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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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P31G Series, V1.0  
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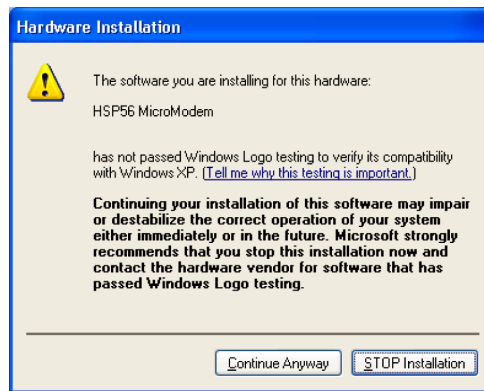
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**Notice:**

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 an **LGA775 socket** for latest **Intel Pentium D/Pentium 4/Celeron D** processors with **Hyper-Threading Technology** and Front-Side Bus (FSB) speeds up to **800/533 MHz**. Hyper-Threading Technology, designed to take advantage of the multitasking features in Windows XP, gives you the power to do more things at once.

This motherboard integrates the **SiS662 Northbridge** along with **SiS964 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 6-channel **AC'97 Audio Codec** and provides two **IDE Ultra DMA 133/100/66** channel. It has one **PCI Express x16 slot**, one **CNR** and three 32-bit **PCI** slots. There is a full set of I/O ports including two PS/2 ports for mouse and keyboard, one VGA port, one serial port, one parallel port, one LAN port (optional), three audio jacks for microphone, line-in and line-out, and four back-panel USB 2.0 ports. In addition, onboard USB headers provide 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 Support

- Supports the latest **Intel Pentium D/Pentium 4/Celeron D Series** processors with **Hyper-Threading Technology**
- Supports up to **800/533 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 **SiS662 Northbridge** and **SiS964 Southbridge** in the chipsets in accordance with an innovative and scalable architecture with proven reliability and performance.

- Host Interface Support
  - One Intel Pentium 4 processor with 512-KB L2 cache on 0.13 micron process / Pentium 4 processor on 90 nm process
- Hyper-Threading Technology



## Motherboard User's Guide

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- System Memory Controller Support
  - Single-channel (5.3 GB/s wide) DDR2 memory interface
  - Supports DDR2 667/533 DIMM modules
- PCI Bus Interface
  - Supports PCI Revision 2.3 Specification at 33 MHz
- Integrated LAN Controller
  - 10/100 Mbps Fast Ethernet PHY Support
- Integrated Serial ATA Host Controllers
  - Independent DMA operation on two ports
  - Data transfer rates up to 1.5 Gb/s (150 MB/s)
- Integrated IDE Controller
  - Ultra ATA133/100/66, Multiword DMA and PIO modes
- USB 2.0
  - Includes 4 UHCI Host Controllers, increasing the number of external ports to eight
- AC-Link for Audio and Telephony Codecs
  - AC'97 v2.3 compliance
  - 6 Channels of AC'97 speaker outputs and V.90 HSP-Modem
  - Supports Audio and Modem function with Multithreaded I/O link mastering

### Memory Support

- Two 240-pin DIMM sockets for DDR2 SDRAM **DDR2 667/533** memory modules
- Maximum installed memory is 2 GB

### Expansion Slots

- One PCI Express x16 slot
- Three 32-bit PCI slots
- One CNR slot

### Onboard IDE channels

- Two IDE Channels supporting ATA-66, ATA-100, ATA-133
- Supports PIO (Programmable Input/Output) and DMA (Direct Memory Access) modes
- Supports IDE Ultra DMA bus mastering with transfer rates of **133/100/66** MB/s

### Serial ATA

- Two Serial ATA Connectors
- Transfer rate exceeding best ATA (1.5 Gb/s) with scalability to higher rates
- Low pin count for both host and devices

### AC'97 Audio Codec

- Compliant with AC'97 2.3 specification
- Supports 6-channel audio CODEC designed for PC multimedia systems

- Provides three analog line-level stereo inputs with 5-bit volume control: Line-in, CD, AUX
- Meets Microsoft WHQL/WLP 2.0 audio requirements

### **Onboard I/O Ports**

- Two PS/2 ports for mouse and keyboard
- One serial port
- One parallel port
- One VGA port
- One LAN port (optional)
- Four back-panel USB 2.0 ports
- Audio jacks for microphone, line-in and line-out

### **Fast Ethernet LAN (optional)**

- 10 Mb/s and 100 Mb/s operation
- Integrated Fast Ethernet MAC, physical chip, and transceiver onto a single chip
- Supports 10 Mb/s and 100 Mb/s N-way auto-negotiation
- Support ACPI power management
- Full Duplex Flow Control (IEEE 802.3x) and Half/Full duplex capability

### **USB 2.0**

- Compliant with Universal Serial Bus Specification Revision 2.0
- Compliant with Intel's Enhanced Host Controller Interface Specification Revision 1.0
- Compliant with Universal Host Controller Interface Specification Revision 1.1
- PCI multi-function device consists of two **UHCI Host Controller** cores for full-/low-speed signaling and one **EHCI Host Controller** core for high-speed signaling
- Root hub consists 4 downstream facing ports with integrated physical layer transceivers shared by **UHCI** and **EHCI** Host Controller, up to eight functional ports
- Support PCI-Bus Power Management Interface Specification release 1.1
- Legacy support for all downstream facing ports

### **BIOS Firmware**

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

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

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

## Motherboard User's Guide

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### Dimensions

- Micro ATX form factor of 244 x 190 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 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

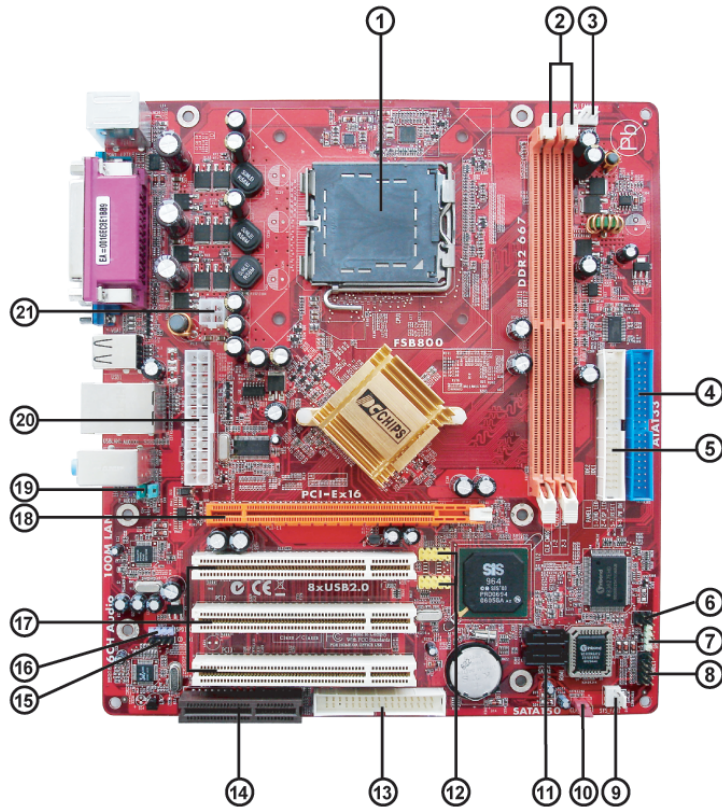
To install this motherboard in a system, please follow these instructions in this chapter:

- 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\_CMOS1 is under Normal setting. See this chapter for information about locating CLR\_CMOS1 and the setting options.
- 2 Never connect power to the system during installation; otherwise, it may damage the motherboard.

## Motherboard Components



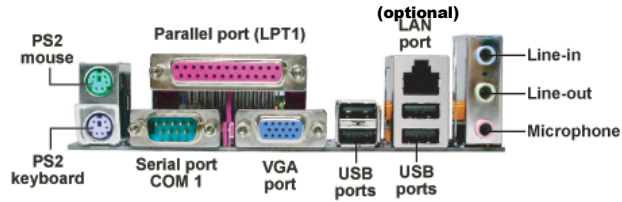
## Chapter 2: Motherboard Installation

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ITEM	LABEL	COMPONENTS
1	CPU Socket	LGA775 Socket for Intel Pentium D/ Pentium 4/Celeron D CPUs
2	DDR11~2	240-pin DDR2 SDRAM sockets
3	CPU_FAN1	CPU Fan connector
4	IDE1	Primary IDE connector
5	IDE2	Secondary IDE connector
6	IR1	Infrared header
7	SPK1	Speaker header
8	PANEL1	Front Panel Switch/LED header
9	SYS_FAN1	System Fan connector
10	CLR_CMOS1	Clear CMOS jumper
11	SATA1~2	Serial ATA connectors
12	F_USB1~2	Front Panel USB headers
13	FDD1	Floppy Disk Drive connector
14	CNR1	CNR slot
15	CD_IN1	Analog Audio Input header
16	SPDIFO1	SPDIF out header
17	PCI1~3	32-bit add-on card slots
18	PCI-E1	PCI Express slot for graphics interface
19	F_AUDIO1	Front panel audio header
20	PWR1	Standard 24-Pin ATX Power connector
21	PWR2	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.



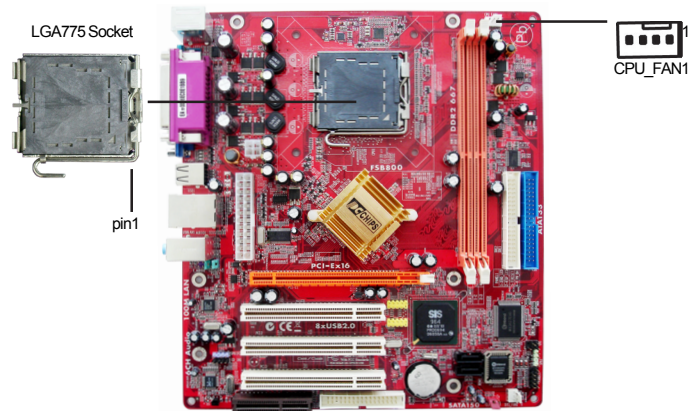
<b>PS/2 Mouse</b>	Use the upper PS/2 port to connect a PS/2 pointing device.
<b>PS/2 Keyboard</b>	Use the lower PS/2 port to connect a PS/2 keyboard.
<b>Parallel Port (LPT1)</b>	Use the Parallel port to connect printers or other parallel communications devices.
<b>COM1</b>	Use the COM port to connect serial devices such as mice or fax/modems. COM1 is identified by the system as COM1.
<b>VGA1</b>	Use the VGA1 port to connect VGA devices.
<b>LAN Port (optional)</b>	Connect an RJ-45 jack to the LAN port to connect your computer to the Network.
<b>USB Ports</b>	Use the USB ports to connect USB devices.
<b>Audio Ports</b>	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

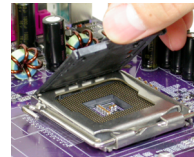
This motherboard has an **LGA775** socket for the latest **Intel Pentium D/Pentium 4/Celeron D** processors. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the 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.

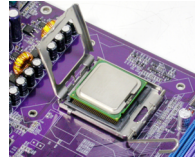




## Motherboard User's Guide

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- 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 more detail installation procedure.



**Note1:**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.

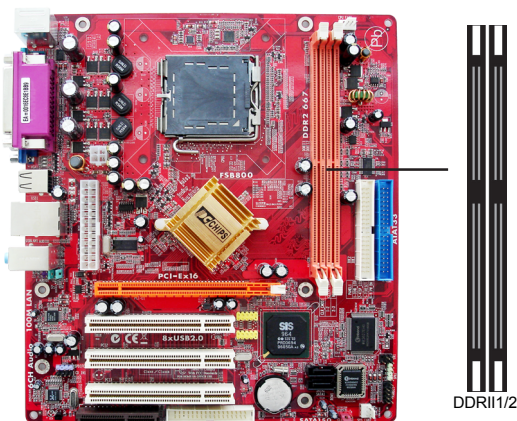
**Note2:**The fan connector supports the CPU cooling fan of 1.1A~2.2A (26.4W max.) at +12V.

**Note3:**DO NOT remove the CPU cap from the socket before installing a CPU.

**Note4:**Return Material Authorization (RMA) requests will be accepted only if the motherboard comes with the cap on the LGA775 socket.

### Installing Memory Modules

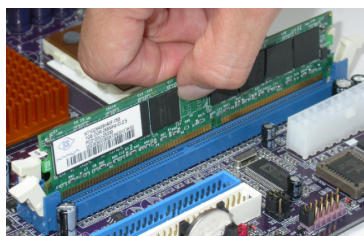
This motherboard accommodates two 240-pin DIMM sockets (Dual Inline Memory Module) for unbuffered **DDR2 667/533** memory modules (Double Data Rate SDRAM), and maximum 2.0 GB installed memory. DDR2 SDRAM is a type of SDRAM that supports data transfers on both edges of each clock cycle (the rising and falling edges), effectively doubling the memory chip's data throughput.



### Memory Module Installation Procedure

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

1. Push down the latches on both sides of the DIMM socket.
2. Align the memory module with the socket. There is a notch on the DIMM socket that you can install the DIMM module in the correct direction. Match the cutout on the DIMM module with the notch on the DIMM socket.
3. Install the DIMM module into the socket and press it firmly down until it is seated correctly. The socket latches are levered upwards and latch on to the edges of the DIMM.
4. Install any remaining DIMM modules.



## Motherboard User's Guide

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

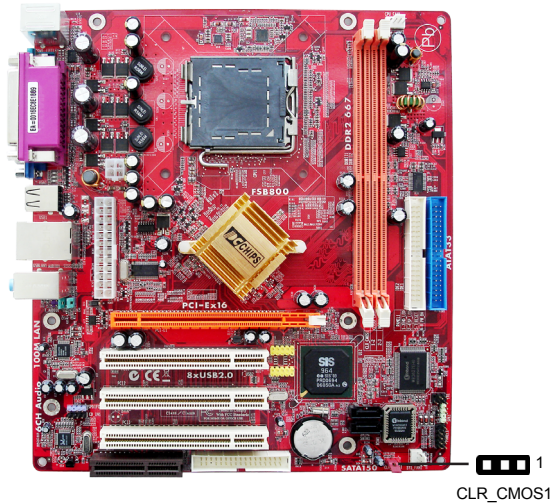
The following DDR2 memory module have been tested and qualified for use with this motherboard.

Type	Size	Vendor	Model Name
DDR2 400	256 MB	SAMSUNG	K4T56083QF-GCCC
		SAMSUNG	K4T5163QB-ZCCC
	512 MB	SAMSUNG	K4T51083QB-GCCC
		TwinMOS	K4T51083QB-GCCC
DDR2 533	256 MB	Elixir	N2TU51216AF-37B
		ELPIDA	04180WB00
		Kingston	HYB18T512260AF-3.7
		Kingston	E5116AF-5C-E
		Kingmax	HY5PS121621
		Nanya	NT5TU32M16AG-37B
		Ramaxel	E5116AF-5C-E
		SAMSUNG	K4T56083QF-GCD5
	512 MB	A-DATA	M2GXX2F3H4140A1B0E
		AENEON	AET660UD00-370A98X
		AENEON	AET660UD00-370A98Z
		CORSAIR	K4T51083QF-ZCD5
		CORSAIR	4PB11D9CHM
		Eipida	04180WB01
		ELPIDA	04180WB01
		G.SKILL	G76 GT
		Infineon	HY818T512800AF373346778
		Kingston	HY5PS12821
		Kingston	HYB81T512800AFS
		Kingston	HY5PS56821
		Kingston	HY5PS 1211621
		Kingston	HY818T512
	SAMSUNG	K4T51083QC	
	TwinMOS	Hynix 8D22JB-HX	
	TwinMOS	Elpida 8D22JB-ED	
	1 GB	Apacer	E5108AB-5C-E
		GEIL	AG8AKT5H120004
		Infineon	HYB18T512800AF3F
		Kingston	NANYA NT5TU64MBAE-
		Kingmax	KKEA88E4AAKKG-37
UMAX		U2S12030TP-5C	

DDR2 667	512 MB	CORSAIR	CM2X512-5400C4PRO
		A-DATA	Eipida E5108AE-6E-E
		A-DATA	NT512T64U88A0BY-3C
		CORSAIR	VALUESELECT 32M8CEC
		CORSAIR	64M8CFEPS1000547
		Eipida	A-DATA E5108AE-6E-E
		GEIL	GL2L64MO88BA18W
		Infinity	0547W64M8
		Kingston	D6408TE8EWL3
		SAMSUNG	K4T51083QC
		SAMSUNG	K4T56083QF-ZCE6
		SyncMAX	E5108AB-5C-E
		SyncMAX	64MX8 D2-F
		SIS	SLX264M8-T6E
		Transcend	K4T51083QC
	TwinMOS	TMM6208G8M30B	
	1 GB	Apacer	E5108AE-6E-E
		Infineon	HYB18T512800AF3S
		Transcend	D6408TE8EWL3
		TwinMOS	TMM6208G8M30A
UMAX		U2S12030TP-6E	

### Jumper Settings

Connecting two pins with a jumper cap is SHORT; removing a jumper cap from these pins, OPEN.



#### CLR\_CMOS1: 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.

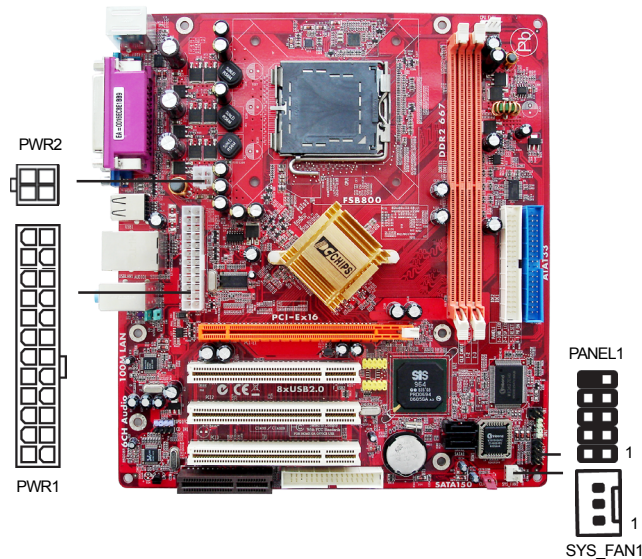
Function	Jumper
Clear CMOS	Short Pins 1-2
Normal	Short Pins 2-3

**Note:** To avoid the system instability after clearing CMOS, we recommend users to enter the main BIOS setting page to "Load Default Settings" and then "Save and Exit Setup".

### 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 **PWR1** connector on the motherboard. The **PWR2** 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\_FAN1** fan power connector on the motherboard.

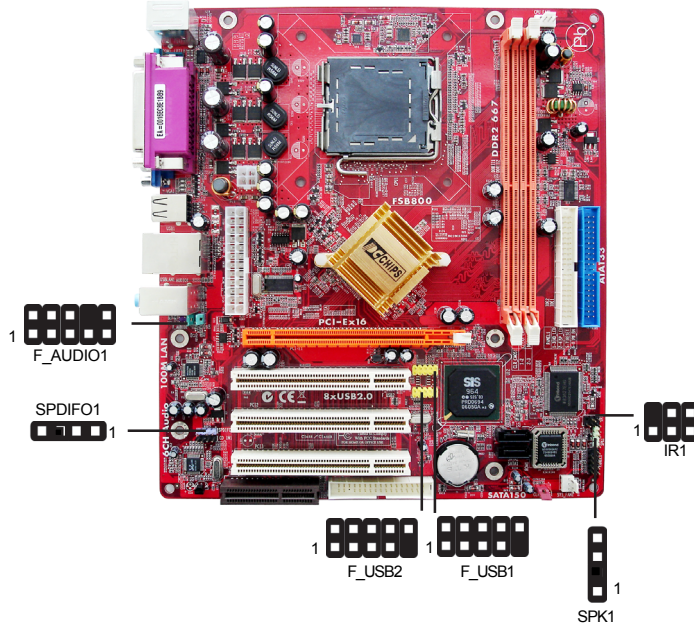
Connect the CPU fan connector to **CPU\_FAN1**.

Connect the case switches and indicator LEDs to the **PANEL1** header. Please refer to the following list of the **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:



### 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	AUD_MIC	2	AUD_GND
3	AUD_MIC_BIAS	4	AUD_VCC
5	AUD_FPOUT_R	6	AUD_RET_R
7	NC	8	KEY
9	AUD_FPOUT_L	10	AUD_RET_L

### F\_USB1~2: 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\_USB1~2 to connect the front-mounted ports to the motherboard.

## Chapter 2: Motherboard Installation

Here is a list of headers F\_USB1~2 pin assignments.

Pin	Signal	Pin	Signal
1	USB VCC	2	USB VCC
3	USBP4 (-)	4	USBP5 (-)
5	USBP4 (+)	6	USBP5 (+)
7	GROUND	8	GROUND
9	KEY	10	NC

- 1 Locate the F\_USB1~2 header on the motherboard.
- 2 Plug the bracket cable onto the F\_USB1~2 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.

### SPK1: Speaker Header

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

Pin	Signal
1	Signal
2	Key
3	GND
4	VCC

### IR1: Infrared Header

The infrared port allows the wireless exchange of information between your computer and similarly equipped devices such as printers, laptops, Personal Digital Assistants (PDAs), and other computers.

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

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



### **SPDIF01: SPDIF out header**

This is an optional header that provides an S/PDIF (Sony/Philips Digital Interface) output to digital multimedia device through optical fiber or coaxial connector.

Pin	Signal
1	SPDIF
2	+5VA
3	Key
4	GND

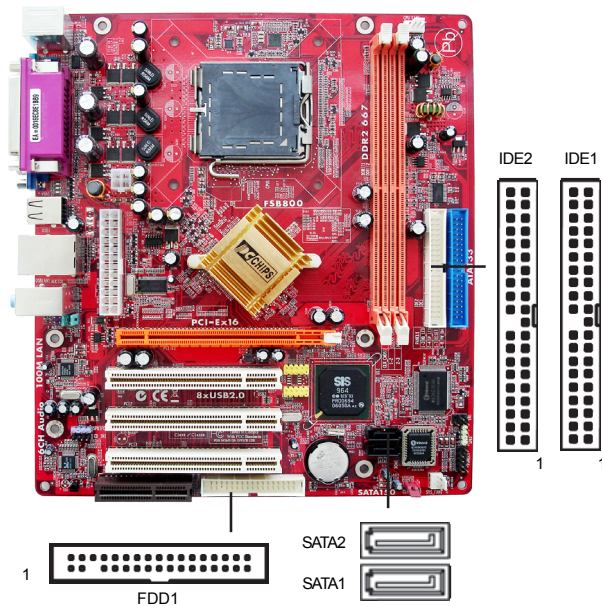
### **CD\_IN1: Analog Audio Input header**

This connector is an additional line-in audio connector. It allows you to attach a line-in cable when your rear line-in jack is set as line out port for 4-channel function.

Pin	Signal
1	CD in_L
2	GND
3	GND
4	CD in_R

### Install Other Devices

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



#### Floppy Disk Drive

The motherboard ships with a floppy disk drive cable that can support one or two drives. Drives can be 3.5" or 5.25" wide, with capacities of 360K, 720K, 1.2MB, 1.44MB, or 2.88MB.

Install your drives and connect power from the system power supply. Use the cable provided to connect the drives to the floppy disk drive connector **FDD1**.

#### 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. **IDE1** can support up to 2 IDE devices, data transporting in ATA-133/100/66 mode.

#### 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

## Motherboard User's Guide

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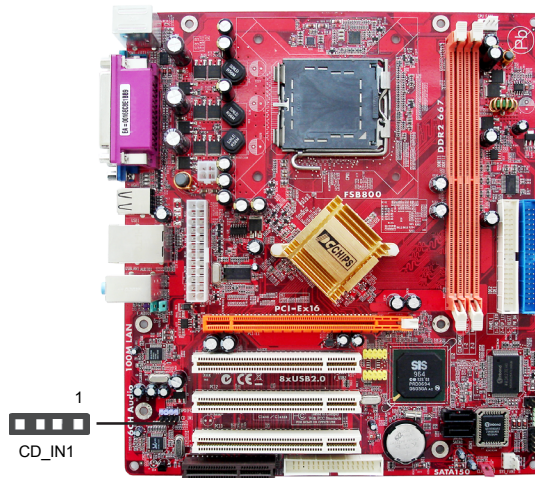
while enabling the storage interface to scale with the growing media rate demands of PC platforms. It provides you a faster transfer rate of **1.5 Gb/s**. If you have installed a Serial ATA hard drive, you can connect the Serial ATA cables to the Serial ATA hard drive or the connector on the motherboard.

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.

### Analog Audio Input Header

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

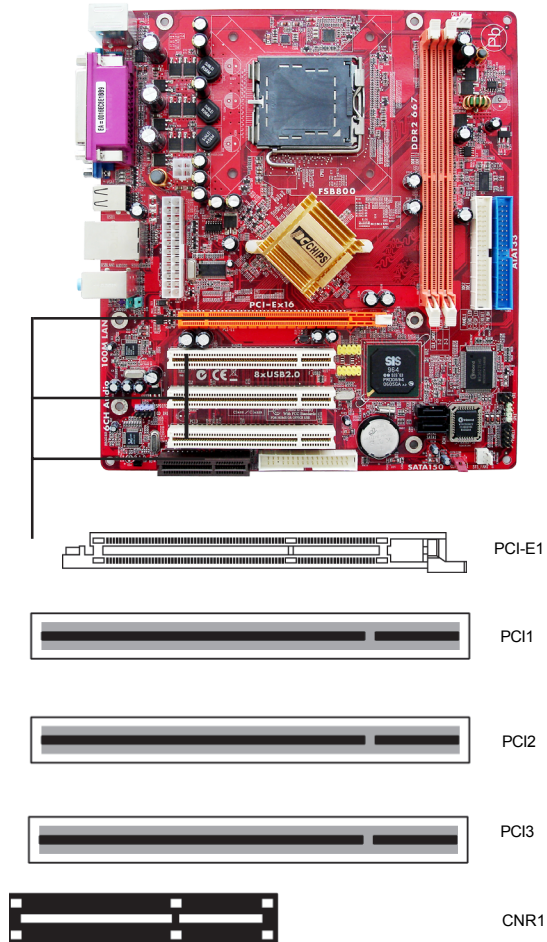


When you first start up your system, the BIOS should automatically detect your CD-ROM/DVD drive. If it doesn't, enter the Setup Utility and configure the CD-ROM/DVD drive that you have installed. On the motherboard, locate the 4-pin header **CD\_IN1**.

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

### Expansion Slots

This motherboard has one CNR1, one PCI-E1 and three 32-bit PCI slots.

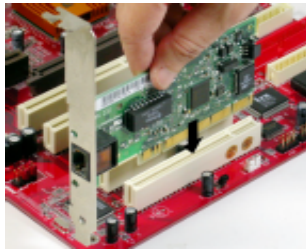


## Motherboard User's Guide

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Follow the steps below to install a CNR1/PCI-E1/PCI expansion card.

- 1 Locate the CNR1, PCI-E1 and 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-E1 Slot (PCI Express x16)**

The PCI-E1 slot is used to install PCI Express graphics card that emulates the PCI-E1 slot, we recommend you should use one of the PCI Express graphics cards that have been tested by our company.

### **PCI1-3 Slots**

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

### **CNR1 Slot**

You can install CNR1 (Communications and Networking Riser) cards including LAN, Modem and Audio functions, in this slot.

## Chapter 3 BIOS Setup Utility

### Introduction

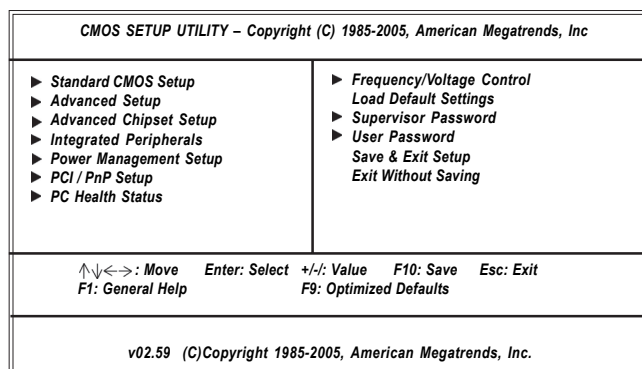
The BIOS Setup Utility records settings and information of your computer, such as date and time, the type of hardware installed, and various configuration settings. Your computer applies the information to initialize all the components when booting up and basic functions of coordination between system 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. If you manually clear CMOS, you need to press the **F1** key that enters the Main menu page of the Setup Utility.



## Motherboard User's Guide

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 **+** and **-** 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 **[OK]** or **[Cancel]**.

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 install the setup utility with a set of default values.

### Standard CMOS Setup Page

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

CMOS SETUP UTILITY – Copyright (C) 1985-2005, American Megatrends, Inc. Standard CMOS Setup		
Date	Time	Help Item
▶ Primary IDE Master	Not Detected	User [Enter], [TAB] or [SHIFT-TAB] to select a field. Use [+] or [-] to configure system Date.
▶ Primary IDE Slave	Not Detected	
▶ Secondary IDE Master	Not Detected	
▶ Secondary IDE Slave	Not Detected	
▶ S-ATA 1	Not Detected	
▶ S-ATA 2	Not Detected	
IDE BusMaster	Enabled	
Drive A:	1.44 MB 3 1/2"	

#### Date & Time

These items set up system date and time.

#### Primary/Secondary IDE Master/Slave, S-ATA 1~2

Your computer has one IDE channel and each channel 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.

#### IDE BusMaster (Enabled)

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

#### Drive A (1.44 MB 3 1/2")

This item sets up size and capacity of the floppy diskette drive(s) installed in the system.

### Advanced Setup Page

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

CMOS SETUP UTILITY – Copyright (C) 1985-2005, American Megatrends, Inc.		
Advanced Setup		
		Help Item
Thermal Management	Enabled	
Limit CPUID MaxVal	Disabled	
Intel XD Bit	Disabled	
Quick Power on Self Test	Enabled	
Boot Up Numlock Status	On	
APIC Mode	Enabled	
1st Boot Device	ST340016A	For the processor its CPUID belows 0F41h. TM2 only can be enable under below setting. 1. Freq. >=3.6GHz FSB800 2. Freq. >=2.8GHz FSB533
2nd Boot Device	DVD-ROM DDU1622	
3rd Boot Device	1st FLOPPY DRIVE	
▶ Hard Disk Drives	Press Enter	
▶ Removable Drives	Press Enter	
▶ CD/DVD Drives	Press Enter	
Boot Other Device	Yes	

#### Thermal Management (Enabled)

This item displays CPU’s temperature and enables you to set a safe temperature to Prescott CPU.

#### Limit CPUID MaxVal (Disabled)

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”

#### Intel XD Bit (Disabled)

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

#### Quick Power On Self Test (Enabled)

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 (On)

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

#### APIC Mode (Enabled)

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 Boot Device/2nd Boot Device/3rd Boot Device (ST340016A/DVD-ROM DDU1622/1st FLOPPY DRIVE)

Use these items to determine the device order the computer uses to look for an operating system to load at start-up time.



## Motherboard User's Guide

### ► Hard Disk Drives (Press Enter)

<i>CMOS SETUP UTILITY – Copyright (C) 1985-2005, American Megatrends, Inc.</i> Hard Disk Drives	
<u>Hard Disk Drive</u>	<i>Help Item</i>
1st Drive <b>ST340016A</b>	<i>Specifies the boot sequence from the available devices.</i>

Press <Esc> to return to the Advanced Setup Page.

### ► Removable Drives (Press Enter)

<i>CMOS SETUP UTILITY – Copyright (C) 1985-2005, American Megatrends, Inc.</i> Removable Drives	
<u>Removable Drives</u>	<i>Help Item</i>
1st Drive <b>1st FLOPPY DRIVE</b>	<i>Specifies the boot sequence from the available devices.</i>

Press <Esc> to return to the Advanced Setup Page.

### ► CD/DVD Drives (Press Enter)

<i>CMOS SETUP UTILITY – Copyright (C) 1985-2005, American Megatrends, Inc.</i> CD/DVD Drives	
<u>CD/DVD Drives</u>	<i>Help Item</i>
1st Drive <b>DVD-ROM DDU1622</b>	<i>Specifies the boot sequence from the available devices.</i>

Press <Esc> to return to the Advanced Setup Page.

**Boot Other Boot Device (Yes)**

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.

**Advanced Chipset Setup Page**

This page sets up some critical timing parameters of the motherboard.

CMOS SETUP UTILITY – Copyright (C) 1985-2005, American Megatrends, Inc. Advanced Chipset Setup		
CAS Latency Time	By SPD	Help Item
Aperture Size Select	128MB	Options
Share Memory Size	64MB	By SPD
		3T
		4T
		5T

**CAS Latency Time (By SPD)**

This item controls the timing delay (in clock cycles) before the DRAM starts a read command after receiving it.

**Aperture Size Select (128MB)**

This item defines the size of aperture if you use a graphic adapter.

**Share Memory Size (64MB)**

This item lets you allocate a portion of the main memory for the onboard VGA display application with three options of 16/32/64MB.

**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. Advanced Chipset Setup		
Onboard IDE Controller	Both	Help Item
Onboard PCI S-ATA Controller	IDE	DISABLED: disables the integrated IDE Controller.
USB Controller	Enabled	PRIMARY: enables only the Primary IDE Controller.
Legacy USB Support	Enabled	SECONDARY: enables only the Secondary IDE Controller.
Onboard AUDIO Function	Enabled	BOTH: enables both IDE Controllers.
Modem Device	AUTO	
Onboard LAN Function	Enabled	
OnBoard LAN Boot ROM	Disabled	
Serial Port1 Address	3F8/IRQ4	
Onboard IR	Disabled	
Parallel Port Address	378	
Parallel Port Mode	ECP	
ECP Mode DMA Channel	DMA3	
Parallel Port IRQ	IRQ7	

**Onboard IDE Controller (Both)**

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

**OnBoard PCI S-ATA Controller (IDE)**

Use this item to enable or disable the onboard PCI S-ATA channel.

**USB Controller (Enabled)**

This item enables the USB controller. Leave this at the default "Enabled" if you want to connect USB devices to your computer.

**Legacy USB Support (Enabled)**

This item allows users to enable or disable the Legacy USB Support function.

**Onboard AUDIO Function (Enabled)**

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

**Modem Device (AUTO)**

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

**Onboard LAN Function (Enabled)**

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

**OnBoard LAN Boot ROM (Disabled)**

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

**Serial Port1 Address (3F8/IRQ4)**

Use this item to enable or disable the onboard COM1 serial port, and to assign a port address.

**OnBoard IR (Disabled)**

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

**Parallel Port Address (378)**

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

**Parallel Port Mode**

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

**ECP Mode DMA Channel (DMA3)**

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

**Parallel Port IRQ (IRQ7)**

Use this item to assign IRQ to the parallel port.

## 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 on LAN	Disabled	Select the ACPI State used
Wake-Up by PME	Enabled	for System Suspend.
Power On by Ring	Disabled	
USB KB Wake Up from S3	Disabled	
PS2 Keyboard Wakeup	Disabled	
PS2 Mouse Wakeup	Disabled	
Resume on RTC Alarm	Disabled	

### ACPI Suspend Type (S3)

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 (Delay 4 Sec)

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 (Power Off)

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

### Resume on LAN (Disabled)

This item allows users to enable or disable LAN activity to wake up the system from power saving mode.

### Wake-Up by PME (Enabled)

This item allows users to enable or disable PCI activity to wake up the system from a power saving mode.

### Power On by Ring (Disabled)

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/Ring, or traffic on the network adapter. You must use an ATX power supply in order to use this feature.

**USB KB Wake Up from S3 (Disabled)**

This item allows the activity of the USB devices (keyboard and mouse) to wake up the system from a power saving mode.

**PS2 Keyboard Wakeup (Disabled)**

Enable or disable the function of waking up the system by the keyboard activity.

**PS2 Mouse Wakeup (Disabled)**

Enable or disable the function of waking up the system by the mouse activity.

**Resume on RTC Alarm (Disabled)**

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.

**Wake-Up by PME (Enabled)**

This item allows users to enable or disable PCI activity to wake up the system form a power saving mode.

**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) 1985-2003, American Megatrends, Inc. PCI / PnP Setup	
<i>Init Display First</i> <i>Allocate IRQ to PCI VGA</i>	<b>PCI</b> Yes
	<b>Help Item</b>  <b>Options</b> <i>PCI</i> <i>PCI Express Card</i>

**Init Display First (PCI)**

Use this item to decide which device to be the initial display device.

**Allocate IRQ to PCI VGA (Yes)**

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.

### PC Health Status Page

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

CMOS SETUP UTILITY – Copyright (C) 1985-2005, American Megatrends, Inc. PC Health Status	
<b>Hardware Health Event Monitoring</b> ▶ <b>Smart Fan Function</b> <span style="float: right;"><b>Press Enter</b></span> <b>Shutdown Temperature</b> <span style="float: right;"><b>Disabled</b></span> CPU Temperature : 41°C/105°F System Temperature : 25°C/77°F CPU Fan Speed : 2481 RPM System Fan Speed : 0 RPM CPU Vcore : 1.288 V VDIMM : 1.832 V	<b>Help Item</b>

#### ▶ Smart Fan Function (Press Enter)

CMOS SETUP UTILITY – Copyright (C) 1985-2005, American Megatrends, Inc. Smart Fan Function	
<b>CPU SMART FAN Control</b> <span style="float: right;"><b>Disabled</b></span>	<b>Help Item</b>
	<b>Options</b> Disabled Enabled

#### **CPU SMART FAN Control (Disabled)**

This item allows users to enable or disable smart fan control function.

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

**Shutdown Temperature (Disabled)**

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

**System Component Characteristics**

These items allow end users and technicians to monitor data provided by the BIOS on this motherboard. You can not make changes to these fields.

**Frequency/Voltage Control Page**

This page enables 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		Help Item
Manufacturer:	Intel	
Ratio Status:	Unlocked (Max:25, Min:12)	
Ratio Actual Value:	16	
Ratio CMOS Setting:	25	
Auto Detect CPU Frequency	Enabled	Sets the ratio between CPU Core Clock and the FSB Frequency. Note: It's only available when SpeedStep tech. is disabled.
CPU Frequency Setting	133	
Auto Detect DRAM Frequency	Enabled	
CPU: DRAM Frequency Ratio	1:1 (533MHZ)	
Auto Detect DIMM/PCI Clk	Enabled	
Spread Spectrum	Disabled	
Vcore Voltage Control	Normal	
Vdimm Voltage Control	Normal	

**Manufacturer (Intel)**

These items show the brand of the CPU installed in your system.

**Ratio CMOS Setting (25)**

This item sets the ratio between CPU Core Clock and the FSB Frequency.

**Auto Detect CPU/DRAM Frequency (Enabled)**

When this item is enabled, it automatically detects and shows the frequency of the CPU and DRAM memory installed in your system; when disabled, it can adjust the frequency of the CPU and DRAM memory.

**Auto Detect DIMM/PCI Clk (Enabled)**

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

**Spread Spectrum (Disabled)**

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

**Vcore Voltage Control (Normal)**

This item shows the Vcore Voltage Control function.

**Vdimm Voltage Control (Normal)**

This item shows the Vdimm Voltage Control function.

**Load Default Setting**

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

**Supervisor Password Page**

This page helps you install or change a password.

CMOS SETUP UTILITY – Copyright (C) 1985-2005, American Megatrends, Inc. Supervisor Password	
Supervisor Password : Not Installed	Help Item
Change Supervisor Password <b>Press Enter</b>	Install or Change the password.

**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.



### User Password Page

This page helps you install or change a password.

CMOS SETUP UTILITY – Copyright (C) 1985-2005, American Megatrends, Inc. User Password	
User Password : <i>Not Installed</i>	Help Item

#### 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.

### Save & Exit Setup

Highlight this item and press <Enter> to save the changes that you have made in the Setup Utility configuration. When the Save & Exit dialog box appears, select [OK] to save and exit, or select [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, select [OK] to discard changes and exit, or select [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 select [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.

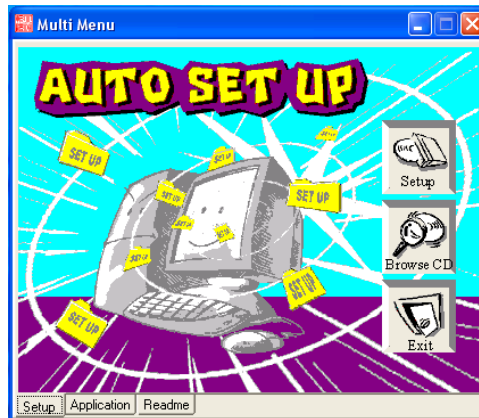
The support CD-ROM contains all useful software, necessary drivers and utility programs to properly run our products. More program information is available in a README file, located in the same directory as the software.

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

### Installing Support Software

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



The **Setup** button runs the software auto-installing program as explained in next section.

## Motherboard User's Guide

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The **Browse CD** button is a standard Windows command that you can check the contents of the disc with the Windows 98 file browsing interface.

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

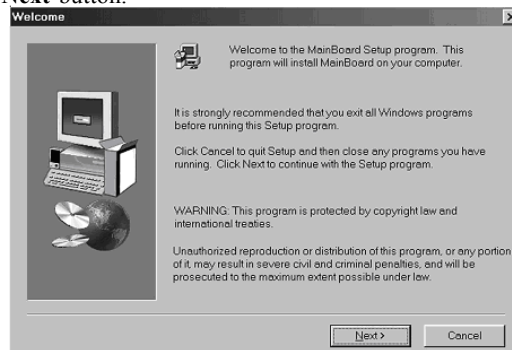
The **Application** button brings up a software menu. It shows the bundled software that this mainboard supports.

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

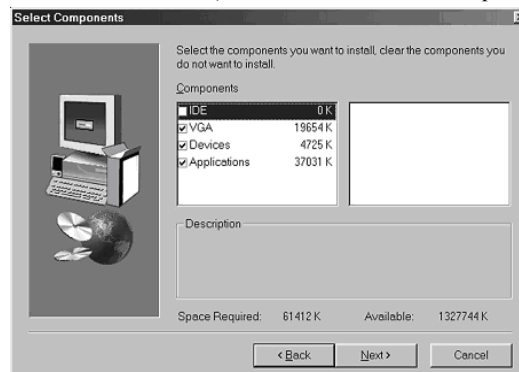
### Auto-Installing under Windows 2000/XP

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.

### **Installing under Windows NT or Manual Installation**

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

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

### **Bundled Software Installation**

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

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

### **AMI/AWARD Flash Utility**

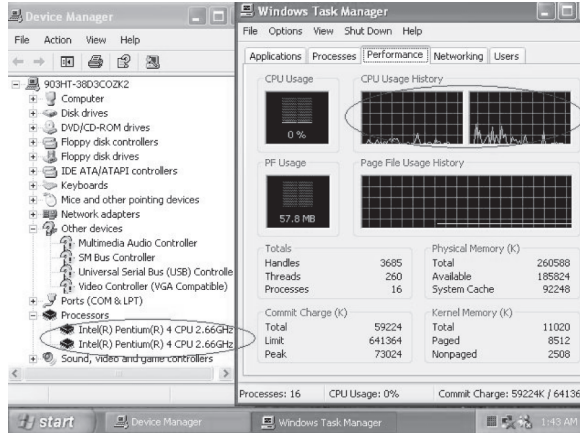
This utility lets you erase the system BIOS stored on a Flash Memory chip on the motherboard, and lets you copy an updated version of the BIOS to the chip. Proceed with caution when using this program. If you erase the current BIOS and fail to write a new BIOS, or write a new BIOS that is incorrect, your system will malfunction. Refer to Chapter 3, BIOS Setup Utility for more information.

### **WinFlash Utility**

The WinFlash utility is a Windows version of the DOS BIOS flash writer utility. The utility enables you to flash the system BIOS stored on a Flash Memory chip on the motherboard while in a Windows environment. This utility is currently available for WINXP\2000. To install the WinFlash utility, run AFUWIN.EXE (AMI) or WINFLASH.EXE (Award) from the following directory: \Utility\AMIFlash or AWDFlash.

### Hyper-Threading CPU

While you are in Windows Task Manager, please push down ctrl+Alt Del keys. A dual CPU appears in the CPU Usage History & Device Manager under WinXP.



**Note:** Hyper-Threading Function only works under WINXP Operating System; therefore, disable it under other Operating System.