

## Machine Type 6306





# ThinkCentre Hardware Maintenance Manual

**Note:** Before using this information and the product it supports, be sure to read the information under “Notices,” on page 119.

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## Chapter 1. About this manual

This manual contains service and reference information for ThinkCentre® computers listed on the cover. It is intended only for trained servicers who are familiar with Lenovo computer products.

Before servicing a Lenovo product, be sure to read the Safety Information. See Chapter 2, "Safety information," on page 3.

The Symptom-to-FRU Index and Additional Service Information chapters are not specific to any machine type and are applicable to all ThinkCentre computers.

This manual includes a complete FRU part number listing for each machine type and model listed on the cover. If you have internet access, FRU part numbers are also available at:

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

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## Important Safety Information

Be sure to read all caution and danger statements in this book before performing any of the instructions.

Veillez lire toutes les consignes de type DANGER et ATTENTION du présent document avant d'exécuter les instructions.

Lesen Sie unbedingt alle Hinweise vom Typ "ACHTUNG" oder "VORSICHT" in dieser Dokumentation, bevor Sie irgendwelche Vorgänge durchführen

Leggere le istruzioni introdotte da ATTENZIONE e PERICOLO presenti nel manuale prima di eseguire una qualsiasi delle istruzioni

Certifique-se de ler todas as instruções de cuidado e perigo neste manual antes de executar qualquer uma das instruções

Es importante que lea todas las declaraciones de precaución y de peligro de este manual antes de seguir las instrucciones.

تأكد من قراءة كل التحذيرات الموجودة في هذا الكتاب قبل اتباع هذه التعليمات .

执行任何说明之前，请确保已阅读本书中的所有警告和危险声明。

執行任何指示前，請確實閱讀本書中的所有警告及危險聲明。

ודאו שקראתם את כל הודעות האזהרה והסכנה במסמך זה לפני שתבצעו פעולה כלשהי.

본 사용 설명서에 기재된 내용을 실행하기 전에 모든 주의사항 및 위험사항을 숙지하십시오.

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## Important information about replacing RoHS compliant FRUs

RoHS, The Restriction of Hazardous Substances in Electrical and Electronic Equipment Directive (2002/95/EC) is a European Union legal requirement affecting the global electronics industry. RoHS requirements must be implemented on Lenovo products placed on the market and sold in the European Union after June 2006. Products on the market before June 2006 are not required to have RoHS compliant parts. If the parts are not compliant originally, replacement parts can also be noncompliant, but in all cases, if the parts are compliant, the replacement parts must also be compliant.

**Note:** RoHS and non-RoHS FRU part numbers with the same fit and function are identified with unique FRU part numbers.

Lenovo plans to transition to RoHS compliance well before the implementation date and expects its suppliers to be ready to support Lenovo's requirements and schedule in the EU. Products sold in 2005, will contain some RoHS compliant FRUs. The following statement pertains to these products and any product Lenovo produces containing RoHS compliant parts.

RoHS compliant ThinkCentre parts have unique FRU part numbers. Before or after June, 2006, failed RoHS compliant parts must always be replaced using RoHS compliant FRUs, so only the FRUs identified as compliant in the system HMM or direct substitutions for those FRUs can be used.

Products marketed before June 2006		Products marketed after June 2006	
Current or original part	Replacement FRU	Current or original part	Replacement FRU
Non-RoHS	Can be Non-RoHS	Must be RoHS	Must be RoHS
Non-RoHS	Can be RoHS		
Non-RoHS	Can sub to RoHS		
RoHS	Must be RoHS		

**Note:** A direct substitution is a part with a different FRU part number that is automatically shipped by the distribution center at the time of order.



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## Chapter 2. Safety information

This chapter contains the safety information that you need to be familiar with before servicing a computer.

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### General safety

Follow these rules to ensure general safety:

- Observe good housekeeping in the area of the machines during and after maintenance.
- When lifting any heavy object:
  1. Ensure you can stand safely without slipping.
  2. Distribute the weight of the object equally between your feet.
  3. Use a slow lifting force. Never move suddenly or twist when you attempt to lift.
  4. Lift by standing or by pushing up with your leg muscles; this action removes the strain from the muscles in your back. *Do not attempt to lift any objects that weigh more than 16 kg (35 lb) or objects that you think are too heavy for you.*
- Do not perform any action that causes hazards to the customer, or that makes the equipment unsafe.
- Before you start the machine, ensure that other service representatives and the customer's personnel are not in a hazardous position.
- Place removed covers and other parts in a safe place, away from all personnel, while you are servicing the machine.
- Keep your tool case away from walk areas so that other people will not trip over it.
- Do not wear loose clothing that can be trapped in the moving parts of a machine. Ensure that your sleeves are fastened or rolled up above your elbows. If your hair is long, fasten it.
- Insert the ends of your necktie or scarf inside clothing or fasten it with a nonconductive clip, approximately 8 centimeters (3 inches) from the end.
- Do not wear jewelry, chains, metal-frame eyeglasses, or metal fasteners for your clothing.  
**Remember:** Metal objects are good electrical conductors.
- Wear safety glasses when you are: hammering, drilling, soldering, cutting wire, attaching springs, using solvents, or working in any other conditions that might be hazardous to your eyes.
- After service, reinstall all safety shields, guards, labels, and ground wires. Replace any safety device that is worn or defective.
- Reinstall all covers correctly before returning the machine to the customer.

---

### Electrical safety



**CAUTION:**

Electrical current from power, telephone, and communication cables can be hazardous. To avoid personal injury or equipment damage, disconnect the attached power cords, telecommunication systems, networks, and modems before you open the server/workstation covers, unless instructed otherwise in the installation and configuration procedures.

Observe the following rules when working on electrical equipment.

**Important:** Use only approved tools and test equipment. Some hand tools have handles covered with a soft material that does not insulate you when working with live electrical currents.

Many customers have, near their equipment, rubber floor mats that contain small conductive fibers to decrease electrostatic discharges. Do not use this type of mat to protect yourself from electrical shock.

- Find the room emergency power-off (EPO) switch, disconnecting switch, or electrical outlet. If an electrical accident occurs, you can then operate the switch or unplug the power cord quickly.
- Do not work alone under hazardous conditions or near equipment that has hazardous voltages.
- Disconnect all power before:
  - Performing a mechanical inspection
  - Working near power supplies
  - Removing or installing Field Replaceable Units
- Before you start to work on the machine, unplug the power cord. If you cannot unplug it, ask the customer to power-off the wall box that supplies power to the machine and to lock the wall box in the off position.
- If you need to work on a machine that has exposed electrical circuits, observe the following precautions:
  - Ensure that another person, familiar with the power-off controls, is near you.  
**Remember:** Another person must be there to switch off the power, if necessary.
  - Use only one hand when working with powered-on electrical equipment; keep the other hand in your pocket or behind your back.  
**Remember:** There must be a complete circuit to cause electrical shock. By observing the above rule, you may prevent a current from passing through your body.
  - When using testers, set the controls correctly and use the approved probe leads and accessories for that tester.
  - Stand on suitable rubber mats (obtained locally, if necessary) to insulate you from grounds such as metal floor strips and machine frames.

Observe the special safety precautions when you work with very high voltages; these instructions are in the safety sections of maintenance information. Use extreme care when measuring high voltages.

- Regularly inspect and maintain your electrical hand tools for safe operational condition.
- Do not use worn or broken tools and testers.
- *Never assume* that power has been disconnected from a circuit. First, *check* that it has been powered-off.

- Always look carefully for possible hazards in your work area. Examples of these hazards are moist floors, nongrounded power extension cables, power surges, and missing safety grounds.
- Do not touch live electrical circuits with the reflective surface of a plastic dental mirror. The surface is conductive; such touching can cause personal injury and machine damage.
- Do not service the following parts with the power on when they are removed from their normal operating places in a machine:
  - Power supply units
  - Pumps
  - Blowers and fans
  - Motor generatorsand similar units. (This practice ensures correct grounding of the units.)
- If an electrical accident occurs:
  - Use caution; do not become a victim yourself.
  - Switch off power.
  - Send another person to get medical aid.

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## Voltage-selection switch

Some computers are equipped with a voltage-selection switch located near the power-cord connection point on the computer. If your computer has a voltage-selection switch, ensure that you set the switch to match the voltage available at your electrical outlet. Setting the voltage-selection switch incorrectly can cause permanent damage to the computer.

If your computer does not have a voltage-selection switch, your computer is designed to operate only at the voltage provided in the country or region where the computer was originally purchased.

If you relocate your computer to another country, be aware of the following:

- If your computer does not have a voltage-selection switch, do not connect the computer to an electrical outlet until you have verified that the voltage provided is the same as it was in the country or region where the computer was originally purchased.
- If your computer has a voltage selection switch, do not connect the computer to an electrical outlet until you have verified that the voltage-selection switch is set to match the voltage provided in that country or region.

If you are not sure of the voltage provided at your electrical outlet, contact your local electric company or refer to official Web sites or other literature for travelers to the country or region where you are located.

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## Safety inspection guide

The intent of this inspection guide is to assist you in identifying potentially unsafe conditions on these products. Each machine, as it was designed and built, had required safety items installed to protect users and service personnel from injury. This guide addresses only those items. However, good judgment should be used to identify potential safety hazards due to attachment of features or options not covered by this inspection guide.

If any unsafe conditions are present, you must determine how serious the apparent hazard could be and whether you can continue without first correcting the problem.

Consider these conditions and the safety hazards they present:

- Electrical hazards, especially primary power (primary voltage on the frame can cause serious or fatal electrical shock).
- Explosive hazards, such as a damaged CRT face or bulging capacitor
- Mechanical hazards, such as loose or missing hardware

The guide consists of a series of steps presented in a checklist. Begin the checks with the power off, and the power cord disconnected.

Checklist:

1. Check exterior covers for damage (loose, broken, or sharp edges).
2. Power-off the computer. Disconnect the power cord.
3. Check the power cord for:
  - a. A third-wire ground connector in good condition. Use a meter to measure third-wire ground continuity for 0.1 ohm or less between the external ground pin and frame ground.
  - b. The power cord should be the appropriate type as specified in the parts listings.
  - c. Insulation must not be frayed or worn.
4. Remove the cover.
5. Check for any obvious alterations. Use good judgment as to the safety of any alterations.
6. Check inside the unit for any obvious unsafe conditions, such as metal filings, contamination, water or other liquids, or signs of fire or smoke damage.
7. Check for worn, frayed, or pinched cables.
8. Check that the power-supply cover fasteners (screws or rivets) have not been removed or tampered with.

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## Handling electrostatic discharge-sensitive devices

Any computer part containing transistors or integrated circuits (ICs) should be considered sensitive to electrostatic discharge (ESD). ESD damage can occur when there is a difference in charge between objects. Protect against ESD damage by equalizing the charge so that the machine, the part, the work mat, and the person handling the part are all at the same charge.

**Notes:**

1. Use product-specific ESD procedures when they exceed the requirements noted here.
2. Make sure that the ESD protective devices you use have been certified (ISO 9000) as fully effective.

When handling ESD-sensitive parts:

- Keep the parts in protective packages until they are inserted into the product.
- Avoid contact with other people while handling the part.
- Wear a grounded wrist strap against your skin to eliminate static on your body.

- Prevent the part from touching your clothing. Most clothing is insulative and retains a charge even when you are wearing a wrist strap.
- Use the black side of a grounded work mat to provide a static-free work surface. The mat is especially useful when handling ESD-sensitive devices.
- Select a grounding system, such as those listed below, to provide protection that meets the specific service requirement.

**Note:** The use of a grounding system is desirable but not required to protect against ESD damage.

- Attach the ESD ground clip to any frame ground, ground braid, or green-wire ground.
- Use an ESD common ground or reference point when working on a double-insulated or battery-operated system. You can use coax or connector-outside shells on these systems.
- Use the round ground-prong of the ac plug on ac-operated computers.

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## Grounding requirements

Electrical grounding of the computer is required for operator safety and correct system function. Proper grounding of the electrical outlet can be verified by a certified electrician.

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## Safety notices (multi-lingual translations)

The caution and danger safety notices in this section are provided in the following languages:

- English
- Arabic
- Brazilian/Portuguese
- Chinese (simplified)
- Chinese (traditional)
- French
- German
- Hebrew
- Italian
- Korean
- Spanish



### 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 tables when installing, moving, or opening covers on this product or attached devices.**

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



**CAUTION:**

When replacing the lithium battery, use only Part Number 33F8354 or an equivalent type battery recommended by the manufacturer. If your system has a module containing a lithium battery, replace it only with the same module type made by the same 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.



**CAUTION:**

When laser products (such as CD-ROMs, DVD-ROM drives, fiber optic devices, or transmitters) are installed, note the following:

- Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.
- Use of controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.



**DANGER:** Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following:

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



≥18 kg (37 lbs)



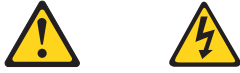
≥32 kg (70.5 lbs)



≥55 kg (121.2 lbs)

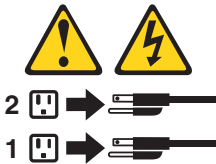
**CAUTION:**

Use safe practices when lifting.



**CAUTION:**

The power control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.







## خطر

التيار الكهربائي الموجود بمصدر الطاقة أو أجهزة التليفون أو أسلاك الاتصالات يشكل خطورة.

لتفادي مخاطر الصدمات الكهربائية:

لا تحاول توصيل أو فصل أي أسلاك أو القيام بعمليات تركيب أو صيانة أو إعادة توصيف لهذا المنتج أثناء وجود عاصفة كهربائية.

يجب توصيل كل أسلاك الكهرباء في مخارج كهرباء ذات توصيلات أسلاك وتوصيلات أرضية صحيحة.  
يجب توصيل أي جهاز سيتم الحاقه بهذا المنتج في مخارج كهرباء ذات توصيلات أسلاك صحيحة.

وإن أمكن يجب استخدام يد واحدة فقط في توصيل أو فصل أسلاك الإشارة.

لا تحاول تشغيل أي جهاز إذا كان هناك أثر لحرق أو مياه أو تلف بالمكونات

يجب فصل أسلاك الكهرباء وأنظمة الاتصالات وشبكات الاتصال وأجهزة المودم الملحقة قبل فتح أغطية الجهاز، ما لم يتم طلب خلاف ذلك في التعليمات الخاصة بالتركيب والتوصيف.  
قم بتوصيل وفصل الأسلاك كما هو موضح في الجدول التالي وذلك عند القيام بعمليات التركيب أو النقل أو فتح أغطية هذا المنتج أو الأجهزة الملحقة.

### للتوصيل:

قم بإيقاف كل شيء.

أولاً، قم بتوصيل كل الأسلاك بالأجهزة.

قم بتوصيل أسلاك الإشارة في لموصلات.

قم بتوصيل أسلاك الكهرباء في المخارج.

قم بتشغيل الجهاز.

### للفصل:

قم بإيقاف كل شيء.

أولاً، قم بفصل كل أسلاك الكهرباء من المخرج.

قم بفصل أسلاك الإشارة من الموصلات.

قم بفصل كل الأسلاك من الأجهزة.



تنبيه :

عند استبدال البطارية الليثيوم، استخدم فقط رقم الجزء الخاص **Part Number 33F8354** أو نوع آخر يكون على نفس مستوى الكفاءة يحدده لك المصنع.  
إذا كان النظام الخاص يستخدم معه بطارية ليثيوم قم باستبدالها بنفس النوع الذي تم صناعته من خلال نفس المصنع. تحتوي البطارية على مادة الليثيوم ويمكن أن تنفجر في حالة عدم استخدامها أو التعامل معها بطريقة صحيحة أو عند التخلص منها بطريقة خطأ.

لا تقم بـ:

- القاء البطارية أو غمرها في الماء
- تسخينها أعلى من ١٠٠ درجة مئوية و(٢١٢ ° فهرنهايت)
- بتصليحها أو فكها

تخلص من البطارية طبقاً للقانون أو النظام المحلي .



تنبيه :

أثناء تركيب منتجات ليزر (مثل CD-ROMs أو وحدة تشغيل DVD أو أجهزة Fiber Optic أو وحدات الإرسال) يجب مراعاة الآتي:

لا تنزع الأغشية. قد ينتج عن نزع أغشية منتج الليزر انفجار أشعة الليزر شديدة الخطورة.  
لا يوجد أجزاء يمكن تغييرها داخل الجهاز. قد ينتج عن استخدام تحكمات أو تعديلات أو عمل أي تصرفات أخرى تخالف ما هو محدد هنا إلى انفجار أشعة شديدة الخطورة.



خطر

تحتوي بعض منتجات الليزر على الفئة دايود ليزر مدمج من الفئة Class 3A أو Class 3B. يجب مراعاة الآتي .

أشعة الليزر عند الفتح. لا تحقق إلى الإشعاع و لا تنظر إليه مباشرة بواسطة أي أجهزة مرئية وتجنب التعرض المباشر للإشعاع .



≥18 kg (37 lbs)



≥32 kg (70.5 lbs)

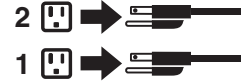


≥55 kg (121.2 lbs)

تنبيه :  
يجب استخدام ممارسات آمنة عند الرفع



تنبيه :  
لا يقرم زر التحكم في التشغيل الموجود على الجهاز والمفتاح الكهربائي الموجود على لوحة التحكم بإيقاف التيار الكهربائي المار بالجهاز. قد يكون للجهاز أكثر من سلك كهربائي واحد. لايقاف التيار الكهربائي المار بالجهاز، تأكد من فصل جميع أسلاك الكهرباء من مصدر الكهرباء .





## PERIGO

A corrente elétrica proveniente de cabos de alimentação, de telefone e de comunicações é perigosa.

Para evitar risco de choque elétrico:

- Não conecte nem desconecte nenhum cabo ou execute instalação, manutenção ou reconfiguração deste produto durante uma tempestade com raios.
- Conecte todos os cabos de alimentação a tomadas elétricas corretamente instaladas e aterradas.
- Todo equipamento que for conectado a este produto deve ser conectado a tomadas corretamente instaladas.
- Quando possível, utilize apenas uma das mãos para conectar ou desconectar cabos de sinal.
- Nunca ligue nenhum equipamento quando houver evidência de fogo, água ou danos estruturais.
- Antes de abrir tampas de dispositivos, desconecte cabos de alimentação, sistemas de telecomunicação, redes e modems conectados, a menos que especificado de maneira diferente nos procedimentos de instalação e configuração.
- Conecte e desconecte os cabos conforme descrito na tabela apresentada a seguir ao instalar, mover ou abrir tampas deste produto ou de dispositivos conectados.

Para Conectar:	Para Desconectar:
<ol style="list-style-type: none"><li>1. DESLIGUE Tudo.</li><li>2. Primeiramente, conecte todos os cabos aos dispositivos.</li><li>3. Conecte os cabos de sinal aos conectores.</li><li>4. Conecte os cabos de alimentação às tomadas.</li><li>5. LIGUE os dispositivos.</li></ol>	<ol style="list-style-type: none"><li>1. DESLIGUE Tudo.</li><li>2. Primeiramente, remova os cabos de alimentação das tomadas.</li><li>3. Remova os cabos de sinal dos conectores.</li><li>4. Remova todos os cabos dos dispositivos.</li></ol>



#### **CUIDADO:**

Ao substituir a bateria de lítio, utilize apenas uma bateria com Número de Peça 33F8354 ou um tipo de bateria equivalente recomendado pelo Se o seu sistema possui um módulo com uma bateria de lítio, substitua-o apenas por um módulo do mesmo tipo e do mesmo fabricante. A bateria contém lítio e pode explodir se não for utilizada, manuseada ou descartada de maneira correta.

Não:

- Jogue ou coloque na água
- Aqueça a mais de 100°C (212°F)
- Conserte nem desmonte

Descarte a bateria conforme requerido pelas leis ou regulamentos locais.



#### **PRECAUCIÓN:**

Quando produtos a laser (como unidades de CD-ROMs, unidades de DVD-ROM, dispositivos de fibra ótica ou transmissores) estiverem instalados, observe o seguinte:

- Não remova as tampas. A remoção das tampas de um produto a laser pode resultar em exposição prejudicial à radiação de laser. Não existem peças que podem ser consertadas no interior do dispositivo.
- A utilização de controles ou ajustes ou a execução de procedimentos diferentes dos especificados aqui pode resultar em exposição prejudicial à radiação.

#### **PERIGO**

Alguns produtos a laser contêm diodo de laser integrado da Classe 3A ou da Classe 3B. Observe o seguinte:

Radiação a laser quando aberto. Não olhe diretamente para o feixe a olho nu ou com instrumentos ópticos e evite exposição direta ao feixe.



≥18 kg (37 lbs)



≥32 kg (70.5 lbs)



≥55 kg (121.2 lbs)

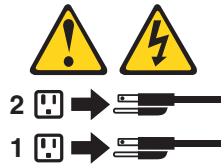
#### **CUIDADO:**

Utilize procedimentos de segurança para levantar equipamentos.



#### **CUIDADO:**

O botão de controle de alimentação do dispositivo e o botão para ligar/desligar da fonte de alimentação não desligam a corrente elétrica fornecida ao dispositivo. O dispositivo também pode ter mais de um cabo de alimentação. Para remover toda a corrente elétrica do dispositivo, assegure que todos os cabos de alimentação estejam desconectados da fonte de alimentação.





危险

电源、电话和通信电缆中的电流是危险的。

为避免电击危险：

- 请勿在雷电期间连接或断开任何电缆的连接，或者对本产品进行安装、维护或重新配置。
- 将所有电源线连接到正确连线和妥善接地的电源插座。
- 将所有要连接到该产品的设备连接到正确连线的插座。
- 如果可能，请仅使用一只手来连接或断开信号电缆的连接。
- 切勿在有火、水、结构损坏迹象的情况下开启任何设备。
- 在打开设备外盖之前请断开已连接的电源线、远程通信系统、网络和调制解调器，除非在安装和配置过程中另有说明。
- 当安装、移动或打开该产品或连接设备的外盖时，请按照下表所述来连接或断开电缆的连接。

要连接	要断开连接
<ol style="list-style-type: none"><li>1. 切断所有电源。</li><li>2. 首先将所有电缆连接到设备。</li><li>3. 将信号电缆连接到接口。</li><li>4. 将电源线连接到插座。</li><li>5. 开启设备。</li></ol>	<ol style="list-style-type: none"><li>1. 切断所有电源。</li><li>2. 首先从插座上拔出电源线。</li><li>3. 从接口上拔出信号电缆。</li><li>4. 从设备上拔出所有电缆。</li></ol>



警告：  
更换锂电池时，请仅使用部件号为 33F8354 的电池或制造商推荐的同类电池。如果您的系统有包含锂电池的模块，请仅使用同一制造商生产的相同模块类型来替换该模块。该电池中含有锂，如果使用、操作或处理不当，可能会发生爆炸。

切勿：

- 投入或浸入水中
- 加热到 100 °C（212 °F）以上
- 维修或拆卸

请按照当地法令或条例的要求处理电池。



警告：  
安装激光产品（例如 CD-ROM、DVD-ROM 驱动器、光纤设备或发射设备）时，  
请注意以下声明：

- 请勿卸下外盖。卸下激光产品的外盖可能导致遭受激光辐射的危险。该设备内没有可维修的部件。
- 如果不按照此处指定的过程进行控制、调整或操作，则有可能导致遭受辐射的危险。



危险

某些激光产品包含嵌入式 3A 类或 3B 类激光二极管。请注意以下声明：

打开后有激光辐射。请勿注视光束，请勿直接用光学仪器查看，并请避免直接暴露在光束中。



≥18 千克（37 磅）



≥32 千克（70.5 磅）

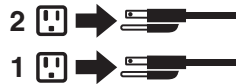


≥55 千克（121.2 磅）

警告：  
抬起时请采取安全措施。



警告：  
设备上的电源控制按钮和电源上的电源开关不会切断供给该设备的电流。该设备还可能有多条电源线。要切断该设备的所有电流，请确保所有电源线都与电源断开连接。







#### 危險

電源、電話及通訊纜線上的電流都具有危險性。

若要避免觸電危險：

- 請勿在雷雨期間，連接或拔除纜線、執行安裝、維護或重新配置本產品。
- 將所有電源線連接到正確配線及接地的電源插座。
- 任何與本產品連接的設備都必須連接到配線妥當的電源插座。
- 請盡可能用單手連接或拔除信號線。
- 發生火災、水災或結構損害時，絕對不要開啟任何設備。
- 除非在安裝及配置程序中另有指示，否則在開啟裝置機蓋之前，請拔掉連接的電源線、電信系統、網路及數據機。
- 安裝、移動或開啟本產品或附屬裝置的機蓋時，請遵循下列說明連接及拔掉纜線。

連線	切斷連線
<ol style="list-style-type: none"><li>1. 關閉所有開關。</li><li>2. 首先，連接所有接線到裝置。</li><li>3. 連接信號線到接頭。</li><li>4. 連接電源線到插座。</li><li>5. 開啟裝置。</li></ol>	<ol style="list-style-type: none"><li>1. 關閉所有開關。</li><li>2. 首先，拔掉插座上的電源線。</li><li>3. 拔掉接頭上的信號線。</li><li>4. 拔掉裝置上所有接線。</li></ol>



#### 警告：

更換鋰電池時，請僅使用產品編號 **33F8354** 或製造商所建議的同類型電池。  
如果您的系統中含有鋰電池模組，請僅使用同一家製造商所生產的相同模組進行更換。  
如果未以正確方式使用、處理或棄置含鋰的電池，會有爆炸的危險。

請勿：

- 沾溼或浸入水中
  - 置於 **100C (212F)** 以上的高溫環境
  - 修理或拆開
- 請按照各地區有關廢棄電池的法令和規定處理舊電池。

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#### 警告：

- 請勿移除機蓋。移除雷射產品的機蓋，可能會導致暴露在危險的雷射輻射中。裝置內部並無可自行維修的零件。
- 利用或執行非本文中所指定的控制、調整及執行程序，可能會導致危險的輻射外洩。



#### 危險

部分雷射產品含有內嵌式 **Class 3A** 或 **Class 3B** 雷射二極體。請注意下列事項：  
在開啟光碟機時，會發生雷射輻射。請勿直視光束或用光學儀器直接檢視，並避免直接暴露在光束中。



≥ 18 公斤 (37 磅)



≥ 32 公斤 (70.5 磅)



≥ 55 公斤 (121.2 磅)

警告：  
搬運時請注意安全。



警告：  
裝置上的電源控制按鈕及電源供應器上的電源開關，無法關閉裝置所產生的電流。  
該裝置可能有多條電源線。若要除去裝置流出的所有電流，請確認已切斷所有電源線的電源。





## DANGER

Le courant électrique provenant de l'alimentation, du téléphone et des câbles de transmission peut présenter un danger.

Pour éviter tout risque de choc électrique :

- Ne manipulez aucun câble et n'effectuez aucune opération d'installation, d'entretien ou de reconfiguration de ce produit au cours d'un orage.
- Branchez tous les cordons d'alimentation sur un socle de prise de courant correctement câblé et mis à la terre.
- Branchez sur des socles de prise de courant correctement câblés tout équipement connecté à ce produit.
- Lorsque cela est possible, n'utilisez qu'une seule main pour connecter ou déconnecter les câbles d'interface.
- Ne mettez jamais un équipement sous tension en cas d'incendie ou d'inondation, ou en présence de dommages matériels.
- Avant de retirer les carters de l'unité, mettez celle-ci hors tension et déconnectez ses cordons d'alimentation, ainsi que les câbles qui la relient aux réseaux, aux systèmes de télécommunication et aux modems (sauf instruction contraire mentionnée dans les procédures d'installation et de configuration).
- Lorsque vous installez, que vous déplacez, ou que vous manipulez le présent produit ou des périphériques qui lui sont raccordés, reportez-vous aux instructions ci-dessous pour connecter et déconnecter les différents cordons.

Connexion	Déconnexion
<ol style="list-style-type: none"><li>1. Mettez les unités HORS TENSION.</li><li>2. Commencez par brancher tous les cordons sur les unités.</li><li>3. Branchez les câbles d'interface sur des connecteurs.</li><li>4. Branchez les cordons d'alimentation sur des prises.</li><li>5. Mettez les unités SOUS TENSION.</li></ol>	<ol style="list-style-type: none"><li>1. Mettez les unités HORS TENSION.</li><li>2. Débranchez les cordons d'alimentation des prises.</li><li>3. Débranchez les câbles d'interface des connecteurs.</li><li>4. Débranchez tous les câbles des unités.</li></ol>



#### ATTENTION:

Remplacer la pile au lithium usagée par une pile de référence identique exclusivement, (référence 33F8354), ou suivre les instructions du fabricant qui en définit les équivalences. Si votre système est doté d'un module contenant une pile au lithium, vous devez le remplacer uniquement par un module identique, produit par le même fabricant. La pile contient du lithium et peut exploser en cas de mauvaise utilisation, de mauvaise manipulation ou de mise au rebut inappropriée.

Ne pas :

- la jeter à l'eau,
- l'exposer à des températures supérieures à 100°C,
- chercher à la réparer ou à la démonter.

Ne pas mettre la pile à la poubelle. Pour la mise au rebut, se reporter à la réglementation en vigueur.



#### ATTENTION:

Si des produits à laser (tels que des unités de CD-ROM, de DVD-ROM, des unités à fibres optiques, ou des émetteurs) sont installés, prenez connaissance des informations suivantes :

- Ne retirez pas le carter. En ouvrant l'unité de CD-ROM ou de DVD-ROM, vous vous exposez au rayonnement dangereux du laser. Aucune pièce de l'unité n'est réparable.
- Pour éviter tout risque d'exposition au rayon laser, respectez les consignes de réglage et d'utilisation des commandes, ainsi que les procédures décrites dans le présent manuel.



#### DANGER

Certains produits à laser contiennent une diode à laser intégrée de classe 3A ou 3B. Prenez connaissance des informations suivantes:

Rayonnement laser lorsque le carter est ouvert. Evitez toute exposition directe au rayon laser. Evitez de regarder fixement le faisceau ou de l'observer à l'aide d'instruments optiques.



≥18 kg (37 lbs)



≥32 kg (70.5 lbs)



≥55 kg (121.2 lbs)

**ATTENTION:**

Soulevez la machine avec précaution.



**ATTENTION:**

L'interrupteur de contrôle d'alimentation de l'unité et l'interrupteur dubloc d'alimentation ne coupent pas le courant électrique alimentant l'unité. En outre, le système peut être équipé de plusieurs cordons d'alimentation. Pour mettre l'unité hors tension, vous devez déconnecter tous les cordons de la source d'alimentation.





## VORSICHT

An Netz-, Telefon- und Datenleitungen können gefährliche Spannungen anliegen.

### Aus Sicherheitsgründen:

- Bei Gewitter an diesem Gerät keine Kabel anschließen oder lösen. Ferner keine Installations-, Wartungs- oder Rekonfigurationsarbeiten durchführen.
- Gerät nur an eine Schutzkontaktsteckdose mit ordnungsgemäß geerdetem Schutzkontakt anschließen.
- Alle angeschlossenen Geräte ebenfalls an Schutzkontaktsteckdosen mit ordnungsgemäß geerdetem Schutzkontakt anschließen.
- Die Signalkabel nach Möglichkeit einhändig anschließen oder lösen, um einen Stromschlag durch Berühren von Oberflächen mit unterschiedlichem elektrischem Potenzial zu vermeiden.
- Geräte niemals einschalten, wenn Hinweise auf Feuer, Wasser oder Gebäudeschäden vorliegen.
- Die Verbindung zu den angeschlossenen Netzkabeln, Telekommunikationssystemen, Netzwerken und Modems ist vor dem Öffnen des Gehäuses zu unterbrechen, sofern in den Installations- und Konfigurationsprozeduren keine anders lautenden Anweisungen enthalten sind.
- Zum Installieren, Transportieren und Öffnen der Abdeckungen des Computers oder der angeschlossenen Einheiten die Kabel gemäß der folgenden Tabelle anschließen und abziehen.

Zum Anschließen der Kabel gehen Sie wie folgt vor	Zum Abziehen der Kabel gehen Sie wie folgt vor
<ol style="list-style-type: none"><li>1. Schalten Sie alle Einheiten AUS.</li><li>2. Schließen Sie erst alle Kabel an die Einheiten an.</li><li>3. Schließen Sie die Signalkabel an die Buchsen an.</li><li>4. Schließen Sie die Netzkabel an die Steckdose an.</li><li>5. Schalten Sie die Einheit EIN.</li></ol>	<ol style="list-style-type: none"><li>1. Schalten Sie alle Einheiten AUS.</li><li>2. Ziehen Sie zuerst alle Netzkabel aus den Netzsteckdosen.</li><li>3. Ziehen Sie die Signalkabel aus den Buchsen.</li><li>4. Ziehen Sie alle Kabel von den Einheiten ab.</li></ol>



#### **CAUTION:**

Eine verbrauchte Lithiumbatterie nur durch eine Batterie mit der Teilenummer 33F8354 oder eine gleichwertige, vom Hersteller empfohlene Batterie ersetzen. Enthält das System ein Modul mit einer Lithiumbatterie, dieses nur durch ein Modul desselben Typs und von demselben Hersteller ersetzen. Die Batterie enthält Lithium und kann bei unsachgemäßer Verwendung, Handhabung oder Entsorgung explodieren.

Die Batterie nicht:

- mit Wasser in Berührung bringen.
- über 100 °C erhitzen.
- reparieren oder zerlegen.

Die örtlichen Bestimmungen für die Entsorgung von Sondermüll beachten.



#### **ACHTUNG:**

Bei der Installation von Lasergeräten (wie CD-ROM-Laufwerken, DVD-Laufwerken, Einheiten mit Lichtwellenleitertechnik oder Sendern) Folgendes beachten:

- Die Abdeckungen nicht entfernen. Durch Entfernen der Abdeckungen des Lasergeräts können gefährliche Laserstrahlungen freigesetzt werden. Das Gerät enthält keine zu wartenden Teile.
- Werden Steuerelemente, Einstellungen oder Durchführungen von Prozeduren anders als hier angegeben verwendet, kann gefährliche Laserstrahlung auftreten.



#### **VORSICHT**

Einige Lasergeräte enthalten eine Laserdiode der Klasse 3A oder 3B. Beachten Sie Folgendes:

Laserstrahlung bei geöffneter Verkleidung. Nicht in den Strahl blicken. Keine Lupen oder Spiegel verwenden. Strahlungsbereich meiden.



≥18 kg (37 lbs)



≥32 kg (70.5 lbs)



≥55 kg (121.2 lbs)

#### ACHTUNG:

Arbeitsschutzrichtlinien beim Anheben der Maschine beachten.



#### ACHTUNG:

Mit dem Netzschalter an der Einheit und am Netzteil wird die Stromversorgung für die Einheit nicht unterbrochen. Die Einheit kann auch mit mehreren Netzkabeln ausgestattet sein. Um die Stromversorgung für die Einheit vollständig zu unterbrechen, müssen alle zum Gerät führenden Netzkabel vom Netz getrennt werden.







## סכנה

זרם חשמלי המועבר בכבלי חשמל, טלפון ותקשורת הוא מסוכן.

כדי להימנע מסכנת התחשמלות:

- אל תחברו או תנתקו כבלים, ואל תבצעו פעולת התקנה, תחזוקה או שינוי תצורה במוצר זה במהלך סופת ברקים.
- חברו את כל כבלי החשמל לשקע חשמל מחווט ומוארק כהלכה.
- חברו כל ציוד שיחובר למוצר זה לשקעי חשמל מחוטים כהלכה.
- במידת האפשר, השתמשו ביד אחת בלבד לחיבור או לניתוק של כבלי אותות.
- לעולם אל תפעילו ציוד כלשהו כאשר יש עדות לנזק מבני או לנזק כתוצאה מאש או ממים.
- נתקו את כבלי החשמל, מערכות התקשורת, התקני הרשת והמודמים המחוברים לפני פתיחת כיסויי ההתקן, אלא אם הליכי ההתקנה וקביעת התצורה מורים אחרת.
- בעת התקנה, העברה או פתיחת כיסויים במוצר זה או בהתקנים המחוברים, חברו ונתקו את הכבלים כמתואר בטבלה שלהלן.

כדי לחבר	כדי לנתק
1. כבו הכל.	1. כבו הכל.
2. ראשית, חברו את כל הכבלים להתקנים.	2. ראשית, נתקו את כבלי החשמל מהשקעים.
3. חברו את כבלי האותות למחברים.	3. נתקו את כבלי האותות מהמחברים.
4. חברו את כבלי החשמל לשקעים.	4. הסירו את כל הכבלים מההתקנים.
5. הפעילו את ההתקן.	



זהירות:

בעת החלפת סוללת הליתיום, השתמשו רק בסוללה בעלת מק"ט 33F8354 או בסוג תואם שהומלץ על ידי היצרן. אם המערכת כוללת מודול המכיל סוללת ליתיום, החליפו אותו רק במודול מאותו סוג ומתוצרת אותו יצרן. הסוללה מכילה ליתיום, ועלולה להתפוצץ אם לא משתמשים ומטפלים בה או משליכים אותה כיאות.

לעולם:

- אל תטבלו במים

- אל תחממו לטמפרטורה הגבוהה מ-100°C (212°F)

- אל תתקנו או תפרקו

השליכו את הסוללה כנדרש לפי התקנות והחוקים המקומיים.



זהירות:

בעת התקנת מוצרי ליזר (כגון כונני תקליטורים ו-DVD, התקני סיב אופטי או משדרים), שימו לב לאזהרות הבאות:

- אל תסירו את הכיסויים. הסרת הכיסויים של מוצר הלייזר עלולה לגרום לחשיפה לקרינת לייזר מסוכנת. אין חלקים ברי טיפול בתוך ההתקן.

- שינויים, שימוש בבקורות או ביצוע הליכים אחרים מאלה המתוארים כאן, עלולים לגרום לחשיפה לקרינה מסוכנת.



סכנה

מוצרי לייזר מסוימים מכילים דיודת לייזר מסוג Class 3A או Class 3B. שימו לב לאזהרה הבאה:

כאשר הוא פתוח, המוצר פולט קרינת לייזר. אל תביטו ישירות בקרן, אל תביטו ישירות בעזרת ציוד אופטי, והימנעו מחשיפה לקרן.



$\leq 18$  ק"ג (37 ליב')



$\leq 32$  ק"ג (70.5 ליב')

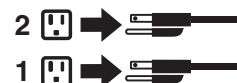


$\leq 55$  ק"ג (121.2 ליב')

זהירות:  
השתמשו בהליכים  
הנאותים בעת  
הרמת הצידוד.



זהירות:  
לחצן ההפעלה של ההתקן ומתג ההפעלה של ספק החשמל אינם מפסיקים את זרם החשמל המסופק להתקן.  
בנוסף, ההתקן עשוי לכלול יותר מכבל חשמל אחד. כדי לסלק את כל הזרם החשמלי מההתקן,  
ודאו שכל כבלי החשמל מנותקים ממקור החשמל.





## PERICOLO

La corrente elettrica proveniente dai cavi di alimentazione, del telefono e di comunicazione può essere pericolosa.

**Per evitare il rischio di scosse elettriche:**

- Non collegare o scollegare qualsiasi cavo oppure effettuare l'installazione, la manutenzione o la riconfigurazione del prodotto durante un temporale.
- Collegare tutti i fili elettrici a una presa di alimentazione correttamente cablata e dotata di messa a terra.
- Collegare alle prese elettriche appropriate tutte le apparecchiature che verranno utilizzate per questo prodotto.
- Se possibile, utilizzare solo una mano per collegare o scollegare i cavi di segnale.
- Non accendere assolutamente apparecchiature in presenza di incendi, perdite d'acqua o danno strutturale.
- Scollegare i cavi di alimentazione, i sistemi di telecomunicazione, le reti e il modem prima di aprire i coperchi del dispositivo, salvo istruzioni contrarie relative alle procedure di installazione e configurazione.
- Collegare e scollegare i cavi come descritto nella seguente tabella quando vengono effettuate operazioni di installazione, spostamento o apertura dei coperchi di questo prodotto o delle unità collegate.

Per collegarsi	Per scollegarsi
<ol style="list-style-type: none"><li>1. SPEGNERE le apparecchiature.</li><li>2. Innanzitutto, collegare tutti i cavi alle unità.</li><li>3. Collegare i cavi di segnale ai connettori.</li><li>4. Collegare i cavi di alimentazione alla presa.</li><li>5. Accendere l'unità.</li></ol>	<ol style="list-style-type: none"><li>1. SPEGNERE le apparecchiature.</li><li>2. Innanzitutto, rimuovere i cavi di alimentazione dalla presa.</li><li>3. Rimuovere i cavi di segnale dai connettori.</li><li>4. Rimuovere tutti i cavi dalle unità.</li></ol>



#### ATTENZIONE:

Quando si sostituisce la batteria al litio, utilizzare solo il Numero parte 33F8354 o un tipo di batteria equivalente consigliato dal produttore. Se sul sistema è presente un modulo che contiene una batteria al litio, sostituirlo solo con un tipo di modulo dello stesso tipo della stessa casa di produzione. La batteria contiene litio e può esplodere se usata, maneggiata o smaltita in modo non corretto.

*Non:*

- Gettare o immergere la batteria nell'acqua
- Riscaldarla ad una temperatura superiore ai 100 gradi C (212 gradi F)
- Smontarla, ricaricarla o tentare di ripararla

Le batterie usate vanno smaltite in accordo alla normativa in vigore (DPR 915/82 e successive disposizioni e disposizioni locali).



#### ATTENZIONE:

Quando vengono installati prodotti laser (quali CD-ROM, unità DVD-ROM, unità a fibre ottiche o trasmettenti), tener presente quanto segue:

- Non rimuovere gli sportelli. L'apertura di un'unità laser può determinare l'esposizione a radiazioni laser pericolose. All'interno dell'unità non vi sono parti su cui effettuare l'assistenza tecnica.
- L'utilizzo di controlli, regolazioni o l'esecuzione di procedure non descritti nel presente manuale possono provocare l'esposizione a radiazioni pericolose.



#### PERICOLO

Alcune unità laser contengono un diodo laser di Classe 3A o Classe 3B. Tener presente quanto segue:

Aperto l'unità vengono emesse radiazioni laser. Non fissare il fascio, non guardarlo direttamente con strumenti ottici ed evitare l'esposizione al fascio.



≥18 kg (37 lbs)



≥32 kg (70.5 lbs)



≥55 kg (121.2 lbs)

#### ATTENZIONE:

Prestare attenzione nel sollevare l'apparecchiatura.



#### ATTENZIONE:

Il pulsante di controllo dell'alimentazione presente sull'unità e l'interruttore dell'alimentatore non disattivano l'alimentazione corrente fornita all'unità. E' possibile che l'unità disponga di più cavi di alimentazione. Per disattivare l'alimentazione dall'unità, accertarsi che tutti i cavi di alimentazione siano scollegati dalla fonte di alimentazione.





#### 위험

전원, 전화, 통신 케이블의 전류는 위험합니다.

감전의 위험을 피하려면 다음과 같이 하십시오.

- 번개가 치는 날에는 케이블을 연결 또는 분리하거나 본 제품을 설치, 보수, 재구성하지 마십시오.
- 모든 전원 코드는 올바르게 접지된 전기 콘센트에 연결하십시오.
- 본 제품에 연결될 장치는 올바르게 배선된 콘센트에 연결하십시오.
- 신호 케이블을 연결 또는 분리할 때 가능하면 한 손만을 사용하십시오.
- 불 또는 물로 인한 손상이나 구조적인 손상이 있을 경우 장치의 전원을 절대 켜지 마십시오.
- 설치 및 구성 과정에 별도의 지시 사항이 없는 경우, 장치의 덮개를 열기 전에 연결된 전원 코드, 원격 통신 시스템, 네트워크, 모뎀을 분리하십시오.
- 본 제품이나 연결된 장치를 설치, 이동하거나 덮개를 열 때 다음 표와 같은 순서로 케이블을 연결하거나 분리하십시오.

연결할 때:	분리할 때:
<ol style="list-style-type: none"> <li>1. 모든 장치의 전원을 끄십시오.</li> <li>2. 먼저 모든 케이블을 장치에 연결하십시오.</li> <li>3. 커넥터에 신호 케이블을 연결하십시오.</li> <li>4. 콘센트에 전원 코드를 연결하십시오.</li> <li>5. 장치의 전원을 켜십시오.</li> </ol>	<ol style="list-style-type: none"> <li>1. 모든 장치의 전원을 끄십시오.</li> <li>2. 먼저 콘센트에서 전원 코드를 분리하십시오.</li> <li>3. 커넥터에서 신호 케이블을 분리하십시오.</li> <li>4. 장치에서 모든 케이블을 분리하십시오.</li> </ol>



#### 주의:

배터리를 교환할 때는 Part Number 33F8354 또는 제조업체에서 지정한 동일한 종류의 제품을 사용하십시오. 사용자의 시스템이 리튬 배터리를 포함하는 모듈일 경우, 동일한 제조업체에서 동일한 모듈 유형으로 생산된 제품으로 교체하십시오. 배터리에는 리튬이 함유되어 있어 잘못 사용, 취급 또는 폐기할 경우 폭발의 위험이 있습니다.

사고를 방지하려면 다음 사항을 준수하십시오.

- 배터리를 물 속에 던지거나 침수시키지 마십시오.
- 100℃ (212°F) 이상 가열하지 마십시오.
- 수리하거나 분해하지 마십시오.

배터리를 폐기할 때는 법령 또는 회사의 안전 수칙에 따라 폐기하십시오.



**주의:**

CD-ROM, DVD-ROM 장치, 광섬유 장치 또는 송신 장치와 같은 레이저 제품을 설치할 때, 다음과 같은 취급 주의사항을 참고하십시오.

- 덮개를 열지 마십시오. 덮개를 열면 레이저 복사 에너지에 노출될 위험이 있습니다. 장치 내부에는 사용자가 조정하거나 수리할 수 있는 부품이 없습니다.
- 규정된 것 이외의 절차 수행, 제어 조정 등의 행위로 인해 해로운 레이저 복사에 노출될 수 있습니다.



**위험**

일부 장비에는 임베디드 클래스 3A 또는 클래스 3B 레이저 다이오드가 있습니다. 다음 주의사항에 유의하십시오.

드라이브가 열리면 레이저 복사 에너지가 방출됩니다. 광선이 눈에 직접 쏘이지 않도록 하십시오. 나안 또는 광학 기구를 착용한 상태에서 광선을 직접 바라보지 않도록 하십시오.



≥ 18 kg (37 lbs)



≥ 32 kg (70.5 lbs)



≥ 55 kg (121.2 lbs)

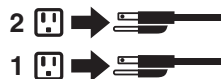
**주의:**

제품을 들어 올릴 때  
안전 규제를 따르십시오.



**주의:**

장치의 전원 제어 버튼 및 전원 공급 장치의 전원 스위치를 사용하여 장치에 공급되는 전기를 차단하지 마십시오. 장치는 둘 이상의 코드를 가지고 있을 수 있습니다. 장치에서 모든 전원을 차단하려면 콘센트에서 코드가 모두 분리되어 있는지 확인하십시오.







## PELIGRO

La corriente eléctrica procedente de cables de alimentación, teléfonos y cables de comunicación puede ser peligrosa.

Para evitar el riesgo de descarga eléctrica:

- No conecte ni desconecte los cables ni realice ninguna tarea de instalación, mantenimiento o reconfiguración de este producto durante una tormenta eléctrica.
- Conecte todos los cables de alimentación a tomas de corriente debidamente cableadas y conectadas a tierra.
- Cualquier equipo que se conecte a este producto también debe conectarse a tomas de corriente debidamente cableadas.
- Siempre que sea posible, utilice una sola mano para conectar o desconectar los cables de señal.
- No encienda nunca un equipo cuando hay señales de fuego, agua o daños estructurales.
- Desconecte los cables de alimentación, los sistemas de telecomunicaciones, las redes y los módems conectados antes de abrir las cubiertas de los dispositivos, a menos que se indique lo contrario en los procedimientos de instalación y configuración.
- Conecte y desconecte los cables, como se describe en la tabla siguiente, cuando instale, mueva o abra las cubiertas de este producto o de los dispositivos conectados.

Para conectar	Para desconectar
<ol style="list-style-type: none"><li>1. APÁGUELO todo.</li><li>2. En primer lugar, conecte todos los cables a los dispositivos.</li><li>3. Conecte los cables de señal a los conectores.</li><li>4. Enchufe los cables de alimentación a las tomas de corriente.</li><li>5. Encienda el dispositivo.</li></ol>	<ol style="list-style-type: none"><li>1. APÁGUELO todo.</li><li>2. En primer lugar, desenchufe los cables de alimentación de las tomas de corriente.</li><li>3. Desconecte los cables de señal de los conectores.</li><li>4. Desconecte todos los cables de los dispositivos.</li></ol>



#### PRECAUCIÓN:

Cuando sustituya una batería de litio, utilice solamente una batería número de pieza 33F8354 u otra de tipo equivalente recomendada por el fabricante. Si su sistema dispone de un módulo que contiene una batería de litio, reemplácelo sólo con el mismo tipo de módulo, del mismo fabricante. La batería contiene litio y puede explotar si no se utiliza, manipula o desecha correctamente.

*No debe:*

- Arrojarla al agua o sumergirla en ella
- Exponerla a temperaturas superiores a 100°C (212°F)
- Repararla o desmontarla

Deshágase de la batería según especifiquen las leyes o normas locales.



#### PRECAUCIÓN:

Cuando haya productos láser (como unidades de CD-ROM, unidades de DVD, dispositivos de fibra óptica o transmisores) instalados, tenga en cuenta lo siguiente:

- No quite las cubiertas. Si quita las cubiertas del producto láser, podría quedar expuesto a radiación láser peligrosa. Dentro del dispositivo no existe ninguna pieza que requiera servicio técnico.
- Si usa controles o ajustes o realiza procedimientos que no sean los especificados aquí, podría exponerse a radiaciones peligrosas.



#### PELIGRO

Algunos productos láser tienen incorporado un diodo láser de clase 3A o clase 3B. Tenga en cuenta lo siguiente:

Cuando se abre, queda expuesto a radiación láser. No mire directamente al rayo láser, ni siquiera con instrumentos ópticos, y evite exponerse directamente al rayo láser.



≥18 kg (37 lbs)



≥32 kg (70.5 lbs)



≥55 kg (121.2 lbs)

#### PRECAUCIÓN:

Adopte procedimientos seguros al levantar el equipo.



#### PRECAUCIÓN:

El botón de control de alimentación del dispositivo y el interruptor de alimentación de la fuente de alimentación no desconectan la corriente eléctrica suministrada al dispositivo. Además, el dispositivo podría tener más de un cable de alimentación. Para suprimir toda la corriente eléctrica del dispositivo, asegúrese de que todos los cables de alimentación estén desconectados de la toma de corriente.





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## Chapter 3. General information

This chapter provides general information that applies to all machine types supported by this publication.

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### The ThinkVantage Productivity Center program

Use the ThinkVantage® Productivity Center program for general information about the use, operation, and maintenance of the computer. The ThinkVantage Productivity Center program also contains information to help solve problems and get repair service or other technical assistance. The ThinkVantage Productivity Center program is preinstalled on most ThinkCentre products.

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### Additional information resources

If you have Internet access, the most up-to-date information for your computer is available from the World Wide Web.

You can find the following information:

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

To access this information, point your browser to <http://www.lenovo.com/support/>.

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## Specifications

This section lists the physical specifications for your computer.

### For machine type 6306

#### Dimensions

Width: 175 mm (6.9 inch)  
Height: 402 mm (15.8 inch)  
Depth: 440 mm (17.3 inch)

#### Weight

Maximum configuration as shipped: 8.9 kg (19.8 lbs)

#### Environment

Air temperature:

Operating: 10° to 35°C (50° to 95°F)  
Non-operating: -40° to 60°C (-40° to 140°F)

Humidity:

Operating: 10% to 80% (10% per hour, non condensing)  
Non-operating: 10% to 90% (10% per hour)

Maximum altitude:

Operating: -50 to 10,000 ft (-15.2 to 3048 m)  
Non-operating: -50 to 35,000 ft (-15.2 to 10,668 m)

#### Electrical input

Input voltage:

Low range:

Minimum: 100 V AC  
Maximum: 127 V AC  
Input frequency range: 50/60 Hz  
Voltage switch setting: 115 V AC

High range:

Minimum: 200 V AC  
Maximum: 240 V AC  
Input frequency range: 50/60 Hz  
Voltage switch setting: 230 V AC

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## Chapter 4. General Checkout

### Attention

The drives in the computer you are servicing might have been rearranged or the drive startup sequence changed. Be extremely careful during write operations such as copying, saving, or formatting. Data or programs can be overwritten if you select an incorrect drive.

General error messages appear if a problem or conflict is found by an application program, the operating system, or both. For an explanation of these messages, refer to the information supplied with that software package.

Before replacing any FRUs, ensure that the latest level of BIOS is installed on the system. A down-level BIOS might cause false errors and unnecessary replacement of the system board. For more information on how to determine and obtain the latest level BIOS, see “BIOS levels” on page 115.

Use the following procedure to help determine the cause of the problem:

1. Power-off the computer and all external devices.
2. Check all cables and power cords.
3. Set all display controls to the middle position.
4. Power-on all external devices.
5. Power-on the computer.
  - Look for displayed error codes
  - Listen for beep codes
  - Look for readable instructions or a main menu on the display.If you **did not** receive the correct response, proceed to step 6.  
If you **do** receive the correct response, proceed to step 7.
6. Look at the following conditions and follow the instructions:
  - If you hear beep codes during POST, go to “Beep symptoms” on page 75.
  - If the computer displays a POST error, go to “POST error codes” on page 76.
  - If the computer hangs and no error is displayed, continue at step 7.
7. Run the Diagnostic programs. See Chapter 5, “Diagnostics,” on page 43.
  - If you receive an error, replace the part that the diagnostic program calls out or go to “Diagnostic error codes” on page 54.
  - If the test stops and you cannot continue, replace the last device tested.

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### Problem determination tips

Due to the variety of hardware and software combinations that can be encountered, use the following information to assist you in problem determination. If possible, have this information available when requesting assistance from Service Support and Engineering functions.

- Machine type and model
- Processor or hard disk upgrades
- Failure symptom
  - Do diagnostics indicate a failure?

- What, when, where, single, or multiple systems?
- Is the failure repeatable?
- Has this configuration ever worked?
- If it has been working, what changes were made prior to it failing?
- Is this the original reported failure?
- Diagnostics version
  - Type and version level
- Hardware configuration
  - Print (print screen) configuration currently in use
  - BIOS level
- Operating system software
  - Type and version level

**Note:** To eliminate confusion, identical systems are considered identical only if they:

1. Are the exact machine type and models
2. Have the same BIOS level
3. Have the same adapters/attachments in the same locations
4. Have the same address jumpers/terminators/cabling
5. Have the same software versions and levels
6. Have the same Diagnostic Diskettes (version)
7. Have the same configuration options set in the system
8. Have the same setup for the operating system control files

Comparing the configuration and software set-up between “working and non-working” systems will often lead to problem resolution.



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## Chapter 5. Diagnostics

Diagnostic programs are used to test hardware components of your computer and report operating-system-controlled settings that can cause hardware failures. There are two diagnostic programs preinstalled on your computer to help you diagnose problems:

- PC-Doctor for Windows (used when diagnosing problems while running the Windows operating system)
- PC-Doctor for DOS or PC-Doctor for Windows PE, depending upon your machine type and model (used when your Windows operating system will not start)

### Notes:

1. You can also download the latest version of the PC-Doctor for Windows and PC-Doctor for DOS diagnostic programs from <http://www.lenovo.com/support/>.
2. If you are unable to isolate and repair the problem yourself after you run PC-Doctor for Windows and depending upon your machine type and model, PC-Doctor for DOS or PC-Doctor for Windows PE, save and print the log files created by both diagnostic programs. You will need the log files when you speak to a Lenovo technical support representative. (The log file created by PC-Doctor for Windows is automatically saved in C:\PCDR\DETAILED.TXT.)

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### PC-Doctor for Windows

PC-Doctor for Windows is a diagnostic program that works through the Windows operating system. The PC-Doctor for Windows diagnostic program enables you to view symptoms and solutions for computer problems, access the Lenovo troubleshooting center, update system drivers, and review system information.

To run PC-Doctor for Windows, open the Start menu from the Windows desktop, select **All Programs**, select **PC-Doctor for Windows**, and click **PC-Doctor for Windows**. Follow the instructions on the screen. For additional information about running the diagnostic program, refer to the PC-Doctor for Windows help system.

If you still suspect a problem after PC-Doctor for Windows runs successfully, run PC-Doctor for DOS or PC-Doctor for Windows PE to help you diagnose the computer problem.

PC-Doctor for Windows also has problem determination aids that determine software and usage problems.

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### PC-Doctor for Windows PE

The PC-Doctor for Windows PE diagnostic program is part of the Rescue and Recovery<sup>®</sup> workspace on each Lenovo computer. Use PC-Doctor for Windows PE, if you are unable to start the Windows operating system or if PC-Doctor for Windows has not been successful in isolating a possible problem.

## Running diagnostics from the Rescue and Recovery workspace

You can run the PC-Doctor for Windows PE diagnostic program from the Rescue and Recovery workspace. To run diagnostics from the Rescue and Recovery workspace, use the following procedure:

1. Shut down the operating system and turn off the computer.
2. Repeatedly press and release the F11 key as you turn on the computer.
3. When you hear beeps or see a logo screen, stop pressing the F11 key. The Rescue and Recovery workspace opens.
4. From the Rescue and Recovery workspace, Select **Launch Advanced Rescue and Recovery** → **Diagnose hardware**
5. The diagnostic program opens automatically. Select the diagnostic test you want to run. Press the F1 key for additional help.
6. Follow the instructions on the screen.

**Note:** Rescue media includes PC-Doctor for Windows PE. For more information about rescue media, see the *User Guide* for the computer.

---

## PC-Doctor for DOS

Use PC-Doctor for DOS, if you are unable to start the Windows operating system or if PC-Doctor for Windows has not been successful in isolating a possible problem. You can run PC-Doctor for DOS from a diagnostic CD image or diagnostic diskettes that have been created.

**Note:** It is important to create a diagnostic CD image or diagnostic diskettes in case PC-Doctor for Windows PE cannot be run from the Rescue and Recovery workspace.

## Creating a diagnostic CD image

To create a diagnostic CD image, download a self-starting bootable CD image (known as an .iso image) of the diagnostic program from <http://www.lenovo.com/support/>. After you download the image, you can create the CD using any CD burning software.

## Running diagnostics from the CD or diskettes

To run diagnostics from the diagnostic CD image that you created, use the following procedure:

1. Make sure the computer is turned off.
2. If you are running diagnostics from diskettes using a USB diskette drive, plug in the USB device.
3. Insert the CD into the optical drive or the first diagnostic diskette into the diskette drive.
4. Restart the computer.

**Note:** If the diagnostic program does not start, you might not have your optical drive or diskette drive set as a startable device. See “Selecting a startup device” on page 51 for instructions on how to change the startup device.

5. When the diagnostics program opens, follow the instructions on the screen.

**Note:** If you are running diagnostics from a diskette, when prompted, remove the first diskette and insert the second diskette.

6. When the program finishes, be sure to remove the CD or diskette from the drive.
7. Select the diagnostic test you want to run. Press the F1 key for additional help.

## Navigating through the diagnostics programs

Use the cursor movement keys to navigate within the menus.

- The **Enter** key is used to select a menu item.
- The **Esc** key is used to back up to the previous menu.
- For online help select **F1**.

## Running tests

There are four ways to run the diagnostic tests.

- Using the cursor movement keys, highlight **Run Normal Test** or **Run Quick Test** from the Diagnostics menu and then press **Enter**.

This automatically runs a pre-defined group of tests from each test category.

**Run Normal Test** runs a more extensive set of tests than does **Run Quick Test** and takes longer to complete.

- Press **F5** to automatically run all selected tests in all categories.
- From within a test category, press **Ctrl-Enter** to automatically run only the selected tests in that category.
- Using the cursor movement keys, highlight a single test within a test category, and then press **Enter**. This runs only that test.

Press **Esc** at any time to stop the testing process.

Test results (N/A, PASSED, FAILED, ABORTED) are displayed in the field beside the test description and in the test log. See “Viewing the test log” on page 46.

To select one or more tests, use the following procedure.

1. Open the corresponding test category.
2. Using the cursor movement keys, highlight the desired test.
3. Press the space bar.

A selected test is marked by >>. Pressing the space bar again de-selects a test and removes the >>.

4. Repeat steps 2 and 3 above to select all desired tests.

## Test results

Diagnostics test results produce the following error code format:

Function Code	Failure Type	DeviceID	Date	ChkDigits	Text
---------------	--------------	----------	------	-----------	------

- **Function Code:**  
Represents the feature or function within the PC.
- **Failure Type:**  
Represents the type of error encountered.
- **DeviceID:**

Contains the component's unit-ID which corresponds to either a fixed disk drive, removable media drive, serial or parallel port, processor, specific RIMM, or a device on the PCI bus.

- **Date:**

Contains the date when the diagnostic test was run. The date is retrieved from CMOS and displayed using the YYYYMMDD format.

- **ChkDigits:**

Contains a 2-digit check-digit value to ensure the following:

- Diagnostics were run on the specified date.
- Diagnostics were run on the specified computer.
- The diagnostic error code is recorded correctly.

- **Text:**

Description of the error.

**Note:** See "Diagnostic error codes" on page 54 for error code listings.

### **Quick and Full erase - hard drive**

The diagnostics program offers two hard drive format utilities:

- Quick Erase Hard Drive
- Full Erase Hard Drive

The Quick Erase Hard Drive provides a DOS utility that performs the following:

- Destroys the Master Boot Record (MBR) on the hard drive.
- Destroys all copies of the FAT Table on all partitions (both the master and backup).
- Destroys the partition table.
- Provides messages that warn the user that this is a non-recoverable process.

The Full Erase Hard Drive provides a DOS utility that performs the following:

- Performs all the steps in Quick Erase.
- Provides a DOS utility that writes random data to all sectors of the hard drive.
- Provides an estimate of time to completion along with a visual representation of completion status.
- Provides messages that warn the user about non-recoverable process.

<b>Important:</b> Make sure that all data is backed up before using the Quick or Full Erase functions.
--

To select the Quick Erase or Full Erase Hard Drive utility, use the following procedure:

1. Select the UTILITY option on the toolbar and press **Enter**.
2. Select either the QUICK ERASE or FULL ERASE HARD DISK option and follow the instructions.

## **Viewing the test log**

Errors reported by the diagnostic test will be displayed by the program as a failed test.

To view details of a failure or to view a list of test results, use the following procedure from any test category screen:

1. Press **F3** to activate the log file.
2. Press **F3** again to save the file to diskette or press **F2** to print the file.



---

## Chapter 6. Using the Setup Utility

The Setup Utility program is used to view and change the configuration settings of your computer, regardless of which operating system you are using. However, the operating-system settings might override any similar settings in the Setup Utility program.

---

### Starting the Setup Utility program

To start the Setup Utility program, do the following:

1. If your computer is already on when you start this procedure, shut down the operating system and turn off the computer.
2. Press and hold the F1 key then turn on the computer.
3. Release the F1 key.

**Notes:**

- a. If you are using a USB keyboard and the Setup Utility program does not display using this method, repeatedly press and release the F1 key rather than leaving it pressed when turning on the computer.
- b. If a user password or an administrator password has been set, the Setup Utility program menu is not displayed until you type your password. For more information, see "Using passwords."

The Setup Utility might start automatically when POST detects that hardware has been removed or new hardware has been installed in your computer.

---

### Viewing and changing settings

The Setup Utility program menu lists items that identify system configuration topics. To view or change settings, see "Starting the Setup Utility program."

When working with the Setup Utility program menu, you must use the keyboard. The keys used to perform various tasks are displayed at the bottom of each screen.

---

### Using passwords

By using the Setup Utility program, you can set passwords to prevent unauthorized persons from gaining access to your computer and data. See "Starting the Setup Utility program." The following types of passwords are available:

- User Password
- Administrator Password

You do not have to set any passwords to use your computer. However, if you decide to set any passwords, read the following sections.

### Password considerations

A password can be any combination of up to twelve alphabetic and numeric characters (a-z and 0-9). For security reasons, it is a good idea to use a strong password that cannot be easily compromised. Passwords should adhere to the following rules:

- Have at least eight characters in length
- Contain at least one alphabetic character and one numeric character
- Setup Utility program and hard disk drive passwords are not case sensitive
- Not be your name or your user name
- Not be a common word or a common name
- Be significantly different from your previous password

## User Password

When a User Password is set, the computer cannot be used until a valid password is typed from the keyboard.

## Administrator Password

When an Administrator Password is set, it deters unauthorized persons from changing configuration settings. If you are responsible for maintaining the settings of several computers, you might want to set an Administrator Password.

After you set an Administrator Password, a password prompt is displayed each time you try to access the Setup Utility program.

If both the user and administrator passwords are set, you can type either password. However, to change any configuration settings, you must use your administrator password.

## Setting, changing, and deleting a password

To set, change, or delete a password, do the following:

**Note:** A password can be any combination of up to twelve alphabetic and numeric characters (a-z and 0-9). For more information, see “Password considerations” on page 49.

1. Start the Setup Utility program (see Chapter 6, “Using the Setup Utility,” on page 49).
2. From the Setup Utility program menu, select **Security**.
3. Based on your need, select **Set User Passwords** or **Set Administrator Passwords**.
4. Read the information displayed on the right side of the screen.

---

## Enabling or disabling a device

You can enable or disable user access to a device.

<b>SATA 1</b>	When this feature is set to <b>Disable</b> , all devices connected to the SATA controller (such as hard disk drives or the CD-ROM drive) are disabled and will not be displayed in the system configuration.
<b>OnBoard Floppy Controller</b>	When this feature is set to <b>Disable</b> , the diskette drive cannot be accessed.

To set the SATA drive configuration, do the following:

1. Start the Setup Utility program (see “Starting the Setup Utility program” on page 49).



2. From the Setup Utility program menu, select **Devices** → **ATA Drives Setup** → **SATA Controller** and press Enter.
3. Select the desired settings and press Enter.
4. Return to the Setup Utility program menu and select **Exit** → **Save Changes and Exit**.

**Note:** If you do not want to save the settings, select **Discard Changes** or **Discard Changes and Exit**.

To set the OnBoard Floppy Controller, do the following:

1. Start the Setup Utility program (see “Starting the Setup Utility program” on page 49).
2. From the Setup Utility program menu, select **Devices** → **Floppy Drive Setup** → **Floppy A..**
3. Select the desired settings and press Enter.
4. Return to the Setup Utility program menu and select **Exit** → **Save Changes and Exit**.

**Note:** If you do not want to save the settings, select **Discard Changes** or **Discard Changes and Exit**.

---

## Selecting a startup device

If your computer does not start up from a device such as the CD-ROM, diskette, or hard disk drive as expected, use one of the following procedures to select a startup device.

### Selecting a temporary startup device

Use this procedure to startup from any start device.

**Note:** Not all CDs, hard disk drives, and diskettes are bootable.

1. Turn off your computer.
2. Press and hold the F12 key then turn on the computer. When the Startup Device Menu appears, release the F12 key.

**Note:** If you are using a USB keyboard and the Startup Device Menu does not display using this method, repeatedly press and release the F12 key rather than leaving it pressed when turning on the computer.

3. Select the desired startup device from the Startup Device Menu and press Enter to begin.

**Note:** Selecting a startup device from the Startup Device menu does not permanently change the startup sequence.

### Selecting or changing the startup device sequence

To view or permanently change the configured startup device sequence, do the following:

1. Start the Setup Utility program (see “Starting the Setup Utility program” on page 49).
2. Select **Startup** and read the information displayed on the right side of the screen.

3. Select the devices for the Primary Boot Sequence, the Automatic Boot Sequence, and the Error Boot Sequence.
4. From the Setup Utility menu, select **Exit** → **Save Changes and Exit**.

If you have changed these settings and want to return to the default settings, select **Load Optimal Defaults** on the Exit menu.

---

## Exiting from the Setup Utility program

After you finish viewing or changing settings, press Esc to return to the Setup Utility program menu (you might have to press Esc several times). If you want to save the new settings, select **Save Changes and Exit**. Otherwise, your changes will not be saved.

---

## Chapter 7. Symptom-to-FRU Index

The Symptom-to-FRU index lists error symptoms and possible causes. The most likely cause is listed first. Always begin with Chapter 4, “General Checkout,” on page 41. This index can also be used to help you decide which FRUs to have available when servicing a computer. If you are unable to correct the problem using this index, go to “Undetermined problems” on page 79.

**Notes:**

- If you have both an error message and an incorrect audio response, diagnose the error message first.
- If you cannot run the diagnostic tests or you get a diagnostic error code when running a test, but did receive a POST error message, diagnose the POST error message first.
- If you did not receive any error message, look for a description of your error symptoms in the first part of this index.

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### Hard disk drive boot error

A hard disk drive boot error can have the following causes.

Error	FRU/Action
The start-up drive is not in the boot sequence in configuration.	Check the configuration and ensure the start-up drive is in the boot sequence.
No operating system installed on the boot drive.	Install an operating system on the boot drive.
The boot sector on the start-up drive is corrupted.	The drive must be formatted, do the following: <ol style="list-style-type: none"><li>1. Attempt to back-up the data on the failing hard disk drive.</li><li>2. Using the operating systems programs, format the hard disk drive.</li></ol>
The drive is defective.	Replace the hard disk drive.

---

### Power Supply Problems

If you suspect a power problem, use the following procedures.

Check/Verify	FRU/Action
Check the following for proper installation. <ul style="list-style-type: none"><li>• Power Cord</li><li>• On/Off Switch connector</li><li>• On/Off Switch Power Supply connector</li><li>• System Board Power Supply connectors</li><li>• Microprocessor(s) connection</li></ul>	Reseat connectors
Check the power cord for continuity.	Power Cord
Check the power-on switch for continuity.	Power-on Switch

## Diagnostic error codes

Refer to the following diagnostic error codes when using the diagnostic tests. See “Running tests” on page 45 for the specific type for information about the Diagnostic programs.

In the following index, X can represent any number.

Diagnostic Error Code	FRU/Action
<b>000-000-XXX</b> BIOS Test Passed	<b>No action</b>
<b>000-002-XXX</b> BIOS Timeout	1. <b>Flash the system. See “Flash update procedures” on page 115</b> 2. System board
<b>000-024-XXX</b> BIOS Addressing test failure	1. <b>Flash the system. See “Flash update procedures” on page 115</b> 2. System board
<b>000-025-XXX</b> BIOS Checksum Value error	1. <b>Flash the system. See “Flash update procedures” on page 115</b> 2. System board
<b>000-026-XXX</b> FLASH data error	1. <b>Flash the system. See “Flash update procedures” on page 115</b> 2. System board
<b>000-027-XXX</b> BIOS Configuration/Setup error	1. <b>Run Setup</b> 2. Flash the system. See “Flash update procedures” on page 115 3. System board
<b>000-034-XXX</b> BIOS Buffer Allocation failure	1. <b>Reboot the system</b> 2. Flash the system. See “Flash update procedures” on page 115 3. Run memory test 4. System board
<b>000-035-XXX</b> BIOS Reset Condition detected	1. <b>Flash the system. See “Flash update procedures” on page 115</b> 2. System board
<b>000-036-XXX</b> BIOS Register error	1. <b>Flash the system. See “Flash update procedures” on page 115</b> 2. System board
<b>000-038-XXX</b> BIOS Extension failure	1. <b>Flash the system. See “Flash update procedures” on page 115</b> 2. Adapter card 3. System board
<b>000-039-XXX</b> BIOS DMI data error	1. <b>Flash the system. See “Flash update procedures” on page 115</b> 2. System board
<b>000-195-XXX</b> BIOS Test aborted by user	<b>Information only</b> Re-start the test, if necessary

Diagnostic Error Code	FRU/Action
<b>000-196-XXX</b> BIOS test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. Press F3 to review the log file</li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>000-197-XXX</b> BIOS test warning	<ol style="list-style-type: none"> <li>1. Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 49</li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>000-198-XXX</b> BIOS test aborted	<ol style="list-style-type: none"> <li>1. Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 49</li> <li>2. Flash the system and retest. See "Flash update procedures" on page 115</li> <li>3. Go to "Undetermined problems" on page 79</li> </ol>
<b>000-199-XXX</b> BIOS test failed, cause unknown	<ol style="list-style-type: none"> <li>1. Go to "Undetermined problems" on page 79</li> <li>2. Flash the system and re-test</li> <li>3. Replace component under function test</li> </ol>
<b>000-250-XXX</b> BIOS APM failure	<ol style="list-style-type: none"> <li>1. Flash the system. See "Flash update procedures" on page 115</li> <li>2. System board</li> </ol>
<b>000-270-XXX</b> BIOS ACPI failure	<ol style="list-style-type: none"> <li>1. Flash the system. See "Flash update procedures" on page 115</li> <li>2. System board</li> </ol>
<b>001-000-XXX</b> System Test Passed	No action
<b>001-00X-XXX</b> System Error	System board
<b>001-01X-XXX</b> System Error	System board
<b>001-024-XXX</b> System Addressing test failure	System board
<b>001-025-XXX</b> System Checksum Value error	<ol style="list-style-type: none"> <li>1. Flash the system. See "Flash update procedures" on page 115</li> <li>2. System board</li> </ol>
<b>001-026-XXX</b> System FLASH data error	<ol style="list-style-type: none"> <li>1. Flash the system. See "Flash update procedures" on page 115</li> <li>2. System board</li> </ol>
<b>001-027-XXX</b> System Configuration/Setup error	<ol style="list-style-type: none"> <li>1. Run Setup</li> <li>2. Flash the system. See "Flash update procedures" on page 115</li> <li>3. System board</li> </ol>

Diagnostic Error Code	FRU/Action
<b>001-032-XXX</b> System Device Controller failure	<b>System board</b>
<b>001-034-XXX</b> System Device Buffer Allocation failure	<ol style="list-style-type: none"> <li>1. <b>Reboot the system</b></li> <li>2. Flash the system. See “Flash update procedures” on page 115</li> <li>3. Run memory test</li> <li>4. System board</li> </ol>
<b>001-035-XXX</b> System Device Reset condition detected	<b>System board</b>
<b>001-036-XXX</b> System Register error	<b>System board</b>
<b>001-038-XXX</b> System Extension failure	<ol style="list-style-type: none"> <li>1. <b>Adapter card</b></li> <li>2. System board</li> </ol>
<b>001-039-XXX</b> System DMI data structure error	<ol style="list-style-type: none"> <li>1. <b>Flash the system. See “Flash update procedures” on page 115</b></li> <li>2. System board</li> </ol>
<b>001-040-XXX</b> System IRQ failure	<ol style="list-style-type: none"> <li>1. <b>Power-off/on system and re-test</b></li> <li>2. System board</li> </ol>
<b>001-041-XXX</b> System DMA failure	<ol style="list-style-type: none"> <li>1. <b>Power-off/on system and re-test</b></li> <li>2. System board</li> </ol>
<b>001-195-XXX</b> System Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>001-196-XXX</b> System test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>001-197-XXX</b> System test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, “Using the Setup Utility,” on page 49</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>001-198-XXX</b> System test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, “Using the Setup Utility,” on page 49</b></li> <li>2. Flash the system and retest. See “Flash update procedures” on page 115</li> <li>3. Go to “Undetermined problems” on page 79</li> </ol>
<b>001-199-XXX</b> System test failed, cause unknown	<ol style="list-style-type: none"> <li>1. Go to “Undetermined problems” on page 79</li> <li>2. Flash the system and re-test</li> <li>3. Replace component under function test</li> </ol>
<b>001-250-XXX</b> System ECC error	<b>System board</b>

Diagnostic Error Code	FRU/Action
001-254-XXX 001-255-XXX 001-256-XXX 001-257-XXX System DMA error	System board
001-260-XXX 001-264-XXX System IRQ error	System board
001-268-XXX System IRQ1 failure	1. Device on IRQ1 2. System board
001-269-XXX System IRQ2 failure	1. Device on IRQ2 2. System board
001-270-XXX System IRQ3 failure	1. Device on IRQ3 2. System board
001-271-XXX System IRQ4 failure	1. Device on IRQ4 2. System board
001-272-XXX System IRQ5 failure	1. Device on IRQ5 2. System board
001-273-XXX System IRQ6 (diskette drive) failure	1. Diskette Cable 2. Diskette drive 3. System board
001-274-XXX System IRQ7 failure	1. Device on IRQ7 2. System board
001-275-XXX System IRQ8 failure	1. Device on IRQ8 2. System board
001-276-XXX System IRQ9 failure	1. Device on IRQ9 2. System board
001-277-XXX System IRQ10 failure	1. Device on IRQ10 2. System board
001-278-XXX System IRQ11 failure	1. Device on IRQ11 2. System board
001-279-XXX System IRQ12 failure	1. Device on IRQ12 2. System board
001-280-XXX System IRQ13 failure	1. Device on IRQ13 2. System board
001-281-XXX System IRQ14 (hard disk drive) failure	1. Hard disk drive cable 2. Hard disk drive 3. System board
001-282-XXX System IRQ15 failure	1. Device on IRQ15 2. System board

Diagnostic Error Code	FRU/Action
001-286-XXX 001-287-XXX 001-288-XXX System Timer failure	System board
001-292-XXX System CMOS RAM error	1. Run Setup and re-test 2. System board
001-293-XXX System CMOS Battery	1. CMOS Battery 2. System board
001-298-XXX System RTC date/time update failure	1. Flash the system. See “Flash update procedures” on page 115 2. System board
001-299-XXX System RTC periodic interrupt failure	System board
001-300-XXX System RTC Alarm failure	System board
001-301-XXX System RTC Century byte error	1. Flash the system. See “Flash update procedures” on page 115 2. System board
005-000-XXX Video Test Passed	No action
005-00X-XXX Video error	1. Video card, if installed 2. System board
005-010-XXX 005-011-XXX 005-012-XXX 005-013-XXX Video Signal failure	1. Video card, if installed 2. System board
005-016-XXX Video Simple Pattern test failure	1. Video Ram 2. Video card, if installed 3. System board
005-024-XXX Video Addressing test failure	1. Video card, if installed 2. System board
005-025-XXX Video Checksum Value error	1. Video card, if installed 2. System board
005-027-XXX Video Configuration/Setup error	1. Run Setup 2. Video drivers update 3. Video card, if installed 4. System board
005-031-XXX Video Device Cable failure	1. Video cable 2. Monitor 3. Video card, if installed 4. System board
005-032-XXX Video Device Controller failure	1. Video card, if installed 2. System board



Diagnostic Error Code	FRU/Action
<b>005-036-XXX</b> Video Register error	<ol style="list-style-type: none"> <li>1. <b>Video card, if installed</b></li> <li>2. System board</li> </ol>
<b>005-038-XXX</b> System BIOS extension failure	<ol style="list-style-type: none"> <li>1. <b>Video card, if installed</b></li> <li>2. System board</li> </ol>
<b>005-040-XXX</b> Video IRQ failure	<ol style="list-style-type: none"> <li>1. <b>Video card, if installed</b></li> <li>2. System board</li> </ol>
<b>005-195-XXX</b> Video Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>005-196-XXX</b> Video test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>005-197-XXX</b> Video test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 49</b></li> <li>2. Re-run test</li> <li>3. Replace the component called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>005-198-XXX</b> Video test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 49</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Go to "Undetermined problems" on page 79</li> </ol>
<b>005-199-XXX</b> Video test failed, cause unknown	<ol style="list-style-type: none"> <li>1. Go to "Undetermined problems" on page 79</li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Replace component under function test</li> </ol>
<b>005-2XX-XXX</b> <b>005-3XX-XXX</b> Video subsystem error	<ol style="list-style-type: none"> <li>1. <b>Video card, if installed</b></li> <li>2. System board</li> </ol>
<b>006-000-XXX</b> Diskette interface Test Passed	<b>No action</b>
<b>006-0XX-XXX</b> Diskette interface error	<ol style="list-style-type: none"> <li>1. <b>Diskette drive Cable</b></li> <li>2. Diskette drive</li> <li>3. System board</li> </ol>
<b>006-195-XXX</b> Diskette interface Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>006-196-XXX</b> Diskette interface test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>

Diagnostic Error Code	FRU/Action
<b>006-197-XXX</b> Diskette interface test warning	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>006-198-XXX</b> Diskette interface test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Go to "Undetermined problems" on page 79</li> </ol>
<b>006-199-XXX</b> Diskette interface test failed, cause unknown	<ol style="list-style-type: none"> <li>1. Go to "Undetermined problems" on page 79</li> <li>2. Flash the system and re-test</li> <li>3. Replace component under function test</li> </ol>
<b>006-25X-XXX</b> Diskette interface Error	<ol style="list-style-type: none"> <li>1. <b>Diskette drive cable</b></li> <li>2. Diskette drive</li> <li>3. System board</li> </ol>
<b>011-000-XXX</b> Serial port Interface Test Passed	<b>No action</b>
<b>011-001-XXX</b> Serial port Presence	<ol style="list-style-type: none"> <li>1. <b>Remove external serial device, if present</b></li> <li>2. Run setup, enable port</li> <li>3. System board</li> </ol>
<b>011-002-XXX</b> <b>011-003-XXX</b> Serial port Timeout/Parity error	<b>System board</b>
<b>011-013-XXX</b> <b>011-014-XXX</b> Serial port Control Signal/Loopback test failure	<b>System board</b>
<b>011-015-XXX</b> Serial port External Loopback failure	<ol style="list-style-type: none"> <li>1. <b>Wrap plug</b></li> <li>2. System board</li> </ol>
<b>011-027-XXX</b> Serial port Configuration/Setup error	<ol style="list-style-type: none"> <li>1. <b>Run Setup, enable port</b></li> <li>2. Flash the system. See "Flash update procedures" on page 115</li> <li>3. System board</li> </ol>
<b>011-03X-XXX</b> <b>011-04X-XXX</b> Serial port failure	<b>System board</b>
<b>011-195-XXX</b> Serial port Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>011-196-XXX</b> Serial port test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>

Diagnostic Error Code	FRU/Action
<b>011-197-XXX</b> Serial port test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 49</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>011-198-XXX</b> Serial port test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 49</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Go to "Undetermined problems" on page 79</li> </ol>
<b>011-199-XXX</b> Serial port test failed, cause unknown	<ol style="list-style-type: none"> <li>1. Go to "Undetermined problems" on page 79</li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Replace component under function test</li> </ol>
<b>011-2XX-XXX</b> Serial port signal failure	<ol style="list-style-type: none"> <li>1. <b>External serial device</b></li> <li>2. System board</li> </ol>
<b>014-000-XXX</b> Parallel port Interface Test Passed	<b>No action</b>
<b>014-001-XXX</b> Parallel port Presence	<ol style="list-style-type: none"> <li>1. <b>Remove external parallel device, if present</b></li> <li>2. Run setup, enable port</li> <li>3. System board</li> </ol>
<b>014-002-XXX</b> <b>014-003-XXX</b> Parallel port Timeout/Parity error	<b>System board</b>
<b>014-013-XXX</b> <b>014-014-XXX</b> Parallel port Control Signal/Loopback test failure	<b>System board</b>
<b>014-015-XXX</b> Parallel port External Loopback failure	<ol style="list-style-type: none"> <li>1. <b>Wrap plug</b></li> <li>2. System board</li> </ol>
<b>014-027-XXX</b> Parallel port Configuration/Setup error	<ol style="list-style-type: none"> <li>1. <b>Run Setup, enable port</b></li> <li>2. Flash the system. See "Flash update procedures" on page 115</li> <li>3. System board</li> </ol>
<b>014-03X-XXX</b> <b>014-04X-XXX</b> Parallel port failure	<b>System board</b>
<b>014-195-XXX</b> Parallel port Test aborted by user	<b>Information only</b> Re-start the test, if necessary

Diagnostic Error Code	FRU/Action
<b>014-196-XXX</b> Parallel port test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. Press F3 to review the log file</li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>014-197-XXX</b> Parallel port test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 49</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>014-198-XXX</b> Parallel port test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Go to "Undetermined problems" on page 79</li> </ol>
<b>014-199-XXX</b> Parallel port test failed, cause unknown	<ol style="list-style-type: none"> <li>1. Go to "Undetermined problems" on page 79</li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Replace component under function test</li> </ol>
<b>014-2XX-XXX</b> <b>014-3XX-XXX</b> Parallel port failure	<ol style="list-style-type: none"> <li>1. <b>External parallel device</b></li> <li>2. System board</li> </ol>
<b>015-000-XXX</b> USB port Interface Test Passed	<b>No action</b>
<b>015-001-XXX</b> USB port Presence	<ol style="list-style-type: none"> <li>1. <b>Remove USB device(s) and re-test</b></li> <li>2. System board</li> </ol>
<b>015-002-XXX</b> USB port Timeout	<ol style="list-style-type: none"> <li>1. <b>Remove USB device(s) and re-test</b></li> <li>2. System board</li> </ol>
<b>015-015-XXX</b> USB port External Loopback failure	<ol style="list-style-type: none"> <li>1. <b>Remove USB device(s) and re-test</b></li> <li>2. System board</li> </ol>
<b>015-027-XXX</b> USB port Configuration/Setup error	<ol style="list-style-type: none"> <li>1. <b>Flash the system. See "Flash update procedures" on page 115</b></li> <li>2. System board</li> </ol>
<b>015-032-XXX</b> USB port Device Controller failure	<b>System board</b>
<b>015-034-XXX</b> USB port buffer allocation failure	<ol style="list-style-type: none"> <li>1. <b>Reboot the system</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Run memory test</li> <li>4. System board</li> </ol>
<b>015-035-XXX</b> USB port Reset condition detected	<ol style="list-style-type: none"> <li>1. <b>Remove USB device(s) and re-test</b></li> <li>2. System board</li> </ol>

Diagnostic Error Code	FRU/Action
<b>015-036-XXX</b> USB port Register error	<b>System board</b>
<b>015-040-XXX</b> USB port IRQ failure	<ol style="list-style-type: none"> <li>1. <b>Run setup and check for conflicts</b></li> <li>2. Flash the system. See “Flash update procedures” on page 115</li> <li>3. System board</li> </ol>
<b>015-195-XXX</b> USB port Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>015-196-XXX</b> USB port test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>015-197-XXX</b> USB port test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, “Using the Setup Utility,” on page 49</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>015-198-XXX</b> USB port test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, “Using the Setup Utility,” on page 49</b></li> <li>2. Flash the system and re-test. See “Flash update procedures” on page 115</li> <li>3. Go to “Undetermined problems” on page 79</li> </ol>
<b>015-199-XXX</b> USB port test failed, cause unknown	<ol style="list-style-type: none"> <li>1. Go to “Undetermined problems” on page 79</li> <li>2. Flash the system and re-test. See “Flash update procedures” on page 115</li> <li>3. Replace component under function test</li> </ol>
<b>018-000-XXX</b> PCI Card Test Passed	<b>No action</b>
<b>018-0XX-XXX</b> PCI Card Failure	<ol style="list-style-type: none"> <li>1. <b>Riser card, if installed</b></li> <li>2. System board</li> </ol>
<b>018-195-XXX</b> PCI Card Test aborted by user	<ol style="list-style-type: none"> <li>1. <b>PCI card</b></li> <li>2. <b>Information only</b> Re-start the test, if necessary</li> </ol>
<b>018-196-XXX</b> PCI Card test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>

Diagnostic Error Code	FRU/Action
<b>018-197-XXX</b> PCI Card test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 49</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>018-198-XXX</b> PCI Card test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 49</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Go to "Undetermined problems" on page 79</li> </ol>
<b>018-199-XXX</b> PCI Card test failed, cause unknown	<ol style="list-style-type: none"> <li>1. Go to "Undetermined problems" on page 79</li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Replace component under function test</li> </ol>
<b>018-250-XXX</b> PCI Card Services error	<ol style="list-style-type: none"> <li>1. <b>PCI card</b></li> <li>2. Riser card, if installed</li> <li>3. System board</li> </ol>
<b>020-000-XXX</b> PCI Interface Test Passed	<b>No action</b>
<b>020-0XX-XXX</b> PCI Interface error	<ol style="list-style-type: none"> <li>1. <b>PCI card</b></li> <li>2. Riser card, if installed</li> <li>3. System board</li> </ol>
<b>020-195-XXX</b> PCI Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>020-196-XXX</b> PCI test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>020-197-XXX</b> PCI test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 49</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>

Diagnostic Error Code	FRU/Action
<b>020-198-XXX</b> PCI test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, “Using the Setup Utility,” on page 49</b></li> <li>2. Flash the system and re-test. See “Flash update procedures” on page 115</li> <li>3. Go to “Undetermined problems” on page 79</li> </ol>
<b>020-199-XXX</b> PCI test failed, cause unknown	<ol style="list-style-type: none"> <li>1. Go to “Undetermined problems” on page 79</li> <li>2. Flash the system and re-test. See “Flash update procedures” on page 115</li> <li>3. Replace component under function test</li> </ol>
<b>020-262-XXX</b> PCI system error	<ol style="list-style-type: none"> <li>1. <b>PCI card</b></li> <li>2. Riser card, if installed</li> <li>3. System board</li> </ol>
<b>025-000-XXX</b> IDE interface Test Passed	<b>No action</b>
<b>025-00X-XXX</b> <b>025-01X-XXX</b> IDE interface failure	<ol style="list-style-type: none"> <li>1. <b>IDE signal cable</b></li> <li>2. Check power supply voltages</li> <li>3. Reseat IDE signal cable</li> <li>4. IDE device</li> <li>5. System board</li> </ol>
<b>025-027-XXX</b> IDE interface Configuration/Setup error	<ol style="list-style-type: none"> <li>1. <b>IDE signal cable</b></li> <li>2. Flash the system. See “Flash update procedures” on page 115</li> <li>3. Reseat IDE signal cable</li> <li>4. IDE device</li> <li>5. System board</li> </ol>
<b>025-02X-XXX</b> <b>025-03X-XXX</b> <b>025-04X-XXX</b> IDE Interface failure	<ol style="list-style-type: none"> <li>1. <b>IDE signal cable</b></li> <li>2. Check power supply</li> <li>3. Reseat IDE signal cable</li> <li>4. IDE device</li> <li>5. System board</li> </ol>
<b>025-195-XXX</b> IDE interface Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>025-196-XXX</b> IDE interface test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>025-197-XXX</b> IDE interface test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, “Using the Setup Utility,” on page 49</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>

Diagnostic Error Code	FRU/Action
<b>025-198-XXX</b> IDE interface test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 49</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Go to "Undetermined problems" on page 79</li> </ol>
<b>025-199-XXX</b> IDE interface test failed, cause unknown	<ol style="list-style-type: none"> <li>1. Go to "Undetermined problems" on page 79</li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Replace component under function test</li> </ol>
<b>030-000-XXX</b> SCSI interface Test Passed	<b>No action</b>
<b>030-00X-XXX</b> <b>030-01X-XXX</b> SCSI interface failure	<ol style="list-style-type: none"> <li>1. <b>SCSI signal cable</b></li> <li>2. Check power supply</li> <li>3. SCSI device</li> <li>4. SCSI adapter card, if installed</li> <li>5. System board</li> </ol>
<b>030-027-XXX</b> SCSI interface Configuration/Setup error	<ol style="list-style-type: none"> <li>1. <b>SCSI signal cable</b></li> <li>2. Flash the system. See "Flash update procedures" on page 115</li> <li>3. SCSI device</li> <li>4. SCSI adapter card, if installed</li> <li>5. System board</li> </ol>
<b>030-03X-XXX</b> <b>030-04X-XXX</b> SCSI interface error	<ol style="list-style-type: none"> <li>1. <b>SCSI signal cable</b></li> <li>2. Check power supply</li> <li>3. SCSI device</li> <li>4. SCSI adapter card, if installed</li> <li>5. System board</li> </ol>
<b>030-195-XXX</b> SCSI interface Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>030-196-XXX</b> SCSI interface test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>030-197-XXX</b> SCSI interface test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 49</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>



Diagnostic Error Code	FRU/Action
<b>030-198-XXX</b> SCSI interface test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 49</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Go to "Undetermined problems" on page 79</li> </ol>
<b>030-199-XXX</b> SCSI interface test failed, cause unknown	<ol style="list-style-type: none"> <li>1. Go to "Undetermined problems" on page 79</li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Replace component under function test</li> </ol>
<b>035-000-XXX</b> RAID interface Test Passed	<b>No action</b>
<b>035-0XX-XXX</b> RAID interface Failure	<ol style="list-style-type: none"> <li>1. <b>RAID signal cable</b></li> <li>2. RAID device</li> <li>3. RAID adapter card, if installed</li> <li>4. System board</li> </ol>
<b>035-195-XXX</b> RAID interface Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>035-196-XXX</b> RAID interface test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>035-197-XXX</b> RAID interface test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 49</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>035-198-XXX</b> RAID interface test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 49</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Go to "Undetermined problems" on page 79</li> </ol>
<b>035-199-XXX</b> RAID interface test failed, cause unknown	<ol style="list-style-type: none"> <li>1. See "Undetermined problems" on page 79</li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Replace component under function test</li> </ol>
<b>071-000-XXX</b> Audio port Interface Test Passed	<b>No action</b>

Diagnostic Error Code	FRU/Action
<b>071-00X-XXX</b> <b>071-01X-XXX</b> <b>071-02X-XXX</b> Audio port error	<ol style="list-style-type: none"> <li>1. <b>Run Setup</b></li> <li>2. Flash the system. See “Flash update procedures” on page 115</li> <li>3. System board</li> </ol>
<b>071-03X-XXX</b> Audio port failure	<ol style="list-style-type: none"> <li>1. <b>Speakers</b></li> <li>2. Microphone</li> <li>3. Audio card, if installed</li> <li>4. System board</li> </ol>
<b>071-04X-XXX</b> Audio port failure	<ol style="list-style-type: none"> <li>1. <b>Run Setup</b></li> <li>2. Audio card, if installed</li> <li>3. System board</li> </ol>
<b>071-195-XXX</b> Audio port Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>071-196-XXX</b> Audio port test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>071-197-XXX</b> Audio port test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, “Using the Setup Utility,” on page 49</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>071-198-XXX</b> Audio port test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, “Using the Setup Utility,” on page 49</b></li> <li>2. Flash the system and re-test. See “Flash update procedures” on page 115</li> <li>3. Go to “Undetermined problems” on page 79</li> </ol>
<b>071-199-XXX</b> Audio port test failed, cause unknown	<ol style="list-style-type: none"> <li>1. See “Undetermined problems” on page 79</li> <li>2. Flash the system and re-test. See “Flash update procedures” on page 115</li> <li>3. Replace component under function test</li> </ol>
<b>071-25X-XXX</b> Audio port failure	<ol style="list-style-type: none"> <li>1. <b>Speakers</b></li> <li>2. Audio card, if installed</li> <li>3. System board</li> </ol>
<b>080-000-XXX</b> Game Port interface Test Passed	<b>No action</b>
<b>080-XXX-XXX</b> Game Port interface Error	<ol style="list-style-type: none"> <li>1. <b>Remove the game port device and re-test the system</b></li> </ol>
<b>080-195-XXX</b> Game Port interface Test aborted by user	<b>Information only</b> Re-start the test, if necessary

Diagnostic Error Code	FRU/Action
<b>080-196-XXX</b> Game Port interface test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>080-197-XXX</b> Game Port interface test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 49</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>080-198-XXX</b> Game Port interface test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 49</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Go to "Undetermined problems" on page 79</li> </ol>
<b>080-199-XXX</b> Game Port interface test failed, cause unknown	<ol style="list-style-type: none"> <li>1. See "Undetermined problems" on page 79</li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Replace component under function test</li> </ol>
<b>086-000-XXX</b> Mouse Port interface Test Passed	<b>No action</b>
<b>086-001-XXX</b> Mouse Port interface Presence	<ol style="list-style-type: none"> <li>1. <b>Mouse</b></li> <li>2. System board</li> </ol>
<b>086-032-XXX</b> Mouse Port interface Device controller failure	<ol style="list-style-type: none"> <li>1. <b>Mouse</b></li> <li>2. System board</li> </ol>
<b>086-035-XXX</b> Mouse Port interface Reset	<ol style="list-style-type: none"> <li>1. <b>Mouse</b></li> <li>2. System board</li> </ol>
<b>086-040-XXX</b> Mouse Port interface IRQ failure	<ol style="list-style-type: none"> <li>1. <b>Run Setup</b></li> <li>2. Mouse</li> <li>3. System board</li> </ol>
<b>086-195-XXX</b> Mouse Port interface Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>086-196-XXX</b> Mouse Port interface test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>

Diagnostic Error Code	FRU/Action
<b>086-197-XXX</b> Mouse Port interface test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 49</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>086-198-XXX</b> Mouse Port interface test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 49</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Go to "Undetermined problems" on page 79</li> </ol>
<b>086-199-XXX</b> Mouse Port interface test failed, cause unknown	<ol style="list-style-type: none"> <li>1. See "Undetermined problems" on page 79</li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Replace component under function test</li> </ol>
<b>089-000-XXX</b> Microprocessor Test Passed	<b>No action</b>
<b>089-XXX-XXX</b> Microprocessor failure	<ol style="list-style-type: none"> <li>1. <b>Microprocessor(s)</b></li> <li>2. System board</li> </ol>
<b>089-195-XXX</b> Microprocessor Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>089-196-XXX</b> Microprocessor test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>089-197-XXX</b> Microprocessor test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 49</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>089-198-XXX</b> Microprocessor test aborted	<ol style="list-style-type: none"> <li>1. <b>Flash the system. See "Flash update procedures" on page 115</b></li> <li>2. Go to "Undetermined problems" on page 79</li> </ol>
<b>089-199-XXX</b> Microprocessor test failed, cause unknown	<ol style="list-style-type: none"> <li>1. See "Undetermined problems" on page 79</li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Replace component under function test</li> </ol>
<b>170-000-XXX</b> Voltage Sensor(s) Test Passed	<b>No action</b>

Diagnostic Error Code	FRU/Action
<b>170-0XX-XXX</b> Voltage Sensor(s) failure	<ol style="list-style-type: none"> <li>1. <b>Flash system</b></li> <li>2. System board</li> </ol>
<b>170-195-XXX</b> Voltage Sensor(s) Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>170-196-XXX</b> Voltage Sensor(s) test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>170-197-XXX</b> Voltage Sensor(s) test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 49</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>170-198-XXX</b> Voltage Sensor(s) test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 49</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Go to "Undetermined problems" on page 79</li> </ol>
<b>170-199-XXX</b> Voltage Sensor(s) test failed, cause unknown	<ol style="list-style-type: none"> <li>1. <b>See "Undetermined problems" on page 79</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Replace component under function test</li> </ol>
<b>170-250-XXX</b> <b>170-251-XXX</b> Voltage Sensor(s) Voltage limit error	<ol style="list-style-type: none"> <li>1. <b>Power supply</b></li> <li>2. System board</li> </ol>
<b>170-254-XXX</b> Voltage Sensor(s) Voltage Regulator Module error	<ol style="list-style-type: none"> <li>1. <b>Voltage Regulator Module (VRM)</b></li> <li>2. Microprocessor</li> <li>3. System board</li> </ol>
<b>175-000-XXX</b> Thermal Sensor(s) Test Passed	<b>No action</b>
<b>175-0XX-XXX</b> Thermal Sensor(s) failure	<ol style="list-style-type: none"> <li>1. <b>Flash system</b></li> <li>2. System board</li> </ol>
<b>175-195-XXX</b> Thermal Sensor(s) Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>175-196-XXX</b> Thermal Sensor(s) test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>

Diagnostic Error Code	FRU/Action
<b>175-197-XXX</b> Thermal Sensor(s) test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 49</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>175-198-XXX</b> Thermal Sensor(s) test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Go to "Undetermined problems" on page 79</li> </ol>
<b>175-199-XXX</b> Thermal Sensor(s) test failed, cause unknown	<ol style="list-style-type: none"> <li>1. <b>See "Undetermined problems" on page 79</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 115</li> <li>3. Replace component under function test</li> </ol>
<b>175-250-XXX</b> <b>175-251-XXX</b> Thermal Sensor(s) limit error	<ol style="list-style-type: none"> <li>1. <b>Check fans</b></li> <li>2. Check Power supply voltages</li> <li>3. Microprocessor</li> <li>4. System board</li> </ol>
<b>185-000-XXX</b> Asset Security Test Passed	<b>No action</b>
<b>185-XXX-XXX</b> Asset Security failure	<ol style="list-style-type: none"> <li>1. <b>Flash system</b></li> <li>2. System board</li> </ol>
<b>185-278-XXX</b> Asset Security Chassis Intrusion	<ol style="list-style-type: none"> <li>1. <b>Assure Asset Security Enabled</b></li> <li>2. C2 Cover Switch</li> <li>3. System board</li> </ol>
<b>201-000-XXX</b> System Memory Test Passed	<b>No action</b>
<b>201-XXX-XXX</b> System Memory error	<ol style="list-style-type: none"> <li>1. <b>Replace the memory module called out by the test</b></li> <li>2. System board</li> </ol>
<b>202-000-XXX</b> System Cache Test Passed	<b>No action</b>
<b>202-XXX-XXX</b> System Cache error	<ol style="list-style-type: none"> <li>1. <b>Cache, if removable</b></li> <li>2. System board</li> <li>3. Microprocessor</li> </ol>
<b>206-000-XXX</b> Diskette Drive Test Passed	<b>No action</b>
<b>206-XXX-XXX</b> Diskette Drive error	<ol style="list-style-type: none"> <li>1. <b>Diskette Drive Cable</b></li> <li>2. Check power supply voltages</li> <li>3. Diskette drive</li> <li>4. System board</li> </ol>

<b>Diagnostic Error Code</b>	<b>FRU/Action</b>
<b>215-000-XXX</b> CD-ROM Drive Test Passed	<b>No action</b>
<b>215-XXX-XXX</b> CD-ROM Drive error	<ol style="list-style-type: none"> <li>1. <b>CD-ROM Drive Cable</b></li> <li>2. Check power supply voltages</li> <li>3. CD-ROM drive</li> <li>4. System board</li> </ol>
<b>217-000-XXX</b> Hard Disk Drive Test Passed	<b>No action</b>
<b>217-25X-XXX</b> <b>217-26X-XXX</b> Hard Disk Drive (IDE) error	<ol style="list-style-type: none"> <li>1. <b>Hard Disk Drive Cable</b></li> <li>2. Check power supply voltages</li> <li>3. Reseat the hard disk drive cable</li> <li>4. Hard Disk drive (IDE)</li> <li>5. System board</li> </ol>
<b>217-28X-XXX</b> <b>217-29X-XXX</b> Hard Disk Drive (SCSI) error	<ol style="list-style-type: none"> <li>1. <b>Hard Disk Drive Cable</b></li> <li>2. Check power supply voltages</li> <li>3. Reseat the hard disk drive cable</li> <li>4. Hard Disk drive (SCSI)</li> <li>5. SCSI adapter card</li> <li>6. System board</li> </ol>
<b>220-000-XXX</b> Hi-Capacity Cartridge Drive Test Passed	<b>No action</b>
<b>220-XXX-XXX</b> Hi-Capacity Cartridge Drive error	<ol style="list-style-type: none"> <li>1. <b>Remove the Hi-Capacity Cartridge Drive and re-test the system</b></li> </ol>
<b>301-XXX-XXX</b> Keyboard error	<ol style="list-style-type: none"> <li>1. <b>Keyboard</b></li> <li>2. Check and test mouse</li> <li>3. System board</li> </ol>
<b>301-000-XXX</b> Keyboard Test Passed	<b>No action</b>
<b>302-000-XXX</b> Mouse Test Passed	<b>No action</b>
<b>302-XXX-XXX</b> Mouse error	<ol style="list-style-type: none"> <li>1. <b>Mouse</b></li> <li>2. Check and test Keyboard</li> <li>3. System board</li> </ol>
<b>303-000-XXX</b> Joystick Test Passed	<b>No action</b>
<b>303-XXX-XXX</b> Joystick error	<b>Remove the Joystick and re-test the system</b>
<b>305-000-XXX</b> Monitor DDC Test Passed	<b>No action</b>
<b>305-250-XXX</b> Monitor DDC self test failure	<ol style="list-style-type: none"> <li>1. <b>Run Setup to enable DDC</b></li> <li>2. Cable</li> <li>3. Monitor</li> <li>4. Video card</li> <li>5. System board</li> </ol>

<b>Diagnostic Error Code</b>	<b>FRU/Action</b>
<b>415-000-XXX</b> Modem Test Passed	<b>No action</b>
<b>415-XXX-XXX</b> Modem error	<b>Remove the Modem and re-test the system</b>



---

## Beep symptoms

Beep symptoms are tones or a series of tones separated by pauses (intervals without sound) during POST.

The following tables describes beep symptoms.

Beep Symptom	FRU/Action
<b>2 short beeps</b> CMOS setting error	Perform the following actions in order. <ol style="list-style-type: none"><li>1. Start the Setup Utility program and press F10 to Save and exit. See Chapter 6, "Using the Setup Utility," on page 49.</li><li>2. Start the Setup Utility program and press F7 to load defaults and then press F10 to Save and exit.</li><li>3. Perform a Boot block recovery. See "Recovering from a POST/BIOS update failure" on page 116.</li></ol>
<b>1 long and 2 short beeps</b> Monitor or video adapter card error	Perform the following actions in order. <ol style="list-style-type: none"><li>1. Make sure the monitor is properly connected to the computer.</li><li>2. Replace the video adapter card (if present).</li><li>3. Replace the system board.</li></ol>
<b>1 long and 3 short beeps</b> Keyboard error	Perform the following actions in order. <ol style="list-style-type: none"><li>1. Make sure the keyboard is properly connected to the keyboard connector.</li><li>2. Replace the keyboard.</li><li>3. Replace the system board.</li></ol>
<b>1 long and 9 short beeps</b> BIOS ROM error	Perform the following actions in order. <ol style="list-style-type: none"><li>1. Start the Setup Utility program and press F7 to load defaults and then press F10 to Save and exit. See Chapter 6, "Using the Setup Utility," on page 49.</li><li>2. Perform a Boot block recovery. See "Recovering from a POST/BIOS update failure" on page 116.</li><li>3. Replace the system board.</li></ol>
<b>Continuos long beeps</b> DRAM memory error	Perform the following actions in order. <ol style="list-style-type: none"><li>1. Make sure the memory module(s) are properly seated in the connector(s).</li><li>2. Replace the memory module(s).</li><li>3. Replace the system board.</li></ol>

---

## POST error codes

Each time you power-on the system, it performs a series of tests that check the operation of the system and some options. This series of tests is called the *Power-On Self-Test*, or *POST*. POST does the following operations.

- Checks some basic system-board operations
- Checks the memory operation
- Starts the video operation
- Verifies that the boot drive is working

If the POST detects a problem, an error message appears on the screen. A single problem can cause several error messages to appear. When you correct the cause of the first error message, the other error messages probably will not appear on the screen the next time you turn on the system.

POST Error Message	Description/Action
CMOS battery failed	The CMOS battery is no longer functional.  Replace the battery.
CMOS checksum error - defaults loaded	Checksum of CMOS is incorrect.  The computer loads the default configuration settings. This error might indicate that CMOS has become corrupt due to a weak CMOS battery.
CPU at nnnn	nnnn is the running speed of the microprocessor.
Press Esc to skip memory test	Pressing Esc skips the full memory test
HARD DISK INSTALL FAILURE	Cannot find or initialize the hard disk drive controller or the drive.  Make sure the hard disk drive is correctly installed.  If no hard disk drives are installed, make sure the hard disk drive selection in Setup is set to NONE.
Keyboard error or no keyboard present	Cannot initialize the keyboard.  Make sure the keyboard is properly connected to the computer and that no keys are held pressed during POST.  To purposely configure the computer without a keyboard, set the error halt condition in Setup to HALT ON ALL, BUT KEYBOARD. The BIOS then ignores the missing keyboard during POST.
Memory Test:	This message displays during a full memory test, counting down the memory areas being tested.
Memory test fail	If POST detects an error during memory testing, additional information appears. This information gives specifics about the type and location of the memory error.

POST Error Message	Description/Action
Press TAB to show POST screen	Pressing the TAB key permits the user to toggle between the default POST display screen and a custom POST display screen.
Error: Non-System disk or disk error Replace and press any key when ready	<p>The BIOS was unable to find a suitable boot device.</p> <p>Make sure the boot drive is properly connected to the computer.</p> <p>Make sure you have bootable media.</p>

## Miscellaneous error messages

Message/Symptom	FRU/Action
Changing display colors	<b>Display/Monitor</b>
Computer will <i>not</i> power-off. See "Power Supply Problems" on page 53.	<ol style="list-style-type: none"> <li><b>Power Switch</b></li> <li>System Board</li> <li>Riser card, if installed</li> </ol>
Computer will <i>not</i> RPL from server	<ol style="list-style-type: none"> <li><b>Ensure that network is in startup sequence as first device or first device after diskette</b></li> <li>Ensure that network adapter is enabled for RPL</li> <li>Network adapter (Advise network administrator of new MAC address)</li> </ol>
Computer will <i>not</i> perform a Wake On LAN <sup>®</sup> (if applicable)	<ol style="list-style-type: none"> <li><b>Check power supply and signal cable connections to network adapter</b></li> <li>Ensure that the operating system settings are set to enable Wake on LAN<sup>®</sup></li> <li>Ensure Wake On LAN feature is enabled in Setup/Configuration (see "Starting the Setup Utility program" on page 49)</li> <li>Ensure network administrator is using correct MAC address</li> <li>Ensure no interrupt or I/O address conflicts</li> <li>Network adapter (advise network administrator of new MAC address)</li> </ol>
Dead computer. See "Power Supply Problems" on page 53.	<ol style="list-style-type: none"> <li><b>Power Supply</b></li> <li>System Board</li> </ol>
Diskette drive in-use light remains on or does not light when drive is active.	<ol style="list-style-type: none"> <li><b>Diskette Drive</b></li> <li>System Board</li> <li>Diskette Drive Cable</li> </ol>
Flashing cursor with an otherwise blank display.	<ol style="list-style-type: none"> <li><b>System Board</b></li> <li>Primary Hard Disk Drive</li> <li>Hard Disk Drive Cable</li> </ol>
Incorrect memory size during POST	<ol style="list-style-type: none"> <li><b>Run the Memory tests</b></li> <li>Memory Module</li> <li>System Board</li> </ol>
"Insert a Diskette" icon appears with a known-good diagnostics diskette in the first 3.5-inch diskette drive.	<ol style="list-style-type: none"> <li><b>System Board</b></li> <li>Diskette Drive Cable</li> <li>Network Adapter</li> </ol>
Intensity or color varies from left to right of characters and color bars	<ol style="list-style-type: none"> <li><b>Display</b></li> <li>Video adapter (if present)</li> <li>System Board</li> </ol>
No power or fan not running	<ol style="list-style-type: none"> <li><b>See "Power Supply Problems" on page 53.</b></li> </ol>

Message/Symptom	FRU/Action
Non-system disk or disk error-type message with a known-good diagnostic diskette.	<ol style="list-style-type: none"> <li>1. <b>Diskette Drive</b></li> <li>2. System Board</li> <li>3. Diskette Drive Cable</li> </ol>
Other display symptoms not listed above (including blank or illegible display)	<ol style="list-style-type: none"> <li>1. <b>Display</b></li> <li>2. System Board</li> </ol>
Power-on indicator or hard disk drive in-use light not on, but computer works correctly	<ol style="list-style-type: none"> <li>1. Power switch/LED assembly</li> <li>2. System Board</li> </ol>
Printer problems	<ol style="list-style-type: none"> <li>1. <b>Printer</b></li> <li>2. System Board</li> </ol>
Program loads from the hard disk with a known-good diagnostics diskette in the first 3.5-inch diskette drive	<ol style="list-style-type: none"> <li>1. <b>Run Setup</b> and check Startup sequence.</li> <li>2. Diskette Drive</li> <li>3. Diskette Drive Cable</li> <li>4. System Board</li> <li>5. Power Supply</li> </ol>
RPL computer cannot access programs from its own hard disk.	<ol style="list-style-type: none"> <li>1. <b>If network administrator is using LCCM Hybrid RPL, check startup sequence:</b> <ol style="list-style-type: none"> <li>a. <b>First device - network</b></li> <li>b. <b>Second device - hard disk</b></li> </ol> </li> <li>2. Hard disk drive</li> </ol>
RPL computer does not RPL from server	<ol style="list-style-type: none"> <li>1. <b>Check startup sequence</b></li> <li>2. Check the network adapter LED status</li> </ol>
Serial or parallel port device failure (system board port)	<ol style="list-style-type: none"> <li>1. <b>External Device Self-Test OK?</b></li> <li>2. External Device</li> <li>3. Cable</li> <li>4. System Board</li> </ol>
Serial or parallel port device failure (adapter port)	<ol style="list-style-type: none"> <li>1. <b>External Device Self-Test OK?</b></li> <li>2. External Device</li> <li>3. Cable</li> <li>4. Alternate Adapter</li> <li>5. System Board</li> </ol>
Some or all keys on the keyboard do not work	<ol style="list-style-type: none"> <li>1. <b>Keyboard</b></li> <li>2. Keyboard Cable</li> <li>3. System Board</li> </ol>

## Undetermined problems

If this computer has a parallel ATA hard disk drive, make sure that the hard disk drive is jumpered as a master and the optical drive is jumpered as a slave.

1. Power-off the computer.
2. Remove or disconnect the following components (if installed) one at a time.
  - a. External devices (modem, printer, or mouse)
  - b. Any adapters

- c. Memory modules
  - d. Extended video memory
  - e. External Cache
  - f. External Cache RAM
  - g. Hard disk drive
  - h. Diskette drive
3. Power-on the computer to re-test the system.
  4. Repeat steps 1 through 3 until you find the failing device or adapter.

If all devices and adapters have been removed, and the problem continues, replace the system board.

---

## Chapter 8. Replacing FRUs (Type 6306)

### **Important**

Before you replace any FRU, read Chapter 2, "Safety information," on page 3. These precautions and guidelines will help you work safely.

FRU replacements are to be done by trained service technicians only.

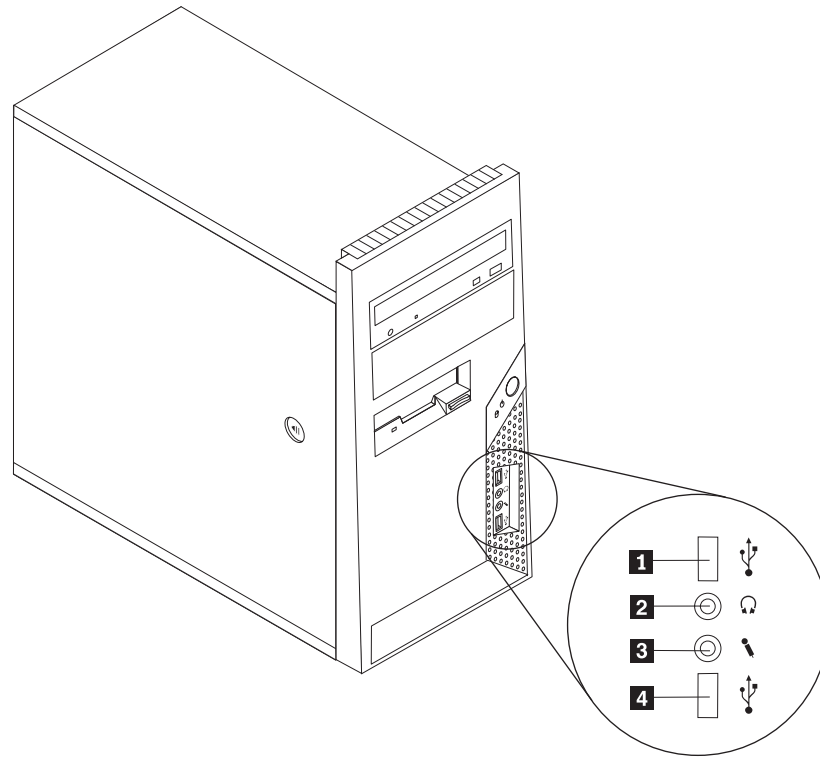
This chapter does not contain a remove and replace procedure for all FRUs. Only the major FRUs are documented.

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## Locating controls and connectors on the front of your computer

The following illustration shows the location of the controls and connectors on the front of your computer.

**Note:** Not all computer models will have the following controls and connections.



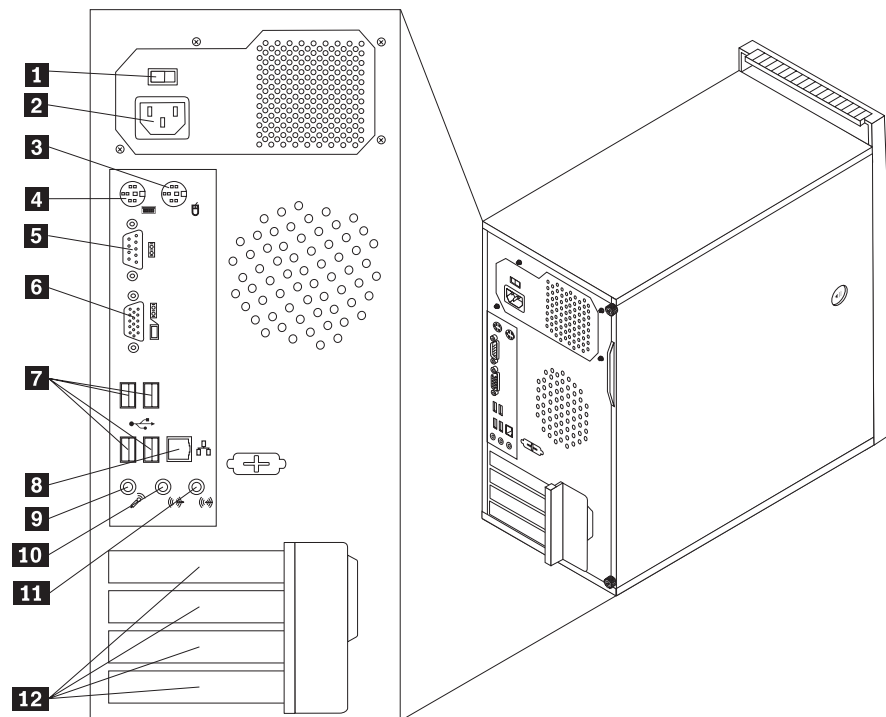
- 1** USB connector
- 2** Headphone connector

- 3** Microphone connector
- 4** USB connector



## Rear connectors

The following illustration shows the locations of the connectors on the rear of the computer.



- |   |                                    |
|---|------------------------------------|
| <b>1</b> Voltage-selection switch (some models) | <b>7</b> USB connectors (4)        |
| <b>2</b> Power cord connector                   | <b>8</b> Ethernet connector        |
| <b>3</b> Standard mouse connector               | <b>9</b> Microphone connector      |
| <b>4</b> Standard keyboard connector            | <b>10</b> Audio line-out connector |
| <b>5</b> Serial port                            | <b>11</b> Audio line-in connector  |
| <b>6</b> VGA monitor connector                  | <b>12</b> Adapter card slots (4)   |

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## Opening the cover

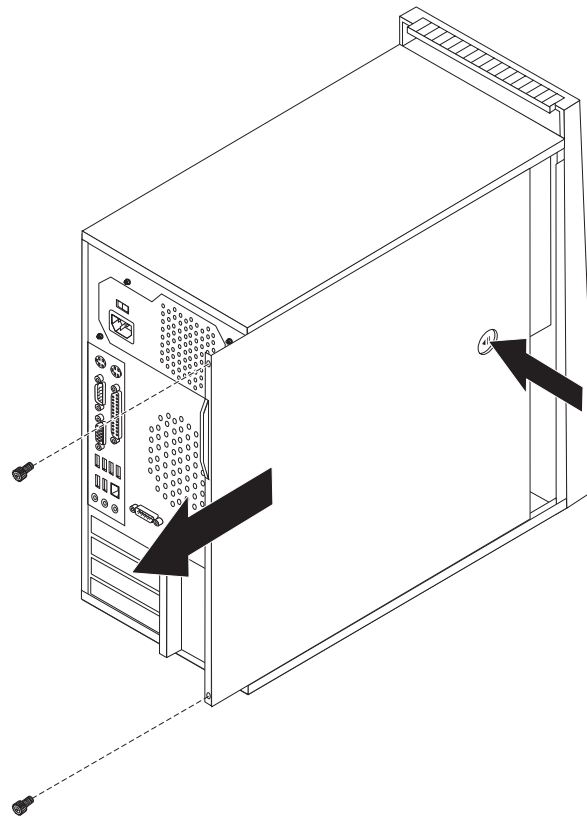
### CAUTION:



The heat sink and microprocessor might be very hot. Turn off the computer and wait three to five minutes to let the computer cool before opening the computer cover.

This section describes how to remove the cover.

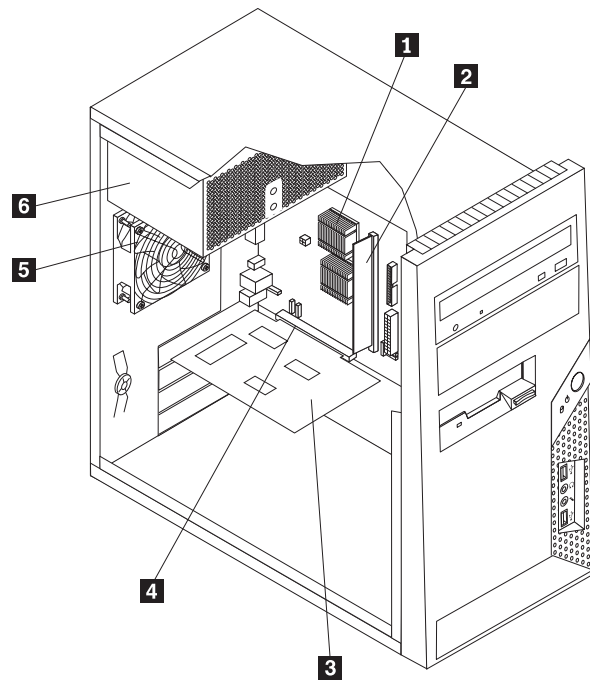
1. Shut down the operating system, remove any media (DVDs, CDs, or tapes) from the drives, and turn off all attached devices.
2. Unplug all power cords from electrical outlets.
3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer.
4. If there are thumbscrews securing the cover, remove them.
5. Press the cover-release button on the side of the cover and slide the computer cover to the rear to remove.



---

## Locations

The following illustration will help you locate the major FRUs in the computer.

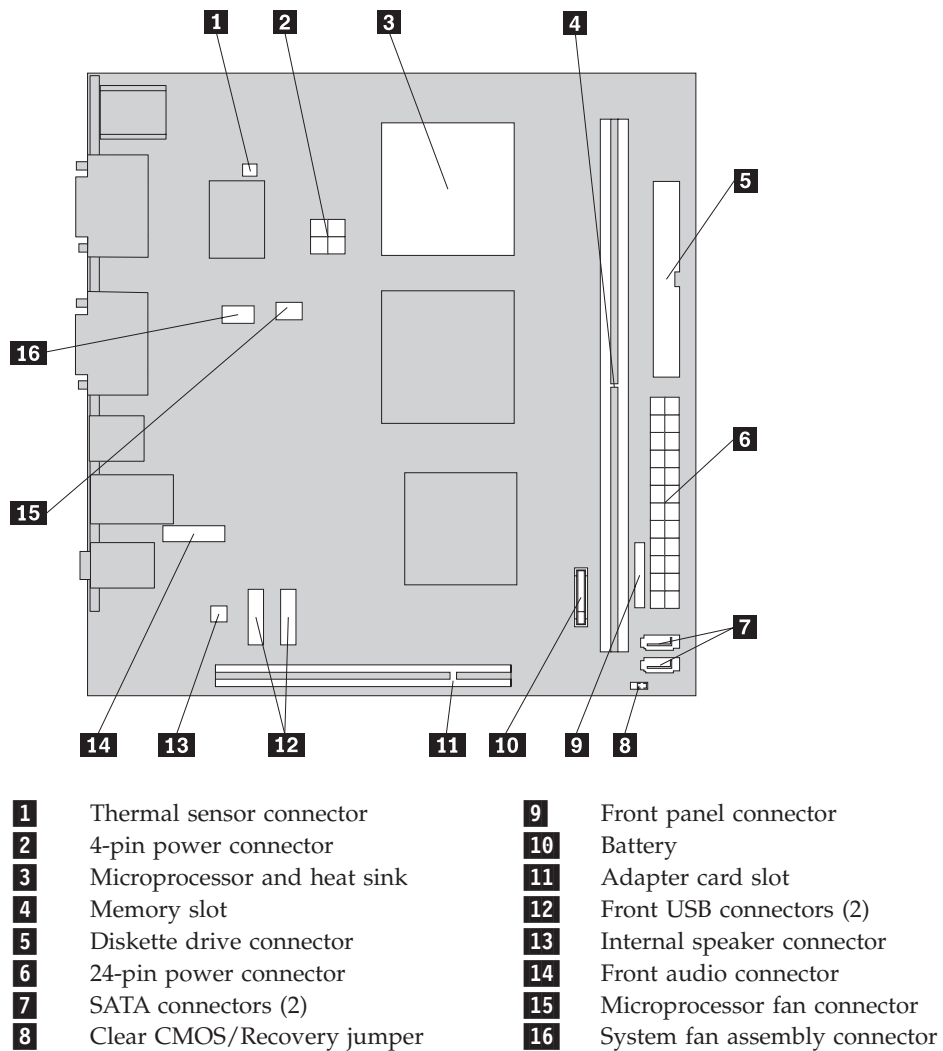


- 1** Microprocessor and heat sink
- 2** Memory module
- 3** Adapter card

- 4** Adapter card slot
- 5** System fan assembly
- 6** Power supply

---

## Locating parts on the system board



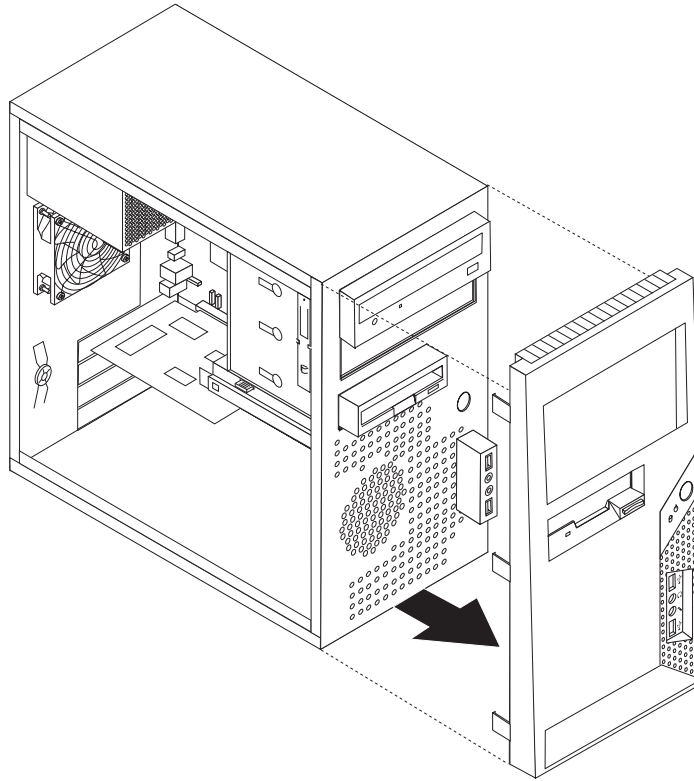
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## Removing and replacing the front bezel

This procedure describes how to remove and replace the front bezel.

1. Remove the computer cover. See “Opening the cover” on page 84.

2. Remove the front bezel by releasing the three plastic tabs inside the chassis and pivoting the bezel outward. Carefully set the bezel to the side without disconnecting the power switch/LED assembly cable.



3. To reinstall the bezel, align the plastic tabs on the right side of the bezel with the corresponding holes in the chassis, then pivot it inward until it snaps into position on the left side.

---

## Replacing the power supply

### Attention

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 servicable parts inside these components.

**Attention**

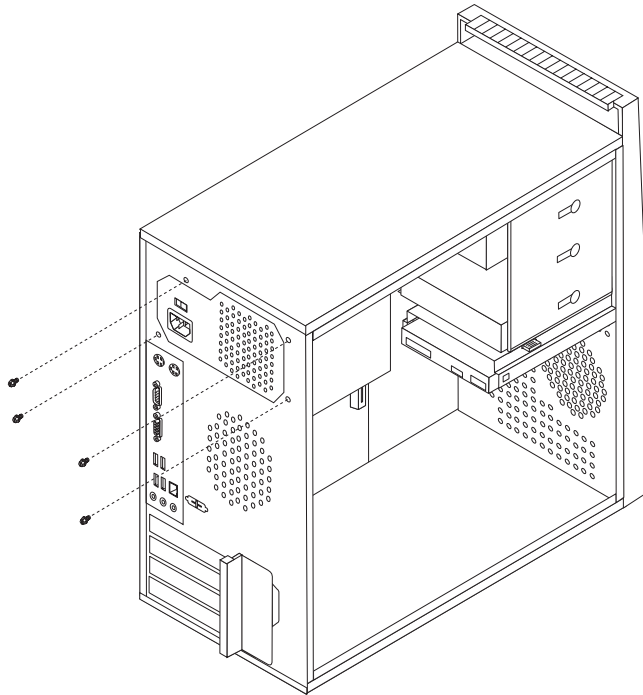
Do not open your computer or attempt any repair before reading and understanding the "Important safety information" in the *ThinkCentre Safety and Warranty Guide* that came with your computer. To obtain a copy of the *ThinkCentre Safety and Warranty Guide*, go to: <http://www.lenovo.com/support>

This procedure describes how to remove and replace the power supply.

1. Remove the computer cover. See "Opening the cover" on page 84.

**Note:** For this procedure, it helps to lay the computer on its side.

2. Disconnect the power supply cables from the system board and from all drives.
3. Remove the four screws that secure the power supply at the rear of the chassis.



4. Lift the power supply out of the chassis.
5. If the new power supply has a voltage-selection switch, ensure that it is set to match the voltage available at the electrical outlet.
  - If the voltage supply range in your local country or region is 100-127 V ac, set the switch to 115 V.
  - If the voltage supply range in your local country or region is 200-240 V ac, set the switch to 230 V.
6. Install the new power supply into the chassis so that the screw holes in the power supply align with those in the chassis.
7. Install the four screws to secure the power supply.

**Note:** Use only the screws provided by Lenovo.

8. Reconnect the power supply connectors to the system board. See "Locating parts on the system board" on page 86.
9. Reconnect a power supply connector to each of the drives.

10. Go to “Completing the FRU replacement” on page 104.

---

## Replacing the system board

### CAUTION:



The heat sink and microprocessor might be very hot. Turn off the computer and wait three to five minutes to let the computer cool before opening the computer cover.

#### Attention

Do not open your computer or attempt any repair before reading and understanding the “Important safety information” in the *ThinkCentre Safety and Warranty Guide* that came with your computer. To obtain a copy of the *ThinkCentre Safety and Warranty Guide*, go to: <http://www.lenovo.com/support>

This section provides instructions on how to remove and install the system board.

To replace the system board, do the following:

1. Remove the side cover. See “Opening the cover” on page 84.
2. Disconnect the cables from the system board and from all drives.
3. Carefully take note of the location of all cable connections on the system board and disconnect all cables. See “Locating parts on the system board” on page 86.
4. Remove the screws that secure the system board to the chassis.
5. Lift the system board out of the chassis.
6. Install the new system board into the chassis and align the screw holes with those in the chassis. Insert and tighten the screws that secure the system board.
7. Remove the memory modules, adapter cards and battery from the failing system board and install them in the same location on the new system board.
8. Connect all remaining cables to the system board. See “Locating parts on the system board” on page 86.
9. Go to “Completing the FRU replacement” on page 104.

---

## Replacing a memory module

#### Attention

Do not open your computer or attempt any repair before reading and understanding the “Important safety information” in the *ThinkCentre Safety and Warranty Guide* that came with your computer. To obtain a copy of the *ThinkCentre Safety and Warranty Guide*, go to: <http://www.lenovo.com/support>

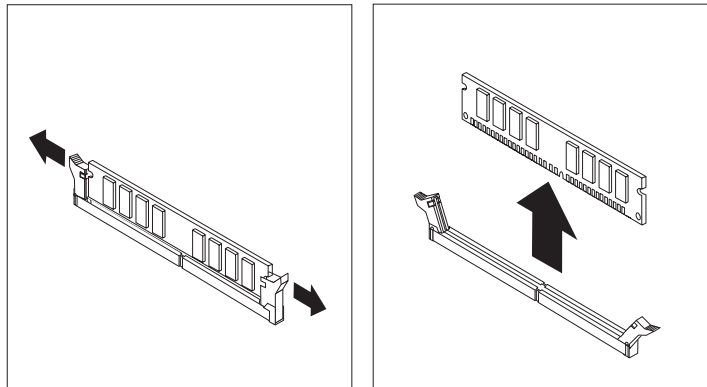
This section provides information on how to remove and replace a memory module.

To remove or replace the memory module, do the following:

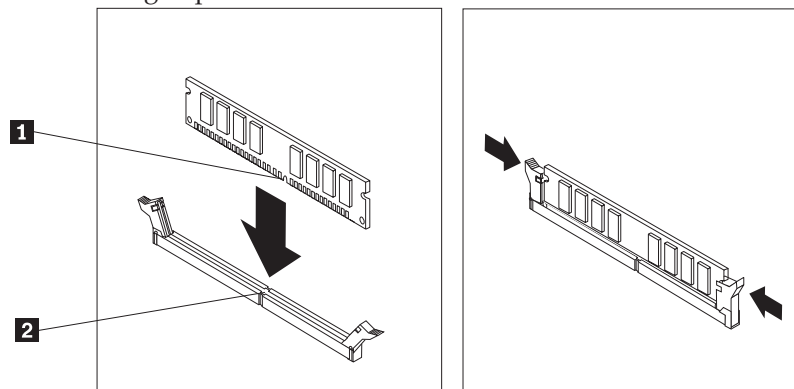
1. Remove the computer cover. See “Opening the cover” on page 84.

**Note:** For this procedure, it helps to lay the computer on its side.

2. Locate the memory module connectors. See "Locating parts on the system board" on page 86.
3. Remove the memory module being replaced by opening the retaining clips as shown.



4. Position the new memory module over the memory connector. Make sure the notch **1** on the memory aligns correctly with the connector key **2** on the system board. Push the memory module straight down into the connector until the retaining clips close.



5. Go to "Completing the FRU replacement" on page 104.

---

## Replacing a PCI adapter card

### Attention

Do not open your computer or attempt any repair before reading and understanding the "Important safety information" in the *ThinkCentre Safety and Warranty Guide* that came with your computer. To obtain a copy of the *ThinkCentre Safety and Warranty Guide*, go to: <http://www.lenovo.com/support>

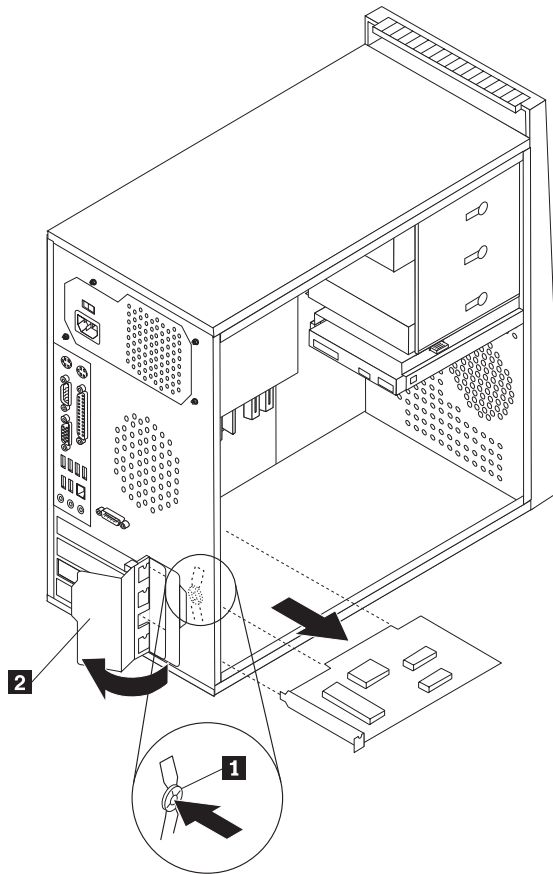
This section provides information on how to remove and replace a PCI adapter card.

To remove or replace a PCI adapter card, do the following:

1. Remove the computer cover. See "Opening the cover" on page 84.

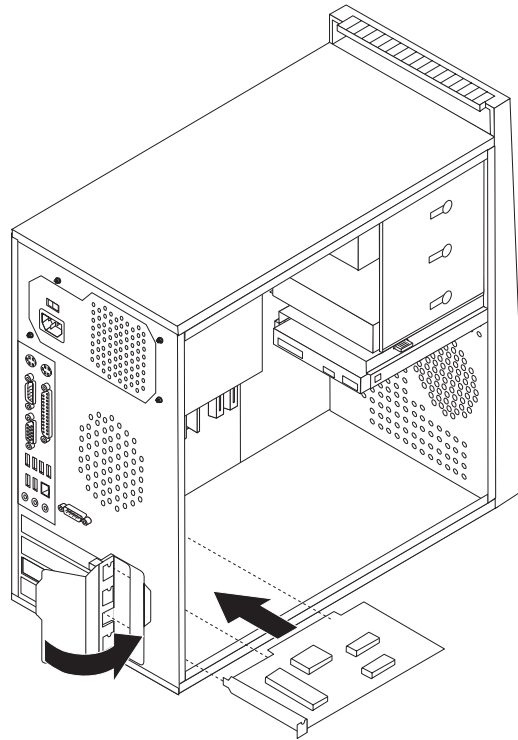


2. At the rear of the computer, press the release button **1** to open the adapter latch **2** and remove the slot cover.



3. Remove the adapter from its static-protective package.

4. Install the new adapter into the same adapter connector.



5. Ensure the adapter is fully seated into the adapter connector.
6. At the rear of the computer, pivot the adapter latch to the closed position to secure the adapter.
7. Go to “Completing the FRU replacement” on page 104.

---

## Replacing the hard disk drive

### Attention

Do not open your computer or attempt any repair before reading and understanding the “Important safety information” in the *ThinkCentre Safety and Warranty Guide* that came with your computer. To obtain a copy of the *ThinkCentre Safety and Warranty Guide*, go to: <http://www.lenovo.com/support>

### Important

When a new hard disk drive is installed, a set of *Product Recovery* discs might be required. The set of *Product Recovery* discs enable the contents of the hard disk to be restored to the same state as when the computer was originally shipped from the factory. For more information on recovering factory-installed software, refer to “Recovering Software” in the *User Guide*.

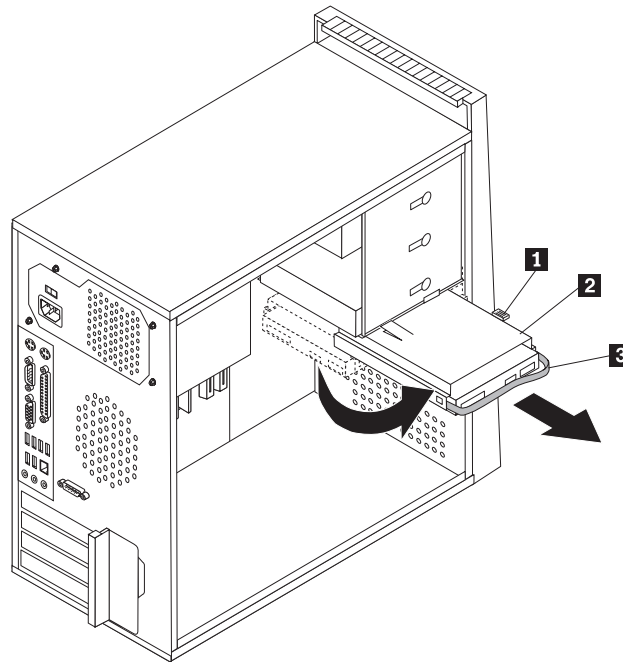
This section provides information on how to remove and replace the hard disk drive.

To remove or replace the hard disk drive, do the following:

1. Remove the computer cover. See “Opening the cover” on page 84.

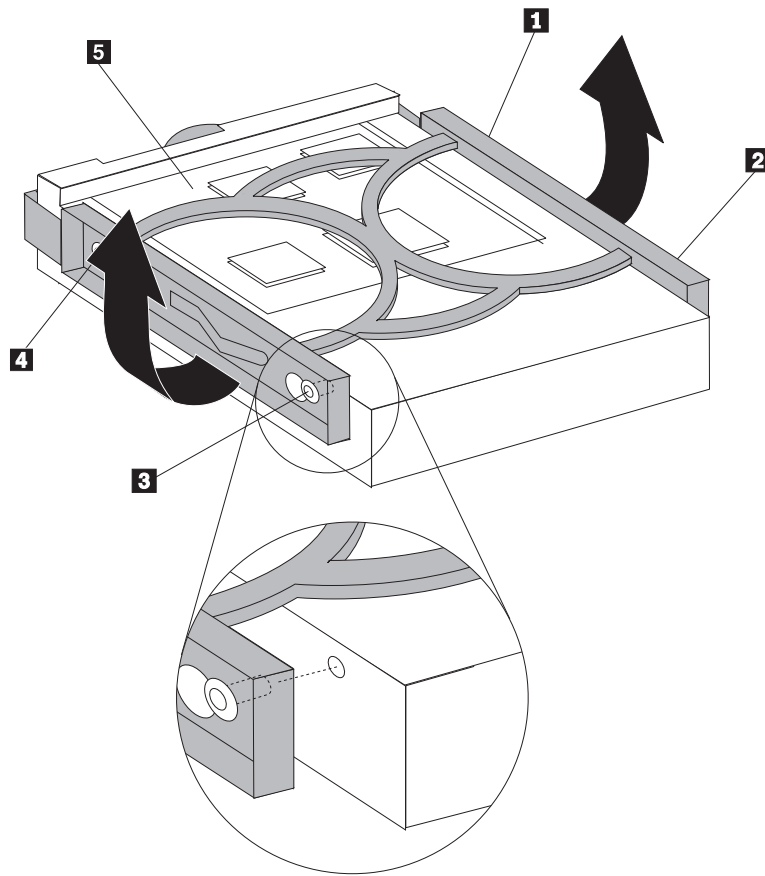
**Note:** For this procedure, it helps to lay the computer on its side.

2. Disconnect the signal and power cables from the hard disk drive.
3. Press the release tab **1** down, slide the hard drive cage **2** back, and pivot the hard disk drive outward as shown.



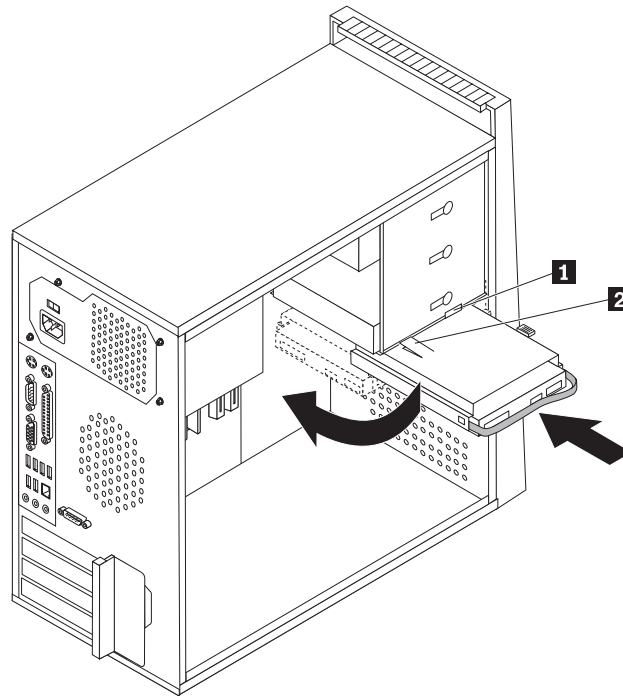
4. Remove the hard disk drive cage from the chassis by simply sliding it outward.
5. Pull on the blue handle **3** to remove hard disk drive from the drive cage.
6. Remove the failing hard disk drive from the blue plastic bracket from by flexing the sides of the bracket enough to free it from the hard disk drive.

7. To install the new hard disk drive into the blue bracket, flex the bracket and align the pin **1**, pin **2**, pin **3**, and pin **4** on the bracket with the holes in the hard disk drive. Do not touch the circuit board **5** on the bottom of the hard disk drive.



8. Slide the new hard disk drive into the drive cage until it snaps into position.

9. Align the drive cage pivot pin with the slot **1** in the upper drive cage and slide the hard disk drive into the chassis.



10. Press down on the metal latch **2** and pivot in the drive cage into place. Slide it forward until it snaps into position.

**Note:** There are two arrows, one on the upper drive cage and one on the hard disk drive cage, that are aligned when the hard disk drive is in the proper position.

11. Connect the power and signal cables to the hard disk drive.
12. Go to “Completing the FRU replacement” on page 104.

---

## Replacing an optical drive

### Attention

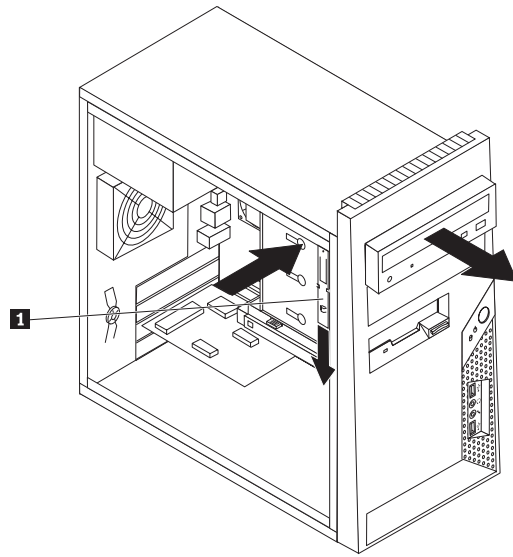
Do not open your computer or attempt any repair before reading and understanding the “Important safety information” in the *ThinkCentre Safety and Warranty Guide* that came with your computer. To obtain a copy of the *ThinkCentre Safety and Warranty Guide*, go to: <http://www.lenovo.com/support>

This section provides information on how to remove and replace an optical drive.

To remove and replace the optical drive, do the following;

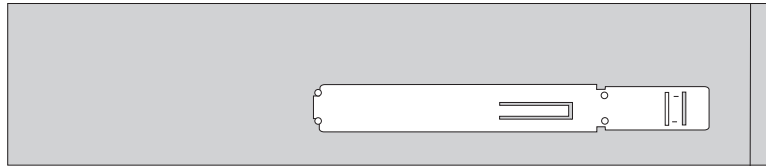
1. Remove the computer cover. See “Opening the cover” on page 84.
2. Disconnect the signal and power cables from the rear of the optical drive.

3. Press the release button and remove the optical drive out the front of the computer.



**Note:** Notice that there is a spare retainer bracket **1** attached to the upper drive cage.

4. Remove the retainer bracket from the drive being replaced and install it on the new drive.



5. Slide the new optical drive into the bay from the front until it snaps into position.
6. Connect the signal and power cables to the drive.
7. Go to "Completing the FRU replacement" on page 104.

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## Replacing the diskette drive

### Attention

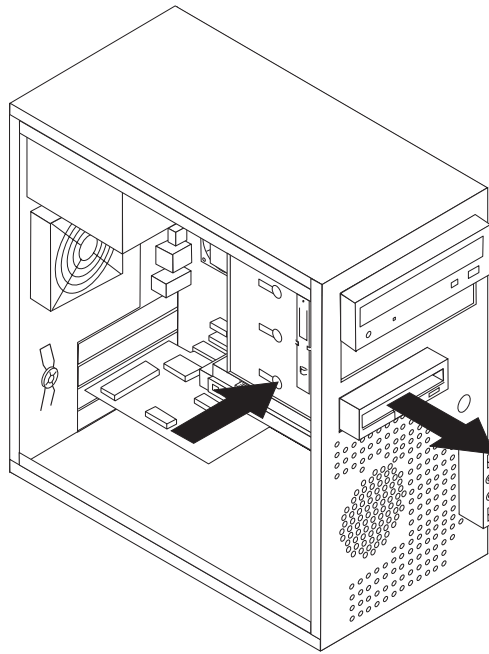
Do not open your computer or attempt any repair before reading and understanding the "Important safety information" in the *ThinkCentre Safety and Warranty Guide* that came with your computer. To obtain a copy of the *ThinkCentre Safety and Warranty Guide*, go to: <http://www.lenovo.com/support>

This procedure provides information on how to remove and replace the diskette drive.

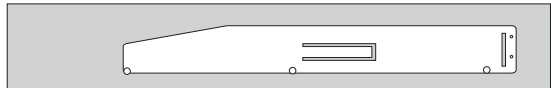
To remove or replace the diskette drive, do the following:

1. Remove the computer cover. See "Opening the cover" on page 84.
2. Remove the front bezel. See "Removing and replacing the front bezel" on page 86.
3. Disconnect the signal and power cables from the rear of the diskette drive.

4. Press the release button and slide the diskette drive out the front of the computer.



5. Remove the retainer bracket from the failing diskette drive and install it on the new diskette drive.



6. Slide the new diskette drive into the drive bay until it snaps into position.
7. Connect the signal and power cables to the drive.
8. Go to "Completing the FRU replacement" on page 104.

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## Replacing the rear fan assembly

### Attention

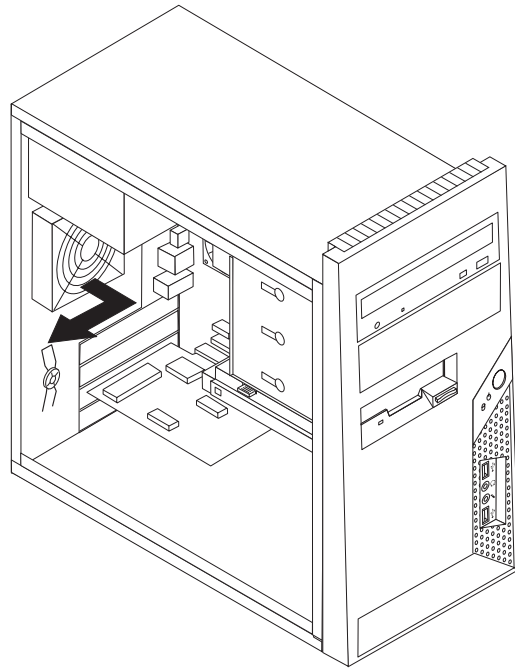
Do not open your computer or attempt any repair before reading and understanding the "Important safety information" in the *ThinkCentre Safety and Warranty Guide* that came with your computer. To obtain a copy of the *ThinkCentre Safety and Warranty Guide*, go to: <http://www.lenovo.com/support>

This section provides information on how to remove and replace the system fan.

To remove or replace the system fan, do the following:

1. Remove the computer cover. See "Opening the cover" on page 84.
2. Locate the rear fan assembly. Disconnect the rear fan cable from the system fan connector on the system board. See "Locating parts on the system board" on page 86.

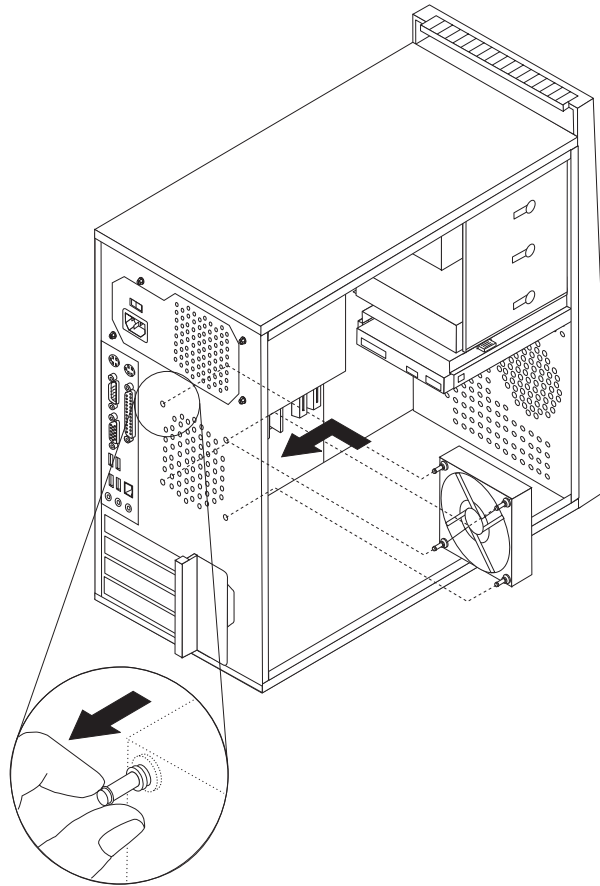
3. The rear fan assembly is mounted with four rubber mounts that protrude through the rear of the chassis. Remove the fan assembly by pulling the rubber mounts back through the chassis.



4. Install the new rear fan assembly by aligning the rubber mounts of the system fan assembly with the holes on the chassis and push the rubber mounts through the holes.



5. Pull on the tips of the rubber mounts until the fan assembly is in place.



6. Route the fan cable to the system board and connect the cable to the system board. See "Locating parts on the system board" on page 86.
7. Go to "Completing the FRU replacement" on page 104.

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## Replacing the front fan assembly

### Attention

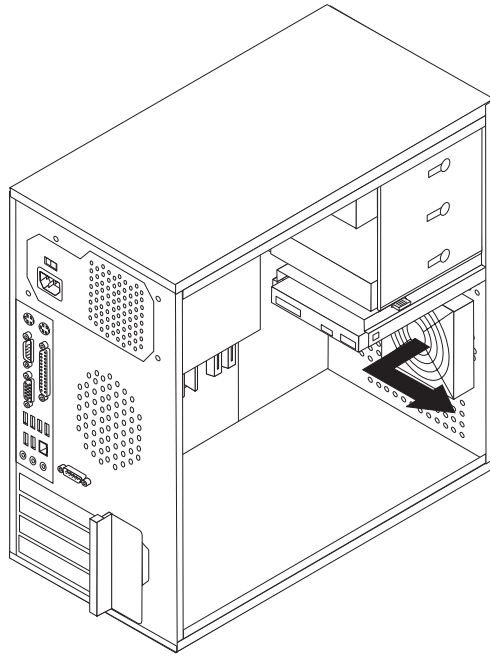
Do not open your computer or attempt any repair before reading and understanding the "Important safety information" in the *ThinkCentre Safety and Warranty Guide* that came with your computer. To obtain a copy of the *ThinkCentre Safety and Warranty Guide*, go to: <http://www.lenovo.com/support>

This section provides information on how to remove and replace the front fan assembly.

To remove or replace the front fan assembly, do the following:

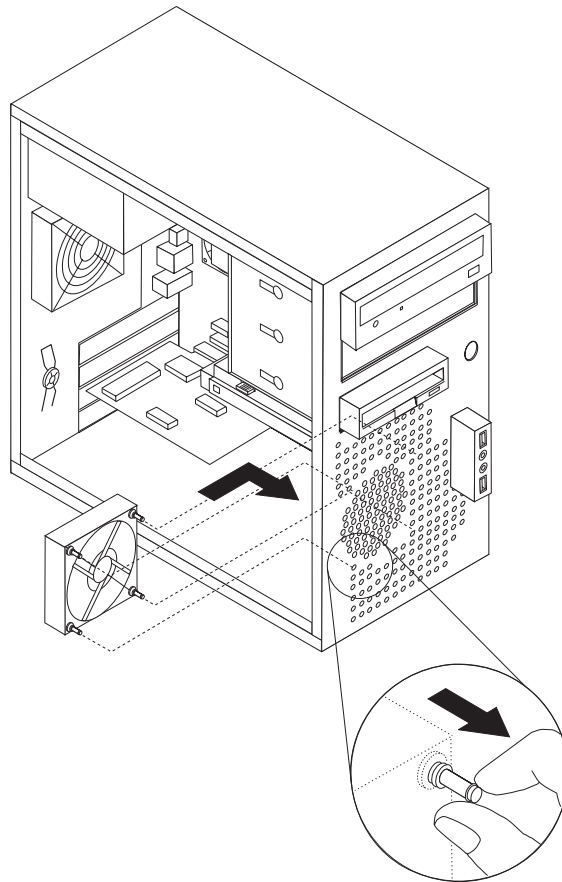
1. Remove the computer cover. See "Opening the cover" on page 84.
2. Remove the front bezel. See "Removing and replacing the front bezel" on page 86.
3. Disconnect the front fan assembly cable from the power fan connector on the system board. See "Locating parts on the system board" on page 86.

4. The front fan assembly is attached to the chassis by four rubber mounts. Remove the front fan assembly by gently pulling it out of the chassis.



5. Install the new front fan assembly by aligning the rubber mounts of the front fan assembly with the holes on the chassis and push the rubber mounts through the holes.

6. Pull on the tips of the rubber mounts until the fan assembly is in place.



7. Route the fan cable to the system board and connect the cable to the system board. See “Locating parts on the system board” on page 86.
8. Replace the front bezel.
9. Go to “Completing the FRU replacement” on page 104.

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## Replacing the front audio/USB assembly

### Attention

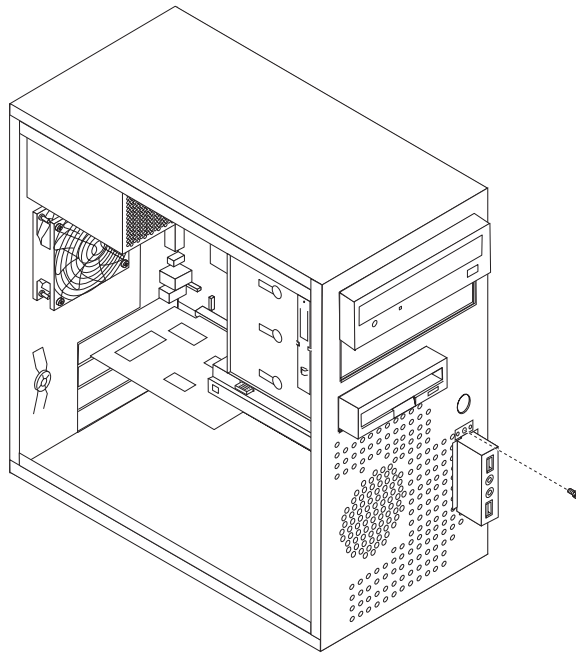
Do not open your computer or attempt any repair before reading and understanding the “Important safety information” in the *ThinkCentre Safety and Warranty Guide* that came with your computer. To obtain a copy of the *ThinkCentre Safety and Warranty Guide*, go to: <http://www.lenovo.com/support>

This section provides information on how to remove and replace the front audio/USB assembly.

To remove or replace the front audio/USB assembly, do the following:

1. Remove the computer cover. See “Opening the cover” on page 84.
2. Remove the front bezel. See “Removing and replacing the front bezel” on page 86
3. Disconnect the front audio/USB assembly cable from the system board.

4. Note the front audio/USB assembly cable routing and remove the screw that secures the assembly to the chassis.



5. Remove the front audio/USB assembly.
6. Route the cable for the new front audio/USB assembly through the hole in the chassis and to the system board.
7. Install the front audio/USB assembly into the chassis and secure it with the screw.
8. Connect the front audio/USB assembly cable to the system board.
9. Reinstall the front bezel.
10. Go to “Completing the FRU replacement” on page 104.

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## Replacing the power switch/LED assembly

### Attention

Do not open your computer or attempt any repair before reading and understanding the “Important safety information” in the *ThinkCentre Safety and Warranty Guide* that came with your computer. To obtain a copy of the *ThinkCentre Safety and Warranty Guide*, go to: <http://www.lenovo.com/support>

This section provides information on how to remove and replace the power switch/LED assembly.

To remove or replace the power switch/LED assembly, do the following:

1. Remove the computer cover. See “Opening the cover” on page 84.
2. Remove the front bezel. See “Removing and replacing the front bezel” on page 86
3. Disconnect the power switch/LED assembly cable from the system board. See “Locating parts on the system board” on page 86.
4. Note the power switch/LED assembly cable routing and the position of the two LEDs.

5. Remove the switch and the LEDs from the bezel.
6. Route the cable for the new power switch/LED assembly through the hole in the chassis and to the system board.
7. Install the new power switch/LED assembly into the bezel. Make sure that the LEDs are in the correct position.
8. Connect the power switch/LED cable to the system board.
9. Reinstall the front bezel.
10. Go to “Completing the FRU replacement” on page 104.

## Replacing the CMOS battery

### Attention

Do not open your computer or attempt any repair before reading and understanding the “Important safety information” in the *ThinkCentre Safety and Warranty Guide* that came with your computer. To obtain a copy of the *ThinkCentre Safety and Warranty Guide*, go to: <http://www.lenovo.com/support>

This section provides information on how to remove and replace the CMOS battery.

To remove or replace the CMOS battery, do the following:

If the CMOS battery fails, the date, time, and configuration information (including passwords) are lost. An error message is displayed when you turn on the computer.

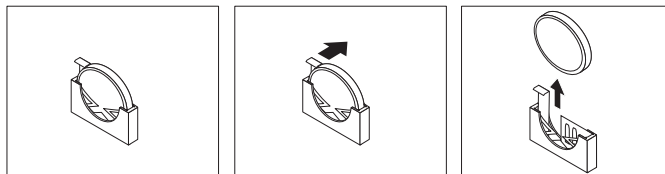
### Important

Refer to “Safety notices (multi-lingual translations)” on page 7 for information about replacing and disposing of the battery.

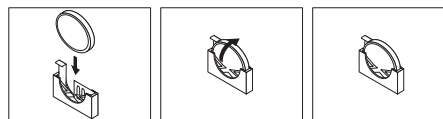
### CAUTION:

**When replacing the lithium battery, use only Part Number 33F8354 or an equivalent type battery recommended by the manufacturer.**

1. Remove the computer cover. See “Opening the cover” on page 84.
2. Locate the battery. See “Locating parts on the system board” on page 86.
3. Remove the old battery.



4. Install the new battery.



5. Replace the computer cover, and connect the cables.

**Note:** When the computer is turned on for the first time after battery replacement, an error message might be displayed. This is normal after replacing the battery.

6. Turn on the computer and all attached devices.
7. Use the Setup Utility program to set the date and time and any passwords. See "Using the Setup Utility" in the *User Guide*.

---

## Completing the FRU replacement

After replacing FRUs, you need to install any removed parts, replace the cover, and reconnect any cables, including telephone lines and power cords. Also, depending on the FRU that is replaced, you might need to confirm the updated information in the Setup Utility program.

**Note:** When the power cord is first plugged in, the computer might appear to turn on for a few seconds and then turn off. This is a normal sequence to enable the computer to initialize.

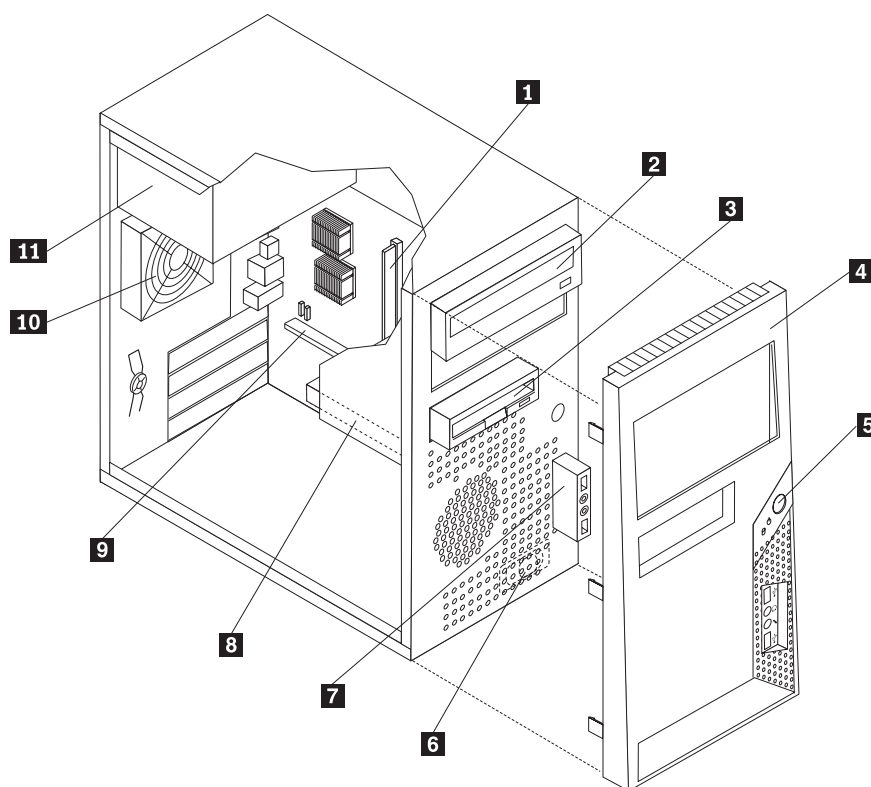
1. Ensure that all components have been reassembled correctly and that no tools or loose screws are left inside your computer.
2. Replace the cover.
3. Reconnect the external cables and power cords to the computer. See "Rear connectors" on page 83.
4. If you have replaced the system board, you must update (flash) the BIOS. See "Flash update procedures" on page 115.
5. Some FRU replacements require the configuration to be updated. See Chapter 6, "Using the Setup Utility," on page 49.

## Chapter 9. FRU lists

**Attention:** Read "Important information about replacing RoHS compliant FRUs" on page 2 before replacing any FRUs.

**Note:** In the following tables, a CRU (Customer Replaceable Unit) is identified as either "1", "2", or "N" in the CRU column. "N" means that the part is not a CRU, "1" means that the part is a Self-service CRU, and "2" means that the part is an Optional-service CRU.

### Machine Type 6306



Item #	6306 FRUs	FRU#	CRU
1	Memory module, 512MB PC2-5300 (667MHz) DDR2 SDRAM (models 12A 12Q 12T)	41X4255	2
1	Memory module,, 1GB PC2-5300 (667MHz) DDR2 SDRAM (models 11A 11Q 11T 13M 13A 13Q 13T 14M 14A 14Q 14T 15G 15M 15A 15Q 15T 16G 16M 16A 16Q 16T 18G 18M 18A 18Q 18T 1AG 1AM 1AA 1AQ 1AT 13K 14K 15K 16K 1AK)	41X4256	2
1	Memory module,, 2GB PC2-5300 (667MHz) DDR2 SDRAM (models 19G)	41X4257	2
2	DVD-ROM Drive - 16x MAX SATA (models 11A 11Q 11T)	41N3325	2
2	DVD Recordable SATA (models 13M 13A 13Q 13T 14M 14A 14Q 14T 15G 15M 15A 15Q 15T 16G 16M 16A 16Q 16T 18G 18M 18A 18Q 18T 19G 1AG 1AM 1AA 1AQ 1AT 13K 14K 15K 16K 1AK)	43C1042	2
3	Diskette drive, 3.5" 1.44MB 2 Mode FDD with Bezel and cable (models)	40Y9107	2

Item #	6306 FRUs	FRU#	CRU
3	Diskette drive, 3.5" 1.44MB 2 Mode FDD with Bezel and cable (models)	40Y9105	2
4	Bezel assembly, without IBM mark (all models)	41N8077	2
6	Speaker assembly, soldered terminals (all models)	39P5023	2
8	Hard disk drive, SATA 80GB 7200RPM/3Gb/8MB (models)	40Y9034	2
8	Hard disk drive, SATA 160GB 7200RPM/3Gb/8MB (models 11A 11Q 11T 12A 12Q 12T 13M 13A 13Q 13T 15G 15M 15A 15Q 15T 16G 16M 16A 16Q 16T 18G 18M 18A 18Q 18T 19G 1AG 1AM 1AA 1AQ 1AT 13K 15K 16K 1AK)	40Y9035	2
8	Hard disk drive, SATA 250GB 7200RPM/3Gb/8MB (models 14M 14A 14Q 14T 14K)	40Y9036	2
8	Hard disk drive, SATA 320GB 7200rpm SATA/8MB (models)	87H4891	2
9	System board, Planar Intel 945GC mATX (models 11A 11Q 11T 12A 12Q 12T 13M 13A 13Q 13T 14M 14A 14Q 14T 15G 15M 15A 15Q 15T 16G 16M 16A 16Q 16T 18G 18M 18A 18Q 18T 19G 1AG 1AM 1AA 1AQ 1AT 13K 14K 15K 16K 1AK)	46R4061	N
11	Power supply, ATX 280W (Robust, WW) (models 11A 11Q 11T 12A 12Q 12T 13M 13A 13Q 13T 14M 14A 14Q 14T 15G 15M 15A 15Q 15T 16G 16M 16A 16Q 16T 18G 18M 18A 18Q 18T 19G 1AG 1AM 1AA 1AQ 1AT)	41A9684	2
11	Power supply, ATX 280W (models 11A 11Q 11T 12A 12Q 12T 13M 13A 13Q 13T 14M 14A 14Q 14T 15G 15M 15A 15Q 15T 16G 16M 16A 16Q 16T 18G 18M 18A 18Q 18T 19G 1AG 1AM 1AA 1AQ 1AT 13K 14K 15K 16K 1AK 71G)	41A9750	2

The FRUs listed in the following tables are not illustrated.

6306 FRUs	FRU#	CRU
Cover (all models)	41N8050	2
Retainer, Card Reader (all models)	41R2913	2
Front Fan (all models)	41R4791	2
HDD Tray (all models)	41R6291	2
FDD cable, 325mm, (all models)	41A7182	2
Cable -SATA 457mm (RoHS) (all models)	43N9013	2
Cable-SATA 250mm (RoHS) (all models)	43N9012	2
Optional HDD Bracket Asm (all models)	41R6106	2
EMC Shield (all models)	41N8080	2
Blank 5.25" Bezel (all models)	41N8077	2
Planar I/O, shield (all models)	41R6378	2
ODD/FDD/Cardreader Retainers (all models)	43N9351	2
Front I/O cable (all models)	43N9076	2
LED/switch cable (all models)	43N9074	2
Intrusion Switch asm (all models)	41R6116	2
Cable Clip, FW-6D (all models)	43N9462	2
Temp Sense Cable (6pin 460 mm) kit w/ bracket (all models)	45J9495	2

6306 Keyboards (Lenovo Preferred Pro USB -- without hub)	FRU#	CRU Tier
USB FULL--US English (models 11A 11Q 12A 12Q 13M 13A 13Q 14M 14A 14Q 15G 15M 15A 15Q 16G 16M 16A 16Q 18G 19G 1AG 1AM 1AA 1AQ)	41A5289	1



<b>6306 Keyboards (Lenovo Preferred Pro USB -- without hub)</b>	<b>FRU#</b>	<b>CRU Tier</b>
USB FULL--Arabic (models 15G 16G 18G 19G 1AG)	41A5290	1
USB FULL--Arabic/French (models 15G 16G 18G 19G 1AG)	41A5291	1
USB FULL--Belgian/French (models 15G 16G 18G 19G 1AG)	41A5292	1
USB FULL--Belgium English (models 15G 16G 18G 19G 1AG)	41A5293	1
USB FULL--Brazilian Portuguese (models)	41A5294	1
USB FULL--Bulgarian (models 15G 16G 18G 19G 1AG)	41A5295	1
USB FULL--Chinese/US (models)	41A5296	1
USB FULL--Czech (ABB) (models 15G 16G 18G 19G 1AG)	41A5297	1
USB FULL--Danish (models 15G 16G 18G 19G 1AG)	41A5298	1
USB FULL--Dutch (models 15G 16G 18G 19G 1AG)	41A5299	1
USB FULL--French (models 15G 16G 18G 19G 1AG)	41A5300	1
USB FULL--French Canadian (models 15G 16G 18G 19G 1AG)	41A5301	1
USB FULL--French Canadian (models 15G 16G 18G 19G 1AG)	41A5302	1
USB FULL--German (models 15G 16G 18G 19G 1AG)	41A5303	1
USB FULL--Greek (models 15G 16G 18G 19G 1AG)	41A5304	1
USB FULL--Greek/US (models 15G 16G 18G 19G 1AG)	41A5305	1
USB FULL--Hebrew (models 15G 16G 18G 19G 1AG)	41A5306	1
USB FULL--Hungarian (models 15G 16G 18G 19G 1AG)	41A5307	1
USB FULL--Iceland (models 15G 16G 18G 19G 1AG)	41A5308	1
USB FULL--Italy (models 15G 16G 18G 19G 1AG)	41A5309	1
USB FULL--Japanese (models)	41A5310	1
USB FULL--Korean (models 13K 14K 15K 16K 1AK)	41A5311	1
USB FULL--LA Spanish (models)	41A5312	1
USB FULL--Norwegian (models 15G 16G 18G 19G 1AG)	41A5313	1
USB FULL--Polish (models 15G 16G 18G 19G 1AG)	41A5314	1
USB FULL--Portugese (models 15G 16G 18G 19G 1AG)	41A5315	1
USB FULL--Romanian (models 15G 16G 18G 19G 1AG)	41A5317	1
USB FULL--Russian/Cyrillic (models 15G 16G 18G 19G 1AG)	41A5318	1
USB FULL--Serbian/Cyrillic (models 15G 16G 18G 19G 1AG)	41A5319	1
USB FULL--Slovak (models 15G 16G 18G 19G 1AG)	41A5320	1
USB FULL--Spanish (models 15G 16G 18G 19G 1AG)	41A5321	1
USB FULL--Swedish/Finnish (models 15G 16G 18G 19G 1AG)	41A5322	1
USB FULL--Swiss F/G (models 15G 16G 18G 19G 1AG)	41A5323	1
USB FULL--Thailand (models 11T 12T 13T 14T 15T 16T 1AG)	41A5324	1
USB FULL--Turkish (models 15G 16G 18G 19G 1AG)	41A5325	1
USB FULL--Turkish (models 15G 16G 18G 19G 1AG)	41A5326	1
USB FULL--UK English (models 15G 16G 18G 19G 1AG)	41A5327	1
USB FULL--US Euro (models 15G 16G 18G 19G 1AG)	41A5328	1
USB FULL--Slovenian (models)	41A5329	1

6306 Keyboards (Lenovo Enhanced Performance USB Preferred -- with hub)	FRU#	CRU Tier
Enhanced--US English (models)	41A4961	1
Enhanced--Arabic (models)	41A4962	1
Enhanced--Arabic/French (models)	41A4963	1
Enhanced--Belgian/French (models)	41A4964	1
Enhanced--Belgium English (models)	41A4965	1
Enhanced--Brazilian Portuguese (models)	41A4966	1
Enhanced--Bulgarian (models)	41A4967	1
Enhanced--HK/Taiwan (models)	41A4968	1
Enhanced--Czech (ABB) (models)	41A4969	1
Enhanced--Danish (models)	41A4970	1
Enhanced--Dutch (models)	41A4971	1
Enhanced--French (models)	41A4972	1
Enhanced--French Canadian (models)	41A4973	1
Enhanced--French Canadian (models)	41A4974	1
Enhanced--German (models)	41A4975	1
Enhanced--Greek (models)	41A4976	1
Enhanced--Greek/US (models)	41A5078	1
Enhanced--Hebrew (models)	41A4977	1
Enhanced--Hungarian (models)	41A4978	1
Enhanced--Iceland (models)	41A4979	1
Enhanced--Italy (models)	41A4980	1
Enhanced--Japanese (models)	41A4981	1
Enhanced--Korean (models)	41A4982	1
Enhanced--LA Spanish (models)	41A4983	1
Enhanced--Norwegian (models)	41A4984	1
Enhanced--Polish (models)	41A4985	1
Enhanced--Portugese (models)	41A4986	1
Enhanced--Romanian (models)	41A4987	1
Enhanced--Russian/Cyrillic (models)	41A4988	1
Enhanced--Serbian/Cyrillic (models)	41A4989	1
Enhanced--Slovak (models)	41A4990	1
Enhanced--Spanish (models)	41A4991	1
Enhanced--Swedish/Finnish (models)	41A4992	1
Enhanced--Swiss F/G (models)	41A4993	1
Enhanced--Thailand (models)	41A4994	1
Enhanced--Turkish (models)	41A4995	1
Enhanced--Turkish (models)	41A4996	1
Enhanced--UK English (models)	41A4997	1
Enhanced--US Euro (models)	41A4998	1
Enhanced--Slovenian (models)	41A4999	1

6306 Keyboards (Lenovo Fingerprint Reader USB)	FRU#	CRU Tier
US English (models)	41A5248	1
Arabic (models)	41A5249	1
Arabic/French (models)	41A5250	1
Belgian/French (models)	41A5251	1
Belgium English (models)	41A5252	1
Brazilian Portuguese (models)	41A5253	1
Bulgarian (models)	41A5254	1
HK/Taiwan (models)	41A5255	1
Czech (ABB) (models)	41A5256	1
Danish (models)	41A5257	1
Dutch (models)	41A5258	1
French (models)	41A5259	1
French Canadian (models)	41A5260	1
French Canadian (models)	41A5261	1
German (models)	41A5262	1
Greek (models)	41A5263	1
Greek/US (models)	41A5264	1
Hebrew (models)	41A5265	1
Hungarian (models)	41A5266	1
Iceland (models)	41A5267	1
Italy (models)	41A5268	1
Japanese (models)	41A5269	1
Korean (models)	41A5270	1
LA Spanish (models)	41A5271	1
Norwegian (models)	41A5272	1
Polish (models)	41A5273	1
Portugese (models)	41A5274	1
Romanian (models)	41A5276	1
Russian/Cyrillic (models)	41A5277	1
Serbian/Cyrillic (models)	41A5278	1
Slovak (models)	41A5279	1
Spanish (models)	41A5280	1
Swedish/Finnish (models)	41A5281	1
Swiss F/G (models)	41A5282	1
Thailand (models)	41A5283	1
Turkish (models)	41A5284	1
Turkish (models)	41A5285	1
UK English (models)	41A5286	1
US Euro (models)	41A5287	1
Slovenian (models)	41A5288	1

6306 Keyboards (Lenovo Preferred Pro PS/2 Full Size)	FRU#	CRU Tier
PS/2 Full--US English (models)	41A5039	1
PS/2 Full--Arabic (models)	41A5040	1
PS/2 Full--Arabic/French (models)	41A5041	1
PS/2 Full--Belgian/French (models)	41A5042	1
PS/2 Full--Belgium English (models)	41A5043	1
PS/2 Full--Brazilian Portuguese (models)	41A5044	1
PS/2 Full--Bulgarian (models)	41A5045	1
PS/2 Full--Chinese/US (models)	41A5046	1
PS/2 Full--Czech (ABB) (models)	41A5047	1
PS/2 Full--Danish (models)	41A5048	1
PS/2 Full--Dutch (models)	41A5049	1
PS/2 Full--French (models)	41A5050	1
PS/2 Full--French Canadian (models)	41A5051	1
PS/2 Full--French Canadian (models)	41A5052	1
PS/2 Full--German (models)	41A5053	1
PS/2 Full--Greek (models)	41A5054	1
PS/2 Full--Greek/US (models)	41A5080	1
PS/2 Full--Hebrew (models)	41A5055	1
PS/2 Full--Hungarian (models)	41A5056	1
PS/2 Full--Iceland (models)	41A5057	1
PS/2 Full--Italy (models)	41A5058	1
PS/2 Full--Japanese (models)	41A5059	1
PS/2 Full--Korean (models)	41A5060	1
PS/2 Full--LA Spanish (models)	41A5061	1
PS/2 Full--Norwegian (models)	41A5062	1
PS/2 Full--Polish (models)	41A5063	1
PS/2 Full--Portugese (models)	41A5064	1
PS/2 Full--Romanian (models)	41A5065	1
PS/2 Full--Russian/Cyrillic (models)	41A5066	1
PS/2 Full--Serbian/Cyrillic (models)	41A5067	1
PS/2 Full--Slovak (models)	41A5068	1
PS/2 Full--Spanish (models)	41A5069	1
PS/2 Full--Swedish/Finnish (models)	41A5070	1
PS/2 Full--Swiss F/G (models)	41A5071	1
PS/2 Full--Thailand (models)	41A5072	1
PS/2 Full--Turkish (models)	41A5073	1
PS/2 Full--Turkish (models)	41A5074	1
PS/2 Full--UK English (models)	41A5075	1
PS/2 Full--US Euro (models)	41A5076	1
PS/2 Full--Slovenian (models)	41A5077	1

6306 Mice	FRU#	CRU
Optical Wheel Mouse (400DPI, USB) (models 11A 11Q 11T 11 12A 12Q 12T 13M 13A 13Q 13T 14M 14A 14Q 14T 15G 15M 15A 15Q 15T 15 16G 16M 16A 16Q 16T 18G 18M 18A 18Q 18T 19G 1AG 1AM 1AA 1AQ 1AT 13K 14K 15K 16K 1AK)	41U3013	1
Optical Wheel Mouse (400DPI, USB) (models 11A 11Q 11T 11 12A 12Q 12T 13M 13A 13Q 13T 14M 14A 14Q 14T 15G 15M 15A 15Q 15T 15 16G 16M 16A 16Q 16T 18G 18M 18A 18Q 18T 19G 1AG 1AM 1AA 1AQ 1AT 13K 14K 15K 16K 1AK)	41U3030	1
PS/2 Three Button ball mouse scroll point (models)	41R0018	1

6306 Adapters and miscellaneous FRUs	FRU#	CRU
IEEE 1394 Firewire Adapter ATX (models)	41D2781	2
Soft Modem V.90/V.44 ATX & Liteon Soft Modem V.90/V.44 ATX (models)	29R9729	2

6306 Power Cords	FRU#	CRU
Power cord - US (models 11Q 12Q 13Q 14Q 15G 15Q 16G 16Q 18G 18Q 19G 1AG 1AQ)	41R3184	1
Power cord - US (models 11Q 12Q 13Q 14Q 15G 15Q 16G 16Q 18G 18Q 19G 1AG 1AQ)	41R3185	1
Power cord - China (models)	41R3256	1
Power cord - China (models)	41R3257	1
Power cord - Japanese and Japanese English (models)	41R3248	1
Power cord - Japanese and Japanese English (models)	41R3249	1
Power cord - Brazil (Portigese) (models)	41R3270	1
Power cord - Brazil (Portigese) (models)	41R3271	1
Power cord - LA High Volt (APU) (models)	41R3176	1
Power cord - LA High Volt (APU) (models)	41R3177	1
Power cord - ANZ (models)	41R3196	1
Power cord - ANZ (models)	41R3197	1
Power cord - Korea (models 13K 14K 15K 16K 1AK)	41R3260	1
Power cord - Korea (models 13K 14K 15K 16K 1AK)	41R3261	1
Power cord - UK, Ireland, Singapore, Malaysia, Brunei, Hongkong (models)	41R3224	1
Power cord - UK, Ireland, Singapore, Malaysia, Brunei, Hongkong (models)	41R3225	1
Power cord - Taiwan (models)	41R3278	1
Power cord - Taiwan (models)	41R3279	1
Power cord - Italy (models)	41R3232	1
Power cord - Italy (models)	41R3233	1
Power cord - Indonesia, Laos, Cambodia, Vietnam, Austria, Belgium, Croatia, Czechoslovakia, Finland, France, Germany, Hungary, Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden (models)	41R3208	1
Power cord - Indonesia, Laos, Cambodia, Vietnam, Austria, Belgium, Croatia, Czechoslovakia, Finland, France, Germany, Hungary, Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden (models)	41R3209	1
Power cord - Denmark (models 13M 14M 15M 16M 18M 1AM)	41R3212	1
Power cord - Denmark (models 13M 14M 15M 16M 18M 1AM)	41R3213	1
Power cord - Switzerland (models 13M 14M 15M 16M 18M 1AM)	41R3228	1
Power cord - Switzerland (models 13M 14M 15M 16M 18M 1AM)	41R3229	1

<b>6306 Power Cords</b>	<b>FRU#</b>	<b>CRU</b>
Power cord - Israel (models 13M 14M 15M 16M 18M 1AM)	41R3236	1
Power cord - Israel (models 13M 14M 15M 16M 18M 1AM)	41R3237	1
Power cord - South Africa (models 11A 11Q 12A 12Q 13M 13A 13Q 14M 14A 14Q 15M 15A 15Q 16M 16A 16Q 18M 18A 18Q 1AA 1AQ 1AM)	41R3220	1
Power cord - South Africa (models 11A 11Q 12A 12Q 13M 13A 13Q 14M 14A 14Q 15M 15A 15Q 16M 16A 16Q 18M 18A 18Q 1AA 1AQ 1AM)	41R3221	1
Power cord - India (models 11T 12T 13T 14T 15T 16T 18T 1AT)	41R3341	1
Power cord - India (models 11T 12T 13T 14T 15T 16T 18T 1AT)	41R3175	1
Power cord - Thailand (models)	43N9029	1
Power cord - Thailand (models)	43N9030	1
Power cord - Brazil (models)	43N9044	1

<b>6306 Windows XP Pro Recovery DVDs</b>	<b>FRU#</b>	<b>CRU</b>
US English (models 18M 18A 18Q 1AM 1AQ 1AA)	53Y7356	1
French (models 18G 19G 1AG)	53Y7357	1
German (models 18G 19G 1AG)	53Y7358	1
Italian (models 18G 19G 1AG)	53Y7360	1
Norwegian (models 18G 19G 1AG)	53Y7361	1
Spanish (models 18G 19G 1AG)	53Y7359	1
Danish (models 18G 19G 1AG)	53Y7363	1
Dutch (models 18G 19G 1AG)	53Y7364	1
Arabic English (models 18G 19G 1AG)	53Y7369	1
SV (Swedish) (models 18G 19G 1AG)	53Y7362	1
Hebrew (models 18G 19G 1AG)	53Y7367	1
Finland (models 18G 19G 1AG)	53Y7366	1
Polish (models 18G 19G 1AG)	53Y7368	1
Portuguese (models 18G 19G 1AG)	53Y7375	1
Russian (models 18G 19G 1AG)	53Y7370	1
Russian English (models 18G 19G 1AG)	53Y7371	1
Hungarian (models 18G 19G 1AG)	53Y7373	1
Czech (models 18G 19G 1AG)	53Y7365	1
Turkish (models 18G 19G 1AG)	53Y7372	1
Greek (models 18G 19G 1AG)	53Y7374	1
Slovakian (models 18G 19G 1AG)	53Y7376	1
Korean (models 1AK)	53Y7377	1

<b>6306 Vista Home Basic 32 Recovery CDs</b>	<b>FRU#</b>	<b>CRU</b>
US English (models 13M 13A 13Q 13K)	53Y7446	1
French (models)	53Y7448	1
German (models)	53Y7449	1
Spanish (models)	53Y7450	1

<b>6306 Vista Home Basic 32 Recovery CDs</b>	<b>FRU#</b>	<b>CRU</b>
Italian (models)	53Y7451	1
Serbian-Latin (models)	53Y7465	1
Dutch (models)	53Y7461	1
Czech (models)	53Y7452	1
Polish (models)	53Y7453	1
Russian (models)	53Y7454	1
Turkish (models)	53Y7455	1
Hungarian (models)	53Y7456	1
Greek (models)	53Y7457	1
Portuguese (models)	53Y7464	1
Romanian (models)	53Y7463	1
Korean (models)	53Y7458	1
Slovenian (models)	53Y7459	1
Russian English (models)	53Y7447	1
Hebrew (models)	53Y7462	1
Arabic Localized (models)	53Y7460	1
Slovakia (models)	53Y7466	1
Vista SP1 MUL 1 P/N's VHB32 C&L1 Nordics (EN DK FI NO SV) (models)	53Y7467	1
Vista SP1 MUL 2 P/N's VHB32 C&L2 Switzerland (EN FR GR IT) (models)	53Y7468	1
Vista SP1 MUL 3P/N's VHB32 C&L3 Bel Lux (EN FR GR NL) (models)	53Y7469	1

<b>6306 Vista Business 32 Recovery CDs</b>	<b>FRU#</b>	<b>CRU</b>
US English (models 18M 18A 18Q 1AA 1AM 1AQ)	53Y7422	1
French (models 15G 19G 1AG)	53Y7424	1
German (models 15G 19G 1AG)	53Y7425	1
Spanish (models 15G 19G 1AG)	53Y7426	1
Italian (models 15G 19G 1AG)	53Y7427	1
Dutch (models 15G 19G 1AG)	53Y7437	1
Czech (models 15G 19G 1AG)	53Y7428	1
Polish (models 15G 19G 1AG)	53Y7429	1
Russian (models 15G 19G 1AG)	53Y7430	1
Turkish (models 15G 19G 1AG)	53Y7431	1
Hungarian (models 15G 19G 1AG)	53Y7432	1
Greek (models 15G 19G 1AG)	53Y7433	1
Portuguese (models 15G 19G 1AG)	53Y7440	1
Korean (models 14K 15K 1AK)	53Y7434	1
Slovenian (models 15G 19G 1AG)	53Y7435	1
Russian English (models 15G 19G 1AG)	53Y7423	1
Romanian (models 15G 19G 1AG)	53Y7439	1
Sebian-Latin (models 15G 19G 1AG)	53Y7441	1
Slovakian (models 15G 19G 1AG)	53Y7442	1

<b>6306 Vista Business 32 Recovery CDs</b>	<b>FRU#</b>	<b>CRU</b>
Arabic Localized (models)	53Y7436	1
Hebrew (models 15G 19G 1AG)	53Y7438	1
Vista SP1 MUL 1 P/N's Vista Business 32 C& L1Nordics (EN DK FI NO SV) (models 15G 19G 1AG)	53Y7443	1
Vista SP1 MUL 2 P/N's Vista Business 32 C&L2 Switzerland (EN FR GR IT) (models 15G 19G 1AG)	53Y7444	1
Vista SP1 MUL 3P/N's Vista Business 32 C&L3 Bel Lux (EN FR GR NL) (models 15G 19G 1AG)	53Y7445	1

<b>6306 Vista Starter 32 Recovery CDs</b>	<b>FRU#</b>	<b>CRU</b>
English (models)	53Y7470	1
French (models)	53Y7471	1
Russian (models)	53Y7472	1
Spanish (models)	53Y7473	1
Arabic (models)	53Y7474	1
Turkish (models)	53Y7475	1
Serbian-Latin (models)	53Y7476	1
Russian English (models)	53Y7477	1



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## Chapter 10. Additional Service Information

This chapter provides additional information that the service representative might find helpful.

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### Security features

Security features in this section include the following:

- Passwords
- Vital Product Data
- Management Information Format (MIF)

#### Hardware controlled Passwords

Hardware controlled passwords are set using the Setup Utility program. For more information about passwords, see “Using passwords” on page 49.

#### Operating system password

An operating system password is very similar to a power-on password and denies access to the computer by an unauthorized user when the password is activated. The computer is unusable until the password is entered and recognized by the computer.

#### Vital product data

Each computer has a unique Vital Product Data (VPD) code stored in the nonvolatile memory on the system board. After you replace the system board, the VPD must be updated. To update the VPD, see “Flash update procedures.”

---

### BIOS levels

An incorrect level of BIOS can cause false errors and unnecessary FRU replacement. Use the following information to determine the current level of BIOS installed in the computer, the latest BIOS available for the computer, and where to obtain the latest level of BIOS.

- To determine the current Level of BIOS:
  - Start the Setup Utility.
  - View the Main menu.
- Sources for obtaining the latest level BIOS available
  1. Lenovo support web site:  
<http://www.lenovo.com/support/>
  2. Lenovo Customer Support Center
  3. Levels 1 and 2 Support

To update (flash) the BIOS, see “Flash update procedures.”

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### Flash update procedures

This section details how to flash (update) the BIOS.

## Updating (flashing) BIOS from a diskette

1. Insert a system program update (flash) diskette into the diskette drive. The system program updates are available at <http://www.lenovo.com/support> on the World Wide Web.
2. Turn on the computer. If it is already on, you must turn it off and back on. The update begins.
3. Follow the instructions on the screen to complete the update.

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## Recovering from a POST/BIOS update failure

**Attention:** If an interruption occurs during a POST/BIOS update (flash update), the computer might not restart correctly. If this occurs, perform the following procedure (also known as a Boot-block recovery).

**Note:** If your computer has no internal diskette drive, an optional USB diskette drive must be connected to use the BIOS flash diskette.

1. Remove power from the system and open the cover.
2. Remove any parts necessary to gain access to the Clear CMOS/Recovery jumper.
3. Move the Clear CMOS/Recovery jumper from the standard position (pins 1 and 2) to pins 2 and 3.
4. Insert the BIOS flash diskette in the diskette drive.
5. Close the cover and reconnect the computer power cord to the computer and to an electrical outlet. Turn on the computer.
6. The recovery session takes two to three minutes and starts with two short beeps. Video will be displayed after a short period, indicating that the recovery process has started.
7. When the flash recovery completes and the computer turns off, unplug the computer and open the cover.
8. Move the Clear CMOS/Recovery jumper back to the original position (pins 1 and 2).
9. Remove the BIOS flash diskette from the diskette drive.
10. Close or install the cover and reconnect all external cables.
11. Plug in computer and power on.

---

## Power management

Power management reduces the power consumption of certain components of the computer such as the system power supply, processor, hard disk drives, and some monitors.

### Automatic configuration and power interface (ACPI) BIOS

Being an ACPI BIOS system, the operating system is allowed to control the power management features of the computer and the setting for Advanced Power Management (APM) BIOS mode is ignored. Not all operating systems support ACPI BIOS mode.

### Automatic Power-On features

The Automatic Power-On features within the Power Management menu allow you to enable and disable features that turn on the computer automatically.

- **Serial Port A Ring Detect:** With this feature set to **Enabled** and an external modem connected to serial port (COM1), the computer will turn on automatically when a ring is detected on the modem.
- **PCI Modem Ring Detect:** With this feature set to **Enabled**, the computer will turn on automatically when a ring is detected on the internal modem.
- **PCI Wake Up:** This feature allows PCI cards that support this capability to wake the system.
- **Wake Up on Alarm:** You can specify a date and time at which the computer will be turned on automatically. This can be either a single event or a daily event.
- **Wake on LAN:** If the computer has a properly configured token-ring or Ethernet LAN adapter card that is Wake on LAN-enabled and there is remote network management software, you can use the Wake on LAN feature. When you set Wake on LAN to **Enabled**, the computer will turn on when it receives a specific signal from another computer on the local area network (LAN).



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