

P4BU

Motherboard Users Manual

Product Name: P4BU

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Chapter 1 Introduction

1.1 Product Overview

Thanks for your purchasing the **P4BU** motherboard. The new generation, 478-pin **FC-PGA2** Motherboard **P4BU** supports a full range of the latest generation Intel Pentium 4 processors .The leading edge chipset **Intel 82C845G/GL GMCH and FW82801DB ICH4** was designed for working with **Pentium 4**(1.4GHz-2.53GHz), **Celeron**, **Willamette** and **Northwood** processor in the 478-pin package based on the VRM 9.0 Spec. And support 400/533 MHz system Data Bus. Built using the leading edge technology the Intel Pentium 4 processors provide a significant performance over previous Pentium III processors.

***** WARNING! P4BU support AGP 2.0 slot for external AGP 4X mode Graphics Card only.**

Two PC2100 DDR SDRAM sockets allow for up to 2.0GB memory capacity. We have conducted a motherboard compatibility test with a variety of hardware and software, such as CPUs, memory, display cards, CD ROMs, Novell, MS Office.... etc.

We have set high standards on our quality control, with absolute confidence; we believe this product is the wisest choice.

This manual is composed of four sections. The first section is the introduction of this motherboard, and the second section explains the

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proper procedure to setup the motherboard, the third section provides information on how to setup the CMOS. The last section is the installation of the device drivers & utilities.

Ordering Codes

P4BU: Uses **Intel 845G** and **FW82801DB ICH4** chipset. With 10/100Mbps Ethernet LAN and supports Socket 478 CPU.

1.2 Features

- Wake up on LAN.
- Wake on Keyboard.
- Modem Remote Ring On.
- Support NCR SCSI BIOS.
- Support Suspend to RAM.
- Support Ultra DMA 33/66/100.
- Support Hardware Monitor function.
- Realtek ALC201A Audio CODEC on board.
- Support FSB frequency 400/533MHz.
- Allows CPU settings and easy over clocking of frequency.
- Support Advanced Configuration Power Interface (ACPI).
- Support Desktop Management Interface (DMI) through BIOS.
- Low-power sleep modes, and 2Mbits "Plug & Play" Flash ROM.
- RTC Wake up Alarm: Program the date/time to wake up your system.
- **Support AGP 2.0 slot for external AGP 4X Fast Write protocol graphics card upgrade. Note :(AGP 1.5V connector only, No support for 3.3V or Universal AGP connectors).**

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- Both the BIOS and hardware levels of the motherboard meet PC '99 compliant.

1.3 Specifications

CPU :

- Support Socket 478 for Intel FC-PGA2 Pentium 4 processor.
- Support Intel FC-PGA2 Pentium 4 ***Northwood / Willamette*** CPU at 400/533MHz FSB.
- Support Intel FC-PGA2 Celeron CPU at 400 MHz FSB

Chipset:

- Intel FW82C845G (GMCH) and FW82801DB (ICH4)

DIMM:

- Supports 2.5V PC1600/2100 compliant DDR DRAM in 2 184-pin banks, each bank consists of 1x184-pin DIMM socket, which can support memory sizes of 64/128/256/512MB/1GB modules.
- Supports 4-banks up to 2.0GB DRAM for unbuffered DDR DRAM module.

IDE:

- Dual channel PIO and PCI Bus Master IDE ports support up to 4 EIDE devices for HDD, CD-ROM or DVD-ROM.
- Supports PIO Mode 4 with data transfer rate up to 14 MB/Sec.
- Supports Multiword DMA Mode 0, 1, 2.
- Supports Ultra DMA 33/66/100.

Expansion Slots:

- Four 32-bit PCI expansion slots (Rev. 2.2)
- One 32-bit AGP expansion slot (Rev. 2.0)

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BIOS :

- Award BIOS v6.00PG with built-in Anti-Virus, DMI, ACPI support, and green function (Plug-and-Play BIOS)
- Supports CD-ROM/HD/SCSI/Floppy/LS120/ZIP and LAN boot up.
- Supports NCR SCSI BIOS.

USB Ports :

- Two Universal Serial Bus (USB) ports Rev. 2.0, support up to 127 peripheral devices.

Sound :

- Realtek ALC201A Audio Codec
- AC '97 Rev 2.2 compliant
- 18-bit Stereo Full-Duplex Codex
- Full Duplex Variable Sample Rates from 7kHz to 48kHz with 1Hz Resolution
- Take advantage of CPU to implement audio synthesis and 3D effects processing
- Stereo Headphone Amplifier
- Three Analog Line-Level Stereo Inputs for LINE-IN, CD_IN and AUX
- Two Analog Line-Level Mono Inputs for Speakerphone and PC BEEP
- Inside Phat™ Stereo 3D sound enhancement technology
- Meet performance requirements for audio on PC2001 systems
- MC' 97 Chained in allowed for multi-channel application

I/O Devices :

- One FDD control port supports two of the 5.25" or 3.5" floppy drives up to 2.88 MB.
- Two high-speed 16550 UART compatible serial ports
- One parallel ports with SDP/ECP/ EPP compatibility.

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- One PS/2 mouse port
- One PS/2 Keyboard connector

IR Port :

- One IrDA/ASKIR compatible Infrared interface port. (Cable optional)

ATX Power :

- Supports Modem remote Ring-On function
- Supports software power off function
- Supports RTC Wake-Up.
- Supports Wake up on LAN.
- Supports Keyboard Wake-Up.

Others :

- Supports Creative Sound Blaster 16 compatibility for real-mode DOS games.

Operating System :

- Supports Windows 3.x/95/98/ME/2000/XP, Windows NT, MS-DOS V6.22, OS/2, Novell, Unix, SCO UNIX.....

Dimension :

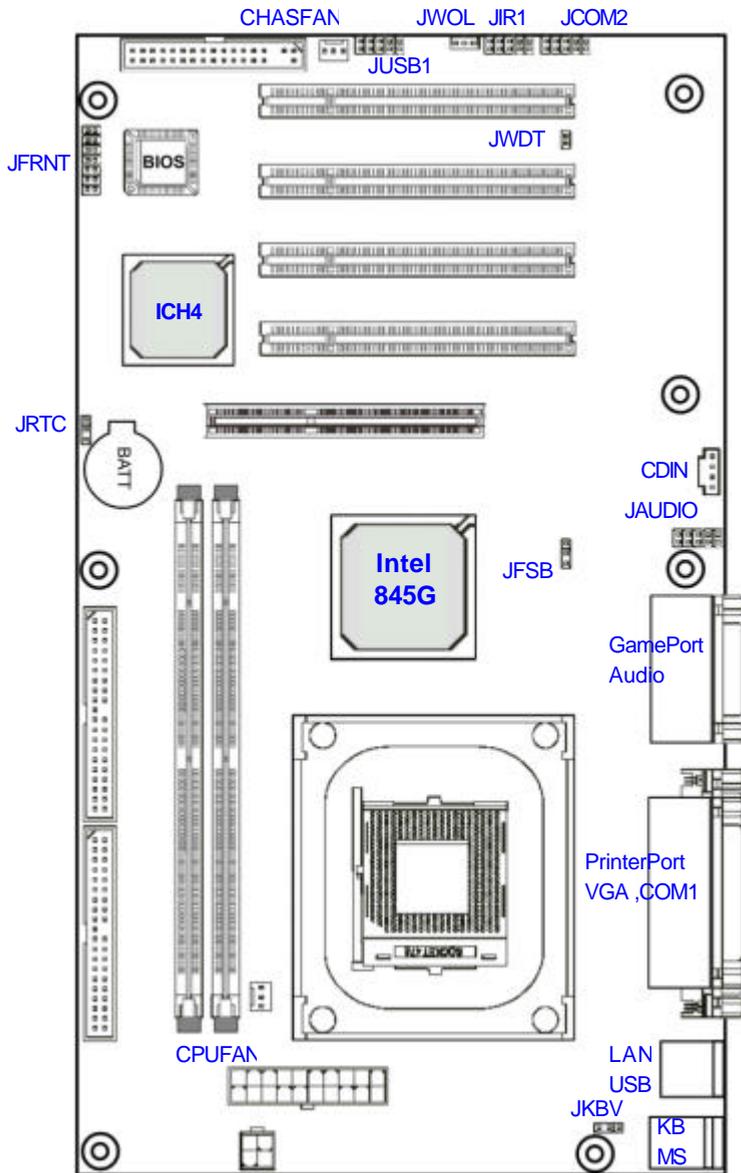
- 175 mm x 310 mm ATX Form Factor

1.4 Content

The motherboard box contains the following items:

- One Motherboard
- One 80-pin IDE Ribbon Cable
- One Floppy Ribbon Cable
- One Driver CD
- User's Manual

1.5 MotherBoard Layout



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Chapter 2 Hardware Setup

2.1 Installation Procedure

1. Jumper settings
2. Installation of CPU
3. Installation of Memory
4. I/O Connections & Panel Connections

2.1.1 Jumper Settings

Reset the Function of Flash CMOS	JRTC
Sets the Keyboard Voltage	JKBV
Sets the The FSB/Core ratio	JFSB

WARNING:

- Electronic parts are Static sensitive. To prevent damage to the computer and its parts please take the following measures.
- Work on a surface such as concrete, linoleum or hard wood floor.
- Ground your self with either a properly installed grounding strap or by touching a major electrical appliance long enough to discharge the static.

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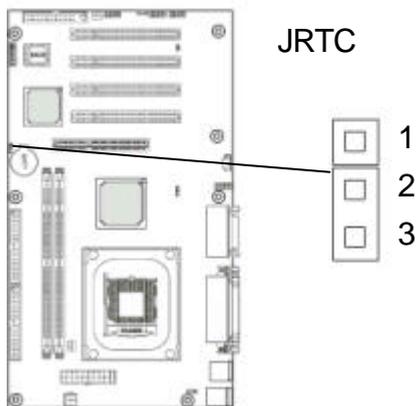
2.1.2 CMOS Operation(JRTC)

How to Clear the CMOS Setting

1. Turn off the power.
2. Remove ATX power cable from connector J1.
3. Remove Jumper Cap from JRTC (2-3) and put on JRTC (1-2) to remove the CMOS setting.
4. Remove Jumper Cap from JRTC (1-2) and put on JRTC (2-3).
5. Connect ATX power cable back to ATX connector.
6. Turn on the power.

While the system reboots, press key to set the BIOS setup.

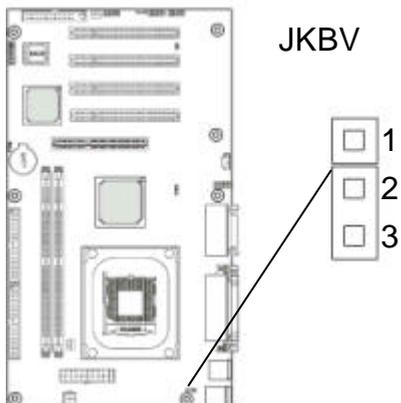
JRTC	
1-2	Clear CMOS
2-3	Normal (Default)



2.1.3 Keyboard Voltage Setting

This motherboard supports wake on keyboard function. This feature requires that your system have an ATX power supply with at least 300mA +5V standby power and set this jumper to 2 & 3 pin short.

JKBV	
1-2	5V
2-3	5V Stand by (Default)

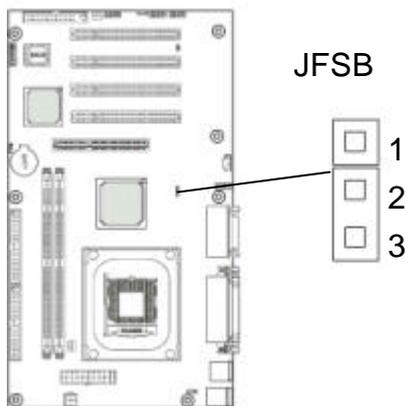


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2.1.4 CPU FSB Frequency Setting

The JFSB jumper provides FSB frequency settings for the CPU. Auto Detect, 400MHz or 533MHz FSB frequency can be selected with this jumper. The over specification operation is not recommended. **Default setting in the 400MHz FSB Frequency.**

JFSB	
1-2	533 Mhz
2-3	400 Mhz
N/C	Auto Detect



2.1.5 CPU Voltage Setting

The motherboard supports CPU VID function. It can automatically detect CPU VID signal and generates proper CPU core voltage.

2.2 Installation of CPU (For Socket 478 CPU)

Before installing CPU, make sure the power is off. Locate the level bar on the PGA478 ZIF socket. Push level bar away from the socket and pull upward 90 degrees. Insert the CPU into the socket. Be careful of CPU orientation. Make sure the notch of the CPU corresponds with the white dot on the ZIF socket (the corner without pin socket). Do not push in the CPU. Make sure all pins are aligned with the CPU socket. on the level bar.

2.3 Installation of Memory

This motherboard has 2x184-pin 64-bit Dual Inline Memory Module (DIMM) sockets divided into 4 banks. You can install 2.5V Unbuffered PC1600/2100-compliant Synchronous DRAM (DDR DRAM) memory.

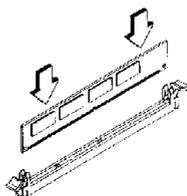
Some DIMM memory has SPD (Serial Presence Detect) 8-pin IC on module. It is not recommended the SPD (Serial Presence Detect) DIMM blends and non-SPD DIMM.

2.3.1 Installation of 184-pin DIMM (Dual Inline Memory Module)

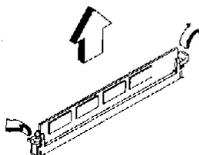
1. Before inserting the DIMM, make sure the pin1 of the DIMM matches with the pin1 on the DIMM socket.
2. Insert DIMM into the DIMM sockets at a 90-degree angle and press down.

2.3.2 Removal of 184-pin DIMM

1. Press the holding clips on both sides of the socket outward to release the DIMM.
2. Gently pull the DIMM out of the socket.



Install DIMM



Remove DIMM

2.3.3 Memory Configuration

There is no jumper setting required for the memory size or type. It is automatically detected by the system BIOS, and the total memory size is to add them together

DIMM Socket	DIMM Modules
DIMM1	PC1600/2100 DDR DRAM 64, 128, 256, 512MB,1GB
DIMM2	PC1600/2100 DDR DRAM 64, 128, 256, 512MB,1GB

2.4 I/O Connections/Panel Connections

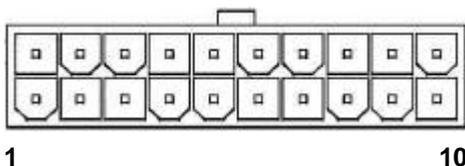
I/O Connections

ATXPWR	ATX Power series Connector
ATXR1	ATX Power +12V Connector
CPUFAN	CPU Fan connector
CHASFAN	Chassis Fan connector
JIR1	Infrared Connector (Cable optional)
JWOL	Wake up on LAN connector
JAUDIO	For link with Sound Blaster
FLOPPY	Floppy Disk Drive Connector
IDE1, 2	Primary/ Secondary IDE Connectors
MS	PS/2 Mouse Port
KB	PS/2 Keyboard Connector
COM1/JCOM2	Serial Ports 1 & 2
PRINTER	Printer Port
USB	USB Connector
LAN	LAN Connector
GAME	Game/MIDI Connectors
LINE_OUT	Line out Connector
LINE_IN	Line in Connector
MIC	Microphone in Connector
CDIN	The Connector is for CD_IN audio cable
AUX	The Connector is for AUX audio cable

2.4.1 ATX Power Connector (20-pin ATXPWR)

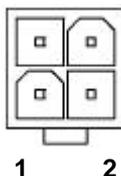
Make sure that the power supply is off before connecting or disconnecting the power cable.

PIN assignment			
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	5V	14	PS_ON
5	GND	15	GND
6	5V	16	GND
7	GND	17	GND
8	PW_OK	18	-5V
9	5V_SB	19	5V
10	12V	20	5V



This connector (ATXR1) supplies the CPU operation voltage (Vcore) , you must be insert below power connector in your motherboard.

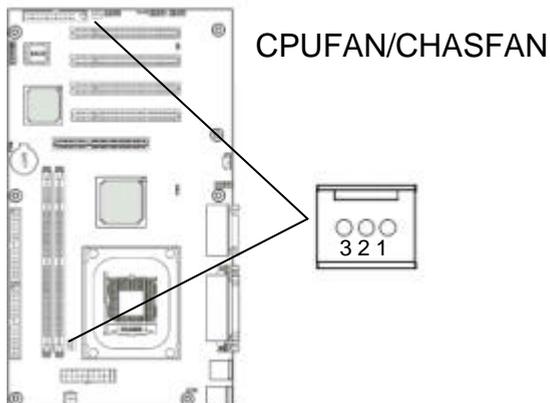
Pin assignment	
1	GND
2	GND
3	+12V
4	+12V



2.4.2 CPU, Chassis Fan Connector (3-pin CPUFAN, CHASFAN)

Connect the fan's plug to the board taking into consideration the polarity of the connector.

Pin assignment	
1	GND
2	+12V
3	FAN_CTL

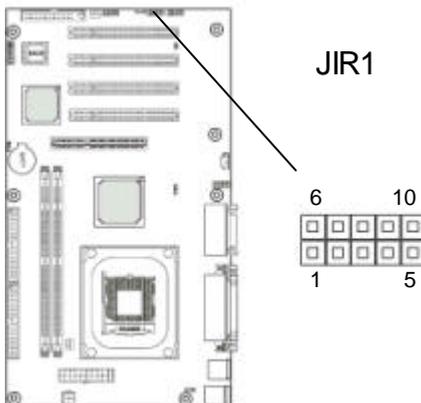


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2.4.3 Infrared Connector (5*2-pin JIR1)

This connector supports the optional wireless transmitting and receiving infrared module, with this module and application software such as Laplink or Win95 Direct Cable Connection, user can transfer files to or from their laptops, notebooks, PDA, PCs and printers. The connector supports IrDA (115.2Kbps, 2 meters) and ASK-IR (56Kbps). An optional consumer infrared (CIR) set connects to the CIR and SIR connectors simultaneously for both wireless transmitting and remote control functions through one external infrared module. Install infrared module onto Infrared connector and configure the setting through “UART Mode Select” in **Integrated Peripherals** to select whether UART is directed for use with COM2 or Infrared.

Pin assignment			
1	VCC	6	N.C
2	N.C	7	CIRRX
3	IRRXD	8	5VSB
4	GND	9	N.C
5	IRRXD	10	N.C

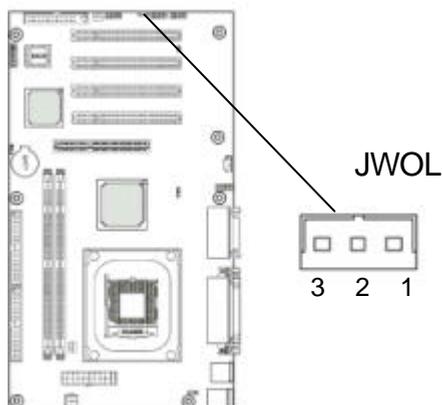


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2.4.4 Wake on LAN Connector (3-pin JWOL)

The JWOL connector powers up the system when a wakeup packet or signal is received from the network. This feature requires the **Wake up on LAN** function in BIOS is set to Enabled and that your system has an ATX power supply with at least 720mA +5V standby power.

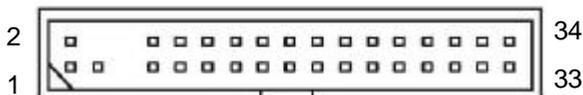
Pin assignment	
1	5VSB
2	GND
3	Wakeup



2.4.5 Floppy Disk Drive Connector (34-pin FLOPPY)

This connector supports the provided floppy disk drive ribbon cable.

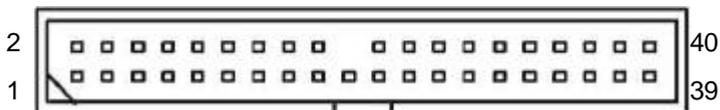
Orient the red stripe to pin 1



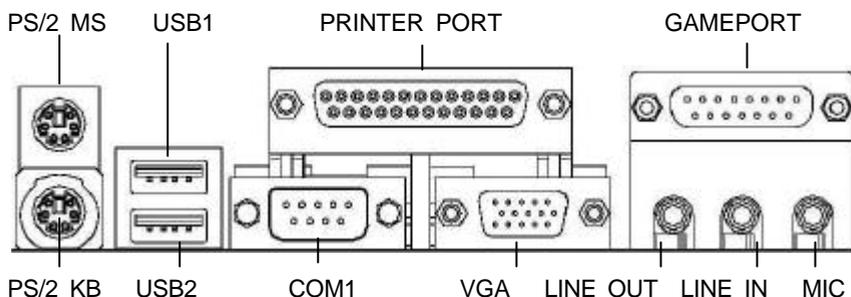
2.4.6 Primary/Secondary IDE Connector (Two 40-pin IDE)

These connectors support the provided IDE hard disk ribbon cable. Connect your first IDE hard disk to master mode of the primary channel. If you have second IDE device to install in your system, connect it as slave mode on the same channel, and the third and fourth device can be connected on secondary channel as master and slave mode respectively.

There are three connectors on the 80-pin IDE ribbon cable. **The blue connector must connect with motherboard's IDE connector** and the other connectors must connect with HDD. In order to get the better performance the Ultra DMA 66/100 HDD must connect with 80-pin IDE ribbon cable.



2.4.7 Back I/O Panel Introduction



2.4.8 PS/2 Mouse Port (6-pin Mini-Din MS)

The system will direct IRQ12 to the PS/2 mouse.

2.4.9 PS/2 Keyboard Connector (6-pin Mini-Din KB)

This connection is for a standard keyboard using a PS/2 plug. You may use a Din to Mini-Din adapter on standard AT keyboards.

2.4.10 Serial Port (9-pin D-Sub. COM1)

This connection is for standard serial ports COM1.

2.4.11 VGA Connector (15-pin D-sub.)

This connector is for standard VGA port on board.

2.4.12 Printer Port (25-pin D- Sub. PRINTER)

You can enable the parallel port and choose the IRQ through the “Onboard Parallel Port” setting in Integrated Peripherals of the CMOS SETUP UTILITY.

2.4.13 USB Connectors (USB1 & USB2)

You can attach USB devices to the USB1 or USB2 connector.

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2.4.14 LAN Connector

The LAN Connector is used to attach RJ-45 cable. For 100Base-TX, your network cable must be category 5, twisted-pair wiring with RJ-45 connectors. If you plan on running the adapter at 100Mbps, it must be connected to a 100Base-TX hub. For 10Base-T, use category 3, 4 or 5 twisted-pair wiring.

2.4.15 ACT/LNK LED (Green color)

This LED lights when there is network packets sent or received through the RJ45 port. It also lights to indicate a successful network connection and remains steady if the connection is stable. The rate of flashing is proportional to the amount of network traffic.

2.4.16 Speed LED (Orange color)

This LED lights when connection is made to a 100Base-TX or 10Base-T host.

2.4.17 Line Out Connector

The Line Out phone-jack provides the audio outputs for the left and right stereo channels.

2.4.18 Line In Connector

The Line In phone-jack is used to attach monaural or stereo devices such as a cassette, Digital Audio Tape, or Minidisc players for playback, mixing, or recording.

2.4.19 Microphone In Connector

The Microphone In phone-jack is used to attach a monaural microphone for live audio input for playback, mixing, or recording.

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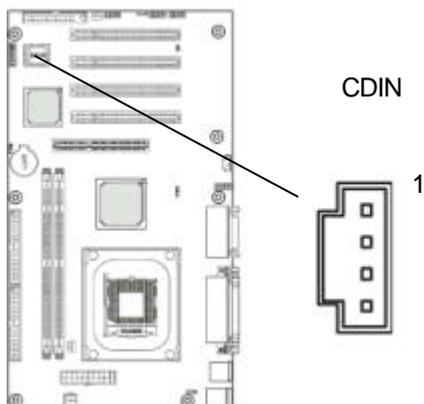
2.4.20 Game/MIDI Port

The Game/MIDI Port connector is used to attach a joystick for game interaction or to attach an external MIDI device for playback, mixing, or recording.

2.4.21 CDIN Audio (4-pin Black color Connector)

The CD_ROM Audio connector is used to connect the audio cable from either an ATAPI IDE or Sony CD-ROM drive for playback, mixing, and recording.

Pin assignment	
1	CD_Left
2	GND
3	GND
4	CD_Right

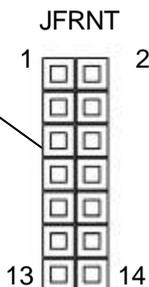
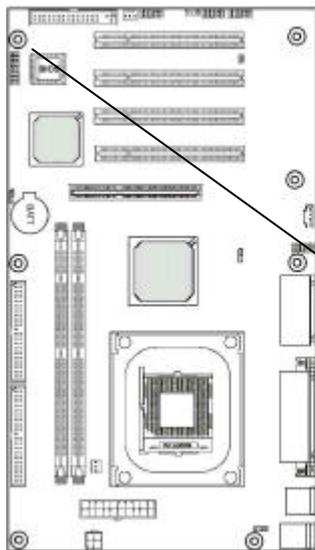


2.4.22 Panel Connection (14-pin JFRNT)

JFRNT Connector	Function
PWRLED	Power LED
SPKR	Speaker
RESET	Reset Switch
IDELED	HDD LED
PWRBNT	ATX Power Button Connector

WARNING: To avoid the system from failing, turn off the power before connecting any devices to the system.

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Pin assignment			
1	Vcc	2	Vcc
3	IDELED	4	N/C
5	RST_PD	6	GND
7	GND	8	Vcc
9	N/C	10	N/C
11	PWRBTN	12	N/C
13	GND	14	SPK_IN

