HARDWARE: GET READY!

Introduction

This chapter is a step-by-step guide that explains how to use your **CP810-F1 / CP810E-F1** motherboard to build a powerful computer system. At a minimum, you will need the following components in order to build a fully functioning system.

- Computer case with ATX power supply
- Intel PPGA Celeron processor
- One SDRAM memory module
- One floppy disk drive
- One Ultra DMA 33/66 IDE hard disk drive
- One CD-ROM drive
- One display monitor
- One PS/2 mouse
- One PS/2 keyboard
- One set of loudspeakers

Of course you can use the system I/O ports and expansion slots to add many more features and components to your system than the essential items listed above.

Safety Measures

Computer components and electronic circuit boards can be damaged by discharges of static electricity. Working on computers that are still connected to a power supply can be extremely dangerous. Follow the simple guidelines below to avoid damage to your computer or yourself.

- Always disconnect the motherboard from the ATX power supply, and disconnect the computer from the power outlet whenever you are working inside the computer case.

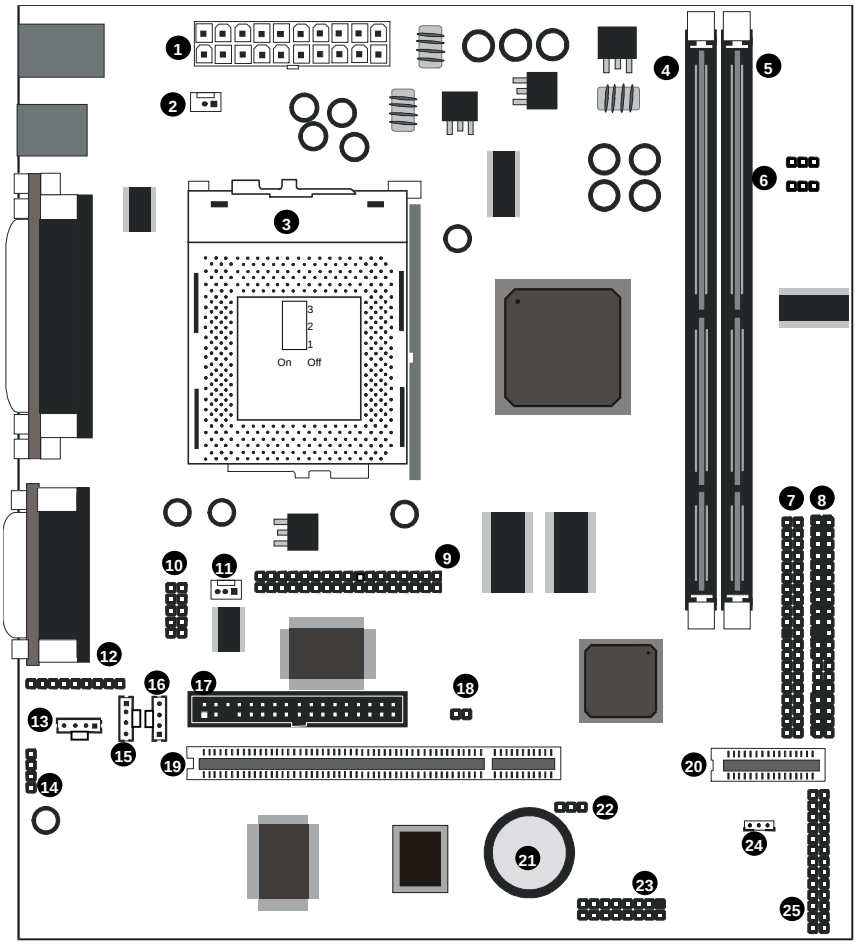
- If possible, wear a grounded wrist strap when you are installing the motherboard or working inside the computer case. Alternatively, discharge any static electricity by touching the bare metal chassis of the computer case, or the bare metal body of any other grounded appliance.

- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Don't flex or stress the circuit board.

- Leave all components inside the static-proof packaging that it ships with until you are ready to use the component for the installation.

Motherboard Layout

Use the following illustration and key to identify the major components on the motherboard.



Note: *Because of optional items and design changes, your motherboard may not be identical to the one shown in the illustration.*

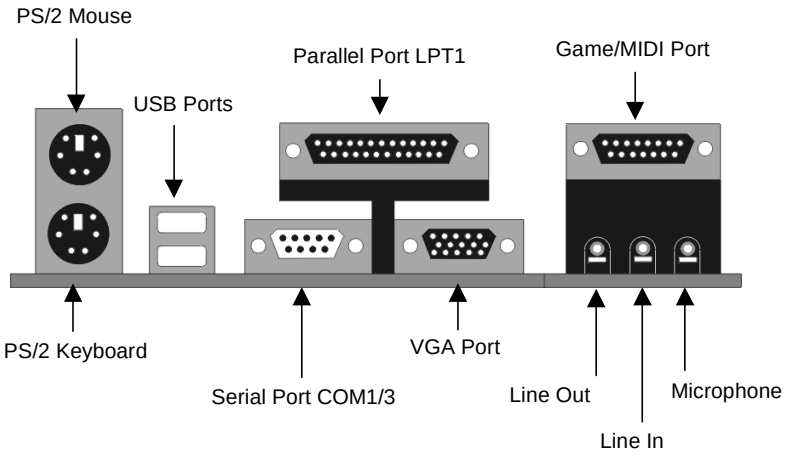
Key to Motherboard Components

Use the table below to identify the main components on the motherboard illustration.

No.	Name	Function	
1	J9	Connector for ATX power supply cable	
2	FAN1	12V power connector for CPU cooling fan	
3	U10	Socket-370 for PPGA Celeron processor	
4	DIMM1	Two slots for memory modules	
5	DIMM2		
6	J18,J19	Select system bus frequency jumper	
7	J12	Secondary UDMA 33/66 IDE channel connector	
8	J13	Primary UDMA 33/66 IDE channel connector	
9	JP3	Connector for TV or Digital Flat Panel display	
10	COM2	Connector for second serial port COM2/4	
11	FAN2	12V power connector for case cooling fan	
12	JP1	External audio connector	
13	CD-IN	Audio-in connector for CD-ROM/DVD drive	
14	TAD	Audio-in connector for voice modem card	
15	TV IN	Audio-in connector for TV tuner card	
16	AUX IN	Audio-in connector for AUX IN	
17	FDD1	Connector for floppy diskette drives	
18	JP5	Connector for Case Open Detect circuit	
19	PCI1	32-bit PCI slot	Plug the riser card into PCI1 and J11
20	J11	Riser connector	
21	BAT1	Backup battery for CMOS memory and realtime clock	
22	JP6	Clear CMOS memory jumper	
23	JP7	Auxiliary USB & PS/2 connector	
24	WOL	Wake on LAN connector	
24	J14	Connectors for case front panel switches and indicators	
25	J20	Choose Joshua and Coppermine CPU.	

Input/Output Ports

Like most ATX motherboards, this board is installed with a two-tier row of I/O ports. The illustration below shows a side-on view of the I/O ports.



I/O Port Color Coding

The industry has adopted a standard color code to identify many of the I/O ports used in today's systems.

Connector	Color
Analog VGA	Blue
Audio line in	Light blue
Audio line out	Lime
Digital monitor / flat panel	White
IEEE 1394	Grey
Microphone	Pink
MIDI/Game	Gold
Parallel	Burgundy
PS/2 compatible keyboard	Purple
PS/2 compatible mouse	Green
Serial	Teal or Turquoise
Speaker out / subwoofer	Orange
Right-to-left speaker	Brown
USB	Black
Video out	Yellow
SCSI, network, telephone, modem, and so on	None

Pre-Installation Procedure

Before you install your motherboard into a computer case, it's convenient to install the processor, install the memory modules, and set all the jumpers to the correct settings.

Install the Processor

Choosing a Processor

This motherboard has a Socket-370 that can only be installed with an Intel PPGA (Plastic Pin Grid Array) Celeron Processor. Take care that you don't purchase a SEPP (Single Edge Processor Package) Celeron. Also don't try to install a socket-7 processor that is similar in design and appearance to the PPGA Celeron.

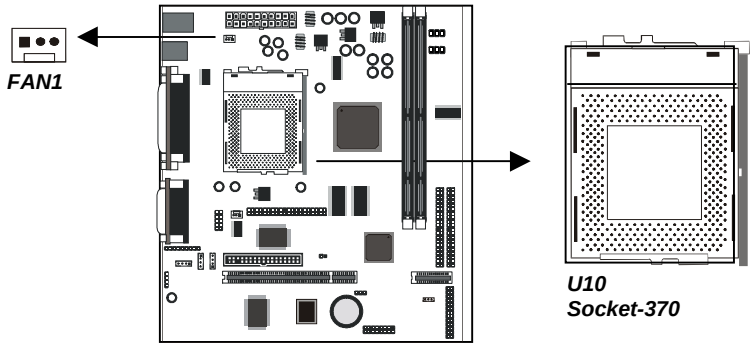
PPGA Celerons have shipped with clock speeds operating over a 66/100 MHz front side bus. All current Celerons are supported by this motherboard. The faster the clock speed of the Celeron processor, the better the performance of your system.

Make sure that your processor includes a heatsink/cooling fan assembly. Today's high-speed processors must be cooled in order to ensure reliable operation.

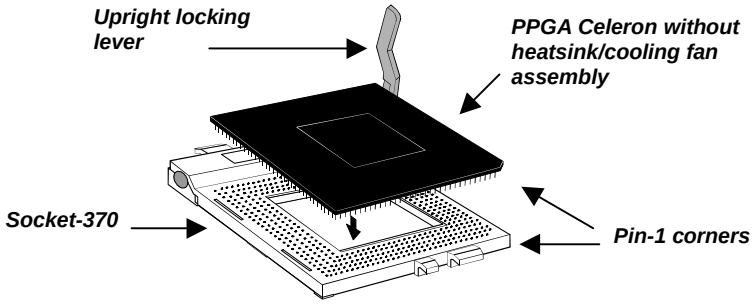
We strongly recommend that you don't try to run your processor faster than its rated speed. Overclocking can introduce reliability errors and the excess heat generated can damage components.

Installation Procedure

1. On the motherboard, identify the U10 Socket-370 and the cooling fan power supply connector FAN1.



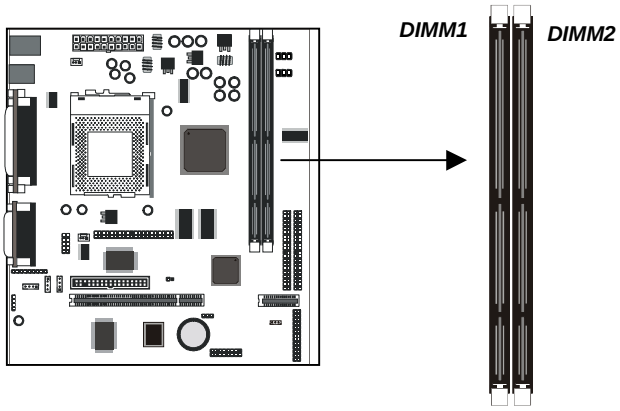
2. Identify the pin-1 corner of the Socket-370. The pin one corner is on the same side as the locking lever, as shown in the illustration below.
3. Identify the pin-1 corner of the Celeron processor. The pin-1 corner on the Celeron has a beveled edge.
4. Pull the locking lever of the Socket-370 away from the socket to unlatch it, and then swing the lever into the upright position.
5. Matching the pin-1 corners, drop the processor into the Socket-370. The processor should drop into place without any force. If it doesn't seat properly, check that you have the pin-1 corners in the correct position.



6. Swing the locking lever down to lock the processor in place and latch the lever under the catch on the side of the socket.
7. Plug the cable from the heatsink/cooling fan assembly into the processor cooling fan power supply FAN1.
8. Configuration of the processor is carried out using the system setup utility as described in chapter three. Configure the processor the first time you turn on the assembled computer.

Install Memory Modules

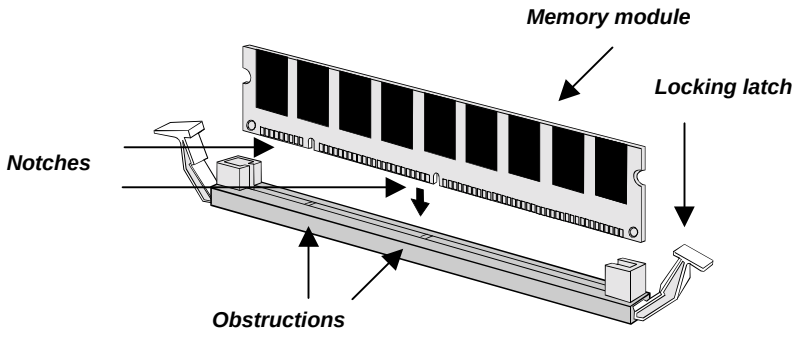
This motherboard has two DIMM (Dual In-line Memory Modules) slots for the installation of memory modules. The memory modules must use 3.3V SDRAM memory chips. This board will support memory modules that use ECC (Error Correction Code) error checking.



We recommend that you install PC-100 modules or faster speed for best performance.

You can install one or two modules. If you install just one module, it makes no difference if you install it in DIMM1 or DIMM2. Each memory module can carry a maximum of 256 MB memory so total maximum memory is 512 MB.

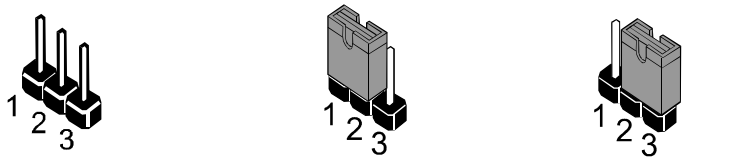
1. On the motherboard, locate the two DIMM slots.
2. Pull the locking latches of the DIMM slot outwards.
3. Align the memory module correctly. The edge connector of the memory module has notches that match obstructions in the slot. You must match the notches with the obstructions in order to install the module.



4. Press the edge connector of the memory module into the slot. Press down quite firmly so that the locking latches of the DIMM slot are levered upwards to secure the memory module in place.
5. Repeat the process with any other memory modules that you want to install.

Set the Jumpers

This motherboard has jumpers that need to be set correctly. Jumpers are sets of two, three, or more pins. You can use a jumper cap to connect two adjacent pins. When a jumper cap connects two pins, we say that the pins are SHORT. If you remove a jumper cap from two pins, we say that the pins are OPEN. The examples and illustrations below show the different positions of a jumper cap on a typical 3-pin jumper. By changing the jumper cap, you change the circuits of the motherboard and enable or disable certain features or properties of the board.

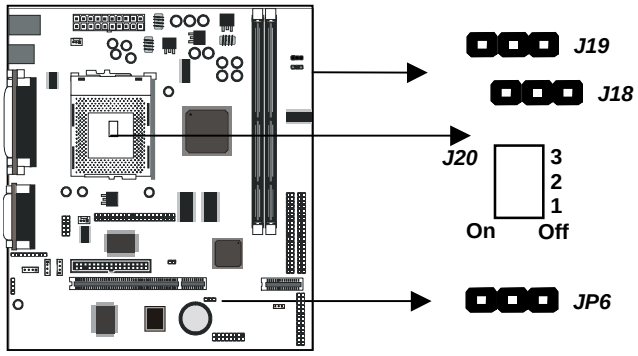


3-pin jumper with no jumper cap

3-pin jumper with pins 1-2 SHORT

3-pin jumper with pins 2-3 SHORT

Locate the jumpers on the motherboard.

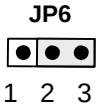


Note: *Default settings are shaded gray in the tables below*

JP6: Clear CMOS memory jumper

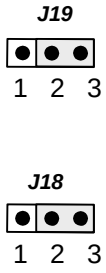
Use this 3-pin jumper to clear all the data stored in the CMOS memory.

Function	Jumper Cap
Clear CMOS	Short pins 1-2
Normal operation	Short pins 2-3



J18, J19: Set System Bus Frequency

	J18	*J19*	*Function*
det →	1-2	1-2	Auto
	2-3	2-3	66MHz
	2-3	Open	102MHz
	Open	Open	133MHz



J20:

1	2	3	
On	On	Off	Copper Mine ← det
Off	Off	On	Joshua

Install the Motherboard in a Computer Case

After you have prepared the motherboard by installing a processor, one or more memory modules, and have set the jumpers correctly, install the board into a computer case and begin connecting essential peripheral items to the connectors on the motherboard.

Choosing a Computer Case

This is a micro-ATX motherboard. It must be installed in a case that uses an ATX power supply. Some small-footprint cases are specially designed for flex-ATX motherboards.

Make sure that the computer case has a two-tier I/O template on the rear side that matches the two-tier I/O port array on this board. This board has one PCI slot that can be installed with a vertically-mounted PCI card. If you have a flex-ATX case which supports horizontal expansion slots, you can install the supplied riser card into the PCI slot so that you the have PCI slots and one AMR slot both horizontally mounted.

This board can support two floppy diskette drives and four IDE devices, so you might want to choose a case that allows you to install a full complement of six devices. Make sure that the case power supply unit has enough capacity to power all the drives that you plan to install.

Follow the instructions given with the computer case to install the board onto the mounting brackets inside the case. The motherboard has several holes drilled through it, and you should be able to drive a screw through some of these holes into the mounting brackets in the case. Don’t overtighten the screws as this can stress the motherboard.

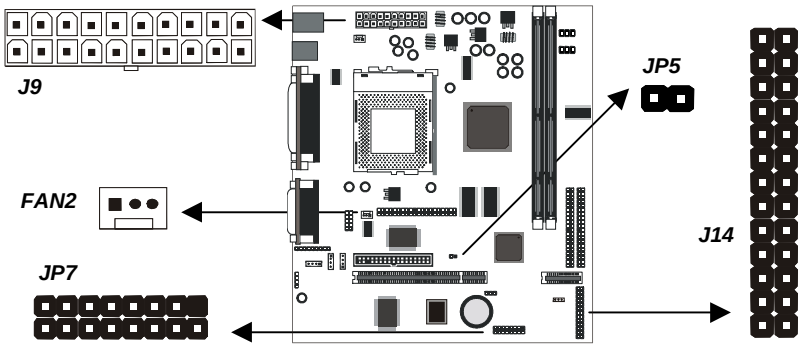
Connecting the Case Components

Most computer cases include a power supply unit, power and reset switches and indicators, and frequently a chassis cooling fan. Some cases also have a case open detect alarm.

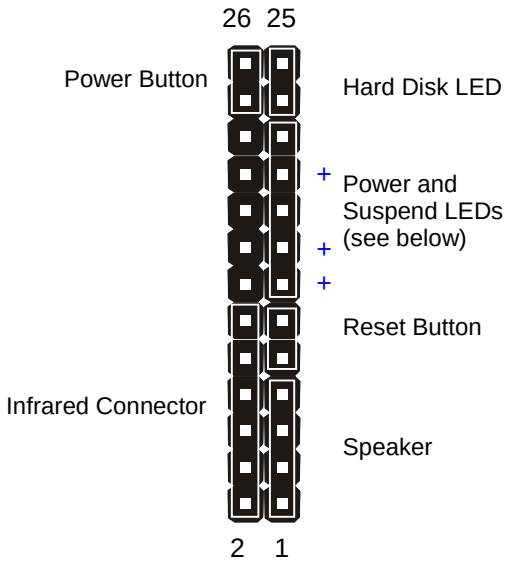
This motherboard has PS/2 and USB ports installed on the rear edge I/O port array. However, some kinds of computer case have a special module that mounts the PS/2 and USB ports on the front side of the case. If you have this kind of case, you can use the auxiliary USB & PS/2 connector JP7 to connect the front-mounted ports to the motherboard. When you use the JP7 connector, you can use either the front-mounted PS/2 ports or the rear-mounted PS/2 ports, but not both. You can use both the front and rear-mounted USB ports at the same time.

Note: *Make sure that the power supply unit in the case is not connected to a power outlet while you are carrying out the installation procedure.*

1. On the motherboard, locate the power connector J9, the switches and indicators connector J14, the chassis cooling fan power connector FAN2, the case open detect connector JP5, and the auxiliary USB and PS/2 ports connector JP7.



2. Plug the main power supply cable from the case power supply unit into the J9 ATX connector on the motherboard.
3. If your computer case has a chassis cooling fan, plug the power cable of the cooling fan into the cooling fan power connector FAN2
4. If your computer has a module with PS/2 and USB ports, connect the cable from the module to the auxiliary PS/2 and USB ports connector JP7. Note that if you use the JP7 connector you can use either the front-mounted PS/2 ports or the rear-mounted PS/2 port, but not both. You can use both the front and rear-mounted USB ports at the same time.
5. If your case has a "case open detect' alarm, connect the cable from the alarm to the case open detect connector JP5.
6. Locate the J14 switches and indicators connector on the motherboard. Begin connecting the case switches and indicators to the appropriate pins on the J14 connector. Use the illustration and tables below to make the correct connections.



Note: *If you short the pins 1-3 on J14, you can use the onboard buzzer and the speaker function is disabled.*

Connecting Power and Suspend LEDs

One 3-pin cable with dual colors for Power & Suspend LEDs (*2)	Connect to pins 15-17-19
One 3-pin cable with single color for Power LED only (*1)	Connect to pins 15-17-19
One 2-pin cable for Power LED & one 2-pin cable for Suspend LED (*1)(*2)	Connect Power to pins 15-17 Connect Suspend to pins 19-21
One 3-pin cable for Power LED & one 2-pin cable for Suspend LED (*1)(*2)	Connect Power to pins 13-15-17 Connect Suspend to pins 19-21

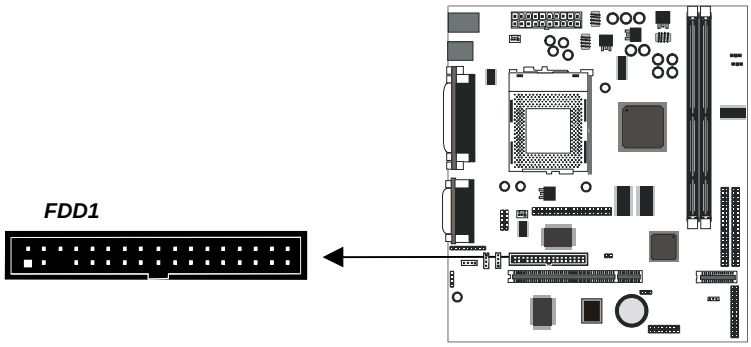
Note: *1 BIOS Menu Setting "Power LED State" selects " Always On", the others should have "Suspend Off" selected.
*****2 BIOS Menu Setting "Suspend LED State" selects "Always On", the others should have "Pulse Trigger" selected.

Floppy Diskette Drive

The motherboard has a floppy diskette drive interface that will support one or two floppy disk drives. The floppy diskette drive ribbon cable has connectors for two 3.5" wide diskette drives.

Note: *The pin-1 side of the floppy diskette drive ribbon cable is marked with a red stripe.*

1. Install the floppy diskette drive into a suitable drive bay in your computer case.



2. Locate the floppy diskette drive connector on the motherboard. The connector is named FDD1. Plug one end of the floppy diskette drive ribbon cable into FDD1. Plug one of the other connectors into the data connector on the rear edge of the floppy diskette drive.
3. Plug a free power supply cable from the case power supply unit into the power connector on the rear edge of the floppy diskette drive.
4. When you start up your assembled computer, the floppy diskette drive will be identified as drive A. If you have installed two drives on the cable, they will be identified as drives A and B.
5. Run the setup utility to configure the floppy diskette drives. See the following chapter for more information.

IDE Devices

The motherboard has two IDE channel connectors; the Primary IDE channel (J13), and the Secondary IDE channel (J12). Each IDE channel can support two devices. IDE devices include hard disk drives, CD-ROM drives, and removable media drives such as ZIP drives and LS-120 drives.

Typically, most people install one IDE hard disk drive and one IDE CD-ROM drive so this motherboard ships with one IDE cable. You can easily obtain a second IDE cable if you want to install more than two IDE devices.

Note: *The pin-1 side of the IDE ribbon cable is marked with a red stripe.*

Master & Slave

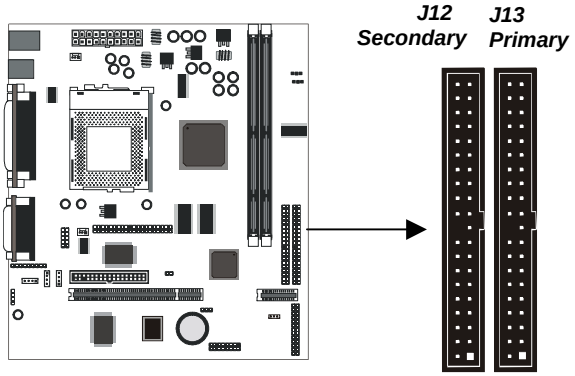
When you install two devices on a single IDE channel, you must configure one of the devices as a MASTER device and one of the devices as a SLAVE device. These configurations have no effect on performance and are just a naming convention so that your computer system can distinguish between the two devices on the same channel.

All IDE devices have documentation that tells you how to set the device as MASTER or SLAVE. Normally you do this by changing a jumper on the rear edge of the device. If you are installing two devices on the IDE

ribbon cable, configure one device as MASTER and one device as SLAVE before you begin.

Installing the Device

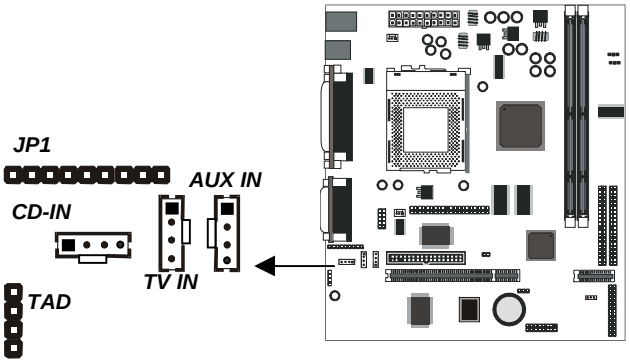
1. Install the IDE device(s) into a suitable drive bay in your computer case.
2. Locate the Primary IDE channel connector on the motherboard. The connector is named J13. Plug one end of the IDE cable into J13. Plug one of the other connectors into the data connector on the rear edge of the IDE device. If you are installing two devices, plug the other connector into the data connector on the rear edge of the second device.



3. Plug a free power supply cable from the case power supply unit into the power connector on the rear edge of the IDE device(s).
4. When you start up your assembled computer, an IDE hard disk drive on the primary IDE channel is identified as drive C. A second IDE drive on the primary IDE channel is identified as drive D.
5. Run the setup utility to configure the installed IDE devices. The setup utility can automatically configure most IDE devices, See the following chapter for more information.
6. If you have installed a CD-ROM (or DVD) drive, you need to connect the audio output of the drive to the sound system integrated on the motherboard. This procedure is explained in the following section Audio Connections.

Audio Connections

You can connect the audio output from your CD-ROM (or DVD) drive into one of the audio input connectors on the motherboard. The board has four kinds of audio input connector for different devices.



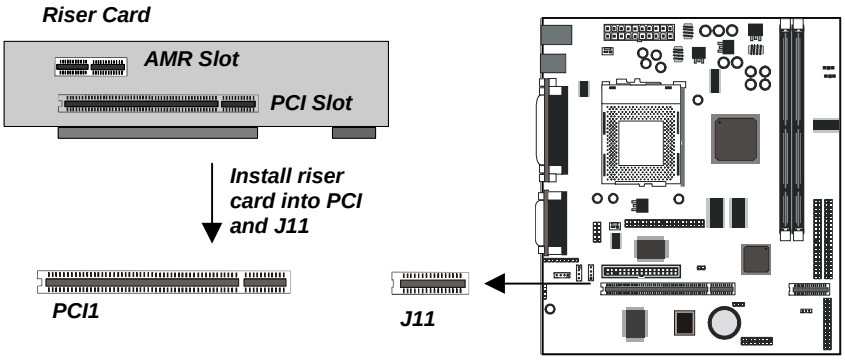
Use either J5 or AUX IN to connect the audio output from a CD-ROM or DVD drive.
Use TV IN to connect the audio output from a TV tuner card/
Use TAD to connect the voice output from a voice modem card.

JP1 Auxiliary Audio Connector

On this motherboard, the sound jacks for Line-in, Line-out, and Microphone are located on the rear edge of the board. On some computer cases, the audio jacks are pre-installed in the system chassis. If you have this kind of computer case, connect the case audio jacks to the auxiliary audio connector JP1. Note that you can use either set of audio jacks at the same time.

Installing Expansion Cards

This motherboard has one 32-bit PCI slots and an extension slot J11. You can use the PCI slot as a regular slot and install it with a PCI card in the vertical position (if your case requires vertically mounted cards. You can install the supplied riser card into the PCI slot and J11. The riser card is installed with PCI slots and one AMR slot. You can then install a PCI card and an AMR card into the slots in the horizontal position (if your case requires horizontally mounted cards).



- The AMR (Audio Modem Riser) slot supports an Audio Modem Riser Card. The AMR slot is designed to overcome the problem that different territories have different regulatory requirements for a fax/modem. You can use the AMR slot to easily install an Audio Modem Riser card that is approved for use in your location.
- The PCI slot supports current add-in cards which have a 32-bit PCI (Peripheral Components Interconnect) edge connector.

Note: To ensure your system's stability, please verify that the PCI add-in cards you are using support ACPI Power Management functions. If they do not support ACPI, do not enter S3 or S4 suspend mode.

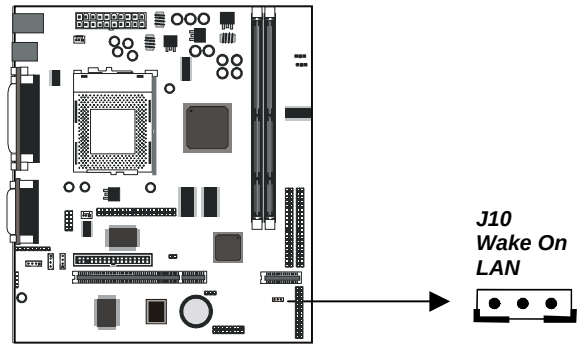
Locate the expansion slots on the motherboard or on the riser card

1. Select which slot you plan to use according to the kind of add-in card you are going to install.

2. In the computer case, remove the blanking plate from the opening in the case adjacent to the slot you are going to use.
3. Hold the edge connector of the add-in card directly over the slot that you are going to use. The metal bracket on one edge of the add-in card fits into the opening from which you removed the blanking plate.
4. Carefully press the card down so that the edge connector installs into the expansion slot. You might need to rock the card slightly to make sure that the edge connector is seated properly into the slot.
5. Drive a screw through the metal bracket on the edge of the card to secure it in place. The opening in the case has a screw available on the top of the opening.

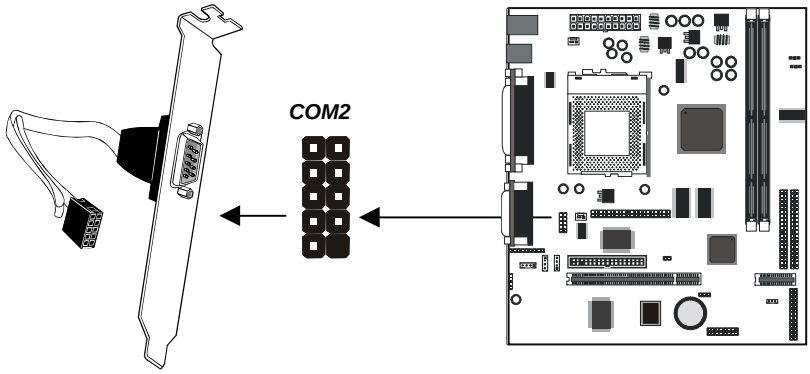
Add-in Card Options

This motherboard has a Wake On LAN feature. If you have installed a network (LAN) adapter expansion card, you can connect the card to the Wake On LAN connector J10. If your system is in a software power down or a power-saving mode, incoming traffic to the network adapter can resume the system. You might have to enable this feature using the system setup utility. See the following chapter for more information.



Optional Second Serial Port

This motherboard is installed with a serial port (COM1/3) on the rear edge of the board. You might want to install a second serial port (COM2/4) using the supplied serial port bracket. If you install this option, connect the cable from the second serial port to the serial port connector COM2 on the motherboard.



Note: *A second serial port may require system resources that are also required by an optional infrared port or even a fax/modem. If you install a second serial port, you may not be able to use it at the same time as an infrared port or a fax/modem. You may be able to resolve the resource sharing problem by making changes to the system setup utility or by making configuration changes with the Device Manager of the installed operating system.*

TV or Digital Flat Panel Connector

This motherboard has an analog (VGA) display monitor connector on the rear edge. However, your motherboard supports an alternative video output to a TV or digital flat panel which is optional through the JP3 connector on the board. If you want to use this option, you can connect a bracket with digital video connectors to JP3.