

@Xi[®] Computer Corporation

User's Guide



@XiComputer.com[®]

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Chapter 1

Welcome



Congratulations on purchasing the finest, most reliable personal computer available. Your new computer from @Xi Computer Corporation contains the latest state-of-the-art components that will provide you with many years of computing satisfaction. Whether you intend to use your new personal computer for corporate, consumer, or entertainment purposes, you will find your new computer from @Xi Computer Corporation more than up to the task.

To ensure you get the most out of your new personal computer, we assembled it with meticulous attention to detail. Instead of mass-producing computers like the big-name vendors, we custom configure and inspect every system before it is shipped to make sure that it is equipped as ordered and operating at optimum performance. This attention to detail guarantees your complete satisfaction.

Like your new computer, this *User's Guide* has been designed with you in mind. The information in the guide is organized so you can get your new computer up and running in the shortest possible time. The *User's Guide* is written in easy-to-understand language. However, if you come across a term you do not understand, check the Glossary at the end of the *User's Guide* for a user-friendly definition.

Contents of the User's Guide

This *@Xi Computer Corporation User's Guide* contains all the information you need to install, use, and troubleshoot your new computer. The following list summarizes the chapters and appendixes that comprise the rest of the manual:

- [Chapter 2, "Getting Started"](#) — describes how to unpack your new computer.
- [Chapter 3, "Maintaining Your Computer"](#) — provides tips for prolonging the life of your computer.
- [Chapter 4, "Getting Online"](#) — provides an overview of the Internet and World Wide Web. This chapter also provides helpful suggestions for locating an Internet Service Provider (ISP).

- [Chapter 5, “Upgrading Your Computer”](#) — provides instructions for upgrading your computer.
- [Chapter 6, “Troubleshooting”](#) — provides tips for identifying and resolving hardware problems.
- [Chapter 7, “Computing Comfort and Safety”](#) — provides information and tips for avoiding and reducing physical strains associated with computer usage.
- [Appendix A, “Frequently Asked Questions”](#) — contains answers to frequently asked questions.
- [Appendix B, “Contact Information”](#) — lists the various ways to contact us.
- [Appendix C, “Warranty & FCC Information”](#) — contains warranty and FCC information for your @Xi computer.
- [Appendix D, “Glossary”](#) — defines the technical terms in this *User’s Guide*.

For your convenience, an [Index](#) appears at the end of the *User’s Guide*.

Navigating Through the User’s Guide

To assist you in navigating through this manual, we have added [blue-colored](#) hot links for the Table of Contents, Index, and cross-references. When you read this *User’s Guide* on line, you can click a hot link to move directly to that location in this *User’s Guide*. For example, when you click one of the blue-colored chapter or appendix titles in the list above, you automatically move to the first page in that portion of the *User’s Guide*.

Each URL in the *User’s Guide* is also a link. When you are reading the manual on line and your computer is connected to the Internet, clicking a URL in the text transports you to the appropriate Internet site automatically.

Documentation Conventions in the User's Guide

This *User's Guide* uses the following documentation conventions:

NOTE

Notes call your attention to important information.

Tip

Tips provide helpful information or shortcuts for simplifying a task.

Caution

A caution note warns you about actions that might be harmful to you or your new computer.

WARNING

When you see a warning indicator in the margin, pay special attention to the information it conveys.

Blue Text

Text that appears in blue indicates a link to another part of the *User's Guide* or to a site on the Internet. When you are reading the manual on line, clicking blue text takes you directly to the part of the manual mentioned in the link.

Chapter 2

Getting Started

This chapter helps you to get started using your @Xi Computer Corporation computer. It take you from opening the equipment boxes to turning on the computer.

The sections are:

- [“Unpacking the Boxes” on page 5.](#)
- [“Selecting the Proper Environment” on page 8.](#)
- [“Checking Out Your Computer Connections” on page 10.](#)
- [“Checking Out Your Computer” on page 16.](#)
- [“Turning Your Computer On and Off” on page 18.](#)

Unpacking the Boxes

The first thing you need to do when you get your new @Xi Computer is unpack the boxes. It is important to check the contents and condition of the boxes to make sure that you have all your equipment and that it is in good condition.

This section covers the following topics:

- [“Reviewing the Contents of the Boxes” on page 6.](#)
- [“Checking the Condition of the Boxes” on page 6.](#)
- [“Unpacking the Boxes” on page 7.](#)

Reviewing the Contents of the Boxes

The number of boxes you receive depends on the system configuration you ordered. In most instances you will receive at least two boxes. If you ordered additional software and/or speakers with your system, you will have the following boxes to unpack:

- **@Xi Computer Corporation system box**

All customers receive a @Xi Computer Corporation system box that contains a system unit, keyboard, mouse, and power cord.

In addition, this box contains diskettes and CD-ROMs of the software and drivers that are installed on the system unit. @Xi Computer Corporation provides you with these items in case you need to re-install any software and/or driver files at a later date.

The warranty information and documentation from the vendors whose software and hardware components are installed in your computer also come in the system box.

- **Monitor box**

If you ordered a monitor with your @Xi computer, this item comes in a separate box.

- **Additional boxes**

You might also receive other boxes containing additional software and/or speakers if you ordered these items with your complete @Xi computer.

Checking the Condition of the Boxes

After you receive the box(es) containing your new computer and any accessories, inspect each one for any sign of damage. Check for any signs of damage, such as holes, bent or wrinkled corners, or other indications of improper handling.

If you notice any signs of damage, open the boxes using the procedure described below and check the contents for damage. Pay particular attention to the hardware near the area where the packaging is damaged.

Unpacking the Boxes

Before you unpack your new computer and accessories, review the packing lists which are located on the outside of each box. As you unpack a box, make sure it contains all of the items on the list. If any item is missing or damaged, please contact @Xi Computer Corporation immediately. See [“Contact Information” on page 81](#) for information on how to contact @Xi Computer Corporation.

At the top of the system box is an accessory box that contains the keyboard, mouse, power cord, as well as the software and driver diskettes and CD-ROMs. Compare the contents of the accessory box against the packing list on the outside of the system box.

Underneath the accessory box is the system unit. The system unit is wrapped in cellophane and has foam cushioning at the corners to protect it during shipping. Follow these steps to unpack the computer system unit:

- 1.** Make sure the open computer box is situated flat on the floor.
- 2.** Place one foot on each side of the system unit box to hold it steady.
- 3.** Lift up the system unit slowly and evenly until it is completely removed from the box.
- 4.** Set the system unit on a flat surface in the location where you intend to use it.

See the section [“Selecting the Proper Environment” on page 8](#) for tips on selecting the location.

If you ordered a monitor, open its box, carefully remove the monitor, and set it aside for now. This box also contains the power cables, the driver diskette for the monitor, and a removable base if the type of monitor you ordered comes with one.

If you received additional boxes with your new computer (such as those for speakers or software packages), open these boxes and set the contents aside for now.

Be sure to keep all boxes and packing materials in case you need to move or ship any the computer system elements in the future.

Selecting the Proper Environment

The first step in setting up your new computer is to find a suitable location for the system unit and the monitor. You probably have an idea where you want to set up your new computer. When selecting a location, you need to consider both of the following:

- Physical location for the system unit
- Workspace considerations
- Proximity to a power outlet

Location Considerations for the System Unit

The location you choose for the system unit should:

- Offer a clean, flat surface near a grounded AC outlet, surge protector, or uninterrupted power supply.
- Be free of clutter, dust, dirt, smoke, and small items such as paper clips and staples, which can jam a diskette or optical drive.
- Be a safe distance from any possible water damage, such as from potted plants.

The system unit should not be exposed to static electricity, extreme temperatures, or magnetic fields, such as those generated by stereo systems, microwave ovens, air conditioners, fans, and radios. The area should not be subject to vibrations or mechanical shocks that could damage the unit.

When choosing the location, be aware of the following space considerations:

- Do not set the unit close to a wall or other obstacle that might cause the system unit's internal fan and panels to be obstructed. Air must move freely through the system unit's chassis for your computer's cooling system to work properly. The panels should be easy to access so that they can be removed for maintenance.
- The front of the system unit has a tray that moves forward for loading CD-ROMs or DVD-ROMs. Make sure there is sufficient room in front of the system unit to allow the CD-ROM/DVD-ROM tray to move back and forth.
- From time to time you will need access to the back of the system unit to attach and remove cables. Make sure the back is reachable either directly or by moving the unit a slight bit.

- If you upgrade your computer, you may need to access the inside of the computer. This may require you to remove the left and/or right side panels. Therefore, make sure there is sufficient room adjacent to your computer should you need to remove these side panels.

Workspace Considerations

Be sure that the workplace where you intend to set up your computer:

- Provides sufficient desk space for your monitor, keyboard, and mouse.
- Reflects the way you use work materials and equipment. For example, make sure the things that you use most regularly, such as the mouse, keyboard, or telephone, are within easy reach.

The location should have sufficient lighting. However, make sure that the light does not reflect on the monitor screen so that it makes viewing difficult.

The area should be comfortable and easily accessible to you and other individuals who will be using the computer.

Power Outlet

Locate the system unit and the monitor near a grounded 3-pronged AC power outlet.

Make sure the outlet is *not* controlled by a wall switch. The AC power outlet should be dedicated to the computer unit, monitor, and any other peripheral units attached to the system. The computer should not share the outlet with any other appliances.

Tip Consider connecting your computer to a surge protector or uninterruptible power supply to protect the unit against electrical surges or power outages.

Checking Out Your Computer Connections

Depending on your computer, the back panel may resemble the one shown in [Figure 2-1 on page 11](#) or [Figure 2-2 on page 12](#). Refer to the appropriate figure to connect peripherals to your computer. The sections that follow the figures explain how to connect peripheral devices to your computer.

NOTE On computers that contain an Intel microprocessor, the back panel connectors are color coded as follows:

- The keyboard port is purple
- The mouse port is green
- The USB ports are black.
- The parallel port is burgundy.
- The two serial (COM) ports are turquoise.
- The game port is gold.
- On the soundcard, the line out connector is lime, the line in connector is light blue, and the microphone is pink.

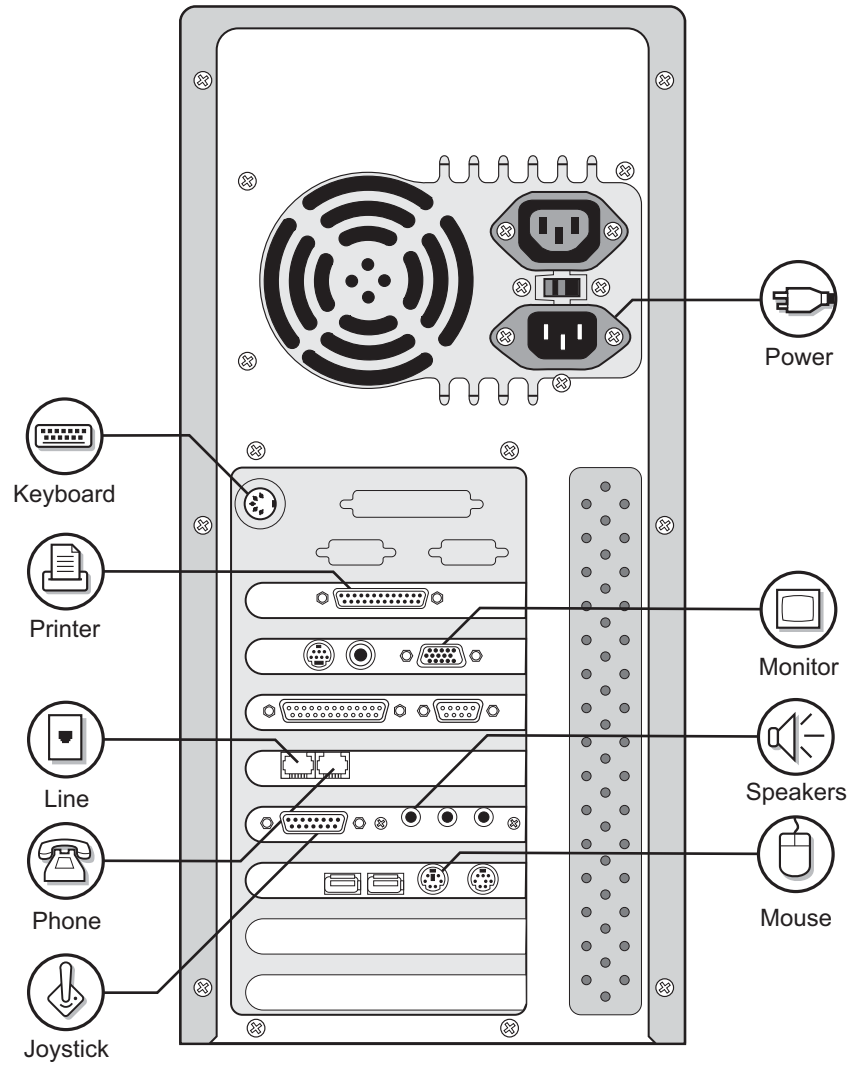


Figure 2-1. Back of AT Computer Systems

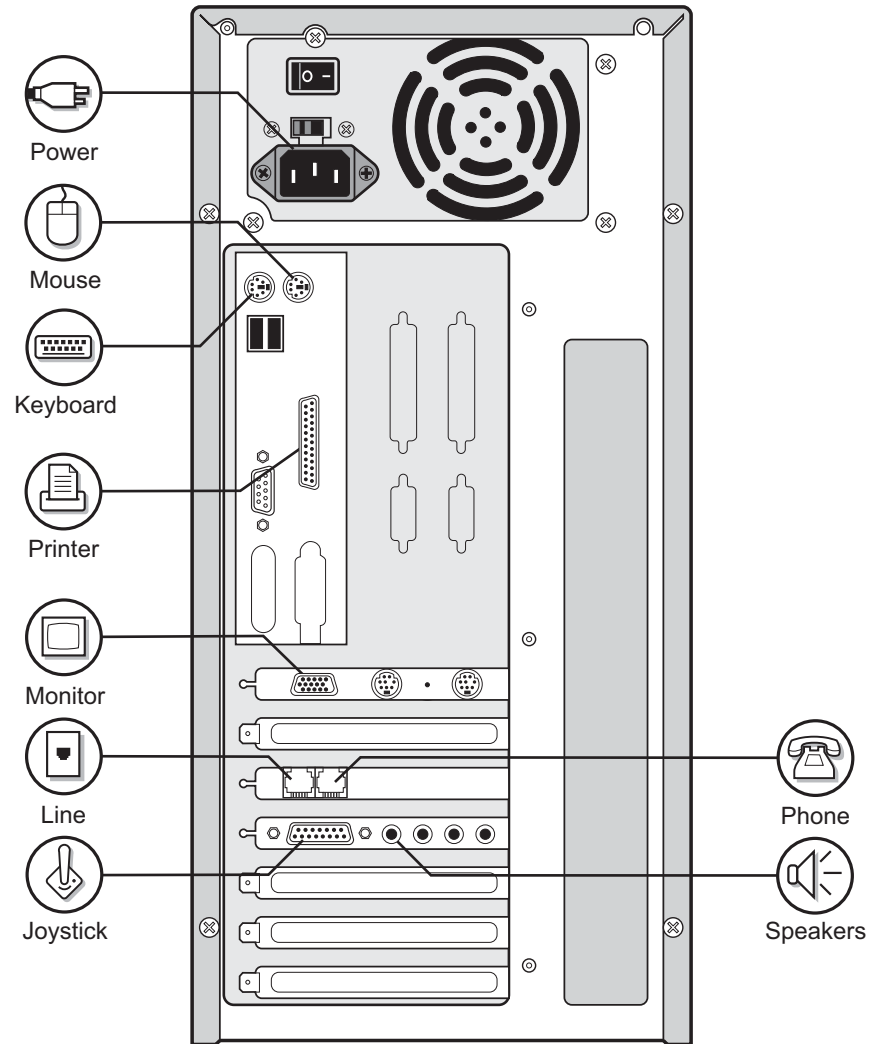


Figure 2-2. Back of ATX Computer Systems

Connecting the Monitor

The following procedure describes how to connect the monitor to your computer. When performing these steps, refer to [Figure 2-1 on page 11](#) or [Figure 2-2](#), above.

1. Verify that the monitor power switch is turned off.
2. Connect the monitor cable to the monitor. If you need assistance, consult the monitor manual supplied with your computer. (Skip this step if the monitor cable is already attached to the monitor.)
3. Locate the monitor connect on the system unit and attach the other end of the monitor cable to that connector.

4. Plug the monitor's power cord into a grounded AC outlet.

For more information, refer to the manual supplied with your monitor.

Connecting the Keyboard and Mouse

The following procedure describes how to connect the keyboard and mouse to your computer. When performing these steps, refer to [Figure 2-1 on page 11](#) or [Figure 2-2 on page 12](#).

NOTE For computers equipped with an Intel microprocessor, the keyboard connector is purple and the mouse connector is green.

1. Locate the keyboard connector on the back of your computer and plug the cable from the keyboard into the connector.
2. Locate the mouse connector on the back of your computer and plug the mouse cable into that connector.

Connecting Devices to a Sound Card

If you ordered a sound card with your computer, the sound card is installed in one of the computer's expansion slots. [Figure 2-1 on page 11](#) and [Figure 2-2 on page 12](#) show examples of a sound card installed in an expansion slot. Note that your sound card might reside in a slot other than the one shown in these figures.

When your computer is equipped with a sound card, you can:

- Listen to audio CDs, the sound portion of video clips, and other sounds through the speakers attached to your computer.
- Attach a standard single or dual joystick or steering wheel to the system unit.
- Record sounds using an attached microphone.
- Attach a Musical Instrument Digital Interface (MIDI) device such as a synthesizer to the system unit.

Some sound cards also let you manipulate sounds stored on your computer's hard drive. For more information, refer to the manual for the sound card.

NOTE For computers equipped with an Intel microprocessor, the line out connector is lime, the line in connector is light blue, and the microphone connector is pink.

To attach the speakers to the sound card:

1. Locate the speaker connector on the back of the system unit and plug the pointed end of the system speaker cable into the connector.
2. Next, plug the cord already attached to the left speaker into the hole at the other end of the system speaker cable. Make sure the color mark for the hole matches the color of the left speaker cable end.
3. Now connect the cord already attached to the right speaker into the other hole in the end of the system speaker cable. Again make sure the color mark for the hole matches the color of the right speaker cable end.

To attach a joystick to the system, plug the loose end of the device's cable into the trapezoid-shaped slot in the left portion of the sound card.

Connecting the Power Cord

To connect the power cord for your computer's system unit:

1. Plug the non-pronged end of the power cord into the power connector on the back of the system unit. Refer to [Figure 2-1 on page 11](#) or [Figure 2-2 on page 12](#).
2. Connect the pronged end to a grounded 3-pronged AC outlet, power strip, surge protector, or uninterruptible power supply.

Connecting a Modem

A modem lets you connect your computer to the Internet, World Wide Web, or another computer at a remote location using a telephone line or network connection. Once connected, your computer can send information to or receive information from the Internet, Web, or remote computer.

If you ordered an internal modem with your computer, the modem is installed in one of the computer's expansion slots (see [Figure 2-1 on page 11](#) or [Figure 2-2 on page 12](#)). Note that your modem might reside in a slot other than the one shown in these figures. If you ordered an external modem, the modem is included as a separate item with your computer.

The number of connectors on a modem varies; however, most modems have both of the following connectors:

- **LINE** — Attach this connector to a telephone line using a modular telephone cord. Most modems provide a modular telephone cord for making this

connection. If your modem does not provide one, you can obtain one from an electronics or hardware store.

- **PHONE** — Attach this connector to your telephone. While this connection is optional, making it allows you to use your telephone to originate and answer calls when you are not using your modem.

NOTE Modems with speakerphone capabilities have round connectors for connecting headphones and a microphone. Do not confuse these connectors with the speaker connectors on your sound card. (See [“Connecting Devices to a Sound Card” on page 13.](#))

For more information, refer to the modem manual supplied with your computer.

Connecting to a Network Interface Card

If you ordered a network interface card (NIC) with your computer, the NIC is installed in one of the computer’s expansion slots. A NIC lets your computer connect to a network. Once connected, your computer can communicate with other computers on the network and access shared resources, such as a network printer or network applications installed on the server.

The connectors on the back of the NIC are different depending on the type of card. Some NICs provide RJ-45 connectors, which are slightly wider than the RJ-11 modular jacks on your modem. Some NICs also have a BNC (bayonet-shaped) connector and/or an AUI connector. Refer to the NIC manual supplied with your computer for instructions on connecting to the network.

Note that the back panel of an NIC sometimes has LEDs that show when data is sent from and received by the NIC, the status of the NIC’s link to the network, and whether the NIC is receiving power.

[Figure 2-1 on page 11](#) and [Figure 2-2 on page 12](#) show examples of a NIC card installed in one of the computer’s expansion slots. For more information, refer to the NIC manual supplied with your computer.

Connecting a Printer or Other Parallel Device

Your computer has a parallel connector, or port, for attaching a parallel device such as a printer. See [Figure 2-1 on page 11](#) or [Figure 2-2 on page 12](#) to locate the parallel port for your system unit.

To connect a parallel device to the computer system, attach one end of the connecting cable to the device and the other end to the parallel port on the back of

the system unit. One end of the cable contains pins; the other end contains only holes. Make sure to place the end with pins into the parallel port. The end with the holes goes into the corresponding slot on the parallel device.

NOTE For computers equipped with an Intel microprocessor, the parallel port is burgundy.

You can connect two or more parallel devices to your system. See the section [“Connecting Two Parallel Devices” on page 78](#) for more information about how to do this.

Checking Out Your Computer

The front panel of your computer contains various buttons and controls, access to certain drives, and LEDs. The following sections explain the controls found on all computer systems.

POWER and RESET Buttons

You use the **POWER** button to turn your computer on and off. When the computer is off, press the button to turn it on. To turn off the computer, first follow the steps described under [“Shutting Down Your Computer,”](#) later in this chapter to shut down the operating system; then press the **POWER** button to complete the process.

The **RESET** button reboots (restarts) the computer. If you press this button when applications are open, you will lose all unsaved work. However, if an application gets stuck (hangs), you might need to press the **RESET** button to resolve the situation even if doing so means losing some work.

Drives

The front panel of your computer has the following drives:

- Diskette (floppy) drive — holds a 3.5-inch “floppy” diskette.
- CD-ROM/DVD-ROM drive tray — holds a compact disk (CD or DVD).

Controls

The front of your computer has the following controls:

- Diskette drive eject button — Press this button to eject the diskette from the diskette (floppy) drive.
- CD-ROM/DVD-ROM controls — Use these controls to move to the next or previous CD/DVD selection (track). Your computer also provides software controls for changing CD/DVD selections. For details about selecting particular tracks, refer to the sound card manual supplied with your computer.
- CD-ROM/DVD-ROM drive eject button — Press this button to open and close the CD/DVD-ROM drive tray.
- Volume control — Use this control to adjust the volume of the CD/DVD in the CD-ROM/DVD-ROM drive. Your computer also provides software volume controls. For details about using the volume control, refer to the sound card manual supplied with your computer.
- Headphone jack — You can plug headphones into this jack for listening to a CD/DVD that is in the CD-ROM/DVD-ROM drive.
- Lock — To lock and unlock your system, place the unit's key in the lock. NetRAIDer systems have locks on the front panel and on the left and right side

LEDs

The front of your computer has the following LEDs:

- Power LED — Lights when the computer is turned on. NetRAIDer systems also have power LEDs for its primary and redundant power supplies.
- Hard drive LED — Lights when the computer is accessing the hard drive(s). Do not shake or move the computer when you see this light. NetRAIDer has multiple hard drive LEDs.
- CD-ROM/DVD-ROM drive light — Lights when a CD is inserted in the drive and whenever the system is accessing the CD.
- Diskette drive LED — Lights when the computer is accessing the diskette in the diskette drive.

Turning Your Computer On and Off

This section explains how to turn your new computer on and off. These process are sometimes called “power on” and “power off”.

- [“Selecting the Proper Environment” on page 8.](#)
- [“Shutting Down Your Computer” on page 19.](#)

Powering-on Your Computer

To power-on your computer:

1. Arrange your computer so you can see the monitor and access the keyboard, mouse, CD-ROM/DVD-ROM drive, and diskette drive.
2. If you are using a power strip, surge protector, or uninterruptible power supply, make sure all the individual devices are turned off.
3. Then turn on the power strip, surge protector, or uninterruptible power supply.
4. Turn on your monitor.
5. Press the **POWER** button on the front panel of the system unit to turn on your computer.
6. Turn on any other peripherals attached to your computer, such as a printer, speakers, and external modem.

In the unlikely event that your computer does not power on:

- Be sure the power cables are securely connected to both the AC power source (wall outlet, power strip, surge protector, or uninterruptible power supply) and the power connector on the back of the computer.
- If you are using a power strip, surge protector, or uninterruptible power supply, make sure it is connected to a functioning AC source and is turned on.
- Be sure the monitor is connected to a working AC source. Plug an appliance, such as a lamp, into the source to verify that it is working.
- Be sure any AC outlets involved in the connect are not controlled by a wall switch that is turned off.

If you hear the system unit fan spinning, but nothing appears on the screen, check that the monitor:

- Is connected to a functioning AC power source.
- Is attached to the appropriate connector on the back of the system unit.
- Is turned on.
- Has its brightness control set at a reasonable level. If this control is set too low, it can cause the monitor screen to appear black.

Shutting Down Your Computer

When you finish using your computer, use the following procedure within the Microsoft® Windows® operating system to shut down your computer.

- 1.** Click the **Start** button in the Microsoft® Windows® taskbar.
- 2.** Click **Shut Down...** option.
- 3.** When the Shut Down Windows dialog box appears, click the **Shut down the computer?** option to select it.
- 4.** Then click the **OK** button to shut down your computer. (Click the **Cancel** button to keep the system turned on.)
- 5.** When you see a message on the screen indicating that it is safe to turn off your computer, press the **POWER** button on the front panel of the system unit to complete the shutdown process.

For additional information, refer to the Microsoft® Windows® manuals supplied with your computer. After you shut down your computer, turn off the monitor and all peripheral devices connected to your computer, such as the printer and speakers.

Chapter 3

Maintaining Your Computer

This chapter provides suggestions that will help you keep your computer in good running order for a long time. The topics covered in this chapter are:

- [“Protecting Your Computer from Electrical Anomalies,”](#) below.
- [“Protecting Your Computer During Electrical Storms”](#) on page 23.
- [“Taking Precautions Against Computer Viruses”](#) on page 23.
- [“Backing Up Your Data”](#) on page 24.
- [“Using ScanDisk”](#) on page 24.
- [“Using the Disk Defragmenter Utility”](#) on page 26.
- [“Cleaning Your Computer System”](#) on page 27.
- [“Transporting Your Computer”](#) on page 30.

Protecting Your Computer from Electrical Anomalies

Spikes, surges, brownouts, and blackouts are types of electrical anomalies that can disrupt the operation your computer. A recent study indicates that power disturbances occur in most communities at least twice a day.

The following devices can help protect your computer system from electrical anomalies:

- Line voltage regulator — protects against voltage fluctuation, but not against surges, spikes, or blackouts.
- Power line conditioner — provides the benefits of a line voltage regulator, isolation transfer mechanism, and surge suppressor into one device. This device protects equipment from surges and spikes, but not blackouts.

- Uninterruptible power supply (UPS) — handles surges, brownouts, and blackouts. If power is interrupted, the UPS batteries provide sufficient power to let you save your work, exit your applications, and power-down your computer.

Caution Beware of using surge suppressors. In spite of the name, surge suppressors suppress only electrical spikes. They do not suppress electrical surges.

Your telephone line and network connection (if any) also present a threat to your computer. If your computer has a modem connected to the telephone line or a network interface card connected to a network, an electrical anomaly occurring in the telephone line or network can affect your computer system and the attached peripherals. To combat this potential threat, special telephone line surge suppressors have been developed to defeat surges induced through telephone lines and networks.

With all of these devices available, how do you decide which one you need? At a minimum, we recommend that you obtain a power line conditioner.

If your computer will be located in an area where power goes out frequently, you will find it worthwhile to invest in a UPS. Using a UPS can save you from having to reconstruct data or lost files. If you decide to purchase a UPS, follow these guidelines to make sure the UPS you buy is capable of handling your system:

1. Check the amperage specification on system unit, your monitor, and the other peripherals that are part of the system, such as the printer. The amperage information is usually listed in your equipment documentation and appears on the sticker or plate that displays the device's model number.
2. Add the amperage figures for all the system components.
3. Multiply the figure in step 2 by 120 to get the volt-amp specification used by most UPS makers. Make sure the volt-amp rating for the UPS you buy equals or exceeds this figure.

Protecting Your Computer During Electrical Storms

If an electrical storm occurs in your area, take the following precautions to safeguard your computer after you have closed all applications and powered-down the system:

- Unplug your computer's system and all peripherals that from the AC outlets, even if you are using a surge protector or UPS. While these protective devices can guard against AC fluctuations, they do not protect your computer from lightning strikes.
- Unplug your modem from the telephone wall jack. Telephone lines are subject to electrical overloads from lightning strikes. A lightning strike can travel along a telephone line and attack your computer through a modem connected to a telephone wall jack. Lightning can damage the modem, your computer, and all peripherals connected to it.

After the storm passes, reconnect your computer and peripherals to AC power sources and reconnect your modem to the telephone wall jack.

Taking Precautions Against Computer Viruses

A computer virus consists of software that enters your computer and runs without your knowledge. As the term virus implies, this type of software causes unwanted activities to occur in your computer. Computer viruses can range from the relatively simple to the complex:

- The most common type of simple computer virus replicates (copies) itself over and over again in your computer's hard drive. This type of virus is harmful because it can quickly consume all available memory and storage resources and bring your computer to a halt.
- Complex viruses are capable of transmitting themselves across networks and bypassing security systems. They not only use up computer resources and can also damage files, applications, and hardware elements.

There are a number of commercial antivirus software programs available that you can install on your computer to protect against such invasions. These programs periodically check your computer to make sure it has not become infected by viruses. We recommend that you purchase an antivirus software program, install it on your system, and update it regularly to protect your computer against new viruses.

NOTE For additional information about viruses, see [“Fending off Computer Viruses from the Internet”](#) on page 76.

Backing Up Your Data

The data stored in your computer is important to you. For that reason, we encourage you to back up your files regularly. Doing so can save weeks, months, and even years of data from being lost.

There are a number of ways to back up data:

- Use ordinary 1.44 MB diskettes to back up your data.
- If your computer has a zip® drive, you can back up your data on zip® disks.
- If your computer has a CD-RW/DVD-RW device connected to it, you can back up your data onto CD/DVDs.
- If your computer has a tape device connected to it, you can back up your data onto tape.

The first method in the list works for all systems, but is time consuming because each diskette hold a relatively small amount of data.

NOTE The Microsoft® Windows® operating system includes its own backup program. Refer to the manual that comes with your computer for more information. If you use the Microsoft® Windows® backup program to back up your data, keeping it minimized when backing up your data allows it to run up to 25% faster than when it is not minimized.

Using ScanDisk

ScanDisk is a Microsoft® Windows® utility that checks your computer’s hard drive for errors and corrects problems that it finds. These errors often occur when the operating system locks up and you then restart the computer system.

To run the ScanDisk utility:

1. Click the **Start** button on the Microsoft® Windows® taskbar.
2. When the Start menu appears, click the following options in each successive popup menu: **Programs**, **Accessories**, **System Tools**, and **ScanDisk**.

3. When the ScanDisk dialog box appears, select the drive you want to check by clicking its name in the display area.
4. Select the type of test you want to run.
5. Press the **Start** button at the bottom of the dialog box.
6. In most instances, when ScanDisk is finished checking the disk, it displays a report saying that it found no errors. Press the **Close** button in the dialog box to complete the procedures.

ScanDisk gives you the choice of running a standard test or a thorough test:

- The Standard test takes a few minutes to run. It checks files and folders for errors.
- The Thorough test takes from 30 minutes to 3 hours to run, depending on the size of your computer's hard drive. In addition to running the Standard test on all files and folders, the Thorough test scans the disk surface for errors. Because the Thorough test is a time-intensive activity, consider running it after hours or during lunchtime.

You should run ScanDisk at least once a month. It can indicate if your computer's hard drive is in danger of failing.

Having the ScanDisk Thorough test uncover a few anomalies (up to 10) is considered normal by most hard drive manufacturers. The important thing is to determine whether the number of anomalies is increasing.

For example, if the Thorough test reports one or two bad spots after performing the surface scan, run the test again. If more bad spots are reported, run the test a third time. If ScanDisk finds even more problems, you should back up your data (see [“Backing Up Your Data” on page 24](#)) and then contact @Xi Computer Corporation technical support (see [“Technical Support” on page 81](#)).

If you run ScanDisk a second time and the test does not find any errors, resume your work with your computer but run a surface scan every day and see if ScanDisk detects additional problems. If you run the test every day for a week and no more spots are reported, reduce the frequency of surface scans to at least once a week and watch for new errors. The results of the test runs should give you a good indication of whether your computer needs a new hard drive. During this testing period, be sure to back up your data regularly.

If your computer has more than one hard drive, run ScanDisk on each hard drive in your computer.

NOTE If you have a diskette that has problems, ScanDisk might be able to repair it. Insert the problem diskette into the diskette drive and select that drive for Scandisk to check. If the utility is able to fix the diskette, copy the diskette contents to a new one immediately and discard the old disk because the fix is usually only temporary. Continuing to use the defective diskette could lead to problems later on.

Using the Disk Defragmenter Utility

The Microsoft® Windows® Disk Defragmenter utility reorganizes your computer's hard drive so that the system can locate files faster. You should run Disk Defragmenter on a regular basis. If you run your computer every day, run the full Disk Defragmenter program at least once a week. Because Disk Defragmenter is an intensive activity, consider running it after hours or during lunchtime.

To run the Disk Defragmenter utility:

1. Click the **Start** button on the Microsoft® Windows® taskbar.
2. When the Start menu appears, click the following options in each successive popup menu: **Programs**, **Accessories**, **System Tools**, and **Disk Defragmenter**.
3. When the Select Drive dialog box appears, check the display area to see if the drive you want appears in the field. To select a different drive, click the arrow button at the right of the field and then click the name of the drive from the list that appears.
4. Press the **OK** button in the Select Drive dialog box to start the defragmentation process.
5. After the Disk Defragmenter utility finishes checking the drive you selected, a message box appears asking if you want to quit. Press the **Yes** button in the message box to complete the procedure.

Always run the full Disk Defragmenter procedure, even though the default selection of defragmenting only files takes less time. We recommend using the full procedure because defragmenting files does not increase performance very much.

NOTE Be sure to run the Standard ScanDisk test before you run Disk Defragmenter; otherwise, a small imperfection in your hard drive will cause the Disk Defragmenter utility to stop and tell you to run Scandisk.

The time required to run Disk Defragmenter depends on how long it has been since you last performed this operation, how full your drive is, how powerful your system unit (CPU) is, and how much random access memory (RAM) your computer has. Running the Disk Defragmenter utility can take only five or 10 minutes or as long as several hours. Since the time is unpredictable, the first time, you might want to start the procedure before you leave work or go to bed.

You might see some error messages during Disk Defragmenter run. The most common message indicates that Disk Defragmenter cannot continue because of errors on the hard drive. If you receive this message, follow the instructions in the message and run ScanDisk.

Cleaning Your Computer System

Occasionally, your computer system needs cleaning. The following sections describe the steps to take to clean various components of your computer system.

Cleaning the System Unit Case

If the outside of the system unit gets dirty, follow these steps to clean it:

1. Close all applications and windows that appear on the screen.
2. Power-down the computer.
3. Turn off all attached peripherals.
4. Use a soft, lint-free cloth dampened with water to clean the exterior of the system unit. Avoid getting moisture in any openings.

Caution Never use aerosol sprays, solvents, or abrasives to clean the system unit. Sprays cause moisture to get into the system unit. Solvents and abrasives can scratch or mar the system unit case

Cleaning the Monitor

To clean your monitor:

1. Close all applications and windows that appear on the screen.
2. Power-down the computer.
3. Turn off the monitor.

4. Spray household glass cleaner on a soft, lint-free cloth.

Caution Never clean the monitor when it is turned on and never apply window cleaner directly on the monitor.

5. Wipe the screen.
6. You can use a fabric softener sheet to help remove any static electricity from the screen.

Cleaning the Mouse

The mouse contains a small ball that must roll smoothly for the device to function properly. As you use your mouse, dirt accumulates inside the device. To minimize the amount of dirt and grease that this ball accumulates, always use the mouse on a clean, dust-free surface that offers a small amount of friction, such as a mouse pad.

If the pointer on the screen jumps erratically when you move the mouse, it often indicates that you need to clean the mouse's roller ball. Follow these steps:

1. Close any applications and windows that appear on the screen.
2. Power-down the computer.
3. Turn the mouse upside down.
4. Using both thumbs, turn the plastic ring on the bottom of the mouse counterclockwise to disengage it. (Keep track of where you put the ring.)
5. Remove the mouse ball from the interior of the mouse.
6. Gently blow into the mouse case to remove as much dust as you can.
7. Then moisten a cotton swab with alcohol and clean the inside of the mouse to remove any dust and dirt. Be sure to rotate the rollers to clean all around them.
8. Wipe the mouse ball with a clean, soft, dry, lint-free cloth. If the mouse ball is dirty, wash it with warm soapy water. (Use a mild soap such as a dish washing liquid.) Then dry it thoroughly.
9. Allow the interior mouse surfaces to dry thoroughly.
10. Place the mouse ball back into the interior of the mouse.
11. Put the plastic ring back on the mouse so that it holds the mouse ball in place.

12. Twist the plastic ring in a clockwise direction to engage it and lock the mouse ball in place.

Inspect the work area where the mouse rolls. If you are using a mouse pad that has a cloth surface, clean it with a lint brush. If the mouse pad surface is plastic, wipe it with the damp cloth.

Your mouse should roll smoothly across the mouse pad or desk surface. If it does not, try cleaning the mouse and the mouse pad or desk surface again. Note that some desk surfaces are so smooth that there is not enough friction for the mouse ball to roll properly. Consider using a mouse pad if you find that the desk surface is too slick.

Cleaning the Keyboard

If your keyboard becomes dirty, use an aerosol can of air with a strawlike extension to blow dust, lint, and trapped particles from under the keyboard surface and from under the keys.

If you spill a liquid on the keyboard, perform the following steps immediately:

1. Close all applications and windows that appear on the screen.
2. Power-down the computer.
3. Disconnect the keyboard from its connector on the back panel of the system unit.

Caution Always remove the keyboard connector from the back of the system unit carefully to avoid breaking or damaging the pins inside the cable end.

4. Turn the keyboard upside down and let the fluid drain out completely.
5. After the fluid has drained, turn the keyboard rightside up and reconnect it to the system unit.

If the keyboard does not work properly after you have followed these steps, take it to a qualified service provider for a thorough cleaning.

Transporting Your Computer

If you need to move your computer system, prepare the equipment by following these steps:

1. Close all applications and windows that appear on the screen.
2. Power-down your computer.
3. Disconnect all the components from each other.
4. Repack the computer system in its original packing materials and boxes. If the original packing materials and boxes are not available, pack all components in as much packing material as possible to minimize their exposure to shock and vibration. Then place the components in boxes that are sturdy enough to handle the weight of the contents.

When the computer is at its new location, follow the instructions given earlier in the User's Guide for unpacking and setting it up.

Chapter 4

Getting Online

The Internet is a global communications medium that connects individuals, businesses, governments, and educational institutions. The Internet can be used on many levels. For example, businesses are finding the Internet to be the easiest way to advertise, market, and deliver their goods to consumers around the world. The Internet provides electronic mail and other resources that allow mobile professionals to be as productive on the road as they are in the office. These resources are rapidly making the Internet an indispensable business tool, just like the telephone, facsimile machine, and photocopier.

People of all ages find the Internet to be a forum for exchanging messages, playing games, sharing conversations in chat rooms, accessing information on all sorts of subjects, and much, much more.

You can even use the Internet to visit @Xi Computer Corporation's Web page at www.xicomputer.com. This Web site contains information about @Xi Computer Corporation's products and can be accessed 24 hours a day, seven days a week.

This chapter provides an overview of the Internet and the World Wide Web. It also contains suggestions for selecting an Internet Service Provider (ISP). You connect your computer to an ISP to access the Internet.

The main topics in this chapter are:

- “Overview of the Internet” on page 32.
- “Internet Access” on page 37.
- “Selecting an Internet Service Provider” on page 37.

Overview of the Internet

The term internet literally means “network of networks”. The Internet is a global network connecting millions of computers. It has more than 100 million users worldwide, and that number continues to grow every day. More than 100 countries are linked together through exchanges of data, news, and opinions.

Internet History

The Internet was originally known as the ARPANET and was developed by the US Department of Defense (DOD) during the cold war in 1969. At that time, the DOD arranged with a number of military contractors and universities to see whether a communications network could be devised that would survive a nuclear attack.

For the first decade of its existence, the ARPANET was primarily used to facilitate e-mail, support online discussion groups, allow access to distant databases, and support file transfers between government agencies, universities, and a small number of businesses.

During the early 1980s, the interconnected research networks converted to the TCP/IP protocol, which provided a communications standard that enables different types of computers to communicate with each other. Once there was a common method for computer to “talk” to on another, the Internet started to grow.

In 1990, HTML (hypertext markup language) was developed for creating Web pages that included both text and graphics as well as links from one place to another. Using HTML, individuals could create pages for display on the Internet that contained colored text of different sizes and shapes as well as pictures and drawings. Some pages contained links to other parts of the document or to other pages on the Internet. These sites formed the now huge, virtual hypertext network called the World Wide Web (WWW). The World Wide Web forms a major portion of the Internet and serves a huge audience.

Over the years, a number of different services have developed to encourage information sharing between Internet sites. Because the Internet was originally research-oriented, many of the early services were hard to use and poorly documented. Now that the Internet has expanded to commercial and private sites, however, new services with friendly interfaces have developed that make the Internet easier to use and make it easy to create new Internet sites.

Accessing the Internet

Your computer comes preinstalled with software for Internet access. This software is generally referred to as a browser. To use the browser on the Internet, you need to go through an Internet service provider (ISP). An ISP is generally a company that provides Internet accounts and connections to both businesses and individuals. If you are using your computer at home or in a small office, you will mostly likely connect to an ISP through the modem in your computer. In larger businesses where computers are part of a network configuration, you might access the Internet through high-speed connection lines.

If you do not already have an Internet service provider, see the section [“Selecting an Internet Service Provider” on page 37](#) for assistance.

How Popular is the Internet?

The Internet is estimated to have about 60 million users. The growth rate of Internet usage is predicted to be a 10% to 15% of its total base of users every month.

The Internet is accessible from nearly every country in the world. The United States and Canada still rank as the biggest users of the Internet, but Europe is catching up fast as access becomes available to more countries on that continent. Asian countries, particularly India and Japan, account for increasing amounts of Internet use.

What Information is on the Internet?

A short answer to this question is: Everything you want to know. Although that might be a bit of an exaggeration, in truth, the Internet has information about almost any topic you can think of. The coverage spans many disciplines and many different audiences from high-technology research papers to tips on how to get rid of bugs on your tomato plants. There are databases containing legal documents, information on prescription drug interactions, and lists of automobile parts. You can catch up on local, national, and international news, weather reports, stock quotes, and sports results.

Major news services such as Reuters International and the Associated Press as well as local newspapers provide daily news on the Internet. There are also many discussion groups, referred to as chat rooms, on the Internet where anyone can participate in an on-going interchange of information and opinion on a given topic.

To help you navigate through the huge quantity of data, the Internet provides search engines, such as Alta Vista, Infoseek, Lycos, and HotBot. You key in the a

word or phrase that you want to locate. The search program scours the Internet for all references to that topic on the various World Wide Web pages. The search program then lists all the sites it finds so you can select the ones you want to visit. You select the ones you want to view.

Internet Features

The following sections briefly describe some of the most commonly used features of the Internet.

Browsing the World Wide Web

Although the terms Internet and World Wide Web (or just Web) are often used synonymously, they are actually two different things.

As you read in the previous section, the Internet is the global association of computers that carries data and makes the electronic exchanges of information possible. The World Wide Web (or WWW, for short) is a subset of the Internet — a collection of interlinked documents that work together. The Internet exists independently of the WWW, but the WWW cannot exist without the Internet.

The WWW began in March 1989 when a European research group called CERN suggested the project as a way to improve communications among researchers around the world. The group's intent was to create a service that would allow anyone to easily access and display documents that were stored on any computer connected to the Internet. To accomplish this objective, the group developed a standard format for the documents that enabled them to be easily displayed by any type of display device, and allowed links to other documents to be placed within documents.

Although originally developed for research purposes, the WWW has experienced incredible growth since it was made public. One reason for its popularity is its ability to provide visual impact and advanced features with impressive-looking text and dazzling graphics.

Web pages are written using the HyperText Markup Language (HTML). Like regular text, hypertext can be stored, read, searched, or edited. One of the defining features of HTML is the hypertext link (or "hyperlink"). Hyperlinks let you move from one document to another or one Web site to another. Hyperlinks can appear as highlighted text, icons, or pictures.

When you are viewing one Web site, you can click on a hyperlink to jump to another Web site. For example, suppose you are looking at a Web site that provides information about places to visit in San Diego. When you click on the hyperlink for the San Diego Zoo, the Web page for the Zoo appears on your computer screen.

New developments in Web software allow video and audio clips to be transmitted from a Web site to your computer. Using the audio and video capabilities of the Web, companies can provide presentations and demonstrations of their products and services. @Xi Computer Corporation makes much of its product and service information available through the Web.

Future developments in software and transmission methods will allow even greater expansion of the World Wide Web. For example, you will soon be able to view movies directly from the Web. The potential for new, innovative ideas makes the versatility of the Web unlimited.

Electronic Mail

Electronic mail (e-mail) is a message system that lets you use the Internet to send information to and receive information from other Internet users who also have e-mail accounts. You can write notes to friends with e-mail, apply for jobs, send business letters, or exchange legal documents. Many e-mail programs allow you to attach computer files to the messages or send pictures along with your letter.

Many e-mail programs let you create mailing lists so that you can send the same message to a group of people. Mailing lists are a convenient way to quickly distribute information such as office memos and reports to a number of people with just one message. The mailing list can consist of only a few names or hundreds of addresses.

Electronic Newsgroups

A electronic newsgroup is an online discussion group devoted to a single topic. The topics are myriad. Newsgroups are components of bulletin board systems.

Usenet is the one of the most prominent bulletin board systems. It is a worldwide discussion system that consists of thousands of different newsgroups. Each newsgroup site contains articles on the site's topic as well as follow-up posts where participants can respond to the contents of the articles or to remarks by other participants.

Some newsgroups are "moderated." This means that the articles are first sent to a moderator for approval before they appear on the newsgroup site. Some times the moderator will get involved in the follow-up posts as well.

With such a vast number of newsgroups, it is likely that you can find at least one that caters to your interests.

Information Searches

The key thought of most computer users today is information access. Although the Internet offers a wealth of information, its massive size makes it difficult to locate the information you desire. To simplify this task, the Internet offers a number of search resources (or “engines”) to help you find information quickly.

Most search engines work the same way. You specify the information you want to find, then tell the search engines to return a list of Internet sites that contain that information. The search engines scans the Internet and displays a list of matching Internet sites that contain the information you specified. Each match is referred to as a “hit,” and the list containing them is referred to as a “hit list.” Most hit lists start with a list of the sites that best match your search information. To navigate to a particular site, click the site’s hypertext link in the hit list.

You can experiment with different search engines to see which meets your requirements. Though similar, each search engines has nuances that you may prefer. For example, a search engines that returns 10,000 hits quickly may not be as effective as a slow one that returns only 25 meaningful hits. A few of the popular search engines are HotBot, Lycos, Yahoo, Alta Vista, and Infoseek.

Gopher

Gopher is another resource for locating information on the Internet. Gopher is a basic menu-based program that lets you browse and search for information on Gopher server computers around the Internet. Gopher provides access mainly to text documents since it was designed before the graphic display operating systems such as Microsoft® Windows® became to popular.

Two years after its inception, Gopher spread rapidly worldwide. Recently, however, it has been largely supplanted by the World Wide Web. However, there are still thousands of Gopher servers on the Internet.

FTP

File Transfer Protocol (FTP) is an easy common way to move files, especially large files, from one computer to another over the Internet. Using FTP, you can log in to another site over the Internet to download (copy) files from that site to your computer or to send files from your computer to that site.

Telnet

Telnet is a program that lets Internet users at one computer log on to another computer linked to the Internet. Through Telnet, you can work with a remote computer as if your computer were directly connected to the remote site.

Through a Telnet connection, you get the login prompt of the remote computer. From there, you can log in and use any resource (files, programs, etc.) on the remote system that you have permission to access.

Internet Access

To access the Web, you need a software application called a Web browser. A Web browser lets you navigate to Web sites.

There are several Web browsers currently available. Though similar, no two browsers display the same Web page exactly the same way. In addition, some Web browsers offer more features than others. For example, in addition to browsing Web pages, some browsers let you:

- Copy and print information.
- Send and receive e-mail.
- Read newsgroups on the Internet.

Browsers also provide access to Gopher and file-transfer capabilities.

Most browsers let you navigate to a Web page by specifying a Uniform Resource Locator (URL). A URL represents a link to a Web page or resource. The following example shows the URL for @Xi Computer Corporation:

<http://www.xicomputer.com>

This URL references the @Xi Computer Corporation home page.

The URL provides the precise path to the computer that has the information you are looking for. URLs also work with hyperlinks on Web pages as well as other online documents, even e-mail message. When you click on a URL hyperlink, you go from the current document to the document referenced by the URL.

Selecting an Internet Service Provider

Internet service is available from an Internet service provider (ISP). The ISP you select can be local, regional, or nationwide. To find a local ISP, consult the Yellow Pages, local computer magazines, or the business or computer section of your newspaper. Information about nationwide ISPs often comes with your computer.

The following sections highlight various considerations that you should be aware of in selecting an Internet Service Provider.

Local or Toll-Free Access Numbers

The telephone number you dial to connect to your ISP and obtain Internet access is referred to as an access number. When choosing an ISP, select one that offers either a local access number or one that is toll-free (800, 888, or 877). Avoid ISPs that only offer a long-distance number because you will incur long-distance charges for the entire time you are connected to your ISP. Accessing the Internet for extended periods of time can become costly.

Speed

The speed with which you access the Internet depends on the speed of your ISP's connection line. Therefore, you should try to select an ISP who has the capability for providing fast, reliable connections to the Internet and to your modem.

- **ISP connection to the Internet**

At a minimum, your ISP should use an ISDN, T-1, or T-3 connection to the Internet. An ISP that has dial-up Internet connections will make your Internet experience slow and frustrating.

- **ISP dial-up connection to you**

Your connection to the ISP will only be as fast as the maximum speed supported by your modem and the ISP's modem. In addition, there are FCC limitations on modem speeds. However, make sure that the connection between your computer's modem and your ISP's computer is as fast as possible.

NOTES

Current FCC limitations prevent modem connections at 56,000 bps. For more information, see [“56 Kbps Modem Speeds” on page 75](#).

Telephone line conditions also affect dial-up connections. A fast modem can have its connection speeds reduced if the call is placed over a telephone line that had noise and other distortions. If your modem connects to an ISP at a slow speed, you might hang up and redial to try to get a faster connection over a better telephone line.

Pricing and Software

In selecting an ISP, you should compare prices. If you intend to use an on-line service for more than several hours a month, find out if the on-line service has an “unlimited usage” rate. Such a plan can save you considerable money over plans that charge you for each minute, hour, or day of Internet access.

You should also compare the software that ISPs provide for accessing the Internet. Some ISP software is easy to use and comes with complete, easy-to-understand instructions; other access software is more difficult to use and comes with few or highly technical instructions.

Service Issues

Compare the quality and range of service offered by various ISPs. Some offer more services, but if you do not need those additional services, you might find it preferable to a cheaper, less full-featured ISP.

Also, consider an ISP's technical support service. You might want to call an ISP's technical support department and ask some questions to see whether you feel comfortable with the assistance offered by the ISP.

Endorsements

Consider recommendations from friends, colleagues, businesses, and reviews in publications.

Free Trial Period

If you are not sure about committing to an ISP, choose one that offers a free trial period. Free trial periods give you an opportunity to see how well the ISP works and how comfortable you are with the ISP. For example, you do not want to sign on with a service if you get a lot of busy signals whenever you try to connect.

At one time, it was common for an ISP to provide 10 free hours, letting you cancel at anytime. Today, some ISPs are giving new users 50 hours or 30 days free to try their service.

Refund of Prepayments

Some ISPs offer a discounted price if you prepay for an entire year of service. Before you prepay, however, check whether the ISP will refund your money if you switch to another ISP within the year for which you prepaid. For more information, refer to the Note in the section [“Changing ISPs” on page 40](#).

Setting up an Account with an ISP

When you decide on an ISP, you need to open an account with the company. In return, the ISP gives you account identification (ID) and a password. Some ISPs also provide Internet-access software, if such software is not pre-installed on your computer.

Your ID consists of a name you choose, such as jwbrown. This is your permanent ID whenever you connect to the ISP. It is copied to the ISP's mail server. It is often the permanent name of your mailbox (for example, jwbrown@state.org).

In addition to your ID, you will need a password to access the ISP. The ISP will either create a password for you or let you create your own password. In most instances you will be able to choose your own password within certain rules, for example some ISPs require that the password contain more than 8 characters.

Some ISPs also provide you with software for connecting to their computers; others either let you use software already installed on your computer or require you to purchase additional connecting software.

Once you have the proper connecting software on your computer and have an account set up, you are ready to connect to the Internet through your ISP. Dial the ISP's telephone number and/or perform the appropriate selection steps on your computer. When you see the login prompts on your screen, enter your ID and password. As soon as you enter the correct ID and password, the ISP connects you to its server computer. From there, you can navigate to Web pages and utilize any other resources that the ISP provides.

Changing ISPs

If you select an ISP that does not suit your needs or want to make a change for some other reason, you can do so at any time. Many ISPs advertise for new users on the Web. You might also find it useful to have a second ISP if one of them is free.

NOTE If you prepaid your ISP account for a year and switch to another ISP, see whether your former ISP will refund any money for access time not used. For example, if you prepay an ISP for 12 months of service and switch to another ISP after four months, check whether your initial ISP will refund your money for eight months of service

To change ISPs, select a new one and contact the company to set up an account. Get your ID and password and try out the service. Once you have the account set up and working to your satisfaction, contact your original ISP to cancel your account with them.

Chapter 5

Upgrading Your Computer

Your computer is designed to meet your current requirements and can be extended to accommodate your future needs. For example, you can expand your computer's Random-Access Memory (RAM), install a second hard drive, install a new microprocessor, and install and remove expansion cards.

This chapter provides information that you need when you want to upgrade your @Xi Computer Corporation computer and procedures for performing several types of upgrades. The main sections are:

- [“Precautions to Follow Before Upgrading” on page 42.](#)
- [“Accessing the Interior of Your Computer” on page 43.](#)
- [“Looking at the Inside of Your Computer” on page 46.](#)
- [“Installing and Removing RAM” on page 48.](#)
- [“Installing a Hard Drive” on page 49.](#)
- [“Replacing the Microprocessor” on page 50.](#)
- [“Installing Expansion Cards” on page 51.](#)

Precautions to Follow Before Upgrading

Observe the following precautions when you perform any upgrades on your computer.

Avoiding Electronic Injuries

To avoid receiving any electrical shocks when you upgrade your computer, you should take the following precautions in advance:

- Turn off the computer and any attached peripherals.
- Disconnect the computer and any attached peripherals from their power sources.
- Disconnect any telephone or telecommunications lines from the computer.
- Wear a wrist grounding strap and clip it to an unpainted metal surface, such as the security cable ring on the back of the chassis. If a wrist grounding strap is not available, touch an unpainted metal surface on the back of the computer to discharge any static charge from your body.

When you finish the upgrade, always make sure all other system cables are connected before connecting the computer to its power source.

Antistatic Grounding

Your computer contains many sensitive components that are prone to damage from static electricity. A static-electric charge is present in your body. In addition, your body can pick up static electricity especially in carpeted rooms and/or in dry weather.

When your body touches an object with an opposite charge, the static electricity is discharged and you feel a “shock.” This shock can severely damage your computer’s components. Even a mild static shock can damage the sensitive electronics of your computer. Therefore, before you touch the inside of your computer, touch a metal part on the outside of the computer several times to remove the static-electric charge from your body. Also avoid touching any exposed integrated circuitry or connectors inside your computer or inside the individual components installed in your computer.

To further reduce the chance of danger from static electricity, wear a grounding strap around your wrist. (See the preceding section.)

Removing Loose Parts

When upgrading your computer, never let loose metal parts remain in your computer. If you accidentally drop a screw or a paper clip in the system, remove it *before* turning on your computer. If a metal part is touching any part of the circuit boards in the system, it can cause a short-circuit, which can damage the computer.

To minimize the chance of loose parts entering your computer, do not remove parts from their antistatic bag until you are ready to use them.

Accessing the Interior of Your Computer

@Xi computers come in various configurations and with various single and dual microprocessors. Each configuration has its own instructions for accessing the inside of the computer. Please refer to the appropriate section for accessing the interior of your computer system.

AMD Computers (white and blue case)

Computers equipped with an AMD microprocessor have a white-and-blue case. To access the interior of computers equipped with an AMD microprocessor, perform the following procedure.

1. With the system standing up, face the back of the computer and locate the two clip holes on the right side (one at the top of the case and one at the bottom).
2. Insert your thumbs through the holes and push in (away from the case).
3. When you feel the clips “snap,” move the panel an inch toward you.
4. When the panel is slightly removed, hold the overhang at the top of the case and pull up the top portion of the panel away from the case.
5. Slide the panel straight up and away from the computer.

Intel Computers (beige and green case)

Computers equipped with an Intel microprocessor have a beige-and-green case. To access the interior of computers equipped with an Intel microprocessor, perform the following procedure.

1. With the system standing up, face the back of the computer and locate the two screws near the middle of the back panel.
2. Remove the screws and set them aside.

3. Lift the panel toward you and pull it away from the computer.
4. To access the hard drive, remove the screw at the other side and at the top.
5. To access power supply and CPU, remove the screw next to the power connector. Push the power supply straight up and toward you, securing the hard drive at the back of the computer. Then pull the panel toward you and lift straight up.

NTower™ (beige case)

To access the interior of NTower™ systems equipped with an AMD or Intel microprocessor, use the following procedure.

1. With the system standing up, face the back of the computer and locate the three screws on the right side of the back panel.
2. Using a straightedge screwdriver, remove the three screws on the right panel.
3. Pull the panel toward you and pull it away from the computer. You should now have access to the interior of the computer.
4. To access peripherals (such as the CD/DVD-ROM drive), remove the left panel of the computer.

MTower™ (all-beige case)

To access the interior of MTower™ systems equipped with dual microprocessors, use the following procedure.

1. With the system standing up, face the back of the computer and locate the two screws on the right side of the back panel.
2. Using a straightedge screwdriver, remove the two screws on the right panel.
3. Pull the panel toward you and pull it away from the computer. You should now have access to the interior of the computer.
4. To access peripherals (such as the CD/DVD-ROM drive), remove the left panel of the computer.

NetRAIDer™ Case (all-beige case)

Access to the interior of the NetRAIDer™ system is gained by removing the left panel. Follow the procedure below.

- 1.** Facing the front of the system, insert the supplied key into the lock on the left panel and turn clockwise.
- 2.** Pull the key toward you. The left panel releases as you pull the key.
- 3.** Lift the door. You should now have access to the interior of the computer.

Access to the power supply and drives of the NetRAIDer system is gained by removing the right panel:

- 1.** Facing the front of the system, insert the supplied key into the lock on the right panel and turn clockwise.
- 2.** Pull the key toward you. The right panel releases as you pull the key.
- 3.** Lift the door. You should now have access to the power supply and drives.

Access to the front panel buttons (power and reset switches) and peripherals is gained by opening the front panel.

- 1.** Facing the front of the system, insert the supplied key into the lock on the front panel door and turn clockwise.
- 2.** Pull the key toward you. The front panel door releases as you pull the key.
- 3.** Lift the door. You should now have access to the power and reset switches and peripherals.

Looking at the Inside of Your Computer

Once you remove the cover, you can see the major components of the system, such as the hard drive, RAM, and microprocessor. [Figure 5-1](#) shows the major components. A brief description of each components follows.

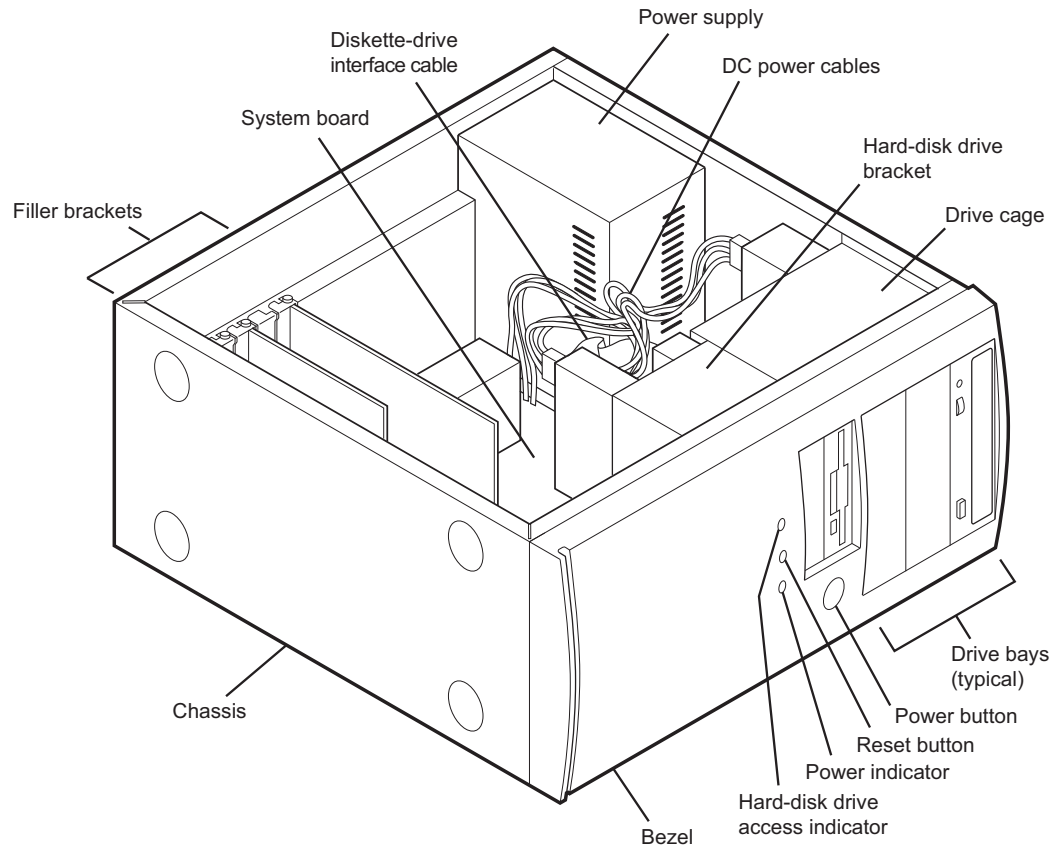


Figure 5-1. Major System Components

- **System Board**

The system board (motherboard) is the large, flat electronics board inside your computer. The system board contains most of the important parts of your computer, such as the microprocessor, memory, and expansion slots.

- **Power Supply**

The power supply is cube shaped and is located at the back of the system unit. The back of the power supply has a small red voltage slide switch, which is accessible at the rear of the system unit. If you use your computer in the United States only, do not change the setting of this switch.

- **RAM** (random access memory)

Your computer uses dual in-line memory modules (DIMMs) for the random access memory (RAM). For information about installing additional memory, see the section [“Installing and Removing RAM”](#) on page 48.

- **Drive Bays**

The front of the computer has several drive bays. Counting from the top of the computer:

- The top bay (Bay 1) contains the factory-installed CD-ROM/DVD-ROM drive.
- In single-drive systems, bays 2 and 3 are usually empty. However, if you ordered a second hard drive, it will be factory-installed in one of these bays.
- Bay 4 contains the factory-installed hard drive.
- Bay 5 is usually empty.

You can install additional hard drives in the empty bays. For information, see the section [“Installing a Hard Drive”](#) on page 49.

- **Expansion Slots**

There are a number of 32-bit Peripheral Component Interconnect (PCI) and slower 16-bit Industry-Standard Architecture (ISA) expansion slots on the system board. You can easily identify the difference between these two slot types. ISA slots are twice as long and typically darker than PCI slots. Each time you add a new card (expansion board) such as a video adapter or internal modem, you install it in one of the available expansion slots. For information about installing and removing expansion cards, see the section [“Installing Expansion Cards”](#) on page 51.

Installing and Removing RAM

The type of random access memory (RAM) your computer supports is referred to as a DIMM (dual in-line memory module). DIMMs are available in many configurations and specifications. When you decide to add RAM, be sure you obtain the appropriate DIMMs for your computer's system board. Refer to the manual that comes with the system board to see whether the system board has certain rules about installing the DIMMs.

To install a DIMM:

1. Turn off the computer and follow the other recommendations in the section [“Precautions to Follow Before Upgrading”](#) on page 42.
2. Remove the system unit cover (see [“Accessing the Interior of Your Computer”](#) on page 43).
3. Hold the DIMM above the socket.
4. Gently press the DIMM vertically into the socket as shown in [Figure 5-2](#). Apply equal pressure on each end of the DIMM.

NOTE DIMMs are keyed to prevent them from being inserted the wrong way.

5. Make sure the clamps on both sides of the socket have locked the DIMM into place. The DIMM should be standing straight up.

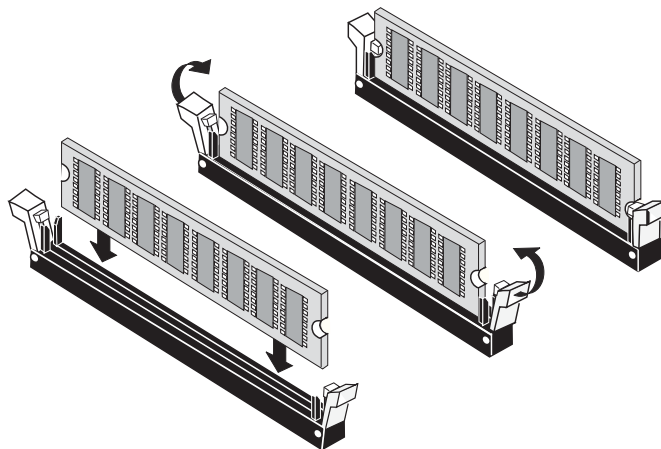


Figure 5-2. Installing DIMMs

Use the following procedure to remove a DIMM. Never forcibly remove a DIMM and never try to remove a DIMM without first releasing it from the socket. Otherwise, you risk breaking the DIMM and/or the socket. To remove a DIMM:

1. Turn off the computer and follow the other recommendations in the section [“Precautions to Follow Before Upgrading”](#) on page 42.
2. Remove the system unit cover (see [“Accessing the Interior of Your Computer”](#) on page 43).
3. Gently push down the tabs securing the DIMM in the socket. The DIMM pops out of the socket.
4. Lift the DIMM straight up from the socket, removing it gently.

Installing a Hard Drive

You can extend your computer resources by installing an additional hard drive in your system unit. Follow these steps:

1. Turn off the computer and follow the other recommendations in the section [“Precautions to Follow Before Upgrading”](#) on page 42.
2. Remove the system unit cover (see [“Accessing the Interior of Your Computer”](#) on page 43).
3. Face the front of the computer.
4. Place a finger in the notch and gently remove the plastic drive cover where you want to install the drive. Set the plastic cover aside for now. You will need it later, after you install the new drive.
5. A metal plate appears behind the plastic drive cover. This plate is secured by two soft metal hinges. Gently move the metal plate back and forth until it comes loose and then set it aside.
6. Configure one of the drives as the master and the other as the slave. Typically, the boot drive is configured as the master. The selection of master/slave typically is done using a jumper on the drive. Refer to the manual that comes with the new drive and the manual for the hard drive already installed in your computer for information about configuring the drives.
7. Hold the new drive so its metallic sides are facing up and its IDE (integrated drive electronics) and power connectors are facing toward the inside of the system unit. Then slide the internal drive between the hard drive supporting brackets.
8. Use two screws to secure the new hard drive to the bracket.
9. Replace the plastic cover you removed in step 4.

10. Connect one end of the 40-pin ribbon cable from the IDE controller to the back of the new drive. If you cannot connect the cable, turn it around and try inserting it again. (This cable is keyed to prevent it from being inserted the wrong way.)
11. Connect the 4-pin cable from the power supply to the back of the new drive. If you cannot connect the cable, turn it around and try inserting it again. (This cable is keyed to prevent it from being inserted the wrong way.)
12. Replace the system unit cover.
13. Reconnect the power cable and any cables you removed earlier.
14. Turn on your computer.
15. Initialize and format the new drive according to the instructions in the manual that comes with the new drive.

Replacing the Microprocessor

Some system boards (motherboards) are configured so you can upgrade the microprocessor. Check the manual that comes with your system board to see whether your computer's microprocessor is replaceable. If it is, obtain an upgraded microprocessor and then use the following procedure to install it.

1. Turn off the computer and follow the other recommendations in the section [“Precautions to Follow Before Upgrading”](#) on page 42.
2. Remove the system unit cover (see [“Accessing the Interior of Your Computer”](#) on page 43).
3. If your system board has an Intel Pentium II or Pentium III processor:
 - a. Press the two SEC cartridge release latches until they snap into position.
 - b. Pull straight up on the cartridge to remove it from the guide bracket assembly.
 - c. Insert the new microprocessor into the guide bracket assembly and secure it using the two SEC cartridge release latches.
4. If your system board has an AMD processor:
 - a. Remove the CPU fan and heatsink by pressing and releasing the bracket that secures them to the socket.

- b. Pull the leverage to release the processor from the socket (the processor should come right out).
- c. Insert the new processor into the socket and secure using the bracket.

Installing Expansion Cards

Your system board provides ISA and PCI slots for Plug and Play (PnP) and non-PnP (legacy) expansion cards (boards). Refer to the system board manual that comes with your computer to find out the number of ISA and PCI slots on the system board and their location. The next sections explain how to install PnP expansion cards and legacy expansion cards.

Installing a PnP Expansion Card

Your @Xi Computer Corporation computer uses Plug and Play (PnP) technology. PnP technology allows your computer to automatically configure expansion cards (such as an internal modem or network card) and other attached devices (such as a printer or scanner).

If you install or attach a PnP device, your computer recognizes that a new device has been installed or attached. The next time you turn on your computer, it automatically assigns the appropriate system resources, such as interrupt requests (IRQs) and direct memory access (DMA) channels, to the additional device. Thereafter, each time you turn on your computer, it checks all the PnP devices installed in and attached to it to find out what resources they need. Then it assigns resources to the devices so that there are no conflicts. As a result, a new device is no problem for your PnP computer, because it can reassign any system resources as needed.

To install a PnP expansion card:

1. Turn off the computer and follow the other recommendations in the section [“Precautions to Follow Before Upgrading”](#) on page 42.
2. Remove the system unit cover (see [“Accessing the Interior of Your Computer”](#) on page 43).
3. Locate an available PCI expansion slot on the system board.
4. Remove the screw securing the slot cover to the back panel. Keep the screw nearby, as you will need it to secure the card after it is installed. You might also want to keep the slot cover in case you remove the expansion card at a later time.

5. Insert the card into the expansion slot, applying even pressure to both ends of the card.
6. When the card is seated in the slot, gently press down firmly to secure it in the slot.
7. Use the screw you removed in step 4 to secure the expansion card to the back panel.
8. Attach any cables to the expansion card according to the instructions in the manual that comes with the card.
9. Replace the system unit cover.
10. Then reconnect the power cable and any cables you removed earlier.
11. Turn on your computer. Your computer automatically configures the expansion card.

If you need to install a driver for the new expansion card, follow the instructions in the manual that comes with the card and respond to any on-screen prompts to complete the installation procedure.

Installing a Legacy Expansion Card

A PnP computer can use devices that were designed before the Plug and Play standard was developed. However, the configuration of these “legacy” devices cannot be automatically determined by your computer. Therefore, legacy devices typically include software that allows them to be used in PnP computers.

To install a legacy (non PnP) expansion card:

1. Turn off the computer and follow the other recommendations in the section [“Precautions to Follow Before Upgrading” on page 42](#).
2. Remove the system unit cover (see [“Accessing the Interior of Your Computer” on page 43](#)).
3. Set any switches or jumpers to configure the expansion card, as described in the manual that comes with the non-PnP expansion card.
4. Locate an available ISA expansion slot on the system board.
5. Remove the screw securing the slot cover to the back panel. Keep the screw nearby, as you will need it to secure the card after it is installed. You might also

want to keep the slot cover in case you remove the expansion card at a later time.

- 6.** Insert the card into the expansion slot, applying even pressure to both ends of the card.
- 7.** When the card is seated in the slot, gently press down firmly to secure it in the slot.
- 8.** Use the screw you removed in step **5** to secure the expansion card to the back panel.
- 9.** Attach any cables to the expansion card according to the instructions in the manual that comes with the expansion card.
- 10.** Replace the system unit cover.
- 11.** Then reconnect the power cable and any cables you removed earlier.
- 12.** Turn on your computer.

If you need to install a driver for the new expansion card, follow the instructions in the manual that comes with the card and respond to any on-screen prompts to complete the installation procedure.

Chapter 6

Troubleshooting

This chapter provides hardware troubleshooting tips. Each section discusses a problem you might encounter. The sections are:

- “Computer Fails to Start the First Time” on page 56.
- “Computer Fails to Restart in Normal Mode” on page 58.
- “Monitor Fails to Work” on page 58.
- “Monitor Flickers” on page 59.
- “Keyboard Fails to Work” on page 59.
- “Mouse Fails to Work” on page 60.
- “CD-ROM or DVD-ROM Fails to Work” on page 60.
- “Cannot Play DVD Movies under Microsoft Windows 98” on page 61.
- “Audio CDs Do Not Work” on page 61.
- “Disk, CD-ROM, or DVD-ROM Does Not Eject” on page 62.
- “The Sound Card Does Not Work” on page 62.
- “Modem Does Not Work” on page 63.

If you need assistance with the operating system software, refer to the Microsoft® Windows® documentation that comes with your computer.

Computer Fails to Start the First Time

In the unlikely event your computer fails to start up (boot) for the first time, follow these steps to identify and resolve the problem:

1. Be sure the computer system and monitor are plugged into working AC outlets.
2. Be sure the power cable on the back of the computer is connected securely to the computer and the outlet.
3. If the computer is plugged into a power strip or uninterruptible power supply, make sure the power strip or supply is turned on. Restart (reboot) your computer.
4. If the computer still does not start, listen for any beeps.
 - If you hear one or more beeps, write the number of beeps on a sheet of paper and contact @Xi Computer Corporation technical support (see [“Technical Support” on page 81](#)).
 - If you do not hear any beeps, inspect the outside of the computer for signs of physical damage. If you notice damage, contact @Xi Computer Corporation immediately. If you do not notice any damage, proceed with the next step.
5. Face the back of the unit and listen for the power supply fan. If you hear it, proceed to the next step. Otherwise:
 - a. Be sure the computer is plugged into an AC outlet. Often power cords can become inadvertently disconnected from the wall outlet, surge protector, or the rear of the mini-tower or desktop computer.
 - b. If you are using a surge protector, be sure the surge protector is turned on and plugged in to the wall outlet.
 - c. If you are using a surge protector, see if any other electrical device such as a printer, monitor, or lamp that is plugged into the surge protector has power. Occasionally the surge protectors “trips” and turns off to protect the devices plugged into it from power surges.
 - d. Try a different outlet in the surge protector. Sometimes a single outlet on the surge protector can stop working or have a short. Unplug a device such as a printer or lamp that is getting power and use its outlet to test the system unit.

- e.** Plug the computer's power cord directly into a wall electrical outlet, bypassing any surge protectors, extension cords, or power strips. Test the outlet first with a lamp or similar device to make sure the electrical outlet is working.
 - f.** If your monitor is getting power but your computer is not, swap the power cords. Disconnect the monitor's power cord from the rear of the monitor and plug it in to the power plug receptacle on the rear of the mini-tower or desktop computer.
 - g.** If all these steps fail, contact @Xi Computer Corporation technical support. (See [“Technical Support” on page 81.](#))
- 6.** If you hear the power supply fan working, perform the following steps:
- a.** Turn off your computer, remove all attached peripherals from the computer, and remove the computer from its AC connection.
 - b.** Remove the computer cover as described in the section [“Accessing the Interior of Your Computer” on page 43.](#)
 - c.** Be sure each card (electronics board) in your computer is installed securely. (It is not uncommon for a card to come loose during shipping.) If necessary, remove the card entirely and then reinsert it.
 - d.** Be sure each memory module is seated securely. (As with cards, it is not uncommon for memory modules to come loose during shipping.) If necessary, remove each memory module and then reinsert it.
 - e.** Replace the computer cover, connect the computer and all appropriate attached peripherals to AC connections, and turn on your computer. If it still fails to start, turn off your computer and contact @Xi Computer Corporation technical support. (See [“Technical Support” on page 81.](#))

Computer Fails to Restart in Normal Mode

If you cannot start your computer in Microsoft® Windows® Normal Mode, start the computer in Safe Mode. Follow these steps:

- 1 Power-up your computer.
- 2 When you see the message on the screen, “Starting Windows 98” or “Starting Windows 95” (depending on which operating system you have), press the F8 key on the top row of the keyboard. A Startup Menu appears.
- 3 Press the number 3 key on the keyboard to select Safe Mode.
- 4 Press the Enter key on the keyboard to start the computer in Safe Mode.
- 5 When the computer starts in Safe Mode, you see a message stating that Windows is running in Safe Mode. Click the **OK** button to complete the startup procedure.

Monitor Fails to Work

If your monitor fails to work, perform these steps to identify and resolve the problem:

1. Be sure the monitor cable is attached to the appropriate connector on the back of the system unit.
2. Turn the contrast and brightness control knobs on the monitor to their highest settings. (See the monitor documentation for information about these controls.)
3. Inspect the end of the monitor connecting cable for any broken, bent, or loose pins.
4. Check to be sure the monitor is connected to the proper connector.
5. If the monitor still does not work, turn both it and your computer off and disconnect the monitor from the system unit. Then connect another monitor that you know is working to your computer’s monitor connector. Now turn on your computer and other monitor:
 - If the second monitor works, the first monitor you tried to connect is mostly likely defective.
 - If the second monitor fails to work, the problem might be with the video adapter card or monitor driver installed in your computer. Contact @Xi Computer Corporation technical support. (See [“Technical Support” on page 81.](#))

Monitor Flickers

If your monitor flickers, perform the following steps to identify and resolve the problem:

1. Turn your monitor off and then on again.
2. If the flicker persists and if your monitor has a degauss button, press it to remove any magnetic field that might have developed during the normal operation of the monitor. (Check the documentation for your monitor to see if it has a degauss button.)
3. Try moving the monitor to another location on your desk. Be sure the monitor is not close to devices that emit electrical interference, such as speakers, power cables, fluorescent lights, microwave ovens, or air conditioners.
4. If the flicker continues, use your video driver's utilities to increase the refresh rate. We recommend that you select a refresh rate of at least 70Hz, if both the monitor and video card will support that combination at the selected resolution.

Keyboard Fails to Work

If your keyboard fails to work, perform the following steps to identify and resolve the problem:

1. Be sure the keyboard is connected to the appropriate connector on the back of the system unit.
2. Inspect the keyboard connector for any broken, bent, or loose pins.
3. If the keyboard cable is attached to the proper connector, turn off your computer. Connect a keyboard you know to work to your computer's keyboard connector. Then turn on your computer, start an application that requires you to use your keyboard (such as WordPad), and press a few keys.
 - If the second keyboard works, the previously connected keyboard might be defective.
 - If none of these steps resolves the problem, the problem might be with the keyboard or the keyboard driver installed in your computer. Contact @Xi Computer Corporation technical support. (See [“Technical Support” on page 81.](#))

Mouse Fails to Work

If your mouse fails to work, perform the following steps to identify and resolve the problem:

1. Be sure the mouse is connected to the appropriate connector on the back of the system unit.
2. Inspect the mouse connector for any broken, bent, or loose pins.
3. If the mouse cable is attached to the proper connector, turn off your computer. Connect a mouse you know to work to your computer's keyboard connector. Then turn on your computer, start an application that requires you to use your mouse and move and click the mouse.
 - If the second mouse works, the problem may be with the previously connected mouse.
 - If the second mouse fails to work, the problem might be with the mouse or the mouse driver installed in your computer. Contact @Xi Computer Corporation technical support (see [“Technical Support” on page 81](#)).

CD-ROM or DVD-ROM Fails to Work

If your CD-ROM or DVD-ROM fails to work, perform the following steps to identify and resolve the problem:

1. Your computer might have contracted a virus. Obtain antivirus software and installed it to make sure your computer is free of viruses.
2. If your computer is free of viruses, there could be a problem with the CD-ROM or DVD-ROM disk, the drive itself, the controller, or the cable:
 - a. Turn off your computer, remove all attached peripherals from the computer, and remove the computer from its AC connection.
 - b. Remove the computer cover as described under [“Accessing the Interior of Your Computer” on page 43](#).
 - c. Reseat the CD-ROM/DVD-ROM cable connection to the CD-ROM/DVD-ROM drive and the system board.
 - d. If the CD-ROM or DVD-ROM is still not detected when the computer starts up again, either the disk or the drive might be broken. Contact @Xi

Computer Corporation technical support (see [“Technical Support” on page 81](#)).

3. If the CD-ROM or DVD-ROM is detected when the computer restarts, but still does not work, the problem might be with the CD-ROM/DVD-ROM drive installed in your computer. Contact the CD-ROM or DVD-ROM manufacturer for more information.

Cannot Play DVD Movies under Microsoft Windows 98

If some DVD movies do not play with the Microsoft® Windows® 98 DVD player, the problem is probably because the Regional Settings have been set to something other than “English (United States)”. This problem occurs when the Microsoft® Windows® 98 player tries to play a DVD movie that contains a parental-control feature and the regional settings are not set to “English (United States)”. The problem can occur even if no parental control has been enabled in the DVD player software.

To correct this problem:

1. Click the Start button in the Microsoft® Windows® 98 taskbar and then click **Settings** option and the **Control Panel** option.
2. Double-click the **Regional Settings** icon.
3. On the **Regional Settings** tab, click the down arrow to the right of the box above the world map.
4. Scroll through the list and select **English (United States)**.
5. Click **OK**.
6. Restart your computer when prompted. The problem should be resolved.

Audio CDs Do Not Work

If you cannot hear audio CDs through your computer speakers, perform the following steps to identify and resolve the problem:

1. Be sure the speakers are connected to the appropriate connector on the back of the system unit. Some computers have a modem equipped with a Speaker Out connector. This connector is used to connect speakers for speakerphone activities and is cannot be used for hearing audio CDs. If your speakers are attached to this connector, you will not be able to listen to audio CDs.

2. If your speaker connections are correct, make sure the speaker volume is high enough for you to hear audio CDs. Most speakers have a control for adjusting the volume. In addition, sound cards provide software controls for adjusting speaker volume. Refer to your speaker and sound card manuals for more information.

Disk, CD-ROM, or DVD-ROM Does Not Eject

When you finish using a diskette (floppy), CD-ROM, or DVD-ROM, you should remove the item from its drive. When you press the eject button located just below the right edge of the diskette drive, the diskette pops up slightly and is pushed part way out of the drive slot so you can easily take hold of it and remove it from the slot.

You use the eject button just below the right edge of the CD-ROM/DVD-ROM drive to access the tray for inserting or removing a CD-ROM or DVD-ROM. When the tray is inside the system unit cabinet, pressing the eject button causes the tray to slide out from the case so you can place a disk in it or remove the disk that is there. Press the eject button to slide the tray back into the machine.

Occasionally, pressing the eject button does not work properly. If you are unable to eject a floppy disk, turn off your computer. Then use a tweezers to grab the diskette in the drive slot and carefully drag it out of the slot. Be careful not to use excessive force.

If you are unable to open the CD-ROM/DVD-ROM drive tray to insert or remove a CD, turn off your computer. Locate the small hole below the CD-ROM/DVD-ROM's tray and carefully insert the end of a large straightened paper clip into it. Push gently until the CD-ROM/DVD-ROM tray appears. Do not use excessive force.

If these steps do not work, take the system unit or disk drive to a qualified service provider to have the diskette, CD, or DVD removed.

The Sound Card Does Not Work

If you believe your computer's sound card is not working, perform the following steps to identify and resolve the problem:

1. Check your Microsoft® Windows® setup to make sure the sound card drivers are active. For more information, refer to the sound card and operating system manuals supplied with your computer.

- 2.** Check your computer's AUTOEXEC.BAT and CONFIG.SYS files to make sure they contain the appropriate lines for activating the sound card. For more information, refer to the sound card manual supplied with your computer.
- 3.** Make sure the sound card Interrupt Request (IRQ) and Direct Memory Access (DMA) do not conflict with other installed devices. For more information, refer to the manual supplied with your computer.
- 4.** If sound is coming from just one speaker, check the connection on the back of the second speaker. If the connection is secure, make sure the speaker's balance control knob is adjusted properly. Most sound cards also provide software controls for adjusting speaker balance.
- 5.** If you hear humming coming from your speakers, make sure that powered speakers are connected to the Line Out jack. Also, make sure the speakers are located away from electronic devices, such as your computer and monitor, as well as any microwave ovens, air conditioners, and other electrical devices.

Modem Does Not Work

If your modem does not work, perform the following steps to identify and resolve the problem:

- 1.** Be sure that the modem's line jack is connected to the telephone line. Most modems have a second jack for connection to a telephone, but this connection is optional. Be sure you did not accidentally connect the modem's telephone connector to the telephone line.
- 2.** If you have an external modem, make sure you have turned it on.
- 3.** Check the modem's volume. It might be set too low or be off. Refer to your communications software manual for instructions about how to change the modem volume. If you have an external modem, it might have its own volume control knob.
- 4.** Remove the modem from the telephone jack and connect a telephone you know to be working. Lift the handset to make sure you hear a dial tone.
- 5.** Be sure nobody is using the telephone line and that no other telephony devices on the same line are off-hook.
- 6.** Be sure the modem is connected to an analog telephone line, not to a digital PBX line. If your computer is located at a business that uses a PBX line, contact the system administrator to verify that the PBX line is safe. Have the system administrator install an analog PBX line if necessary.

Caution Connecting your analog modem to a digital telephone line will damage the modem.

7. Be sure your modem and communications software are configured for the same COM port on your computer. For example, if your modem is configured for the COM1 port, make sure your communications software is also configured for the COM1 port.
8. Be sure no other communications software is loaded that might conflict with the present application.
9. Your modem might be using an incorrect initialization string. Configure your communications software to use the initialization string **AT&F** and see whether your modem responds. The modem or communications software manual supplied with your computer should describe this procedure.

Chapter 7

Computing Comfort and Safety

With the increasing popularity of computers and computer-related work, time spent in front of computers will undoubtedly continue to increase. Evidence suggests that office work involving computers causes more visual and muscular complaints than office work that does not involve computers. As a result, the more we use computers, the more computer-related discomforts we can expect to encounter.

These ergonomic problems can include eyestrain, visual impairment, musculoskeletal discomforts, and stress symptoms. Computer use can place strain on your eyes, fingers, wrists, arms, neck, back, and feet. Additionally computers can sometimes cause mental and emotional stress such as psychosomatic distress, job dissatisfaction, job-related anxiety, job tension, and even depression.

The most effective way to deal with computer-related injuries is to prevent them from happening. It makes good sense to examine your work area and then identify and correct problem areas that can lead to injury. Many of these changes can be achieved easily and with little or no cost. For example, using a correct chair, proper lighting, suitable elevations, and the practice of easy keyboard and mouse maneuvers can be implemented at little or no expense.

Take frequent, short breaks while you are entering text and data. At least once an hour, stop what you are doing and get up to stretch your body, arms, and legs. To give your eyes a rest, look away from the screen every five minutes or so and stare into the distance. And of course, do not continue working if you are in pain.

This chapter describes prudent practices to follow to make your work environment more *ergonomic* and reduce your chance of suffering computer-related discomfort. The information presented here is not intended as medical advice. Rather, it offers suggestions for adjusting your environment to fit you, thereby creating a friendly and healthy place to work. The chapter also includes some safety considerations.

The main topics in this chapter are:

- [“Examining Your Work Environment” on page 66](#)
- [“Safety Guidelines” on page 71](#)
- [“Handling Your Computer Equipment” on page 72](#)
- [“Power Supply” on page 72](#)

Examining Your Work Environment

According to the National Research Council, “the results of studies indicate that many VDT (Visual Display Terminal) operators do experience significant discomfort. It is likely that this discomfort is largely caused by inappropriate workstation design.” If your work area lacks the correct setup and you do not follow preventative habits, you can experience eye strain, headaches, tendinitis, and back pain, to name but a few side effects. It has been reported in *Human Factors* that modern advanced workstation design, complete with the “high-tech” furniture (chairs, wrist pads, copy holders, etc.), when combined with a rest and/or exercise regimen (such as vision exercises), “substantially reduced on-the-job physical discomfort for operators.”

As you consider your office arrangement, note that making all the components work together is the key to preventing or reducing the chance for computer-related injury.

The following sections provide guidelines for creating a friendlier work environment that enhances your ability to work effectively and reduced computer-related physical problems. The topics are:

- [“Seating Arrangement” on page 67](#)
- [“Work Surface” on page 67](#)
- [“Keyboard” on page 68](#)
- [“Pointing Devices” on page 69](#)
- [“Monitor” on page 69](#)
- [“Lighting” on page 70](#)

Seating Arrangement

Your chair should fit your body size and shape, and adjust for different activities (such as typing, writing, and talking on the phone). Your chair should help you maintain your spine's natural curves. Alter your working positions throughout the day and vary the tasks you do so you're not in any one position too long.

You should be able to sit all the way back against your chair's back and be able to move your knees and lower legs freely. The seat should be low enough for your feet to rest flat on the floor, yet high enough to support your thighs. Choose a chair that you can adjust to suit your body, instead of changing your posture to fit the chair. Chairs with multiple adjustments are beneficial.

The chair should provide support to your lumbar region (at your waist). If you recline even slightly, you should have support for your mid back, at the base of your shoulder blades. Ultimately, the design of your chair, and how well you use it, can have a significant effect on your comfort and health.

The arm rests on your chair should be high enough to support your forearms, but not so high as to raise your shoulders. Arm rests should also be positioned directly under your arms and should not bump against your work surface as you move close to it.

Taking frequent breaks from sitting. Stand up from time to time and move your head, neck, shoulders, arms, and legs in a simple routine. Move your body to work out the kinks.

Work Surface

Like office chairs, desks and other work surfaces are available in an assortment of configurations, ranging from basic, utilitarian models to complicated designs with adjustable shelves and cubbyholes. If possible, choose one that is appropriate for your body size and make sure that there is ample work area for your monitor, keyboard, and other peripherals. You also need room for things like a telephone, lamp, and desk accessories.

If you use a desk, there should be at least two inches of clearance between the tops of your thighs and the underside of the desktop or the keyboard tray.

Keyboard trays are helpful, particularly for desks that are not adjustable. If you use one, make sure it has enough room for your keyboard and pointing device. Your desk or keyboard tray should leave enough clearance for your thighs but should not be so high that your wrists bend upward or you raise your forearms.

Keyboard

Keyboards have been singled out as contributing to many computer-related injuries, particularly problems with the fingers, hands, wrists, and elbows.

When you use the keyboard, your forearms and wrists should form a straight line, and your fingers should adopt a comfortable, natural curve downward. As you type, do not apply too much pressure on the keys.

To keep your wrists straight, tilt the keyboard so the key tops form a plane in line with the slope of your forearms and wrists. Taller people may find a reverse (backward) tilt comfortable. If you have to raise your hands and arms to type, and you cannot adjust your seat, keyboard, or desk to compensate, move the keyboard away and rest your forearms on the desk. If you do not need to use the mouse very much, try placing the keyboard in your lap.

Here is a brief list of things to consider about your keyboard:

- Do the keys provide a comfortable level of resistance?

The keys should require more than minimal force to activate, but not so much that they are hard to press.

The keys should provide some auditory or tactile feedback. You can test this by watching the display as you type. Can you tell when you've pressed the keys firmly enough to activate them?

- Is the keyboard's angle adjustable?

Some experts believe that the keyboard should lie flat, while others advocate a slight tilt, with the back row higher than the front row.

- Does the keyboard provide function keys to help you cut down on the number of keystrokes?

For example, many keyboards provide scrolling keys such as Page Up, Page Down, Home, and End to minimize mouse movements.

Pads and other such attachments offer inexpensive solutions for some ergonomic deficiencies in keyboards and other hardware. Padded wrist rests that sit in front of the keyboard are quite popular. Some newer keyboards are higher in the middle and slope to each side to lessen wrist strain.

Take care not to spill any liquid on the keyboard. If you do, turn off your computer immediately. If you spill liquid that is thin and clear, unplug the keyboard, turn it upside down to let the liquid drain out, and let it dry for 24 hours at room

temperature. If, after you take these steps, the keyboard doesn't work, take it to a qualified service provider for repair.

If you spill liquid that is greasy, sweet, or sticky, unplug the keyboard and take it to a qualified service provider for repair.

Pointing Devices

Although most of the attention about hand and arm strain focuses keyboards, you should not forget your pointing device: a mouse or a *trackball*. Each major category of pointing device has its own legion of supporters. Choose the device that feels comfortable to you and that works for the type of job you do.

The mouse should roll easily, but not so fast that it is hard to control the pointer. Using a mouse pad provides the necessary level of friction for easy control.

If you use the mouse with your right hand and find that you are experiencing noticeable fatigue, you are probably holding the mouse too tightly with your thumb and little finger. You should loosen your grip as much as possible. Also consider changing your grip so that you hold the mouse with your thumb and middle finger on your right hand. Another possibility is to switch the mouse to the left side of the keyboard and use it with your left hand. (You should not reprogram the mouse buttons if you use it with your left hand as doing so will defeat the positive effect of the switch. Mouse button 1 should remain on the left side.)

When shopping for a trackball, consider how resistant the ball is to movement. If the ball moves too easily or not easily enough, you'll have to work harder to control it by using the small muscles in your hands and fingers, which are more prone to injury.

Monitor

Your monitor is another component that plays an important role in the process of using your computer. Your monitor should be high enough (or you should be low enough) so that your eyes are level with the top edge of the screen's image. Additionally, the monitor should be able to swivel so you can get rid of annoying glare and reflections. Sit at least 2 feet away from your monitor. Try to eliminate all sources of the reflections from your monitor screen. Position the monitor away from bright light to reduce the amount of light reflected from the monitor. To reduce glare, overhead light should radiate from 50° to 90° directly over your monitor. Baffle light from other sources.

Choose a monitor that is sharp enough to read without straining your eyes, and one that is bright enough to match the ambient lighting.

Operate your monitor only at a comfortable brightness and contrast. Do not adjust the brightness to its maximum setting for continuous operation. Running your monitor with the external-brightness adjustment at its maximum setting, especially when new, results in an image that eventually appears less clear. Using this setting continuously also reduces the overall life of your monitor.

Follow these guidelines when using your monitor:

- If you have an older monitor, turn down the screen brightness control if you leave the computer turned on for extended periods. Otherwise, the image on the screen can be imprinted (or “burned into”) the screen. You can also use a *screen saver* program, which dims or varies the image on the screen when the computer has been idle for a specified period of time. These programs come with Windows, and are also available from independent suppliers, user groups, and the Internet.
- Make sure that the ventilation openings on the monitor are clear and unobstructed.
- If there is interference on the monitor screen or on a television or radio near your computer, move the interfering equipment farther away.

Lighting

Generally, the light coming from the monitor should match the brightness of the *ambient lighting*: a monitor that is too dim or too bright can cause eyestrain. To reduce eyestrain and headaches, avoid using lighting that causes glare and bright spots on the monitor.

If your overhead or other lights are too bright and are causing reflections or are overpowering your display, you can solve the problem inexpensively by making a shield for your monitor, wearing a baseball cap or eye shade, or changing the angle of the light. If your office has fluorescent lighting, try removing one or two bulbs from the fixture directly over your work area.

If your work space has an outside window, make sure the window is not in front of or behind the display screen. Daylight overcomes the monitor, making the screen hard to read and increasing your chance of eyestrain. Placing the monitor at a 90° angle from the window is the best choice.

Safety Guidelines

For your own safety and that of your equipment, always follow these guidelines when using your computer:

- Turn off the computer completely and disconnect the power plug (by removing the plug from the socket, not by pulling the cord) should any of the following conditions occurs:
 - The power cord or plug becomes frayed or otherwise damaged.
 - Liquid gets into the system unit case.
 - Your computer is exposed to rain or any other excess moisture.
 - Your computer has been dropped or the case has been otherwise damaged.
 - You suspect that your computer needs service or repair.
 - You want to clean the case. (See the recommended procedure in the section [“Cleaning the System Unit Case”](#) on page 27.
- Be sure that you always:
 - Keep your computer away from sources of liquids, such as wash basins, bathtubs, and shower stalls.
 - Protect your computer from dampness or wet weather, such as rain, snow, and excessive humidity.
 - Read all the installation instructions carefully before you plug your computer into a wall socket.
 - Keep these instructions handy for reference by you and others.
 - Follow all instructions and warnings dealing with your system.

Electrical equipment can be hazardous if misused. Operation of this product, or similar products, must always be supervised by an adult. Do not allow children access to the interior of any electrical product and do not permit them to handle any cables.

If your computer battery needs replacement, take the computer to a qualified service provider. Do *not* try to remove, dispose of, or reinstall the battery yourself.

WARNING

There is a danger of explosion if the battery is incorrectly replaced. The battery should be replaced only with the same type or an equivalent type recommended by the manufacturer. Used batteries must be disposed of according to the manufacturer's instructions.

Handling Your Computer Equipment

Follow these guidelines for handling your computer and its components:

- When setting up your computer, place components on a sturdy, flat surface and carefully follow all setup instructions. Refer to [“Selecting the Proper Environment” on page 8](#) for suggestions about where to locate your computer.
- When connecting or disconnecting a computer cable, always hold the cable by its connector (the plug), not by the cord.
- Turn off your computer and all its components before connecting or disconnecting any cables to add or remove any components. Failure to do so can seriously damage your equipment. For additional safeguards, refer to [“Precautions to Follow Before Upgrading” on page 42](#).
- Never force a connector into a port. Make sure the connector matches the port and that you have positioned the connector correctly in relation to the port. If the connector and port do not join with reasonable ease, they probably do not match or else the connector end needs to be rotated 180°.
- Protect the computer and its components from direct sunlight as well as rain or other moisture.
- Keep all computer ventilation openings clear and unobstructed. Without proper air circulation, components can overheat, causing damage or unreliable operation.
- Your computer is intended to be electrically grounded and is equipped with a *grounding plug*. Insert the plug into a three-hole grounded outlet. Do not defeat the purpose of the grounding plug by trying to plug it into a two-hole outlet.

Power Supply

The power supply in your computer is a high-voltage component and should not be opened for any reason, even when the computer is off. In the unlikely event the power supply needs service, contact your qualified service provider.

Appendix A

Frequently Asked Questions

This appendix provides answers to the following frequently asked questions:

- [“Preinstalled Software” on page 74.](#)
- [“Monitor has Pink or Green Tint” on page 74.](#)
- [“Hard Disk Drive Smaller Than What was Ordered” on page 74.](#)
- [“56 Kbps Modem Speeds” on page 75.](#)
- [“Disabling Call Waiting for Data Calls” on page 75.](#)
- [“Fending off Computer Viruses from the Internet” on page 76.](#)
- [“Checking Available Memory” on page 77.](#)
- [“Checking Available Disk Space” on page 77.](#)
- [“Connecting Two Parallel Devices” on page 78.](#)
- [“CMOS Messages” on page 78.](#)
- [“Connecting PCs” on page 79.](#)
- [“What is a Cookie?” on page 79.](#)
- [“Switching to and from Daylight Savings Time” on page 79.](#)

Preinstalled Software

- ? Do I need to install the software from the CD-ROMs and diskettes that were shipped with my computer?
- ! No. Your computer is shipped with software preinstalled. The CD-ROMs and diskettes are provided in the unlikely event you need to reinstall the software on your computer.

Monitor has Pink or Green Tint

- ? Why does my monitor have a pick or green tint?
- ! The monitor may not be securely connected to the video card in the system unit. Try reconnecting the video cable to the video card in the system unit.

Hard Disk Drive Smaller Than What was Ordered

- ? Why is my hard disk is a smaller size than what I had purchased?
- ! This is normal. When the operating system reports the capacity of the hard drive, it assumes that 1MB equals 1,048,576 bytes. However, the vendor that manufactured your hard drive considers 1MB to be equal to 1,000,000 bytes. As a result, there is a difference between these two numbers. For example, if you purchased a 3.2 GB hard drive, the operating system reports its capacity at approximately 3.05 GB.

56 Kbps Modem Speeds

? Why can't I achieve 56,000 bps data connections with my 56 Kbps modem?

! Current FCC restrictions limit modem communications to a maximum speed of 53,000 bps over the public telephone network. However, even achieving 53,000 bps is difficult — if not impossible — to do on a consistent basis for a number of reasons. First, the remote modem you call must also support a top speed of 56,000 bps; otherwise, you are limited by the fastest speed supported by the remote modem.

Even if the remote modem supports 56,000 bps, the signal amplifiers used on some carrier lines reduce transmission speeds. You may want to check with your local telephone company to see whether it uses such equipment.

If you dial through a PBX, the PBX may impose speed limitations that only allow you to achieve top speeds in the low 40s. Maximum speeds are further diminished when doing international dialing, which uses a signalling method that reduces speeds to a maximum of 33,600 bps.

Another factor affecting connection speeds is the quality of the telephone line. A telephone line that is prone to noise and other disturbances is less likely to yield fast connection speeds than a clean line.

Disabling Call Waiting for Data Calls

? If I connect my modem to a telephone line that has Call Waiting, is there any way to turn off Call Waiting so it does not disconnect my data calls?

! Call Waiting emits a beep to alert you that there is an incoming call when the telephone line is in use. Although this beep is helpful for voice calls, it can disconnect data calls made with your modem. You can deactivate Call Waiting when originating a data call by adding the characters ***70** to the beginning of the telephone number you want your modem to dial. Alternatively, some types of communications software provide a checkbox that lets you enable or disable Call Waiting. (Refer to your communications software manual to see whether your software provides this feature.) Call Waiting automatically reactivates at the end of the data call.

Playing Games

? How do I play games, including DOS games, on my new computer?

! The Microsoft® Windows® operating system comes with some games that are preinstalled on your computer. Other games can be installed and run using the directions in the manuals that came with the games or by visiting the game manufacturers' Web sites.

Some games designed for the DOS operating system can also be played on your computer, using Microsoft® Window® DOS shell. Other DOS games require you to shut down your computer and restart in DOS mode. (This procedure is described in the operating system manual that came with your computer.) For more information about running DOS games, refer to the manuals that came with the games or visit the game manufacturers' Web sites.

Fending off Computer Viruses from the Internet

? Can my computer “catch” a virus from the Internet?

! Yes, but it is highly unlikely. Viruses cannot be transmitted via Web pages. Viruses are transmitted when files are transferred (downloaded) from one computer to another, for example in e-mail attachments, the most frequent cause of viruses. When you download a file, there is always the possibility the file contains a virus. However, computer viruses can only exist in executable programs (that is, programs that are designed to perform some task or function on your computer). Viruses do not travel with files that consist of text, pictures, or sound.

Checking Available Memory

? How can I check how much available memory is on my computer?

! Follow these steps:

1. Click the **Start** button in the Microsoft® Windows® taskbar.
2. Then click the **Settings** and **Control Panel** option from the popup menus that appear.
3. Double-click the **System** icon in the Control Panel dialog box.
4. Select the **Performance** tab in the System Properties dialog box.
5. Check the **Memory** and **System Resources** values to determine the available memory (RAM) for your computer.

Checking Available Disk Space

? How can I check the available amount of disk space on my computer?

! Follow these steps:

1. Double-click the **My Computer** icon on the desktop.
2. Right-click the **C** drive icon and click **Properties**. The **General** tab in the Properties dialog box shows the amount of disk space available on the C drive.
3. If your computer has a second hard drive, repeat the previous steps, but right-click the icon of the second drive.

Connecting Two Parallel Devices

? How can I connect two parallel devices to my computer?

! Like other computers, your @Xi computer comes with a single parallel connector. If you want to connect two parallel devices to your computer, find out whether one of those devices has a pass-through connector that lets you attach a parallel device to it. For example, parallel versions of external drives from Iomega® Corporation (zip® and jaz®) have a pass-through connector on the back of the unit that lets a second parallel device (such as a printer) share the parallel drive to which the Iomega® drive is connected.

If you prefer, you can add an optional input-output card inside your computer to add a second parallel port and connect a second to the extra parallel port. Alternatively, you can connect both parallel devices to an external manual switch.

CMOS Messages

? When I turn my computer on, the message “Press F1 for setup” appears. What is this, and do I need to press F1 to get my computer set up?

! No. Pressing the F1 key while your computer is starting lets you access your computers CMOS setup. CMOS setup lets you change your system settings. When you receive the computer from @Xi Computer Corporation, there are no changes that need to be made. Changes are typically made to the CMOS when hardware is changed or added so that system resources can be configured to support it. Changing settings in the CMOS is recommended only for advanced users, or on the advice of technical support. Changing these settings can cause problems if they are not set correctly.

Connecting PCs

? Can I connect my new computer to another computer to share files?

! Yes. You can connect two PCs together to share files. Both should be running the same file-sharing programs, such as Laplink, Kermit, or Direct Cable Connect. To connect the two PCs, use either a crossover serial cable (if using the PC serial ports to transfer data) or a crossover parallel cable (if using the PC parallel ports to transfer data). The data-transfer program you use determines which port you use. Parallel connections are faster than serial ports. If you intend to transfer data between PCs frequently, you might want to purchase a second parallel port for one or both PCs.

What is a Cookie?

? What is a cookie?

! A cookie is a very small text file put on your hard drive by some Web pages to be used by other Web pages. Cookies are sometimes used by advertisers to keep track of the Web sites you visit. Although some people do not like having anything added to their hard drive without their consent, and others worry about invasion of privacy, cookies are extremely limited in what they can do. For example, cookies cannot scan your hard drive for data. They are just simple, small text files that reside on your computer's hard drive.

Switching to and from Daylight Savings Time

? Do I need to switch my computer to and from Daylight Savings Time?

! Windows 95 and Windows 985 automatically set your computer to the appropriate time change if Date/Time properties are set to automatically adjust for Daylight Savings Time. To check that your computer is configured to switch automatically:

1. On your screen, click the Start button.
2. Click **Settings** and **Control Panel**, then double-click the **Date/Time** icon.
3. From the Date/Time Properties screen, click the **Time Zone** tab.
4. Click the box next to **Automatically adjust clock for daylight saving changes**, then click **OK**.

Appendix B

Contact Information

For your convenience, @Xi Computer Corporation provides a number of ways for you to contact us.



Sales Department

Our Sales Department can be reached at the following telephone numbers:

(800) 432-0486

(949) 498-0858

You can also contact our Sales Department through e-mail at sales@xicomputer.com



Technical Support

Toll-free hardware technical support is available in the continental United States, Hawaii, Alaska, Puerto Rico, and Canada 24 hours a day, 7 days a week by calling:

(800) 432-0486

Hardware technical support for international customers is available from 8:30AM to 5:00PM Pacific Time by calling:

(949) 498-0858

Response time may vary. If a technical support representative is not immediately available, please provide a telephone number where we can contact you.

NOTE For additional information about technical support, refer to “[@Xi Technical Support Information](#)” on page 83.



24-hour Fax Number

You can also send your support questions, or any other comments, to our 24-hour fax number:

(949) 498-0257

To expedite a response, please include your name, company name, a brief description of the problem, and the @Xi serial number for your system. You can find this number on the back of every system.



24-hour e-mail

If you prefer, you can send your technical support questions and comments to our 24-hour e-mail address:

support@xicomputer.com

To expedite a response, please include your name, company name, a brief description of the problem, and the @Xi serial number for your system. You can find this number on the back of every system.



24-hour Web Site

We encourage you to visit our Web site:

www.xicomputer.com/support

(If you are reading this document as a PDF file and are currently on line, click the URL above to go directly to our Web site.)

On our Web site you can find the latest information about our leading-edge computer solutions. You can also find software for various kinds of drivers as well as for other computer hardware elements. The site contains important information about using your @Xi computer

Technical Support Issues

If you have a technical problem with your computer, please follow these recommendations before contacting technical support:

- Be sure your computer is connected properly to a grounded AC outlet that is supplying power. If you use a power strip, make sure that it is switched on.
- If a peripheral, such as a keyboard, mouse, or printer, does not seem to work, verify that all cables are plugged in securely.
- If you recently installed hardware or software, be sure you installed it according to the instructions provided with it. Refer to the vendor's user documentation and online help, as well as the vendor's technical support resources and Web site.

WARNING Do not troubleshoot computer problem if power cords or plugs are damaged, if liquid has been spilled into your computer, if your computer was dropped, or if the cabinet was damaged. Instead, unplug your computer and contact a qualified computer technician.

@Xi Technical Support Information

In order to reach the @Xi Technical Support team, the customer has to produce the serial number of the @Xi system about which he/she is requesting technical support. This will allow the @Xi engineer to verify the original @Xi configuration in order to provide the required support. A copy of the original invoice or purchase order can be requested at @Xi's discretion to verify the warranty and order configuration.

For best quality of service, @Xi requires the customer to call while at the @Xi system he/she is requesting support for, to be capable of interacting with it while on the phone, and take quick notes on how to proceed in the resolution of their hardware problem(s). Special technical support services are available for sale to @Xi customers at the @Xi site and are not included in the standard free technical support. Such services include:

- Reloading and reconfiguring operating systems or other customer-provided application software
- Integration with third-party peripherals
- @Xi system hardware upgrades

Please consult your @Xi representative for details.

Appendix C

Warranty & FCC Information

THREE YEARS/ONE YEAR LIMITED WARRANTIES AND SUPPORT FOR @Xi COMPUTER SYSTEMS

LIMITED WARRANTIES

@Xi Computer Corporation (here under “@Xi”) warrants the hardware (but not the software) included in the original computer system, or shipped, as part of an order modification within 30 days from the original purchase, to be free of defects in materials and workmanship, for a period of one (1) calendar year (or three (3) years if so purchased in the original purchase order), from the day of original shipment from @Xi to the Client. Third parties hardware peripherals external to the @Xi Computer, other than standard keyboard and mouse, (including, but not limited to, monitors, printers, joystick, trackball, speakers, plotters, scanners, digital camera, etc.) are covered by their respective manufacturers warranties. Please consult those manufacturers for details on their warranties.

NINETY-DAYS REPLACEMENT/REPAIR PARTS LIMITED WARRANTY

Replacement parts for @Xi systems repair are warranted against defects in materials and workmanship for ninety (90) days from the date of shipment by @Xi or until the expiration date of the original three years or one year @Xi Limited Warranty, as may be the case, whichever is longer.

DEAD PIXEL POLICY FOR LAPTOPS

@Xi Computer Dead Pixel Policy is only covered for the first year of the warranty of the laptop. If the laptop is ordered with an extended warranty, the Dead Pixel Policy warranty is only for the first 12 months.

(1) For the Xi® PowerGo™ XT and Xi® PowerGo™

@Xi Computer will replace the LCD for the laptop if there are 4 or more dead pixels on the LCD Panel.

(2) For the Xi® PowerGo™ 154, Xi® PowerGo™ 15/7, Xi® PowerGo™ 15.6, Xi® PowerGo™ LT and PowerGo™ XL @Xi Computer will replace the LCD for the laptop if there are 4 or more dead pixels on the LCD Panel.

(3) For the Xi® PowerGo™ GL, and Xi® PowerGo™ GX

@Xi Computer will replace the LCD for the laptop if there are 4 or more dead pixels on the LCD Panel.

AC ADAPTER & BATTERY POLICY FOR LAPTOPS

Laptop batteries lose some of their maximum storage capacity every year even if they are not or lightly used. Warranty on these batteries and AC Adapter are limited to **one (1) year** regardless of the purchase of an extended warranty beyond such period.

DEAD PIXEL POLICY FOR MONITORS

For all monitors sold as an individual item or with a system or a Laptop, you will need to contact the manufacturer of the monitor for their “**Dead Pixel Policy**”.

TERMS OF @Xi LIMITED WARRANTIES

The above limited warranties are granted to the original customer end-user only and are non-transferable. Removal of hardware from an @Xi System and its use in a different system or configuration voids all applicable limited warranties. Any claims under these warranties must be made before the end of the applicable warranty period. During the applicable warranty period that starts from the date of original shipment of the @Xi System, if @Xi determines that a part or system is defective in material or workmanship, @Xi, at its sole discretion, will provide the customer with a repaired part or system, or replace any part or system that is covered by the applicable warranty. In the event, @Xi provides a repaired or replacement part, telephone technical assistance will be provided. Installation hardware labor will be provided at the client site only if the client chose (at the time of the original purchase) to purchase on-site service from an @Xi-authorized Third-party service provider and will be provided pursuant to the terms of such on-site service contract, at sole discretion of @Xi. @Xi reserves the right to substitute functionally equivalent new or serviceable reconditioned parts and systems. The responsibility of @Xi is limited to repair or replacement, either of which may be selected by @Xi at its sole discretion. The above limited warranties cover the use of a @Xi System under normal conditions. The above limited warranties do not cover functional interactions of a @Xi System with peripherals and add-ons not sold by @Xi. The above limited warranties are void if the @Xi System has been damaged, altered or rendered defective in any way, by, but not limited to:

- A):** Accidents, misuse or abuse, including hazardous environmental operation or exceeding @Xi environmental specifications or shipping;
- B):** Internal connection with parts not manufactured or sold by @Xi;
- C):** Modification, scratching, defacing, labeling or markings of any kind;

D): Service or modifications by anyone other than @Xi or an authorized @Xi third-party service provider, without @Xi proper technical authorization and guidance;

E): Damages determined by @Xi to have been caused by customer;

F): Damages caused by fire, flood, earthquakes, lighting, immersion, spilled liquids, falls, winds or impact with other objects, war, radiation and other “acts of God”.

@Xi TECHNICAL SUPPORT

@Xi Computer Corporation provides technical support with respect to installation and configuration of hardware products included in the original @Xi System purchased from @Xi. @Xi also provides telephone technical support service with respect to the configuration of @Xi-installed software for thirty (30) days from the date of shipment to the original customer. Customer support is provided calling 1-800-432-0486 or (949)-498-0858. Tech support is also provided by faxing at (949)-498-0257 or by e-mail to support@xicomputer.com.

In order to reach the @Xi tech support team, the Customer has to produce the serial number of the @Xi System he/she is requesting technical support, to allow the @Xi engineer to verify the original @Xi configuration, in order to provide the required support. A copy of the original invoice or purchase order can be requested at @Xi discretion to verify the warranty and original configuration. For the best quality of service, @Xi requires the Customer to call while at the @Xi System he/she is requesting support for, and to be capable of interacting with it while on the phone, and take quick notes on how to proceed in the resolution of their hardware problems. Special tech support services are available for sale, to the @Xi customers, at the @Xi site and are not included in the standard free tech support. Such services include: re-load and re-configuration of operating systems or other customer provided application software; integration with third parties peripherals; @Xi System hardware upgrades. Please consult your @Xi representative for details.

DISCLAIMER

THE ABOVE LIMITED WARRANTIES DO NOT EXTEND TO ANY OTHER PRODUCTS NOT ORIGINALLY COMING FROM @Xi COMPUTER CORPORATION, NOT PURCHASED DIRECTLY FROM @Xi NOR FROM A @Xi AUTHORIZED COMPUTER DEALER. THE ABOVE LIMITED WARRANTIES ARE VOID IF THE EQUIPMENT HAS BEEN DAMAGED, ALTERED OR RENDERED DEFECTIVE IN ANY WAY, BY, BUT NOT LIMITED TO: (A) ACCIDENTS, MISUSE OR ABUSE, INCLUDING

HAZARDOUS ENVIRONMENTAL OPERATION OR EXCEEDING @Xi SPECIFICATIONS, OR SHIPPING; (B) INTERNAL CONNECTION WITH PARTS NOT MANUFACTURED OR SOLD BY @Xi; C) MODIFICATION, SCRATCHING, DEFACING, LABELING OR MARKINGS OF ANY KIND; D) SERVICE OR MODIFICATIONS BY ANYONE OTHER THAN @Xi OR AN AUTHORIZED @Xi COMPUTER DEALER.

EXCEPT AS SET FORTH ABOVE, @Xi MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY FITNESS FOR A PARTICULAR PURPOSE. @Xi EXPRESSLY DISCLAIMS ALL WARRANTIES NOT STATED HEREIN. IN THE EVENT AN @Xi PRODUCT IS NOT FREE FROM DEFECTS AS WARRANTED ABOVE, YOUR SOLE REMEDY, AS THE PURCHASER, SHALL BE REPLACEMENT OR REPAIR AS PROVIDED ABOVE. CORRECTION OF NONCONFORMITY'S, IN THE MANNER AND FOR THE PERIOD OF TIME PROVIDED ABOVE, SHALL CONSTITUTE FULFILLMENT OF ALL LIABILITIES OF @Xi TO THE PURCHASER, WHETHER BASED ON CONTRACT, NEGLIGENCE, OR OTHERWISE WITH RESPECT TO, OR ARISING OUT OF, SUCH EQUIPMENT.

UNDER NO CIRCUMSTANCES WILL @Xi BE LIABLE TO THE PURCHASER, OR TO ANY DIRECT OR INDIRECT USER, FOR ANY DAMAGES, INCLUDING, BUT NOT LIMITED TO, ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, EXPENSES, LOST PROFITS, LOST SAVINGS OR OTHER DIRECT AND INDIRECT DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE ANY @Xi PRODUCT.

THE ABOVE LIMITED WARRANTIES ARE VOID IF THE @Xi SYSTEM HAS BEEN DAMAGED, ALTERED OR RENDERED DEFECTIVE IN ANY WAY, BY, BUT NOT LIMITED TO:

- A):** ACCIDENTS, MISUSE, OR ABUSE, INCLUDING HAZARDOUS ENVIRONMENTAL OPERATION OR EXCEEDING @Xi SPECIFICATIONS, OR SHIPPING;
- B):** INTERNAL CONNECTION WITH PARTS NOT MANUFACTURED OR SOLD BY @Xi.
- C):** MODIFICATION, SCRATCHING, DEFACING, LABELING OR MARKINGS OF ANY KIND.
- D):** SERVICE OR MODIFICATIONS BY ANYONE OTHER THAN @Xi OR AN AUTHORIZED @Xi COMPUTER DEALER OR @Xi WARRANTY SERVICE PROVIDER.

E): DAMAGES CAUSED BY FIRE, FLOOD, EARTHQUAKES, LIGHTING, IMMERSION, SPILLED LIQUIDS, FALLS, WINDS OR IMPACT WITH OTHER OBJECTS.

F): DAMAGES OR LOSS OF ANY KIND CAUSED BY THIRD PARTY SOFTWARE OR HARDWARE.

G): DAMAGES CAUSE BY FAILURE TO PROVIDE A SAFE AND SUITABLE INSTALLATION ENVIRONMENT.

THIRTY DAYS MONEY BACK GUARANTEE

IF YOU ARE NOT SATISFIED WITH YOUR @Xi PRODUCT (S), OR IF YOU DO NOT AGREE WITH THE ABOVE LIMITED WARRANTY AND IT'S DISCLAIMER, OR ANY OTHER @Xi SALES TERMS, YOU HAVE THIRTY (30) DAYS FROM THE DATE OF RECEIPT OF THE PURCHASE TO RETURN THE PRODUCT(S) TO @Xi FOR A REFUND. THE PURCHASED PRODUCT(S) MUST BE RETURNED PURSUANT TO THE 30 DAYS MONEY BACK GUARANTEE CLAIM PROCEDURE AS SET HEREUNDER. THE AMOUNT OF THE REFUND WILL NOT CONTAIN THE ORIGINAL SHIPPING CHARGES, NOR YOUR SHIPPING CHARGES BACK TO @Xi, 5% CREDIT CARD TRANSACTION CHARGES IF APPLICABLE AND CAN BE SUBJECT TO A RESTOCKING FEE FROM THE ORIGINAL PURCHASE PRICE IF THE RETURNED PRODUCT(S) IS NOT IN "PERFECT RE-SELLABLE CONDITION". SUCH A RESTOCKING FEE IS SET AT THE SOLE DISCRETION OF @Xi AFTER INSPECTION OF THE RETURNED PRODUCT(S). SOFTWARE PRODUCTS AND SPECIAL ORDER ITEMS ARE NOT ELIGIBLE FOR THE 30 DAYS MONEY BACK GUARANTEE. SYSTEMS CONTANING NVIDIA TESLA, NVIDIA TITAN AND/OR XEON ARE CONSIDERED SPECIAL ORDER AND WILL COMMAND A 20% RESTOCKING OR CANCELLATION FEE..

THIRTY-DAY MONEY-BACK GUARANTEE CLAIM PROCEDURE

- 1** With your original invoice and system serial number, call @Xi Technical Support and explain the problem you are having with your system. If @Xi cannot resolve the issue to your satisfaction, or simply you want your money back for your reasons, you can contact our customer service or your original @Xi sales representative to issue a Credit Return Merchandise Authorization number (CRMA) allowing you to return the product(s) to @Xi and stating the terms and the amount of the refund.
- 2** Considering that the freight from @Xi to you and the return freight is non refundable, we advise you to possibly keep the monitor or other accessories you

might like, to minimize the freight cost to the minimum. Your original sales representative will be able to assist on the purchase value of monitor and other accessories you might be willing to keep.

- 3** Ship the @Xi product(s) back to the address stated on the CRMA form. Ship freight prepaid and insured by you, using the original Packing materials, including any accessories originally supplied with the @Xi system (manuals, driver diskettes etc.) Write the CRMA number on the Outside of each container returned and include a copy of such CRMA in the box. @Xi assumes no responsibility for Products shipped from the customer to @Xi.
- 4** All equipment must be in “as-new” & “perfect re-sellable” condition, the refund process will be initiated after a careful inspection of the status or the returned product(s). If any defects are found, the @Xi customer service will immediately contact you to discuss a fair solution. To receive a 30 days refund, the product must be received by @Xi within 5 days from the date of the issuance of the CRMA form to the customer.
- 5** Refunds for @Xi products will be issued within 10 working days after receipt and inspection of the product(s). Purchases with credit card will be issued a credit on the same card. A credit to your account, or a company check will be issued accordingly to net or cash purchases.

@Xi EXPRESS PARTS REPLACEMENT

Within the duration of the @Xi warranty, pursuant to the warranty claim requirement set hereunder, in the Continental U.S., Alaska, Hawaii, and APO/FPO addresses only and depending on the nature of the failure, @Xi Computer provides its Direct Original Customers with an exclusive EXPRESS PARTS REPLACEMENT program. Within the validity and applicability of the @Xi Limited Warranty, in the event one or more components of an @Xi product(s) is found to be faulty or defective, @Xi will ship the replacement part(s) to the site of the Customer, free of charge by FedEx Standard Overnight or equivalent shipping service and supply a return label for the faulty or defective part. An RMA form will be issued by the @Xi Tech Support with the description of the faulty part, the problem of the fault, a retail value of the part(s) and the written agreement of the customer to return the faulty part within 10 days of receipt of the replacement one. A major credit card is requested to guarantee such return unless he or she is already an approved customer on net terms. In such case, a valid customer Purchase Order number is required by written, prior to shipment. If the customer is not capable to provide a valid credit card or approved P.O. for the amount of the faulty part(s), such part(s) must be returned before the replacement part can be shipped. If the faulty part(s) is not returned within thirty (10) days, after the Customer has received the replacement part(s), @Xi will, without further notice, charge the Customer credit card or debit the Customer account with the retail

amount contained in the original RMA form and issue a sale invoice for the replaced part(s). Such sale is considered final. If the Customer has purchased from @Xi an On-Site service contract (issued from a third party provider) at the time of purchase, the exact same procedure will be applied to part(s) provided at the site of customer to be installed by the On-Site service provider staff. @Xi reserve the right to replace part(s) with equally functional parts new or refurbished. Such part(s) are guaranteed for 90 days or up to the end of the original system warranty, whichever is longer. At sole @Xi discretion, within the continental USA only, the complete @Xi system unit may be recalled (if under warranty) to perform services or verifications that are beyond a simple and easy replacement of a faulty part(s). In such case @Xi will pay the freight both ways based on FedEx Economy or equivalent second day service. The Customer can elect to pay shipping to @Xi with an Overnight Service of his choice and @Xi will send it back FedEx Standard overnight (or equivalent) at @Xi expense. All efforts are made to minimize the turn around time of such unit accordingly to an accurate testing and verification on the unit functionality, as specified by the above procedure and pursuant to the warranty claims set hereunder. @Xi assumes no responsibility for loss or damage of any data from @Xi products shipped to @Xi for repair or replacement. In case of customer fault that affects the unit functionality, like software viruses, improper software installation or modifications, or malfunction due to hardware or software products not originally purchased by @Xi, the customer will be billed for the freight cost plus the current @Xi service repair rate. An estimate will be provided to the customer before proceeding with the work. Customer agrees to at least pay for freight and **\$95.00** inspection fee in such a case. All service will be provided pursuant to the present service and warranty conditions and warranty and service claim procedures described hereunder.

Shipment of warranty parts outside the United States.

For all other warranty parts being ship outside the United States, is sole discretion of @Xi to advance ship the replacement part with a credit card guarantee under the guidelines of the domestic EXPRESS PART REPLACEMENT program. If a credit card guarantee is not acceptable, Customer will have to return the defective part back to @Xi first. Customer pays for the return shipping cost of the defective part while @Xi will ship the replacement part to Customer, free of charge using International Economy Air or equivalent.

ON SITE SERVICE

Installation hardware labor will be provided at the client site only if the client chose, at the time of the original purchase only, to purchase on-site service from an @Xi-authorized Third-party service provider. On Site Service will be provided pursuant to the terms of such on-site service contract, at sole discretion of @Xi technical support engineers. On Site service is available in major USA and Canada locations for the duration of one year or three years if so purchased. The On Site service contract covers only the system and its internal components originally sold by @Xi and is limited to hardware parts replacement and installation only. We invite the customer to refer to such contract for further details.

WARRANTY & SERVICE CLAIM PROCEDURES

To claim service pursuant to the above @Xi Limited Warranty, you, the Purchaser, must comply with the following condition:

PROOF OF PURCHASE WITHIN A YEAR (OR THREE YEARS)

The purchaser has to be able to show the original purchase invoice, from @Xi, with a shipping date that is within one year (or three years if warranty so purchased) from the date of requested warranty service.

RETURN AUTHORIZATION NUMBER

The purchaser must obtain and send back signed, by fax or mail, a valid Return Authorization Number (RMA) form from @Xi tech support. Such RMA form will describe the requested replacement part(s), its retail value and the customer promise to return the faulty part(s) within 10 days from receiving the replacement part(s). Any merchandise sent back without a valid @Xi RMA number will be rejected and no replacement part(s) can be sent to the customer without a valid and signed RMA form received from the client.

ORIGINAL SHIPPING CONTAINERS

The purchaser must have the merchandise shipped using the original @Xi packing material. Use of non-original packing material sent back might void the warranty status.

PREPAID SHIPPING & INSURANCE

The purchaser must supply the merchandise back with prepaid freight and proper insurance. For any merchandise sent freight-collect, @Xi will charge the Customer the freight cost and handling fees.

ADDITIONAL WARRANTY INFORMATION

The purchaser may request further information on how to obtain warranty service by contacting the @Xi Computer Corporation Customer Service & Support team at: 1-800-432-0486, fax # 1-949-498-0257, or by writing to: @Xi Computer Corporation, Customer Service, 980 Calle Negocio, San Clemente, CA 92673, USA.

CONDITIONS AND TERMS OF SALE

The sale of @Xi Computer Corporation (herewith: the Seller) products is subject to the terms and conditions stated herein, which shall replace any conditions and terms that are issued by the customer.

DOCUMENTS ISSUED BY A CUSTOMER STATING ADDITIONAL, CONFLICTING, OR DIFFERENT TERMS ARE HEREBY REJECTED BY @Xi COMPUTER CORPORATION, ARE TO BE ENTIRELY INAPPLICABLE TO ANY SALE STATED HEREIN AND SHALL NOT BIND THE SELLER IN ANY WAY.

Title to products shall be transferred from seller to buyer upon shipment from seller's plant. Customer shall pay the entire amount stated on the seller's invoice, which includes all shipping and handling charges. Customer agrees to pay interest charge on any past due invoices, which will be equal to the highest rate allowed by law. Customer agrees to pay for all collection costs, which may include attorney's fees and litigation costs. Any dishonored checks will face a \$20.00 service charge. Unless otherwise stated by the seller, the prices given do not include any sale, excise, federal, state, local, or other similar taxes. If duties are applied to the products provided by the seller, it shall be the sole responsibility of the customer to pay such taxes.

Any unforeseen circumstances that occur without the fault of the seller, natural or unnatural, which include but are not limited to acts of God, earthquakes, flood, fire, late deliveries by suppliers or other difficulties which arise shall completely relinquish sellers liability for any delay in performance.

During product scarceness or production delay the seller may allot deliveries and sales at its sole discretion.

Customer is responsible for backing-up customer's hard-drive prior to return for repair or replacement. Any loss of data occurring during shipping, repair or replacement shall not be the responsibility of the seller.

The software included in this sale is under the protection of all Copyright laws and international treaty provisions. Computers that are sold equipped with software are issued a license to use the software on the system that it was installed. Any transfer of license to use the software must accompany a transfer of ownership of the

computer to the new software user. Any backup copies of the software must be destroyed after seller transfers ownership of the computer to the purchaser. It is the responsibility of the purchaser to create backup copies of the software and comply with any applicable software license agreement and Copyright laws.

THERE IS ABSOLUTELY NO WARRANTY ON THE SALE OF SOFTWARE; ALL SOFTWARE IS SOLD AS RECEIVED FROM THE SOFTWARE MANUFACTURER.

Unless the President of @Xi Computer Corporation gives prior written approval, seller's products are not to be used as critical components in life support systems. Critical components can be considered parts of a life support system whose failure to perform could result in the breakdown of a life support system. Life support systems can be considered instruments whose nonperformance can be reasonably expected to result in considerable harm to the user.

The State of California, County of Orange, maintains governing power over this agreement. Customer acknowledges that California courts have jurisdiction over this agreement and that any and all disputes that arise shall be settled in California County of Orange.

These written agreements supersede and replace any prior or contemporaneous agreements. It will be binding on the heirs and successors of the parties hereto. If any section of this agreement is found to be invalid, the remainder of the agreement shall remain intact and in full force.

Federal Communications Commission Radio Frequency Interference Statements

Please read the FCC statement that applies to your system. To verify the FCC limits with which your system complies, please locate the label on the back of your system. If there is an FCC ID code starting with **JPW** or stating **FOR HOME OR OFFICE USE**, your system complies with the limits of a Class B device. If nothing is present, your system complies with the limits of a Class A device. This computer must be used with shielded cables in order to meet FCC emission limits. Also, be aware that most network cards and large monitors have an FCC Class A specification only and therefore, even if used in conjunction with FCC Class B computers, they are good only for non-residential use. Please always check the level of FCC compliance of every add-on board or peripheral you might be adding to your @Xi system(s).

Class A Equipment

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Class B Equipment

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Operation of this equipment in a residential area is likely to cause harmful radio interference in which case the user will be required to correct the interference at his/her expense.

Class B Clauses

Notice 1

Changes or modifications not expressly approved by party responsible for compliance may void the user's authority to operate this equipment.

Notice 2

Shielded interface cables and I/O cards, if any, must be used in order to comply with the relevant FCC regulations.

Canadian Department of Communications Compliance Statement

This equipment does not exceed Class B limits per radio noise emissions for digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications. Operation in a residential area may cause unacceptable interference to radio and TV reception, requiring the owner or operator to take whatever steps are necessary to correct the interference.

Aves de Conformite aux Normes du Ministere des Communications du Canada

Cet equipment ne depasse pas les limites de Classe B d'emission de bruits radioelectriques pour les appareils numeriques tells que perscrites par le reglement sur le brouillage radioelectrique etabli par le Ministre des Communications du Canada. L'exploitation faite en milieu residentiel peut extraîner le brouillage des receptions radio et tele, ce qui obligerait le proprietaire ou l'operateur a pendre les dispositions necessaires pour en eliminer les causes.

Appendix D

Glossary

This glossary defines the technical terms in this *User's Guide*.

Ambient lighting	Light that is scattered everywhere in the room. Instead of being directed to a certain location, ambient lighting is scattered all over and lights objects up a bit even where no light is directly shining.
BIOS	An acronym for Basic Input/Output System. The BIOS controls the input/output (I/O) devices in your computer and how your computer behaves during periods of inactivity when the Suspend button is pressed. BIOS settings are programmed onto integrated circuits (chips) that hold Random-Access Memory.
Bit	An acronym for binary digit. A bit is the smallest unit of information on a machine. A single bit can hold either a value of 0 or 1. Meaningful information is obtained by combining consecutive bits into larger units, called bytes.
bps	An abbreviation for Bits per second. The number of bits transferred per second in a data communications system. A measure of speed.
Blackout	A situation where power drops to practically or absolutely nothing.

Brownout	A temporary reduction in power, which can last from seconds to hours. Brownouts are the most significant of power problems. During periods of high demand, utility companies sometimes cause a brownout intentionally to provide minimal power to everyone.
Browser	A client software program used to look at various kinds of Internet resources.
Bug	A computer technology term applied to a defect in a software application or hardware. The term “bug” originated on the Harvard University campus in 1945, when a moth caused a circuit of a glass-enclosed computer to malfunction. Today, the term “bug” is applied to both hardware and software problems alike.
Cache	A special, high-speed memory subsystem, pronounced “cash,” in which frequently used data values are duplicated for quick access. Cache memory is faster than <i>RAM</i> .
CD-R	A drive similar to a CD-ROM drive, but with the ability to record data.
CD-ROM drive	An optical disk that can store up to 1 GB of data, which is equal to the storage capacity of 700 floppy diskettes. However, most CD-ROMs only store 650 MB of data.
CD-RW	A drive similar to a CD-ROM drive, but with the ability to record and rewrite data.
Client	A software program used to contact and obtain data from a server software program on another computer, often across a great distance. A client program is designed to work with one or more specific kinds of server programs. A Web browser is a specific kind of client.
Connector	A receptacle on the back of the system unit that allows an external device to be connected.

Central Processing Unit (CPU)	The “brains” of a computer, which interprets and executes instructions.
DIMM	An acronym for Dual In-line Memory Module, a small circuit board that holds memory chips. A single DIMM has a 64-bit path to the memory chips, compared to the 32-bit path provided by SIMMs.
Direct Memory Access (DMA)	The ability to transfer data directly into memory, without requiring the help of the microprocessor.
Dual In-line Package switches (DIP switches)	Small switches typically used to configure non-PnP expansion cards. DIP switches are so small, you have to use a paper clip to flip them to the desired position.
DVD-ROM	A drive that is functionally similar to a CD-ROM, but which uses disk media with a capacity of 8.5 GB per diskette.
Ergonomics	The study of the problems of people in adjusting to their environment. Ergonomics is a science that seeks to adapt work or working conditions to suit the worker.
Expansion card	A printed circuit board that you can install in a computer to give it added capabilities. Examples of expansion cards include video adapters, sound cards, and internal modems.
Floppy diskette	A soft magnetic disk. Floppy diskettes offer slower access times and hold less data than hard drives. However, they are not as expensive as hard drives and, unlike hard drives, can be transported easily.
GB	An abbreviation for gigabytes. A gigabyte equals 1,073,741,824 bytes. Compare with KB and MB.
Grounding plug	A plug that has two straight plugs for conducting electricity and one round plug for grounding. Grounding plugs connect to a three-slot receptacle. Your computer’s power cord is equipped with a grounding plug.

Hard drive	A mechanism that reads and writes data on a hard disk. Many disk drives improve their performance through a technique called caching. The most common interfaces for transferring data between a hard disk and a computer are IDE and SCSI.
Internet Service Provider (ISP)	A company that provides customers with dial-up access via a modem to the Internet.
Interrupt Request (IRQ)	A request generated by an installed or attached device to get the microprocessor's attention.
Jumpers	Small plastic connectors that fit over exposed wires on an expansion card. Jumpers typically are used to configure legacy expansion cards.
KB	An abbreviation for kilobytes. A kilobyte equals 1,024 bytes.
Legacy	The term applied to pre-PnP ISA expansion cards.
MB	An abbreviation for megabytes. A megabyte equals 1,048,576 bytes.
Microprocessor	Synonymous with Central Processing Unit (CPU).
Motherboard	The main board in your computer. The motherboard contains major components such as RAM, expansion cards, and the microprocessor.
Multimedia	The delivery of information that combines different content formats (for example, audio, still images, graphics, animation, motion video, and text).
Network	Two or more computers linked together.
OC-12 fiber-optic line	A 600 Mbps connection, 400 times faster than T-1 lines.

Parallel	Processes that occur at the same time. For example, a parallel printer can receive more than one <i>bit</i> at a time. Compare with serial.
Peripheral	Any hardware device that is attached to the computer, such as a monitor, printer, plotter, or modem.
Pins	Small protrusions located in “male” connectors. “Female” connectors have small holes for accommodating the pins in male connectors.
Plug and Play (PnP)	A standard that allows a computer system to automatically configure expansion boards and other devices.
Random-Access Memory (RAM)	Your computer’s primary memory in which program instructions and data are stored so that they are accessible to the Central Processing Unit (CPU). RAM is extremely fast, but does not retain information once its power is removed. RAM is measured in megabytes (MB).
Screen saver	A program that automatically displays moving images on the monitor after a predefined period of inactivity. Screen savers prevent a still image, displayed uninterrupted for long periods of time, from being burned into the screen. To remove a screen saver from the screen, press a key or move the pointing device.
SCSI	An abbreviation for Small Computer System Interface, pronounced “scuzzy.” SCSI provides faster data transmission rates (up to 80 MB per second) than serial and parallel ports. In addition, you can attach (or “daisy-chain”) many devices to a single SCSI port.
Serial	The process of transmitting data one bit at a time. Compare with parallel.
Server	A computer or software application that provides a specific kind of service to client software running on other computers.

SIMM	An acronym for Single In-line Memory Module, a small printed circuit board holds a group of memory chips. SIMMs hold up to nine RAM chips. The computer bus from a SIMM to the actual memory chips is 32 bits wide, compared to the 64-bit-wide path by DIMMs. Because Pentium processors require a 64-bit path to memory, you need to install two SIMMs a time, as opposed to installing one DIMM at a time.
Sound card	An expansion card that allows a computer to output sounds. Sound cards are required for nearly all CD-ROMs and DVD-ROMs. Sound is output through speakers connected to the sound card. Similarly, sound can be input into a sound card using a microphone and then stored on the computer's hard drive.
Spike	An intense increase/decrease in voltage. Spikes are more extreme than a surge and of shorter duration. Spikes can scramble a computer's memory, causing odd things to occur. In extreme cases, spikes can actually melt wiring.
Surge	A transient increase of power for more than a fraction of a second and less than 2.5 seconds. Surges cause a power supply to generate heat. Heat is the major cause of equipment failure.
Surge protector	A device that protects attached devices against spikes.
Surge suppressor	A device designed to protect devices against surges. Surge suppressors are also referred to as "line conditioners" or just "conditioners."
System unit	The "heart" of the computer. All external devices, such as monitor, keyboard, and mouse connect to the back of the system unit. The main board (or motherboard), video adapter, floppy disk/hard disk/CD-ROM controller and drives, power supply, and any expansion boards are all installed inside the system unit.

T-1 line	A heavy copper wire connection, divided into 24 64 KB channels at a maximum capacity of 1.54 MB.
T-3 line	A 45 megabyte line, equivalent to 28 T-1 lines.
Trackball	Basically an upside-down mouse. Rather than sliding the entire device to direct cursor movement (as with a mouse), the trackball rests in one place. The tracking ball is exposed on the top side of the trackball and is rotated by hand. The obvious advantage of the trackball over a mouse is that it doesn't require the space for the pad on which to run.
Uninterruptible power supply	A device designed to provide back-up power when power from the AC outlet is interrupted. An uninterruptible power supply lets you save your work, exit your applications, and power-down your computer. Without it, your computer automatically shuts down as soon as it loses power, causing you to lose all of your unsaved work.
Universal serial bus	A new I/O standard designed to replace the different kinds of serial and parallel connectors with a single, standardized Plug-and-Play combination.
Zip® drive	A removable storage solution that stores data on proprietary 3.5-inch cartridges.

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