Hardware Installation 2

This chapter provides you with the information about hardware setup procedures. During installation, be careful when handling the components and follow the installation procedures properly. For some components, installing it in a wrong orientation will cause it to become unstable.

Remember to use a grounded wrist strap before handling computer components. Static electricity may damage the components.

This chapter contains the following topics:

Central Processing Unit: CPU

The mainboard operates with **AMD® Duron™/Athlon processor.** The mainboard uses a CPU socket called Socket 462 for easy CPU installation. The CPU should always have a Heat Sink and a cooling fan attached to prevent overheating.

- **CPU Installation Procedures**

1. Pull the lever sideways away from the socket. Then, raise the lever up to a 90-degree angle.

2. Locate Pin 1 in the socket and look for the white dot or cut edge in the CPU. Match Pin 1 with the white dot/cut edge. Then, insert the CPU. It should insert easily.

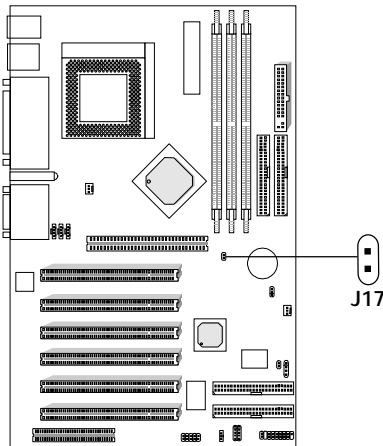3. Press the lever down to complete the installation.
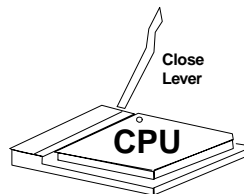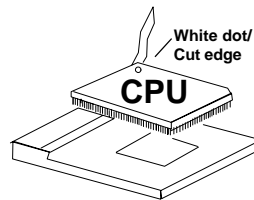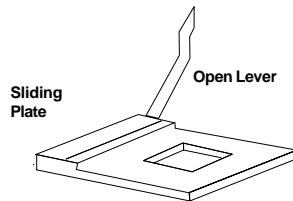
• CPU Core Speed Derivation Procedure

The BIOS can be used to set the CPU Host Bus Frequency Clock.

If	CPU Clock	= 100MHz
	Core/Bus ratio	= 7
then	CPU core speed	= Host Clock x Core/Bus ratio
		= 700MHz

• CPU Front Side Bus Frequency Selector: J17

This is used to set the CPU Front Side Bus Frequencies from 100MHz to 133MHz.

J17

J17	Function
▪▪	**For CPU FSB 100MHz (DDR 200MHZ)**
▪ ▪	**For CPU FSB 133MHz (DDR 266MHZ)**

Memory Installation

● Memory Bank Configuration

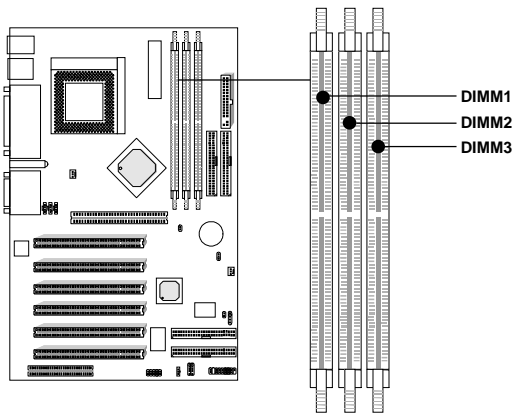The mainboard supports a maximum memory size of 1.5 GB. It provides three 168-pin **unbuffered** DIMMs (Double In-Line Memory Module) sockets. It supports 33MB to 512MB DIMM memory module.

DIMM1
DIMM2
DIMM3

<table>
<tr><td>

⚠

WARNING!

</td><td>

There are three kinds of DIMM specification supported by this mainboard: PC133 and PC100 If you use 100 MHz CPU Bus Frequency, PC100 and PC133 DIMM Specs. is supported. If you use 133MHz CPU Bus Frequency, only PC133 DIMM Specs. will be supported

</td></tr>
</table>

● **Memory Installation Procedures**

How to install a DIMM Module
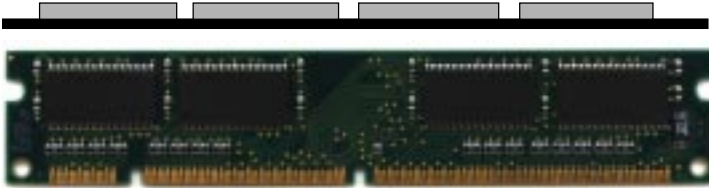
Single Sided DIMM
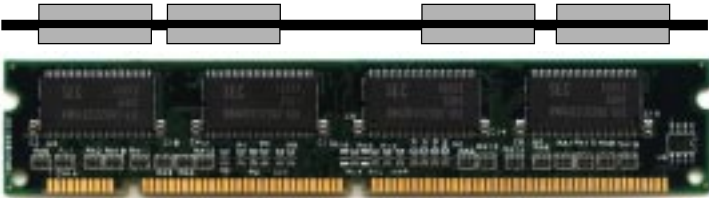
Double Sided DIMM

1. The DIMM slot has 2 Notch Keys "VOLT and DRAM", so the DIMM memory module can only fit in one direction.

2. Insert the DIMM memory module vertically into the DIMM slot. Then push it in.

DRAM   VOLT
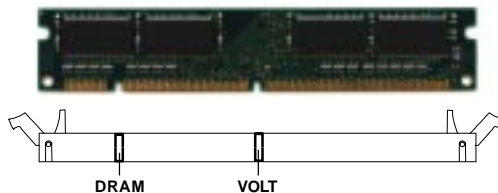
3. The plastic clip at the side of the DIMM slot will automatically close.

• Memory Population Rules

1. Supports only SDRAM DIMM.

2. To operate properly, at least one 168-pin DIMM module must be installed.

3. This mainboard supports Table Free memory, so memory can be installed on DIMM1, DIMM 2, and DIMM 3 in any order.

4. Supports 3.3 volt DIMM.

• SDRAM Memory Addressing

DRAM Tech.	DRAM Density & Width	DRAM Addressing	Address Size		MB/DIMM	
			Row	Column	Single no. Side(S) pcs.	Double no. Side(D) pcs.
16M	1Mx16	ASYM	11	8	8MBx4	16MBx8
	2Mx8	ASYM	11	9	16MBx8	32MBx16
	4Mx4	ASYM	11	10	32MB	64MB
64M	2Mx32	ASYM	11	9	32MBx2	64MBx4
	2Mx32	ASYM	12	8	16MBx2	32MBx4
	4Mx16	ASYM	11	10	32MB	64MB
	4Mx16	ASYM	13	8	32MB	64MB
	8Mx8	ASYM	13	9	64MB	128MB
	16Mx4	ASYM	13	10	128MB	256MB
64M	2Mx32	ASYM	12	8	16MB	32MB
	4Mx16	ASYM	13	8	32MB	64MB
	8Mx8	ASYM	13	9	64MB	128MB
	16Mx4	ASYM	13	10	128MB	256MB

Back Panel

The mainboard provides the following back panel connectors:
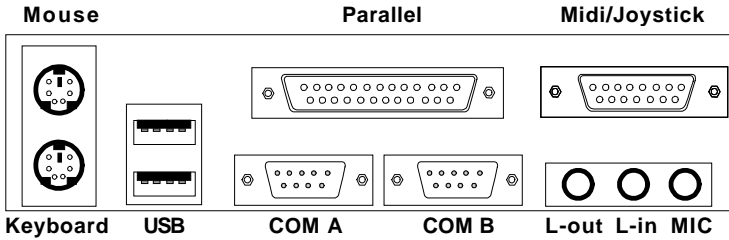
Mouse Connector: JKBMS1

The mainboard provides a standard PS/2® mouse mini DIN connector for attaching a PS/2® mouse. You can plug a PS/2® mouse directly into this connector.
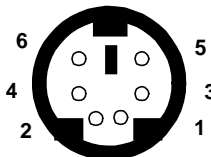
PS/2 Mouse (6-pin Female)

PIN	SIGNAL	DESCRIPTION
1	Mouse DATA	Mouse DATA
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5	Mouse Clock	Mouse clock

Keyboard Connector: JKBMS1

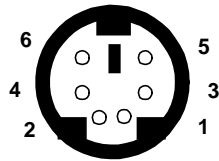The mainboard provides a standard PS/2® keyboard mini DIN connector for attaching a keyboard. You can plug a keyboard cable directly to this connector.


PS/2 Keyboard (6-pin Female)

PIN	SIGNAL		DESCRIPTION
1 DATA	Keyboard DATA		Keyboard
2	NC	No connection	
3	GND	Ground	
4	VCC	+5V	
5	Keyboard Clock		Keyboard clock
6	NC	No connection	

USB Connectors

The mainboard provides a **UHCI (Universal Host Controller Interface) Universal Serial Bus root** for attaching USB devices like: keyboard, mouse and other USB devices. You can plug the USB device directly to this connector.
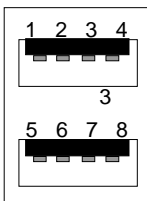
USB Ports

| PIN	SIGNAL	DESCRIPTION
1	VCC	+5V
2	-Data 0	Negative Data Channel 0
GND		Ground
4	+Data 0	Positive Data Channel 0
5	VCC	+5V
6	+Data 1	Positive Data Channel 1
7	-Data 1	Negative Data Channel 1
8	GND	Ground

Parallel Port Connector: LPT1

The mainboard provides a 25 pin female centronic connector for LPT. A parallel port is a standard printer port that also supports Enhanced Parallel Port (EPP) and Extended capabilities Parallel Port (ECP). See connector and pin definition below:
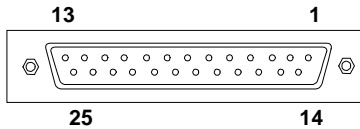
PIN	SIGNAL	DESCRIPTION
1	STROBE	Strobe
2	DATA0	Data0
3	DATA1	Data1
4	DATA2	Data2
5	DATA3	Data3
6	DATA4	Data4
7	DATA5	Data5
8	DATA6	Data6
9	DATA7	Data7
10	ACK#	Acknowledge
11	BUSY	Busy
12	PE	Paper End
13	SELECT	Select
14	AUTO FEED#	Automatic Feed
15	ERR#	Error
16	INIT#	Initialize Printer
17	SLIN#	Select In
18	GND	Ground
19	GND	Ground
20	GND	Ground
21	GND	Ground
22	GND	Ground
23	GND	Ground
24	GND	Ground
25	GND	Ground1

Serial Port Connectors: COM A and COM B

The mainboard provides two 9-pin male DIN connectors for serial port COM A & COM B. These port are 16550A high speed communication port that send/receive 16 bytes FIFOs. You can attach a mouse or a modem cable directly into this connector.
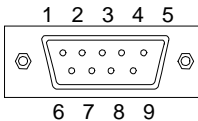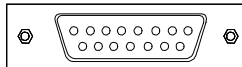
| PIN	SIGNAL
1	**DCD** (Data Carry Detect)
2	**SIN** (Serial In or Receive Data)
3	**SOUT** (Serial Out or Transmit Data)
4	**DTR** (Data Terminal Ready)
5	**GND**
6	**DSR** (Data Set Ready)
7	**RTS** (Request To Send)
8	**CTS** (Clear To Send)
9	**RI** (Ring Indicate)

```
1  2  3  4  5

6  7  8  9
```

Joystick/Midi Connectors

You can connect a joystick or game pad to this connector.

Audio Port Connectors

Line Out is a connector for Speakers or Headphones. **Line In** is used for external CD player, Tape player, or other audio devices. **Mic** is a connector for the microphones.
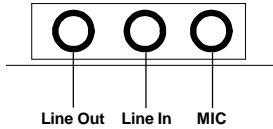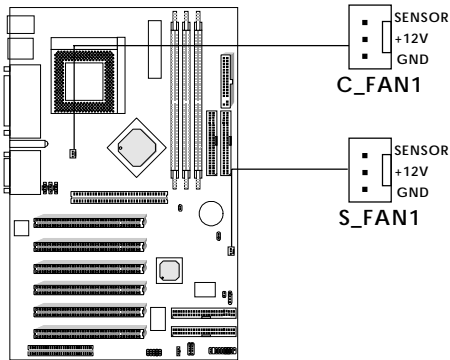
Connectors

Fan Power Connectors: C_FAN1 & S_FAN1

These connectors support system cooling fan with + 12V. It supports three pin head connector.   When connecting the wire to the connector, always take note that the red wire is the positive and should be connected to the +12V, the black wire is Ground and should be connected to GND.

C_FAN1
- SENSOR
- +12V
- GND

S_FAN1
- SENSOR
- +12V
- GND

**C_FAN1**: Processor Fan
S_FAN1: System Fan

For fans with fan speed sensor, every rotation of the fan will send out 2 pulses. System Hardware Monitor will count and report the fan rotation speed.   If your mainboard has System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of this function.

Note: **1.** Always consult your reseller for proper CPU cooling fan.
        2. CPU FAN supports the FAN control. You can install PC Alert utility. This will automatically control the CPU FAN Speed according to the actual CPU temperature.

Case Connector: JFP1

The Power Switch, Reset Switch, Power LED, Speaker, and HDD LED are all connected to the JFP1 connector block.
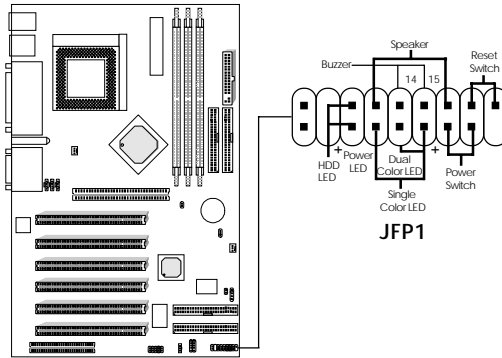
Power Switch
Connect to a 2-pin push button switch. This switch has the same feature with JRMS1.

Reset Switch
Reset switch is used to reboot the system rather than turning the power ON/OFF. Avoid rebooting while the HDD LED is lit. You can connect the Reset switch from the system case to this pin.

Power LED
The Power LED is lit while the system power is on. Connect the Power LED from the system case to this pin.
There are two types of LED that you can use: 3-pin single color LED or 2-pin dual color LED(ACPI request).

        a. 3 pin single color LED connect to pin 4, 5, & 6. This LED will lit
            when the system is on.
        b. 2 pin dual color LED connect to pin 5 & 6.
            GREEN Color: Indicate the system is in full on mode.
            ORANGE Color: Indicate the system is in suspend mode.

Speaker
Speaker from the system case is connected to this pin.
If on-board Buzzer is available:
   Short pin 14-15: On-board Buzzer Enabled.
         Open pin 14-15: On-board Buzzer Disabled.

HDD LED
HDD LED shows the activity of a hard disk drive. Avoid turning the power off while the HDD led is lit. You can connect the HDD LED from the system case to this pin.
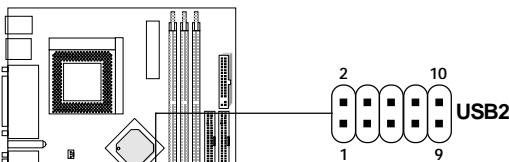
Floppy Disk Connector: FDD1

The mainboard also provides a standard floppy disk connector FDD that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. This connector supports the provided floppy drive ribbon cables.
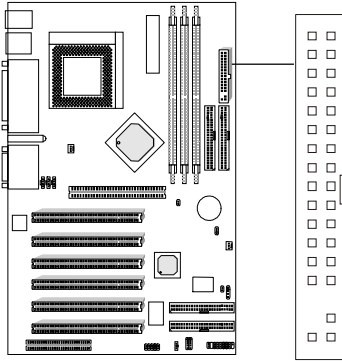
USB Front Connector: USB2

The mainboard provides a **front Universal Serial Bus connector**. This is an optional USB connector for Front Panel.


Pin	Signal	Pin	Signal
1	VCC	6	USBD2+
2	GND	7	GND
3	USBD3-	8	USBD2-
4	GND	9	GND
5	USBD3+	10	VCC

Hard Disk Connectors:

• IDE1 & IDE2

The mainboard has a 32-bit Enhanced PCI IDE and Ultra DMA/100 Controller that provides PIO mode 0~4, Bus Master, and Ultra DMA/33/66/100 function. It has two HDD connectors IDE1 (primary) and IDE2 (secondary). You can connect up to four hard disk drives, CD-ROM, 120MB Floppy (reserved for future BIOS) and other devices to IDE1 and IDE2. These connectors support the provided IDE hard disk cable.
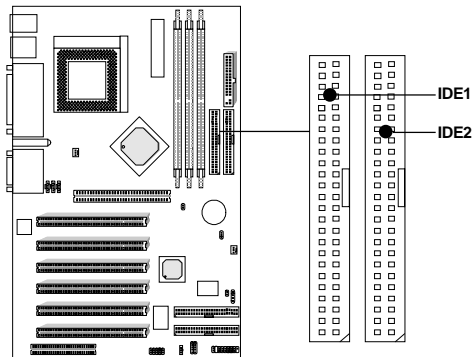

IDE1 (Primary IDE Connector)
The first hard drive should always be connected to IDE1. IDE1 can connect a Master and a Slave drive. You must configure second hard drive to Slave mode by setting the jumper accordingly.

IDE2 (Secondary IDE Connector)
IDE2 can also connect a Master and a Slave drive.

● IDE3 & IDE4 (optional)

For the usage procedure, please refer to the "Promise Raid" manual provided with this mainboard.
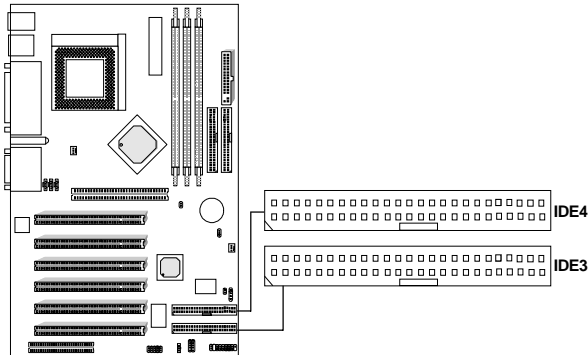
IDE 3 (Third IDE Connector) (optional)/
IDE 4 (Fourth IDE Connector) (optional)

- Supports RAID 0 (striping) or RAID 1 (mirroring), RAID 0 & RAID 1 non-coexist.
- Offers double sustained data transfer rate of attached drive (RAID 0).
- Supports Ultra ATA/100 drives and backward compatible with Ultra ATA/66/33 & EIDE drives (identical drives recommended).
- Supports "hot" swap or failed drive (RAID 1).
- Data handling optimizations include tagged command queuing, elevator seek and load balancing.
- Offers transparent data recovery and rebuilds drive in background.
- Arrays are bootable with built-in BIOS.
- RAID 0 or RAID 1 function is supported by the Master channel of PROMISE ATA RAID.
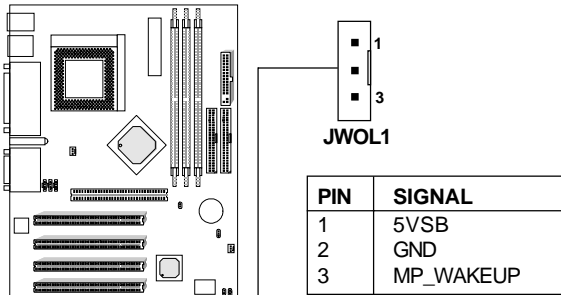
Note: *The HDD connects to the Slave channel of PROMISE ATA
RAID are to be as ATA HDD.*

Wake-Up on LAN Connector: JWOL1

The JWOL1 connector is for use with LAN add-on cards that supports Wake Up on LAN function. To use this function, you need to set the "Wake-Up on LAN" to enable at the BIOS Power Management Setup.

JWOL1

PIN	SIGNAL
1	5VSB
2	GND
3	MP_WAKEUP

Note: LAN wake-up signal is active "high". To be able to use this function, you need a power supply that provide enough power for this feature. (Power supply with 750mA 5V Stand-by)

Modem Wake Up Connector: JMDM1

The JMDM1 connector is for use with Modem add-on card that supports the Modem Wake Up function.

JMDM1

PIN	SIGNAL
1	NC
2	GND
3	MDM_WAKEUP
4	NC
5	5VSB
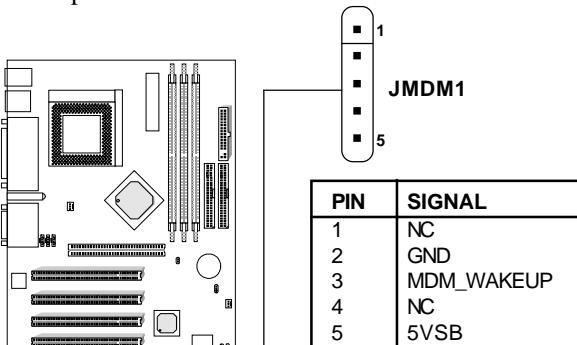
Note: Modem wake-up signal is active "low". To be able to use this function, you need a power supply that provide enough power for this feature. (Power supply with 750mA 5V Stand-by)

IDE3/IDE4 HDD LED Connector: JGL2

The HDD LED shows the activity of the IDE3/IDE4 hard disk drive.
Avoid turning the power off while the HDD LED is lit. You can connect the
IDE3/IDE4 HDD LED from the system case to this pin.
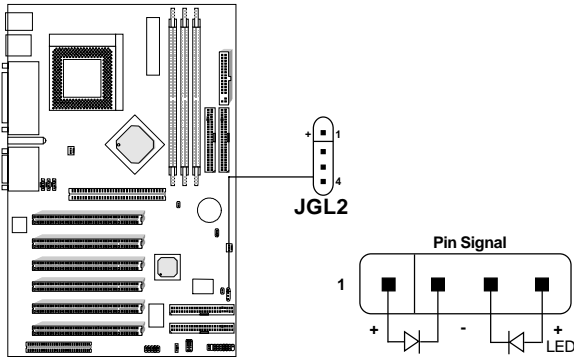
Power Saving Switch Connector: JGS1

Attach a power saving switch to **JGS1**. When the switch is pressed, the
system immediately goes into suspend mode. Press any key and the system
wakes up.
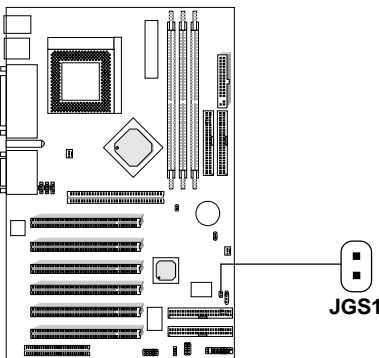
IrDA Infrared Module Connector: J2

The mainboard provides one infrared (J2) connector for IR modules. This connector is for optional wireless transmitting and receiving infrared module. You must configure the setting through the BIOS setup to use the IR function.
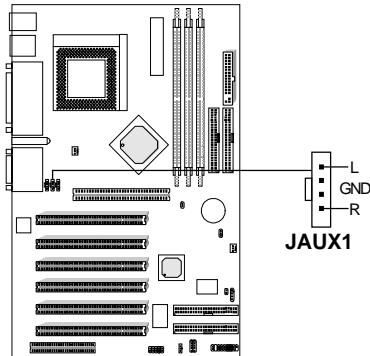

PIN	SIGNAL
1	VCC
2	NC
3	IRRX
4	GND
5	IRTX
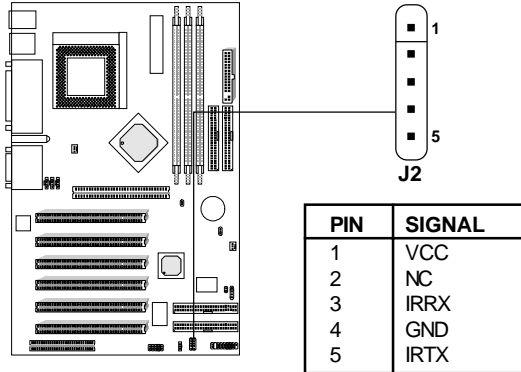
CD-In Connector: JCD1

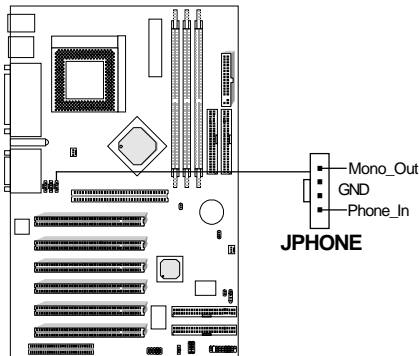This connector is for CD-ROM audio connector.
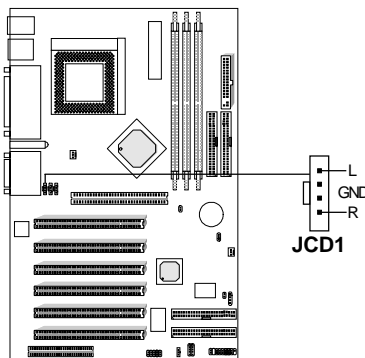
AUX Line In Connector: JAUX1

This connector is used for DVD Add on Card with Line In connector.

Modem-In: JPHONE

The connector is for Modem with internal voice connector.


Mono_Out is connected to the Modem Speaker Out connector.
Phone_In is connected to the Modem Microphone In connector.

Power Supply

ATX 20-pin Power Connector: JWR1

This connector supports the power button on-board. Using the ATX power supply, functions such as Modem Ring Wake-Up and Soft Power Off are supported by this mainboard. This power connector supports instant power on function which means that system will boot up instantly when the power connector is inserted on the board.


JWR1
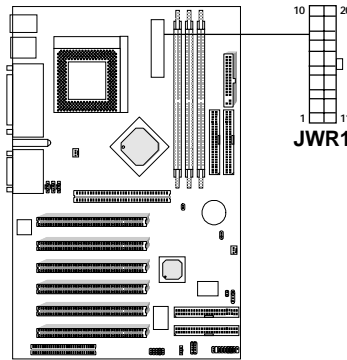
PIN	SIGNAL	PIN	SIGNAL
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	5V	14	PS_ON
5	GND	15	GND
6	5V	16	GND
7	GND	17	GND
8	PW_OK	18	-5V
9	5V_SB	19	5V
10	12V	20	5V

Warning: Since the mainboard has the instant power on function, make sure that all components are installed properly before inserting the power connector to ensure that no damage will be done.
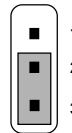
Jumpers

Clear CMOS Jumper: JBAT1

A battery must be used to retain the mainboard configuration in CMOS RAM. Short 2-3 pins of JBAT1 to store the CMOS data.

JBAT1
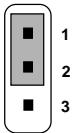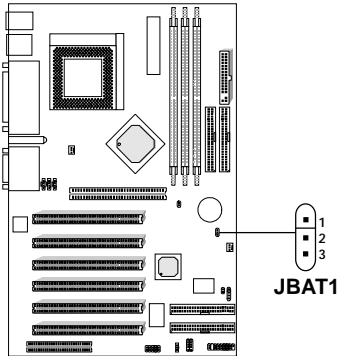
Clear Data

Keep Data

> ⚠️ **WARNING!** *You can clear CMOS by shorting 1-2 pin, while the system is off. Then, return to 2-3 pin position. Avoid clearing the CMOS while the system is on, it will damage the mainboard. Always unplug the power cord from the wall socket.*

Slots

AGP Slot (Accelerated Graphics Port)
The mainboard provides an AGP slot which you can install the AGP card.

PCI (Peripheral Component Interconnect) Slots
The mainboard provides 6 PCI slots which you can insert the expansion cards according to your needs.

CNR (Communication Network Riser)
The Communication Network Riser specification is an open industry-standard specification that defines a hardware scalable Original Equipment Manufacturer (OEM) mainboard riser board and interface, which supports audio and modem only.

AGP slot

PCI slot

CNR slot
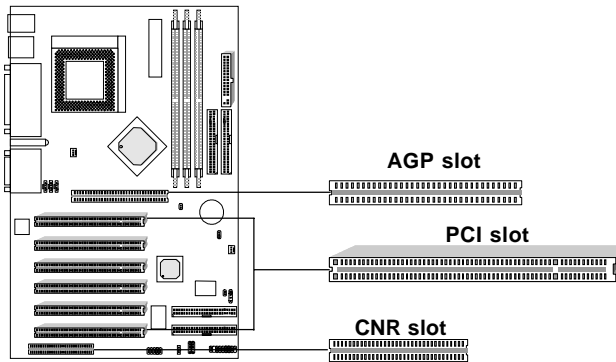
Diagnostic LED

The mainboard provides a Special Diagnostic LED for users to be aware of their mainboard conditions. The LED helps user determine the problem of the mainboard. Please refer to chapter 2-25 for the Diagnostic LED table.
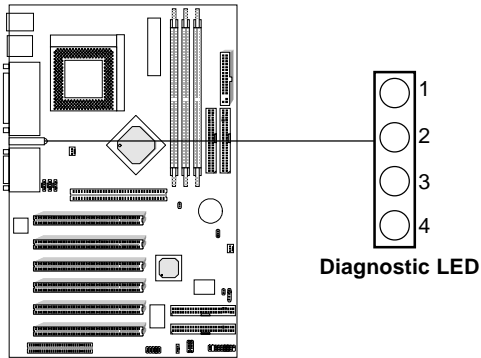
Diagnostic LED

Diagnostic LED Function Table

D-LED 1 2 3 4	DESCRIPTION	POSSIBLE PROBLEM
0 0 0 0	System Power ON This will start the BIOS Initialization	*The processor might be damaged or not installed properly*
1 0 0 0	Early Chipset Initialization	*Please check your local vendor*
0 1 0 0	Memory Detection Test Testing Onboard memory size	*The memory module might be damaged or not installed properly*
1 1 0 0	Decompressing BIOS image to RAM for fast booting	*Please check your local vendor*
0 0 1 0	Initializing Keyboard Controller	*The keyboard might be damaged or not plug-in properly*
1 0 1 0	Test shadow memory	*Please check your local vendor*
0 1 1 0	Processor Initialization This will show information regarding the processor e.g. brand name, system bus, etc.,	*Please check your local vendor*
1 1 1 0	Testing RTC (Real Time Clock)	*Low lithium battery*
0 0 0 1	Initializing Video Interface This will start detecting CPU clock, checking type of video onboard. Then detect and initialize the video adapter	*The VGA card might be damaged or not installed properly*
1 0 0 1	BIOS sign ON This will start showing information about logo, processor, brand name, etc.,	*Please check your local vendor*
0 1 0 1	Testing base and Extended memory Testing base memory from 240K to 640K and extended memory above 1MB using various patterns	*Please check your local vendor*
1 1 0 1	Assign Resources to all ISA	*Please check your local vendor*
0 0 1 1	Initializing Hard Drive Controller This will initialize IDE drive and controller	*Check IDE cable for proper installation*
1 0 1 1	Initializing Floppy Drive Controller This will initialize Floppy Drive and controller	The Floppy Drive Cable might not be installed
0 1 1 1	Assign IRQs to PCI devices	Stop
1 1 1 1	Operating System Booting	*System Available*

1 = GREEN 0 = RED

Note: The system D-LED will hang when problem occurs during operation