

Quick Reference

Inside

- Important safety information
- Warranty and other notices
- Computer setup
- Software recovery
- Troubleshooting and diagnostics
- Help and Service
- IBM Lotus software offer

ThinkCentre

Quick Reference

Note

Before using this information and the product it supports, be sure to read the following:

- “Important safety information” on page v
- Appendix B, “Lenovo Statement of Limited Warranty,” on page 35
- Appendix D, “Notices,” on page 65

Third Edition (May 2005)

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Contents

Important safety information	v
Conditions that require immediate action.	v
General safety guidelines	vi
Additional safety information	xi
Lithium battery notice	xi
Modem safety information	xii
Laser compliance statement	xii
Power supply statement	xiii
Additional help.	xv
Chapter 1. Arranging your workspace	1
Comfort	1
Chapter 2. Setting up your computer	3
Turning on power	7
Finishing the software installation	7
Completing important tasks	7
Updating your operating system.	8
Installing other operating systems	8
Updating your antivirus software	8
Starting the Setup Utility	8
Shutting down the computer	9
Recording your computer information	9
Chapter 3. Recovering software	11
Creating and using product recovery discs	11
Backup and recovery	12
Using the rescue and recovery workspace	13
Solving recovery problems	15
Creating and using rescue media	16
Creating and using a Recovery Repair diskette	16
Recovering or installing device drivers	17
Setting a rescue device in the startup sequence	18
Chapter 4. Getting information, help, and service.	19
Getting information	19
Getting help and service	19
Purchasing additional services	21
Chapter 5. Troubleshooting and diagnostics	23
Basic troubleshooting	23

Power supply and system board Diagnostic LEDs	25
PC-Doctor for DOS Diagnostics.	25
Error codes	27
POST beep codes	29
Appendix A. IBM Lotus Software Offer	31
Appendix B. Lenovo Statement of Limited Warranty.	35
Part 1 - General Terms.	35
Part 2 - Country-unique Terms	39
Part 3 - Warranty Information	52
Guarantee supplement for Mexico.	60
Appendix C. Customer Replacement Units (CRUs)	63
Appendix D. Notices	65
Television output notice	66
Trademarks	66
Electronic emissions notices	67
Power cord notice	70
Polyvinyl Chloride (PVC) cable and cord notice	72

Important safety information

Note

Please read important safety information first.

This information can help you safely use your ThinkCentre® or ThinkPad® personal computer. Follow and retain all information included with your computer. The information in this document does not alter the terms of your purchase agreement or the Lenovo™ Statement of Limited Warranty.

Customer safety is important. Our products are developed to be safe and effective. However, personal computers are electronic devices. Power cords, power adapters, and other features can create potential safety risks that can result in physical injury or property damage, especially if misused. To reduce these risks, follow the instructions included with your product, observe all warnings on the product and in the operating instructions, and review the information included in this document carefully. By carefully following the information contained in this document and provided with your product, you can help protect yourself from hazards and create a safer computer work environment.

Note: This information includes references to power adapters and batteries. In addition to mobile personal computers, some products (such as speakers and monitors) ship with external power adapters. If you have such a product, this information applies to your product. In addition, your computer product may contain a coin-sized internal battery that provides power to your system clock even when the machine is unplugged, so the battery safety information applies to all computers.

Conditions that require immediate action

Products can become damaged due to misuse or neglect. Some product damage is serious enough that the product should not be used again until it has been inspected and, if necessary, repaired by an authorized servicer.

As with any electronic device, pay close attention to the product when it is turned on. On very rare occasions, you might notice an odor or see a puff of smoke or sparks vent from your machine. Or you might hear sounds like popping, cracking or hissing. These conditions might merely mean that an internal electronic component has failed in a safe and controlled manner. Or, they might indicate a potential safety issue. However, do not take risks or attempt to diagnose the situation yourself.

Frequently inspect your computer and its components for damage or wear or signs of danger. If you have any question about the condition of a component, do not use the product. Contact the Customer Support Center or the product manufacturer for instructions on how to inspect the product and have it repaired, if necessary. For a list of Service and Support phone numbers, see “Worldwide telephone list” on page 57.

In the unlikely event that you notice any of the conditions listed below, or if you have any safety concerns with your product, stop using the product and unplug it from the power source and telecommunication lines until you can speak to the Customer Support Center for further guidance.

- Power cords, plugs, power adapters, extension cords, surge protectors, or power supplies that are cracked, broken or damaged.
- Signs of overheating, smoke, sparks or fire.
- Damage to a battery (such as cracks, dents, creases), discharge from a battery, or a buildup of foreign substances on the battery.
- A cracking, hissing or popping sound, or strong odor that comes from the product.
- Signs that liquid has been spilled or an object has fallen onto the computer product, the power cord or power adapter.
- The computer product, the power cord or power adapter has been exposed to water.
- The product has been dropped or damaged in any way.
- The product does not operate normally when you follow the operating instructions.

Note: If you notice these conditions with a product (such as an extension cord) that is not manufactured for or by Lenovo, stop using that product until you can contact the product manufacturer for further instructions, or until you get a suitable replacement.

General safety guidelines

Always observe the following precautions to reduce the risk of injury and property damage.

Service

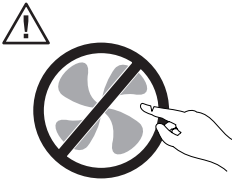
Do not attempt to service a product yourself unless instructed to do so by the Customer Support Center. Use only a service provider who is approved to repair your particular product.

Note: Some parts can be upgraded or replaced by the customer. These parts are referred to as Customer Replaceable Units, or CRUs. Lenovo expressly identifies CRUs as such, and provides documentation with

instructions when it is appropriate for customers to replace those parts. You must closely follow all instructions when performing such replacements. Always make sure that the power is turned off and that the product is unplugged from any power source before you attempt the replacement. If you have any questions or concerns, contact the Customer Support Center.

Although there are no moving parts in your computer after the power cord has been disconnected, the following warnings are required for proper UL certification.

Danger



Hazardous moving parts. Keep fingers and other body parts away.

Attention



Before replacing any CRUs, turn off the computer and wait three to five minutes to let the computer cool before opening the cover.

Power cords and power adapters

Use only the power cords and power adapters supplied by the product manufacturer.

Never wrap a power cord around the power adapter or other object. Doing so can stress the cord in ways that can cause the cord to fray, crack or crimp. This can present a safety hazard.

Always route power cords so that they will not be walked on, tripped over, or pinched by objects.

Protect the cord and power adapters from liquids. For instance, do not leave your cord or power adapter near sinks, tubs, toilets, or on floors that are cleaned with liquid cleansers. Liquids can cause a short circuit, particularly if the cord or power adapter has been stressed by misuse. Liquids can also cause gradual corrosion of the power cord terminals and/or the connector terminals on the adapter which can eventually result in overheating.

Always connect power cords and signal cables in the correct order and ensure that all power cord connectors are securely and completely plugged into receptacles.

Do not use any power adapter that shows corrosion at the ac input pins and/or shows signs of overheating (such as deformed plastic) at the ac input or anywhere on the power adapter.

Do not use any power cords where the electrical contacts on either end show signs of corrosion or overheating or where the power cord appears to have been damaged in any way.

Extension cords and related devices

Ensure that extension cords, surge protectors, uninterruptible power supplies, and power strips that you use are rated to handle the electrical requirements of the product. Never overload these devices. If power strips are used, the load should not exceed the power strip input rating. Consult an electrician for more information if you have questions about power loads, power requirements, and input ratings.

Plugs and outlets

If a receptacle (power outlet) that you intend to use with your computer equipment appears to be damaged or corroded, do not use the outlet until it is replaced by a qualified electrician.

Do not bend or modify the plug. If the plug is damaged, contact the manufacturer to obtain a replacement.

Some products are equipped with a three-pronged plug. This plug fits only into a grounded electrical outlet. This is a safety feature. Do not defeat this safety feature by trying to insert it into a non-grounded outlet. If you cannot insert the plug into the outlet, contact an electrician for an approved outlet adapter or to replace the outlet with one that enables this safety feature. Never overload an electrical outlet. The overall system load should not exceed 80 percent of the branch circuit rating. Consult an electrician for more information if you have questions about power loads and branch circuit ratings.

Be sure that the power outlet you are using is properly wired, easily accessible, and located close to the equipment. Do not fully extend power cords in a way that will stress the cords.

Carefully connect and disconnect the equipment from the electrical outlet.

Batteries

All personal computers manufactured by Lenovo contain a non-rechargeable coin cell battery to provide power to the system clock. In addition many mobile products such as ThinkPad notebook PCs utilize a rechargeable battery pack to provide system power when in portable mode. Batteries supplied by Lenovo for use with your product have been tested for compatibility and should only be replaced with approved parts.

Never attempt to open or service any battery. Do not crush, puncture, or incinerate batteries or short circuit the metal contacts. Do not expose the battery to water or other liquids. Only recharge the battery pack strictly according to instructions included in the product documentation.

Battery abuse or mishandling can cause the battery to overheat, which can cause gasses or flame to “vent” from the battery pack or coin cell. If your battery is damaged, or if you notice any discharge from your battery or the buildup of foreign materials on the battery leads, stop using the battery and obtain a replacement from the battery manufacturer.

Batteries can degrade when they are left unused for long periods of time. For some rechargeable batteries (particularly Lithium Ion batteries), leaving a battery unused in a discharged state could increase the risk of a battery short circuit, which could shorten the life of the battery and can also pose a safety hazard. Do not let rechargeable Lithium-Ion batteries completely discharge or store these batteries in a discharged state.

Heat and product ventilation

Computers generate heat when turned on and when batteries are charging. Notebook PCs can generate a significant amount of heat due to their compact size. Always follow these basic precautions:

- Do not leave the base of your computer in contact with your lap or any part of your body for an extended period when the computer is functioning or when the battery is charging. Your computer produces some heat during normal operation. Extended contact with the body could cause discomfort or, potentially, a skin burn.
- Do not operate your computer or charge the battery near flammable materials or in explosive environments.
- Ventilation slots, fans and/or heat sinks are provided with the product for safety, comfort, and reliable operation. These features might inadvertently

become blocked by placing the product on a bed, sofa, carpet, or other flexible surface. Never block, cover or disable these features.

You should inspect your desktop computer for dust accumulation at least once every three months. Before inspecting your computer, turn off the power and unplug the computer's power cord from the electrical outlet; then remove any dust from vents and perforations in the bezel. If you notice external dust accumulation, you should also examine and remove dust from the inside of the computer including heat sink inlet fins, power supply vents, and fans. Always turn off and unplug the computer before opening the cover. If possible, avoid operating your computer within 2 feet of high-traffic areas. If you must operate your computer in or near a high-traffic area, you should inspect and, if necessary, clean your computer more frequently.

For your safety and to maintain optimum computer performance, always follow these basic precautions with your desktop computer:

- Keep the cover closed whenever the computer is plugged in.
- Regularly inspect the outside of the computer for dust accumulation.
- Remove dust from vents and any perforations in the bezel. More frequent cleanings might be required for computers in dusty or high-traffic areas.
- Do not block or restrict airflow into the front of the computer.
- Do not block the airflow vents on the back of the computer.
- Do not store or operate your computer inside furniture, as this might increase the risk of overheating.
- Airflow temperatures into the computer should not exceed 35° C (95° F).
- Do not use non-ThinkCentre air filtration devices.

CD and DVD drive safety

CD and DVD drives spin discs at a high speed. If a CD or DVD is cracked or otherwise physically damaged, it is possible for the disc to break apart or even shatter when the CD drive is in use. To protect against possible injury due to this situation, and to reduce the risk of damage to your machine, do the following:

- Always store CD/DVD discs in their original packaging
- Always store CD/DVD discs out of direct sunlight and away from direct heat sources
- Remove CD/DVD discs from the computer when not in use
- Do not bend or flex CD/DVD discs, or force them into the computer or their packaging
- Check CD/DVD discs for cracks before each use. Do not use cracked or damaged discs

Additional safety information

Danger

Electrical current from power, telephone, and communication cables is hazardous.

To avoid a shock hazard:

- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- Connect all power cords to a properly wired and grounded electrical outlet.
- Connect to properly wired outlets any equipment that will be attached to this product.
- When possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.
- Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.
- Connect and disconnect cables as described in the following table when installing, moving, or opening covers on this product or attached devices.

To connect:	To disconnect:
<ol style="list-style-type: none">1. Turn everything OFF.2. First, attach all cables to devices.3. Attach signal cables to connectors.4. Attach power cords to outlet.5. Turn device ON.	<ol style="list-style-type: none">1. Turn everything OFF.2. First, remove power cords from outlet.3. Remove signal cables from connectors.4. Remove all cables from devices.

Lithium battery notice

Caution

Danger of explosion if battery is incorrectly replaced.

When replacing the battery, use only Part Number 33F8354 or an equivalent type battery recommended by the manufacturer. The battery contains lithium and can explode if not properly used, handled, or disposed of.

Do not:

- Throw or immerse into water
- Heat to more than 100°C (212°F)
- Repair or disassemble

Dispose of the battery as required by local ordinances or regulations.

Modem safety information

Caution

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

To reduce the risk of fire, electrical shock, or injury when using telephone equipment, always follow basic safety precautions, such as:

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.
- Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
- Do not use the telephone to report a gas leak in the vicinity of the leak.

Laser compliance statement

Some personal computer models are equipped from the factory with a CD-ROM drive or a DVD-ROM drive. CD-ROM drives and DVD-ROM drives are also sold separately as options. CD-ROM drives and DVD-ROM drives are laser products. These drives are certified in the U.S. to conform to the requirements of the Department of Health and Human Services 21 Code of Federal Regulations (DHHS 21 CFR) Subchapter J for Class 1 laser products. Elsewhere, these drives are certified to conform to the requirements of the International Electrotechnical Commission (IEC) 825 and CENELEC EN 60 825 for Class 1 laser products.

When a CD-ROM drive or a DVD-ROM drive is installed, note the following handling instructions.

Caution

Use of controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.

Removing the covers of the CD-ROM drive or DVD-ROM drive could result in exposure to hazardous laser radiation. There are no serviceable parts inside the CD-ROM drive or DVD-ROM drive. **Do not remove the drive covers.**

Some CD-ROM drives and DVD-ROM drives contain an embedded Class 3A or Class 3B laser diode. Note the following statement.

Danger

Laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam.

Power supply statement

Never remove the cover on a power supply or any part that has the following label attached.



Hazardous voltage, current, and energy levels are present inside any component that has this label attached. There are no serviceable parts inside these components. If you suspect a problem with one of these parts, contact a service technician.

Additional help

This *Quick Reference* provides the information for installing your computer and starting the operating system. This publication also includes basic troubleshooting information, software recovery procedures, help and service information, and warranty information.

The *User Guide* for your computer has information about installing optional hardware. This Portable Document Format (PDF) file is available through the Access IBM program on your computer desktop. Use Adobe Acrobat Reader to view your *User Guide* or print it before installing optional hardware.

The Access IBM program also provides information to help you learn more about the following topics:

- Using your computer
- Installing hardware options
- Connecting communication cables
- Troubleshooting common problems
- Registering your computer

You can start the Access IBM program by clicking the icon on your desktop, or by clicking **Start -> Access IBM -> Access IBM**.

If you have Internet access, the most current information for your computer is available from the World Wide Web at <http://www.lenovo.com/think/support>.

You can find the following information on this Web site:

- CRU removal and installation instructions
- Publications
- Troubleshooting information
- Parts information
- Downloads and drivers
- Links to other useful sources of information
- Phone support list

Chapter 1. Arranging your workspace

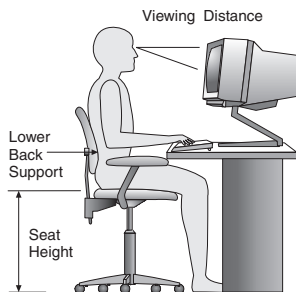
To get the most from your computer, arrange both the equipment you use and your work area to suit your needs and the kind of work you do. Your comfort is of foremost importance, but light sources, air circulation, and the location of electrical outlets also can affect the way you arrange your workspace.

Comfort

Although no single working position is ideal for everyone, here are a few guidelines to help you find a position that suits you best.

Sitting in the same position for a long time can cause fatigue. A good chair can make a big difference. The backrest and seat should adjust independently and provide good support. The seat should have a curved front to relieve pressure on the thighs. Adjust the seat so that your thighs are parallel to the floor and your feet are either flat on the floor or on a footrest.

When using the keyboard, keep your forearms parallel to the floor and your wrists in a neutral, comfortable position. Try to keep a light touch on the keyboard and your hands and fingers relaxed. You can change the angle of the keyboard for maximum comfort by adjusting the position of the keyboard feet.



Adjust the monitor so the top of the screen is at, or slightly below, eye level. Place the monitor at a comfortable viewing distance, usually 51 to 61 cm (20 to 24 in.), and position it so you can view it without having to twist your body. Also position other equipment you use regularly, such as the telephone or a mouse, within easy reach.

Glare and lighting

Position the monitor to minimize glare and reflections from overhead lights, windows, and other light sources. Even reflected light from shiny surfaces can cause annoying reflections on your monitor screen. Place the monitor at right

angles to windows and other light sources, when possible. Reduce overhead lighting, if necessary, by turning off lights or using lower wattage bulbs. If you install the monitor near a window, use curtains or blinds to block the sunlight. You might have to adjust the Brightness and Contrast controls on the monitor as the room lighting changes throughout the day.

Where it is impossible to avoid reflections or to adjust the lighting, an antiglare filter placed over the screen might be helpful. However, these filters might affect the clarity of the image on the screen; try them only after you have exhausted other methods of reducing glare.

Dust buildup compounds problems associated with glare. Remember to clean your monitor screen periodically using a soft cloth moistened with a nonabrasive liquid glass cleaner.

Air circulation

Your computer and monitor produce heat. The computer has a fan that pulls in fresh air and forces out hot air. The monitor lets hot air escape through vents. Blocking the air vents can cause overheating, which might result in a malfunction or damage. Place the computer and monitor so that nothing blocks the air vents; usually, 51 mm (2 in.) of air space is sufficient. Also, make sure the vented air is not blowing on someone else.

Electrical outlets and cable lengths

The location of electrical outlets and the length of power cords and cables that connect to the monitor, printer, and other devices might determine the final placement of your computer.

When arranging your workspace:

- Avoid the use of extension cords. When possible, plug the computer power cord directly into an electrical outlet.
- Keep power cords and cables neatly routed away from walkways and other areas where they might get kicked accidentally.

For more information about power cords, see “Power cord notice” on page 70 of this book.

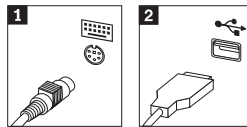
Chapter 2. Setting up your computer

Note: Your computer might not have all of the connectors that are described in this chapter.

Use the following information when setting up your computer. Look for the small connector icons on the back of your computer.

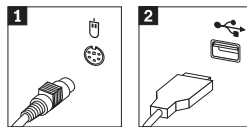
If your computer cables and connector panel have color-coded connectors, match the color of the cable end with the color of the connector. For example, match a blue cable end with a blue connector, a red cable end with a red connector.

1. The power supply has automatic power detection and set up.
2. Your keyboard cable might have a standard keyboard connector **1** or a Universal Serial Bus (USB) connector **2**. Connect the keyboard cable to the appropriate keyboard connector.



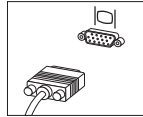
Note: Some models will have keyboards with a fingerprint reader. See the Access IBM program for more information.

3. Your mouse cable might have a standard mouse connector **1** or a USB connector **2**. Connect the mouse cable to the appropriate mouse connector.



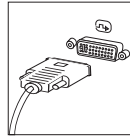
4. Connect the monitor cable to the monitor connector on the computer.
- If you have a Standard Video Graphics Array (SVGA) monitor, connect the cable to the connector as shown.

Note: If your model has two monitor connectors, be sure to use the connector on the PCI-express (PCI-e) adapter

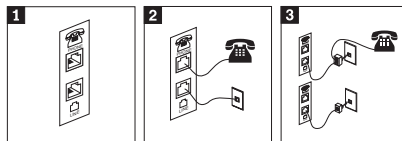


- If you have a digital video interface (DVI) monitor, connect the cable to the connector as shown.

Note: Your computer must have an adapter installed that supports the DVI monitor.

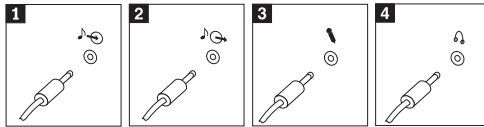


5. If you have a modem, connect the modem using the following instructions.



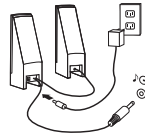
- 1** This illustration shows the two connections on the back of the computer to set up your modem.
- 2** This illustration shows how modem connections are made in the United States and other countries or regions that use an RU-11 telephone outlet. Attach one end of the telephone cable to the telephone and the other end to the telephone connector on the back of the computer. Attach one end of the modem cable to the modem connector on the back of the computer and the other end to the telephone outlet.
- 3** In countries or regions that do not use RU-11 telephone outlets, a splitter or converter is required to attach the cables to the telephone outlet, as shown at the top of this illustration. You also can use the splitter or converter without the telephone, as shown at the bottom of the illustration.

6. If you have audio devices, attach them using the following instructions. For more information about speakers, see steps 7 and 8.

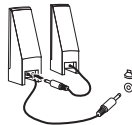


- 1** Audio line-in This connector receives audio signals from an external audio device, such as a stereo system.
- 2** Audio line-out This connector sends audio signals from the computer to external devices, such as powered stereo speakers.
- 3** Microphone Use this connector to attach a microphone to your computer when you want to record sound or if you use speech-recognition software.
- 4** Headphone Use this connector to attach headphones to your computer when you want to listen to music or other sounds without disturbing anyone. This connector might be located on the front of the computer.

7. If you have *powered* speakers with an ac adapter, use the following instructions.

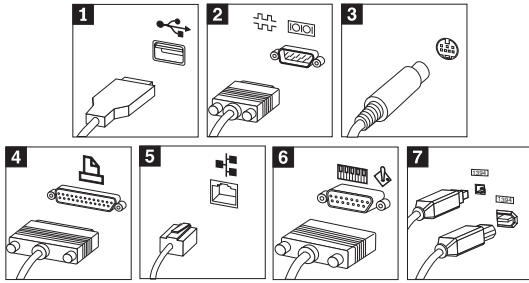


- a. Connect the cable that runs between the speakers, if necessary. On some speakers, this cable is permanently attached.
 - b. Connect the ac adapter cable to the speaker.
 - c. Connect the speakers to the computer.
 - d. Connect the ac adapter to the ac power source.
8. If you have *unpowered* speakers with no ac adapter, use the following instructions.



- a. Connect the cable that runs between the speakers, if necessary. On some speakers, this cable is permanently attached.
- b. Connect the speakers to the computer.

9. Connect any additional devices that you have. Your computer might not have all connectors that are shown.



1 USB

Use these connectors to attach a device that requires a Universal Serial Bus (USB) connection, such as a mouse, scanner, printer, or personal digital assistant (PDA).

2 Serial

Use this connector to attach an external modem, serial printer, or other device that uses a 9-pin serial connector.

3 S-video

Use this connector to attach a television set that has an S-Video connector. This connector is present on some high-performance video adapters.

4 Parallel

Use this connector to attach a parallel printer or any other device that requires a 25-pin parallel connection.

5 Ethernet

Use this connector to attach the computer to an Ethernet-type local area network or to a cable modem.

Important

To operate the computer within FCC limits when it is connected to an Ethernet network, use a Category 5 Ethernet cable.

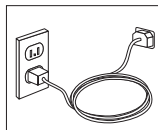
6 MIDI/joystick

Use this connector to attach a joystick, gamepad, or a musical instrument digital interface (MIDI) device such as a MIDI keyboard.

7 IEEE 1394

This connector is sometimes called Firewire because it transmits data rapidly. There are two types of IEEE 1394 connectors: the 4-pin and the 6-pin. IEEE 1394 offers connection to several types of consumer electronics, including digital audio devices and scanners.

10. Connect the power cords to properly grounded electrical outlets.



Note: For more information about connectors, see the Access IBM program on your computer desktop.

Turning on power

Turn on the monitor and other external devices first, and then turn on the computer. When the power-on self-test (POST) is finished, the logo window closes. If your computer has preinstalled software, the software installation program starts.

If you experience any problems during startup, see Chapter 5, “Troubleshooting and diagnostics,” on page 23 and Chapter 4, “Getting information, help, and service,” on page 19.

Finishing the software installation

Important

Read the license agreements carefully before using the programs on this computer. These agreements detail your rights, obligations, and warranties for the software on this computer. By using these programs, you accept the terms of the agreements. If you do not accept the agreements, do not use the programs. Instead, promptly return the entire computer for a full refund.

Note: Some models might have a multilingual version of Microsoft® Windows® XP Pro preinstalled. If your computer has the multilingual version, you will be prompted to choose a language during the initial installation process. After installation, the language version can be changed through the Windows Control Panel.

After you start the computer for the first time, follow the instructions on the screen to complete the software installation. If you do not complete the software installation the first time the computer is turned on, unpredictable results might occur. When the installation is complete, click **Access IBM** on your desktop to learn more about your computer.

Completing important tasks

After you have set up your computer, perform the following tasks, which will save you time and trouble later:

- Create a *diagnostics* diskette. The diagnostics tool can isolate hardware problems and is part of the Product Recovery program. Making a *diagnostics* diskette ahead of time assures you will be able to use of the diagnostics tool if the Product Recovery program becomes inaccessible. See “Creating a Diagnostics diskette” on page 26.

- Record your computer machine type, model, and serial number. If you need service or technical support, you will probably be asked for this information. See “Recording your computer information” on page 9.

Keep this *Quick Reference* in a safe place. It is the only publication that has important information about reinstalling factory-installed software. Chapter 3, “Recovering software,” on page 11 contains the information about recovering factory-installed software.

Updating your operating system

Microsoft makes updates available for various operating systems through the Microsoft Windows Update Web site. The Web site automatically determines what Windows updates are available for your specific computer and lists those updates only. Updates could include security fixes, new versions of Windows components (such as media player), fixes to other portions of the Windows operating system, or enhancements.

For details about updating your operating system, refer to the Access IBM program.

Installing other operating systems

If you install your own operating system, follow the instructions that come with your operating-system CDs or diskettes. Remember to install all device drivers after you install your operating system. Installation instructions are usually provided with the device drivers.

Updating your antivirus software

Your computer comes with the Norton AntiVirus software you can use to detect and eliminate viruses. You should run the LiveUpdate application to get the latest updates from the Norton AntiVirus Web site. LiveUpdate will download the latest virus list and Norton AntiVirus will use the new list when it scans your computer the next time.

For more details about updating your antivirus software, refer to the Access IBM program.

Starting the Setup Utility

The Setup Utility enables you to view, set, or change BIOS configuration settings and passwords.

1. Shut down the operating system and turn off your computer.
2. While turning on your computer, repeatedly press and release the F1 key to enter the Setup Utility.

Note: If a password has been set, the Setup Utility program menu is not displayed until you type your password. For more information on the Setup Utility program, see your *User Guide*.

In some cases, the Setup Utility might start automatically when POST detects that hardware has been removed or new hardware has been installed in your computer.

Shutting down the computer

When you are ready to turn off your computer, always follow the shutdown procedure for your operating system. This prevents the loss of unsaved data or damage to your software programs. To shut down the Microsoft Windows operating system select Shut down or Turn off computer from the Start menu.

Recording your computer information

Recording information about your computer can be helpful if you ever need to have your computer serviced. The service technician will probably ask you for this information.

The machine type, model, and serial number are labeled on your computer. Use the following table to record this information.

Product name	_____
Machine type and model	_____
Serial number (S/N)	_____
Date of purchase	_____

You can register your computer over the Internet at the following Web site:

<http://www.lenovo.com/register>

When you register your computer, you will receive the following benefits:

- Faster service when you call for help
- Automatic notification of free software and special promotional offers

For more information about registering your computer, refer to the Access IBM program.

Chapter 3. Recovering software

The Rescue and Recovery™ program provides an environment that runs independently of the Windows operating system and is hidden from the Windows operating system. Because the Rescue and Recovery workspace is hidden, it is immune from most virus attacks and provides a safe place to perform rescue and recovery operations that might not be possible in the Windows environment. This chapter will help you become familiar with the following recovery solutions provided by the Rescue and Recovery program installed on your computer:

- Create Product Recovery discs. See "Creating and using Product Recovery discs."
- Create rescue media. See "Creating and using rescue media" on page 16.
- Back up your hard disk periodically. See "Backup and recovery" on page 12.
- Create a Recovery Repair diskette. See "Solving recovery problems" on page 15.

Note: The rescue disc, first disc of the Product Recovery discs and backup discs are startable (bootable). They can be started in any type of CD or DVD drive except for a DVD-RAM media.

If you encounter a problem, you can use the recovery tools from either the Windows environment or from the Rescue and Recovery workspace to do one of the two recovery operations:

- Rescue files
- Restore your backups

See "Using the rescue and recovery workspace" on page 13 to perform one of the two recovery operations.

See the Access IBM program for additional information about the Rescue and Recovery program.

Creating and using product recovery discs

If your computer is equipped with a recordable CD or DVD drive, you can create a set of Product Recovery discs that enables you to restore the contents of the hard disk to the same state as when the computer was originally shipped from the factory. Product Recovery discs are useful if you transfer the computer to another area, sell the computer, recycle the computer, or as a last resort put the computer in an operational state after all other methods of recovery have failed. It is a good idea to create a set of Product Recovery discs as soon as possible.

Note: Your Microsoft Windows license permits you to create only one set of Product Recovery discs, so it is important that you store the discs in a safe place after you make them.

To create Product Recovery discs, do the following:

1. From the Windows desktop, click **Start**, click **All Programs**, click **Access IBM**, then click **Create Product Recovery discs**.
2. Follow the instructions on the screen.

To use Product Recovery discs, do the following:

Attention: When you restore the factory contents from the Product Recovery discs, all files currently on the hard disk will be deleted and replaced by the original factory contents. During the restore process, you will be given the opportunity to save one or more files currently on your hard disk drive to other media before any data is removed.

1. Insert the Rescue and Recovery disc into your CD or DVD drive.
2. Restart your computer.
3. After a short delay, the Rescue and Recovery workspace opens.

Note: If the Rescue and Recovery workspace fails to open, you might not have your startup device (CD drive or DVD drive) set correctly in your BIOS startup sequence. See "Setting a rescue device in the startup sequence" on page 18 for more information.

4. In the Rescue and Recovery menu, click **Restore your system**.
5. Click **Restore my hard drive to the original factory state** and then click **Next**.
6. Follow the instructions on the screen. Insert the appropriate Product Recovery disc when prompted.

Note: After restoring your hard disk to the original factory content, you might have to reinstall some software or drivers. See "Post-recovery notes" on page 15 for details.

Backup and recovery

The Rescue and Recovery program enables you to back up your complete hard disk contents including the operating system, data files, application programs, and personal settings. You can designate where the Rescue and Recovery program stores the backup:

- On a protected area of your hard disk
- On a second hard disk installed in your computer
- On an externally attached USB hard disk

- On a network drive
- On recordable CDs or DVDs (a recordable CD or DVD drive is required for this option)

After you have backed up your hard disk, you can restore the complete contents of the hard disk, restore selected files only, or restore only the Windows operating system and applications.

To perform a backup operation, do the following:

1. From the Windows desktop, click **Start**, click **All Programs**, click **Access IBM**, then click **IBM Rescue and Recovery**. The Rescue and Recovery program opens.
2. In the menu bar, click **Backup**; then click **Back up now**.
3. Follow the instructions on the screen.

To perform a restore operation from Rescue and Recovery, do the following:

1. From the Windows desktop, click **Start**, click **All Programs**, click **Access IBM**, then click **IBM Rescue and Recovery**. The Rescue and Recovery program opens.
2. In the menu bar, click **Restore**; then do one of the following:
 - Click **Restore your system** if you want to restore your hard disk to a previously backed-up state or to restore only the Windows operating system and applications.
 - Click **Restore files** if you want to restore only selected files from your backup.
3. Follow the instructions on the screen.

For information about performing a restore operation from the Rescue and Recovery workspace, see “Using the rescue and recovery workspace.”

Using the rescue and recovery workspace

The Rescue and Recovery workspace resides in a protected, hidden area of your hard disk that operates independently from the Windows operating system. This enables you to perform recovery operations even if the Windows operating system cannot be started. You can perform the following recovery operations from the Rescue and Recovery workspace:

- **Rescue files from your hard disk or from a backup:** The Rescue and Recovery workspace enables you to locate files on your hard disk and transfer them to a network drive or other recordable media such as a USB hard disk drive or a diskette. This solution is available even if you did not back up your files or if changes were made to the files since your last

backup operation. You also can rescue individual files from a Rescue and Recovery backup located on your local hard disk, a USB device, or a network drive.

- **Restore your hard disk from Rescue and Recovery backup:** Once you perform a backup operation using the Rescue and Recovery program, you can perform restore operations from the Rescue and Recovery workspace, even if you cannot start Windows.
- **Restore your hard disk to the factory contents:** The Rescue and Recovery workspace enables you to restore the complete contents of your hard disk to the same state as it was when originally shipped from the factory. If you have multiple partitions on your hard disk, you have the option to restore the factory contents to the C: partition and leave the other partitions intact. Because the Rescue and Recovery workspace operates independently from the Windows operating system, you can restore the factory contents even if you cannot start Windows.

Attention: If you restore the hard disk from a Rescue and Recovery backup or restore the hard disk to the factory contents, all files on the primary hard disk partition (usually drive C) will be deleted in the recovery process. If possible, make copies of important files. If you are unable to start Windows, you can use the Rescue files feature in the Rescue and Recovery workspace to copy files from your hard disk to other media.

To start the Rescue and Recovery workspace, do the following:

1. Turn off your computer for at least 5 seconds.
2. Repeatedly press and release the Enter or F11 key as you turn on your computer.
3. When you hear beeps or see a logo screen, stop pressing and releasing the Enter or F11 key.
4. If you set a Rescue and Recovery password, type your password when prompted. The Rescue and Recovery workspace opens after a short delay.

Note: If the Rescue and Recovery workspace fails to open, see “Solving recovery problems” on page 15.

5. Do one of the of the following:
 - To rescue files from your hard disk or from a backup, click **Rescue files**; then, follow the instructions on the screen.
 - To restore your hard disk from a Rescue and Recovery backup or to restore your hard drive to the factory contents, click **Restore your system**; then, follow the instructions on the screen.

Note: After restoring your hard disk to the original factory content, you might have to reinstall some software o drivers. See “Post-recovery notes” for details.

- For information about other features of the Rescue and Recovery workspace, click **Help**.

Post-recovery notes

Notes:

1. After restoring a hard disk to the original factory contents you might have to reinstall device drivers for some devices. See “Recovering or installing device drivers” on page 17.
2. Some computers come with Microsoft Office or Microsoft Works preinstalled. If you need to recover or reinstall your Microsoft Office or Microsoft Works applications, you must use the *Microsoft Office CD* or *Microsoft Works CD*. These CDs are provided only with computers that come with Microsoft Office or Microsoft Works preinstalled.

Solving recovery problems

The Rescue and Recovery workspace runs independently of the operating system. In order to gain access to the workspace, repeatedly press and release the Enter or F11 key during startup. If you are unable to start the Rescue and Recovery workspace using this method, you have three options:

- Use your rescue media (CD, DVD, or USB hard disk) to start the Rescue and Recovery workspace. See “Creating and using rescue media” on page 16 for details.
- Use a Recovery Repair diskette to reinstall a file that controls access to the Rescue and Recovery workspace. See “Creating and using a Recovery Repair diskette” on page 16 for details.
- If your intent is to restore the hard disk to its original factory contents, you can use a set of Product Recovery discs. See “Creating and using product recovery discs” on page 11.

It is a good idea to create a Recovery Repair diskette, rescue media, and a set of Product Recovery discs as soon as possible and store them in a safe place as a precautionary measure.

If you are unable to access the Rescue and Recovery workspace from rescue media or a set of Product Recovery CDs, you might not have the rescue device, CD drive, DVD drive or USB hard disk drive, defined as a startup device in the BIOS startup sequence. See “Setting a rescue device in the startup sequence” on page 18 for more information.

Rescue media enables you to start the Rescue and Recovery program from CD, DVD or an externally attached USB hard disk drive. Rescue media is extremely important if you are unable to access the Rescue and Recovery program using the Enter or F11 key.

Creating and using rescue media

Rescue media enables you to start the Rescue and Recovery program from CD or DVD. Rescue media is extremely important if you are unable to access the Rescue and Recovery program using the Enter or F11 key.

To create rescue media, do the following:

1. From the Windows desktop, click **Start**, click **All Programs**, click **Access IBM**, then click **Create Rescue Media**.
2. Select the radio button for the type of rescue media you want to create.
3. Click **OK**.
4. Follow the instructions on the screen.

To use rescue media, do one of the following:

- Insert the rescue disc (CD or DVD) into your CD or DVD drive, then restart your computer.
- Attach your rescue USB hard disk drive to one of the USB connectors on your computer, then restart your computer.

When the rescue media starts, the Rescue and Recovery workspace opens. Help for each feature is available from the Rescue and Recovery workspace. If your rescue media fails to start, you might not have your rescue device (CD drive or DVD drive) set correctly in your BIOS startup sequence. See “Setting a rescue device in the startup sequence” on page 18 for more information.

Creating and using a Recovery Repair diskette

To create a Recovery Repair diskette, do the following:

1. If you are not already connected to the Internet, connect now.
2. Open an Internet browser and go to the following Web address:

<http://www.lenovo.com/think/support/site.wss/document.do?Indocid=MIGR-54483>

3. Insert a blank diskette into diskette drive A.

Note: An optional USB diskette drive is required to create a Recovery Repair diskette.

4. Double-click on the Recovery Repair `nrrepair.exe` file; then follow the instructions on the screen. The Recovery Repair diskette is created.
5. Remove the diskette and label it Recovery Repair diskette.

To use the Recovery Repair diskette, do the following:

1. Shut down the operating system and turn off the computer.

2. Insert the Recovery Repair diskette into diskette drive A.

Note: An optional USB diskette drive is required to create a Recovery Repair diskette.

3. Turn on the computer and follow the instructions on the screen.

If the repair operation finishes without error, you will be able to access the Rescue and Recovery workspace by repeatedly pressing and releasing the Enter or F11 key while you restart your computer.

If an error message appears during the repair operation and the repair operation cannot be completed, you might have a problem with the partition that contains the Rescue and Recovery workspace. Use your rescue media to access the Rescue and Recovery workspace. For information about creating and using rescue media, see “Creating and using rescue media” on page 16.

Recovering or installing device drivers

Before you can recover or install device drivers, your operating system must be installed on your computer. Make sure that you have the documentation and software media for the device.

Device drivers for factory-installed devices are located on the computer hard disk (usually drive C) in the `ibmtools\drivers` folder. Other device drivers are on the software media that come with individual devices.

The latest device drivers for factory-installed devices are also available on the World Wide Web at <http://www.lenovo.com/think/support/>.

To recover a device driver for an factory-installed device, do the following:

1. Start your computer and operating system.
2. Use Windows Explorer or My Computer to display the directory structure of your hard disk.
3. Open the `C:\IBMTOOLS` folder.
4. Open the drivers folder. Within the drivers folder are several subfolders that are named for various devices that are installed in your computer (for example, audio, video, and so on).
5. Open the appropriate subfolder.
6. Use one of the following methods to recover the device driver:
 - In the device subfolder, look for a `readme.txt` file or other file with the `.txt` extension that contains information about reinstalling the device driver. This file might be named after the operating system, such as `winxp.txt`. The text file has information on how to reinstall the device driver.

- If the device subfolder contains a file with an .inf extension, you can use the Add New Hardware program (located in the Windows Control Panel) to reinstall the device driver. Not all device drivers can be reinstalled using this program. In the Add New Hardware program, when prompted for the device driver that you want to install, click **Have Disk** and **Browse**. Then select the appropriate device-driver (.inf) file from the device subfolder.
- In the device subfolder, look for a setup.exe file. Double-click **SETUP.EXE** and follow the instructions on the screen.

Setting a rescue device in the startup sequence

Before you start recovery from a CD, DVD, USB hard disk drive, or any other external device, you must first change the startup sequence in the Setup Utility.

1. While turning on your computer, repeatedly press and release the F1 key to enter the Setup Utility.
2. Select Startup and press Enter.
3. In the Startup sequence, select your startup device.
4. Save and exit the Setup Utility.
5. Shut down the operating system and turn off the computer.
6. Do one of the following:
 - If you have an external device, connect it to your computer.
 - If you have a CD or DVD, insert it into your computer.
7. Turn on your computer.

Chapter 4. Getting information, help, and service

If you need help, service, or technical assistance or just want more information about products manufactured by Lenovo, you will find a wide variety of sources available from Lenovo to assist you. This section contains information about where to go for additional information about Lenovo, products manufactured by Lenovo, what to do if you experience a problem with your computer, and whom to call for service should it be necessary.

Getting information

Information about your computer and preinstalled software, if any, is available in the documentation that comes with your computer. That documentation includes printed books, online books, README files, and help files. In addition, information about the products Lenovo manufactures is available on the World Wide Web.

On the World Wide Web, the Web site has up-to-date information about Personal Computer products and support. The address for the Personal Computing home page is <http://www.lenovo.com/think>.

You can find support information for your products, including supported options, at <http://www.lenovo.com/think/support>.

Getting help and service

If you have a problem with your computer, you will find a wide variety of sources available to help you.

Using the documentation and diagnostic programs

Many computer problems can be solved without outside assistance. If you experience a problem with your computer, the first place to start is the troubleshooting information in your computer documentation. If you suspect a software problem, see the documentation, including README files and online help, that comes with the operating system or application program.

Most computers and servers come with a set of diagnostic programs that you can use to help you identify hardware problems. See the troubleshooting information in your computer documentation for instructions on using the diagnostic programs.

The troubleshooting information or the diagnostic programs might tell you that you need additional or updated device drivers or other software. Lenovo maintains pages on the World Wide Web where you can get the latest technical

information and download device drivers and updates. To access these pages, go to <http://www.lenovo.com/think/support> and follow the instructions.

Calling for service

If you have tried to correct the problem yourself and still need help, during the warranty period, you can get help and information by telephone through the Customer Support Center. The following services are available during the warranty period:

- **Problem determination** - Trained personnel are available to assist you with determining if you have a hardware problem and deciding what action is necessary to fix the problem.
- **hardware repair** - If the problem is determined to be caused by hardware under warranty, trained service personnel are available to provide the applicable level of service.
- **Engineering Change management** - Occasionally, there might be changes that are required after a product has been sold. Lenovo or your reseller, if authorized by Lenovo, will make selected Engineering Changes (ECs) available that apply to your hardware.

The following items are not covered:

- Replacement or use of parts not manufactured for or by Lenovo or nonwarranted Lenovo parts.
- Identification of software problem sources.
- Configuration of BIOS as part of an installation or upgrade.
- Changes, modifications, or upgrades to device drivers.
- Installation and maintenance of network operating systems (NOS).
- Installation and maintenance of application programs.

Refer to your Statement of Limited Warranty for a full explanation of warranty terms. Be sure to retain your proof of purchase to obtain warranty service.

If possible, be at your computer when you call. Please have the following information ready:

- Machine type and model
- Serial numbers of your hardware products
- Description of the problem
- Exact wording of any error messages
- Hardware and software configuration information

Telephone numbers

For a list of Service and Support phone numbers, see “Worldwide telephone list” on page 57. Phone numbers are subject to change without notice. For the most current phone numbers, go to <http://www.lenovo.com/think/support> and click **Support phone list**. If the number for your country or region is not listed, contact your Lenovo reseller or Lenovo marketing representative.

In all other countries or regions, contact your reseller or marketing representative.

Other services

If you travel with your computer or relocate it to a country where your ThinkCentre or ThinkPad machine type is sold, your computer might be eligible for International Warranty Service, which automatically entitles you to obtain warranty service throughout the warranty period. Service will be performed by service providers authorized to perform warranty service.

Service methods and procedures vary by country, and some services might not be available in all countries. International Warranty Service is delivered through the method of service (such as depot, carry-in, or on-site service) that is provided in the servicing country. Service centers in certain countries might not be able to service all models of a particular machine type. In some countries, fees and restrictions might apply at the time of service.

To determine whether your computer is eligible for International Warranty Service and to view a list of the countries where service is available, go to <http://www.lenovo.com/think/support>, click **Warranty**, and follow the instructions on the screen.

For technical assistance with the installation of, or questions related to, Service Packs for your preinstalled Microsoft Windows product, refer to the Microsoft Product Support Services Web site at <http://support.microsoft.com/directory/>, or you can contact the Customer Support Center. Some fees might apply.

Purchasing additional services

During and after the warranty period, you can purchase additional services, such as support for hardware, operating systems, and application programs; network setup and configuration; upgraded or extended hardware repair services; and custom installations. Service availability and service name might vary by country or region.

For more information about these services, see the online information.

Chapter 5. Troubleshooting and diagnostics

This chapter describes some basic troubleshooting and diagnostic tools. If your computer problem is not described here, use the Access IBM program for more detailed troubleshooting information or see “Additional help” on page xv.

Basic troubleshooting

Symptom	Action
The computer does not start when you press the power button.	<p>Verify that:</p> <ul style="list-style-type: none">• The power cord is plugged into the rear of the computer and into a working electrical outlet.• If your computer has a secondary power switch on the back of the computer, ensure that it is switched on. Check the power indicator on the front of the computer to ensure that the power is on.• The power supply and system board are working. See “Power supply and system board Diagnostic LEDs” on page 25. <p>If you cannot correct the problem, have the computer serviced.</p>
The monitor screen is blank.	<p>Verify that:</p> <ul style="list-style-type: none">• The monitor cable is securely attached to the rear of the monitor and to the rear of the computer.• The monitor power cord is plugged into the monitor and into a working electrical outlet.• The monitor is turned on, and the brightness and contrast controls are set correctly.• The monitor signal cable is securely connected to the monitor and to the monitor connector on the computer.• The power supply and system board are working. See “Power supply and system board Diagnostic LEDs” on page 25. <p>Note: If your computer has two monitor connectors, verify that your monitor is connected to the one in the PCI-express (PCI-e) connector rather than the one in the rear of the system board. See Step 4 on page 4.</p> <p>If you cannot correct the problem, have the computer serviced.</p>

Symptom	Action
<p>The keyboard does not work. The computer does not respond to the keyboard.</p>	<p>Verify that:</p> <ul style="list-style-type: none"> • The computer and monitor are turned on and the brightness and contrast controls are set correctly. • The keyboard is securely connected to the keyboard connector on the computer. • No keys are stuck. <p>If you cannot correct the problem, have the computer serviced.</p>
<p>The Enhanced Performance USB Keyboard does not work</p>	<p>Verify that:</p> <ul style="list-style-type: none"> • The computer is turned on. • The keyboard is securely connected to a USB connector on the front or rear of the computer. • No keys are stuck. <p>If you cannot correct the problem, have the computer serviced.</p>
<p>The mouse does not work. The computer does not respond to the mouse. Note: This applies to a mechanical mouse only.</p>	<p>Clean the mouse. Verify that:</p> <ul style="list-style-type: none"> • The computer and monitor are turned on and the brightness and contrast controls are set correctly. • The mouse is securely connected to the mouse connector on the computer. <p>If you cannot correct the problem, have the computer serviced.</p>
<p>The operating system will not start.</p>	<p>Verify that:</p> <ul style="list-style-type: none"> • There is no diskette in the diskette drive. • The startup sequence includes the device where the operating system resides. Usually, the operating system is on the hard disk. <p>During startup, look for the prompt to start the Setup Utility program. Press the function key that is specified.</p> <p>Verify the startup sequence in the Setup Utility program.</p> <p>If you cannot correct the problem, have the computer serviced.</p>
<p>An error code is displayed before the operating system starts.</p>	<p>Write down the code number, and see "Error codes" on page 27.</p>
<p>The computer beeps multiple times before the operating system starts.</p>	<p>Verify that no keys are stuck down.</p> <p>If you cannot correct the problem, have the computer serviced.</p>

Power supply and system board Diagnostic LEDs

Your computer has two LEDs located on the power supply on the back of the chassis. The power button LED located on the front of your computer and the two LEDs on the back will help you determine if the power supply or system board is working correctly. The following table uses the LEDs to diagnose possible power supply and system board problems.

Power Button LED	Green LED	Yellow LED	Diagnosis
Off	Off	Off	Check the following first: <ul style="list-style-type: none">• Is power cord plugged in?• Is the power strip on? Failing power supply
Off (After pressing the power button)	On	Off	Failing system board
On	On	On	Failing power supply
On	On	Off	Normal working conditions, but if your computer is not working correctly then you have a failing system board or a failing microprocessor

If you cannot correct the problem, have your computer serviced.

Note: To reset the computer once a yellow LED is on, unplug the power cord.

PC-Doctor for DOS Diagnostics

The PC-Doctor for DOS Diagnostics program runs independently of the operating system. You can use this program to test hardware components of your computer. You can use this program when other methods are not available or have not been successful in isolating a possible hardware problem.

You can run the diagnostics from the Rescue and Recovery workspace on your hard disk. Alternatively, you can create bootable diagnostics diskettes from the Rescue and Recovery workspace.

You can also download the latest version of the diagnostics program from <http://www.lenovo.com/think/support/> on the World Wide Web. Type your machine type and model number into the **Quick Path** field to find the downloadable files that are specific to your computer.

Running Diagnostics from the Rescue and Recovery workspace

Use the following steps to run diagnostics from the Rescue and Recovery workspace:

1. Shut down your operating system, and turn off the computer.
2. Repeatedly press and release the Enter or F11 key as you turn on your computer.
3. When you hear beeps or see a logo screen, stop pressing and releasing the Enter or F11 key. The Rescue and Recovery workspace opens.
4. From the main menu, select **Diagnose Hardware**.
5. Follow the prompts on the screen.
6. Restart the computer.

Creating a Diagnostics diskette

Use the following steps to create a diagnostics diskette:

1. Shut down your operating system, and turn off the computer.
2. Repeatedly press and release the Enter or F11 key as you turn on your computer.
3. When you hear beeps or see a logo screen, stop pressing and releasing the Enter or F11 key. The Rescue and Recovery workspace opens.
4. From the main menu, select **Create a diagnostics disk**.
5. Follow the instructions on the screen.
6. When prompted, insert a blank, formatted diskette into the diskette drive, and follow the instructions on the screen.

Note: An optional USB diskette drive is required to create a diagnostics diskette.

Notes:

1. You also can download the latest version of the diagnostic program from <http://www.lenovo.com/think/support/> on the World Wide Web. In the **Quick Path** field, type your machine type to find the downloadable files specific to your computer.
2. You can download a self starting bootable CD image (known as an .iso image) of the diagnostics program from <http://www.lenovo.com/think/support> to support systems without a diskette drive.

Running the Diagnostics diskette

Use the following steps to run the diagnostics diskette or CD image:

1. Shut down the operating system, and turn off the computer.

2. Insert the diagnostics diskette or CD into the drive.
3. Turn on your computer.
4. When the diagnostic program opens, follow the instructions that are displayed on the screen. For help, press F1.
5. When the program finishes, remove the diskette or CD from the drive.
6. Shut down or restart your computer.

Error codes

The following table includes some of the more common error codes that might be displayed when your computer is performing the power-on self-test (POST).

- Record error codes that are displayed. If you call for service, you will be asked for the error codes.
- If there are multiple error codes, always work to solve problems in the order in which the error codes are displayed. Usually, solving the first error code will solve succeeding ones.
- If the error code is not in the following table, more in-depth troubleshooting is required.
 - If the operating system starts when you turn on your computer, see “PC-Doctor for DOS Diagnostics” on page 25 to run diagnostics. Also, use the Access IBM program for more information on problem solving.
 - If the operating system will not start, have the computer serviced.

Code	Description	Action
135	Fan failure	Have the computer serviced.
162	A change in device configuration occurred.	Verify that: <ul style="list-style-type: none"> • All external devices are turned on. • All devices are properly installed and securely connected. Reload the default configuration settings using the Setup Utility. If you cannot correct the problem, have the computer serviced.
164	System memory size is less than expected.	Add more memory to your computer or use the Setup Utility to accept the new memory amount. If you cannot correct the problem, have the computer serviced.

Code	Description	Action
210 or 211	A keyboard error has occurred.	Verify that: <ul style="list-style-type: none"> • The keyboard is properly connected. • No keys on the keyboard are stuck. If you cannot correct the problem, have the computer serviced.
250	The battery is defective.	Replace the battery. See the battery replacement procedure in your online <i>User Guide</i> , which is available through the Access IBM program.
270 or 271	Real time clock error	Set the date and time using the Setup Utility. If you cannot correct the problem, have the computer serviced.
662	A change in configuration occurred.	A diskette drive has been added or removed. <ul style="list-style-type: none"> • Restore the original hardware. Or <ul style="list-style-type: none"> • Accept the new configuration using the Setup Utility. If you cannot correct the problem, have the computer serviced.
1762	A change in configuration occurred.	A hard disk drive has been added or removed. <ul style="list-style-type: none"> • Restore the original hardware. Or <ul style="list-style-type: none"> • Accept the new configuration using the Setup Utility. If you cannot correct the problem, have the computer serviced.
1962	No operating system found or no device in the startup sequence has a valid boot record.	Change the startup sequence using the Setup Utility. If you cannot correct the problem, have the computer serviced.

Code	Description	Action
5962	A change in configuration occurred.	An ATAPI device has been added or removed. <ul style="list-style-type: none"> • Restore the original hardware. Or <ul style="list-style-type: none"> • Accept the new configuration using the Setup Utility. If you cannot correct the problem, have the computer serviced.
8603	Pointing device error No mouse was detected.	<ul style="list-style-type: none"> • Install a mouse. Or <ul style="list-style-type: none"> • Set the mouse option correctly using the Setup Utility. If you cannot correct the problem, have the computer serviced.

POST beep codes

Another way for POST to notify you of errors is through a series of audible beeps. A beep pattern represents a numeric value and provides further information about the location of a potential problem.

The following are the most common POST beep codes that you might hear when starting your computer.

Beep pattern	Description	Action
1 long and 2 short beeps	No on-screen message. Beeps occur before video initialization.	Remove and reinstall the dual inline memory modules (DIMMs). If the problem persists, have the computer serviced.
1 long beep followed by a series of short beeps	External ROM failure (such as VGA)	If the problem persists, have the computer serviced.
2 short beeps	A POST error occurred.	If you have changed the hardware configuration, go into the Setup Utility and exit to save setting. Otherwise refer to error code section to resolve error.
1 short - 3 short - 3 short - 1 short	No memory or no configuration memory	Reinstall the memory. If problem persists, replace the memory.

Beep pattern	Description	Action
4 sets of 4 short beeps	POV tamper; POV binding information does not match.	Make sure the original POV card is properly in its socket.

Here are some general guidelines for working with POST beep codes:

- Record any beep patterns that you hear. If you call for service, you will be asked for the beep patterns.
- If the beep pattern is not in this book, more in-depth troubleshooting is required.
 - If the operating system starts when you turn on your computer, use the Access IBM program to learn how to run diagnostics and see the entire online troubleshooting procedures.
 - If the operating system will not start, have the computer serviced.

Appendix A. IBM Lotus Software Offer

About the offer: As a qualifying ThinkCentre or ThinkPad personal computer customer, you are receiving a single, limited license for the Lotus Notes® "standalone" client and a single license for the Lotus® SmartSuite® software. These licenses entitle you to install and use this software on your new ThinkCentre or ThinkPad personal computer using one of the following options:

- **Media for this software is not included in this offer. If you do not already have the appropriate Lotus Notes Client or Lotus SmartSuite software media,** you can order a CD and install the software onto your computer.** Use one of the methods listed on the following page to order.
- **If you already have a licensed copy of the software,** you are entitled to make and use one additional copy of the software you have.

About IBM Lotus Notes: With your standalone, limited use Notes® client, you can integrate your most valuable messaging, collaborative and personal information management (PIM) resources -like e-mail, calendar, to-do list - allowing you to access them while connected to or disconnected from your network. The standalone license does not include the right to access any IBM Lotus Domino® servers; however this stand-alone license may be upgraded to a full Notes license at a reduced price. For more information visit <http://www.lotus.com/notes>.

About IBM Lotus SmartSuite: Lotus SmartSuite contains powerful applications with timesaving features that give you a head start on your work and guide you through individual tasks.

- Lotus Word Pro® – Word Processor
- Lotus 1-2-3® – Spreadsheet
- Lotus Freelance Graphics® – Presentation Graphics
- Lotus Approach® – Database
- Lotus Organizer® – Time, Contact, and Information Manager
- Lotus FastSite® – Web Publisher
- Lotus SmartCenter – Internet Information Manager

Customer Support: For support information and phone numbers to help with initial installation of software, visit <http://www.lenovo.com/think/support>. To purchase technical support beyond this initial installation support, visit <http://www.lotus.com/passport>.

International License Agreement: The software licensed to you under this offer does not include software upgrades or technical support, and is subject to the terms and conditions of the IBM International Program License Agreement (IPLA) that accompanies the software. Your use of the Lotus SmartSuite and

Lotus Notes programs described in this offer constitutes acceptance of the terms of this Offer and the IPLA. For further information regarding the IBM IPLA, visit <http://www.ibm.com/software/sla/sladb.nsf>. These programs are not for resale.

Proof of Entitlement: The proof of purchase for your qualifying personal computer, as well as this Offer document, should be retained as your proof of entitlement.

Purchasing Upgrades, Additional Licenses and Technical Support

Software upgrades and technical support are available for a fee through IBM's Passport Advantage® Program. For information about purchasing additional licenses for Notes, SmartSuite, or other Lotus products, visit <http://www.ibm.com> or <http://www.lotus.com/passport>.

To order a CD:

****Important:** Pursuant to this Offer, you may order one CD media per license. You will need to provide the 7 digit serial number of the new ThinkCentre or ThinkPad personal computer that you purchased. The CD is provided at no charge; however, applicable shipping, duties and taxes may be imposed by local jurisdictions. Please allow 10 to 20 business days from receipt of your request for delivery.

- **In U. S. Or Canada:**

- Call 1-800-690-3899

- **In Latin American Countries:**

- Via the Internet: <http://smartsuite.modusmedia.com>

- Mail address:

- IBM - Lotus Notes and SmartSuite Program
Modus Media International
501 Innovation Avenue
Morrisville, NC, USA 27560

Fax: 919-405-4495

To inquire about an order, contact:
Smartsuite_ibm@modusmedia.com

- **In European Countries:**

- Via the Internet: <http://ibm.modusmedia.co.uk>

- Mail address:

- IBM - Lotus Notes and SmartSuite Program
P.O. Box 3118
Cumbernauld, Scotland, G68 9JX

To inquire about an order, contact:
ibm_smartsuite@modusmedia.com

- **In Asia Pacific Countries:**

- Via the Internet: <http://smartsuite.modusmedia.com>

- Mail address:

- IBM - Lotus Notes and SmartSuite Program

- Modus Media International

- eFulfillment Solution Center

- 750 Chai Chee Road

- #03-10/14, Technopark at Chai Chee,

- Singapore 469000

Fax: +65 6448 5830

To inquire about an order, contact:

Smartsuiteapac@modusmedia.com

Appendix B. Lenovo Statement of Limited Warranty

LSOLW-00 05/2005

Part 1 - General Terms

*This Statement of Limited Warranty includes Part 1 - General Terms, Part 2 - Country-unique Terms, and Part 3 - Warranty Information. The terms of Part 2 replace or modify those of Part 1. The warranties provided by Lenovo Group Limited or one of its subsidiaries (called "Lenovo") in this Statement of Limited Warranty apply only to Machines you purchase for your use, and not for resale. The term "Machine" means a Lenovo machine, its options, features, conversions, upgrades or peripheral products, or any combination of them. The term "Machine" does not include any software programs, whether pre-loaded with the Machine, installed subsequently or otherwise. **Nothing in this Statement of Limited Warranty affects any statutory rights of consumers that cannot be waived or limited by contract.***

What this Warranty Covers

Lenovo warrants that each Machine 1) is free from defects in materials and workmanship and 2) conforms to Lenovo's Official Published Specifications ("Specifications") which are available on request. The warranty period for the Machine starts on the original date of installation and is specified in Part 3 - Warranty Information. The date on your invoice or sales receipt is the date of installation unless Lenovo or your reseller informs you otherwise. Unless Lenovo specifies otherwise, these warranties apply only in the country or region in which you purchased the Machine.

THESE WARRANTIES ARE YOUR EXCLUSIVE WARRANTIES AND REPLACE ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. SOME STATES OR JURISDICTIONS DO NOT ALLOW THE EXCLUSION OF EXPRESS OR IMPLIED WARRANTIES, SO THE ABOVE EXCLUSION MAY NOT APPLY TO YOU. IN THAT EVENT, SUCH WARRANTIES ARE LIMITED IN DURATION TO THE WARRANTY PERIOD. NO WARRANTIES APPLY AFTER THAT PERIOD. SOME STATES OR JURISDICTIONS DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

What this Warranty Does not Cover

This warranty does not cover the following:

- any software programs, whether pre-loaded or shipped with the Machine, or installed subsequently;
- failure resulting from misuse, accident, modification, unsuitable physical or operating environment, or improper maintenance by you;
- failure caused by a product for which Lenovo is not responsible; and
- any non-Lenovo products, including those that Lenovo may procure and provide with or integrate into a Lenovo Machine at your request.

The warranty is voided by removal or alteration of identification labels on the Machine or its parts.

Lenovo does not warrant uninterrupted or error-free operation of a Machine.

Any technical or other support provided for a Machine under warranty, such as assistance with "how-to" questions and those regarding Machine set-up and installation, is provided **WITHOUT WARRANTIES OF ANY KIND**.

How to Obtain Warranty Service

Warranty service may be provided by Lenovo, IBM, your reseller if authorized to perform warranty service, or an authorized warranty service provider. Each of them is referred to as a "Service Provider."

If the Machine does not function as warranted during the warranty period, contact a Service Provider. If you do not register the Machine with Lenovo, you may be required to present proof of purchase as evidence of your entitlement to warranty service.

What Lenovo Will Do to Correct Problems

When you contact a Service Provider for service, you must follow the problem determination and resolution procedures that we specify. An initial diagnosis of your problem can be made either by a technician over the telephone or electronically by access to a support website.

The type of warranty service applicable to your Machine is specified in Part 3 - Warranty Information.

You are responsible for downloading and installing designated software updates from a support web site or from other electronic media, and following the instructions that your Service Provider provides. Software updates may include basic input/output system code (called "BIOS"), utility programs, device drivers, and other software updates.

If your problem can be resolved with a Customer Replaceable Unit ("CRU") (e.g., keyboard, mouse, speaker, memory, hard disk drive), your Service Provider will ship the CRU to you for you to install.

If the Machine does not function as warranted during the warranty period and your problem cannot be resolved over the telephone or electronically, through your application of software updates, or with a CRU, your Service Provider, will either, at its discretion, 1) repair it to make it function as warranted, or 2) replace it with one that is at least functionally equivalent. If your Service Provider is unable to do either, you may return the Machine to your place of purchase and your money will be refunded.

As part of the warranty service, your Service Provider may also install selected engineering changes that apply to the Machine.

Exchange of a Machine or Part

When the warranty service involves the exchange of a Machine or part, the item your Service Provider replaces becomes Lenovo's property and the replacement becomes yours. You represent that all removed items are genuine and unaltered. The replacement may not be new, but will be in good working order and at least functionally equivalent to the item replaced. The replacement assumes the warranty service status of the replaced item.

Your Additional Responsibilities

Before your Service Provider exchanges a Machine or part, you agree to remove all features, parts, options, alterations, and attachments not under warranty service.

You also agree to:

1. ensure that the Machine is free of any legal obligations or restrictions that prevent its exchange;
2. obtain authorization from the owner to have your Service Provider service a Machine that you do not own; and
3. where applicable, before service is provided:
 - a. follow the service request procedures that your Service Provider provides;
 - b. backup or secure all programs, data, and funds contained in the Machine; and
 - c. provide your Service Provider with sufficient, free, and safe access to your facilities to permit Lenovo to fulfill its obligations.
4. (a) ensure all information about identified or identifiable individuals (Personal Data) is deleted from the Machine (to the extent technically possible), (b) allow your Service Provider or a supplier to process on your behalf any remaining Personal Data as your Service Provider considers necessary to fulfill its obligations under this Statement of Limited Warranty (which may include shipping the Machine for such processing to other service locations around the world), and (c) ensure that such processing complies with any laws applicable to such Personal Data.

Limitation of Liability

Lenovo is responsible for loss of, or damage to, your Machine only while it is 1) in your Service Provider's possession or 2) in transit in those cases where Lenovo is responsible for the transportation charges.

Neither Lenovo nor your Service Provider are responsible for any of your confidential, proprietary or personal information contained in a Machine which you return for any reason. You should remove all such information from the Machine prior to its return.

Circumstances may arise where, because of a default on Lenovo's part or other liability, you are entitled to recover damages from Lenovo. In each such instance, regardless of the basis on which you are entitled to claim damages from Lenovo (including fundamental breach, negligence, misrepresentation, or other contract or tort claim), except for any liability that cannot be waived or limited by applicable laws, Lenovo is liable for no more than

1. damages for bodily injury (including death) and damage to real property and tangible personal property for which Lenovo is legally liable; and
2. the amount of any other actual direct damages, up to the charges for the Machine that is subject of the claim.

This limit also applies to Lenovo's suppliers, resellers and your Service Provider. It is the maximum for which Lenovo, its suppliers, resellers, and your Service Provider are collectively responsible.

UNDER NO CIRCUMSTANCES IS LENOVO, ITS SUPPLIERS, RESELLERS OR SERVICE PROVIDERS LIABLE FOR ANY OF THE FOLLOWING EVEN IF INFORMED OF THEIR POSSIBILITY: 1) THIRD PARTY CLAIMS AGAINST YOU FOR DAMAGES (OTHER THAN THOSE UNDER THE FIRST ITEM LISTED ABOVE); 2) LOSS OF, OR DAMAGE TO, DATA; 3) SPECIAL, INCIDENTAL, OR INDIRECT DAMAGES OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES; OR 4) LOST PROFITS, BUSINESS REVENUE, GOODWILL OR ANTICIPATED SAVINGS. SOME STATES OR JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

Governing Law

Both you and Lenovo consent to the application of the laws of the country in which you acquired the Machine to govern, interpret, and enforce all of your and Lenovo's rights, duties, and obligations arising from, or relating in any manner to, the subject matter of this Statement of Limited Warranty, without regard to conflict of law principles.

THESE WARRANTIES GIVE YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE OR JURISDICTION TO JURISDICTION.

Jurisdiction

All of our rights, duties, and obligations are subject to the courts of the country in which you acquired the Machine.

Part 2 - Country-unique Terms

AMERICAS

ARGENTINA

Jurisdiction: *The following is added after the first sentence:*

Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the Ordinary Commercial Court of the city of Buenos Aires.

BOLIVIA

Jurisdiction: *The following is added after the first sentence:*

Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the courts of the city of La Paz.

BRAZIL

Jurisdiction: *The following is added after the first sentence:*

Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the court of Rio de Janeiro, RJ.

CHILE

Jurisdiction: *The following is added after the first sentence:*

Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the Civil Courts of Justice of Santiago.

COLOMBIA

Jurisdiction: *The following is added after the first sentence:*

Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the Judges of the Republic of Colombia.

ECUADOR

Jurisdiction: *The following is added after the first sentence:*

Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the Judges of Quito.

MEXICO

Jurisdiction: *The following is added after the first sentence:*

Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the Federal Courts of Mexico City, Federal District.

PARAGUAY

Jurisdiction: *The following is added after the first sentence:*

Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the courts of the city of Asuncion.

PERU

Jurisdiction: *The following is added after the first sentence:*

Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the Judges and Tribunals of the Judicial District of Lima, Cercado.

Limitation of Liability: *The following is added at the end of this section:*

In accordance with Article 1328 of the Peruvian Civil Code the limitations and exclusions specified in this section will not apply to damages caused by Lenovo's willful misconduct ("dolo") or gross negligence ("culpa inexcusable").

URUGUAY

Jurisdiction: *The following is added after the first sentence:*

Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the City of Montevideo Court's Jurisdiction.

VENEZUELA

Jurisdiction: *The following is added after the first sentence:*

Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the Courts of the Metropolitan Area Of the City of Caracas.

NORTH AMERICA

How to Obtain Warranty Service: *The following is added to this Section:*

To obtain warranty service from IBM service in Canada or the United States, call 1-800-IBM-SERV (426-7378).

CANADA

Limitation of Liability: *The following replaces item 1 of this section:*

1. damages for bodily injury (including death) or physical harm to real property and tangible personal property caused by Lenovo's negligence; and

Governing Law: *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:*

laws in the Province of Ontario.

UNITED STATES

Governing Law: *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:*

laws of the State of New York.

ASIA PACIFIC

AUSTRALIA

What this Warranty Covers: *The following paragraph is added to this section:*

The warranties specified in this Section are in addition to any rights you may have under the Trade Practices Act 1974 or other similar legislation and are only limited to the extent permitted by the applicable legislation.

Limitation of Liability: *The following is added to this section:*

Where Lenovo is in breach of a condition or warranty implied by the Trade Practices Act 1974 or other similar legislation, Lenovo's liability is limited to the repair or replacement of the goods or the supply of equivalent goods. Where that condition or warranty relates to right to sell, quiet possession or clear title, or the goods are of a kind ordinarily acquired for personal, domestic or household use or consumption, then none of the limitations in this paragraph apply.

Governing Law: *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:*
laws of the State or Territory.

CAMBODIA AND LAOS

Governing Law: *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:*
laws of the State of New York, United States of America.

CAMBODIA, INDONESIA, AND LAOS

Arbitration: *The following is added under this heading:*

Disputes arising out of or in connection with this Statement of Limited Warranty shall be finally settled by arbitration which shall be held in Singapore in accordance with the Arbitration Rules of Singapore International Arbitration Center ("SIAC Rules") then in effect. The arbitration award shall be final and binding for the parties without appeal and shall be in writing and set forth the findings of fact and the conclusions of law.

The number of arbitrators shall be three, with each side to the dispute being entitled to appoint one arbitrator. The two arbitrators appointed by the parties shall appoint a third arbitrator who shall act as chairman of the proceedings. Vacancies in the post of chairman shall be filled by the president of the SIAC. Other vacancies shall be filled by the respective nominating party. Proceedings shall continue from the stage they were at when the vacancy occurred.

If one of the parties refuses or otherwise fails to appoint an arbitrator within 30 days of the date the other party appoints its, the first appointed arbitrator shall be the sole arbitrator, provided that the arbitrator was validly and properly appointed.

All proceedings shall be conducted, including all documents presented in such proceedings, in the English language. The English language version of this Statement of Limited Warranty prevails over any other language version.

HONG KONG S.A.R. OF CHINA AND MACAU S.A.R. OF CHINA

Governing Law: *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:*

laws of Hong Kong Special Administrative Region of China.

INDIA

Limitation of Liability: *The following replaces items 1 and 2 of this section:*

1. liability for bodily injury (including death) or damage to real property and tangible personal property will be limited to that caused by Lenovo's negligence; and
2. as to any other actual damage arising in any situation involving nonperformance by Lenovo pursuant to, or in any way related to the subject of this Statement of Limited Warranty, the charge paid by you for the individual Machine that is the subject of the claim.

Arbitration: *The following is added under this heading*

Disputes arising out of or in connection with this Statement of Limited Warranty shall be finally settled by arbitration which shall be held in Bangalore, India in accordance with the laws of India then in effect. The arbitration award shall be final and binding for the parties without appeal and shall be in writing and set forth the findings of fact and the conclusions of law.

The number of arbitrators shall be three, with each side to the dispute being entitled to appoint one arbitrator. The two arbitrators appointed by the parties shall appoint a third arbitrator who shall act as chairman of the proceedings. Vacancies in the post of chairman shall be filled by the president of the Bar Council of India. Other vacancies shall be filled by the respective nominating party. Proceedings shall continue from the stage they were at when the vacancy occurred.

If one of the parties refuses or otherwise fails to appoint an arbitrator within 30 days of the date the other party appoints its, the first appointed arbitrator shall be the sole arbitrator, provided that the arbitrator was validly and properly appointed.

All proceedings shall be conducted, including all documents presented in such proceedings, in the English language. The English language version of this Statement of Limited Warranty prevails over any other language version.

JAPAN

Governing Law: *The following sentence is added to this section:*

Any doubts concerning this Statement of Limited Warranty will be initially resolved between us in good faith and in accordance with the principle of mutual trust.

MALAYSIA

Limitation of Liability: The word "*SPECIAL*" in item 3 of the fifth paragraph is deleted.

NEW ZEALAND

What this Warranty Covers: *The following paragraph is added to this section:*

The warranties specified in this section are in addition to any rights you may have under the Consumer Guarantees Act 1993 or other legislation which cannot be excluded or limited. The Consumer Guarantees Act 1993 will not apply in respect of any goods which Lenovo provides, if you require the goods for the purposes of a business as defined in that Act.

Limitation of Liability: *The following is added to this section:*

Where Machines are not acquired for the purposes of a business as defined in the Consumer Guarantees Act 1993, the limitations in this Section are subject to the limitations in that Act.

PEOPLE'S REPUBLIC OF CHINA (PRC)

Governing Law: *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:*

laws of the State of New York, United States of America (except when local law requires otherwise).

PHILIPPINES

Limitation of Liability: *Item 3 in the fifth paragraph is replaced by the following:*

SPECIAL (INCLUDING NOMINAL AND EXEMPLARY DAMAGES), MORAL, INCIDENTAL, OR INDIRECT DAMAGES FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES; OR

Arbitration: The following is added: under this heading

Disputes arising out of or in connection with this Statement of Limited Warranty shall be finally settled by arbitration which shall be held in Metro Manila, Philippines in accordance with the laws of the Philippines then in effect. The arbitration award shall be final and binding for the parties without appeal and shall be in writing and set forth the findings of fact and the conclusions of law.

The number of arbitrators shall be three, with each side to the dispute being entitled to appoint one arbitrator. The two arbitrators appointed by the parties shall appoint a third arbitrator who shall act as chairman of the proceedings.

Vacancies in the post of chairman shall be filled by the president of the Philippine Dispute Resolution Center, Inc.. Other vacancies shall be filled by the respective nominating party. Proceedings shall continue from the stage they were at when the vacancy occurred.

If one of the parties refuses or otherwise fails to appoint an arbitrator within 30 days of the date the other party appoints its, the first appointed arbitrator shall be the sole arbitrator, provided that the arbitrator was validly and properly appointed.

All proceedings shall be conducted, including all documents presented in such proceedings, in the English language. The English language version of this Statement of Limited Warranty prevails over any other language version.

SINGAPORE

Limitation of Liability: *The words "SPECIAL" and "ECONOMIC" in item 3 in the fifth paragraph are deleted.*

EUROPE, MIDDLE EAST, AFRICA (EMEA)

THE FOLLOWING TERMS APPLY TO ALL EMEA COUNTRIES:

The terms of this Statement of Limited Warranty apply to Machines purchased from Lenovo or a Lenovo reseller.

How to Obtain Warranty Service:

*Add the following paragraph in **Western Europe** (Andorra, Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Netherlands, Norway, Poland, Portugal, San Marino, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom, Vatican State, and any country subsequently added to the European Union, as from the date of accession):*

The warranty for Machines acquired in Western Europe shall be valid and applicable in all Western Europe countries provided the Machines have been announced and made available in such countries.

If you purchase a Machine in one of the Western European countries, as defined above, you may obtain warranty service for that Machine in any of those countries from a Service Provider, provided the Machine has been announced and made available by Lenovo in the country in which you wish to obtain service.

If you purchased a Personal Computer Machine in Albania, Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Federal Republic of Yugoslavia, Former Yugoslav Republic of Macedonia (FYROM), Moldova, Poland, Romania, Russia, Slovak

Republic, Slovenia, or Ukraine, you may obtain warranty service for that Machine in any of those countries from a Service Provider, provided the Machine has been announced and made available by Lenovo in the country in which you wish to obtain service..

If you purchase a Machine in a Middle Eastern or African country, you may obtain warranty service for that Machine from a Service Provider within the country of purchase, provided the Machine has been announced and made available by Lenovo in that country. Warranty service in Africa is available within 50 kilometers of a Service Provider. You are responsible for transportation costs for Machines located outside 50 kilometers of a Service Provider.

Governing Law:

The phrase "the laws of the country in which you acquired the Machine" is replaced by:

1) "the laws of Austria" in **Albania, Armenia, Azerbaijan, Belarus, Bosnia-Herzegovina, Bulgaria, Croatia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, FYR Macedonia, Moldova, Poland, Romania, Russia, Slovakia, Slovenia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan, and FR Yugoslavia;** 2) "the laws of France" in **Algeria, Benin, Burkina Faso, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo Republic, Djibouti, Democratic Republic of Congo, Equatorial Guinea, French Guiana, French Polynesia, Gabon, Gambia, Guinea, Guinea-Bissau, Ivory Coast, Lebanon, Madagascar, Mali, Mauritania, Mauritius, Mayotte, Morocco, New Caledonia, Niger, Reunion, Senegal, Seychelles, Togo, Tunisia, Vanuatu, and Wallis & Futuna;** 3) "the laws of Finland" in **Estonia, Latvia, and Lithuania;** 4) "the laws of England" in **Angola, Bahrain, Botswana, Burundi, Egypt, Eritrea, Ethiopia, Ghana, Jordan, Kenya, Kuwait, Liberia, Malawi, Malta, Mozambique, Nigeria, Oman, Pakistan, Qatar, Rwanda, Sao Tome, Saudi Arabia, Sierra Leone, Somalia, Tanzania, Uganda, United Arab Emirates, the United Kingdom, West Bank/Gaza, Yemen, Zambia, and Zimbabwe;** and 5) "the laws of South Africa" in **South Africa, Namibia, Lesotho and Swaziland.**

Jurisdiction: *The following exceptions are added to this section:*

1) In **Austria** the choice of jurisdiction for all disputes arising out of this Statement of Limited Warranty and relating thereto, including its existence, will be the competent court of law in Vienna, Austria (Inner-City); 2) in **Angola, Bahrain, Botswana, Burundi, Egypt, Eritrea, Ethiopia, Ghana, Jordan, Kenya, Kuwait, Liberia, Malawi, Malta, Mozambique, Nigeria, Oman, Pakistan, Qatar, Rwanda, Sao Tome, Saudi Arabia, Sierra Leone, Somalia, Tanzania, Uganda, United Arab Emirates, West Bank/Gaza, Yemen, Zambia, and Zimbabwe** all disputes arising out of this Statement of Limited Warranty or related to its execution, including summary proceedings, will be submitted to the exclusive jurisdiction of the English courts; 3) in **Belgium and Luxembourg**, all disputes arising out of this Statement of Limited Warranty or related to its interpretation or its execution, the law, and the courts of the

capital city, of the country of your registered office and/or commercial site location only are competent; 4) **in France, Algeria, Benin, Burkina Faso, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo Republic, Djibouti, Democratic Republic of Congo, Equatorial Guinea, French Guiana, French Polynesia, Gabon, Gambia, Guinea, Guinea-Bissau, Ivory Coast, Lebanon, Madagascar, Mali, Mauritania, Mauritius, Mayotte, Morocco, New Caledonia, Niger, Reunion, Senegal, Seychelles, Togo, Tunisia, Vanuatu, and Wallis & Futuna** all disputes arising out of this Statement of Limited Warranty or related to its violation or execution, including summary proceedings, will be settled exclusively by the Commercial Court of Paris; 5) **in Russia**, all disputes arising out of or in relation to the interpretation, the violation, the termination, the nullity of the execution of this Statement of Limited Warranty shall be settled by Arbitration Court of Moscow; 6) **in South Africa, Namibia, Lesotho and Swaziland**, both of us agree to submit all disputes relating to this Statement of Limited Warranty to the jurisdiction of the High Court in Johannesburg; 7) **in Turkey** all disputes arising out of or in connection with this Statement of Limited Warranty shall be resolved by the Istanbul Central (Sultanahmet) Courts and Execution Directorates of Istanbul, the Republic of Turkey; 8) in each of the following specified countries, any legal claim arising out of this Statement of Limited Warranty will be brought before, and settled exclusively by, the competent court of a) Athens for **Greece**, b) Tel Aviv-Jaffa for **Israel**, c) Milan for **Italy**, d) Lisbon for **Portugal**, and e) Madrid for **Spain**; and 9) **in the United Kingdom**, both of us agree to submit all disputes relating to this Statement of Limited Warranty to the jurisdiction of the English courts.

Arbitration: *The following is added under this heading:*

In Albania, Armenia, Azerbaijan, Belarus, Bosnia-Herzegovina, Bulgaria, Croatia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, FYR Macedonia, Moldova, Poland, Romania, Russia, Slovakia, Slovenia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan, and FR Yugoslavia all disputes arising out of this Statement of Limited Warranty or related to its violation, termination or nullity will be finally settled under the Rules of Arbitration and Conciliation of the International Arbitral Center of the Federal Economic Chamber in Vienna (Vienna Rules) by three arbitrators appointed in accordance with these rules. The arbitration will be held in Vienna, Austria, and the official language of the proceedings will be English. The decision of the arbitrators will be final and binding upon both parties. Therefore, pursuant to paragraph 598 (2) of the Austrian Code of Civil Procedure, the parties expressly waive the application of paragraph 595 (1) figure 7 of the Code. Lenovo may, however, institute proceedings in a competent court in the country of installation.

In Estonia, Latvia and Lithuania all disputes arising in connection with this Statement of Limited Warranty will be finally settled in arbitration that will be held in Helsinki, Finland in accordance with the arbitration laws of Finland then in effect. Each party will appoint one arbitrator. The arbitrators will then

jointly appoint the chairman. If arbitrators cannot agree on the chairman, then the Central Chamber of Commerce in Helsinki will appoint the chairman.

EUROPEAN UNION (EU)

THE FOLLOWING TERMS APPLY TO ALL EU COUNTRIES:

The warranty for Machines acquired in EU countries is valid and applicable in all EU countries provided the Machines have been announced and made available in such countries.

How to Obtain Warranty Service: *The following is added to this section:*

To obtain warranty service from IBM service in EU countries, see the telephone listing in Part 3 - Warranty Information.

You may contact IBM service at the following address:

IBM Warranty & Service Quality Dept.
PO Box 30
Spango Valley
Greenock
Scotland PA16 0AH

CONSUMERS

Consumers have legal rights under applicable national legislation governing the sale of consumer goods. Such rights are not affected by the warranties provided in this Statement of Limited Warranty.

AUSTRIA, DENMARK, FINLAND, GREECE, ITALY, NETHERLANDS, NORWAY, PORTUGAL, SPAIN, SWEDEN AND SWITZERLAND

Limitation of Liability: *The following replaces the terms of this section in its entirety:*

Except as otherwise provided by mandatory law:

1. Lenovo's liability for any damages and losses that may arise as a consequence of the fulfillment of its obligations under or in connection with this Statement of Limited Warranty or due to any other cause related to this Statement of Limited Warranty is limited to the compensation of only those damages and losses proved and actually arising as an immediate and direct consequence of the non-fulfillment of such obligations (if Lenovo is at fault) or of such cause, for a maximum amount equal to the charges you paid for the Machine.

The above limitation shall not apply to damages for bodily injuries (including death) and damages to real property and tangible personal property for which Lenovo is legally liable.

2. **UNDER NO CIRCUMSTANCES IS LENOVO, ITS SUPPLIERS, RESELLERS OR SERVICE PROVIDERS LIABLE FOR ANY OF THE FOLLOWING, EVEN IF INFORMED OF THEIR POSSIBILITY: 1) LOSS OF, OR DAMAGE TO, DATA; 2) INCIDENTAL OR INDIRECT DAMAGES, OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES;**

3) LOST PROFITS, EVEN IF THEY ARISE AS AN IMMEDIATE CONSEQUENCE OF THE EVENT THAT GENERATED THE DAMAGES; OR 4) LOSS OF BUSINESS, REVENUE, GOODWILL, OR ANTICIPATED SAVINGS.

FRANCE AND BELGIUM

Limitation of Liability: *The following replaces the terms of this section in its entirety:*

Except as otherwise provided by mandatory law:

1. Lenovo's liability for any damages and losses that may arise as a consequence of the fulfillment of its obligations under or in connection with this Statement of Limited Warranty is limited to the compensation of only those damages and losses proved and actually arising as an immediate and direct consequence of the non-fulfillment of such obligations (if Lenovo is at fault), for a maximum amount equal to the charges you paid for the Machine that has caused the damages.

The above limitation shall not apply to damages for bodily injuries (including death) and damages to real property and tangible personal property for which Lenovo is legally liable.

2. **UNDER NO CIRCUMSTANCES IS LENOVO, ITS SUPPLIERS, RESELLERS OR SERVICE PROVIDERS LIABLE FOR ANY OF THE FOLLOWING, EVEN IF INFORMED OF THEIR POSSIBILITY: 1) LOSS OF, OR DAMAGE TO, DATA; 2) INCIDENTAL OR INDIRECT DAMAGES, OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES; 3) LOST PROFITS, EVEN IF THEY ARISE AS AN IMMEDIATE CONSEQUENCE OF THE EVENT THAT GENERATED THE DAMAGES; OR 4) LOSS OF BUSINESS, REVENUE, GOODWILL, OR ANTICIPATED SAVINGS.**

THE FOLLOWING TERMS APPLY TO THE COUNTRY SPECIFIED:

AUSTRIA

The provisions of this Statement of Limited Warranty replace any applicable statutory warranties.

What this Warranty Covers: *The following replaces the first sentence of the first paragraph of this section:*

The warranty for a Lenovo Machine covers the functionality of the Machine for its normal use and the Machine's conformity to its Specifications.

The following paragraphs are added to this section:

The limitation period for consumers in action for breach of warranty is the statutory period as a minimum. In case your Service Provider is unable to repair a Lenovo Machine, you can alternatively ask for a partial refund as far as justified by the reduced value of the unrepaired Machine or ask for a cancellation of the respective agreement for such Machine and get your money refunded.

The second paragraph does not apply.

What Lenovo Will Do to Correct Problems: *The following is added to this section:*
During the warranty period, Lenovo will reimburse you for the transportation charges for the delivery of the failing Machine to IBM Service.

Limitation of Liability: *The following paragraph is added to this section:*
The limitations and exclusions specified in the Statement of Limited Warranty will not apply to damages caused by Lenovo with fraud or gross negligence and for express warranty.

The following sentence is added to the end of item 2:
Lenovo's liability under this item is limited to the violation of essential contractual terms in cases of ordinary negligence.

EGYPT

Limitation of Liability: *The following replaces item 2 in this section:*
as to any other actual direct damages, Lenovo's liability will be limited to the total amount you paid for the Machine that is the subject of the claim.

Applicability of suppliers, resellers, and Service Providers (unchanged).

FRANCE

Limitation of Liability: *The following replaces the second sentence of the first paragraph of this section:*
In such instances, regardless of the basis on which you are entitled to claim damages from Lenovo, Lenovo is liable for no more than: (items 1 and 2 unchanged).

GERMANY

What this Warranty Covers: *The following replaces the first sentence of the first paragraph of this section:*
The warranty for a Lenovo Machine covers the functionality of the Machine for its normal use and the Machine's conformity to its Specifications.

The following paragraphs are added to this section:
The minimum warranty period for Machines is twelve months. In case your Service Provider is unable to repair a Lenovo Machine, you can alternatively ask for a partial refund as far as justified by the reduced value of the unrepaired Machine or ask for a cancellation of the respective agreement for such Machine and get your money refunded.

The second paragraph does not apply.

What Lenovo Will Do to Correct Problems: *The following is added to this section:*
During the warranty period, transportation for delivery of the failing Machine to Lenovo or IBM service will be at Lenovo's expense.

Limitation of Liability: *The following paragraph is added to this section:*
The limitations and exclusions specified in the Statement of Limited Warranty will not apply to damages caused by Lenovo with fraud or gross negligence and for express warranty.

The following sentence is added to the end of item 2:
Lenovo's liability under this item is limited to the violation of essential contractual terms in cases of ordinary negligence.

HUNGARY

Limitation of Liability: *The following is added at the end of this section:*
The limitation and exclusion specified herein shall not apply to liability for a breach of contract damaging life, physical well-being, or health that has been caused intentionally, by gross negligence, or by a criminal act.

The parties accept the limitations of liability as valid provisions and state that the Section 314.(2) of the Hungarian Civil Code applies as the acquisition price as well as other advantages arising out of the present Statement of Limited Warranty balance this limitation of liability.

IRELAND

What this Warranty Covers: *The following is added to this section:*
Except as expressly provided in these terms and conditions, all statutory conditions, including all warranties implied, but without prejudice to the generality of the foregoing all warranties implied by the Sale of Goods Act 1893 or the Sale of Goods and Supply of Services Act 1980 are hereby excluded.

Limitation of Liability: *The following replaces the terms of section in its entirety:*
For the purposes of this section, a "Default" means any act, statement, omission, or negligence on the part of Lenovo in connection with, or in relation to, the subject matter of this Statement of Limited Warranty in respect of which Lenovo is legally liable to you, whether in contract or tort. A number of Defaults which together result in, or contribute to, substantially the same loss or damage will be treated as one Default occurring on the date of occurrence of the last such Default.

Circumstances may arise where, because of a Default, you are entitled to recover damages from Lenovo.

This section sets out the extent of Lenovo's liability and your sole remedy.

1. Lenovo will accept unlimited liability for death or personal injury caused by the negligence of Lenovo.
2. Subject always to the **Items for Which Lenovo is Not Liable** below, Lenovo will accept unlimited liability for physical damage to your tangible property resulting from the negligence of Lenovo.
3. Except as provided in items 1 and 2 above, Lenovo's entire liability for actual damages for any one Default will not in any event exceed 125% of the amount you paid for the Machine directly relating to the Default.

Items for Which Lenovo is Not Liable

Save with respect to any liability referred to in item 1 above, under no circumstances is Lenovo, its suppliers, resellers or Service Providers liable for any of the following, even if Lenovo or they were informed of the possibility of such losses:

1. loss of, or damage to, data;
2. special, indirect, or consequential loss; or
3. loss of profits, business, revenue, goodwill, or anticipated savings.

SLOVAKIA

Limitation of Liability: *The following is added to the end of the last paragraph:*

The limitations apply to the extent they are not prohibited under §§ 373-386 of the Slovak Commercial Code.

SOUTH AFRICA, NAMIBIA, BOTSWANA, LESOTHO AND SWAZILAND

Limitation of Liability: *The following is added to this section:*

Lenovo's entire liability to you for actual damages arising in all situations involving nonperformance by Lenovo in respect of the subject matter of this Statement of Warranty will be limited to the charge paid by you for the individual Machine that is the subject of your claim from Lenovo.

UNITED KINGDOM

Limitation of Liability: *The following replaces the terms of this section in its entirety:*

For the purposes of this section, a "Default" means any act, statement, omission, or negligence on the part of Lenovo in connection with, or in relation to, the subject matter of this Statement of Limited Warranty in respect of which Lenovo is legally liable to you, whether in contract or tort. A number of Defaults which together result in, or contribute to, substantially the same loss or damage will be treated as one Default.

Circumstances may arise where, because of a Default, you are entitled to recover damages from Lenovo.

This section sets out the extent of Lenovo's liability and your sole remedy.

1. Lenovo will accept unlimited liability for:
 - a. death or personal injury caused by the negligence of Lenovo; and

- b. any breach of its obligations implied by Section 12 of the Sale of Goods Act 1979 or Section 2 of the Supply of Goods and Services Act 1982, or any statutory modification or re-enactment of either such Section.
2. Lenovo will accept unlimited liability, subject always to the **Items for Which Lenovo is Not Liable** below, for physical damage to your tangible property resulting from the negligence of Lenovo.
3. Lenovo's entire liability for actual damages for any one Default will not in any event, except as provided in items 1 and 2 above, exceed 125% of the total purchase price payable or the charges for the Machine directly relating to the Default.

These limits also apply to Lenovo's suppliers, resellers and Service Providers. They state the maximum for which Lenovo and such suppliers, resellers and Service Providers are collectively responsible.

Items for Which Lenovo is Not Liable

Save with respect to any liability referred to in item 1 above, under no circumstances is Lenovo or any of its suppliers, resellers or Service Providers liable for any of the following, even if Lenovo or they were informed of the possibility of such losses:

1. loss of, or damage to, data;
2. special, indirect, or consequential loss; or
3. loss of profits, business, revenue, goodwill, or anticipated savings.

Part 3 - Warranty Information

This Part 3 provides information regarding the warranty applicable to your Machine, including the warranty period and type of warranty service Lenovo provides.

Warranty Period

The warranty period may vary by country or region and is specified in the table below. NOTE: "Region" means either Hong Kong or Macau Special Administrative Region of China.

A warranty period of 3 years on parts and 1 year on labor means that Lenovo provides warranty service without charge for:

- a. parts and labor during the first year of the warranty period; and
- b. parts only, on an exchange basis, in the second and third years of the warranty period. Your Service Provider will charge you for any labor provided in performance of the repair or replacement(s) in the second and third year of warranty period.

Machine Type	Country or Region of Purchase	Warranty Period	Types of Warranty Service
8104	United States, Canada, Latin America, Argentina, Europe, Middle East, Africa, Japan, Australia, New Zealand, Bangladesh, India, Indonesia, Malaysia, Philippines, Singapore, Sri Lanka, Vietnam, Brunei, Thailand, Korea, PRC (China), China (Hong Kong S.A.R), and Taiwan	Parts and Labor - 3 years	5
8105	United States, Canada, Latin America, Argentina, Australia, New Zealand, Bangladesh, India, Indonesia, Malaysia, Philippines, Singapore, Sri Lanka, Vietnam, Brunei, Thailand, Korea, PRC (China), China (Hong Kong S.A.R), and Taiwan	Parts and Labor - 1 year	5
8106	United States, Canada, Latin America, Argentina, Europe, Middle East, Africa, Japan, Australia, New Zealand, Bangladesh, India, Indonesia, Malaysia, Philippines, Singapore, Sri Lanka, Vietnam, Brunei, Thailand, Korea, PRC (China), China (Hong Kong S.A.R), and Taiwan	Parts and Labor - 3 years	5
8107	United States, Canada, Latin America, Argentina, Australia, New Zealand, Bangladesh, India, Indonesia, Malaysia, Philippines, Singapore, Sri Lanka, Vietnam, Brunei, Thailand, Korea, PRC (China), China (Hong Kong S.A.R), and Taiwan	Parts and Labor - 3 years	5
8108	Latin America, Argentina, Australia, New Zealand, Bangladesh, India, Indonesia, Malaysia, Philippines, Singapore, Sri Lanka, Vietnam, Brunei, Thailand, Korea, PRC (China), China (Hong Kong S.A.R), and Taiwan	Parts and Labor - 1 year	5

Machine Type	Country or Region of Purchase	Warranty Period	Types of Warranty Service
8109	Australia and New Zealand	Parts and Labor - 3 years	1
	Latin America	Parts - 3 years	7
		Labor - 1 year	
	Bangladesh, India, Indonesia, Malaysia, Philippines, Singapore, Sri Lanka, Vietnam, Brunei, Thailand, PRC (China), China (Hong Kong S.A.R), and Taiwan	Parts - 3 years	5
		Labor - 1 year	
Europe, Middle East, and Africa	Parts and Labor - 1 year	7	
8117	United States, Canada, Australia, New Zealand, Bangladesh, India, Indonesia, Malaysia, Philippines, Singapore, Sri Lanka, Vietnam, Brunei, Thailand, Korea, PRC (China), China (Hong Kong S.A.R), and Taiwan	Parts and Labor - 1 year	5
	Latin America and Argentina	Parts and Labor - 1 year	7
8118	Europe, Middle East, and Africa	Parts and Labor - 3 years	5
	Australia and New Zealand	Parts and Labor - 3 years	1
	Latin America, Bangladesh, India, Indonesia, Malaysia, Philippines, Singapore, Sri Lanka, Vietnam, Brunei, Thailand, PRC (China), China (Hong Kong S.A.R), and Taiwan	Parts - 3 years	5
		Labor - 1 year	
8119	Australia and New Zealand	Parts and Labor - 3 years	1
	Latin America	Parts - 3 years	7
		Labor - 1 year	
	Bangladesh, India, Indonesia, Malaysia, Philippines, Singapore, Sri Lanka, Vietnam, Brunei, Thailand, PRC (China), China (Hong Kong S.A.R), and Taiwan	Parts - 3 years	5
		Labor - 1 year	

Machine Type	Country or Region of Purchase	Warranty Period	Types of Warranty Service
8120	United States, Canada, Latin America, Argentina, Europe, Middle East, Africa, Japan, Australia, New Zealand, Bangladesh, India, Indonesia, Malaysia, Philippines, Sinagapore, Sri Lanka, Vietnam, Brunei, Thailand, Korea, PRC (China), China (Hong Kong S.A.R), and Taiwan	Parts and Labor - 4 years	5
8121	United States, Canada, Latin America, Argentina, Europe, Middle East, Africa, Australia, New Zealand, Bangladesh, India, Indonesia, Malaysia, Philippines, Sinagapore, Sri Lanka, Vietnam, Brunei, Thailand, Korea, PRC (China), China (Hong Kong S.A.R), and Taiwan	Parts and Labor - 3 years	5

Types of Warranty Service

If required, your Service Provider will provide repair or exchange service depending on the type of warranty service specified for your Machine in the above table and as described below. Scheduling of service will depend upon the time of your call and is subject to parts availability. Service levels are response time objectives and are not guaranteed. The specified level of warranty service may not be available in all worldwide locations, additional charges may apply outside your Service Provider’s normal service area, contact your local Service Provider representative or your reseller for country and location specific information.

1. Customer Replaceable Unit (“CRU”) Service

Lenovo will ship CRUs to you for you to install, Tier 1 CRUs are easy to install whereas Tier 2 CRUs require some technical skill and tools. CRU information and replacement instructions are shipped with your Machine and are available from Lenovo at any time on your request. You may request that a Service Provider install CRUs, at no additional charge, under the type of warranty service designated for your Machine. Lenovo specifies in the materials shipped with a replacement CRU whether a defective CRU must be returned. When return is required, 1) return instructions and a container are shipped with the replacement CRU, and 2) you may be charged for the replacement CRU if Lenovo does not receive the defective CRU within 30 days of your receipt of the replacement.

2. On-site Service

Your Service Provider will either repair or exchange the failing Machine at your location and verify its operation. You must provide suitable working area to allow disassembly and reassembly of the Lenovo Machine. The area must be clean, well lit and suitable for the purpose. For some Machines, certain repairs may require sending the Machine to a designated service center.

3. Courier or Depot Service *

You will disconnect the failing Machine for collection arranged by your Service Provider. A shipping container will be provided to you for you to return your Machine to a designated service center. A courier will pick up your Machine and deliver it to the designated service center. Following its repair or exchange, the service center will arrange the return delivery of the Machine to your location. You are responsible for its installation and verification.

4. Customer Carry-In or Mail-In Service

You will deliver or mail as your Service Provider specifies (prepaid unless specified otherwise) the failing Machine suitably packaged to a designated location. After the Machine has been repaired or exchanged, it will be made available for your collection or, for Mail-in Service, the Machine will be returned to you at Lenovo's expense, unless your Service Provider specifies otherwise. You are responsible for the subsequent installation and verification of the Machine.

5. CRU and On-site Service

This type of Warranty Service is a combination of Type 1 and Type 2 (see above).

6. CRU and Courier or Depot Service

This type of Warranty Service is a combination of Type 1 and Type 3 (see above).

7. CRU and Customer Carry-In or Mail-In Service

This type of Warranty Service is a combination of Type 1 and Type 4 (see above).

When a 5, 6 or 7 type of warranty service is listed, your Service Provider will determine which type of warranty service is appropriate for the repair.

* This type of service is called ThinkPad EasyServ or EasyServ in some countries.

To obtain warranty service contact a Service Provider. In Canada or the United States, call 1-800-IBM-SERV (426-7378). In other countries, see the telephone numbers below.

Worldwide telephone list

Phone numbers are subject to change without notice. For the most current phone numbers, go to <http://www.lenovo.com/think/support> and click **Support phone list**.

Country or Region	Telephone Number
Africa	Africa: +44 (0)1475-555-055 South Africa: +27-11-3028888 and 0800110756 Central Africa: Contact the nearest IBM Business Partner
Argentina	0800-666-0011 (Spanish)
Australia	131-426 (English)
Austria	Up and running support: 01-24592-5901 Warranty service and support: 01-211-454-610 (German)
Belgium	Up and running support: 02-210-9820 (Dutch) Up and running support: 02-210-9800 (French) Warranty service and support: 02-225-3611 (Dutch, French)
Bolivia	0800-0189 (Spanish)
Brazil	Sao Paulo region: (11) 3889-8986 Toll free outside Sao Paulo region: 0800-7014-815 (Brazilian Portuguese)
Canada	1-800-565-3344 (English, French) In Toronto only call: 416-383-3344
Chile	800-224-488 (Spanish)
China	800-810-1818 (Mandarin)
China (Hong Kong S.A.R.)	Home PC: 852-2825-7799 Commercial PC: 852-8205-0333 ThinkPad and WorkPad: 852-2825-6580 (Cantonese, English, Putonghua)
Colombia	1-800-912-3021 (Spanish)
Costa Rica	284-3911 (Spanish)
Croatia	0800-0426
Cyprus	+357-22-841100
Czech Republic	+420-2-7213-1316
Denmark	Up and running support: 4520-8200 Warranty service and support: 7010-5150 (Danish)
Dominican Republic	566-4755 566-5161 ext. 8201 Toll Free within the Dominican Republic: 1-200-1929 (Spanish)
Ecuador	1-800-426911 (Spanish)
El Salvador	250-5696 (Spanish)

Country or Region	Telephone Number
Estonia	+386-61-1796-699
Finland	Up and running support: 09-459-6960 Warranty service and support: +358-800-1-4260 (Finnish)
France	Up and running support: 0238-557-450 Warranty service and support (hardware): 0810-631-213 Warranty service and support (software): 0810-631-020 (French)
Germany	Up and running support: 07032-15-49201 Warranty service and support: 01805-25-35-58 (German)
Greece	+30-210-680-1700
Guatemala	335-8490 (Spanish)
Honduras	Tegucigalpa & San Pedro Sula: 232-4222 San Pedro Sula: 552-2234 (Spanish)
Hungary	+36-1-382-5720
India	1600-44-6666 Alternate Toll Free: +91-80-2678-8940 (English)
Indonesia	800-140-3555 +62-21-251-2955 (English, Bahasa, Indonesian)
Ireland	Up and running support: 01-815-9202 Warranty service and support: 01-881-1444 (English)
Italy	Up and running support: 02-7031-6101 Warranty service and support: +39-800-820094 (Italian)

Country or Region	Telephone Number
Japan	<p>Desktop: Toll free: 0120-887-870 For International: +81-46-266-4724</p> <p>ThinkPad: Toll free: 0120-887-874 For International: +81-46-266-4724</p> <p>Both of the above numbers will be answered with a Japanese language voice prompt. For telephone support in English, please wait for the Japanese voice prompt to end, and an operator will answer. Please ask for "English support please," and your call will be transferred to an English speaking operator.</p> <p>PC Software: 0120-558-695 Overseas calls: +81-44-200-8666 (Japanese)</p>
Korea	1588-5801 (Korean)
Latvia	+386-61-1796-699
Lithuania	+386-61-1796-699
Luxembourg	+352-298-977-5063 (French)
Malaysia	1800-88-8558 (English, Bahasa, Melayu)
Malta	+356-23-4175
Mexico	001-866-434-2080 (Spanish)
Middle East	+44 (0)1475-555-055
Netherlands	+31-20-514-5770 (Dutch)
New Zealand	0800-446-149 (English)
Nicaragua	255-6658 (Spanish)
Norway	Up and running support: 6681-1100 Warranty service and support: 8152-1550 (Norwegian)
Panama	206-6047 (Spanish)
Peru	0-800-50-866 (Spanish)
Philippines	1800-1888-1426 +63-2-995-8420 (English, Filipino)
Poland	+48-22-878-6999
Portugal	+351-21-892-7147 (Portuguese)
Romania	+4-021-224-4015

Country or Region	Telephone Number
Russian Federation	+7-095-940-2000 (Russian)
Singapore	1800-3172-888 (English, Bahasa, Melayu)
Slovakia	+421-2-4954-1217
Slovenia	+386-1-4796-699
Spain	91-714-7983 91-397-6503 (Spanish)
Sri Lanka	+94-11-2448-442 (English)
Sweden	Up and running support: 08-477-4420 Warranty service and support: 077-117-1040 (Swedish)
Switzerland	Up and running support: 058-333-0900 Warranty service and support: 0800-55-54-54 (German, French, Italian)
Taiwan	886-2-8723-9799 (Mandarin)
Thailand	1-800-299-229 (Thai)
Turkey	00800-4463-2041 (Turkish)
United Kingdom	Up and running support: 01475-555-055 Warranty service and support (hardware): 08705-500-900 Warranty service and support (software): 08457-151-516 (English)
United States	1-800-IBM-SERV (1-800-426-7378) (English)
Uruguay	000-411-005-6649 (Spanish)
Venezuela	0-800-100-2011 (Spanish)
Vietnam	For northern area and Hanoi: 84-4-8436675 For southern area and Ho Chi Minh City: 84-8-829-5160 (English, Vietnamese)

Guarantee supplement for Mexico

This supplement is considered part of Lenovo's Statement of Limited Warranty and shall be effective solely and exclusively for products distributed and commercialized within Territory of the Mexican United States. In the event of a conflict, the terms of this supplement shall apply.

All software programs pre-loaded in the equipment shall only have a thirty-(30) day guarantee for installation defects from the date of purchase. Lenovo is

not responsible for the information in such software programs and/or any additional software programs installed by you or installed after purchase of the product.

Services not chargeable to the guarantee shall be charged to the final user, prior an authorization.

In the event that warranty repair is required please call the Customer Support Center at 001-866-434-2080, where you will be directed to the nearest Authorized Service Center. Should no Authorized Service Center exist in your city, location or within 70 kilometers of your city or location, the guarantee includes any reasonable delivery charges related to the transportation of the product to our nearest Authorized Service Center. Please call the nearest Authorized Service Center to obtain the necessary approvals or information concerning the shipment of the product and the shipment address.

To obtain a list of Authorized Service Centers, please visit:
http://www.pc.ibm.com/la/centros_de_servicio/servicio_mexico/servicio_mexico.html

Manufactured by:

SCI Systems de México, S.A. de C.V.
Av. De la Solidaridad Iberoamericana No. 7020
Col. Club de Golf Atlas
El Salto, Jalisco, México
C.P. 45680,
Tel. 01-800-3676900

Marketing by:

Lenovo de México, Comercialización y
Servicios, S. A. de C. V.
Alfonso Nápoles Gándara No 3111
Parque Corporativo de Peña Blanca
Delegación Álvaro Obregón
México, D.F., México
C.P. 01210,
Tel. 01-800-00-325-00

Appendix C. Customer Replacement Units (CRUs)

You can find instructions for replacing CRUs by machine type in one of the reference materials listed in the charts below.

Note: Use only the parts provided by Lenovo.

8104, 8105, 8106, 8107, 8108, 8109, 8117, 8118, 8119, 8120, 8121			
	Quick Reference	User Guide	Hardware Replacement Guide
Tier 1 CRUs			
Keyboard	X		X
Mouse	X		X
Hard disk drive		X	X
Memory		X	X
Adapter Cards		X	X
Speaker	X		X
Optical			X
Floppy disk drive		X	X
Tier 2 CRUs			
Heatsink			X
Processor			X
System Board			X
Power Supply			X

If you are unable to access these instructions or if you have difficulty replacing a CRU, you can use either of the following additional resources:

- The Hardware Replacement Guide is available in the Online Books folder on your computer. Click **All Programs -> Online Books** to find the Hardware Replacement Guide.
- The Online Hardware Replacement Guide is also available on the Lenovo Support Web site <http://www.lenovo.com/think/support>. You will need to enter your Machine Type information and look under publications to find the appropriate Hardware Replacement Guide.

Appendix D. Notices

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Television output notice

The following notice applies to models that have the factory-installed television-output feature.

This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

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Electronic emissions notices

The following information refers to machine types 8104, 8105, 8106, 8107, 8108, 8109, 8117, 8118, 8119, 8120, and 8121.

Federal Communications Commission (FCC) Declaration of Conformity

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an authorized dealer or service representative for help.

Lenovo is not responsible for any radio or television interference caused by using other than recommended cables or connectors or by unauthorized

changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

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

Responsible party:

Lenovo (United States) Inc.
One Manhattanville Road
Purchase, New York 10577
Telephone: (919) 254-0532



Tested To Comply
With FCC Standards

FOR HOME OR OFFICE USE

Industry Canada Class B emission compliance statement

This Class B digital apparatus complies with Canadian ICES-003.

European Union EMC Directive conformance statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. Lenovo cannot accept responsibility for any failure to satisfy the protection requirements resulting from a nonrecommended modification of the product, including the fitting of non-LenovoLenovo option cards.

This product has been tested and found to comply with the limits for Class B Information Technology Equipment according to CISPR 22/European Standard EN 55022. The limits for Class B equipment were derived for typical residential environments to provide reasonable protection against interference with licensed communication devices.

Federal Communications Commission (FCC) and telephone company requirements

1. This device complies with Part 68 of the FCC rules. A label is affixed to the device that contains, among other things, the FCC registration number, USOC, and Ringer Equivalency Number (REN) for this equipment. If these numbers are requested, provide this information to your telephone company.

Note: If the device is an internal modem, a second FCC registration label is also provided. You may attach the label to the exterior of the computer in which you install the Lenovo modem, or you may attach the label to the external DAA, if you have one. Place the label in a location that is easily accessible, should you need to provide the label information to the telephone company.

2. The REN is useful to determine the quantity of devices you may connect to your telephone line and still have those devices ring when your number is called. In most, but not all areas, the sum of the RENs of all devices should not exceed five (5). To be certain of the number of devices you may connect to your line, as determined by the REN, you should call your local telephone company to determine the maximum REN for your calling area.
3. If the device causes harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance; if advance notice is not practical, you will be notified as soon as possible. You will be advised of your right to file a complaint with the FCC.
4. Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper operation of your equipment. If they do, you will be given advance notice to give you an opportunity to maintain uninterrupted service.
5. If you experience trouble with this product, contact your authorized reseller or call the Customer Support Center. In the United States, call **1-800-426-7378**. In Canada, call **1-800-565-3344**. You may be required to present proof of purchase.

The telephone company may ask you to disconnect the device from the network until the problem has been corrected, or until you are sure the device is not malfunctioning.

6. No customer repairs are possible to the device. If you experience trouble with the device, contact your Authorized Reseller or see the Diagnostics section of this manual for information.
7. This device may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs. Contact your state public utility commission or corporation commission for information.
8. When ordering network interface (NI) service from the local Exchange Carrier, specify service arrangement USOC RJ11C.

Canadian Department of Communications certification label

NOTICE: The Industry Canada label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements documents. The Department does not guarantee the equipment will operate to the user's 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. 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 coordinated by a representative 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 system, if present, are connected together. This precaution may be particularly important in rural areas.

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

NOTICE: 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.

Power cord notice

For your safety, Lenovo provides a power cord with a grounded attachment plug to use with this product. To avoid electrical shock, always use the power cord and plug with a properly grounded outlet.

Power cords provided by Lenovo in the United States and Canada are listed by Underwriter's Laboratories (UL) and certified by the Canadian Standards Association (CSA).

For units intended to be operated at 115 volts: Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a parallel blade, grounding-type attachment plug rated 15 amperes, 125 volts.

For units intended to be operated at 230 volts (U.S. use): Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a tandem blade, grounding-type attachment plug rated 15 amperes, 250 volts.

For units intended to be operated at 230 volts (outside the U.S.): Use a cord set with a grounding-type attachment plug. The cord set should have the appropriate safety approvals for the country in which the equipment will be installed.

Power cords provided by Lenovo for a specific country or region are usually available only in that country or region.

For units intended to be operated in Denmark: Use a cord set with a grounding-type attachment plug. The cord set should have the appropriate safety approvals for the country in which the equipment will be installed.

For units intended to be operated in Norway, Sweden, Finland: Use a cord set with a two-prong attachment plug. The cord set should have the appropriate safety approvals for the country in which the equipment will be installed.

Power cord part number	Used in these countries and regions
6952301	Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, Bolivia, Turks and Caicos Islands, Canada, Cayman Islands, Costa Rica, Columbia, Cuba, Dominican Republic, Ecuador, El Salvador, Guam, Guatemala, Haiti, Honduras, Jamaica, Mexico, Micronesia (Federal States of), Netherlands Antilles, Nicaragua, Panama, Peru, Philippines, Saudi Arabia, Thailand, Taiwan, United States, Venezuela
13F9979	Afghanistan, Albania, Algeria, Andorra, Angola, Armenia, Austria, Azerbaijan, Belarus, Belgium, Benin, Bosnia and Herzegovina, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo (Democratic Republic of), Congo (Republic of), Cote D'Ivoire (Ivory Coast), Croatia (Republic of), Czech Rep, Dahomey, Djibouti, Egypt, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Finland, France, French Guyana, French Polynesia, Gabon, Georgia, Germany, Greece, Guadeloupe, Guinea, Guinea Bissau, Hungary, Iceland, Indonesia, Iran, Kazakhstan, Kyrgyzstan, Laos (Peoples Democratic Republic of), Latvia, Lebanon, Lithuania, Luxembourg, Macedonia (former Yugoslav Republic of), Madagascar, Mali, Martinique, Mauritania, Mauritius, Mayotte, Moldova (Republic of), Monaco, Mongolia, Morocco, Mozambique, Netherlands, New Caledonia, Niger, Norway, Poland, Portugal, Reunion, Romania, Russian Federation Rwanda, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, Slovakia, Slovenia (Republic of), Somalia, Spain, Suriname, Sweden, S Syrian Arab Replublic, Tajikistan, Tahiti, Togo, Tunisia, Turkey, Turkmenistan, Ukraine, Upper Volta, Uzbekistan, Vanuatu, Vietnam, Wallis and Futuna, Yugoslavia (Federal Republic of), Zaire
13F9997	Denmark
14F0051	Liechtenstein, Switzerland

Power cord part number	Used in these countries and regions
14F0087	Israel
14F0069	Chile, Italy, Libyan Arab Jamahiriya
14F0015	Bangladesh, Lesotho, Macao S.A.R. of China, Maldives, Namibia, Nepal, Pakistan, Samoa, South Africa, Sri Lanka, Swaziland, Uganda
14F0033	Abu Dhabi, Bahrain, Botswana, Brunei Darussalam, Channel Islands, Cyprus, Dominica, Gambia, Ghana, Grenada, Guyana, Hong Kong S.A.R. of China, Iraq, Ireland, Jordan, Kenya, Kuwait, Liberia, Malawi, Malaysia, Malta, Myanmar (Burma), Nigeria, Oman, Qatar, Saint Kitts & Nevis, Saint Lucia, Saint Vincent and the Grenadines, Seychelles, Sierra Leone, Singapore, Sudan, Tanzania (United Republic of), Trinidad & Tobago, United Arab Emirates (Dubai), United Kingdom, Yemen, Zambia, Zimbabwe Australia, Fiji, Kiribati, Nauru, New Zealand, Papua New Guinea
24P6858	Korea (Democratic Peoples Republic of), Korea (Republic of)
34G0232	Japan
49P2078	India
02K0546	China
49P2110	Brazil
36L8880	Argentina, Paraguay, Uruguay

Polyvinyl Chloride (PVC) cable and cord notice

WARNING: Handling the cord on this product or cords associated with accessories sold with this product will expose you to lead, a chemical known to the State of California to cause cancer, and birth defects or other reproductive harm. *Wash hands after handling.*

ThinkCentre[®]

Part Number: 39J6034

Printed in USA

(1P) P/N: 39J6034

