



ThinkCentre Hardware Maintenance Manual



ThinkThink**ThinkCentre**Think

Machine Types: 4165, 7179, 7181, 7182, 7189, 7239, 7490, 7492, 7493, 7507, 7511, 7513, 7521, and 7529



ThinkCentre Hardware Maintenance Manual

Machine Types: 4165, 7179, 7181, 7182, 7189, 7239, 7490, 7492,
7493, 7507, 7511, 7513, 7521, and 7529

Note: Before using this information and the product it supports, be sure to read and understand the *ThinkCentre Safety and Warranty Guide* and Appendix A “Notices” on page 269.

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Chapter 1. About this manual

This manual contains service and reference information for ThinkCentre® computer machine types listed on the front cover. This manual is intended only for trained Service Providers who are familiar with Lenovo® computer products.

Note: Be sure to read and understand the Chapter 2 “Safety information” on page 3 before using the information in this manual.

The “Symptom-to-FRU Index” chapter and the “Additional service information” chapter apply to all ThinkCentre computers.

This manual includes a complete FRU part number list for each machine type listed on the front cover. If you have internet access, the FRU part numbers are also available at:
<http://www.lenovo.com/support>

Important safety information

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

Veuillez 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.

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 hardware maintenance manual 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 substitute 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.

Chapter 2. Safety information

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

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 centre 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 an electric 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 (FRU)
- 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 an electric shock. By observing the above rule, you may prevent a current from passing through your body.
 - When using a tester, 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.

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.

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.

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.

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.

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.

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



CAUTION:

When replacing the lithium battery, use only Part Number 45C1566 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:

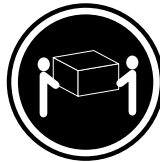
- Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.
- Use of controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation 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 التلفزيون 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، مالم 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:	للفصل:
قم بإيقاف كل شيء.	قم بإيقاف كل شيء.
أولاً، قم بتوصيل كل الأسلاك بالأجهزة.	أولاً، قم بفصل كل أسلاك الكهرباء من المخرج.
قم بتوصيل أسلاك الإشارة في لموصلات.	قم بفصل أسلاك الإشارة من الموصلات.
قم بتوصيل أسلاك الكهرباء في المخارج.	قم بفصل كل الأسلاك من الأجهزة.
قم بتشغيل الجهاز.	



تنبيه :

عند استبدال البطارية الليثيوم، استخدم فقط رقم الجزء الخاص **Part Number 45C1566** 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)
- بتصلبها 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:

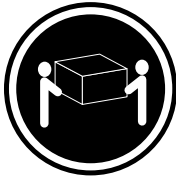
لا تنزع الأغطية. قد ينتج عن نزع أغطية منتج الليزر انفجار أشعة الليزر شديدة الخطورة.
لا يوجد أجزاء يمكن تغييرها داخل الجهاز. قد ينتج عن استخدام تحكمات أو تعديلات أو عمل أي تصرفات أخرى تخالف ما هو محدد هنا إلى انفجار أشعة شديدة الخطورة.



خطر

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

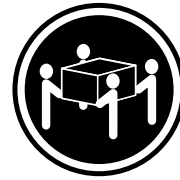
أشعة الليزر عند الفتح. لا تحقق إلى الإشعاع و لا تنظر إليه مباشرة بواسطة أي أجهزة مرئية وتجنب التعرض المباشر للإشعاع .



≥18 kg (37 lbs)



≥32 kg (70.5 lbs)



≥55 kg (121.2 lbs)

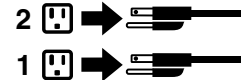
تنبيه :

يجب استخدام ممارسات آمنة عند الرفع



تنبيه :

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



CUIDADO:

Ao substituir a bateria de lítio, utilize apenas uma bateria com Número de Peça 45C1566 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">1. 切断所有电源。2. 首先将所有电缆连接到设备。3. 将信号电缆连接到接口。4. 将电源线连接到插座。5. 开启设备。	<ol style="list-style-type: none">1. 切断所有电源。2. 首先从插座上拔出电源线。3. 从接口上拔出信号电缆。4. 从设备上拔出所有电缆。



警告：
更换锂电池时，请仅使用部件号为 45C1566 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)

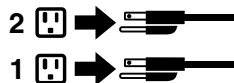


≥55 千克 (121.2 磅)

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



警告：

更換鋰電池時，請僅使用產品編號 **45C1566** 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 **100°C (212°F)** 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。



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。

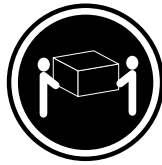


危險

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



ATTENTION:

Remplacer la pile au lithium usagée par une pile de référence identique exclusivement, (référence 45C1566), 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:

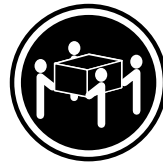
Rayonnement laser lorsque le carter est ouvert. Evitez toute exposition directe au rayon laser. Evitez de regarder fixement le faisceau ou de l'observer à l'aide d'instruments optiques.



≥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"> 1. Schalten Sie alle Einheiten AUS. 2. Schließen Sie erst alle Kabel an die Einheiten an. 3. Schließen Sie die Signalkabel an die Buchsen an. 4. Schließen Sie die Netzkabel an die Steckdose an. 5. Schalten Sie die Einheit EIN. 	<ol style="list-style-type: none"> 1. Schalten Sie alle Einheiten AUS. 2. Ziehen Sie zuerst alle Netzkabel aus den Netzsteckdosen. 3. Ziehen Sie die Signalkabel aus den Buchsen. 4. Ziehen Sie alle Kabel von den Einheiten ab.



CAUTION:

Eine verbrauchte Lithiumbatterie nur durch eine Batterie mit der Teilenummer 45C1566 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- aufwerken, 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:

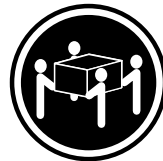
Laserstrahlung bei geöffneter Verkleidung. Nicht in den Strahl blicken. Keine Lupen oder Spiegel verwenden. Strahlungsbereich meiden.



≥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 45C1566 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 כראוי.

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:

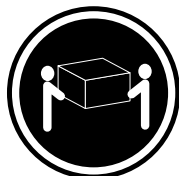
בעת התקנת מוצרי לייזר (כגון כונני תקליטורים ו-DVD, התקני סיב אופטי או משדרים), שימו לב לאזהרות הבאות:

- 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

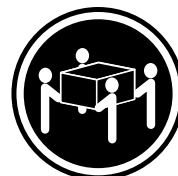
מוצרי ליזר מסוימים מכילים דיודת ליזר מסוג Class 3A או Class 3B. שימו לב לאזהרה הבאה:
כאשר הוא פתוח, המוצר פולט קרינת ליזר. אל תביטו ישירות בקרן, אל תביטו ישירות בעזרת ציוד אופטי, והימנעו מחשיפה לקרן.



$18 \leq$ ק"ג (37 ליב')



$32 \leq$ ק"ג (70.5 ליב')



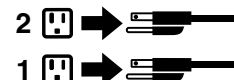
$55 \leq$ ק"ג (121.2 ליב')

זהירות:
השתמשו בהליכים
הנאותים בעת
הרמת הציוד.



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



ATTENZIONE:

Quando si sostituisce la batteria al litio, utilizzare solo il Numero parte 45C1566 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">1. 모든 장치의 전원을 끄십시오.2. 먼저 모든 케이블을 장치에 연결하십시오.3. 커넥터에 신호 케이블을 연결하십시오.4. 콘센트에 전원 코드를 연결하십시오.5. 장치의 전원을 켜십시오.	<ol style="list-style-type: none">1. 모든 장치의 전원을 끄십시오.2. 먼저 콘센트에서 전원 코드를 분리하십시오.3. 커넥터에서 신호 케이블을 분리하십시오.4. 장치에서 모든 케이블을 분리하십시오.



주의:

배터리를 교환할 때는 Part Number 45C1566 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°C (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.

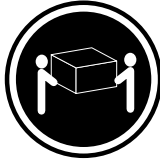
- 덮개를 열지 마십시오. 덮개를 열면 레이저 복사 에너지에 노출될 위험이 있습니다. 장치 내부에는 사용자가 조정하거나 수리할 수 있는 부품이 없습니다.
- 규정된 것 이외의 절차 수행, 제어 조정 등의 행위로 인해 해로운 레이저 복사에 노출될 수 있습니다.



위험

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

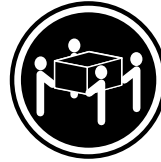
드라이브가 열리면 레이저 복사 에너지가 방출됩니다. 광선이 눈에 직접 쏘이지 않도록 하십시오. 나안 또는 광학 기구를 착용한 상태에서 광선을 직접 바라보지 않도록 하십시오.



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



PRECAUCIÓN:

Quando substitua uma bateria de lítio, utilize somente uma bateria número de peça 45C1566 u outra 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:

Quando 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.



Chapter 3. General information

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

Lenovo ThinkVantage Tools

The Lenovo ThinkVantage® Tools program guides you to a host of information sources and provides easy access to various tools to help you work more easily and securely. For more information, see “Lenovo ThinkVantage Tools” on page 265.

Lenovo Welcome

Note: The Lenovo Welcome program is only available on computers preinstalled with the Windows 7 operating system or the Windows Vista operating system from Lenovo.

The Lenovo Welcome program introduces some innovative built-in features of Lenovo to you and guides you through some important setup tasks to help you make the most of your computer.

Lenovo Solution Center

The Lenovo Solution Center program enables you to troubleshoot and resolve computer problems. It combines diagnostic tests, system information collection, security status, and support information, along with hints and tips for maximum system performance. See “Lenovo Solution Center” on page 35 for detailed information.

SimpleTap

The SimpleTap program provides you with a quick way to customize some basic computer settings such as muting the speakers, adjusting the volume, locking the computer operating system, launching a program, opening a Web page, opening a file, and so on. You also can use the SimpleTap program to access the Lenovo App Shop, from which you can download various applications and computer software.

To start the SimpleTap program in a quick way, do any of the following:

- Click the red SimpleTap launch point on the desktop. The red launch point is available on the desktop after you have launched the SimpleTap program for the first time.
- Press the blue ThinkVantage button if your keyboard has one.

Note: The SimpleTap program is only available on certain models preinstalled with the Windows 7 operating system. If your Windows 7 model is not preinstalled with the SimpleTap program, you can download it from <http://www.lenovo.com/support>.

Information resources

You can use the information in this section to access useful resources relating to your computing needs.

Specifications

This section lists the physical specifications for your computer.

Specifications: 4165, 7179, 7182, 7490, 7493, 7511, and 7521

This section lists the physical specifications for your computer.

Dimensions

Width: 160 mm (6.3 inches)

Height: 388 mm (15.28 inches)

Depth: 422 mm (16.61 inches)

Weight

Maximum configuration as shipped: 9.4 kg (20.72 lbs)

Environment

- Air temperature:
 - Operating: 10°C to 35°C (50°F to 95°F)
 - Non-operating: -40°C to 60°C (-40°F to 140°F)
 - Non-operating: -10°C to 60°C (14°F to 140°F) (without package)
- Humidity:
 - Operating: 20% to 80% (non-condensing)
 - Non-operating: 20% to 90% (non-condensing)
- Altitude:
 - Operating: -50 to 10 000 ft (-15.2 to 3 048 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 to 60 Hz
 - Voltage-selection switch setting: 115 V ac
 - High range:
 - Minimum: 200 V ac
 - Maximum: 240 V ac
 - Input frequency range: 50 to 60 Hz
 - Voltage-selection switch setting: 230 V ac

Specifications: 7181, 7189, 7239, 7492, 7507, 7513, and 7529

This section lists the physical specifications for your computer.

Dimensions

Width: 99 mm (3.9 inches)

Height: 335 mm (13.19 inches)

Depth: 382 mm (15.04 inches)

Weight

Maximum configuration as shipped: 6.6 kg (14.55 lbs)

Environment

- Air temperature:
 - Operating: 10°C to 35°C (50°F to 95°F)
 - Non-operating: -40°C to 60°C (-40°F to 140°F)
 - Non-operating: -10°C to 60°C (14°F to 140°F) (without package)
- Humidity:
 - Operating: 20% to 80% (non-condensing)
 - Non-operating: 20% to 90% (non-condensing)
- Altitude:
 - Operating: -50 to 10 000 ft (-15.2 to 3 048 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 to 60 Hz
 - Voltage-selection switch setting: 115 V ac
 - High range:
 - Minimum: 200 V ac
 - Maximum: 240 V ac
 - Input frequency range: 50 to 60 Hz
 - Voltage-selection switch setting: 230 V ac

Chapter 4. General checkout

Attention

The drives in the computer you are servicing might have been rearranged or the drive startup sequence might have been 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 the explanation of these messages, refer to the information supplied with that software package.

Before replacing a FRU, 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 261.

Use the following procedure to help determine the cause of a 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 on page 33.

If you *do* receive the correct response, proceed to step 7 on page 33.

6. Look at the following conditions and follow the instructions:

- If you hear beep codes during POST, go to “Beep symptoms” on page 61.
- If the computer displays a POST error, go to “POST error codes” on page 61.
- If the computer hangs and no error is displayed, turn off the computer and the power. Then, turn the power and the computer back on, continue at step 7 on page 33.

7. Run the Diagnostic programs. See Chapter 5 “Diagnostic programs” on page 35.

- If you receive an error, replace the part that the diagnostic program calls out or go to “Diagnostic error codes” on page 43.
- If the test stops and you cannot continue, replace the last device tested.

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 drive 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

Notes: 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 operating-system-controlled files

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

Chapter 5. Diagnostic programs

Diagnostic programs are used to test hardware components of your computer. Diagnostic programs can also report operating-system-controlled settings that interfere with the correct operation of your system. You can use the preinstalled diagnostic program to diagnose computer problems, if your computer is running in the Windows® operating system.

Notes:

1. Depending on the date when your computer was manufactured, your computer is preinstalled with either the Lenovo Solution Center program or the Lenovo ThinkVantage Toolbox program for diagnostic purposes. For more information about the Lenovo ThinkVantage Toolbox program, see “Lenovo ThinkVantage Toolbox” on page 35. For more information about the Lenovo Solution Center program, see “Lenovo Solution Center” on page 35.
2. You can also download the PC-Doctor for DOS diagnostic program from <http://www.lenovo.com/support>. See “PC-Doctor for DOS” on page 36 for detailed information.
3. If you are unable to isolate and repair the problem yourself after running the programs, save and print the log files created by the programs. You will need the log files when you speak to a Lenovo technical support representative.

Lenovo ThinkVantage Toolbox

The Lenovo ThinkVantage Toolbox program helps you maintain your computer, improve computing security, diagnose computer problems, get familiar with the innovative technologies provided by Lenovo, and get more information about your computer. You can use the diagnostics feature of the Lenovo ThinkVantage Toolbox program to test devices, diagnose computer problems, create bootable diagnostic media, update system drivers, and view system information.

To run the Lenovo ThinkVantage Toolbox program on the Windows 7 operating system, click **Start → All Programs → Lenovo ThinkVantage Tools → System Health and Diagnostics**. Follow the instructions on the screen.

For additional information about running the Lenovo ThinkVantage Toolbox program, refer to the Lenovo ThinkVantage Toolbox help system.

Lenovo Solution Center

The Lenovo Solution Center program enables you to troubleshoot and resolve computer problems. It combines diagnostic tests, system information collection, security status, and support information, along with hints and tips for maximum system performance.

Notes:

- The Lenovo Solution Center program is available only on models preinstalled with the Windows 7 operating system. If your Windows 7 model is not preinstalled with the program, you can download it from <http://www.lenovo.com/diagnose>.
- If you are using the Windows Vista or Windows XP operating system, go to <http://www.lenovo.com/diagnose> for the latest information on diagnostics for your computer.

To run the Lenovo Solution Center program on the Windows 7 operating system, click **Start → All Programs → Lenovo ThinkVantage Tools → System Health and Diagnostics**. Follow the instructions on the screen.

For additional information, refer to the Lenovo Solution Center help system.

Note: If you are unable to isolate and repair the problem yourself after running the program, save and print the log files created by the program. You will need the log files when you speak to a Lenovo technical support representative.

PC-Doctor for DOS

You can also download the latest version of the PC-Doctor for DOS diagnostic program from <http://www.lenovo.com/support>. The PC-Doctor for DOS diagnostic program runs independently of the Windows operating system. Use the PC-Doctor for DOS diagnostic program if you are unable to start the Windows operating system. You can run the PC-Doctor for DOS diagnostic program from a diagnostic disc that you created.

Creating a diagnostic disc

This section provides instructions on how to create a diagnostic disc.

To create a diagnostic disc, do the following:

1. Download a self-starting bootable disc image (known as an ISO image) of the diagnostic program from: <http://www.lenovo.com/support>
2. Use any disc burning software to create a diagnostic disc with the ISO image.

Running the diagnostic program from the diagnostic disc

This section provides instructions on how to run the diagnostic program from the diagnostic disc that you created.

To run the diagnostic program from the diagnostic disc that you created, do the following:

1. Make sure your computer is turned off.
2. Repeatedly press and release the F12 key when turning on the computer. When the **Startup Device Menu** opens, release the F12 key.
3. Insert the diagnostic disc into the optical drive.
4. Select the optical drive with the diagnostic disc as the startup device and press Enter. The diagnostic program opens.
5. Follow the instructions on the screen to run the desired diagnostic test. For additional help, press the F1 key.
6. Remove the diagnostic disc from the optical drive after completing the diagnostic test.

Navigating through the diagnostic 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 **Run Quick Test** does 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 38.

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 computer.
- **Failure Type:**
Represents the type of error encountered.
- **DeviceID:**
Contains the component's unit-ID that corresponds to a fixed disk drive, removable media drive, 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 43 for error code listings.

Quick and Full erase - hard disk drive

The diagnostics program offers two hard disk drive format utilities:

- Quick Erase Hard Drive
- Full Erase Hard Drive

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

- Destroys the Master Boot Record (MBR) on the hard disk 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.

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 disk drive.
- Provides an estimate of time to completion along with a visual representation of completion status.
- Provides messages that warn the user about a non-recoverable process.

Important: Make sure that all data is backed up before using the Quick or Full Erase functions.
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To select the Quick Erase Hard Drive or Full Erase Hard Drive utility, do the following:

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

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 program

You can use the Setup Utility program 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.

This chapter provides information about the following topics to help you use the Setup Utility program:

- “Starting the Setup Utility program” on page 39
- “Viewing or changing settings” on page 39
- “Using passwords” on page 39
- “Enabling or disabling a device” on page 40
- “Selecting a startup device” on page 41
- “Exiting the Setup Utility program” on page 42

Starting the Setup Utility program

This section provides instructions on how to start the Setup Utility program.

To start the Setup Utility program, do the following:

1. Make sure your computer is turned off.
2. Repeatedly press and release the F1 key when turning on the computer. When you hear multiple beeps or see a logo screen, release the F1 key. The Setup Utility program opens.

Note: If a password has been set, the Setup Utility program menu will not be displayed until you type the correct password. For more information, see “Using passwords” on page 39.

Viewing or changing settings

The Setup Utility program menu lists various items about the system configuration settings. To view or change the settings, start the Setup Utility program. See “Starting the Setup Utility program” on page 39. Then, follow the instructions on the screen.

When working with the Setup Utility program, 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 a password to prevent unauthorized access to your computer and data. The following options are available to help you set a power-on password or an administrator password:

- **Set Power-On Password**
- **Set Administrator Password**

You do not have to set a password to use your computer. However, using a password improves computing security. If you decide to set a password, read the following sections.

Password considerations

A password can be any combination of up to 16 (1 to 16) alphabetic and numeric characters. For security reasons, it is recommended to use a strong password that cannot be easily compromised. To set a strong password, use the following guidelines:

Note: The Setup Utility program passwords are not case sensitive.

- Have at least eight characters in length
- Contain at least one alphabetic character and one numeric character
- Not be your name or your user name
- Not be a common word or a common name
- Be significantly different from your previous passwords

Power-on password

After you have set a power-on password using the **Set Power-On Password** option, a password prompt is displayed each time you turn on the computer. You cannot use the computer until a valid password is typed in. For more information about how to set a password, see “Setting, changing, or deleting a password” on page 40.

Administrator password

The **Set Administrator Password** option enables you to set an administrator password, which deters unauthorized users from changing configuration settings. If you are responsible for maintaining the settings of several computers, you might want to set an administrator password. For more information about how to set a password, see “Setting, changing, or deleting a password” on page 40.

After you have set an administrator password, a password prompt is displayed each time you try to access the Setup Utility program. You cannot access the Setup Utility program until a valid password is typed in.

If you have set both a power-on password and an administrator password, you can type either password to use your computer. However, to change any configuration settings, you must use your administrator password.

Setting, changing, or deleting a password

This section provides instructions on how to set, change, or delete a password.

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

1. Start the Setup Utility program. See “Starting the Setup Utility program” on page 39.
2. From the Setup Utility program main menu, select **Security → Set Power-On Password** or **Set Administrator Password**.
3. Follow the instructions on the screen to set, change, or delete a password.

Note: A password can be any combination of up to 16 (1 to 16) alphabetic and numeric characters. For more information, see “Password considerations” on page 40.

Enabling or disabling a device

This section provides instructions on how to enable or disable user access to a device.

SATA Controller	When this option is set to Disabled , all devices connected to the SATA connectors (such as the hard disk drive and the optical drive) are disabled and will not be displayed in the system configuration.
USB Setup	Use this option to set up USB connectors.

To enable or disable a device, do the following:

1. Start the Setup Utility program. See “Starting the Setup Utility program” on page 39.
2. From the Setup Utility program main menu, select **Devices**.
3. Depending on the device you want to enable or disable, do one of the following:
 - Select **ATA Drives Setup → SATA Controller** to enable or disable the devices connected to the SATA connectors on the system board.
 - Select **USB Setup** and follow the instructions on the screen to enable or disable the USB connector(s) of your choice.
4. Select the desired settings and press Enter.
5. Press Esc to return to the Setup Utility program main menu. You might have to press Esc several times.
6. Press F10 to save the new settings and exit the Setup Utility program.

Notes:

- a. If you do not want to save the new settings, select **Exit → Discard Changes and Exit**.
- b. If you want to return to the default settings, press F9 or select **Exit → Load Optimal Defaults**.

Selecting a startup device

If your computer does not start up from a device (such as a hard disk drive or the disc in an optical drive) as expected, do one of the following to select the desired startup device.

Selecting a temporary startup device

This section provides instructions on how to select a temporary startup device. You can use the instructions in this section to start up from any startup device.

Note: Not all discs and hard disk drives are bootable.

To select a temporary startup device, do the following:

1. Turn off your computer.
2. Repeatedly press and release the F12 key when turning on the computer. When the **Startup Device Menu** opens, release the F12 key.
3. Select the desired startup device on the **Startup Device Menu** and press Enter.

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

Viewing or changing the startup device sequence

This section provides instructions on how to view or permanently change the configured 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 39.

2. Select **Startup → Primary Boot Sequence**. Read the information displayed on the right side of the screen.
3. Select the first boot device, second boot device, and so on.
4. Press Esc to return to the **Startup** menu. Then, select the devices for the **Automatic Boot Sequence** and **Error Boot Sequence**.
5. Press Esc to return to the Setup Utility program main menu. You might have to press Esc several times.
6. Press F10 to save the new settings and exit the Setup Utility program.

Notes:

- a. If you do not want to save the new settings, select **Exit → Discard Changes and Exit**.
- b. If you want to return to the default settings, press F9 or select **Exit → Load Optimal Defaults**.

Exiting the Setup Utility program

After you finish viewing or changing settings, press Esc to return to the Setup Utility program main menu. You might have to press Esc several times. Then, you can do one of the following:

- If you want to save the new settings and exit the Setup Utility program, press F10. Otherwise, your changes will not be saved.
- If you do not want to save the new settings, select **Exit → Discard Changes and Exit**.
- If you want to return to the default settings, press F9 or select **Exit → Load Optimal Defaults**.

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 the Chapter 4 “General checkout” on page 33. You can use this index to help you decide which FRUs are needed when servicing a computer. If you are unable to correct the problem using this index, go to “Undetermined problems” on page 64.

Notes:

1. If you have both an error message and an incorrect audio response, diagnose the error message first.
2. 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.
3. If you did not receive any error message, look for a description of your error symptoms in the first part of this index.

Hard disk drive boot error

A hard disk drive boot error (error codes 1962 and I999030X) 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">1. Attempt to back up the data on the failing hard disk drive.2. Using the operating systems program, format the hard disk drive.
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">• Power cord• On/Off switch connector• On/Off switch power supply connector• System board power supply connectors• Microprocessor(s) connection	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 36 for the specific type for information about the diagnostic programs.

In the following index, X can represent any number.

Diagnostic Error Code	FRU/Action
000-000-XXX BIOS Test Passed	No action
000-002-XXX BIOS Timeout	<ol style="list-style-type: none"> 1. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 2. System board
000-024-XXX BIOS Addressing test failure	<ol style="list-style-type: none"> 1. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 2. System board
000-025-XXX BIOS Checksum Value error	<ol style="list-style-type: none"> 1. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 2. System board
000-026-XXX FLASH data error	<ol style="list-style-type: none"> 1. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 2. System board
000-027-XXX BIOS Configuration/Setup error	<ol style="list-style-type: none"> 1. Run Setup 2. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 3. System board
000-034-XXX BIOS Buffer Allocation failure	<ol style="list-style-type: none"> 1. Reboot the system 2. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Run memory test 4. System board
000-035-XXX BIOS Reset Condition detected	<ol style="list-style-type: none"> 1. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 2. System board
000-036-XXX BIOS Register error	<ol style="list-style-type: none"> 1. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 2. System board
000-038-XXX BIOS Extension failure	<ol style="list-style-type: none"> 1. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 2. Adapter card 3. System board
000-039-XXX BIOS DMI data error	<ol style="list-style-type: none"> 1. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 2. System board
000-195-XXX BIOS Test aborted by user	Information only Re-start the test, if necessary
000-196-XXX BIOS test halt, error threshold exceeded	<ol style="list-style-type: none"> 1. Press F3 to review the log file 2. Re-start the test to reset the log file

Diagnostic Error Code	FRU/Action
000-197-XXX BIOS test warning	<ol style="list-style-type: none"> 1. Make sure the component that is called out is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Re-run test 3. Replace the component that is called out in warning statement 4. Replace the component under test
000-198-XXX BIOS test aborted	<ol style="list-style-type: none"> 1. Make sure the component that is called out is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Go to “Undetermined problems” on page 64.
000-199-XXX BIOS test failed, cause unknown	<ol style="list-style-type: none"> 1. Go to “Undetermined problems” on page 64. 2. Flash the system and re-test 3. Replace component under function test
000-250-XXX BIOS APM failure	<ol style="list-style-type: none"> 1. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 2. System board
000-270-XXX BIOS ACPI failure	<ol style="list-style-type: none"> 1. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 2. System board
001-000-XXX System Test Passed	No action
001-00X-XXX System Error	System board
001-01X-XXX System Error	System board
001-024-XXX System Addressing test failure	System board
001-025-XXX System Checksum Value error	<ol style="list-style-type: none"> 1. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 2. System board
001-026-XXX System FLASH data error	<ol style="list-style-type: none"> 1. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 2. System board
001-027-XXX System Configuration/Setup error	<ol style="list-style-type: none"> 1. Run Setup 2. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 3. System board
001-032-XXX System Device Controller failure	System board
001-034-XXX System Device Buffer Allocation failure	<ol style="list-style-type: none"> 1. Reboot the system 2. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Run memory test 4. System board
001-035-XXX System Device Reset condition detected	System board
001-036-XXX System Register error	System board

Diagnostic Error Code	FRU/Action
001-038-XXX System Extension failure	<ol style="list-style-type: none"> 1. Adapter card 2. System board
001-039-XXX System DMI data structure error	<ol style="list-style-type: none"> 1. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 2. System board
001-040-XXX System IRQ failure	<ol style="list-style-type: none"> 1. Power-off/on system and re-test 2. System board
001-041-XXX System DMA failure	<ol style="list-style-type: none"> 1. Power-off/on system and re-test 2. System board
001-195-XXX System Test aborted by user	Information only Re-start the test, if necessary
001-196-XXX System test halt, error threshold exceeded	<ol style="list-style-type: none"> 1. Press F3 to review the log file 2. Re-start the test to reset the log file
001-197-XXX System test warning	<ol style="list-style-type: none"> 1. Make sure the component that is called out is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Re-run test 3. Replace the component that is called out in warning statement 4. Replace the component under test
001-198-XXX System test aborted	<ol style="list-style-type: none"> 1. If a component is called out, make sure it is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Go to “Undetermined problems” on page 64.
001-199-XXX System test failed, cause unknown	<ol style="list-style-type: none"> 1. Go to “Undetermined problems” on page 64. 2. Flash the system and re-test 3. Replace component under function test.
001-250-XXX System ECC error	System board
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	<ol style="list-style-type: none"> 1. Device on IRQ1 2. System board
001-269-XXX System IRQ2 failure	<ol style="list-style-type: none"> 1. Device on IRQ2 2. System board
001-270-XXX System IRQ3 failure	<ol style="list-style-type: none"> 1. Device on IRQ3 2. System board
001-271-XXX System IRQ4 failure	<ol style="list-style-type: none"> 1. Device on IRQ4 2. System board
001-272-XXX System IRQ5 failure	<ol style="list-style-type: none"> 1. Device on IRQ5 2. System board

Diagnostic Error Code	FRU/Action
001-273-XXX System IRQ6 (diskette drive) failure	<ol style="list-style-type: none"> 1. Diskette Cable 2. Diskette drive 3. System board
001-274-XXX System IRQ7 failure	<ol style="list-style-type: none"> 1. Device on IRQ7 2. System board
001-275-XXX System IRQ8 failure	<ol style="list-style-type: none"> 1. Device on IRQ8 2. System board
001-276-XXX System IRQ9 failure	<ol style="list-style-type: none"> 1. Device on IRQ9 2. System board
001-277-XXX System IRQ10 failure	<ol style="list-style-type: none"> 1. Device on IRQ10 2. System board
001-278-XXX System IRQ11 failure	<ol style="list-style-type: none"> 1. Device on IRQ11 2. System board
001-279-XXX System IRQ12 failure	<ol style="list-style-type: none"> 1. Device on IRQ12 2. System board
001-280-XXX System IRQ13 failure	<ol style="list-style-type: none"> 1. Device on IRQ13 2. System board
001-281-XXX System IRQ14 (hard disk drive) failure	<ol style="list-style-type: none"> 1. Hard disk drive cable 2. Hard disk drive 3. System board
001-282-XXX System IRQ15 failure	<ol style="list-style-type: none"> 1. Device on IRQ15 2. System board
001-286-XXX 001-287-XXX 001-288-XXX System Timer failure	System board
001-292-XXX System CMOS RAM error	<ol style="list-style-type: none"> 1. Run Setup and re-test 2. System board
001-293-XXX System CMOS Battery	<ol style="list-style-type: none"> 1. CMOS battery 2. System board
001-298-XXX System RTC date/time update failure	<ol style="list-style-type: none"> 1. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 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	<ol style="list-style-type: none"> 1. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 2. System board
005-000-XXX Video Test Passed	No action
005-00X-XXX Video error	<ol style="list-style-type: none"> 1. Video card, if installed. 2. System board
005-010-XXX 005-011-XXX 005-012-XXX 005-013-XXX Video Signal failure	<ol style="list-style-type: none"> 1. Video card, if installed. 2. System board

Diagnostic Error Code	FRU/Action
005-016-XXX Video Simple Pattern test failure	<ol style="list-style-type: none"> 1. Video Ram 2. Video card, if installed. 3. System board
005-024-XXX Video Addressing test failure	<ol style="list-style-type: none"> 1. Video card, if installed. 2. System board
005-025-XXX Video Checksum Value error	<ol style="list-style-type: none"> 1. Video card, if installed. 2. System board
005-027-XXX Video Configuration/Setup error	<ol style="list-style-type: none"> 1. Run Setup 2. Video drivers update 3. Video card, if installed. 4. System board
005-031-XXX Video Device Cable failure	<ol style="list-style-type: none"> 1. Video cable 2. Monitor 3. Video card, if installed. 4. System board
005-032-XXX Video Device Controller failure	<ol style="list-style-type: none"> 1. Video card, if installed. 2. System board
005-036-XXX Video Register error	<ol style="list-style-type: none"> 1. Video card, if installed. 2. System board
005-038-XXX System BIOS extension failure	<ol style="list-style-type: none"> 1. Video card, if installed. 2. System board
005-040-XXX Video IRQ failure	<ol style="list-style-type: none"> 1. Video card, if installed. 2. System board
005-195-XXX Video Test aborted by user	Information only Re-start the test, if necessary
005-196-XXX Video test halt, error threshold exceeded	<ol style="list-style-type: none"> 1. Press F3 to review the log file. 2. Re-start the test to reset the log file.
005-197-XXX Video test warning	<ol style="list-style-type: none"> 1. Make sure the component that is called out is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Re-run test 3. Replace the component called out in warning statement. 4. Replace the component under test.
005-198-XXX Video test aborted	<ol style="list-style-type: none"> 1. If a component is called out, make sure it is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Go to “Undetermined problems” on page 64.
005-199-XXX Video test failed, cause unknown	<ol style="list-style-type: none"> 1. Go to “Undetermined problems” on page 64. 2. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Replace component under function test.

Diagnostic Error Code	FRU/Action
005-2XX-XXX 005-3XX-XXX Video subsystem error	<ol style="list-style-type: none"> 1. Video card, if installed. 2. System board
006-000-XXX Diskette interface Test Passed	No action
006-0XX-XXX Diskette interface error	<ol style="list-style-type: none"> 1. Diskette drive Cable 2. Diskette drive 3. System board
006-195-XXX Diskette interface Test aborted by user	Information only Re-start the test, if necessary
006-196-XXX Diskette interface test halt, error threshold exceeded	<ol style="list-style-type: none"> 1. Press F3 to review the log file. 2. Re-start the test to reset the log file.
006-197-XXX Diskette interface test warning	<ol style="list-style-type: none"> 1. If a component is called out, make sure it is connected and/or enabled. 2. Re-run test 3. Replace the component that is called out in warning statement. 4. Replace the component under test.
006-198-XXX Diskette interface test aborted	<ol style="list-style-type: none"> 1. If a component is called out, make sure it is connected and/or enabled. 2. Flash the system. See "Updating (flashing) the BIOS from a disc" on page 261. 3. Go to "Undetermined problems" on page 64.
006-199-XXX Diskette interface test failed, cause unknown	<ol style="list-style-type: none"> 1. Go to "Undetermined problems" on page 64. 2. Flash the system and re-test. 3. Replace component under function test.
006-25X-XXX Diskette interface Error	<ol style="list-style-type: none"> 1. Diskette drive cable 2. Diskette drive 3. System board
011-000-XXX Serial port Interface Test Passed	No action
011-001-XXX Serial port Presence	<ol style="list-style-type: none"> 1. Remove external serial device, if present. 2. Run setup, enable port 3. System board
011-002-XXX 011-003-XXX Serial port Timeout/Parity error	System board
011-013-XXX 011-014-XXX Serial port Control Signal/Loopback test failure	System board
011-015-XXX Serial port External Loopback failure	<ol style="list-style-type: none"> 1. Wrap plug 2. System board
011-027-XXX Serial port Configuration/Setup error	<ol style="list-style-type: none"> 1. Run Setup, enable port. 2. Flash the system. See "Updating (flashing) the BIOS from a disc" on page 261. 3. System board
011-03X-XXX 011-04X-XXX Serial port failure	System board
011-195-XXX Serial port Test aborted by user	Information only Re-start the test, if necessary

Diagnostic Error Code	FRU/Action
011-196-XXX Serial port test halt, error threshold exceeded	<ol style="list-style-type: none"> 1. Press F3 to review the log file. 2. Re-start the test to reset the log file.
011-197-XXX Serial port test warning	<ol style="list-style-type: none"> 1. Make sure the component that is called out is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Re-run test 3. Replace the component that is called out in warning statement. 4. Replace the component under test.
011-198-XXX Serial port test aborted	<ol style="list-style-type: none"> 1. If a component is called out, make sure it is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Flash the system and retest. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Go to “Undetermined problems” on page 64.
011-199-XXX Serial port test failed, cause unknown	<ol style="list-style-type: none"> 1. Go to “Undetermined problems” on page 64. 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Replace component under function test.
011-2XX-XXX Serial port signal failure	<ol style="list-style-type: none"> 1. External serial device 2. System board
014-000-XXX Parallel port Interface Test Passed	No action
014-001-XXX Parallel port Presence	<ol style="list-style-type: none"> 1. Remove external parallel device, if present. 2. Run setup, enable port. 3. System board
014-002-XXX 014-003-XXX Parallel port Timeout/Parity error	System board
014-013-XXX 014-014-XXX Parallel port Control Signal/Loopback test failure	System board
014-015-XXX Parallel port External Loopback failure	<ol style="list-style-type: none"> 1. Wrap plug 2. System board
014-027-XXX Parallel port Configuration/Setup error	<ol style="list-style-type: none"> 1. Run Setup, enable port. 2. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 3. System board
014-03X-XXX 014-04X-XXX Parallel port failure	System board
014-195-XXX Parallel port Test aborted by user	Information only Re-start the test, if necessary.
014-196-XXX Parallel port test halt, error threshold exceeded	<ol style="list-style-type: none"> 1. Press F3 to review the log file. 2. Re-start the test to reset the log file.

Diagnostic Error Code	FRU/Action
014-197-XXX Parallel port test warning	<ol style="list-style-type: none"> 1. Make sure the component that is called out is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Re-run test 3. Replace the component that is called out in warning statement. 4. Replace the component under test.
014-198-XXX Parallel port test aborted	<ol style="list-style-type: none"> 1. If a component is called out, make sure it is connected and/or enabled 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Go to “Undetermined problems” on page 64.
014-199-XXX Parallel port test failed, cause unknown	<ol style="list-style-type: none"> 1. Go to “Undetermined problems” on page 64. 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Replace component under function test.
014-2XX-XXX 014-3XX-XXX Parallel port failure	<ol style="list-style-type: none"> 1. External parallel device 2. System board
015-000-XXX USB port Interface Test Passed	No action
015-001-XXX USB port Presence	<ol style="list-style-type: none"> 1. Remove USB device(s) and re-test 2. System board
015-002-XXX USB port Timeout	<ol style="list-style-type: none"> 1. Remove USB device(s) and re-test 2. System board
015-015-XXX USB port External Loopback failure	<ol style="list-style-type: none"> 1. Remove USB device(s) and re-test 2. System board
015-027-XXX USB port Configuration/Setup error	<ol style="list-style-type: none"> 1. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 2. System board
015-032-XXX USB port Device Controller failure	System board
015-034-XXX USB port buffer allocation failure	<ol style="list-style-type: none"> 1. Reboot the system 2. Flash the system- re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Run memory test 4. System board
015-035-XXX USB port Reset condition detected	<ol style="list-style-type: none"> 1. Remove USB device(s) and re-test. 2. System board
015-036-XXX USB port Register error	System board
015-040-XXX USB port IRQ failure	<ol style="list-style-type: none"> 1. Run setup and check for conflicts 2. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 3. System board
015-195-XXX USB port Test aborted by user	Information only Re-start the test, if necessary.

Diagnostic Error Code	FRU/Action
015-196-XXX USB port test halt, error threshold exceeded	<ol style="list-style-type: none"> 1. Press F3 to review the log file. 2. Re-start the test to reset the log file.
015-197-XXX USB port test warning	<ol style="list-style-type: none"> 1. Make sure the component that is called out is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Re-run test 3. Replace the component that is called out in warning statement. 4. Replace the component under test.
015-198-XXX USB port test aborted	<ol style="list-style-type: none"> 1. If a component is called out, make sure it is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Go to “Undetermined problems” on page 64.
015-199-XXX USB port test failed, cause unknown	<ol style="list-style-type: none"> 1. Go to “Undetermined problems” on page 64. 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Replace component under function test.
018-000-XXX PCI Card Test Passed	No action
018-0XX-XXX PCI Card Failure	<ol style="list-style-type: none"> 1. Riser card, if installed 2. System board
018-195-XXX PCI Card Test aborted by user	<ol style="list-style-type: none"> 1. PCI card 2. Information only Re-start the test, if necessary.
018-196-XXX PCI Card test halt, error threshold exceeded	<ol style="list-style-type: none"> 1. Press F3 to review the log file. 2. Re-start the test to reset the log file.
018-197-XXX PCI Card test warning	<ol style="list-style-type: none"> 1. Make sure the component that is called out is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Re-run test 3. Replace the component that is called out in warning statement. 4. Replace the component under test.
018-198-XXX PCI Card test aborted	<ol style="list-style-type: none"> 1. If a component is called out, make sure it is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Go to “Undetermined problems” on page 64.
018-199-XXX PCI Card test failed, cause unknown	<ol style="list-style-type: none"> 1. Go to “Undetermined problems” on page 64. 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Replace component under function test.

Diagnostic Error Code	FRU/Action
018-250-XXX PCI Card Services error	<ol style="list-style-type: none"> 1. PCI card 2. Riser card, if installed 3. System board
020-000-XXX PCI Interface Test Passed	No action
020-0XX-XXX PCI Interface error	<ol style="list-style-type: none"> 1. PCI card 2. Riser card, if installed 3. System board
020-195-XXX PCI Test aborted by user	Information only Re-start the test, if necessary.
020-196-XXX PCI test halt, error threshold exceeded	<ol style="list-style-type: none"> 1. Press F3 to review the log file. 2. Re-start the test to reset the log file.
020-197-XXX PCI test warning	<ol style="list-style-type: none"> 1. If a component is called out, make sure it is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Re-run test 3. Replace the component that is called out in warning statement. 4. Replace the component under test.
020-198-XXX PCI test aborted	<ol style="list-style-type: none"> 1. If a component is called out, make sure it is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Go to “Undetermined problems” on page 64.
020-199-XXX PCI test failed, cause unknown	<ol style="list-style-type: none"> 1. Go to “Undetermined problems” on page 64. 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Replace component under function test.
020-262-XXX PCI system error	<ol style="list-style-type: none"> 1. PCI card 2. Riser card, if installed 3. System board
025-000-XXX IDE interface Test Passed	No action
025-00X-XXX 025-01X-XXX IDE interface failure	<ol style="list-style-type: none"> 1. IDE signal cable 2. Check power supply voltages 3. Reseat IDE signal cable 4. IDE device 5. System board
025-027-XXX IDE interface Configuration/Setup error	<ol style="list-style-type: none"> 1. IDE signal cable 2. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Reseat IDE signal cable 4. IDE device 5. System board

Diagnostic Error Code	FRU/Action
025-02X-XXX 025-03X-XXX 025-04X-XXX IDE Interface failure	<ol style="list-style-type: none"> 1. IDE signal cable 2. Check power supply 3. Reseat IDE signal cable 4. IDE device 5. System board
025-195-XXX IDE interface Test aborted by user	Information only Re-start the test, if necessary
025-196-XXX IDE interface test halt, error threshold exceeded	<ol style="list-style-type: none"> 1. Press F3 to review the log file 2. Re-start the test to reset the log file
025-197-XXX IDE interface test warning	<ol style="list-style-type: none"> 1. If a component is called out, make sure it is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Re-run test 3. Replace the component that is called out in warning statement. 4. Replace the component under test.
025-198-XXX IDE interface test aborted	<ol style="list-style-type: none"> 1. If a component is called out, make sure it is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Go to “Undetermined problems” on page 64.
025-199-XXX IDE interface test failed, cause unknown	<ol style="list-style-type: none"> 1. Go to “Undetermined problems” on page 64. 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Replace component under function test.
030-000-XXX SCSI interface Test Passed	No action
030-00X-XXX 030-01X-XXX SCSI interface failure	<ol style="list-style-type: none"> 1. SCSI signal cable 2. Check power supply 3. SCSI device 4. SCSI adapter card, if installed. 5. System board
030-027-XXX SCSI interface Configuration/Setup error	<ol style="list-style-type: none"> 1. SCSI signal cable 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. SCSI device 4. SCSI adapter card, if installed. 5. System board
030-03X-XXX 030-04X-XXX SCSI interface error	<ol style="list-style-type: none"> 1. SCSI signal cable 2. Check power supply 3. SCSI device 4. SCSI adapter card, if installed. 5. System board
030-195-XXX SCSI interface Test aborted by user	Information only Re-start the test, if necessary.

Diagnostic Error Code	FRU/Action
030-196-XXX SCSI interface test halt, error threshold exceeded	<ol style="list-style-type: none"> 1. Press F3 to review the log file. 2. Re-start the test to reset the log file.
030-197-XXX SCSI interface test warning	<ol style="list-style-type: none"> 1. If a component is called out, make sure it is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Re-run test 3. Replace the component that is called out in warning statement. 4. Replace the component under test.
030-198-XXX SCSI interface test aborted	<ol style="list-style-type: none"> 1. If a component is called out, make sure it is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Go to “Undetermined problems” on page 64.
030-199-XXX SCSI interface test failed, cause unknown	<ol style="list-style-type: none"> 1. Go to “Undetermined problems” on page 64. 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Replace component under function test.
035-000-XXX RAID interface Test Passed	No action
035-0XX-XXX RAID interface Failure	<ol style="list-style-type: none"> 1. RAID signal cable 2. RAID device 3. RAID adapter card, if installed. 4. System board
035-195-XXX RAID interface Test aborted by user	Information only Re-start the test, if necessary.
035-196-XXX RAID interface test halt, error threshold exceeded	<ol style="list-style-type: none"> 1. Press F3 to review the log file. 2. Re-start the test to reset the log file.
035-197-XXX RAID interface test warning	<ol style="list-style-type: none"> 1. Make sure the component that is called out is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Re-run test 3. Replace the component that is called out in warning statement. 4. Replace the component under test.
035-198-XXX RAID interface test aborted	<ol style="list-style-type: none"> 1. If a component is called out, make sure it is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Go to “Undetermined problems” on page 64.
035-199-XXX RAID interface test failed, cause unknown	<ol style="list-style-type: none"> 1. See “Undetermined problems” on page 64. 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Replace component under function test.
071-000-XXX Audio port Interface Test Passed	No action

Diagnostic Error Code	FRU/Action
071-00X-XXX 071-01X-XXX 071-02X-XXX Audio port error	<ol style="list-style-type: none"> 1. Run Setup 2. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 3. System board
071-03X-XXX Audio port failure	<ol style="list-style-type: none"> 1. Speakers 2. Microphone 3. Audio card, if installed. 4. System board
071-04X-XXX Audio port failure	<ol style="list-style-type: none"> 1. Run Setup 2. Audio card, if installed. 3. System board
071-195-XXX Audio port Test aborted by user	Information only Re-start the test, if necessary.
071-196-XXX Audio port test halt, error threshold exceeded	<ol style="list-style-type: none"> 1. Press F3 to review the log file. 2. Re-start the test to reset the log file.
071-197-XXX Audio port test warning	<ol style="list-style-type: none"> 1. Make sure the component that is called out is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Re-run test 3. Replace the component that is called out in warning statement. 4. Replace the component under test.
071-198-XXX Audio port test aborted	<ol style="list-style-type: none"> 1. If a component is called out, make sure it is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Go to “Undetermined problems” on page 64.
071-199-XXX Audio port test failed, cause unknown	<ol style="list-style-type: none"> 1. See “Undetermined problems” on page 64. 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Replace component under function test.
071-25X-XXX Audio port failure	<ol style="list-style-type: none"> 1. Speakers 2. Audio card, if installed. 3. System board
080-000-XXX Game Port interface Test Passed	No action
080-XXX-XXX Game Port interface Error	<ol style="list-style-type: none"> 1. Remove the game port device and re-test the system.
080-195-XXX Game Port interface Test aborted by user	Information only Re-start the test, if necessary.
080-196-XXX Game Port interface test halt, error threshold exceeded	<ol style="list-style-type: none"> 1. Press F3 to review the log file. 2. Re-start the test to reset the log file.

Diagnostic Error Code	FRU/Action
080-197-XXX Game Port interface test warning	<ol style="list-style-type: none"> 1. Make sure the component that is called out is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Re-run test 3. Replace the component that is called out in warning statement. 4. Replace the component under test.
080-198-XXX Game Port interface test aborted	<ol style="list-style-type: none"> 1. If a component is called out, make sure it is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Go to “Undetermined problems” on page 64.
080-199-XXX Game Port interface test failed, cause unknown	<ol style="list-style-type: none"> 1. See “Undetermined problems” on page 64. 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Replace component under function test.
086-000-XXX Mouse Port interface Test Passed	No action
086-001-XXX Mouse Port interface Presence	<ol style="list-style-type: none"> 1. Mouse 2. System board
086-032-XXX Mouse Port interface Device controller failure	<ol style="list-style-type: none"> 1. Mouse 2. System board
086-035-XXX Mouse Port interface Reset	<ol style="list-style-type: none"> 1. Mouse 2. System board
086-040-XXX Mouse Port interface IRQ failure	<ol style="list-style-type: none"> 1. Run Setup 2. Mouse 3. System board
086-195-XXX Mouse Port interface Test aborted by user	Information only Re-start the test, if necessary.
086-196-XXX Mouse Port interface test halt, error threshold exceeded	<ol style="list-style-type: none"> 1. Press F3 to review the log file. 2. Re-start the test to reset the log file.
086-197-XXX Mouse Port interface test warning	<ol style="list-style-type: none"> 1. Make sure the component that is called out is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Re-run test 3. Replace the component that is called out in warning statement. 4. Replace the component under test.
086-198-XXX Mouse Port interface test aborted	<ol style="list-style-type: none"> 1. If a component is called out, make sure it is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Go to “Undetermined problems” on page 64.

Diagnostic Error Code	FRU/Action
086-199-XXX Mouse Port interface test failed, cause unknown	<ol style="list-style-type: none"> 1. See “Undetermined problems” on page 64. 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Replace component under function test.
089-000-XXX Microprocessor Test Passed	No action
089-XXX-XXX Microprocessor failure	<ol style="list-style-type: none"> 1. Microprocessor(s) 2. System board
089-195-XXX Microprocessor Test aborted by user	Information only Re-start the test, if necessary.
089-196-XXX Microprocessor test halt, error threshold exceeded	<ol style="list-style-type: none"> 1. Press F3 to review the log file. 2. Re-start the test to reset the log file.
089-197-XXX Microprocessor test warning	<ol style="list-style-type: none"> 1. Make sure the component that is called out is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Re-run test 3. Replace the component that is called out in warning statement. 4. Replace the component under test.
089-198-XXX Microprocessor test aborted	<ol style="list-style-type: none"> 1. Flash the system. See “Updating (flashing) the BIOS from a disc” on page 261. 2. Go to “Undetermined problems” on page 64.
089-199-XXX Microprocessor test failed, cause unknown	<ol style="list-style-type: none"> 1. See “Undetermined problems” on page 64. 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Replace component under function test.
170-000-XXX Voltage Sensor(s) Test Passed	No action
170-0XX-XXX Voltage Sensor(s) failure	<ol style="list-style-type: none"> 1. Flash system 2. System board
170-195-XXX Voltage Sensor(s) Test aborted by user	Information only Re-start the test, if necessary.
170-196-XXX Voltage Sensor(s) test halt, error threshold exceeded	<ol style="list-style-type: none"> 1. Press F3 to review the log file. 2. Re-start the test to reset the log file.
170-197-XXX Voltage Sensor(s) test warning	<ol style="list-style-type: none"> 1. Make sure the component that is called out is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Re-run test 3. Replace the component that is called out in warning statement. 4. Replace the component under test.
170-198-XXX Voltage Sensor(s) test aborted	<ol style="list-style-type: none"> 1. If a component is called out, make sure it is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Go to “Undetermined problems” on page 64.

Diagnostic Error Code	FRU/Action
170-199-XXX Voltage Sensor(s) test failed, cause unknown	<ol style="list-style-type: none"> 1. See “Undetermined problems” on page 64. 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Replace component under function test.
170-250-XXX 170-251-XXX Voltage Sensor(s) Voltage limit error	<ol style="list-style-type: none"> 1. Power supply 2. System board
170-254-XXX Voltage Sensor(s) Voltage Regulator Module error	<ol style="list-style-type: none"> 1. Voltage Regulator Module (VRM) 2. Microprocessor 3. System board
175-000-XXX Thermal Sensor(s) Test Passed	No action
175-0XX-XXX Thermal Sensor(s) failure	<ol style="list-style-type: none"> 1. Flash system 2. System board
175-195-XXX Thermal Sensor(s) Test aborted by user	Information only Re-start the test, if necessary.
175-196-XXX Thermal Sensor(s) test halt, error threshold exceeded	<ol style="list-style-type: none"> 1. Press F3 to review the log file. 2. Re-start the test to reset the log file.
175-197-XXX Thermal Sensor(s) test warning	<ol style="list-style-type: none"> 1. Make sure the component that is called out is connected and/or enabled. See Chapter 6 “Using the Setup Utility program” on page 39. 2. Re-run test 3. Replace the component that is called out in warning statement. 4. Replace the component under test.
175-198-XXX Thermal Sensor(s) test aborted	<ol style="list-style-type: none"> 1. If a component is called out, make sure it is connected and/or enabled 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Go to “Undetermined problems” on page 64.
175-199-XXX Thermal Sensor(s) test failed, cause unknown	<ol style="list-style-type: none"> 1. See “Undetermined problems” on page 64. 2. Flash the system and re-test. See “Updating (flashing) the BIOS from a disc” on page 261. 3. Replace component under function test.
175-250-XXX 175-251-XXX Thermal Sensor(s) limit error	<ol style="list-style-type: none"> 1. Check fans 2. Check Power supply voltages 3. Microprocessor 4. System board
185-000-XXX Asset Security Test Passed	No action
185-XXX-XXX Asset Security failure	<ol style="list-style-type: none"> 1. Flash system 2. System board
185-278-XXX Asset Security Chassis Intrusion	<ol style="list-style-type: none"> 1. Assure Asset Security Enabled 2. C2 Cover Switch 3. System board
201-000-XXX System Memory Test Passed	No action

Diagnostic Error Code	FRU/Action
201-XXX-XXX System Memory error	<ol style="list-style-type: none"> 1. Replace the memory module called out by the test. 2. System board
202-000-XXX System Cache Test Passed	No action
202-XXX-XXX System Cache error	<ol style="list-style-type: none"> 1. Cache, if removable 2. System board 3. Microprocessor
206-000-XXX Diskette Drive Test Passed	No action
206-XXX-XXX Diskette Drive error	<ol style="list-style-type: none"> 1. Diskette Drive Cable 2. Check power supply voltages 3. Diskette drive 4. System board
215-000-XXX CD-ROM Drive Test Passed	No action
215-XXX-XXX CD-ROM Drive error	<ol style="list-style-type: none"> 1. CD-ROM Drive Cable 2. Check power supply voltages 3. CD-ROM drive 4. System board
217-000-XXX Hard Disk Drive Test Passed	No action
217-25X-XXX 217-26X-XXX Hard Disk Drive (IDE) error	<ol style="list-style-type: none"> 1. Hard Disk Drive Cable 2. Check power supply voltages 3. Reseat the hard disk drive cable 4. Hard Disk drive (IDE) 5. System board
217-28X-XXX 217-29X-XXX Hard Disk Drive (SCSI) error	<ol style="list-style-type: none"> 1. Hard Disk Drive Cable 2. Check power supply voltages 3. Reseat the hard disk drive cable 4. Hard Disk drive (SCSI) 5. SCSI adapter card 6. System board
220-000-XXX Hi-Capacity Cartridge Drive Test Passed	No action
220-XXX-XXX Hi-Capacity Cartridge Drive error	<ol style="list-style-type: none"> 1. Remove the Hi-Capacity Cartridge Drive and re-test the system.
301-XXX-XXX Keyboard error	<ol style="list-style-type: none"> 1. Keyboard 2. Check and test mouse 3. System board
301-000-XXX Keyboard Test Passed	No action
302-000-XXX Mouse Test Passed	No action
302-XXX-XXX Mouse error	<ol style="list-style-type: none"> 1. Mouse 2. Check and test Keyboard 3. System board
303-000-XXX Joystick Test Passed	No action
303-XXX-XXX Joystick error	Remove the Joystick and re-test the system

Diagnostic Error Code	FRU/Action
305-000-XXX Monitor DDC Test Passed	No action
305-250-XXX Monitor DDC self test failure	<ol style="list-style-type: none"> 1. Run Setup to enable DDC 2. Cable 3. Monitor 4. Video card 5. System board
415-000-XXX Modem Test Passed	No action
415-XXX-XXX Modem error	Remove the Modem and re-test the system

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
2 short beeps CMOS setting error	Common error code, see the detail failure information in "POST error codes" on page 61.
3 short and 1 long beeps DRAM memory error	Perform the following actions in order. <ol style="list-style-type: none"> 1. Make sure the memory module(s) are properly seated in the connector(s). 2. Replace the memory module(s). 3. Replace the system board.

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.

Error code	POST Error Message	Description/Action
0210	Stuck key	When a key is kept pressed for a long time, the error message will be displayed during the POST.
0135	Fan failure	The system might be overheating. Press F10 to exit. Note: If the problem is caused by the microprocessor fan, press F10 will not solve the problem.
0211	Keyboard not found	When there is no keyboard detected, the error message will be displayed.
0164	Memory size decreased	Press F10 to exit.
1762	Configuration change has occurred	This error message is displayed when a hard disk drive or optical drive change has been made. Press F10 to exit.
0662	Configuration change has occurred	This error message is displayed when a floppy drive change has been made. Press F10 to exit.
1820	More than one external fingerprint reader are attached. Power off and remove all but the reader that you set up within your main operating system.	If more than one external fingerprint reader are connected to a computer, this error message will be displayed to inform you to remove all of the fingerprint keyboards except the one compatible with the fingerprint application on your computer.
1962	No operating system found. Press any key to repeat boot sequence.	This error occurs only after the POST is completed. Press any key to repeat boot sequence.

Miscellaneous error messages

Message/Symptom	FRU/Action
Changing display colors	Display/Monitor
Computer will <i>not</i> power-off. See "Hard disk drive boot error" on page 43.	<ol style="list-style-type: none"> 1. Power Switch 2. System Board 3. Riser card, if installed
Computer will <i>not</i> RPL from server	<ol style="list-style-type: none"> 1. Ensure that network is in startup sequence as first device or first device after diskette 2. Ensure that network adapter is enabled for RPL 3. Network adapter (Advise network administrator of new MAC address)

Message/Symptom	FRU/Action
Computer will <i>not</i> perform a Wake on LAN® (if applicable)	<ol style="list-style-type: none"> 1. Check power supply and signal cable connections to network adapter 2. Ensure that the operating system settings are set to enable Wake on LAN 3. Ensure Wake on LAN feature is enabled in Setup/Configuration (see "Starting the Setup Utility program" on page 39) 4. Ensure network administrator is using correct MAC address 5. Ensure no interrupt or I/O address conflicts 6. Network adapter (advise network administrator of new MAC address)
Dead computer. See "Hard disk drive boot error" on page 43.	<ol style="list-style-type: none"> 1. Power Supply 2. System Board
Diskette drive in-use light remains on or does not light when drive is active.	<ol style="list-style-type: none"> 1. Diskette Drive 2. System Board 3. Diskette Drive Cable
Flashing cursor with an otherwise blank display.	<ol style="list-style-type: none"> 1. System Board 2. Primary Hard Disk Drive 3. Hard Disk Drive Cable
Incorrect memory size during POST	<ol style="list-style-type: none"> 1. Run the Memory tests 2. Memory Module 3. System Board
"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"> 1. System Board 2. Diskette Drive Cable 3. Network Adapter
Intensity or color varies from left to right of characters and color bars	<ol style="list-style-type: none"> 1. Display 2. Video adapter (if present) 3. System Board
No power or fan not running	1. See "Hard disk drive boot error" on page 43.
Non-system disk or disk error-type message with a known-good diagnostic diskette.	<ol style="list-style-type: none"> 1. Diskette Drive 2. System Board 3. Diskette Drive Cable
Other display symptoms not listed above (including blank or illegible display)	<ol style="list-style-type: none"> 1. Display 2. System Board
Power-on indicator or hard disk drive in-use light not on, but computer works correctly	<ol style="list-style-type: none"> 1. Power switch/LED assembly 2. System Board
Printer problems	<ol style="list-style-type: none"> 1. Printer 2. System Board

Message/Symptom	FRU/Action
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"> 1. Run Setup and check Startup sequence. 2. Diskette Drive 3. Diskette Drive Cable 4. System Board 5. Power Supply
RPL computer cannot access programs from its own hard disk.	<ol style="list-style-type: none"> 1. If network administrator is using LCCM Hybrid RPL, check startup sequence: <ol style="list-style-type: none"> a. First device - network b. Second device - hard disk 2. Hard disk drive
RPL computer does not RPL from server	<ol style="list-style-type: none"> 1. Check startup sequence 2. Check the network adapter LED status
Serial or parallel port device failure (system board port)	<ol style="list-style-type: none"> 1. External Device Self-Test OK? 2. External Device 3. Cable 4. System Board
Serial or parallel port device failure (adapter port)	<ol style="list-style-type: none"> 1. External Device Self-Test OK? 2. External Device 3. Cable 4. Alternate Adapter 5. System Board
Some or all keys on the keyboard do not work	<ol style="list-style-type: none"> 1. Keyboard 2. Keyboard Cable 3. System Board

Undetermined problems

If you encounter undetermined problems, do the following:

1. Turn off the computer and the power.
2. Remove or disconnect the following components (if installed) one at a time.
 - a. External devices (modem, printer, or mouse)
 - b. Any adapter cards
 - c. Memory modules
 - d. Extended video memory
 - e. External Cache
 - f. External Cache RAM
 - g. Hard disk drive
 - h. Diskette drive
3. Turn on the power and the computer to re-test the system.
4. Repeat steps 1 through 3 until you find the failing device or adapter cards.

If all devices and adapter cards have been removed, and the problem continues, replace the system board. See “Replacing the system board” on page 95 or “Replacing the system board” on page 134.

Chapter 8. Installing or replacing hardware: 4165, 7179, 7182, 7490, 7493, 7511, and 7521

This chapter provides instructions on how to install or replace hardware for your computer.

Locations

This section provides information to help you locate your computer connectors, components, parts on the system board, and internal drives.

Locating connectors, controls, and indicators on the front of your computer

Figure 1 “Front connector, control, and indicator locations” on page 67 shows the locations of the connectors, controls, and indicators on the front of your computer.

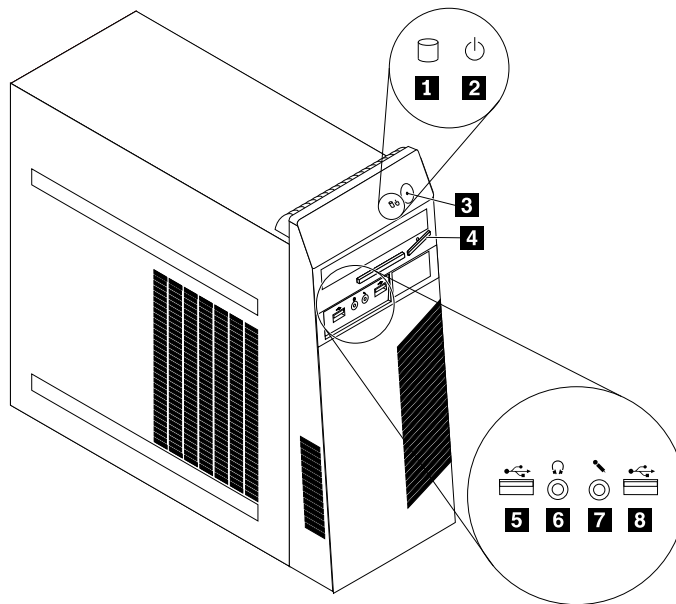


Figure 1. Front connector, control, and indicator locations

- | | |
|---|-------------------------------|
| 1 Hard disk drive activity indicator | 5 USB connector |
| 2 Power indicator | 6 Headphone connector |
| 3 Power switch | 7 Microphone connector |
| 4 Optical drive eject/close button | 8 USB connector |

Locating connectors and parts on the rear of your computer

Figure 2 “Rear connector and part locations” on page 68 shows the locations of the connectors and parts on the rear of your computer. Some connectors on the rear of your computer are color-coded to help you determine where to connect the cables on your computer.

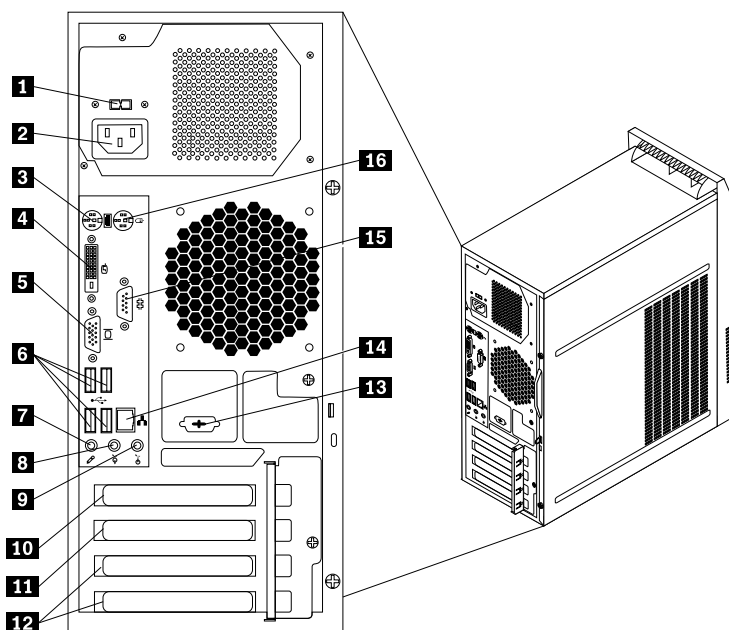


Figure 2. Rear connector and part locations

- | | |
|--|--|
| 1 Voltage-selection switch (available on some models) | 9 Audio line-in connector |
| 2 Power cord connector | 10 PCI Express x16 graphics card slot |
| 3 PS/2 keyboard connector | 11 PCI Express x1 card slot |
| 4 DVI monitor connector | 12 PCI card slots (2) |
| 5 VGA monitor connector | 13 Serial port (available in some models) |
| 6 USB connectors (4) | 14 Ethernet connector |
| 7 Microphone connector | 15 Serial port |
| 8 Audio line-out connector | 16 PS/2 mouse connector |

Locating components

Figure 3 “Component locations” on page 69 shows the locations of the various components in your computer. To remove the computer cover and gain access to the inside of the computer, see “Removing the computer cover” on page 72.

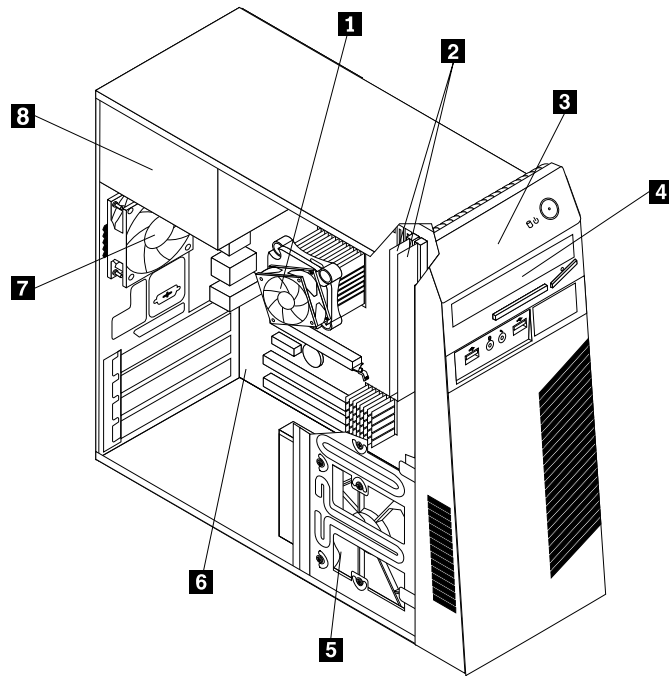


Figure 3. Component locations

- | | |
|--|--------------------------------|
| 1 Heat sink and fan assembly (with a microprocessor underneath) | 5 Hard disk drive |
| 2 Memory modules (2) | 6 System board |
| 3 Front bezel | 7 Rear fan assembly |
| 4 Optical drive | 8 Power supply assembly |

Locating parts on the system board

Figure 4 “System board part locations” on page 70 shows the locations of the parts on the system board.

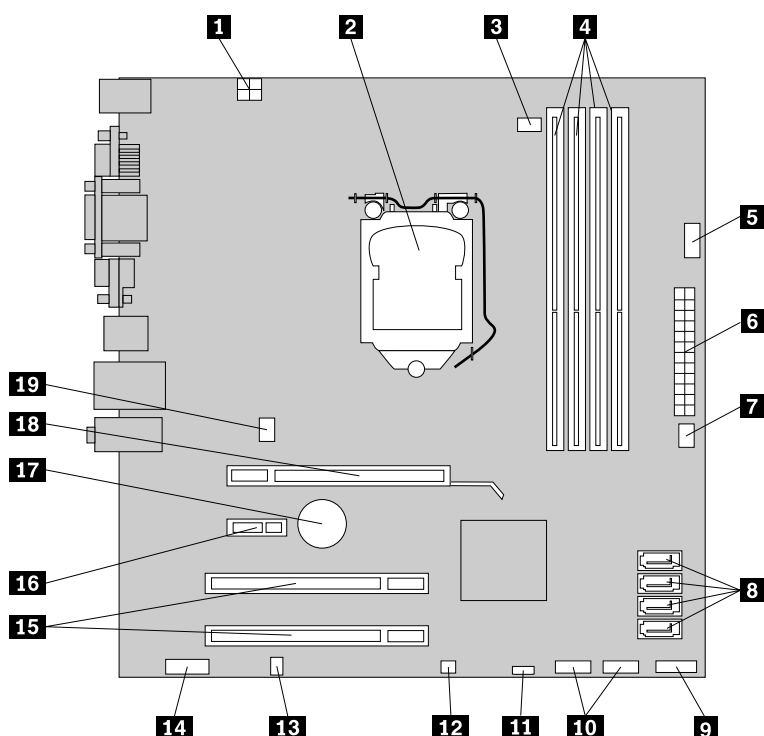


Figure 4. System board part locations

- | | |
|---------------------------------------|--|
| 1 4-pin power connector | 11 Clear CMOS (Complementary Metal Oxide Semiconductor) /Recovery jumper |
| 2 Microprocessor | 12 Cover presence switch connector (also called intrusion switch connector) |
| 3 Microprocessor fan connector | 13 Internal speaker connector |
| 4 Memory slots (4) | 14 Front audio connector |
| 5 Serial (COM 2) connector | 15 PCI card slots (2) |
| 6 24-pin power connector | 16 PCI Express x1 card slot |
| 7 Power fan connector | 17 Battery |
| 8 SATA connectors (4) | 18 PCI Express x16 graphics card slot |
| 9 Front panel connector | 19 System fan connector |
| 10 Front USB connectors (2) | |

Locating internal drives

Internal drives are devices that your computer uses to read and store data. You can add drives to your computer to increase storage capacity and enable your computer to read other types of media. Internal drives are installed in bays. In this manual, the bays are referred to as bay 1, bay 2, and so on.

When installing or replacing an internal drive, it is important to note the type and size of the drive that you can install or replace in each bay and correctly connect the cables to the drive installed. Refer to the appropriate section in Chapter 9 “Installing or replacing hardware: 7181, 7189, 7239, 7492, 7507, 7513, and 7529” on page 101 for instructions on how to install or replace internal drives for your computer.

Figure 5 “Drive bay locations” on page 71 shows the locations of the drive bays in your computer.

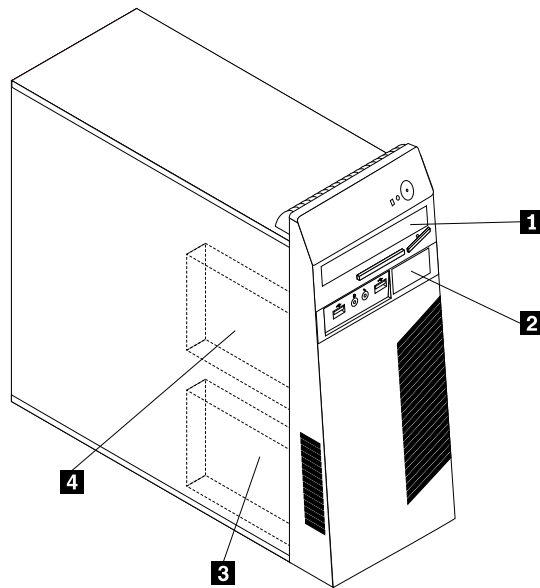


Figure 5. Drive bay locations

- 1** Bay 1 - Optical drive bay (with an optical drive installed)
- 2** Bay 2 - Slim card reader drive bay
- 3** Bay 3 - Primary SATA hard disk drive bay (with a 3.5-inch SATA hard disk drive installed)
- 4** Bay 4 - Secondary SATA hard disk drive bay

Handling static-sensitive devices

Do not open the static-protective package containing the new part until the defective part has been removed from the computer and you are ready to install the new part. Static electricity, although harmless to you, can seriously damage computer components and parts.

When you handle computer parts and components, take these precautions to avoid static-electricity damage:

- Limit your movement. Movement can cause static electricity to build up around you.
- Always carefully handle the parts and other computer components. Handle PCI cards, memory modules, system boards, and microprocessors by the edges. Never touch exposed circuitry.
- Prevent others from touching the parts and other computer components.
- Before you replace a new part, touch the static-protective package containing the new part to a metal expansion-slot cover or other unpainted metal surface on the computer for at least two seconds. This reduces static electricity from the package and your body.
- Remove the new part from the static-protective package and directly install it in the computer without placing it on any other surface. If it is hard for you to do this in your specific situation, place the static-protective package of the new part on a smooth, level surface, and then place the new part on the static-protective package.
- Do not place the part on the computer cover or other metal surface.

Installing or replacing hardware

This section provides instructions on how to install or replace hardware for your computer. You can expand the capabilities of your computer by adding memory modules, PCI cards, or drives, and maintain your computer by replacing the failing hardware.

Notes:

1. Use only computer parts provided by Lenovo.
2. When installing or replacing an option, use the appropriate instructions in this section along with the instructions that come with the option.

Installing external options

You can install external options to your computer, such as external speakers, a printer, or a scanner. For some external options, you must install additional software in addition to making the physical connection. When you install an external option, see “Locating connectors, controls, and indicators on the front of your computer” on page 67 and “Locating connectors and parts on the rear of your computer” on page 68 to identify the required connector. Then, use the instructions that come with the option to help you make the connection and install software or device drivers that are required for the option.

Removing 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 the computer cover.

CAUTION:



Turn off the computer and wait three to five minutes to let the computer cool before removing the computer cover.

To remove the computer cover, do the following:

1. Remove all media from the drives. Then, turn off all attached devices and the computer.
2. Disconnect all power cords from electrical outlets.
3. Disconnect the power cord, Input/Output (I/O) cables, and all other cables that are connected to the computer.
4. Remove any locking device that secures the computer cover, such as an integrated cable lock or a padlock.
5. Remove the two screws that secure the computer cover and slide the computer cover to the rear to remove it.

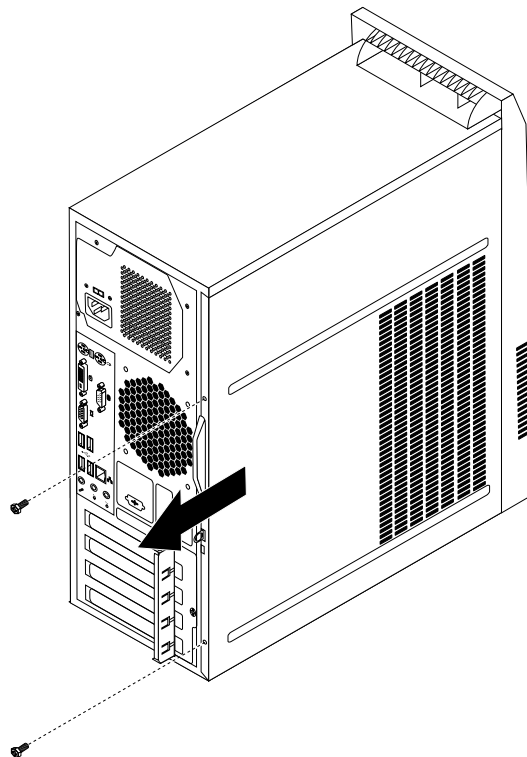


Figure 6. Removing the computer cover

Removing and reinstalling the front bezel

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 reinstall the front bezel.

To remove and reinstall the front bezel, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 72.
3. Remove the front bezel by releasing the three plastic tabs on the left side and pivoting the front bezel outward.

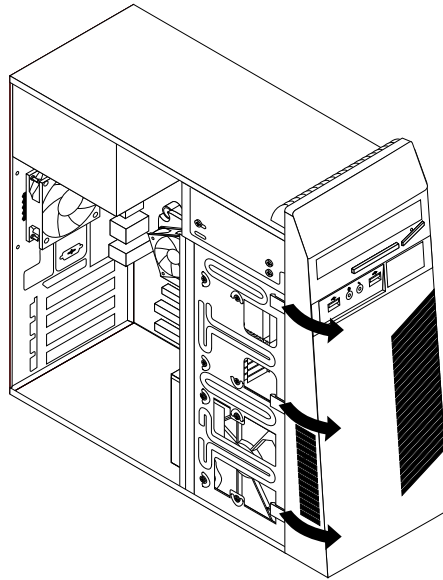


Figure 7. Removing the front bezel

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

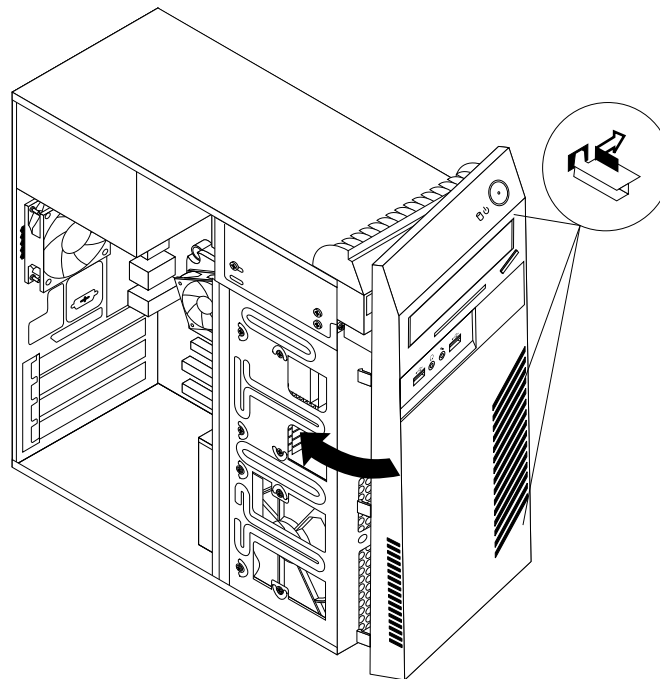


Figure 8. Reinstalling the front bezel

5. Go to “Completing the parts replacement” on page 98.

Installing or replacing a PCI 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 instructions on how to install or replace a PCI card.

Your computer has one standard PCI card slot, two PCI Express x1 card slots, and one PCI Express x16 graphics card slot. See “Locating parts on the system board” on page 70.

To install or replace a PCI card, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 72.

3. At the rear of the computer, remove the screw that secures the PCI card latch.

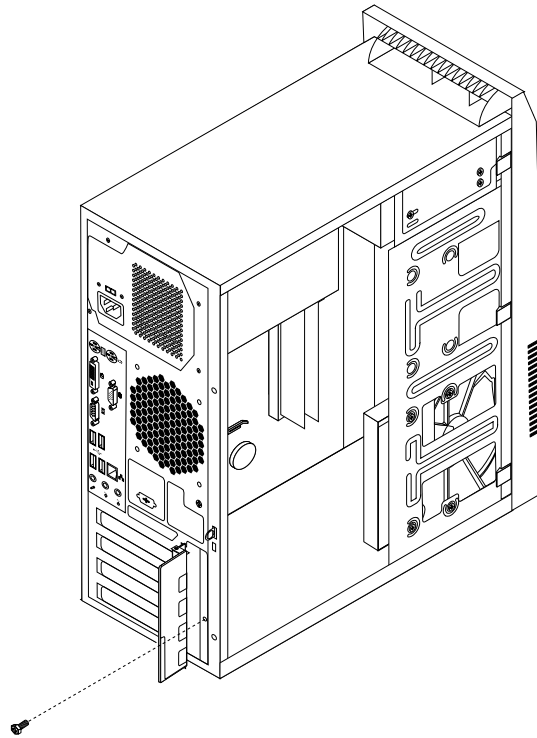


Figure 9. Removing the screw that secures the PCI card latch

4. Do one of the following:

- If you are replacing a PCI card, open the PCI card latch and remove the old PCI card that is currently installed as shown in Figure 10 “Removing the PCI card” on page 77.

Note: If the PCI card is secured in place by a retaining latch **1**, press the retaining latch to release the PCI card from the latch. Then, grasp the PCI card by the edges and carefully pull it out of the slot. If necessary, alternate moving each side of the PCI card a small and equal amount until it is completely removed from the PCI card slot.

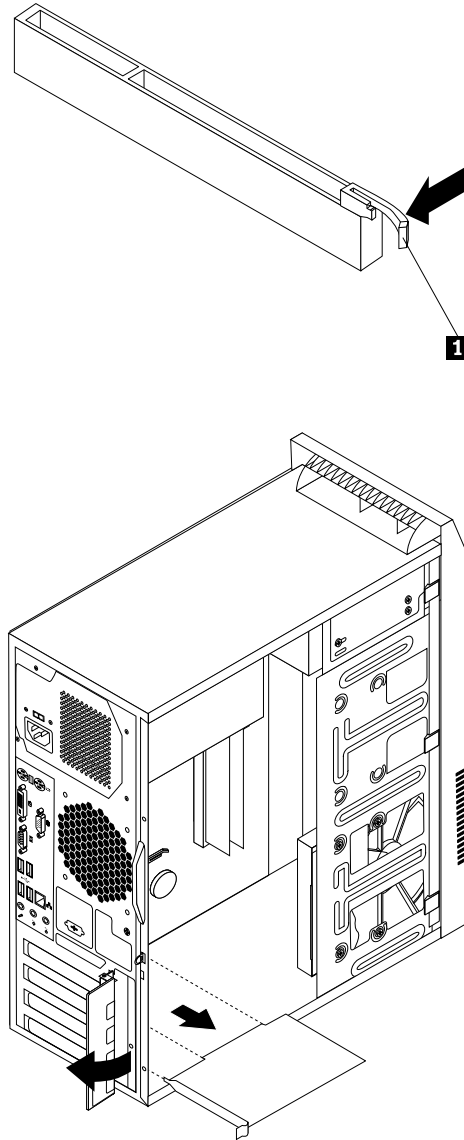


Figure 10. Removing the PCI card

- If you are installing a PCI card, open the PCI card latch and remove the appropriate PCI card slot cover. See “Locating parts on the system board” on page 70 to identify the types of PCI card slots.
5. Remove the new PCI card from its static-protective package.

6. Install the new PCI card into the appropriate PCI card slot on the system board. Then, pivot the PCI card latch to the closed position to secure the PCI cards.

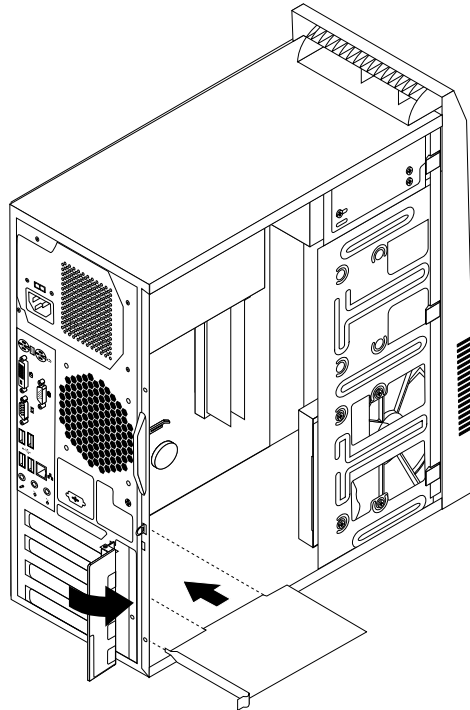


Figure 11. Installing the PCI card

7. Reinstall the screw to secure the PCI card latch in place.
8. To complete the installation or replacement, go to “Completing the parts replacement” on page 98.

Installing or 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 instructions on how to install or replace a memory module.

Your computer has four memory slots for installing or replacing DDR3 SDRAM DIMMs that provide up to a maximum of 16 GB of system memory. When installing or replacing a memory module, use 1 GB, 2 GB or 4 GB DDR3 SDRAM DIMMs in any combination up to a maximum of 16 GB of system memory.

To install or replace a memory module, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 72.
3. Lay the computer on its side for easier access to the system board.
4. Locate the memory slots on the system board. See “Locating parts on the system board” on page 70.
5. Remove any parts and disconnect any cables that might prevent your access to the memory slots.

6. Do one of the following:

- If you are replacing a memory module, open the retaining clips and remove the old memory module that is currently installed.

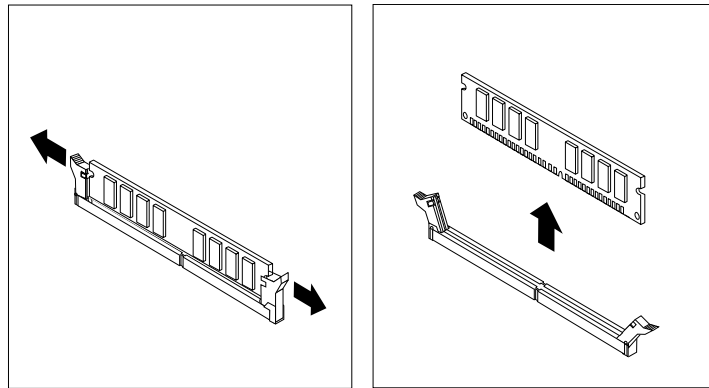


Figure 12. Removing the memory module

- If you are installing a memory module, open the retaining clips of the memory slot into which you want to install the memory module.

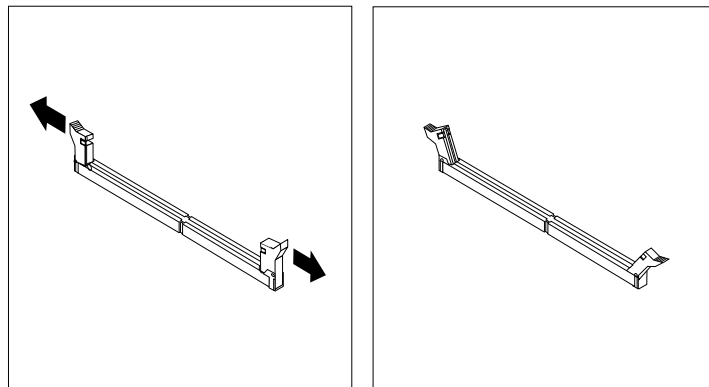


Figure 13. Opening the retaining clips of the memory slot

7. Position the new memory module over the memory slot. Make sure that the notch **1** on the new memory module is aligned with the key **2** in the memory slot. Then, press the new memory module straight down into the memory slot until the retaining clips close and the new memory module snaps into position.

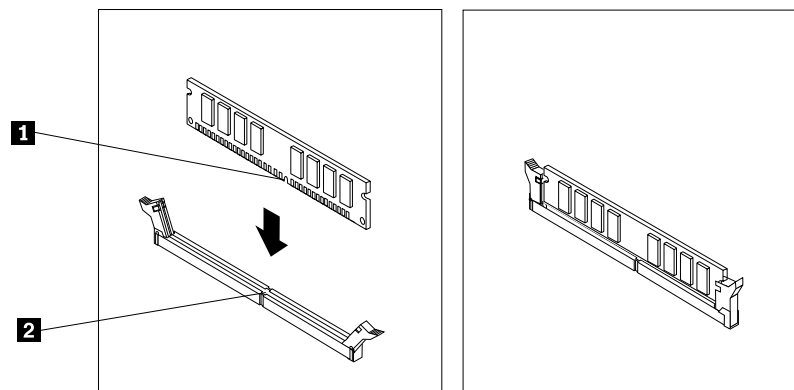


Figure 14. Installing the memory module

8. Reinstall any parts and reconnect any cables that have been removed or disconnected.
9. To complete the installation or replacement, go to “Completing the parts replacement” on page 98.

Replacing the 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>

Your computer has a special type of memory that maintains the date, time, and configuration information for built-in features. The battery keeps this information active when you turn off the computer.

The battery normally requires no charging or maintenance throughout its life; however, if the battery fails, the date, time, and configuration information, including passwords, are lost. An error message is displayed when you turn on the computer.

Before performing the following procedure, be sure to read and understand the information about replacing and disposing of the battery in the “Batteries” and “Lithium battery notice” sections of the *ThinkCentre Safety and Warranty Guide*.

To replace the battery, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 72.
3. Locate the battery. See “Locating parts on the system board” on page 70.
4. Remove any parts and disconnect any cables that might prevent your access to the battery.

5. Remove the old battery.

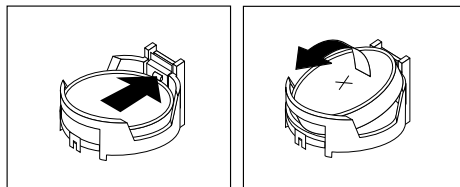


Figure 15. Removing the old battery

6. Install the new battery.

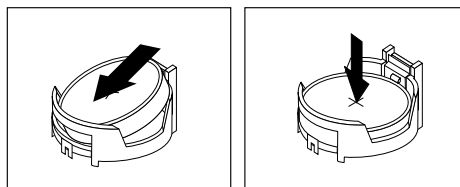


Figure 16. Installing the new battery

7. Reinstall any parts and reconnect any cables that have been removed or disconnected.
8. Reinstall the computer cover and reconnect all external cables. See “Completing the parts replacement” on page 98.
9. Turn on the computer and all attached devices.
Note: When the computer is turned on for the first time after replacing the battery, an error message might be displayed. This is normal after replacing the battery.
10. Use the Setup Utility program to set the date, time, passwords, and any other configuration information. See Chapter 6 “Using the Setup Utility program” on page 39.
11. To complete the replacement, go to “Completing the parts replacement” on page 98.

Replacing the power supply assembly

Attention:

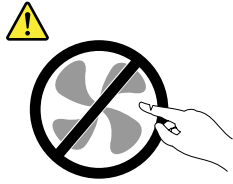
Do not open your computer or attempt any repair before reading and understanding the “Important safety information” in the *ThinkCentre Safety and Warranty Guide* that came with your computer. To obtain a copy of the *ThinkCentre Safety and Warranty Guide*, go to:
<http://www.lenovo.com/support>

This section provides instructions on how to replace the power supply assembly.

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



DANGER



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

CAUTION:

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



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

To replace the power supply assembly, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 72.
3. Disconnect the power supply assembly cables from all drives and from the 24-pin power connector and 4-pin power connector on the system board. See “Locating parts on the system board” on page 70.

Note: You might also need to release the power supply assembly cables from some cable clips or ties that secure the cables to the chassis.

4. Lay the computer on its side and remove the four screws that secure the power supply assembly. Then, slide the power supply assembly to the front of the chassis.

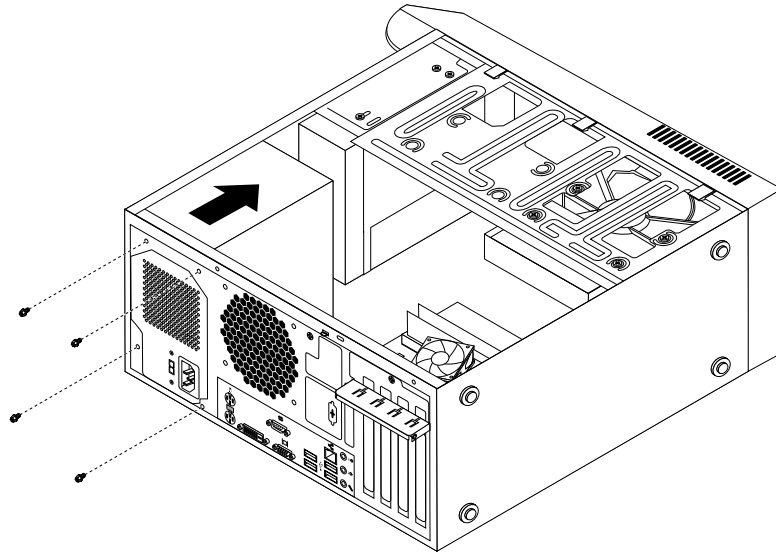


Figure 17. Removing the power supply assembly screws

5. Pivot the power supply assembly as shown and then lift the power supply assembly to remove it from the chassis.

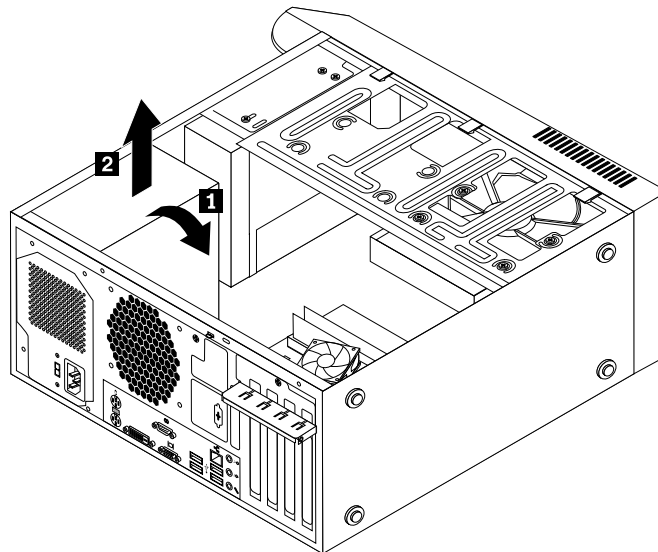


Figure 18. Removing the power supply assembly

6. Make sure that the new power supply assembly is the correct replacement. Some power supply assemblies automatically sense the voltage, some power supply assemblies are voltage specific, and some power supply assemblies have a voltage-selection switch. If your power supply assembly has a voltage-selection switch, make sure that you set the voltage-selection switch to match the voltage available at your electrical outlet. If necessary, use a ballpoint pen to slide the voltage-selection switch to the correct position.

- If the voltage supply range in your local country or region is 100–127 V ac, set the voltage-selection switch to 115 V.
 - If the voltage supply range in your local country or region is 200–240 V ac, set the voltage-selection switch to 230 V.
7. Install the new power supply assembly into the chassis so that the screw holes in the new power supply assembly are aligned with the corresponding holes in the rear of the chassis.
 8. Install the four screws to secure the new power supply assembly in place.
- Note:** Use only screws provided by Lenovo.
9. Connect the new power supply assembly cables to all drives and the system board. See “Locating parts on the system board” on page 70.
 10. To complete the replacement, go to “Completing the parts replacement” on page 98.

Replacing the heat sink and 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 instructions on how to replace the heat sink and fan assembly.

CAUTION:



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

To replace the heat sink and fan assembly, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 72.
3. Lay the computer on its side for easier access to the system board.
4. Locate the heat sink and fan assembly. See “Locating components” on page 69.
5. Disconnect any cables that might prevent your access to the heat sink and fan assembly.
6. Disconnect the heat sink and fan assembly cable from the microprocessor fan connector on the system board. See “Locating parts on the system board” on page 70.

7. Follow this sequence to remove the four screws that secure the heat sink and fan assembly to the system board:

- a. Partially remove screw **1**, then fully remove screw **2**, and then fully remove screw **1**.
- b. Partially remove screw **3**, then fully remove screw **4**, and then fully remove screw **3**.

Note: Carefully remove the four screws from the system board to avoid any possible damage to the system board. The four screws cannot be removed from the heat sink and fan assembly.

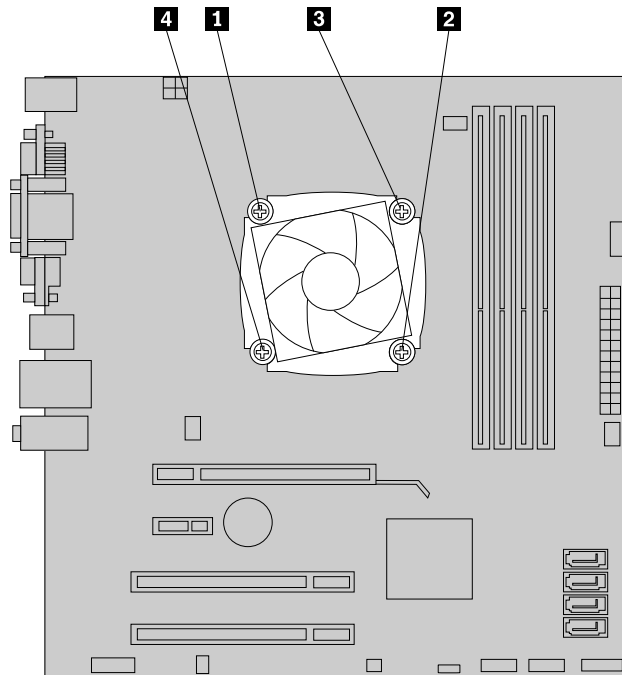


Figure 19. Screws that secure the heat sink and fan assembly

8. Lift the heat sink and fan assembly off the system board.

Notes:

- a. You might have to gently twist the heat sink and fan assembly to free it from the microprocessor.
 - b. When handling the heat sink and fan assembly, do not touch the thermal grease on the bottom of it.
9. Place the new heat sink and fan assembly on the system board so that the four screws are aligned with the corresponding holes in the system board. Make sure that you properly place the new heat sink and fan assembly so that you can easily connect the new heat sink and fan assembly cable to the microprocessor fan connector on the system board.
 10. Follow this sequence to install the four screws to secure the new heat sink and fan assembly:
 - a. Partially tighten screw **1**, then fully tighten screw **2**, and then fully tighten screw **1**.
 - b. Partially tighten screw **3**, then fully tighten screw **4**, and then fully tighten screw **3**.
 11. Connect the new heat sink and fan assembly cable to the microprocessor fan connector on the system board. See “Locating parts on the system board” on page 70.
 12. Reconnect any cables that have been removed.
 13. To complete the replacement, go to “Completing the parts replacement” on page 98.

Replacing the microprocessor

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 replace the microprocessor.

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 removing the computer cover.

To replace the microprocessor, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 72.
3. Remove the heat sink and fan assembly. See “Replacing the heat sink and fan assembly” on page 84.

Note: Place the heat sink and fan assembly on its side so that the thermal grease on the bottom of it does not get in contact with anything.

4. Lift the small handle **1** and open the retainer **2** to access the microprocessor **3**.

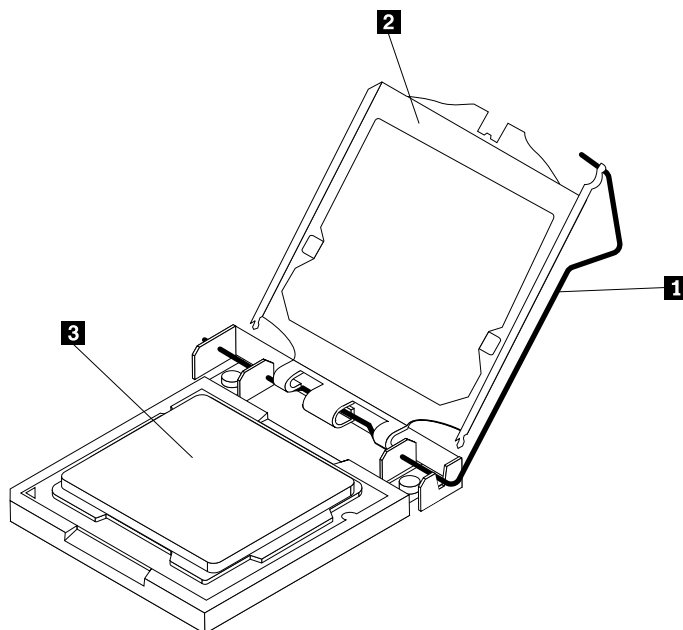


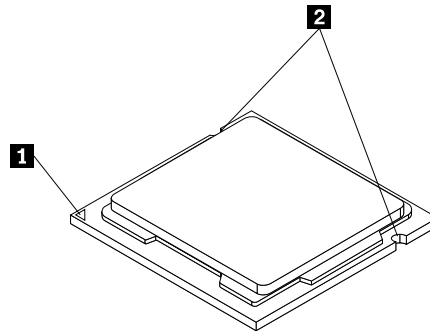
Figure 20. Accessing the microprocessor

5. Lift the microprocessor straight up and out of the microprocessor socket, as shown in Figure 21 “Removing the microprocessor” on page 87.

Notes:

- a. Your microprocessor and socket might look different from the one illustrated.

- b. Note the orientation of the microprocessor in the socket. You can either look for the small triangle **1** on one corner of the microprocessor or note the orientation of the notches **2** on the microprocessor. This is important when installing the new microprocessor on the system board.



- c. Touch only the edges of the microprocessor. Do not touch the gold contacts on the bottom.
- d. Do not drop anything onto the microprocessor socket while it is exposed. The socket pins must be kept as clean as possible.

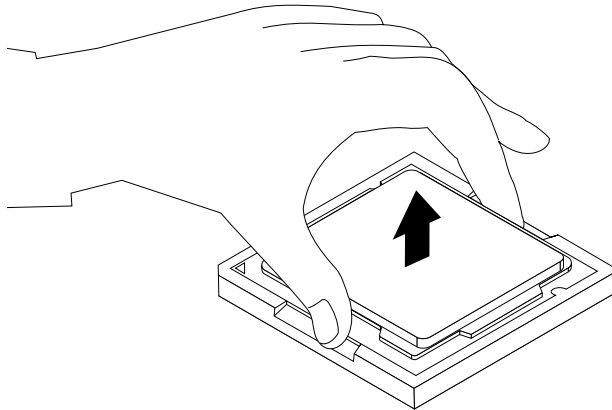


Figure 21. Removing the microprocessor

6. Make sure that the small handle is in the raised position.
7. Remove the protective cover that protects the gold contacts of the new microprocessor.
8. Hold the new microprocessor by its sides and align the small triangle on one corner of the new microprocessor with the corresponding small triangle on one corner of the microprocessor socket.
9. Lower the new microprocessor straight down into the microprocessor socket on the system board.
10. Lower the small handle to secure the new microprocessor in the socket.
11. Reinstall the heat sink and fan assembly. See “Replacing the heat sink and fan assembly” on page 84.
12. Reinstall any parts and reconnect any cables that have been removed or disconnected.
13. To complete the replacement, go to “Completing the parts replacement” on page 98.

Replacing the 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 instructions on how to replace the optical drive.

To replace the optical drive, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 72.
3. Remove the front bezel. See “Removing and reinstalling the front bezel” on page 73.
4. Disconnect the signal cable and the power cable from the rear of the optical drive.
5. Remove the three screws that secure the optical drive. Then, slide the optical drive out of the front of the computer.

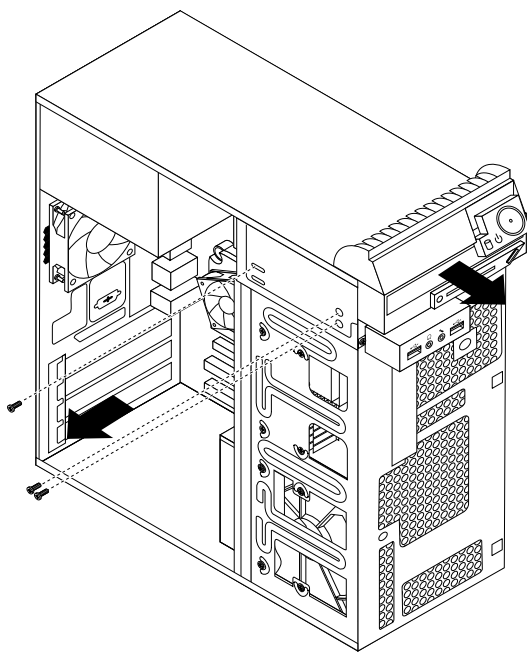


Figure 22. Removing the optical drive

- Slide the new optical drive into the drive bay from the front and align the screw holes in the new optical drive with the corresponding holes in the drive bay. Then, install the three screws to secure the new optical drive in place.

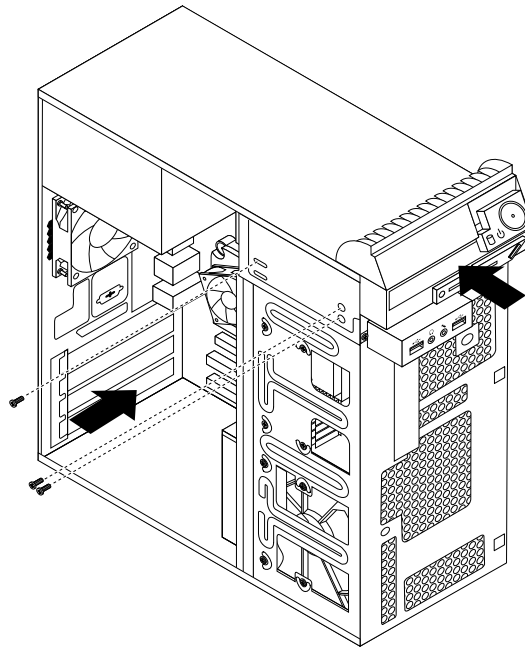


Figure 23. Installing the optical drive

- Connect one end of the signal cable to the rear of the new optical drive and the other end to an available SATA connector on the system board. See “Locating parts on the system board” on page 70. Then, locate an available five-wire power connector and connect it to the rear of the new optical drive.

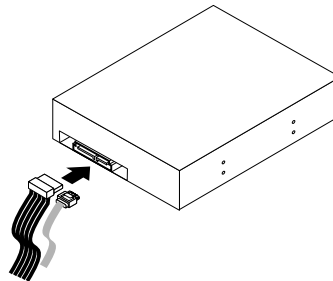


Figure 24. Connecting a SATA optical drive

- To complete the replacement, go to “Completing the parts replacement” on page 98.

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>

This section provides instructions on how to replace the hard disk drive.

To replace the hard disk drive, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 72.
3. Locate the primary hard disk drive. See “Locating internal drives” on page 71.

Note: There is also a secondary hard disk drive bay for you to purchase and install a secondary hard disk drive by yourself. If you want to install a secondary hard disk drive, use the same way of installing the primary hard disk drive.

4. Disconnect the signal cable and the power cable from the rear of the hard disk drive.
5. Remove the four screws that secure the hard disk drive. Then, slide the hard disk drive out of the chassis.

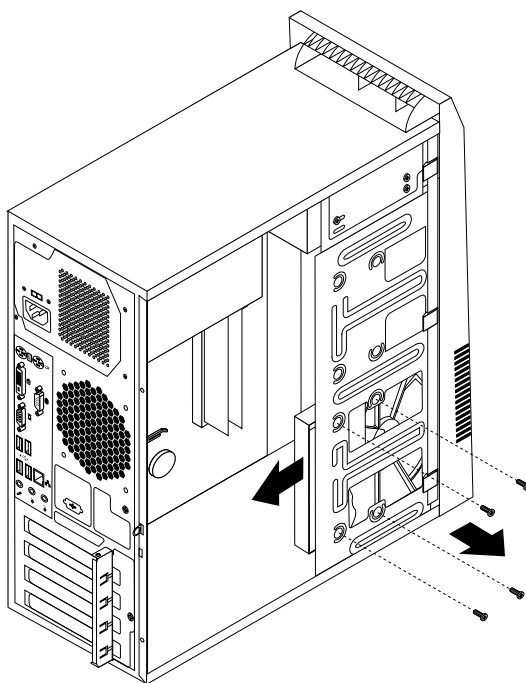


Figure 25. Removing the hard disk drive

6. Slide the new hard disk drive into the hard disk drive bay and align the screw holes in the new hard disk drive with the corresponding holes in the drive bay. Then, install the four screws to secure the new hard disk drive in place.

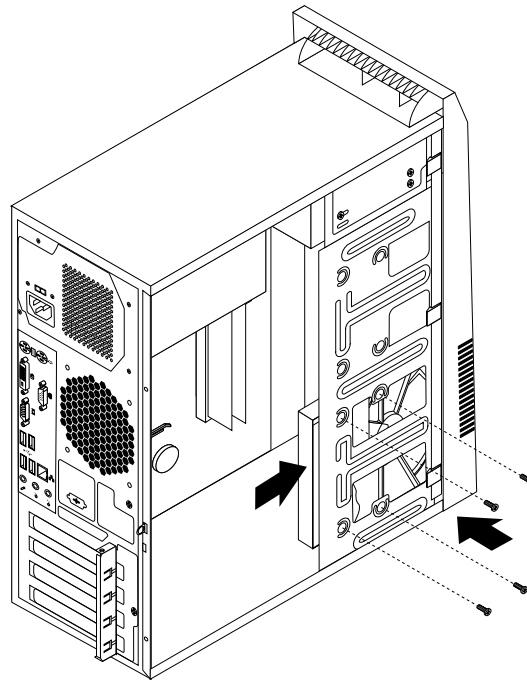


Figure 26. Installing the hard disk drive

7. Connect one end of the signal cable to the rear of the new hard disk drive and the other end to an available SATA connector on the system board. See “Locating parts on the system board” on page 70. Then, locate an available five-wire power connector and connect it to the rear of the new hard disk drive.

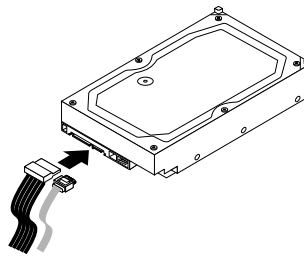


Figure 27. Connecting a SATA hard disk drive

8. To complete the installation or replacement, go to “Completing the parts replacement” on page 98.

Replacing the card reader

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 replace the card reader.

Note: The card reader is available only in some models.

To replace the card reader, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 72.
3. Remove the front bezel. See “Removing and reinstalling the front bezel” on page 73.
4. Disconnect the card reader cable from the USB connector on the system board. See “Locating parts on the system board” on page 70.
5. Note the card reader cable routing and remove the screw **1** that secures the card reader. Then, remove the card reader from the chassis.

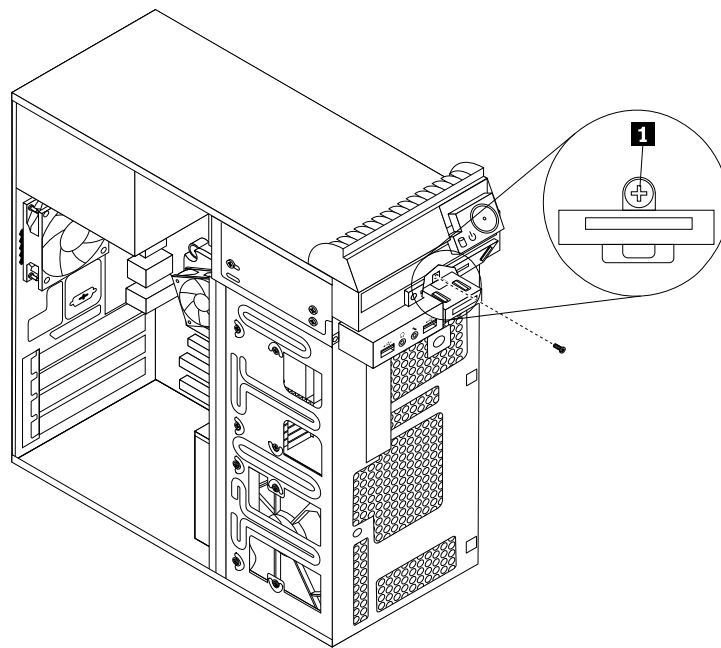


Figure 28. Removing the card reader

6. Position the new card reader to the chassis so that the screw hole in the new card reader is aligned with the corresponding hole in the chassis.
7. Install the screw to secure the new card reader in place.
8. Connect the new card reader cable to the USB connector on the system board and properly route the cable of the new card reader. See “Locating parts on the system board” on page 70.
9. Reinstall the front bezel. See “Removing and reinstalling the front bezel” on page 73.

10. To complete the installation or replacement, go to “Completing the parts replacement” on page 98.

Replacing the front audio and 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 instructions on how to replace the front audio and USB assembly.

To replace the front audio and USB assembly, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 72.
3. Remove the front bezel. See “Removing and reinstalling the front bezel” on page 73.
4. Disconnect the front audio and USB assembly cables from the system board. See “Locating parts on the system board” on page 70.
5. Note the front audio and USB assembly cable routing and remove the screw that secures the front audio and USB assembly. Then, remove the front audio and USB assembly from the chassis.

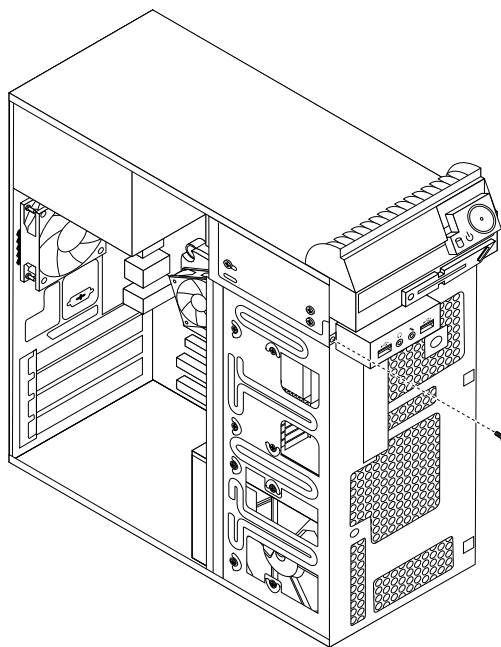


Figure 29. Removing the front audio and USB assembly

6. Route the cables of the new front audio and USB assembly through the hole in the chassis.
7. Position the new front audio and USB assembly to the chassis so that the screw hole in the new front audio and USB assembly is aligned with the corresponding hole in the chassis.
8. Install the screw to secure the new front audio and USB assembly in place.
9. Connect the new front audio and USB assembly cables to the system board. See “Locating parts on the system board” on page 70.

10. Reinstall the front bezel. See “Removing and reinstalling the front bezel” on page 73.
11. To complete the replacement, go to “Completing the parts replacement” on page 98.

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 instructions on how to replace the rear fan assembly.

To replace the rear fan assembly, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 72.
3. Locate the rear fan assembly. See “Locating components” on page 69.
4. Disconnect the rear fan assembly cable from the system fan connector on the system board. See “Locating parts on the system board” on page 70.
5. The rear fan assembly is attached to the chassis by four rubber mounts. Carefully remove the four rubber mounts from the rear of the chassis by breaking them or cutting them with scissors.

Note: The new rear fan assembly will have four new rubber mounts attached.

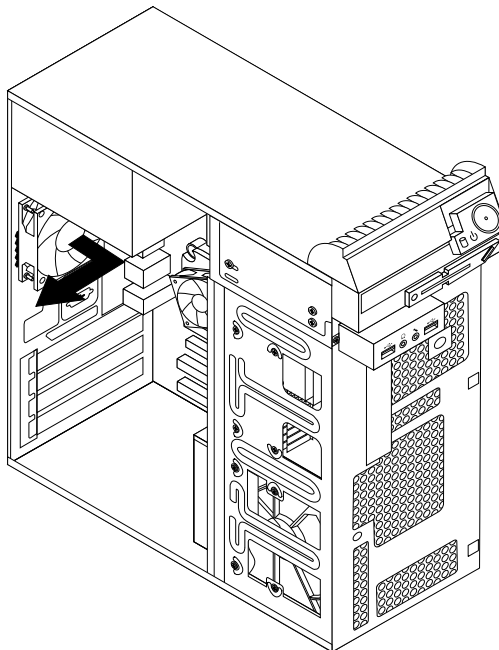


Figure 30. Removing the rear fan assembly

6. Remove the rear fan assembly out of the chassis.
7. Install the new rear fan assembly by aligning the rubber mounts of the rear fan assembly with the holes on the chassis and push the rubber mounts through the holes.

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

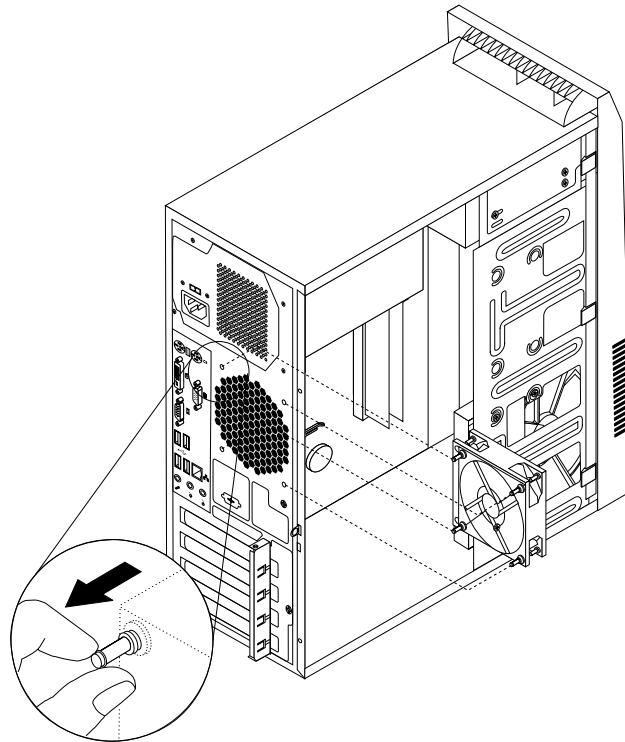


Figure 31. Replacing the rear fan assembly

9. Connect the rear fan assembly cable to the system fan connector on the system board.
10. Go to “Completing the parts replacement” on page 98.

Replacing the system board

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 replace 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.

To replace the system board, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 72.
3. Remove the front bezel. See “Removing and reinstalling the front bezel” on page 73.

4. Lay the computer on its side for easier access to the system board.
5. Disconnect the front audio and USB assembly cables from the system board. See “Replacing the front audio and USB assembly” on page 93.
6. Remove all memory modules and PCI cards that are currently installed. See “Installing or replacing a memory module” on page 78 and “Installing or replacing a PCI card” on page 110.
7. Carefully take note of the location of all cable connections on the system board and disconnect all the cables. See “Locating parts on the system board” on page 70.
8. Remove the heat sink and fan assembly from the failing system board. See “Replacing the heat sink and fan assembly” on page 84.
9. Remove the battery from the system board. See “Replacing the battery” on page 80.
10. Remove the eight screws that secure the system board.

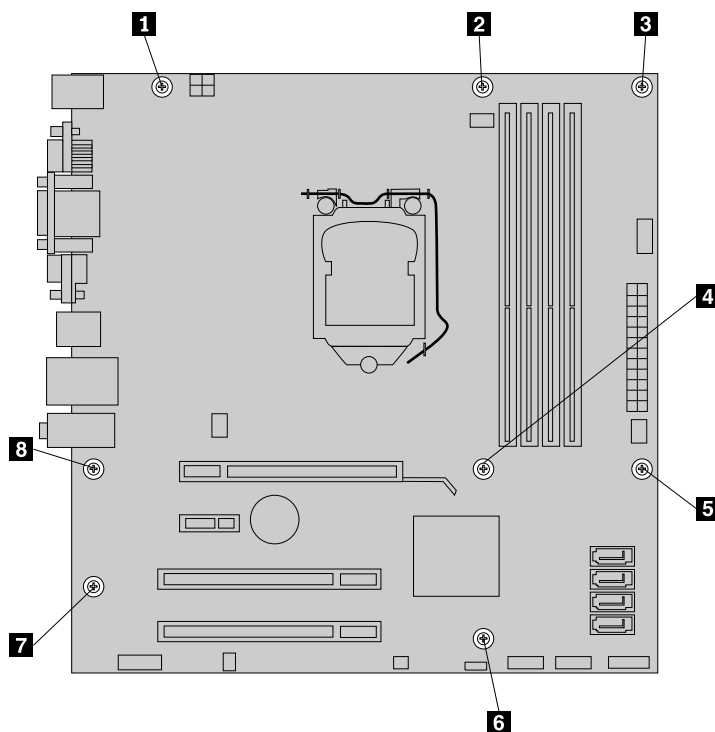


Figure 32. Removing the eight screws that secure the system board

11. Carefully slide the system board so that it can be released from the mounting studs that secure the system board in place.
12. Lift the system board out of the chassis.
13. Remove the microprocessor from the failing system board and install it on the new system board. See “Replacing the microprocessor” on page 86.

Note: If your new system board comes with a microprocessor socket cover, remove the socket cover before you install the microprocessor on the new system board.

14. Install the new system board into the chassis by aligning the eight mounting studs in the chassis with the corresponding holes in the new system board. Carefully slide the new system board into the chassis until it is secured in place by the mounting studs. Then, install the eight screws to secure the system board.
15. Install the battery back to the system board. See “Replacing the battery” on page 80.
16. Install the heat sink and fan assembly and connect the heat sink and fan assembly cable to the new system board. See “Replacing the heat sink and fan assembly” on page 84.
17. Install all memory modules and PCI cards removed from the failing system board on the new system board. See “Installing or replacing a memory module” on page 78 and “Installing or replacing a PCI card” on page 75.
18. Reconnect all remaining cables to the system board. See “Locating parts on the system board” on page 70.
19. Reinstall the front bezel. See “Removing and reinstalling the front bezel” on page 73.
20. Reinstall the computer cover.
21. Go to “Completing the parts replacement” on page 98.

The failing system board must be returned with a microprocessor socket cover to protect the pins during shipping and handling.

To install the microprocessor socket cover, do the following:

1. Release the lever securing the microprocessor retainer and open the retainer to access the microprocessor.
2. Grasp the microprocessor on the sides and lift it straight up and out of the socket. Do not touch the contacts on the microprocessor socket.
3. Note the orientation of the socket cover. Align the notches **1** of the microprocessor socket cover with the alignment keys **2** of the microprocessor socket.
4. Install one side of the socket cover into the microprocessor socket as shown.

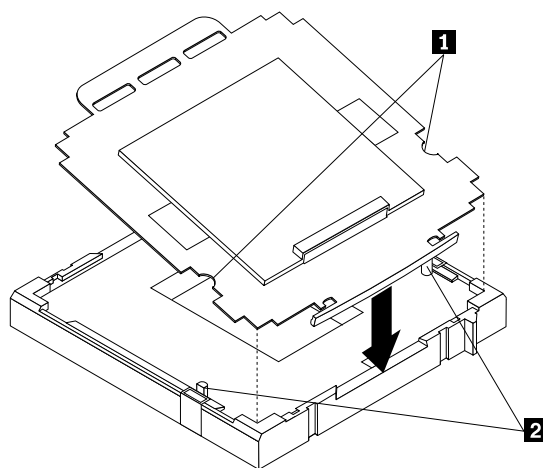


Figure 33. Installing the socket cover

Note: Your microprocessor socket and cover might look slightly different from the illustration.

5. Carefully press the other side of the socket cover downwards until the socket cover snaps into place.

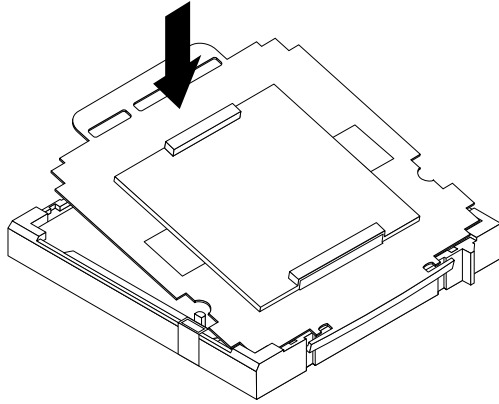


Figure 34. Securing the socket cover

6. Carefully check the four corners of the socket cover to make sure that the cover is secured in the microprocessor socket.
7. Lower the microprocessor retainer and then lower the lever to secure the retainer. Make sure the lever is locked into position.
8. Follow any additional instructions included with the replacement part you received.

Note: If your system board has two microprocessor sockets, be sure to install a socket cover for each microprocessor socket.

Completing the parts replacement

After completing the installation or replacement for all parts, you need to reinstall the computer cover and reconnect cables.

To reinstall the computer cover and reconnect cables to your computer, do the following:

1. Make sure that all components have been reassembled correctly and that no tools or loose screws are left inside your computer. See “Locating components” on page 69 for the locations of the various components in your computer.
2. If you have removed the front bezel, reinstall it. See “Removing and reinstalling the front bezel” on page 73.
3. Properly route the cables and keep them clear of the hinges and sides of the computer chassis to avoid interference with closing the computer cover.

4. Position the computer cover on the chassis so that the rail guides on the bottom of the computer cover engage the rails. Then, slide the computer cover to the front of the computer until it snaps into position and is closed. Then, install the two screws to secure the computer cover.

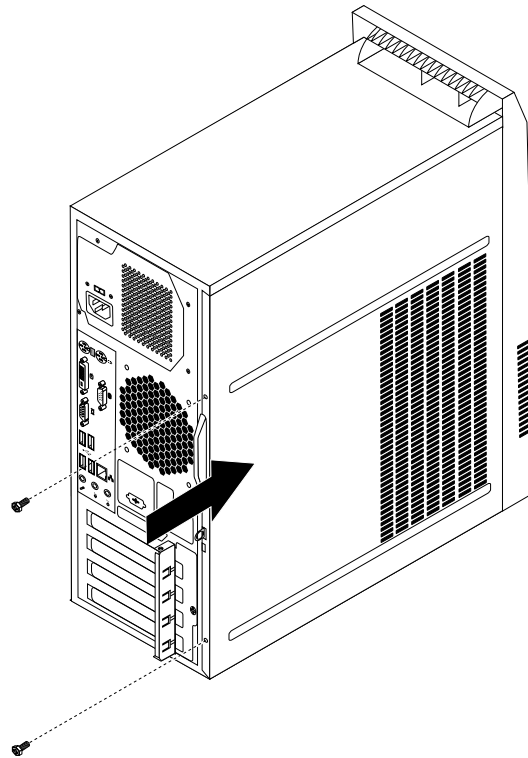


Figure 35. Reinstalling the computer cover

5. Lock the computer cover if you have a computer cover lock.
6. Reconnect the power cord and all other external cables to the computer. For connector locations, see “Locating connectors, controls, and indicators on the front of your computer” on page 67 and “Locating connectors and parts on the rear of your computer” on page 68.
7. Depending on the parts you installed or replaced, you might need to confirm the updated information in the Setup Utility program. See Chapter 6 “Using the Setup Utility program” on page 39.

Note: In most areas of the world, Lenovo requires the return of the defective Customer Replaceable Units (CRUs). Information about this will come with the new CRUs or will come a few days after you receive the new CRUs.

Chapter 9. Installing or replacing hardware: 7181, 7189, 7239, 7492, 7507, 7513, and 7529

This chapter provides instructions on how to install or replace hardware for your computer.

Locations

This section provides information to help you locate your computer connectors, components, parts on the system board, and internal drives.

Locating connectors, controls, and indicators on the front of your computer

Figure 36 “Front connector, control, and indicator locations” on page 101 shows the locations of the connectors, controls, and indicators on the front of your computer.

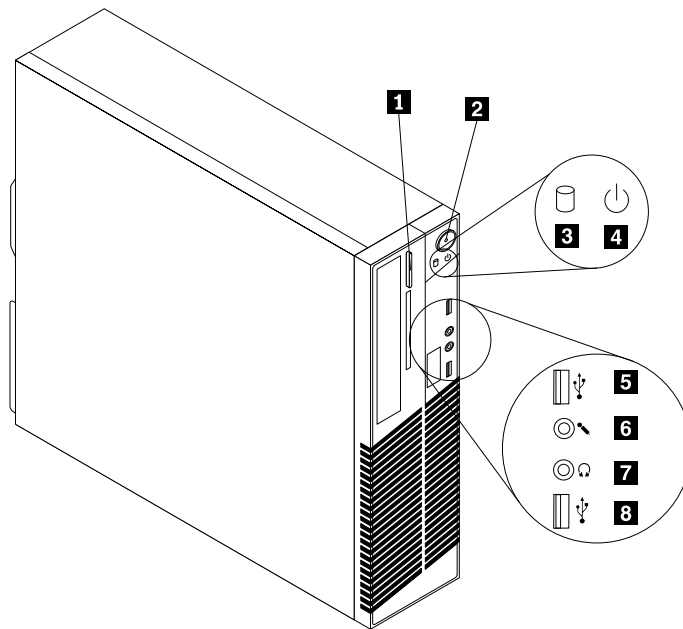


Figure 36. Front connector, control, and indicator locations

- | | |
|---|-------------------------------|
| 1 Optical drive eject/close button | 5 USB connector |
| 2 Power switch | 6 Microphone connector |
| 3 Hard disk drive activity indicator | 7 Headphone connector |
| 4 Power indicator | 8 USB connector |

Locating connectors and parts on the rear of your computer

Figure 37 “Rear connector and part locations” on page 102 shows the locations of the connectors and parts on the rear of your computer. Some connectors on the rear of your computer are color-coded to help you determine where to connect the cables on your computer.

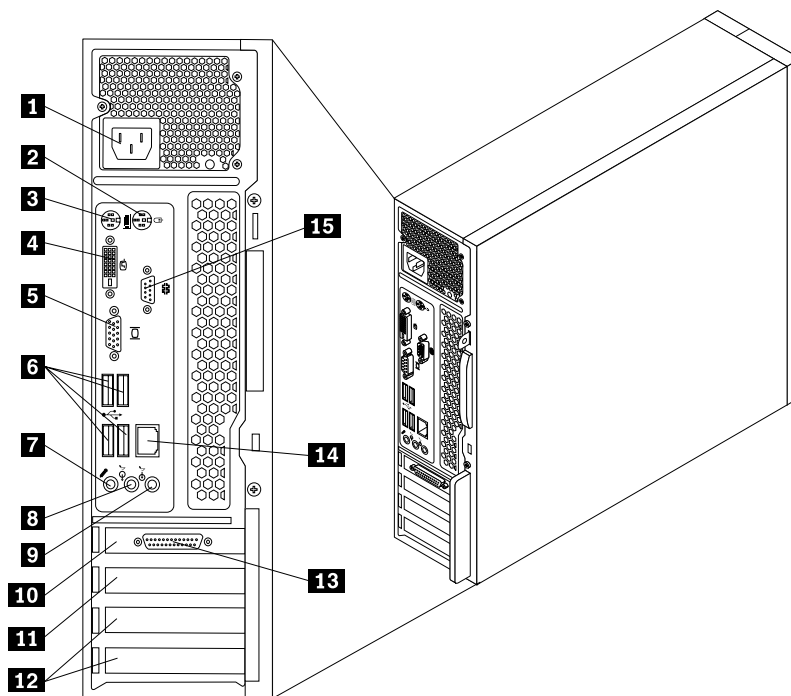


Figure 37. Rear connector and part locations

- | | |
|----------------------------------|--|
| 1 Power cord connector | 8 Audio line-out connector |
| 2 PS/2 mouse connector | 9 Audio line-in connector |
| 3 PS/2 keyboard connector | 10 PCI Express x16 graphics card slot |
| 4 DVI monitor connector | 11 PCI Express x1 card slot |
| 5 VGA monitor connector | 12 PCI card slots (2) |
| 6 USB connectors (4) | 13 Ethernet connector |
| 7 Microphone connector | 14 Serial port |

Locating components

Figure 38 “Component locations” on page 103 shows the locations of the various components in your computer. To remove the computer cover and gain access to the inside of the computer, see “Removing the computer cover” on page 107.

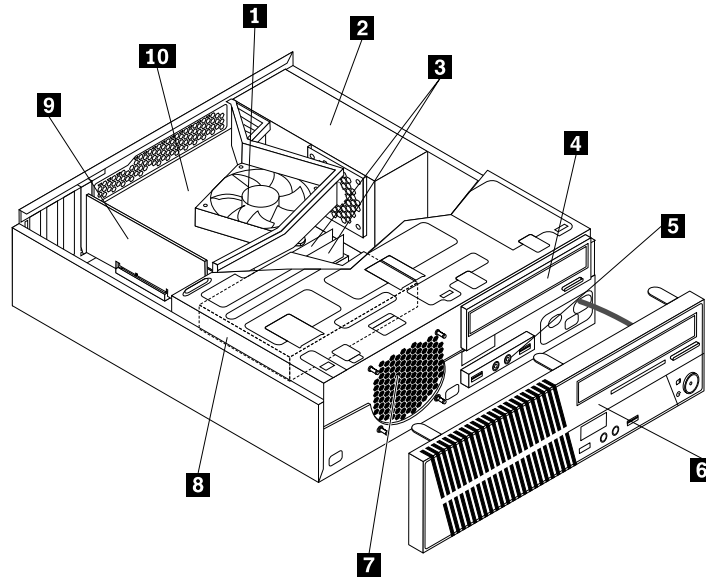


Figure 38. Component locations

- | | |
|--|--|
| 1 Heat sink and fan assembly (with a microprocessor underneath) | 6 Front bezel |
| 2 Power supply assembly | 7 Front fan assembly |
| 3 Memory modules (2) | 8 Hard disk drive |
| 4 Optical drive | 9 PCI card (available in some models) |
| 5 Front USB and audio assembly | 10 Heat sink fan duct |

Locating parts on the system board

Figure 39 “System board part locations” on page 104 shows the locations of the parts on the system board.

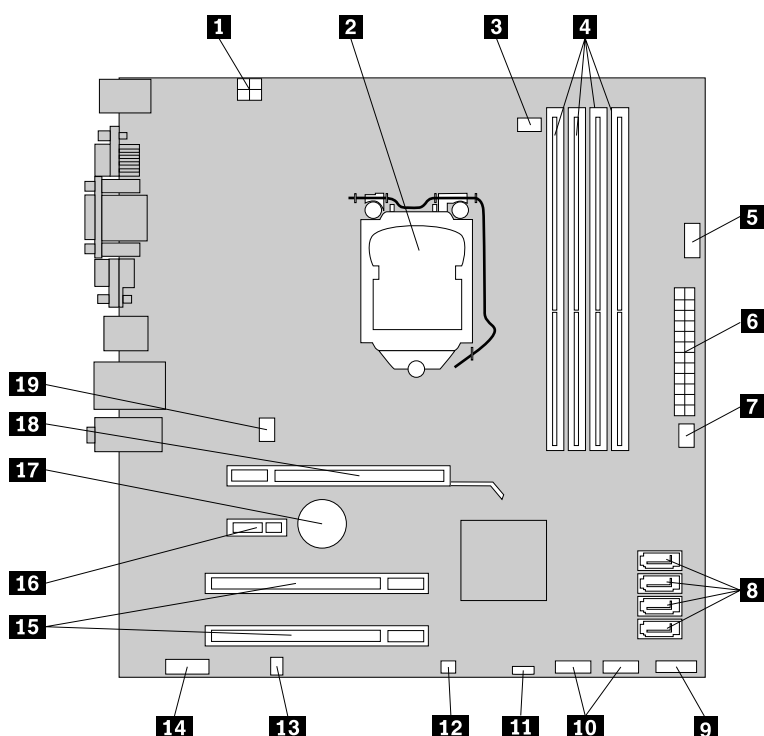


Figure 39. System board part locations

- | | |
|---------------------------------------|--|
| 1 4-pin power connector | 11 Clear CMOS (Complementary Metal Oxide Semiconductor) /Recovery jumper |
| 2 Microprocessor | 12 Cover presence switch connector (also called intrusion switch connector) |
| 3 Microprocessor fan connector | 13 Internal speaker connector |
| 4 Memory slots (4) | 14 Front audio connector |
| 5 Serial (COM 2) connector | 15 PCI card slots (2) |
| 6 24-pin power connector | 16 PCI Express x1 card slot |
| 7 Power fan connector | 17 Battery |
| 8 SATA connectors (4) | 18 PCI Express x16 graphics card slot |
| 9 Front panel connector | 19 System fan connector |
| 10 Front USB connectors (2) | |

Locating internal drives

Internal drives are devices that your computer uses to read and store data. You can add drives to your computer to increase storage capacity and enable your computer to read other types of media. Internal drives are installed in bays. In this manual, the bays are referred to as bay 1, bay 2, and so on.

When installing or replacing an internal drive, it is important to note the type and size of the drive that you can install or replace in each bay and correctly connect the cables to the drive installed. Refer to the appropriate section in Chapter 9 “Installing or replacing hardware: 7181, 7189, 7239, 7492, 7507, 7513, and 7529” on page 101 for instructions on how to install or replace internal drives for your computer.

Figure 40 “Drive bay locations” on page 105 shows the locations of the drive bays in your computer.

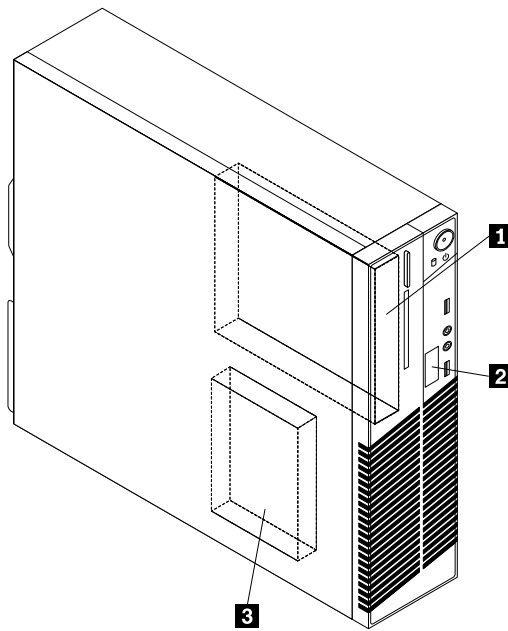


Figure 40. Drive bay locations

- 1** Bay 1 - Optical drive bay (with an optical drive installed)
- 2** Bay 2 - Slim card reader drive bay
- 3** Bay 3 - SATA hard disk drive bay

Handling static-sensitive devices

Do not open the static-protective package containing the new part until the defective part has been removed from the computer and you are ready to install the new part. Static electricity, although harmless to you, can seriously damage computer components and parts.

When you handle computer parts and components, take these precautions to avoid static-electricity damage:

- Limit your movement. Movement can cause static electricity to build up around you.
- Always carefully handle the parts and other computer components. Handle PCI cards, memory modules, system boards, and microprocessors by the edges. Never touch exposed circuitry.
- Prevent others from touching the parts and other computer components.
- Before you replace a new part, touch the static-protective package containing the new part to a metal expansion-slot cover or other unpainted metal surface on the computer for at least two seconds. This reduces static electricity from the package and your body.
- Remove the new part from the static-protective package and directly install it in the computer without placing it on any other surface. If it is hard for you to do this in your specific situation, place the static-protective package of the new part on a smooth, level surface, and then place the new part on the static-protective package.
- Do not place the part on the computer cover or other metal surface.

Installing or replacing hardware

This section provides instructions on how to install or replace hardware for your computer. You can expand the capabilities of your computer by adding memory modules, PCI cards, or drives, and maintain your computer by replacing the failing hardware.

Notes:

1. Use only computer parts provided by Lenovo.
2. When installing or replacing an option, use the appropriate instructions in this section along with the instructions that come with the option.

Installing external options

You can install external options to your computer, such as external speakers, a printer, or a scanner. For some external options, you must install additional software in addition to making the physical connection. When you install an external option, see “Locating connectors, controls, and indicators on the front of your computer” on page 101 and “Locating connectors and parts on the rear of your computer” on page 102 to identify the required connector. Then, use the instructions that come with the option to help you make the connection and install software or device drivers that are required for the option.

Removing 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 the computer cover.

CAUTION:



Turn off the computer and wait three to five minutes to let the computer cool before removing the computer cover.

To remove the computer cover, do the following:

1. Remove all media from the drives. Then, turn off all attached devices and the computer.
2. Disconnect all power cords from electrical outlets.
3. Disconnect the power cord, Input/Output (I/O) cables, and all other cables that are connected to the computer.
4. Remove any locking device that secures the computer cover, such as an integrated cable lock or a padlock.
5. Remove the two screws that secure the computer cover and slide the computer cover to the rear to remove it.

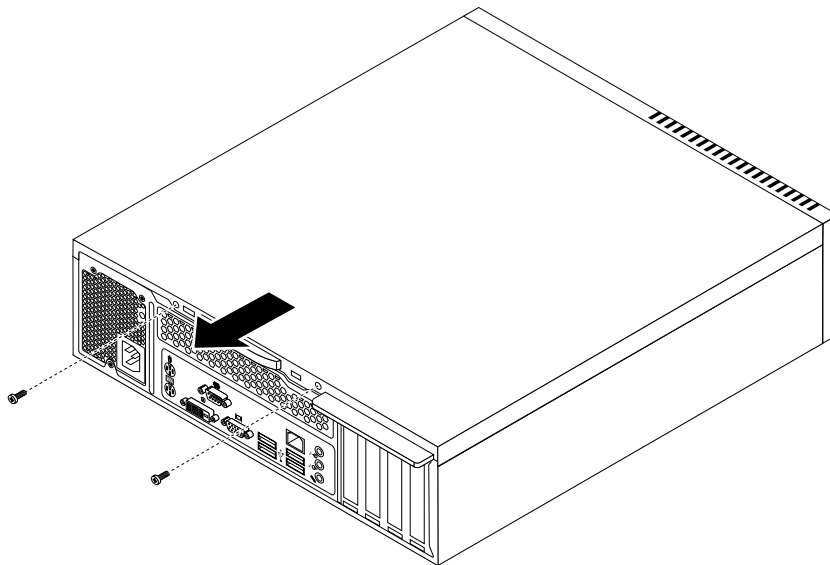


Figure 41. Removing the computer cover

Removing and reinstalling the front bezel

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 reinstall the front bezel.

To remove and reinstall the front bezel, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 107.
3. Remove the front bezel by releasing the three plastic tabs on the top of the front bezel and pivoting the front bezel outward to remove it from the computer. Carefully lay the front bezel aside without disconnecting the power switch and light-emitting diode (LED) assembly cable.

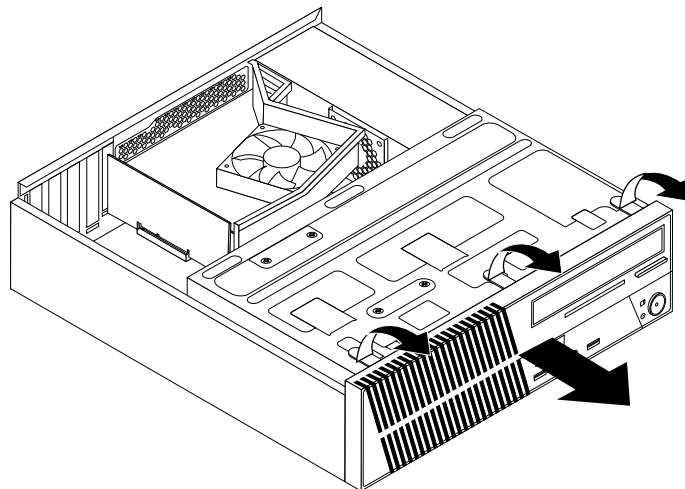


Figure 42. Removing the front bezel

4. To reinstall the front bezel, align the other three plastic tabs on the bottom of the front bezel with the corresponding holes in the chassis, then pivot the front bezel inward until it snaps into position.

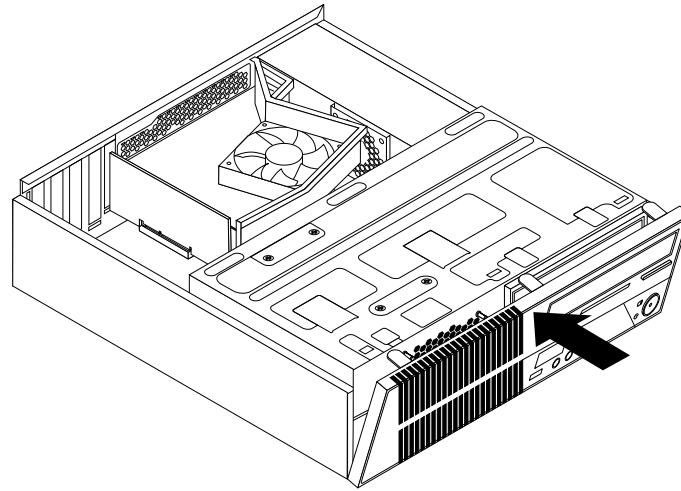


Figure 43. Reinstalling the front bezel

5. Go to “Completing the parts replacement” on page 138.

Accessing the system board components and drives

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 access the system board components and drives.

To access the system board components and drives, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover to access the system board components. See “Removing the computer cover” on page 107.
3. Remove the front bezel. See “Removing and reinstalling the front bezel” on page 108.

4. Pivot the drive bay assembly upward to access all the internal drives, cables, and other components.

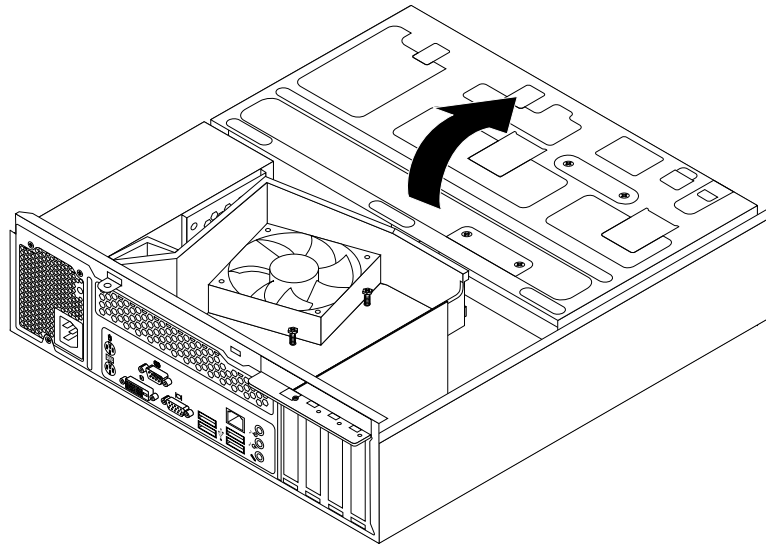


Figure 44. Pivoting the drive bay assembly upward

5. To lower the drive bay assembly, press the drive bay assembly clip **1** inward and pivot the drive bay assembly downward as shown.

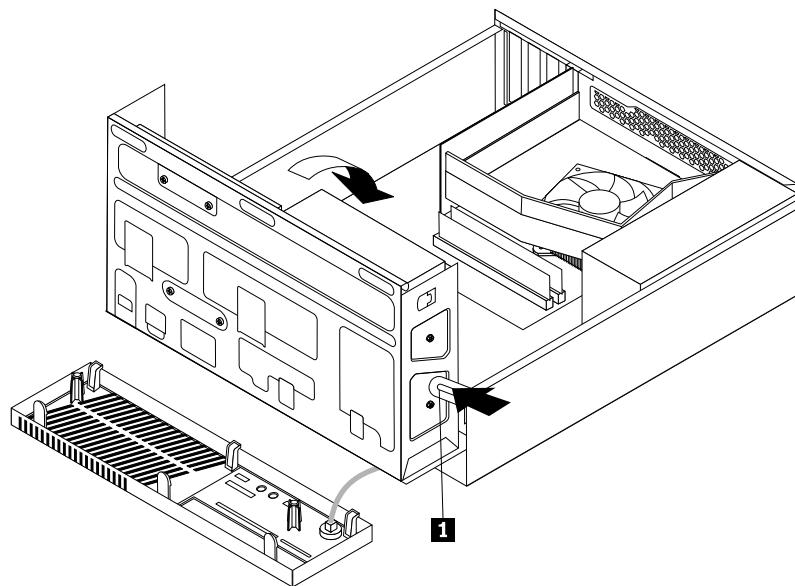


Figure 45. Lowering the drive bay assembly

Installing or replacing a PCI 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 instructions on how to install or replace a PCI card.

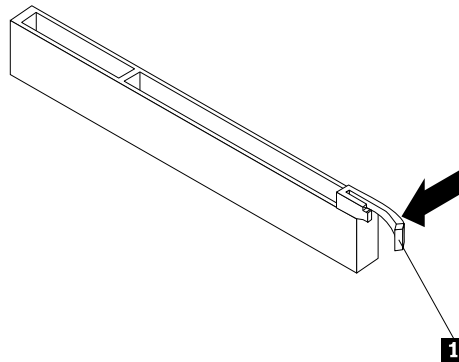
Your computer has one standard PCI card slot, two PCI Express x1 card slots, and one PCI Express x16 graphics card slot. See “Locating parts on the system board” on page 104.

To install or replace a PCI card, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 107.
3. Do one of the following:
 - If you are replacing a PCI card, remove the screw that secures the old PCI card and release the old PCI card from the PCI card slot. Then, carefully remove the old PCI card from the chassis, as shown in “Installing or replacing a PCI card” on page 110.

Notes:

- a. If there are any cables between the PCI card and the system board, note the cable routing and then disconnect the cables.
- b. If the PCI card is secured in place by a retaining latch **1**, press the retaining latch to release the PCI card from the latch. Then, grasp the PCI card by the edges and carefully pull it out of the PCI card slot. If necessary, alternate moving each side of the PCI card a small and equal amount until it is completely removed from the slot.



- c. You might need to remove the front bezel and pivot the drive bay assembly upward to avoid interference with removing the PCI card. See “Removing and reinstalling the front bezel” on page 108 and “Accessing the system board components and drives” on page 109.

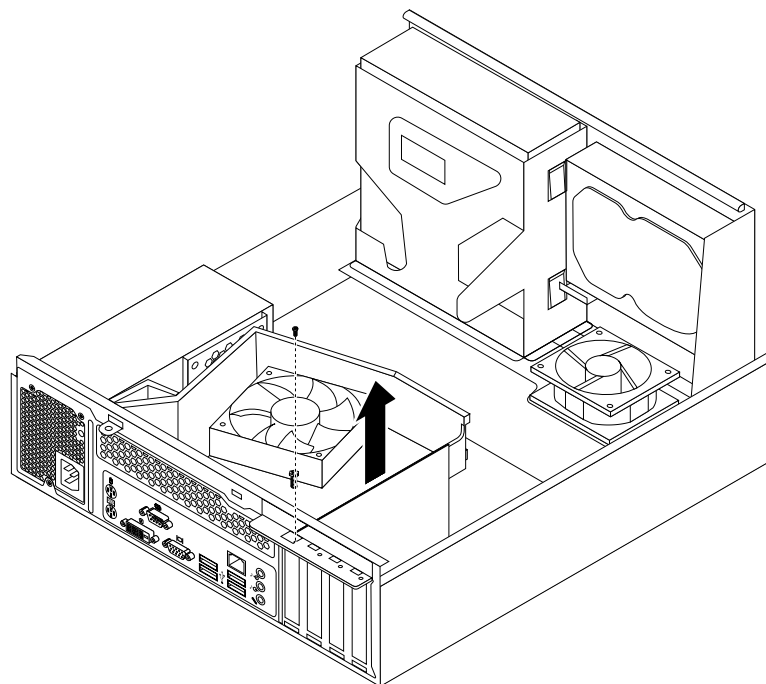


Figure 46. Removing the PCI card

- If you are installing a PCI card, remove the appropriate PCI card slot cover. See “Locating parts on the system board” on page 104 to identify the types of PCI card slots.
4. Remove the new PCI card from its static-protective package.

5. Install the new PCI card into the appropriate PCI card slot on the system board. Then, install the screw to secure the new PCI card in place.

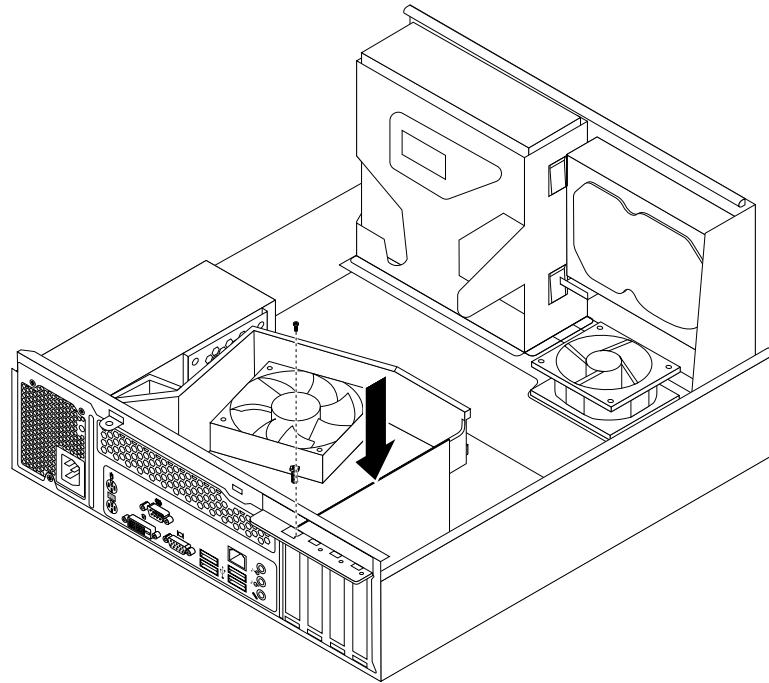


Figure 47. Installing the PCI card

6. If necessary, connect any cables between the PCI card and the system board. See “Locating parts on the system board” on page 104 to identify the various connectors on the system board.
7. To complete the installation or replacement, go to “Completing the parts replacement” on page 138.

Installing or 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 instructions on how to install or replace a memory module.

Your computer has four memory slots for installing or replacing DDR3 SDRAM DIMMs that provide up to a maximum of 16 GB of system memory. When installing or replacing a memory module, use 1 GB, 2 GB or 4 GB DDR3 SDRAM DIMMs in any combination up to a maximum of 16 GB of system memory.

To install or replace a memory module, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 107.
3. Lay the computer on its side for easier access to the system board.
4. Locate the memory slots on the system board. See “Locating parts on the system board” on page 104.
5. Remove any parts and disconnect any cables that might prevent your access to the memory slots.

6. Do one of the following:

- If you are replacing a memory module, open the retaining clips and remove the old memory module that is currently installed.

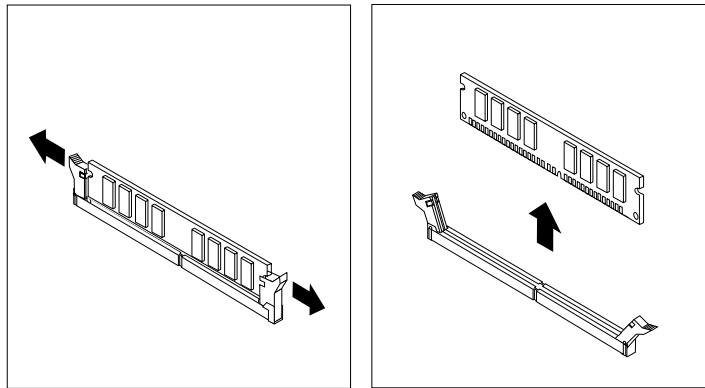


Figure 48. Removing the memory module

- If you are installing a memory module, open the retaining clips of the memory slot into which you want to install the memory module.

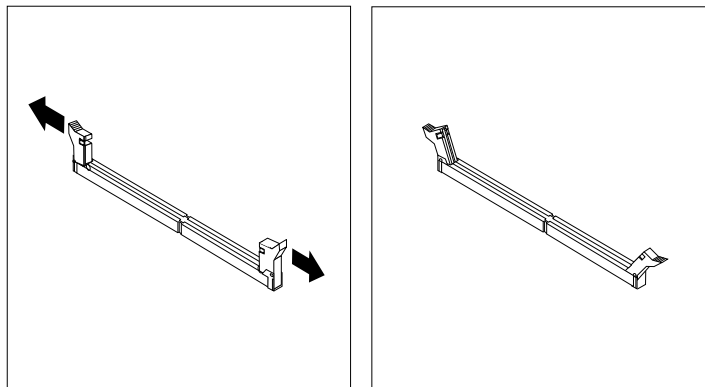


Figure 49. Opening the retaining clips of the memory slot

7. Position the new memory module over the memory slot. Make sure that the notch **1** on the new memory module is aligned with the key **2** in the memory slot. Then, press the new memory module straight down into the memory slot until the retaining clips close and the new memory module snaps into position.

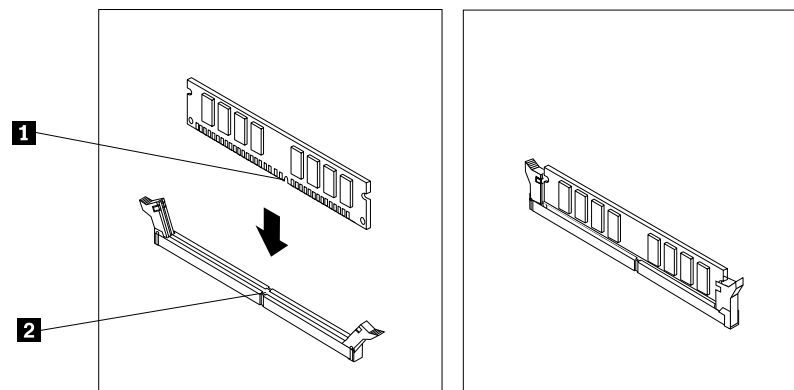


Figure 50. Installing the memory module

8. Reinstall any parts and reconnect any cables that have been removed or disconnected.
9. To complete the installation or replacement, go to “Completing the parts replacement” on page 138.

Replacing the 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>

Your computer has a special type of memory that maintains the date, time, and configuration information for built-in features. The battery keeps this information active when you turn off the computer.

The battery normally requires no charging or maintenance throughout its life; however, if the battery fails, the date, time, and configuration information, including passwords, are lost. An error message is displayed when you turn on the computer.

Before performing the following procedure, be sure to read and understand the information about replacing and disposing of the battery in the “Batteries” and “Lithium battery notice” sections of the *ThinkCentre Safety and Warranty Guide*.

To replace the battery, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 107.
3. Pivot the drive bay assembly upward. See “Accessing the system board components and drives” on page 109.
4. Locate the battery. See “Locating parts on the system board” on page 104.
5. Remove any parts and disconnect any cables that might prevent your access to the battery.

6. Remove the old battery.

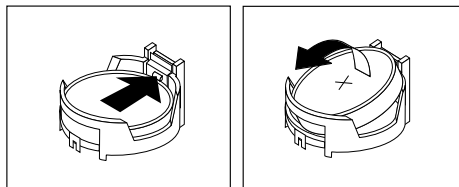


Figure 51. Removing the old battery

7. Install the new battery.

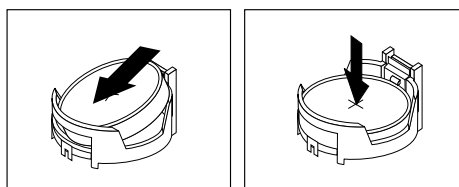


Figure 52. Installing the new battery

8. Reinstall any parts and reconnect any cables that have been removed or disconnected.
9. Lower the drive bay assembly. See “Accessing the system board components and drives” on page 109.
10. Reinstall the computer cover and reconnect all external cables. See “Completing the parts replacement” on page 138.
11. Turn on the computer and all attached devices.
Note: When the computer is turned on for the first time after replacing the battery, an error message might be displayed. This is normal after replacing the battery.
12. Use the Setup Utility program to set the date, time, passwords, and any other configuration information. See Chapter 6 “Using the Setup Utility program” on page 39.
13. To complete the replacement, go to “Completing the parts replacement” on page 138.

Replacing the heat sink and 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 instructions on how to replace the heat sink and fan assembly.

CAUTION:



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

To replace the heat sink and fan assembly, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 107.
3. Remove the front bezel. See “Removing and reinstalling the front bezel” on page 108.
4. Pivot the drive bay assembly upward. Remove the four screws that secure the heat sink fan duct and then lift the heat sink fan duct up to remove it from the chassis.

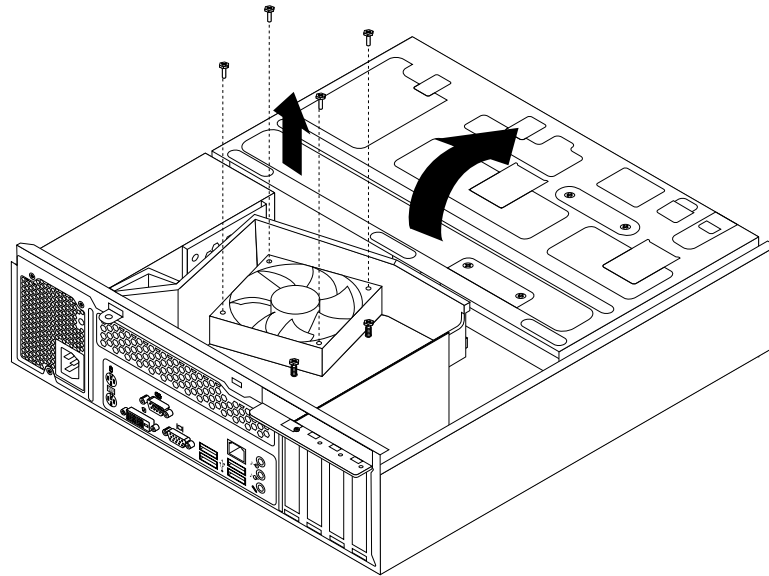


Figure 53. Removing the heat sink fan duct

5. Disconnect the heat sink and fan assembly cable from the microprocessor fan connector on the system board. See “Locating parts on the system board” on page 104.
6. Follow this sequence to remove the four screws that secure the heat sink and fan assembly to the system board:
 - a. Partially remove screw **1**, then fully remove screw **2**, and then fully remove screw **1**.
 - b. Partially remove screw **3**, then fully remove screw **4**, and then fully remove screw **3**.

Note: Carefully remove the four screws from the system board to avoid any possible damage to the system board. The four screws cannot be removed from the heat sink and fan assembly.

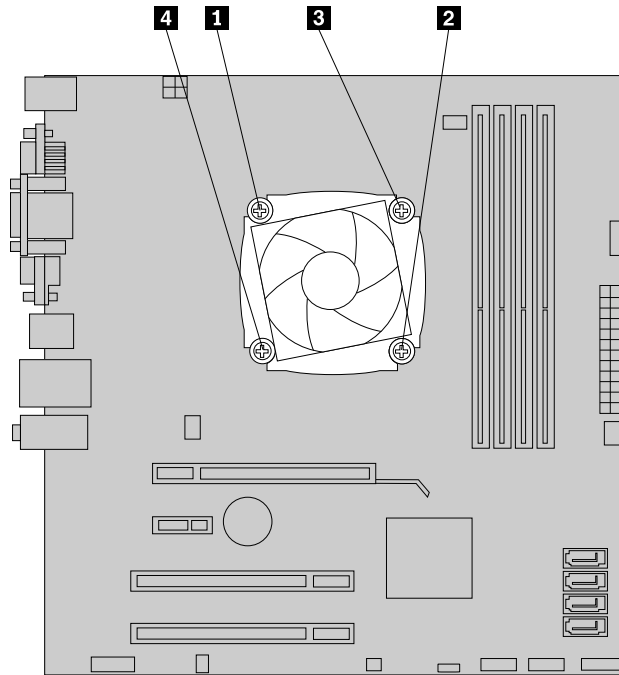


Figure 54. Screws that secure the heat sink and fan assembly

7. Lift the heat sink and fan assembly off the system board.

Notes:

- a. You might have to gently twist the heat sink and fan assembly to free it from the microprocessor.
- b. When handling the heat sink and fan assembly, do not touch the thermal grease on the bottom of the heat sink and fan assembly.
8. Place the new heat sink and fan assembly on the system board so that the four screws are aligned with the corresponding holes in the system board. Make sure that you properly place the new heat sink and fan assembly so that you can easily connect the new heat sink and fan assembly cable to the microprocessor fan connector on the system board.
9. Follow this sequence to install the four screws to secure the new heat sink and fan assembly, as shown in Figure 54 “Screws that secure the heat sink and fan assembly” on page 118:
 - a. Partially tighten screw **1**, then fully tighten screw **2**, and then fully tighten screw **1**.
 - b. Partially tighten screw **3**, then fully tighten screw **4**, and then fully tighten screw **3**.
10. Connect the new heat sink and fan assembly cable to the microprocessor fan connector on the system board. See “Locating parts on the system board” on page 104.

11. Lower and position the heat sink fan duct on the top of the heat sink and fan assembly until the four screw holes in the heat sink fan duct are aligned with those in the heat sink and fan assembly. Install the four screws to secure the heat sink fan duct.

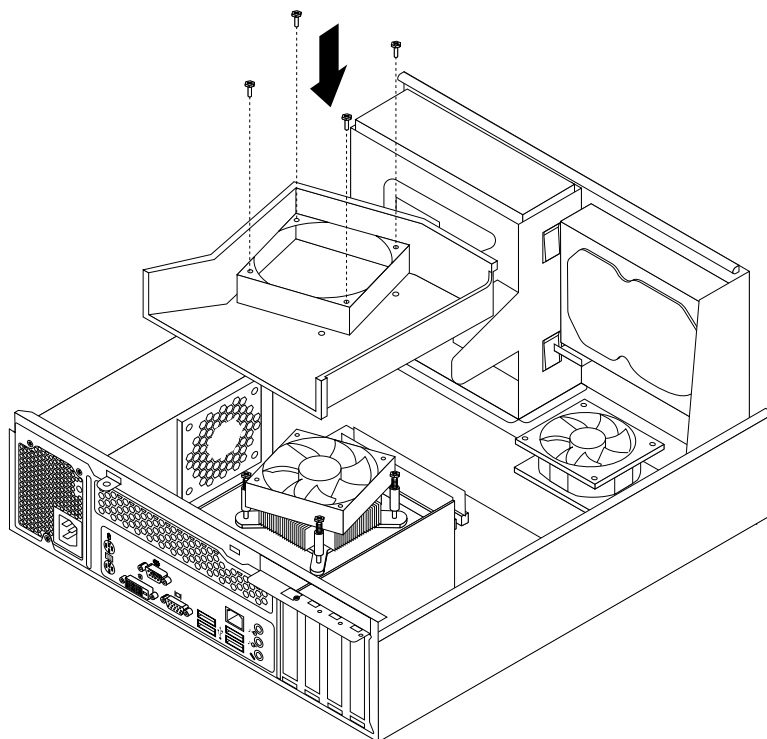


Figure 55. Installing the heat sink fan duct

12. To complete the replacement, go to “Completing the parts replacement” on page 138.

Replacing the microprocessor

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 replace the microprocessor.

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 removing the computer cover.

To replace the microprocessor, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 107.
3. Remove the heat sink and fan assembly. See “Replacing the heat sink and fan assembly” on page 116.

Note: Place the heat sink and fan assembly on its side so that the thermal grease on the bottom of it does not get in contact with anything.

4. Lift the small handle **1** and open the retainer **2** to access the microprocessor **3**.

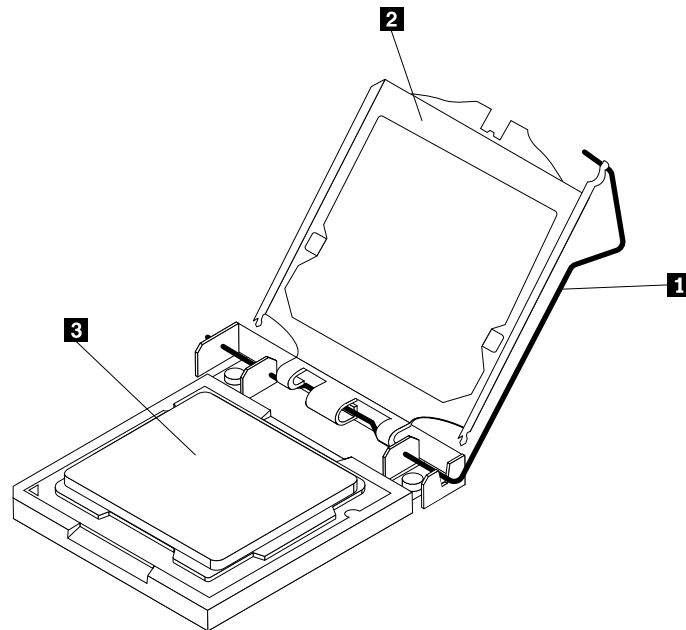
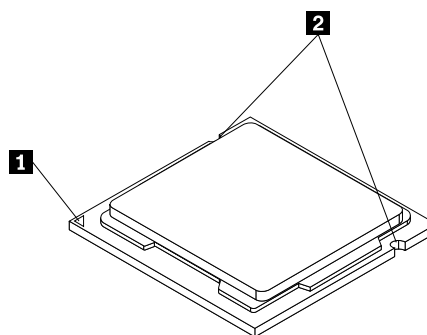


Figure 56. Accessing the microprocessor

5. Lift the microprocessor straight up and out of the microprocessor socket, as shown in Figure 57 “Removing the microprocessor” on page 121.

Notes:

- a. Your microprocessor and socket might look different from the one illustrated.
- b. Note the orientation of the microprocessor in the socket. You can either look for the small triangle **1** on one corner of the microprocessor or note the orientation of the notches **2** on the microprocessor. This is important when installing the new microprocessor on the system board.



- c. Touch only the edges of the microprocessor. Do not touch the gold contacts on the bottom.
- d. Do not drop anything onto the microprocessor socket while it is exposed. The socket pins must be kept as clean as possible.

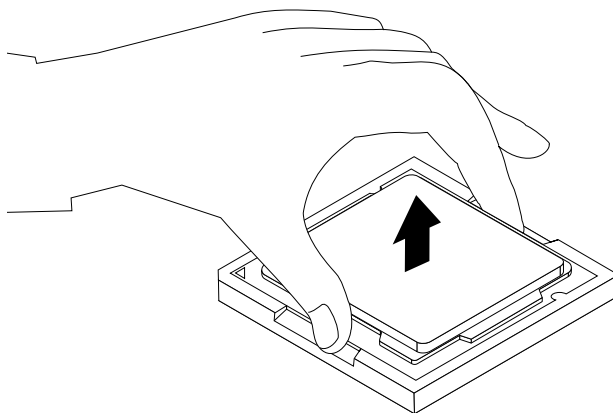


Figure 57. Removing the microprocessor

6. Make sure that the small handle is in the raised position.
7. Remove the protective cover that protects the gold contacts of the new microprocessor.
8. Hold the new microprocessor by its sides and align the small triangle on one corner of the new microprocessor with the corresponding small triangle on one corner of the microprocessor socket.
9. Lower the new microprocessor straight down into the microprocessor socket on the system board.
10. Lower the small handle to secure the new microprocessor in the socket.
11. Reinstall the heat sink and fan assembly. See “Replacing the heat sink and fan assembly” on page 116.
12. Reinstall any parts and reconnect any cables that have been removed or disconnected.
13. To complete the replacement, go to “Completing the parts replacement” on page 138.

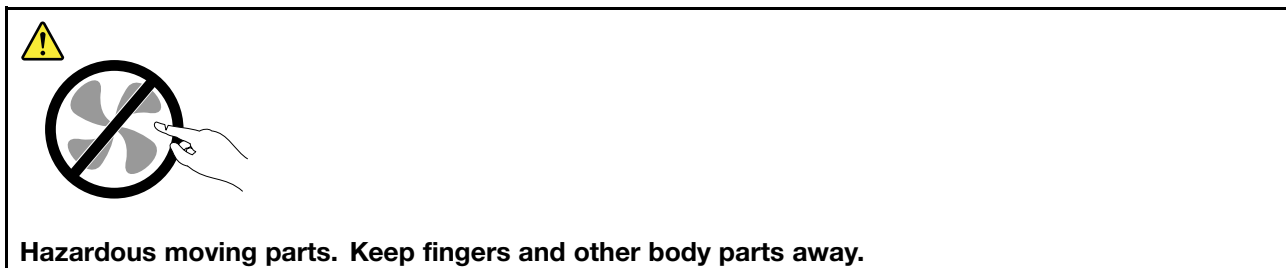
Replacing the power supply assembly

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 instructions on how to replace the power supply assembly.

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



CAUTION:

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



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

To replace the power supply assembly, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 107.
3. Remove the front bezel. See “Removing and reinstalling the front bezel” on page 108.
4. Pivot the drive bay assembly upward, remove the four screws that secure the heat sink fan duct, and then lift the heat sink fan duct out of the chassis.

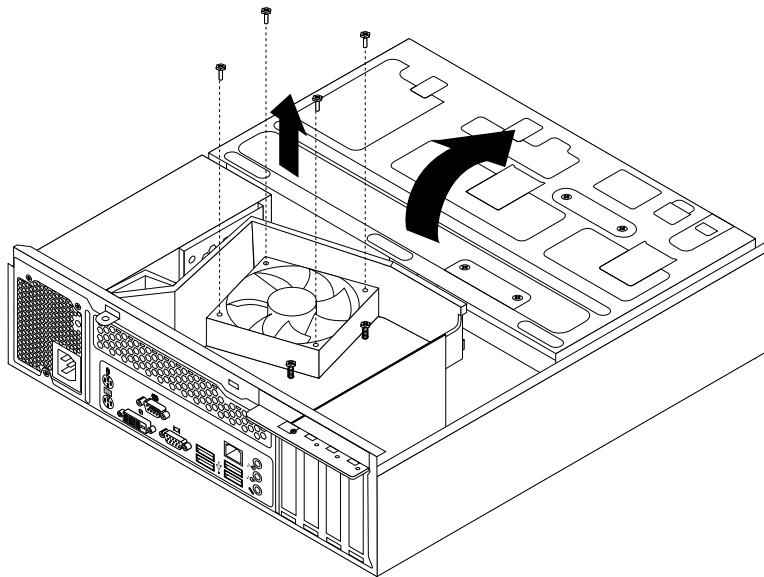


Figure 58. Removing the heat sink fan duct

5. Disconnect the power supply assembly cables from all drives and from the 24-pin power connector and 4-pin power connector on the system board. See “Locating parts on the system board” on page 104.

Note: You might also need to release the power supply assembly cables from some cable clips or ties that secure the cables to the chassis. Make sure that you note the cable routing before disconnecting the cables.

6. At the rear of the computer, remove the three screws that secure the power supply assembly. Press the power supply clip **1** downward to release the power supply assembly and then slide the power supply assembly to the front of the computer. Lift the power supply assembly out of the computer.

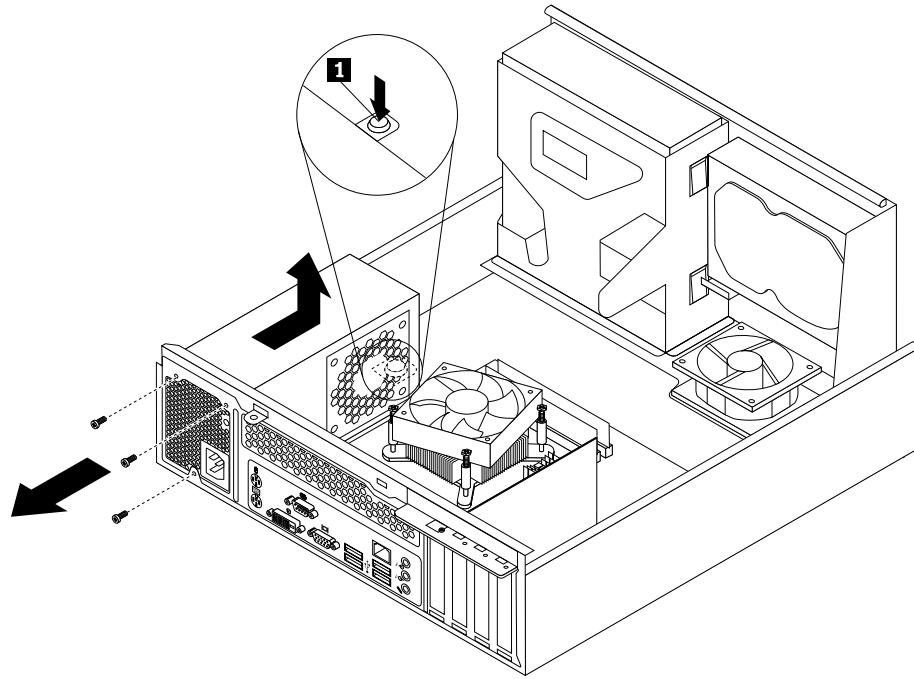


Figure 59. Removing the power supply assembly

7. Make sure that the new power supply assembly is the correct replacement. Some power supply assemblies automatically sense the voltage or accept universal input, some power supply assemblies are voltage specific, and some power supply assemblies have a voltage-selection switch. If your power supply assembly has a voltage-selection switch, make sure that you set the voltage-selection switch to match the voltage available at your electrical outlet. If necessary, use a ballpoint pen to slide the voltage-selection switch to the correct position.
 - If the voltage supply range in your local country or region is 100–127 V ac, set the voltage-selection switch to 115 V.
 - If the voltage supply range in your local country or region is 200–240 V ac, set the voltage-selection switch to 230 V.

8. Install the new power supply assembly into the chassis so that the screw holes in the new power supply assembly are aligned with the corresponding holes in the rear of the chassis. Then, install the three screws to secure the new power supply assembly in place.

Note: Use only screws provided by Lenovo.

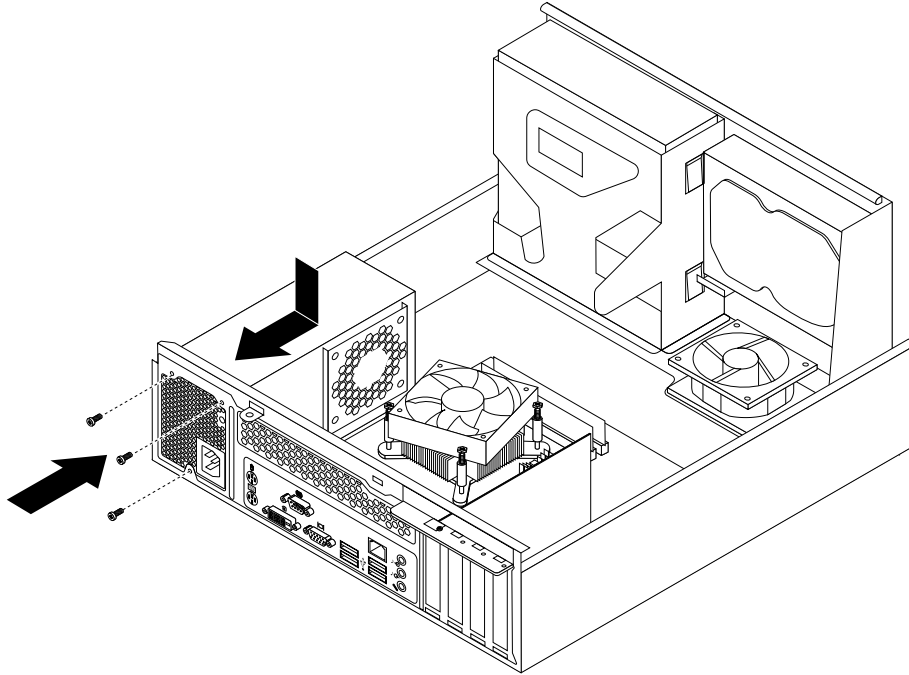


Figure 60. Installing the power supply assembly

9. Connect the new power supply assembly cables to all drives and the system board. See “Locating parts on the system board” on page 104.

10. Lower and position the heat sink fan duct on the top of the heat sink and fan assembly until the four screw holes in the heat sink fan duct are aligned with the corresponding holes in the heat sink and fan assembly. Then, install the four screws to secure the heat sink fan duct in place.

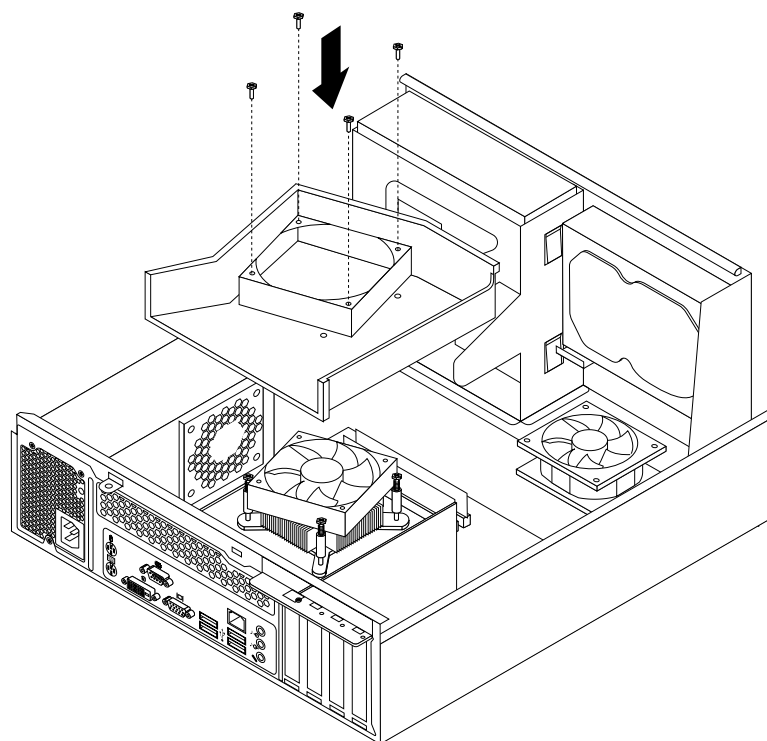


Figure 61. Installing the heat sink fan duct

11. To complete the replacement, go to “Completing the parts replacement” on page 138.

Replacing the 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 instructions on how to replace the optical drive.

To replace the optical drive, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 107.
3. Remove the front bezel. See “Removing and reinstalling the front bezel” on page 108.
4. Pivot the drive bay assembly upward. See “Accessing the system board components and drives” on page 109.
5. Disconnect the signal cable and the power cable from the optical drive.

6. Hold the optical drive and remove the two screws that secure the optical drive.

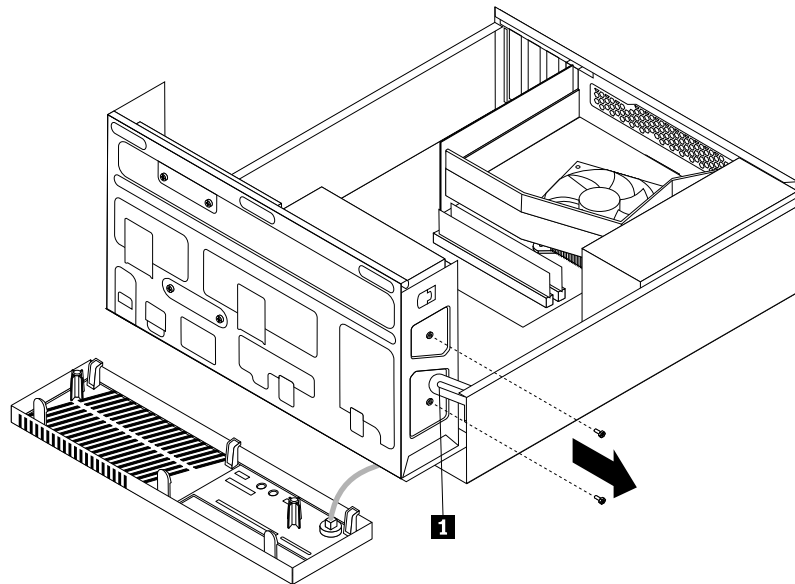


Figure 62. Removing the optical drive screws

7. Press the drive bay assembly clip **1** inward and pivot the drive bay assembly downward as shown.

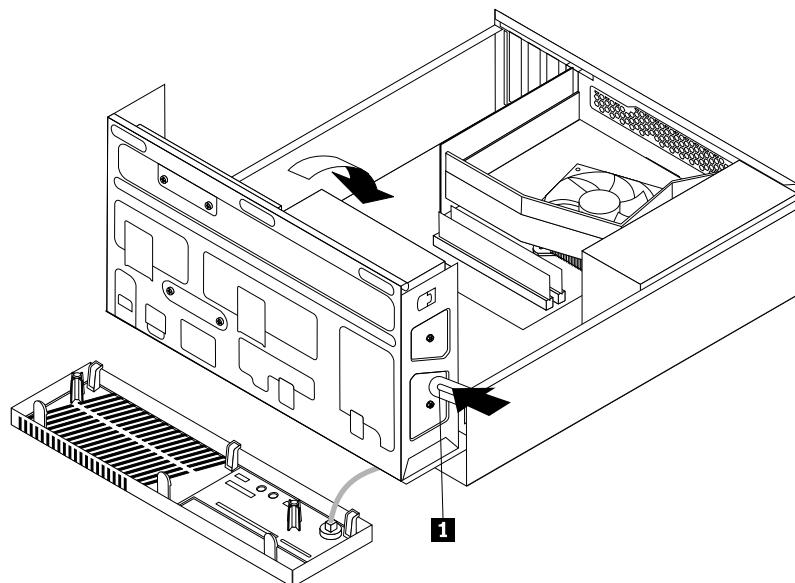


Figure 63. Lowering the drive bay assembly

8. Slide the optical drive out of the front of the computer.

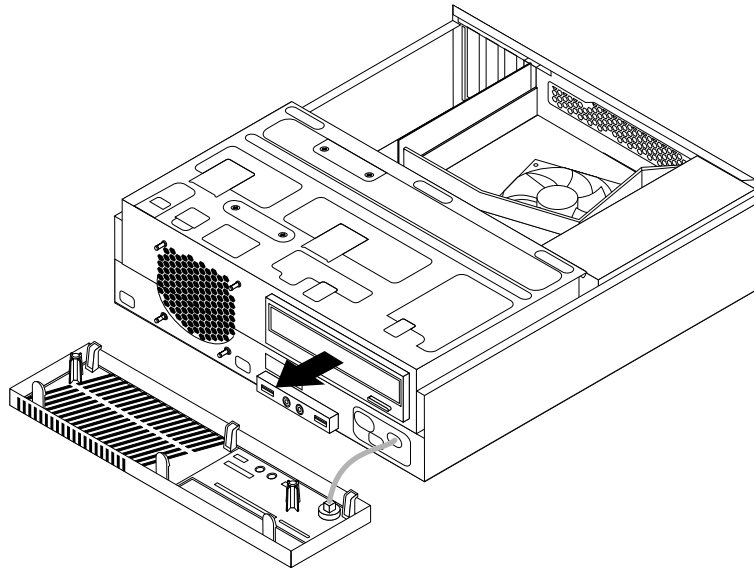


Figure 64. Removing the optical drive

9. Slide the new optical drive into the optical drive bay from the front of the computer.

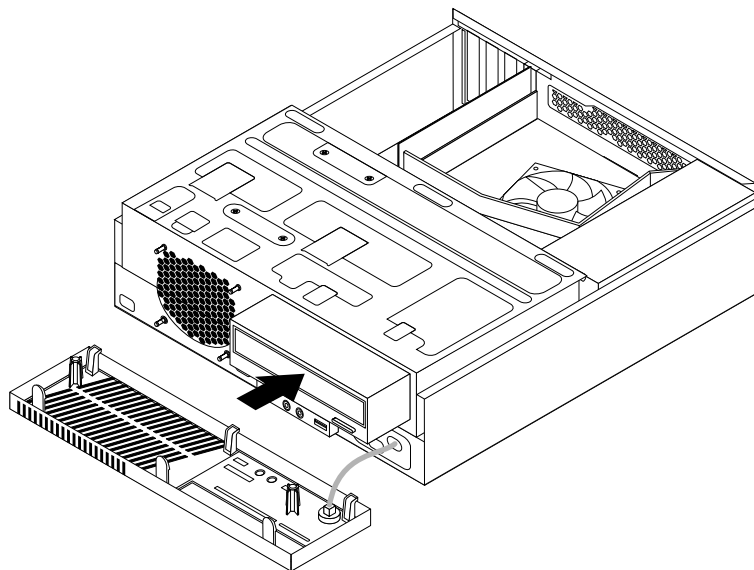


Figure 65. Installing a new optical drive

10. Hold the new optical drive and pivot the drive bay assembly upward. Align the screw holes in the new optical drive with the corresponding holes in the drive bay. Then, install the two screws to secure the new optical drive in place.

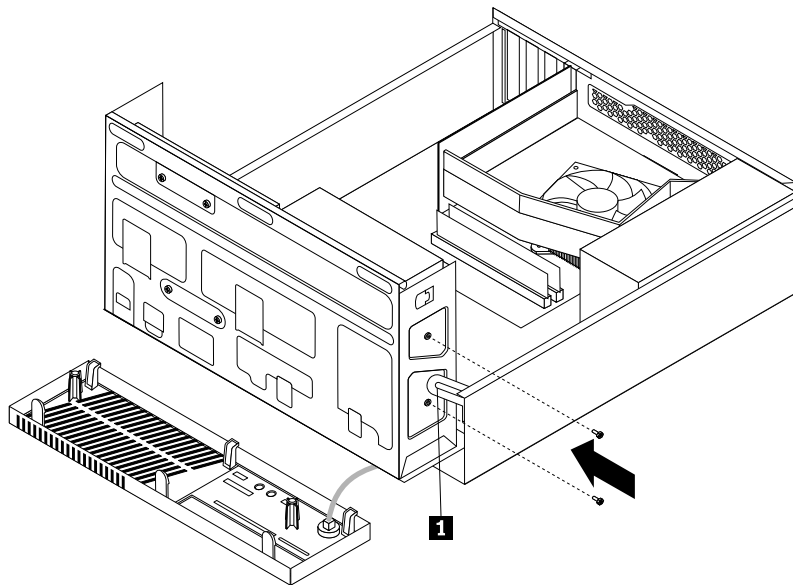


Figure 66. Installing the optical drive

11. Connect one end of the signal cable to the rear of the new optical drive and the other end to an available SATA connector on the system board. See “Locating parts on the system board” on page 104. Then, locate an available five-wire power connector and connect it to the rear of the new optical drive.

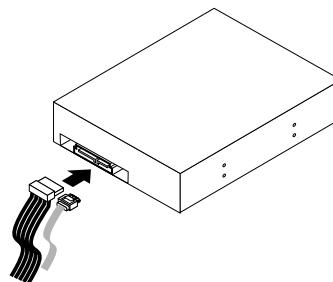


Figure 67. Connecting a SATA optical drive

12. To complete the replacement, go to “Completing the parts replacement” on page 138.

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>

This section provides instructions on how to replace the hard disk drive.

To replace the hard disk drive, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 107.
3. Remove the front bezel. See “Removing and reinstalling the front bezel” on page 108.
4. Note the location of the four screws **1** that secure the hard disk drive. Then, pivot the drive bay assembly upward.

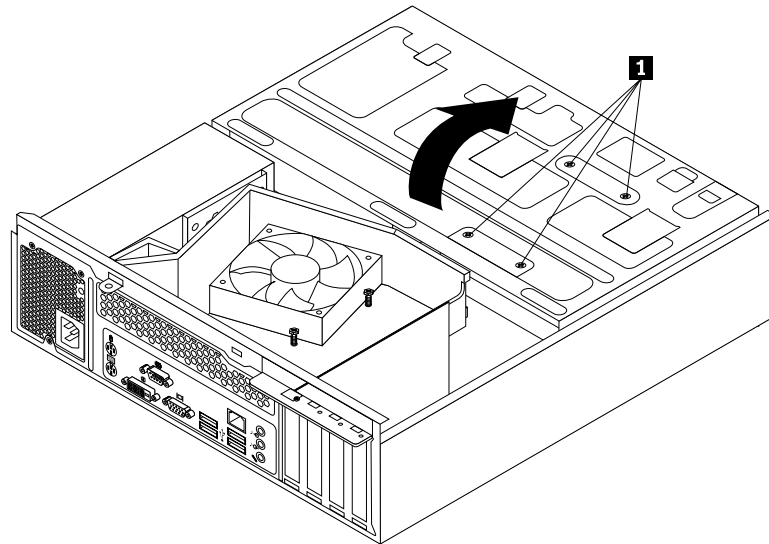


Figure 68. Pivoting the drive bay assembly

5. Hold the hard disk drive and remove the four screws that secure the hard disk drive. Then, remove the hard disk drive from the drive bay assembly and disconnect the signal cable and the power cable from the rear of the hard disk drive to completely remove it from the chassis.

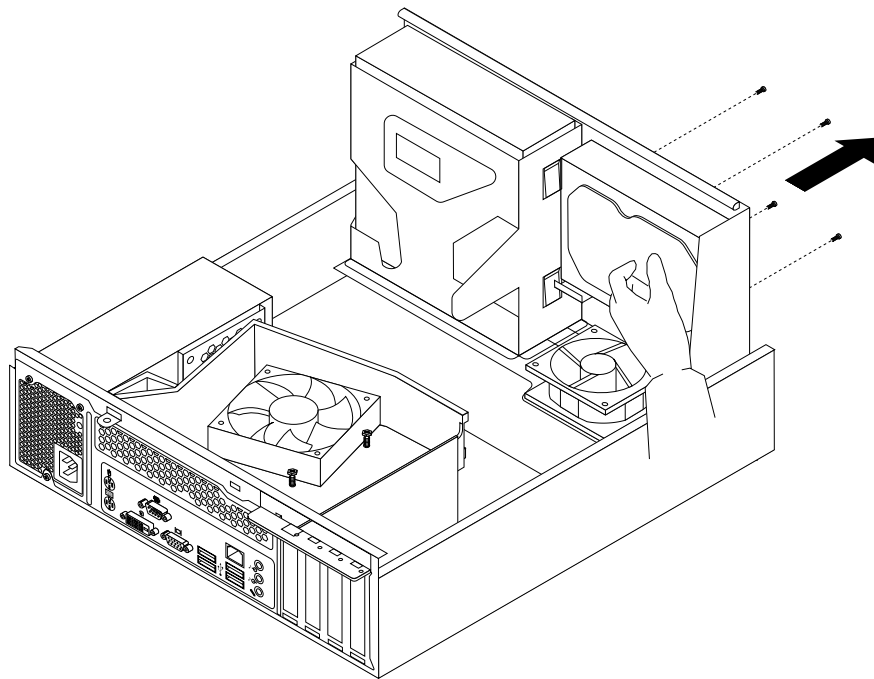


Figure 69. Removing the hard disk drive

6. Connect one end of the signal cable to the rear of the new hard disk drive and the other end to an available SATA connector on the system board. See “Locating parts on the system board” on page 104. Then, locate an available five-wire power connector and connect it to the rear of the new hard disk drive.

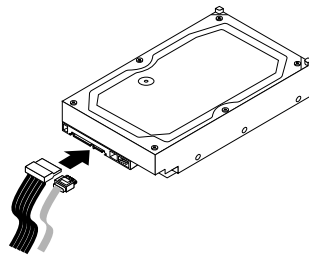


Figure 70. Connecting a SATA hard disk drive

7. Position the new hard disk drive into the hard disk drive bay and align the screw holes in the new hard disk drive with the corresponding holes in the drive bay. Then, install the four screws to secure the new hard disk drive in place.

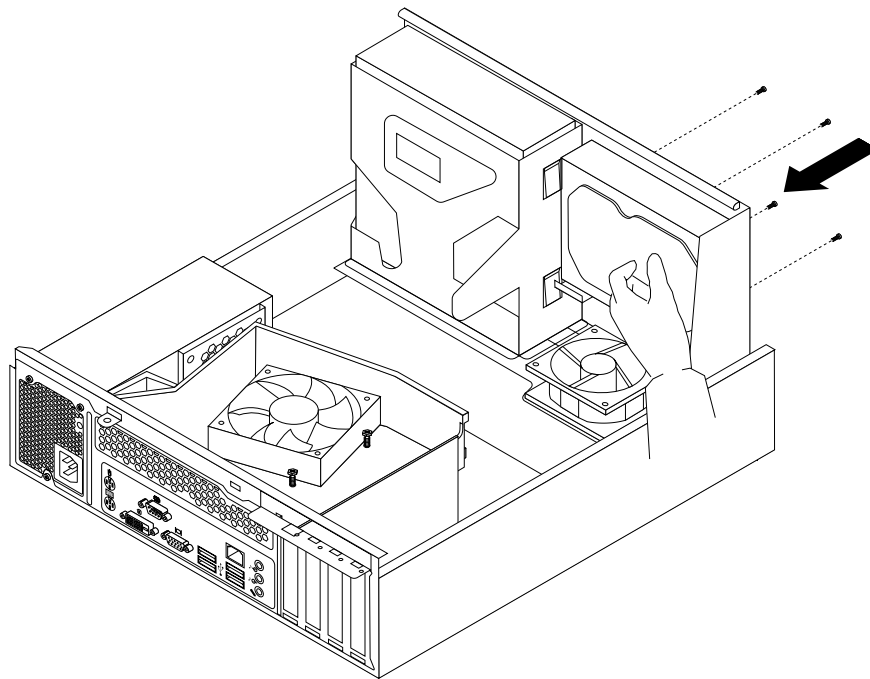


Figure 71. Installing the hard disk drive

8. To complete the installation or replacement, go to “Completing the parts replacement” on page 138.

Replacing the card reader

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 replace the card reader.

Note: The card reader is available only in some models.

To replace the card reader, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 107.
3. Remove the front bezel. See “Removing and reinstalling the front bezel” on page 108.
4. Pivot the drive bay assembly upward to gain access to all the internal cables. See “Accessing the system board components and drives” on page 109.
5. Disconnect the card reader cable from the USB connector on the system board. See “Locating parts on the system board” on page 104.
6. Release the card reader cable from the cable clip that secures the cable to the chassis.

7. Lower the drive bay assembly. See “Accessing the system board components and drives” on page 109.
8. Remove the screw that secures the card reader. Then, remove the card reader from the chassis.

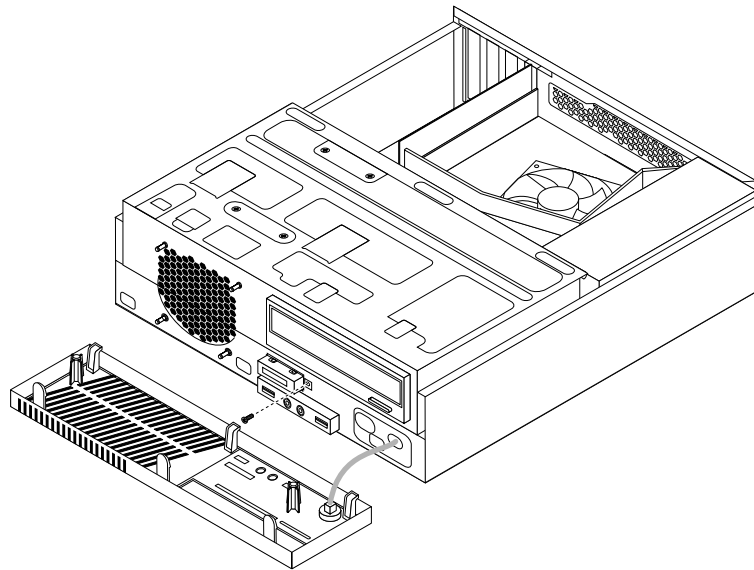


Figure 72. Removing the card reader

9. Position the new card reader to the chassis so that the screw hole in the new card reader is aligned with the corresponding hole in the chassis.
10. Install the screw to secure the new card reader in place.
11. Pivot the drive bay assembly upward. Then, connect the new card reader cable to the USB connector on the system board. See “Locating parts on the system board” on page 104.
12. Properly route the cable of the new card reader, and then secure the cable with the cable clip on the chassis.
13. To complete the installation or replacement, go to “Completing the parts replacement” on page 138.

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 instructions on how to replace the front fan assembly.

To replace the front fan assembly, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 107.
3. Remove the front bezel. See “Removing and reinstalling the front bezel” on page 108.
4. Pivot the drive bay assembly upward to gain access to the front fan assembly. See “Accessing the system board components and drives” on page 109.

5. Remove the hard disk drive for easier access to the front fan assembly. See “Replacing the hard disk drive” on page 128.
6. Remove the heat sink fan duct. See “Replacing the heat sink and fan assembly” on page 116.
7. Note the cable routing and disconnect the front fan assembly cable from the system fan connector on the system board. See “Locating parts on the system board” on page 104.
8. The front fan assembly is attached to the chassis by four rubber mounts. Remove the front fan assembly by cutting the rubber mounts and lifting the front fan assembly out of the chassis.

Note: The new front fan assembly will have four new rubber mounts attached.

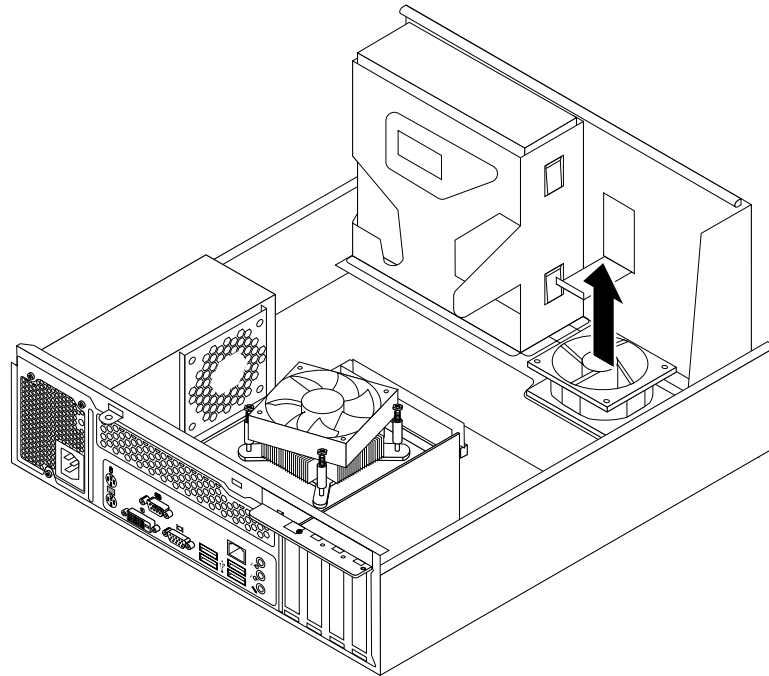


Figure 73. Removing the front fan assembly

9. Install the new front fan assembly by aligning the new rubber mounts that came with the new front fan assembly with the corresponding holes in the chassis, and then push the rubber mounts through the holes. Then, carefully pull on the tips of the rubber mounts from the bottom until the new front fan assembly is secured in place.

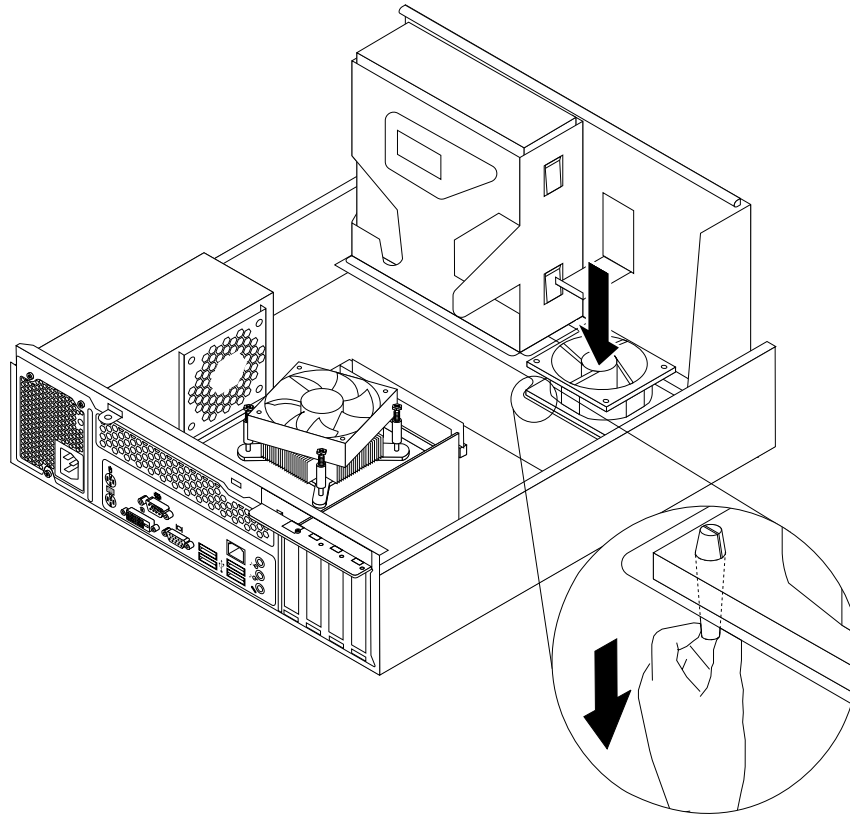


Figure 74. Installing the front fan assembly

10. Connect the new front fan assembly cable to the system fan connector on the system board. See “Locating parts on the system board” on page 104.
11. Reinstall the heat sink fan duct. See “Replacing the heat sink and fan assembly” on page 116.
12. Reinstall the hard disk drive. See “Replacing the hard disk drive” on page 128.
13. To complete the replacement, go to “Completing the parts replacement” on page 138.

Replacing the system board

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 replace 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.

To replace the system board, do the following:

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 107.
3. Remove the front bezel. See “Removing and reinstalling the front bezel” on page 108.
4. Lay the computer on its side and pivot the drive bay assembly upward to gain access to the system board. See “Accessing the system board components and drives” on page 109.
5. Disconnect the front audio and USB assembly cables from the system board. See “Locating parts on the system board” on page 104.
6. Remove all memory modules and PCI cards that are currently installed. See “Installing or replacing a memory module” on page 113 and “Installing or replacing a PCI card” on page 110.
7. Remove the heat sink and fan assembly from the failing system board. See “Replacing the heat sink and fan assembly” on page 116.
8. Remove the battery from the system board. See “Replacing the battery” on page 115.
9. Carefully take note of the location of all cable connections on the system board and disconnect all the cables. See “Locating parts on the system board” on page 104.

10. Remove the eight screws that secure the system board.

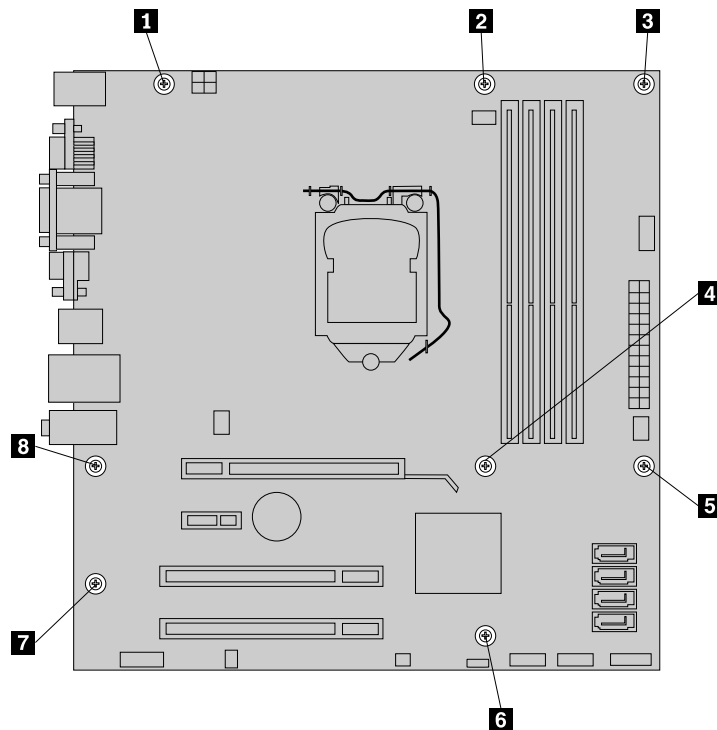


Figure 75. Removing the eight screws that secure the system board

11. Lift the system board out of the chassis.
12. Remove the microprocessor from the failing system board and install it on the new system board. See “Replacing the microprocessor” on page 119.
Note: If your new system board comes with a microprocessor socket cover, remove the socket cover before you install the microprocessor on the new system board.
13. Install the new system board into the chassis by aligning the eight mounting studs in the chassis with the corresponding holes in the new system board. Then, install the eight screws to secure the system board.
14. Install the battery back to the system board. See “Replacing the battery” on page 115.
15. Install the heat sink and fan assembly and connect the heat sink and fan assembly cable to the new system board. See “Replacing the heat sink and fan assembly” on page 116.
16. Install all memory modules and PCI cards removed from the failing system board on the new system board. See “Installing or replacing a memory module” on page 113 and “Installing or replacing a PCI card” on page 110.
17. Reconnect all remaining cables to the system board. See “Locating parts on the system board” on page 104.
18. Lower the drive bay assembly. See “Accessing the system board components and drives” on page 109.
19. Reinstall the front bezel. See “Removing and reinstalling the front bezel” on page 108.
20. Reinstall the computer cover.

21. Go to “Completing the parts replacement” on page 138.

The failing system board must be returned with a microprocessor socket cover to protect the pins during shipping and handling.

To install the microprocessor socket cover, do the following:

1. Release the lever securing the microprocessor retainer and open the retainer to access the microprocessor.
2. Grasp the microprocessor on the sides and lift it straight up and out of the socket. Do not touch the contacts on the microprocessor socket.
3. Note the orientation of the socket cover. Align the notches **1** of the microprocessor socket cover with the alignment keys **2** of the microprocessor socket.
4. Install one side of the socket cover into the microprocessor socket as shown.

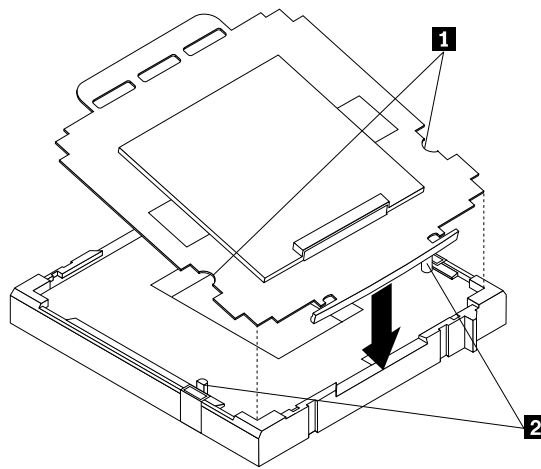


Figure 76. Installing the socket cover

Note: Your microprocessor socket and cover might look slightly different from the illustration.

5. Carefully press the other side of the socket cover downwards until the socket cover snaps into place.

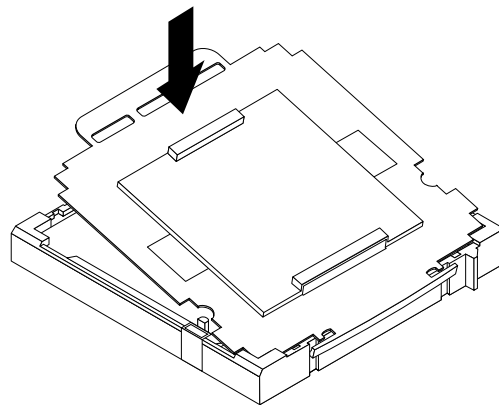


Figure 77. Securing the socket cover

6. Carefully check the four corners of the socket cover to make sure that the cover is secured in the microprocessor socket.
7. Lower the microprocessor retainer and then lower the lever to secure the retainer. Make sure the lever is locked into position.
8. Follow any additional instructions included with the replacement part you received.

Note: If your system board has two microprocessor sockets, be sure to install a socket cover for each microprocessor socket.

Completing the parts replacement

After completing the installation or replacement for all parts, you need to reinstall the computer cover and reconnect cables.

To reinstall the computer cover and reconnect cables to your computer, do the following:

1. Make sure that all components have been reassembled correctly and that no tools or loose screws are left inside your computer. See “Locating components” on page 103 for the locations of the various components in your computer.
2. Make sure that all the internal cables are routed properly to avoid interference with lowering the drive bay assembly and closing the computer cover. Keep the cables clear of the hinges and sides of the chassis.
3. Lower the drive bay assembly. See “Accessing the system board components and drives” on page 109.
4. If you have removed the front bezel, reinstall it. See “Removing and reinstalling the front bezel” on page 108.
5. Position the computer cover on the chassis so that the rail guides on the computer cover engage the rails on the chassis. Then, slide the computer cover to the front of the computer until it snaps into position and is closed. Then, install the two screws to secure the computer cover.

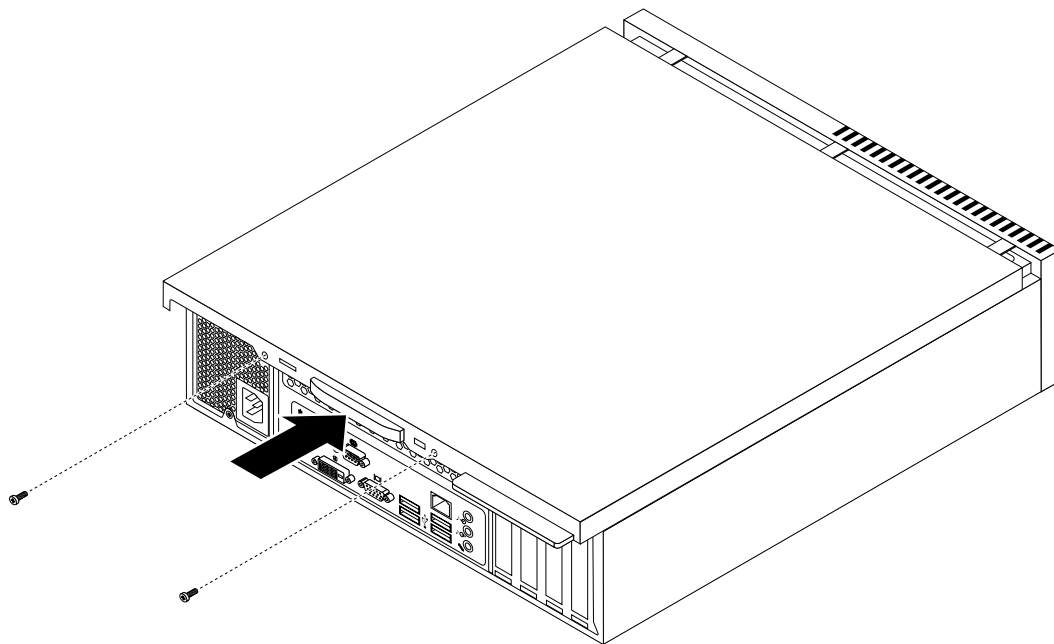


Figure 78. Reinstalling the computer cover

6. Lock the computer cover if you have a computer cover lock.

7. Reconnect the power cord and all other external cables to the computer. For connector locations, see “Locating connectors, controls, and indicators on the front of your computer” on page 101 and “Locating connectors and parts on the rear of your computer” on page 102.
8. Depending on the parts you installed or replaced, you might need to confirm the updated information in the Setup Utility program. See Chapter 6 “Using the Setup Utility program” on page 39.

Note: In most areas of the world, Lenovo requires the return of the defective Customer Replaceable Units (CRUs). Information about this will come with the new CRUs or will come a few days after you receive the new CRUs.

Chapter 10. FRU lists

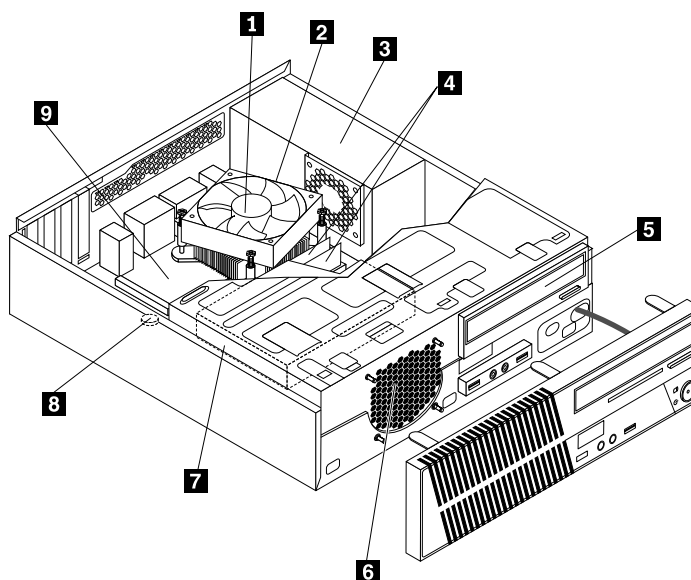
This chapter lists the information on the field replaceable units (FRUs).

Attention: Be sure to read and understand all the safety information before replacing any FRUs.

Note: In the following tables, a customer replaceable unit (CRU) is identified as “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.

Overall: MT 7181, 7189, 7492, 7507, 7513, 7529, and 7239

The following replaceable components are available for the 7181, 7189, 7492, 7507, 7513, 7529, and 7239 machine type models.



Item #	FRUs	FRU #	CRU
1	Intel 95W heatsink <ul style="list-style-type: none">• MT 7239: all models• MT 7507: all models• MT 7513: all models• MT 7529: all models• MT 7181, 7189, 7492_SB	03T9512	2
1	Intel 73W heatsink <ul style="list-style-type: none">• MT 7239: all models• MT 7507: all models• MT 7513: all models• MT 7529: all models• MT 7181, 7189, 7492_SB	03T9513	2

Item #	FRUs	FRU #	CRU
2	Microprocessor, Pentium G6950 2.80G 1066MHz Dual core\3M\73W LGA 1156 (Gfx core speed 533MHz) <ul style="list-style-type: none"> • MT 7239: • MT 7507: E8A E8T • MT 7513: • MT 7529: K1V • MT 7181, 7189, 7492_SB 	71Y5303	2
2	Microprocessor, Pentium G6960 2.93G 1066MHz Dual core\3M\73W LGA 1156 (Gfx core speed 533MHz) <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T9021	2
2	Microprocessor, Core i3-530 2.93G 1333MHz 4T\Dual core\4M\73W LGA 1156 (Gfx core speed 733MHz) <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	71Y6960	2
2	Microprocessor, Core i3-540 3.06G 1333MHz 4T\Dual core\4M\73W LGA 1156 (Gfx core speed 733MHz) <ul style="list-style-type: none"> • MT 7239: A3A A3T • MT 7507: D4B D4V D5B E1B E9A E9T E2V G1Q G3Q • MT 7513: F7G • MT 7529: K6T J7G K2V • MT 7181, 7189, 7492_SB 	71Y5304	2
2	Microprocessor, Core i3-560 3.33G 1333MHz 4T\Dual core\4M\73W LGA 1156 K-0 (Gfx core speed 733MHz) <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T7035	2
2	Microprocessor, Core i5-650 3.20G 1333MHz 4T\Dual core\4M\73W\Turbo LGA 1156 (Gfx core speed 733MHz) <ul style="list-style-type: none"> • MT 7239: • MT 7507: D6B D7B F1A F1T E3V E4V G2Q G4Q G5K • MT 7513: F8G • MT 7529: J5B J6B K5T J8G K3V A1Q A2Q A3M • MT 7181, 7189, 7492_SB 	71Y6961	2

Item #	FRUs	FRU #	CRU
2	Microprocessor, Core i5-660 3.33G 1333MHz 4T\Dual core\4M\73W\Turbo LGA 1156 (Gfx core speed 733MHz) <ul style="list-style-type: none"> • MT 7239: A6M A7M • MT 7507: F2T E5V G9M • MT 7513: F9G • MT 7529: J9G • MT 7181, 7189, 7492_SB 	71Y6962	2
2	Microprocessor, Core i5-670 3.46G 1333MHz 4T\Dual core\4M\73W\Turbo LGA 1156 (Gfx core speed 733MHz) <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	71Y6963	2
2	Microprocessor, Core i5-680 3.6G 1333MHz 4T\Dual core\4M\73W\Turbo LGA 1156 (Gfx core speed 733MHz) <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	89Y9196	2
2	Microprocessor, Lynnfield Quad Core i5-750 2.66G 1333MHz 8T\4 core\8M\95W\Turbo LGA 1156 <ul style="list-style-type: none"> • MT 7239: • MT 7507: D8B D9B E6V • MT 7513: • MT 7529: K4V • MT 7181, 7189, 7492_SB 	71Y5305	2
2	Microprocessor, Lynnfield Quad Core i7-860 2.80G 1333MHz 8T\4 core\8M\95W\Turbo LGA 1156 <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	71Y5306	2
2	Microprocessor, Lynnfield Quad Core i7-870 2.93G 1333MHz 8T\4 core\8M\95W\Turbo LGA 1156 <ul style="list-style-type: none"> • MT 7239: A4M • MT 7507: F3A F3T E7V G7M • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	71Y5307	2

Item #	FRUs	FRU #	CRU
2	<p>Microprocessor, Lynnfield Quad Core i5-760 2.8G 1333MHz 8T\4 core\8M\95W\Turbo LGA 1156</p> <ul style="list-style-type: none"> • MT 7239: A5M • MT 7507: G6K G8M • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T6010	2
3	<p>Power supply, TFX 240W 85+ power supply --- all countries</p> <ul style="list-style-type: none"> • MT 7239: A3A A3T A4M A5M A6M A7M • MT 7507: D4B D4V D5B D6B D7B D8B D9B E1B E8A E8T E9A E9T F1A F1T F2T F3A F3T E2V E3V E4V E5V E6V E7V G1Q G2Q G3Q G4Q G5K G6K G7M G8M G9M • MT 7513: F7G F8G F9G • MT 7529: J5B J6B K5T K6T J7G J8G J9G K1V K2V K3V K4V A1Q A2Q A3M A4M • MT 7181, 7189, 7492_SB 	54Y8824	2
3	<p>Power supply, TFX 240W active PFC power supply --- all countries</p> <ul style="list-style-type: none"> • MT 7239: A3A A3T A4M A5M A6M A7M • MT 7507: D4B D4V D5B D6B D7B D8B D9B E1B E8A E8T E9A E9T F1A F1T F2T F3A F3T E2V E3V E4V E5V E6V E7V G1Q G2Q G3Q G4Q G5K G6K G7M G8M G9M • MT 7513: F7G F8G F9G • MT 7529: J5B J6B K5T K6T J7G J8G J9G K1V K2V K3V K4V A1Q A2Q A3M A4M • MT 7181, 7189, 7492_SB 	54Y8846	2
4	<p>Memory module, 1GB PC3-10600 1333MHz DDR3 UDIMM</p> <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	64Y6648	1
4	<p>Memory module, 2GB PC3-10600 1333MHz DDR3 UDIMM</p> <ul style="list-style-type: none"> • MT 7239: A3A A3T A4M A5M A6M A7M • MT 7507: D4B D4V D5B D6B D7B D8B D9B E1B E8A E8T E9A E9T F1A F1T F2T F3A F3T E2V E3V E4V E5V E6V E7V G1Q G2Q G3Q G4Q G5K G6K G7M G8M G9M • MT 7513: F7G F8G F9G • MT 7529: J5B J6B K5T K6T J7G J8G J9G K1V K2V K3V K4V A1Q A2Q A3M A4M • MT 7181, 7189, 7492_SB 	64Y6649	1

Item #	FRUs	FRU #	CRU
4	Memory module, 4GB PC3-10600 1333MHz DDR3 UDIMM <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	89Y9224	1
5	Optical drive, DVD-ROM Drive - 16x/48x - SATA (with DVD PB software or without software) <ul style="list-style-type: none"> • MT 7239: A4M • MT 7507: D4B D4V D6B D8B E8A E8T E2V E3V E6V E7V G7M • MT 7513: • MT 7529: J5B K1V K2V K3V K4V • MT 7181, 7189, 7492_SB 	71Y5543	1
5	Optical drive, DVD Recorder Rambo 8 - SATA 12XRAM WRITE (with DVD PB software or without software) <ul style="list-style-type: none"> • MT 7239: A3A A3T A5M A6M A7M • MT 7507: D5B D7B D9B E9A E9T F1A F1T F2T F3A F3T E4V E5V G1Q G2Q G3Q G4Q G5K G6K G8M G9M • MT 7513: F7G F8G F9G • MT 7529: J6B K5T K6T J7G J8G J9G A1Q A2Q A3M A4M • MT 7181, 7189, 7492_SB 	71Y5545	1
6	System fan (front) <ul style="list-style-type: none"> • MT 7239: all models • MT 7507: all models • MT 7513: all models • MT 7529: all models • MT 7181, 7189, 7492_SB 	45K6530	2
7	Hard disk drive, 160 GB 7200rpm SATA <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	40Y9035	2
7	Hard disk drive, 160 GB 7200rpm SATA <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	53Y6837	2

Item #	FRUs	FRU #	CRU
7	Hard disk drive, 250 GB 7200rpm SATA <ul style="list-style-type: none"> • MT 7239: A3A A3T • MT 7507: E8A E8T E9A E9T G1Q G2Q G3Q G4Q • MT 7513: • MT 7529: A1Q A2Q A3M A4M • MT 7181, 7189, 7492_SB 	40Y9036	2
7	Hard disk drive, 250 GB 7200rpm SATA <ul style="list-style-type: none"> • MT 7239: A3A A3T • MT 7507: E8A E8T E9A E9T G1Q G2Q G3Q G4Q • MT 7513: • MT 7529: A1Q A2Q A3M A4M • MT 7181, 7189, 7492_SB 	45K0408	2
7	Hard disk drive, 320 GB 7200rpm SATA <ul style="list-style-type: none"> • MT 7239: A4M A5M A6M A7M • MT 7507: D4B D4V D5B E1B F1A F1T F2T E2V E3V E6V E7V G5K G6K G7M G8M • MT 7513: F7G F8G • MT 7529: K5T K6T J7G J8G K1V K2V K3V K4V • MT 7181, 7189, 7492_SB 	87H4891	2
7	Hard disk drive, 320 GB 7200rpm SATA <ul style="list-style-type: none"> • MT 7239: A4M A5M A6M A7M • MT 7507: D4B D4V D5B E1B F1A F1T F2T E2V E3V E6V E7V G5K G6K G7M G8M • MT 7513: F7G F8G • MT 7529: K5T K6T J7G J8G K1V K2V K3V K4V • MT 7181, 7189, 7492_SB 	45K0409	2
7	Hard disk drive, 500GB 7200rpm SATA <ul style="list-style-type: none"> • MT 7239: • MT 7507: D6B D7B D8B D9B F3A F3T E4V E5V • MT 7513: F9G • MT 7529: J5B J6B J9G • MT 7181, 7189, 7492_SB 	45K0410	2
7	Hard disk drive, 500GB 7200rpm SATA <ul style="list-style-type: none"> • MT 7239: • MT 7507: D6B D7B D8B D9B F3A F3T E4V E5V • MT 7513: F9G • MT 7529: J5B J6B J9G • MT 7181, 7189, 7492_SB 	41X5582	2

Item #	FRUs	FRU #	CRU
7	Hard disk drive, 1TB 7200rpm SATA <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	45K0412	2
7	Hard disk drive, 250 GB 7200rpm SATA <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T7039	2
7	Hard disk drive, 320 GB 7200rpm SATA <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T7040	2
7	Hard disk drive, 500GB 7200rpm SATA <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T7041	2
7	Hard disk drive, 1TB 7200rpm SATA <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T7042	2
7	Hard disk drive, 160 GB 7200rpm SATA <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T7038	2

Item #	FRUs	FRU #	CRU
8	Battery 3V- lithium <ul style="list-style-type: none"> MT 7239: A3A A3T A4M A5M A6M A7M MT 7507: D4B D4V D5B D6B D7B D8B D9B E1B E8A E8T E9A E9TF1A F1T F2A F2T F3A F3T E2V E3V E4V E5V E6V E7V G1Q G2Q G3Q G4Q G5K G6K G7M G8M G9M MT 7513: F7G F8G F9G MT 7529: J5B J6B K5T K6T J7G J8G J9G K1V K2V K3V K4V A1Q A2Q A3M A4M MT 7181, 7189, 7492_SB 	45C1566	1
9	System board, Intel H57 DDR3 mATX(GA) <ul style="list-style-type: none"> MT 7239: A3A A3T A4M A5M A6M A7M MT 7507: D4B D4V D5B D6B D7B D8B D9B E1B E8A E8T E9A E9TF1A F1T F2A F2T F3A F3T E2V E3V E4V E5V E6V E7V G1Q G2Q G3Q G4Q G5K G6K G7M G8M G9M MT 7513: F7G F8G F9G MT 7529: J5B J6B K5T K6T J7G J8G J9G K1V K2V K3V K4V A1Q A2Q A3M A4M MT 7181, 7189, 7492_SB 	03T7005	N

Mechanical FRUs

The FRUs listed in the following tables are not illustrated.

Mechanical FRUs	FRU #	CRU
Fan duct <ul style="list-style-type: none"> MT 7239: all models MT 7507: all models MT 7513: all models MT 7529: all models MT 7181, 7189, 7492_SB 	03T9509	2
Thermal grease --ShinEtsu 7783D, 1g Syringe <ul style="list-style-type: none"> MT 7239: all models MT 7507: all models MT 7513: all models MT 7529: all models MT 7181, 7189, 7492_SB 	91P8835	2
Vertical stand <ul style="list-style-type: none"> MT 7239: all models MT 7507: all models MT 7513: all models MT 7529: all models MT 7181, 7189, 7492_SB 	45K6566	1

Mechanical FRUs	FRU #	CRU
Card reader board assembly <ul style="list-style-type: none"> • MT 7239: all models • MT 7507: all models • MT 7513: all models • MT 7529: all models • MT 7181, 7189, 7492_SB 	45K6569	2
No ODD, Blank bezel, plastic <ul style="list-style-type: none"> • MT 7239: all models • MT 7507: all models • MT 7513: all models • MT 7529: all models • MT 7181, 7189, 7492_SB 	45K6568	2
No ODD, EMI shielding <ul style="list-style-type: none"> • MT 7239: all models • MT 7507: all models • MT 7513: all models • MT 7529: all models • MT 7181, 7189, 7492_SB 	45K6557	2
C2 Intrusion switch 475mm <ul style="list-style-type: none"> • MT 7239: all models • MT 7507: all models • MT 7513: all models • MT 7529: all models • MT 7181, 7189, 7492_SB 	39K5022	2
Internal speaker 400mm 40*28.5 <ul style="list-style-type: none"> • MT 7239: all models • MT 7507: all models • MT 7513: all models • MT 7529: all models • MT 7181, 7189, 7492_SB 	54Y8252	2
Cable-SATA 400mm for 1st HDD 1 latching, left angle <ul style="list-style-type: none"> • MT 7239: all models • MT 7507: all models • MT 7513: all models • MT 7529: all models • MT 7181, 7189, 7492_SB 	54Y9941	2

Mechanical FRUs	FRU #	CRU
Cabel -SATA 600mm (RoHS) for ODD 2 latching, right angle <ul style="list-style-type: none"> • MT 7239: all models • MT 7507: all models • MT 7513: all models • MT 7529: all models • MT 7181, 7189, 7492_SB 	54Y9945	2
Temp sense cable 400mm _6 pin(with holder) <ul style="list-style-type: none"> • MT 7239: all models • MT 7507: all models • MT 7513: all models • MT 7529: all models • MT 7181, 7189, 7492_SB 	54Y9922	2
Front I/O cable_R (11L_A495_U390) <ul style="list-style-type: none"> • MT 7239: all models • MT 7507: all models • MT 7513: all models • MT 7529: all models • MT 7181, 7189, 7492_SB 	54Y9910	2
LED/switch cable (11L_420mm) <ul style="list-style-type: none"> • MT 7239: all models • MT 7507: all models • MT 7513: all models • MT 7529: all models • MT 7181, 7189, 7492_SB 	54Y9916	2
FRU, rear I/O shield, ATX <ul style="list-style-type: none"> • MT 7239: all models • MT 7507: all models • MT 7513: all models • MT 7529: all models • MT 7181, 7189, 7492_SB 	45K6268	2
Bezel assembly with Power LED/switch cable (without hot glue) <ul style="list-style-type: none"> • MT 7239: all models • MT 7507: all models • MT 7513: all models • MT 7529: all models • MT 7181, 7189, 7492_SB 	03T9629	2

Mechanical FRUs	FRU #	CRU
PCI slot (low profile) <ul style="list-style-type: none"> • MT 7239: all models • MT 7507: all models • MT 7513: all models • MT 7529: all models • MT 7181, 7189, 7492_SB 	45K6560	2
Side cover <ul style="list-style-type: none"> • MT 7239: all models • MT 7507: all models • MT 7513: all models • MT 7529: all models • MT 7181, 7189, 7492_SB 	45K6561	2
Mechanical kit <ul style="list-style-type: none"> • MT 7239: all models • MT 7507: all models • MT 7513: all models • MT 7529: all models • MT 7181, 7189, 7492_SB 	03T9527	2
FRU ODD and HDD cage <ul style="list-style-type: none"> • MT 7239: all models • MT 7507: all models • MT 7513: all models • MT 7529: all models • MT 7181, 7189, 7492_SB 	45K6573	2
No SD cover <ul style="list-style-type: none"> • MT 7239: all models • MT 7507: all models • MT 7513: all models • MT 7529: all models • MT 7181, 7189, 7492_SB 	45K6563	2

Keyboard and Mouse

Keyboard - Preferred Pro PS/2	FRU #	CRU
US English, China <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5039	1
Arabic <ul style="list-style-type: none"> • MT 7239: 	41A5040	1

Keyboard - Preferred Pro PS/2	FRU #	CRU
<ul style="list-style-type: none"> • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 		
Arabic/French <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5041	1
Belgium French <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5042	1
Belgium English <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5043	1
Brazilian Portuguese <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5044	1
Bulgarian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5045	1
Chinese/US/Taiwanese <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5046	1

Keyboard - Preferred Pro PS/2	FRU #	CRU
Czech (ABB) <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5047	1
Danish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5048	1
Dutch <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5049	1
French <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5050	1
French Canadian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5051	1
French Canadian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5052	1

Keyboard - Preferred Pro PS/2	FRU #	CRU
German <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5053	1
Greek <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5054	1
Greek/US <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5080	1
Hebrew <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5055	1
Hungarian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5056	1
Iceland <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5057	1

Keyboard - Preferred Pro PS/2	FRU #	CRU
Italy <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5058	1
Japanese <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5059	1
Korean <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5060	1
LA Spanish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5061	1
Norwegian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5062	1
Polish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5063	1

Keyboard - Preferred Pro PS/2	FRU #	CRU
Portuguese <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5064	1
Romanian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5065	1
Russian/Cyrillic <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5066	1
Serbian/Cyrillic <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5067	1
Slovak <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5068	1
Spanish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5069	1

Keyboard - Preferred Pro PS/2	FRU #	CRU
Swedish/Finnish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5070	1
Swiss French/German <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5071	1
Thailand <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5072	1
Turkish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5073	1
Turkish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5074	1
UK English <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5075	1

Keyboard - Preferred Pro PS/2	FRU #	CRU
US European <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5076	1
Slovenian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5077	1
India <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	54Y8382	1

Keyboard (Lenovo Preferred Pro USB)	FRU #	CRU
US English, China <ul style="list-style-type: none"> • MT 7239: A3A A4M A5M A6M A7M • MT 7507: D4B D4V D5B D6B D7B D8B D9B E1B E8A E9A F1A F3A E2V E3V E4V E5V E6V E7V G1Q G2Q G3Q G4Q G7M G8M G9M • MT 7513: F7G F8G F9G • MT 7529: J5B J6B J7G J8G J9G K1V K2V K3V K4V A1Q A2Q A3M A4M • MT 7181, 7189, 7492_SB 	41A5289	1
Arabic <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5290	1
Arabic (New) <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	45J4880	1

Keyboard (Lenovo Preferred Pro USB)	FRU #	CRU
A/F <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5291	1
B/F <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5292	1
Belgium English <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5293	1
Brazilian Portuguese <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5294	1
Bulgarian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5295	1
Chinese/US <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5296	1

Keyboard (Lenovo Preferred Pro USB)	FRU #	CRU
Czech (ABB) <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5297	1
Danish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5298	1
Dutch <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5299	1
French <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5300	1
French Canadian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5301	1
French Canadian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5302	1

Keyboard (Lenovo Preferred Pro USB)	FRU #	CRU
German <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5303	1
Greek <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5304	1
Greek/US <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5305	1
Hebrew <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5306	1
Hungarian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5307	1
Iceland <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5308	1

Keyboard (Lenovo Preferred Pro USB)	FRU #	CRU
Italy <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5309	1
Japanese <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5310	1
Korean <ul style="list-style-type: none"> • MT 7239: • MT 7507: G5K G6K • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5311	1
LA Spanish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41A5312	1
Lithuanian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	45J4896	1
Norwegian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5313	1

Keyboard (Lenovo Preferred Pro USB)	FRU #	CRU
Polish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5314	1
Portuguese <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5315	1
Romanian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5317	1
Romanian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5316	1
Russian/Cyrillic <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5318	1
Serbian/Cyrillic <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5319	1

Keyboard (Lenovo Preferred Pro USB)	FRU #	CRU
Slovak <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5320	1
Spanish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5321	1
Swedish/Finnish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5322	1
SF/G <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5323	1
Thailand <ul style="list-style-type: none"> • MT 7239: A3T • MT 7507: E8T E9T F1T F2T F3T • MT 7513: • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5324	1
Turkish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5325	1

Keyboard (Lenovo Preferred Pro USB)	FRU #	CRU
Turkish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5326	1
UK English <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5327	1
US European <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5328	1
Slovenian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41A5329	1
Estonia <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	51J0059	1
India <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	54Y8381	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
US English, China <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4780	1
Arabic <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4781	1
Arabic/French <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4782	1
Belgium French <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4783	1
Belgium English <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4784	1
Brazilian Portuguese <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4785	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
Bulgarian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4786	1
Chinese/US/Taiwanese <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4787	1
Czech (ABB) <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4788	1
Danish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4789	1
Dutch <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4790	1
French <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4791	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
French Canadian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4792	1
French Canadian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4793	1
German <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4794	1
Greek <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4795	1
Greek/US <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4796	1
Hebrew <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4797	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
Hungarian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4798	1
Iceland <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4799	1
Italy <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4800	1
Japanese <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4801	1
Korean <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4802	1
LA Spanish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4803	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
Norwegian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4804	1
Polish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4805	1
Portuguese <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4806	1
Romanian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4808	1
Romanian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4807	1
Russian/Cyrillic <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4809	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
Serbian/Cyrillic <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4810	1
Slovak <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4811	1
Spanish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4812	1
Swedish/Finnish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4813	1
Swiss French/German <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4814	1
Thailand <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4815	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
Turkish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4816	1
Turkish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4817	1
UK English <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4818	1
US European <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4819	1
Slovenian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	57Y4820	1
US English, China <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8001	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
Arabic <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8002	1
Arabic/French <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8003	1
Belgium French <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8004	1
Belgium English <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8005	1
Brazilian Portuguese <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8006	1
Bulgarian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8007	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
Chinese/US/Taiwanese <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8008	1
Czech (ABB) <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8009	1
Danish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8010	1
Dutch <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8011	1
French <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8012	1
French Canadian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8013	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
French Canadian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8014	1
German <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8015	1
Greek <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8016	1
Greek/US <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8017	1
Hebrew <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8018	1
Hungarian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8019	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
Iceland <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8020	1
Italy <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8021	1
Japanese <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8022	1
Korean <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8023	1
LA Spanish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8024	1
Norwegian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8025	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
Polish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8026	1
Portuguese <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8027	1
Romanian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8038	1
Romanian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8039	1
Russian/Cyrillic <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8028	1
Serbian/Cyrillic <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8040	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
Slovak <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8029	1
Spanish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8030	1
Swedish/Finnish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8031	1
Swiss French/German <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8032	1
Thailand <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8033	1
Turkish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8041	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
Turkish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8034	1
UK English <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8035	1
US European <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8036	1
Slovenian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03X8037	1

Mice	FRU #	CRU
Optical wheel mouse (400DPI, USB) <ul style="list-style-type: none"> • MT 7239: A3A A3T A4M A5M A6M A7M • MT 7507: D4B D4V D5B D6B D7B D8B D9B E1B E8A E8T E9A E9T F1A F1T F2T F3A F3T E2V E3V E4V E5V E6V E7V G1Q G2Q G3Q G4Q G5K G6K G7M G8M G9M • MT 7513: F7G F8G F9G • MT 7529: J5B J6B K5T K6T J7G J8G J9G K1V K2V K3V K4V A1Q A2Q A3M A4M • MT 7181, 7189, 7492_SB 	41U3013	1
Optical wheel mouse (400DPI, USB) <ul style="list-style-type: none"> • MT 7239: A3A A3T A4M A5M A6M A7M • MT 7507: D4B D4V D5B D6B D7B D8B D9B E1B E8A E8T E9A E9T F1A F1T F2T F3A F3T E2V E3V E4V E5V E6V E7V G1Q G2Q G3Q G4Q G5K G6K G7M G8M G9M • MT 7513: F7G F8G F9G • MT 7529: J5B J6B K5T K6T J7G J8G J9G K1V K2V K3V K4V A1Q A2Q A3M A4M • MT 7181, 7189, 7492_SB 	41U3030	1

Adapters and miscellaneous FRUs

Adapters and miscellaneous	FRU #	CRU
NVIDIA Quadro FX380LP 512M (DVI+DP) LP <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	64Y8206	1
NVIDIA Geforce 310 512M 64BIT (VGA+DP) LP <ul style="list-style-type: none"> • MT 7239: A4M A5M • MT 7507: D8B D9B F3A F3T E6V E7V G7M G8M • MT 7513: • MT 7529: K4V • MT 7181, 7189, 7492_SB 	71Y8665	1
NVIDIA Geforce 310 512M 64BIT (VGA+DP) LP <ul style="list-style-type: none"> • MT 7239: A4M A5M • MT 7507: D8B D9B F3A F3T E6V E7V G7M G8M • MT 7513: • MT 7529: K4V • MT 7181, 7189, 7492_SB 	03T9009	1
NVIDIA GeForce310 512M ; DMS59 LP <ul style="list-style-type: none"> • MT 7239: • MT 7507: D8B D9B F3A F3T E6V E7V G7M G8M • MT 7513: • MT 7529: K4V • MT 7181, 7189, 7492_SB 	89Y9227	1
DisplayPort to DVI-D Dongle <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	43N9160	1
DVI-I to VGA <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41R3342	1

Adapters and miscellaneous	FRU #	CRU
DMS59 dongle (bundle with GeForce310 512M ; DMS59 video card) <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41X6398	1
IEEE 1394 firewire adapter <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41D2781	1
IEEE 1394 firewire adapter - PCIe <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	89Y1712	1
Soft modem V.90/V.44 LP <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	46R4220	1
Modem phone cable <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	39K5120	1
Rear USB 2 ports II 200mm <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	42Y8006	1

Adapters and miscellaneous	FRU #	CRU
LPT cable <ul style="list-style-type: none"> MT 7239: MT 7507: MT 7513: MT 7529: MT 7181, 7189, 7492_SB 	45J9598	1
DVI-I to VGA <ul style="list-style-type: none"> MT 7239: MT 7507: MT 7513: MT 7529: MT 7181, 7189, 7492_SB 	54Y8255	1
LiteON@CX11256@RD01-D850 modem-UL(R) <ul style="list-style-type: none"> MT 7239: MT 7507: MT 7513: MT 7529: MT 7181, 7189, 7492_SB 	03T9027	1

Power Cords

Power Cords --primary	FRU #	CRU
Line Cord - US, Taiwan <ul style="list-style-type: none"> MT 7239: A3A A3T MT 7507: E8A E8T E9A E9T F1A F1T F2T F3T MT 7513: MT 7529: K5T K6T MT 7181, 7189, 7492_SB 	41R3184	1
Line Cord - US <ul style="list-style-type: none"> MT 7239: A3A MT 7507: MT 7513: MT 7529: MT 7181, 7189, 7492_SB 	45J9502	1
Line Cord - China <ul style="list-style-type: none"> MT 7239: MT 7507: MT 7513: MT 7529: MT 7181, 7189, 7492_SB 	41R3256	1

Power Cords --primary	FRU #	CRU
Line Cord - Japan <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41R3248	1
Line Cord - Brazil <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41R3270	1
Line Cord - Brazil <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	45J9595	1
Line Cord - LA (High Voltage) Argentina, Paraguay, Uruguay <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41R3176	1
Line Cord - ANZ <ul style="list-style-type: none"> • MT 7239: A4M A5M A6M A7M • MT 7507: G7M G8M G9M • MT 7513: • MT 7529: A3M A4M • MT 7181, 7189, 7492_SB 	41R3196	1
Line Cord - Korea <ul style="list-style-type: none"> • MT 7239: • MT 7507: G5K G6K • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41R3260	1

Power Cords --primary	FRU #	CRU
Line Cord - Hong Kong, Singapore, Malaysia, Brunei, UK, Ireland <ul style="list-style-type: none"> • MT 7239: A3A • MT 7507: D4B D5B D6B D7B D8B D9B E1B E8A E9A F1A F3A • MT 7513: F7G F8G F9G • MT 7529: J5B J6B J7G J8G J9G • MT 7181, 7189, 7492_SB 	41R3224	1
Line Cord - Taiwan <ul style="list-style-type: none"> • MT 7239: • MT 7507: D4V D2V E3V E4V E5V E6V E7V • MT 7513: • MT 7529: K1V K2V K3V K4V • MT 7181, 7189, 7492_SB 	41R3278	1
Line Cord - Italy <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41R3232	1
Line Cord - Indonesia, Laos, Cambodia, Vietnam, Austria, Belgium, Croatia, Czechoslovakia, Finland, France, Germany, Hungary, Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41R3208	1
Line Cord - Denmark <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41R3212	1
Line Cord - Switzerland <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41R3228	1

Power Cords --primary	FRU #	CRU
Line Cord - Israel <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41R3236	1
Line Cord - South Africa <ul style="list-style-type: none"> • MT 7239: A3A A4M A5M A6M A7M • MT 7507: E8A E9A F1A F3A G7M G8M G9M • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G A3M A4M • MT 7181, 7189, 7492_SB 	41R3220	1
Line Cord - India <ul style="list-style-type: none"> • MT 7239: • MT 7507: G1Q G2Q G3Q G4Q • MT 7513: • MT 7529: A1Q A2Q • MT 7181, 7189, 7492_SB 	41R3341	1
Line Cord - Thailand <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	43N9029	1

Power Cords --secondary	FRU #	CRU
Line Cord - US, Taiwan <ul style="list-style-type: none"> • MT 7239: A3A A3T • MT 7507: E8A E8T E9A E9T F1A F1T F2T F3T • MT 7513: • MT 7529: K5T K6T • MT 7181, 7189, 7492_SB 	41R3185	1
Line Cord - China <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41R3257	1

Power Cords --secondary	FRU #	CRU
Line Cord - Japan <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41R3249	1
Line Cord - Brazil <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41R3271	1
Line Cord - LA (High Voltage) Argentina, Paraguay, Uruguay <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41R3177	1
Line Cord - ANZ <ul style="list-style-type: none"> • MT 7239: A4M A5M A6M A7M • MT 7507: G7M G8M G9M • MT 7513: • MT 7529: A3M A4M • MT 7181, 7189, 7492_SB 	41R3197	1
Line Cord - Korea <ul style="list-style-type: none"> • MT 7239: • MT 7507: G5K G6K • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41R3261	1
Line Cord - Hong Kong, Singapore, Malaysia, Brunei, UK, Ireland <ul style="list-style-type: none"> • MT 7239: A3A • MT 7507: D4B D5B D6B D7B D8B D9B E1B E8A E9A F1A F3A • MT 7513: F7G F8G F9G • MT 7529: J5B J6B J7G J8G J9G • MT 7181, 7189, 7492_SB 	41R3225	1

Power Cords --secondary	FRU #	CRU
Line Cord - Taiwan <ul style="list-style-type: none"> • MT 7239: • MT 7507: D4V D2V E3V E4V E5V E6V E7V • MT 7513: • MT 7529: K1V K2V K3V K4V • MT 7181, 7189, 7492_SB 	41R3279	1
Line Cord - Italy <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41R3233	1
Line Cord - Indonesia, Laos, Cambodia, Vietnam, Austria, Belgium Croatia, Czechoslovakia, Finland, France, Germany, Hungary, Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	41R3209	1
Line Cord - Denmark <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41R3213	1
Line Cord - Switzerland <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41R3229	1
Line Cord - Israel <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	41R3237	1

Power Cords --secondary	FRU #	CRU
Line Cord - South Africa <ul style="list-style-type: none"> • MT 7239: A3A A4M A5M A6M A7M • MT 7507: E8A E9A F1A F3A G7M G8M G9M • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G A3M A4M • MT 7181, 7189, 7492_SB 	41R3221	1
Line Cord - India <ul style="list-style-type: none"> • MT 7239: • MT 7507: G1Q G2Q G3Q G4Q • MT 7513: • MT 7529: A1Q A2Q • MT 7181, 7189, 7492_SB 	41R3175	1
Line Cord - Thailand <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	43N9030	1

Recovery discs

Windows 7 Starter Recovery CD

Windows 7 Starter	FRU #	CRU
Arabic <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1433	1
Brazilian Portuguese <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1434	1

Windows 7 Starter	FRU #	CRU
India English <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1435	1
English for Russia <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1488	1
Russian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1436	1
Spanish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1437	1
Turkish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1438	1
US English <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1439	1

Windows 7 Home Basic 32 Recovery CD

Windows 7 Home Basic 32	FRU #	CRU
Arabic <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1440	1
Brazilian Portuguese <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1441	1
India English <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1442	1
French <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1443	1
Portuguese <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1444	1
English for Russia <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1489	1

Windows 7 Home Basic 32	FRU #	CRU
Russian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1445	1
Spanish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1446	1
Serbian-latin <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1447	1
Turkish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1448	1
US English <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1449	1

Windows 7 Home Premium 32 Recovery CD

Windows 7 Home Premium 32	FRU #	CRU
Chinese Traditional <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1450	1
India English <ul style="list-style-type: none"> • MT 7239: 	03T1451	1

Windows 7 Home Premium 32	FRU #	CRU
<ul style="list-style-type: none"> • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 		
Hong Kong <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1452	1
Korean <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1453	1
Spanish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1454	1
US English <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1455	1

Windows 7 Home Premium 64 Recovery CD

Windows 7 Home Premium 64	FRU #	CRU
India English <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1456	1
US English <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: 	03T1457	1

Windows 7 Home Premium 64	FRU #	CRU
<ul style="list-style-type: none"> MT 7529: MT 7181, 7189, 7492_SB 		

Windows 7 Professional 32 Recovery CD

Windows 7 Professional 32	FRU #	CRU
Chinese-Simplified <ul style="list-style-type: none"> MT 7239: MT 7507: MT 7513: MT 7529: MT 7181, 7189, 7492_SB 	03T1458	1
Chinese Traditional <ul style="list-style-type: none"> MT 7239: MT 7507: MT 7513: MT 7529: MT 7181, 7189, 7492_SB 	03T1459	1
India English <ul style="list-style-type: none"> MT 7239: MT 7507: MT 7513: F7G F8G F9G MT 7529: J7G J8G J9G MT 7181, 7189, 7492_SB 	03T1460	1
Hong Kong <ul style="list-style-type: none"> MT 7239: MT 7507: D4B D5B E1B MT 7513: MT 7529: MT 7181, 7189, 7492_SB 	03T1461	1
Korean <ul style="list-style-type: none"> MT 7239: MT 7507: G5K G6K MT 7513: F7G F8G F9G MT 7529: MT 7181, 7189, 7492_SB 	03T1462	1
Russian English <ul style="list-style-type: none"> MT 7239: MT 7507: MT 7513: F7G F8G F9G MT 7529: J7G J8G J9G MT 7181, 7189, 7492_SB 	03T1490	1

Windows 7 Professional 32	FRU #	CRU
Russian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	03T1463	1
Spanish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G • MT 7181, 7189, 7492_SB 	03T1464	1
US English <ul style="list-style-type: none"> • MT 7239: A6M A7M • MT 7507: E9A F1A F3A G2Q G4Q G9M • MT 7513: F7G F8G F9G • MT 7529: J7G J8G J9G A1Q A2Q A3M A4M • MT 7181, 7189, 7492_SB 	03T1465	1

Windows 7 Professional 64 Recovery CD

Windows 7 Professional 64	FRU #	CRU
Arabic <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1466	1
Chinese Traditional <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1468	1
Czech <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1469	1

Windows 7 Professional 64	FRU #	CRU
India English <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1470	1
French <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1471	1
Greek <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1472	1
Hong Kong <ul style="list-style-type: none"> • MT 7239: • MT 7507: D6B D7B D8B D9B • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1473	1
Hungary <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1474	1
Korean <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1475	1

Windows 7 Professional 64	FRU #	CRU
Polish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1476	1
Portuguese <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1477	1
Romanian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1478	1
Slovakian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1479	1
Sebian-Latin <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1480	1
Turkish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1481	1

Windows 7 Professional 64	FRU #	CRU
US English <ul style="list-style-type: none"> • MT 7239: A4M A5M • MT 7507: G7M G8M • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1482	1
C&L Croatian (EN/SL/CR) <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1483	1

Windows 7 Ultimate 32 Recovery CD

Windows 7 Ultimate 32	FRU #	CRU
English <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1484	1
India English <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1485	1

Windows 7 Ultimate 64 Recovery CD

Windows 7 Ultimate 64	FRU #	CRU
English <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T1486	1
India English <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: 	03T1487	1

Windows 7 Ultimate 64	FRU #	CRU
<ul style="list-style-type: none"> MT 7181, 7189, 7492_SB 		

Windows XP Professional 32 Recovery CD

Note: The Windows XP Professional recovery DVDs are available only for models with a valid Microsoft Windows XP Professional certificate of authenticity (COA) affixed to the system. Due to a Microsoft licensing limitation, if a model came with Windows XP Professional preinstalled from the factory, but has either a Windows 7 or Windows Vista COA affixed to the system, that model is eligible only for recovery DVDs that match the operating system specified on the COA.

Windows XP Professional 32	FRU #	CRU
English <ul style="list-style-type: none"> MT 7239: MT 7507: MT 7513: MT 7529: MT 7181, 7189, 7492_SB 	03T0213	1
Hong Kong <ul style="list-style-type: none"> MT 7239: MT 7507: MT 7513: MT 7529: MT 7181, 7189, 7492_SB 	03T0690	1
Brazil Portuguese <ul style="list-style-type: none"> MT 7239: MT 7507: MT 7513: MT 7529: MT 7181, 7189, 7492_SB 	03T0703	1
Chinese-Traditional <ul style="list-style-type: none"> MT 7239: MT 7507: MT 7513: MT 7529: MT 7181, 7189, 7492_SB 	03T0704	1
Czech <ul style="list-style-type: none"> MT 7239: MT 7507: MT 7513: MT 7529: MT 7181, 7189, 7492_SB 	03T0705	1

Windows XP Professional 32	FRU #	CRU
Polish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T0706	1
Russian <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T0707	1
Spanish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T0708	1
Turkish <ul style="list-style-type: none"> • MT 7239: • MT 7507: • MT 7513: • MT 7529: • MT 7181, 7189, 7492_SB 	03T0709	1

Windows Vista Business 32 Recovery CD

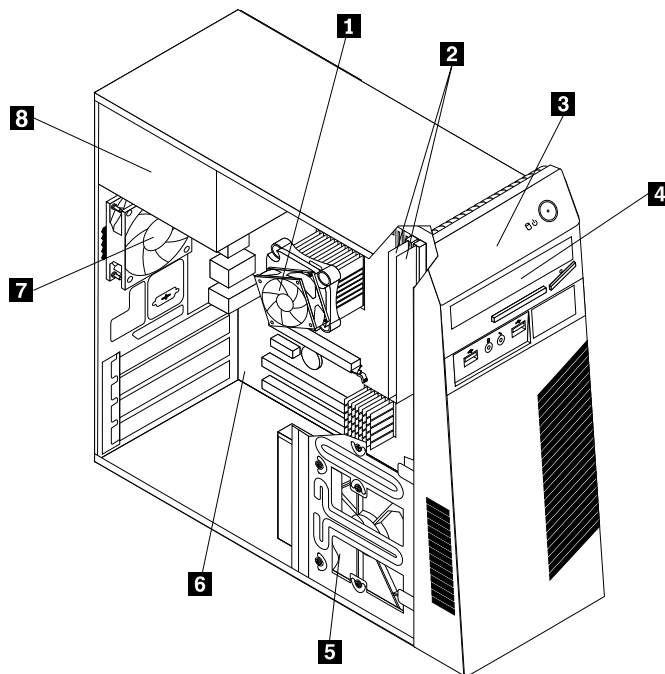
Note: The Windows Vista recovery DVDs are available only for models with a valid Microsoft Windows Vista certificate of authenticity (COA) affixed to the system. Due to a Microsoft licensing limitation, if a model came with Windows Vista Business or Windows Vista Ultimate preinstalled from the factory, but has a Windows 7 COA affixed to the system, that model is eligible only for recovery DVDs that match the operating system specified on the COA.

Windows Vista Business 32	FRU #	CRU
English <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1431	1
India English <ul style="list-style-type: none"> • MT 4165: • MT 7493: 	03T1432	1

Windows Vista Business 32	FRU #	CRU
<ul style="list-style-type: none"> • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 		

Overall: MT 4165, 7179, 7182, 7490, 7493, 7511, and 7521

The following replaceable components are available for the 4165, 7179, 7182, 7490, 7493, 7511, and 7521 machine type models.



Item #	FRUs	FRU #	CRU
1	Intel 95W/73W heat sink <ul style="list-style-type: none"> • MT 4165: all models • MT 7493: all models • MT 7511: all models • MT 7521: all models • MT 7179, 7182, 7490_SB 	03T9513	2
1	Microprocessor, Pentium G6950 2.80G 1066MHz Dual core\3M\73W LGA 1156 (Gfx core speed 533MHz) <ul style="list-style-type: none"> • MT 4165: A2A A2T • MT 7493: C8A C8T C9A C9T C4V C5V • MT 7511: • MT 7521: H7V • MT 7179, 7182, 7490_SB 	71Y5303	2

Item #	FRUs	FRU #	CRU
1	Microprocessor, Pentium G6960 2.93G 1066MHz Dual core\3M\73W LGA 1156 (Gfx core speed 533MHz) <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T9021	2
1	Microprocessor, Core i3-530 2.93G 1333MHz 4T\Dual core\4M\73W LGA 1156 (Gfx core speed 733MHz) <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	71Y6960	2
1	Microprocessor, Core i3-540 3.06G 1333MHz 4T\Dual core\4M\73W LGA 1156 (Gfx core speed 733MHz) <ul style="list-style-type: none"> • MT 4165: A1A A1T • MT 7493: A4B A5B A6A A6T A6B C6B C7B B1V B2V B3V B4V E1Q E3Q • MT 7511: F4G • MT 7521: J3A J3T H6G H8V • MT 7179, 7182, 7490_SB 	71Y5304	2
1	Microprocessor, Core i3-560 3.33G 1333MHz 4T\Dual core\4M\73W LGA 1156 K-0 (Gfx core speed 733MHz) <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T7035	2
1	Microprocessor, Core i5-650 3.20G 1333MHz 4T\Dual core\4M\73W\Turbo LGA 1156 (Gfx core speed 733MHz) <ul style="list-style-type: none"> • MT 4165: • MT 7493: A7B A8B D1T B5V B6V B8V E2Q E4Q E5K • MT 7511: F5G • MT 7521: H1B H2B H3B J4A J4T J4Q H5G H9V A1Q A2M • MT 7179, 7182, 7490_SB 	71Y6961	2
1	Microprocessor, Core i5-660 3.33G 1333MHz 4T\Dual core\4M\73W\Turbo LGA 1156 (Gfx core speed 733MHz) <ul style="list-style-type: none"> • MT 4165: • MT 7493: D2T B7V • MT 7511: F6G • MT 7521: J2A J2T H4G • MT 7179, 7182, 7490_SB 	71Y6962	2

Item #	FRUs	FRU #	CRU
1	Microprocessor, Core i5-670 3.46G 1333MHz 4T\Dual core\4M\73W\Turbo LGA 1156 (Gfx core speed 733MHz) <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	71Y6963	2
1	Microprocessor, Core i5-680 3.6G 1333MHz 4T\Dual core\4M\73W\Turbo LGA 1156 (Gfx core speed 733MHz) <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	89Y9196	2
1	Microprocessor, Core i3-550 3.2G 1333MHz 4T\Dual core\4M\73W LGA 1156 (Gfx core speed 733MHz) <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	89Y9195	2
1	Microprocessor, Lynnfield Quad Core i5-750 2.66G 1333MHz 8T\4 core\8M\95W\Turbo LGA 1156 <ul style="list-style-type: none"> • MT 4165: • MT 7493: A9B B9V C1V • MT 7511: • MT 7521: J1V • MT 7179, 7182, 7490_SB 	71Y5305	2
1	Microprocessor, Lynnfield Quad Core i7-860 2.80G 1333MHz 8T\4 core\8M\95W\Turbo LGA 1156 <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	71Y5306	2
1	Microprocessor, Lynnfield Quad Core i7-870 2.93G 1333MHz 8T\4 core\8M\95W\Turbo LGA 1156 <ul style="list-style-type: none"> • MT 4165: • MT 7493: D3T C2V C3V E7M • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	71Y5307	2

Item #	FRUs	FRU #	CRU
1	Microprocessor, Lynnfield Quad Core i5-760 2.8G 1333MHz 8T\4 core\8M\95W\Turbo LGA 1156 <ul style="list-style-type: none"> • MT 4165: • MT 7493: E6K E8M • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T6010	2
2	Memory module, 1GB PC3-10600 1333MHz DDR3 UDIMM <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	64Y6648	1
2	Memory module, 2GB PC3-10600 1333MHz DDR3 UDIMM <ul style="list-style-type: none"> • MT 4165: A1A A1T A2A A2T • MT 7493: A4B A5B A6A A6T A6B A7B A8B A9B C6B C7B C8A C8T C9A C9T D1T D2T D3T B1V B2V B3V B4V B5V B6V B7V B8V B9V C1V C2V C3V C4V C5V E1Q E2Q E3Q E4Q E5K E6K E7M E8M • MT 7511: F4G F5G F6G • MT 7521: H1B H2B H3B J2A J2T J3A J3T J4A J4T J4Q H4G H5G H6G H7V H8V H9V J1V A1Q A2M • MT 7179, 7182, 7490_SB 	64Y6649	1
2	Memory module, 4GB PC3-10600 1333MHz DDR3 UDIMM <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	89Y9224	1
3	Front main bezel assy <ul style="list-style-type: none"> • MT 4165: all models • MT 7493: all models • MT 7511: all models • MT 7521: all models • MT 7179, 7182, 7490_SB 	03T9501	2
4	Optical drive, DVD-ROM Drive - 16x/48x - SATA (with DVD PB software or without software) <ul style="list-style-type: none"> • MT 4165: • MT 7493: A4B A7B C8A C8T B1V B2V B5V B7V B8V B9V C1V C4V C5V • MT 7511: • MT 7521: H2B H3B H7V H8V H9V J1V • MT 7179, 7182, 7490_SB 	71Y5543	1

Item #	FRUs	FRU #	CRU
4	Optical drive, DVD Recorder Rambo 8 - SATA 12XRAM WRITE (with DVD PB software or without software) <ul style="list-style-type: none"> • MT 4165: A1A A1T A2A A2T • MT 7493: A6A A6T A6B A8B A9B C9A C9T D1T D2T D3T B3V B4V B6V C2V C3V E1Q E2Q E3Q E4Q E5K E6K E7M E8M • MT 7511: F4G F5G F6G • MT 7521: H1B J2A J2T J3A J3T J4A J4Q J4T H4G H5G H6G A1Q A2M • MT 7179, 7182, 7490_SB 	71Y5545	1
5	Hard disk drive, 160 GB 7200rpm SATA <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	40Y9035	2
5	Hard disk drive, 160 GB 7200rpm SATA <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	53Y6837	2
5	Hard disk drive, 250 GB 7200rpm SATA <ul style="list-style-type: none"> • MT 4165: A1A A1T A2A A2T • MT 7493: C8A C8T E1Q E2Q E3Q E4Q • MT 7511: • MT 7521: J3A J3T J4A J4Q J4T A1Q • MT 7179, 7182, 7490_SB 	40Y9036	2
5	Hard disk drive, 250 GB 7200rpm SATA <ul style="list-style-type: none"> • MT 4165: A1A A1T A2A A2T • MT 7493: C8A C8T E1Q E2Q E3Q E4Q • MT 7511: • MT 7521: J3A J3T J4A J4Q J4T A1Q • MT 7179, 7182, 7490_SB 	45K0408	2
5	Hard disk drive, 320 GB 7200rpm SATA <ul style="list-style-type: none"> • MT 4165: • MT 7493: A4B A5B A6A A6T A6B C6B C7B C9A C9T D1T D2T B1V B2V B5V B6V B7V B8V B9V C1V C4V C5V E5K E6K E8M • MT 7511: F4G F5G • MT 7521: J2A J2T H5G H6G H7V H8V H9V J1V A2M • MT 7179, 7182, 7490_SB 	87H4891	2

Item #	FRUs	FRU #	CRU
5	Hard disk drive, 320 GB 7200rpm SATA <ul style="list-style-type: none"> MT 4165: MT 7493: A4B A5B A6A A6T A6B C6B C7B C9A C9T D1T D2T B1V B2V B5V B6V B7V B8V B9V C1V C4V C5V E5K E6K E8M MT 7511: F4G F5G MT 7521: J2A J2T H5G H6G H7V H8V H9V J1V A2M MT 7179, 7182, 7490_SB 	45K0409	2
5	Hard disk drive, 500GB 7200rpm SATA <ul style="list-style-type: none"> MT 4165: MT 7493: A7B A8B A9B D3T B3V B4V C2V C3V E7M MT 7511: F6G MT 7521: H1B H2B H3B H4G MT 7179, 7182, 7490_SB 	45K0410	2
5	Hard disk drive, 500GB 7200rpm SATA <ul style="list-style-type: none"> MT 4165: MT 7493: A7B A8B A9B D3T B3V B4V C2V C3V E7M MT 7511: F6G MT 7521: H1B H2B H3B H4G MT 7179, 7182, 7490_SB 	41X5582	2
5	Hard disk drive, 1TB 7200rpm SATA <ul style="list-style-type: none"> MT 4165: MT 7493: MT 7511: MT 7521: MT 7179, 7182, 7490_SB 	45K0412	2
5	Hard disk drive, 250 GB 7200rpm SATA <ul style="list-style-type: none"> MT 4165: MT 7493: MT 7511: MT 7521: MT 7179, 7182, 7490_SB 	03T7039	2
5	Hard disk drive, 320 GB 7200rpm SATA <ul style="list-style-type: none"> MT 4165: MT 7493: MT 7511: MT 7521: MT 7179, 7182, 7490_SB 	03T7040	2

Item #	FRUs	FRU #	CRU
5	Hard disk drive, 500GB 7200rpm SATA <ul style="list-style-type: none"> MT 4165: MT 7493: MT 7511: MT 7521: MT 7179, 7182, 7490_SB 	03T7041	2
5	Hard disk drive, 1TB 7200rpm SATA <ul style="list-style-type: none"> MT 4165: MT 7493: MT 7511: MT 7521: MT 7179, 7182, 7490_SB 	03T7042	2
5	Hard disk drive, 160 GB 7200rpm SATA <ul style="list-style-type: none"> MT 4165: MT 7493: MT 7511: MT 7521: MT 7179, 7182, 7490_SB 	03T7038	2
6	System board, Intel H57 DDR3 mATX (GA) <ul style="list-style-type: none"> MT 4165: A1A A1T A2A A2T MT 7493: A4B A5B A6A A6T A6B A7B A8B A9B C6B C7B C8A C8T C9A C9T C9T D1T D2T D3T B1V B2V B3V B4V B5V B6V B7V B8V B9V C1V C2V C3V C4V C5V E1Q E2Q E3Q E4Q E5K E6K E7M E8M MT 7511: F4G F5G F6G MT 7521: H1B H2B H3B J2A J2T J3A J3T J4A J4T H4G H5G H6G H7V H8V H9V J1V A1Q J4Q A2M MT 7179, 7182, 7490_SB 	03T7005	N
7	System fan (rear) <ul style="list-style-type: none"> MT 4165: all models MT 7493: all models MT 7511: all models MT 7521: all models MT 7179, 7182, 7490_SB 	45K6340	2
8	Power supply, ATX 320W 88% power supply; for all countries <ul style="list-style-type: none"> MT 4165: A1A A1T A2A A2T MT 7493: A4B A5B A6A A6T A6B A7B A8B A9B C6B C7B C8A C8T C9A C9T D1T D2T D3T B1V B2V B3V B4V B5V B6V B7V B8V B9V C1V C2V C3V C4V C5V E1Q E2Q E3Q E4Q E5K E6K E7M E8M MT 7511: F4G F5G F6G MT 7521: H1B H2B H3B J2A J2T J3A J3T J4A J4Q J4T H4G H5G H6G H7V H8V H9V J1V A1Q A2M MT 7179, 7182, 7490_SB 	45J9410	2

Item #	FRUs	FRU #	CRU
8	Power supply, ATX 320W 88% power supply; for all countries <ul style="list-style-type: none"> MT 4165: A1A A1T A2A A2T MT 7493: A4B A5B A6A A6T A6B A7B A8B A9B C6B C7B C8A C8T C9A C9T D1T D2T D3T B1V B2V B3V B4V B5V B6V B7V B8V B9V C1V C2V C3V C4V C5V E1Q E2Q E3Q E4Q E5K E6K E7M E8M MT 7511: F4G F5G F6G MT 7521: H1B H2B H3B J2A J2T J3A J3T J4A J4Q J4T H4G H5G H6G H7V H8V H9V J1V A1Q A2M MT 7179, 7182, 7490_SB 	45J9436	2
8	Power supply, 280W Watt ATX power supply (85plus) - Standard, Robust, JP <ul style="list-style-type: none"> MT 4165: A1A A1T A2A A2T MT 7493: A4B A5B A6A A6T A6B A7B A8B A9B C6B C7B C8A C8T C9A C9T D1T D2T D3T B1V B2V B3V B4V B5V B6V B7V B8V B9V C1V C2V C3V C4V C5V E1Q E2Q E3Q E4Q E5K E6K E7M E8M MT 7511: F4G F5G F6G MT 7521: H1B H2B H3B J2A J2T J3A J3T J4A J4Q J4T H4G H5G H6G H7V H8V H9V J1V A1Q A2M MT 7179, 7182, 7490_SB 	45J9431	2
8	Power supply, ATX 280W power supply; Robust; for all countries except for JP <ul style="list-style-type: none"> MT 4165: MT 7493: MT 7511: MT 7521: MT 7179, 7182, 7490_SB 	54Y8853	
8	Power supply, 280W ATX power supply (85plus) - Standard, Robust, JP <ul style="list-style-type: none"> MT 4165: MT 7493: MT 7511: MT 7521: MT 7179, 7182, 7490_SB 	54Y8854	

Mechanical FRUs

The FRUs listed in the following tables are not illustrated.

FRUs	FRU #	CRU
Battery, battery 3V- lithium <ul style="list-style-type: none"> MT 4165: A1A A1T A2A A2T MT 7493: A4B A5B A6A A6T A6B A7B A8B A9B C6B C7B C8A C8T C9A C9T C9T D1T D2T D3T B1V B2V B3V B4V B5V B6V B7V B8V B9V C1V C2V C3V C4V C5V E1Q E2Q E3Q E4Q E5K E6K E7M E8M MT 7511: F4G F5G F6G MT 7521: H1B H2B H3B J2A J2T J3A J3T J4A J4T H4G H5G H6G H7V H8V H9V J1V A1Q J4Q A2M 	45C1566	1

FRUs	FRU #	CRU
<ul style="list-style-type: none"> MT 7179, 7182, 7490_SB 		
Card reader kit <ul style="list-style-type: none"> MT 4165: all models MT 7493: all models MT 7511: all models MT 7521: all models MT 7179, 7182, 7490_SB 	03T9503	2
Model without ODD <ul style="list-style-type: none"> MT 4165: all models MT 7493: all models MT 7511: all models MT 7521: all models MT 7179, 7182, 7490_SB 	03T9502	2
C2 Intrusion switch and bracket assembly <ul style="list-style-type: none"> MT 4165: all models MT 7493: all models MT 7511: all models MT 7521: all models MT 7179, 7182, 7490_SB 	03T9504	2
400mm 1 latching, 1 angle, 1 angle <ul style="list-style-type: none"> MT 4165: all models MT 7493: all models MT 7511: all models MT 7521: all models MT 7179, 7182, 7490_SB 	54Y9941	2
Internal speaker 400mm <ul style="list-style-type: none"> MT 4165: all models MT 7493: all models MT 7511: all models MT 7521: all models MT 7179, 7182, 7490_SB 	43N9091	2
Cabel-SATA 250mm (RoHS) 2 latching for 1st HDD <ul style="list-style-type: none"> MT 4165: all models MT 7493: all models MT 7511: all models MT 7521: all models MT 7179, 7182, 7490_SB 	54Y9929	2

FRUs	FRU #	CRU
Cabel-SATA 420mm (RoHS) for ODD 2 latching, right angle <ul style="list-style-type: none"> MT 4165: all models MT 7493: all models MT 7511: all models MT 7521: all models MT 7179, 7182, 7490_SB 	54Y9948	2
Temperature sense cable (6 pin 300 mm) <ul style="list-style-type: none"> MT 4165: all models MT 7493: all models MT 7511: all models MT 7521: all models MT 7179, 7182, 7490_SB 	54Y9919	2
Front I/O cable_R (20L_A610_U480) <ul style="list-style-type: none"> MT 4165: all models MT 7493: all models MT 7511: all models MT 7521: all models MT 7179, 7182, 7490_SB 	54Y9907	2
LED/switch cable (20L_PCB_760mm) <ul style="list-style-type: none"> MT 4165: all models MT 7493: all models MT 7511: all models MT 7521: all models MT 7179, 7182, 7490_SB 	54Y9913	2
Thermal grease <ul style="list-style-type: none"> MT 4165: all models MT 7493: all models MT 7511: all models MT 7521: all models MT 7179, 7182, 7490_SB 	91P8835	2
Slot cover, metal <ul style="list-style-type: none"> MT 4165: all models MT 7493: all models MT 7511: all models MT 7521: all models MT 7179, 7182, 7490_SB 	03T9515	2

FRUs	FRU #	CRU
System fan assembly <ul style="list-style-type: none"> MT 4165: all models MT 7493: all models MT 7511: all models MT 7521: all models MT 7179, 7182, 7490_SB 	43N9908	2
Chassis assembly <ul style="list-style-type: none"> MT 4165: all models MT 7493: all models MT 7511: all models MT 7521: all models MT 7179, 7182, 7490_SB 	03T9564	2
Rear I/O shield, ATX, for RS760 <ul style="list-style-type: none"> MT 4165: all models MT 7493: all models MT 7511: all models MT 7521: all models MT 7179, 7182, 7490_SB 	45K6268	2
321CT card reader blank bezel <ul style="list-style-type: none"> MT 4165: MT 7493: MT 7511: MT 7521: MT 7179, 7182, 7490_SB 	03T9688	

Keyboard and Mouse

Keyboard - Preferred Pro PS/2	FRU #	CRU
US English, China <ul style="list-style-type: none"> MT 4165: MT 7493: MT 7511: MT 7521: MT 7179, 7182, 7490_SB 	41A5039	1
Arabic <ul style="list-style-type: none"> MT 4165: MT 7493: MT 7511: MT 7521: MT 7179, 7182, 7490_SB 	41A5040	1

Keyboard - Preferred Pro PS/2	FRU #	CRU
Arabic/French <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5041	1
Belgium French <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5042	1
Belgium English <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5043	1
Brazilian Portuguese <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5044	1
Bulgarian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5045	1
Chinese/US/Taiwanese <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5046	1

Keyboard - Preferred Pro PS/2	FRU #	CRU
Czech (ABB) <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5047	1
Danish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5048	1
Dutch <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5049	1
French <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5050	1
French Canadian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5051	1
French Canadian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5052	1

Keyboard - Preferred Pro PS/2	FRU #	CRU
German <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5053	1
Greek <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5054	1
Greek/US <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5080	1
Hebrew <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5055	1
Hungarian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5056	1
Iceland <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5057	1

Keyboard - Preferred Pro PS/2	FRU #	CRU
Italy <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5058	1
Japanese <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5059	1
Korean <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5060	1
LA Spanish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5061	1
Norwegian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5062	1
Polish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5063	1

Keyboard - Preferred Pro PS/2	FRU #	CRU
Portuguese <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5064	1
Romanian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5065	1
Russian/Cyrillic <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5066	1
Serbian/Cyrillic <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5067	1
Slovak <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5068	1
Spanish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5069	1

Keyboard - Preferred Pro PS/2	FRU #	CRU
Swedish/Finnish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5070	1
Swiss French/German <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5071	1
Thailand <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5072	1
Turkish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5073	1
Turkish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5074	1
UK English <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5075	1

Keyboard - Preferred Pro PS/2	FRU #	CRU
US European <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5076	1
Slovenian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5077	1
India <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	54Y8382	1

Keyboard (Lenovo Preferred Pro USB)	FRU #	CRU
US English, China <ul style="list-style-type: none"> • MT 4165: A1A A2A • MT 7493: A6A C8A C9A B1V B2V B3V B4V B5V B6V B7V B8V B9V C1V C2V C3V C4V C5V E1Q E2Q E3Q E4Q E7M E8M • MT 7511: F4G F5G F6G • MT 7521: H1B H2B H3B J2A J3A J4A J4Q H4G H5G H6G H7V H8V H9V J1V A1Q A2M • MT 7179, 7182, 7490_SB 	41A5289	1
Arabic <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5290	1
Arabic (New) <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	45J4880	1

Keyboard (Lenovo Preferred Pro USB)	FRU #	CRU
A/F <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5291	1
B/F <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5292	1
Belgium English <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5293	1
Brazilian Portuguese <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5294	1
Bulgarian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5295	1
Chinese/US <ul style="list-style-type: none"> • MT 4165: • MT 7493: A4B A5B A6B A7B A8B A9B C6B C7B • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5296	1

Keyboard (Lenovo Preferred Pro USB)	FRU #	CRU
Czech (ABB) <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5297	1
Danish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5298	1
Dutch <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5299	1
French <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5300	1
French Canadian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5301	1
French Canadian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5302	1

Keyboard (Lenovo Preferred Pro USB)	FRU #	CRU
German <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5303	1
Greek <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5304	1
Greek/US <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5305	1
Hebrew <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5306	1
Hungarian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5307	1
Iceland <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5308	1

Keyboard (Lenovo Preferred Pro USB)	FRU #	CRU
Italy <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5309	1
Japanese <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5310	1
Korean <ul style="list-style-type: none"> • MT 4165: • MT 7493: E5K E6K • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5311	1
LA Spanish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5312	1
Lithuanian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	45J4896	1
Norwegian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5313	1

Keyboard (Lenovo Preferred Pro USB)	FRU #	CRU
Polish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5314	1
Portuguese <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5315	1
Romanian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5317	1
Romanian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5316	1
Russian/Cyrillic <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5318	1
Serbian/Cyrillic <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5319	1

Keyboard (Lenovo Preferred Pro USB)	FRU #	CRU
Slovak <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5320	1
Spanish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5321	1
Swedish/Finnish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5322	1
SF/G <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5323	1
Thailand <ul style="list-style-type: none"> • MT 4165: A1T A2T • MT 7493: A6T A8T C9T D1T D2T D3T • MT 7511: • MT 7521: J2T J3T J4T • MT 7179, 7182, 7490_SB 	41A5324	1
Turkish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5325	1

Keyboard (Lenovo Preferred Pro USB)	FRU #	CRU
Turkish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5326	1
UK English <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5327	1
US European <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5328	1
Slovenian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41A5329	1
Estonia <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	51J0059	1
India <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	54Y8381	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
US English, China <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4780	1
Arabic <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4781	1
Arabic/French <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4782	1
Belgium French <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4783	1
Belgium English <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4784	1
Brazilian Portuguese <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4785	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
Bulgarian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4786	1
Chinese/US/Taiwanese <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4787	1
Czech (ABB) <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4788	1
Danish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4789	1
Dutch <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4790	1
French <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4791	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
French Canadian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4792	1
French Canadian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4793	1
German <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4794	1
Greek <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4795	1
Greek/US <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4796	1
Hebrew <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4797	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
Hungarian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4798	1
Iceland <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4799	1
Italy <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4800	1
Japanese <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4801	1
Korean <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4802	1
LA Spanish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4803	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
Norwegian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4804	1
Polish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4805	1
Portuguese <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4806	1
Romanian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4808	1
Romanian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4807	1
Russian/Cyrillic <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4809	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
Serbian/Cyrillic <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4810	1
Slovak <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4811	1
Spanish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4812	1
Swedish/Finnish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4813	1
Swiss French/German <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4814	1
Thailand <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4815	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
Turkish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4816	1
Turkish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4817	1
UK English <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4818	1
US European <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4819	1
Slovenian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	57Y4820	1
US English, China <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8001	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
Arabic <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8002	1
Arabic/French <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8003	1
Belgium French <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8004	1
Belgium English <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8005	1
Brazilian Portuguese <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8006	1
Bulgarian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8007	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
Chinese/US/Taiwanese <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8008	1
Czech (ABB) <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8009	1
Danish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8010	1
Dutch <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8011	1
French <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8012	1
French Canadian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8013	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
French Canadian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8014	1
German <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8015	1
Greek <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8016	1
Greek/US <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8017	1
Hebrew <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8018	1
Hungarian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8019	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
Iceland <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8020	1
Italy <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8021	1
Japanese <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8022	1
Korean <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8023	1
LA Spanish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8024	1
Norwegian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8025	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
Polish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8026	1
Portuguese <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8027	1
Romanian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8038	1
Romanian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8039	1
Russian/Cyrillic <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8028	1
Serbian/Cyrillic <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8040	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
Slovak <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8029	1
Spanish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8030	1
Swedish/Finnish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8031	1
Swiss French/German <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8032	1
Thailand <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8033	1
Turkish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8041	1

Keyboard (Lenovo Fingerprint Reader USB)	FRU #	CRU
Turkish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8034	1
UK English <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8035	1
US European <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8036	1
Slovenian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03X8037	1

Mice	FRU #	CRU
Optical wheel mouse (400DPI, USB) <ul style="list-style-type: none"> • MT 4165: A1A A1T A2A A2T • MT 7493: A4B A5B A6A A6T A6B A7B A8B A9B C6B C7B C8A C8T C9A C9T D1T D2T D3T B1V B2V B3V B4V B5V B6V B7V B8V B9V C1V C2V C3V C4V C5V E1Q E2Q E3Q E4Q E5K E6K E7M E8M • MT 7511: F4G F5G F6G • MT 7521: H1B H2B H3B J2A J2T J3A J3T J4A J4Q J4T H4G H5G H6G H7V H8V H9V J1V A1Q A2M • MT 7179, 7182, 7490_SB 	41U3013	1
Optical wheel mouse (400DPI, USB) <ul style="list-style-type: none"> • MT 4165: A1A A1T A2A A2T • MT 7493: A4B A5B A6A A6T A6B A7B A8B A9B C6B C7B C8A C8T C9A C9T D1T D2T D3T B1V B2V B3V B4V B5V B6V B7V B8V B9V C1V C2V C3V C4V C5V E1Q E2Q E3Q E4Q E5K E6K E7M E8M • MT 7511: F4G F5G F6G • MT 7521: H1B H2B H3B J2A J2T J3A J3T J4A J4Q J4T H4G H5G H6G H7V H8V H9V J1V A1Q A2M • MT 7179, 7182, 7490_SB 	41U3030	1

Adapters and miscellaneous FRUs

Adapters & miscellaneous	FRU #	CRU
NVIDIA Quadro FX380LP 512M (DVI+DP) ATX <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	64Y8204	1
NVIDIA Geforce 310 512M 64BIT (VGA+DP) ATX <ul style="list-style-type: none"> • MT 4165: • MT 7493: E7M E8M • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	71Y8664	1
NVIDIA Geforce 310 512M 64BIT (VGA+DP) ATX <ul style="list-style-type: none"> • MT 4165: • MT 7493: E7M E8M • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T9008	1
NVIDIA GeForce310 512M ; DMS59 ATX <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	89Y9226	1
DisplayPort to DVI-D dongle <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	43N9160	1
DVI-I to VGA <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41R3342	1

Adapters & miscellaneous	FRU #	CRU
DMS59 dongle (bundle with GeForce310 512M ; DMS59 video card) <ul style="list-style-type: none"> • MT 4165: • MT 7493: A9B D3T B9V C1V C2V C3V • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41X6398	1
IEEE 1394 Firewire adapter ATX <ul style="list-style-type: none"> • MT 4165: • MT 7493: A4B A5B • MT 7511: • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41D2781	1
IEEE 1394 Firewire adapter ATX -PCIe <ul style="list-style-type: none"> • MT 4165: • MT 7493: A4B A5B • MT 7511: • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	89Y1712	1
Soft modem V.90/V.44 ATX <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41R3334	1
Modem phone cable <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	39K5120	1
BTL external speaker <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41A5334	1

Adapters & miscellaneous	FRU #	CRU
Rear USB 2 ports II HP(R) <ul style="list-style-type: none"> MT 4165: MT 7493: MT 7511: MT 7521: MT 7179, 7182, 7490_SB 	42Y8005	1
LI350mm rear Com2 cable II mini (R) <ul style="list-style-type: none"> MT 4165: MT 7493: MT 7511: MT 7521: MT 7179, 7182, 7490_SB 	41R8548	1
LPT cable <ul style="list-style-type: none"> MT 4165: MT 7493: MT 7511: MT 7521: MT 7179, 7182, 7490_SB 	43N9022	1
DVI-I to VGA <ul style="list-style-type: none"> MT 4165: MT 7493: MT 7511: MT 7521: MT 7179, 7182, 7490_SB 	54Y8255	1
LiteON@CX11256@RD01-D850 modem-UH® <ul style="list-style-type: none"> MT 4165: MT 7493: MT 7511: MT 7521: MT 7179, 7182, 7490_SB 	03T9026	1

Power Cords

Power Cords --primary	FRU #	CRU
Line Cord - US, Taiwan <ul style="list-style-type: none"> MT 4165: A1A A1T A2A A2T MT 7493: A6A A6T C8A C8T C9A C9T D1T D2T D3T MT 7511: MT 7521: J2A J2T J3A J3T J4A J4T H7V H8V H9V J1V MT 7179, 7182, 7490_SB 	41R3184	1
Line Cord - US <ul style="list-style-type: none"> MT 4165: A1A A1T A2A A2T 	45J9502	1

Power Cords --primary	FRU #	CRU
<ul style="list-style-type: none"> • MT 7493: A6A A6T C8A C8T C9A C9T D1T D2T D3T • MT 7511: • MT 7521: J2A J2T J3A J3T J4A J4T H7V H8V H9V J1V • MT 7179, 7182, 7490_SB 		
Line Cord - China <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41R3256	1
Line Cord - Japan <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41R3248	1
Line Cord - Brazil <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41R3270	1
Line Cord - Brazil <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	45J9595	1
Line Cord - LA (High Voltage) Argentina, Paraguay, Uruguay <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41R3176	1
Line Cord - ANZ <ul style="list-style-type: none"> • MT 4165: • MT 7493: E7M E8M • MT 7511: • MT 7521: A2M • MT 7179, 7182, 7490_SB 	41R3196	1

Power Cords --primary	FRU #	CRU
Line Cord - Korea <ul style="list-style-type: none"> • MT 4165: • MT 7493: E5K E6K • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41R3260	1
Line Cord - Hong Kong, Singapore, Malaysia, Brunei, UK, Ireland <ul style="list-style-type: none"> • MT 4165: A1A A2A • MT 7493: A4B A5B A6A A6B A7B A8B A9B C6B C7B • MT 7511: F4G F5G F6G • MT 7521: H1B H2B H3B J2A H4G H5G H6G • MT 7179, 7182, 7490_SB 	41R3224	1
Line Cord - Taiwan <ul style="list-style-type: none"> • MT 4165: • MT 7493: B1V B2V B3V B4V B5V B6V B7V B8V B9V C1V C2V C3V C4V C5V • MT 7511: • MT 7521: H7V H8V H9V J1V • MT 7179, 7182, 7490_SB 	41R3278	1
Line Cord - Italy <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41R3232	1
Line Cord - Indonesia, Laos, Cambodia, Vietnam, Austria, Belgium, Croatia, Czechoslovakia, Finland, France, Germany, Hungary, Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41R3208	1
Line Cord - Denmark <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41R3212	1

Power Cords --primary	FRU #	CRU
Line Cord - Switzerland <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41R3228	1
Line Cord - Israel <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41R3236	1
Line Cord - South Africa <ul style="list-style-type: none"> • MT 4165: A1A A2A • MT 7493: A6A C8A C9A E7M E8M • MT 7511: F4G F5G F6G • MT 7521: J2A J3A J4A A2M • MT 7179, 7182, 7490_SB 	41R3220	1
Line Cord - India <ul style="list-style-type: none"> • MT 4165: • MT 7493: E1Q E2Q E3Q E4Q • MT 7511: • MT 7521: A1Q J4Q • MT 7179, 7182, 7490_SB 	41R3341	1
Line Cord - Thailand <ul style="list-style-type: none"> • MT 4165: A1A A1T A2A A2T • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	43N9029	1

Power Cords --secondary	FRU #	CRU
Line Cord - US, Taiwan <ul style="list-style-type: none"> • MT 4165: A1A A1T A2A A2T • MT 7493: A6A A6T C8A C8T C9A C9T D1T D2T D3T • MT 7511: • MT 7521: J2A J2T J3A J3T J4A J4T H7V H8V H9V J1V • MT 7179, 7182, 7490_SB 	41R3185	1
Line Cord - China <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: 	41R3257	1

Power Cords --secondary	FRU #	CRU
<ul style="list-style-type: none"> • MT 7521: • MT 7179, 7182, 7490_SB 		
Line Cord - Japan <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41R3249	1
Line Cord - Brazil <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41R3271	1
Line Cord - LA (High Voltage) Argentina, Paraguay, Uruguay <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41R3177	1
Line Cord - ANZ <ul style="list-style-type: none"> • MT 4165: • MT 7493: E7M E8M • MT 7511: • MT 7521: A2M • MT 7179, 7182, 7490_SB 	41R3197	1
Line Cord - Korea <ul style="list-style-type: none"> • MT 4165: • MT 7493: E5K E6K • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41R3261	1
Line Cord - Hong Kong, Singapore, Malaysia, Brunei, UK, Ireland <ul style="list-style-type: none"> • MT 4165: A1A A2A • MT 7493: A4B A5B A6A A6B A7B A8B A9B C6B C7B • MT 7511: F4G F5G F6G • MT 7521: H1B H2B H3B J2A H4G H5G H6G • MT 7179, 7182, 7490_SB 	41R3225	1

Power Cords --secondary	FRU #	CRU
Line Cord - Taiwan <ul style="list-style-type: none"> • MT 4165: • MT 7493: B1V B2V B3V B4V B5V B6V B7V B8V B9V C1V C2V C3V C4V C5V • MT 7511: • MT 7521: H7V H8V H9V J1V • MT 7179, 7182, 7490_SB 	41R3279	1
Line Cord - Italy <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41R3233	1
Line Cord - Indonesia, Laos, Cambodia, Vietnam, Austria, Belgium, Croatia, Czechoslovakia, Finland, France, Germany, Hungary, Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	41R3209	1
Line Cord - Denmark <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41R3213	1
Line Cord - Switzerland <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41R3229	1
Line Cord - Israel <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	41R3237	1

Power Cords --secondary	FRU #	CRU
Line Cord - South Africa <ul style="list-style-type: none"> • MT 4165: A1A A2A • MT 7493: A6A C8A C9A E7M E8M • MT 7511: F4G F5G F6G • MT 7521: J2A J3A J4A A2M • MT 7179, 7182, 7490_SB 	41R3221	1
Line Cord - India <ul style="list-style-type: none"> • MT 4165: • MT 7493: E1Q E2Q E3Q E4Q • MT 7511: • MT 7521: A1Q J4Q • MT 7179, 7182, 7490_SB 	41R3175	1
Line Cord - Thailand <ul style="list-style-type: none"> • MT 4165: A1A A1T A2A A2T • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	43N9030	1

Recovery discs

Windows 7 Starter Recovery CD

Windows 7 Starter	FRU #	CRU
Arabic <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1433	1
Brazilian Portuguese <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1434	1

Windows 7 Starter	FRU #	CRU
India English <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1435	1
English for Russia <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1488	1
Russian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1436	1
Spanish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1437	1
Turkish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1438	1
US English <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1439	1

Windows 7 Home Basic 32 Recovery CD

Windows 7 Home Basic 32	FRU #	CRU
Arabic <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1440	1
Brazilian Portuguese <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1441	1
India English <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1442	1
French <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1443	1
Portuguese <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1444	1
English for Russia <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1489	1

Windows 7 Home Basic 32	FRU #	CRU
Russian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1445	1
Spanish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1446	1
Serbian-Latin <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1447	1
Turkish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1448	1
US English <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1449	1

Windows 7 Home Premium 32 Recovery CD

Windows 7 Home Premium 32	FRU #	CRU
Chinese Traditional <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1450	1
India English <ul style="list-style-type: none"> • MT 4165: 	03T1451	1

Windows 7 Home Premium 32	FRU #	CRU
<ul style="list-style-type: none"> • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 		
Hong Kong <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1452	1
Korean <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1453	1
Spanish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1454	1
US English <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1455	1

Windows 7 Home Premium 64 Recovery CD

Windows 7 Home Premium 64	FRU #	CRU
India English <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1456	1
US English <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: 	03T1457	1

Windows 7 Home Premium 64	FRU #	CRU
<ul style="list-style-type: none"> MT 7521: MT 7179, 7182, 7490_SB 		

Windows 7 Professional 32 Recovery CD

Windows 7 Professional 32	FRU #	CRU
Chinese-Simplified <ul style="list-style-type: none"> MT 4165: MT 7493: MT 7511: MT 7521: MT 7179, 7182, 7490_SB 	03T1458	1
Chinese Traditional <ul style="list-style-type: none"> MT 4165: MT 7493: MT 7511: MT 7521: MT 7179, 7182, 7490_SB 	03T1459	1
India English <ul style="list-style-type: none"> MT 4165: MT 7493: MT 7511: F4G F5G F6G MT 7521: H4G H5G H6G MT 7179, 7182, 7490_SB 	03T1460	1
Hong Kong <ul style="list-style-type: none"> MT 4165: MT 7493: A5B A6B MT 7511: MT 7521: H3B MT 7179, 7182, 7490_SB 	03T1461	1
Korean <ul style="list-style-type: none"> MT 4165: MT 7493: E5K E6K MT 7511: MT 7521: MT 7179, 7182, 7490_SB 	03T1462	1
Russian English <ul style="list-style-type: none"> MT 4165: MT 7493: MT 7511: F4G F5G F6G MT 7521: H4G H5G H6G MT 7179, 7182, 7490_SB 	03T1490	1

Windows 7 Professional 32	FRU #	CRU
Russian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	03T1463	1
Spanish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: F4G F5G F6G • MT 7521: H4G H5G H6G • MT 7179, 7182, 7490_SB 	03T1464	1
US English <ul style="list-style-type: none"> • MT 4165: A1A • MT 7493: A6A C9A E1Q E2Q E3Q E4Q • MT 7511: F4G F5G F6G • MT 7521: J2A J3A J4A H4G H5G H6G A1Q J4Q A2M • MT 7179, 7182, 7490_SB 	03T1465	1

Windows 7 Professional 64 Recovery CD

Windows 7 Professional 64	FRU #	CRU
Arabic <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1466	1
Chinese Traditional <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1468	1
Czech <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1469	1

Windows 7 Professional 64	FRU #	CRU
India English <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1470	1
French <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1471	1
Greek <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1472	1
Hong Kong <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1473	1
Hungary <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1474	1
Korean <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1475	1

Windows 7 Professional 64	FRU #	CRU
Polish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1476	1
Portuguese <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1477	1
Romanian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1478	1
Slovakian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1479	1
Sebian-Latin <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1480	1
Turkish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1481	1

Windows 7 Professional 64	FRU #	CRU
US English <ul style="list-style-type: none"> • MT 4165: • MT 7493: E7M E8M • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1482	1
C&L Croatian (EN/SL/CR) <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1483	1

Windows Vista Business 32 Recovery CD

Note: The Windows Vista recovery DVDs are available only for models with a valid Microsoft Windows Vista certificate of authenticity (COA) affixed to the system. Due to a Microsoft licensing limitation, if a model came with Windows Vista Business or Windows Vista Ultimate preinstalled from the factory, but has a Windows 7 COA affixed to the system, that model is eligible only for recovery DVDs that match the operating system specified on the COA.

Windows Vista Business 32	FRU #	CRU
English <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1431	1
India English <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1432	1

Windows XP Professional 32 Recovery CD

Note: The Windows XP Professional recovery DVDs are available only for models with a valid Microsoft Windows XP Professional certificate of authenticity (COA) affixed to the system. Due to a Microsoft licensing limitation, if a model came with Windows XP Professional preinstalled from the factory, but has either a Windows 7 or Windows Vista COA affixed to the system, that model is eligible only for recovery DVDs that match the operating system specified on the COA.

Windows XP Professional 32	FRU #	CRU
English <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T0213	1
Hong Kong <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T0690	1
Brazil Portuguese <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T0703	1
Chinese-Traditional <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T0704	1
Czech <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T0705	1
Polish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T0706	1

Windows XP Professional 32	FRU #	CRU
Russian <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T0707	1
Spanish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T0708	1
Turkish <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T0709	1

Windows 7 Ultimate 32 Recovery CD

Windows 7 Ultimate 32	FRU #	CRU
English <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1484	1
India English <ul style="list-style-type: none"> • MT 4165: • MT 7493: • MT 7511: • MT 7521: • MT 7179, 7182, 7490_SB 	03T1485	1

Windows 7 Ultimate 64 Recovery CD

Windows 7 Ultimate 64	FRU #	CRU
English <ul style="list-style-type: none">• MT 4165:• MT 7493:• MT 7511:• MT 7521:• MT 7179, 7182, 7490_SB	03T1486	1
India English <ul style="list-style-type: none">• MT 4165:• MT 7493:• MT 7511:• MT 7521:• MT 7179, 7182, 7490_SB	03T1487	1

Chapter 11. Additional service information

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

Security features

Security features in this section include the following:

- Passwords
- Vital Product Data

Hardware-controlled passwords

Use the Setup Utility program to set the hardware controlled passwords. For more information about passwords, see “Using passwords” on page 39.

Operating system password

Note: This section applies only to computer models that have an operating system preinstalled from Lenovo.

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 correct 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 “Updating (flashing) the BIOS from a disc” on page 261.

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 program.
 - See **BIOS Revision Level** on the Main setup screen.
- 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 “Updating (flashing) the BIOS from a disc” on page 261.

Updating (flashing) the BIOS from a disc

This section provides instructions on how to update (flash) the BIOS from a disc.

Note: You can download a self-starting bootable disc image (known as an ISO image) with the system program updates to create a system-program-update disc. Go to:
<http://www.lenovo.com/support>

To update (flash) the BIOS from a disc, do the following:

1. Turn off your computer.
2. Repeatedly press and release the F12 key when turning on the computer. When the **Startup Device Menu** opens, release the F12 key.
3. On the **Startup Device Menu**, select the desired optical drive as the startup device. Then, insert the disc into this optical drive and press Enter. The update begins.
4. When prompted to change the serial number, it is suggested that you do not make this change by pressing N. However, if you do want to change the serial number, press Y, then type in the serial number and press Enter.
5. When prompted to change the machine type and model, it is suggested that you do not make this change by pressing N. However, if you do want to change the machine type and model, press Y, then type in the machine type and model and press Enter.
6. Follow the instructions on the screen to complete the update. After the update is completed, remove the disc from the optical drive.

Updating (flashing) the BIOS from your operating system

Note: Because Lenovo makes constant improvements to its Web sites, the Web page contents are subject to change without notice, including the contents referenced in the following procedure.

To update (flash) the BIOS from your operating system, do the following:

1. Go to <http://www.lenovo.com/support>.
2. Do the following to locate the downloadable files for your machine type:
 - a. In the **Enter a product number** field, type your machine type and click **Go**.
 - b. Click **Downloads and drivers**.
 - c. Select **BIOS** from the **Refine results** drop-down list box to easily locate all the BIOS related links.
 - d. Click the BIOS update link.
3. Click the TXT file that contains the instructions for updating (flashing) the BIOS from your operating system.
4. Print these instructions. This is very important because these instructions will not be displayed on the screen after the download begins.
5. Follow the printed instructions to download, extract, and install the update.

Recovering from a POST and BIOS update failure

If the power to your computer is interrupted while the POST and BIOS is being updated, your computer might not restart correctly. If this happens, perform the following procedure, which is commonly called Boot-block Recovery.

1. Remove all media from the drives and turn off all attached devices and the computer. Then, disconnect all power cords from electrical outlets and disconnect all cables that are connected to the computer.
2. Remove the computer cover. See “Removing the computer cover” on page 72 for 4165, 7179, 7182, 7490, 7493, 7511, and 7521 and “Removing the computer cover” on page 107 for 7181, 7189, 7239, 7492, 7507, 7513, and 7529.
3. Locate the Clear CMOS /Recovery jumper on the system board. See “Locating parts on the system board” on page 70 for 4165, 7179, 7182, 7490, 7493, 7511, and 7521 and “Locating parts on the system board” on page 104 for 7181, 7189, 7239, 7492, 7507, 7513, and 7529.
4. Remove any parts and disconnect any cables that might prevent your access to the Clear CMOS /Recovery jumper.

5. Move the jumper from the standard position (pin 1 and pin 2) to the maintenance position (pin 2 and pin 3).
6. Reinstall any parts and reconnect any cables that have been removed or disconnected.
7. Reinstall the computer cover and reconnect the power cords for the computer and monitor. See “Completing the parts replacement” on page 98 for 4165, 7179, 7182, 7490, 7493, 7511, and 7521 and “Completing the parts replacement” on page 138 for 7181, 7189, 7239, 7492, 7507, 7513, and 7529.
8. Turn on the computer and then insert the POST and BIOS update (flash update) disc into the optical drive. The recovery session begins. The recovery session will take two to three minutes. During this time, you will hear a series of beeps.
9. After the recovery session is completed, there will be no video, the series of beeps will end, and the system will automatically turn off.
10. Repeat step 1 through step 4.
11. Move the jumper back to the standard position (pin 1 and pin 2).
12. Reinstall any parts and reconnect any cables that have been removed or disconnected.
13. Reinstall the computer cover and reconnect power cords and all other external cables. See “Completing the parts replacement” on page 98 for 4165, 7179, 7182, 7490, 7493, 7511, and 7521 and “Completing the parts replacement” on page 138 for 7181, 7189, 7239, 7492, 7507, 7513, and 7529.
14. Turn on the computer and remove the disc from the optical drive.

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.

Advanced 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.

- **RTC resume:** 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).

Chapter 12. Getting information, help, and service

This chapter provides information about help, service, and technical assistance for Lenovo products.

This chapter contains the following topics:

- “Information resources” on page 29
- “Help and service” on page 266

Information resources

You can use the information in this section to access useful resources relating to your computing needs.

Lenovo ThinkVantage Tools

The Lenovo ThinkVantage Tools program helps you work more easily and securely by providing easy access to various technologies, such as:

- Lenovo ThinkVantage Toolbox
- Password Manager
- Power Manager
- Product Recovery
- Rescue and Recovery
- System Update

To access the Lenovo ThinkVantage Tools program, click **Start → All Programs → Lenovo ThinkVantage Tools**.

Lenovo Welcome

The Lenovo Welcome program introduces some innovative built-in features of Lenovo to you and guides you through some important setup tasks to help you make the most of your computer.

Access Help

The Access Help information system provides information about getting started, doing basic tasks, customizing settings for your personal preference, protecting data, expanding and upgrading, and troubleshooting.

To open the Access Help information system on the Windows 7 operating system, click **Start → Help and Support → Lenovo Access Help**.

After you have opened the Access Help information system, use the left panel to make a selection from the **Contents** tab or the **Index** tab, or use the **Search** tab to find a particular word or phrase.

Safety and warranty

The *ThinkCentre Safety and Warranty Guide* that came with your computer contains information about safety, warranty, service and support phone numbers, CRUs, and other notices and information resources. You can also get the latest service and support telephone numbers and a PDF version of the *ThinkCentre Safety and Warranty Guide* from the Lenovo Support Web site at:
<http://www.lenovo.com/support>

Before using the information in this manual and the product it supports, be sure to read and understand the *ThinkCentre Safety and Warranty Guide* and Appendix A “Notices” on page 269.

Lenovo Web site (<http://www.lenovo.com>)

The Lenovo Web site provides up-to-date information and services to help you buy, upgrade, and maintain your computer. You can also do the following:

- Shop for desktop and notebook computers, monitors, projectors, upgrades and accessories for your computer, and special offers.
- Purchase additional services, such as support for hardware, operating systems, software programs, network setup and configuration, and custom installations.
- Purchase upgrades and extended hardware repair services.
- Download the latest device drivers and software updates for your computer model.
- Access the online manuals for your products.
- Access the Lenovo Limited Warranty.
- Access troubleshooting and support information for your computer model and other supported products.
- Find the service and support phone numbers for your country or region.
- Find a Service Provider located near you.

Help and service

This section provides information about obtaining help and service.

Using the documentation and diagnostic programs

If you experience problems with your computer, see Chapter 5 “Diagnostic programs” on page 35. For information about additional resources to help you troubleshoot your computer problems, see “Information resources” on page 29.

If you suspect a software problem, see the documentation that came with the operating system or software program, including readme files and online help.

Most computers come with a set of diagnostic programs that you can use to help you identify hardware problems. For instructions on how to use the diagnostic programs on your computer, see Chapter 5 “Diagnostic programs” on page 35.

You can get the latest technical information and download device drivers and updates from the Lenovo Support Web site at:
<http://www.lenovo.com/support>

Calling for service

During the warranty period, you can get help and information from the Lenovo Customer Support Center by telephone.

The following services are available during the warranty period:

- **Problem determination** - Trained service personnel are available to assist you with determining a hardware problem and deciding what action is necessary to solve the problem.
- **Hardware repair** - If the problem is caused by hardware under warranty, trained service personnel are available to provide the applicable level of service.

- **Engineering Change management** - There might be changes that are required after a product has been sold. Lenovo or your reseller will make selected Engineering Changes (ECs) that apply to your hardware available.

The following items are not covered by the warranty:

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

Refer to the safety and warranty information that is provided with your computer for a complete explanation of warranty terms. You must retain your proof of purchase to obtain warranty service.

For a list of the Lenovo Support phone numbers for your country or region, go to <http://www.lenovo.com/support> and click **Support phone list** or refer to the *ThinkCentre Safety and Warranty Guide* that is provided with your computer.

Note: The service and support phone numbers are subject to change without notice. If the number for your country or region is not provided, contact your Lenovo reseller or Lenovo marketing representative.

If possible, be at your computer when you call and have the following information available:

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

Using other services

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

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

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

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

Purchasing additional services

During and after the warranty period, you can purchase additional services, such as support for hardware, operating systems, and application programs; network setup and configuration; upgraded or extended

hardware repair services; and custom installations. Service availability and service name might vary by country or region. For more information about these services, go to the Lenovo Web site at:
<http://www.lenovo.com>

Appendix A. Notices

Lenovo may not offer the products, services, or features discussed in this document in all countries. Consult your local Lenovo representative for information on the products and services currently available in your area. Any reference to a Lenovo product, program, or service is not intended to state or imply that only that Lenovo product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any Lenovo intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any other product, program, or service.

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Any performance data contained herein was determined in a controlled environment. Therefore, the result obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

Television output notice

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

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