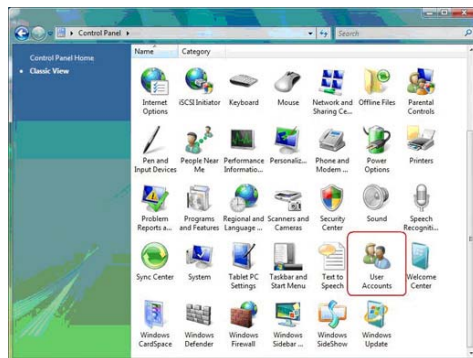

2. *Select* **Classic View***.*

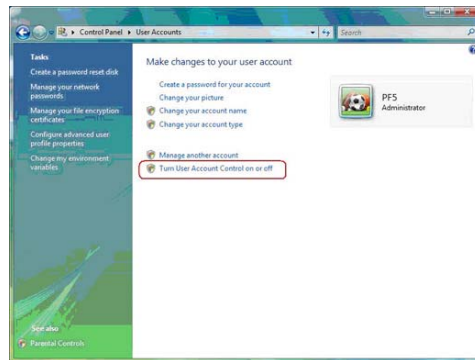**3.** *Set* **User Account***.*

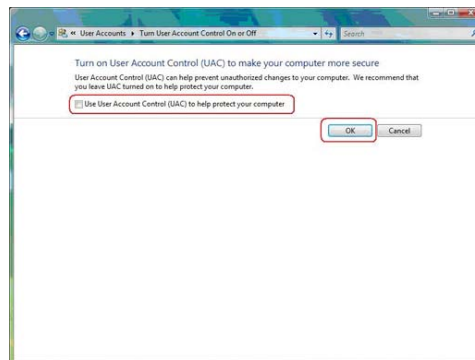*4.   Select **Turn User Account Control on or off** and press **Continue**.*

*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.