Chapter 2

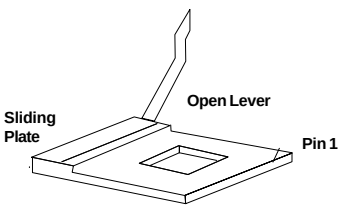
HARDWARE INSTALLATION

2.1 Central Processing Unit: CPU

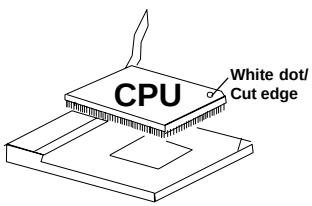
The **MICRO-ATX CX2** mainboard operates only with **Cyrix**® **MediaGX™** processors**.** The mainboard provides a Socket for easy CPU installation, a jumper switch (JCKM1) to set the proper speed for the processor. The processor should always have a cooling fan attached to prevent overheating.

2.1-1 CPU Installation Procedures

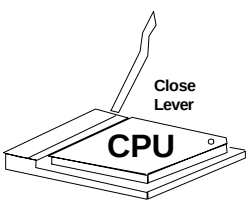
1. Pull the lever sideways away from the socket. Then, raise the lever up to a 90-degree angle.



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.



2.1-2 CPU Core Speed Derivation Procedure

1. The jumper JCKM1 is used to set the Core/Bus (Fraction) ratio of the CPU. The actual core speed of the CPU is the Host Clock Frequency multiplied by the Core/Bus ratio. For example:

If	CPU Clock	=	33MHz
	Core/Bus ratio	=	6
then	CPU core speed	=	Host Clock x Core/Bus ratio
		=	33MHz x 6
		=	200MHz

CPU	JCKM1
4	
6	
7	
8	

2. The jumper JPC2 is used for PCI Bus Clock.

PCI	JPC2
30MHz	
33MHz	

2.1-3 CPU Speed Setting: JCKM1 & JPC2

To set the proper speed and voltage of the CPU, you must know the specifications of your CPU (*always ask the vendor for CPU specifications*).
Then refer to **Table 2.1 (Cyrix® GXm Processor)** for proper setting.

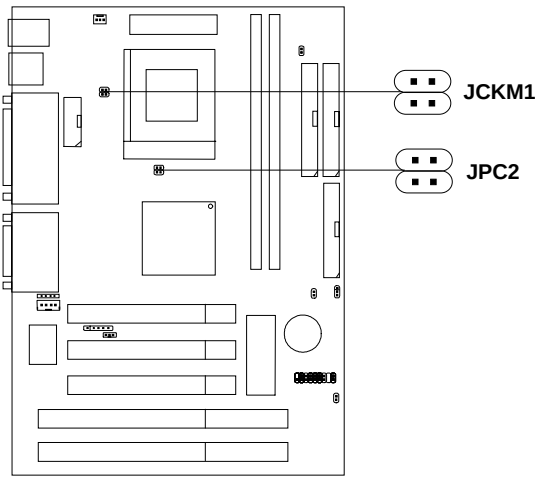
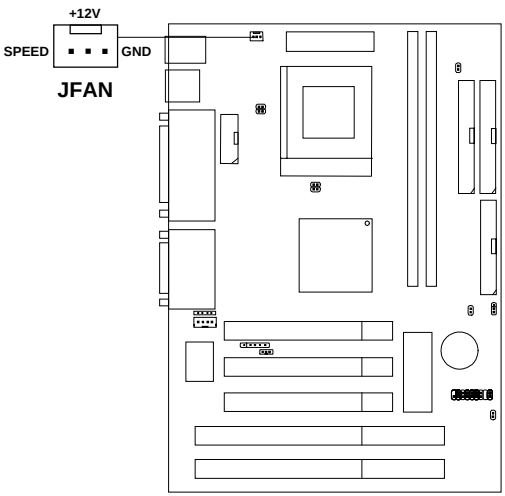


Table 2.1 Cyrix® GXm Processor

CPU Type	CPU Speed	
	JCKM1	JPC2
200 MHz		
233 MHz		
266 MHz		

2.1-4 Fan Power Connector: JFAN

This connector 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.

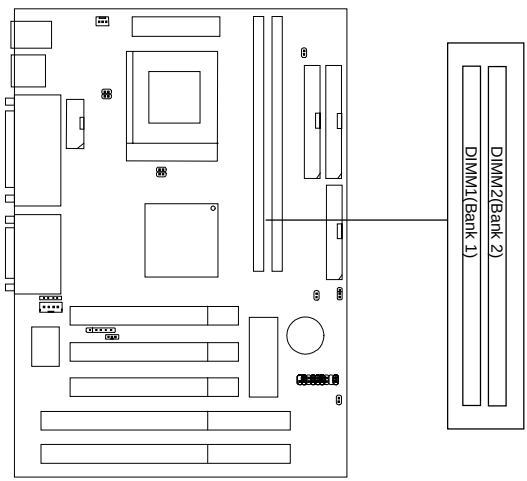


Note: Always consult vendor for proper CPU cooling fan.

2.2 Memory Installation

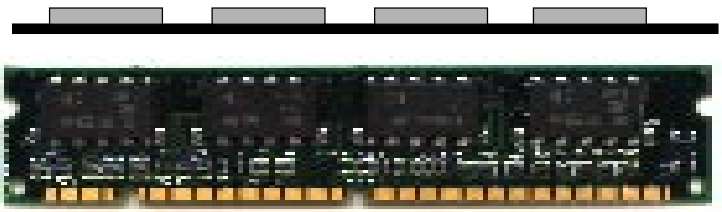
2.2-1 Memory Bank Configuration

The mainboard provides two 168-pin DIMM(Double In-Line Memory) sockets. It supports two memory banks for a maximum of 1 Gbytes memory. You can use DIMM from 8MB, 16MB, 32MB, 64MB, 128MB to 256MB.

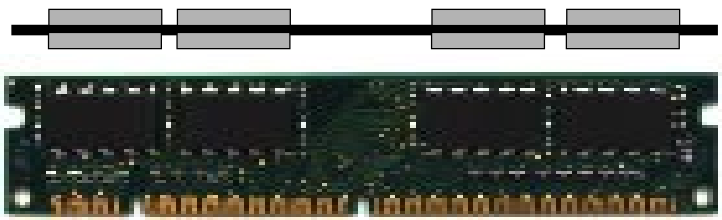


2.2-2 Memory Installation Procedures:

A. How to install DIMM Module



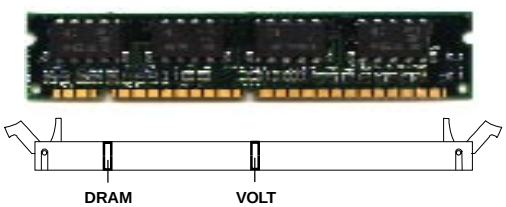
Single Sided DIMM



Double Sided DIMM

1. The DIMM slot has two keys marked “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.



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

2.2-3 Memory Population Rules

1. This mainboard supports Table Free memory, so memory can be installed in DIMM1 or DIMM 2 in any order.

2. Use only 3.3v unbuffered SDRAM DIMM.

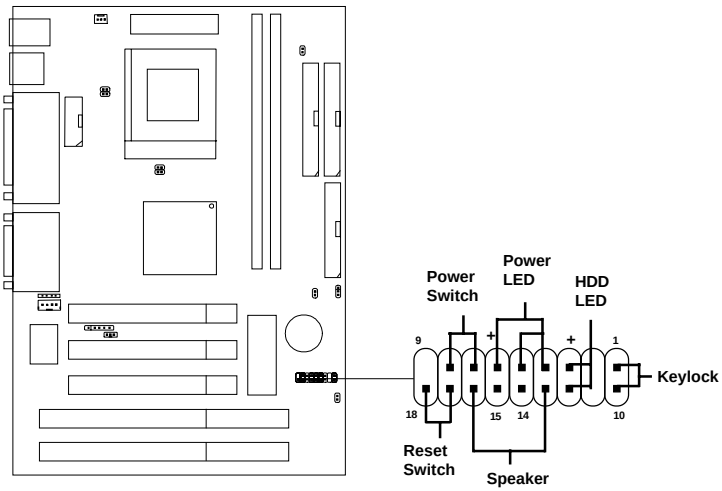
3. The DRAM addressing and the size supported by the mainboard is shown next page.

Table 2.2-1 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	16MBx2	32MBx4
	2Mx32	ASYM	12	8	16MBx2	32MBx4
	4Mx16	ASYM	11	10	32MB	64MB
	4Mx16	ASYM	13	8	32MB	64MB
	8Mx8	ASYM	13	9	64MB	128MB
64M	2Mx32	ASYM	11	8	16MBx2	32MBx4
	4Mx16	ASYM	12	8	32MBx4	64MBx8
	8Mx8	ASYM	12	9	64MBx8	128MBx16

2.3 Case Connector: JFP1

The Power Switch, Reset Switch, Power LED, Speaker and HDD LED are all connected to the JFP1 connector block.



JFP1

2.3-1 Power Switch

Connect to a 2-pin push button switch. This switch had the same feature with JRMS1.

2.3-2 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.

2.3-3 Keylock

Keylock allows you to disable the keyboard for security purposes. You can connect the keylock to this pin.

2.3-4 Power LED

The Power LED is always lit while the system power is on. You can connect the Power LED from the system case to this pin.

2.3-5 Speaker

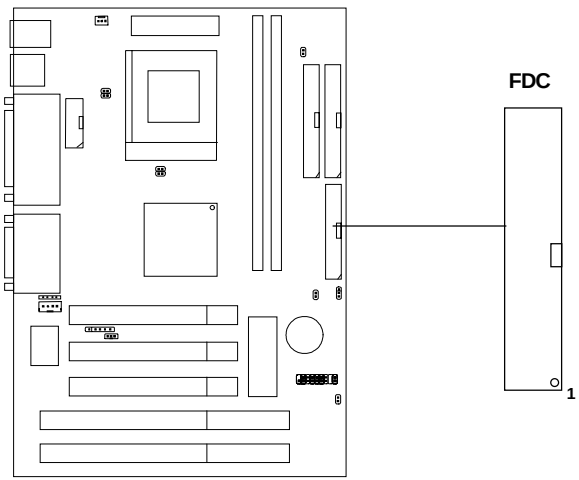
Speaker from the system case is connected to this pin.
If on-board speaker is available:
Short pin 14-15: On-board speaker Enabled.
Open pin 14-15: On-board speaker Disabled.

2.3-6 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.

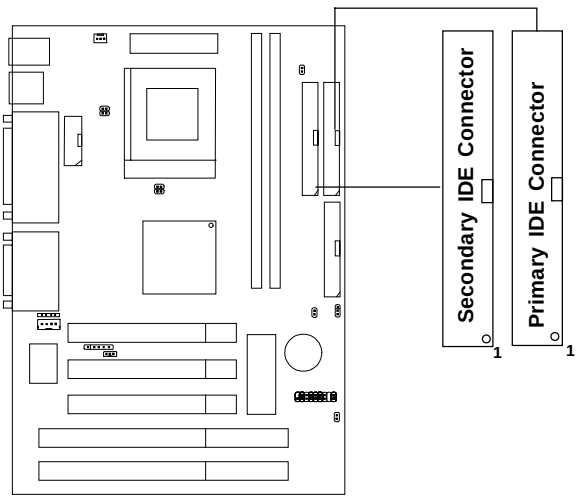
2.4 Floppy Disk Connector: FDC

The mainboard also provides a standard floppy disk connector, FDC that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types. You can attach a floppy disk cable directly to this connector.



2.5 Hard Disk Connectors: IDE1 & IDE2

The mainboard has a 32-bit Enhanced PCI IDE Controller that provides two HDD connectors IDE1 (Primary) and IDE2 (Secondary). You can connect up to four hard disk drives, CD-ROM, 120MB Floppy and other devices to IDE1 and IDE2.



IDE1(Primary IDE Connector)

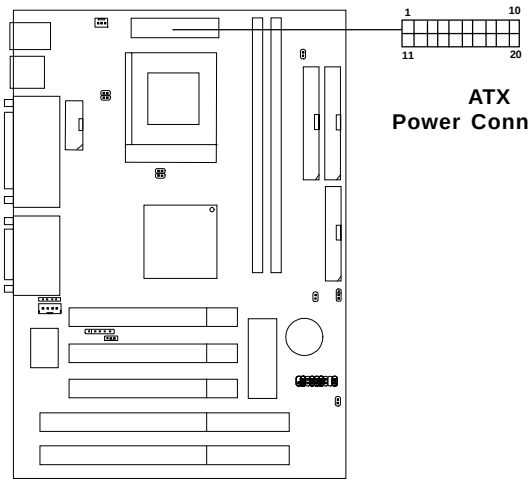
The first hard disk should always be connected to IDE1. IDE1 can connect a Master and a Slave drive.

IDE2(Secondary IDE Connector)

IDE2 can connect a Master and a Slave drive.

2.6 ATX 20-pin Power Connector: JWR1

This type of connector already supports the remote ON/OFF function. However, you need to connect the **Remote Power On/OFF switch (JRMS1)**.



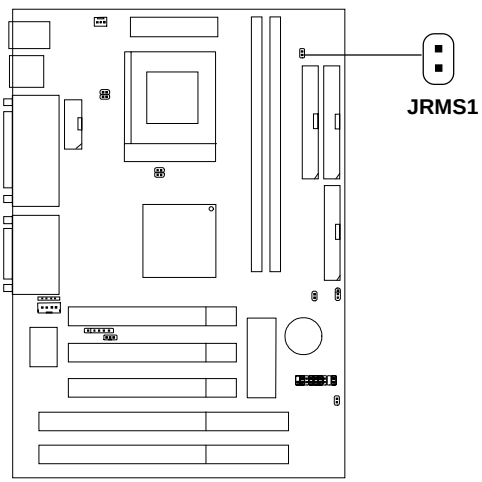
PIN DEFINITION

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.**

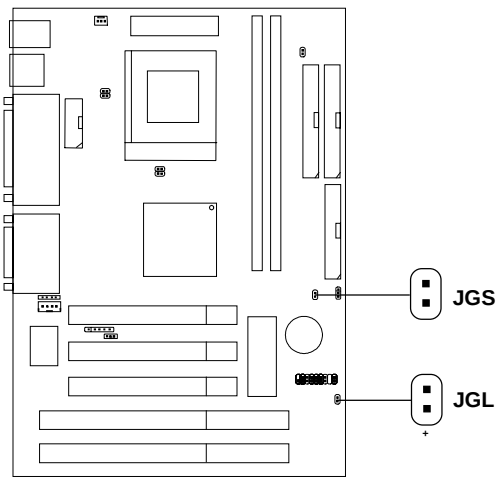
2.7 Remote Power On/Off Switch: JRMS1

Connect to a 2-pin push button switch to JRMS1. Every time the switch is shorted by pushing it once, the power supply will change its status from OFF to ON. During ON stage: push once and the system goes to sleep mode; push it more than 4 seconds will change its status from ON to OFF.



2.8 Power Saving Switch Connector: JGS/ Power Saving LED Connector: JGL

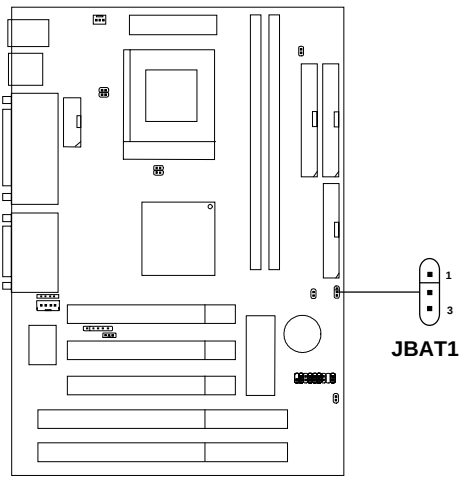
Attach a power saving switch to JGS. When the switch is pressed, the system immediately goes into suspend mode. Press any key and the system wakes up. JGL can be connected with LED to monitor the JGS. This will lit while the system is in suspend mode.

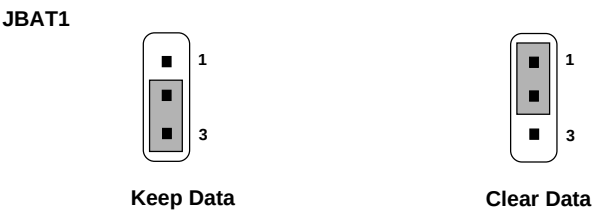


Note: To make JGS function, you must go to the BIOS power management and enable it there.

2.9 Clear CMOS Jumper: JBAT1

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

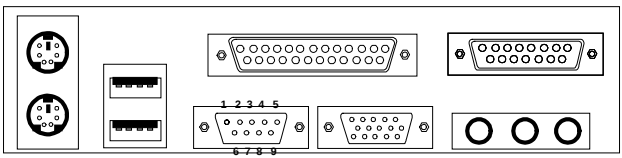




Note: You can clear CMOS by shorting 1-2 pin, while the system is off. Then, return to 2-3 pin position. To be able to clear the CMOS, you need to unplug the system since there's always a 3V standby power onboard.

2.10 Serial Port Connectors: COM A & COM B

The mainboard has one serial port COMA and one serial connector COMB. These two ports are 16550A high speed communication ports that send/ receive 16 bytes FIFOs. You can attach a mouse or a modem cable directly into these connectors.



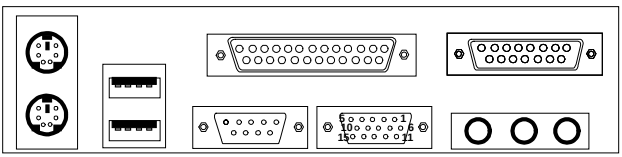
Serial Ports (9-pin Male)

PIN DEFINITION

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)

2.11 VGA DB 15 Pin Connector

The mainboard provides a DB 15-pin connector to connect to a VGA monitor.



VGA

Serial Ports (9-pin Male)

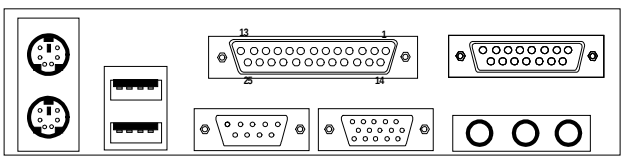
Analog Video Display Connector(DB15-S)	
Pin	**Signal Description**
1	Red
2	Green
3	Blue
4	Not used
5	Ground
6	Ground
7	Ground
8	Ground
9	Not used
10	Ground
11	Not used
12	SDA
13	Horizontal Sync
14	Vertical Sync
15	SCL

2.12 Parallel Port Connector: LPT

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:

Parallel Port (25-pin Female)

LPT

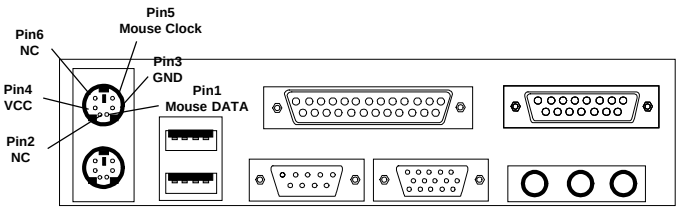


PIN DEFINITION

PIN	SIGNAL	PIN	SIGNAL
1	STROBE	14	AUTO FEED#
2	DATA0	15	ERR#
3	DATA1	16	INIT#
4	DATA2	17	SLIN#
5	DATA3	18	GND
6	DATA4	19	GND
7	DATA5	20	GND
8	DATA6	21	GND
9	DATA7	22	GND
10	ACK#	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SELECT		

2.13 Mouse Connector: JKBMS1

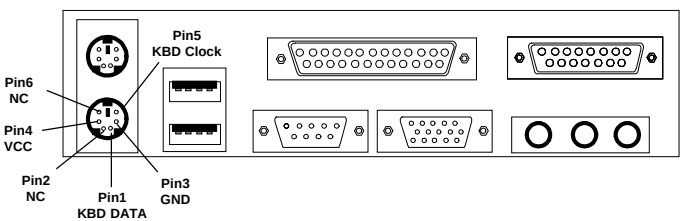
The mainboard provides a standard PS/2® mouse mini DIN connector for attaching a PS/2® mouse. You can plug a PS/2® mouse directly into this connector. The connector location and pin definition are shown below:



PS/2 Mouse (6-pin Female)

2.14 Keyboard Connector: JKBMS1

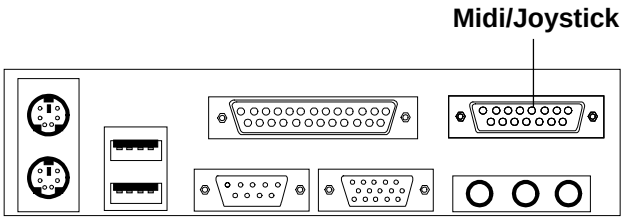
The mainboard provides a standard PS/2® keyboard mini DIN connector for attaching a keyboard. You can plug a keyboard cable directly to this connector.



PS/2 Keyboard (6-pin Female)

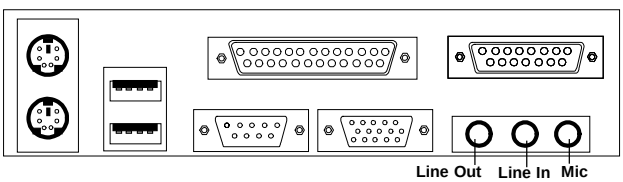
2.15 Joystick/Midi Connector

You can connect joystick or game pads to this connector.



2.16 Audio Port Connectors

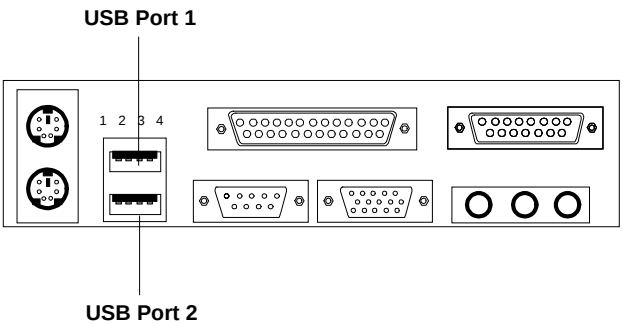
Line Out is a connector for Speakers or Headphones. **Line In** is used for external CD player, Tape layer, or other audio devices. **Mic** is a connector for the microphone.



1/8" Stereo Audio Connectors

2.17 USB Connector: USB **(optional)**

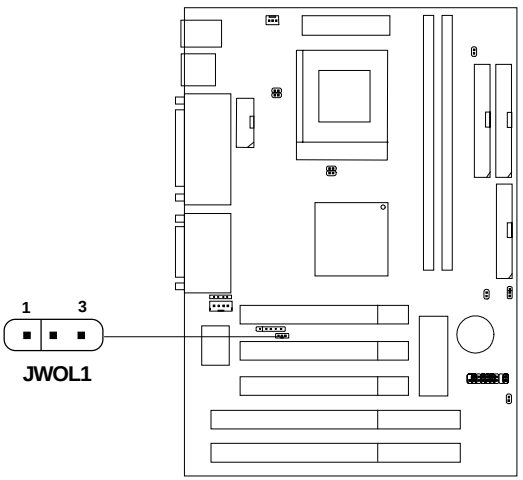
The mainboard provides a **UHCI(Universal Host Controller Interface) Universal Serial Bus root** for attaching USB devices like: keyboard, mouse and other USB devices. You can plug the USB device directly to this connector.



PIN	SIGNAL
1	VCC
2	-Data0
3	GND
4	+Data0

2.18 Wake-Up on LAN Connector: JWOL1

The JWOL1 connector is for use with LAN add-on cards that supports Wake Up on LAN function.



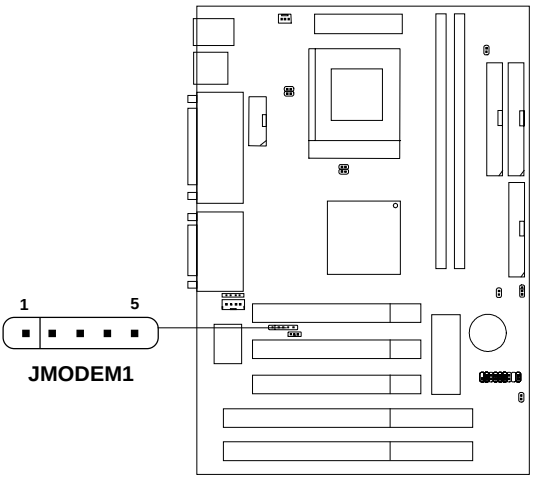
PIN	SIGNAL
1	5VSB
2	GND
3	MP_WAKEUP

Note: LAN wake-up signal is active “high”.

Note: To be able to use this function, you need a power supply that provide enough power for this feature.
(750 ma power supply with 5V Stand-by)

2.19 Modem Wake Up Connector: JMODEM1

The JMODEM1 connector is for used with Modem add-on card that supports the Modem Wake Up function.



PIN	SIGNAL
1	NC
2	GND
3	MDM_WAKEUP
4	NC
5	5VSB

Note: Modem wake-up signal is active “low”.

Note: To be able to use this function, you need a power supply that provide enough power for this feature.
(750 ma power supply with 5V Stand-by)

2.20 CD Line-In: JCD1/JCD2

The mainboard provides two different kinds of CD Line-in connectors to let you connect two different kinds of cable provided by the CD-ROM.