Gateway™ E-1600 Desktop System Manual

January 2001

Gateway@Work

Notices

4545 Town Centre Court
San Diego, CA 92121 USA

All rights reserved

The information in this manual has been carefully checked and is believed to be accurate. However, changes are made periodically. These changes are incorporated in newer publication editions. Gateway may improve and/or change products described in this publication at any time. Due to continuing system improvements, Gateway is not responsible for inaccurate information which may appear in this manual. For the latest product updates, consult the Gateway Web site at www.gateway.com. In no event will Gateway be liable for direct, indirect, special, exemplary, incidental, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages.

In the interest of continued product development, Gateway reserves the right to make improvements in this manual and the products it describes at any time, without notices or obligation.

Trademark acknowledgments

AnyKey, black-and-white spot design, CrystalScan, Destination, EZ Pad, EZ Point, Field Mouse, Solo, TelePath, Vivitron, stylized “G” design, and “You’ve got a friend in the business” slogan are registered trademarks and GATEWAY, Gateway Profile, Gateway Solo, Gateway Astro, green stylized GATEWAY, green stylized Gateway logo, and the black-and-white spotted box logo are trademarks of Gateway, Inc. Intel, Intel Inside logo, and Pentium are registered trademarks and MMX is a trademark of Intel Corporation. Microsoft, MS, MS-DOS, and Windows are trademarks or registered trademarks of Microsoft Corporation. All other product names mentioned herein are used for identification purposes only, and may be the trademarks or registered trademarks of their respective companies.

Contents

Preface

Conventions used in this manual

Throughout this manual, you will see the following conventions:

Convention	Description
ENTER	Keyboard key names are printed in small capitals.
CTRL+ALT+DEL	A plus sign means to press the keys at the same time.
Setup	Commands to be entered, options to select, and messages that appear on your monitor are printed in bold.
User's Guide	Names of publications are printed in italic.
Viewpoint	All references to front, rear, left, or right on the computer are based on the computer being in a normal, upright position, as viewed from the front.

Important

A note labeled important informs you of special circumstances.

Caution

A caution warns you of possible damage to equipment or loss of data.

Warning

A warning indicates the possibility of personal injury.

Getting additional information

Log on to the technical support area of www.gatewayatwork.com to find information about your computer or other Gateway products. Some types of information you can access are:

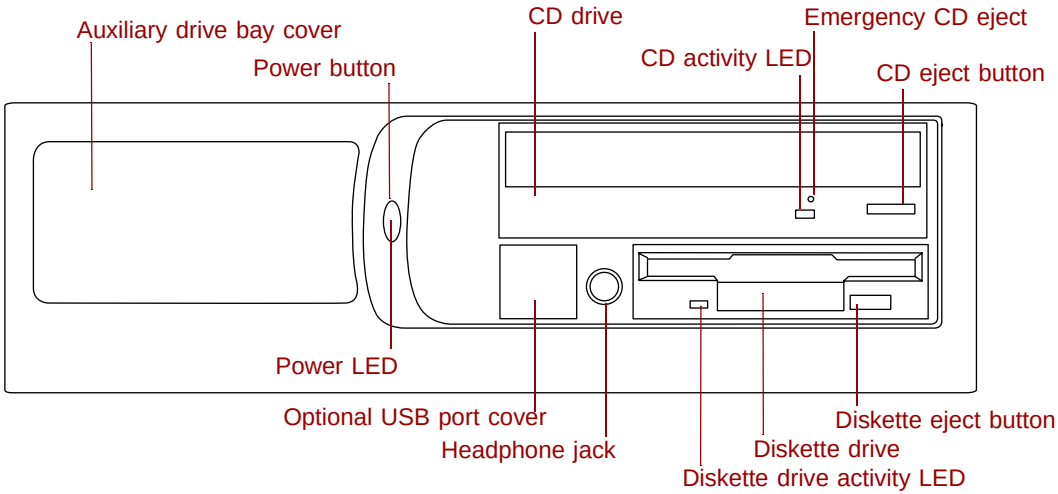
- Hardware driver and program updates
- Technical tips
- Service agreement information
- Technical documents and component information
- Frequently asked questions (FAQs)
- Documentation for peripherals or optional components
- Online technical support

1 System Features

Standard features

- Intel® Celeron™ or Intel Pentium™ III processor
- Desktop-to-tower conversion
- Two dual in-line memory module (DIMM) sockets that support up to 512 megabytes (MB) of Synchronous Dynamic Random Access Memory (SDRAM)
- Integrated Heceta IV Hardware Management Application Specific Integrated Circuit (ASIC)
- Integrated video controller using main memory for video memory
- Intel 810e chipset
- Two PCI slots that support half-length, low-profile PCI expansion cards
- One 3.5 inch diskette drive, one CD drive, and one hard drive
- Keyboard port, mouse port, one serial port, parallel port, video port, Local Area Network (LAN) port, two Universal Serial Bus (USB) ports, and line-out and microphone-in audio ports
- Integrated audio using Crystal CS4201 AC'97 on-board Codec with analog speaker support
- 10/100 Mbit per second Ethernet network support

Front panel



Auxiliary drive bay provides space for a fourth drive that can be externally accessible.

Power button turns the computer on and off.

CD drive plays data or audio CDs.

CD activity LED glows when the CD drive is reading a CD.

Emergency CD eject provides a way to eject a CD if the computer is off.

CD eject button ejects a CD from the CD drive.

Diskette eject button ejects a diskette from the diskette drive.

Diskette drive writes to and reads from 3.5-inch, 1.44 MB diskettes.

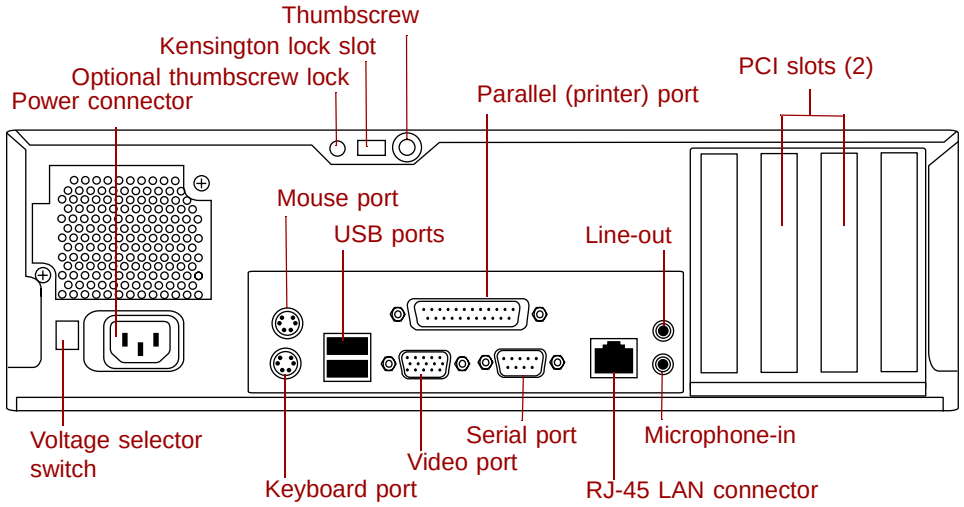
Diskette drive activity LED glows when the diskette drive reads from or writes to a diskette.

Headphone jack lets you connect a set of headphones to the integrated audio controller on the system board.

Optional USB port cover covers the optional front panel USB ports that let you connect USB devices directly to the front panel.

Power LED glows green when the computer is on.

Back panel



Power connector connects the computer power cord. The other end of the power cord plugs into an AC outlet or power strip.

Optional thumbscrew lock lets you lock the cover so that it cannot be removed without a key.

Kensington lock slot lets you use a cable lock to secure the system.

Thumbscrew secures the cover to the chassis.

Parallel (printer or LPT) port connects a printer or other parallel device.

PCI slots (2) let you install as many as two low-profile PCI expansion cards.

Microphone-in jack connects a microphone.

RJ-45 LAN connector connects the network cable.

Serial (COM) port connects a serial device.

Video port connects the monitor interface cable.

Keyboard port connects a Personal System/2® (PS/2) compatible keyboard.

Voltage selector sets the voltage for your area, either 115V or 230V.

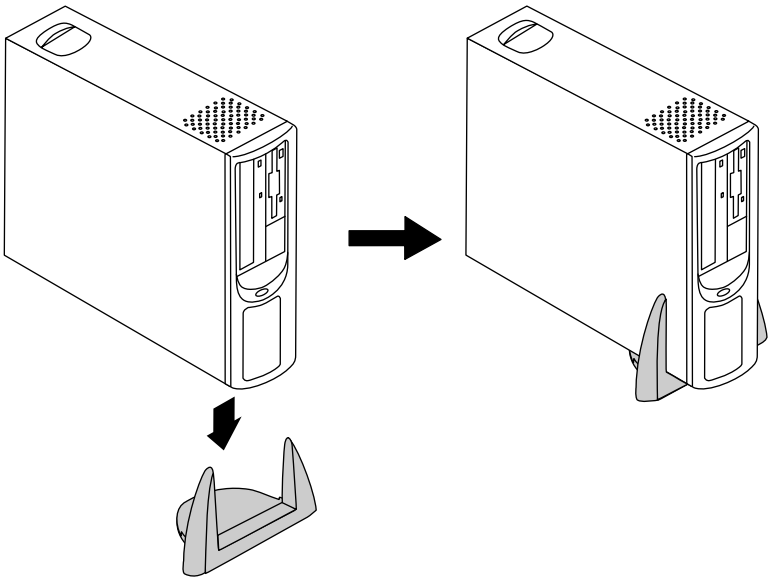
Mouse port connects a PS/2-compatible mouse.

USB ports connect Plug-and-Play devices that are automatically configured when they are plugged into the computer.

Line-out audio jack connects audio devices such as speakers.

Vertical desktop feature

You can set up your desktop to sit vertically by using the stand included with your accessory kit. This arrangement saves space and transforms your desktop computer into a minitower computer.



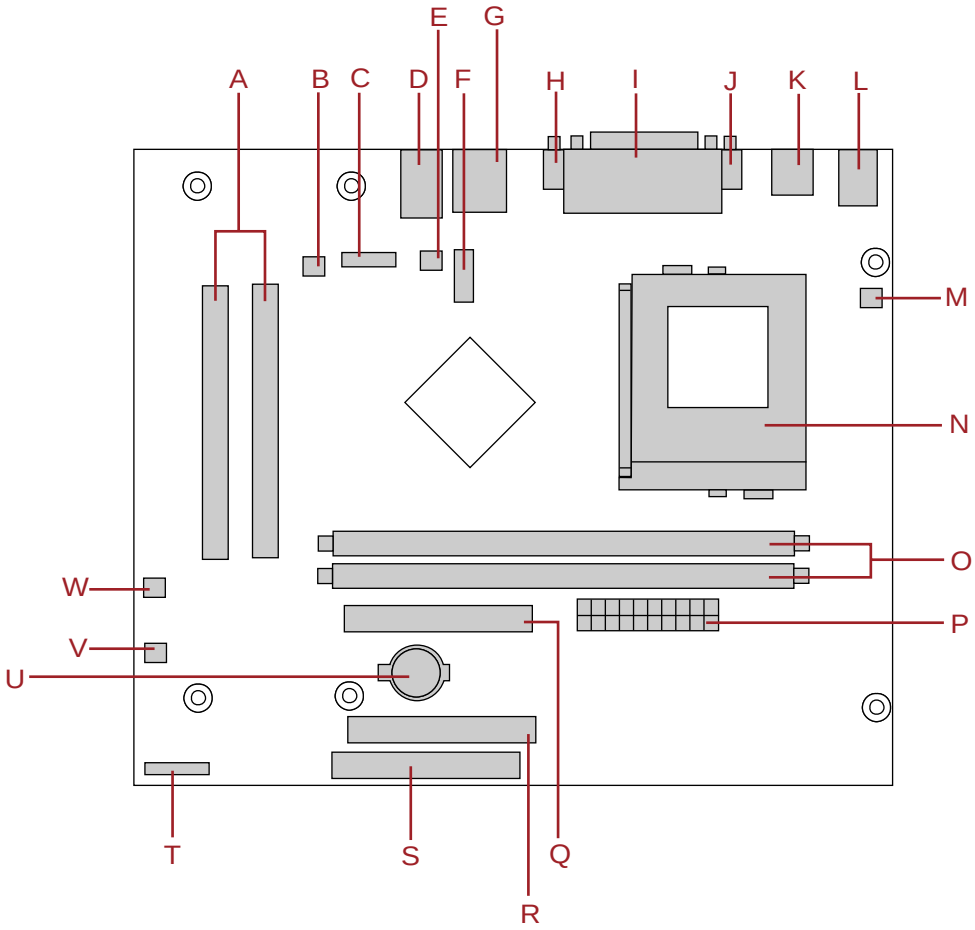
Important

If you set your system up vertically, make sure you use a CD drive with retaining clips. Retaining clips hold the CD in place when the computer is mounted vertically. The CD drive that ships with the system includes retaining clips.

To convert your computer to a tower

1. Turn off the computer and disconnect the power cord and all cables connected to the back.
2. Lift the right side of the computer until it rests vertically on its left side.
3. Lift the front of the computer, rocking it back, and place the plastic stand under the front of the computer.
4. Lower the front of the computer, allowing it to balance on the stand.
5. Reconnect the power cord and that cables you disconnected earlier.

System board



A PCI connectors

B Internal speaker connector (not used)

C CD audio connector

D Audio connectors

E Headphone connector

F Telephony connector

G RJ-45 LAN connector

H Serial port

I Parallel port

J Video port

K Dual USB ports

L Keyboard and mouse ports

M Processor fan connector

N Processor socket

O DIMM slots

P Main power connector

Q Diskette drive connector

R Secondary IDE connector

S Primary IDE connector

T Front panel connector

U Battery

V Chassis intrusion connector

W BIOS configuration jumper (J6A1)

Heceta IV hardware management

Heceta IV is an integrated data acquisition system that lets you monitor the status of your system hardware. Monitored information includes internal temperature, fan speed, voltage, and chassis intrusion (to alert you in case of tampering). The features of the hardware management system can be accessed through LANDesk® Client Manager, which provides a quick system health indicator.

2

System Setup

Setting up your computer

Use the instructions on the Quick Guide poster that came with your computer to assemble your computer.

You should prepare a safe working environment before assembling your computer by following these guidelines:

- Use a clean, flat, and stable surface for your computer. Allow at least 6 inches at the rear of the computer for cabling and air circulation.
- Obtain a grounded (three-prong) AC surge-protected power strip. A surge-protected power strip helps protect against AC power fluctuations.
- Protect your computer from extreme temperature and humidity. Do not expose your computer to direct sunlight, heater ducts, or other heat-generating objects.
- Keep your computer away from equipment that generates magnetic fields, such as unshielded stereo speakers. Even a telephone placed too close to the computer may cause interference.
- Plug the computer into a wall outlet or power strip that is easily accessible.

Important

Keep the computer boxes and packing material in case you need to send the computer to Gateway for repairs. If you return your computer in different packaging, your warranty may be voided.

Starting your computer

Before you start your computer for the first time:

- Make sure that the voltage selector switch on the back of the computer is set to the correct voltage for your area. This switch is set at the factory to the correct voltage (see “Back panel” on page 3 for the voltage selector switch location).
- Make sure all cables are firmly connected to the proper ports on the back panel of the computer.

Caution

Make sure your computer and peripherals are turned off and unplugged from the power outlet when you connect peripherals to the computer, or you might damage the computer or the peripherals.

- Make sure the computer and monitor are plugged into an AC outlet or power strip and that the power strip is turned on.

To start the computer:

1. If you have connected the computer components to a power strip, make sure all the computer components are turned off, then turn on the power strip.
2. Turn on the monitor.
3. Turn on any other components connected to the computer, such as speakers, a printer, or a scanner.
4. Turn on the computer.

   If nothing happens when you turn on the computer:

   - Make sure that the power cables are securely plugged in and that your power strip (if you are using one) is plugged in and turned on.
   - Make sure the monitor is connected to the computer, plugged into the power strip or AC outlet, and turned on. You may also need to adjust the brightness and contrast controls on the monitor.

Understanding the Power-On Self-Test

When you turn on your computer, the Power-On Self-Test (POST) routine checks the computer memory and components. To see this information on the screen, press TAB during POST.

Important

The computers starts very quickly. If your monitor requires a short time to warm up, you may not see the messages. If you are having problems, you may need to wait for the monitor to warm up and then restart the computer. If you are trying to enter Setup, press F1 before the monitor warms up.

The computer displays error messages if POST finds any problems. Write down any error messages that you see. If you continue to have problems, these error messages may help technical support diagnose the cause.

Setting up the operating system

The first time you start your computer, the operating system takes a few minutes to set up.

Refer to your operating system documentation for specific questions regarding the operating system.

To complete the operating system setup for Windows NT:

1. After the computer starts, the start-up wizard opens. Continue by clicking **Next**.
2. Type the requested information in the appropriate text boxes. When you have finished typing the information, continue by clicking **Next**.

Important

Any ID or key numbers requested to complete the operating system setup are either on a sticker attached to the computer or in the documentation provided.

3. Continue following the instructions and selecting options in the start-up wizard dialog boxes, clicking **Next** to move through the dialog boxes, until the wizard tells you to restart the computer.

   If you need to return to the previous dialog box to change any of your entries, click **Back**.

4 Restart your computer. The setup is complete.

Important

For other operating systems, such as Windows® 2000, refer to the appropriate operating system software manual for setup instructions.

Turning off your computer

Every time you turn off your computer, shut down the operating system first. You may lose data if you do not follow the proper procedure.

To turn off your computer in Windows NT:

1 Click **Start**, then select **Shut down the computer?**, then **Shut Down**.

2 Click **OK**. The computer turns off. If you see a message saying **It is now safe to turn off your computer**, turn off the computer by pressing the power button.

3 Turn off the monitor and peripherals.

Warning

When you turn the computer off by pressing the power button, some electric current still flows through the computer. Before opening the computer case or connecting or removing any peripherals, turn off the computer, then unplug the power cord and modem cable (if installed) or you may get an electric shock.

Important

For other operating systems, such as Windows® 2000, refer to the appropriate operating system software manual for instructions.

Restarting your computer

If your computer does not respond to keyboard or mouse input, you may have to close programs that are not responding. If closing unresponsive programs does not restore your computer to normal operation, you may have to reset the computer.

To close programs and restart your computer in Windows NT:

1. Press CTRL+ALT+DEL. A window opens that lets you close a program that is not responding.
2. Click **Task Manager**, then select the program that is not responding.
3. Close the program by clicking **End Task**.
4. If the computer does not respond, turn off the computer power, wait ten seconds and turn the power on again.

Important

If the computer does not turn off immediately, you may need to hold the power button down for a few seconds to turn the computer off.

As a part of the regular startup process, a program to check the disk status runs automatically. When the checks are finished, Windows starts.

Important

For other operating systems, such as Windows 2000, refer to the appropriate operating system software manual for instructions.

3

Case Access

Static electricity precautions

Static electricity can permanently damage electronic components in your computer. When opening your computer case, always perform the following procedure.

Caution

Prevent electrostatic damage to your computer by following static electricity precautions every time you open your computer case.

To avoid static electricity discharge:

1. Wear a grounding wrist strap (available at most electronics stores).
2. Turn off the computer power.
3. Discharge any static electricity by touching a bare metal surface on the back of the case.
4. Unplug all power cords from AC outlets and disconnect the modem cable (if installed).
5. Remove the computer cover.

Follow these precautions to avoid electrostatic damage to your computer components:

- Avoid static-causing surfaces such as plastic and packing foam in your work area.
- Remove the parts from their antistatic bags only when you are ready to use them. Do not lay parts on the outside of antistatic bags since only the inside of the bag provides antistatic protection.
- Always hold cards by their edges and their metal mounting brackets. Avoid touching components on the cards and the edge connectors that connect to expansion slots.
- Never slide cards or other parts over any surface.

Warning

Avoid exposure to dangerous electrical voltages and moving parts, by turning off your computer and unplugging the power cord and modem cable before removing the computer cover.

Opening the case

To work on the internal components of the computer, you must open the case, which has two removable parts:

- A chassis cover that surrounds the sides and top of the system
- A front faceplate (bezel) that covers the front of the system

Because the components inside your computer are extremely sensitive to static electricity, be sure to follow the precautions at the beginning of this chapter for avoiding static electricity damage.

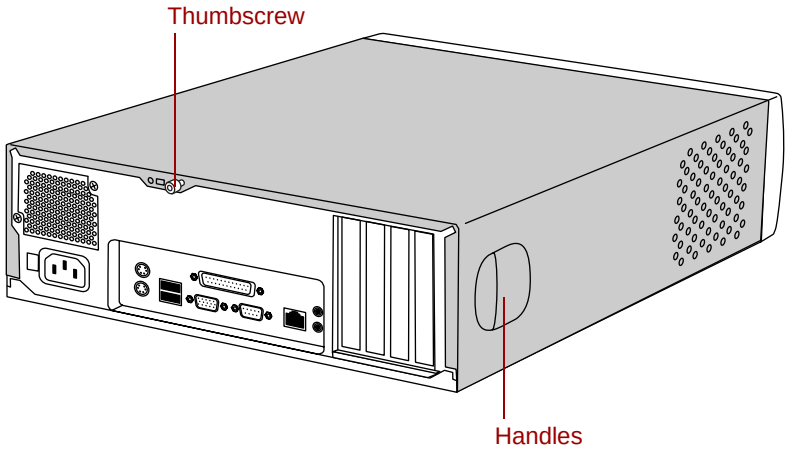
Warning

Avoid exposure to dangerous electrical voltages and moving parts, by turning off your computer and unplugging the power cord and modem cable (if installed) before removing the chassis cover.

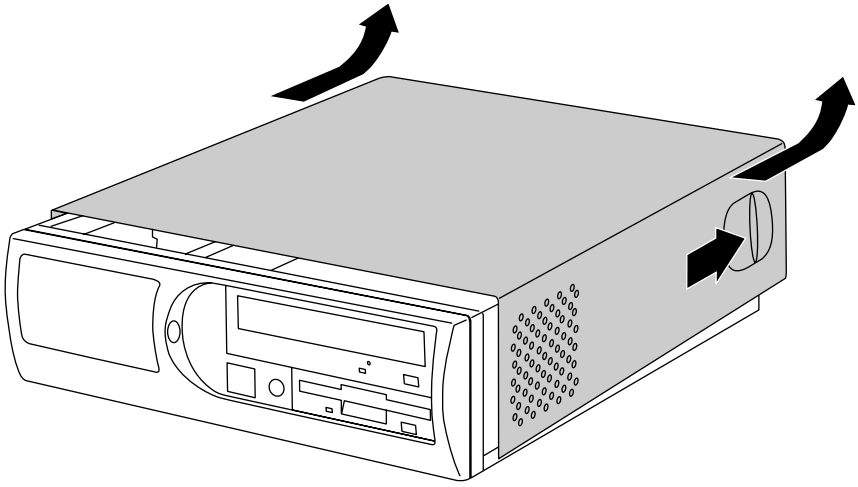
Removing the cover

To remove the chassis cover:

1. Turn off the computer and disconnect all peripherals and power cords.
2. If the case is secured by a chassis lock, unlock the chassis.
3. Remove the thumbscrew on the back of the case.
4. Using the handles on each side of the cover, pull the cover toward the back of the computer.



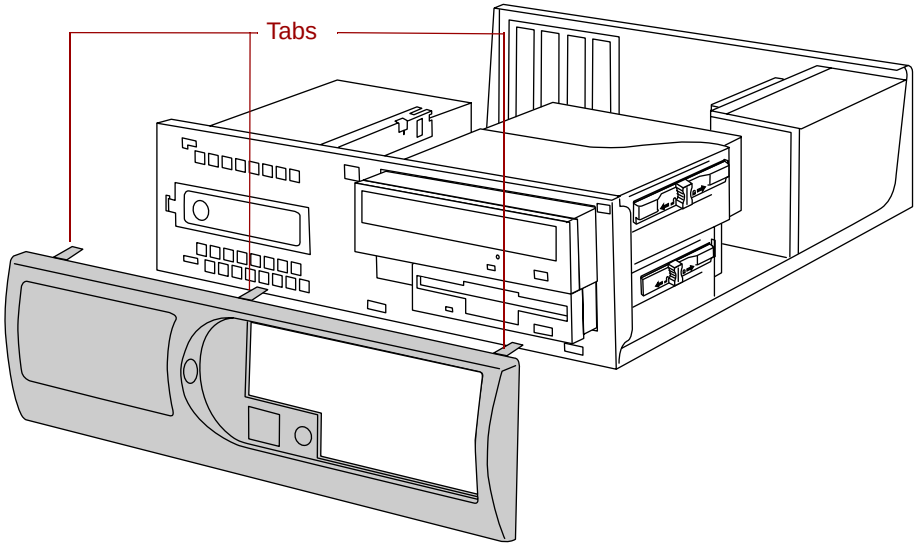
5. Lift the cover up and off of the computer.



Removing the bezel

To remove the front bezel:

1 Lift the three tabs to release the bezel. The top of the bezel swings out and away from the chassis.



2 Lift the bezel until the tabs clear the holes in the chassis. Remove the bezel.

Closing the case

Replace the chassis cover as soon as you finish installing or removing components so that dust and dirt (which could damage the computer) do not collect inside the computer.

Replacing the bezel

To replace the front bezel:

1. Set the tabs on the bottom edge of the bezel into the holes in the front panel of the chassis.
2. Swing the bezel up into position, then press the bezel into the chassis until the three upper tabs snap into their holes.

Replacing the cover

To replace the chassis cover:

1. Place the cover on the computer, making sure the hole for the thumbscrew is at the back of the chassis.
2. Slide the cover toward the front of the computer until the front edge of the cover slides beneath the top edge of the bezel.
3. Reinstall the thumbscrew that you removed to open the case.
4. If you are using a chassis lock to secure the computer, replace the lock.

Replacing and Adding System Components

4

Replacing or adding drives

Preparing to replace or add a drive

One 3.5-inch diskette drive, one 3.5-inch hard drive, and one CD drive are included with your computer. You can add one additional half-height 3.5-inch tape storage or disk storage device.

As you prepare to install drives, keep the following in mind:

- To remove and install drives, use an antistatic wrist strap.
- If you remove a drive, place it in an antistatic bag or container.
- Before you install a drive, see the drive documentation for information on configuring the drive, setting any jumpers on the drive, and attaching cables to the drive.
- If you are installing a drive that requires a controller card, install the card before you install the drive.
- The IDE cables automatically assign master/slave positions to the drives they connect. You can override these assignments using the jumpers on the drives.
- IDE hard drives can be configured as single, master, or slave. IDE CD drives can be configured as master or slave. Configure the drives by using the drive-select jumpers located on the drives.
- You may need to configure the drives you install using the BIOS Setup utility. Press F1 at start up to open the BIOS Setup utility.

Drive cabling information

Your computer includes three different types of drive cables. Each drive cable is clearly labeled, indicating cable-type and showing which end is connected to the appropriate connector on the system board and which end is connected to the drive.

Use the diskette drive connector cable to connect the diskette drive. Use the standard IDE connector cable to connect IDE devices such as CD drives and standard IDE hard drives. Use the 80-conductor IDE cable to connect DMA-100-compatible hard drives.

Important

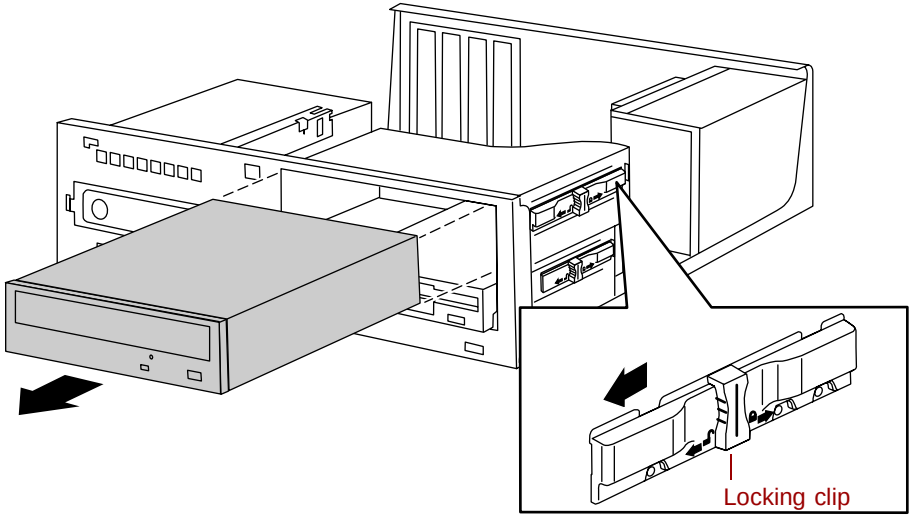
The CD drive may be connected to the primary IDE controller and the hard drive may be connected to the secondary IDE controller. Drive assignments will reflect the correct configuration from the factory.

Replacing the CD drive

To replace the CD drive:

1. Turn off the computer and disconnect the power cord, modem cable (if installed), and all external peripheral devices.
2. Remove the cover. (See “Removing the cover” on page 17 and “Static electricity precautions” on page 15.)
3. Locate the CD drive.
4. Disconnect the power, audio, and data cables from the back of the drive. Note their positions and orientations. (You will reconnect these cables when you install the new drive.)

5 Disengage the locking clip by sliding the clip toward the front of the computer as shown by the arrow beside the unlock icon on the clip.



6 Pull the CD drive out from the front of the computer.

7 Set any jumpers on the new CD drive. See the drive manufacturer's documentation for instructions.

8 Slide the new CD drive into the open drive bay.

9 Slide the locking clip toward the back of the computer to lock the CD drive into place.

10 Reconnect the power, audio, and data cables.

11 Close the case by following the instructions on page 18.

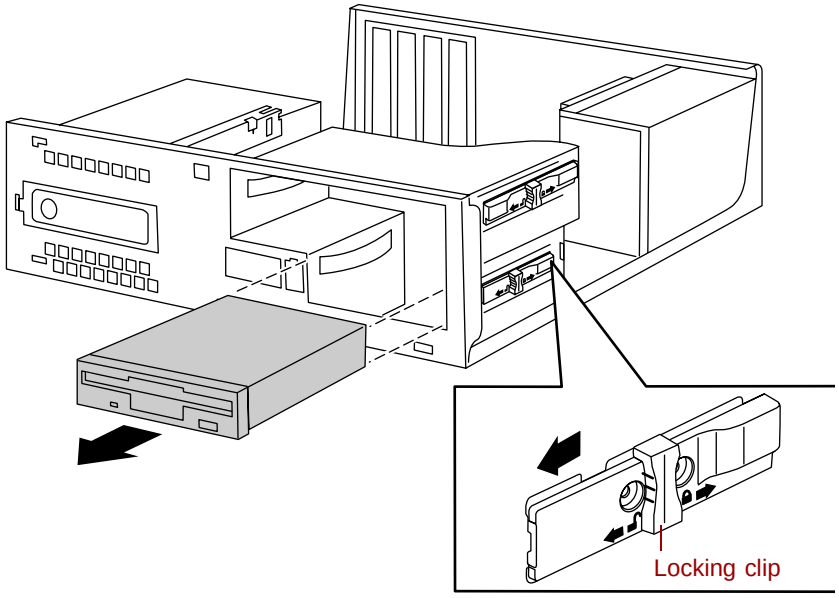
12 Reconnect the peripherals, the modem cable, and the power cord, then turn on the system.

13 Run the configuration software if necessary.

Replacing the 3.5-inch diskette drive

To replace the drive:

1. Turn off the computer and disconnect the power cord, modem cable (if installed), and all external peripheral devices.
2. Remove the cover. (See “Removing the cover” on page 17 and “Static electricity precautions” on page 15.)
3. Remove the power and data cables from the back of the drive, noting their locations and orientations. (You will reconnect these cables after you install the new drive.)
4. Disengage the locking clip by sliding the locking clip toward the front of the computer as shown by the arrow beside the unlock icon on the clip.



5. Pull the drive out of the chassis.
6. Set the drive jumpers (if any) on the new drive to the appropriate settings (refer to your drive documentation for jumper settings).
7. Align the drive with the open bay, then slide it into the bay.

8 Slide the locking clip toward the back of the chassis to secure the drive in the bay.

9 Connect the power and data cables, making sure the cables are in their original positions.

10 Close the case by following the instructions on page 18.

11 Reconnect the peripherals, the modem cable, and the power cord, then turn on the computer.

12 Run the configuration software if necessary.

Adding a 3.5-inch device

You can use the additional, externally accessible, 3.5-inch drive bay to install a 3.5-inch drive such as a tape drive, or a Zip drive.

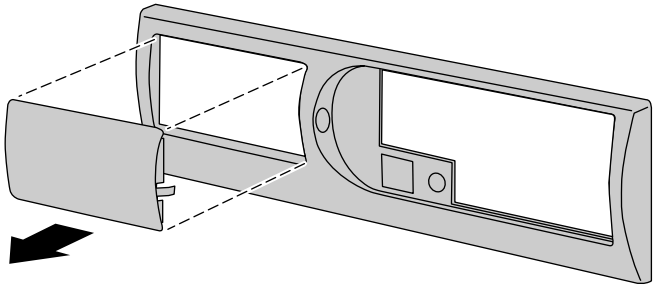
To install an additional drive:

1 Turn off the computer and disconnect the power cord, modem cable (if installed), and all external peripheral devices.

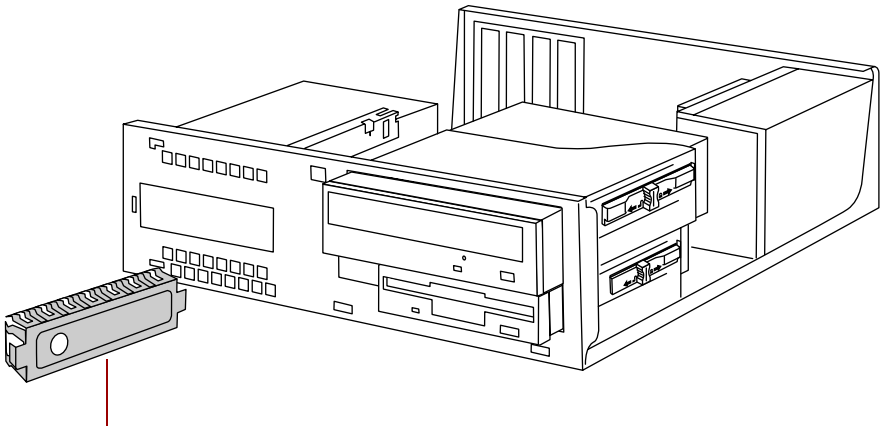
2 Remove the cover. (See “Removing the cover” on page 17 and “Static electricity precautions” on page 15.)

3 Remove the bezel. (See “Removing the bezel” on page 18.)

4 Remove the plastic insert from the bezel by pressing the tabs on the ends of the insert together and pushing the insert out from the back of the bezel. Save the insert so that you can replace it if you remove the added drive.



5 Remove the metal EMI shield by placing a finger through the hole and pulling the shield out. Save the shield so that you can replace it if you remove the added drive.

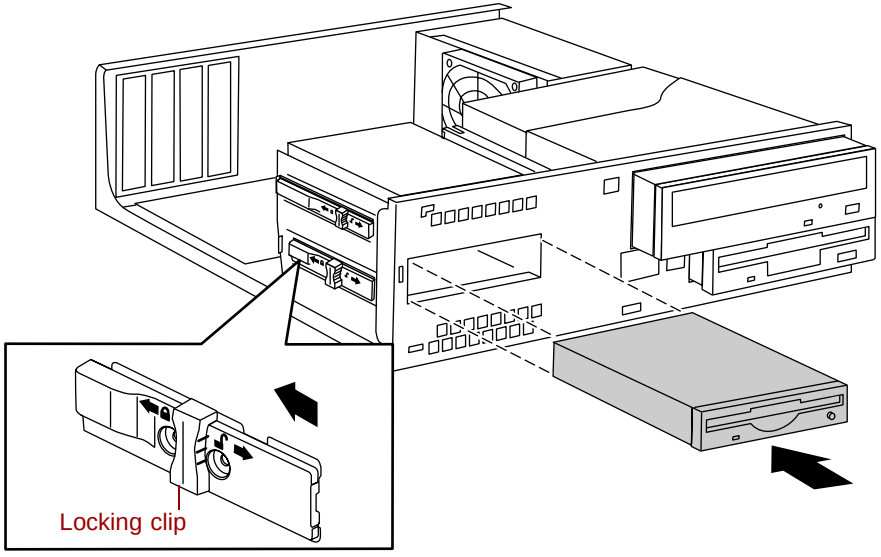


Caution

Your computer was designed to adhere to electromagnetic interference requirements and the EMI shield is an integral part of the computer. Installing an approved drive should continue to maintain those standards. If you remove the drive you must reinstall the shield.

6 Set the drive jumpers to the appropriate settings (refer to your drive documentation for jumper settings).

7 Make sure the locking clip is in the open position by sliding it toward the front of the chassis as shown by the arrow beside the unlock icon on the locking clip.



8 Align the drive with the open bay, then slide it into the chassis until it is properly positioned.

Important

You may want to install the bezel first to make sure the drive is properly aligned.

9 Slide the locking clip toward the back of the chassis to secure the drive in the bay.

10 Connect the power and data cables to the back of the drive.

11 Close the case by following the instructions on page 18.

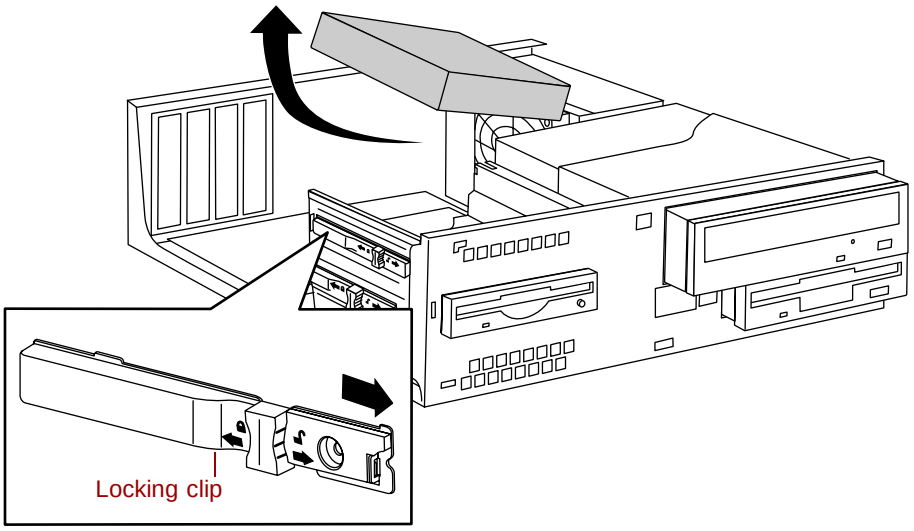
12 Reconnect the peripherals, the modem cable, and the power cord, then turn on the computer.

13 Run the configuration software, if necessary.

Replacing the hard drive

To replace the hard drive:

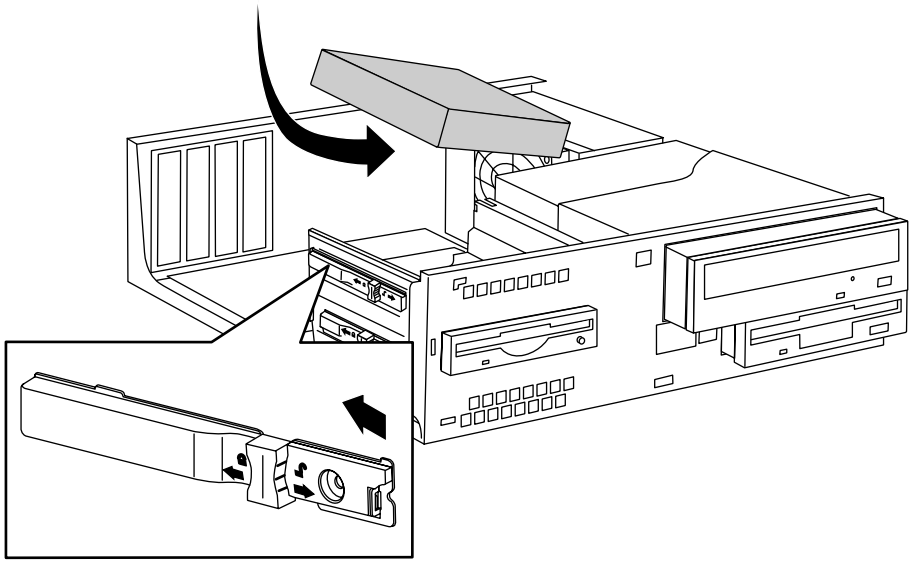
1. Turn off the computer and disconnect the power cord, modem cable (if installed), and all external peripheral devices.
2. Remove the cover. (See “Removing the cover” on page 17 and “Static electricity precautions” on page 15.)
3. Locate the hard drive.
4. Remove the power and data cables from the back of the drive, noting their locations and orientations. (You will reconnect these cables after you install the new drive.)
5. Slide the locking clip toward the front of the chassis to release the drive as shown by the arrow beside the unlock icon on the locking clip.



6. Lift the left edge of the drive, then pull the drive off of the pins on the right side of the drive bay and lift it out of the chassis.
7. Place the old drive in an antistatic bag or container.
8. Set the drive jumpers on the new drive to the appropriate settings (refer to your drive documentation for jumper settings).

9 Holding the drive at an angle with the right side lower than the left side, slide the holes in the right side of the drive over the pins on the right side of the drive bay.

10 Rotate the left side of the drive down until the drive rests level in the drive bay. Make sure that the data and power connectors on the drive face the interior of the chassis.



11 Slide the locking clip toward the back of the chassis to secure the drive in place.

12 Connect the power and data cables to the drive.

13 Close the case by following the instructions on page 18.

14 Reconnect the peripherals, the modem cable, and the power cord, then turn on the computer.

15 If necessary, install your operating system and other software.

Replacing or adding memory

The SDRAM DIMMs supported by your system board conform to the following standards:

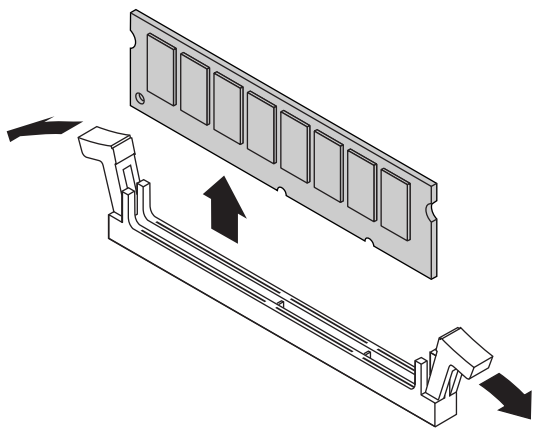
- 32 MB, 64 MB, 128 MB, and 256 MB DIMMs.
- 64 MB minimum system memory.
- Single- or double-sided configurations.
- 512 MB maximum system memory.

Memory is installed in two slots on the system board. When you are selecting and installing DIMMs, keep the following in mind:

- No jumper settings are required for the memory size or type because the BIOS automatically detects this information.
- DIMMs must be installed in the lowest numbered slot first.

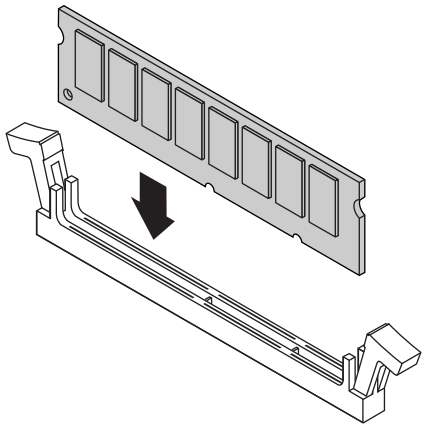
To add or replace DIMMs:

1. Turn off the computer and disconnect the power cord, modem cable (if installed), and all external peripheral devices.
2. Remove the cover. (See “Removing the cover” on page 17 and “Static electricity precautions” on page 15.)
3. If necessary, carefully move the cables aside to gain access to the DIMMs.
4. Remove the DIMM by pressing open the socket latches on each side of the DIMM socket, then lift the DIMM out of the socket. Store the DIMM in an antistatic container.



5 If you are adding memory to an empty socket, open the socket latches.

6 Align the two notches in the DIMM with the two notches in the DIMM socket, then insert the new DIMM into the socket.



7 Gently press the DIMM into the socket until it is firmly seated. Inserting the DIMM automatically locks the socket latches on each end of the DIMM.

8 Close the case by following the instructions on page 18.

9 Reconnect the peripherals, the modem cable, and the power cord, then turn on the computer.

Replacing the processor

The computer is compatible with the Pentium® III or Celeron socketed processors with 66, 100, or 133 MHz front side bus (FSB). Processor and bus speed are automatically detected by the computer; therefore, there are no system board jumpers to set.

When replacing a processor, order a processor replacement from the Accessory Store on the Gateway Web site.

Caution

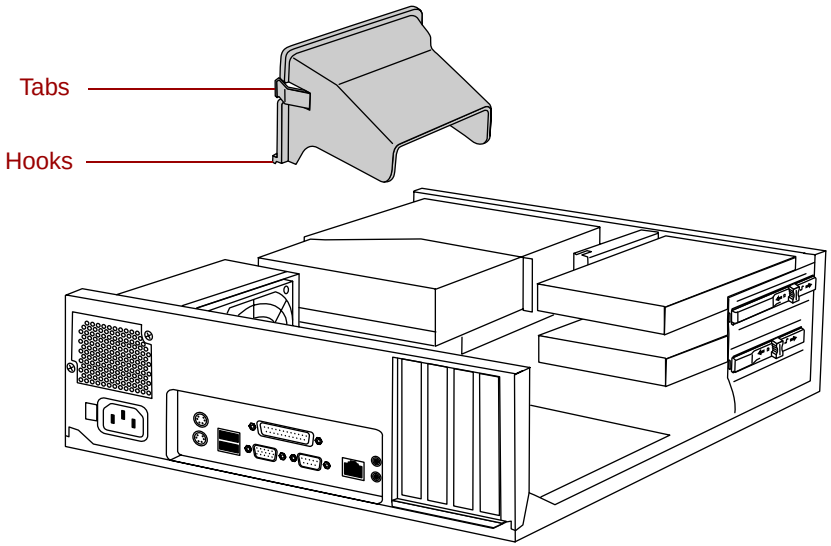
A heatsink must be installed on the processor. Installing a processor without a heatsink could result in damage to, or failure of, the processor.

To replace the processor you must perform the following tasks:

- Remove the heatsink
- Remove the processor
- Install the new processor
- Replace the heatsink

To remove the heatsink:

1. Turn off the computer and disconnect the power cord, modem cable (if installed), and all external peripheral devices.
2. Remove the cover. (See “Removing the cover” on page 17 and “Static electricity precautions” on page 15.)
3. If your computer includes an air duct, press the tabs on either side of the air duct, rotate the top of the duct away from the power supply fan to release the hooks from the bottom of the power supply, then lift the air duct out of the chassis.

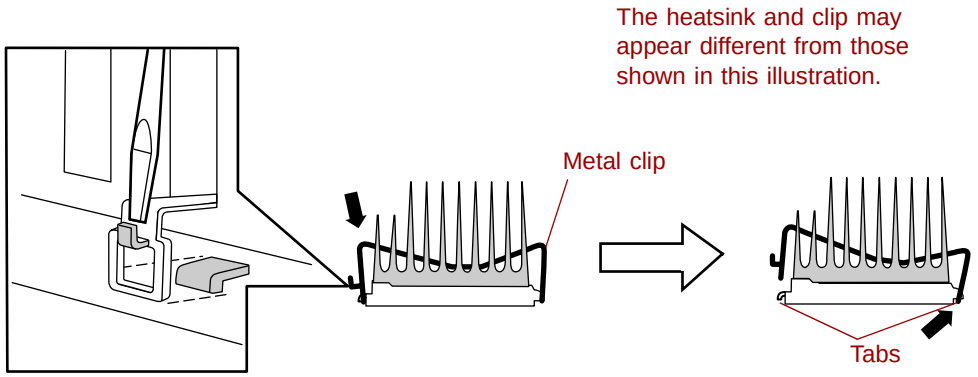


4 Disconnect the processor fan cable, if present, from the fan connector on the system board. (See “System board” on page 6 for the location of the fan connector.)

Caution

The processor may be hot if you recently turned off the computer.

5 Unhook the metal clip from the tab on the processor socket by pushing downward on the top of the hinged portion of the clip and moving the top of the hinged portion toward the processor.



6 Unhook the other end of the metal clip.

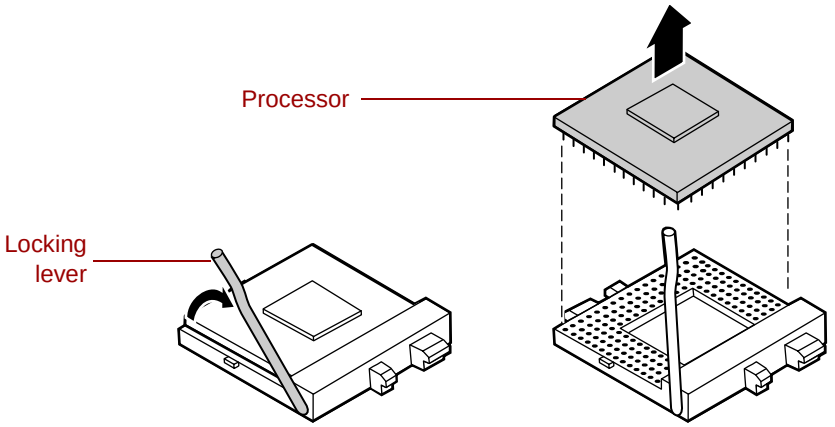
7 Lift the heatsink straight up and off of the processor.

Important

The heatsink is attached to the processor by thermal transfer tape. The heatsink may “cling” to the processor.

To remove the processor:

1. Open the locking lever on the processor socket by moving the lever slightly out to the side, then lifting it straight up.

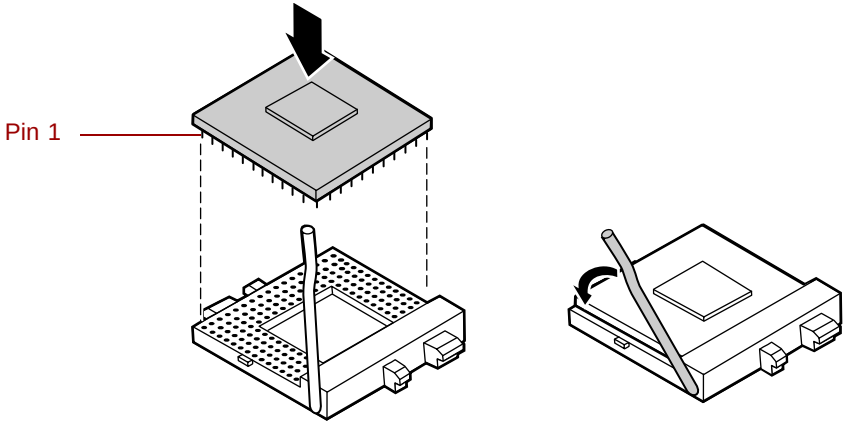


2. Lift the old processor straight up and out of the socket.

To install the new processor:

1. Hold the new processor over the empty processor socket and verify that pin 1 on both the processor and the socket are aligned. Pin 1 is near the marked corner of the processor.

2. Gently place the new processor into the socket.



3 Secure the processor by lowering the locking lever until the lever latches into place. The processor will slip into place without pressure when aligned correctly.

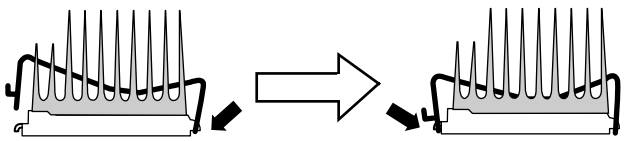
To replace the heatsink:

1 Place a piece of thermal transfer tape on the center of the processor.

2 Place the heatsink on the processor.

3 Hook the metal clip on one side of the bracket, then press down on the hinged end of the clip and move it away from the processor to hook it to the other end of the bracket.

The heatsink and clip may appear different from those shown in this illustration.



4 Connect the processor fan cable, if present, to the fan connector on the system board.

5 If your computer included an air duct, replace the air duct over the power supply fan.

6 Close the case. (See “Closing the case” on page 18 for instructions.)

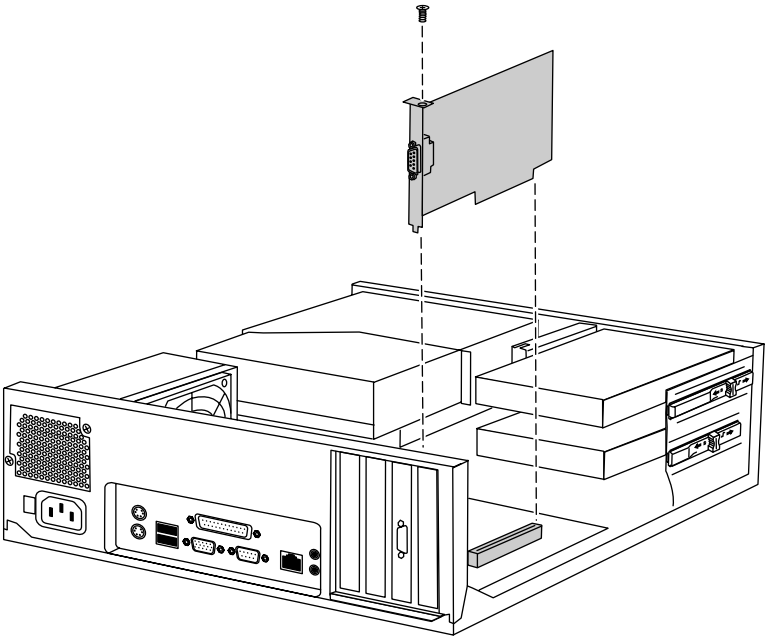
7 Reconnect the peripherals, the modem cable, and the power cord, then turn on the computer.

Adding or replacing expansion cards

This computer has two low-profile, half-length PCI expansion slots on the system board that may be used for a variety of expansion cards. These cards may include a network interface card (NIC), a modem, a sound card, or an additional IDE controller card.

To add an expansion card:

1. Turn off the computer and disconnect the power cord, modem cable (if installed), and all external peripheral devices.
2. Remove the cover. (See “Removing the cover” on page 17 and “Static electricity precautions” on page 15.)
3. Set any jumpers and switches on the new card, if required (refer to the card documentation for jumper settings).
4. If you are replacing a card, locate the card you want to remove and disconnect any cables that may connect it to other parts of the computer, then remove the screw that secures the card in the slot and pull the card out of the slot.



5. If you are adding a card, locate an available slot and remove the slot cover by removing the screw that secures the cover over the slot and pulling the slot cover out in the same way you would remove an existing card.
6. Insert the bottom edge of the new expansion card (the keyed edge with the contacts) into the slot on the system board and push in firmly to seat the card.

7 Replace the screw you removed earlier to secure the card in place.

8 Connect cables to the card, if required.

9 Close the case by following the instructions on page 18.

10 Reconnect peripherals, the modem cable, and the power cord, then turn on the computer.

You may need to reconfigure your computer after installing some expansion cards. You may also need to install software that came with the card. Check the card documentation for additional information.

Replacing the battery

The battery provides power for the computer real-time clock and CMOS memory, which stores the computer configuration information.

If your battery is failing you may notice your computer clock slowing down and giving you the incorrect time. If so, open the BIOS Setup utility and save the custom values in the various menus before replacing the battery. Replacing the battery resets the BIOS Setup utility to its default values.

Warning

There is a danger of explosion if the battery is incorrectly replaced. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Warnung

Explosionsgefahr bel falsch eingebautter batterie.

Ersetzen der batterien nur mit batterien des gleichen typs oder mit batterien vom hersteller empfohlenen typs.

Entsorgen gebrauchter batterien entsprechned herstellerangaben.

Attention

Il y a danger d'explosion s'il y a replacement incorrect de la batterie.

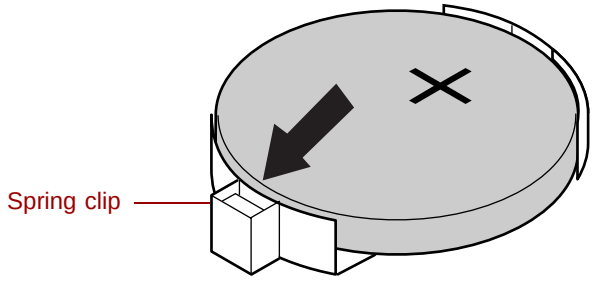
Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur.

Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

When disposing of used batteries, check local and national laws regarding disposal of toxic or dangerous waste.

To replace the battery:

1. Restart the computer and start the BIOS Setup utility by pressing F1 when you are prompted to do so.
2. Verify that all your settings are currently correct, then from the **Exit** menu, select **Save Custom BIOS Settings**. For more information about the BIOS Setup utility program, see “Using the BIOS Setup Utility” on page 43.
3. Turn off the computer, disconnect the power cord, modem cable (if installed), and all external peripheral devices.
4. Remove the cover. (See “Removing the cover” on page 17 and “Static electricity precautions” on page 15.)
5. Locate the battery on the system board (see “System board” on page 6). The battery is circular and has the positive pole mark (+) on the top.
6. Using your finger or a small, flat-bladed screwdriver, carefully press the small spring clip to remove the battery from its socket on the system board.



7. Press the new battery in the socket with the positive pole up. Make sure you have pressed the battery down far enough for it to contact the base of the socket (it should snap into place).
8. Close the case by following the instructions on page 18.
9. Reconnect peripherals, the modem cable, and the power cord, then turn on the computer.
10. Open the BIOS Setup utility, then select **Load Custom BIOS Settings** from the **Exit** menu.

Replacing the system board

The system board is secured to the chassis by five screws and a single standoff in the front left corner of the board.

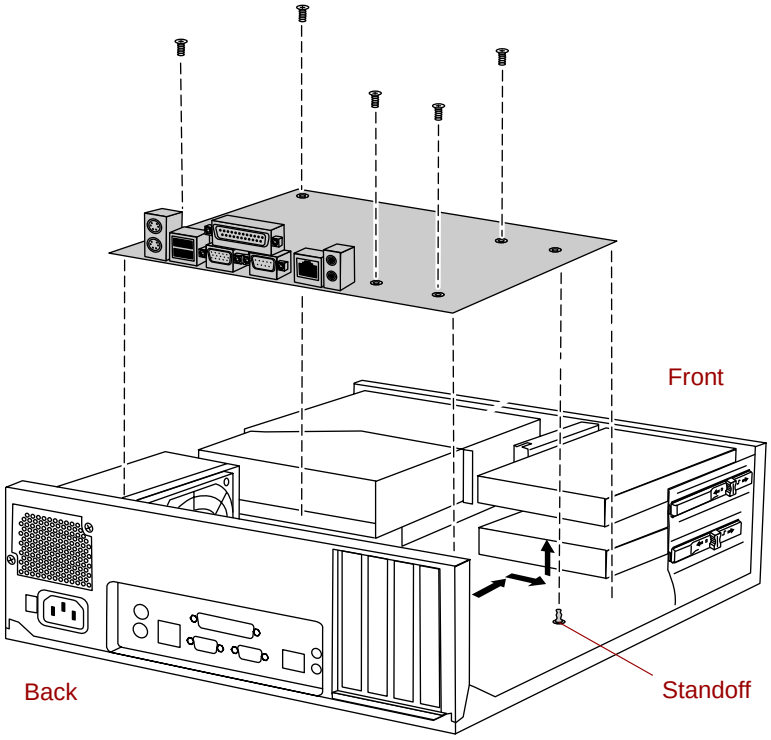
Important

All references to front, rear, left, or right on the computer are based on the computer being in a normal position, as viewed from the front.

To remove the system board:

1. Turn off the computer and disconnect the power cord, modem cable (if installed), and all external peripheral devices.
2. Remove the cover. (See “Removing the cover” on page 17 and “Static electricity precautions” on page 15.)
3. Remove all expansion cards from the system board. (See “Adding or replacing expansion cards” on page 35.)
4. If your computer includes an air duct, remove the air duct covering the power supply fan and the processor (see “To remove the heatsink:” on page 32).
5. Disconnect all cables from the system board, including the power cables from the power supply. Note where the cables are connected.

6 Remove the five retaining screws.



7 Squeeze the top of the standoff in the front left corner of the system board to allow the board to slide off of the standoff.

8 Slide the system board toward the front of the chassis to disengage the I/O connectors from the back panel.

9 Slide the system board toward the left side of the chassis to clear the fan on the power supply, then lift the system board out of the chassis.

10 Remove the memory from the old system board and place it in an anti-static bag.

To install the system board:

1 Install the memory from the old system board in the new system board.

2 Holding the system board by the top and bottom edges, slide it into the case from the left side of the chassis.

3 Align the I/O connectors on the back edge of the system board with the corresponding holes in the back panel, then slide the system board all of the way back in the chassis.

4 Place the system board over the standoff and press the standoff through the correct mounting hole in the system board. Be careful to keep the cables clear, so that they do not get caught under the system board.

5 Insert the five screws into the appropriate holes in the system board and tighten the screws.

6 Reconnect all of the cables you disconnected when you removed the old system board.

7 If your computer includes an air duct, replace the air duct over the power supply fan and the processor.

8 Reinstall the expansion cards.

9 Close the case by following the instructions on page 18.

10 Reconnect peripherals, the modem cable, and the power cord, then turn on the computer.

Replacing the power supply

To remove the power supply:

1 Turn off the computer and disconnect the power cord, modem cable (if installed), and all external peripheral devices.

2 Remove the cover. (See “Removing the cover” on page 17 and “Static electricity precautions” on page 15.)

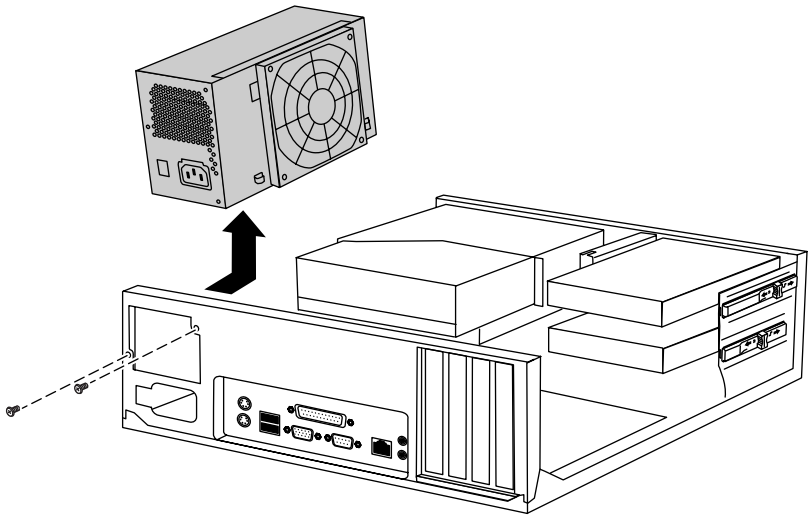
3 Disconnect the power supply connectors from all internal devices including the 3.5-inch diskette drive, the CD drive, and the hard drive.

4 Disconnect the main power supply connector to the system board.

5 Remove the cable supports, if any, securing the power supply cables to the chassis.

6 If your computer includes an air duct, remove the air duct that covers the power supply fan and the processor (see “To remove the heatsink:” on page 32).

7 Remove the two screws that secure the power supply to the back panel, then slide the power supply slightly forward and remove it from the chassis.



To install the new power supply:

1 Make sure that the new power supply matches the one you removed. The specifications and power output connectors should be the same.

2 Make sure that the red voltage selector switch on the back of the new power supply is set to the proper voltage for your area.

3 Place the new power supply in position in the chassis and about an inch away from the back panel.

4 Slide the power supply back to engage the tab on the bottom of the chassis with the slot in the bottom of the power supply.

5 Replace the two screws you removed earlier to secure the power supply to the back panel.

6 If your computer includes an air duct, replace the air duct over the processor and the power supply fan.

7 Reconnect the power cables to the system board and to all internal devices.

8 Close the case by following the instructions on page 18.

9 Reconnect the peripherals, the modem cable, and the power cord, then turn on the computer.

Using the BIOS Setup Utility

5

About the BIOS Setup utility

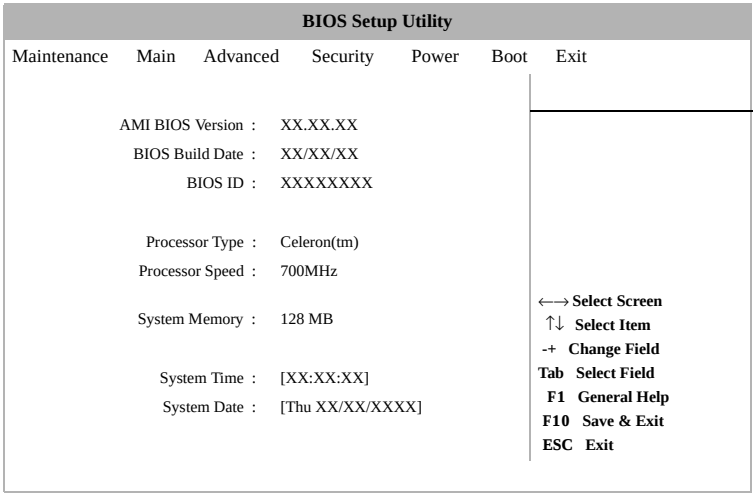
The computer BIOS has a built-in setup utility that lets you configure several basic computer characteristics. The settings are stored in battery-backed memory and are retained even when the power is off.

Open the BIOS Setup utility by restarting the computer, then pressing F1 before the operating system starts.

Important

The Gateway E-1600 system starts up very quickly. Most monitors require a few seconds to warm up before anything is visible onscreen. If you need to enter the BIOS Setup utility, press F1 a few times immediately after turning on the computer power, even though you cannot see the Gateway logo screen.

The Main BIOS Setup utility screen opens. It may not look exactly like the screen shown below.



As you select items on the Main menu or in submenus, you see specific information related to the current selection in the item-specific help box.

The command bar shows the keystrokes necessary to access help, navigate through the menus, and perform other functions.

- F1 opens the Help screen, providing general help for using the BIOS Setup utility.
- The ↑ (up arrow) and ↓ (down arrow) keys select items in the menu.
- The ← (left arrow) and → (right arrow) keys move you between the menus.
- ENTER either moves you to a submenu screen when a selected item is preceded by > or activates a selected field.
- ESC closes the screen you are in and returns you to the previous screen or opens a dialog box allowing you to exit from the BIOS Setup utility.
- F10 opens a screen that lets you save all settings, then exit the BIOS Setup utility.

The main screen has the following menu selections at the top of the screen:

- **Main** gives you access to basic information and settings related to your computer hardware and configuration.
- **Advanced** gives you access to information and settings for computer resources, hardware, and computer configuration.
- **Security** gives you access to settings related to computer access passwords and security settings.
- **Power** gives you access to information and settings for power management features.
- **Boot** gives you access to information and settings for boot features and boot sequences.
- **Exit** gives you access to options for exiting the BIOS Setup utility.

Refer to the help box on the right side of the BIOS Setup screens for information about menu items.

Updating the BIOS

If you need a new version of the BIOS, you can download the BIOS update from the technical support area on the Gateway Web site (www.gatewayatwork.com) and install the new version from a diskette.

To update the BIOS you need to perform the following tasks:

1. Create a bootable diskette
2. Save the current BIOS settings
3. Create the BIOS update diskette
4. Update the BIOS
5. Load the BIOS settings

Follow the detailed instructions for updating the BIOS that are included in the self-extracting file that you can download from the technical support area of Gateway's Web site.

Setting the BIOS configuration jumper

The system board has a configuration jumper related to the BIOS. Place a jumper on specific pins to reset the CMOS settings to the BIOS defaults or to erase a misplaced or forgotten password. For the location of the configuration jumper, see “System board” on page 6.

Caution

Moving a jumper while the power is on can damage your computer. Always turn off the computer and unplug the power cord from the computer before changing jumper settings.

The BIOS configuration jumper on the system board (J6A1) controls the ability to write to the BIOS firmware. For normal operation, place a jumper on pins 1 and 2 of J6A1. To configure the BIOS settings and display the maintenance menu, place a jumper on pins 2 and 3 of J6A1. To attempt a BIOS recovery, remove the jumper from J6A1 entirely. Make sure you turn off the computer and unplug the power cord before moving the jumper.

Managing Your Computer

6

Protecting against power source problems

Surge suppressors, line conditioners, and uninterruptible power supplies can help protect your computer against power source problems.

Surge suppressors

During a power surge, the voltage level of electricity coming into your computer can increase far above normal levels and cause data loss or computer damage.

Protect your computer and peripherals by connecting them to a surge suppressor, which will absorb voltage surges and prevent them from reaching your computer.

When purchasing a surge suppressor:

- Make sure the surge suppressor meets the appropriate product safety certification for your location, such as Underwriters Laboratories (UL).
- Check the maximum amount of voltage the suppressor allows to pass through the line. The lower the voltage that the suppressor allows to pass through, the better the protection for your computer.

- Check the energy absorption (*dissipation)* rating. The higher the energy absorption rating, the better the protection for your computer.
- Check for line-conditioner capabilities. A line conditioner smooths out some of the normal line noise (small voltage fluctuations) of an electrical supply.

Line conditioners

A line conditioner protects your computer from the small fluctuations in voltage from an electrical supply. Most computers can handle this variation, called *line noise*, without problems. However, some electrical sources include more line noise than normal. Line noise can also be a problem if your computer is located near, or shares a circuit with, a device that causes electromagnetic interference, such as a television or a motor.

Some surge suppressors and uninterruptible power supplies include simple line-conditioning capabilities.

Uninterruptible power supplies

Use a standby uninterruptible power supply (UPS) to protect your computer from data loss during a total power failure. A UPS uses a battery to keep your computer running temporarily during a power failure and lets you save your work and shut down your computer. You cannot run your computer for an extended period of time while using only the UPS.

Maintaining and managing your hard drive

Regular maintenance keeps your hard drive operating efficiently. Good file management keeps your computer free of unwanted files while making important files secure and easier to find.

Hard drive maintenance utility

If you are using the Windows NT operating system, you can help maintain the performance of your hard drive by regularly using Check Disk. If you are using another operating system, refer to your operating system documentation for available hard drive maintenance utilities.

Using Check Disk in Windows NT

Bad sectors are parts of a hard drive or diskette that will not hold data. A *lost allocation unit* is a group of sectors that has lost its place in the table that the operating system uses to locate files. Check Disk checks the hard drive for bad sectors or lost allocation units and lets you fix them.

Use Check Disk from once a week to once a month, depending on how often you use your computer. Also use Check Disk if you have any hard drive problems.

To use Check Disk:

1. Double-click the **My Computer** icon. The My Computer window opens.
2. Right-click the drive you want to check.
3. Select **Properties**. The drive properties window opens.
4. Click the **Tools** tab.
5. At **Error-checking,** click **Check Now.** The Check Disk window opens.
6. Scan the entire hard drive by selecting **Scan for and attempt recovery of bad sectors**.
7. Click **Start.** Check Disk checks the drive for errors.
8. Follow any on-screen instructions for completing the scan.

Hard drive management practices

By deleting unneeded files from your hard drive and managing the space that is automatically allocated for saving certain files, you can help maintain the performance of the hard drive. We suggest that you first check your hard drive for available space, then back up important files prior to deleting unneeded files, in case you delete important files by mistake.

Checking hard drive space

In Windows NT, you can see a chart of the available hard drive space. If you are using another operating system, refer to your software documentation for available hard drive management utilities.

To check hard drive space:

1. Double-click the **My Computer** icon on the desktop. The My Computer window opens.
2. Right-click the drive you want to check.
3. Select **Properties**. The drive properties window opens. The **General** tab shows you the available and used space on the drive.

Backing up files

Regularly backing up your files protects you from losing data and lets you keep fewer files on your hard drive. Back up old files to a large capacity disk drive or tape drive and delete the files from your hard drive. You can use the software that came with your tape backup drive or your large capacity disk drive to back up the files.

You can also back up files by running the backup utility that came with your operating system. In Windows NT, Backup copies files to a tape drive.

To run Backup in Windows NT:

1. Click **Start**, then select **Programs**, **Administrative Tools,** then **Backup**.
2. Follow the on-screen instructions.

Deleting unneeded files

By deleting unneeded files from the hard drive, you free up space on the hard drive and help improve hard-drive performance. The following sections give you some simple ways to delete unneeded files.

Deleting Windows temporary files

During normal operation, Windows constantly creates new temporary (.tmp) files. You can safely delete all but the most recent .tmp files.

To delete .tmp files:

1. Open Windows Explorer, then select **Tools**, **Find**, then **Files and Folders**.
2. In the **Named** text box, type ***.tmp**.
3. In the **Look in** drop down list, select your drive letter.
4. Click **Find Now**. The list of .tmp files appears.
5. Click **Modified** above the list. To see the **Modified** button, you may need to maximize the Find window. The list is sorted by date.
6. Highlight all the files in the list except those with the current date.
7. Press SHIFT + DELETE. A dialog box opens asking if you want to delete the files.
8. Click **Yes**. The files are deleted.

Deleting temporary Internet files

As you visit Web sites, your browser stores temporary Internet files on your hard drive in a *memory cache* and a *disk cache*. Files in the memory cache are removed when you turn off your computer. Files are saved in the disk cache until the space designated for the cache is full. See your browser Help files for instructions on emptying the disk cache.

You can save space on the hard drive by decreasing the size of the Internet file disk cache. See your browser Help files for instructions.

Emptying the Recycle Bin

When you delete a file from your hard drive in Windows NT, it is not immediately removed from the hard drive. Instead, the file is moved into the Recycle Bin. Because files are stored in the Recycle Bin and not deleted from the hard drive immediately, you can retrieve a file that you accidentally delete from the hard drive.

To delete all the files from the Recycle Bin, right-click the **Recycle Bin** icon on the desktop, then click **Empty Recycle Bin**.

You can save space on the hard drive by decreasing the size of the Recycle Bin.

To decrease the size of the Recycle Bin:

1. Right-click the **Recycle Bin,** then select **Properties**.
2. At the Global tab, select either **Configure drives independently** or **Use one setting for all drives.**
3. If you are configuring drives independently, click the tab for the drive you want to configure.
4. Move the slider to set the size of the Recycle Bin. A good initial setting is 5%.
5. Click **OK**.

Protecting your computer from viruses

A *virus* is a program that attaches itself to a program or data file on a computer, then spreads from one computer to another. Viruses can damage data, cause computers to malfunction, and can display annoying or offensive messages. Some viruses can go unnoticed for long periods of time because they are activated by a certain date or time. Protect your computer from viruses by:

- Using an anti-virus program to check files and programs that are on diskettes, attached to e-mail messages, or downloaded from the Internet. After you run the anti-virus program you can back up your files to diskettes, a separate hard drive, or a high-capacity storage drive.
- Keeping your anti-virus program updated.
- Obtaining all software from reputable sources and checking the software for viruses before installing it.
- Disabling macros on suspicious Microsoft Word and Excel files. These programs will warn you if a document that you are opening contains a macro that might have a virus.

To remove a virus:

1. Find and remove the virus immediately using your anti-virus program.
2. Turn off your computer and leave it off for at least 30 seconds.
3. Turn on the computer and rescan for the virus.
4. If the virus is still on your computer, contact Gateway Client Care.

Checking system health with LANDesk

LANDesk® Client Manager is a desktop management interface that lets you monitor the health of your system components. Through LANDesk, you can view software and hardware properties. You can also set LANDesk to notify you when system resources reach certain levels.

To install LANDesk Client Manager:

1. In the C:\DMI folder on your hard drive, double-click the **Setup** icon to launch the install wizard.
2. Follow the instructions that appear on the screen. If you are prompted for a password during the installation process, type **lowtco**.

LANDesk Client Manager comes with complete electronic documentation and online help. Refer to these documents and the online Help for more information.

If you need to restore LANDesk from the System Restoration CD and are prompted for a password, type **lowtco** and press ENTER.

System recovery

Take advanced precautions that will allow you to restart your system and recover damaged files in the event that your hard drive is damaged, or your BIOS or system files get corrupted.

Creating a startup diskette

If your computer hard drive is damaged, you may not be able to start the computer from the hard drive. A *startup diskette* is a bootable diskette that enables you to start the computer and attempt to fix the problem.

Some operating systems prompt you to create a startup diskette as part of the setup process and some will allow you to create one at any time. Refer to the software documentation or see the online help for your operating system for specific instructions.

Keeping a record of system configuration

Some operating systems allow you to print a summary of the configuration of your system and the memory allocation. This printed summary can provide information to reset your system configuration properly if the information is lost or help you troubleshoot your system. Refer to the software documentation or see the online help for your operating system for specific instructions.

Using your System Restoration CD

The System Restoration CD included with your system can be used to:

- Install hardware drivers
- Restore the operating system
- Reinstall selected software applications, such as LANDesk Client Manager

Instructions for each operating system are provided with the System Restoration CD.

Cleaning Your Computer

7

Cleaning the mouse

If the mouse pointer on the screen moves erratically when you move the mouse, the inside of the mouse may be dirty.

To clean the mouse:

1. Turn off the computer, then disconnect the mouse cable from the mouse port.
2. Turn your mouse upside down and remove the roller ball cover.
3. Cup your hand under the mouse and turn your mouse right-side up. The roller ball should drop into your hand. If it does not, gently shake the mouse until the ball drops out of the socket.
4. Use adhesive tape to pick up any dust or lint on the surface of the ball.
5. Wipe away dirt or lint inside the ball socket with a lint-free cloth. You can also blow into the socket to remove dirt and lint. Use a cotton swab dipped in isopropyl alcohol to clean the rollers inside the socket.
6. Let surfaces dry completely.
7. Return the ball to the socket and replace the cover.
8. Plug the mouse cable into the correct connector on the back panel.
9. Turn on the computer.

Cleaning the keyboard

You should clean the keyboard occasionally to free it of dust and lint particles trapped under the keys. The easiest way to do this is to blow trapped dirt from under the keys using an aerosol can of air with a narrow, straw-like extension.

If you spill liquid on the keyboard, turn off the computer, then disconnect the keyboard. Turn the keyboard upside down to let the liquid drain. Let the keyboard dry for a few days before trying to use it again. If the keyboard does not work after it is dry, you may need a new one.

Cleaning the monitor screen

Use a soft cloth and window cleaner to clean the monitor screen. Squirt a little cleaner on the cloth (never directly on the screen), then wipe the screen with the cloth.

Important

Do not use window cleaner on a flat screen or LCD screen. Check the screen manufacturer's instructions for cleaning information.

Cleaning the computer and monitor cases

Caution

When you clean the computer, turn off the computer, monitor, and peripherals, then unplug the power cords and modem cable (if installed). Be careful not to drip liquid into any component when cleaning the computer.

Use a damp, lint-free cloth to clean the computer case, monitor case, keyboard, speakers, and other parts of your computer. Avoid abrasive or solvent cleaners because they can damage the finish on your components.

Your computer is cooled by air drawn in through the vents on the chassis and blown out through the back panel. Keep vents on the front and back of the chassis free of dust. With the computer turned off and unplugged, brush the dust away from the vents with a slightly damp cloth. Be careful not to drip any water into the vents. Do not attempt to clean dust from the inside of the computer.

8 Troubleshooting

Introduction

If your computer does not operate correctly, re-read the instructions for the procedures you have performed. If an error occurs within a program, consult the documentation supplied with the program. This section identifies solutions to some possible problems.

Troubleshooting checklist

Before turning on the computer, make sure that:

- The power cord is connected to the AC power-in connector and an AC outlet.
- The AC outlet is supplying power.
- If a power strip is used, it is turned on, and the circuit breaker is set.
- The voltage selection switch on the computer power supply reflects the proper voltage.

Verifying your configuration

If your computer is not operating correctly, the BIOS may contain an invalid configuration parameter. Open the BIOS Setup utility and check your configuration settings. (See “About the BIOS Setup utility” on page 43.)

Troubleshooting guidelines

As you troubleshoot your computer, keep the following guidelines in mind:

- Never remove the chassis cover while the computer is turned on.
- Do not attempt to open the monitor. Even if the power is disconnected, stored energy in the monitor components can inflict a painful or harmful shock.
- If a peripheral does not work, make sure that all of the connections are secure.
- If you see an error message on the screen, write it down, word for word. You may be asked about it when calling technical support.
- Only qualified personnel should open the computer for maintenance.
- If you are qualified to maintain the computer yourself, make sure you are properly grounded before opening the computer chassis. See “Static electricity precautions” on page 15 for more information on preventing electrostatic damage to the computer.

Battery installation problems

If you have problems after installing the new battery, try each of the items listed below:

- Turn off the computer and make sure that all exterior cords and cables are attached and secured to the correct connectors.
- Make sure that all power switches are on. If the computer is plugged into a power strip or surge protector, make sure it is turned on also.
- Enter the BIOS Setup utility and compare the settings on the screen with your notes. Correct any discrepancies.
- Turn off the computer, remove the cover, and make sure that all cables inside the case are attached securely. Also, make sure that the colored cable edges are aligned correctly and that the connectors do not miss any pins. Disconnect and reconnect the cables. Close the case as described on page 18, then turn on the computer.
- Turn off the computer, remove the cover and, if you have the proper test equipment, make sure that the new battery has power. (Although unlikely, your new battery may be defective.) Close the case as described on page 18, then turn on the computer.

CD drive problems

An audio CD produces no sound.

Probable cause	Solution
The CD is loaded incorrectly	Make sure the label is facing up, then try again.
The speakers are not connected	Make sure the speaker cables are connected properly and securely.
The speaker volume is turned down	Check the volume control and turn it up if necessary.
The speakers may be muted through the Multimedia volume control	Click the speaker icon on the task bar. Make sure the **Mute** check box is not selected.
The speakers may be faulty	Connect a set of headphones to the line out jack to test the output. If they work, replace the speakers.
The sound card may not be installed correctly	Open the computer, then reseat the sound card. Make sure the cables are connected properly. Some computers do not have sound cards because sound capabilities are built into the system board.
The CD drive audio cable may be installed incorrectly	Open the computer and make sure the cables are connected properly. Some computers do not have sound cards because sound capabilities are built into the system board.

An audio CD will not play.

Probable cause	Solution
The CD is loaded incorrectly	Make sure the label is facing up, then try again.
The CD is scratched or dirty	Try cleaning the CD with a lint-free cloth. Make sure the CD is not scratched.

The computer does not recognize the CD drive.

Probable cause	Solution
The CD is not intended for PC use	Make sure the CD is PC-compatible.
The CD drive needs to be added as new hardware	In the Control Panel window (**Start** | **Settings** | **Control Panel**), double-click **Add New Hardware**. Follow the on-screen instructions for adding the drive.
The secondary IDE device may be disabled	Restart your computer, then press F1 to open the BIOS Setup utility program. From the **Advanced | IDE Configuration** menu, set the **IDE Controller** to **Both** and the **Secondary IDE Master** to **Auto**.
The CD cables are not installed correctly	Open the computer and make sure all cables between the CD controller and the CD drive are connected correctly.
The CD drive may be defective	Replace the CD drive.

Computer problems

The computer will not start.

Probable cause	Solution
The computer is not connected to an AC outlet	Make sure the power cable(s) are connected correctly to an operating AC power source.
The voltage selection switch is not set correctly	Make sure the voltage selection switch is set to the correct power source.

The computer is non-responsive.

Probable cause	Solution
An error occurred while running a program or your computer may be out of memory	Restart your computer. If the computer is still non-responsive, press and hold in the power button for 4 seconds to turn the computer off. Turn the computer back on and follow the on-screen instructions.
The heatsink is not properly seated on the processor.	Reseat the heatsink.

The keyboard does not work.

Probable cause	Solution
A key was pressed while the computer was starting up	Clear the sticking key, then turn off the computer, wait for a few seconds, then turn the computer back on.
The keyboard is not plugged in or connected properly	Make sure the cable is plugged in correctly.
Something spilled into the keyboard	Turn off the computer. Turn the keyboard upside down to drain, then turn it over and let it dry before using the keyboard again.
The keyboard is defective	Try a keyboard you know is working.

The mouse does not work.

Probable cause	Solution
The mouse is not plugged in or connected properly	Make sure the cable is plugged in correctly.
The mouse driver did not load when the computer started	Load the appropriate mouse driver manually or contact technical support.
The mouse is defective	Try a mouse that you know is working.

Diskette drive problems

The computer does not recognize the diskette drive.

Probable cause	Solution
The diskette drive may be configured incorrectly	Restart your computer, then press F1 to open the BIOS Setup utility. In the **Advanced | Diskette Configuration** menu, make sure that the diskette drive parameters are set correctly.
The drive cables are not connected properly	Open the computer and make sure the data cable is correctly connected to the system board.

The diskette drive will not read, write, or format.

Probable cause	Solution
The diskette is not IBM-formatted	Make sure the diskette you are trying to format is IBM-compatible. If it is, try reformatting it. If it is not, get a compatible diskette.
The diskette is corrupted	Run Check Disk on the diskette. If errors are detected and corrected, try accessing the diskette again.
The diskette is write-protected	Make sure the write-protection window on the upper-right corner of the diskette is closed (unprotected).

The diskette drive LED illuminates continuously.

Probable cause	Solution
The diskette is corrupted	Remove the diskette from the drive. If the light remains on, try restarting the computer.
The cable to the drive is not connected properly	Open the computer and make sure the cable is connected properly between the diskette drive and its controller. Make sure the pins are not bent or misaligned.

Hard drive problems

The computer does not recognize the IDE drive.

Probable cause	Solution
The primary IDE device may be configured incorrectly	Restart your computer, then press F1 to open the BIOS Setup utility. From the **Advanced | IDE Configuration** menu, set the **IDE Controller** to **Both** and the **Primary IDE Master** to **Auto**.
The drive may not be configured properly	Consult the hard drive user's guide for instructions on how to configure the drive. Configure the drive correctly.
The drive cables are not connected properly	Open the computer and make sure all cables to the controller card are connected correctly. Some computers do not have IDE controller cards because the IDE controller is built into the system board.
The drive controller is not seated properly	Open the computer and reseat the drive controller. Some computers do not have IDE controller cards because the IDE controller is built into the system board.

Memory and processor problems

The computer detected memory errors during start up.

Probable cause	Solution
Memory was added or removed, and the new configuration was not saved in the BIOS Setup utility	Open the BIOS Setup utility and save the new memory configuration.
The memory was installed incorrectly	Make sure the memory is seated and oriented correctly.
A memory chip is faulty	Replace the card with the faulty chip. Third-party diagnostic programs can help determine which chip or memory segment is failing.

The computer does not recognize a new processor.

Probable cause	Solution
The processor was installed incorrectly in the socket	Check the installation. Make sure the processor is fully seated in its socket. The processor should be recognized automatically if it was installed correctly.

Modem problems

The computer does not recognize the modem.

Probable cause	Solution
The modem has not been added as new hardware	In the Control Panel window (**Start** | **Settings** | **Control Panel**), double-click **Add New Hardware**. Follow the on-screen instructions for adding the device.
The modem is not connected to a live phone jack	Make sure the line connected to the modem is working and plugged into the appropriate port on the modem (line port).
The phone jack is in use	If the modem shares the jack with another device, make sure the other device does not have the port open (for example, someone is on the phone, or another modem is in use).

Peripheral/adapter problems

The computer does not recognize an adapter card.

Probable cause	Solution
The interrupt or I/O address is set incorrectly	Check the address configuration of the adapter card and make sure that it does not conflict with another card in the computer.
The card was not configured through the software	Configure the card with the appropriate software.
The card was not installed correctly	Make sure that the jumpers are configured correctly, then reseat the card.

Printer problems

The printer will not turn on.

Probable cause	Solution
The printer is not plugged in	Make sure the power cable is plugged into a working power source.
The printer is not turned on	Make sure the printer power switch is set to the on position. When you turn on the printer, the green power LED lights.
The printer is defective	Try another printer, if one is available.

The printer is turned on but will not print.

Probable cause	Solution
The printer is not connected to the computer	Make sure the data cable is properly connected between the printer and the computer. Check the connector and cable for bent or broken pins.
The printer is not designated as the default printer	If the printer that you are trying to print to is not the default printer, make sure you have selected it through the program's printer setup function.
The printer has not been added to the computer.	In the Printers window (**Start | Settings | Printers**), double-click **Add Printer**. Follow the on-screen instructions for adding the new printer.
The printer is not on-line (ready)	Make sure the on-line or ready light is on, or the display indicates "Ready."

The printer prints garbled text.

Probable cause	Solution
The wrong driver is being used for the selected printer	In the Printers window (**Start | Settings | Printers**), select the printer. From the **File** menu, select **Properties**. Make sure the printer is using the correct printer driver. If not, install the correct one.

Video problems

The computer is running but the screen is blank.

Probable cause	Solution
The monitor is not turned on	Make sure the monitor is plugged in and turned on. If the monitor is on, the green power LED is also on.
The monitor data cable is not connected	Make sure the monitor data cable is connected to the video port on the back of the computer.
The connector or cable is damaged	Check the connector and cable for bent or damaged pins.
The monitor brightness and contrast controls are turned down	Adjust the brightness and contrast knobs to the center position.
A DIMM is not seated properly - indicated by a beep	Open the computer and reseat the DIMM.
The monitor is defective	Connect a working monitor to the computer.

The image on the screen is dim or difficult to read.

Probable cause	Solution
The monitor brightness and contrast controls are turned down	Adjust the brightness and contrast knobs until the text becomes clear.
Light is glaring off the display	Position the monitor away from the sun or other light source.
The monitor may be old	Replace the monitor.

The color monitor displays everything in black and white.

Probable cause	Solution
The computer was turned on before the monitor	Make sure the monitor is turned on, then restart the computer.
The display type is set incorrectly	In the Control Panel window (**Start | Settings | Control Panel**), double-click **Display**, set the display to the appropriate video type and resolution, then restart the computer.

The displayed characters are garbled.

Probable cause	Solution
The video cable is damaged	Make sure the cable and connectors are in good condition (no bent pins or broken wires).
The display setup is incorrect	In the Control Panel window (**Start | Settings | Control Panel**), double-click **Display** and check the settings. The correct video type should be selected, along with a supported resolution. Check your monitor and video controller documentation for details.

The video is distorted.

Probable cause	Solution
The monitor controls are not properly adjusted	Adjust the monitor controls until the text becomes clear. (See your monitor documentation for more information.)
The connector or cable is damaged	Make sure the cable and connectors are in good condition (no bent pins or broken wires).
The surge protector or UPS is damaged	Disconnect the monitor power cable and connect it directly to the power source.

Probable cause	Solution
The monitor is too close to a source of electrical interference	Move the monitor away from sources of electrical interference, such as televisions, unshielded speakers, microwave ovens, fluorescent lights, and metal beams or shelves.
The monitor needs to be degaussed	Turn off the computer and monitor for at least a half hour, then restart the computer. Many monitors have a built-in degaussing function. See the monitor documentation for more information.

Error messages

This section lists common error messages that you may see. These messages often indicate procedural errors such as an incorrect keystroke or a write-protected diskette. Some messages, however, may indicate a problem that requires you to consult the troubleshooting section of this manual.

Error message	Description
GA20 Error	An error occurred with Gate A20 when switching to protected mode during the memory test.
Pri Master HDD Error Pri Slave HDD Error Sec Master HDD Error Sec Slave HDD Error	Could not read a sector from the corresponding drive.
Pri Master Drive - ATAPI Incompatible Pri Slave Drive - ATAPI Incompatible Sec Master Drive - ATAPI Incompatible Sec Slave Drive - ATAPI Incompatible	The corresponding drive is not an ATAPI device. Run Setup to make sure the device is selected correctly.
A: Drive Error	No response from the diskette drive.
Cache Memory Bad	An error occurred when testing the L2 cache. The cache memory may be bad.
CMOS Battery Low	The battery may be losing power. Replace the battery soon.
CMOS Display Type Wrong	The display type is different than what has been stored in CMOS. Check Setup to make sure the display type is correct.
CMOS Checksum Bad	The CMOS checksum is incorrect. CMOS memory may have been corrupted. Run Setup to reset the values.
CMOS Settings Wrong	CMOS values are not the same as the last boot. These values have either been corrupted or the battery has failed.
CMOS Date/Time Not Set	The time and/or date values stored in CMOS are invalid. Run Setup to set the correct values.

Error message	Description
DMA Error	An error occurred during the read/write test of the DMA controller.
FDC Failure	An error occurred while trying to access the diskette drive controller.
HDC Failure	An error occurred while trying to access the hard disk controller.
Checking NVRAM.....	Non-volatile random access memory (NVRAM) is being checked to see if it is valid.
Update OK!	NVRAM was invalid and has been updated.
Update Failed	NVRAM was invalid but the computer was unable to update it.
Keyboard is Locked	The system keyboard lock is engaged. The system must be unlocked before it can continue.
Keyboard Error	An error occurred in the keyboard connection. Make sure the keyboard is connected properly.
KB/Interface Error	The keyboard interface test failed.
Memory Size Decreased	The memory size has decreased since the last boot. If no memory was removed, then some memory may be bad.
Memory Size Increased	The memory size has increased since the last boot. If no memory was added, there may be a problem with the computer.
Memory Size Changed	The memory size has changed since the last boot. If no memory was added or removed, then some memory may be bad.
No Boot Device Available	The computer did not find a device to boot from.
Off Board Parity Error	A parity error occurred on an expansion card. This error is followed by an address.
On Board Parity Error	A parity error occurred in system board main memory. This error is followed by an address.

Error message	Description
Parity Error	A parity error occurred in system board main memory at an unknown address.
NVRAM/CMOS/PASSWORD Cleared by Jumper	NVRAM, CMOS, and all passwords have been cleared. Turn off the computer and move the jumper back to pins 1 and 2 of jumper J6A1.
<Ctrl_N> Pressed	Someone pressed Ctrl+N while the computer was starting. The computer ignores CMOS and clears NVRAM. You must enter setup.

Beep codes

Whenever a recoverable error occurs during POST, the BIOS displays an error message describing the problem. The BIOS also issues a beep code (one long tone followed by two short tones) during POST if the video configuration fails (a faulty video card or no card installed) or if an external ROM module does not match the proper checksum.

An external ROM module (for example, a video BIOS) can also issue audible errors, usually consisting of one long tone followed by a series of short tones. For more information on the beep codes issued, check the documentation for that external device.

There are several POST routines that issue a POST terminal error and shut down the system if they fail. Before shutting down the system, the terminal-error handler issues a beep code signifying the test point error. This beep code consists of one long tone and a series of short tones.

If POST completes normally, the BIOS issues one short beep before passing control to the operating system.

Short Beeps	Description
1	Refresh failure
2	Parity cannot be reset
3	First 64 KB memory failed
4	Timer not operational

Short Beeps	Description
5	Not used
6	8042 GateA20 cannot be toggled
7	Exception interrupt error
8	Display memory Read/Write error
9	Not used
10	CMOS shutdown register test error
11	Invalid BIOS (for example, POST module not found)

Safety and Regulatory Information

A

Important safety information

Your Gateway computer is designed and tested to meet the latest standards for safety of information technology equipment. However, to ensure safe use of this product it is important that you follow the safety instructions marked on the product and in the documentation.

Warning

Always follow these instructions to help guard against personal injury and damage to your Gateway computer.

Setting up your computer

- Read and follow all instructions marked on the product and in the documentation before you operate your computer. Retain all safety and operating instructions for future use.
- Do not use this product near water or a heat source such as a radiator.
- Make sure you set up the computer on a stable work surface.
- The product should only be operated from the type of power source indicated on the rating label.
- If your computer has a voltage selector switch, make sure that the switch is in the proper position for your area. The voltage selector switch is set at the factory to the correct voltage.
- Openings in the computer case are provided for ventilation. Do not block or cover these openings. Make sure you provide adequate space, at least 6 inches (15 cm), around the computer for ventilation when you set up your work area. Never insert objects of any kind into the computer ventilation slots.
- Some products are equipped with a three wire power cord to ensure that the product is properly grounded when in use. The plug on this cord will only fit into a grounding-type outlet. This is a safety feature. If you are unable to insert the plug into an outlet, contact an electrician to install the appropriate outlet.

- If you use an extension cord with this computer, make sure that the total ampere rating on the products plugged into the extension cord does not exceed the extension cord ampere rating.
- If your computer is fitted with a TV Tuner, cable, or satellite receiver card, make sure that the antenna or cable system is electrically grounded to protect against voltage surges and build up of static charges.

Care during use

- Do not walk on the power cord or allow anything to rest on it.
- Do not spill anything on the computer. The best way to avoid spills is to avoid eating and drinking near your computer.
- Some products have a replaceable CMOS battery on the system board. There is a danger of explosion if the CMOS battery is replaced incorrectly. Replace the battery with the same or equivalent type recommended by the manufacturer. Dispose of batteries according to the manufacturers instructions.
- When the computer is turned off, a small amount of electrical current still flows through the computer. Always unplug all power cords and modem cables from the wall outlets before cleaning the computer.
- Unplug the computer from the wall outlet and refer servicing to qualified personnel if:
  - The power cord or plug is damaged.
  - Liquid has been spilled into the computer.
  - The computer does not operate properly when the operating instructions are followed.
  - The computer was dropped or the cabinet is damaged.
  - The computer performance changes.

Replacement parts and accessories

Use only replacement parts and accessories recommended by Gateway.

Important

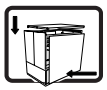
Do not use Gateway products in areas classified as hazardous locations. Such areas include patient care areas of medical and dental facilities, oxygen laden environments, or industrial facilities.

Caution

To reduce the risk of fire, use only No. 26 AWG or larger telecommunications line cord.

Warnings

	WARNING: English (US)	AVERTISSEMENT: Français	WARNUNG: Deutsch	AVVERTENZA: Italiano	ADVERTENCIAS: Español
	The power supply in this product contains no user-serviceable parts. There may be more than one power supply in this product. Refer servicing only to qualified personnel.	Le bloc d'alimentation de ce produit ne contient aucune pièce pouvant être réparée par l'utilisateur. Ce produit peut contenir plus d'un bloc d'alimentation. Veuillez contacter un technicien qualifié en cas de problème.	Benutzer können am Netzgerät dieses Produkts keine Reparaturen vornehmen. Das Produkt enthält möglicherweise mehrere Netzgeräte. Wartungsarbeiten müssen von qualifizierten Technikern ausgeführt werden.	Rivolgersi ad un tecnico specializzato per la riparazione dei componenti dell'alimentazione di questo prodotto. È possibile che il prodotto disponga di più fonti di alimentazione.	El usuario debe abstenerse de manipular los componentes de la fuente de alimentación de este producto, cuya reparación debe dejarse exclusivamente en manos de personal técnico especializado. Puede que este producto disponga de más de una fuente de alimentación.
	Do not attempt to modify or use the supplied AC power cord if it is not the exact type required. A product with more than one power supply will have a separate AC power cord for each supply.	Ne pas essayer d'utiliser ni modifier le câble d'alimentation CA fourni, s'il ne correspond pas exactement au type requis. Le nombre de câbles d'alimentation CA fournis correspond au nombre de blocs d'alimentation du produit.	Versuchen Sie nicht, das mitgelieferte Netzkabel zu ändern oder zu verwenden, wenn es sich nicht genau um den erforderlichen Typ handelt. Ein Produkt mit mehreren Netzgeräten hat für jedes Netzgerät ein eigenes Netzkabel.	Non modificare o utilizzare il cavo di alimentazione in c.a. fornito dal produttore, se non corrisponde esattamente al tipo richiesto. Ad ogni fonte di alimentazione corrisponde un cavo di alimentazione in c.a. separato.	No intente modificar ni usar el cable de alimentación de corriente alterna, si no corresponde exactamente con el tipo requerido. El número de cables suministrados se corresponden con el número de fuentes de alimentación de corriente alterna que tenga el producto.
	The power button on the computer does not turn off computer AC power. To remove AC power from the computer, you must unplug each AC power cord from the wall outlet or power supply. The power cord(s) is considered the disconnect device to the main (AC) power. The socket outlet that the computer plugs into shall be installed near the equipment and shall be easily accessible.	Notez que le commutateur CC de mise sous tension /hors tension du panneau avant n'éteint pas l'alimentation CA du système. Pour mettre le système hors tension, vous devez débrancher chaque câble d'alimentation de sa prise.	Der Wechselstrom des Systems wird durch den Ein-/Aus-Schalter für Gleichstrom nicht ausgeschaltet. Ziehen Sie jedes Wechselstrom-Netzkabel aus der Steckdose bzw. dem Netzgerät, um den Stromanschluß des Systems zu unterbrechen.	L'interruttore attivato/disattivato nel pannello anteriore non interrompe l'alimentazione in c.a. del sistema. Per interromperla, è necessario scollegare tutti i cavi di alimentazione in c.a. dalle prese a muro o dall'alimentazione di corrente.	Nótese que el interruptor activado/desactivado en el panel frontal no desconecta la corriente alterna del sistema. Para desconectarla, deberá desenchufar todos los cables de corriente alterna de la pared o desconectar la fuente de alimentación.
	**SAFETY STEPS:** Whenever you remove the chassis covers to access the inside of the computer, follow these steps: 1 Turn off all peripheral devices connected to the computer. 2 Turn off the computer by pressing the power button. 3 Unplug all AC power cords from the computer or from wall outlets. 4 Provide some electrostatic discharge (ESD) protection by wearing an antistatic wrist strap attached to chassis ground of the computer—any unpainted metal surface—when handling components. 5 Label and disconnect all cables connected to I/O connectors or ports on the back of the computer. 6 Do not operate the computer with the chassis covers removed.	**CONSIGNES DE SÉCURITÉ** - Lorsque vous ouvrez le boîtier pour accéder à l'intérieur du système, suivez les consignes suivantes: 1 Mettez hors tension tous les périphériques connectés au système. 2 Mettez le système hors tension en mettant l'interrupteur général en position OFF (bouton-poussoir). 3 Débranchez tous les cordons d'alimentation c.a. du système et des prises murales. 4 Pour prévenir les décharges électrostatiques lorsque vous touchez aux composants, portez une bande antistatique pour poignet et reliez-la à la masse du système (toute surface métallique non peinte du boîtier). 5 Identifiez et débranchez tous les câbles reliés aux connecteurs d'E-S ou aux accès derrière le système. 6 Ne faites pas fonctionner le système tandis que le boîtier est ouvert.	**SICHERHEISMASSNAHMEN:** Immer wenn Sie die Gehäuseabdeckung abnehmen um an das Systeminnere zu gelangen, sollten Sie folgende Schritte beachten: 1 Schalten Sie alle an Ihr System angeschlossenen Peripheriegeräte aus. 2 Schalten Sie das System mit dem Hauptschalter aus. 3 Ziehen Sie den Stromanschlußstecker Ihres Systems aus der Steckdose. 4 Tragen Sie ein geerdetes Antistatik Gelenkband, um elektrostatische Ladungen (ESD) über blanke Metallstellen bei der Handhabung der Komponenten zu vermeiden. 5 Auf der Rückseite des Systems beschriften und ziehen Sie alle Anschlußkabel von den I/O Anschlüssen oder Ports ab. 6 Schalten Sie das System niemals ohne ordnungsgemäß montiertes Gehäuse ein.	**PASSI DI SICUREZZA:** Qualora si rimuovano le coperture del telaio per accedere all'interno del sistema, seguire i seguenti passi: 1 Spegnere tutti i dispositivi periferici collegati al sistema. 2 Spegnere il sistema, usando il pulsante spento/acceso dell'interruttore del sistema. 3 Togliere tutte le spine dei cavi del sistema dalle prese elettriche. 4 Qualora si tocchino i componenti, proteggersi dallo scarico elettrostatico (SES), portando un cinghia anti-statica da polso che è attaccata alla presa a terra del telaio del sistema – qualsiasi superficie non dipinta – . 5 Identificare e sconnettere tutti i cavi attaccati ai collegamenti I/O od alle prese installate sul retro del sistema. 6 Non far operare il sistema quando il telaio è senza le coperture.	**INSTRUCCIONES DE SEGURIDAD:** Cuando extraiga la tapa del chasis para acceder al interior del sistema, siga las siguientes instrucciones: 1 Apague todos los dispositivos periféricos conectados al sistema. 2 Apague el sistema presionando el interruptor encendido/apagado. 3 Desconecte todos los cables de alimentación CA del sistema o de las tomas de corriente alterna. 4 Cuando manipule los componentes, es importante protegerse contra la descarga electrostática (ESD). Puede hacerlo si utiliza una muñequera antiestática sujetada a la toma de tierra del chasis — o a cualquier tipo de superficie de metal sin pintar. 5 Identifique y desconecte todos los cables enchufados a los conectores E/S o a los puertos situados en la parte posterior del sistema. 6 No ponga en marcha el sistema si se han extraído las tapas del chasis.

	WARNING: English (US)	AVERTISSEMENT: Français	WARNUNG: Deutsch	AVVERTENZA: Italiano	ADVERTENCIAS: Español
	For proper cooling and airflow, always reinstall the chassis covers before turning on the computer. Operating the computer without the covers in place can damage computer parts. To install the covers: 1 Check first to make sure you have not left loose tools or parts inside the computer. 2 Check that cables, expansion cards, and other components are properly installed. 3 Attach the covers according to the instructions in “Closing the case” on page 18. 4 Connect all external cables and the AC power cord(s) to the computer.	Afin de permettre le refroidissement et l’aération du système, réinstallez toujours les panneaux du boîtier avant de mettre le système sous tension. Le fonctionnement du système en l’absence des panneaux risque d’endommager ses pièces. Pour installer les panneaux, procédez comme suit : 1 Assurez-vous de ne pas avoir oublié d’outils ou de pièces démontées dans le système. 2 Assurez-vous que les câbles, les cartes d’extension et les autres composants sont bien installés. 3 Revissez solidement les panneaux du boîtier avec les vis retirées plus tôt. 4 Rebranchez tous les cordons d’alimentation c. a. et câbles externes au système.	Zur ordnungsgemäßen Kühlung und Lüftung muß die Gehäuseabdeckung immer wieder vor dem Einschalten installiert werden. Ein Betrieb des Systems ohne angebrachte Abdeckung kann Ihrem System oder Teile darin beschädigen. Um die Abdeckung wieder anzubringen: 1 Vergewissern Sie sich, daß Sie keine Werkzeuge oder Teile im Innern des Systems zurückgelassen haben. 2 Überprüfen Sie alle Kabel, Zusatzkarten und andere Komponenten auf ordnungsgemäßen Sitz und Installation. 3 Bringen Sie die Abdeckungen wieder am Gehäuse an, indem Sie die zuvor gelösten Schrauben wieder anbringen. Ziehen Sie diese gut an. 4 Schließen Sie alle externen Kabel und den AC Stromanschlußstecker Ihres Systems wieder an.	Per il giusto flusso dell’aria e raffreddamento del sistema, rimettere sempre le coperture del telaio prima di riaccendere il sistema. Operare il sistema senza le coperture al loro proprio posto potrebbe danneggiare i componenti del sistema. Per rimettere le coperture del telaio: 1 Controllare prima che non si siano lasciati degli attrezzi o dei componenti dentro il sistema. 2 Controllare che i cavi, dei supporti aggiuntivi ed altri componenti siano stati installati appropriatamente. 3 Attaccare le coperture al telaio con le viti tolte in precedenza e avvitarle strettamente. 4 Ricollegare tutti i cavi esterni e le prolunghe AC del sistema.	Para obtener un enfriamiento y un flujo de aire adecuados, reinstale siempre las tapas del chasis antes de poner en marcha el sistema. Si pone en funcionamiento el sistema sin las tapas bien colocadas puede dañar los componentes del sistema. Para instalar las tapas: 1 Asegúrese primero de no haber dejado herramientas o componentes sueltos dentro del sistema. 2 Compruebe que los cables, las placas adicionales y otros componentes se hayan instalado correctamente. 3 Incorpore las tapas al chasis mediante los tornillos extraídos anteriormente, tensándolos firmemente. 4 Conecte todos los cables externos y los cables de alimentación CA al sistema.
	A microprocessor and heat sink may be hot if the computer has been running. Also, there may be sharp pins and edges on some board and chassis parts. Contact should be made with care. Consider wearing protective gloves.	Le microprocesseur et le dissipateur de chaleur peuvent être chauds si le système a été sous tension. Faites également attention aux broches aiguës des cartes et aux bords tranchants du capot. Nous vous recommandons l'usage de gants de protection.	Der Mikroprozessor und der Kühler sind möglicherweise erhitzt, wenn das System in Betrieb ist. Außerdem können einige Platinen und Gehäuseteile scharfe Spitzen und Kanten aufweisen. Arbeiten an Platinen und Gehäuse sollten vorsichtig ausgeführt werden. Sie sollten Schutzhandschuhe tragen.	Se il sistema è stato a lungo in funzione, il microprocessore e il dissipatore di calore potrebbero essere surriscaldati. Fare attenzione alla presenza di piedini appuntiti e parti taglienti sulle schede e sul telaio. È consigliabile l'uso di guanti di protezione.	Si el sistema ha estado en funcionamiento, el microprocesador y el disipador de calor pueden estar aún calientes. También conviene tener en cuenta que en el chasis o en el tablero puede haber piezas cortantes o punzantes. Por ello, se recomienda precaución y el uso de guantes protectores.
	Danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Dispose of used batteries according to the manufacturer’s instructions.	Danger d'explosion si la batterie n'est pas remontée correctement. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le fabricant. Disposez des piles usées selon les instructions du fabricant.	Bei falschem Einsetzen einer neuen Batterie besteht Explosionsgefahr. Die Batterie darf nur durch denselben oder einen entsprechenden, vom Hersteller empfohlenen Batterietyp ersetzt werden. Entsorgen Sie ver-brauchte Batterien den Anweisungen des Herstellers entsprechend.	Esiste il pericolo di un esplosione se la pila non viene sostituita in modo corretto. Utilizzare solo pile uguali o di tipo equivalente a quelle consigliate dal produttore. Per disfarsi delle pile usate, seguire le istruzioni del produttore.	Existe peligro de explosión si la pila no se cambia de forma adecuada. Utilice solamente pilas iguales o del mismo tipo que las recomendadas por el fabricante del equipo. Para deshacerse de las pilas usadas, siga igualmente las instrucciones del fabricante.
	The computer is designed to operate in a typical office environment. Choose a site that is: ■ Clean and free of airborne particles (other than normal room dust). ■ Well ventilated and away from sources of heat including direct sunlight. ■ Away from sources of vibration or physical shock. ■ Isolated from strong electromagnetic fields produced by electrical devices. ■ Provided with a properly grounded wall outlet. ■ Provided with sufficient space to access the power supply cords, because they serve as the product’s main power disconnect.	Le système a été conçu pour fonctionner dans un cadre de travail normal. L’emplacement choisi doit être : ■ Propre et dépourvu de poussière en suspension (sauf la poussière normale). ■ Bien aéré et loin des sources de chaleur, y compris du soleil direct. ■ A l’abri des chocs et des sources de vibrations. ■ Isolé de forts champs électromagnétiques géenérés par des appareils électriques. ■ Muni d’une prise murale correctement mise à la terre. ■ Suffisamment spacieux pour vous permettre d’accéder aux câbles d’alimentation (ceux-ci étant le seul moyen de mettre le système hors tension).	Das System wurde für den Betrieb in einer normalen Büroumgebung entwickelt. Der Standort sollte: ■ sauber und staubfrei sein (Hausstaub ausgenommen); ■ gut gelüftet und keinen Heizquellen ausgesetzt sein (einschließlich direkter Sonneneinstrahlung); ■ keinen Erschütterungen ausgesetzt sein; ■ keine starken, von elektrischen Geräten erzeugten elektromagnetischen Felder aufweisen; ■ mit einer geerdeten Wechselstromsteckdose ausgerüstet sein; ■ über ausreichend Platz verfügen, um Zugang zu den Netzkabeln zu gewährleisten, da der Stromanschluß des Produkts hauptsächlich über die Kabel unterbrochen wird.	Il sistema è progettato per funzionare in un ambiente di lavoro tipo. Scegliere una postazione che sia: ■ Pulita e libera da particelle in sospensione (a parte la normale polvere presente nell’ambiente). ■ Ben ventilata e lontana da fonti di calore, compresa la luce solare diretta. ■ Al riparo da urti e lontana da fonti di vibrazione. ■ Isolata dai forti campi magnetici prodotti da dispositivi elettrici. ■ Dotata di una presa a muro correttamente installata. ■ Dotata di spazio sufficiente ad accedere ai cavi di alimentazione, i quali rappresentano il mezzo principale di scollegamento del sistema.	El sistema está diseñado para funcionar en un entorno de trabajo normal. Escoja un lugar: ■ Limpio y libre de partículas en suspensión (salvo el polvo normal). ■ Bien ventilado y alejado de fuentes de calor, incluida la luz solar directa. ■ Alejado de fuentes de vibración. ■ Aislado de campos electromagnéticos fuertes producidos por dispositivos eléctricos. ■ Provisto de una toma de tierra correctamente instalada. ■ Provisto de espacio suficiente como para acceder a los cables de alimentación, ya que éstos hacen de medio principal de desconexión del sistema.

Regulatory compliance statements

American users

FCC Part 15

This device 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 or television reception. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio and 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 into 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.
- Use only shielded cables to connect peripherals to the computer.

Accessories: This equipment has been tested and found to comply with the limits of a Class B digital device. The accessories associated with this equipment are: shielded video cable. These accessories are required to be used in order to ensure compliance with FCC rules.

Caution

Changes or modifications not expressly approved by Gateway could void the user's authority to operate the equipment.

Declaration of Conformity

Responsible Party

Gateway Companies, Inc.
610 Gateway Drive, North Sioux City, SD 57049
(605) 232-2000Fax: (605) 232-2023

Product: Gateway E-1600

For unique identification of the product configuration, please submit the 10-digit serial number found on the product to the responsible party.

This device complies with Part 15 of the FCC Rules. Operation of this product is subject to the following two conditions; (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution

Changes or modifications not expressly approved by Gateway could void the user's authority to operate the equipment.

FCC Part 68 (applicable to products fitted with USA modems)

Your modem complies with Part 68 of the Federal Communications Commission (FCC) rules. On the computer or modem card is a label that contains the FCC registration number and Ringer Equivalence Number (REN) for this device. If requested, this information must be provided to the telephone company.

An FCC compliant telephone line cord with a modular plug is required for use with this device. The modem is designed to be connected to the telephone network or premises wiring using a compatible modular jack which is Part 68 compliant. See the installation instructions for details.

The Ringer Equivalence Number (REN) is used to determine the number of devices which may be connected to the telephone line. Excessive REN's on a telephone line may result in the devices not ringing in response to an incoming call. In most areas, the sum of REN's should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total REN's, contact the local telephone company.

If this device causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. The telephone company may request that you disconnect the equipment until the problem is resolved.

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

This equipment cannot be used on telephone company provided coin service. Connection to party line service is subject to state tariffs. Contact the state public utility commission or public service commission for information.

When programming or making test calls to emergency numbers:

- Remain on the line and briefly explain to the dispatcher the reason for the call.
- Perform such activities in the off-peak hours such as early morning or late evenings.

The United States Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via a telephone fax machine unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business or other entity, or other individual sending the message and the telephone number of the sending machine or such business, other entity, or individual. Refer to your fax communication software documentation for details on how to comply with the fax-branding requirement.

Canadian users

ICES-003

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par Industrie Canada.

DOC Notice (for products fitted with an IC-compliant modem)

The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operation, and safety requirements. The Department does not guarantee the equipment will operate to the users' satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the inside wiring associated with a single-line individual service may be extended by means of a certified connector assembly. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

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

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

Warning

To avoid electrical shock or equipment malfunction you should not attempt to make electrical ground connections by yourself, but should contact the appropriate inspection authority or an electrician, as appropriate.

The **Ringer Equivalence Number** (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.

European users

If the computer has a CE mark on the back panel, the following paragraphs apply.

European directives

This Information Technology Equipment has been tested and found to comply with the following European directives:

- EMC Directive 89/336/EEC amending directive 92/31/EEC & 93/68/EEC as per
  - EN 55022:1994 / A1:1995 / A2:1997
  - EN 61000-3-2:1995
  - EN 61000-3-3:1995
  - EN 50082-1:1992 according to

    EN 61000-4-2:1995 or IEC 801-2:1984

    EN 61000-4-3:1996 or IEC 801-3:1984

    EN 61000-4-4:1995 or IEC 801-4:1988
- Low Voltage Directive (Safety) 73/23/EEC as per EN 60950: 1992(A1/A2/A3/A4/A11)

European telecommunication information (for products fitted with EU approved modems)

Marking by the symbol CE **** X indicates compliance of this equipment to the Telecom Terminal Equipment and Satellite Earth Stations Directive 98/13/EEC. Such marking is indicative that this equipment meets or exceeds the following technical standards:

CTR 21 (1998) - Attachment requirements for pan-European approval for connection to the analogue Public Switched Telephone Networks (PSTNs) of TE (excluding TE supporting voice telephony services) in which network addressing, if provided, is by means of Dual Tone Multi Frequency (DTMF) signaling.

Warning

Although this equipment can use either loop disconnect (Pulse) or DTMF (Tone) signaling, only the performance of the DTMF signaling is subject to regulatory requirements for correct operation. It is therefore strongly recommended that the equipment is set to use DTMF signaling for access to public or private emergency services. DTMF signaling also provides faster call set up.

This equipment has been approved to Council Decision 98/482/EEC--"CTR 21" for Pan-European single terminal connection to the Public Switched Telephone Network (PSTN). However, due to differences between the individual PSTNs provided in different countries, the approval does not, of itself, give an unconditional assurance of successful operation on every PSTN termination point. In the event of problems, you should contact Gateway customer support.

Japanese users

VCCI statement

This equipment is in the Class B category (Information Technology Equipment to be used in a residential area or an adjacent area thereto) and conforms to the standards set by the Voluntary Control Council for Interference by Information Technology Equipment aimed at preventing radio interference in such residential area. When used near a radio or TV receiver, it may become the cause of radio interference. Read instructions for correct handling.

電波障害について
　この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＢ情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
　取扱説明書に従って正しい取り扱いをして下さい。

Australia and New Zealand users

EMI statement

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to the Australian/New Zealand standard AS/NZS 3548 set out by the Australian Communications Authority and Radio Spectrum Management Agency.

New Zealand telecommunication statement (for products fitted with Telepermit approved modems)

The grant of a Telepermit for any item of terminal equipment indicates only that Telecom has accepted that the item complies with minimum conditions for connection to its network. It indicates no endorsement of the product by Telecom, nor does it provide any sort of warranty. Above all, it provides no assurance that any item will work correctly in all respects with another item of Telepermitted equipment of a different make or model, nor does it imply that any product is compatible with all of Telecom's network services.

This equipment shall not be set up to make automatic calls to the Telecom '111' Emergency Service

Important

Under power failure conditions, this telephone may not operate. Please ensure that a separate telephone, not dependent on local power, is available for emergency use.

Some parameters required for compliance with Telecom's Telepermit requirements are dependent on the equipment (PC) associated with this device. The associated equipment shall be set to operate within the following limits for compliance with Telecom's Specifications:

(a) There shall be no more than 10 calls to the same number within any 30 minute period for any single manual call initiation, and

(b) The equipment shall go on-hook for a period of not less than 30 seconds between the end of one attempt and the beginning of the next attempt.

The equipment shall be set to ensure that automatic calls to different numbers are spaced such that there is no less than 5 seconds between the end of one call attempt and the beginning of another.

The equipment shall be set to ensure that calls are answered between 3 and 30 seconds of receipt of ringing.

Laser safety statement

All Gateway computers equipped with CD-ROM and DVD-ROM drives comply with the appropriate safety standards, including IEC 825. The laser devices in these components are classified a “Class 1 Laser Product” under a US Department of Health and Human Services (DHHS) Radiation Performance Standard. Should the unit ever need servicing contact an authorized service location.

Warning

Use of controls or adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure. To prevent exposure to laser beams, do not try to open the enclosure of a CD-ROM or DVD Drive.

Television antenna connectors protection (for computers fitted with TV/cable TV tuner cards)

External television antenna grounding

If an outside antenna or cable system is to be connected to your Gateway PC, be sure that the antenna or cable system is electrically grounded to provide some protection against voltage surges and built up static charges.

Article 810 of the National Electrical Code, ANSI/NFPSA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

Lightning protection

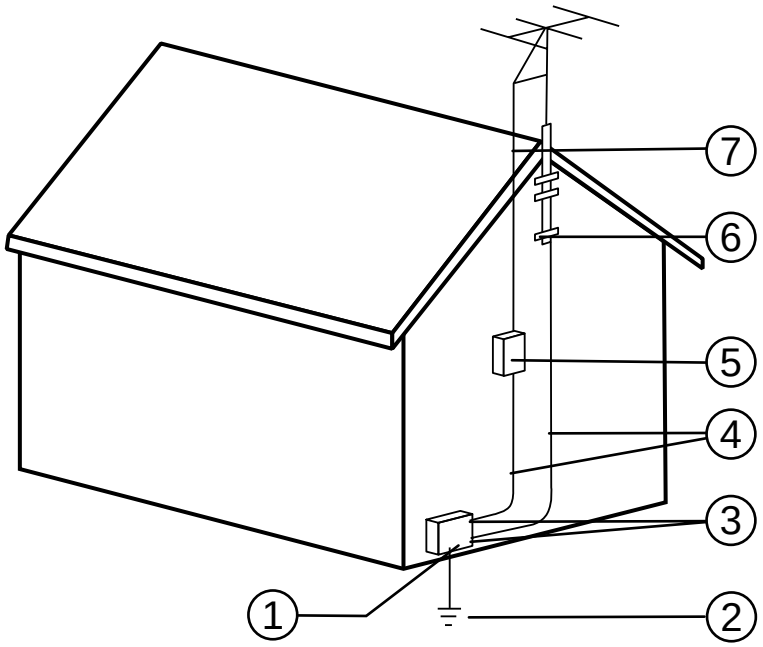
For added protection of any Gateway product during a lightning storm or when it is left unattended or unused for long periods of time, unplug the product from the wall outlet and disconnect the antenna or cable system.

Power lines

Do not locate the antenna near overhead light or power circuits, or where it could fall into such power lines or circuits. When installing or re aligning an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits. Contact with them could be fatal.

Warning

When installing or realigning an outside antenna system, extreme care should be taken to keep from touching power lines or circuits. Contact with them could be fatal.



Antenna and Satellite Grounding

Reference	Grounding component
1	Electric service equipment
2	Power Service grounding electrode system (NEC Art 250, Part H)
3	Ground clamps
4	Grounding conductors (NEC Section 810-21)
5	Antenna discharge unit (NEC Section 810-20)
6	Ground clamp
7	Antenna lead in wire

B

Reference Data

Specifications

All tested values refer to one of two typical configurations. Your computer may not conform to either typical configuration, therefore your computer may not match the values provided in the following tables.

The typical configurations are:

E-1600 SE

- 700 MHz Celeron processor
- 64 MB system memory (single DIMM)
- 10 GB 4500 rpm Quantum hard drive
- LE 500 monitor
- Floppy drive
- 48x LG CD drive
- Windows 98SE

E-1600 XL

- 866 MHz PIII processor
- 128 MB system memory (single DIMM)
- 20 GB 4500 rpm Quantum hard drive
- EV 700 monitor
- Floppy drive
- 48x LG CD drive
- Windows 2000

System specifications

The following specifications reflect the basic capabilities of the computer. Your computer may contain optional equipment that uses some of the resources described below or which provides additional resources. All specifications are subject to change.

Processor	One Celeron™ or Pentium™ III processor with 66, 100, or 133 MHz front side bus.
Chipset	Intel 810e chipset
RAM capacity	Two DIMM sockets on the system board support Synchronous Dynamic Random Access Memory (SDRAM) DIMMs. Maximum memory is 512 MB.
BIOS	Flash BIOS for easy updates from diskette.
IDE interfaces	Supports as many as four ATAPI/IDE devices (hard drives, CD drives, LS-120 drives) using two onboard PCI IDE adapters. (The chassis provides space for as many as three ATAPI/IDE devices and a diskette drive.)
Diskette drive	Diskette controller integrated on the system board.
I/O ports	One parallel port, one serial port, two USB ports, one video port, one LAN port, one microphone-in port, one audio-out port, one PS/2 keyboard port, and one PS/2 mouse port. The parallel and serial ports are configurable through System Setup. No jumper settings are required.
Expansion Slots	Two low-profile, half-length PCI slots.
Power Supply	110 watts. ATX power connector for easy power cable changeover.
Certification	FCC Class B, DOC, VCCI, C-Tick, UL, CUL, CB Scheme.

Mechanical specifications

The computer conforms to the following mechanical specifications:

Mini Desktop case size	3.95 in. (100 mm) x 13.25 in. (336 mm) x 15.25 in. (387 mm) (H x W x D).
Weight	20.0 lbs (9.1 kg) SE/XL
Monitor supported	Max weight 75 pounds

Environmental specifications

The following specifications identify maximum environmental conditions. At no time should the computer run under conditions which violate these specifications.

Temperature	Maximum rate of change = 10° C per hour
Nonoperating	-48.3° to 65.5° C (-55° to 150° F)
Operating	5° to 35° C (41° to 95° F); derated 0.5° C for every 1000 ft. (305 m)
Humidity	
Nonoperating	95% relative (noncondensing) at 30° C (86° F)
Operating wet bulb	Not to exceed 33° C (91.4° F) (with diskette drive or hard disk drive)
Shock	
Operating	2.0 g, 11 msec, 1/2 sine
Packaged	Operational after 30-inch free fall (cosmetic damage may occur)
Altitude	
Operating	10,000 ft. max

Electrical specifications

The computer power supply and the typical configuration conform to the following values:

AC Input Power	
115 V~	90-135 V~, 4 A
230 V~	180-265 V~, 2 A
AC Input Frequency	
115 V~	47-63 Hz
230 V~	47-63 Hz
Peak Power	60 W SE 65 W XL
Operating Power (typical)	45 W SE 33 W XL
Standby power (typical)	22 W SE 4 W XL

System I/O addresses

The following table shows the location in I/O space of all directly I/O-accessible registers.

Address (hex)	Size	Resource
0000 - 000F	16 bytes	DMA controller
0020 - 0021	2 bytes	Programmable Interrupt Control (PIC)
0040 - 0043	4 bytes	System timer
0060	1 byte	Keyboard controller byte-reset IRQ
0061	1 byte	System speaker
0064	1 byte	Keyboard controller, CMD / STAT byte
0070 - 0071	2 bytes	System CMOS / Real Time Clock (RTC)
0072 - 0073	2 bytes	System CMOS
0080 - 008F	16 bytes	DMA controller
0092	1 byte	Fast A20 and PIC
00A0 - 00A1	2 bytes	PIC
00B2 - 00B3	2 bytes	Reserved
00C0 - 00DF	32 bytes	DMA
00F0	1 byte	Numeric data processor
0170 - 0177	8 bytes	Secondary IDE channel
01F0 - 01F7	8 bytes	Primary IDE channel
0228 - 022F*	8 bytes	LPT3
0278 - 027F*	8 bytes	LPT2
02E8 - 02EF*	8 bytes	COM4 / video (8514A)
02F8 - 02FF*	8 bytes	COM2
0376	1 byte	Secondary IDE channel command port
0377, bits 6:0	7 bits	Secondary IDE channel status port
0378 - 037F	8 bytes	LPT1
03B0 - 03BB	12 bytes	Intel 82810e—DC100 graphics/memory controller hub (GMCH)
03C0 - 03DF	32 bytes	Intel 82810e—graphics/memory controller hub (GMCH)
03E8 - 03EF	8 bytes	COM3

* Default

** Double-word (Dword) access only

*** Byte access only

Address (hex)	Size	Resource
03F0 - 03F5	6 bytes	Diskette channel 1
03F6	1 byte	Primary IDE channel command port
03F8 - 03FF	8 bytes	COM1
04D0 - 04D1	2 bytes	Edge/level triggered PIC
0CF8 - 0CFB**	4 bytes	PCI configuration address register
0CF9***	1 byte	Turbo and reset control register
0CFC - 0CFF	4 bytes	PCI configuration data register
E800 - E8FF	256 bytes	ICH2 audio controller
EF00 - EF3F	64 bytes	ICH2 audio bus master
FFA0 - FFA7	8 bytes	Primary bus master IDE registers
FFA8 - FFAF	8 bytes	Secondary bus master IDE registers
96 contiguous bytes starting on a 128-byte divisible boundary		ICH2 (ACPI + TCO)
64 contiguous bytes starting on a 64-byte divisible boundary		D810eGB board resource
64 contiguous bytes starting on a 64-byte divisible boundary		ICH2 LAN controller
32 contiguous bytes starting on a 32-byte divisible boundary		ICH2 (USB controller #1)
32 contiguous bytes starting on a 32-byte divisible boundary		ICH2 (USB controller #2)
96 contiguous bytes starting on a 128-byte divisible boundary		LPC47M102 I/O controller

* Default

** Double-word (Dword) access only

*** Byte access only

Memory map

Address Range (decimal)	Address Range (hex)	Amount	Function
1024 K - 524288 K	100000 - 1FFFFFFF	511 MB	Extended memory
960 K - 1024 K	F0000 - FFFFF	64 KB	Runtime BIOS
896 K - 960 K	E0000 - EFFFF	64 KB	Reserved
800 K - 896 K	C8000 - DFFFF	96 KB	Available high DOS memory (open to the PCI bus)
640 K - 800 K	A0000 - C7FFF	160 KB	Video memory and BIOS
639 K - 640 K	9FC00 - 9FFFF	1 KB	Extended BIOS data (movable by memory manager software)
512 K - 639 K	80000 - 9FBFF	127 KB	Extended conventional memory
0 K - 512 K	00000 - 7FFFF	512 KB	Conventional memory

Interrupts

The following table suggests a logical mapping of interrupt sources. It reflects a typical configuration, but you can change these interrupts. Use the information to determine how to program each interrupt. The actual interrupt map is defined using configuration registers in the I/O controller. I/O Redirection Registers in the I/O APIC are provided for each interrupt signal. The signals define hardware interrupt signal characteristics for APIC messages sent to local APIC(s).

Important

If you disable either IDE controller to free the interrupt for that controller, you must physically unplug the IDE cable from the system board. Simply disabling the drive by configuring the BIOS option does not make the interrupt available.

Interrupt	System Resource
NMI	I/O channel check
0	Reserved, interval timer
1	Reserved, keyboard buffer full
2	Reserved, cascade interrupt from slave PIC
3	COM2*

* This setting is the default, but it can be changed in the BIOS Setup utility.

Interrupt	System Resource
4	COM1*
5	LAN / User available
6	User available
7	LPT1*
8	Real-time clock
9	Reserved for ICH2 system management bus
10	User available
11	User available
12	Onboard mouse port (if present, otherwise user available)
13	Reserved, math coprocessor
14	Primary IDE (if present, otherwise user available)
15	Secondary IDE (if present, otherwise user available)

* This setting is the default, but it can be changed in the BIOS Setup utility.

DMA usage

The following table lists the direct memory access (DMA) channels that the computer typically uses and which ones are available for use by add-in devices.

DMA Channel	Data Width	Resource
0	8- or 16-bits	Open
1	8- or 16-bits	Open
2	8- or 16-bits	Open
3	8- or 16-bits	Open / Parallel port (for ECP or EEP)
4		Reserved - cascade channel
5	16-bits	Open
6	16-bits	Open
7	16-bits	Open

Index

Numerics

A

B

C

D

N

O

P

T

U

V

W