Installation Procedures

The mainboard has several user-adjustable jumpers that allow you to configure the system to suit your requirements. This chapter contains information on the various jumper settings on your mainboard.

To set up your computer, you must complete the following steps:

Step 1 - **Set system jumpers.**
Step 2 - **Install memory modules.**
Step 3 - **Install the Central Processing Unit (CPU).**
Step 4 - **Install expansion cards.**
Step 5 - **Connect ribbon cables, cabinet wires and power supply.**
Step 6 - **Set up BIOS software.**
Step 7 - **Install supporting software tools.**

WARNING: Excessive torque may damage the mainboard. When using an electric screwdriver on the mainboard, make sure that the torque is set to the allowable range of 5.0 ~ 8.0kg/cm.

Mainboard components contain very delicate Integrated Circuit (IC) chips. To prevent static electricity from harming any of the sensitive components, you should follow the following precautions whenever working on the computer:

1. Unplug the computer when working on the inside.
2. Hold components by the edges and try not to touch the IC chips, leads or circuitry.
3. Wear an anti-static wrist strap.
4. Place components on a grounded anti-static pad or on the bag that came with the component whenever the components are separated from the system.

1.) Set System Jumpers

Jumpers are used to select the operation modes for your system. Some jumpers on the board have three metal pins with each pin representing a different function. A **1** is written besides pin 1 on jumpers with three pins. To **set** a jumper, a black cap containing metal contacts is placed over the jumper pin(s) according to the required configuration. A jumper is said to be **shorted** when the black cap has been placed on one or two of its pins.

NOTE: Users are not encouraged to change to jumper settings not listed in this manual. Changing the jumper settings improperly may adversely affect system performance.

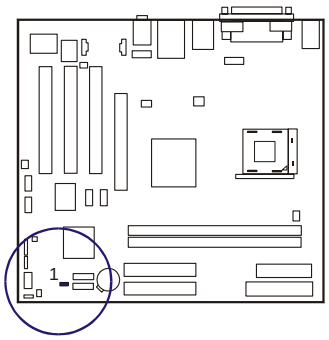
Clear CMOS

The CMOS RAM is powered by the onboard button cell battery.
To clear the RTC data:

(1) Turn off your computer;
(2) Open the system case and disconnect the ATX power cable;
(3) Place the jumper cap onto the pinpair 2-3 for at least 6 seconds to enable CMOS clearance;
(4) Place the jumper cap onto the pinpair 1-2 to disable the effect of CMOS clearance;
(5) Connect the ATX power cable and close the system case;
(6) Turn on your computer until *CMOS checksum error* appears;
(7) Hold down the *Delete* key as it boots;
(8) Enter the BIOS Setup to re-enter user preferences.

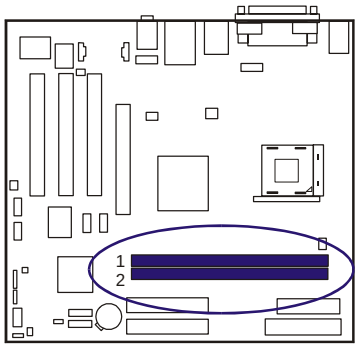
Normal (Default)

Enable (Clear CMOS)



2). Install Memory Modules

1. Locate DDR DIMM sockets on the mainboard.

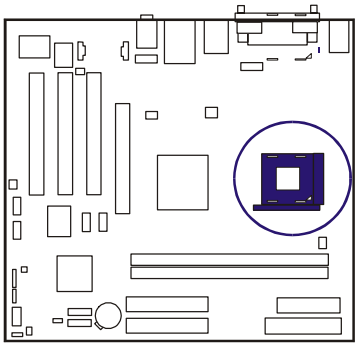


2. Install DDR DIMM straight down into the socket 1 using both hands, then socket 2, and so forth.

3. The clip on both ends of the socket will close up to hold the DDR DIMM in place when the DDR DIMM reaches the socket bottom.

3). Install the CPU

The mainboard has built-in Switching Voltage Regulator to support CPU Vcore autodetection. That is, It has the ability to detect and recognize the CPU voltage, clock, ratio and enables users to set up the CPU frequency from the BIOS Setup Screen. Users can adjust the frequency through *Frequency / Voltage Control* of the BIOS Setup Screen.



The procedures below shows you how to install your CPU and its fan and heatsink. First of all, locate the CPU socket on this mainboard.

1. Swing the lever upword to 90 degree.

2. Install the CPU and make sure the the pin 1 orientation by aligning the socket corner marking with the socket corner closest to the lever tip. Do not insert the CPU by force. Make sure the processor is fully inserted into the socket on all sides.

Apply some thermal materials, such as paste or tape, on the CPU top; and install a fan with heatsink that approved by CPU manufacturer to avoid CPU damage. For detail information, please refer to the CPU manufacturer website.

Affix the CPU by pressing the lever downward and locking it beside the socket.

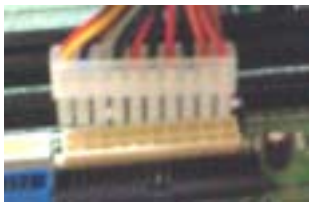
3. Place the fan with heatsink on the CPU top and press down two plastic clips to hook up with the holes on the retention module on two sides.

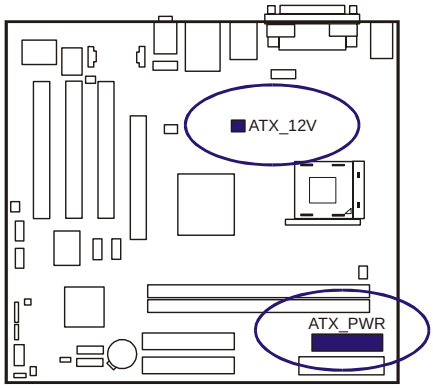
4. Press down the white bar on each clip to fasten the fan set on the retention module.

Connect ATX Power

The 20-hole power plug (top right) is connected to the ATX power 20-pin pinheaders. The 4-hole 12V power plug (bottom right) is inserted in the ATX_12V power connector.

The plug from the power supply will only insert in one orientation because of the different hole sizes. Find the proper orientation and push down firmly making sure that the pins are aligned.





NOTE:

1. Insert the CPU (with fansink and retention module) on socket.

2. Connect the 4-pin plug of the power supply

3. Connect the 20-pin plug of the power supply.

To remove the processor, please do it in reverse order.

4). Install Expansion Cards

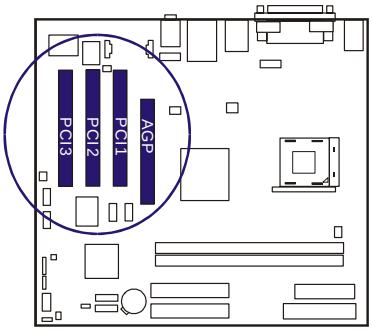
This section describes how to connect an expansion card to one of your system expansion slots.

Expansion cards are printed circuit boards that, when connected to the mainboard, increase the capabilities of your system.

For example, expansion cards can provide video and sound capabilities. The mainboard features, one AGP and three PCI bus expansion slots.

CAUTION:
1.Make sure to unplug the power supply when adding or removing expansion cards or other system components. Failure to do so may cause severe damage to both the mainboard and expansion cards.
2. Always observe static electricity precautions.
3. Please read Handling Precautions at the start of this manual.

1. Select an available expansion slot.



2. Remove the corresponding slot cover from the computer chassis. Unscrew the mounting screw that secures the slot cover and pull the slot cover out from the computer chassis. Keep the slot cover mounting screw nearby.

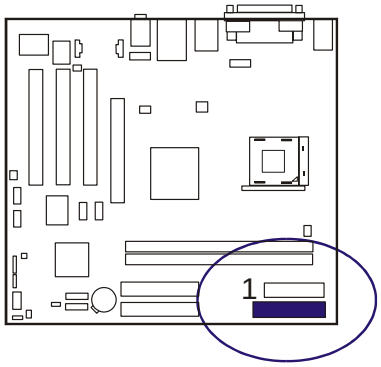
3. Push the card firmly into the slot. Push down on one end of the expansion card, then the other. Use this rocking motion until them card is firmly seated inside the expansion slot. Secure the card with the screw removed in Step 2.

5). Connect Devices

Floppy Diskette Drive Connector

This connector provides the connection with your floppy disk drive.

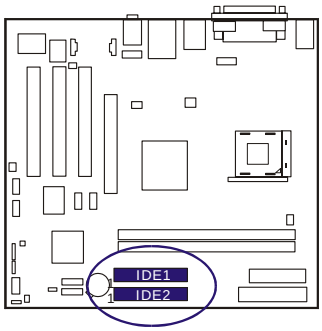
Insert the floppy ribbon cable (below) onto the floppy connector.



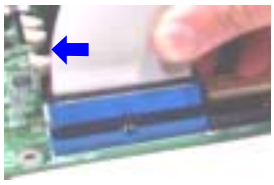
The colored stripe (indicated by the arrow head, right) of the ribbon cable must be the same side with the Pin 1.

IDE Device Connectors

The two connectors, IDE1 (PRIMARY) and IDE2 (SECONDARY), are used for your IDE hard disk drives, CD drives, LS-120 drives, or IDE ZIP drives.



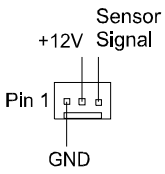
Insert the IDE ribbon cable (below) onto the IDE connector.

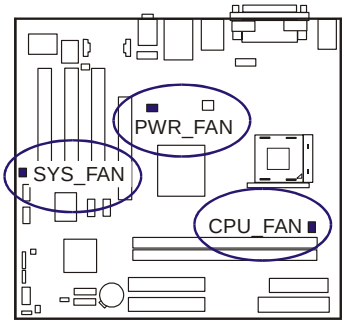


The colored stripe (indicated by the arrow head, right) of the ribbon cable must be the same side as Pin 1.

Fan Connectors

The two connectors, CPU_FAN and SYS_FAN are linked to the CPU fan and case fan, respectively. PWR_FAN can be used with the power supply cooling fan. Pin1 is GND, Pin2 is +12V, Pin3 is Signal (PWR_FAN Pin3 is no use).

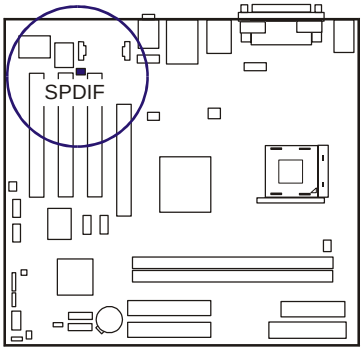




CAUTION: Improper orientation of SPDIF connection may cause damage of your device.

SPDIF Connector

The mainboard equipped a 1x3 pin connector. It is used for SPDIF digital audio output. Pin 1 is +5V, Pin 2 is SPDIF, Pin3 is GND.



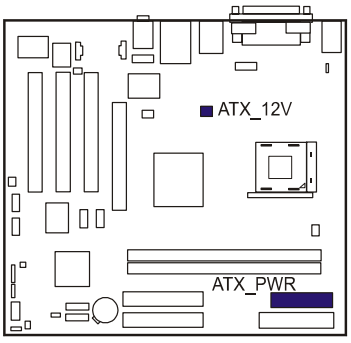
Power Connectors

The 20-pin male block connector is connected to the ATX power supply. The 4-pin male block connector is for the ATX_12V power use. Both connectors are linked with your ATX power supply. The plug from the power supply can only be inserted in one orientation because of the different hole sizes. Find the proper orientation and push down firmly making sure that the pins are aligned.

ATX_12V

ATX_PWR

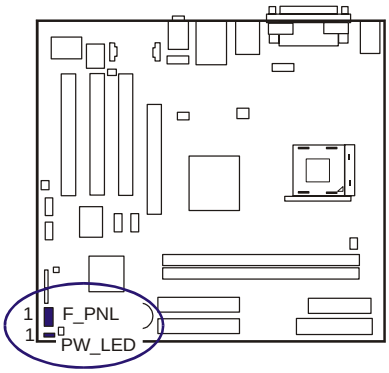
PIN	DEFINITION	PIN	DEFINITION
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	GND	13	GND
4	+5V	14	PS_ON
5	GND	15	GND
6	+5V	16	GND
7	GND	17	GND
8	PWR_GOOD	18	-5V
9	5V_SB	19	+5V
10	+12V	20	+5V



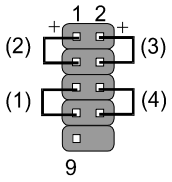
Front Panel Block, Power LED, IR, and Speaker Connector

This block connector includes the connectors for linking with Power LED (3-pin), HDD LED, power button, power/sleep/message waiting button, and the reset button on the front panel of the system case. Please identify the polarities of the plug wires for the case speaker and LEDs.

The plug wires (below) polarities of these buttons will not affect the function.



F_PNL
(Intel Spec.)



PW_LED
(Power LED, 2/3 Pins)

LED	Meaning	State
Off	Off	S4/S5
On	Full On	S0
Flash	Sleep	S1/S3

(1) Reset Switch is connected to the reset button. Push this switch to reboot the system instead of turning the power button off and on.

(2) HDD LED is connected to the IDE device indicator. This LED will blink when the hard disk drives are activated.

(3) Power (Single and Dual) /Sleep LED

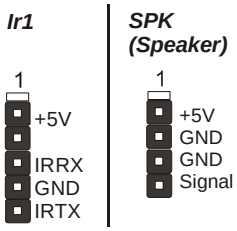
Please refer to the tables below for the representations of LED states.

There is another 3-Pin Power LED connector on board for some cases that have a 3-pin plug.

LED	Meaning	State
Off	Off	S4/S5
Green	Full On	S0
Other Colors	Sleep	S1/S3

(4) Power Button is connected with the power button. Pushing this switch allows the system to be turned on and off rather than using the power supply button.

IR is a pinheader that is used for linking with your ID device to allow transmission of data to another system that also supports the IR feature.

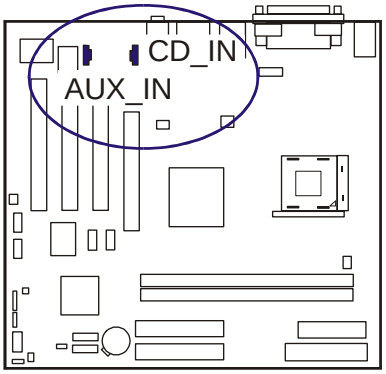


Speaker is connected with the case speaker.

NOTE: To use IR functions you must adjust the BIOS features introduced in the section of *Integrated Peripherals*, Chapter 3, for your IR devices.

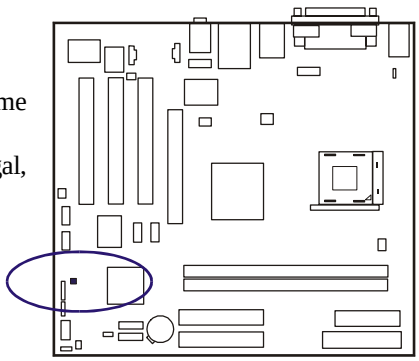
CD Audio-In Connectors

The two 1x4 connectors are for CD-ROM drive audio analog input use. The pin assignment are: Pin 1 is Left, Pin2 and 3 are GND, Pin 4 is Right.



Serial IRQ Connector (Optional)

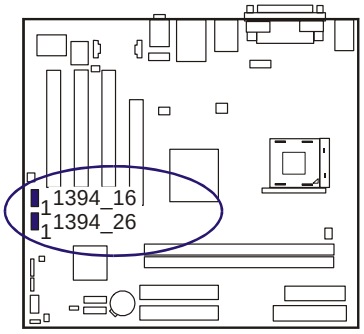
This 2-pin connector is used for some system integration use.
The pin assignment are: Pin 1 is singal, Pin2 is NC.



IEEE 1394 Connectors (optional)

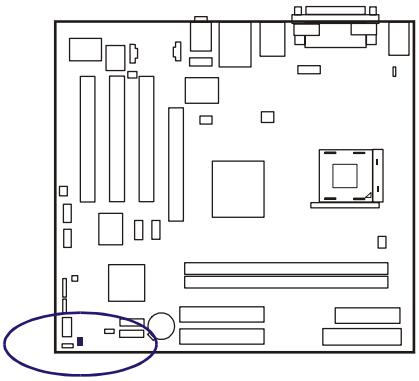
The 2 optional 1394 pinheaders on the board provides you with two connections with the peripherals which own 1394 connectors by an optional bracket with cable (see the figure below). The pin definitions of the 1394 pinheaders are listed below also.

PIN	DEFINITION
1	TA1+
2	TA1-
3	GND
4	GND
5	TB1+
6	TB1-
7	VCC
8	VCC
9	NC
10	GND



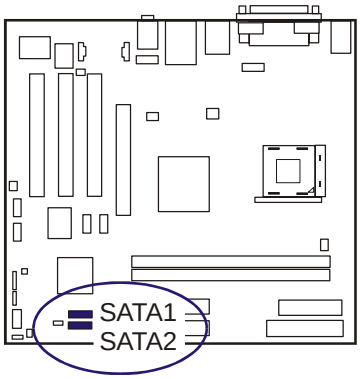
Chassis Intrusion Connector (optional)

This connector is for a chassis designed with intrusion detection feature. It needs a chassis intrusion sensoror on the chassis. If a chassis part is moved, the sensor activates and releases a signal in order to this connector to record a chassis intrusion event. Pin 1is Signal, Pin 2 isGND.



Serial ATA Connectors

The 2 SATA connectors provide you with the connections to serial ATA devices that confirm to the Serial ATA specification. Serial ATA supports all ATA and ATAPI devices. The figures below left are two SATA cables (the top one is for power; the next one is for data). The data cable pin assignments of SATA connector.

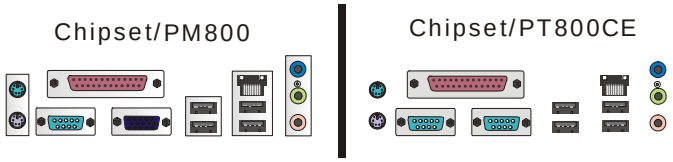


PIN	DEFINITION
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

NOTE: Please read BIOS Setup, section of **Integrated Peripherals**, for more information.

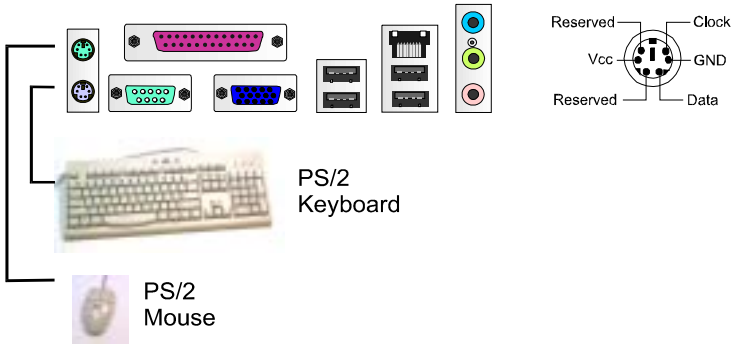
Types of Rear Panel I/O Connectors

The rear panel I/O connectors of the (Chipset-PM800) and (Chipset-PT800CE) are different.



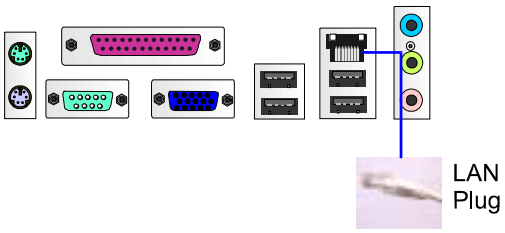
PS/2 Keyboard and Mouse Connector

These two 6-pin female connectors (keyboard is purple and mouse is green) are used for your PS/2 keyboard and PS/2 mouse.



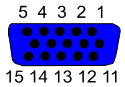
RJ45 LAN Connector

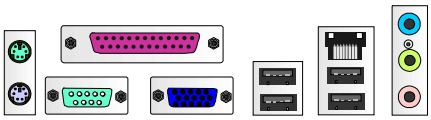
The RJ45 jack of the LAN port is used for the LAN cable plug.



CRT Connector (Chipset PM800)

This connector is linked to your monitor. The pinheaders pin assignments are shown at right side.



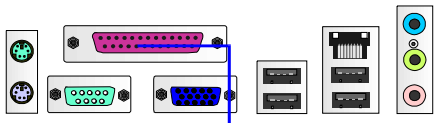


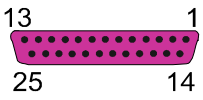
CRT

PIN	DEFINITION
1	RED
2	GREEN
3	BLUE
4	VCC
5	GND
6	GND
7	GND
8	GND
9	VCC
10	GND
11	VCC
12	DDC DATA
13	HSYNC
14	VSYNC
15	DDC CLK

Printer Connector

This burgundy-colored 25-pin D-Sub female connector is attached to your printer.



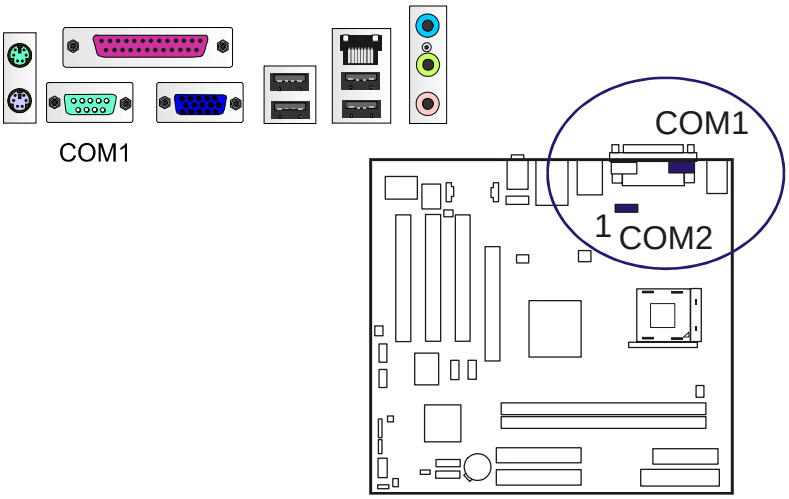


Printer

PIN	DEFINITION
1	STROBE
2 - 9	DATA 0 - 7
10	ACK#
11	BUSY
12	PE
13	SELECT
14	AUTO FEED#
15	ERR#
16	INIT#
17	SLIN#
18-25	GND

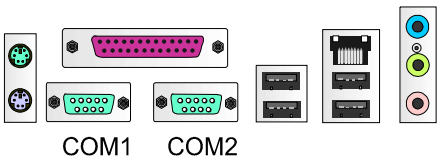
Serial Port Connectors(Chipset-PM800)

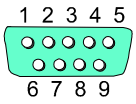
COM1 is teal colored 9-pin D-sub male connector and COM2 is a 9-pin male connector, allowing you to connect with devices that use serial ports, such as a serial mouse or an external modem.



Serial Port Connectors (Chipset-PT800CE)

COM1 and COM2 are both teal colored 9-pin D-sub male connectors, allowing you to connect with devices that use serial ports, such as a serial mouse or an external modem.

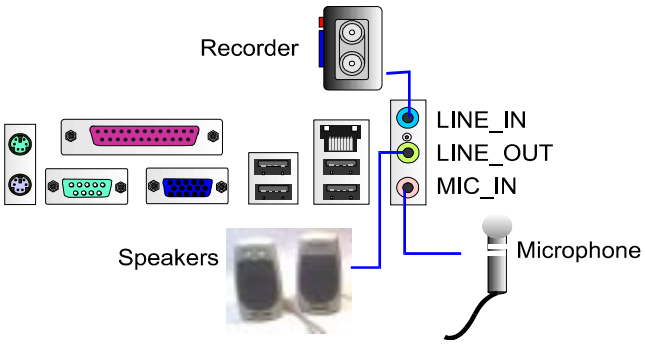




PIN	DEFINITION
1	DCD
2	SIN
3	SOUT
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

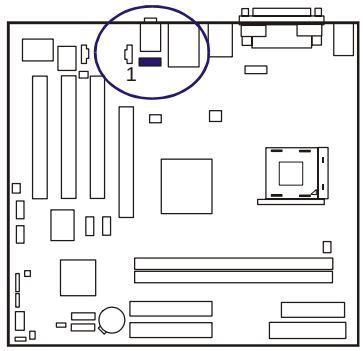
Audio I/O Jacks

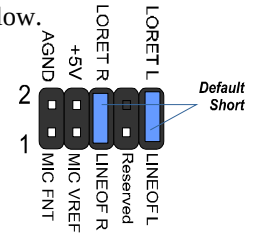
LINE_OUT (lime) can be connected to headphones or preferably powered speakers. LINE_IN (light blue) allows tape players or other audio sources to be recorded by your computer or played through the LINE_OUT. MIC_IN (pink) allows microphones to be connected for audio input.



Front Audio Connector

The mainboard has a front panel audio, F_AUDIO, connector (Intel spec.). It allows you to attach an audio device via the front panel (instead of rear panel) by a ribbon cable. Its pin definitions are presented below.

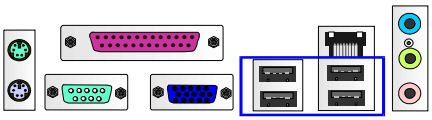




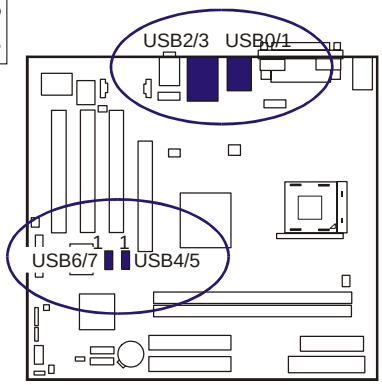
NOTE: If you do not use F_AUDIO, please keep the pinpair 5-6, 9-10 short as default; also, when the front headphone is plugged in, the rear audio output will be disabled.

Universal Serial Bus Connectors

The mainboard has eight USB ports; four USB black jacks that are integrated on the edge of the board, and four other USB ports (pinheaders) on the board. They allow users to attach to USB devices either from the rear or front panels. Please note that your operating system must support USB 1.1/2.0 features.



The figure at right shows the pin assignments of the USB4/5. Those of USB6/7 are similar.



USB4/5