Setting Up Your Power Macintosh G3

Includes setup and expansion information for
Power Macintosh G3
and Macintosh Server G3 computers

Contents

Communications Regulation Information

FCC Compliance Statement

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. See instructions if interference to radio or television reception is suspected.

Radio and Television Interference

The equipment described in this manual generates, uses, and can radiate radio-frequency energy. If it is not installed and used properly—that is, in strict accordance with Apple's instructions—it may cause interference with radio and television reception.

This equipment has been tested and found to comply with the limits for a Class B digital device in accordance with the specifications in Part 15 of FCC rules. These specifications are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

You can determine whether your computer system is causing interference by turning it off. If the interference stops, it was probably caused by the computer or one of the peripheral devices.

If your computer system does cause interference to radio or television reception, try to correct the interference by using one or more of the following measures:

- Turn the television or radio antenna until the interference stops.
- Move the computer to one side or the other of the television or radio.
- Move the computer farther away from the television or radio.
- Plug the computer into an outlet that is on a different circuit from the television or radio. (That is, make certain the computer and the television or radio are on circuits controlled by different circuit breakers or fuses.)

If necessary, consult an Apple-authorized service provider or Apple. See the service and support information that came with your Apple product. Or, consult an experienced radio/television technician for additional suggestions.

Important Changes or modifications to this product not authorized by Apple Computer, Inc., could void the FCC Compliance and negate your authority to operate the product.

This product was tested for FCC compliance under conditions that included the use of Apple peripheral devices and Apple shielded cables and connectors between system components. It is important that you use Apple peripheral devices and shielded cables and connectors between system components to reduce the possibility of causing interference to radios, television sets, and other electronic devices. You can obtain Apple peripheral devices and the proper shielded cables and connectors through an Apple-authorized dealer. For non-Apple peripheral devices, contact the manufacturer or dealer for assistance.

Responsible party (contact for FCC matters only): Robert Steinfeld, Apple Computer, Inc., 1 Infinite Loop, Cupertino, CA 95014-2084, 408-974-2618.

Industry Canada Statement

This Class B device meets all requirements of the Canadian interference-causing equipment regulations.

Cet appareil numérique de la Classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

情報処理装置等電波障害自主規制について

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラス B 情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。

取扱説明書に従って正しい取り扱いをして下さい。

Laser Information

Warning Making adjustments or performing procedures other than those specified in your equipment's manual may result in hazardous radiation exposure.

Do not attempt to disassemble the cabinet containing the laser. The laser beam used in this product is harmful to the eyes. The use of optical instruments, such as magnifying lenses, with this product increases the potential hazard to your eyes. For your safety, have this equipment serviced only by an Apple-authorized service provider.

If you have an internal Apple CD-ROM drive in your computer, your computer is a Class 1 laser product. The Class 1 label, located in a user-accessible area, indicates that the drive meets minimum safety requirements. A service warning label is located in a service-accessible area. The labels on your product may differ slightly from the ones shown here.
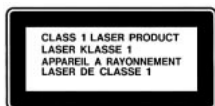
Class 1 label
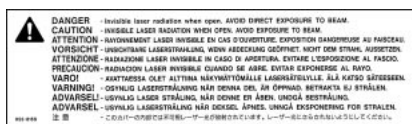
Service warning label

Telephone and Modem Information

Your computer may contain an optional internal modem. Some telephone companies require that you notify the local business office when you hook up a modem to their lines.

Information You Need in the United States

The internal modem complies with Part 68 of the FCC rules. On the back of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN). If requested, provide this information to your telephone company.

- *Ringer equivalence number (REN):* 0.8 The REN is useful to determine the quantity of devices you may connect to your telephone lines and still have all those devices ring when your telephone number is called. In most, but not all areas, the sum of the RENs of all devices connected to one line should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the REN, you should contact your local telephone company to determine the maximum REN for your calling area.

- *Telephone jack type: USOC, RJ-11* An FCC-compliant telephone cord and modular plug are provided with this equipment. This equipment is designed to be connected to the telephone network or premises wiring using a compatible modular jack that complies with Part 68 rules. See the installation instructions for details.

Telephone Line Problems

If your telephone doesn't work, there may be a problem with your telephone line. Disconnect the modem to see if the problem goes away. If it doesn't, report the problem either to your local telephone company or to your company's telecommunications people.

If disconnecting the modem eliminates the problem, the modem itself may need service. See the service and support information that came with your Apple product for instructions on how to contact Apple or an Apple-authorized service provider for assistance.

If you do not disconnect your modem when it is adversely affecting the telephone line, the telephone company has the right to disconnect your service temporarily until you correct the problem. The telephone company will notify you as soon as possible. Also, you will be informed of your right to file a complaint with the FCC.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of your equipment. If this happens, the telephone company will provide advance notice in order for you to make the necessary modifications to maintain uninterrupted service.

The internal modem will not work with party lines, cannot be connected to a coin-operated telephone, and may not work with a private branch exchange (PBX).

Telephone Consumer Protection Act

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via a telephone fax machine unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it was sent and an identification of the business or other entity, or individual sending the message and the telephone number of the sending machine of such business, entity, or individual.

Information You Need in Canada

The Industry Canada (IC) label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. The Department does not guarantee the equipment will operate to a user's satisfaction.

Before installing this equipment, make sure that you are permitted to connect to the facilities of the local telecommunications company. Be sure you use an acceptable method of connection to install the equipment. In some cases, you may extend the company's internal wiring for single-line individual service by means of a certified telephone extension cord. Be aware, however, that compliance with these conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any equipment malfunctions or repairs or alterations that you make to this equipment may cause the telecommunications company to request that you disconnect the equipment.

In Canada, contact Apple at: 7495 Birchmount Road, Markham, Ontario, L3R 5G2, 800-263-3394

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Warning Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority or electrician.

■ *Load number:* 0.3 The load number (LN) assigned to each terminal device denotes the percentage of the total load to be connected to the telephone loop that is used by the device, to prevent overloading. The termination of a loop may consist of any combination of devices, subject only to the requirement that the sum of the load numbers of all devices does not exceed 100.

■ *Telephone jack type:* CA-11

Informations destinées aux utilisateurs canadiens

L'étiquette d'Industrie Canada identifie un matériel homologué. Cette étiquette certifie que le matériel est conforme à certaines normes de protection, d'exploitation et de sécurité des réseaux de télécommunications. Le Ministère n'assure toutefois pas que le matériel fonctionnera à la satisfaction de l'utilisateur.

Avant d'installer ce matériel, l'utilisateur doit s'assurer qu'il est permis de le raccorder au réseau de l'entreprise locale de télécommunication. Le matériel doit également être installé en suivant une méthode acceptée de raccordement. Dans certains cas, le câblage appartenant à l'entreprise utilisé pour un service individuel à ligne unique peut être prolongé au moyen d'un dispositif homologué de raccordement (cordon prolongateur téléphonique).

L'abonné ne doit pas oublier qu'il est possible que la conformité aux conditions énoncées ci-dessus n'empêche pas la dégradation du service dans certaines situations. De fait, les entreprises de télécommunication ne permettent pas que l'on raccorde un matériel aux prises d'abonnés, sauf dans les cas précis prévus par les tarifs particuliers de ces entreprises.

Les réparations de matériel homologué doivent être effectuées par un centre d'entretien canadien autorisé désigné par le fournisseur. La compagnie de télécommunications peut demander à l'utilisateur de débrancher un appareil suite à des réparations ou à des modifications effectuées par l'utilisateur ou en raison d'un mauvais fonctionnement.

Veuillez contacter Apple pour des informations supplémentaires:

Apple Canada, Inc.
7495 Birchmount Road
Markham, Ontario
Canada L3R 5G2
Service à la clientèle d'Apple Canada: 800-263-3394

Pour sa propre protection, l'utilisateur doit s'assurer que tous les fils de mise à la terre du secteur, des lignes téléphoniques et les canalisations d'eau métalliques, s'il y en a, soient raccordés ensemble. Cette précaution est particulièrement importante dans les régions rurales.

Avertissement L'utilisateur ne doit pas tenter de faire ces raccordements lui-même; il doit avoir recours à un service d'inspection des installations électriques ou à un électricien, selon le cas.

- *Numéro de charge:* 0,3 L'indice de charge (IC) assigné à chaque dispositif terminal indique, pour éviter toute surcharge, le pourcentage de la charge totale qui sera raccordée à un circuit téléphonique bouclé utilisé par ce dispositif. La terminaison du circuit bouclé peut être constituée de n'importe quelle combinaison de dispositifs pourvu que la somme des indices de charge de l'ensemble des dispositifs ne dépasse pas 100.
- *Type de prise téléphonique:* CA-11

Information You Need in the United Kingdom

This terminal equipment is intended for direct connection to the analogue Public Switched Telecommunications Network and is approved for use within the United Kingdom with the following features:

- Modem facility
- Autocalling facility
- Autoanswer facility
- DTMF signaling
- Operation in the absence of proceed indication or upon detection of proceed indication

This product is in conformity with relevant regulatory standards following the provisions of European Council Directives 73/23/EEC (Low Voltage Directive) and 89/336/EEC amended by 92/31/EEC (EMC Directive).

Information You Need in Germany

Diese Modem-Karte ist als Endeinrichtung vorgesehen und muss an ein TAE mit F-Kodierung angeschlossen werden.

Diese Endeinrichtung ist in Konformität gemäss Niederspannungsrichtlinie 73 / 23 / EWG sowie EMC-Richtlinien 89 / 336 / EWG und 92 / 31 / EWG.

Information You Need in France

Ce matériel est conforme aux normes applicables de sécurité éléctrique d'après la directive 73 / 23 / CEE et aux normes applicables de comptabilité éléctromagnétique d'après la directive 89 / 336 / CEE, modifié par la directive 92 / 31 / CEE.

Information You Need in Australia

All telecommunications devices are required to be labelled as complying to the Australian telecommunications standards, ensuring the health and safety of the operator and the integrity of the Australian telecommunications network. To provide compliance with the Australian Communications Authority's technical standards, please ensure that the following AT commands are maintained:

- ATB0 (ITU/CCITT operation)
- AT&G0 (no guard tone)
- AT&P1 (33/66 pulse dial make/break ratio)
- ATS0 = 0 or ATS0 = 1 (no answer or answer greater than one ring)
- ATS6 = 95 (DTMF period between 70–255 ms)
- ATS11 = 95 (DTMF period between 70–255 ms)

For calls that are automatically generated, a total of three call attempts are allowed to a telephone number, with a minimum period between calls of 2 seconds. If the call does not connect after three attempts, 30 minutes must expire before automatic redialing may be initiated. Failure to set the modem (and any associated communications software) to the above settings may result in the modem being non-compliant with Australian telecommunications standards. Under these circumstances a user could be subject to significant penalties under the Telecommunications Act 1997.

Warning This card must be properly secured in order for you to use it. Telecommunications network voltages exist inside the computer and the telecommunications line connection must be removed before opening the computer.

Information You Need in New Zealand

This modem is fully approved to operate on the New Zealand telecommunications network under Telepermit number PTC 211/98/119. All telecommunications devices are required to hold a Telepermit and be labelled accordingly with the approved Telepermit number to comply with the New Zealand telecommunications standards, ensuring the health and safety of the operator and the integrity of the New Zealand telecommunications network.

Note: Customers in New Zealand who are prompted to choose a country for their modem should choose the "Australia" country code setting.

To ensure compliance, all calls that are automatically generated should not make more than 10 call attempts to the same number within any 30 minute period with a minimum period between calls of 30 seconds. Failure to adhere to these standards may result in the modem being non-compliant with New Zealand Telecom standards. Under these circumstances a user could be subject to significant penalties.

Important If pulse dialing is required for any reason, the communications software must be set up to record numbers according to the following translation list.

- Number to be dialed: 0; number to be entered into computer: 0
- Number to be dialed: 1; number to be entered into computer: 9
- Number to be dialed: 2; number to be entered into computer: 8
- Number to be dialed: 3; number to be entered into computer: 7
- Number to be dialed: 4; number to be entered into computer: 6
- Number to be dialed: 5; number to be entered into computer: 5
- Number to be dialed: 6; number to be entered into computer: 4
- Number to be dialed: 7; number to be entered into computer: 3
- Number to be dialed: 8; number to be entered into computer: 2
- Number to be dialed: 9; number to be entered into computer: 1
- Number to be dialed: 0; number to be entered into computer: 0

The preferred method of dialing is to use DTMF tones as this is faster than pulse (decadic) dialing and is readily available on almost all New Zealand telephone exchanges.

Mouse Information

This product complies with the requirements of European Directives 72/23/EEC and 89/336/EEC.

Complies with the Canadian ICES-003 Class B Specification.

High-Risk Activities Warning

This computer system is not intended for use in the operation of nuclear facilities, aircraft navigation or communications systems, or air traffic control machines, or for any other uses where the failure of the computer system could lead to death, personal injury or severe environmental damage.
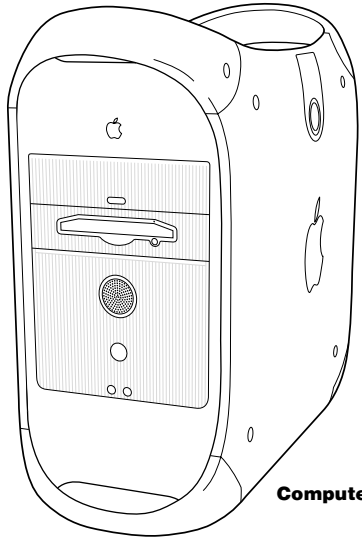
Computer
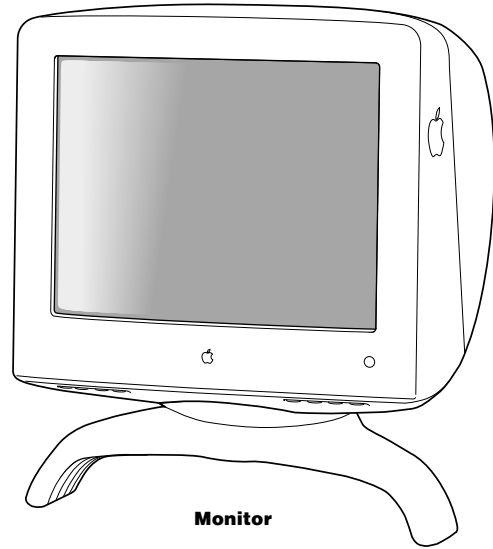
Monitor
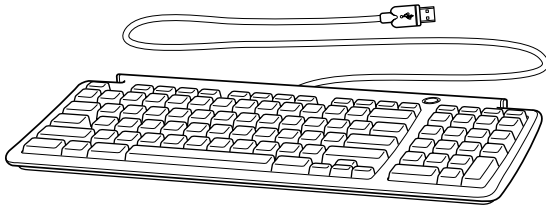
Apple USB keyboard *(optional)*
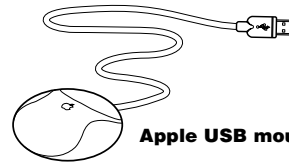
Apple USB mouse

Apple keyboard extension cable *(optional)*
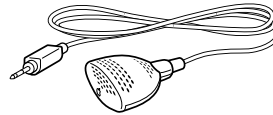
Apple PlainTalk Microphone *(optional)*

Phone cord
(comes with optional internal modem)
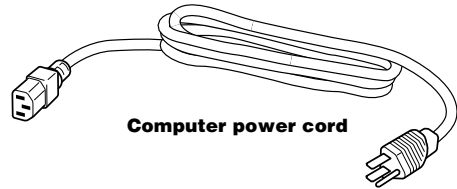
Computer power cord

Mac-to-VGA adapter
(your adapter may look different)
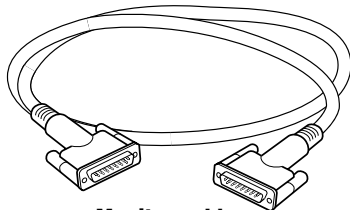
Monitor cable
(sometimes built into the monitor)
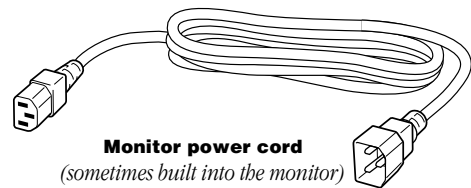
Monitor power cord
(sometimes built into the monitor)

Setting Up

The illustration on the preceding page shows all the equipment you need to set up your computer and begin using it. (The monitor you purchased may look different.)

After you set up and turn on your computer, you can get additional information on ergonomics, health and safety considerations, and maintenance in the electronic documentation included with your computer's software.

If you plan to use your computer as a server or if you want to install additional drives, memory, or PCI cards inside the computer before you set up, turn to Chapter 2, "Working Inside the Computer," on page 33.

Positioning the Computer

You can pick up the computer by any of its handles.

Place the computer on a sturdy, flat surface near a grounded wall outlet. Your computer is designed to be placed on the floor to conserve desk space, but you can place it on any stable, flat surface.

Position the computer so that

- the CD-ROM or DVD-ROM drive tray has space to open in front
- the power cable connector does not press against a wall or other object
- nothing obstructs air flow to the fan in the rear of the computer

Your Computer at a Glance

Microphone
(optional)

CD-ROM or
DVD-ROM drive

≜ CD-ROM or
DVD-ROM drive
Open button

Monitor

Zip drive
(optional)

Speaker

⏻ Power button

Power button/
Power-on light

⊘ Programmer's
button

Apple USB keyboard

Apple USB mouse

◁ Reset button
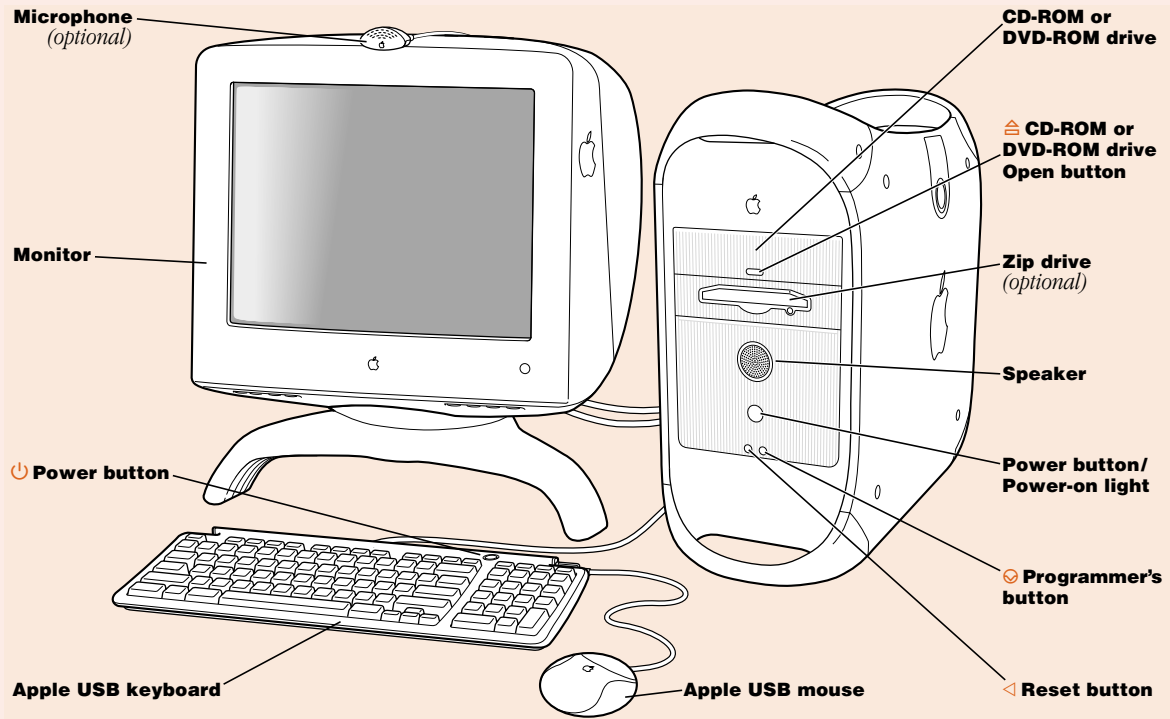
CD-ROM or DVD-ROM drive

A CD-ROM drive works with CD-ROM discs and plays standard audio discs and Photo CDs. A DVD-ROM drive works with the same discs as the CD-ROM drive and with DVD-ROM discs, DVD audio discs, and DVD-Video discs.

⏏ **CD-ROM or DVD-ROM drive Open button**

Opens the drive tray

Zip drive (optional)

Works with Zip disks (If a Zip drive is not installed, an Apple-authorized dealer can install one.)

⏻ **Power button**

Turns your computer on and off if the keyboard's USB cable is attached to the computer

Power-on light

A green light indicates that the computer is on. An amber light indicates the computer is in sleep.

◁ **Reset button**

This button forces the computer to restart. Use the reset button only when you cannot restart your computer with any of the recommended methods.

◐ **Programmer's button**

This button interrupts the normal operation of the computer's software. Only computer programmers should use this button.

Your Computer's Ports and Connectors

FireWire ports (2)

Apple Desktop Bus (ADB) port

Ethernet port (10/100 twisted-pair Ethernet)

USB ports (2)

Sound input port

Sound output port

Lockable cover latch

Internal modem card (optional)

Monitor power socket

Power socket

Monitor port (PCI slot 1)

Access covers for expansion slots (PCI slots 2–4)

Security lock port
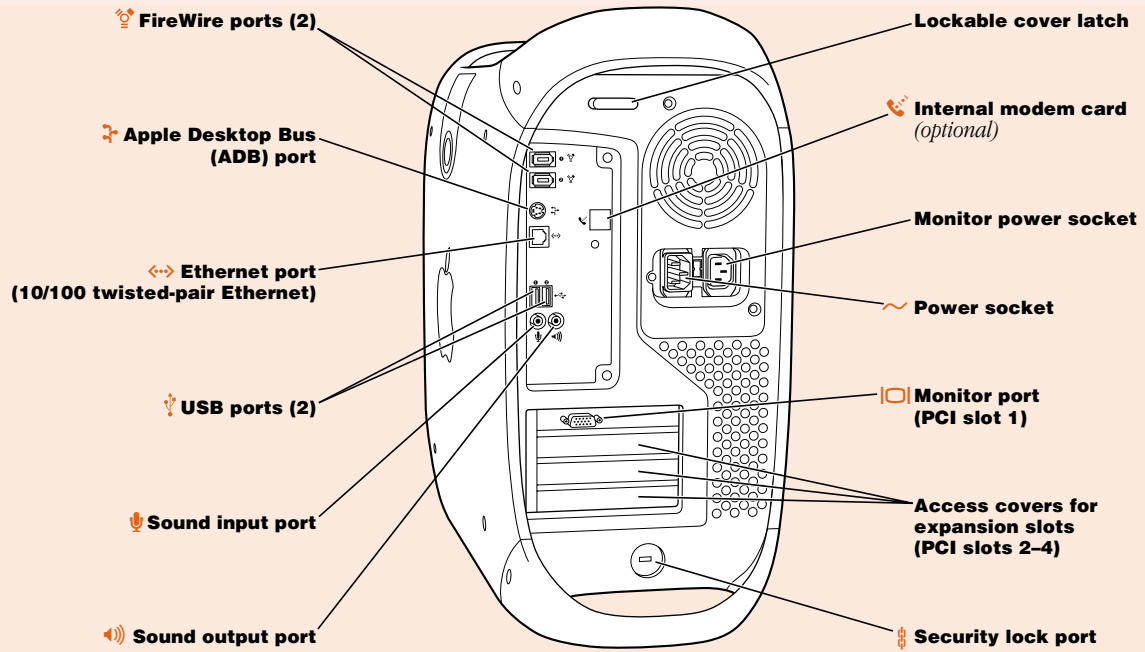
FireWire ports

Connects your Macintosh to FireWire peripheral devices, such as a video camera or a hard disk

Apple Desktop Bus (ADB) port

Connects your Macintosh to an input device, such as a keyboard or a trackball

10/100 twisted-pair Ethernet port

Connects your Macintosh to a high-speed Ethernet network

USB ports

Connects your Macintosh to USB peripheral devices and input devices, such as a printer, a scanner, a hub, a keyboard, or a mouse

Sound input port

Connects your Macintosh to an Apple PlainTalk microphone or other audio input equipment

Sound output port

Connects your Macintosh to headphones, externally powered (amplified) speakers, or other audio output equipment

Lockable cover latch and security lock port

You can attach a security lock to your Macintosh and to its back panel to secure the internal components. See your computer products retailer for security lock devices that work with your computer.

Internal modem card (optional)

Connects a phone cord to the optional internal modem

Monitor power socket

Provides a convenient place to plug in a monitor power cord

Power socket

Connects to the computer's power cord

Monitor port

Connects your Macintosh to a monitor

Access covers for expansion slots (3)

Your Macintosh supports up to four peripheral component interconnect (PCI) cards. In most configurations, a card installed in the slot labeled 1 provides a port for the monitor. The covered slots, labeled 2, 3, and 4, provide additional expansion capability.

Plugging In the Computer

Before you plug your Macintosh into a wall socket, carefully read all the setup instructions in this chapter. Then, before you connect any other equipment, follow the instructions in this section to plug it in. When you are ready to begin, follow these steps:

1 Make sure the voltage switch on the back of the computer is set for the kind of voltage system to which you will be connecting.

Check to see that the voltage switch on the back of your computer is properly set before you plug it in. If you need to change the setting, insert a small screwdriver in this slot and slide the switch.

Set the switch to show "115" for AC voltages in the 100–120 V range. Set the switch to show "230" for AC voltages in the 200–240 V range.
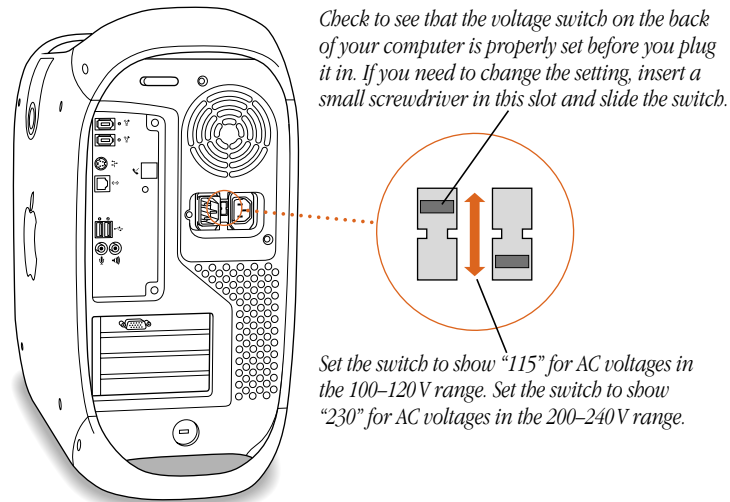
The voltage switch must be set correctly to avoid damaging your computer. An adhesive label showing how to set the voltage may partly cover the voltage switch and power socket. Remove the label. Look at the table "Voltage Switch Settings for Different Locations," next.

Voltage switch settings for different locations

Country	Switch Setting
Bermuda, Canada, Jamaica, Japan, Mexico, Philippines, Puerto Rico, Saudi Arabia, Taiwan, United States, Venezuela	115
Bahrain, Brazil, France, Indonesia, Italy, Lebanon, Peru, South Korea, Spain[1]	115 or 230
Australia, Austria, Bosnia and Herzegovina, Belgium, Chile, China (People's Republic including Hong Kong), Croatia, Czech Republic, Denmark, Egypt, Finland, the Former Yugoslav Republic of Macedonia, Germany, Greece, Greenland, Hungary, Iceland, India, Iran, Israel, Jordan, Kuwait, Liechtenstein, Luxembourg, Malta, Nepal, the Netherlands, New Zealand, Northern Ireland, Norway, Oman, Pakistan, Papua New Guinea, Paraguay, Poland, Portugal, Qatar, Romania, Russia and the Commonwealth of Independent States (CIS), Serbia and Montenegro, Singapore, Slovakia, Slovenia, South Africa, Sweden, Switzerland, United Arab Emirates, United Kingdom, Yemen	230

[1] These countries employ more than one type of power source voltage. Ask your local power provider which switch setting to use for your city or region.

2 Plug one end of the computer's power cord into the recessed power socket marked with the symbol (∿) on the back of the computer.

> **Warning** To prevent electrical shock, fire, or damage to the computer, the power cord must fit completely over the prongs inside the socket.

Power cord socket
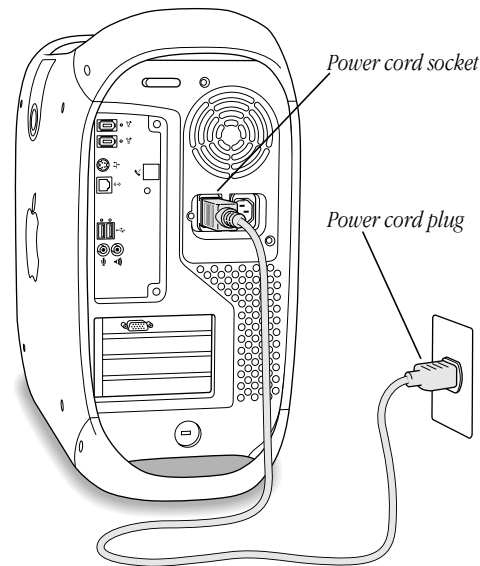
Power cord plug

3 Plug the other end of the power cord into a three-hole grounded outlet or power strip.

The plug grounds the computer and protects it from electrical damage while you set up.

Important Make sure the computer is located near an outlet or power strip and that you can easily reach the plug to disconnect the computer in an emergency. The only way to completely disconnect power from the computer is by unplugging one end of the power cord from the outlet or power strip or from the back of the computer.

> **Warning** This equipment is intended to be electrically grounded. Your Macintosh is equipped with a three-wire grounding plug–a plug that has a third (grounding) pin. This plug will fit only a grounded AC outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact a licensed electrician to replace the outlet with a properly grounded outlet. Do not defeat the purpose of the grounding plug!

Connecting a Monitor

You connect a monitor to the computer's monitor port. Some monitors also require a USB or ADB connection to function fully. For example, some Apple ColorSync monitors must be connected to a USB port. Other monitors, including some Apple ColorSync and AppleVision models, have an ADB cable to connect to the computer's ADB port. (For more information about USB ports and devices, see the electronic documentation that came with your computer.)

Before you connect a monitor to the computer, check the instructions that came with the monitor for additional information. After you set up and turn on your computer, you can get additional information on ergonomics, health and safety considerations, and maintenance in the electronic documentation included with your computer's software.

Important If you are connecting an Apple monitor that has built-in speakers or a microphone, you may need to install monitor software after you have set up and turned on your computer. Otherwise, you may not be able to use all the monitor's features. See the documentation that came with your monitor for more information. After you turn on the computer, you can also check the Read Me file on the computer's hard disk for any additional information regarding the installation of monitor software.

To connect the monitor, follow these steps:

1   Place the monitor near the computer.

> **Warning** The monitor power socket on the back of the computer uses the same voltage level as the electrical outlet to which the computer is connected. To protect your monitor, be sure to use the appropriate adapter or voltage converter, if one is necessary.

2   Connect the monitor power cord to the monitor.

Some monitors already have the cord attached.

3   Plug the power cord into a grounded electrical socket or the back of the computer.

Check the documentation that came with the monitor to find out where to plug it in.

4 Attach the monitor cable to the monitor; then attach the monitor cable to the monitor port on the back of the computer.

Some monitors have the cable attached. Check the monitor's manual for any additional instructions.

■ If you have a monitor with a high-density D-Sub 15 (VGA standard) connector, connect the monitor cable directly to the computer's monitor port.

■ Some Apple monitors have a VGA connector and some have a DB-15 connector. If your monitor has a DB-15 connector, attach the Mac-to-VGA adapter that came with your computer to the computer's monitor port and then attach the monitor cable to the adapter.

Monitor port on the computer

Connector on VGA and some Apple monitor cables (D-Sub 15 connector)

Monitor port on the computer

Mac-to-VGA adapter (your adapter may look different)

Connector on some Apple monitor cables (DB-15 connector)
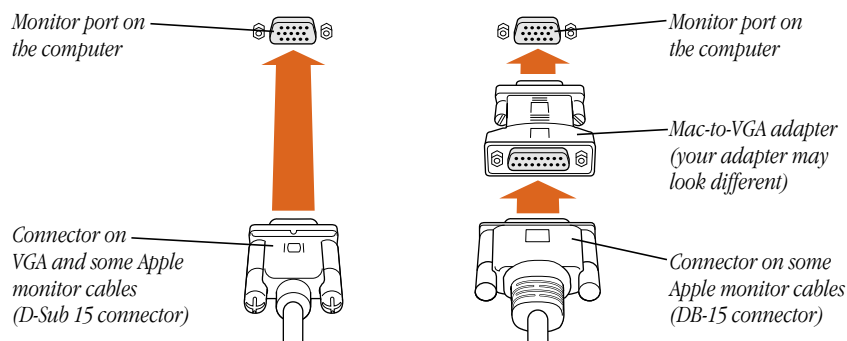
5 Connect any additional cables from the monitor to the computer.

If your monitor is an Apple ColorSync monitor, connect its ADB cable to the ADB port on the back of the Macintosh.

Note: To function fully, an Apple ColorSync monitor must have an ADB connection to the computer.

If you use a USB monitor, connect its USB cable to one of the Type A USB ports on the back of the computer or to an available USB port on a device you attach later.

Note: Check the information that came with your monitor to see if it requires a connection to a full-power USB port, such as one on the back of the computer or on a self-powered hub.

ADB port   USB ports   Monitor power socket

|◻| Monitor port   Monitor power cord   Monitor cable
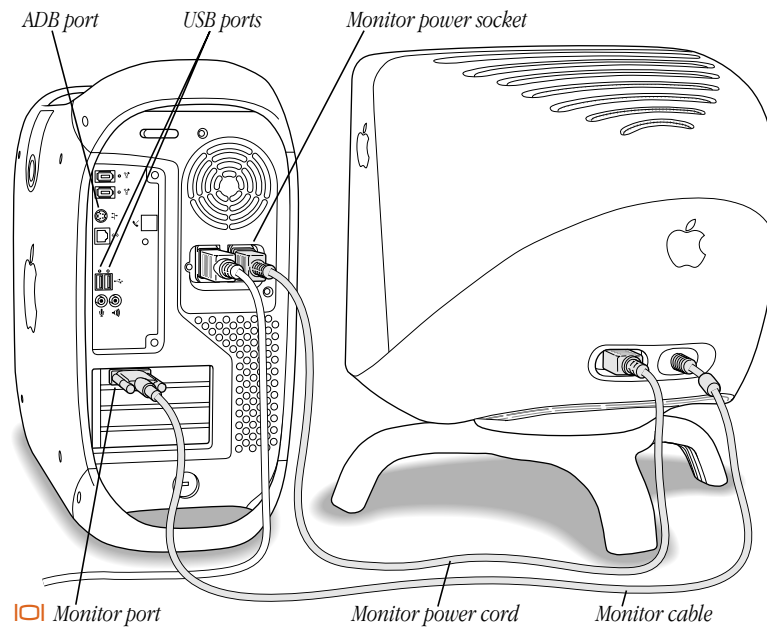
Connecting the Mouse and the Keyboard to the Computer

The Macintosh has ports that allow you to connect a USB or ADB keyboard and mouse. The next section contains instructions for connecting the optional Apple USB keyboard and mouse to your computer. (For more information about USB devices and connections, see the electronic documentation that came with your computer.) If you want to use an ADB keyboard and mouse, skip to the next section.

Connecting the Apple USB Keyboard and Mouse to the Computer

The Apple USB keyboard has two USB ports. If you plug the mouse into one of the ports, you can connect a USB device that's self-powered or low-powered, such as a joystick, to the other port.

1 Connect the optional keyboard extension cable that came with the computer to the end of the cable built into the Apple USB keyboard.

You can skip this step if you have the computer set up on a desk or table and can work comfortably without the extension cable.

Plug this end into the keyboard cable.

Plug this end into the USB port on the back of the computer.
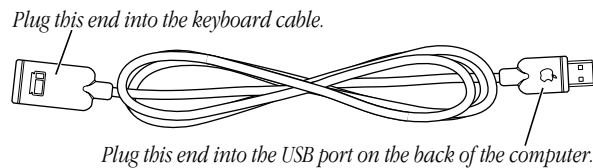
2 Plug the keyboard cable into one of the USB ports ( ) on the back of the computer.

Plugging the keyboard cable directly into one of the computer's USB ports allows you to use the power ( ) button on the keyboard to turn the computer on and off. If you plug the keyboard cable into a USB port on a monitor or another device, the power button won't do this.

If you're using a USB monitor, check the documentation that came with it to learn if the monitor works as a self-powered or bus-powered USB hub, and what devices you can connect to it.

3 Plug the Apple USB mouse cable into one of the ports on the Apple USB keyboard.

You can plug the mouse into a USB port on a monitor or other device, but it's best to plug it into a port on the Apple USB keyboard.

Plug in the mouse on the side where it's comfortable for you.

USB ports on keyboard (2)

Apple USB keyboard   *Apple USB mouse*

*Parts of your computer may
be covered by clear plastic film
that protected it during shipment.
You can remove the film.*
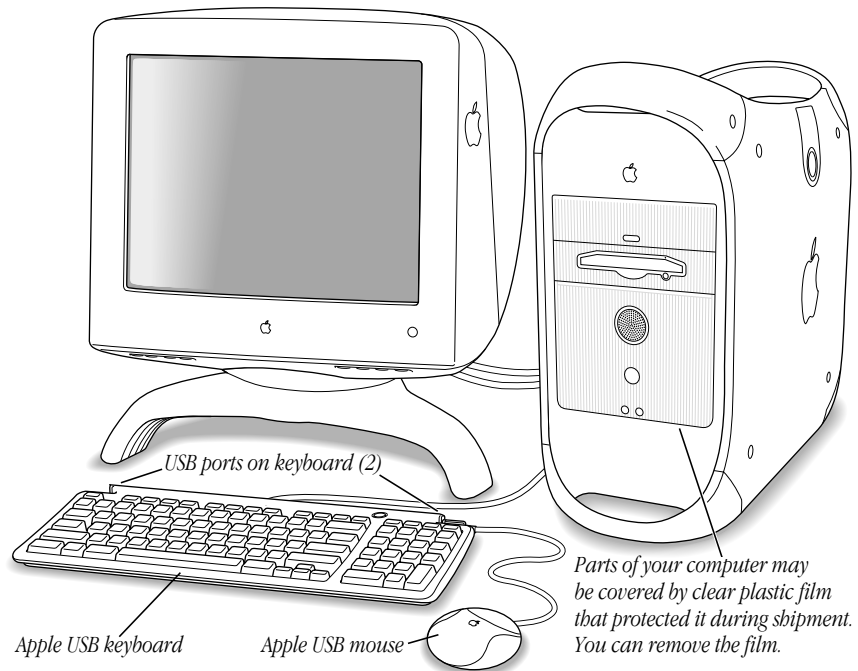
4   If you wish, raise the keyboard by lifting it and flipping the foot toward the back.

The Apple USB keyboard can be tilted slightly up or can lie flat.
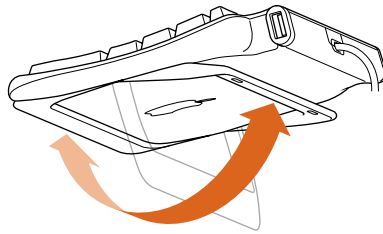
Make sure the foot locks into place.

For information about cleaning and maintenance of the keyboard and mouse, see the electronic documentation that came with your computer.

Connecting an ADB Mouse and Keyboard to the Computer

If you want to use an ADB mouse and keyboard, follow these steps:

1 Plug one end of the keyboard cable into one of the ADB (✛) ports on the keyboard.

If your keyboard has a built-in cable, skip this step.

Align the icons on the port and the plug before you insert the plug.

2 Plug the keyboard cable into the ADB (✛) port on the back of the computer.

If you're using an AppleVision or ColorSync monitor, plug the keyboard into an ADB (✛) port on the monitor.

3 Plug the ADB mouse cable into an ADB port on the keyboard.

If your keyboard has two ADB ports, plug in the mouse on the side where it's most comfortable for you.

4 Adjust the keyboard for your comfort.

Some keyboards have controls you can use to change the angle.

Connecting a Modem

Some Macintosh models come with an internal modem. If your computer did not come with an internal modem and you want to work online, you can connect an external USB modem.

Important Make sure you connect the modem to an analog phone line–the kind typically used in homes. The modem will not work with a digital phone line.

To connect the internal modem: Use the phone cord that came in the box with the computer.

Plug one end of the phone cord into the modem port on the back of the computer and the other end into the telephone jack in the wall.

Modem port
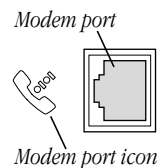
Modem port icon

Note: Make sure to connect the phone cord connector (RJ-11) to the modem port and not to the Ethernet port, which accepts a similar connector (RJ-45) that is slightly larger.

To connect an external USB modem: Use a USB cable to connect the modem to a free USB port on the keyboard, computer, USB monitor, or USB hub.

Check the documentation accompanying the modem to see if it needs to be plugged into a power outlet. Also look for instructions about installing modem software and connecting the modem to a telephone line.

> **Warning** Disconnect your modem from the phone jack during lightning or thunder storms. This will prevent a destructive voltage overload from damaging the modem.

More information about the optional internal modem is available in the electronic documentation that came with your computer.

Connecting to an Ethernet Network

The computer comes with a built-in 10/100 twisted-pair Ethernet port, which extends your computer's features by giving you access to the services and resources provided on a 10 megabit (Mbit) or 100 Mbit Ethernet network. Your computer alone lets you store, retrieve, and modify information on hard disks, removable media disks, and CD-ROM or DVD-ROM discs. On a network, you can also store and retrieve information on other computers, access information that other people have stored for you, use electronic mail, share resources such as printers and modems, and access the Internet, if the network has a link to it. (Access to the Internet over a network may be noticeably faster than access with a modem.)

If you're connecting to an existing network, you may be able to get information about the network and the software you need to use it from the specialist—referred to as the "network administrator"—who oversees its operation. Identify your organization's network administrator before you begin.

Note: When connecting to a 100Base-TX network, use category 5 twisted-pair cable. When connecting with a 10Base-T network, you can use category 3 or category 5 twisted-pair cable.

For more information about using your computer on a network or setting up a network, see the electronic documentation that came with your computer.

Connecting to a 10/100 twisted-pair Ethernet network

You can connect directly to a 10/100 twisted-pair Ethernet network before or after you start up the computer.

You can also connect your computer to an Ethernet network that uses thin coaxial cables. To do this, you need an RJ-45–to–Thin Coax repeater from a manufacturer other than Apple.

See your Apple-authorized dealer for more information on Apple Ethernet media adapters.

To connect your Macintosh to a centralized 10/100 twisted-pair network, follow these steps:

1 Plug one end of an RJ-45 twisted-pair cable into the Ethernet port on your Macintosh.

2 Plug the other end of the cord into an RJ-45 wall outlet or external hub that is connected to a twisted-pair Ethernet network.

*Ethernet port
(10/100 twisted-pair
Ethernet)*   *RJ-45 wall plate*   *10/100 Ethernet hub*

10/100 twisted-pair Ethernet cable
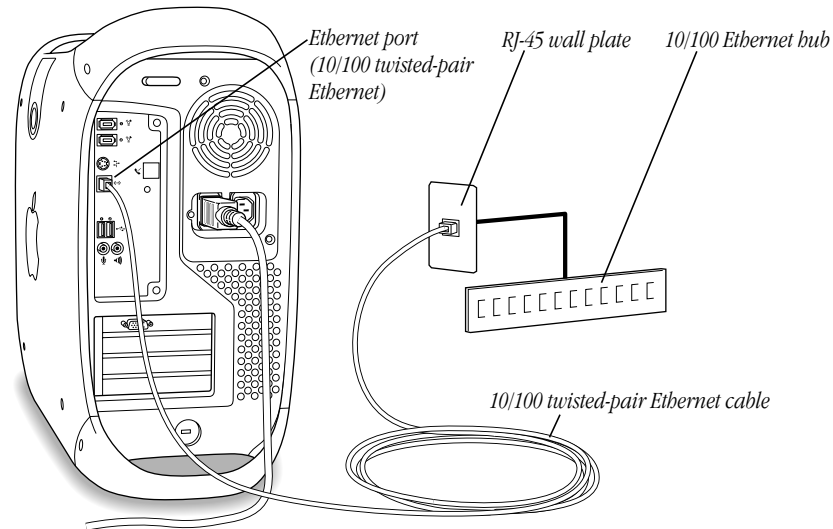
Note: The cable length from your computer's Ethernet port to a network hub should not exceed 100 meters. Check with your network administrator if you have a question about the cable length from your computer to the network hub.

After you start up the computer, you need to configure the software for your network connection. Your network administrator can provide the necessary information. You can also get help configuring your network software using the electronic documentation that came with your computer.

Turning the Computer On

To turn your computer on for the first time, follow these steps:

1 Turn on the monitor.

See the information that came with your monitor for the location of the power switch. On newer Apple monitors, the power switch is located on the front.

The power indicator light may not come on until you turn on the computer in the next step.

Note: Some monitors turn on automatically when you start up the computer and turn off automatically when you shut the computer down. You turn other monitors on or off separately.

2 Press the power button (⏻) on the Apple USB keyboard or the Power key (◁) on an ADB keyboard.

You can also press the power button (⏻) on the front of the computer.

Note: The Apple USB keyboard power button works only if the keyboard is connected to one of the computer's built-in USB ports.

Keyboard power button

Computer power button
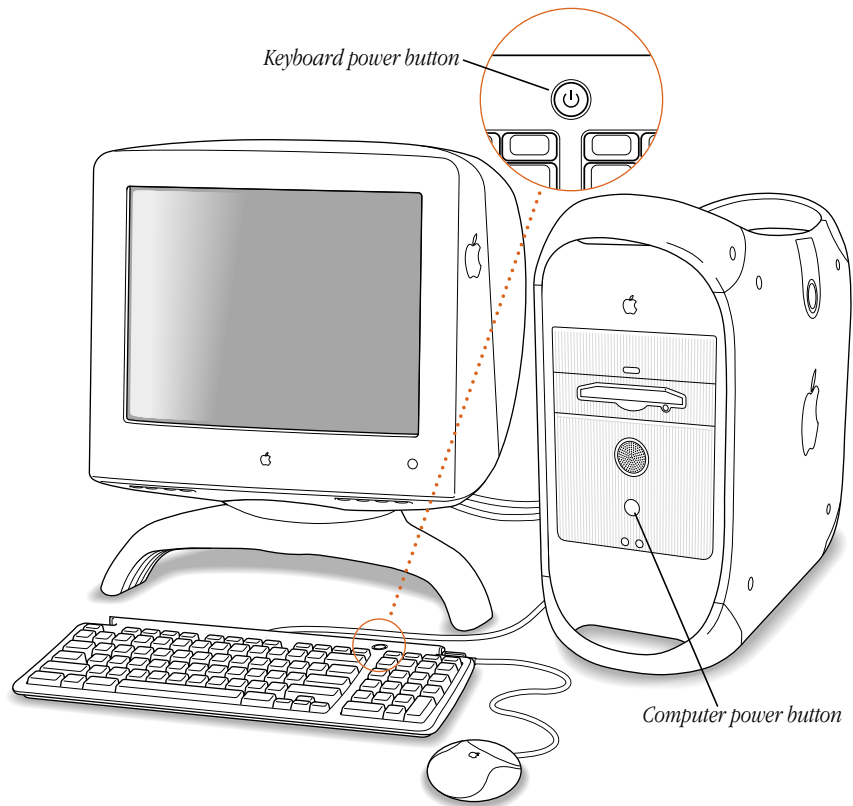
You may hear a sound from the computer as it starts up.

You won't hear a sound if you have the sound turned off, if you have headphones plugged into the computer's sound output port, if you have external speakers plugged into the sound output port and their volume is turned down, or if you have a monitor with speakers plugged into it.

Problems Turning Your Computer On?

If after a few moments you don't see anything on your screen or you think your computer did not start up properly, check these items to see if you can identify the problem:

- Is the computer plugged into a power source? If it is plugged into a power strip, is the power strip turned on?
- Are the keyboard cables connected correctly?
- If you're using an Apple ColorSync monitor, is the monitor's ADB or USB cable connected properly to the computer?

  Warning Don't connect or disconnect an ADB cable while the computer is on. You could damage your equipment. If a loose ADB connection is the problem, turn off the computer by pressing its front panel power button.

- Do you see the green power-on light on the front panel of the computer?
- Is the monitor power cord plugged in?
- Is the monitor cable attached firmly to the monitor port (IOI) on your computer and to the monitor?
- Is the monitor turned on? (Check the power-on light on the front of the monitor.)
- Is the brightness control on the monitor adjusted correctly? On most monitors, the brightness control is marked with the symbol (☼). Many monitors also have a reset button that could help (see the monitor instruction manual).
- Is the computer in sleep? An amber light in the center of the computer's front panel means that the computer is in "sleep," a low power mode designed to save energy. To wake the computer, press any key on the keyboard. It may take a moment or two for the computer to wake up. (For more information about setting your computer's sleep settings, see the electronic documentation that came with your computer.)
- If you see a blinking question mark on the monitor screen or hear a series of beeps when you turn on the computer, see the troubleshooting handbook that came with your computer for help.

What's Next?

- For information about installing additional drives, memory, or PCI cards, or changing the computer's battery, see Chapter 2, "Working Inside the Computer," on page 33.
- If you want to turn off the computer, go to the next section, "Turning the Computer Off."
- If you want to use your computer as a server without a monitor attached, go to the section "Using the Computer as a Server Without a Monitor" on page 31.
- For more information about using the computer's hardware, see the electronic documentation that came with your computer.

Turning the Computer Off

1 Open the Special menu and choose Shut Down.

If your keyboard is connected directly to one of the computer's USB ports, you can also press the keyboard's power button (⏻). On an ADB keyboard, you can also press the Power key (◁).

A message asks if you want to shut down your computer.
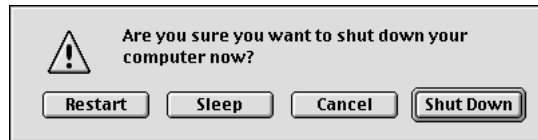
2 Press the Return key or click Shut Down on the screen.

If any applications are still open, a message asks if you want to save your work before the computer shuts down.

Important Do not use the switch on a power strip to turn the computer off unless you can't turn it off with the power button or the Shut Down command. Your files or system software could be damaged if your computer is not shut down properly.

Also, the only way to completely disconnect power from the computer is by unplugging one end of the power cord from the outlet or power strip or from the back of the computer.

If you have problems turning the computer on or off, see the troubleshooting handbook that came with your computer for more information.

Using the Computer as a Server Without a Monitor

You can use software such as the Apple Network Assistant to run your server remotely from another computer. Follow these steps:

1 Follow all the steps described earlier to set up your server, including connecting a monitor, mouse, and keyboard.

2 Configure your server software.

Be sure network services are operating properly.

3 Turn off the server, then disconnect the monitor.

4 Turn on the server.

Follow the instructions that came with your remote access software for logging in to and controlling the server.

Securing the Computer

To deter theft of your computer and its components, you can attach a locking cable to your computer. The back panel has a built-in port for a locking cable, and the computer cover has a lockable latch that prevents the computer from being opened.

When the lockable cover latch is pulled out, the computer's side panel cannot be opened.

You can pass a security cable or padlock through this opening in the cover latch to keep it in its locked position.

Security lock port
Your computer products retailer has security lock devices that fit this port and can secure your computer to your workspace.
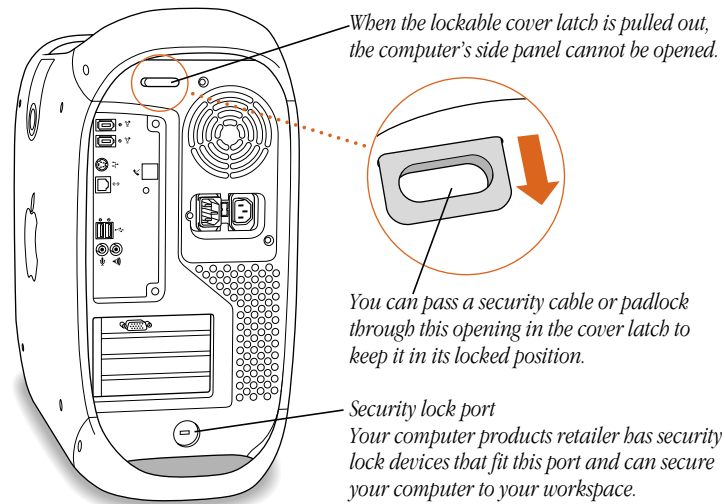
Follow the instructions supplied with the locking cable to secure it to your computer. When you install the locking cable, feed the cable through the lockable latch on the cover to prevent memory, disk drives, and expansion cards from being removed.

Security cables that connect to the built-in security lock port are available from other manufacturers. See your Apple-authorized dealer for more information.

Working Inside the Computer

This chapter provides information about peripheral component interconnect (PCI) expansion cards, memory, internal storage devices, and the computer's battery. The chapter also explains how to install these items.

Warning Always turn off the computer before opening it to avoid damaging any of its internal components.

Installation involves three procedures (detailed steps for each are provided later in this chapter):

- opening the computer
- inserting the device into a slot or open position on the drive carrier
- closing the computer

Warning Apple Computer recommends that you have an Apple-certified technician install memory, PCI expansion cards, and internal storage devices. Consult the service and support information that came with your computer for instructions on how to contact an Apple-authorized service provider or Apple for service. If you install these items yourself, you risk damaging your equipment, and such damage is not covered by the limited warranty on your computer. See an Apple-authorized dealer or service provider for additional information about this or any other warranty question.

About Memory

Your computer can accommodate additional dynamic random-access memory (DRAM) in packages called Dual Inline Memory Modules (DIMMs). The following illustration shows the memory slots on the logic board. See the sections that follow for important information about DRAM.

PCI slots 2-4: 33 MHz PCI slots (3)

PCI slot 1: 66 MHz PCI slot (graphics card installed)

Battery

SDRAM slots (4)
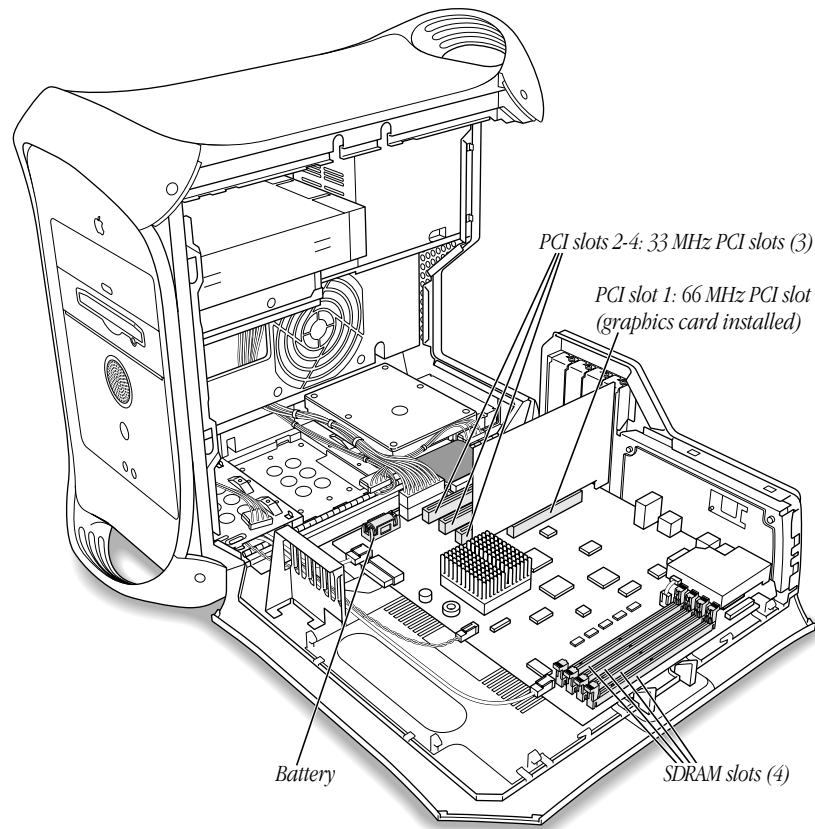
Video memory (VRAM) for standard Macintosh models is supplied by synchronous DRAM (SDRAM) soldered onto the 66 MHz graphics card that supplies the computer's monitor port. Standard Macintosh models come with a minimum of 16 megabytes (MB) of SDRAM video memory.

If your computer has the Mac OS installed, you can use the Apple System Profiler to check the amount of DRAM and VRAM installed in your computer.

DRAM Configurations

Your computer's DRAM can be expanded to a maximum of 1024 MB by adding DIMMs to the four DRAM DIMM slots on the main logic board.

DIMMs must fit these specifications:

- "PC-100" Synchronous DRAM (SDRAM)
- 3.3 volt (V)
- 64-bit wide, 168-pin module
- Maximum number of memory devices on DIMM is 16
- Unbuffered; do not use registered or buffered Synchronous DRAM (SDRAM)
- Height must not exceed 2.0 inches

Important This computer uses SDRAM DIMMs. DIMMs from older Macintosh computers are not compatible with your computer and should not be used even though they fit into the DRAM DIMM slots.

Note: Different size DRAM DIMMs can be installed in any order in any DIMM slot. Unlike older Macintosh computers, DIMMs need not be installed in pairs.

To increase DRAM to the maximum of 1024 MB, fill all four slots with 256 MB DIMMs. Any 256 MB DIMMs you install must use 128 megabit (Mbit) device technology.

For instructions on installing DRAM, see the section "Installing DRAM" on page 44.

About Internal Storage Options

Your Macintosh has five internal drive bays. Three are in the lower part of the computer and two are in front on top. In many configurations, a single hard disk occupies the rear position on the lower drive carrier, and a CD-ROM or DVD-ROM drive and Zip drive fill the upper bays.

The computer supports additional SCSI drives, which fit on the lower drive carrier. Depending on the configuration you purchased, one or two additional SCSI drives can go in the unoccupied positions on the carrier. (Some drives also require a PCI card to function.)

For technical information about the power requirements for devices the computer can accommodate, see the electronic documentation that came with the computer.

CD-ROM/DVD-ROM drive bay

Zip drive bay (Zip drive is optional)

Drive position 3: This drive position accommodates a 3.5" ATA or SCSI hard disk drive (maximum 1" high). If your computer came with an Ultra ATA hard disk drive, it is installed here.

Drive position 2: This drive position accommodates an additional 3.5" SCSI hard disk drive (maximum 1" high).

Drive position 1: This drive position accommodate a 3.5" SCSI hard disk drive (maximum 1" high). If your computer came with a SCSI hard disk drive, it is installed here.

These are the dimensions of drives that can be installed:

- *Width:* 102 mm (3.9 inches)
- *Height:* 25.4 mm (1.0 inch)
- *Depth:* 147 mm (5.7 inches)

The computer provides support for the following types of internal hard disk drives:

- ATA devices (includes ATA, ATA-2, and ATA-3 devices, which are also called IDE or EIDE devices)
- Ultra ATA devices (sometimes called ATA-4 devices)
- Wide Ultra SCSI devices (with the PCI card included in some configurations)
- Wide Ultra2 SCSI devices (with the PCI card included in some configurations)
- ATAPI drives, including CD-ROM, DVD-ROM, and Zip drives

For more information about devices supported, see your Apple-authorized dealer and the support section of Apple's Web site: http://www.apple.com/support/

Important Hard disk drives and removable storage devices may require special software for the computer to recognize the device. Check the documentation that came with your device or contact the device's manufacturer for more information.

Drives Installed in the Computer and Additional Drives

Standard Macintosh configurations include one internal Ultra ATA hard disk, or one, two, or three internal Wide Ultra2 SCSI drives. The drives you purchased with your computer can influence what additional drives you select.

Ultra ATA Drives

Your Macintosh can accommodate one internal ATA device in the lower drive carrier. If you purchased a model with an Ultra ATA drive in it, the drive sits in the rear of the carrier in position number 3.

Additional Wide Ultra2 SCSI Drives

If you purchased a Macintosh model that has at least one internal Wide Ultra2 SCSI drive, a PCI card and cable inside the computer make it possible to connect additional internal and external Wide Ultra2 SCSI devices. You can connect up to three internal SCSI drives or connect additional SCSI devices to the port the card provides on the rear of the computer.

If your computer came with one Wide Ultra2 SCSI drive, it is installed in the lower drive in position 1, near the front of the computer. If it came with two drives, the second one is installed in position 2. If a third drive is installed, it's in position 3. The computer uses the drive in position 1 to start up.

Additional internal Wide Ultra2 SCSI devices connect to the data cable supporting the drive that came with the computer. This cable has a built-in terminator so you don't need to add one.

You must assign a SCSI ID number to every additional device and the number must not conflict with the ID number already assigned to a drive on the SCSI chain. If your computer came with one Wide Ultra2 SCSI drive, it has ID 0. If the Macintosh came with two drives, they have ID 0 and 1. A third factory-installed drive has ID 2. The SCSI PCI card has ID 7.

Other Types of SCSI Drives

The SCSI card inside your Macintosh supports other types of Wide Ultra SCSI drives, as well as Wide Ultra2 SCSI devices. However, if you mix the different kinds, your system will operate at the speed of the slowest device. If you want optimal performance using the card, use only Wide Ultra2 SCSI devices. To maintain optimal performance using another kind of SCSI device, add a PCI card that supports the device.

Instructions for drive installation appear in the section "Installing a Hard Disk or Other Internal Storage Device" on page 46.

About PCI Expansion Cards

Your Macintosh can accommodate additional printed circuit boards (cards) for video and graphics applications, networking and communications, additional processing power, or other purposes. The cards fit into connectors, called expansion slots, inside the computer.

Your Macintosh has four expansion slots, each of which accepts a PCI card up to 12 inches long. Install only expansion cards that come with Macintosh driver software and that comply with the PCI 2.1 standard. NuBus™ cards cannot be used in these expansion slots.

In standard Macintosh models, a graphics card that supplies a monitor port occupies the PCI slot labeled number 1. This slot can accommodate 3.3 volt (V) cards with 66 MHz frequency and 32-bit data widths only.

The other three PCI slots can accommodate mixed voltage (5.0 V or 3.3 V) cards with a 33 MHz frequency and 32-bit or 64-bit data widths. These slots will not accommodate 66 MHz cards.

Expansion Card Power Requirements

The combined power consumption of expansion cards must not exceed the limits specified for your Macintosh model. For details, see the technical information section in the electronic documentation that comes with your computer.

You can use the three 33 MHz expansion slots to install

- three 15 W cards
- one 15 W or 25 W card
- two 15 W or 25 W cards
- one 15 W card and one 25 W card

Warning To avoid damaging your computer and expansion card, do not attempt to install any expansion card without first checking the documentation for that card. If the documentation specifies that an Apple-certified technician must install the card (usually because the installation requires special training or tools), consult the service and support information that came with your computer for instructions on how to contact an Apple-authorized service provider for assistance. If you attempt to install the card yourself, any damage you may cause to the computer or card will not be covered by the limited warranty on your computer. If the card is not an Apple-labeled product, check with an Apple-authorized dealer or service provider to see if you can install it yourself.

For instructions on installing PCI cards, see the section "Installing a PCI Expansion Card" on page 57.

About the Computer's Battery

The Macintosh has a 3.6 V lithium backup battery installed on the main logic board. Some signs that you need to replace the battery are intermittent problems starting up your computer and the date randomly resetting. Replacement batteries for the Macintosh are available in many electronics and computer stores. You can install the new battery yourself or have an Apple-authorized dealer do it for you for a fee.

Replacing the battery may cause some settings on your computer, such as the date and network settings, to revert to factory default settings. You may also have to restore modem settings in any communications programs you are using.

Important Make a note of the settings for communications programs before you replace the battery.

Installing a PCI Expansion Card, Memory, Replacement Battery, or Internal Storage Device

Warning Always shut down the computer before opening it to avoid damaging its internal components.

These instructions show how to install a PCI expansion card, memory, or an internal storage device or to change the computer's battery.

Important Before installing any of these items, carefully read "About Memory," "About Internal Storage Options," "About PCI Expansion Cards," and "About the Computer's Battery," earlier in this chapter.

Opening the Computer

1 Shut down your computer. Then wait 5 minutes to allow the computer's internal components to cool.

2 If you attached a security cable through the computer's lockable cover latch, remove the cable.

3 Unplug all the cables from the computer except the power cord.

4 If you have never plugged in your computer:

   a Make sure the voltage switch is set correctly for the voltage system to which you will be connecting the computer. (See the table "Voltage Switch Settings for Different Locations," in Chapter 1, "Setting Up.")

   b Connect the computer's power cord and plug it in.

5 Touch the metal PCI access covers on the back of the computer.

This helps protect the computer from damage caused by electrostatic discharge.

Touch the metal portion of the PCI port access covers.
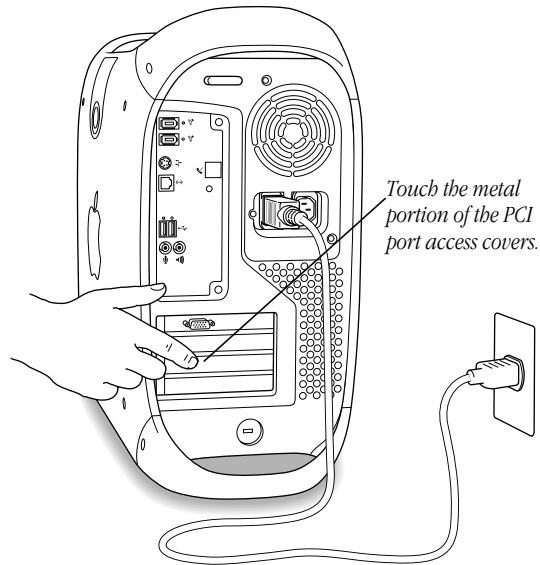
Important Always do this before you touch any parts, or install any components, inside the computer. To avoid generating static electricity, do not walk around the room until you have completed the installation of the expansion card, memory, or internal storage device and closed the computer.

6 Unplug the power cord.

7 Lift the latch on the side of the computer.

Lift the latch to unlock the side panel.
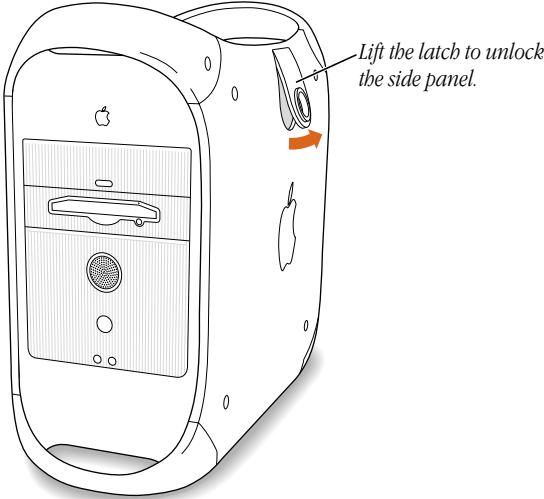
8 Gently lower the panel onto a clean, flat surface.

Lower the side of the computer onto a soft clean cloth to avoid scratching the case.

*Gently lower the side
panel until it lies flat.*
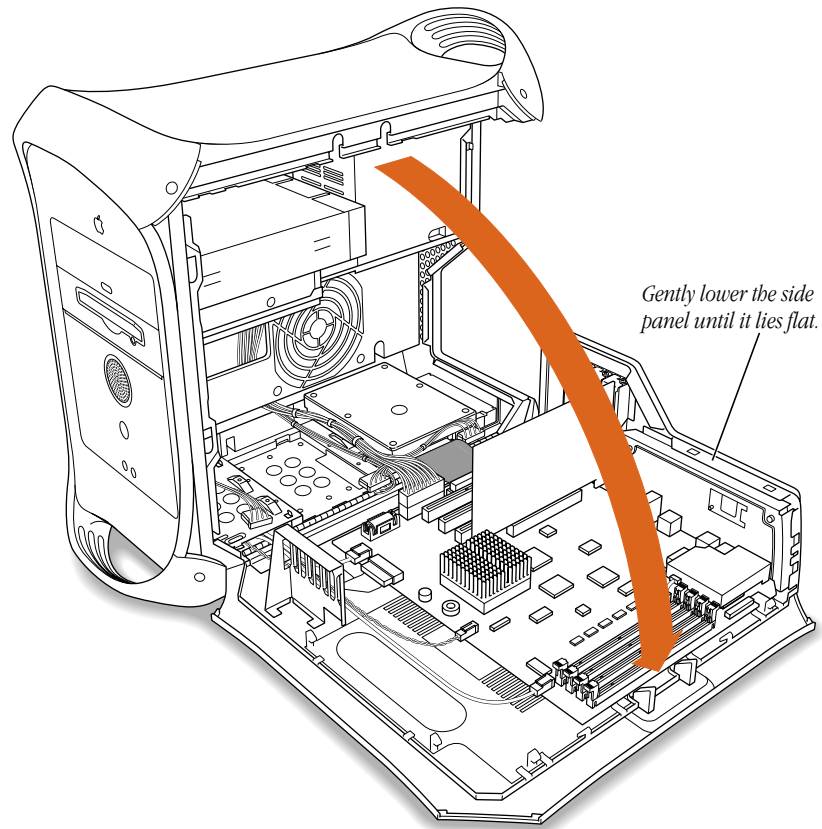
9 Go to the section that provides the instructions for the item you want to install or replace.

To install	Go to the section
DRAM	"Installing DRAM" on page 44
Internal storage device	"Installing a Hard Disk or Other Internal Storage Device" on page 46
PCI expansion card	"Installing a PCI Expansion Card" on page 57
New battery	"Replacing the Battery" on page 60

Installing DRAM

Important Before installing memory, read "About Memory" at the beginning of this chapter and follow the steps in "Opening the Computer."

1 Make sure the ejectors on the DRAM DIMM slots you want to use are open. (Push down the ejectors to open them.)

Note: The computer requires at least one DRAM DIMM to operate. If you plan to use only one DRAM DIMM, install it in the slot closest to the middle of the main logic board.

If your computer has an internal modem, be careful not to apply pressure to it when installing the DIMM.

2   Align a DRAM DIMM in the DRAM slot as pictured and push the DIMM down until the ejectors snap into place.

Important   Do not touch the DIMM's connectors. Handle the DIMM only by the edges.

DRAM DIMM (Your DIMM's shape and components may vary.)

The DRAM DIMM is designed to fit into the slot only one way. Be sure to align the notches in the DIMM with the small ribs inside the slot. With the ejectors in the open position (as shown), push down on the DIMM until it snaps into place. The ejectors will automatically close.

Connectors   *Notches*   *DRAM slot (1 of 4)*
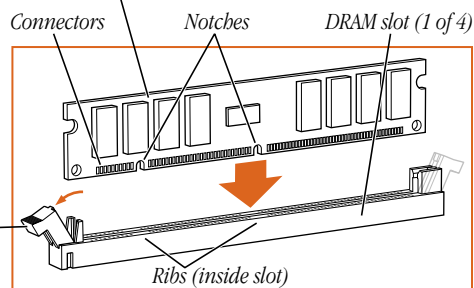
Ejector
(Your slot may have one or two ejectors. They should be pushed outward and down to be in the open position, as shown.)

Ribs (inside slot)
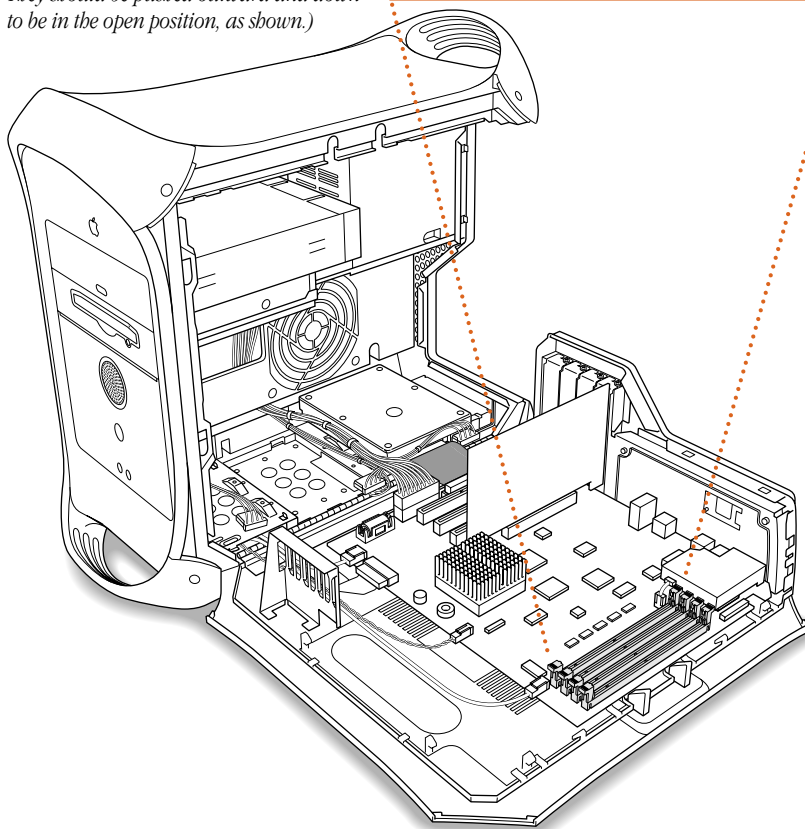
To remove a DIMM, gently push down on each of the slot's ejectors until they open and release the DIMM.

3 If you are finished installing items in your computer, skip ahead to "Closing the Computer" on page 61. If you want to install other items, go to the relevant section.

To install	Go to the section
Internal storage device	"Installing a Hard Disk or Other Internal Storage Device," below.
PCI expansion card	"Installing a PCI Expansion Card" on page 57
New battery	"Replacing the Battery" on page 60

Installing a Hard Disk or Other Internal Storage Device

Your Macintosh can accommodate a variety of SCSI internal storage devices.

Important   Before installing an internal storage device, read "About Internal Storage Options" on page 36 and follow the steps in "Opening the Computer" on page 40.

If you want to add a SCSI drive to a computer that came with an Ultra ATA drive only, you must first install a SCSI PCI card. Follow any instructions that came with the card and the instructions in the section "Installing a PCI Expansion Card" on page 57. After the card is installed, return to this section.

It's easiest to connect cables to the card if you install the card in the PCI slot labeled 4.

Installing an Internal SCSI Storage Device

1 If your computer came with an ATA drive, unplug the bundled power cable and the ribbon cable from the logic board.

If it came with one or more SCSI drives, disconnect the ribbon cable from the PCI card instead of the logic board.

Unplug the power cord bundle from the main logic board.

Unlock the power cord bundle plug by pressing the small catch located on the side of the plug.

(Side view)

Do not unplug this ribbon cable from the main logic board.

If your computer has a ribbon cable plugged into this connector on the main logic board, unplug the cable. If your hard disk drive is plugged directly into a PCI card, unplug the ribbon cable from the card.
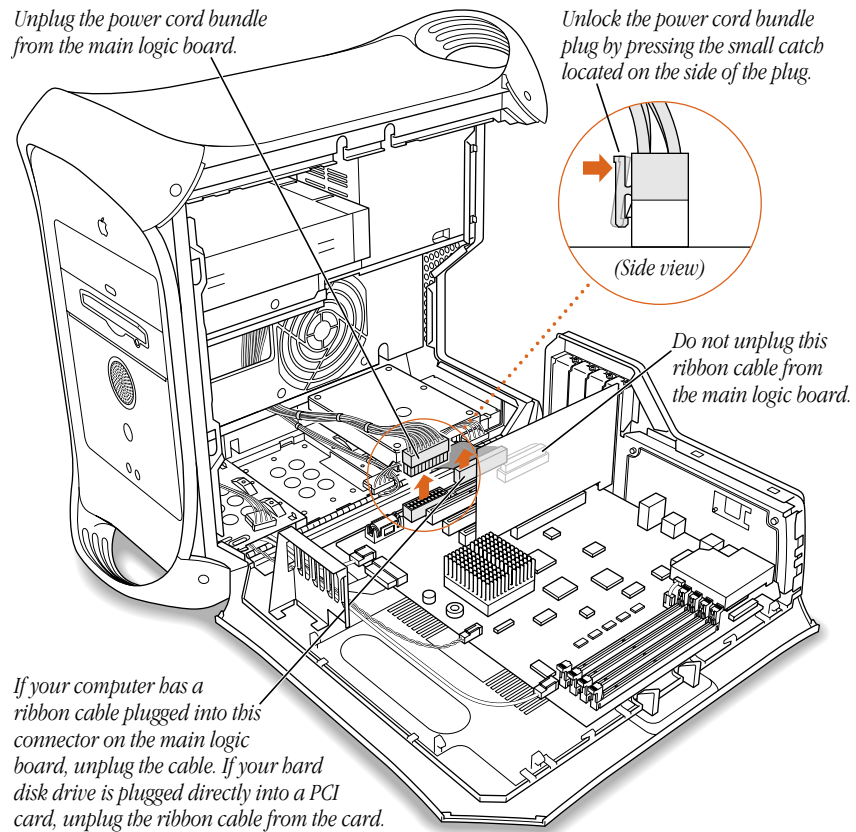
2 Unplug the power cord bundle from any hard disk drives attached to the drive carrier.

In standard configurations, there may be an Ultra ATA drive in carrier position 3 (the rear); a Wide Ultra2 SCSI drive in position 1 (nearest the front of the computer); two Wide Ultra2 SCSI drives, one in position 1 and one in position 2; or three Wide Ultra2 SCSI drives.

Unplug the power cord bundle from the hard disk drive. There is no catch on this plug. The plug is held tightly in place, so pull firmly.
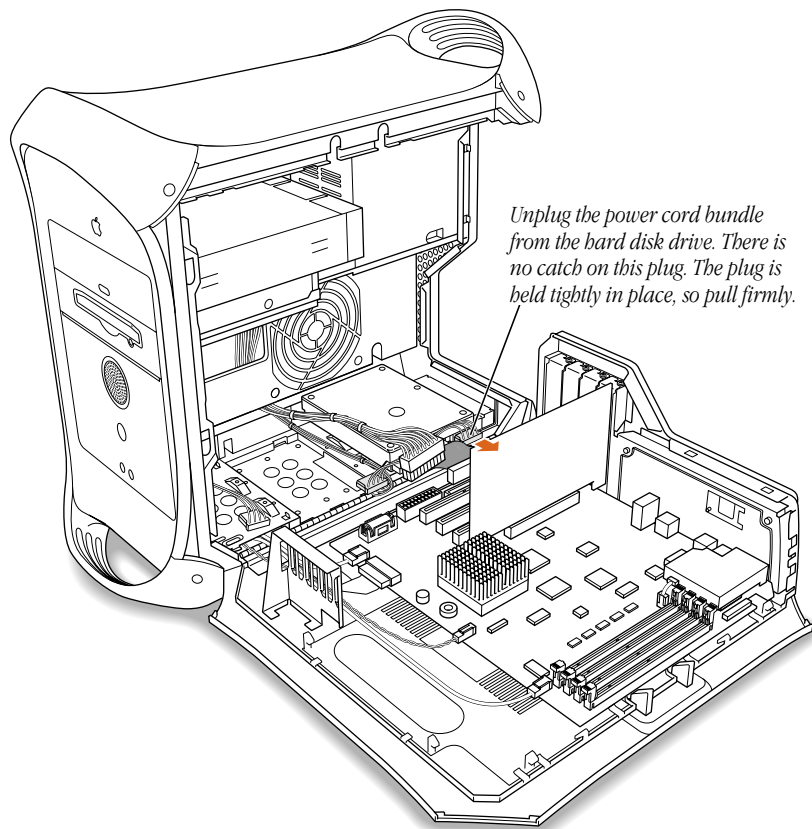
3 Remove the screw from the rear of the drive carrier and remove the retainer.

Save the retainer; you'll need it later.

*Unscrew the drive carrier
retainer and remove it.*
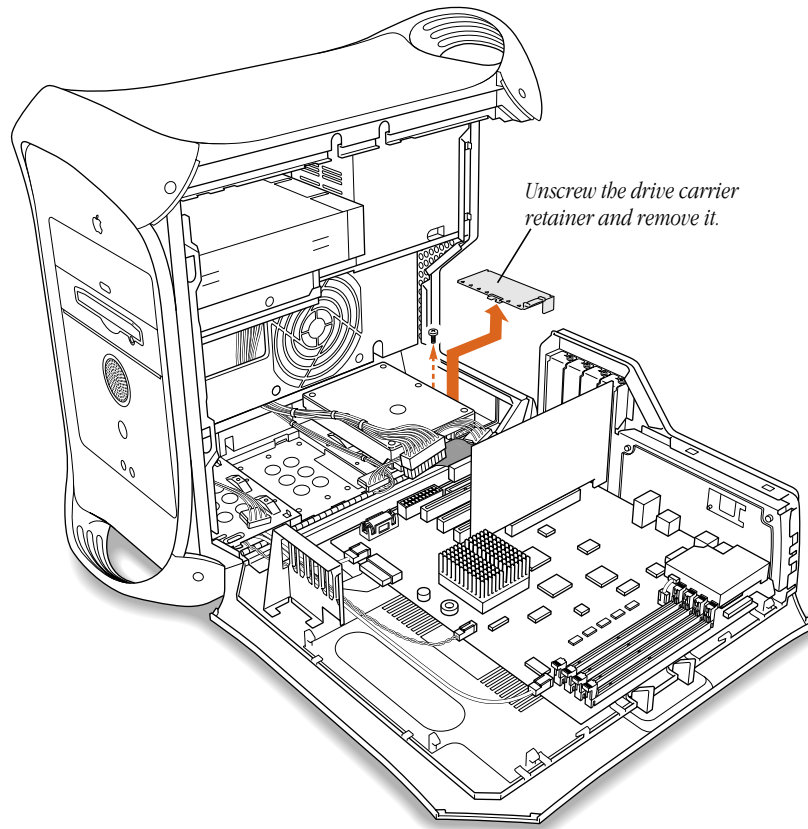
4 Carefully slide the drive carrier assembly backward until it is released from the floor of the computer, then lift it out.

Gently slide the entire drive carrier assembly toward the rear of the computer and lift it completely out. Be careful not to crimp or abrade any wires that are near or under the assembly.
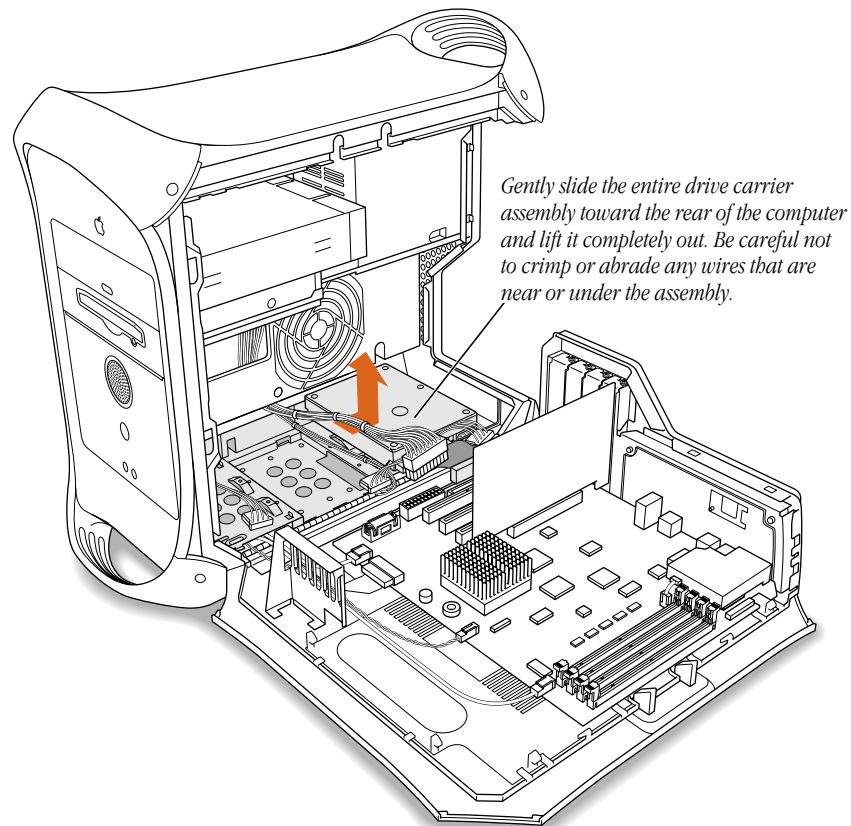
5 Assign a unique SCSI ID number to the device.

Check the instructions that came with the device for information on setting its ID number. Some manufacturers have World Wide Web sites that provide information on configuring drives. You can also contact an Apple-authorized dealer, who may be able to install the drive for a fee.

If your computer came with one Wide Ultra2 SCSI device, set the SCSI ID to any number but 0 or 7. If your computer came with two devices, use any SCSI ID number but 0, 1, and 7.
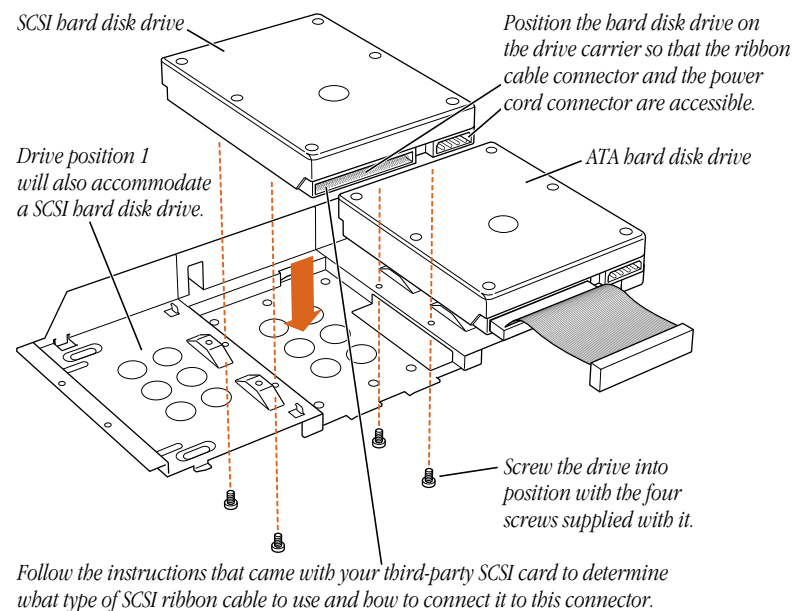
A single factory-installed drive uses SCSI ID 0; a second factory-installed drive uses SCSI ID 1; and a third factory-installed drive uses SCSI ID 2. The SCSI PCI card has been assigned ID 7. If you select one of these numbers for a new drive, the drive will not work properly.

6 Screw the drive onto the carrier assembly with the drive's connectors facing away from the sheet metal side of the carrier.

Attach any new Wide Ultra2 SCSI drives to any open position on the carrier, then connect the data ribbon cable to them.

The SCSI cable included with factory-installed SCSI drives has a built-in terminator block so you don't need to attach a terminator to the last device in the chain.

Some computers come with an Ultra ATA drive in drive carrier position 3.

SCSI hard disk drive

Position the hard disk drive on the drive carrier so that the ribbon cable connector and the power cord connector are accessible.

Drive position 1 will also accommodate a SCSI hard disk drive.

ATA hard disk drive

Screw the drive into position with the four screws supplied with it.

Follow the instructions that came with your third-party SCSI card to determine what type of SCSI ribbon cable to use and how to connect it to this connector.

Some computers come with SCSI drives in drive carrier positions 1 or 1 and 2.

SCSI hard disk drive

Position the hard disk drive on the drive carrier so that the ribbon cable connector and the power cord connector are accessible.

SCSI hard disk drive

SCSI terminator

Attach this ribbon cable to the PCI SCSI card.

Drive position 3 will also accommodate a SCSI hard disk drive. Attach this ribbon cable plug to the ribbon cable connector on the drive.

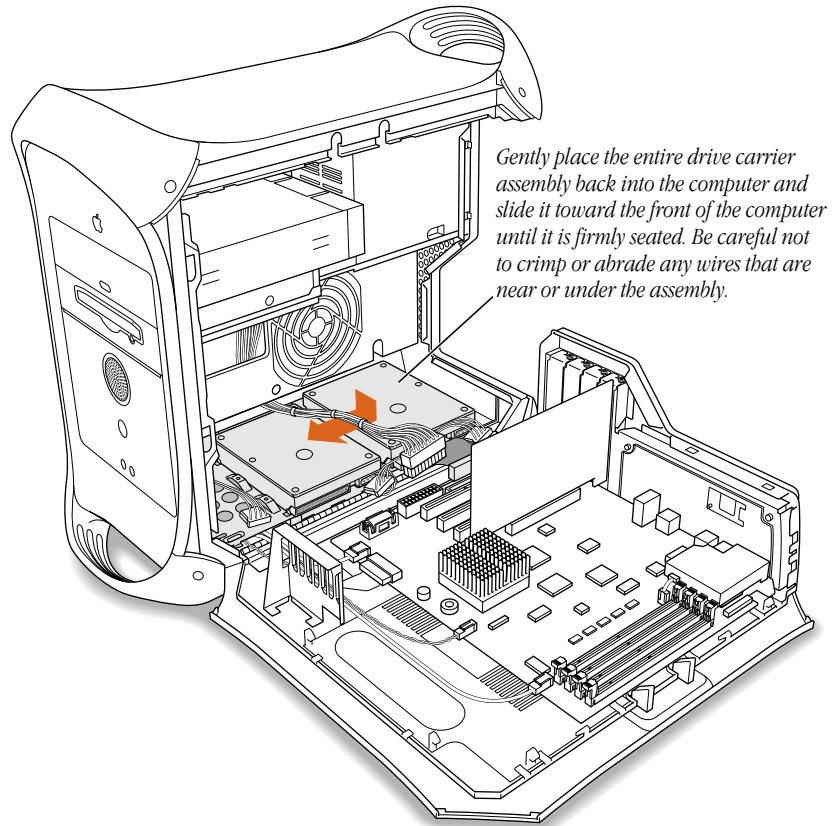*Screw the drive into position with the four screws supplied with it.*

If you are installing a SCSI hard disk drive in drive position 2, put the ribbon cable on top of the drive and attach this ribbon cable plug to the ribbon cable connector on the drive. You can tape the ribbon cable to the top of the drive with double-stick foam tape to make it lie flat.

To use a type of SCSI device other than Wide Ultra2, it's best to add a PCI card that supports the device. The factory-installed Wide Ultra2 SCSI card supports some other types of SCSI devices, but not optimally. For information on PCI card installation, go to the section "Installing a PCI Expansion Card" on page 57 and then return to step 7 in this section.
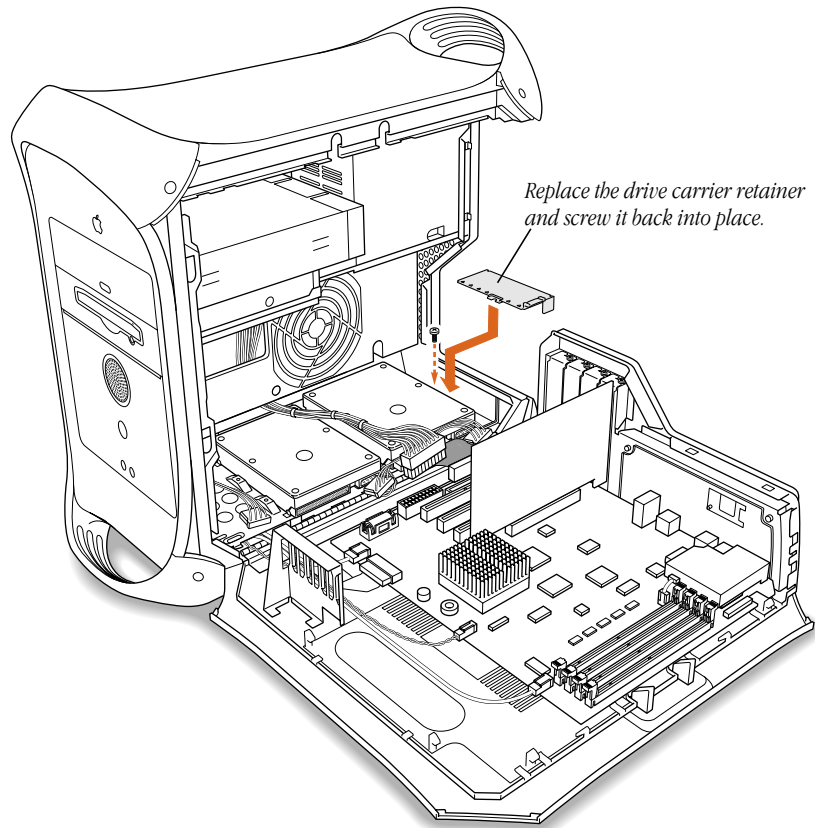
7 Set the drive carrier back inside the computer and slide it toward the front of the computer until it locks in its original position.

Make sure the carrier engages the guides and is securely seated in the computer.

Warning When replacing the drive carrier inside the computer, don't crimp or abrade the data cables that connect to the main logic board.

Gently place the entire drive carrier assembly back into the computer and slide it toward the front of the computer until it is firmly seated. Be careful not to crimp or abrade any wires that are near or under the assembly.

8 Replace the drive carrier retainer and screw it down.

Replace the drive carrier retainer and screw it back into place.

9 Plug the power cord bundles into the hard disk drives.

Plug the power cord bundles into the hard disk drives. Be sure to press them firmly into position.
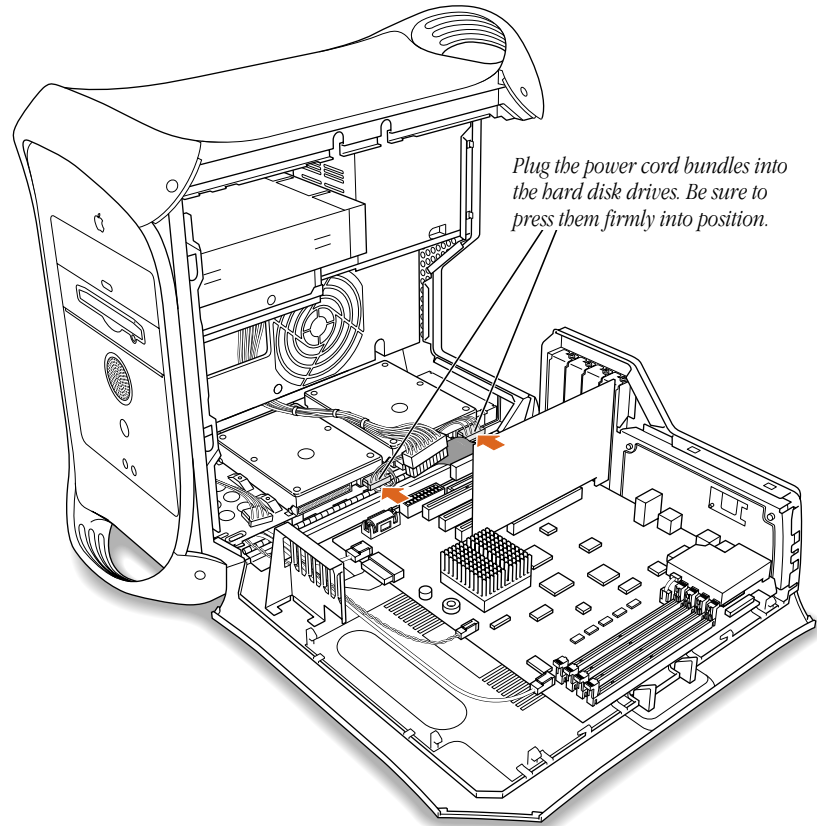
10 Reconnect the main power cable bundle and the drives' ribbon cable.

■ *If you added a SCSI drive to a computer that came with an ATA drive,* attach the main power cable bundle and the ATA ribbon cable to the main logic board and the SCSI ribbon cable to the SCSI PCI card.

■ *If you added a SCSI drive to a computer that came with one or two SCSI drives,* attach the main power cable bundle to the main logic board and the SCSI ribbon cable to the PCI card.

If you have a third-party SCSI PCI card, see the instructions that came with it for information on connecting the ribbon cable.

Plug the power cord bundle back into the main logic board.

Plug the ATA ribbon cable back into the main logic board. If you unplugged the ribbon cable from a PCI card, plug the ribbon cable back into the card.

This ribbon cable connector attaches to a PCI SCSI card. If you bought a third-party SCSI card, follow the directions that came with it to find out how to attach the ribbon cable correctly.

11 If you are finished installing items in your computer, skip ahead to "Closing the Computer" on page 61. If you want to install other items, go to the relevant section.

To install	Go to the section
PCI expansion card	"Installing a PCI Expansion Card" on page 57
New battery	"Replacing the Battery" on page 60

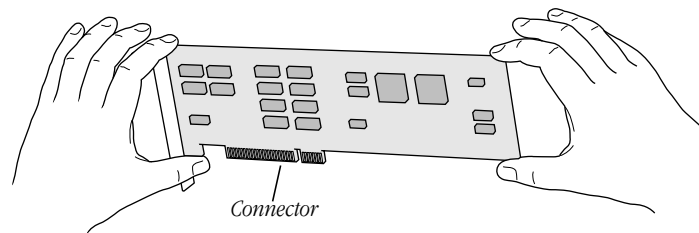## Installing a PCI Expansion Card

Important Before installing a PCI expansion card, read "About PCI Expansion Cards" on page 38 and follow the steps in "Opening the Computer" on page 40.

1 Remove the screw that holds the port access cover in place, pull out the access cover, and set it aside.

If you want to replace or remove a card that's installed in the computer, remove the screw that holds the card in place and pull the card from the slot.
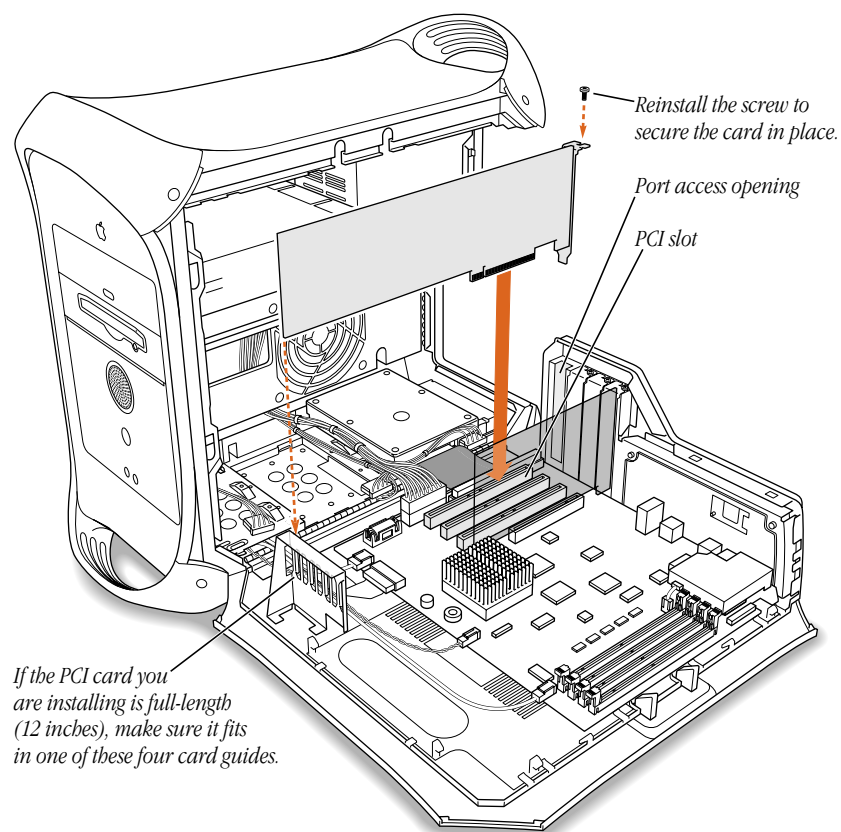

Remove the screw that holds the port access cover in place.

Port access cover
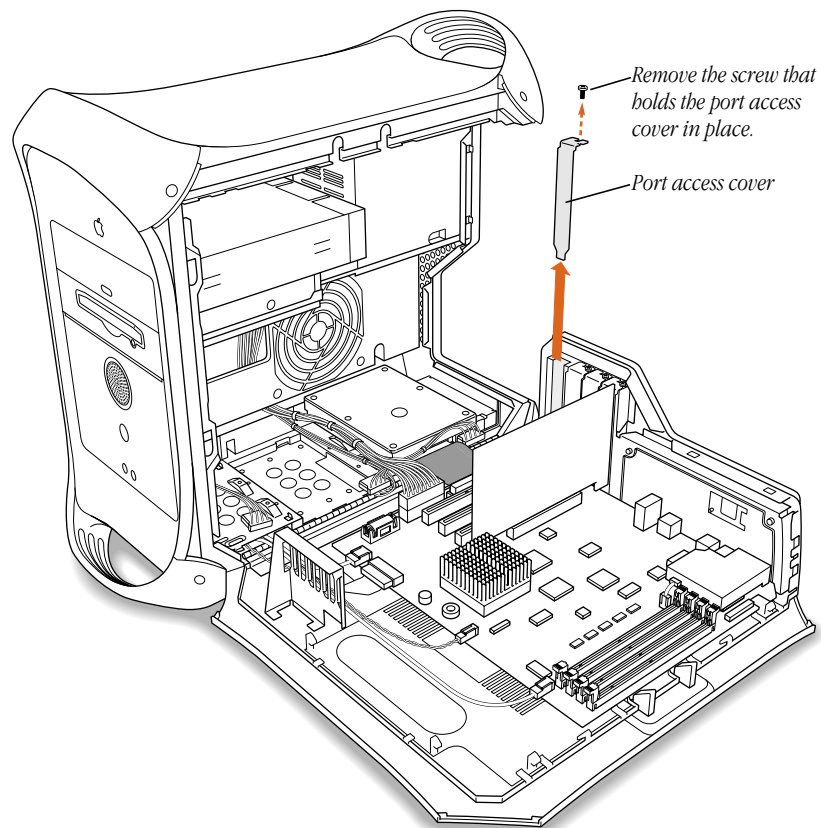
2   Remove the PCI card from its static-proof bag and hold it by its corners, taking care not to touch the gold connector or any of the components on the card.

Connector

3   Align the card's connector with the expansion slot and press down until the connector is inserted all the way into the slot.

If you're installing a 12-inch card, make sure the card engages the appropriate guide at the front of the computer.

Reinstall the screw to secure the card in place.

Port access opening

PCI slot

If the PCI card you are installing is full-length (12 inches), make sure it fits in one of these four card guides.

Press the card gently but firmly until the connector is fully inserted.

- Don't rock the card side to side; instead, press the card straight into the slot. (Rocking the card can damage the PCI slot.)
- Don't force the card. If you meet a lot of resistance, pull the card out. Check the connector and the slot for damage or obstructions, then try inserting the card again.
- Pull the card gently to see if it is properly connected. If it resists and stays in place, and if its gold connectors are barely visible, the card is connected. (Make sure you don't pull the card so much that you accidentally disconnect it.)

4 Reinsert the screw that you removed earlier and tighten it to hold the PCI card in place. If you have other cards to install, put them in now by repeating steps 1–3.

If you removed a card from your computer and did not install a replacement, install a port access cover plate next to the slot using the screw that held the card in place. The access cover maintains the correct air flow and keeps the computer's components from overheating.

Warning Do not leave an empty PCI slot uncovered. An uncovered port can affect the air flow that cools the computer's internal components and cause damage.
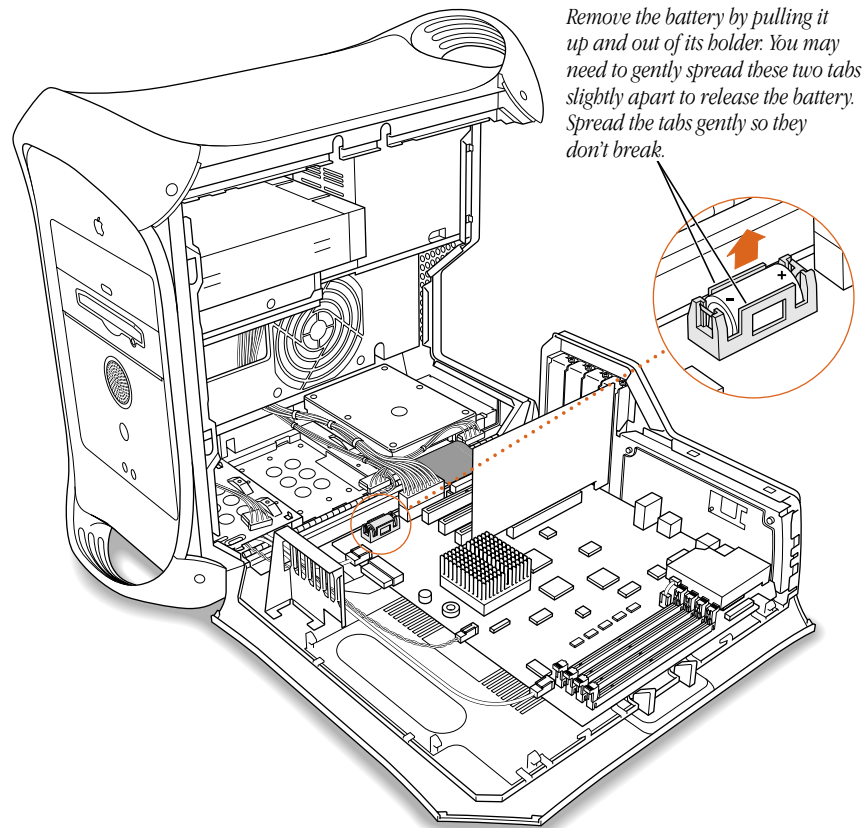
5 If you are finished installing items in your computer, skip ahead to "Closing the Computer" later in this chapter. To install additional items inside your computer, go to the section that provides the instructions you need.

To install	Go to the section
New battery	"Replacing the Battery" on page 60

Replacing the Battery

1 Remove the battery from its holder, noting the orientation of the battery's positive and negative ends.

Important Batteries contain chemicals, some of which may be harmful to the environment. Please dispose of used batteries according to your local environmental laws and guidelines.

Remove the battery by pulling it up and out of its holder. You may need to gently spread these two tabs slightly apart to release the battery. Spread the tabs gently so they don't break.

2 Insert the new lithium battery in the holder, making sure the battery's positive and negative symbols align with those on the holder.

Warning Installing the battery incorrectly may cause an explosion. Use only the same type of battery or an equivalent battery recommended by the manufacturer of the original battery.

3 If you are finished installing items in your computer, skip ahead to "Closing the Computer."
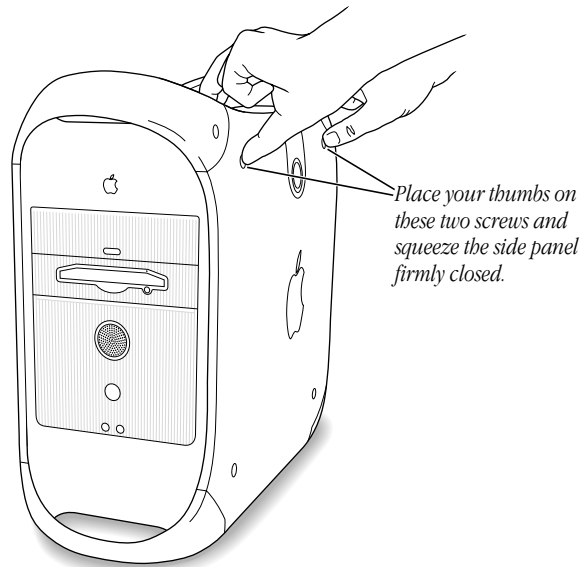
Closing the Computer

> **Warning** Never turn on your computer unless all of its internal and external parts are in place and it is closed. Operating the computer when it is open or missing parts can damage your computer or cause injury.

1 Raise the computer's side panel and press it against the case.

Gently raise the side panel and snap it firmly in place.
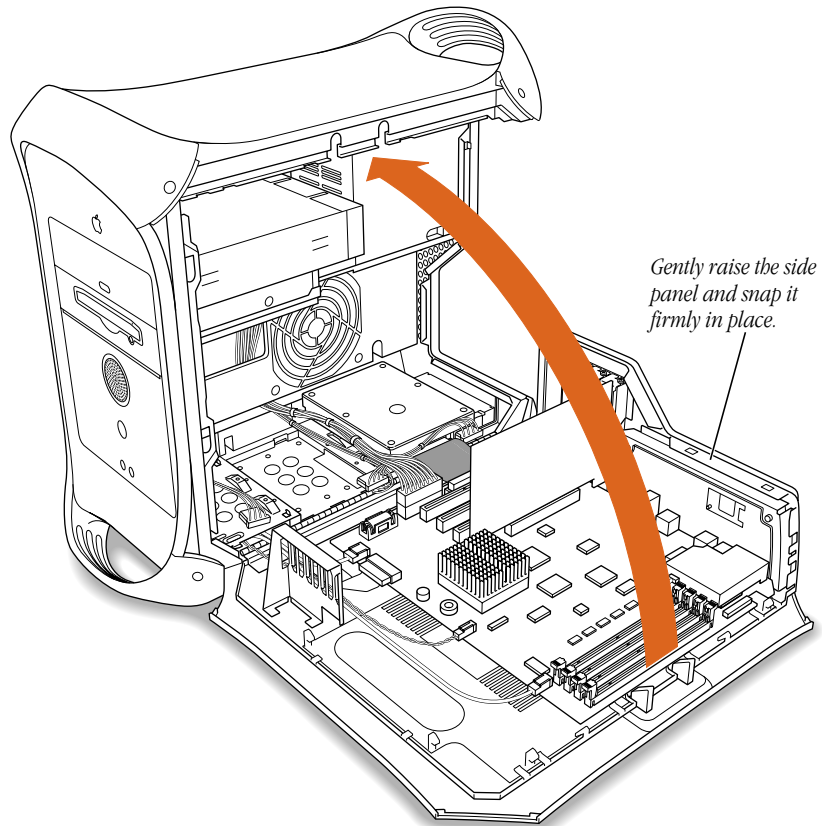
2 Squeeze the side panel until it snaps securely into place.

Place your thumbs on these two screws and squeeze the side panel firmly closed.

3 After you have closed the computer, return to Chapter 1, "Setting Up," if you are setting up for the first time or if you need help reconnecting the cables.

What's Next?

Before you can start using the equipment you installed, you may need to install software that the equipment requires or configure the equipment. For example, PCI expansion cards usually require special software, and hard disks may need to be initialized with a disk-formatting utility. See the documentation that came with the equipment for additional installation or configuration instructions.

Some older devices may require updated drivers to work with your computer. (A driver is special software that is installed in your System Folder.) Contact the device's manufacturer for information on obtaining driver software.

Additional information about how to use your computer is available in the electronic documentation included with your computer's system software.