

**Types** 7387, 7388, 7389, 7390, 7391, 7392,  
7393, 7394, 7395, 7396, 7397, 7398



***lenovo***

# Lenovo 3000 J Series

**Note:** Before using this information and the product it supports, be sure to read the information under “Notices,” on page 195.

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## Chapter 1. About this manual

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

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

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

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

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

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## Important Safety Information

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

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.

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## Important information about replacing RoHS compliant FRUs

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

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

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

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

Related Web URLs are:

- Lenovo information for Suppliers website:  
<http://www-03.ibm.com/procurement/proweb.nsf/ContentDocsByTitle/United+States~Information+for+suppliers>
- RoHS Directive:  
[http://europa.eu.int/eur-lex/pri/en/oj/dat/2003/l\\_037/l\\_03720030213en00190023.pdf](http://europa.eu.int/eur-lex/pri/en/oj/dat/2003/l_037/l_03720030213en00190023.pdf)
- California Senate Bills 20, 50:  
<http://www.ciwmb.ca.gov/HHW/Events/AnnualConf/2004/presentation/MPaparian.pdf>



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## Chapter 2. Safety information

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

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### General safety

Follow these rules to ensure general safety:

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

---

### Electrical safety



**CAUTION:**

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

Observe the following rules when working on electrical equipment.

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

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

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

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

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

- Always look carefully for possible hazards in your work area. Examples of these hazards are moist floors, nongrounded power extension cables, power surges, and missing safety grounds.
- Do not touch live electrical circuits with the reflective surface of a plastic dental mirror. The surface is conductive; such touching can cause personal injury and machine damage.
- Do not service the following parts with the power on when they are removed from their normal operating places in a machine:
  - Power supply units
  - Pumps
  - Blowers and fans
  - Motor generators
 and 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.

---

## Safety inspection guide

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

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

Consider these conditions and the safety hazards they present:

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

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

Checklist:

1. Check exterior covers for damage (loose, broken, or sharp edges).
2. Power-off the computer. Disconnect the power cord.
3. Check the power cord for:
  - a. A third-wire ground connector in good condition. Use a meter to measure third-wire ground continuity for 0.1 ohm or less between the external ground pin and frame ground.
  - b. The power cord should be the appropriate type as specified in the parts listings.
  - c. Insulation must not be frayed or worn.
4. Remove the cover.

5. Check for any obvious alterations. Use good judgment as to the safety of any alterations.
6. Check inside the unit for any obvious unsafe conditions, such as metal filings, contamination, water or other liquids, or signs of fire or smoke damage.
7. Check for worn, frayed, or pinched cables.
8. Check that the power-supply cover fasteners (screws or rivets) have not been removed or tampered with.

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## Handling electrostatic discharge-sensitive devices

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

### Notes:

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

When handling ESD-sensitive parts:

- Keep the parts in protective packages until they are inserted into the product.
- Avoid contact with other people.
- Wear a grounded wrist strap against your skin to eliminate static on your body.
- Prevent the part from touching your clothing. Most clothing is insulative and retains a charge even when you are wearing a wrist strap.
- Use the black side of a grounded work mat to provide a static-free work surface. The mat is especially useful when handling ESD-sensitive devices.
- Select a grounding system, such as those listed below, to provide protection that meets the specific service requirement.

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

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

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## Grounding requirements

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

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## Safety notices (multi-lingual translations)

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

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



### DANGER

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

**To avoid a shock hazard:**

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

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



**CAUTION:**

When replacing the lithium battery, use only Part Number 33F8354 or an equivalent type battery recommended by the manufacturer. If your system has a module containing a lithium battery, replace it only with the same module type made by the same manufacturer. The battery contains lithium and can explode if not properly used, handled, or disposed of.

*Do not:*

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

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



**CAUTION:**

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

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



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

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



≥18 kg (37 lbs)



≥32 kg (70.5 lbs)



≥55 kg (121.2 lbs)

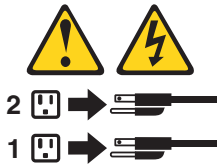
**CAUTION:**

Use safe practices when lifting.



**CAUTION:**

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





## خطر

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

لتفادي مخاطر الصدمات الكهربائية:

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

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

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

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

يجب فصل أسلاك الكهرباء وأنظمة الاتصالات وشبكات الاتصال وأجهزة المودم الملحقة قبل فتح أغطية الجهاز، ما لم يتم طلب خلاف ذلك في التعليمات الخاصة بالتركيب والتوصيف.

قم بتوصيل وفصل الأسلاك كما هو موضح في الجدول التالي وذلك عند القيام بعمليات التركيب أو النقل أو فتح أغطية هذا المنتج أو الأجهزة الملحقة.

### للتوصيل:

قم بإيقاف كل شيء.

أولاً، قم بتوصيل كل الأسلاك بالأجهزة.

قم بتوصيل أسلاك الإشارة في لموصلات.

قم بتوصيل أسلاك الكهرباء في المخارج.

قم بتشغيل الجهاز.

### للفصل:

قم بإيقاف كل شيء.

أولاً، قم بفصل كل أسلاك الكهرباء من المخرج.

قم بفصل أسلاك الإشارة من الموصلات.

قم بفصل كل الأسلاك من الأجهزة.





تنبيه :

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

لا تقم بـ:

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

تخلص من البطارية طبقاً للقانون أو النظام المحلي .



تنبيه :

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

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



خطر

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

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



≥18 kg (37 lbs)



≥32 kg (70.5 lbs)

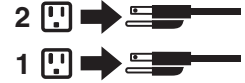


≥55 kg (121.2 lbs)

تنبيه :  
يجب استخدام ممارسات أمانة عند الرفع



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





## PERIGO

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

Para evitar risco de choque elétrico:

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

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



#### **CUIDADO:**

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

Não:

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

Descarte a bateria conforme requerido pelas leis ou regulamentos locais.



#### **PRECAUCIÓN:**

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

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

#### **PERIGO**

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

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



≥18 kg (37 lbs)



≥32 kg (70.5 lbs)



≥55 kg (121.2 lbs)

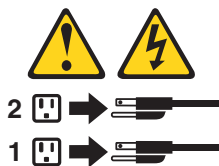
#### **CUIDADO:**

Utilize procedimentos de segurança para levantar equipamentos.



#### **CUIDADO:**

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





危险

电源、电话和通信电缆中的电流是危险的。

为避免电击危险：

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

要连接	要断开连接
<div>1. 切断所有电源。</div> <div>2. 首先将所有电缆连接到设备。</div> <div>3. 将信号电缆连接到接口。</div> <div>4. 将电源线连接到插座。</div> <div>5. 开启设备。</div>	<div>1. 切断所有电源。</div> <div>2. 首先从插座上拔出电源线。</div> <div>3. 从接口上拔出信号电缆。</div> <div>4. 从设备上拔出所有电缆。</div>



警告：

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

切勿：

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

请按照当地法令或条例的要求处理电池。



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

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



危险

某些激光产品包含嵌入式 3A 类或 3B 类激光二极管。请注意以下声明：

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



≥18 千克（37 磅）



≥32 千克（70.5 磅）



≥55 千克（121.2 磅）

警告：  
抬起时请采取安全措施。



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





#### 危險

電源、電話及通訊纜線上的電流都具有危險性。

若要避免觸電危險：

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

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



#### 警告：

更換鋰電池時，請僅使用產品編號 **33F8354** 或製造商所建議的同類型電池。

如果您的系統中含有鋰電池模組，請僅使用同一家製造商所生產的相同模組進行更換。

如果未以正確方式使用、處理或棄置含鋰的電池，會有爆炸的危險。

請勿：

- 沾溼或浸入水中
- 置於 **100C (212F)** 以上的高溫環境
- 修理或拆開

請按照各地區有關廢棄電池的法令和規定處理舊電池。

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#### 警告：

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



#### 危險

部分雷射產品含有內嵌式 **Class 3A** 或 **Class 3B** 雷射二極體。請注意下列事項：

在開啟光碟機時，會發生雷射輻射。請勿直視光束或用光學儀器直接檢視，並避免直接暴露在光束中。





≥ 18 公斤 (37 磅)



≥ 32 公斤 (70.5 磅)



≥ 55 公斤 (121.2 磅)

警告：  
搬運時請注意安全。



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





## DANGER

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

Pour éviter tout risque de choc électrique :

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

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



#### ATTENTION:

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

Ne pas :

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

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



#### ATTENTION:

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

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



#### DANGER

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

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



≥18 kg (37 lbs)



≥32 kg (70.5 lbs)



≥55 kg (121.2 lbs)

**ATTENTION:**

Soulevez la machine avec précaution.



**ATTENTION:**

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





## VORSICHT

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

### Aus Sicherheitsgründen:

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

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



#### **CAUTION:**

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

Die Batterie nicht:

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

Die örtlichen Bestimmungen für die Entsorgung von Sondermüll beachten.



#### **ACHTUNG:**

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

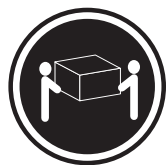
- Die Abdeckungen nicht entfernen. Durch Entfernen der Abdeckungen des Lasergeräts können gefährliche Laserstrahlungen freigesetzt werden. Das Gerät enthält keine zu wartenden Teile.
- Werden Steuerelemente, Einstellungen oder Durchführungen von Prozeduren anders als hier angegeben verwendet, kann gefährliche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



#### **VORSICHT**

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

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



≥18 kg



≥32 kg



≥55 kg

**ACHTUNG:**

Arbeitsschutzrichtlinien beim Anheben der Maschine beachten.



**ACHTUNG:**

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





#### סכנה

זרם חשמלי המועבר בכבלי חשמל, טלפון ותקשורת הוא מסוכן.

כדי להימנע מסכנת התחשמלות:

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

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





זהירות:

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

לעולם:

- אל תטבלו במים

- אל תחממו לטמפרטורה הגבוהה מ- $100^{\circ}\text{C}$  ( $212^{\circ}\text{F}$ )

- אל תתקנו או תפרקו

השליכו את הסוללה כנדרש לפי התקנות והחוקים המקומיים.



זהירות:

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

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

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



סכנה

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

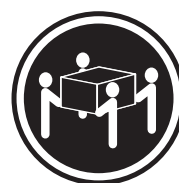
כאשר הוא פתוח, המוצר פולט קרינת לייזר. אל תביטו ישירות בקרן, אל תביטו ישירות בעזרת ציוד אופטי, והימנעו מחשיפה לקרן.



$\leq 18$  ק"ג (37 ליב')



$\leq 32$  ק"ג (70.5 ליב')

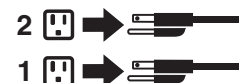


$\leq 55$  ק"ג (121.2 ליב')

זהירות:  
השתמשו בהליכים  
הנאותים בעת  
הרמת הצידוד.



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





## PERICOLO

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

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

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

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



#### ATTENZIONE:

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

*Non:*

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

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



#### ATTENZIONE:

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

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



#### PERICOLO

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

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



≥18 kg



≥32 kg



≥55 kg

#### ATTENZIONE:

Prestare attenzione nel sollevare l'apparecchiatura.



#### ATTENZIONE:

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



## 위험

전원, 전화, 통신 케이블의 전류는 위험합니다.

감전의 위험을 피하려면 다음과 같이 하십시오.

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

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



## 주의:

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

사고를 방지하려면 다음 사항을 준수하십시오.

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

배터리를 폐기할 때는 법령 또는 회사의 안전 수칙에 따라 폐기하십시오.



**주의:**

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

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



**위험**

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

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



≥ 18 kg (37 lbs)



≥ 32 kg (70.5 lbs)



≥ 55 kg (121.2 lbs)

**주의:**

제품을 들어 올릴 때  
안전 규제를 따르십시오.



**주의:**

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



2



1





## PELIGRO

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

Para evitar el riesgo de descarga eléctrica:

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

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





#### PRECAUCIÓN:

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

*No debe:*

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

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



#### PRECAUCIÓN:

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

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



#### PELIGRO

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

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



≥18 kg



≥32 kg



≥55 kg

#### PRECAUCIÓN:

Adopte procedimientos seguros al levantar el equipo.



#### PRECAUCIÓN:

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



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## Chapter 3. General information

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

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### The Lenovo Care program

Use the Lenovo Care program for general information about the use, operation, and maintenance of the computer. The Lenovo Care program also contains information to help solve problems and get repair service or other technical assistance. The Lenovo Care program is preinstalled on most Lenovo 3000 J Series products.

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### Additional information resources

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

You can find the following information:

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

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

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## Specifications

This section lists the physical specifications for the computer.

### Machine types 7387, 7388, 7389, 7393, 7394, and 7395

#### Dimensions

Width: 180 mm (7.09 in.)

Height: 392 mm (15.43 in.)

Depth: 445 mm (17.52 in.)

#### Weight

Minimum configuration as shipped: 9.1kg (20.06 lbs)

Maximum configuration: 10.2 kg (22.5 lbs)

#### Environment

Air temperature:

System on: 10° to 35°C (50° to 95°F)

System off: 10° to 60°C (50° to 140°F)

Maximum altitude: 914 m (3000 ft)

**Note:** The maximum altitude, 914 m (3000 ft), is the maximum altitude at which the specified air temperatures apply. At higher altitudes, the maximum air temperatures are lower than those specified.

Humidity:

System on: 10% to 80%

System off: 10% to 90%

#### Electrical input

Input voltage:

Low range:

Minimum: 100 V ac

Maximum: 127 V ac

Input frequency: 50-60 Hz

Voltage switch setting: 115 V ac

High range:

Minimum: 200 V ac

Maximum: 240V ac

Input frequency: 50-60 Hz

Voltage switch setting: 230 V ac

Input kilovolt-amperes (kVA) (approximate):

Minimum configuration as shipped: 0.158 kVA

Maximum configuration: 0.213 kVA

## Machine types 7390, 7391, 7392, 7396, 7397, and 7398

This section lists the physical specifications for the computer.

### Dimensions

Width: 331 mm (13.0 in.)

Height: 108 mm (4.3 in.)

Depth: 405 mm (15.9 in.)

### Weight

Minimum configuration as shipped: 8.2 kg (18.0 lbs)

Maximum configuration: 8.3 kg (18.2 lbs)

### Environment

Air temperature:

Operating at 0 - 3000 ft (914.4 m): 10° to 35°C (50° to 95°F)

Operating at 3000 ft - 7000 ft (2134 m): 10° to 32°C (50° to 89.6°F)

Non-operating: 10° to 43°C (50° to 110°F)

Humidity:

Operating: 10% to 80%

Non-operating: 10% to 90%

Transit: 8% to 90%

Maximum altitude: 7000 ft (2133.6 m)

### Electrical input

Input voltage:

Low range:

Minimum: 100 V ac

Maximum: 127 V ac

Input frequency: 50/60 Hz

Voltage switch setting: 115 V ac

High range:

Minimum: 200 V ac

Maximum: 240V ac

Input frequency: 50/60 Hz

Voltage switch setting: 230 V ac

Input kilovolt-amperes (kVA) (approximate):

Minimum configuration as shipped: 0.09 kVA

Maximum configuration: 0.23 kVA



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## Chapter 4. General Checkout

### Attention

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

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

Before replacing any FRUs, ensure that the latest level of BIOS is installed on the system. A down-level BIOS might cause false errors and unnecessary replacement of the system board. For more information on how to determine and obtain the latest level BIOS, see “BIOS levels” on page 191.

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

1. Power-off the computer and all external devices.
2. Check all cables and power cords.
3. Set all display controls to the middle position.
4. Power-on all external devices.
5. Power-on the computer.
  - Look for displayed error codes
  - Listen for beep codes
  - Look for readable instructions or a main menu on the display.If you **did not** receive the correct response, proceed to step 6.  
If you **do** receive the correct response, proceed to step 7.
6. Look at the following conditions and follow the instructions:
  - If you hear beep codes during POST, go to “Beep symptoms” on page 77.
  - If the computer displays a POST error, go to “POST error codes” on page 78.
  - If the computer hangs and no error is displayed, continue at step 7.
7. Run the Diagnostic programs. See Chapter 5, “Diagnostics,” on page 43.
  - If you receive an error, replace the part that the diagnostic program calls out or go to “Diagnostic error codes” on page 56.
  - 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 upgrades
- Failure symptom
  - Do diagnostics indicate a failure?

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

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

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

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



---

## Chapter 5. Diagnostics

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

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

### Notes:

1. You can download the latest version of the PC-Doctor for Windows and PC-Doctor for DOS diagnostic programs from <http://www.lenovo.com/support/>. Type your machine type into the **Use Quick Path** field and click **Go** to find the downloadable files that are specific to the computer.
2. Log files are created when you run PC-Doctor for Windows and depending upon your machine type and model, PC-Doctor for DOS or PC-Doctor for Windows PE. Save and print the log files created by both diagnostic programs. The log file created by PC-Doctor for Windows is automatically saved in C:\PCDR\DETAILED.TXT.

---

### PC-Doctor for Windows

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

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

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

---

### PC-Doctor for DOS

Depending upon your machine type and model, you either have PC-Doctor for DOS or PC-Doctor for Windows PE on each Lenovo computer. The PC-Doctor for DOS diagnostic program is part of the Rescue and Recovery workspace and runs independently of the Windows operating system. Use PC-Doctor for DOS, if you are unable to start the Windows operating system or if PC-Doctor for Windows has not been successful in isolating a possible problem. You can run PC-Doctor for DOS from a diagnostic CD image or diagnostic diskettes that have been created. You can also run PC-Doctor for DOS from the Rescue and Recovery workspace.

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

## Creating a diagnostic CD image

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

If the computer does not have a CD burner or you do not have Internet access, see "Creating diagnostic diskettes."

## Creating diagnostic diskettes

To create diagnostic diskettes, download the PC-Doctor for DOS diagnostic program from <http://www.lenovo.com/support/> onto two blank, formatted diskettes.

If you do not have Internet access, create the diagnostic diskettes using the following procedure:

**Note:** You will need a diskette drive on the computer or a USB diskette drive to complete this procedure.

1. Shut down the operating system and turn off the computer.
2. If you are using a USB diskette drive, plug it into the computer.
3. Repeatedly press and release the F11 key as you turn on the computer.
4. When you hear beeps or see a logo screen, stop pressing the F11 key. The Rescue and Recovery workspace opens.

**Note:** For some models, press the Esc key to enter Rescue and Recovery.

5. From the Rescue and Recovery workspace, select **Create diagnostic disks**.
6. Follow the instructions on the screen.
7. When prompted, insert a blank, formatted diskette into the diskette drive and continue to follow the instructions on the screen.
8. When the operation is complete, remove the diskette and click **Quit**.
9. Insert another blank, formatted diskette into the diskette drive and continue to follow the instructions on the screen.
10. When the operation is complete, remove the diskette and click **Quit**.

## Running diagnostics from the CD or diskettes

1. If you are running diagnostics from diskettes using a USB diskette drive, plug in the USB drive.

**Note:** The optical drive or diskette drive must be selected in the startup sequence. See "Changing the startup device sequence" on page 53 for instructions on how to select the startup device.

2. Insert the CD or diskette.
3. Restart the computer.
4. When the diagnostics program opens, follow the instructions on the screen.

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

5. Select the diagnostic test you want to run. Press the F1 key for additional help.
6. Remove the CD or diskette when the program finishes.

## Running diagnostics from the Rescue and Recovery workspace

If you do not have a diagnostic CD image or diagnostic diskette, you can run the PC-Doctor for DOS diagnostic program from the Rescue and Recovery workspace. To run diagnostics from the Rescue and Recovery workspace, use the following procedure:

1. Shut down the operating system and turn off the computer.
2. Repeatedly press and release the F11 key as you turn on the computer.
3. When you hear beeps or see a logo screen, stop pressing the F11 key. The Rescue and Recovery workspace opens.

**Note:** For some models, press the Esc key to enter Rescue and Recovery.

4. From the Rescue and Recovery workspace, select **Diagnose hardware**.
5. Follow the prompts on the screen. The computer will reboot.
6. When the computer restarts, the diagnostic program opens automatically. Select the diagnostic test you want to run. Press the F1 key for additional help.

---

## PC-Doctor for Windows PE

Depending upon your machine type and model, you either have PC-Doctor for DOS or PC-Doctor for Windows PE on each Lenovo computer. The PC-Doctor for Windows PE diagnostic program is part of the Rescue and Recovery workspace. Use PC-Doctor for Windows PE, if you are unable to start the Windows operating system or if PC-Doctor for Windows has not been successful in isolating a possible problem.

## Running diagnostics from the Rescue and Recovery workspace

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

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

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

---

## Navigating through the diagnostics programs

Use the cursor movement keys to navigate within the menus.

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

---

## Running tests

There are four ways to run the diagnostic tests.

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

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

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

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

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

Test results (N/A, PASSED, FAILED, ABORTED) are displayed in the field beside the test description and in the test log. See “Viewing the test log” on page 49.

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
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- **Function Code:**

Represents the feature or function within the PC.

- **Failure Type:**

Represents the type of error encountered.

- **DeviceID:**

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

- **Date:**

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

- **ChkDigits:**

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

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

- **Text:**

Description of the error.

**Note:** See “Diagnostic error codes” on page 56 for error code listings.

## Fixed disk advanced test (FDAT)

PC-Doctor Fixed-Disk<sup>1</sup> Advanced Test module (FDAT) is a full-featured highly configurable fixed-disk test suite. The configurable capabilities of FDAT allow users to enable or disable specific tests, enable or disable testing features, control the test log detail, alter testing parameters, and so on. FDAT tests for and reports most commonly found errors on a fixed-disk drive and is able to test up to 128 SCSI and 4 IDE drives (up to 132 total drives).

Drive information is gathered through FDAT’s enumeration of available devices and user specific configuration parameters located in the FDAT.INI. FDAT uses information supplied by these features to indicate specifically what devices are available for test, what tests are available for the device, device properties, and so on. To change testing parameters, you modify the FDAT.INI file in PC Doctor for DOS.

FDAT consists of the following subtests and features.

### Fixed-Disk Tests:

- *Seek Tests:* - checks the physical operation of the drive head.
  - Linear Seek
  - Random Seek
  - Min-Max Seek
  - Butterfly Seek
- *Verify Tests:* - checks the integrity of the data present on the media.
  - Linear Verify
  - Random Verify
- *Surface Scan Tests:* - checks the drive media for defects.
  - Surface Scan (Linear)
  - Surface Scan (Aggressive) - this is disabled for normal customer use.
  - Surface Scan (Random)
- Self-monitoring, Analysis and Reporting Technology (SMART) - checks the SMART functionality for drives that support SMART.
  - Start SMART Self-Test

### Other Test Features:

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1. The terms fixed disk and hard disk are used interchangeably.

- *Write-Splice Repair* - detects and corrects Error Correction Code errors during Verify tests.
- *Auto Spin Down* - a gradual spin down of the drive platters to avoid damaging the media.
- *Manufacturer Log* - an in-depth manufacturer supported log of errors on the drive.

### **Multitasking:**

To allow simultaneous testing of multiple hard drives whenever possible, the FDAT module is written as a set of multitasking functions. Each drive under test can run the same test or run a different test at the same time. Each subtest is written to handle a single test pass and all test variables are kept track of in a structure unique for each drive.

However, when testing IDE drives, FDAT will not perform simultaneous testing of IDE drives that are attached to the same IDE cable. For example, if FDAT is testing four IDE drives on a PC, it will perform simultaneous testing on drives 1 and 3 first (master drives), then perform tests on 2 and 4 (slave drives). FDAT will also perform simultaneous testing on a master and slave that are on separate IDE cables, but will not perform simultaneous tests on a master and slave on the same IDE cable. This generally increases the amount of time needed to test multiple IDE drives.

Another limitation of FDAT'S multitasking capability is the use of Ultra DMA (UDMA). Only one drive at a time can access the UDMA channel and the UDMA channel buffer must be kept high in order to maintain a speed advantage over other data transfer modes. In order to use the UDMA channel during testing, users must disable the multitasking feature.

### **Destructive versus non-destructive testing:**

Most of the tests found in FDAT are non-destructive. This means that PC-Doctor program will preserve any data that is present on the tested media prior to beginning any destructive operations (such as write operations). However, users can run certain tests in destructive mode (i.e. surface scan tests). Destructive tests will speed up testing because FDAT does not preserve the data on the media prior to the test beginning. Unlike non-destructive tests, any data present on the media prior to the test beginning is lost.

FDAT allows for enabling or disabling destructive tests, as well as specifying a range of destructive and non-destructive sectors on the tested drive. This is done through the configuration of the FDAT.INI. If destructive and non-destructive ranges somehow overlap, then the overlapped area is considered non-destructive. For example, if users specify both destructive and non-destructive ranges as the same, then the entire drive is tested as non-destructive.

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

The diagnostics program offers two hard drive format utilities:

- Quick Erase Hard Drive
- Full Erase Hard Drive

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

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

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

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

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

**Important:** Make sure that all data is backed up before using the Quick or Full Erase functions.

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

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

---

## Viewing the test log

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

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

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





---

## Chapter 6. Using the Setup Utility

The Setup Utility program is stored in the electrically erasable programmable read-only memory (EEPROM) of the computer. The Setup Utility program is used to view and change the configuration settings of the computer, regardless of which operating system you are using. However, the operating-system settings might override any similar settings in the Setup Utility program.

---

### Starting the Setup Utility program

To start the Setup Utility program, do the following:

1. If the computer is already on when you start this procedure, shut down the operating system and turn off the computer.
2. Press and hold the F1 key then turn on the computer. When you hear multiple beeps, release the F1 key.

**Notes:**

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

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

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### Viewing and changing settings

The Setup Utility program menu lists items that identify system configuration topics.

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

---

### Using passwords

Passwords might be set to provide security for the computer and data. There are two types of passwords: a user password and an administrator or supervisor password. A password of either type does not have to be set to use the computer. If either password is set, read the following sections.

#### User Password

The user password feature deters unauthorized persons from gaining access to the computer.

#### Setting, changing, and deleting a user password

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

**Note:** A password can be any combination of up to eight characters (A- Z, a-z, and 0-9).

1. Start the Setup Utility program (see “Starting the Setup Utility program” on page 51).
2. From the Setup Utility program menu, select **Set User Password** and press Enter.
3. The password dialog box will be displayed. Type the new password, and press Enter.
4. When prompted to confirm the password, type the password again. If you type the password in correctly, the password will be installed.

To delete a previously set user password, do the following:

**Note:** When prompted for a password, you can type either your user or administrator/supervisor password.

1. From the Setup Utility program menu, select **Set User Password** and press Enter. A message will display that indicates the password has been disabled.
2. Press any key to continue.

## Administrator or Supervisor Password

Setting an Administrator or Supervisor Password deters unauthorized persons from changing configuration settings.

After an Administrator or Supervisor Password is set, a password prompt is displayed each time you try to access the Setup Utility program. If the wrong password is typed, an error message is displayed. If the wrong password is typed three times, you must turn the computer off and start again.

If both the user and administrator/supervisor passwords are set, either password can be typed. However, to change any configuration settings, you must use the administrator/supervisor password.

### Setting, changing, and deleting an administrator/supervisor password

To set, change, or delete an administrator/supervisor password, do the following:

**Note:** A password can be any combination of up to eight characters (A- Z, a-z, and 0-9).

1. Start the Setup Utility program (see “Starting the Setup Utility program” on page 51).
2. From the Setup Utility program menu, select **Set Administrator Password** or **Set Supervisor Password** and press Enter.
3. The password dialog box will be displayed. Type the new password, and press Enter.
4. When prompted to confirm the password, type the password again. If you type the password correctly, the password will be installed.

To delete a previously set administrator/supervisor password, do the following:

**Note:** When prompted for a password, you must type your administrator/supervisor password.

1. From the Setup Utility program menu, select **Set Administrator Password** or **Set Supervisor Password** and press Enter. A message will display that indicates the password has been disabled.
2. Press any key to continue.

---

## Selecting a startup device

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

### Selecting a temporary startup device

Use this procedure to startup from any boot device.

**Note:** Not all CDs, hard disks, and diskettes are startable (bootable).

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

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

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

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

### Changing the startup device sequence

To view or change the primary or automatic power-on startup sequence, do the following:

1. Start the Setup Utility program (see “Starting the Setup Utility program” on page 51).
2. Select **Advanced BIOS features**.
3. Select the sequence of devices for the First Boot Device, the Second Boot Device, and the Third Boot Device.
4. Press Esc to return to the Setup Utility program menu.
5. Select **Save & Exit Setup**.

If you have changed these settings and want to return to the default settings, press (N) when the Save and Exit dialog box is displayed.

---

## Exiting from the Setup Utility program

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



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## Chapter 7. Symptom-to-FRU Index

The Symptom-to-FRU index lists error symptoms and possible causes. The most likely cause is listed first. Always begin with Chapter 4, “General Checkout,” on page 41. This index can also be used to help you decide which FRUs to have available when servicing a computer. If you are unable to correct the problem using this index, go to “Undetermined problems” on page 81.

**Notes:**

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

---

### 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"><li>1. Attempt to back-up the data on the failing hard disk drive.</li><li>2. Using the operating systems programs, format the hard disk drive.</li></ol>
The drive is defective.	Replace the hard disk drive.

---

### Power Supply Problems

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

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

## Diagnostic error codes

Refer to the following diagnostic error codes when using the diagnostic tests. See “Running tests” on page 46 for the specific type for information about the Diagnostic programs.

In the following index, X can represent any number.

Diagnostic Error Code	FRU/Action
<b>000-000-XXX</b> BIOS Test Passed	<b>No action</b>
<b>000-002-XXX</b> BIOS Timeout	1. <b>Flash the system. See “Flash update procedures” on page 191</b> 2. System board
<b>000-024-XXX</b> BIOS Addressing test failure	1. <b>Flash the system. See “Flash update procedures” on page 191</b> 2. System board
<b>000-025-XXX</b> BIOS Checksum Value error	1. <b>Flash the system. See “Flash update procedures” on page 191</b> 2. System board
<b>000-026-XXX</b> FLASH data error	1. <b>Flash the system. See “Flash update procedures” on page 191</b> 2. System board
<b>000-027-XXX</b> BIOS Configuration/Setup error	1. <b>Run Setup</b> 2. Flash the system. See “Flash update procedures” on page 191 3. System board
<b>000-034-XXX</b> BIOS Buffer Allocation failure	1. <b>Reboot the system</b> 2. Flash the system. See “Flash update procedures” on page 191 3. Run memory test 4. System board
<b>000-035-XXX</b> BIOS Reset Condition detected	1. <b>Flash the system. See “Flash update procedures” on page 191</b> 2. System board
<b>000-036-XXX</b> BIOS Register error	1. <b>Flash the system. See “Flash update procedures” on page 191</b> 2. System board
<b>000-038-XXX</b> BIOS Extension failure	1. <b>Flash the system. See “Flash update procedures” on page 191</b> 2. Adapter card 3. System board
<b>000-039-XXX</b> BIOS DMI data error	1. <b>Flash the system. See “Flash update procedures” on page 191</b> 2. System board
<b>000-195-XXX</b> BIOS Test aborted by user	<b>Information only</b> Re-start the test, if necessary

Diagnostic Error Code	FRU/Action
<b>000-196-XXX</b> BIOS test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. Press F3 to review the log file</li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>000-197-XXX</b> BIOS test warning	<ol style="list-style-type: none"> <li>1. Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>000-198-XXX</b> BIOS test aborted	<ol style="list-style-type: none"> <li>1. Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</li> <li>2. Flash the system and retest. See "Flash update procedures" on page 191</li> <li>3. Go to "Undetermined problems" on page 81</li> </ol>
<b>000-199-XXX</b> BIOS test failed, cause unknown	<ol style="list-style-type: none"> <li>1. Go to "Undetermined problems" on page 81</li> <li>2. Flash the system and re-test</li> <li>3. Replace component under function test</li> </ol>
<b>000-250-XXX</b> BIOS APM failure	<ol style="list-style-type: none"> <li>1. Flash the system. See "Flash update procedures" on page 191</li> <li>2. System board</li> </ol>
<b>000-270-XXX</b> BIOS ACPI failure	<ol style="list-style-type: none"> <li>1. Flash the system. See "Flash update procedures" on page 191</li> <li>2. System board</li> </ol>
<b>001-000-XXX</b> System Test Passed	No action
<b>001-00X-XXX</b> System Error	System board
<b>001-01X-XXX</b> System Error	System board
<b>001-024-XXX</b> System Addressing test failure	System board
<b>001-025-XXX</b> System Checksum Value error	<ol style="list-style-type: none"> <li>1. Flash the system. See "Flash update procedures" on page 191</li> <li>2. System board</li> </ol>
<b>001-026-XXX</b> System FLASH data error	<ol style="list-style-type: none"> <li>1. Flash the system. See "Flash update procedures" on page 191</li> <li>2. System board</li> </ol>
<b>001-027-XXX</b> System Configuration/Setup error	<ol style="list-style-type: none"> <li>1. Run Setup</li> <li>2. Flash the system. See "Flash update procedures" on page 191</li> <li>3. System board</li> </ol>

Diagnostic Error Code	FRU/Action
<b>001-032-XXX</b> System Device Controller failure	<b>System board</b>
<b>001-034-XXX</b> System Device Buffer Allocation failure	<ol style="list-style-type: none"> <li>1. <b>Reboot the system</b></li> <li>2. Flash the system. See "Flash update procedures" on page 191</li> <li>3. Run memory test</li> <li>4. System board</li> </ol>
<b>001-035-XXX</b> System Device Reset condition detected	<b>System board</b>
<b>001-036-XXX</b> System Register error	<b>System board</b>
<b>001-038-XXX</b> System Extension failure	<ol style="list-style-type: none"> <li>1. <b>Adapter card</b></li> <li>2. System board</li> </ol>
<b>001-039-XXX</b> System DMI data structure error	<ol style="list-style-type: none"> <li>1. <b>Flash the system. See "Flash update procedures" on page 191</b></li> <li>2. System board</li> </ol>
<b>001-040-XXX</b> System IRQ failure	<ol style="list-style-type: none"> <li>1. <b>Power-off/on system and re-test</b></li> <li>2. System board</li> </ol>
<b>001-041-XXX</b> System DMA failure	<ol style="list-style-type: none"> <li>1. <b>Power-off/on system and re-test</b></li> <li>2. System board</li> </ol>
<b>001-195-XXX</b> System Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>001-196-XXX</b> System test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>001-197-XXX</b> System test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>001-198-XXX</b> System test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Flash the system and retest. See "Flash update procedures" on page 191</li> <li>3. Go to "Undetermined problems" on page 81</li> </ol>
<b>001-199-XXX</b> System test failed, cause unknown	<ol style="list-style-type: none"> <li>1. Go to "Undetermined problems" on page 81</li> <li>2. Flash the system and re-test</li> <li>3. Replace component under function test</li> </ol>
<b>001-250-XXX</b> System ECC error	<b>System board</b>



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

Diagnostic Error Code	FRU/Action
001-286-XXX 001-287-XXX 001-288-XXX System Timer failure	System board
001-292-XXX System CMOS RAM error	1. Run Setup and re-test 2. System board
001-293-XXX System CMOS Battery	1. CMOS Battery 2. System board
001-298-XXX System RTC date/time update failure	1. Flash the system. See “Flash update procedures” on page 191 2. System board
001-299-XXX System RTC periodic interrupt failure	System board
001-300-XXX System RTC Alarm failure	System board
001-301-XXX System RTC Century byte error	1. Flash the system. See “Flash update procedures” on page 191 2. System board
005-000-XXX Video Test Passed	No action
005-00X-XXX Video error	1. Video card, if installed 2. System board
005-010-XXX 005-011-XXX 005-012-XXX 005-013-XXX Video Signal failure	1. Video card, if installed 2. System board
005-016-XXX Video Simple Pattern test failure	1. Video Ram 2. Video card, if installed 3. System board
005-024-XXX Video Addressing test failure	1. Video card, if installed 2. System board
005-025-XXX Video Checksum Value error	1. Video card, if installed 2. System board
005-027-XXX Video Configuration/Setup error	1. Run Setup 2. Video drivers update 3. Video card, if installed 4. System board
005-031-XXX Video Device Cable failure	1. Video cable 2. Monitor 3. Video card, if installed 4. System board
005-032-XXX Video Device Controller failure	1. Video card, if installed 2. System board

Diagnostic Error Code	FRU/Action
<b>005-036-XXX</b> Video Register error	<ol style="list-style-type: none"> <li>1. <b>Video card, if installed</b></li> <li>2. System board</li> </ol>
<b>005-038-XXX</b> System BIOS extension failure	<ol style="list-style-type: none"> <li>1. <b>Video card, if installed</b></li> <li>2. System board</li> </ol>
<b>005-040-XXX</b> Video IRQ failure	<ol style="list-style-type: none"> <li>1. <b>Video card, if installed</b></li> <li>2. System board</li> </ol>
<b>005-195-XXX</b> Video Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>005-196-XXX</b> Video test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>005-197-XXX</b> Video test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Re-run test</li> <li>3. Replace the component called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>005-198-XXX</b> Video test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Go to "Undetermined problems" on page 81</li> </ol>
<b>005-199-XXX</b> Video test failed, cause unknown	<ol style="list-style-type: none"> <li>1. Go to "Undetermined problems" on page 81</li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Replace component under function test</li> </ol>
<b>005-2XX-XXX</b> <b>005-3XX-XXX</b> Video subsystem error	<ol style="list-style-type: none"> <li>1. <b>Video card, if installed</b></li> <li>2. System board</li> </ol>
<b>006-000-XXX</b> Diskette interface Test Passed	<b>No action</b>
<b>006-0XX-XXX</b> Diskette interface error	<ol style="list-style-type: none"> <li>1. <b>Diskette drive Cable</b></li> <li>2. Diskette drive</li> <li>3. System board</li> </ol>
<b>006-195-XXX</b> Diskette interface Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>006-196-XXX</b> Diskette interface test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>

Diagnostic Error Code	FRU/Action
<b>006-197-XXX</b> Diskette interface test warning	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>006-198-XXX</b> Diskette interface test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Go to "Undetermined problems" on page 81</li> </ol>
<b>006-199-XXX</b> Diskette interface test failed, cause unknown	<ol style="list-style-type: none"> <li>1. Go to "Undetermined problems" on page 81</li> <li>2. Flash the system and re-test</li> <li>3. Replace component under function test</li> </ol>
<b>006-25X-XXX</b> Diskette interface Error	<ol style="list-style-type: none"> <li>1. <b>Diskette drive cable</b></li> <li>2. Diskette drive</li> <li>3. System board</li> </ol>
<b>011-000-XXX</b> Serial port Interface Test Passed	<b>No action</b>
<b>011-001-XXX</b> Serial port Presence	<ol style="list-style-type: none"> <li>1. <b>Remove external serial device, if present</b></li> <li>2. Run setup, enable port</li> <li>3. System board</li> </ol>
<b>011-002-XXX</b> <b>011-003-XXX</b> Serial port Timeout/Parity error	<b>System board</b>
<b>011-013-XXX</b> <b>011-014-XXX</b> Serial port Control Signal/Loopback test failure	<b>System board</b>
<b>011-015-XXX</b> Serial port External Loopback failure	<ol style="list-style-type: none"> <li>1. <b>Wrap plug</b></li> <li>2. System board</li> </ol>
<b>011-027-XXX</b> Serial port Configuration/Setup error	<ol style="list-style-type: none"> <li>1. <b>Run Setup, enable port</b></li> <li>2. Flash the system. See "Flash update procedures" on page 191</li> <li>3. System board</li> </ol>
<b>011-03X-XXX</b> <b>011-04X-XXX</b> Serial port failure	<b>System board</b>
<b>011-195-XXX</b> Serial port Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>011-196-XXX</b> Serial port test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>

Diagnostic Error Code	FRU/Action
<b>011-197-XXX</b> Serial port test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>011-198-XXX</b> Serial port test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Go to "Undetermined problems" on page 81</li> </ol>
<b>011-199-XXX</b> Serial port test failed, cause unknown	<ol style="list-style-type: none"> <li>1. Go to "Undetermined problems" on page 81</li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Replace component under function test</li> </ol>
<b>011-2XX-XXX</b> Serial port signal failure	<ol style="list-style-type: none"> <li>1. <b>External serial device</b></li> <li>2. System board</li> </ol>
<b>014-000-XXX</b> Parallel port Interface Test Passed	<b>No action</b>
<b>014-001-XXX</b> Parallel port Presence	<ol style="list-style-type: none"> <li>1. <b>Remove external parallel device, if present</b></li> <li>2. Run setup, enable port</li> <li>3. System board</li> </ol>
<b>014-002-XXX</b> <b>014-003-XXX</b> Parallel port Timeout/Parity error	<b>System board</b>
<b>014-013-XXX</b> <b>014-014-XXX</b> Parallel port Control Signal/Loopback test failure	<b>System board</b>
<b>014-015-XXX</b> Parallel port External Loopback failure	<ol style="list-style-type: none"> <li>1. <b>Wrap plug</b></li> <li>2. System board</li> </ol>
<b>014-027-XXX</b> Parallel port Configuration/Setup error	<ol style="list-style-type: none"> <li>1. <b>Run Setup, enable port</b></li> <li>2. Flash the system. See "Flash update procedures" on page 191</li> <li>3. System board</li> </ol>
<b>014-03X-XXX</b> <b>014-04X-XXX</b> Parallel port failure	<b>System board</b>
<b>014-195-XXX</b> Parallel port Test aborted by user	<b>Information only</b> Re-start the test, if necessary

Diagnostic Error Code	FRU/Action
<b>014-196-XXX</b> Parallel port test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. Press F3 to review the log file</li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>014-197-XXX</b> Parallel port test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>014-198-XXX</b> Parallel port test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Go to "Undetermined problems" on page 81</li> </ol>
<b>014-199-XXX</b> Parallel port test failed, cause unknown	<ol style="list-style-type: none"> <li>1. Go to "Undetermined problems" on page 81</li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Replace component under function test</li> </ol>
<b>014-2XX-XXX</b> <b>014-3XX-XXX</b> Parallel port failure	<ol style="list-style-type: none"> <li>1. <b>External parallel device</b></li> <li>2. System board</li> </ol>
<b>015-000-XXX</b> USB port Interface Test Passed	<b>No action</b>
<b>015-001-XXX</b> USB port Presence	<ol style="list-style-type: none"> <li>1. <b>Remove USB device(s) and re-test</b></li> <li>2. System board</li> </ol>
<b>015-002-XXX</b> USB port Timeout	<ol style="list-style-type: none"> <li>1. <b>Remove USB device(s) and re-test</b></li> <li>2. System board</li> </ol>
<b>015-015-XXX</b> USB port External Loopback failure	<ol style="list-style-type: none"> <li>1. <b>Remove USB device(s) and re-test</b></li> <li>2. System board</li> </ol>
<b>015-027-XXX</b> USB port Configuration/Setup error	<ol style="list-style-type: none"> <li>1. <b>Flash the system. See "Flash update procedures" on page 191</b></li> <li>2. System board</li> </ol>
<b>015-032-XXX</b> USB port Device Controller failure	<b>System board</b>
<b>015-034-XXX</b> USB port buffer allocation failure	<ol style="list-style-type: none"> <li>1. <b>Reboot the system</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Run memory test</li> <li>4. System board</li> </ol>
<b>015-035-XXX</b> USB port Reset condition detected	<ol style="list-style-type: none"> <li>1. <b>Remove USB device(s) and re-test</b></li> <li>2. System board</li> </ol>

Diagnostic Error Code	FRU/Action
<b>015-036-XXX</b> USB port Register error	<b>System board</b>
<b>015-040-XXX</b> USB port IRQ failure	<ol style="list-style-type: none"> <li>1. <b>Run setup and check for conflicts</b></li> <li>2. Flash the system. See "Flash update procedures" on page 191</li> <li>3. System board</li> </ol>
<b>015-195-XXX</b> USB port Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>015-196-XXX</b> USB port test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>015-197-XXX</b> USB port test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>015-198-XXX</b> USB port test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Go to "Undetermined problems" on page 81</li> </ol>
<b>015-199-XXX</b> USB port test failed, cause unknown	<ol style="list-style-type: none"> <li>1. Go to "Undetermined problems" on page 81</li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Replace component under function test</li> </ol>
<b>018-000-XXX</b> PCI Card Test Passed	<b>No action</b>
<b>018-0XX-XXX</b> PCI Card Failure	<ol style="list-style-type: none"> <li>1. <b>Riser card, if installed</b></li> <li>2. System board</li> </ol>
<b>018-195-XXX</b> PCI Card Test aborted by user	<ol style="list-style-type: none"> <li>1. <b>PCI card</b></li> <li>2. <b>Information only</b> Re-start the test, if necessary</li> </ol>
<b>018-196-XXX</b> PCI Card test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>

Diagnostic Error Code	FRU/Action
<b>018-197-XXX</b> PCI Card test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>018-198-XXX</b> PCI Card test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Go to "Undetermined problems" on page 81</li> </ol>
<b>018-199-XXX</b> PCI Card test failed, cause unknown	<ol style="list-style-type: none"> <li>1. Go to "Undetermined problems" on page 81</li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Replace component under function test</li> </ol>
<b>018-250-XXX</b> PCI Card Services error	<ol style="list-style-type: none"> <li>1. <b>PCI card</b></li> <li>2. Riser card, if installed</li> <li>3. System board</li> </ol>
<b>020-000-XXX</b> PCI Interface Test Passed	<b>No action</b>
<b>020-0XX-XXX</b> PCI Interface error	<ol style="list-style-type: none"> <li>1. <b>PCI card</b></li> <li>2. Riser card, if installed</li> <li>3. System board</li> </ol>
<b>020-195-XXX</b> PCI Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>020-196-XXX</b> PCI test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>020-197-XXX</b> PCI test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>



Diagnostic Error Code	FRU/Action
<b>020-198-XXX</b> PCI test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, “Using the Setup Utility,” on page 51</b></li> <li>2. Flash the system and re-test. See “Flash update procedures” on page 191</li> <li>3. Go to “Undetermined problems” on page 81</li> </ol>
<b>020-199-XXX</b> PCI test failed, cause unknown	<ol style="list-style-type: none"> <li>1. Go to “Undetermined problems” on page 81</li> <li>2. Flash the system and re-test. See “Flash update procedures” on page 191</li> <li>3. Replace component under function test</li> </ol>
<b>020-262-XXX</b> PCI system error	<ol style="list-style-type: none"> <li>1. <b>PCI card</b></li> <li>2. Riser card, if installed</li> <li>3. System board</li> </ol>
<b>025-000-XXX</b> IDE interface Test Passed	<b>No action</b>
<b>025-00X-XXX</b> <b>025-01X-XXX</b> IDE interface failure	<ol style="list-style-type: none"> <li>1. <b>IDE signal cable</b></li> <li>2. Check power supply voltages</li> <li>3. Reseat IDE signal cable</li> <li>4. IDE device</li> <li>5. System board</li> </ol>
<b>025-027-XXX</b> IDE interface Configuration/Setup error	<ol style="list-style-type: none"> <li>1. <b>IDE signal cable</b></li> <li>2. Flash the system. See “Flash update procedures” on page 191</li> <li>3. Reseat IDE signal cable</li> <li>4. IDE device</li> <li>5. System board</li> </ol>
<b>025-02X-XXX</b> <b>025-03X-XXX</b> <b>025-04X-XXX</b> IDE Interface failure	<ol style="list-style-type: none"> <li>1. <b>IDE signal cable</b></li> <li>2. Check power supply</li> <li>3. Reseat IDE signal cable</li> <li>4. IDE device</li> <li>5. System board</li> </ol>
<b>025-195-XXX</b> IDE interface Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>025-196-XXX</b> IDE interface test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>025-197-XXX</b> IDE interface test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, “Using the Setup Utility,” on page 51</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>

Diagnostic Error Code	FRU/Action
<b>025-198-XXX</b> IDE interface test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Go to "Undetermined problems" on page 81</li> </ol>
<b>025-199-XXX</b> IDE interface test failed, cause unknown	<ol style="list-style-type: none"> <li>1. Go to "Undetermined problems" on page 81</li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Replace component under function test</li> </ol>
<b>030-000-XXX</b> SCSI interface Test Passed	<b>No action</b>
<b>030-00X-XXX</b> <b>030-01X-XXX</b> SCSI interface failure	<ol style="list-style-type: none"> <li>1. <b>SCSI signal cable</b></li> <li>2. Check power supply</li> <li>3. SCSI device</li> <li>4. SCSI adapter card, if installed</li> <li>5. System board</li> </ol>
<b>030-027-XXX</b> SCSI interface Configuration/Setup error	<ol style="list-style-type: none"> <li>1. <b>SCSI signal cable</b></li> <li>2. Flash the system. See "Flash update procedures" on page 191</li> <li>3. SCSI device</li> <li>4. SCSI adapter card, if installed</li> <li>5. System board</li> </ol>
<b>030-03X-XXX</b> <b>030-04X-XXX</b> SCSI interface error	<ol style="list-style-type: none"> <li>1. <b>SCSI signal cable</b></li> <li>2. Check power supply</li> <li>3. SCSI device</li> <li>4. SCSI adapter card, if installed</li> <li>5. System board</li> </ol>
<b>030-195-XXX</b> SCSI interface Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>030-196-XXX</b> SCSI interface test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>030-197-XXX</b> SCSI interface test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>

Diagnostic Error Code	FRU/Action
<b>030-198-XXX</b> SCSI interface test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Go to "Undetermined problems" on page 81</li> </ol>
<b>030-199-XXX</b> SCSI interface test failed, cause unknown	<ol style="list-style-type: none"> <li>1. Go to "Undetermined problems" on page 81</li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Replace component under function test</li> </ol>
<b>035-000-XXX</b> RAID interface Test Passed	<b>No action</b>
<b>035-0XX-XXX</b> RAID interface Failure	<ol style="list-style-type: none"> <li>1. <b>RAID signal cable</b></li> <li>2. RAID device</li> <li>3. RAID adapter card, if installed</li> <li>4. System board</li> </ol>
<b>035-195-XXX</b> RAID interface Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>035-196-XXX</b> RAID interface test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>035-197-XXX</b> RAID interface test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>035-198-XXX</b> RAID interface test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Go to "Undetermined problems" on page 81</li> </ol>
<b>035-199-XXX</b> RAID interface test failed, cause unknown	<ol style="list-style-type: none"> <li>1. See "Undetermined problems" on page 81</li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Replace component under function test</li> </ol>
<b>071-000-XXX</b> Audio port Interface Test Passed	<b>No action</b>

Diagnostic Error Code	FRU/Action
<b>071-00X-XXX</b> <b>071-01X-XXX</b> <b>071-02X-XXX</b> Audio port error	1. <b>Run Setup</b> 2. Flash the system. See "Flash update procedures" on page 191 3. System board
<b>071-03X-XXX</b> Audio port failure	1. <b>Speakers</b> 2. Microphone 3. Audio card, if installed 4. System board
<b>071-04X-XXX</b> Audio port failure	1. <b>Run Setup</b> 2. Audio card, if installed 3. System board
<b>071-195-XXX</b> Audio port Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>071-196-XXX</b> Audio port test halt, error threshold exceeded	1. <b>Press F3 to review the log file</b> 2. Re-start the test to reset the log file
<b>071-197-XXX</b> Audio port test warning	1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b> 2. Re-run test 3. Replace the component that is called out in warning statement 4. Replace the component under test
<b>071-198-XXX</b> Audio port test aborted	1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b> 2. Flash the system and re-test. See "Flash update procedures" on page 191 3. Go to "Undetermined problems" on page 81
<b>071-199-XXX</b> Audio port test failed, cause unknown	1. See "Undetermined problems" on page 81 2. Flash the system and re-test. See "Flash update procedures" on page 191 3. Replace component under function test
<b>071-25X-XXX</b> Audio port failure	1. <b>Speakers</b> 2. Audio card, if installed 3. System board
<b>080-000-XXX</b> Game Port interface Test Passed	<b>No action</b>
<b>080-XXX-XXX</b> Game Port interface Error	1. <b>Remove the game port device and re-test the system</b>
<b>080-195-XXX</b> Game Port interface Test aborted by user	<b>Information only</b> Re-start the test, if necessary

Diagnostic Error Code	FRU/Action
<b>080-196-XXX</b> Game Port interface test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>080-197-XXX</b> Game Port interface test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>080-198-XXX</b> Game Port interface test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Go to "Undetermined problems" on page 81</li> </ol>
<b>080-199-XXX</b> Game Port interface test failed, cause unknown	<ol style="list-style-type: none"> <li>1. See "Undetermined problems" on page 81</li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Replace component under function test</li> </ol>
<b>086-000-XXX</b> Mouse Port interface Test Passed	<b>No action</b>
<b>086-001-XXX</b> Mouse Port interface Presence	<ol style="list-style-type: none"> <li>1. <b>Mouse</b></li> <li>2. System board</li> </ol>
<b>086-032-XXX</b> Mouse Port interface Device controller failure	<ol style="list-style-type: none"> <li>1. <b>Mouse</b></li> <li>2. System board</li> </ol>
<b>086-035-XXX</b> Mouse Port interface Reset	<ol style="list-style-type: none"> <li>1. <b>Mouse</b></li> <li>2. System board</li> </ol>
<b>086-040-XXX</b> Mouse Port interface IRQ failure	<ol style="list-style-type: none"> <li>1. <b>Run Setup</b></li> <li>2. Mouse</li> <li>3. System board</li> </ol>
<b>086-195-XXX</b> Mouse Port interface Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>086-196-XXX</b> Mouse Port interface test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>

Diagnostic Error Code	FRU/Action
<b>086-197-XXX</b> Mouse Port interface test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>086-198-XXX</b> Mouse Port interface test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Go to "Undetermined problems" on page 81</li> </ol>
<b>086-199-XXX</b> Mouse Port interface test failed, cause unknown	<ol style="list-style-type: none"> <li>1. See "Undetermined problems" on page 81</li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Replace component under function test</li> </ol>
<b>089-000-XXX</b> Microprocessor Test Passed	<b>No action</b>
<b>089-XXX-XXX</b> Microprocessor failure	<ol style="list-style-type: none"> <li>1. <b>Microprocessor(s)</b></li> <li>2. System board</li> </ol>
<b>089-195-XXX</b> Microprocessor Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>089-196-XXX</b> Microprocessor test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>089-197-XXX</b> Microprocessor test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>089-198-XXX</b> Microprocessor test aborted	<ol style="list-style-type: none"> <li>1. <b>Flash the system. See "Flash update procedures" on page 191</b></li> <li>2. Go to "Undetermined problems" on page 81</li> </ol>
<b>089-199-XXX</b> Microprocessor test failed, cause unknown	<ol style="list-style-type: none"> <li>1. See "Undetermined problems" on page 81</li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Replace component under function test</li> </ol>
<b>170-000-XXX</b> Voltage Sensor(s) Test Passed	<b>No action</b>

Diagnostic Error Code	FRU/Action
<b>170-0XX-XXX</b> Voltage Sensor(s) failure	<ol style="list-style-type: none"> <li>1. <b>Flash system</b></li> <li>2. System board</li> </ol>
<b>170-195-XXX</b> Voltage Sensor(s) Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>170-196-XXX</b> Voltage Sensor(s) test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>
<b>170-197-XXX</b> Voltage Sensor(s) test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>170-198-XXX</b> Voltage Sensor(s) test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Go to "Undetermined problems" on page 81</li> </ol>
<b>170-199-XXX</b> Voltage Sensor(s) test failed, cause unknown	<ol style="list-style-type: none"> <li>1. <b>See "Undetermined problems" on page 81</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Replace component under function test</li> </ol>
<b>170-250-XXX</b> <b>170-251-XXX</b> Voltage Sensor(s) Voltage limit error	<ol style="list-style-type: none"> <li>1. <b>Power supply</b></li> <li>2. System board</li> </ol>
<b>170-254-XXX</b> Voltage Sensor(s) Voltage Regulator Module error	<ol style="list-style-type: none"> <li>1. <b>Voltage Regulator Module (VRM)</b></li> <li>2. Microprocessor</li> <li>3. System board</li> </ol>
<b>175-000-XXX</b> Thermal Sensor(s) Test Passed	<b>No action</b>
<b>175-0XX-XXX</b> Thermal Sensor(s) failure	<ol style="list-style-type: none"> <li>1. <b>Flash system</b></li> <li>2. System board</li> </ol>
<b>175-195-XXX</b> Thermal Sensor(s) Test aborted by user	<b>Information only</b> Re-start the test, if necessary
<b>175-196-XXX</b> Thermal Sensor(s) test halt, error threshold exceeded	<ol style="list-style-type: none"> <li>1. <b>Press F3 to review the log file</b></li> <li>2. Re-start the test to reset the log file</li> </ol>

Diagnostic Error Code	FRU/Action
<b>175-197-XXX</b> Thermal Sensor(s) test warning	<ol style="list-style-type: none"> <li>1. <b>Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 51</b></li> <li>2. Re-run test</li> <li>3. Replace the component that is called out in warning statement</li> <li>4. Replace the component under test</li> </ol>
<b>175-198-XXX</b> Thermal Sensor(s) test aborted	<ol style="list-style-type: none"> <li>1. <b>If a component is called out, make sure it is connected and/or enabled</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Go to "Undetermined problems" on page 81</li> </ol>
<b>175-199-XXX</b> Thermal Sensor(s) test failed, cause unknown	<ol style="list-style-type: none"> <li>1. <b>See "Undetermined problems" on page 81</b></li> <li>2. Flash the system and re-test. See "Flash update procedures" on page 191</li> <li>3. Replace component under function test</li> </ol>
<b>175-250-XXX</b> <b>175-251-XXX</b> Thermal Sensor(s) limit error	<ol style="list-style-type: none"> <li>1. <b>Check fans</b></li> <li>2. Check Power supply voltages</li> <li>3. Microprocessor</li> <li>4. System board</li> </ol>
<b>185-000-XXX</b> Asset Security Test Passed	<b>No action</b>
<b>185-XXX-XXX</b> Asset Security failure	<ol style="list-style-type: none"> <li>1. <b>Flash system</b></li> <li>2. System board</li> </ol>
<b>185-278-XXX</b> Asset Security Chassis Intrusion	<ol style="list-style-type: none"> <li>1. <b>Assure Asset Security Enabled</b></li> <li>2. C2 Cover Switch</li> <li>3. System board</li> </ol>
<b>201-000-XXX</b> System Memory Test Passed	<b>No action</b>
<b>201-XXX-XXX</b> System Memory error	<ol style="list-style-type: none"> <li>1. <b>Replace the memory module called out by the test</b></li> <li>2. System board</li> </ol>
<b>202-000-XXX</b> System Cache Test Passed	<b>No action</b>
<b>202-XXX-XXX</b> System Cache error	<ol style="list-style-type: none"> <li>1. <b>Cache, if removable</b></li> <li>2. System board</li> <li>3. Microprocessor</li> </ol>
<b>206-000-XXX</b> Diskette Drive Test Passed	<b>No action</b>
<b>206-XXX-XXX</b> Diskette Drive error	<ol style="list-style-type: none"> <li>1. <b>Diskette Drive Cable</b></li> <li>2. Check power supply voltages</li> <li>3. Diskette drive</li> <li>4. System board</li> </ol>



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

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

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## Beep symptoms

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

The following table describes beep symptoms.

Beep Symptom	FRU/Action
<b>2 short beeps</b> CMOS setting error	Perform the following actions in order. <ol style="list-style-type: none"><li>1. Start the Setup Utility program and press F10 to Save and exit. See Chapter 6, “Using the Setup Utility,” on page 51.</li><li>2. Start the Setup Utility program and press F7 to load defaults and then press F10 to Save and exit.</li><li>3. Perform a Boot block recovery. See “Recovering from a POST/BIOS update failure” on page 192.</li></ol>
<b>1 long and 2 short beeps</b> Monitor or video adapter card error	Perform the following actions in order. <ol style="list-style-type: none"><li>1. Make sure the monitor is properly connected to the computer.</li><li>2. Replace the video adapter card (if present).</li><li>3. Replace the system board.</li></ol>
<b>1 long and 3 short beeps</b> Keyboard error	Perform the following actions in order. <ol style="list-style-type: none"><li>1. Make sure the keyboard is properly connected to the keyboard connector.</li><li>2. Replace the keyboard.</li><li>3. Replace the system board.</li></ol>
<b>1 long and 9 short beeps</b> BIOS ROM error	Perform the following actions in order. <ol style="list-style-type: none"><li>1. Start the Setup Utility program and press F7 to load defaults and then press F10 to Save and exit. See Chapter 6, “Using the Setup Utility,” on page 51.</li><li>2. Perform a Boot block recovery. See “Recovering from a POST/BIOS update failure” on page 192.</li><li>3. Replace the system board.</li></ol>
<b>Continuos long beeps</b> DRAM memory error	Perform the following actions in order. <ol style="list-style-type: none"><li>1. Make sure the memory module(s) are properly seated in the connector(s).</li><li>2. Replace the memory module(s).</li><li>3. Replace the system board.</li></ol>

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## POST error codes

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

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

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

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

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

## Miscellaneous error messages

Message/Symptom	FRU/Action
Changing display colors	<b>Display/Monitor</b>
Computer will <i>not</i> power-off. See "Power Supply Problems" on page 55.	<ol style="list-style-type: none"> <li><b>Power Switch</b></li> <li>System Board</li> <li>Riser card, if installed</li> </ol>
Computer will <i>not</i> RPL from server	<ol style="list-style-type: none"> <li><b>Ensure that network is in startup sequence as first device or first device after diskette</b></li> <li>Ensure that network adapter is enabled for RPL</li> <li>Network adapter (Advise network administrator of new MAC address)</li> </ol>
Computer will <i>not</i> perform a Wake On LAN <sup>®</sup> (if applicable)	<ol style="list-style-type: none"> <li><b>Check power supply and signal cable connections to network adapter</b></li> <li>Ensure that the operating system settings are set to enable Wake on LAN<sup>®</sup></li> <li>Ensure Wake On LAN feature is enabled in Setup/Configuration (see "Starting the Setup Utility program" on page 51)</li> <li>Ensure network administrator is using correct MAC address</li> <li>Ensure no interrupt or I/O address conflicts</li> <li>Network adapter (advise network administrator of new MAC address)</li> </ol>
Dead computer. See "Power Supply Problems" on page 55.	<ol style="list-style-type: none"> <li><b>Power Supply</b></li> <li>System Board</li> </ol>
Diskette drive in-use light remains on or does not light when drive is active.	<ol style="list-style-type: none"> <li><b>Diskette Drive</b></li> <li>System Board</li> <li>Diskette Drive Cable</li> </ol>
Flashing cursor with an otherwise blank display.	<ol style="list-style-type: none"> <li><b>System Board</b></li> <li>Primary Hard Disk Drive</li> <li>Hard Disk Drive Cable</li> </ol>
Incorrect memory size during POST	<ol style="list-style-type: none"> <li><b>Run the Memory tests</b></li> <li>Memory Module</li> <li>System Board</li> </ol>
"Insert a Diskette" icon appears with a known-good diagnostics diskette in the first 3.5-inch diskette drive.	<ol style="list-style-type: none"> <li><b>System Board</b></li> <li>Diskette Drive Cable</li> <li>Network Adapter</li> </ol>
Intensity or color varies from left to right of characters and color bars	<ol style="list-style-type: none"> <li><b>Display</b></li> <li>Video adapter (if present)</li> <li>System Board</li> </ol>
No power or fan not running	<ol style="list-style-type: none"> <li><b>See "Power Supply Problems" on page 55.</b></li> </ol>

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

## Undetermined problems

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

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

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

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



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## Chapter 8. Replacing FRUs (Types 7387, 7388, 7389, 7393, 7394, and 7395)

### Important

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

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

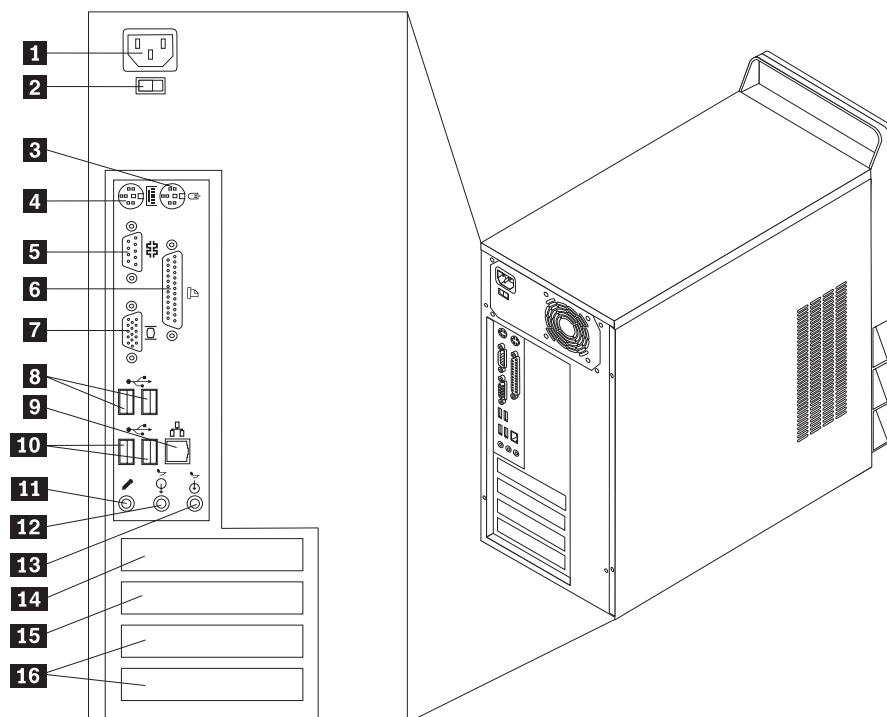
This chapter does not contain a remove and replace procedure for all FRUs. Only the major FRUs are documented.

**Note:** The computer might look slightly different than the illustrations in this chapter.

---

## Rear connectors

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



- |                                                 |                                                                             |
|-------------------------------------------------|-----------------------------------------------------------------------------|
| <b>1</b> Power connector                        | <b>9</b> Ethernet connector                                                 |
| <b>2</b> Voltage selection switch (some models) | <b>10</b> USB connectors                                                    |
| <b>3</b> Mouse connector                        | <b>11</b> Microphone connector                                              |
| <b>4</b> Keyboard connector                     | <b>12</b> Audio line out connector                                          |
| <b>5</b> Serial connector                       | <b>13</b> Audio line in connector                                           |
| <b>6</b> Parallel connector                     | <b>14</b> PCI Express x1 or PCI Express x16 adapter connector (some models) |
| <b>7</b> VGA monitor connector                  | <b>15</b> PCI Express x1 or PCI Express x16 adapter connector (some models) |
| <b>8</b> USB connectors                         | <b>16</b> PCI adapter connectors                                            |

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## Removing the covers

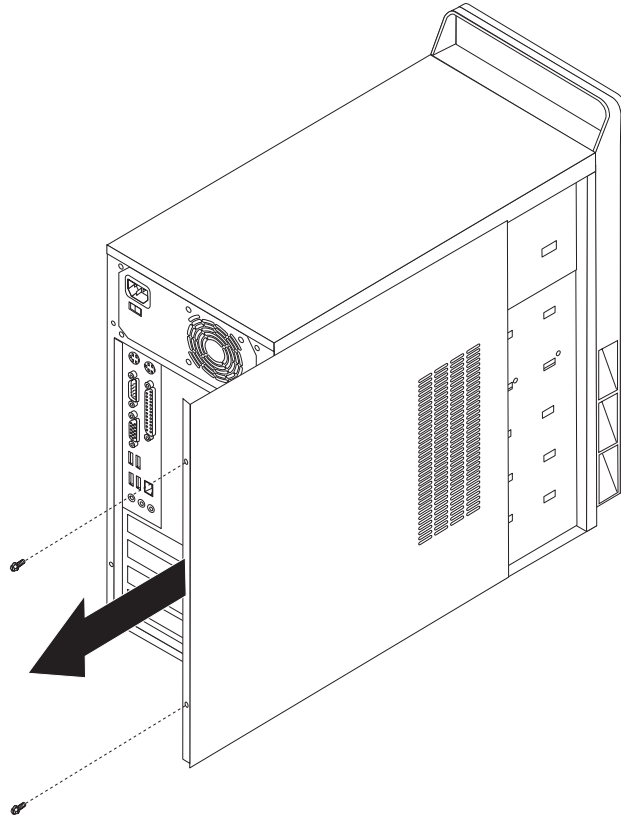
### Important

Read Chapter 2, "Safety information," on page 3 and "Handling electrostatic discharge-sensitive devices" on page 6 before opening the cover.

Some FRU replacements require the removal of only the left-side cover. Others require removal of both the left-side and the right-side covers.

1. Shut down the operating system, remove any media (DVDs, CDs, or tapes) from the drives, and turn off all attached devices.
2. Unplug all power cords from electrical outlets.

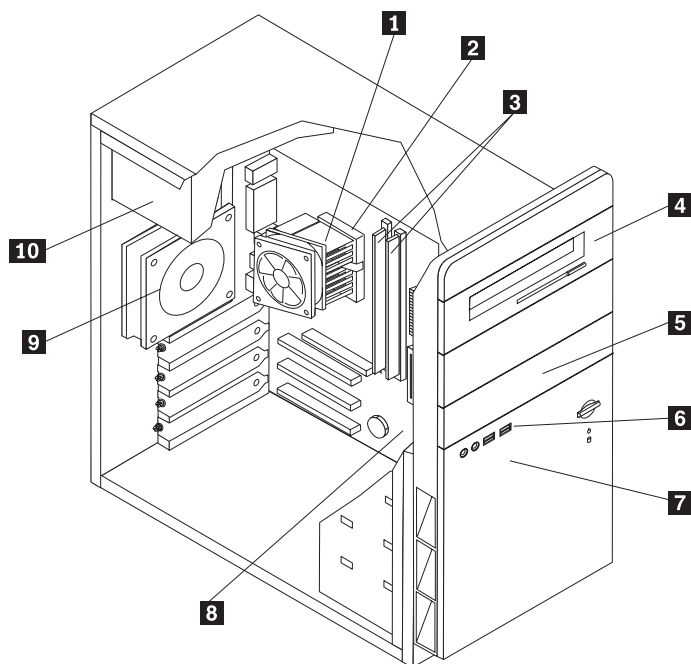
3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer.
4. Remove the two thumb screws at the rear of the left-side cover and slide the cover to the rear to remove.



5. If necessary, remove the right-side cover in the same manner.

## Locations

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

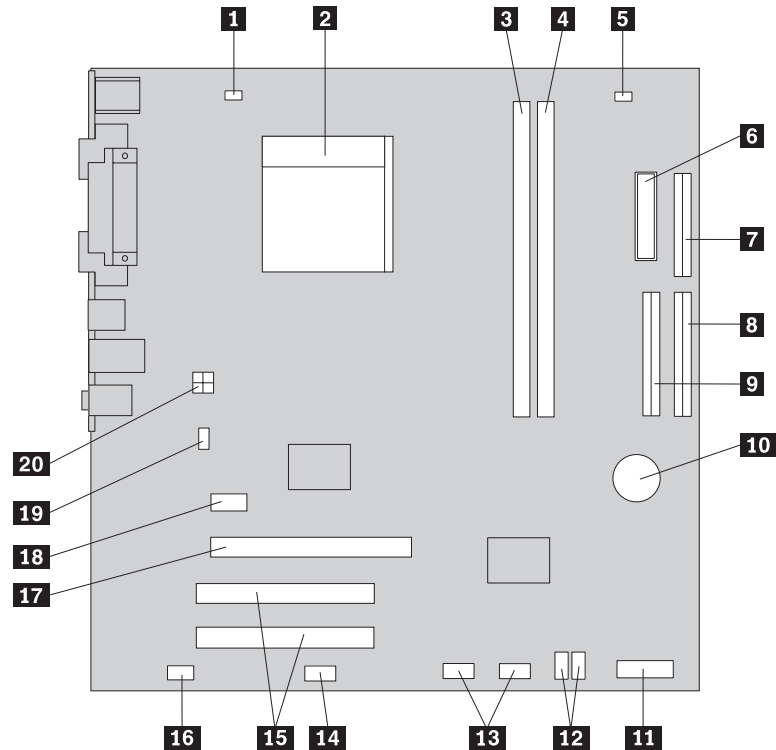


- |          |                   |           |                  |
|----------|-------------------|-----------|------------------|
| <b>1</b> | Heat sink and fan | <b>6</b>  | Front panel card |
| <b>2</b> | Microprocessor    | <b>7</b>  | Hard disk drive  |
| <b>3</b> | Memory modules    | <b>8</b>  | System board     |
| <b>4</b> | Optical drive     | <b>9</b>  | System fan       |
| <b>5</b> | Diskette drive    | <b>10</b> | Power supply     |

## Identifying parts on the system board

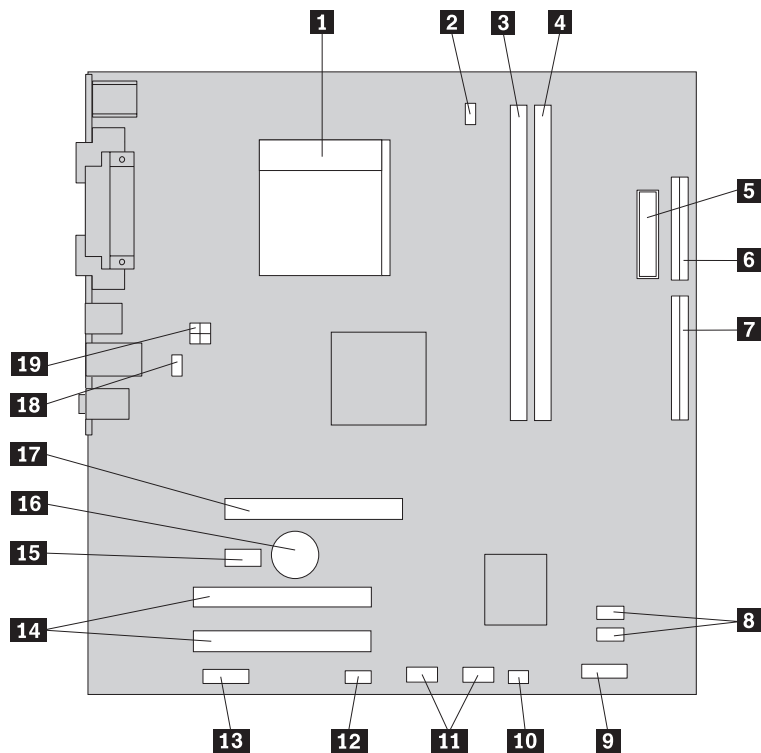
There are different system boards depending on the machine type.

### Machine Types 7387, 7388, and 7389



- |                                       |                                                      |
|---------------------------------------|------------------------------------------------------|
| <b>1</b> Microprocessor fan connector | <b>11</b> Front panel (power switch/LED) connector   |
| <b>2</b> Microprocessor and heat sink | <b>12</b> SATA IDE connectors (2)                    |
| <b>3</b> Memory connector 1           | <b>13</b> Front USB connectors (2)                   |
| <b>4</b> Memory connector 2           | <b>14</b> Serial (COM2) connector                    |
| <b>5</b> Clear CMOS/Recovery jumper   | <b>15</b> PCI adapter connectors                     |
| <b>6</b> Power supply connector       | <b>16</b> Front audio connector                      |
| <b>7</b> Diskette drive connector     | <b>17</b> PCI Express x16 graphics adapter connector |
| <b>8</b> IDE connector 1              | <b>18</b> PCI Express x1 graphics adapter connector  |
| <b>9</b> IDE connector 2              | <b>19</b> System fan connector                       |
| <b>10</b> CMOS battery                | <b>20</b> 12V power connector                        |

## Machine Types 7393, 7394, and 7395



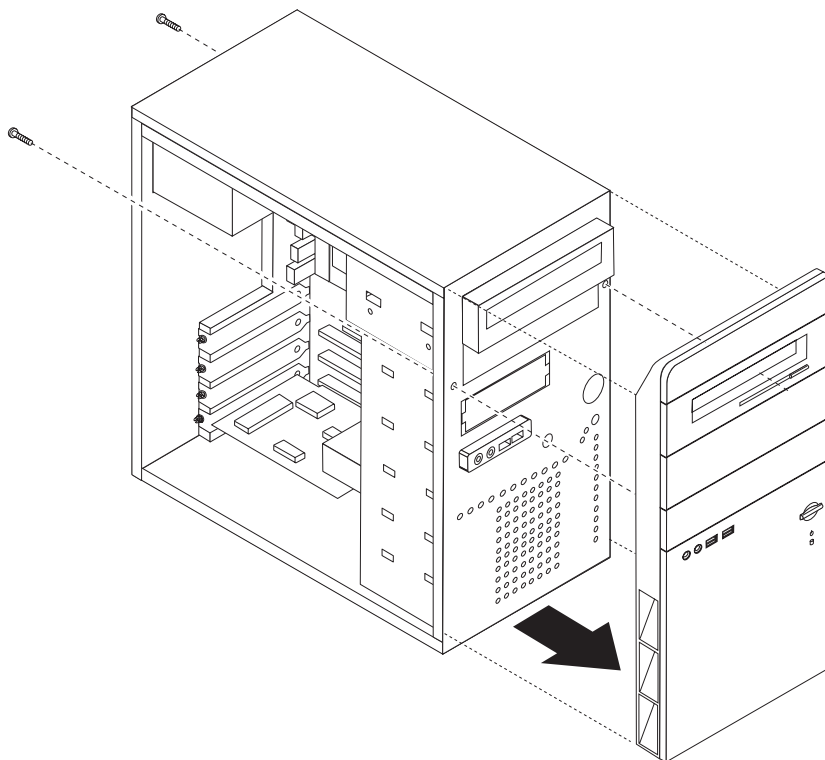
- |                                                   |                                                      |
|---------------------------------------------------|------------------------------------------------------|
| <b>1</b> Microprocessor and heat sink             | <b>11</b> Front USB connectors (2)                   |
| <b>2</b> Microprocessor fan connector             | <b>12</b> Serial (COM2) connector                    |
| <b>3</b> Memory connector 1                       | <b>13</b> Front audio connectors                     |
| <b>4</b> Memory connector 2                       | <b>14</b> PCI adapter connectors (2)                 |
| <b>5</b> Power connector                          | <b>15</b> PCI Express x1 graphics adapter connector  |
| <b>6</b> Diskette drive connector                 | <b>16</b> CMOS battery                               |
| <b>7</b> IDE connector                            | <b>17</b> PCI Express x16 graphics adapter connector |
| <b>8</b> SATA IDE connectors (2)                  | <b>18</b> System fan connector                       |
| <b>9</b> Front panel (power switch/LED) connector | <b>19</b> 12V power connector                        |
| <b>10</b> Clear CMOS/Recovery jumper              |                                                      |

---

## Removing and replacing the front bezel

The front bezel must be removed to replace some FRUs.

1. Remove both the left-side and right-side covers. See “Removing the covers” on page 84.
2. Disconnect the cable for the power switch/LED assembly from the system board. See “Identifying parts on the system board” on page 87 for the connector location.
3. Remove the screws that secure the bezel. There are two on each side.



4. There are three plastic tabs on each side of the bezel. While applying pressure on the top of the bezel, release each tab starting with the tabs at the top.

**Note:** The power switch/LED assembly cable is connected inside the bezel. Be careful to not damage the cable and connectors when removing the bezel from the chassis.

5. When the tabs are all released, remove the bezel from the chassis.

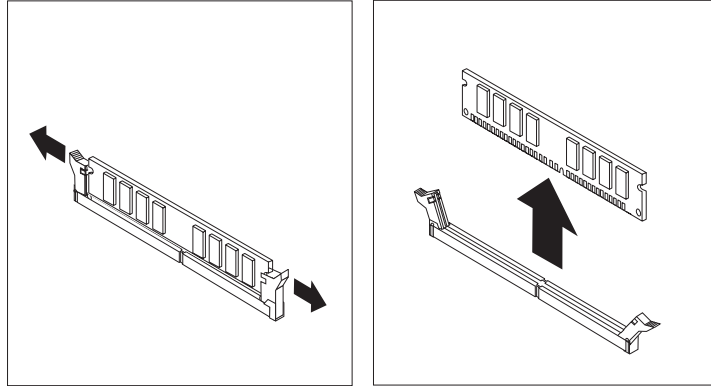
To replace the bezel:

6. Route the power switch/LED cable through the hole in the chassis and to the system board.
7. Align the tabs in the chassis and snap it into position. Install the two screws on each side to secure the bezel.
8. Reconnect the power switch/LED cable to the system board.

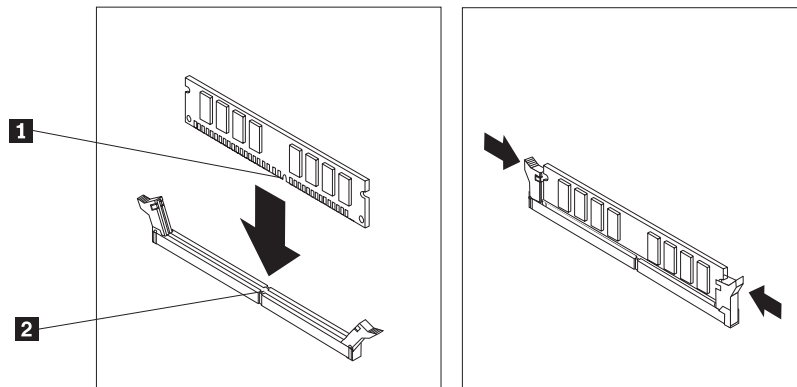
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## Replacing a memory module

1. Remove the left-side cover. See “Removing the covers” on page 84.
2. Locate the memory connectors. See “Identifying parts on the system board” on page 87.
3. Open the retaining clips and remove the failing memory module.



4. Make sure the notch **1** on the new memory module is aligned correctly with the connector key **2** on the socket. Insert the memory module straight down into the connector until it snaps into position and the retaining clips are closed.



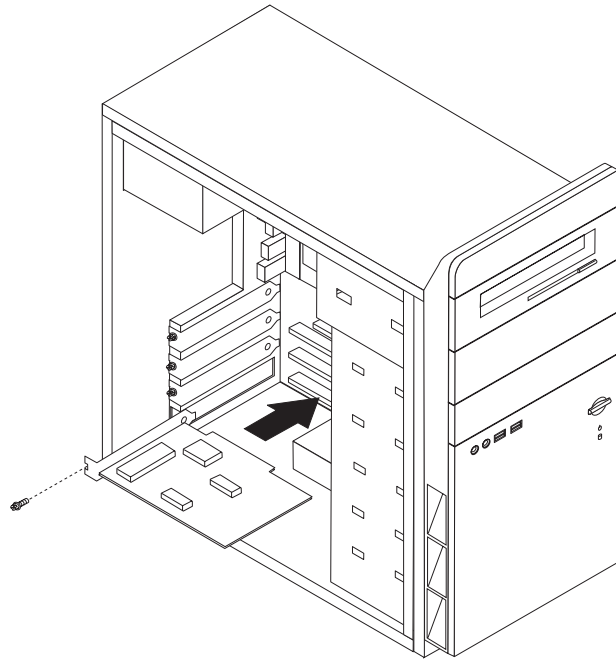
5. Go to “Completing the FRU replacement” on page 112.



---

## Replacing a PCI adapter

1. Remove the left-side cover. See “Removing the covers” on page 84.
2. Remove the screw securing the adapter being replaced.
3. Pull the adapter straight out of the PCI connector.
4. Remove the new adapter from its static-protective package.
5. Install the new adapter into the appropriate PCI connector.



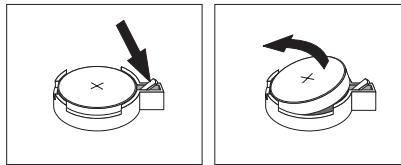
6. Install the screw to secure the new adapter.
7. Go to “Completing the FRU replacement” on page 112.

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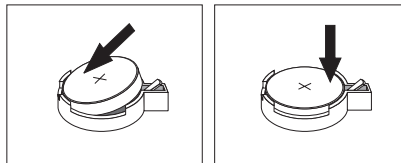
## Replacing the CMOS battery

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

1. Refer to “Safety notices (multi-lingual translations)” on page 7 for information about replacing and disposing of the battery.
2. Turn off the computer and all attached devices.
3. Remove the left-side cover. See “Removing the covers” on page 84.
4. Locate the battery. See “Identifying parts on the system board” on page 87.
5. If necessary, remove any adapters that impede access to the battery. See “Replacing a PCI adapter” on page 91 for more information.
6. Remove the old battery.



7. Install the new battery.



8. Replace any adapters that were removed to gain access to the battery. See “Replacing a PCI adapter” on page 91 for instructions for replacing adapters.

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

9. Go to “Completing the FRU replacement” on page 112.

## Replacing the power supply

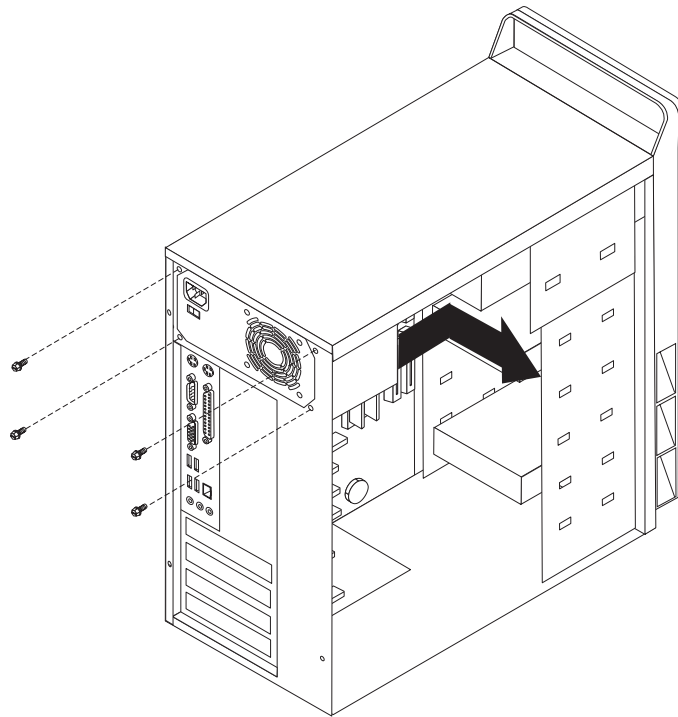
### Attention

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



Hazardous voltage, current, and energy levels are present inside any component that has this label attached. There are no servicable parts inside these components.

1. Remove the left-side cover. See “Removing the covers” on page 84.
2. Disconnect all power supply cables from the drives.
3. Disconnect all power supply cables from the system board. See “Identifying parts on the system board” on page 87.
4. At the rear of the chassis, remove the four screws that secure the power supply.



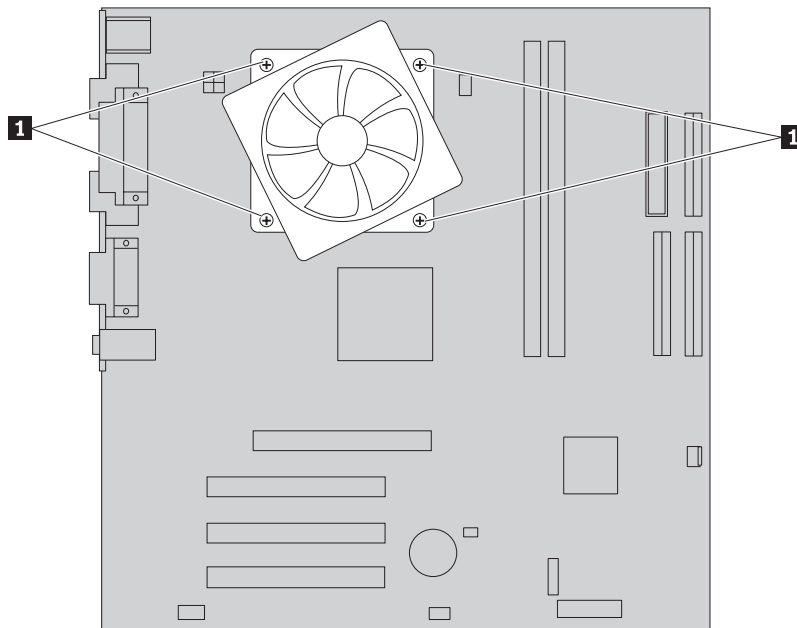
5. Lift the power supply out of the chassis.
6. Install the new power supply and insert the four screws that hold the power supply in place.
7. Reconnect all power supply cables to the system board and the drives. See “Identifying parts on the system board” on page 87. Make sure the cables are correctly routed.
8. Go to “Completing the FRU replacement” on page 112.

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## Replacing the system board (Types 7393, 7394, and 7395)

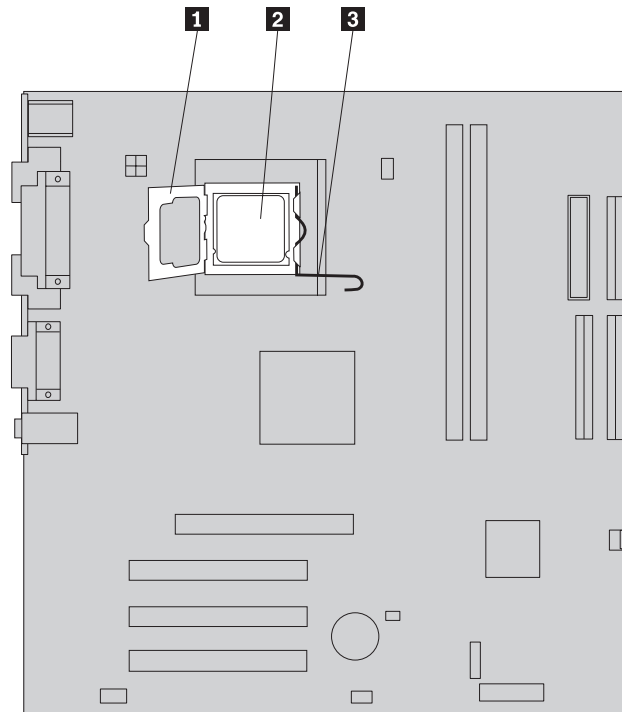
**Note:** When replacing the system board a new retention module for the microprocessor heat sink is required. Make sure you have a new retention module before beginning this procedure.

1. Remove both side covers. See “Removing the covers” on page 84.
2. Lay the computer on the right side to make the system board accessible.
3. Remove any adapter cards installed in the PCI connectors. See “Replacing a PCI adapter” on page 91.
4. Carefully take note of the location of all cable connections on the system board and disconnect all cables. See “Identifying parts on the system board” on page 87.
5. Remove the screws that secure the system board to the chassis.
6. Lift the system board out of the chassis.
7. Remove the memory modules from the failing system board and install them in the same location on the new system board.
8. Remove the four screws **1** securing the heat sink and fan assembly to the system board.

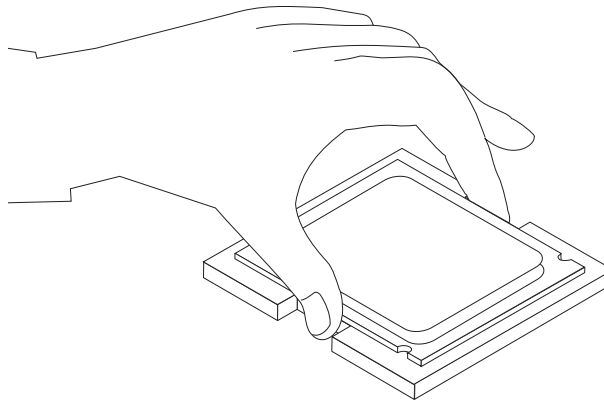


9. Lift the heat sink and fan assembly off the failing system board. Lay the heat sink on its side so that the thermal grease does not come in contact with anything.

10. Lift the small handle **3** and open the retainer **1**.



11. Lift the microprocessor **2** straight up and out of the system board socket.



**Notes:**

- Your microprocessor and socket might look different than the one illustrated.
  - Note the orientation of the notches on the microprocessor. This is important when reinstalling the microprocessor on the new system board. This is important when reinstalling the microprocessor on the new system board.
  - Do not drop anything onto the microprocessor socket while it is exposed. The socket pins must be kept as clean as possible.
12. On the new system board, release the lever securing the microprocessor retainer and then pivot the retainer until it is fully open.

**Note:** There will be a black plastic cover on the microprocessor retainer to protect the socket on the new system board. Remove the black plastic

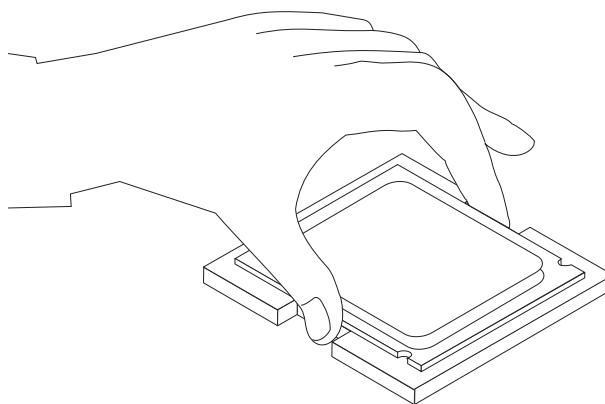
cover and place it on the microprocessor socket of the failing system board when you complete this procedure.

13. Holding the microprocessor with your fingers, position the microprocessor so that the notches on the microprocessor are aligned with the tabs in the microprocessor socket on the new system board.

**Important**

To avoid damaging the microprocessor contacts, do not tilt the microprocessor when installing it into the socket.

14. Lower the microprocessor straight down into the system board socket of the new system board.

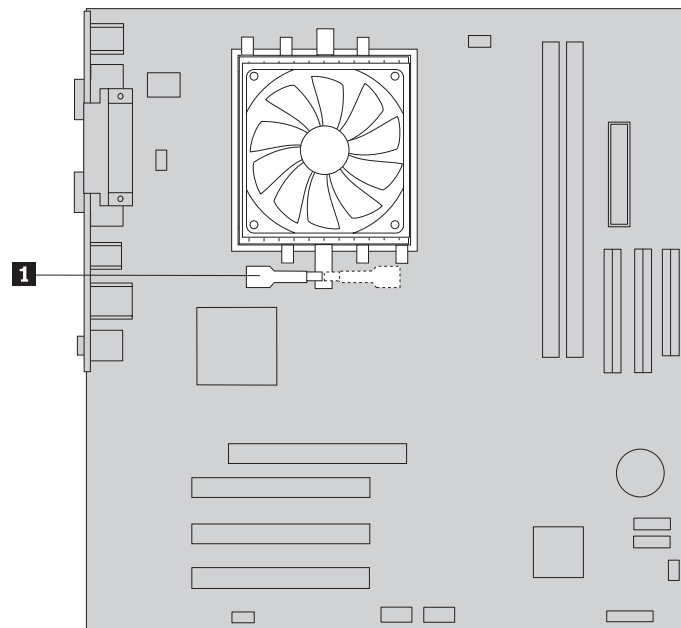


15. Lower the microprocessor retainer.
16. Lock the retainer with the small handle to secure the microprocessor in the socket.
17. The new retention bracket has plastic one-way rings on the posts that insert into the rear of the new system board. Install the new retention bracket by aligning the posts on the module with the holes in the system board and pushing the posts through the holes until the retention bracket is secure.
18. Install the heat sink and fan assembly on the new system board.
19. Install the new system board into the chassis and align the screw holes with those in the chassis. Insert and tighten the screws that secure the system board.
20. Connect all the cables to the system board. See "Identifying parts on the system board" on page 87.
21. Go to "Completing the FRU replacement" on page 112.

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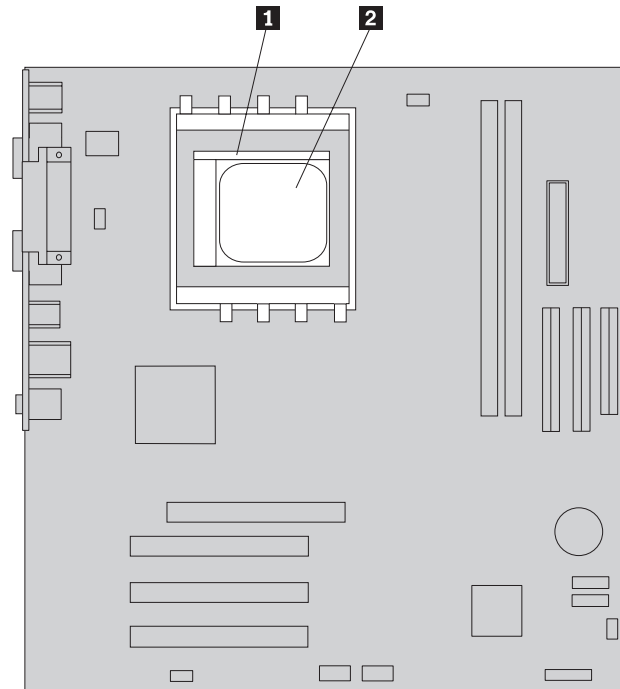
## Replacing the system board (Types 7387, 7388, and 7389)

1. Remove only the left-side cover. See “Removing the covers” on page 84.
2. Lay the computer on the right side to make the system board accessible.
3. Remove any adapter cards installed in the PCI connectors. See “Replacing a PCI adapter” on page 91.
4. Carefully take note of the location of all cable connections on the system board and disconnect all cables. See “Identifying parts on the system board” on page 87.
5. Remove the screws that secure the system board to the chassis.
6. Lift the system board out of the chassis.
7. Remove the retention module from the rear of the failing system board.
8. Remove the memory modules from the failing system board and install them in the same location on the new system board.
9. Rotate handle **1** to release the heat sink clamp and then disengage the clamp from the heat sink and fan assembly.

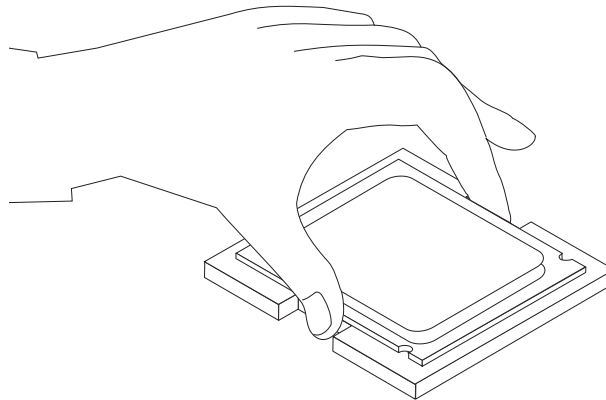


10. Lift the heat sink and fan assembly off the failing system board. Lay the heat sink on its side so that the thermal grease does not come in contact with anything.

11. Lift the small handle **1**.



12. Lift the microprocessor **2** straight up and out of the socket.

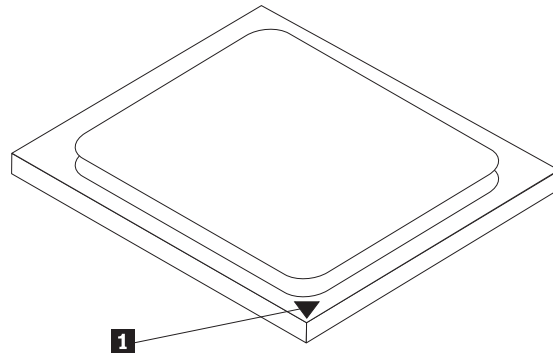


**Notes:**

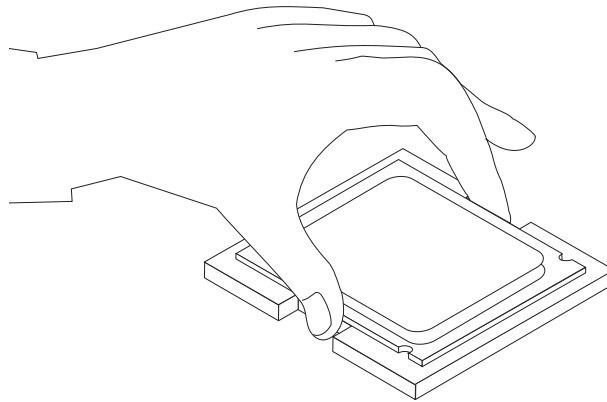
- a. Your microprocessor and socket might look different than the one illustrated.
- b. Note the orientation of the microprocessor in the socket. Look for the small triangle on one corner of the microprocessor. This is important when reinstalling the microprocessor on the new system board.
- c. Do not drop anything onto the microprocessor socket while it is exposed. The socket pins must be kept as clean as possible.



13. Holding the microprocessor with your fingers, position the microprocessor so that the small triangle **1** is aligned with the corresponding triangle on the socket.



14. Lower the microprocessor straight down into the socket.



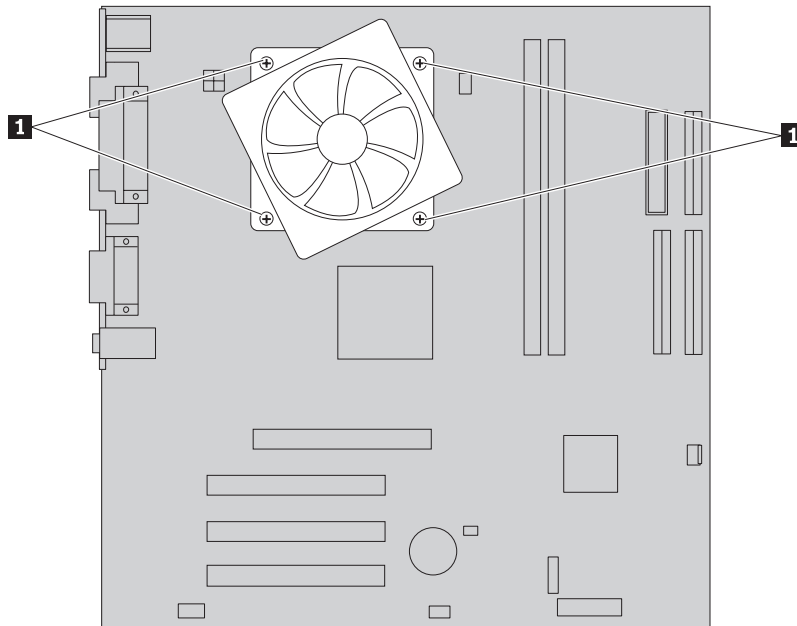
15. Lower and latch the handle to secure the microprocessor in the socket.
16. Install the retention module that was removed from the rear of the failing system board on the new system board.
17. Install the heat sink and fan assembly on the system board.
18. Install the new system board into the chassis and align the screw holes with those in the chassis. Insert and tighten the screws that secure the system board.
19. Connect all the cables to the system board. See “Identifying parts on the system board” on page 87.
20. Go to “Completing the FRU replacement” on page 112.

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## Replacing the microprocessor (Types 7393, 7394, and 7395)

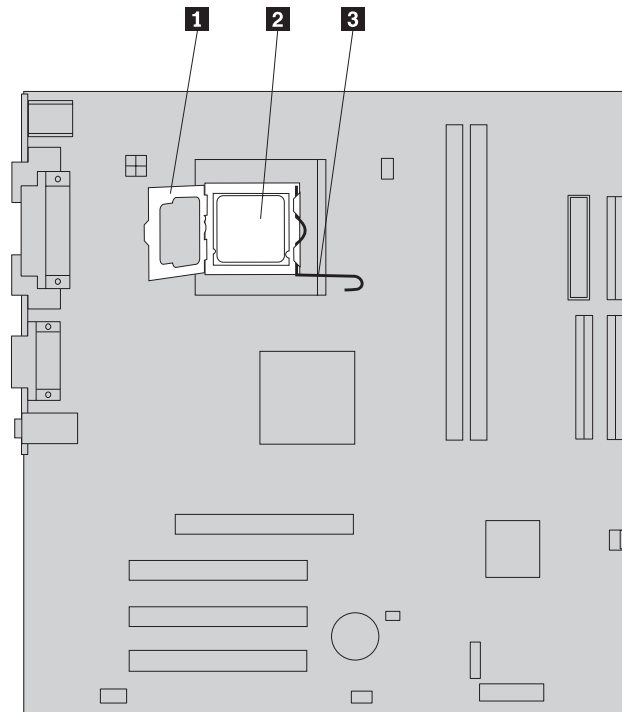
**Note:** A thermal grease syringe is required to complete the microprocessor installation. Make sure the grease syringe is available before beginning the procedure. The FRU number for the thermal grease is 91P8835.

1. Remove the left-side cover. See “Removing the covers” on page 84.
2. Lay the computer on the right side to make the system board and microprocessor accessible.
3. Disconnect the heat sink and fan assembly cable from the system board. See “Identifying parts on the system board” on page 87.
4. Remove the four **1** screws securing the heat sink and fan assembly to the system board. Notice that there is a retention bracket on the back side of the system board.



5. Lift the heat sink and fan assembly off the failing system board. Lay the heat sink on its side so that the thermal grease does not touch anything.

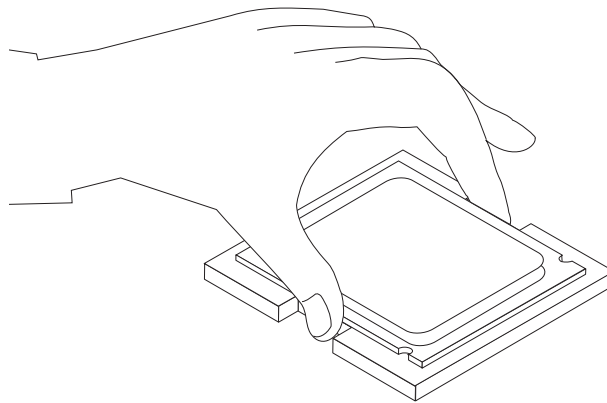
6. Lift the small handle **3** and open the retainer **1**.



**Important**

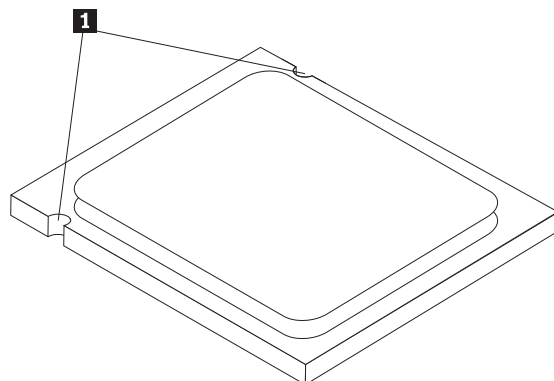
Touch only the sides of the microprocessor. Do not touch the gold contacts on the bottom.

7. Lift the microprocessor **2** straight up and out of the socket.

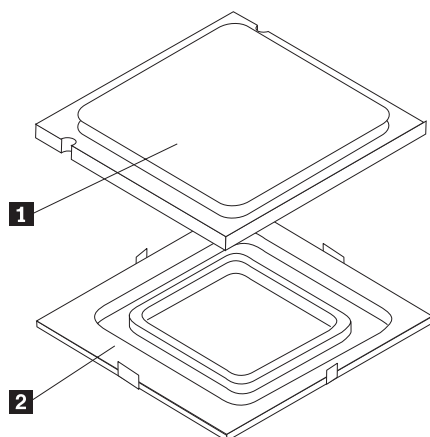


**Notes:**

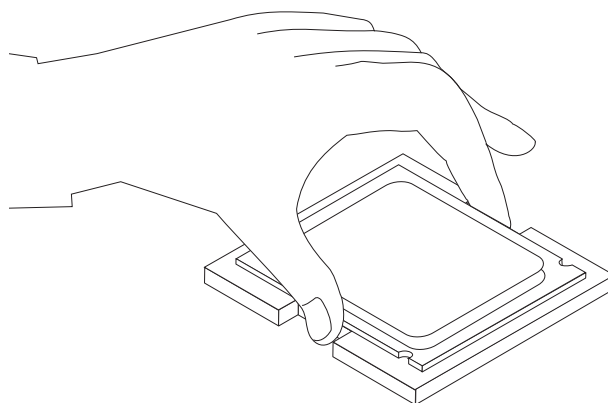
- a. Note the orientation of the notches **1** on the microprocessor. This is important when reinstalling the microprocessor on the new system board.



- b. Do not drop anything onto the microprocessor socket while it is exposed. The socket pins must be kept as clean as possible.
8. Holding the microprocessor with your fingers, remove the protective cover **2** that protects the gold contacts on the new microprocessor **1**.

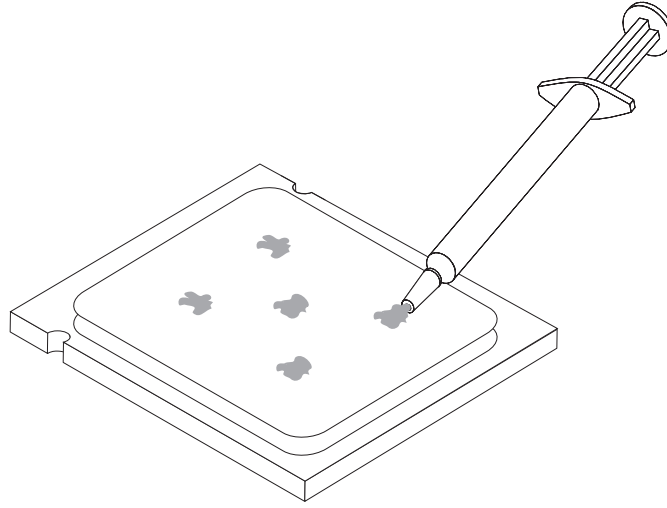


9. Make sure that the microprocessor retainer is fully open.
10. Lower the microprocessor straight down into the socket.



11. Lock the retainer with the small handle to secure the microprocessor in the socket.

12. Use the thermal grease syringe to place five drops of grease on the top of the microprocessor. Each drop of grease should be 0.03ml (3 tick marks on the grease syringe).

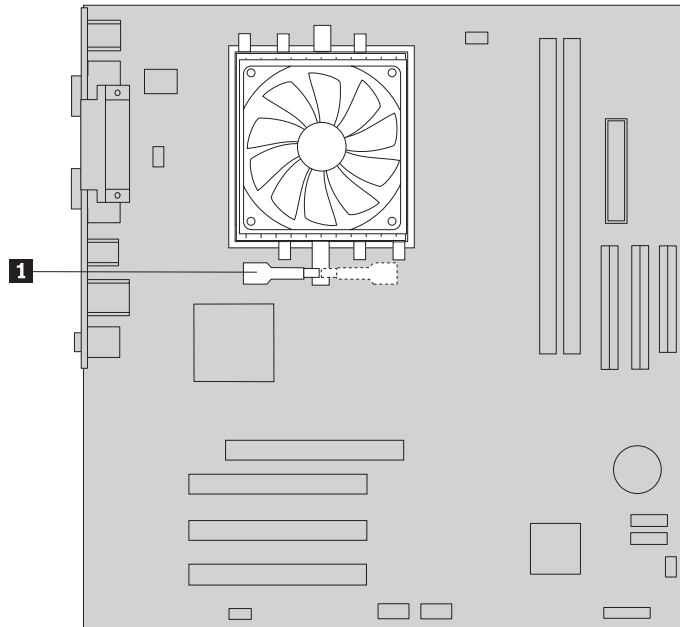


13. Install the heat sink and fan assembly on the system board.
14. Connect the heat sink and fan assembly cable to the system board. See "Identifying parts on the system board" on page 87.
15. Go to "Completing the FRU replacement" on page 112.

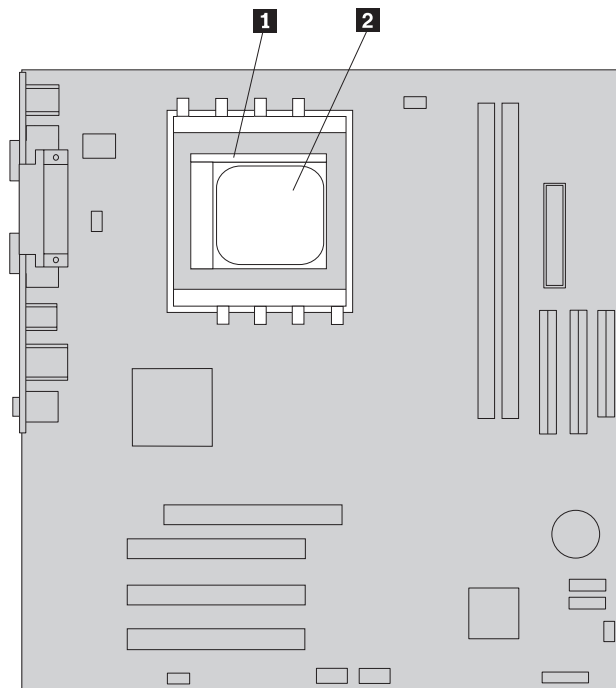
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## Replacing the microprocessor (Types 7387, 7388, and 7389)

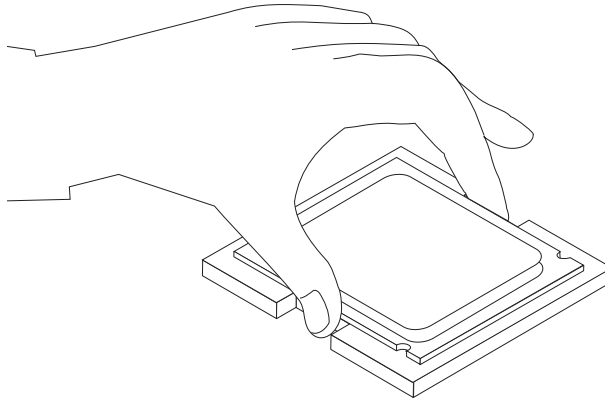
1. Remove the left-side cover. See “Removing the covers” on page 84.
2. Lay the computer on the right side to make the system board and microprocessor accessible.
3. Disconnect the heat sink and fan assembly cable from the system board. See “Identifying parts on the system board” on page 87.
4. Rotate handle **1** to release the heat sink clamp and then disengage the clamp from the plastic retention bracket.



5. Lift the heat sink and fan assembly off the failing system board. Lay the heat sink on its side so that the thermal grease does not touch anything.
6. Lift the small handle **1**.

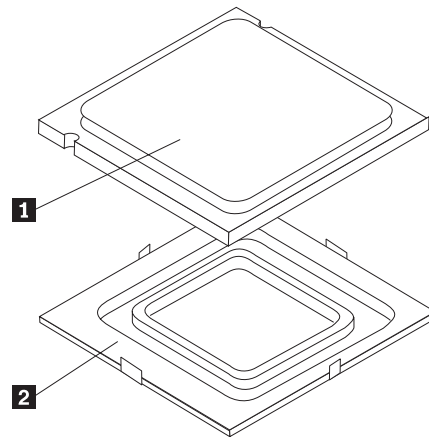


7. Lift the microprocessor **2** straight up and out of the socket.

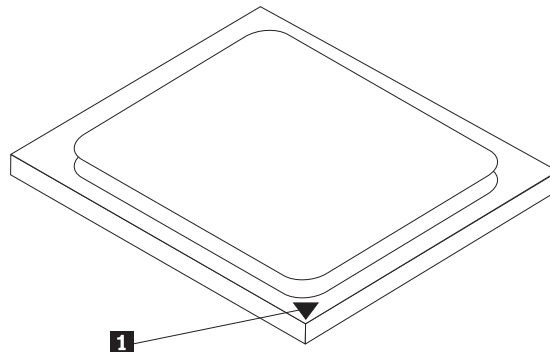


**Notes:**

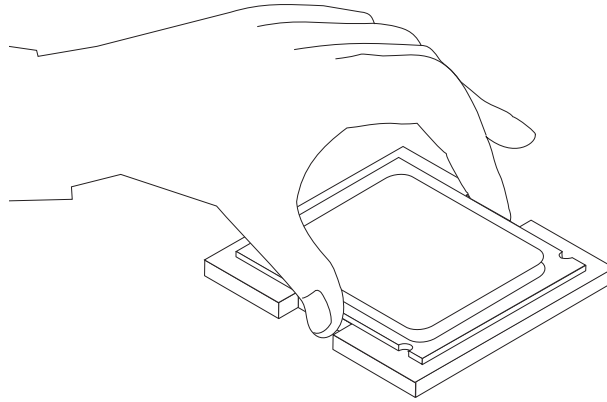
- a. Your microprocessor and socket might look different than the one illustrated.
  - b. Note the orientation of the microprocessor in the socket. Look for the small triangle on one corner of the microprocessor. This is important when reinstalling the microprocessor on the new system board.
  - c. Do not drop anything onto the microprocessor socket while it is exposed. The socket pins must be kept as clean as possible.
8. Make sure that the microprocessor retainer is fully open.
9. Holding the microprocessor with your fingers, remove the protective cover **2** that protects the gold contacts on the new microprocessor **1**.



10. Holding the microprocessor with your fingers, position the microprocessor so that the triangle **1** is aligned with the corresponding triangle on the socket.

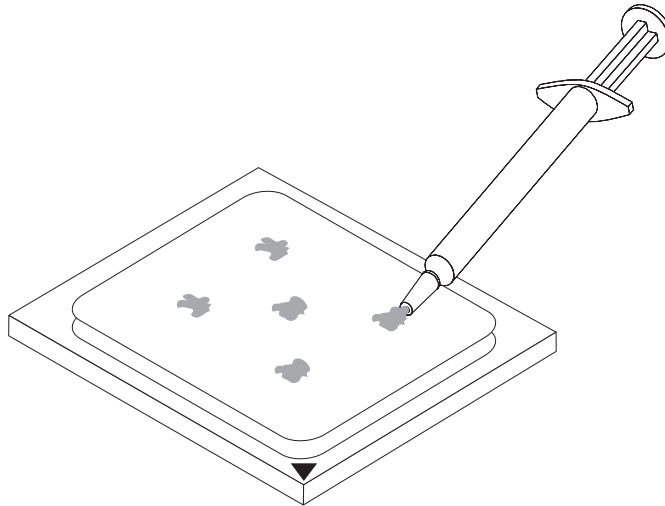


11. Lower the microprocessor straight down into the socket.



**Note:** Install the black protective cover that was removed from the new microprocessor onto the defective microprocessor after the installation is complete.

12. Lower the small handle to secure the microprocessor in the socket.
13. Use the thermal grease syringe to place five drops of grease on the top of the microprocessor. Each drop of grease should be 0.03ml (3 tick marks on the grease syringe).



14. Install the heat sink and fan assembly on the system board.
15. Connect the heat sink and fan assembly cable to the system board. See "Identifying parts on the system board" on page 87.
16. Go to "Completing the FRU replacement" on page 112.

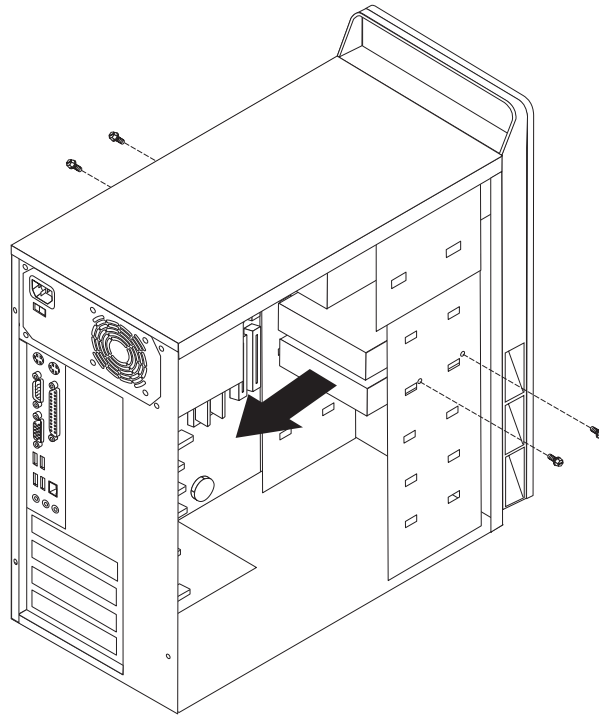


## Replacing the primary hard disk drive

### Important

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

1. Remove the left-side and right-side covers. See “Removing the covers” on page 84.
2. Disconnect the signal and power cables from the rear of the hard disk drive.
3. Remove the two screws that secure the drive on each side.

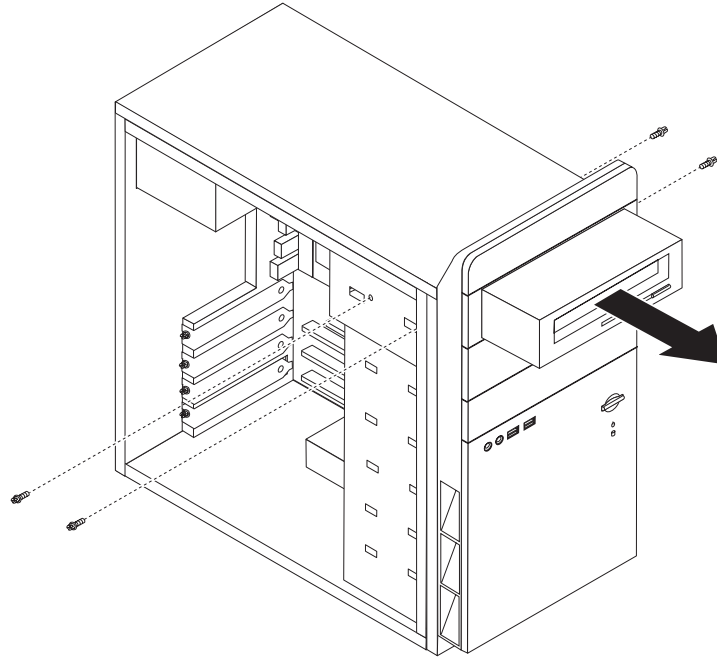


4. Slide the drive toward the rear of the chassis until it can be removed.
5. If the drive you are replacing has jumpers on the rear, make sure the jumpers on the new drive are in the same exact position as the drive being replaced.
6. Slide the new drive into the bay until the screws holes on each side are aligned and install two screws in each side of the drive.
7. Reconnect the signal and power cables to the rear of the hard disk drive.
8. Go to “Completing the FRU replacement” on page 112.

---

## Replacing an optical drive

1. Remove the left-side and right-side covers. See “Removing the covers” on page 84.
2. Disconnect the power cable and signal cable from the optical drive.
3. Remove the two screws that secure the drive on each side.



4. Slide the drive being replaced out the front of the computer.
5. If the drive you are replacing has jumpers on the rear, make sure the jumpers on the new drive are in the same exact position as the drive being replaced.
6. Slide the new drive into the bay until the screws holes on each side are aligned and install two screws in each side of the drive.
7. Reconnect the power cable and signal cable to the new optical drive.
8. Go to “Completing the FRU replacement” on page 112.

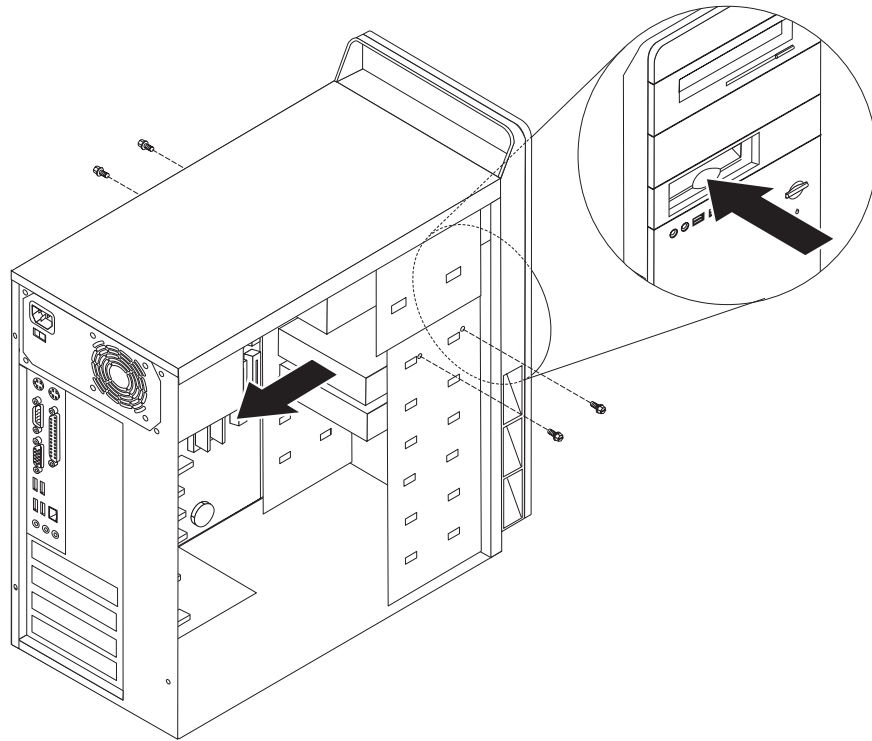
---

## Replacing the diskette drive

1. Remove the left-side and right-side covers. See “Removing the covers” on page 84.
2. Disconnect the signal and power cables from the rear of the hard disk drive.

**Note:** You will probably have to disconnect cables that are connected to the system board and other drives to allow the diskette drive to be removed from inside the chassis.

3. Remove the two screws that secure the drive on each side.



4. Slide the drive toward the rear of the chassis until it can be removed.
5. Slide the new drive into the bay until the screws holes on each side are aligned and install two screws in each side of the drive.
6. Reconnect all signal and power cables that were disconnected. See “Identifying parts on the system board” on page 87.
7. Go to “Completing the FRU replacement” on page 112.

---

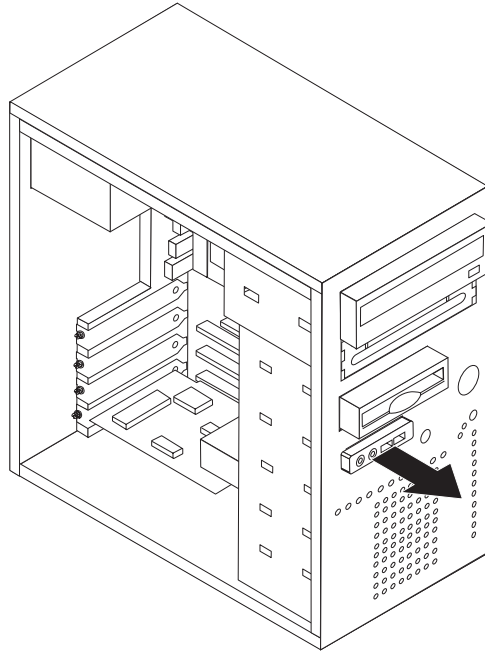
## Replacing the power switch/ LED assembly

1. Disconnect the power switch/LED assembly cable from the system board. See “Identifying parts on the system board” on page 87.
2. Remove the front bezel. See “Removing and replacing the front bezel” on page 89.
3. Remove the power switch/LED assembly by disconnecting it from the inside of the bezel.
4. Install the new power switch/LED assembly into the bezel.
5. Route the cable for the new power switch/LED assembly through the hole in the chassis and to the system board.
6. Reinstall the bezel. See “Removing and replacing the front bezel” on page 89.
7. Reconnect the power switch/LED cable to the system board.
8. Go to “Completing the FRU replacement” on page 112.

---

## Replacing the front panel card assembly

1. Remove the left-side and right-side covers. See “Removing the covers” on page 84.
2. Remove the front bezel. See “Removing and replacing the front bezel” on page 89.
3. Disconnect the front USB cable and the front audio cable from the system board. See “Identifying parts on the system board” on page 87.
4. Remove the screw on the front of the chassis that secures the front panel assembly.



5. Route the new front panel cable through the front of the chassis and Install the screw secures the front panel assembly.
6. Reinstall the bezel. See “Removing and replacing the front bezel” on page 89.
7. Connect the front USB cable and the front audio cable to the system board. See “Identifying parts on the system board” on page 87.
8. Go to “Completing the FRU replacement” on page 112.

---

## Completing the FRU replacement

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

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

1. Ensure that all components have been reassembled correctly and that no tools or loose screws are left inside the computer.
2. Replace the covers that were removed and secure them with the thumb screws.
3. Reconnect the external cables and power cords to the computer. See “Rear connectors” on page 84.
4. If you have replaced the system board, you must update (flash) the BIOS. See “Flash update procedures” on page 191.
5. Some FRU replacements require the configuration to be updated. See Chapter 6, “Using the Setup Utility,” on page 51.

---

## Chapter 9. Replacing FRUs (Types 7390, 7391, 7392, 7396, 7397, and 7398)

### Important

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

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

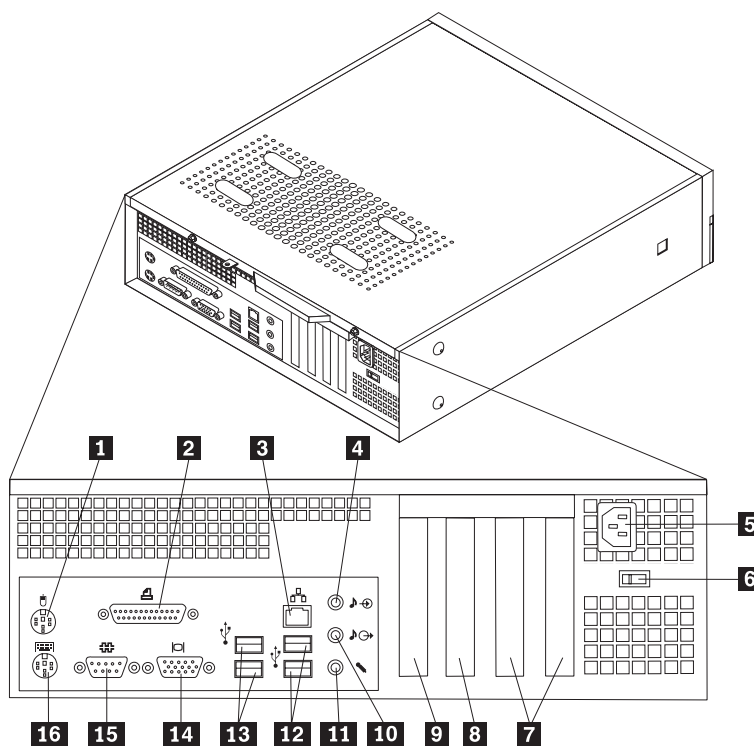
This chapter does not contain a remove and replace procedure for all FRUs. Only the major FRUs are documented.

**Note:** The computer might look slightly different than the illustrations in this chapter.

---

## Rear connectors

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



- |                                                                                         |                                                                                         |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| <b>1</b> Standard mouse connector                                                       | <b>9</b> PCI Express x1 adapter or Express x16 graphics adapter connector (some models) |
| <b>2</b> Parallel connector                                                             | <b>10</b> Audio line out connector                                                      |
| <b>3</b> Ethernet connector                                                             | <b>11</b> Microphone connector                                                          |
| <b>4</b> Audio line in connector                                                        | <b>12</b> USB connectors                                                                |
| <b>5</b> Power cord connector                                                           | <b>13</b> USB connectors                                                                |
| <b>6</b> Voltage selection switch (some models)                                         | <b>14</b> VGA monitor connector                                                         |
| <b>7</b> PCI adapter connectors                                                         | <b>15</b> Serial connector                                                              |
| <b>8</b> PCI Express x1 adapter or Express x16 graphics adapter connector (some models) | <b>16</b> Standard keyboard connector                                                   |

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## Removing the cover

### Important

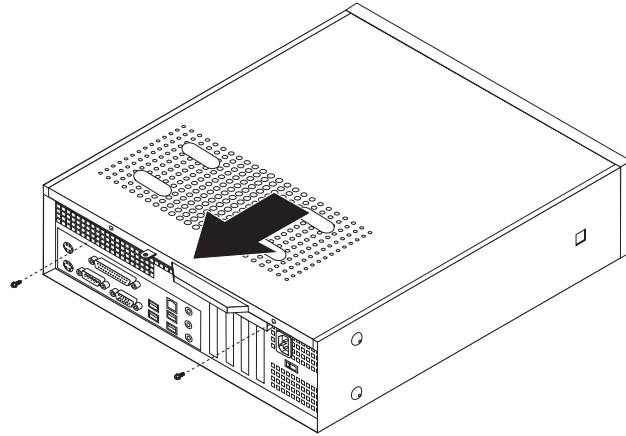
Read Chapter 2, "Safety information," on page 3 and "Handling electrostatic discharge-sensitive devices" on page 6 before opening the cover.

To remove the computer cover:

1. Remove any media (diskettes, CDs, or tapes) from the drives, shut down the operating system, and turn off all attached devices.
2. Unplug all power cords from electrical outlets.

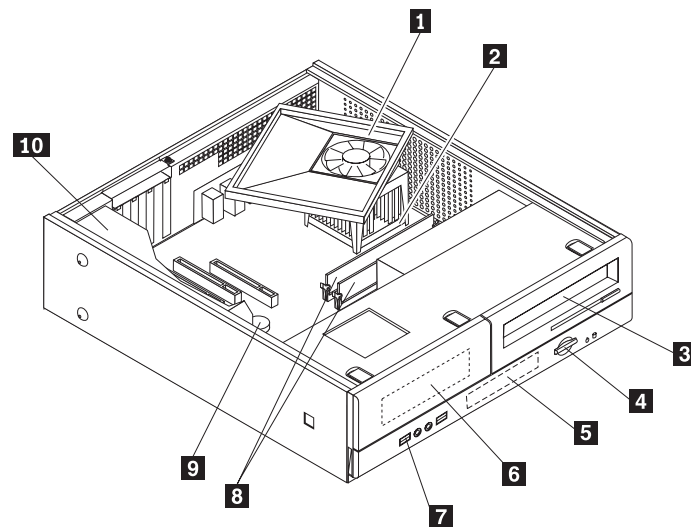


3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer.
4. Remove any locking devices such as a padlock that secure the cover.
5. Remove the two screws at the rear of the computer cover and slide the cover to the rear.



## Locations

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

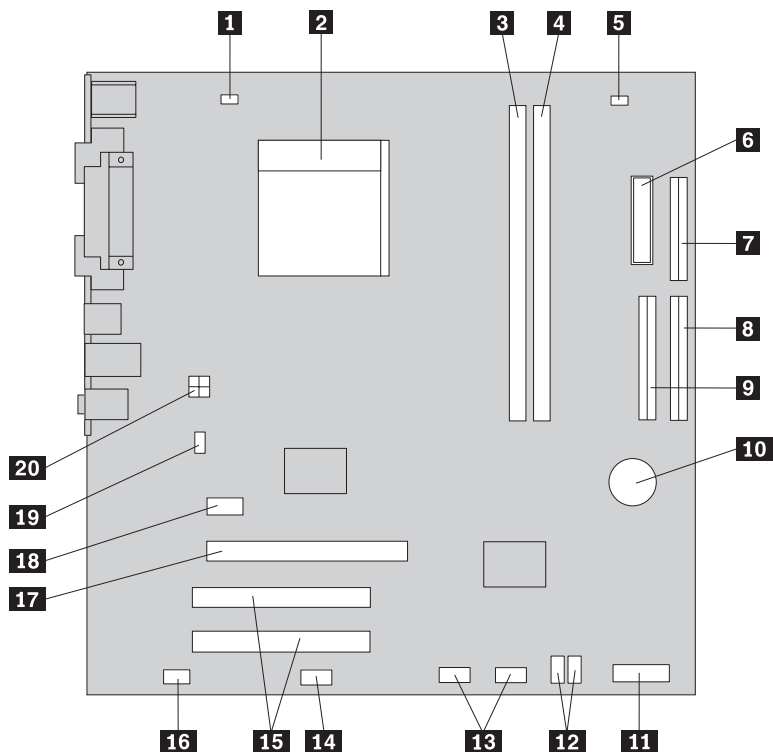


- |                                         |                           |
|-----------------------------------------|---------------------------|
| <b>1</b> Fan plenum, fan, and heat sink | <b>6</b> Diskette drive   |
| <b>2</b> Microprocessor                 | <b>7</b> Front panel card |
| <b>3</b> Optical drive                  | <b>8</b> Memory modules   |
| <b>4</b> Power switch/LED assembly      | <b>9</b> System board     |
| <b>5</b> Hard disk drive                | <b>10</b> Power supply    |

## Identifying parts on the system board

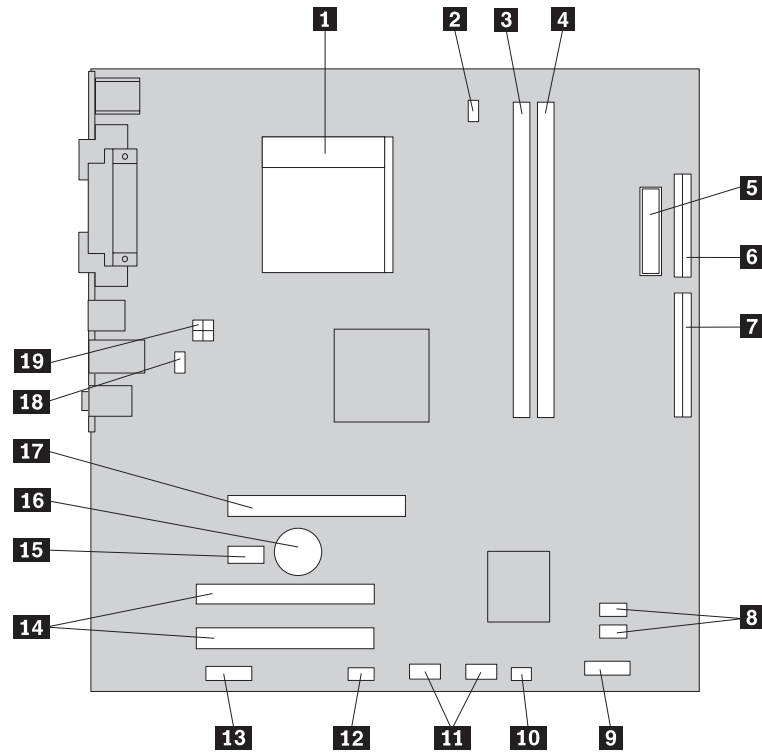
System board locations are different depending on the machine type.

### Machine Types 7390, 7391, and 7392



- |                                       |                                                      |
|---------------------------------------|------------------------------------------------------|
| <b>1</b> Microprocessor fan connector | <b>11</b> Front panel (power switch/LED) connector   |
| <b>2</b> Microprocessor and heat sink | <b>12</b> SATA IDE connectors (2)                    |
| <b>3</b> Memory connector 1           | <b>13</b> Front USB connectors (2)                   |
| <b>4</b> Memory connector 2           | <b>14</b> Serial (COM2 connector)                    |
| <b>5</b> Clear CMOS/Recovery jumper   | <b>15</b> PCI adapter connectors                     |
| <b>6</b> Power supply connector       | <b>16</b> Front audio connector                      |
| <b>7</b> Diskette drive connector     | <b>17</b> PCI Express x16 graphics adapter connector |
| <b>8</b> IDE connector 1              | <b>18</b> PCI Express x1 graphics adapter connector  |
| <b>9</b> IDE connector 2              | <b>19</b> System fan connector                       |
| <b>10</b> CMOS battery                | <b>20</b> 12V power connector                        |

## Machine Types 7396, 7397, and 7398



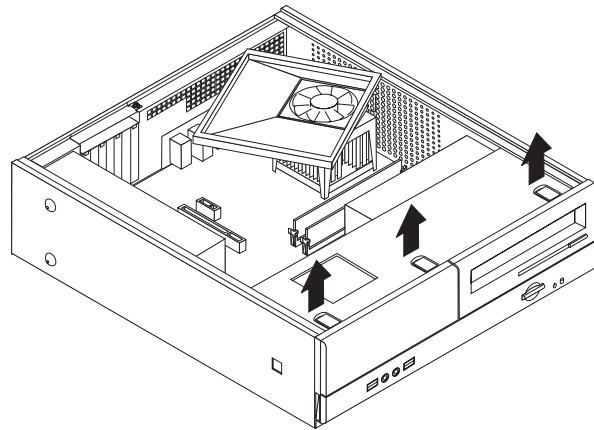
- |                                                   |                                                      |
|---------------------------------------------------|------------------------------------------------------|
| <b>1</b> Microprocessor and heat sink             | <b>11</b> Front USB connectors (2)                   |
| <b>2</b> Microprocessor fan connector             | <b>12</b> Serial (COM2) connector                    |
| <b>3</b> Memory connector 1                       | <b>13</b> Front audio connectors                     |
| <b>4</b> Memory connector 2                       | <b>14</b> PCI adapter connectors (2)                 |
| <b>5</b> Power connector                          | <b>15</b> PCI Express x1 graphics adapter connector  |
| <b>6</b> Diskette drive connector                 | <b>16</b> CMOS battery                               |
| <b>7</b> IDE connector                            | <b>17</b> PCI Express x16 graphics adapter connector |
| <b>8</b> SATA IDE connectors (2)                  | <b>18</b> System fan connector                       |
| <b>9</b> Front panel (power switch/LED) connector | <b>19</b> 12V power connector                        |
| <b>10</b> Clear CMOS/Recovery jumper              |                                                      |

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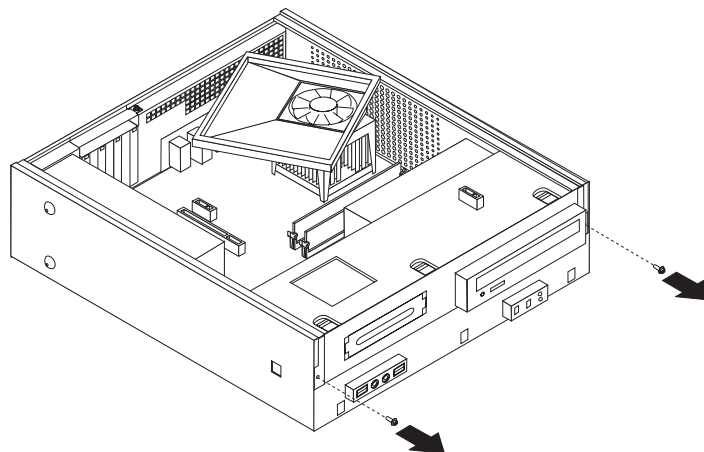
## Removing and replacing the drive bay assembly

You will need to remove the drive bay assembly to access some FRUs.

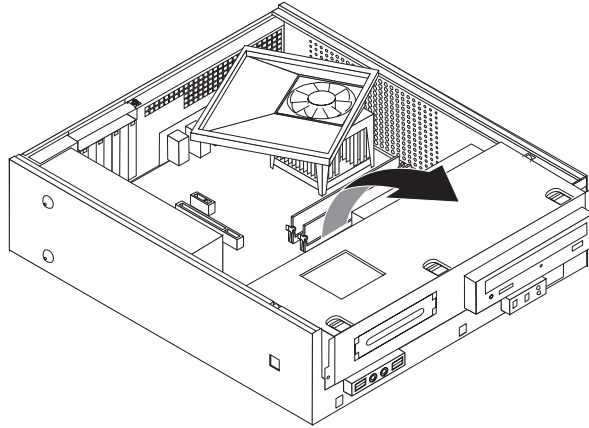
1. Remove the computer cover. See “Removing the cover” on page 114.
2. Remove the front bezel by releasing the three tabs and pivoting the top of the bezel outward.



3. Remove the two screws at the front of the chassis securing the drive bay assembly.



4. Slide the drive bay assembly forward until it stops. Disconnect the power supply and signal cables from the drives. Pivot the rear of the drive bay assembly upward to remove it completely from the computer.

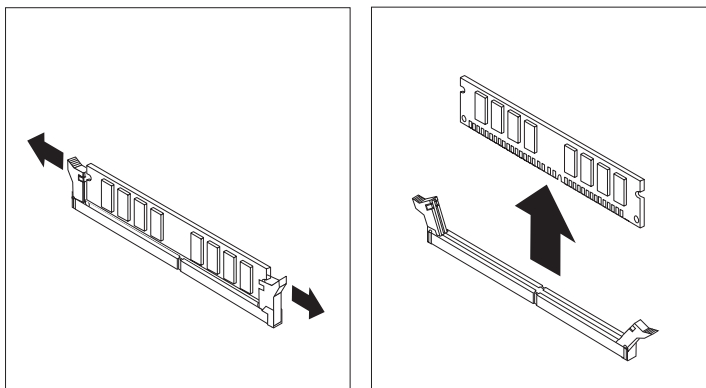


**Note:** To allow easier access to the cables, lift the fan plenum off the heat sink. See “Locations” on page 115.

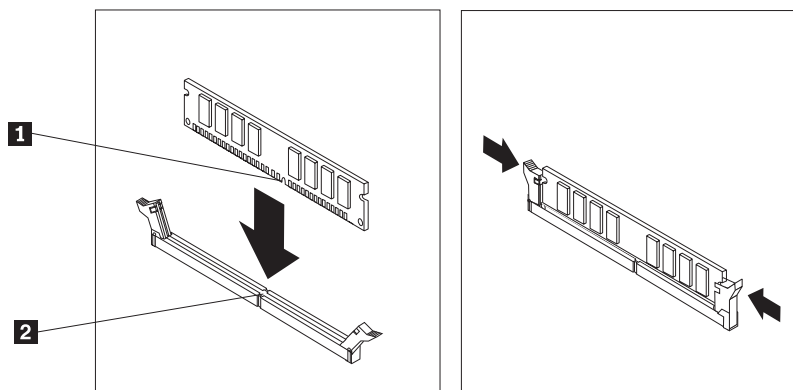
5. Reverse this procedure to replace the drive bay assembly and bezel.

## Replacing a memory module

1. Remove the cover. See “Removing the cover” on page 114.
2. Remove the drive bay assembly. See “Removing and replacing the drive bay assembly” on page 118.
3. Locate the memory connectors. See “Identifying parts on the system board” on page 116.
4. Open the retaining clips and remove the failing memory module.



5. Make sure the notch **1** on the new memory module is aligned correctly with the connector key **2** on the socket. Insert the memory module straight down into the connector until it snaps into position and the retaining clips are closed.

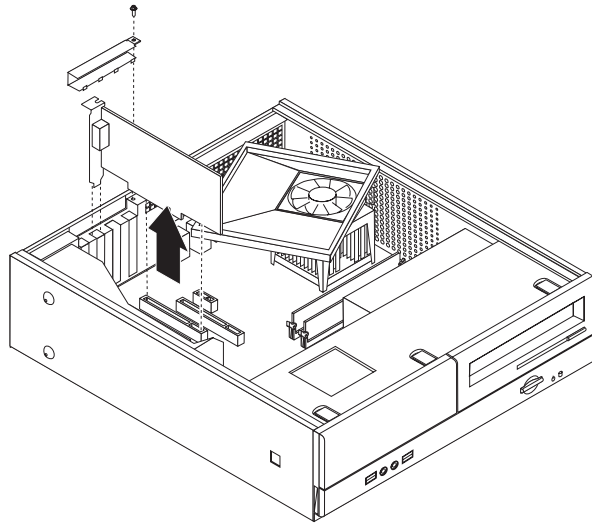


6. Replace the drive bay assembly. See “Removing and replacing the drive bay assembly” on page 118.
7. Go to “Completing the FRU replacement” on page 144.

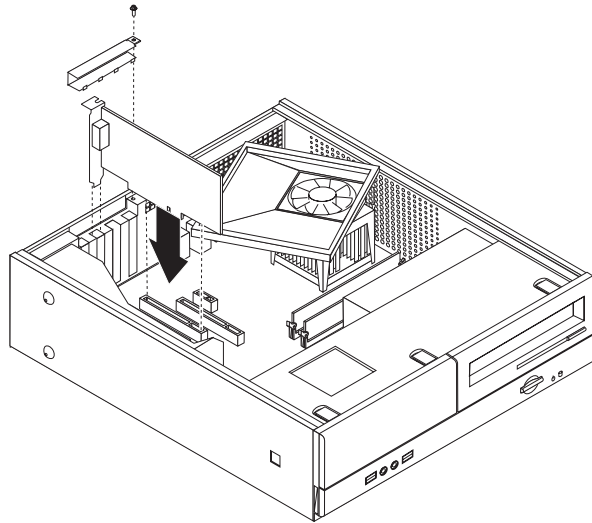
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## Replacing a PCI adapter

1. Remove the computer cover. See “Removing the cover” on page 114.
2. Remove the screw that secures the adapter retainer and remove the retainer.



3. Remove the failing adapter.
4. Remove the new adapter from its static-protective package.
5. Install the new adapter into the appropriate connector on the system board.



6. Reinstall the adapter retainer and screw that secures the retainer.
7. Go to “Completing the FRU replacement” on page 144.

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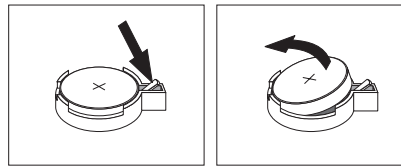
## Replacing the CMOS battery

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

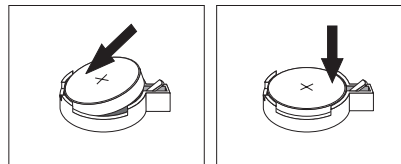
### Important

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

1. Remove the cover. See “Removing the cover” on page 114.
2. Locate the battery. See “Identifying parts on the system board” on page 116.
3. Depending on the location of the CMOS battery in the computer, you might have to remove the drive bay assembly to access the battery. If necessary, see “Removing and replacing the drive bay assembly” on page 118.
4. If necessary, remove any adapters that impede access to the battery. See “Replacing a PCI adapter” on page 121 for more information.
5. Remove the old battery.



6. Install the new battery.



7. Replace the drive bay assembly if it was removed. See “Removing and replacing the drive bay assembly” on page 118.
8. Replace any adapters that were removed to gain access to the battery. See “Replacing a PCI adapter” on page 121 for more information.

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

9. Go to “Completing the FRU replacement” on page 144.



## Replacing the power supply

### Attention

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

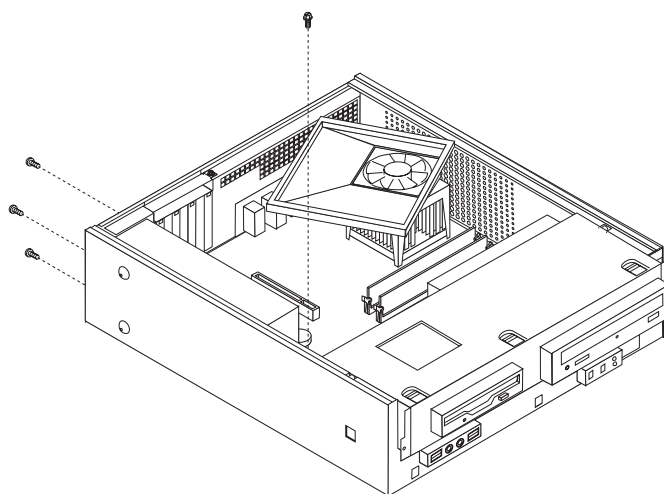


Hazardous voltage, current, and energy levels are present inside any component that has this label attached. There are no servicable parts inside these components.

1. Remove the cover. See “Removing the cover” on page 114.
2. Remove the drive bay assembly. See “Removing and replacing the drive bay assembly” on page 118.
3. Disconnect all power supply cables from the drives.
4. Disconnect all power supply cables from the system board. See “Identifying parts on the system board” on page 116.
5. Remove the hard disk drive. See “Replacing the hard disk drive” on page 140.
6. The system board must be moved out of the way to remove the power supply. Remove the screws that secure the system board to the chassis and slide the system board away from the power supply.

**Note:** You do not have to remove the system board from the chassis to remove the power supply.

7. At the rear of the chassis, remove the three screws that secure the power supply. Also remove the screw that secures the power supply at the front.



8. Lift the power supply out of the chassis.
9. Install the new power supply and install the three screws that secure the power supply at the rear of the chassis and install the screw that secures the power supply at the front.

10. Position the system board so that the screws holes are aligned and install the system board screws.
11. Install the hard disk drive. Make sure to route the power supply cable for the system board underneath the hard disk drive. See "Replacing the hard disk drive" on page 140.
12. Reconnect all other power supply cables to the system board and the drives. See "Identifying parts on the system board" on page 116. Make sure the cables are correctly routed.
13. Replace the drive bay assembly. See "Removing and replacing the drive bay assembly" on page 118.
14. Go to "Completing the FRU replacement" on page 144.

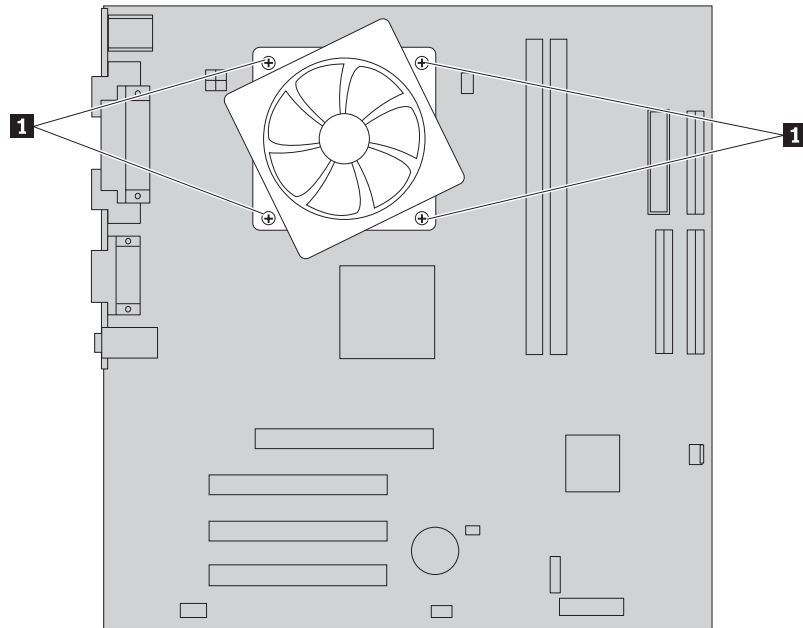
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## Replacing the system board (Types 7396, 7397, and 7398)

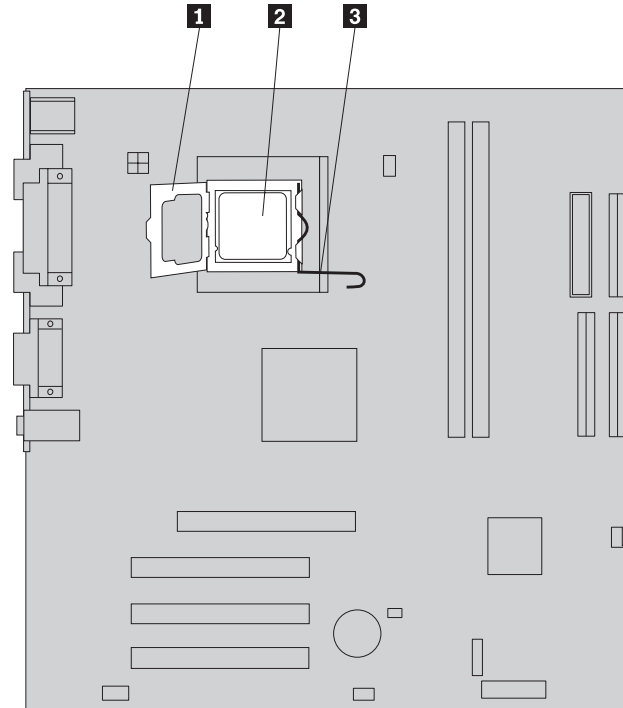
**Note:** When replacing the system board, a new retention bracket for the microprocessor heat sink is required. Make sure you have a new retention bracket before beginning this procedure.

1. Remove the cover. See “Removing the cover” on page 114
2. Lift the fan duct off the heat sink fan.
3. Remove any adapter cards installed in the PCI connectors. See “Replacing a PCI adapter” on page 121.
4. Remove the drive bay assembly. See “Removing and replacing the drive bay assembly” on page 118.
5. Take note of the location of all cable connections on the system board and disconnect all cables. See “Identifying parts on the system board” on page 116.
6. Remove the hard disk drive. See “Replacing the hard disk drive” on page 140.
7. Remove the screws that secure the system board to the chassis.
8. Lift the system board out of the chassis.
9. Remove the memory modules from the failing system board and install them in the same location on the new system board.
10. Disconnect the heat sink and fan assembly cable from the system board. See “Identifying parts on the system board” on page 116.

11. Remove the four screws **1** securing the heat sink and fan assembly to the system board.



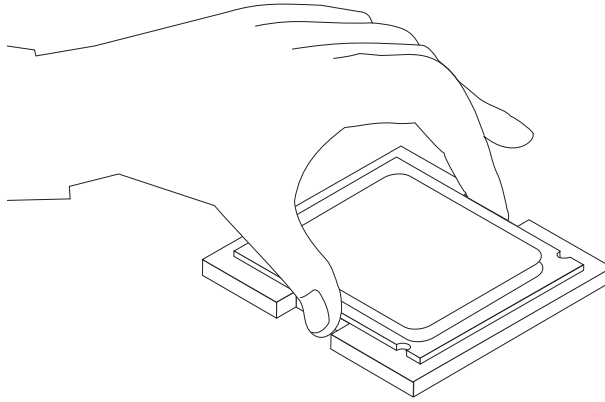
12. Lift the heat sink and fan assembly off the failing system board. Lay the heat sink on its side so that the thermal grease does not come in contact with anything.
13. Lift the small handle **3** and open the retainer **1**.



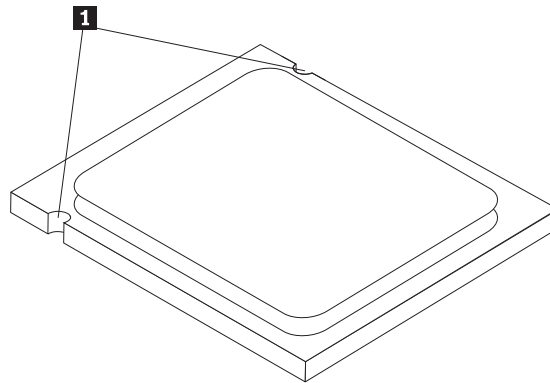
**Important**

Touch only the sides of the microprocessor. Do not touch the gold contacts on the bottom.

14. Lift the microprocessor **2** straight up and out of the socket.

**Notes:**

- a. Note the orientation of the notches **1** on the microprocessor. This is important when reinstalling the microprocessor on the new system board.



- b. Do not drop anything onto the microprocessor socket while it is exposed. The socket pins must be kept as clean as possible.
15. On the new system board, release the lever securing the microprocessor retainer and then pivot the retainer until it is fully open.

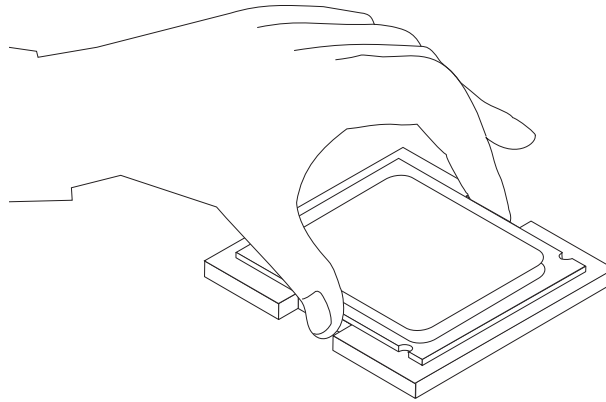
**Note:** There will be a black plastic cover on the microprocessor retainer to protect the socket on the new system board. Remove the black plastic cover and place it on the microprocessor socket of the failing system board.

16. Holding the microprocessor with your fingers, position the microprocessor so that the notches on the microprocessor are aligned with the tabs in the microprocessor socket.

**Important**

To avoid damaging the microprocessor contacts, do not tilt the microprocessor when installing it into the socket.

17. Lower the microprocessor straight down into the system board socket of the new system board.

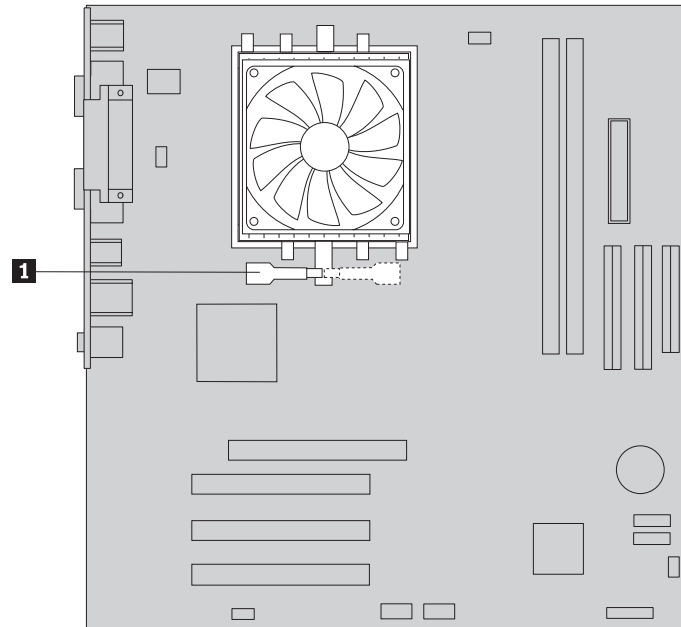


18. Lower the microprocessor retainer.
19. Lock the retainer with the small handle to secure the microprocessor in the socket.
20. The new retention bracket has plastic one-way rings on the posts that insert into the rear of the new system board. Install the new retention bracket by aligning the posts on the module with the holes in the system board and pushing the posts through the holes until the retention bracket is secure.
21. Install the heat sink and fan assembly on the new system board.
22. Install the new system board into the chassis and align the screw holes with those in the chassis. Insert and tighten the screws that secure the system board.
23. Connect all cables to the system board. See "Identifying parts on the system board" on page 116.
24. Replace the hard disk drive. See "Replacing the hard disk drive" on page 140.
25. Install the drive bay assembly and connect the power and signal cables to the drives.
26. Reinstall any PCI adapter cards that were removed. See "Replacing a PCI adapter" on page 121.
27. Position the fan duct on the heat sink fan.
28. Go to "Completing the FRU replacement" on page 144.

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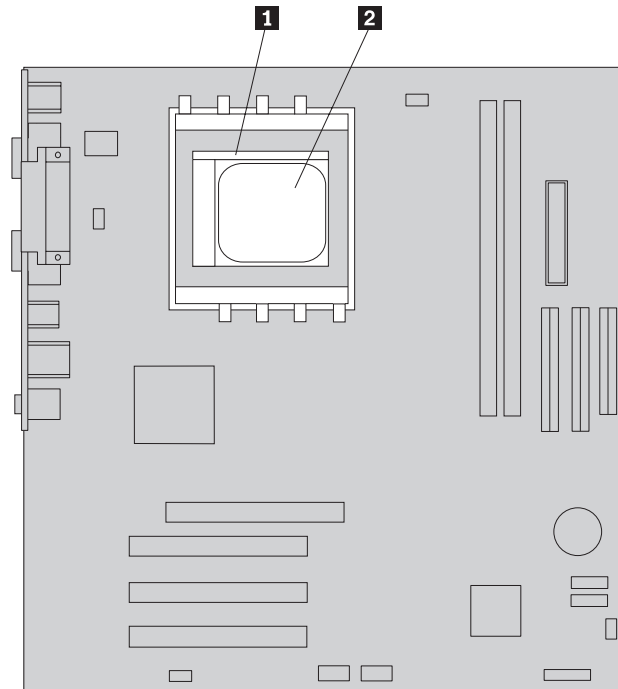
## Replacing the system board (Types 7390, 7391, and 7392)

1. Remove the cover. See “Removing the cover” on page 114.
2. Lift the fan duct off the heat sink fan.
3. Remove any adapter cards installed in the PCI connectors. See “Replacing a PCI adapter” on page 121.
4. Remove the drive bay assembly. See “Removing and replacing the drive bay assembly” on page 118.
5. Take note of the location of all cable connections on the system board and disconnect all cables. See “Identifying parts on the system board” on page 116.
6. Remove the hard disk drive. See “Replacing the hard disk drive” on page 140.
7. Remove the screws that secure the system board to the chassis.
8. Lift the system board out of the chassis.
9. Remove the retention module from the rear of the failing system board.
10. Remove the memory modules from the failing system board and install them in the same location on the new system board.
11. Disconnect the heat sink and fan assembly cable from the system board. See “Identifying parts on the system board” on page 116.
12. Rotate handle **1** to release the heat sink clamp and then disengage the clamp from the plastic retention bracket.



13. Lift the heat sink and fan assembly off the failing system board.

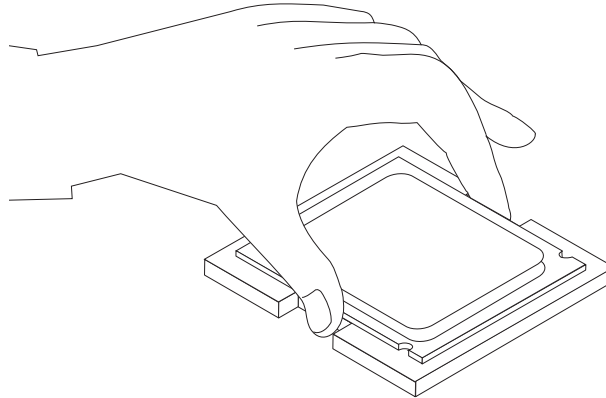
14. Lift the small handle **1**.



**Important**

Touch only the sides of the microprocessor. Do not touch the gold contacts on the bottom.

15. Lift the microprocessor **2** straight up and out of the socket.

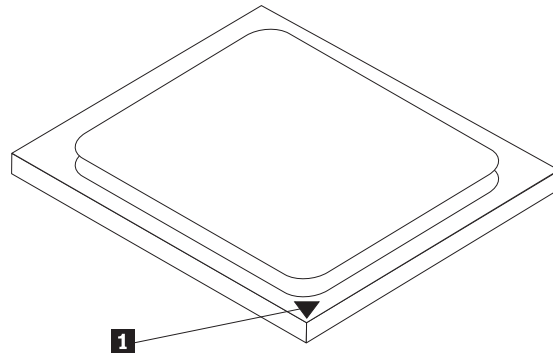


**Notes:**

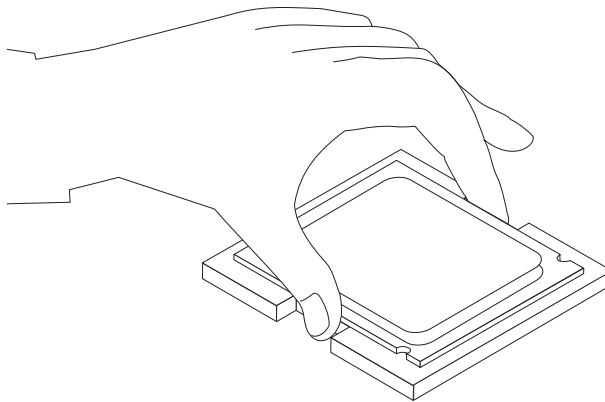
- Your microprocessor and socket might look different than the one illustrated.
- Note the orientation of the microprocessor in the socket. Look for the small triangle on one corner of the microprocessor. This is important when reinstalling the microprocessor on the new system board.
- Do not drop anything onto the microprocessor socket while it is exposed. The socket pins must be kept as clean as possible.



16. Holding the microprocessor with your fingers, position the microprocessor so that the small triangle **1** on one corner is aligned with the corresponding triangle on the socket.



17. Make sure that the small handle is in the raised position.
18. Lower the microprocessor straight down into the system board socket of the new system board.



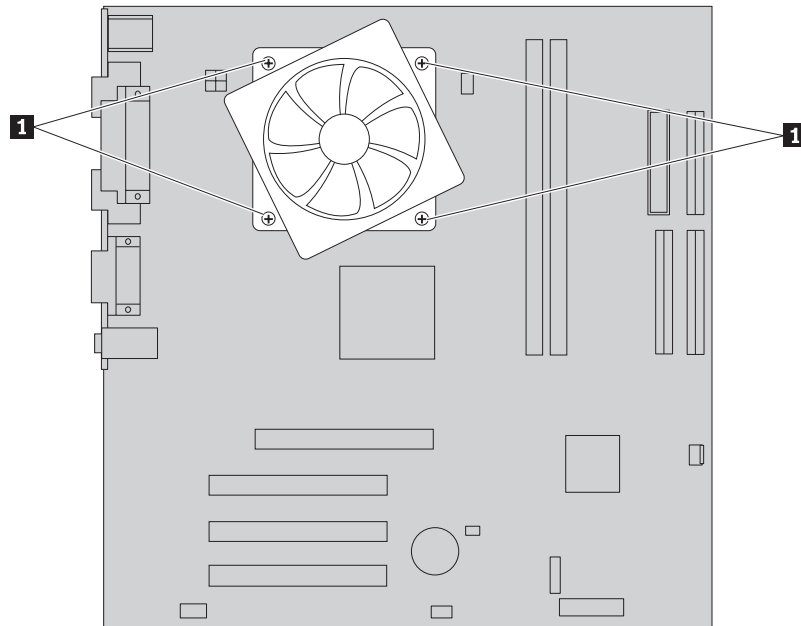
19. Lower and latch the handle to secure the microprocessor in the socket.
20. Install the retention module that was removed from the rear of the failing system board on the new system board.
21. Install the heat sink and fan assembly on the new system board.
22. Install the new system board into the chassis and align the screw holes with those in the chassis. Insert and tighten the screws that secure the system board.
23. Connect all cables to the system board. See "Identifying parts on the system board" on page 116.
24. Replace the hard disk drive. See "Replacing the hard disk drive" on page 140.
25. Install the drive bay assembly and connect the power and signal cables to the drives.
26. Reinstall any PCI adapter cards that were removed. See "Replacing a PCI adapter" on page 121.
27. Position the fan duct on the heat sink fan.
28. Go to "Completing the FRU replacement" on page 144.

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## Replacing the microprocessor (Types 7396, 7397, and 7398)

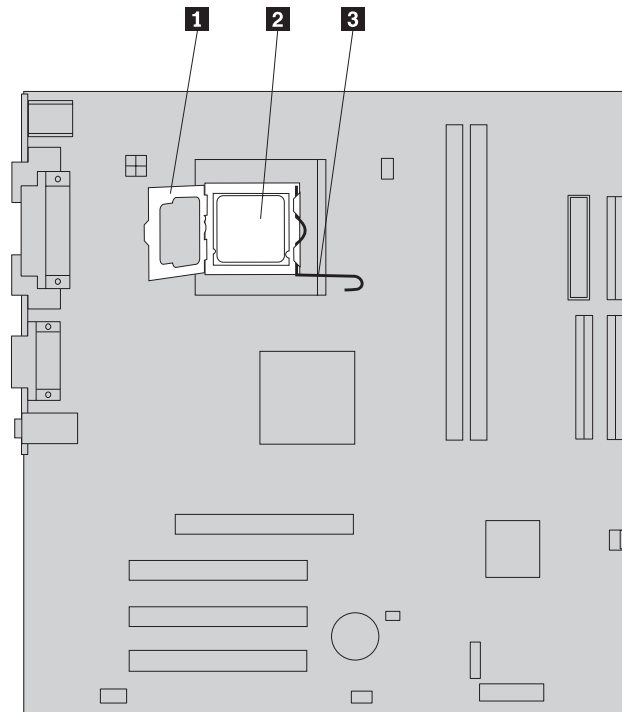
**Note:** A thermal grease syringe is required to complete the microprocessor installation. Make sure the grease syringe is available before beginning the procedure. The FRU number for the thermal grease is 91P8835.

1. Remove the cover. See “Removing the cover” on page 114.
2. Lay the computer on the right side to make the system board and microprocessor accessible.
3. Disconnect the heat sink and fan assembly cable from the system board. See “Identifying parts on the system board” on page 87.
4. Remove the four screws securing the heat sink and fan assembly to the system board. Notice that there is a retention bracket on the back side of the system board.



5. Lift the heat sink and fan assembly off the failing system board.

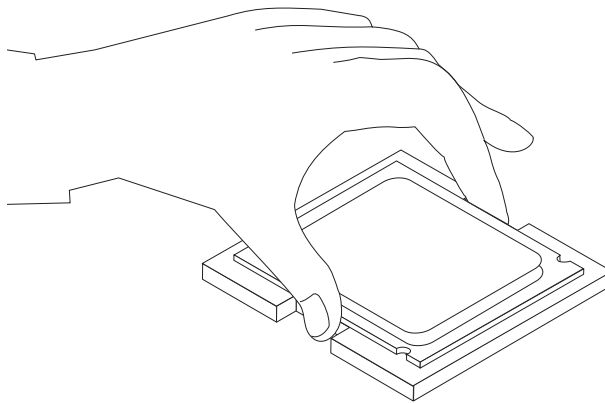
6. Lift the small handle **3** and open the retainer **1**.



**Important**

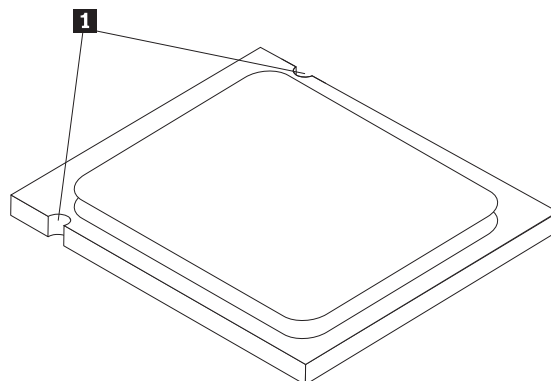
Touch only the sides of the microprocessor. Do not touch the gold contacts on the bottom.

7. Lift the microprocessor **2** straight up and out of the socket.

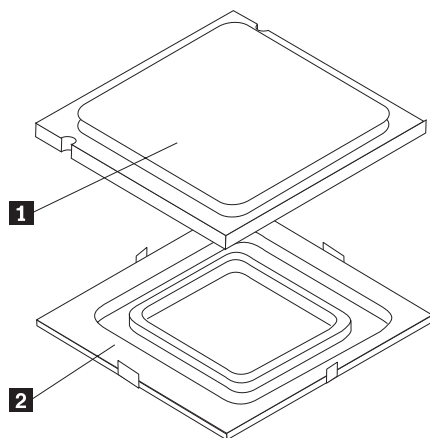


**Notes:**

- a. Note the orientation of the notches **1** on the microprocessor. This is important when reinstalling the microprocessor on the system board.



- b. Do not drop anything onto the microprocessor socket while it is exposed. The socket pins must be kept as clean as possible.
8. Make sure that the microprocessor retainer is fully open.
9. Holding the microprocessor with your fingers, remove the protective cover **2** that protects the gold contacts on the new microprocessor **1**.

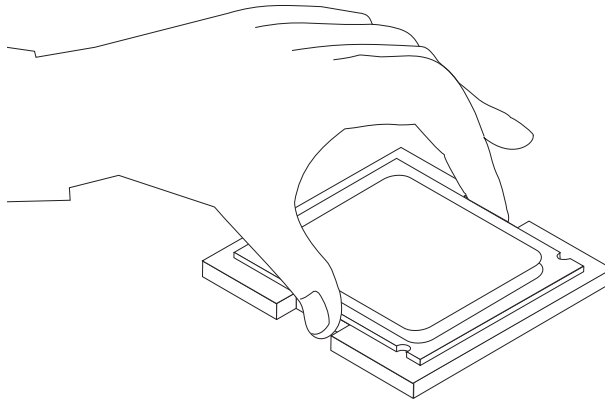


10. Holding the microprocessor with your fingers, position the microprocessor so that the notches on the microprocessor are aligned with the tabs in the microprocessor socket.

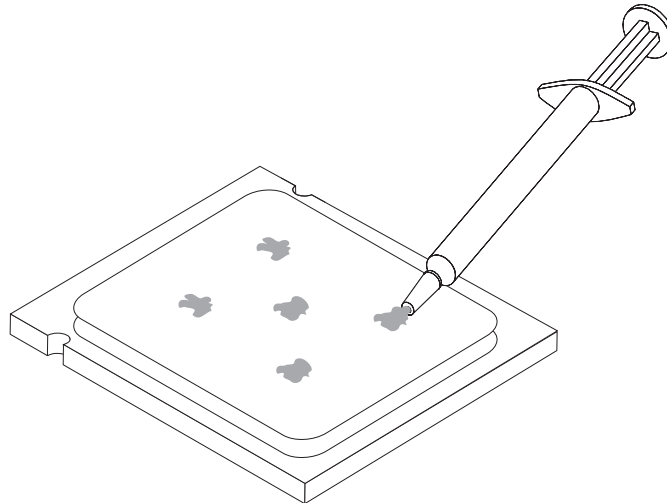
**Important**

To avoid damaging the microprocessor contacts, do not tilt the microprocessor when installing it into the socket.

11. Lower the microprocessor straight down into the system board socket of the system board.



12. Lower the microprocessor retainer.
13. Lock the retainer with the small handle to secure the microprocessor in the socket.
14. Use the thermal grease syringe to place five drops of grease on the top of the microprocessor. Each drop of grease should be 0.03ml (3 tick marks on the grease syringe).



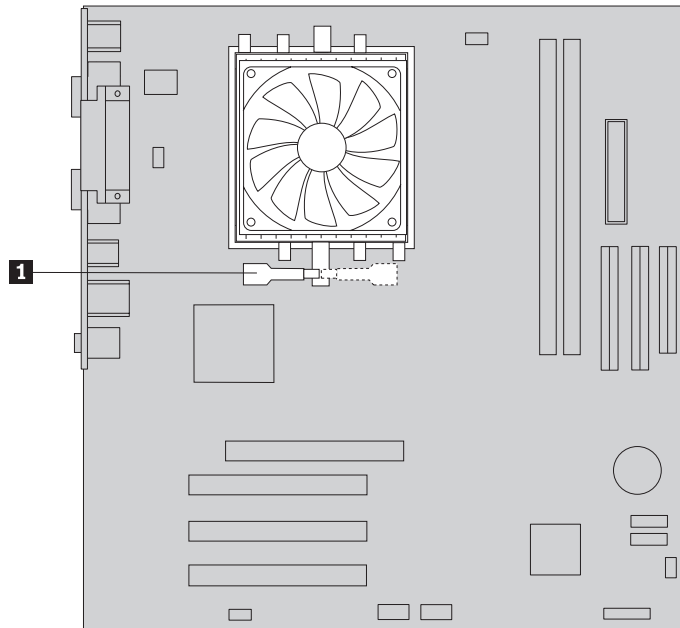
15. Install the heat sink and fan assembly on the system board.
16. Connect the heat sink and fan assembly cable to the system board. See "Identifying parts on the system board" on page 87.
17. Go to "Completing the FRU replacement" on page 112.

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## Replacing the microprocessor (Types 7390, 7391, and 7392)

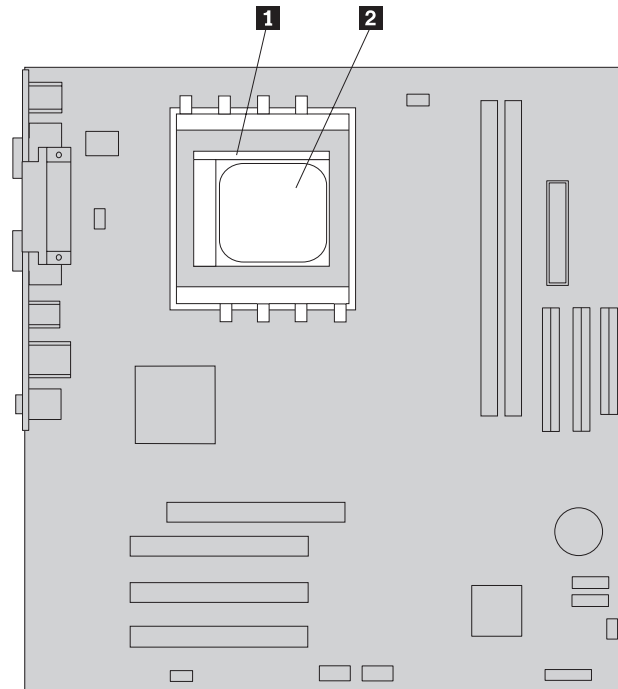
**Note:** A thermal grease syringe is required to complete the microprocessor installation. Make sure the grease syringe is available before beginning the procedure. The FRU number for the thermal grease is 91P8835.

1. Remove the cover. See “Removing the cover” on page 114.
2. Lift the fan duct off the heat sink fan.
3. Disconnect the heat sink and fan assembly cable from the system board. See “Identifying parts on the system board” on page 116.
4. Rotate handle **1** to release the heat sink clamp and then disengage the clamp from the plastic retention bracket.



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

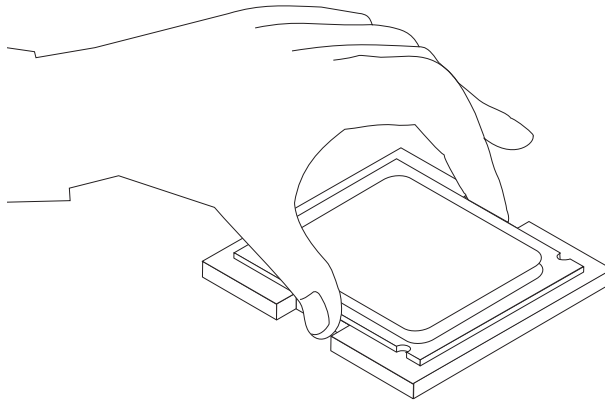
6. Lift the small handle **1**.



**Important**

Do not touch the gold contacts on the bottom of the microprocessor. If you must touch the microprocessor, touch only the sides.

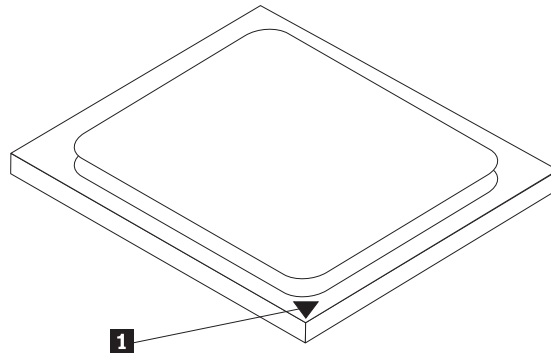
7. Lift the microprocessor **2** straight up and out of the socket.



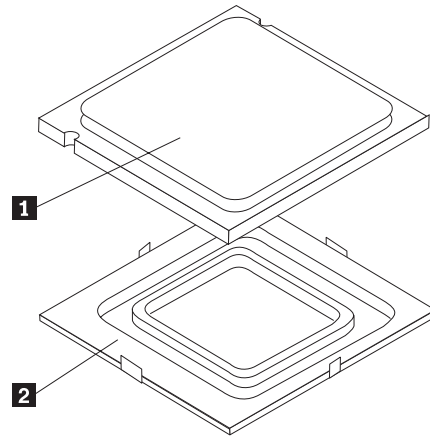
**Notes:**

- Your microprocessor and socket might look different than the one illustrated.
  - Note the orientation of the microprocessor in the socket. Look for the small triangle on one corner of the microprocessor. This is important when reinstalling the microprocessor on the system board.
  - Do not drop anything onto the microprocessor socket while it is exposed. The socket pins must be kept as clean as possible.
8. Make sure that the small handle is in the raised position.

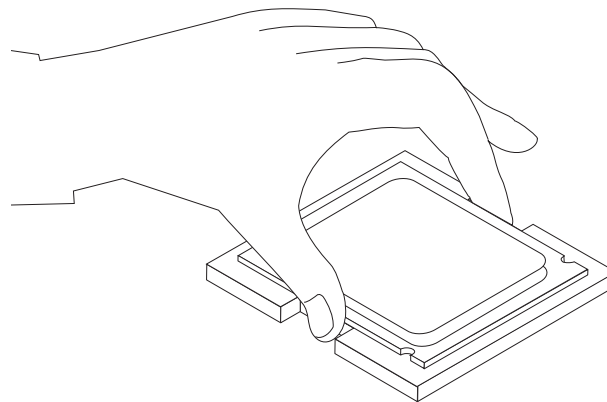
9. Holding the microprocessor with your fingers, position the microprocessor so that the small triangle on one corner is aligned with the corresponding triangle on the microprocessor socket.



10. Holding the microprocessor with your fingers, remove the protective cover **2** that protects the gold contacts on the new microprocessor **1**.



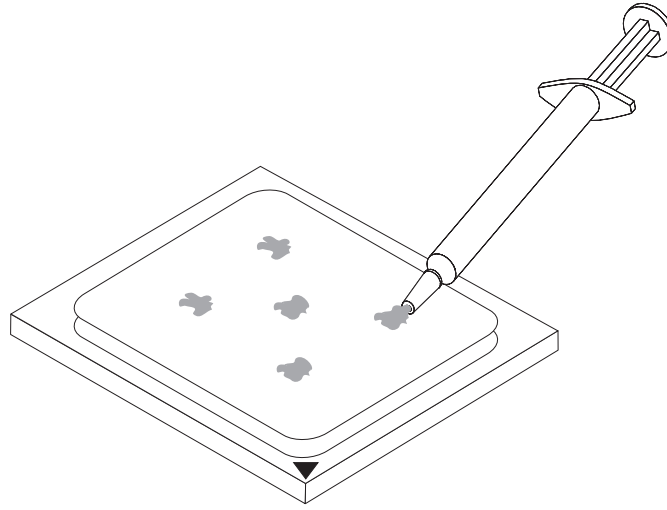
11. Lower the microprocessor straight down into the system board socket of the new system board.



12. Lower and latch the handle to secure the microprocessor in the socket.



13. Use the thermal grease syringe to place five drops of grease on the top of the microprocessor. Each drop of grease should be 0.03ml (3 tick marks on the grease syringe).

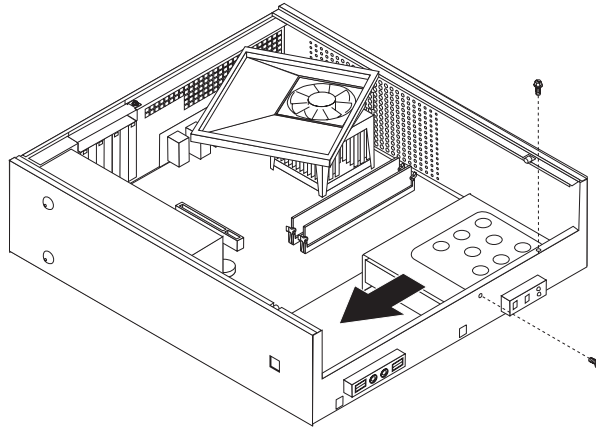


14. Install the heat sink and fan assembly on the system board.
15. Connect the heat sink and fan assembly to the system board. See "Identifying parts on the system board" on page 87.
16. Position the fan duct on the heat sink fan.
17. Go to "Completing the FRU replacement" on page 144.

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## Replacing the hard disk drive

1. Remove the cover. See "Removing the cover" on page 114.
2. Remove the drive bay assembly. See "Removing and replacing the drive bay assembly" on page 118.
3. Remove the two screws that secure the hard disk drive bracket.

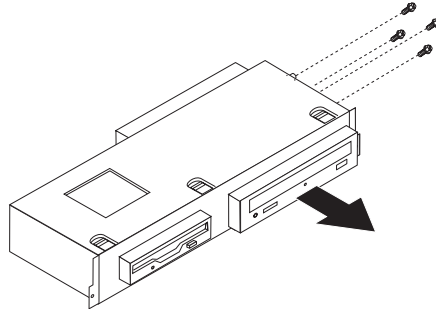


4. From the front of the chassis, slide the drive bracket to the left until it is free of the retaining clips in the bottom of the chassis. It can now be removed from the chassis.
5. Disconnect the signal and power cables from the rear of the hard disk drive.
6. Remove the four screws that secure the hard disk drive to the bracket and remove the drive from the bracket.
7. Position the new drive into the hard disk drive bracket so that the screw holes on each side are aligned and install two screws into each side of the drive.
8. Reconnect the signal and power cables to the rear of the hard disk drive.
9. Position the hard disk drive bracket so that it engages the retaining clips in the bottom of the chassis when you slide the bracket to the right.
10. Slide the hard disk drive bracket to the right until the screw holes are aligned and install the screws.
11. Reinstall the drive bay assembly and connect the power and signal cables to the drives.
12. Go to "Completing the FRU replacement" on page 144.

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## Replacing an optical drive

1. Remove the cover. See “Removing the cover” on page 114.
2. Remove the drive bay assembly. See “Removing and replacing the drive bay assembly” on page 118.
3. Remove the screws that secure the drive in the drive bay assembly.

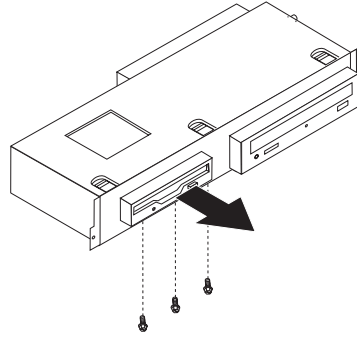


4. Slide the drive being replaced out the front of the drive bay assembly.
5. Slide the new drive into the bay until the screws holes on each side are aligned and install the screws that secure the drive to the drive bay assembly.
6. Reinstall the drive bay assembly. See “Removing and replacing the drive bay assembly” on page 118.
7. Go to “Completing the FRU replacement” on page 144.

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## Replacing the diskette drive

1. Remove the cover. See "Removing the cover" on page 114.
2. Remove the drive bay assembly. See "Removing and replacing the drive bay assembly" on page 118.
3. Remove the screws at the bottom of the diskette drive that secure the drive to the drive bay assembly.

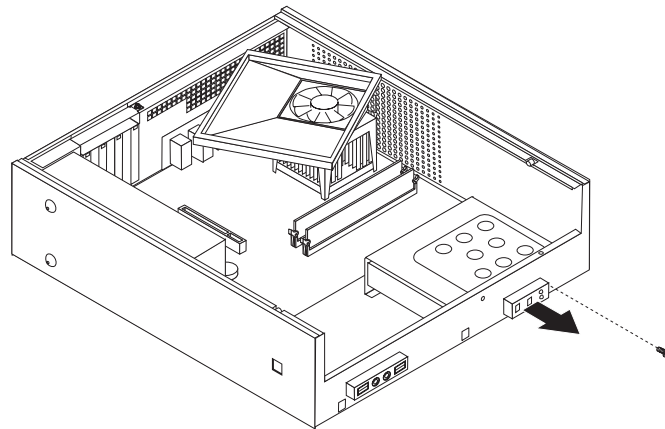


4. Slide the diskette drive out of the drive bay assembly.
5. Slide the new drive into the bay until the screws holes at the bottom of the drive are aligned and install the screws that secure the drive to the drive bay assembly.
6. Reinstall the drive bay assembly. See "Removing and replacing the drive bay assembly" on page 118.
7. Go to "Completing the FRU replacement" on page 144.

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## Replacing the power switch/ LED assembly

1. Remove cover. See “Removing the cover” on page 114.
2. Remove the drive bay assembly. See “Removing and replacing the drive bay assembly” on page 118.
3. Remove the hard disk drive. See “Replacing the hard disk drive” on page 140.
4. Disconnect the power switch/LED assembly cable from the system board. See “Identifying parts on the system board” on page 116.
5. Remove the screw that secures the power switch/LED assembly to the chassis.

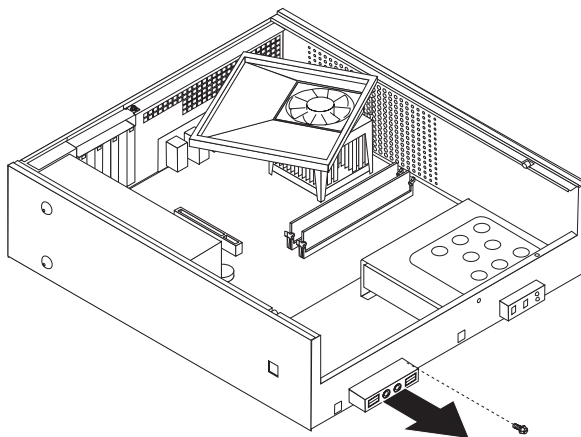


6. Note the power switch/LED assembly cable routing and remove the assembly from the chassis.
7. Route the cable for the new power switch/LED assembly through the hole in the chassis and to the system board.
8. Install the power switch/LED assembly into the chassis and secure the assembly with the screw.
9. Connect the power switch/LED cable to the system board.
10. Reinstall the hard disk drive. See “Replacing the hard disk drive” on page 140.
11. Reinstall the drive bay assembly. See “Removing and replacing the drive bay assembly” on page 118.
12. Go to “Completing the FRU replacement” on page 144.

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## Replacing the front panel card

1. Remove cover. See "Removing the cover" on page 114.
2. Remove the drive bay assembly. See "Removing and replacing the drive bay assembly" on page 118.
3. Disconnect the front panel assembly cables from the system board. See "Identifying parts on the system board" on page 116.
4. Remove the screw that secures the front panel card assembly to the chassis.



5. Note the front panel assembly cable routing and remove the assembly from the chassis.
6. Route the cable for the new front panel card assembly through the hole in the chassis and to the system board.
7. Install the front panel card assembly into the chassis and secure it with the screw.
8. Connect the front panel assembly cables to the system board.
9. Reinstall the drive bay assembly. See "Removing and replacing the drive bay assembly" on page 118.
10. Go to "Completing the FRU replacement."

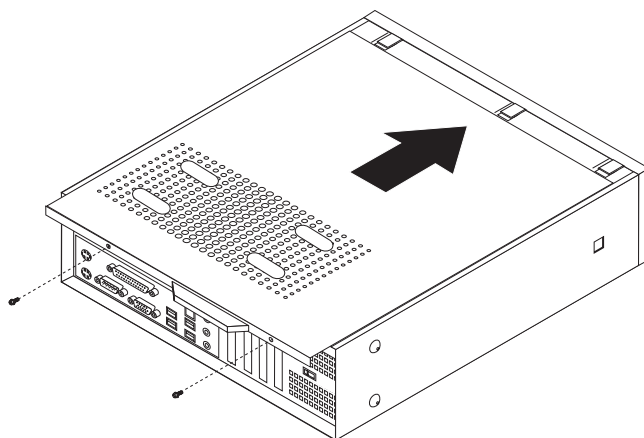
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## Completing the FRU replacement

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

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

1. Ensure that all components have been reassembled correctly and that no tools or loose screws are left inside the computer.
2. Replace the cover and secure it with two screws.



3. Reconnect the external cables and power cords to the computer. See “Rear connectors” on page 114.
4. If you have replaced the system board, you must update (flash) the BIOS. See “Flash update procedures” on page 191.
5. Some FRU replacements require the configuration to be updated. See Chapter 6, “Using the Setup Utility,” on page 51.





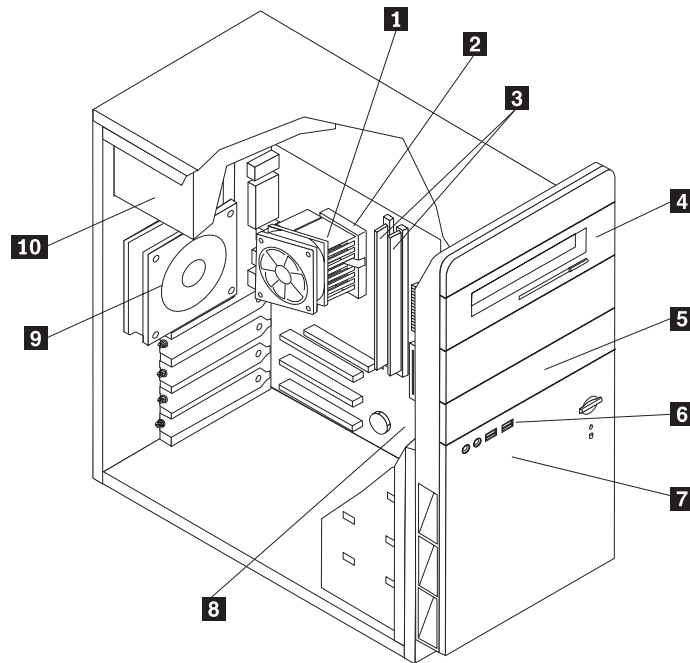
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## Chapter 10. FRU lists

### Notes:

1. In the following tables, A CRU (Customer Replaceable Unit) is identified by either a 1, 2, or N in the CRU Tier column. A "1" means that the part is a Tier 1 CRU, A "2" means that the part is a Tier 2 CRU, and an "N" means that the part is not a CRU.
2. For some machine types, there is a column with a heading of **RoHS?**. This column contains a "Y" if the FRU is RoHS compliant or an "N" if the FRU is not RoHS compliant. Please read "Important information about replacing RoHS compliant FRUs" on page 2 before replacing any FRUs.

## Machine Type 7387



Item #	7387 FRUs	FRU#	CRU Tier	RoHS?
1	Heat Sink/RM Kit, AMD Athlon/Sempron (all models)	41N8249	N	Y
2	Microprocessor, 3800+ Athlon64 AM2 X2 (2.0 GHz processor, 89W) (models 21G 21B 22U 22S 22P 22M 23S 23P 23Y 24U 24F 24S 24P 24Y 25G 26U 26F 27U 27F 28G 21Q 26S 26Y 27S 27Y)	41X4241	N	Y
2	Microprocessor, 4200+ Athlon64 AM2 X2 (2.2 GHz processor, 89W) (models 41U 41F 41S 41P 41Y 42M 42A 42T 43V 44U 44F 45G 44S 44Y)	41X1421	N	Y
3	Memory module, 512MB PC2-4200 - 533MHz - DDR2 SDRAM (models 21G 21B 22U 22S 22P 22M 23S 23P 23Y 24U 24F 24S 24P 24Y 25G 26U 26F 27U 27F 41U 41F 41S 41P 41Y 42M 42A 42T 43V 21Q 26S 26Y 27S 27Y)	41X4251	2	Y
3	Memory module, 1GB PC2-4200 - 533MHz - DDR2 SDRAM (models 28G 44U 44F 45G 44S 44Y)	41X4252	2	Y
4	Combo 48 -32 -48 -16 - - DVD - ROM - CDRW (models 21G 21B 22U 22S 22P 22M 23S 23P 23Y 24U 24F 24S 24P 24Y 41U 41F 41S 41P 41Y 21Q)	41X3547	N	Y
4	Combo 48 -32 -48 -16 - - DVD - ROM - CDRW (models 21G 21B 22U 22S 22P 22M 23S 23P 23Y 24U 24F 24S 24P 24Y 41U 41F 41S 41P 41Y 21Q)	41X3548	N	Y
4	Combo 48 -32 -48 -16 - - DVD - ROM - CDRW (models 21G 21B 22U 22S 22P 22M 23S 23P 23Y 24U 24F 24S 24P 24Y 41U 41F 41S 41P 41Y 21Q)	41X3549	N	Y
4	DVD Recordable - Multi Burner Plus -DVD RAM VIII (models 25G 26U 26F 27U 27F 28G 42M 42A 42T 43V 44U 44F 45G)	41N3343	N	Y
4	DVD Recordable - Multi Burner Plus -DVD RAM VIII (models 25G 26U 26F 27U 27F 28G 42M 42A 42T 43V 44U 44F 45G)	41X3550	N	Y
5	Diskette drive, w/bezel (models)			
6	Front panel card (USB/Audio) assembly (all models)	41N5330	N	Y
7	Hard disk drive, 80GB, 7200rpm, serial ATA (models 23S 23P 23Y)	40Y9034	N	Y
7	Hard disk drive, 80GB, 7200rpm, serial ATA (models 23S 23P 23Y)	41X2500	N	Y

Item #	7387 FRUs	FRU#	CRU Tier	RoHS?
7	Hard disk drive, 160GB, 7200rpm, serial ATA (models 21G 21B 22U 22S 22P 22M 24U 24F 24S 24P 24Y 41U 41F 41S 41P 41Y 21Q)	40Y9035	N	Y
7	Hard disk drive, 250GB, 7200rpm, serial ATA (models 25G 26U 26F 27U 27F 28G 42M 42A 42T 43V 44U 44F 45G 26S 26Y 27S 27Y 44S 44Y)	40Y9036	N	Y
8	System board, nVidia C51g (models 21G 21B 22U 22S 22P 22M 23S 23P 23Y 24U 24F 24S 24P 24Y 25G 26U 26F 27U 27F 28G 41U 41F 41S 41P 41Y 42M 42A 42T 43V 44U 44F 45G 21Q 26S 26Y 27S 27Y 44S 44Y)	41X1344	N	Y
9	System Fan, rear w/grill (all models)	41N5339	N	Y
10	Power supply, 250W, RoHS (models 21G 22U 22M 24U 24F 25G 26U 26F 27U 27F 28G 41U 41F 42M 42A 42T 44U 44F 45G 26S 26Y 27S 27Y 44S 44Y)	41N3127	N	Y
10	Power supply, 250W, robust (models 21B 22S 22P 23S 23P 23Y 24S 24P 24Y 41S 41P 41Y 43V 21Q)	41N3460	N	Y
10	Power supply, 280W ATX , Standard (models 21G 22U 22M 24U 24F 25G 26U 26F 27U 27F 28G 41U 41F 42M 42A 42T 44U 44F 45G 26S 26Y 27S 27Y 44S 44Y)	41N3479	N	Y
10	Power supply, 280W, Robust (models 21B 22S 22P 23S 23P 23Y 24S 24P 24Y 41S 41P 41Y 43V 21Q)	41N3482	N	Y

The FRUs listed in the following table are not illustrated.

7387 FRUs	FRU#	CRU Tier	RoHS?
Cable, SATA 250mm (all models)	41A7145	2	Y
Cable, diskette drive (RoHs) (all models)	41A7130	2	Y
Mechanical kit, side cover (all models)	41N5333	2	Y
Mechanical kit (all models)	41N5331	N	Y
Main bezel kit (all models)	41N5283	N	Y
Power switch/LED assembly (all models)	41N5284	N	Y
Shield, system board (all models)	41N5329	N	Y
Miscellaneous hardware kit (all models)	41N5334	N	Y
Cable, hard disk drive and optical drive signal (2-drop) (all models)	41A7875	N	Y
Card Reader Bezel (all models)	41N5340	2	Y

7387 Keyboards (USB Preferred - Fullwidth)	FRU#	CRU Tier	RoHS?
US English (models 24U 26U 27U 41U 44U)	41A5289	1	Y
Brazilian (models 23P 24P 41P)	41A5294	1	Y
French Canadian 445 (models 24F 26F 27F 41F 44F)	41A5301	1	Y
French Canadian 58 (models 24F 26F 27F 41F 44F)	41A5302	1	Y
LA Spanish (models 23S 23Y 24S 24Y 41S 41Y 26S 26Y 27S 27Y 44S 44Y)	41A5312	1	Y

7387 Keyboards (USB, Productivity)	FRU#	CRU Tier	RoHS?
US English (models 21G 22U 22M 25G 28G 42M 42A 45G 21Q)	41A4961	1	Y

<b>7387 Keyboards (USB, Productivity)</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Arabic (models 21G 25G 28G 45G)	41A4962	1	Y
Arabic/French (models 21G 25G 28G 45G)	41A4963	1	Y
Belgian/French (models 21G 25G 28G 45G)	41A4964	1	Y
Belgian/UK (models 21G 25G 28G 45G)	41A4965	1	Y
Brazilian (models 22P)	41A4966	1	Y
Bulgarian (models 21G 25G 28G 45G)	41A4967	1	Y
Hong Kong/Taiwan (models 21B 43V)	41A4968	1	Y
Czech (models 21G 25G 28G 45G)	41A4969	1	Y
Danish (models 21G 25G 28G 45G)	41A4970	1	Y
Dutch (models 21G 25G 28G 45G)	41A4971	1	Y
French (models 21G 25G 28G 45G)	41A4972	1	Y
German (models 21G 25G 28G 45G)	41A4975	1	Y
Greek (models 21G 25G 28G 45G)	41A4976	1	Y
Hebrew (models 21G 25G 28G 45G)	41A4977	1	Y
Hungarian (models 21G 25G 28G 45G)	41A4978	1	Y
Iceland (models 21G 25G 28G 45G)	41A4979	1	Y
Italian (models 21G 25G 28G 45G)	41A4980	1	Y
LA Spanish (models 22S)	41A4983	1	Y
Norwegian (models 21G 25G 28G 45G)	41A4984	1	Y
Polish (models 21G 25G 28G 45G)	41A4985	1	Y
Portuguese (models 21G 25G 28G 45G)	41A4986	1	Y
Romanian (models 21G 25G 28G 45G)	41A4987	1	Y
Russian/Cy (models 21G 25G 28G 45G)	41A4988	1	Y
Serbian/Cyrillic (models 21G 25G 28G 45G)	41A4989	1	Y
Slovak (models 21G 25G 28G 45G)	41A4990	1	Y
Spanish (models 21G 25G 28G 45G)	41A4991	1	Y
Swedish/Finn (models 21G 25G 28G 45G)	41A4992	1	Y
Swiss F/G (models 21G 25G 28G 45G)	41A4993	1	Y
Thailand (models 42T)	41A4994	1	Y
Turkish 440 (models 21G 25G 28G 45G)	41A4995	1	Y
Turkish 179 (models 21G 25G 28G 45G)	41A4996	1	Y
UK English (models 21G 25G 28G 45G)	41A4997	1	Y
US Euro (models 21G 25G 28G 45G)	41A4998	1	Y
Slovenian (models 21G 25G 28G 45G)	41A4999	1	Y

<b>7387 mice</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Mouse, USB Optical Wheel (all models)	41A5085	1	Y
Mouse, USB Optical Wheel - Logitech (all models)	41A5089	1	Y

<b>7387 Adapters and miscellaneous FRUs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
PCI Modem Card (Soft) (models 24U 24F 24S 24Y 26U 26F 26S 26P)	29R9729	2	Y
56KBPS Soft Modem - ATX (models 24U 24F 24S 24Y 26U 26F)	41X5334	2	Y
L1 IEEE 1394 PCI Adapter (models 45G)	41D2781	2	Y
ATI X300SE 128MB (models 28G 42M 42A 42T 43V)	39J9635	2	Y
ATI X700 PRO 128MB (models 45G)	39J6203	2	Y
Internal USB Memory Card Reader (models 24U 24F 24S 24P 24Y 25G 26U 26F 28G 42M 42A 42T 43V 44U 44F 45G 26S 26Y 27S 27Y 44S 44Y)	41X2089	2	Y
Speakers (2-piece) (Lenovo logo) (models 24U 24F 24S 24P 24Y 26U 26F 44U 44F 26S 26Y 44S 44Y)	41A5331	1	Y
Speakers (2-piece) (Lenovo logo) (models 24U 24F 24S 24P 24Y 26U 26F 44U 44F 26S 26Y 44S 44Y)	41A5334	1	Y
Speaker Power brick - US, Canada, LA low voltage, ASEAN (models 24U 24F 24S 24Y 26U 26F 44U 44F)	89P8571	1	Y
Speaker Power brick - Brazil (models 24P)	89P8583	1	Y
Speaker Power brick - Argentina (models 24S 24Y)	41A4901	1	Y

<b>7387 Power Cords</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Power Cord (US) (models 22U 22S 23S 24U 24F 24S 26U 26F 27U 27F 41U 41F 41S 42A 42T 44U 44F 26S 27S 28S)	39M5080	1	Y
Power Cord (Brazil) (models 22P 23P 24P 41P)	39M5232	1	Y
Power Cord (LA High Volt (APU) (models 23Y 24Y 41Y 26Y 27Y 44Y)	39M5067	1	Y
Power Cord (Australia, New Zealand) (models 22M 42M)	39M5102	1	Y
Power Cord (Hong Kong) (models 21B)	39M5151	1	Y
Power Cord (UK, Ireland, Singapore, Malaysia, Brunei) (models 21G 25G 28G 42A 45G)	39M5150	1	Y
Power Cord (Taiwan) (models 43V)	39M5246	1	Y
Power Cord (Italy) (models 21G 22S 23S 23Y 24S 24Y 25G 28G 41S 41Y 45G 26S 26Y 27S 27Y 44S 44Y)	39M5164	1	Y
Power Cord (G models) (models 21G 25G 28G 42A 45G)	39M5122	1	Y
Power Cord (Denmark) (models 21G 25G 28G 45G)	39M5129	1	Y
Power Cord (Switzerland) (models 21G 25G 28G 45G)	39M5157	1	Y
Power Cord (Israel) (models 21G 25G 28G 45G)	39M5171	1	Y
Power Cord (South Africa) (models 21G 22M 25G 28G 42M 42A 45G)	39M5143	1	Y
Power Cord (India) (models 21Q)	41R3175	1	Y

<b>7387 Windows XP Home Recovery CDs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US/UK/AP/TH (models 24U 25G 26U 44U 45G)	42Y3480	1	Y
RE (models 25G 45G)	42Y3486	1	Y
FR/CF (models 24F 25G 26F 44F 45G)	42Y3413	1	Y
GR (models 25G 45G)	42Y4314	1	Y
SP/LA (models 24S 24Y 25G 45G 26S 26Y 44S 44Y)	42Y4315	1	Y

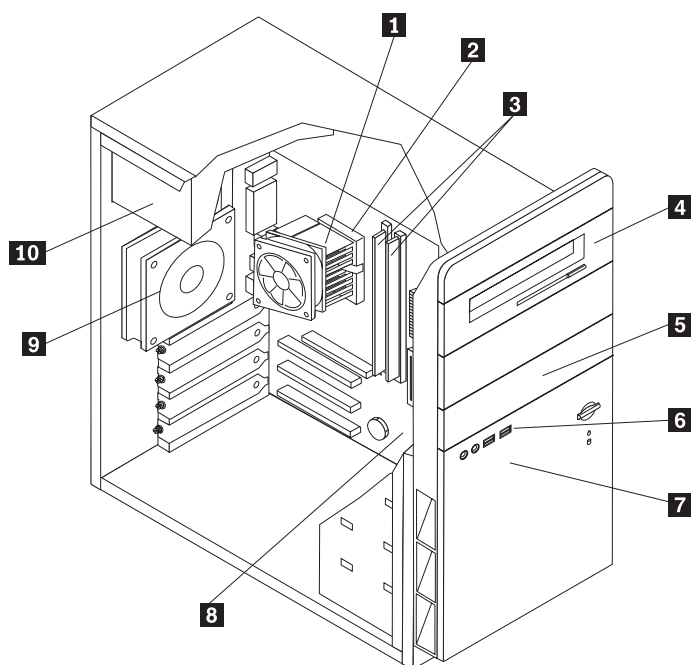
<b>7387 Windows XP Home Recovery CDs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
IT (models 25G 45G)	42Y4316	1	Y
BR (models 24P)	42Y4317	1	Y
AE (models 25G 45G)	42Y4318	1	Y
RU (models 25G 45G)	42Y4319	1	Y
SV (models 25G 45G)	42Y4320	1	Y
DK (models 25G 45G)	42Y4321	1	Y
FI (models 25G 45G)	42Y4322	1	Y
NO (models 25G 45G)	42Y4323	1	Y
NL (models 25G 45G)	42Y4324	1	Y
CZ (models 25G 45G)	42Y4325	1	Y
HE (models 25G 45G)	42Y4326	1	Y
PL (models 25G 45G)	42Y4327	1	Y
TR (models 25G 45G)	42Y4328	1	Y
HU (models 25G 45G)	42Y4329	1	Y
PO (models 25G 45G)	42Y4330	1	Y
GK (models 25G 45G)	42Y4331	1	Y

<b>7387 Windows XP Pro Recovery CDs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US/UK/AP/TH (models 21G 22U 22M 27U 28G 41U 42M 42A 42T 21Q)	42Y3466	1	Y
RE (models 21G 28G)	42Y3473	1	Y
FR/CF (models 21G 27F 28G 41F)	42Y4193	1	Y
GR (models 21G 28G)	42Y4194	1	Y
SP/LA (models 21G 22S 23S 23Y 28G 41S 41Y 27S 27Y)	42Y4195	1	Y
IT (models 21G 28G)	42Y4196	1	Y
BR (models 21G 28G 41P)	42Y4197	1	Y
AE (models 21G 28G)	42Y4198	1	Y
RU (models 21G 28G)	42Y4199	1	Y
SV (models 21G 28G)	42Y4200	1	Y
DK (models 21G 28G)	42Y4201	1	Y
FI (models 21G 28G)	42Y4202	1	Y
NO (models 21G 28G)	42Y4203	1	Y
NL (models 21G 28G)	42Y4204	1	Y
CZ (models 21G 28G)	42Y4205	1	Y
HE (models 21G 28G)	42Y4206	1	Y
PL (models 21G 28G)	42Y4207	1	Y
TR (models 21G 28G)	42Y4208	1	Y
HU (models 21G 28G)	42Y4209	1	Y
PO (models 21G 28G)	42Y4210	1	Y
GK (models 21G 28G)	42Y4211	1	Y

<b>7387 Windows XP Pro Recovery CDs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
SL (models 21G 28G)	42Y4212	1	Y
Taiwan - TC (models 43V)	42T8695	1	Y
Hong Kong - TC (models 21B)	42T8702	1	Y
Multilingual 1 (models 21G 28G)	42Y4427	1	Y
Multilingual 2 (models 21G 28G)	42Y4428	1	Y

<b>7387 Corel Education CDs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US (models 22U 22M 24U 26U 27U 41U 42M 42A 42T 44U)	41X0440	1	Y
CF (models 24F 26F 27F 41F 44F)	41X0443	1	Y
LA (models 22S 23S 23Y 24S 24Y 41S 41Y 26S 26Y 27S 27Y 44S 44Y)	41X0446	1	Y
BR (models 22P 23P 24P 41P)	41X0449	1	Y

## Machine Type 7388



Item #	7388 FRUs	FRU#	CRU Tier	RoHS?
1	Heat Sink/RM Kit, AMD Athlon/Sempron (all models)	41N8249	N	Y
2	Microprocessor, 3800+ Athlon64 AM2 X2 (2.0 GHz processor, 89W) (models 21G 22G)	41X4241	N	Y
2	Microprocessor, 4200+ Athlon64 AM2 X2 (2.2 GHz processor, 89W) (models 41G)	41X1421	N	Y
3	Memory module, 512MB PC2-4200 - 533MHz - DDR2 SDRAM (models 21G)	41X4251	2	Y
3	Memory module, 1GB PC2-4200 - 533MHz - DDR2 SDRAM (models 22G 41G)	41X4252	2	Y
4	DVD Recordable - Multi Burner Plus -DVD RAM VIII (models 21G 22G 41G)	41N3343	N	Y
4	DVD Recordable - Multi Burner Plus -DVD RAM VIII (models 21G 22G 41G)	41X3550	N	Y
5	Diskette drive, w/bezel (models)			
6	Front panel card (USB/Audio) assembly (all models)	41N5330	N	Y
7	Hard disk drive, 250GB, 7200rpm, serial ATA (models 21G 22G 41G)	40Y9036	N	Y
8	System board, nVidia C51g (models 21G 22G 41G)	41X1344	N	Y
9	System Fan, rear w/grill (all models)	41N5339	N	Y
10	Power supply, 250W, RoHS (models 21G 22G 41G)	41N3127	N	Y
10	Power supply, 280W, ATX, Standard (models 21G 22G 41G)	41N3479	N	Y

The FRUs listed in the following table are not illustrated.



<b>7388 FRUs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Cable, SATA 250mm (all models)	41A7145	2	Y
Cable, diskette drive (RoHs) (all models)	41A7130	2	Y
Mechanical kit, side cover (all models)	41N5333	2	Y
Mechanical kit (all models)	41N5331	N	Y
Main bezel kit (all models)	41N5283	N	Y
Power switch/LED assembly (all models)	41N5284	N	Y
Shield, system board (all models)	41N5329	N	Y
Miscellaneous hardware kit (all models)	41N5334	N	Y
Cable, hard disk drive and optical drive signal (2-drop) (all models)	41A7875	N	Y
Card Reader Bezel (all models)	41N5340	2	Y

<b>7388 Keyboards (USB, Productivity)</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US English (models 21G 22G 41G)	41A4961	1	Y
Arabic (models 21G 22G 41G)	41A4962	1	Y
Arabic/French (models 21G 22G 41G)	41A4963	1	Y
Belgian/French (models 21G 22G 41G)	41A4964	1	Y
Belgian/UK (models 21G 22G 41G)	41A4965	1	Y
Bulgarian (models 21G 22G 41G)	41A4967	1	Y
Czech (models 21G 22G 41G)	41A4969	1	Y
Danish (models 21G 22G 41G)	41A4970	1	Y
Dutch (models 21G 22G 41G)	41A4971	1	Y
French (models 21G 22G 41G)	41A4972	1	Y
German (models 21G 22G 41G)	41A4975	1	Y
Greek (models 21G 22G 41G)	41A4976	1	Y
Hebrew (models 21G 22G 41G)	41A4977	1	Y
Hungarian (models 21G 22G 41G)	41A4978	1	Y
Iceland (models 21G 22G 41G)	41A4979	1	Y
Italian (models 21G 22G 41G)	41A4980	1	Y
Norwegian (models 21G 22G 41G)	41A4984	1	Y
Polish (models 21G 22G 41G)	41A4985	1	Y
Portuguese (models 21G 22G 41G)	41A4986	1	Y
Romanian (models 21G 22G 41G)	41A4987	1	Y
Russian/Cy (models 21G 22G 41G)	41A4988	1	Y
Serbian/Cyrillic (models 21G 22G 41G)	41A4989	1	Y
Slovak (models 21G 22G 41G)	41A4990	1	Y
Spanish (models 21G 22G 41G)	41A4991	1	Y
Swedish/Finn (models 21G 22G 41G)	41A4992	1	Y
Swiss F/G (models 21G 22G 41G)	41A4993	1	Y
Turkish 440 (models 21G 22G 41G)	41A4995	1	Y

<b>7388 Keyboards (USB, Productivity)</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Turkish 179 (models 21G 22G 41G)	41A4996	1	Y
UK English (models 21G 22G 41G)	41A4997	1	Y
US Euro (models 21G 22G 41G)	41A4998	1	Y
Slovenian (models 21G 22G 41G)	41A4999	1	Y

<b>7388 mice</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Mouse, USB Optical Wheel (all models)	41A5085	1	Y
Mouse, USB Optical Wheel - Logitech (all models)	41A5089	1	Y

<b>7388 Adapters and miscellaneous FRUs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
L1 IEEE 1394 PCI Adapter (models 41G)	41D2781	2	Y
ATI X300SE 128MB (models 22G)	39J9635	2	Y
ATI X700 PRO 128MB (models 41G)	39J6203	2	Y
Internal USB Memory Card Reader (models 21G 22G 41G)	41X2089	2	Y

<b>7388 Power Cords</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Power Cord (UK, Ireland, Singapore, Malaysia, Brunei) (models 21G 22G41G)	39M5150	1	Y
Power Cord (Italy) (models 21G 22G41G)	39M5164	1	Y
Power Cord (G models) (models 21G 22G41G)	39M5122	1	Y
Power Cord (Denmark) (models 21G 22G41G)	39M5129	1	Y
Power Cord (Switzerland) (models 21G 22G41G)	39M5157	1	Y
Power Cord (Israel) (models 21G 22G41G)	39M5171	1	Y
Power Cord (South Africa) (models 21G 22G41G)	39M5143	1	Y

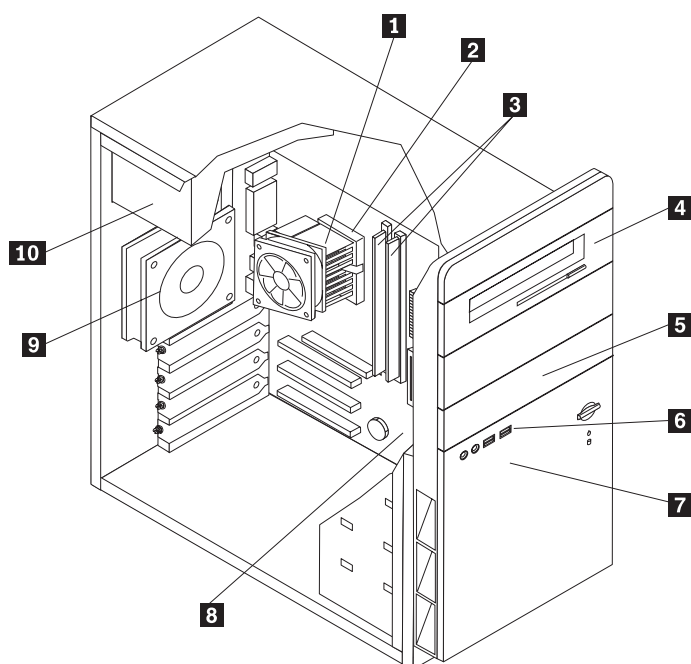
<b>7388 Windows XP Home Recovery CDs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US/UK/AP/TH (models 21G 41G)	42Y3480	1	Y
RE (models 21G 41G)	42Y3486	1	Y
FR/CF (models 21G 41G)	42Y3413	1	Y
GR (models 21G 41G)	42Y4314	1	Y
SP/LA (models 21G 41G)	42Y4315	1	Y
IT (models 21G 41G)	42Y4316	1	Y
AE (models 21G 41G)	42Y4318	1	Y
RU (models 21G 41G)	42Y4319	1	Y
SV (models 21G 41G)	42Y4320	1	Y
DK (models 21G 41G)	42Y4321	1	Y
FI (models 21G 41G)	42Y4322	1	Y
NO (models 21G 41G)	42Y4323	1	Y

7388 Windows XP Home Recovery CDs	FRU#	CRU Tier	RoHS?
NL (models 21G 41G)	42Y4324	1	Y
CZ (models 21G 41G)	42Y4325	1	Y
HE (models 21G 41G)	42Y4326	1	Y
PL (models 21G 41G)	42Y4327	1	Y
TR (models 21G 41G)	42Y4328	1	Y
HU (models 21G 41G)	42Y4329	1	Y
PO (models 21G 41G)	42Y4330	1	Y
GK (models 21G 41G)	42Y4331	1	Y

7388 Windows XP Pro Recovery CDs	FRU#	CRU Tier	RoHS?
US/UK/AP/TH (models 22G)	42Y3466	1	Y
RE (models 22G)	42Y3473	1	Y
FR/CF (models 22G)	42Y4193	1	Y
GR (models 22G)	42Y4194	1	Y
SP/LA (models 22G)	42Y4195	1	Y
IT (models 22G)	42Y4196	1	Y
AE (models 22G)	42Y4198	1	Y
RU (models 22G)	42Y4199	1	Y
SV (models 22G)	42Y4200	1	Y
DK (models 22G)	42Y4201	1	Y
FI (models 22G)	42Y4202	1	Y
NO (models 22G)	42Y4203	1	Y
NL (models 22G)	42Y4204	1	Y
CZ (models 22G)	42Y4205	1	Y
HE (models 22G)	42Y4206	1	Y
PL (models 22G)	42Y4207	1	Y
TR (models 22G)	42Y4208	1	Y
HU (models 22G)	42Y4209	1	Y
PO (models 22G)	42Y4210	1	Y
GK (models 22G)	42Y4211	1	Y
SL (models 22G)	42Y4212	1	Y
Multilingual 1 (models 22G)	42Y4427	1	Y
Multilingual 2 (models 22G)	42Y4428	1	Y

7388 Corel Education CDs	FRU#	CRU Tier	RoHS?
US (models 22U 22M 24U 26U 27U 41U 42M 42A 42T 44U)	41X0440	1	Y
CF (models 24F 26F 27F 41F 44F)	41X0443	1	Y
LA (models 22S 23S 23Y 24S 24Y 41S 41Y)	41X0446	1	Y
BR (models 22P 23P 24P 41P)	41X0449	1	Y

## Machine Type 7389



Item #	7389 FRUs	FRU#	CRU Tier	RoHS?
1	Heat Sink/RM Kit, AMD Athlon/Sempron (all models)	41N8249	N	Y
2	Microprocessor, 4200+ Athlon64 AM2 X2 (2.2 GHz processor, 89W) (models 41M 41A 42V)	41X1421	N	Y
3	Memory module, 512MB PC2-4200 - 533MHz - DDR2 SDRAM (models 41M 41A 42V)	41X4251	2	Y
4	DVD Recordable - Multi Burner Plus -DVD RAM VIII (models 41M 41A 42V)	41N3343	N	Y
4	DVD Recordable - Multi Burner Plus -DVD RAM VIII (models 41M 41A 42V)	41X3550	N	Y
5	Diskette drive, w/bezel (models)			
6	Front panel card (USB/Audio) assembly (all models)	41N5330	N	Y
7	Hard disk drive, 250GB, 7200rpm, serial ATA (models 41M 41A 42V)	40Y9036	N	Y
8	System board, nVidia C51g (models 41M 41A 42V)	41X1344	N	Y
9	System Fan, rear w/grill (all models)	41N5339	N	Y
10	Power supply, 250W, RoHS (models 41M 41A)	41N3127	N	Y
10	Power supply, 250W, Robust (models 42V)	41N3460	N	Y
10	Power supply, 280W, ATX, Standard (models 41M 41A)	41N3479	N	Y
10	Power supply, 280W, Robust (models 42V)	41N3482	N	Y

The FRUs listed in the following table are not illustrated.

<b>7389 FRUs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Cable, SATA 250mm (all models)	41A7145	2	Y
Cable, diskette drive (RoHs) (all models)	41A7130	2	Y
Mechanical kit, side cover (all models)	41N5333	2	Y
Mechanical kit (all models)	41N5331	N	Y
Main bezel kit (all models)	41N5283	N	Y
Power switch/LED assembly (all models)	41N5284	N	Y
Shield, system board (all models)	41N5329	N	Y
Miscellaneous hardware kit (all models)	41N5334	N	Y
Cable, hard disk drive and optical drive signal (2-drop) (all models)	41A7875	N	Y
Card Reader Bezel (all models)	41N5340	2	Y

<b>7389 Keyboards (USB, Productivity)</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US English (models 41M 41A)	41A4961	1	Y
Hong Kong/Taiwan (models 42V)	41A4968	1	Y

<b>7389 mice</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Mouse, USB Optical Wheel (all models)	41A5085	1	Y
Mouse, USB Optical Wheel - Logitech (all models)	41A5089	1	Y

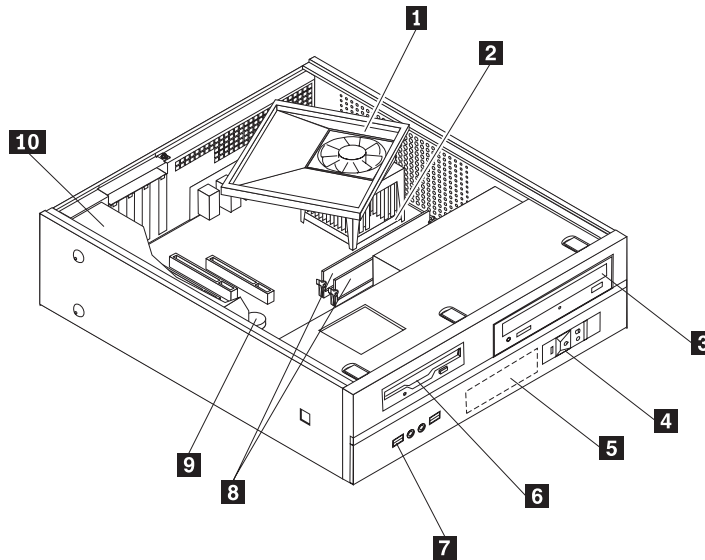
<b>7389 Adapters and miscellaneous FRUs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
ATI X300SE 128MB (models 41M 41A 42V)	39J9635	2	Y
Internal USB Memory Card Reader (models 41M 41A 42V)	41X2089	2	Y

<b>7389 Power Cords</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Power Cord (US) (models 41A)	39M5080	1	Y
Power Cord (Australia/New Zealand) (models 41M)	39M5102	1	Y
Power Cord (UK, Ireland, Singapore, Malaysia, Brunei) (models 41A)	39M5150	1	Y
Power Cord (Taiwan) (models 42V)	39M5246	1	Y
Power Cord (G models) (models 41A)	39M5122	1	Y
Power Cord (South Africa) (models 41M 41A)	39M5143	1	Y

<b>7389 Windows XP Pro Recovery CDs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US/UK/AP/TH (models 41M 41A)	42Y3466	1	Y
Taiwan - TC (models 42V)	42T8695	1	Y

7389 Corel Education CDs	FRU#	CRU Tier	RoHS?
US (models 41M 41A)	41X0440	1	Y

## Machine Type 7390



Item #	7390 FRUs	FRU#	CRU Tier	RoHS?
1	Heat Sink/RM Kit, AMD Athlon/Sempron (all models)	41N8249	N	Y
2	Microprocessor, 3800+ Athlon64 AM2 X2 (2.0 GHz processor, 89W) (models 21B 21V 21J 22M 22Q 22H)	41X4241	N	Y
2	Microprocessor, 4200+ Athlon64 AM2 X2 (2.2 GHz processor, 89W) (models 41B 42H)	41X1421	N	Y
3	Combo 48 -32 -48 -16 - - DVD - ROM - CDRW (models 21B 21V 21J 22M 22Q 22H)	41X3547	N	Y
3	Combo 48 -32 -48 -16 - - DVD - ROM - CDRW (models 21B 21V 21J 22M 22Q 22H)	41X3548	N	Y
3	Combo 48 -32 -48 -16 - - DVD - ROM - CDRW (models 21B 21V 21J 22M 22Q 22H)	41X3549	N	Y
3	DVD Recordable - Multi Burner Plus -DVD RAM VIII (models 41B 42H)	41N3343	N	Y
3	DVD Recordable - Multi Burner Plus -DVD RAM VIII (models 41B 42H)	41X3550	N	Y
4	Power switch/LED assembly (all models)	41N5269	N	Y
5	Hard disk drive, 160GB, 7200rpm Serial ATA (models 21B 21V 21J 22M 22Q 22H)	40Y9035	N	Y
5	Hard disk drive, 250GB, 7200rpm Serial ATA (models 41B 42H)	40Y9036	N	Y
6	Diskette drive, wo/bezel (models)			
7	Front I/O (USB/Audio) Cable Assembly (all models)	41N5270	N	Y
8	Memory module, 512MB PC2-4200 -533MHz - DDR2 SDRAM (models 21B 21V 21J 22M 22Q 22H)	41X4251	2	Y
8	Memory module, 1GB PC2-4200 -533MHz - DDR2 SDRAM (models 41B 42H)	41X 4252	2	Y

Item #	7390 FRUs	FRU#	CRU Tier	RoHS?
9	System board, nVidia C51g (models 21B 21V 21J 22M 22Q 22H 41B 42H)	41X1344	N	Y
10	Power supply, 220W TFX ; Robust (models 21B 21V 22Q 22H 41B 42H)	41N3493	N	Y
10	Power supply, 220W TFX ; Standard (models 22M)	41N3109	N	Y
10	Power supply, 220W TFX ; Japan (models 21J)	41N3119	N	Y

The FRUs listed in the following table are not illustrated.

7390 FRUs	FRU#	CRU Tier	RoHS?
Shield, EMC, 5.25in. drive bay (all models)	41A7162	N	Y
Cable, Serial-ATA, (18in. RoHs) (all models)	41A7145	N	Y
Shield, EMC, diskette drive bay (all models)	41A7146	N	Y
Cable, diskette drive (all models)	41A7147	N	Y
Cover (all models)	41A7148	2	Y
Chassis Kit Assembly with bezels (all models)	41N5251	N	Y
Bezel Assembly kit (all models)	41N5268	2	Y
Fan duct assembly (all models)	41A7151	N	Y
Shield, EMC, system board (all models)	41N5347	N	Y
Miscellaneous hardware kit (all models)	41A7155	N	Y
Cable, optical drive signal (all models)	41A7158	N	Y
Fan assembly, Front (all models)	41A7198	N	Y

7390 Keyboards (USB Preferred - Fullwidth)	FRU#	CRU Tier	RoHS?
Chinese/US (models 21B 21V)	41A5296	1	Y
Japanese (models 21J)	41A5310	1	Y

7390 Keyboards (USB, Productivity)	FRU#	CRU Tier	RoHS?
US English (models 22M 22Q 22H 42H)	41A4961	1	Y
Hong Kong/Taiwan (models 41B)	41A4968	1	Y

7390 mice	FRU#	CRU Tier	RoHS?
Mouse, USB optical wheel (models B1G 21G D1J D2J D3G E1J D4J 33J D5J 61G F1J F2J F3J F4J F5J F6J)	41A5085	1	Y

7390 Adapters and miscellaneous FRUs	FRU#	CRU Tier	RoHS?
L1 IEEE 1394 PCI Adapter (models 41B 42H)	41D2781	1	Y
Internal USB Memory Card Reader (models 21B 21V 21J 22M 22Q 22H 41B 42H)	41X2089	1	Y
Speakers (2-piece) (Lenovo logo) (models 21B 21V 21J 22M 22Q 22H)	41A5334	1	Y

<b>7390 Adapters and miscellaneous FRUs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Speakers (2-piece) (Lenovo logo) (models 21B 21V 21J 22M 22Q 22H)	41A5331	1	Y
Speakers (2-piece) (Lenovo logo) (models 21B 21V 21J 22M 22Q 22H)	41A5334	1	Y
Speaker Power brick - China, Thailand (models 21B 22H)	89P8581	1	Y
Speaker Power brick - Japan (models 21J)	89P8577	1	Y
Speaker Power brick - ANZ (models 22M)	89P8579	1	Y
Speaker Power brick - Hong Kong, EMEA (models 21B 22H)	89P8573	1	Y
Speaker Power brick - Taiwan (models 21V)	41A4905	1	Y
Speaker Power brick - India, South Africa (models 22Q)	89P8585	1	Y

<b>7390 Power Cords</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Power Cord (Japan) (models 21J)	39M5193	1	Y
Power Cord (Australia / New Zealand) (models 22M)	39M5102	1	Y
Power Cord (Hong Kong) (models 21B 22H 41B)	39M5151	1	Y
Power Cord (Taiwan) (models 21V)	39M5246	1	Y
Power Cord (South Africa) (models 22M)	39M5143	1	Y
Power Cord (India) (models 22Q)	39M5004	1	Y

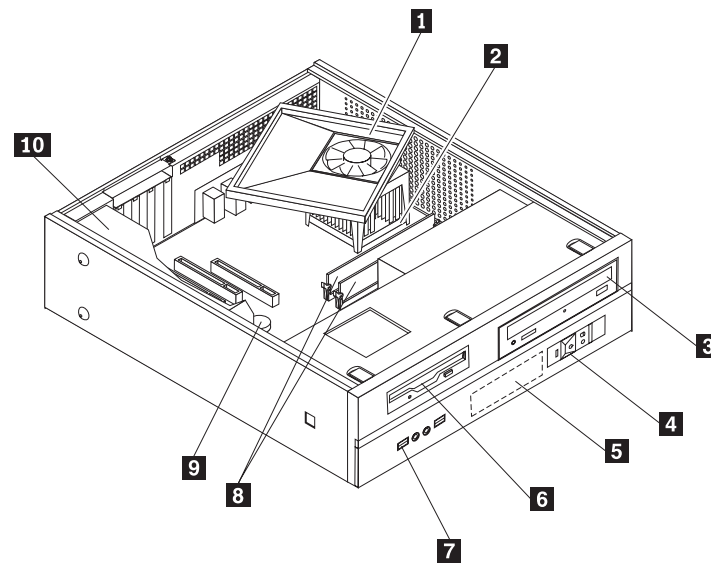
<b>7390 Windows XP Home Recovery CDs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US/UK/AP/TH (models 42H)	42Y3480	1	Y
Hong Kong - TC (models 41B)	42T8727	1	Y

<b>7390 Windows XP Pro Recovery CDs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US/UK/AP/TH (models 21G)	42Y3466	1	Y
Japanese (models 21J)	42T8681	1	Y
Taiwan -TC (models 21V)	42T8695	1	Y
Hong Kong - TC (models 21B)	42T8702	1	Y

<b>7390 Corel Education CDs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US (models 22M 22Q 22H 42H)	41X0440	1	Y



## Machine Type 7392



Item #	7392 FRUs	FRU#	CRU Tier	RoHS?
1	Heat Sink/RM Kit, AMD Athlon/Sempron (all models)	41N8249	N	Y
2	Microprocessor, 3800+ Athlon64 AM2 X2 (2.0 GHz processor, 89W) (models 21B 22H)	41X4241	N	Y
3	Combo 48 -32 -48 -16 - - DVD - ROM - CDRW (models 21B 22H)	41X3547	N	Y
3	Combo 48 -32 -48 -16 - - DVD - ROM - CDRW (models 21B 22H)	41X3548	N	Y
3	Combo 48 -32 -48 -16 - - DVD - ROM - CDRW (models 21B 22H)	41X3549	N	Y
4	Power switch/LED assembly (all models)	41N5269	N	Y
5	Hard disk drive, 160GB, 7200rpm Serial ATA (models 21B 22H)	40Y9035	N	Y
6	Diskette drive, wo/bezel (models)			
7	Front I/O (USB/Audio) Cable Assembly (all models)	41N5270	N	Y
8	Memory module, 512MB PC2-4200 -533MHz - DDR2 SDRAM (models 21B 22H)	41X4251	2	Y
9	System board, nVidia C51g (models 21B 22H)	41X1344	N	Y
10	Power supply, 220W TFX ; Robust (models 21B 22H)	41N3493	N	Y

The FRUs listed in the following table are not illustrated.

7392 FRUs	FRU#	CRU Tier	RoHS?
Shield, EMC, 5.25in. drive bay (all models)	41A7162	N	Y
Cable, Serial-ATA, (18in. RoHs) (all models)	41A7145	N	Y
Shield, EMC, diskette drive bay (all models)	41A7146	N	Y
Cable, diskette drive (all models)	41A7147	N	Y
Cover (all models)	41A7148	2	Y
Chassis Kit Assembly with bezels (all models)	41N5251	N	Y
Bezel Assembly kit (all models)	41N5268	2	Y

<b>7392 FRUs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Fan duct assembly (all models)	41A7151	N	Y
Shield, EMC, system board (all models)	41N5347	N	Y
Miscellaneous hardware kit (all models)	41A7155	N	Y
Cable, optical drive signal (all models)	41A7158	N	Y
Fan assembly, Front (all models)	41A7198	N	Y

<b>7392 Keyboards (USB, Productivity)</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US English (models 22H)	41A4961	1	Y
Hong Kong/Taiwan (models 21B)	41A4968	1	Y

<b>7392 mice</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Mouse, USB optical wheel (models B1G 21G D1J D2J D3G E1J D4J 33J D5J 61G F1J F2J F3J F4J F5J F6J)	41A5085	1	Y

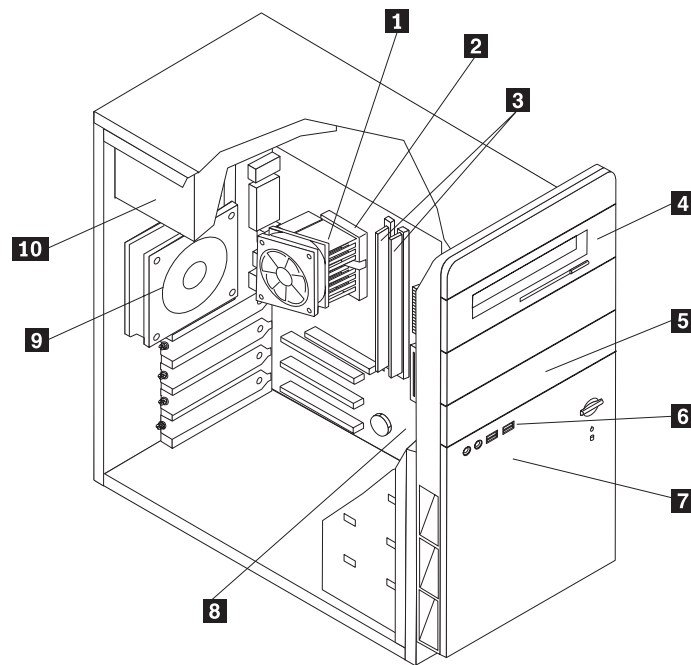
<b>7392 Adapters and miscellaneous FRUs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Internal USB Memory Card Reader (models 21B 22H)	41X2089	1	Y
Speakers (2-piece) (Lenovo logo) (models 21B 22H)	41A5334	1	Y
Speakers (2-piece) (Lenovo logo) (models 21B 22H)	41A5331	1	Y
Speaker Power brick - China, Thailand (models 21B 22H)	89P8581	1	Y
Speaker Power brick - Hong Kong, EMEA (models 21B 22H)	89P8573	1	Y

<b>7392 Power Cords</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Power Cord (Hong Kong) (models 21B 22H)	39M5151	1	Y

<b>7392 Windows XP Pro Recovery CDs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US/UK/AP/TH (models 22H)	42Y3466	1	Y
Hong Kong (models 21B)	42T8702	1	Y

<b>7392 Corel Education CDs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US (models 22H)	41X0440	1	Y

## Machine Type 7393



Item #	7393 FRUs	FRU#	CRU Tier	RoHS?
1	FRU, Heat Sink/RM Kit, Intel Prescott, Cedar Mill, Smithfield, Presler (all models)	41N8261	N	Y
2	Microprocessor, Intel 820 - A0 Smithfield (models 21U 21F 21S 21P 21Y 22U 22F 22S 22P 22Y 23V 24U 24F 24S 24P 24Y 25G 26U 26F 27F 22Q 26S 26Y 27S 27Y)	41T1704	N	Y
2	Microprocessor, Intel 925 (models 51U 51F 51M 51A 51T 52G 53B 54H 55U 55F 55S 55P 55Y 56U 56F 57G 57V 58G 51S 51Y 56S 56Y)	41X2413	N	Y
2	Microprocessor, CONROE E6300 1066/1860MHZ-2M (models 91G 92M 93V 94B 94H)	41X2495	N	Y
3	Memory module, 512MB PC2-4200 - 533MHz - DDR2 SDRAM (models 21U 21F 21S 21P 21Y 22U 22F 22S 22P 22Y 23V 24U 24F 24S 24P 24Y 25G 26U 26F 27F 52G 53B 54H 55U 55F 55S 55P 55Y 22Q 26S 26Y 27S 27Y)	41X4251	2	Y
3	Memory module, 1GB PC2-4200 - 533MHz - DDR2 SDRAM (models 51U 51F 51M 51A 51T 56U 56F 57G 57V 58G 51S 51Y 56S 56Y 91G 92M 93V 94B 94H)	41X4252	2	Y
4	CD-ROM drive 48X - Black w/o jack & vol (models 21U 21F 21S 21P 21Y 53B 54H)	41X3539	N	Y
4	CD-ROM drive 48X - Black w/o jack & vol (models 21U 21F 21S 21P 21Y 53B 54H)	41X3540	N	Y
4	CD-ROM drive 48X - Black w/o jack & vol (models 21U 21F 21S 21P 21Y 53B 54H)	41X3541	N	Y
4	Combo 48 -32 -48 -16 - - DVD - ROM - CDRW (models 22U 22F 22S 22P 22Y 23V 24U 24F 24S 24P 24Y 55U 55F 55S 55P 55Y 22Q 94B 94H)	41X3547	N	Y
4	Combo 48 -32 -48 -16 - - DVD - ROM - CDRW (models 22U 22F 22S 22P 22Y 23V 24U 24F 24S 24P 24Y 55U 55F 55S 55P 55Y 22Q 94B 94H)	41X3548	N	Y

Item #	7393 FRUs	FRU#	CRU Tier	RoHS?
4	Combo 48 -32 -48 -16 - - DVD - ROM - CDRW (models 22U 22F 22S 22P 22Y 23V 24U 24F 24S 24P 24Y 55U 55F 55S 55P 55Y 22Q 94B 94H)	41X3549	N	Y
4	DVD Recordable - Multi Burner Plus -DVD RAM VIII (models 25G 26U 26F 27F 51U 51F 51M 51A 51T 52G 56U 56F 57G 57V 58G 26S 26Y 27S 27Y 51S 51Y 56S 56Y 91G 92M 93V)	41N3343	N	Y
4	DVD Recordable - Multi Burner Plus -DVD RAM VIII (models 25G 26U 26F 27F 51U 51F 51M 51A 51T 52G 56U 56F 57G 57V 58G 26S 26Y 27S 27Y 51S 51Y 56S 56Y 91G 92M 93V)	41X3550	N	Y
5	Diskette drive, w/bezel (models)			
6	Front panel card (USB/Audio) assembly (all models)	41N5330	N	Y
7	Hard disk drive, 80GB, 7200rpm, serial ATA (models 21U 21F 21S 21P 21Y 53B 54H)	40Y9034	N	Y
7	Hard disk drive, 80GB, 7200rpm, serial ATA (models 21U 21F 21S 21P 21Y 53B 54H)	41X2500	N	Y
7	Hard disk drive, 160GB, 7200rpm, serial ATA (models 22U 22F 22S 22P 22Y 23V 24U 24F 24S 24P 24Y 25G 55U 55F 55S 55P 55Y 22Q 94B 94H)	40Y9035	N	Y
7	Hard disk drive, 250GB, 7200rpm, serial ATA (models 26U 26F 27F 51U 51F 51M 51A 51T 52G 56U 56F 57G 57V 58G 26S 26Y 27S 27Y 51S 51Y 56S 56Y 91G 92M 93V)	40Y9036	N	Y
8	System board, 946GZ (models 21U 21F 21S 21P 21Y 22U 22F 22S 22P 22Y 23V 24U 24F 24S 24P 24Y 25G 26U 26F 27F 51U 51F 51M 51A 51T 52G 53B 54H 55U 55F 55S 55P 55Y 56U 56F 57G 57V 58G 22Q 26S 26Y 27S 27Y 51S 51Y 56S 56Y 91G 92M 93V 94B 94H) <b>Note:</b> When you order a new system board you must also order a new retention bracket for the heat sink.	41X1359	N	Y
9	System Fan, rear w/grill (all models)	41N5339	N	Y
10	Power supply, 250W, RoHS (models 21U 21F 22U 22F 24U 24F 25G 26U 26F 27F 51U 51F 51M 51A 51T 52G 55U 55F 56U 56F 57G 58G 26S 26Y 27S 27Y 51S 51Y 56S 56Y 91G 92M)	41N3127	Y	Y
10	Power supply, 250W, robust (models 21S 21P 21Y 22S 22P 22Y 23V 24S 24P 24Y 53B 54H 55S 55P 55Y 57V 22Q 93V 94B 94H)	41N3460	N	Y
10	Power supply, 280W, ATX, Standard (models 21U 21F 22U 22F 24U 24F 25G 26U 26F 27F 51U 51F 51M 51A 51T 52G 55U 55F 56U 56F 57G 58G 26S 26Y 27S 27Y 51S 51Y 56S 56Y 91G 92M )	41N3479	Y	Y
10	Power supply, 280W, Robust (models 21S 21P 21Y 22S 22P 22Y 23V 24S 24P 24Y 53B 54H 55S 55P 55Y 57V 22Q 93V 94B 94H)	41N3482	N	Y

The FRUs listed in the following table are not illustrated.

7393 FRUs	FRU#	CRU Tier	RoHS?
Cable, SATA 250mm (all models)	41A7145	2	Y
Cable, diskette drive (RoHs) (all models)	41A7130	2	Y
Mechanical kit, side cover (all models)	41N5333	2	Y
Mechanical kit (all models)	41N5331	N	Y
Main bezel kit (all models)	41N5283	N	Y
Power switch/LED assembly (all models)	41N5284	N	Y

<b>7393 FRUs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Shield, system board (945GZ) (all models)	41N5286	N	Y
Miscellaneous hardware kit (all models)	41N5334	N	Y
Cable, hard disk drive and optical drive signal (2-drop) (all models)	41A7875	N	Y
Card Reader Bezel (all models)	41N5340	2	Y

<b>7393 Keyboards (USB Preferred - Fullwidth)</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US English (models 21U 24U 26U 54H 55U 56U 94H)	41A5289	1	Y
Brazilian (models 21P 24P 55P)	41A5294	1	Y
Chinese/US (models 53B 94B)	41A5296	1	Y
French Canadian 445 (models 21F 24F 26F 27F 55F 56F)	41A5301	1	Y
French Canadian 58 (models 21F 24F 26F 27F 55F 56F)	41A5302	1	Y
LA Spanish (models 21S 21Y 24S 24Y 55S 55Y 26S 26Y 27S 27Y 56S 56Y)	41A5312	1	Y

<b>7393 Keyboards (USB, Productivity)</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US English (models 22U 25G 51U 51M 51A 52G 57G 58G 22Q 91G 92M)	41A4961	1	Y
Arabic (models 25G 52G 57G 58G 91G)	41A4962	1	Y
Arabic/French (models 25G 52G 57G 58G 91G)	41A4963	1	Y
Belgian/French (models 25G 52G 57G 58G 91G)	41A4964	1	Y
Belgian/UK (models 25G 52G 57G 58G 91G)	41A4965	1	Y
Brazilian (models 22P)	41A4966	1	Y
Bulgarian (models 25G 52G 57G 58G 91G)	41A4967	1	Y
Hong Kong/Taiwan (models 23V 57V 93V)	41A4968	1	Y
Czech (models 25G 52G 57G 58G 91G)	41A4969	1	Y
Danish (models 25G 52G 57G 58G 91G)	41A4970	1	Y
Dutch (models 25G 52G 57G 58G 91G)	41A4971	1	Y
French (models 25G 52G 57G 58G 91G)	41A4972	1	Y
French Canadian 445 (models 22F 51F)	41A4973	1	Y
French Canadian 58 (models 22F 51F)	41A4974	1	Y
German (models 25G 52G 57G 58G 91G)	41A4975	1	Y
Greek (models 25G 52G 57G 58G 91G)	41A4976	1	Y
Hebrew (models 25G 52G 57G 58G 91G)	41A4977	1	Y
Hungarian (models 25G 52G 57G 58G 91G)	41A4978	1	Y
Iceland (models 25G 52G 57G 58G 91G)	41A4979	1	Y
Italian (models 25G 52G 57G 58G 91G)	41A4980	1	Y
LA Spanish (models 22S 22Y 51S 51Y 91G 92M 93V)	41A4983	1	Y
Norwegian (models 25G 52G 57G 58G 91G)	41A4984	1	Y
Polish (models 25G 52G 57G 58G 91G)	41A4985	1	Y
Portuguese (models 25G 52G 57G 58G 91G)	41A4986	1	Y
Romanian (models 25G 52G 57G 58G 91G)	41A4987	1	Y

<b>7393 Keyboards (USB, Productivity)</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Russian/Cy (models 25G 52G 57G 58G 91G)	41A4988	1	Y
Serbian/Cyrillic (models 25G 52G 57G 58G 91G)	41A4989	1	Y
Slovak (models 25G 52G 57G 58G 91G)	41A4990	1	Y
Spanish (models 25G 52G 57G 58G 91G)	41A4991	1	Y
Swedish/Finn (models 25G 52G 57G 58G 91G)	41A4992	1	Y
Swiss F/G (models 25G 52G 57G 58G 91G)	41A4993	1	Y
Thailand (models 51T)	41A4994	1	Y
Turkish 440 (models 25G 52G 57G 58G 91G)	41A4995	1	Y
Turkish 179 (models 25G 52G 57G 58G 91G)	41A4996	1	Y
UK English (models 25G 52G 57G 58G 91G)	41A4997	1	Y
US Euro (models 25G 52G 57G 58G 91G)	41A4998	1	Y
Slovenian (models 25G 52G 57G 58G 91G)	41A4999	1	Y

<b>7393 mice</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Mouse, USB Optical Wheel (all models)	41A5085	1	Y
Mouse, USB Optical Wheel - Logitech (all models)	41A5089	1	Y

<b>7393 Adapters and miscellaneous FRUs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
PCI Modem Card (Soft) (models 24U 24F 24S 24Y 27F 56U 56F 27S 27Y 56S 56Y )	29R9729	2	Y
56KBPS Soft Modem - ATX (models 24P)	41X5334	2	Y
L1 IEEE 1394 PCI Adapter (models 58G)	41D2781	2	Y
ATI X300SE 128MB (models 51U 51F 51M 51A 51T 52G 57G 57V 51S 51Y 91G 92M 93V)	39J9635	2	Y
ATI X700 PRO 128MB (models 58G)	39J6203	2	Y
Internal USB Memory Card Reader (models 22U 22F 22S 22P 22Y 23V 24U 24F 24S 24P 24Y 25G 27F 51U 51F 51M 51A 51T 52G 56U 56F 57G 57V 58G 22Q 27S 27Y 51S 51Y 56S 56Y 91G 92M 93V)	41X2089	2	Y
Speakers (2-piece) (Lenovo logo) (models 24U 24F 24S 24P 24Y 27F 56U 56F 27S 27Y 56S 56Y )	41A5331	1	Y
Speakers (2-piece) (Lenovo logo) (models 24U 24F 24S 24P 24Y 27F 56U 56F 27S 27Y 56S 56Y )	41A5334	1	Y
Speaker Power brick - US, Canada, LA low voltage, ASEAN (models 24U 24F 24S 24Y 27F 56U 56F)	89P8571	1	Y
Speaker Power brick - Brazil (models 24P)	89P8583	1	Y
Speaker Power brick - Argentina (models 24S 24Y)	41A4901	1	Y

<b>7393 Power Cords</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Power Cord (US) (models 21U 21F 21S 22U 22F 22S 24U 24F 24S 26U 26F 27F 51U 51F 51A 51T 55U 55F 55S 56U 56F 26S 27S 51S 56S)	39M5080	1	Y
Power Cord (Brazil) (models 21P 22P 24P 55P)	39M5232	1	Y

<b>7393 Power Cords</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Power Cord (LA High Volt (APU) (models 21Y 22Y 24Y 55Y 26Y 27Y 51Y 56Y)	39M5067	1	Y
Power Cord (Australia, New Zealand) (models 51M 92M)	39M5102	1	Y
Power Cord (Hong Kong) (models 53B 54H 94B 94H)	39M5151	1	Y
Power Cord (UK, Ireland, Singapore, Malaysia, Brunei) (models 25G 51A 52G 57G 58G 91G)	39M5150	1	Y
Power Cord (Taiwan) (models 23V 57V 93V)	39M5246	1	Y
Power Cord (Italy) (models 21S 21Y 22S 22Y 24S 24Y 25G 52G 55S 55Y 57G 58G 26Y 27Y 51Y 56Y 26S 27S 51S 56S)	39M5164	1	Y
Power Cord (G models) (models 25G 51A 52G 57G 58G)	39M5122	1	Y
Power Cord (Denmark) (models 25G 52G 57G 58G 91G)	39M5129	1	Y
Power Cord (Switzerland) (models 25G 52G 57G 58G 91G)	39M5157	1	Y
Power Cord (Israel) (models 25G 52G 57G 58G 91G)	39M5171	1	Y
Power Cord (South Africa) (models 25G 51M 51A 52G 57G 58G 91G 92M)	39M5143	1	Y
Power Cord (India) (models 22Q)	41R3175	1	Y

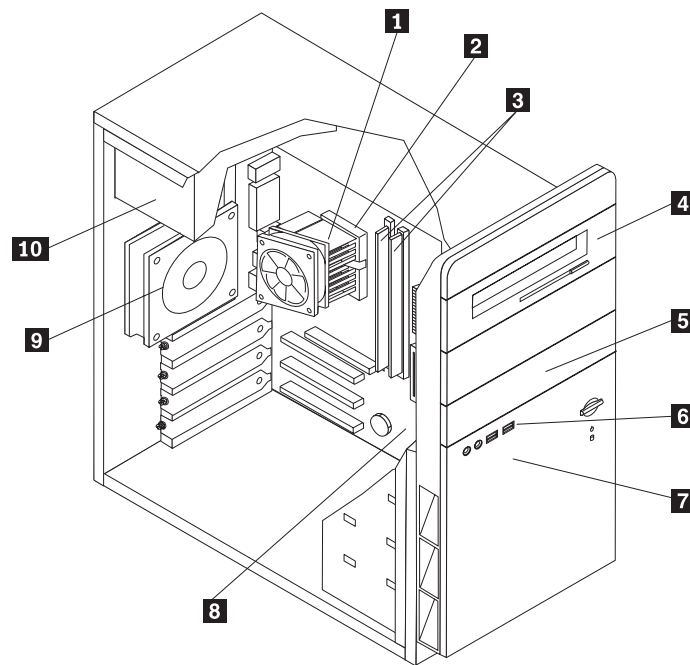
<b>7393 Windows XP Home Recovery CDs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US/UK/AP/TH (models 24U 25G 56U 58G 94H)	42Y3480	1	Y
RE (models 25G 58G)	42Y3486	1	Y
FR/CF (models 24F 25G 27F 56F 58G)	42Y3413	1	Y
GR (models 25G 58G)	42Y4314	1	Y
SP/LA (models 24S 24Y 25G 58G)	42Y4315	1	Y
IT (models 25G 58G)	42Y4316	1	Y
BR (models 24P)	42Y4317	1	Y
AE (models 25G 58G)	42Y4318	1	Y
RU (models 25G 58G)	42Y4319	1	Y
SV (models 25G 58G)	42Y4320	1	Y
DK (models 25G 58G)	42Y4321	1	Y
FI (models 25G 58G)	42Y4322	1	Y
NO (models 25G 58G)	42Y4323	1	Y
NL (models 25G 58G)	42Y4324	1	Y
CZ (models 25G 58G)	42Y4325	1	Y
HE (models 25G 58G)	42Y4326	1	Y
PL (models 25G 58G)	42Y4327	1	Y
TR (models 25G 58G)	42Y4328	1	Y
HU (models 25G 58G)	42Y4329	1	Y
PO (models 25G 58G)	42Y4330	1	Y
GK (models 25G 58G)	42Y4331	1	Y
Taiwan - TC (models 93V)	TBD	1	Y
Hong Kong - TC (models 94B)	TBD	1	Y

7393 Windows XP Pro Recovery CDs	FRU#	CRU Tier	RoHS?
US/UK/AP/TH (models 21U 22U 26U 51U 51M 51A 51T 52G 54H 55U 57G 22Q 91G 92M)	42Y3466	1	Y
RE (models 52G 57G 91G)	42Y3473	1	Y
FR/CF (models 21F 22F 26F 51F 52G 55F 57G 91G)	42Y4193	1	Y
GR (models 52G 57G 91G)	42Y4194	1	Y
SP/LA (models 21S 21Y 22S 22Y 52G 55S 55Y 57G 26S 26Y 51S 51Y 91G)	42Y4195	1	Y
IT (models 52G 57G 91G)	42Y4196	1	Y
BR (models 52G 55P)	42Y4197	1	Y
AE (models 52G 57G 91G)	42Y4198	1	Y
RU (models 52G 57G 91G)	42Y4199	1	Y
SV (models 52G 57G 91G)	42Y4200	1	Y
DK (models 52G 57G 91G)	42Y4201	1	Y
FI (models 52G 57G 91G)	42Y4202	1	Y
NO (models 52G 57G 91G)	42Y4203	1	Y
NL (models 52G 57G 91G)	42Y4204	1	Y
CZ (models 52G 57G 91G)	42Y4205	1	Y
HE (models 52G 57G 91G)	42Y4206	1	Y
PL (models 52G 57G 91G)	42Y4207	1	Y
TR (models 52G 57G 91G)	42Y4208	1	Y
HU (models 52G 57G 91G)	42Y4209	1	Y
PO (models 52G 57G 91G)	42Y4210	1	Y
GK (models 52G 57G 91G)	42Y4211	1	Y
SL (models 52G 57G 91G)	42Y4212	1	Y
Taiwan - TC (models 23V 57V)	42T8695	1	Y
Hong Kong - TC (models 53B)	42T8702	1	Y
Multilingual 1 (models 52G 57G 91G)	42Y4427	1	Y
Multilingual 2 (models 52G 57G 91G)	42Y4428	1	Y

7393 Corel Education CDs	FRU#	CRU Tier	RoHS?
US (models 21U 22U 24U 26U 51U 51M 51A 51T 54H 55U 56U)	41X0440	1	Y
CF (models 21F 22F 24F 26F 27F 51F 55F 56F)	41X0443	1	Y
LA (models 21S 21Y 22S 22Y 24S 24Y 55S 55Y 27S 27Y 26S 26Y 51S 51Y 56S 56Y )	41X0446	1	Y
BR (models 21P 22P 24P 55P)	41X0449	1	Y



## Machine Type 7394



Item #	7394 FRUs	FRU#	CRU Tier	RoHS?
1	FRU, Heat Sink/RM Kit, Intel Prescott, Cedar Mill, Smithfield, Presler (all models)	41N8261	N	Y
2	Microprocessor, Intel 820 - A0 Smithfield (models 21G)	41T1704	N	Y
2	Microprocessor, Intel 925 (models 41G 42G)	41X2413	N	Y
3	Memory module, 512MB PC2-4200 - 533MHz - DDR2 SDRAM (models 21G)	41X4251	2	Y
3	Memory module, 1GB PC2-4200 - 533MHz - DDR2 SDRAM (models 41G 42G 91G)	41X4252	2	Y
4	DVD Recordable - Multi Burner Plus -DVD RAM VIII (models 21G 41G 42G 91G)	41N3343	N	Y
4	DVD Recordable - Multi Burner Plus -DVD RAM VIII (models 21G 41G 42G 91G)	41X3550	N	Y
5	Diskette drive, w/bezel (models)			
6	Front panel card (USB/Audio) assembly (all models)	41N5330	N	Y
7	Hard disk drive, 160GB, 7200rpm, serial ATA (models 21G)	40Y9035	N	Y
7	Hard disk drive, 250GB, 7200rpm, serial ATA (models 41G 42G 91G)	40Y9036	N	Y
8	System board, 946GZ (models 21G 41G 42G 91G) <b>Note:</b> When you order a new system board you must also order a new retention bracket for the heat sink.	41X1359	N	Y
9	System Fan, rear w/grill (all models)	41N5339	N	Y
10	Power supply, 250W, RoHS (models 21G 41G 42G 91G)	41N3127	Y	Y
10	Power supply, 280W, ATX, Standard (models 21G 41G 42G 91G)	41N3479	Y	Y

The FRUs listed in the following table are not illustrated.

<b>7394 FRUs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Cable, SATA 250mm (all models)	41A7145	2	Y
Cable, diskette drive (RoHs) (all models)	41A7130	2	Y
Mechanical kit, side cover (all models)	41N5333	2	Y
Mechanical kit (all models)	41N5331	N	Y
Main bezel kit (all models)	41N5283	N	Y
Power switch/LED assembly (all models)	41N5284	N	Y
Shield, system board (945GZ) (all models)	41N5286	N	Y
Miscellaneous hardware kit (all models)	41N5334	N	Y
Cable, hard disk drive and optical drive signal (2-drop) (all models)	41A7875	N	Y
Card Reader Bezel (all models)	41N5340	2	Y

<b>7394 Keyboards (USB, Productivity)</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US English (models 21G 41G 42G 91G)	41A4961	1	Y
Arabic (models 21G 41G 42G 91G)	41A4962	1	Y
Arabic/French (models 21G 41G 42G 91G)	41A4963	1	Y
Belgian/French (models 21G 41G 42G 91G)	41A4964	1	Y
Belgian/UK (models 21G 41G 42G 91G)	41A4965	1	Y
Bulgarian (models 21G 41G 42G 91G)	41A4967	1	Y
Czech (models 21G 41G 42G 91G)	41A4969	1	Y
Danish (models 21G 41G 42G 91G)	41A4970	1	Y
Dutch (models 21G 41G 42G 91G)	41A4971	1	Y
French (models 21G 41G 42G 91G)	41A4972	1	Y
German (models 21G 41G 42G 91G)	41A4975	1	Y
Greek (models 21G 41G 42G 91G)	41A4976	1	Y
Hebrew (models 21G 41G 42G 91G)	41A4977	1	Y
Hungarian (models 21G 41G 42G 91G)	41A4978	1	Y
Iceland (models 21G 41G 42G 91G)	41A4979	1	Y
Italian (models 21G 41G 42G 91G)	41A4980	1	Y
Norwegian (models 21G 41G 42G 91G)	41A4984	1	Y
Polish (models 21G 41G 42G 91G)	41A4985	1	Y
Portuguese (models 21G 41G 42G 91G)	41A4986	1	Y
Romanian (models 21G 41G 42G 91G)	41A4987	1	Y
Russian/Cy (models 21G 41G 42G 91G)	41A4988	1	Y
Serbian/Cyrillic (models 21G 41G 42G 91G)	41A4989	1	Y
Slovak (models 21G 41G 42G 91G)	41A4990	1	Y
Spanish (models 21G 41G 42G 91G)	41A4991	1	Y
Swedish/Finn (models 21G 41G 42G 91G)	41A4992	1	Y
Swiss F/G (models 21G 41G 42G 91G)	41A4993	1	Y
Turkish 440 (models 21G 41G 42G 91G)	41A4995	1	Y

<b>7394 Keyboards (USB, Productivity)</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Turkish 179 (models 21G 41G 42G 91G)	41A4996	1	Y
UK English (models 21G 41G 42G 91G)	41A4997	1	Y
US Euro (models 21G 41G 42G 91G)	41A4998	1	Y
Slovenian (models 21G 41G 42G 91G)	41A4999	1	Y

<b>7394 mice</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Mouse, USB Optical Wheel (all models)	41A5085	1	Y
Mouse, USB Optical Wheel - Logitech (all models)	41A5089	1	Y

<b>7394 Adapters and miscellaneous FRUs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
L1 IEEE 1394 PCI Adapter (models 21G 41G)	41D2781	2	Y
ATI X300SE 128MB (models 42G 91G)	39J9635	2	Y
ATI X700 PRO 128MB (models 41G)	39J6203	2	Y
Internal USB Memory Card Reader (models 21G 41G 42G 91G)	41X2089	2	Y

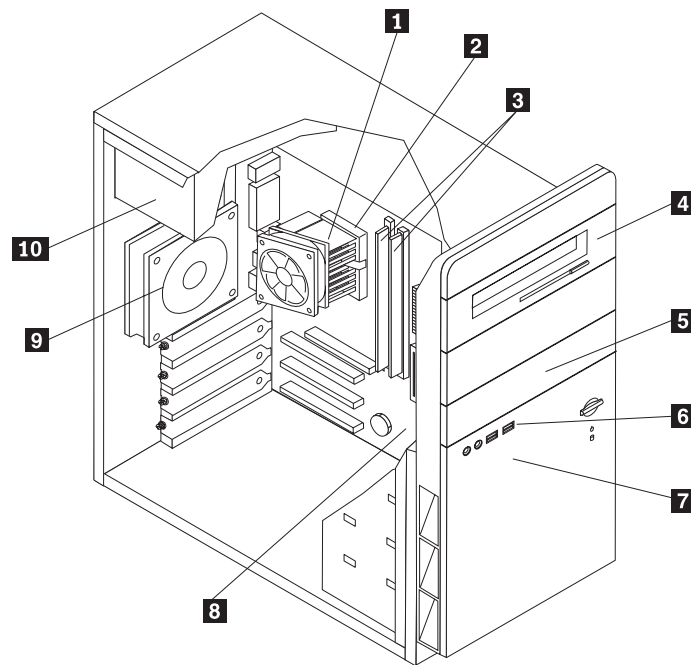
<b>7394 Power Cords</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Power Cord (UK, Ireland, Singapore, Malaysia, Brunei) (models 21G 41G 42G 91G)	39M5150	1	Y
Power Cord (Italy) (models 21G 41G 42G 91G)	39M5164	1	Y
Power Cord (G models) (models 21G 41G 42G 91G)	39M5122	1	Y
Power Cord (Denmark) (models 21G 41G 42G 91G)	39M5129	1	Y
Power Cord (Switzerland) (models 21G 41G 42G 91G)	39M5157	1	Y
Power Cord (Israel) (models 21G 41G 42G 91G)	39M5171	1	Y
Power Cord (South Africa) (models 21G 41G 42G 91G)	39M5143	1	Y

<b>7394 Windows XP Home Recovery CDs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US/UK/AP/TH (models 21G 41G)	42Y3480	1	Y
RE (models 21G 41G)	42Y3486	1	Y
FR/CF (models 21G 41G)	42Y3413	1	Y
GR (models 21G 41G)	42Y4314	1	Y
SP/LA (models 21G 41G)	42Y4315	1	Y
IT (models 21G 41G)	42Y4316	1	Y
AE (models 21G 41G)	42Y4318	1	Y
RU (models 21G 41G)	42Y4319	1	Y
SV (models 21G 41G)	42Y4320	1	Y
DK (models 21G 41G)	42Y4321	1	Y
FI (models 21G 41G)	42Y4322	1	Y

7394 Windows XP Home Recovery CDs	FRU#	CRU Tier	RoHS?
NO (models 21G 41G)	42Y4323	1	Y
NL (models 21G 41G)	42Y4324	1	Y
CZ (models 21G 41G)	42Y4325	1	Y
HE (models 21G 41G)	42Y4326	1	Y
PL (models 21G 41G)	42Y4327	1	Y
TR (models 21G 41G)	42Y4328	1	Y
HU (models 21G 41G)	42Y4329	1	Y
PO (models 21G 41G)	42Y4330	1	Y
GK (models 21G 41G)	42Y4331	1	Y

7394 Windows XP Pro Recovery CDs	FRU#	CRU Tier	RoHS?
US/UK/AP/TH (models 42G 91G)	42Y3466	1	Y
RE (models 42G 91G)	42Y3473	1	Y
FR/CF (models 42G 91G)	42Y4193	1	Y
GR (models 42G 91G)	42Y4194	1	Y
SP/LA (models 42G 91G)	42Y4195	1	Y
IT (models 42G 91G)	42Y4196	1	Y
AE (models 42G 91G)	42Y4198	1	Y
RU (models 42G 91G)	42Y4199	1	Y
SV (models 42G 91G)	42Y4200	1	Y
DK (models 42G 91G)	42Y4201	1	Y
FI (models 42G 91G)	42Y4202	1	Y
NO (models 42G 91G)	42Y4203	1	Y
NL (models 42G 91G)	42Y4204	1	Y
CZ (models 42G 91G)	42Y4205	1	Y
HE (models 42G 91G)	42Y4206	1	Y
PL (models 42G 91G)	42Y4207	1	Y
TR (models 42G 91G)	42Y4208	1	Y
HU (models 42G 91G)	42Y4209	1	Y
PO (models 42G 91G)	42Y4210	1	Y
GK (models 42G 91G)	42Y4211	1	Y
SL (models 42G 91G)	42Y4212	1	Y
Multilingual 1 (models 42G 91G)	42Y4427	1	Y
Multilingual 2 (models 42G 91G)	42Y4428	1	Y

## Machine Type 7395



Item #	7395 FRUs	FRU#	CRU Tier	RoHS?
1	FRU, Heat Sink/RM Kit, Intel Prescott, Cedar Mill, Smithfield, Presler (all models)	41N8261	N	Y
2	Microprocessor, Intel 820 - A0 Smithfield (models 21M 21A 22V)	41T1704	N	Y
2	Microprocessor, Intel 925 (models 41B 42H 43M 43A 44V)	41X2413	N	Y
2	Microprocessor, CONROE E6300 1066/1860MHZ-2M (models 91S 91P 91Y 91M 91B 91H)	41X2495	N	Y
3	Memory module, 512MB PC2-4200 - 533MHz - DDR2 SDRAM (models 21M 21A 22V 41B 42H)	41X4251	2	Y
3	Memory module, 1GB PC2-4200 - 533MHz - DDR2 SDRAM (models 43M 43A 44V 91S 91P 91Y 91M 91B 91H)	41X4252	2	Y
4	CD-ROM drive 48X - Black w/o jack & vol (models 41B 42H)	41X3539	N	Y
4	CD-ROM drive 48X - Black w/o jack & vol (models 41B 42H)	41X3540	N	Y
4	CD-ROM drive 48X - Black w/o jack & vol (models 41B 42H)	41X3541	N	Y
4	Combo 48 -32 -48 -16 - - DVD - ROM - CDRW (models 21M 21A 22V)	41X3547	N	Y
4	Combo 48 -32 -48 -16 - - DVD - ROM - CDRW (models 21M 21A 22V)	41X3548	N	Y
4	Combo 48 -32 -48 -16 - - DVD - ROM - CDRW (models 21M 21A 22V)	41X3549	N	Y
4	DVD Recordable - Multi Burner Plus -DVD RAM VIII (models 43M 43A 44V 91S 91P 91Y 91M 91B 91H)	41N3343	N	Y
4	DVD Recordable - Multi Burner Plus -DVD RAM VIII (models 43M 43A 44V 91S 91P 91Y 91M 91B 91H)	41X3550	N	Y
5	Diskette drive, w/bezel (models)			
6	Front panel card (USB/Audio) assembly (all models)	41N5330	N	Y
7	Hard disk drive, 80GB, 7200rpm, serial ATA (models 41B 42H)	40Y9034	N	Y
7	Hard disk drive, 80GB, 7200rpm, serial ATA (models 41B 42H)	41X2500	N	Y

Item #	7395 FRUs	FRU#	CRU Tier	RoHS?
7	Hard disk drive, 160GB, 7200rpm, serial ATA (models 21M 21A 22V)	40Y9035	N	Y
7	Hard disk drive, 250GB, 7200rpm, serial ATA (models 43M 43A 44V 91S 91P 91Y 91M 91B 91H)	40Y9036	N	Y
8	System board, 946GZ (models 21M 21A 22V 41B 42H 43M 43A 44V 91S 91P 91Y 91M 91B 91H) <b>Note:</b> When you order a new system board you must also order a new retention bracket for the heat sink.	41X1359	N	Y
9	System Fan, rear w/grill (all models)	41N5339	N	Y
10	Power supply, 250W, RoHS (models 21M 21A 43M 43A 91S 91P 91Y 91M)	41N3127	Y	Y
10	Power supply, 250W, robust (models 22V 41B 42H 44V 91B 91H)	41N3460	N	Y
10	Power supply, 280W, ATX, Standard (models 21M 21A 43M 43A 91S 91P 91Y 91M)	41N3479	Y	Y
10	Power supply, 280W, Robust (models 22V 41B 42H 44V 91B 91H)	41N3482	N	Y

The FRUs listed in the following table are not illustrated.

7395 FRUs	FRU#	CRU Tier	RoHS?
Cable, SATA 250mm (all models)	41A7145	2	Y
Cable, diskette drive (RoHs) (all models)	41A7130	2	Y
Mechanical kit, side cover (all models)	41N5333	2	Y
Mechanical kit (all models)	41N5331	N	Y
Main bezel kit (all models)	41N5283	N	Y
Power switch/LED assembly (all models)	41N5284	N	Y
Shield, system board (945GZ) (all models)	41N5286	N	Y
Miscellaneous hardware kit (all models)	41N5334	N	Y
Cable, hard disk drive and optical drive signal (2-drop) (all models)	41A7875	N	Y
Card Reader Bezel (all models)	41N5340	2	Y
Dongle Cable - DMS59 to dual VGA (all models)	41D2399	2	Y
Battery 3V-lithium (all models)	33F8354	2	Y

7395 Keyboards (USB Preferred - Fullwidth)	FRU#	CRU Tier	RoHS?
US English (models 42H)	41A5289	1	Y
Chinese/US (models 41B)	41A5296	1	Y

7395 Keyboards (USB, Productivity)	FRU#	CRU Tier	RoHS?
US English (models 43M 43A 91M 91H)	41A4961	1	Y
Brazilian (models 91P)	41A4966	1	Y
Hong Kong/Taiwan (models 44V 91B)	41A4968	1	Y
LA Spanish (models 91S 91Y)	41A4983	1	Y

<b>7395 Keyboards (Fingerprint Reader, USB)</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US English (models 21M 21A)	41A5248	1	Y
Chinese/US (models 22V)	41A5255	1	Y

<b>7395 mice</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Mouse, USB Optical Wheel (all models)	41A5085	1	Y
Mouse, USB Optical Wheel - Logitech (all models)	41A5089	1	Y

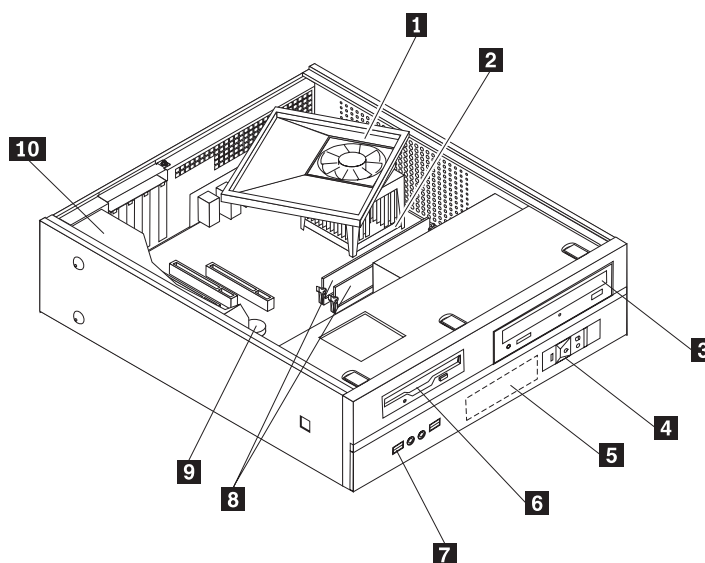
<b>7395 Adapters and miscellaneous FRUs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
ATI X300SE 128MB (models 43M 43A 44V)	39J9635	2	Y
Boston - ATI X700 PRO 128MB (models 91S 91P 91Y 91M 91B 91H)	39J6203	2	Y
Internal USB Memory Card Reader (models 21M 21A 22V 43M 43A 44V 91S 91P 91Y 91M 91B 91H)	41X2089	2	Y

<b>7395 Power Cords</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Power Cord (US) (models 21A 43A 91S)	39M5080	1	Y
Power Cord (Brazil) (models 91P)	39M5232	1	Y
Power Cord (LA High Volt) (non-APU) (models 91Y)	39M5067	1	Y
Power Cord (Australia, New Zealand) (models 21M 43M 91M)	39M5102	1	Y
Power Cord (Hong Kong) (models 41B 42H 91B 91H)	39M5151	1	Y
Power Cord (UK, Ireland, Singapore, Malaysia, Brunei) (models 21A 43A)	39M5150	1	Y
Power Cord (Taiwan) (models 22V 44V)	39M5246	1	Y
Power Cord (Italy) (models 91S 91Y)	39M5164	1	Y
Power Cord (G models) (models 21A 43A)	39M5122	1	Y
Power Cord (South Africa) (models 21M 21A 43M 43A 91M)	39M5143	1	Y

<b>7395 Windows XP Pro Recovery CDs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US/UK/AP/TH (models 21M 21A 42H 43M 43A 91M 91H)	42Y3466	1	Y
SP/LA (models 91S 91Y)	42Y4195	1	Y
PO (models 91P)	42Y4210	1	Y
Taiwan - TC (models 22V 44V)	42T8695	1	Y
Hong Kong - TC (models 41B 91B)	42T8702	1	Y

<b>7395 Corel Education CDs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US (models 21M 21A 42H 43M 43A)	41X0440	1	Y

## Machine Type 7396



Item #	7396 FRUs	FRU#	CRU Tier	RoHS?
1	Heat Sink/RM Kit, Intel Prescott, Cedar Mill, Smithfield, Presler (all models)	41N8261	N	Y
2	Microprocessor, Intel 820 - A0 Smithfield (models 21M 21A 21Q 21T 21H 22G 22V 23G 24B 25H)	41T1704	N	Y
2	Microprocessor, Intel 925 (models 41M 42G)	41X2413	N	Y
3	Combo 48 -32 -48 -16 - - DVD - ROM - CDRW (models 21M 21A 21Q 21T 21H 22G 22V)	41X3547	N	Y
3	Combo 48 -32 -48 -16 - - DVD - ROM - CDRW (models 21M 21A 21Q 21T 21H 22G 22V)	41X3548	N	Y
3	Combo 48 -32 -48 -16 - - DVD - ROM - CDRW (models 21M 21A 21Q 21T 21H 22G 22V)	41X3549	N	Y
3	DVD Recordable - Multi Burner Plus -DVD RAM VIII (models 23G 24B 25H 41M 42G)	41N3343	N	Y
3	DVD Recordable - Multi Burner Plus -DVD RAM VIII (models 23G 24B 25H 41M 42G)	41X3550	N	Y
4	Power switch/LED assembly (all models)	41N5269	N	Y
5	Hard disk drive, 160GB, 7200rpm Serial ATA (models 21M 21A 21Q 21T 21H 22G 22V 23G)	40Y9035	N	Y
5	Hard disk drive, 250GB, 7200rpm Serial ATA (models 24B 25H 41M 42G)	40Y9036	N	Y
6	Diskette drive, wo/bezel (models)			
7	Front I/O (USB/Audio) Cable Assembly (all models)	41N5270	N	Y
8	Memory module, 512MB PC2-4200 - 533MHz - DDR2 SDRAM (models 21M 21A 21Q 21T 21H 22G 22V 23G 24B 25H)	41X4251	2	Y
8	Memory module, 1GB PC2-4200 - 533MHz - DDR2 SDRAM (models 41M 42G)	41X4252	2	Y



Item #	7396 FRUs	FRU#	CRU Tier	RoHS?
9	System board, 945GZ - Intel based (models 21M 21A 21Q 21T 21H 22G 22V 23G 24B 25H 41M 42G) <b>Note:</b> When you order a new system board you must also order a new retention bracket for the heat sink.	41X1359	N	Y
10	Power supply, 220W TFX ; Robust (models 21Q 21H 22V 24B 25H)	41N3493	N	Y
10	Power supply, 220W TFX ; Standard (models 21M 21A 21T 22G 23G 41M 42G)	41N3109	N	Y

The FRUs listed in the following table are not illustrated.

7396 FRUs	FRU#	CRU Tier	RoHS?
Shield, EMC, 5.25in. drive bay (all models)	41A7162	N	Y
Cable, Serial-ATA, (18in. RoHs) (all models)	41A7145	N	Y
Shield, EMC, diskette drive bay (all models)	41A7146	N	Y
Cable, diskette drive (all models)	41A7147	N	Y
Cover (all models)	41A7148	2	Y
Chassis Kit Assembly with bezels (all models)	41N5251	N	Y
Bezel Assembly kit (all models)	41N5268	2	Y
Fan duct assembly (all models)	41A7151	N	Y
Shield, EMC, system board (all models)	41N5347	N	Y
Miscellaneous hardware kit (all models)	41A7155	N	Y
Cable, optical drive signal (all models)	41A7158	N	Y
Fan assembly, Front (all models)	41A7198	N	Y
Retention bracket kit, heat sink (for Intel microprocessor) (all models)	41A7139	N	Y
Heat sink (all models)	41A7847	N	Y
Desktop Card Reader Bezel (all models)	41N5337	N	Y
Dongle Cable - DMS59 to dual VGA (all models)	41D2399	2	Y
Battery 3V-lithium (all models)	33F8354	2	Y

7396 Keyboards (USB, Productivity)	FRU#	CRU Tier	RoHS?
US English (models 21M 21A 21Q 21H 22G 23G 25H)	41A4961	1	Y
Arabic (models 22G 23G)	41A4962	1	Y
Arabic/French (models 22G 23G)	41A4963	1	Y
Belgian/French (models 22G 23G)	41A4964	1	Y
Belgian/UK (models 22G 23G)	41A4965	1	Y
Bulgarian (models 22G 23G)	41A4967	1	Y
Hong Kong/Taiwan (models 22V 24B)	41A4968	1	Y
Czech (models 22G 23G)	41A4969	1	Y
Danish (models 22G 23G)	41A4970	1	Y
Dutch (models 22G 23G)	41A4971	1	Y

<b>7396 Keyboards (USB, Productivity)</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
French (models 22G 23G)	41A4972	1	Y
German (models 22G 23G)	41A4975	1	Y
Greek (models 22G 23G)	41A4976	1	Y
Hebrew (models 22G 23G)	41A4977	1	Y
Hungarian (models 22G 23G)	41A4978	1	Y
Iceland (models 22G 23G)	41A4979	1	Y
Italian (models 22G 23G)	41A4980	1	Y
Norwegian (models 22G 23G)	41A4984	1	Y
Polish (models 22G 23G)	41A4985	1	Y
Portuguese (models 22G 23G)	41A4986	1	Y
Romanian (models 22G 23G)	41A4987	1	Y
Russian/Cy (models 22G 23G)	41A4988	1	Y
Serbian/Cyrillic (models 22G 23G)	41A4989	1	Y
Slovak (models 22G 23G)	41A4990	1	Y
Spanish (models 22G 23G)	41A4991	1	Y
Swedish/Finn (models 22G 23G)	41A4992	1	Y
Swiss F/G (models 22G 23G)	41A4993	1	Y
Thailand (models 21T)	41A4994	1	Y
Turkish 440 (models 22G 23G)	41A4995	1	Y
Turkish 179 (models 22G 23G)	41A4996	1	Y
UK English (models 22G 23G)	41A4997	1	Y
US Euro (models 22G 23G)	41A4998	1	Y
Slovenian (models 22G 23G)	41A4999	1	Y

<b>7396 Keyboards (Fingerprint Reader, USB)</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US English (models 41M 42G)	41A5248	1	Y
Arabic (models 42G)	41A5249	1	Y
Arabic/French (models 42G)	41A5250	1	Y
Belgian/French (models 42G)	41A5251	1	Y
Belgian/UK (models 42G)	41A5252	1	Y
Brazil/Portuguese (models 42G)	41A5253	1	Y
Bulgarian (models 42G)	41A5254	1	Y
Chinese/US (models 42G)	41A5255	1	Y
Czech (models 42G)	41A5256	1	Y
Danish (models 42G)	41A5257	1	Y
Dutch (models 42G)	41A5258	1	Y
French (models 42G)	41A5259	1	Y
French Canadian 445 (models 42G)	41A5260	1	Y
French Canadian 58 (models 42G)	41A5261	1	Y

<b>7396 Keyboards (Fingerprint Reader, USB)</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
German (models 42G)	41A5262	1	Y
Greek (models 42G)	41A5263	1	Y
Greek/US (models 42G)	41A5264	1	Y
Hebrew (models 42G)	41A5265	1	Y
Hungarian (models 42G)	41A5266	1	Y
Iceland (models 42G)	41A5267	1	Y
Italian 141 (models 42G)	41A5268	1	Y
Norwegian (models 42G)	41A5272	1	Y
Polish (models 42G)	41A5273	1	Y
Portuguese (models 42G)	41A5274	1	Y
Romanian 446 (models 42G)	41A5275	1	Y
Romanian 96 (models 42G)	41A5276	1	Y
Russian/Cy (models 42G)	41A5277	1	Y
Serbian/Cyrillic (models 42G)	41A5278	1	Y
Slovak (models 42G)	41A5279	1	Y
Spanish (models 42G)	41A5280	1	Y
Swedish/Finn (models 42G)	41A5281	1	Y
Swiss F/G (models 42G)	41A5282	1	Y
Turkish 179 (models 42G)	41A5284	1	Y
Turkish 440 (models 42G)	41A5285	1	Y
UK English (models 42G)	41A5286	1	Y
US Euro (models 42G)	41A5287	1	Y
Slovenian (models 42G)	41A5288	1	Y

<b>7396 mice</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Mouse, USB optical wheel (all models)	41A5085	1	Y
Mouse, USB optical wheel - Logitech (all models)	41A5089	1	Y

<b>7396 Adapters and miscellaneous FRUs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
ATI X300SE 128MB (models 41M 42G)	39J9635	1	Y
Internal USB Memory Card Reader (models 21M 21A 21Q 21T 21H 22G 22V 23G 24B 25H 41M 42G)	41X2089	1	Y

<b>7396 Power Cords</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Power Cord (US) (models 21A 21T)	39M5080	1	Y
Power Cord (Australia, New Zealand) (models 21M 41M)	39M5102	1	Y
Power Cord (Hong Kong) (models 21H 24B 25H)	39M5151	1	Y

<b>7396 Power Cords</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Power Cord (UK, Ireland, Singapore, Malaysia, Brunei) (models 21A 22G 23G 42G)	39M5150	1	Y
Power Cord (Taiwan) (models 22V)	39M5246	1	Y
Power Cord (Italy) (models 22G 23G 42G)	39M5164	1	Y
Power Cord (G models) (models 21A 22G 23G 42G)	39M5122	1	Y
Power Cord (Denmark) (models 21A 22G 23G 42G)	39M5129	1	Y
Power Cord (Switzerland) (models 21A 22G 23G 42G)	39M5157	1	Y
Power Cord (Israel) (models 21A 22G 23G 42G)	39M5171	1	Y
Power Cord (South Africa) (models 21M 21A 22G 23G 41M 42G)	39M5143	1	Y
Power Cord (India) (models 21Q)	41R3175	1	Y

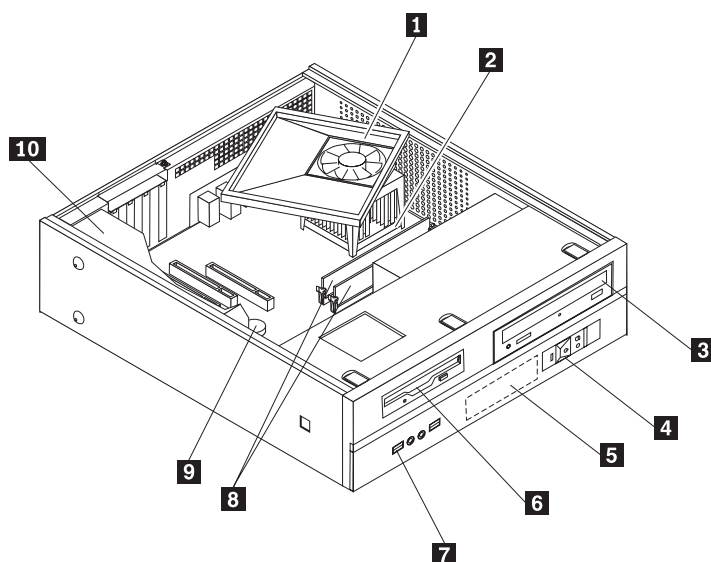
<b>7396 Windows XP Home Recovery CDs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US/UK/AP/TH (models 25H)	42Y3480	1	Y
Hong Kong - TC (models 24B)	42T8727	1	Y

<b>7396 Windows XP Pro Recovery CDs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US/UK/AP/TH (models 21M 21A 21Q 21T 21H 22G 23G 41M 42G)	42Y3466	1	Y
RE (models 22G 23G 42G)	42Y3473	1	Y
FR/CF (models 22G 23G 42G)	42Y4193	1	Y
GR (models 22G 23G 42G)	42Y4194	1	Y
SP/LA (models 22G 23G 42G)	42Y4195	1	Y
IT (models 22G 23G 42G)	42Y4196	1	Y
AE (models 22G 23G 42G)	42Y4198	1	Y
RU (models 22G 23G 42G)	42Y4199	1	Y
SV (models 22G 23G 42G)	42Y4200	1	Y
DK (models 22G 23G 42G)	42Y4201	1	Y
FI (models 22G 23G 42G)	42Y4202	1	Y
NO (models 22G 23G 42G)	42Y4203	1	Y
NL (models 22G 23G 42G)	42Y4204	1	Y
CZ (models 22G 23G 42G)	42Y4205	1	Y
HE (models 22G 23G 42G)	42Y4206	1	Y
PL (models 22G 23G 42G)	42Y4207	1	Y
TR (models 22G 23G 42G)	42Y4208	1	Y
HU (models 22G 23G 42G)	42Y4209	1	Y
PO (models 22G 23G 42G)	42Y4210	1	Y
GK (models 22G 23G 42G)	42Y4211	1	Y
SL (models 22G 23G 42G)	42Y4212	1	Y
Taiwan - TC (models 22V)	42T8695	1	Y
Multilingual 1 (models 22G 23G 42G)	42Y4427	1	Y

7396 Windows XP Pro Recovery CDs	FRU#	CRU Tier	RoHS?
Multilingual 2 (models 22G 23G 42G)	42Y4428	1	Y

7396 Corel Education CDs	FRU#	CRU Tier	RoHS?
US (models 21M 21A 21Q 21T 21H 25H 41M)	41X0440	1	Y

## Machine Type 7397



Item #	7397 FRUs	FRU#	CRU Tier	RoHS?
1	Heat Sink/RM Kit, Intel Prescott, Cedar Mill, Smithfield, Presler (all models)	41N8261	N	Y
2	Microprocessor, Intel 820 - A0 Smithfield (models 21J 22J 23G)	41T1704	N	Y
2	Microprocessor, Intel 925 (models 41J 42J)	41X2413	N	Y
3	Combo 48 -32 -48 -16 - - DVD - ROM - CDRW (models 21J 22J)	41X3547	N	Y
3	Combo 48 -32 -48 -16 - - DVD - ROM - CDRW (models 21J 22J)	41X3548	N	Y
3	Combo 48 -32 -48 -16 - - DVD - ROM - CDRW (models 21J 22J)	41X3549	N	Y
3	DVD Recordable - Multi Burner Plus -DVD RAM VIII (models 23G 41J 42J)	41N3343	N	Y
3	DVD Recordable - Multi Burner Plus -DVD RAM VIII (models 23G 41J 42J)	41X3550	N	Y
4	Power switch/LED assembly (all models)	41N5269	N	Y
5	Hard disk drive, 160GB, 7200rpm Serial ATA (models 21J 22J 23G)	40Y9035	N	Y
5	Hard disk drive, 250GB, 7200rpm Serial ATA (models 41J 42J)	40Y9036	N	Y
6	Diskette drive, wo/bezel (models)			
7	Front I/O (USB/Audio) Cable Assembly (all models)	41N5270	N	Y
8	Memory module, 512MB PC2-4200 - 533MHz - DDR2 SDRAM (models 21J 22J 23G)	41X4251	2	Y

Item #	7397 FRUs	FRU#	CRU Tier	RoHS?
8	Memory module, 1GB PC2-4200 - 533MHz - DDR2 SDRAM (models 41J 42J)	41X4252	2	Y
9	System board, 945GZ - Intel based (models 21J 22J 23G 41J 42J) <b>Note:</b> When you order a new system board you must also order a new retention bracket for the heat sink.	41X1359	N	Y
10	Power supply, 220W TFX ; Standard (models 23G)	41N3109	N	Y
10	Power supply, 220W TFX ; Japan (models 21J 22J 41J 42J)	41N3119	N	Y

7397 FRUs	FRU#	CRU Tier	RoHS?
Shield, EMC, 5.25in. drive bay (all models)	41A7162	N	Y
Cable, Serial-ATA, (18in. RoHs) (all models)	41A7145	N	Y
Shield, EMC, diskette drive bay (all models)	41A7146	N	Y
Cable, diskette drive (all models)	41A7147	N	Y
Cover (all models)	41A7148	2	Y
Chassis Kit Assembly with bezels (all models)	41N5251	N	Y
Bezel Assembly kit (all models)	41N5268	2	Y
Fan duct assembly (all models)	41A7151	N	Y
Shield, EMC, system board (all models)	41N5347	N	Y
Miscellaneous hardware kit (all models)	41A7155	N	Y
Cable, optical drive signal (all models)	41A7158	N	Y
Fan assembly, Front (all models)	41A7198	N	Y
Retention bracket kit, heat sink (for Intel microprocessor) (all models)	41A7139	N	Y
Heat sink (all models)	41A7847	N	Y
Desktop Card Reader Bezel (all models)	41N5337	N	Y
Dongle Cable - DMS59 to dual VGA (all models)	41D2399	2	Y
Battery 3V-lithium (all models)	33F8354	2	Y

7397 Keyboards (USB Preferred - Fullwidth)	FRU#	CRU Tier	RoHS?
Japanese (models 22J 42J)	41A5310	1	Y

7397 Keyboards (USB Productivity)	FRU#	CRU Tier	RoHS?
US English (models 23G)	41A4961	1	Y
Arabic (models 23G)	41A4962	1	Y
Arabic/French (models 23G)	41A4963	1	Y
Belgian/French (models 23G)	41A4964	1	Y
Belgian/UK (models 23G)	41A4965	1	Y
Bulgarian (models 23G)	41A4967	1	Y
Czech (models 23G)	41A4969	1	Y
Danish (models 23G)	41A4970	1	Y

<b>7397 Keyboards (USB Productivity)</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Dutch (models 23G)	41A4971	1	Y
French (models 23G)	41A4972	1	Y
German (models 23G)	41A4975	1	Y
Greek (models 23G)	41A4976	1	Y
Hebrew (models 23G)	41A4977	1	Y
Hungarian (models 23G)	41A4978	1	Y
Iceland (models 23G)	41A4979	1	Y
Italian (models 23G)	41A4980	1	Y
Japanese (models 21J 41J)	41A4981	1	Y
Norwegian (models 23G)	41A4984	1	Y
Polish (models 23G)	41A4985	1	Y
Portuguese (models 23G)	41A4986	1	Y
Romanian (models 23G)	41A4987	1	Y
Russian/Cy (models 23G)	41A4988	1	Y
Serbian/Cyrillic (models 23G)	41A4989	1	Y
Slovak (models 23G)	41A4990	1	Y
Spanish (models 23G)	41A4991	1	Y
Swedish/Finn (models 23G)	41A4992	1	Y
Swiss F/G (models 23G)	41A4993	1	Y
Turkish 440 (models 23G)	41A4995	1	Y
Turkish 179 (models 23G)	41A4996	1	Y
UK English (models 23G)	41A4997	1	Y
US Euro (models 23G)	41A4998	1	Y
Slovenian (models 23G)	41A4999	1	Y

<b>7397 mice</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Mouse, USB optical wheel (all models)	41A5085	1	Y
Mouse, USB optical wheel - Logitech (all models)	41A5089	1	Y

<b>7397 Adapters and miscellaneous FRUs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
ATI X300SE 128MB (models 41J 42J)	39J9635	1	Y
Internal USB Memory Card Reader (models 21J 23G 41J)	41X2089	1	Y

<b>7397 Power Cords</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Power Cord (Japan) (models 21J 22J 41J 42J)	39M5193	1	Y
Power Cord (UK, Ireland, Singapore, Malaysia, Brunei) (models 23G)	39M5150	1	Y
Power Cord (Italy) (models 23G)	39M5164	1	Y
Power Cord (G models) (models 23G)	39M5122	1	Y

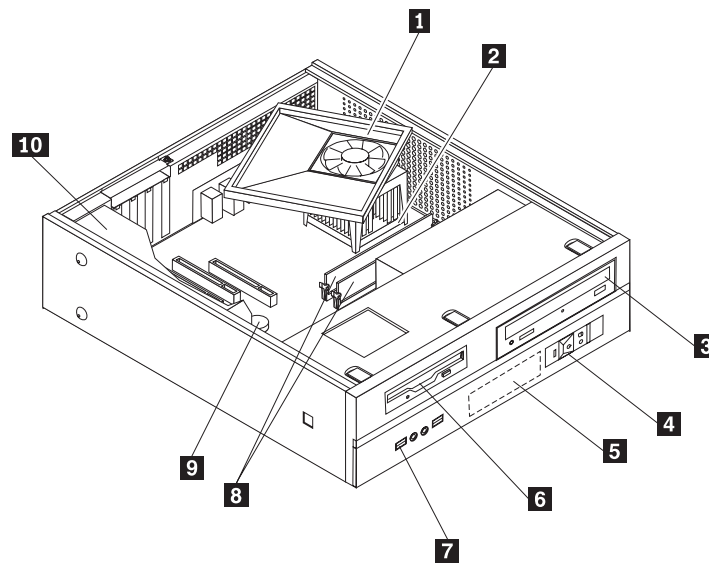
<b>7397 Power Cords</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Power Cord (Denmark) (models 23G)	39M5129	1	Y
Power Cord (Switzerland) (models 23G)	39M5157	1	Y
Power Cord (Israel) (models 23G)	39M5171	1	Y
Power Cord (South Africa) (models 23G)	39M5143	1	Y

<b>7397 Windows XP Pro Recovery CDs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US/UK/AP/TH (models 23G)	42Y3466	1	Y
RE (models 23G)	42Y3473	1	Y
FR/CF (models 23G)	42Y4193	1	Y
GR (models 23G)	42Y4194	1	Y
SP/LA (models 23G)	42Y4195	1	Y
IT (models 23G)	42Y4196	1	Y
AE (models 23G)	42Y4198	1	Y
RU (models 23G)	42Y4199	1	Y
SV (models 23G)	42Y4200	1	Y
DK (models 23G)	42Y4201	1	Y
FI (models 23G)	42Y4202	1	Y
NO (models 23G)	42Y4203	1	Y
NL (models 23G)	42Y4204	1	Y
CZ (models 23G)	42Y4205	1	Y
HE (models 23G)	42Y4206	1	Y
PL (models 23G)	42Y4207	1	Y
TR (models 23G)	42Y4208	1	Y
HU (models 23G)	42Y4209	1	Y
PO (models 23G)	42Y4210	1	Y
GK (models 23G)	42Y4211	1	Y
SL (models 23G)	42Y4212	1	Y
Japanese (models 21J 22J 41J 42J)	42T8681	1	Y
Multilingual 1 (models 23G)	42Y4427	1	Y
Multilingual 2 (models 23G)	42Y4428	1	Y

<b>7397 Corel Education CDs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
JP (models 21J 22J 41J 42J)	41X0484	1	Y



## Machine Type 7398



Item #	7398 FRUs	FRU#	CRU Tier	RoHS?
1	Heat Sink/RM Kit, Intel Prescott, Cedar Mill, Smithfield, Presler (all models)	41N8261	N	Y
2	Microprocessor, Intel 925 (models 41M 42V)	41X2413	N	Y
2	Microprocessor, CONROE E6300 1066/1860MHZ-2M (models 91B 91H 92B 92H)	41X2495	N	Y
3	DVD Recordable - Multi Burner Plus -DVD RAM VIII (models 41M 42V 91B 91H 92B 92H)	41N3343	N	Y
3	DVD Recordable - Multi Burner Plus -DVD RAM VIII (models 41M 42V 91B 91H 92B 92H)	41X3550	N	Y
4	Power switch/LED assembly (all models)	41N5269	N	Y
5	Hard disk drive, 250GB, 7200rpm Serial ATA (models 41M 42V 91B 91H 92B 92H)	40Y9036	N	Y
6	Diskette drive, wo/bezel (models)			
7	Front I/O (USB/Audio) Cable Assembly (all models)	41N5270	N	Y
8	Memory module, 512MB PC2-4200 - 533MHz - DDR2 SDRAM (models 41M 42V)	41X4251	2	Y
8	Memory module, 1GB PC2-4200 - 533MHz - DDR2 SDRAM (models 91B 91H 92B 92H)	41X4252	2	Y
9	System board, 945GZ - Intel based (models 41M 42V 91B 91H 92B 92H) <b>Note:</b> When you order a new system board you must also order a new retention bracket for the heat sink.	41X1359	N	Y
10	Power supply, 220W TFX ; Robust (models 42V 91B 91H 92B 92H)	41N3493	N	Y
10	Power supply, 220W TFX ; Standard (models 41M)	41N3109	N	Y

The FRUs listed in the following table are not illustrated.

<b>7398 FRUs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Shield, EMC, 5.25in. drive bay (all models)	41A7162	N	Y
Cable, Serial-ATA, (18in. RoHs) (all models)	41A7145	N	Y
Shield, EMC, diskette drive bay (all models)	41A7146	N	Y
Cable, diskette drive (all models)	41A7147	N	Y
Cover (all models)	41A7148	2	Y
Chassis Kit Assembly with bezels (all models)	41N5251	N	Y
Bezel Assembly kit (all models)	41N5268	2	Y
Fan duct assembly (all models)	41A7151	N	Y
Shield, EMC, system board (all models)	41N5347	N	Y
Miscellaneous hardware kit (all models)	41A7155	N	Y
Cable, optical drive signal (all models)	41A7158	N	Y
Fan assembly, Front (all models)	41A7198	N	Y
Retention bracket kit, heat sink (for Intel microprocessor) (all models)	41A7139	N	Y
Heat sink (all models)	41A7847	N	Y
Desktop Card Reader Bezel (all models)	41N5337	N	Y
Dongle Cable - DMS59 to dual VGA (all models)	41D2399	2	Y
Battery 3V-lithium (all models)	33F8354	2	Y

<b>7398 Keyboards (USB Productivity)</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US English (models 41M 91H 92H)	41A4961	1	Y
Hong Kong/Taiwan (models 42V 91B)	41A4968	1	Y

<b>7398 mice</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Mouse, USB optical wheel (all models)	41A5085	1	Y
Mouse, USB optical wheel - Logitech (all models)	41A5089	1	Y

<b>7398 Adapters and miscellaneous FRUs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Internal USB Memory Card Reader (models 41M 42V 91B 91H 92B 92H)	41X2089	1	Y
Boston - ATI X700 PRO 128MB (models 91B 91H 92B 92H)	39J6203	1	Y

<b>7398 Power Cords</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
Power Cord (Australia, New Zealand) (models 41M)	39M5102	1	Y
Power Cord (Hong Kong) (models 91B 91H 92B 92H)	39M5151	1	Y
Power Cord (Taiwan) (models 42V)	39M5246	1	Y
Power Cord (South Africa) (models 41M)	39M5143	1	Y

<b>7398 Windows XP Home Recovery CDs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US/UK/AP/TH (models 91H)	42Y3480	1	Y
Hong Kong - TC (models 91B)	TBD	1	Y

<b>7398 Windows XP Pro Recovery CDs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US/UK/AP/TH (models 41M 92H)	42Y3466	1	Y
Taiwan - TC (models 42V)	42T8695	1	Y
Hong Kong - TC (models 82B)	TBD	1	Y

<b>7398 Corel Education CDs</b>	<b>FRU#</b>	<b>CRU Tier</b>	<b>RoHS?</b>
US (models 41M)	41X0440	1	Y



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## Chapter 11. Additional Service Information

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

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### Security features

Security features in this section include the following:

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

#### Hardware controlled Passwords

Hardware controlled passwords are set using the Setup Utility program. For more information about passwords, see “Using passwords” on page 51.

#### Operating system password

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

#### Vital product data

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

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### 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.
  - Select Standard CMOS Features.
- Sources for obtaining the latest level BIOS available
  1. Lenovo support web site:  
<http://www.lenovo.com/support/>
  2. Lenovo Customer Support Center
  3. Levels 1 and 2 Support

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

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### Flash update procedures

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

## Updating (flashing) BIOS from a diskette

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

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## Recovering from a POST/BIOS update failure

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

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

1. Turn the computer off and insert the special recovery BIOS flash diskette in the diskette drive.
2. Turn the computer on.
3. The recovery session takes two to three minutes. During this time you will hear a series of beeps. After the update session completes, the series of beeps ends and the computer automatically turns off. There is no video during the recovery session.
4. Remove the special recovery BIOS flash diskette from the diskette 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.

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

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

### Automatic Power-On features

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

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

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## Recovering software

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



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