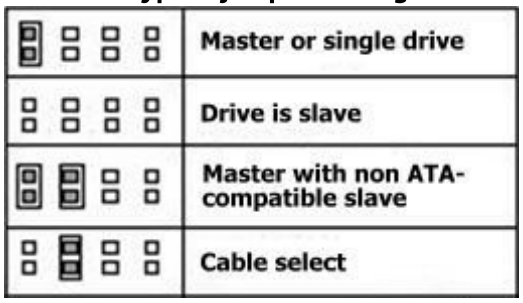
Installing the Hard Drive: first steps

Next you'll want to make sure you're ready to install a drive into the computer. You need to have a place to put the drive, and a way to secure it inside the machine. Your computer should have a metal cage in which the hard drive can be installed. It's in a different spot on each machine, so if you're having troubles finding it the best thing to do is go to the manufacturer's web page, and try to find a manual for the computer.

Once you know where the hard drive goes, you'll need to figure out how you can place it in the cage securely. It's very important that the drive doesn't just sit freely within the cage, because shocks to the drive from being knocked around can damage it irreparably. Some computers use rails to secure the hard drive in place which vary from machine to machine. Others use screws. If you can't figure out how to secure the drive in place, it's best to look at the manufacturer's web page for more information. Or try searching online.

You need to know if you are installing a primary drive or a secondary drive. If your computer doesn't have a hard drive and you want to install one to put the operating system on, or if you want to replace the existing drive it will be a primary drive. If you are adding a second drive for extra storage it will be a secondary drive.

typical jumper settings



ALWAYS TURN YOUR COMPUTER OFF AND REMOVE THE PLUG FIRST!

BIOS settings

The BIOS settings give you the ability to change how the motherboard deals with each drive. For example you can enable or disable certain ports, or you can make it so that the computer will always boot from the hard drive first, and then the optical (DVD) drive(s). How you get into the BIOS and the setup is going to vary from computer to computer, but you should see instructions as soon as you turn on the computer. In general you will see a screen which will flash something like "F2 for BIOS" or "F10 for Setup". As soon as this flashes you'll want to hit the key it indicates. The most common ones are Delete, F2 or F10. If you can't figure it out, try checking the manufacturer's website.

Once you get into the BIOS you'll be able to change settings easily, but how you change them and where they are located is different for each BIOS. It's usually best to spend some time looking through all of the menu options. Each BIOS will tell you how to change things or when menus are expandable.

Installing a SATA Drive

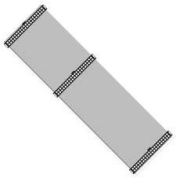
SATA drives are fairly easy to connect. Once the drive is securely locked in place, all you'll need to do is connect it to the motherboard and the power supply. You should have at least two SATA connectors on your motherboard each of which will be numbered. It doesn't really matter which one you plug the drive into, but you will want to make note of the number because it will help you if you need to make changes to the BIOS settings. Second you'll need to connect the drive to your power supply. You should have a flat black female version of the connector on the drive available on your power supply. However if you don't there are converters from molex to SATA. Some SATA hard drives have connections for molex power as well, and it's okay to use those.

Now you're ready to turn on the computer and get started setting up the hard drive for use!

Installing a Primary IDE Drive

Before you physically install a IDE hard drive you'll want to make sure that it is jumpered correctly. You want ot make sure the drive is set as master. Look at the drive itself, either on the top, or the side above where the pin connectors are. There should be a diagram which will tell you how to set the jumper (a little plastic piece which connects two pins) to set the drive as master, slave, or cable select. Usually these options are abbreviated as follows: master - MS, slave - SL, cable select - CS.

Since this is the first and primary drive you'll want to set it as master. The cable select option means the ribbon cable attaching the drive to the motherboard will detect whether the drive is master or slave. Unfortunately you must have a special type of cable to take advantage of this option, so unless you are sure you have that type it is best to stick with using the master setting. You can easily move the jumper to the proper setting using a pair of needle nose pliers.



ribbon cable

Now that you've done all that, you can put the hard drive in place. Once it's secure you'll want to attach the ribbon cable. If the ribbon cable has a total of three connections you'll want to make sure you pick the topmost one for a master drive. Most will be marked with a 1 and then a 2 near each connection so that you know which is which, but it should be fairly apparent. When attaching the cable to the motherboard you'll want to verify which IDE port you are using. On the motherboard each port should be labeled as IDE 0 or 1. This information can be useful if you need to change the settings in the BIOS. Finally, you'll want to attach the power connections to each drive from the power supply.

Now you're ready to turn on the computer and get started setting up the hard drive for use!

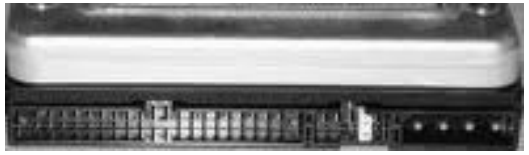
Installing a Secondary IDE Drive

First determine is if the hard drive is set as a master or slave drive. Look at the drive itself, either on the top, or the side above where the pin connectors are. There should be a diagram which will tell you how to set the jumper (a little plastic piece which connects two pins) to set the drive as master, slave, or cable select. Usually these options are abbreviated as follows: master - MS, slave - SL, cable select - CS. The drive which was already installed should be set to master, but you may want to double check to be sure.

The secondary drive which you are now installing should be set to slave. The cable select option means the ribbon cable attaching the drive to the motherboard will detect whether the drive is master or slave. Unfortunately you must have a special type of cable to take advantage of this option, so unless you are sure you have that type it is best to stick with using the slave setting. You can easily move the jumper to the proper setting using your fingers or a pair of needle nose pliers.

Now that you've done all that, you can put the hard drive in place. Once it's secure you'll want to attach the ribbon cable to first the master drive, and then the slave. Most ribbon cables will be marked with a 1 and then a 2 near each connection so that you know which is which, but it should be fairly apparent. When attaching the cable to the motherboard you'll want to verify which IDE port you are using. On the motherboard each port should be labeled as IDE 0 or 1. This information can be useful if you need to change the settings in the BIOS. Finally, you'll want to attach the power connections to each drive from the power supply.

Now you're ready to turn on the computer and get started setting up the hard drive for use!



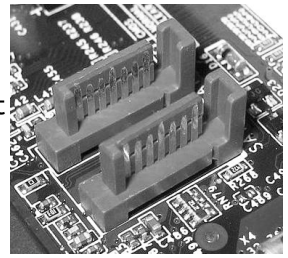
ide hard drive connectors

What sort of Hard Drive Do You Need?

There are two main types of hard drives, IDE and SATA. Some computers will support both, and some will support only one type. The way to tell them apart is by looking at the connectors on the hard drive or the motherboard. IDE connectors have two rows of 20 pins. SATA drives have smal L shaped connectors that are normally red or black. Some motherboards support both types.

ide motherboard connectors

If you are installing this as a primary drive (the one that holds the operating system) and you have both types of connectors its up to you to decide what type you want. Sata drives are newer and more efficient . They tend to have more space and are easier to set up. You might find IDE drives cheaper. If you are installing a secondary drive, as extra storage, go with what is already installed.



sata- connectors

If you are installing a secondary drive you will need to check for space. Most computers will have a metal enclosure which holds the hard drive in place. If there is space for another hard drive it may be as simple as screwing a second one in on top or below the existing one. Some systems use hard drive rails which attach to the drive. You can use the ones which are already installed to find another pair. You can buy them online or sometimes at Free Geek's Thrift Store.

sata hard drive connectors

How to install a Hard Drive