ThinkCentre

Hardware Maintenance Manual
Types 8086, 8087, 8088, 8089
Types 8090, 8094

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Note: Before using this information and the product it supports, be sure to read the information under "Notices," on page 155.

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Contents

Chapter 1. About this manual

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

Before servicing a Lenovo product, be sure to read the Safety Information. See
Chapter 2, "Safety information," on page 5.

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

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

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.

Strategy for replacing FRUs for CTO, CMV, and GAV products

Product definition

Dynamic Configure To Order (CTO)
> This provides the ability for a customer to configure a Lenovo solution from an eSite, and have this configuration sent to fulfillment, where it is built and shipped directly to the customer. The machine label, PC Entitlement Warehouse (PEW), eSupport, and the HMM will include these products as the 4-digit machine type (MT) and 3-digit model, where model = 'CTO' (Example: 8129-CTO).

Custom Model Variant (CMV)
> This is a unique configuration that has been negotiated between Lenovo and the customer. A unique 4-digit MT and 3-digit model is provided to the customer to place orders (Example: 8129-W15). A CMV is a special bid offering. Therefore, it is NOT generally announced.
>
> - The machine type model (MTM) portion of the machine label is the 4-digit MT and 3-digit model, where model = 'CTO' (Example: 8129-CTO). The PRODUCT ID portion of the machine label is the 4-digit MT and 3-digit CMV model (Example: 8129-W15).
> - The PEW record is the 4-digit MT and 3-digit model, where model = 'CTO' (Example: 8129-CTO).
> - eSupport will show both the CTO and CMV machine type models (Example: 8129-CTO and 8129-W15 will be found on the eSupport site.)
> - The HMM will have the 4-digit MT and 3-digit CTO model only (Example: 8129-CTO). Again, CMVs are custom models and are not found in the HMM.

General Announce Variant (GAV)
> This is a standard model (fixed configuration). GAVs are announced and offered to all customers. The MTM portion of the machine label is a 4-digit MT and 3-digit model, where model = a "fixed model number", not 'CTO' (Example: 8129-F1U). Also, PEW, eSupport, and the HMM will list these products under the same fixed model number.

FRU Identification for CTO, CMV, and GAV products

There are three information resources to identify which FRUs are used to support CTO, CMV, and GAV products. These sources are PEW, eSupport, and the HMM.

Using PEW

- **PEW** is the primary source for identifying FRU part numbers and FRU descriptions for the key commodities for CTO, CMV and GAV products at a MT - serial number level. An example of key commodities are hard disk drives, system boards, microprocessors, Liquid Crystal Displays (LCDs), and memory.
- Remember, All CTO and CMV products are loaded in PEW under the 4-digit MT and 3-digit model, where model = 'CTO' (Example: 8129-CTO). GAVs are loaded in PEW under the 4-digit MT and 3-digit model, where model = a "fixed model number", not 'CTO' (Example: 8129-F1U).
- PEW can be accessed as follows:
  1. Point your browser to http://w3-3.ibm.com/pc/entitle.
  2. Under PEW Home, click **Machine Lookup**.
  3. Under Machine Lookup, click **Warranty Information**.

4. Under Warranty Information, type the MT and Serial number and click **Submit**.

   The list of key commodities is returned in the PEW record under Component Information.

- **Business Partners** using Eclaim will access PEW when performing Entitlement Lookup. Business Partners will enter Loc ID, MT and Serial, and the key commodities will be returned in the Eclaim record under System Details.

- Authorized Lenovo Business Partners can access Eclaim at the following Web site:
  http://wca.eclaim.com

Using eSupport

For Key Commodities (Examples - hard disk drive, system board, microprocessor, LCD, and memory)

- eSupport can be used to view the list of key commodities built in a particular machine serial (this is the same record found in PEW).

- eSupport can be accessed at the following Web site:
  http://www.lenovo.com/think/support

- To view the key commodities:
  1. Click **Parts information**.
  2. Under Parts information, click **Parts lookup**.
  3. Under Parts lookup, type the model type and serial number; then click **Continue**.

     The key commodities are returned in the eSupport record under Parts shipped with your system.

For the remaining FRUs (the complete list of FRUs at the MT Model level)

- eSupport can be used to view the complete list of FRUs for a machine type and model.

- To view the complete list of FRUs for a machine type:
  1. Point your browser to http://www.lenovo.com/think/support.
  2. Type the machine type (Example: 8129) in the Use Quick Path field; then click **Go**.
  3. Under Browse by product, click **Continue**.
  4. Under Important information, click **Parts information**.
  5. In the Refine results field, select **Service parts**; then click the entry for your machine type.

     The list of service parts by description, with applicable machine type model and FRU part number is displayed.

Using the HMM

- Use the HMM as a back-up to PEW and eSupport to view the complete list of FRU part numbers at the MT Model level.

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

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

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

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
- California Senate Bills 20, 50:
  http://www.ciwmb.ca.gov/HHW/Events/AnnualConf/2004/presentation/MPaparian.pdf

Chapter 2. Safety information

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

General safety

Follow these rules to ensure general safety:

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

  Remember: Metal objects are good electrical conductors.
- Wear safety glasses when you are: hammering, drilling soldering, cutting wire, attaching springs, using solvents, or working in any other conditions that might be hazardous to your eyes.
- After service, reinstall all safety shields, guards, labels, and ground wires. Replace any safety device that is worn or defective.
- Reinstall all covers correctly before returning the machine to the customer.

Electrical safety

CAUTION:
Electrical current from power, telephone, and communication cables can be hazardous. To avoid personal injury or equipment damage, disconnect the attached power cords, telecommunication systems, networks, and modems before you open the 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.

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.

Grounding requirements

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

Safety notices (multi-lingual translations)

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

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

DANGER

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

To avoid a shock hazard:

- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
- **Connect all power cords to a properly wired and grounded electrical outlet.**
- **Connect to properly wired outlets any equipment that will be attached to this product.**
- **When possible, use one hand only to connect or disconnect signal cables.**
- **Never turn on any equipment when there is evidence of fire, water, or structural damage.**
- **Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedure**s.
- **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
1. Turn everything OFF. 2. First, attach all cables to devices. 3. Attach signal cables to connectors. 4. Attach power cords to outlet. 5. Turn device ON.	1. Turn everything OFF. 2. First, remove power cords from outlet. 3. Remove signal cables from connectors. 4. Remove all cables from devices.

CAUTION:
When replacing the lithium battery, use only Part Number 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.
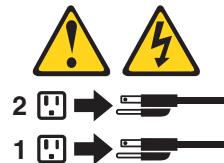
CAUTION:

Do not place any object weighing more than 82 kg (180 lbs.) on top of rack-mounted devices.

خــــطر

التيــار الكــهربــي المــوجــود بمصــدر الطــاقــة أو أجــهزة التليفــون أو أســلاك
الإتــصالات يشكل خــطورة.

لــتفادي مخــاطــر الصــدمــات الكــهربــائــية:

لا تحاول توصيل أو فصل أي أســلاك أو القــيام بعــمليات تــركيب أو صــيانــة أوإعــادة
توصــيف لــهذا المنتج أثــناء وجــود عاصــفة كــهربــائــية.

يجــب تــوصــيل كــل أســلاك الكــهربــاء فــي مخــارج كــهربــاء ذات تــوصــيلات
أســلاك وتــوصــيلات أرضــية صحــيحة
يجــب تــوصــيل أي جــهاز ســيتم الحــاقه بــهذا المــنتج فــي مخارج كــهربــاء ذات
تــوصــيلات أســلاك صحيحة.

وإن أمــكن يــجب اســتخدام يــد واحــدة فــقط فــي تــوصــيل أو فصل أسلاك
الإشــارة.

لا تحــاول تشغــيل أي جــهاز إذا كــان هنــاك أثــر لحــرق أو مــياه أو تــلف
بالمكــونــات
يجــب فصــل أســلاك الكــهربــاء وأنــظمة الاتصــالات وشــبكات الاتصال وأجــهزة
المــودم الملحــقة قــبل فــتح أغطية الجهاز، مــالــم يــتم طــلب خــلاف ذلك فــي
التــعلــيمات الخــاصــة بالتــركيب والتــوصــيف.
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.

للفصل:	للتوصيل:
قم بإيقاف كل شيء.	قم بإيقاف كل شيء.
أولا، قم بفصل كل أسلاك الكهرباء من المخرج.	أولا، قم بتوصيل كل الأسلاك بالأجهزة.
قم بفصل أسلاك الإشارة من الموصلات.	قم بتوصيل أسلاك الإشارة في لموصلات.
قم بفصل كل الأسلاك من الأجهزة.	قم بتوصيل أسلاك الكهرباء في المخارج.
	قم بتشغيل الجهاز .

تنبيـــه :

عند استبدال البطارية الليثيوم، استخدم فقط رقم الجزء الخاص Part Number 33F8354

أو نوع أخر يكون على نفس مستوى الكفاءة يحدده لك المصنع.

اذا كان النظام الخاص يستخدم معه بطارية ليثيوم قم باستبدالها بنفس النوع الذي تم

صناعته من خلال نفس المصنع. تحتوي البطارية على مادة الليثيوم ويمكن أن تنفجرفي حالة عدم استخدامها

أو التعامل معها بطريقة صحيحة أو عند التخلص منها بطريقة خطأ.

لا تقم بـــ:

- القاء البطارية أو غمرها في الماء
- تسخينها أعلى من ١٠٠ درجة مئويةْ و(٢١٢ ْ
  فهرنهيت)
- بتصليحها أو فكها

تخلص من البطارية طبقا للقانون أو النظام المحلي .

تنبيـــه :

أثناء تركيب منتجات ليزر (مثل CD-ROMs أو وحدة تشغيل DVD أو أجهزة Fiber Optic أو

وحدات الارسال) يجب مراعاة الآتي:

لا تنزع الأغطية. قد ينتج عن نزع أغطية منتج الليزر انفجار أشعة الليزر شديدة الخطورة.

لا يوجد أجزاء يمكن تغييرها داخل الجهاز. قد ينتج عن استخدام تحكمات أو تعديلات أو عمل أي تصرفات أخرى تخالف ما هو محددا هنا الى

انفجار أشعة شديدة الخطورة.

خطـــر

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

مراعاة الآتي .

أشعة الليزر عند الفتح. لا تحدق الى الاشعاع و لا تنظر اليه مباشرة بواسطة أي أجهزة مرئية

وتجنب التعرض المباشر للاشعاع .

≥18 kg (37 lbs)   ≥32 kg (70.5 lbs)   ≥55 kg (121.2 lbs)

تنبيه :
يجب استخدام ممارسات آمنة عند الرفع

تنبيـــه :
لا يقم زر التحكم في التشغيل الموجود على الجهاز والمفتاح الكهربائي الموجود على
لوحة التحكم بايقاف 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 .

2
1
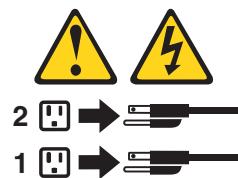
تنبيـــه :
لا تضع أي عنصر يزن أكثر من ٨٢ كيلوجرام (١٨٠ رطل) أعلى
سطح الأجهزة.

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:
1. DESLIGUE Tudo.	1. DESLIGUE Tudo.
2. Primeiramente, conecte todos os cabos aos dispositivos.	2. Primeiramente, remova os cabos de alimentação das tomadas.
3. Conecte os cabos de sinal aos conectores.	3. Remova os cabos de sinal dos conectores.
4. Conecte os cabos de alimentação às tomadas.	4. Remova todos os cabos dos dispositivos.
5. LIGUE os dispositivos.	

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.
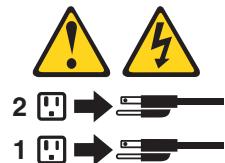
CUIDADO:

Não coloque nenhum objeto com mais de 82 kg (180 lbs.) sobre dispositivos montados em rack.

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

警告：
更换锂电池时，请仅使用部件号为 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℃（212℉）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。

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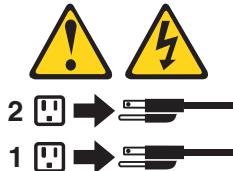
警告：

切勿在机架安装设备的顶部放置任何重量超过 82 千克（180 磅）的物体。

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
1. 關閉所有開關。	1. 關閉所有開關。
2. 首先，連接所有接線到裝置。	2. 首先，拔掉插座上的電源線。
3. 連接信號線到接頭。	3. 拔掉接頭上的信號線。
4. 連接電源線到插座。	4. 拔掉裝置上所有接線。
5. 開啟裝置。	

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。

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。

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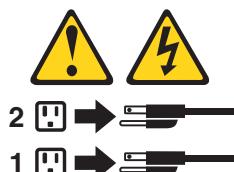
警告：

請勿堆放重量超過 **82** 公斤（**180** 磅）的物體於框架裝載式裝置上。

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
1. Mettez les unités HORS TENSION.	1. Mettez les unités HORS TENSION.
2. Commencez par brancher tous les cordons sur les unités.	2. Débranchez les cordons d'alimentation des prises.
3. Branchez les câbles d'interface sur des connecteurs.	3. Débranchez les câbles d'interface des connecteurs.
4. Branchez les cordons d'alimentation sur des prises.	4. Débranchez tous les câbles des unités.
5. Mettez les unités SOUS TENSION.	

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 expositiondirecte au rayon laser. Evitez de regarder fixement le faisceau ou del'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 alimentantl'unité. En outre, le système peut être équipé de plusieurs cordonsd'alimentation. Pour mettre l'unité hors tension, vous devez déconnectertous les cordons de la source d'alimentation.

2
1

ATTENTION:

Ne placez pas d'objet supérieur à 82 kg sur une unité montée en armoire.

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
1. Schalten Sie alle Einheiten AUS.	1. Schalten Sie alle Einheiten AUS.
2. Schließen Sie erst alle Kabel an die Einheiten an.	2. Ziehen Sie zuerst alle Netzkabel aus den Netzsteckdosen.
3. Schließen Sie die Signalkabel an die Buchsen an.	3. Ziehen Sie die Signalkabel aus den Buchsen.
4. Schließen Sie die Netzkabel an die Steckdose an.	4. Ziehen Sie alle Kabel von den Einheiten ab.
5. Schalten Sie die Einheit EIN.	

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-aufwerken, Einheiten mit Lichtwellenleitertechnik oder Sendern) Folgendes beachten:
- **Die Abdeckungen nicht entfernen. Durch Entfernen der Abdeckungen des Lasergeräts können gefährliche Laserstrahlungen freigesetzt werden. Das Gerät enthält keine zu wartenden Teile.**
- **Werden Steuerelemente, Einstellungen oder Durchführungen von Prozeduren anders als hier angegeben verwendet, kann gefährliche Laserstrahlung auftreten.**

VORSICHT

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

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

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.
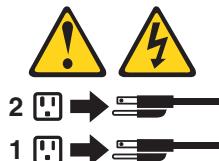
ACHTUNG:

Legen Sie auf in einem Rack montierten Einheiten keine über 82 kg schweren Gegenstände ab.

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 מחווטים 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 לנתק	כדי לחבר
1. כבו הכל.	1. כבו הכל.
2. ראשית, נתקו את כבלי החשמל מהשקעים.	2. ראשית, חברו את כל הכבלים להתקנים.
3. נתקו את כבלי האותות מהמחברים.	3. חברו את כבלי האותות למחברים.
4. הסירו את כל הכבלים מההתקנים.	4. חברו את כבלי החשמל לשקעים.
	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^OC (212^OF)

- אל תתקנו או תפרקו

השליכו את הסוללה כנדרש לפי התקנות והחוקים המקומיים.

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

- אל תסירו את הכיסויים. הסרת הכיסויים של מוצר הלייזר עלולה לגרום לחשיפה לקרינת לייזר מסוכנת.
  אין חלקים ברי טיפול בתוך ההתקן.
- שינויים, שימוש בבקרות 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,
והימענו מחשיפה לקרן.

≤ 55 ק"ג(121.2 ליב')　　≤ 32 ק"ג (70.5 ליב')　　≤ 18 ק"ג (37 ליב')

זהירות:
השתמשו בהליכים
הנאותים בעת
הרמת הציוד.

זהירות:
לחצן ההפעלה של ההתקן ומתג ההפעלה של ספק החשמל אינם מפסיקים את זרם החשמל המסופק להתקן.
בנוסף, ההתקן עשוי לכלול יותר מכבל חשמל אחד. כדי לסלק את כל הזרם החשמלי מההתקן,
ודאו שכל כבלי החשמל מנותקים ממקור החשמל.
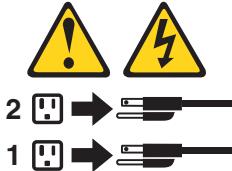
זהירות:
אל תניחו חפץ כלשהו השוקל יותר מ-82 ק"ג (180 ליב') על התקנים המחוברים למעמד מסגרת.

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
1. SPEGNERE le apparecchiature.	1. SPEGNERE le apparecchiature.
2. Innanzitutto, collegare tutti i cavi alle unità.	2. Innanzitutto, rimuovere i cavi di alimentazione dalla presa.
3. Collegare i cavi di segnale ai connettori.	3. Rimuovere i cavi di segnale dai connettori.
4. Collegare i cavi di alimentazione alla presa.	4. Rimuovere tutti i cavi dalle unità.
5. Accendere l'unità.	

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 trasmittenti), 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:

Aprendo 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.
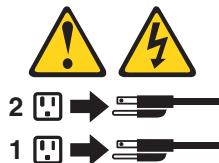
ATTENZIONE:

Non collocare oggetti che pesano più di 82 kg (180 lb.) sulla parte superiore delle unità montante nel rack.

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:
1. 모든 장치의 전원을 끄십시오. 2. 먼저 모든 케이블을 장치에 연결하십시오. 3. 커넥터에 신호 케이블을 연결하십시오. 4. 콘센트에 전원 코드를 연결하십시오. 5. 장치의 전원을 켜십시오.	1. 모든 장치의 전원을 끄십시오. 2. 먼저 콘센트에서 전원 코드를 분리하십시오. 3. 커넥터에서 신호 케이블을 분리하십시오. 4. 장치에서 모든 케이블을 분리하십시오.

주의:
배터리를 교환할 때는 Part Number 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.
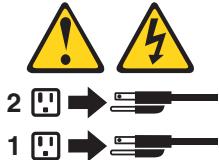
주의:

랙 마운트 장치 위에 무게가 82 kg (180 lbs.) 이상인 물체를 올려 두지 마십시오.

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
1. APÁGUELO todo.	1. APÁGUELO todo.
2. En primer lugar, conecte todos los cables a los dispositivos.	2. En primer lugar, desenchufe los cables de alimentación de las tomas de corriente.
3. Conecte los cables de señal a los conectores.	3. Desconecte los cables de señal de los conectores.
4. Enchufe los cables de alimentación a las tomas de corriente.	4. Desconecte todos los cables de los dispositivos.
5. Encienda el dispositivo.	

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.
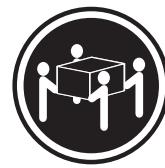
PRECAUCIÓN:

Adopte procedimientos seguros al levantar el equipo.

≥18 kg   ≥32 kg   ≥55 kg

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.

2
1
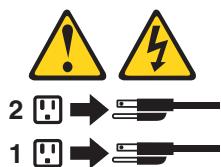
PRECAUCIÓN:

No coloque ningún objeto que pese más de 82 Kg (180 lb) encima de dispositivos montados en un bastidor.

Chapter 3. General information

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

The Access IBM program

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

Additional information resources

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

You can find the following information:
- CRU removal and installation instructions
- Publications
- Troubleshooting information
- Parts information
- Downloads and drivers
- Links to other useful sources of information

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

Specifications

This section lists the physical specifications for your computer.

Dimensions	Heat output (approximate) in British thermal units (Btu) per hour:
Height: 89 mm (3.5 in.) Width: 276 mm (10.9 in.) Depth: 273 mm (10.7 in)	Minimum configuration: 256 Btu/hr (75 watts) Maximum configuration: 682 Btu/hr (200 watts)
Weight	**Airflow**
Minimum configuration as shipped: 6.0 kg (13.2 lb) Maximum configuration: 6.4 kg (14.0 lb)	Approximately 14 cubic feet (0.45 cubic meters) per minute
Environment	**Acoustical noise-emission values**

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: 8% to 80%
     Non-operating: 8% to 80%
     Transit: 8% to 90%
 Maximum altitude: 2134 m (7000 ft)
	Average sound-pressure levels:
	     At operator position:
	         Idle: 29 dBA
	         Operating: 34 dBA
	     At bystander position - 1 meter (3.3 ft):
	         Idle: 28 dBA
	         Operating: 30 dBA
	 Declared (upper limit) sound-power levels:
	     Idle: 4.0 bels
	     Operating: 4.3 bels

Electrical input	**Note:** These levels were measured in controlled acoustical environments according to the procedures specified by the American National Standards Institute (ANSI) S12.10 and ISO 7779 and are reported in accordance with ISO 9296. Actual sound-pressure levels in a given location might exceed the average values stated because of room reflections and other nearby noise sources. The declared sound-power levels indicate an upper limit, below which a large number of computers will operate.

Input voltage:
     Low range:
         Minimum: 100 V ac
         Maximum: 127 V ac
         Input frequency: 50/60 Hz
     High range:
         Minimum: 200 V ac
         Maximum: 240 V ac
         Input frequency: 50/60 Hz
 Input kilovolt-amperes (kVA) (approximate):
     Minimum configuration as shipped: 0.09 kVA
     Maximum configuration: 0.23 kVA	

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.

> **Notes:**
> - The default is for this computer to boot up in quiet mode (no beep, no memory count and checkpoint code display) when no errors are detected by POST.
> - To enable beep, memory count, and checkpoint code display when a successful POST occurs, do the following:
>   1. Start the Setup Utility program. See "Starting the Setup Utility program" on page 53.
>   2. Select **Start Options**.
>   3. Set **Power-On Self-Test** to **Enhanced**.
> - 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 150.

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 8 on page 44.
6. Look at the following conditions and follow the instructions:
   - If you hear beep codes during POST, go to "Beep symptoms" on page 80.
   - If the computer displays a POST error, go to "POST error codes" on page 83.
   - If the computer hangs and no error is displayed, continue at step 7.
7. There are three LEDs to help you determine if the power supply and system board are working correctly. A power button LED is located on the front of the computer and two diagnostic LEDs are located on the power supply at the rear of the computer.
   a. Disconnect the power cord from the electrical outlet.
   b. Reconnect the power cord to a working electrical outlet.
   c. Press the power button.

d. Observe the LEDs and refer to the following table.

Power LED	Green diagnostic LED	Yellow diagnostic LED	Action
ON	ON	OFF	This is the normal condition of the LEDs when the power is OK.
OFF	OFF	OFF	Make sure the power cord is attached to a working electrical outlet. If the electrical outlet is OK, replace the power supply.
OFF (after the power button has been pressed)	ON	OFF	Replace the system board
ON	ON	ON	Replace the power supply

If the Diagnostic LEDs are in the normal condition and the problem persists, replace the system board and the microprocessor, one at a time, until the computer works correctly.

8. Run the Diagnostic programs. See Chapter 5, "Diagnostics using PC-Doctor for DOS," on page 47.

- If you receive an error, replace the part that the diagnostic program calls out or go to "Diagnostic error codes" on page 59.
- 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 Diagnostics Diskette (version)
7. Have the same configuration options set in the system
8. Have the same setup for the operation 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 using PC-Doctor for DOS

Diagnostics are provided by the PC-Doctor program for DOS. These include a full range of diagnostic utilities to determine the operating condition of the computer's hardware components.

You can the run diagnostics from the Rescue and Recovery™ workspace or you can create a bootable diagnostic diskette from the Rescue and Recovery workspace. Alternatively, you can download either a diskette image or a startable CD-ROM image (.iso file) from the Customer Support Web site and run diagnostics using them.

The latest version of the diagnostics program is available from http://www.lenovo.com/think/support on the World Wide Web. Type your machine type into the **Use Quick path** field and click **Go** to find the downloadable files that are specific to the computer. See "Diagnostics program download" on page 48.

Diagnostic error messages appear when a test program finds a problem with a hardware option. For the test programs to properly determine if a test *Passed*, *Failed* or *Aborted*, the test programs check the error-return code at test completion. See "Diagnostic error codes" on page 59.

If an installed device is not recognized by the diagnostics program, that device might be defective.

Starting PC-Doctor from the Rescue and Recovery workspace

This procedure describes how to start PC-Doctor from the Rescue and Recovery workspace.
1. If your computer is already on when you start this procedure, shut down the operating system and turn off the computer.
2. To launch the Rescue and Recovery workspace, repeatedly press the F11 key as you turn on the computer.

   Note: If a user password or an administrator password has been set, the Rescue and Recovery workspace is not displayed until you type the password.
3. When the Rescue and Recovery workspace is displayed, look for "Troubleshoot" on the left side of the screen. Click **Diagnose hardware**.

   Notes:
   a. Additional diagnostic information is available from the Rescue and Recovery workspace, such as a diagnostic overview. Refer to the Rescue and Recovery help system for details.
   b. After selecting Diagnose hardware, make sure the computer is restarted using the restart button on the Rescue and Recovery workspace. Do not use the power switch to start the reboot.
   c. You can also create a set of diagnostic disks from the Rescue and Recovery workspace by clicking **Create diagnostic disks** from the Rescue and Recovery menu.

Starting PC-Doctor from a diagnostic diskette or CD-ROM

Note: If your computer has no internal diskette drive, an external USB diskette drive is required when using the diagnostic diskette.

1. If your computer is already on when you start this procedure, shut down the operating system and turn off the computer.
2. Insert the diskette or CD-ROM in the appropriate drive.
3. Turn on the computer.

   Note: If the PC-Doctor program fails to start, make sure that the startup device sequence is configured to allow startup from the diskette or CD-ROM drive. See "Selecting a startup device" on page 56.

Diagnostics program download

If you have access to the internet, you can download a diskette image or a startable CD-ROM image (.iso file) of the diagnostics.

To download the latest diagnostics program from the WWW, do the following:

- Go to **http://www.lenovo.com/think/support**.
- Type the machine type in the "Use Quick Path" field and click **Go**.
- Click **Downloads and drivers** and scroll down to locate the Enhanced diagnostics.

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 diagnostics 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. See "Test selection" on page 49.
- From within a test category, press **Ctrl-Enter** to automatically run only the selected tests in that category. See "Test selection" on page 49.
- 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 52.

Test selection

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

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

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

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

Test results

Diagnostics test results produce the following error code format:

Function Code	Failure Type	DeviceID	Date	ChkDigits	Text

- **Function Code:**

  Represents the feature or function within the PC.
- **Failure Type:**

  Represents the type of error encountered.
- **DeviceID:**

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

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

  Contains a 2-digit check-digit value to ensure the following:
  – Diagnostics were run on the specified date.
  – Diagnostics were run on the specified computer.
  – The diagnostic error code is recorded correctly.
- **Text:**

  Description of the error.

Note: See "Diagnostic error codes" on page 59 for error code listings.

Fixed disk advanced test (FDAT)

PC-Doctor Fixed-Disk[1] 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

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

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:
- *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 your computer is already on when you start this procedure, shut down the operating system and turn off the computer.

2. Repeatedly press the F1 key as you turn on the computer.

   Notes:

   a. If a password has been set, the Setup Utility program menu is not displayed until you type your password. See "Using passwords" for more information.

   b. BIOS settings cannot be changed without the correct password.

   c. The Setup Utility might start automatically when the power-on self-test (POST) detects that hardware has been removed or new hardware has been installed in your computer.

Viewing and changing settings

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

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.

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, press F10.

Using passwords

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

- User Password
- Administrator Password
- IDE Drive User Password (some computers)
- IDE Drive Master Password (some computers)

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

Password considerations

If you are setting any of the various types of passwords on your computer, you should read and understand the following information:

- If you type an incorrect password, you will see an error message. If you type an incorrect password three consecutive times, you must turn the computer off and start again.
- If you set both a User Password and an IDE Drive User Password to the same string, you will be prompted for the password only once when you turn on your computer.
- Do not move an internal IDE hard disk drive to another computer if an IDE Drive User Password has been set unless that computer also supports the IDE Drive User Password.
- If your computer is connected to a local area network (LAN), Wake on LAN® will not work unless both a User Password and an IDE Drive User Password are set using the same password.

User Password

When a User Password is set, the user is prompted to type a valid password each time the computer is turned on. The computer cannot be used until a valid password is typed from the keyboard.

Administrator Password

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

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

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

IDE Drive User Password

The IDE Drive User Password, used on some computers, is used to protect the data on the IDE hard disk drive(s). When this password is set, you are prompted to type a valid password before any hard disk drive can be used. This prompt is displayed each time you turn on your computer. If your computer has multiple hard disk drives, they all must use the same password.

> **Attention**
>
> If an IDE Drive User Password is set but the IDE Drive Master Password is not set, there is no recovery in the event that the IDE Drive User Password is lost or forgotten. The hard disk drive must be replaced. See "IDE Drive Master Password."

IDE Drive Master Password

The IDE Drive Master Password, used on some computers, is used to recover use of the hard disk drive in the event that the IDE Drive User Password is lost or forgotten. Only the person who knows the IDE Drive Master password can reset the IDE Drive User Password.

> **Attention**
> Make sure that the IDE Drive Master password is stored in a safe place. If both the IDE Drive User password and the IDE Drive Master password are lost or forgotten, the IDE hard disk drive must be replaced.

If both the IDE Drive User Password and the IDE Drive Master Password are to be set, the IDE Drive Master Password must be set before setting the IDE Drive User Password.

Setting, changing, and deleting a password

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

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

1. Start the Setup Utility program (see "Starting the Setup Utility program" on page 53).
2. From the Setup Utility program menu, select **Security**.
3. Select **Set Passwords**. Read the information displayed on the right side of the screen.

Using Security Profile by Device

Security Profile by Device is used to enable or disable user access to the following devices:

IDE controller	When this feature is set to **Disable**, all devices connected to the IDE controller (such as hard disk drives or the CD-ROM drive) are disabled and will not be displayed in the system configuration.
Diskette Drive Access	When this feature is set to **Disable**, the diskette drive cannot be accessed.
Diskette Write Protect	When this feature is set to **Enable**, all diskettes are treated as if they are write-protected.

To set Security Profile by Device, do the following:

1. Start the Setup Utility program (see "Starting the Setup Utility program" on page 53).
2. From the Setup Utility program menu, select **Security**.
3. Select **Security Profile by Device**.
4. Select the desired devices and settings and press Enter.
5. Return to the Setup Utility program menu, select **Exit**, and then **Save Settings** or **Save and exit the Setup Utility**.

   Note: If you do not want to save the settings, select **Exit the Setup Utility without saving**.

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. If your computer is already on when you start this procedure, shut down the operating system and turn off the computer.
2. To open the Startup Device Menu, repeatedly press the F12 key as you turn on the computer.

Note: Selecting a startup device from this list does not permanently change the startup sequence; it is valid for one boot cycle only.

Changing the startup device sequence

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

1. Start the Setup Utility program (see "Starting the Setup Utility program" on page 53).
2. Select **Startup**.
3. Select **Startup Sequence**. See the information displayed on the right side of the screen.
4. Select the devices for the Primary Startup Sequence, the Automatic Startup Sequence, and the Error Startup Sequence.
5. Select **Exit** from the Setup Utility menu and then **Save Settings** or **Save and exit the Setup Utility**.

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

Advanced settings

On some computer models the Advanced settings menu includes a setting to Enable/Disable HyperThreading. This feature works only with HyperThreading-aware operating systems such as Microsoft® Windows® XP. The default setting for HyperThreading is Enabled. However, if you select **Set Defaults** and are using an operating system other than Windows XP, the computer performance might be degraded. Therefore, you should always set HyperThreading to Disabled unless you are sure your operating system supports HyperThreading.

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 43. 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 88.

> **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.
> - Check the hard disk drive jumper settings before you replace a hard disk drive.

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: 1. Attempt to back-up the data on the failing hard disk drive. 2. Using the operating systems programs, format the hard disk drive.
The drive is defective.	Replace the hard disk drive.

Power Supply Errors

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

Check/Verify	FRU/Action
Check the following for proper installation. - Power Cord - On/Off Switch connector - On/Off Switch Power Supply connector - System Board Power Supply connectors - Microprocessor(s) connection	Reseat connectors
Check the power cord for continuity.	Power Cord
Check the power-on switch for continuity.	Power-on Switch

1. Turn off the computer and disconnect all external devices.
2. Power-on the computer.
3. There are three LEDs to help you determine if the power supply and system board are working correctly. The power button LED is located on the front of the computer and the two diagnostic LEDs are located on the power supply at the rear of the computer. After pressing the power button, observe the LEDs and refer to the following table:

Power LED	Green diagnostic LED	Yellow diagnostic LED	Action
ON	ON	OFF	This is the normal condition of the LEDs when the power is OK.
OFF	OFF	OFF	• Make sure the power cord is attached to a working electrical outlet. • Check the power cord for continuity. • If the problem persists, replace the power supply.
OFF (after the power button has been pressed)	ON	OFF	Replace the system board
ON	ON	ON	Replace the power supply

If the Diagnostic LEDs are in the normal condition and the problem persists, replace the system board and the microprocessor, one at a time, until the computer works correctly.

Diagnostic error codes

Refer to the following diagnostic error codes when using the diagnostic tests. See "Running diagnostics tests" on page 48 for the specific type for information about the Diagnostic programs.

In the following index, *X* can represent any number.

Diagnostic Error Code	FRU/Action
000-000-XXX BIOS Test Passed	**No action**
000-002-XXX BIOS Timeout	1. **Flash the system. See "Flash update procedures" on page 150** 2. System board
000-024-XXX BIOS Addressing test failure	1. **Flash the system. See "Flash update procedures" on page 150** 2. System board
000-025-XXX BIOS Checksum Value error	1. **Flash the system. See "Flash update procedures" on page 150** 2. Boot block 3. System board
000-026-XXX FLASH data error	1. **Flash the system. See "Flash update procedures" on page 150** 2. Boot block 3. System board
000-027-XXX BIOS Configuration/Setup error	1. **Run Setup** 2. Flash the system. See "Flash update procedures" on page 150 3. Boot block 4. System board
000-034-XXX BIOS Buffer Allocation failure	1. **Reboot the system** 2. Flash the system. See "Flash update procedures" on page 150 3. Run memory test 4. System board
000-035-XXX BIOS Reset Condition detected	1. **Flash the system. See "Flash update procedures" on page 150** 2. System board
000-036-XXX BIOS Register error	1. **Flash the system. See "Flash update procedures" on page 150** 2. Boot block 3. System board
000-038-XXX BIOS Extension failure	1. **Flash the system. See "Flash update procedures" on page 150** 2. Adapter card 3. System board

Diagnostic Error Code	FRU/Action
000-039-XXX BIOS DMI data error	1. **Flash the system. See "Flash update procedures" on page 150** 2. System board
000-195-XXX BIOS Test aborted by user	**Information only** Re-start the test, if necessary
000-196-XXX BIOS test halt, error threshold exceeded	1. **Press F3 to review the log file** 2. Re-start the test to reset the log file
000-197-XXX BIOS test warning	1. **Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Re-run test 3. Replace the component that is called out in warning statement 4. Replace the component under test
000-198-XXX BIOS test aborted	1. **Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Flash the system and retest. See "Flash update procedures" on page 150 3. Go to "Undetermined problems" on page 88
000-199-XXX BIOS test failed, cause unknown	1. Go to "Undetermined problems" on page 88 2. Flash the system and re-test 3. Replace component under function test
000-250-XXX BIOS APM failure	1. **Flash the system. See "Flash update procedures" on page 150** 2. System board
000-270-XXX BIOS ACPI failure	1. **Flash the system. See "Flash update procedures" on page 150** 2. System board
001-000-XXX System Test Passed	**No action**
001-00X-XXX System Error	**System board**
001-01X-XXX System Error	**System board**
001-024-XXX System Addressing test failure	**System board**
001-025-XXX System Checksum Value error	1. **Flash the system. See "Flash update procedures" on page 150** 2. System board
001-026-XXX System FLASH data error	1. **Flash the system. See "Flash update procedures" on page 150** 2. System board

Diagnostic Error Code	FRU/Action
001-027-XXX System Configuration/Setup error	1. **Run Setup** 2. Flash the system. See "Flash update procedures" on page 150 3. System board
001-032-XXX System Device Controller failure	**System board**
001-034-XXX System Device Buffer Allocation failure	1. **Reboot the system** 2. Flash the system. See "Flash update procedures" on page 150 3. Run memory test 4. System board
001-035-XXX System Device Reset condition detected	**System board**
001-036-XXX System Register error	**System board**
001-038-XXX System Extension failure	1. **Adapter card** 2. System board
001-039-XXX System DMI data structure error	1. **Flash the system. See "Flash update procedures" on page 150** 2. System board
001-040-XXX System IRQ failure	1. **Power-off/on system and re-test** 2. System board
001-041-XXX System DMA failure	1. **Power-off/on system and re-test** 2. System board
001-195-XXX System Test aborted by user	**Information only** Re-start the test, if necessary
001-196-XXX System test halt, error threshold exceeded	1. **Press F3 to review the log file** 2. Re-start the test to reset the log file
001-197-XXX System test warning	1. **Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Re-run test 3. Replace the component that is called out in warning statement 4. Replace the component under test
001-198-XXX System test aborted	1. **If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Flash the system and retest. See "Flash update procedures" on page 150 3. Go to "Undetermined problems" on page 88

Diagnostic Error Code	FRU/Action
001-199-XXX System test failed, cause unknown	1. Go to "Undetermined problems" on page 88 2. Flash the system and re-test 3. Replace component under function test
001-250-XXX System ECC error	**System board**
001-254-XXX **001-255-XXX** **001-256-XXX** **001-257-XXX** System DMA error	**System board**
001-260-XXX **001-264-XXX** System IRQ error	**System board**
001-268-XXX System IRQ1 failure	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

Diagnostic Error Code	FRU/Action
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
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. **Battery** 2. System board
001-298-XXX System RTC date/time update failure	1. **Flash the system. See "Flash update procedures" on page 150** 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 150** 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

Diagnostic Error Code	FRU/Action
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
005-036-XXX Video Register error	1. **Video card, if installed** 2. System board
005-038-XXX System BIOS extension failure	1. **Video card, if installed** 2. System board
005-040-XXX Video IRQ failure	1. **Video card, if installed** 2. System board
005-195-XXX Video Test aborted by user	**Information only** Re-start the test, if necessary
005-196-XXX Video test halt, error threshold exceeded	1. **Press F3 to review the log file** 2. Re-start the test to reset the log file
005-197-XXX Video test warning	1. **Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Re-run test 3. Replace the component called out in warning statement 4. Replace the component under test
005-198-XXX Video test aborted	1. **If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Go to "Undetermined problems" on page 88
005-199-XXX Video test failed, cause unknown	1. Go to "Undetermined problems" on page 88 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Replace component under function test
005-2XX-XXX **005-3XX-XXX** Video subsystem error	1. **Video card, if installed** 2. System board
006-000-XXX Diskette interface Test Passed	**No action**
006-0XX-XXX Diskette interface error	1. **Diskette drive Cable** 2. Diskette drive 3. System board

Diagnostic Error Code	FRU/Action
006-195-XXX Diskette interface Test aborted by user	**Information only** Re-start the test, if necessary
006-196-XXX Diskette interface test halt, error threshold exceeded	1. **Press F3 to review the log file** 2. Re-start the test to reset the log file
006-197-XXX Diskette interface test warning	1. **If a component is called out, make sure it is connected and/or enabled** 2. Re-run test 3. Replace the component that is called out in warning statement 4. Replace the component under test
006-198-XXX Diskette interface test aborted	1. **If a component is called out, make sure it is connected and/or enabled** 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Go to "Undetermined problems" on page 88
006-199-XXX Diskette interface test failed, cause unknown	1. Go to "Undetermined problems" on page 88 2. Flash the system and re-test 3. Replace component under function test
006-25X-XXX Diskette interface Error	1. **Diskette drive cable** 2. Diskette drive 3. System board
011-000-XXX Serial port Interface Test Passed	**No action**
011-001-XXX Serial port Presence	1. **Remove external serial device, if present** 2. Run setup, enable port 3. System board
011-002-XXX **011-003-XXX** Serial port Timeout/Parity error	**System board**
011-013-XXX **011-014-XXX** Serial port Control Signal/Loopback test failure	**System board**
011-015-XXX Serial port External Loopback failure	1. **Wrap plug** 2. System board
011-027-XXX Serial port Configuration/Setup error	1. **Run Setup, enable port** 2. Flash the system. See "Flash update procedures" on page 150 3. System board
011-03X-XXX **011-04X-XXX** Serial port failure	**System board**

Diagnostic Error Code	FRU/Action
011-195-XXX Serial port Test aborted by user	**Information only** Re-start the test, if necessary
011-196-XXX Serial port test halt, error threshold exceeded	1. **Press F3 to review the log file** 2. Re-start the test to reset the log file
011-197-XXX Serial port test warning	1. **Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Re-run test 3. Replace the component that is called out in warning statement 4. Replace the component under test
011-198-XXX Serial port test aborted	1. **If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Go to "Undetermined problems" on page 88
011-199-XXX Serial port test failed, cause unknown	1. Go to "Undetermined problems" on page 88 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Replace component under function test
011-2XX-XXX Serial port signal failure	1. **External serial device** 2. System board
014-000-XXX Parallel port Interface Test Passed	**No action**
014-001-XXX Parallel port Presence	1. **Remove external parallel device, if present** 2. Run setup, enable port 3. System board
014-002-XXX **014-003-XXX** Parallel port Timeout/Parity error	**System board**
014-013-XXX **014-014-XXX** Parallel port Control Signal/Loopback test failure	**System board**
014-015-XXX Parallel port External Loopback failure	1. **Wrap plug** 2. System board
014-027-XXX Parallel port Configuration/Setup error	1. **Run Setup, enable port** 2. Flash the system. See "Flash update procedures" on page 150 3. System board

Diagnostic Error Code	FRU/Action
014-03X-XXX **014-04X-XXX** Parallel port failure	**System board**
014-195-XXX Parallel port Test aborted by user	**Information only** Re-start the test, if necessary
014-196-XXX Parallel port test halt, error threshold exceeded	1. **Press F3 to review the log file** 2. Re-start the test to reset the log file
014-197-XXX Parallel port test warning	1. **Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Re-run test 3. Replace the component that is called out in warning statement 4. Replace the component under test
014-198-XXX Parallel port test aborted	1. **If a component is called out, make sure it is connected and/or enabled** 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Go to "Undetermined problems" on page 88
014-199-XXX Parallel port test failed, cause unknown	1. Go to "Undetermined problems" on page 88 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Replace component under function test
014-2XX-XXX **014-3XX-XXX** Parallel port failure	1. **External parallel device** 2. System board
015-000-XXX USB port Interface Test Passed	**No action**
015-001-XXX USB port Presence	1. **Remove USB device(s) and re-test** 2. System board
015-002-XXX USB port Timeout	1. **Remove USB device(s) and re-test** 2. System board
015-015-XXX USB port External Loopback failure	1. **Remove USB device(s) and re-test** 2. System board
015-027-XXX USB port Configuration/Setup error	1. **Flash the system. See "Flash update procedures" on page 150** 2. System board
015-032-XXX USB port Device Controller failure	**System board**

Diagnostic Error Code	FRU/Action
015-034-XXX USB port buffer allocation failure	1. **Reboot the system** 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Run memory test 4. System board
015-035-XXX USB port Reset condition detected	1. **Remove USB device(s) and re-test** 2. System board
015-036-XXX USB port Register error	**System board**
015-040-XXX USB port IRQ failure	1. **Run setup and check for conflicts** 2. Flash the system. See "Flash update procedures" on page 150 3. System board
015-195-XXX USB port Test aborted by user	**Information only** Re-start the test, if necessary
015-196-XXX USB port test halt, error threshold exceeded	1. **Press F3 to review the log file** 2. Re-start the test to reset the log file
015-197-XXX USB port test warning	1. **Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Re-run test 3. Replace the component that is called out in warning statement 4. Replace the component under test
015-198-XXX USB port test aborted	1. **If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Go to "Undetermined problems" on page 88
015-199-XXX USB port test failed, cause unknown	1. **Go to "Undetermined problems" on page 88** 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Replace component under function test
018-000-XXX PCI Card Test Passed	**No action**
018-0XX-XXX PCI Card Failure	1. **Riser card, if installed** 2. System board
018-195-XXX PCI Card Test aborted by user	1. **PCI card** 2. **Information only** Re-start the test, if necessary

Diagnostic Error Code	FRU/Action
018-196-XXX PCI Card test halt, error threshold exceeded	1. **Press F3 to review the log file** 2. Re-start the test to reset the log file
018-197-XXX PCI Card test warning	1. **Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Re-run test 3. Replace the component that is called out in warning statement 4. Replace the component under test
018-198-XXX PCI Card test aborted	1. **If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Go to "Undetermined problems" on page 88
018-199-XXX PCI Card test failed, cause unknown	1. Go to "Undetermined problems" on page 88 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Replace component under function test
018-250-XXX PCI Card Services error	1. **PCI card** 2. Riser card, if installed 3. System board
020-000-XXX PCI Interface Test Passed	**No action**
020-0XX-XXX PCI Interface error	1. **PCI card** 2. Riser card, if installed 3. System board
020-195-XXX PCI Test aborted by user	**Information only** Re-start the test, if necessary
020-196-XXX PCI test halt, error threshold exceeded	1. **Press F3 to review the log file** 2. Re-start the test to reset the log file
020-197-XXX PCI test warning	1. **Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Re-run test 3. Replace the component that is called out in warning statement 4. Replace the component under test

Diagnostic Error Code	FRU/Action
020-198-XXX PCI test aborted	1. **If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Go to "Undetermined problems" on page 88
020-199-XXX PCI test failed, cause unknown	1. Go to "Undetermined problems" on page 88 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Replace component under function test
020-262-XXX PCI system error	1. **PCI card** 2. Riser card, if installed 3. System board
025-000-XXX IDE interface Test Passed	**No action**
025-00X-XXX **025-01X-XXX** IDE interface failure	1. **IDE signal cable** 2. Check power supply voltages 3. Reseat IDE signal cable 4. IDE device 5. System board
025-027-XXX IDE interface Configuration/Setup error	1. **IDE signal cable** 2. Flash the system. See "Flash update procedures" on page 150 3. Reseat IDE signal cable 4. IDE device 5. System board
025-02X-XXX **025-03X-XXX** **025-04X-XXX** IDE Interface failure	1. **IDE signal cable** 2. Check power supply 3. Reseat IDE signal cable 4. IDE device 5. System board
025-195-XXX IDE interface Test aborted by user	**Information only** Re-start the test, if necessary
025-196-XXX IDE interface test halt, error threshold exceeded	1. **Press F3 to review the log file** 2. Re-start the test to reset the log file
025-197-XXX IDE interface test warning	1. **Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Re-run test 3. Replace the component that is called out in warning statement 4. Replace the component under test

Diagnostic Error Code	FRU/Action
025-198-XXX IDE interface test aborted	1. **If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Go to "Undetermined problems" on page 88
025-199-XXX IDE interface test failed, cause unknown	1. Go to "Undetermined problems" on page 88 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Replace component under function test
030-000-XXX SCSI interface Test Passed	**No action**
030-00X-XXX **030-01X-XXX** SCSI interface failure	1. **SCSI signal cable** 2. Check power supply 3. SCSI device 4. SCSI adapter card, if installed 5. System board
030-027-XXX SCSI interface Configuration/Setup error	1. **SCSI signal cable** 2. Flash the system. See "Flash update procedures" on page 150 3. SCSI device 4. SCSI adapter card, if installed 5. System board
030-03X-XXX **030-04X-XXX** SCSI interface error	1. **SCSI signal cable** 2. Check power supply 3. SCSI device 4. SCSI adapter card, if installed 5. System board
030-195-XXX SCSI interface Test aborted by user	**Information only** Re-start the test, if necessary
030-196-XXX SCSI interface test halt, error threshold exceeded	1. **Press F3 to review the log file** 2. Re-start the test to reset the log file
030-197-XXX SCSI interface test warning	1. **Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Re-run test 3. Replace the component that is called out in warning statement 4. Replace the component under test

Diagnostic Error Code	FRU/Action
030-198-XXX SCSI interface test aborted	1. **If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Go to "Undetermined problems" on page 88
030-199-XXX SCSI interface test failed, cause unknown	1. Go to "Undetermined problems" on page 88 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Replace component under function test
035-000-XXX RAID interface Test Passed	**No action**
035-0XX-XXX RAID interface Failure	1. **RAID signal cable** 2. RAID device 3. RAID adapter card, if installed 4. System board
035-195-XXX RAID interface Test aborted by user	**Information only** Re-start the test, if necessary
035-196-XXX RAID interface test halt, error threshold exceeded	1. **Press F3 to review the log file** 2. Re-start the test to reset the log file
035-197-XXX RAID interface test warning	1. **Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Re-run test 3. Replace the component that is called out in warning statement 4. Replace the component under test
035-198-XXX RAID interface test aborted	1. **If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Go to "Undetermined problems" on page 88
035-199-XXX RAID interface test failed, cause unknown	1. See "Undetermined problems" on page 88 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Replace component under function test
071-000-XXX Audio port Interface Test Passed	**No action**

Diagnostic Error Code	FRU/Action
071-00X-XXX **071-01X-XXX** **071-02X-XXX** Audio port error	1. **Run Setup** 2. Flash the system. See "Flash update procedures" on page 150 3. System board
071-03X-XXX Audio port failure	1. **Speakers** 2. Microphone 3. Audio card, if installed 4. System board
071-04X-XXX Audio port failure	1. **Run Setup** 2. Audio card, if installed 3. System board
071-195-XXX Audio port Test aborted by user	**Information only** Re-start the test, if necessary
071-196-XXX Audio port test halt, error threshold exceeded	1. **Press F3 to review the log file** 2. Re-start the test to reset the log file
071-197-XXX Audio port test warning	1. **Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Re-run test 3. Replace the component that is called out in warning statement 4. Replace the component under test
071-198-XXX Audio port test aborted	1. **If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Go to "Undetermined problems" on page 88
071-199-XXX Audio port test failed, cause unknown	1. See "Undetermined problems" on page 88 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Replace component under function test
071-25X-XXX Audio port failure	1. **Speakers** 2. Audio card, if installed 3. System board
080-000-XXX Game Port interface Test Passed	**No action**
080-XXX-XXX Game Port interface Error	1. **Remove the game port device and re-test the system**
080-195-XXX Game Port interface Test aborted by user	**Information only** Re-start the test, if necessary

Diagnostic Error Code	FRU/Action
080-196-XXX Game Port interface test halt, error threshold exceeded	1. **Press F3 to review the log file** 2. Re-start the test to reset the log file
080-197-XXX Game Port interface test warning	1. **Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Re-run test 3. Replace the component that is called out in warning statement 4. Replace the component under test
080-198-XXX Game Port interface test aborted	1. **If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Go to "Undetermined problems" on page 88
080-199-XXX Game Port interface test failed, cause unknown	1. See "Undetermined problems" on page 88 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Replace component under function test
086-000-XXX Mouse Port interface Test Passed	**No action**
086-001-XXX Mouse Port interface Presence	1. **Mouse** 2. System board
086-032-XXX Mouse Port interface Device controller failure	1. **Mouse** 2. System board
086-035-XXX Mouse Port interface Reset	1. **Mouse** 2. System board
086-040-XXX Mouse Port interface IRQ failure	1. **Run Setup** 2. Mouse 3. System board
086-195-XXX Mouse Port interface Test aborted by user	**Information only** Re-start the test, if necessary
086-196-XXX Mouse Port interface test halt, error threshold exceeded	1. **Press F3 to review the log file** 2. Re-start the test to reset the log file

Diagnostic Error Code	FRU/Action
086-197-XXX Mouse Port interface test warning	1. **Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Re-run test 3. Replace the component that is called out in warning statement 4. Replace the component under test
086-198-XXX Mouse Port interface test aborted	1. **If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Go to "Undetermined problems" on page 88
086-199-XXX Mouse Port interface test failed, cause unknown	1. See "Undetermined problems" on page 88 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Replace component under function test
089-000-XXX Microprocessor Test Passed	**No action**
089-XXX-XXX Microprocessor failure	1. **Microprocessor(s)** 2. System board
089-195-XXX Microprocessor Test aborted by user	**Information only** Re-start the test, if necessary
089-196-XXX Microprocessor test halt, error threshold exceeded	1. **Press F3 to review the log file** 2. Re-start the test to reset the log file
089-197-XXX Microprocessor test warning	1. **Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Re-run test 3. Replace the component that is called out in warning statement 4. Replace the component under test
089-198-XXX Microprocessor test aborted	1. **Flash the system. See "Flash update procedures" on page 150** 2. Go to "Undetermined problems" on page 88
089-199-XXX Microprocessor test failed, cause unknown	1. See "Undetermined problems" on page 88 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Replace component under function test
170-000-XXX Voltage Sensor(s) Test Passed	**No action**

Diagnostic Error Code	FRU/Action
170-0XX-XXX Voltage Sensor(s) failure	1. **Flash system** 2. System board
170-195-XXX Voltage Sensor(s) Test aborted by user	**Information only** Re-start the test, if necessary
170-196-XXX Voltage Sensor(s) test halt, error threshold exceeded	1. **Press F3 to review the log file** 2. Re-start the test to reset the log file
170-197-XXX Voltage Sensor(s) test warning	1. **Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Re-run test 3. Replace the component that is called out in warning statement 4. Replace the component under test
170-198-XXX Voltage Sensor(s) test aborted	1. **If a component is called out, make sure it is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Go to "Undetermined problems" on page 88
170-199-XXX Voltage Sensor(s) test failed, cause unknown	1. **See "Undetermined problems" on page 88** 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Replace component under function test
170-250-XXX **170-251-XXX** Voltage Sensor(s) Voltage limit error	1. **Power supply** 2. System board
170-254-XXX Voltage Sensor(s) Voltage Regulator Module error	1. **Voltage Regulator Module (VRM)** 2. Microprocessor 3. System board
175-000-XXX Thermal Sensor(s) Test Passed	**No action**
175-0XX-XXX Thermal Sensor(s) failure	1. **Flash system** 2. System board
175-195-XXX Thermal Sensor(s) Test aborted by user	**Information only** Re-start the test, if necessary
175-196-XXX Thermal Sensor(s) test halt, error threshold exceeded	1. **Press F3 to review the log file** 2. Re-start the test to reset the log file

Diagnostic Error Code	FRU/Action
175-197-XXX Thermal Sensor(s) test warning	1. **Make sure the component that is called out is connected and/or enabled. See Chapter 6, "Using the Setup Utility," on page 53** 2. Re-run test 3. Replace the component that is called out in warning statement 4. Replace the component under test
175-198-XXX Thermal Sensor(s) test aborted	1. **If a component is called out, make sure it is connected and/or enabled** 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Go to "Undetermined problems" on page 88
175-199-XXX Thermal Sensor(s) test failed, cause unknown	1. **See "Undetermined problems" on page 88** 2. Flash the system and re-test. See "Flash update procedures" on page 150 3. Replace component under function test
175-250-XXX **175-251-XXX** Thermal Sensor(s) limit error	1. **Check fans** 2. Check Power supply voltages 3. Microprocessor 4. System board
185-000-XXX Asset Security Test Passed	**No action**
185-XXX-XXX Asset Security failure	1. **Flash system** 2. System board
185-278-XXX Asset Security Chassis Intrusion	1. **Assure Asset Security Enabled** 2. C2 Cover Switch 3. System board
201-000-XXX System Memory Test Passed	**No action**
201-XXX-XXX System Memory error	1. **Replace the memory module called out by the test** 2. System board
202-000-XXX System Cache Test Passed	**No action**
202-XXX-XXX System Cache error	1. **Cache, if removable** 2. System board 3. Microprocessor
206-000-XXX Diskette Drive Test Passed	**No action**
206-XXX-XXX Diskette Drive error	1. **Diskette Drive Cable** 2. Check power supply voltages 3. Diskette drive 4. System board

Diagnostic Error Code	FRU/Action
215-000-XXX CD-ROM Drive Test Passed	**No action**
215-XXX-XXX CD-ROM Drive error	1. **CD-ROM Drive Cable** 2. Check power supply voltages 3. CD-ROM drive 4. System board
217-000-XXX Hard Disk Drive Test Passed	**No action**
217-25X-XXX **217-26X-XXX** Hard Disk Drive (IDE) error	1. **Hard Disk Drive Cable** 2. Check power supply voltages 3. Reseat the hard disk drive cable 4. Hard Disk drive (IDE) 5. System board
217-28X-XXX **217-29X-XXX** Hard Disk Drive (SCSI) error	1. **Hard Disk Drive Cable** 2. Check power supply voltages 3. Reseat the hard disk drive cable 4. Hard Disk drive (SCSI) 5. SCSI adapter card 6. System board
220-000-XXX Hi-Capacity Cartridge Drive Test Passed	**No action**
220-XXX-XXX Hi-Capacity Cartridge Drive error	1. **Remove the Hi-Capacity Cartridge Drive and re-test the system**
301-XXX-XXX Keyboard error	1. **Keyboard** 2. Check and test mouse 3. System board
301-000-XXX Keyboard Test Passed	**No action**
302-000-XXX Mouse Test Passed	**No action**
302-XXX-XXX Mouse error	1. **Mouse** 2. Check and test Keyboard 3. System board
303-000-XXX Joystick Test Passed	**No action**
303-XXX-XXX Joystick error	**Remove the Joystick and re-test the system**
305-000-XXX Monitor DDC Test Passed	**No action**
305-250-XXX Monitor DDC self test failure	1. **Run Setup to enable DDC** 2. Cable 3. Monitor 4. Video card 5. System board

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

Beep symptoms

Beep symptoms are short tones or a series of short tones separated by pauses (intervals without sound). See the following examples.

Beeps	Description
1-2-X	• One beep • A pause (or break) • Two beeps • A pause (or break) • Any number of breaks
4	Four continuous beeps

Use the following table to diagnose beep symptoms.

Beep Symptom	FRU/Action
1-1-3 CMOS read-write error	1. **Run Setup** 2. System Board
1-2-2-3 ROM BIOS check error	**System board**
1-2-1 Programmable Interval Timer failed	**System board**
1-2-2 DMA Initialization failed	**System board**
1-2-3 DMA page register write/read failed	**System board**
1-2-4 RAM refresh verification failed	1. **Memory module** 2. System Board
1-3-3-1 1st 64K RAM test failed	1. **Memory module** 2. System Board
1-3-2 1st 64K RAM parity test failed	1. **Memory module** 2. Processor 3. System Board
2-2-3-1 Interrupt vector loading test failed	**System board**
2-1-1 Secondary DMA register failed	**System board**
2-1-2 Primary DMA register failed	**System board**
2-1-3 Primary interrupt mask register failed	**System board**
2-1-4 Secondary interrupt mask register failed	**System board**
2-2-1 Interrupt vector loading failed	**System board**
1-3-1-3 Keyboard controller failed	1. **System Board** 2. Keyboard
2-2-3 CMOS power failure and checksum checks failed	1. **Battery** 2. System Board

Beep Symptom	FRU/Action
2-2-4 CMOS configuration info validation failed	1. **Battery** 2. System Board
2-3-1 Screen initialization failed	1. **Jumper on J28** 2. System Board
2-3-2 Screen memory failed	**System board**
2-3-3 Screen retrace failed	**System board**
1-2 Search for video ROM failed	**System board**
All other beep code sequences	**System board**
Continuous beep	**System Board**
Repeating short beeps	1. **Keyboard stuck key** 2. Keyboard Cable 3. System Board

No-beep symptoms

Symptom/Error	FRU/Action
No beep during POST but computer works correctly.	**System board**
No beep during POST.	1. **See "Undetermined problems" on page 88.** 2. System Board 3. Memory Module 4. Any Adapter or Device 5. Riser Card 6. Power Cord 7. Power Supply

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 diskette drive is working
- Verifies that the hard disk drive is working

If the POST finishes without detecting any problems, a single beep sounds and the first screen of the operating system or application program appears.

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.

In the following index, *X* can represent any number.

POST Error Code	FRU/Action
162 Configuration error	Select the default settings in BIOS. See Chapter 6, "Using the Setup Utility," on page 53.
164 Memory Size Error	1. Run the Extended Memory Diagnostic tests 2. Replace memory modules
166 Boot Block Check Sum Error	1. Perform a flash update to update the BIOS level 2. System board
167 No Processor BIOS update found	1. Run Setup. Check Stepping level for the BIOS level needed, then perform the flash update. 2. Replace the microprocessor
175 Primary Copy of Secure Data is damaged	1. Run Setup and select default settings 2. System board
176 The System has been tampered with	1. Covers were removed from the computer
179 Boot Integrity Services Segment Error	1. Perform a flash update to update the BIOS level 2. System board
184 Asset Control Antenna not detected	1. Make sure Asset Care and **Asset ID**™ are enabled in Configuration/Setup 2. RFID Antenna 3. Replace system board
186 Security Hardware Control Logic Error	If problem persists, replace the system board
190 System Security: Invalid Remote Change Requested	If problem persists, replace the system board

POST Error Code	FRU/Action
191 System Security: Embedded Security hardware Reset	If problem persists, replace the system board
192 System Security: Embedded Security hardware tamper detected	If problem persists, replace the system board
193 System Security: Embedded Security hardware Removed	If problem persists, replace the system board
194 System Security: Asset ID Antenna has been Removed	If problem persists, replace the system board
195 System Security: Asset ID Antenna has been installed	If problem persists, replace the system board
196 System Tampered Cleared	If problem persists, replace the system board
201 Memory error	1. Run Enhanced Diagnostics Memory Test 2. Memory module 3. System board
210 Keyboard stuck key error	1. Check for stuck keys 2. Replace the keyboard
211 Keyboard error	1. Make sure keyboard is connected correctly 2. Check for stuck keys 3. Replace the keyboard
212 Keyboard controller error	1. Replace the keyboard 2. If problem persists, replace the system board
250 Battery is dead	1. Replace the battery and run Setup 2. If problem persists, replace the system board
270 Real time clock error	1. Run Setup and set date and time 2. If problem persists, replace the system board
271 Date and time out of range	1. Run Setup and set date and time 2. If problem persists, replace the system board
662 Configuration Change has occurred	Diskette drive configuration error or wrong diskette drive type; run Setup.
1762 Configuration Change has occurred	1. Run Setup and verify hard disk drive settings. 2. Run hard disk drive diagnostics. 3. Replace hard disk drive
1800 PCI/PnP Error! No Hardware Interrupt Available	1. Run Setup and verify PCI/ISA configuration settings. 2. Run diagnostics. 3. Replace PCI Adapter

POST Error Code	FRU/Action
1801 PCI/PnP Error! No Space Available to Shadow ROM	1. Run Setup and verify PCI/ISA configuration settings. 2. Run diagnostics. 3. Replace PCI Adapter
1802 PCI/PnP Error! Not Enough I/O Space Available	1. Run Setup and verify PCI/ISA configuration settings. 2. Run diagnostics. 3. Replace PCI Adapter
1803 PCI/PnP Error! Not Enough Memory Space Available	1. Run Setup and verify PCI/ISA configuration settings. 2. Run diagnostics. 3. Replace PCI Adapter
1804 PCI/PnP Error! Not Enough Real Memory Space Available	1. Run Setup and verify PCI/ISA configuration settings. 2. Run diagnostics. 3. Replace PCI Adapter
1805 PCI/PnP Error! Adapter ROM Checksum Error	1. Run Setup and verify PCI/ISA configuration settings. 2. Run diagnostics. 3. Replace PCI Adapter
1962 No operating system found	Press F1 to repeat boot sequence.
5962 An IDE device (other than hard drive) configuration error	1. Run Setup. 2. CD-ROM Drive 3. CD-ROM Adapter 4. Zip or other ATAPI device 5. Replace system Board 6. Replace riser card if applicable
8603, 8604 Pointing Device Error	1. Replace pointing device (mouse) 2. if problem persists, replace the system board

Miscellaneous error messages

Message/Symptom	FRU/Action
CMOS Backup Battery inaccurate	1. **CMOS Backup Battery (see Chapter 2, "Safety information," on page 5)** 2. System Board
Changing colors	**Display/Monitor**
Computer will *not* power-off. See "Power Supply Errors" on page 57.	1. **Power Switch** 2. System Board 3. Riser card
Computer will *not* RPL from server	1. **Ensure that network is in startup sequence as first device or first device after diskette** 2. Ensure that network adapter is enabled for RPL 3. Network adapter (Advise network administrator of new MAC address)
Computer will *not* perform a Wake on LAN (if applicable)	1. **Check power supply and signal cable connections to network adapter** 2. Ensure that the operating system settings are set to enable Wake on LAN 3. Ensure Wake on LAN feature is enabled in Setup/Configuration (see "Starting the Setup Utility program" on page 53) 4. Ensure network administrator is using correct MAC address 5. Ensure no interrupt or I/O address conflicts 6. Network adapter (advise network administrator of new MAC address)
Dead computer. See "Power Supply Errors" on page 57.	1. **Power Supply** 2. System Board 3. Riser card
Diskette drive in-use light remains on or does not light when drive is active.	1. **Diskette Drive** 2. System Board 3. Diskette Drive Cable 4. Riser card
Flashing cursor with an otherwise blank display.	1. **System Board** 2. Primary Hard Disk Drive 3. Hard Disk Drive Cable 4. Riser card
Incorrect memory size during POST	1. **Run the Memory tests** 2. Memory Module 3. System Board

Message/Symptom	FRU/Action
"Insert a Diskette" icon appears with a known-good diagnostics diskette in the first 3.5-inch diskette drive.	1. **System Board** 2. Diskette Drive Cable 3. Riser card 4. Network Adapter
Intensity or color varies from left to right of characters and color bars	1. **Display** 2. System Board
No power or fan not running	1. **See "Power Supply Errors" on page 57.**
Non-system disk or disk error-type message with a known-good diagnostic diskette.	1. **Diskette Drive** 2. System Board 3. Diskette Drive Cable 4. Riser card
Other display symptoms not listed above (including blank or illegible display)	1. **Display** 2. System Board
Power-on indicator or hard disk drive in-use light not on, but computer works correctly	1. **Power Supply** 2. System Board 3. LED Cables
Printer problems	1. **Printer**
Program loads from the hard disk with a known-good diagnostics diskette in the first 3.5-inch diskette drive	1. **Run Setup** 2. Diskette Drive 3. Diskette Drive Cable 4. System Board 5. Riser card 6. Power Supply

RPL computer cannot access programs from its own hard disk.	1. **If network administrator is using LCCM Hybrid RPL, check startup sequence:**
	  a. **First device - network**
	  b. **Second device - hard disk**
	2. Hard disk drive

RPL computer does not RPL from server	1. **Check startup sequence** 2. Check the network adapter LED status
Serial or parallel port device failure (system board port)	1. **External Device Self-Test OK?** 2. External Device 3. Cable 4. System Board
Serial or parallel port device failure (adapter port)	1. **External Device Self-Test OK?** 2. External Device 3. Cable 4. Alternate Adapter 5. System Board

Message/Symptom	FRU/Action
Some or all keys on the keyboard do not work	1. **Keyboard** 2. Keyboard Cable 3. System Board

Undetermined problems

Check the power supply voltages (see "Power Supply Errors" on page 57). If the voltages are correct, return here and continue with the following steps.

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

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

Chapter 8. Replacing FRUs

> **Important**
>
> Before you replace any FRU, read Chapter 2, "Safety information," on page 5. 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.

Locating connectors on the front

The following illustration shows the locations of the USB connectors on the front of the computer.
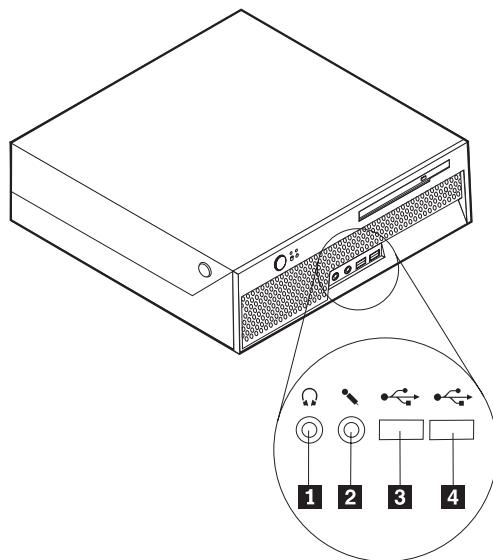
1 Headphone connector		**3** USB connector	
2 Microphone connector		**4** USB connector	

Locating the connectors on the rear

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

1 PCI adapter slot
2 Integrated cable lock slot
3 Mouse connector
4 Keyboard connector
5 VGA monitor connector
6 Parallel connector
7 Serial connector

8 Ethernet connector
9 USB connectors
10 Audio line out connector
11 Audio line in connector
12 USB connectors
13 Power supply diagnostic LEDs
14 Power connector
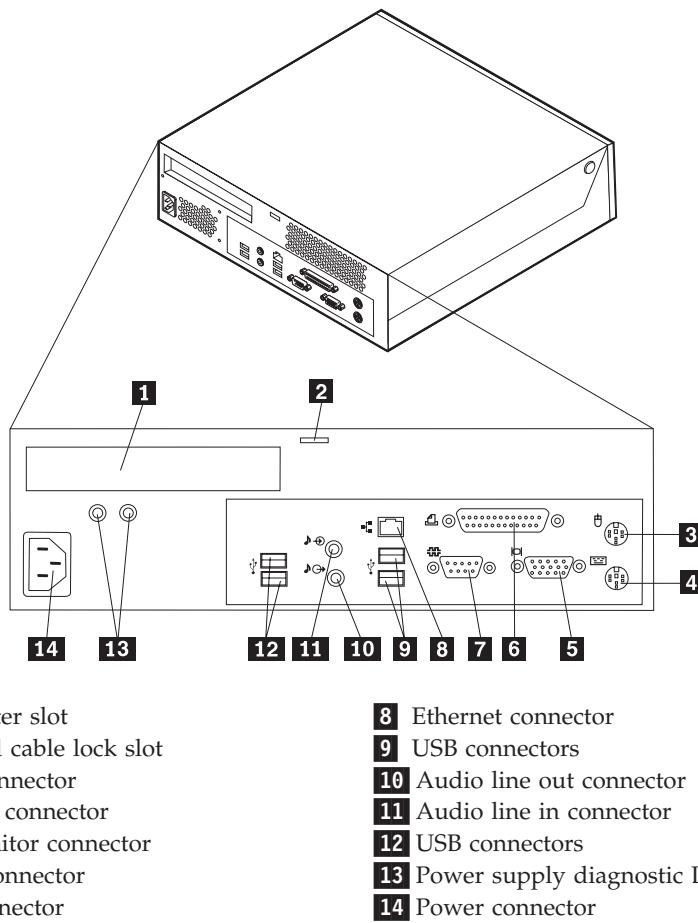
Opening the cover

> **Important**
> Read Chapter 2, "Safety information," on page 5 and "Handling electrostatic discharge-sensitive devices" on page 8 before opening the cover.

1. Shut down the operating system, remove any media (DVDs, CDs, or tapes) from the drives, and turn off all attached devices.
2. Unplug all power cords from electrical outlets.
3. Disconnect all cables attached to the computer. This includes power cords, input/output (I/O) cables, and any other cables that are connected to the computer.
4. Press the buttons on the sides of the computer and pivot the cover upward to open.
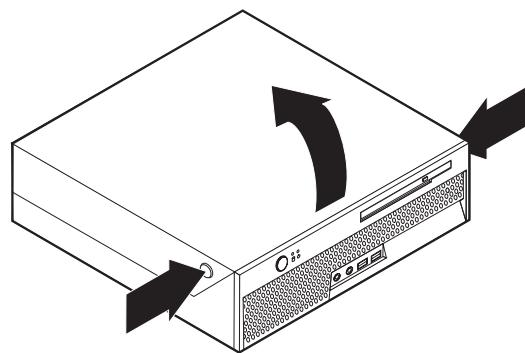
Locating components

The following illustration will help you locate the various components in the computer.
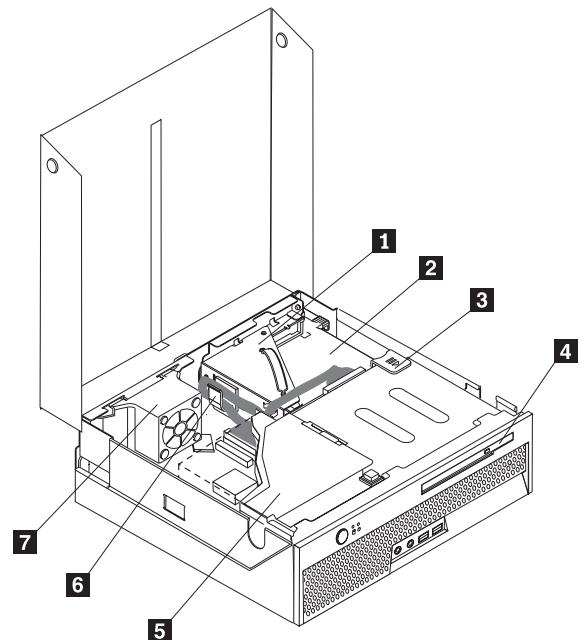
1	PCI riser	5	Hard disk drive
2	Power supply assembly	6	Cable clip on PCI riser
3	Optical drive eject button	7	Rear fan bracket assembly
4	Optical drive		

Identifying parts on the system board

1 Hard disk drive connector
2 Optical drive connector
3 PCI riser connector
4 12v power connector
5 Power connector
6 Front fan connector
7 Microprocessor

8 Speaker connector
9 Memory connector 1
10 Memory connector 2
11 Rear fan connector
12 SATA connector
13 Clear CMOS/Recovery jumper
14 Battery
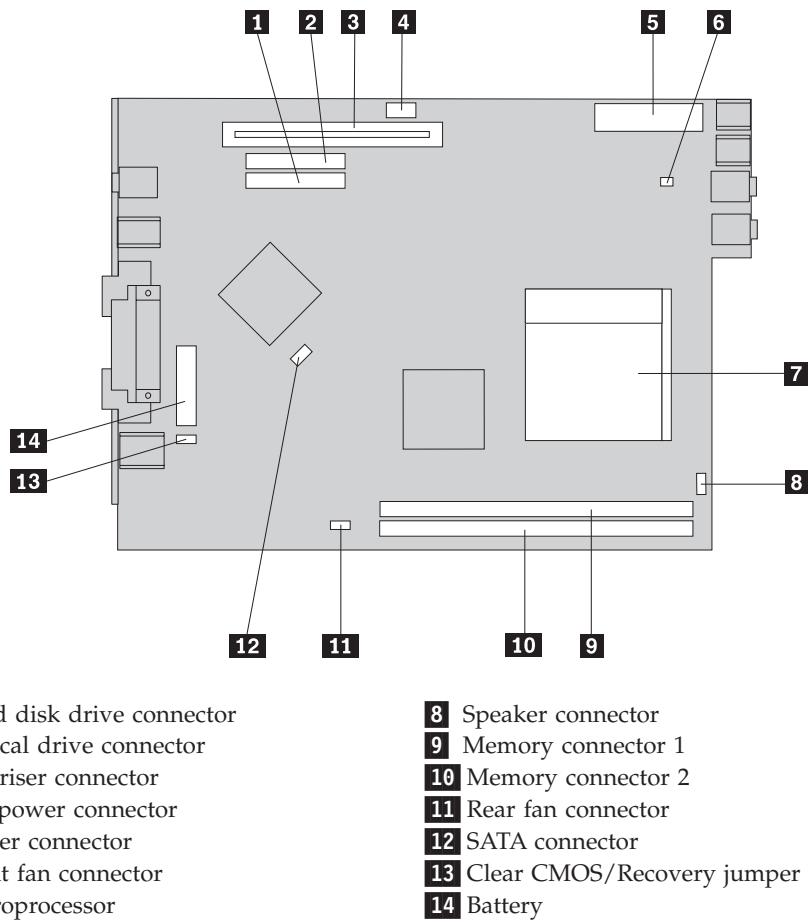
Removing and replacing a memory module

1. Open the cover. See "Opening the cover" on page 90.
2. Locate the memory connectors. See "Identifying parts on the system board."
3. Open the retaining clips and remove the failing memory module.
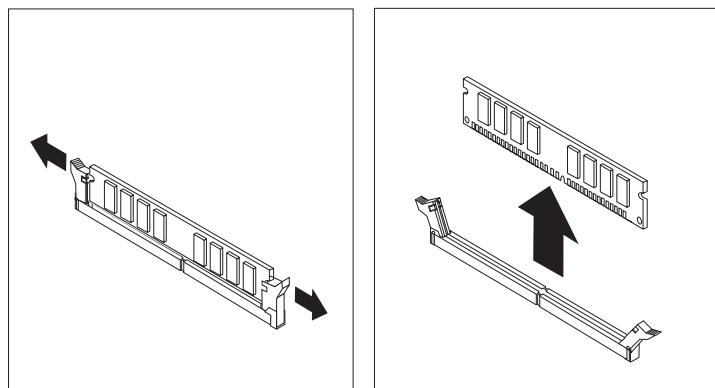
4. Make sure the notch **1** on the new memory module is aligned correctly with the connector key **2** on the socket. Insert the memory module straight down into the connector until it snaps into position and the retaining clips are closed.
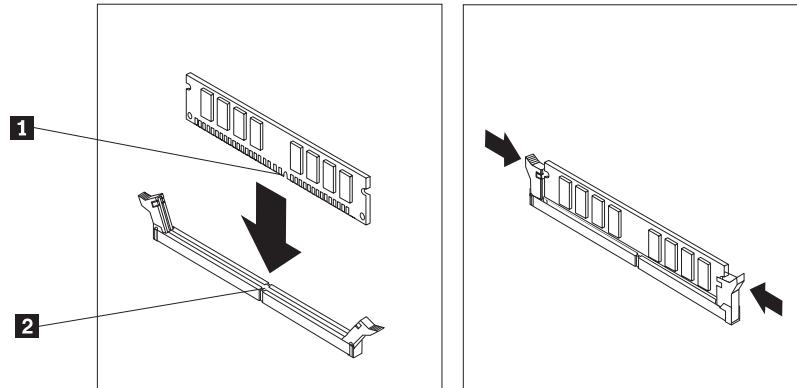
5. Go to "Completing the FRU replacement." on page 104.

Removing and replacing a PCI adapter

This section provides information and instructions for replacing a PCI adapter.

1. Open the cover. See "Opening the cover" on page 90.
2. Pivot the drive bay assembly upward to gain access to the system board.
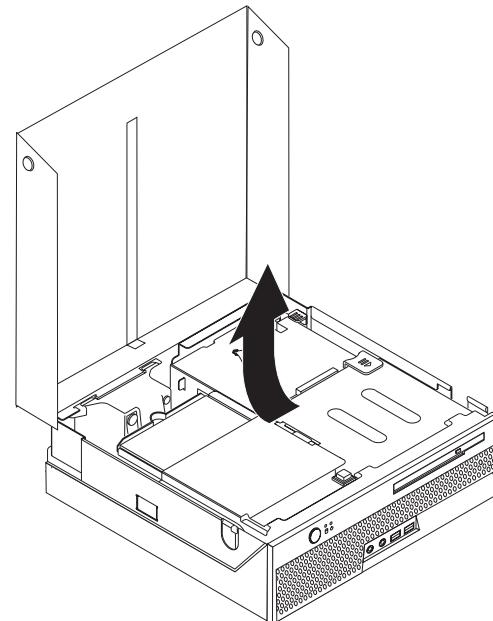
3. Remove all cables from the cable clip attached to the PCI riser.

4. Remove the PCI riser from the computer by pulling straight up on the blue handle provided.
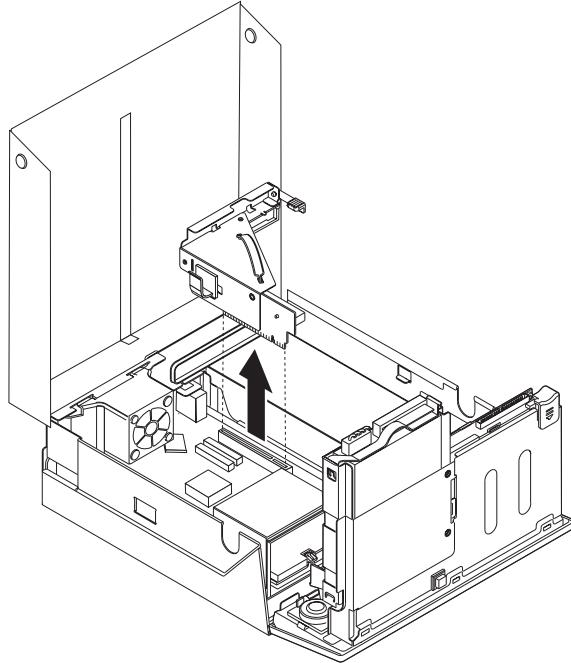
5. Pivot the blue adapter latch upward and remove the failing adapter.
6. Remove the new adapter from its static-protective package.
7. Install the new adapter into the PCI connector in the riser.
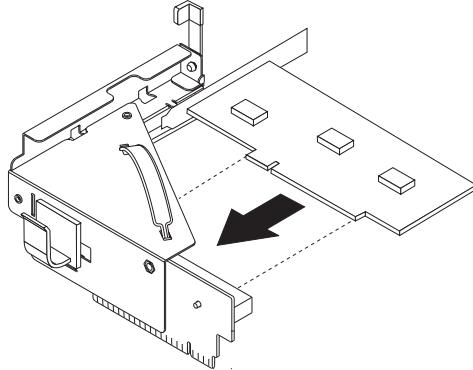
8. Pivot the adapter latch down to retain the adapter.
9. Reinstall the PCI riser assembly into the system board.
10. Replace all cables that were removed from the cable clip on the PCI riser.
11. Go to "Completing the FRU replacement." on page 104.

Removing and replacing the battery

> **Important**
> Refer to "Safety notices (multi-lingual translations)" on page 9 for information about replacing and disposing of the battery.

1. Open the cover. See "Opening the cover" on page 90.

2. Pivot the drive bay assembly upward to gain access to the system board.
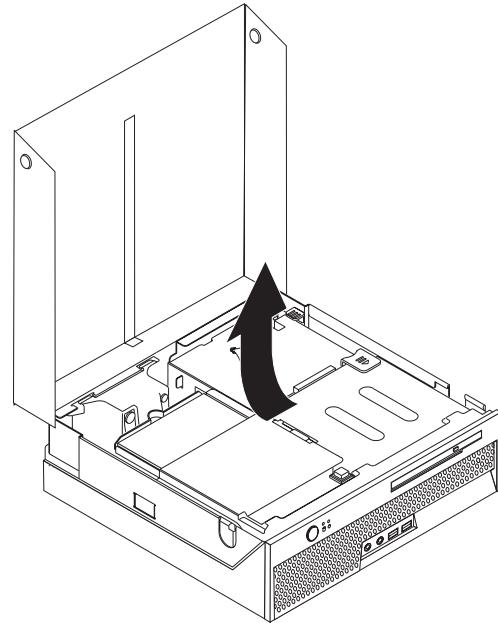
3. Locate the rear fan bracket assembly. See "Locating components" on page 91.
4. Lift the rear fan bracket assembly up to gain access to the battery.
5. Remove the old battery.
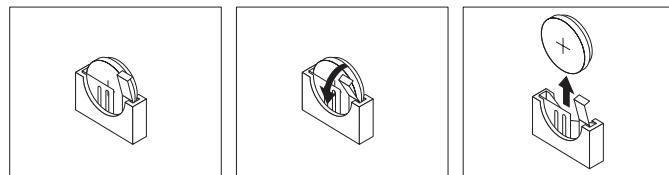
6. Install the new battery.
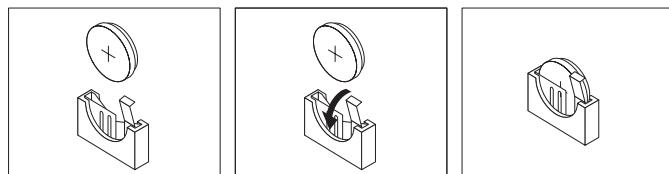
7. Replace the rear fan bracket assembly.
8. Go to "Completing the FRU replacement." on page 104.

Removing and 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. Open the cover. See "Opening the cover" on page 90.
2. Remove the PCI riser. See "Removing and replacing a PCI adapter" on page 93.
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 92.
5. Remove the three screws that hold the power supply in place.
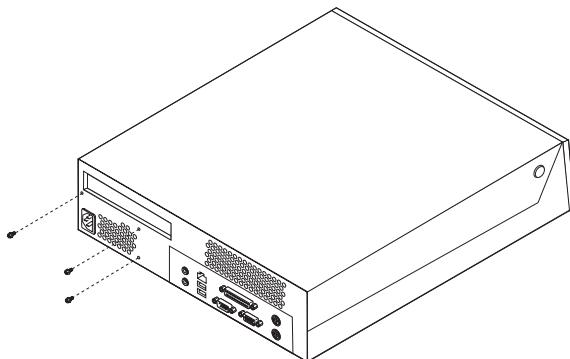
6. Lift the power supply out.
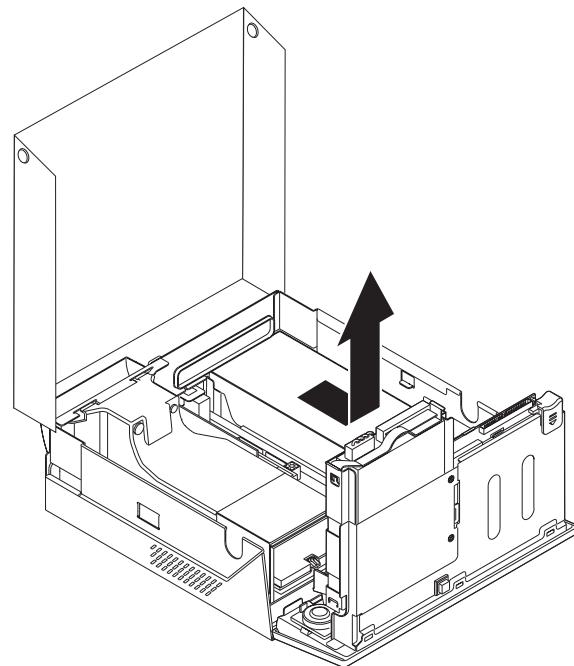
7. Install the new power supply and insert the four screws that hold the power supply in place.

8. Replace the PCI riser. See "Removing and replacing a PCI adapter" on page 93.

9. Reconnect all power supply cables to the system board and the drives. See "Identifying parts on the system board" on page 92. Make sure the cables are correctly routed and are retained by the cable clips.

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

Removing and replacing the system board

1. Open the cover. See "Opening the cover" on page 90.

2. Remove the PCI riser. See "Removing and replacing a PCI adapter" on page 93.

3. Disconnect rear fan cable and remove the rear fan bracket assembly by lifting it off the system board.

4. Carefully take note of the location of all cable connections on the system board and disconnect all cables.

5. Take note of the location of the memory modules and remove them from the failing system board. See "Identifying parts on the system board" on page 92.

6. Loosen the two captured screws that secure the heat sink clamps **2** . Pivot the clamps to the side to allow the heat sink **1** to be removed.
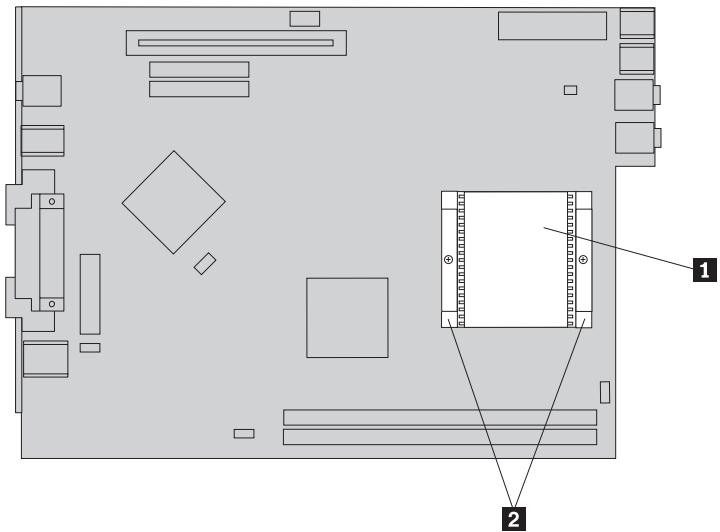
7. Remove the heat sink from the microprocessor by gently twisting the heat sink to break the seal formed by the thermal grease and lifting it straight up.

8. Place the heat sink on its side on a clean work surface so that the thermal grease is not contaminated.

9. Use the handle at the rear of the system board to pull the system board and tray out the rear of the chassis.
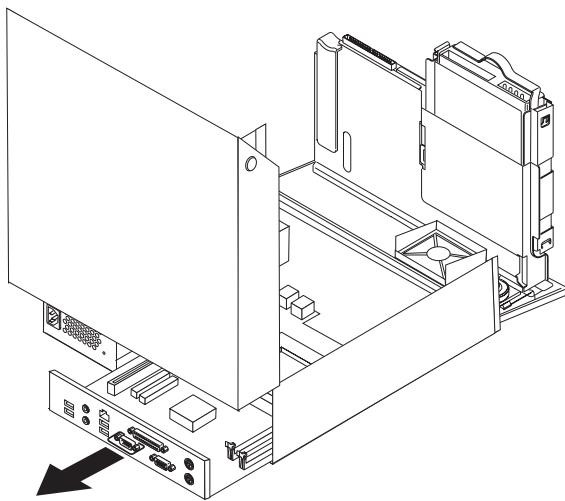
10. To remove the microprocessor **1** from the failing system board, lift the small handle **2** on the microprocessor socket to its maximum vertical position. Carefully lift the microprocessor off the socket.
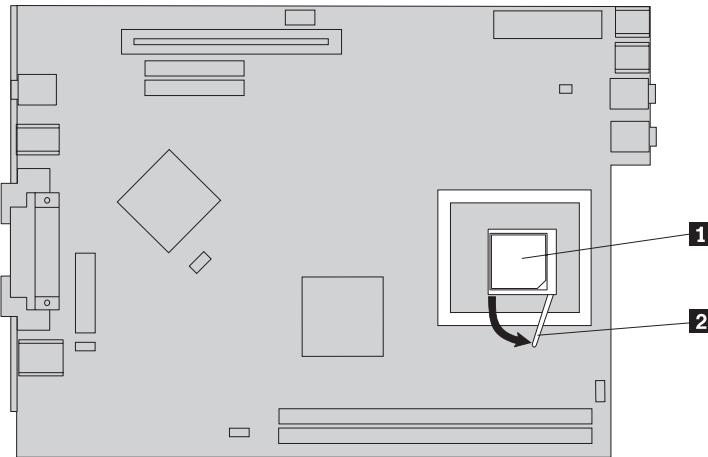
11. To install the microprocessor on the new system board, position the microprocessor socket handle on the new system board to the full vertical position. Otherwise the microprocessor pins might be damaged when reinstalling the microprocessor.

12. Position the microprocessor so that the pins are aligned with the socket and with the beveled corner **1** on the microprocessor is aligned in the socket as shown.
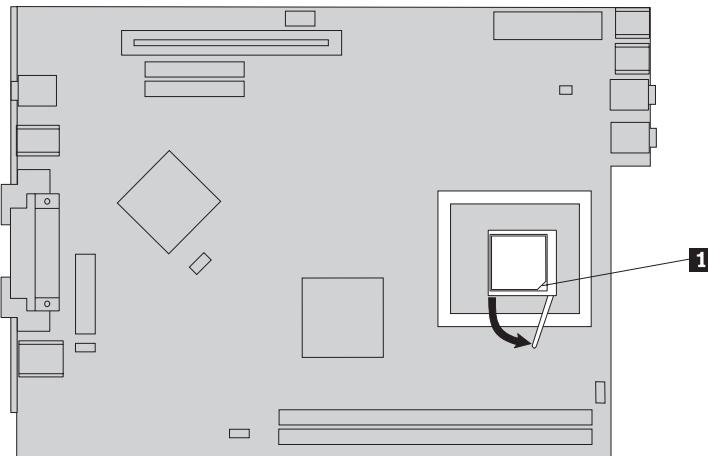
13. Lower and lock the handle to secure the microprocessor in the socket.

    Note: Do not install the heatsink until the new system board has been installed.

14. Install the new system board and tray into the rear of the chassis until it is fully seated.

15. Reinstall the PCI riser.

16. Reinstall the memory modules.

17. Reinstall the heat sink on the microprocessor.

18. Reconnect all cables to the system board. See "Identifying parts on the system board" on page 92.

19. Reinstall the rear fan bracket assembly and connect the fan cable to the system board.

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

Removing and replacing the microprocessor

1. Open the cover. See "Opening the cover" on page 90.
2. Loosen the two captured screws that secure the heat sink clamps **2** . Pivot the clamps to the side to allow the heat sink **1** to be removed.
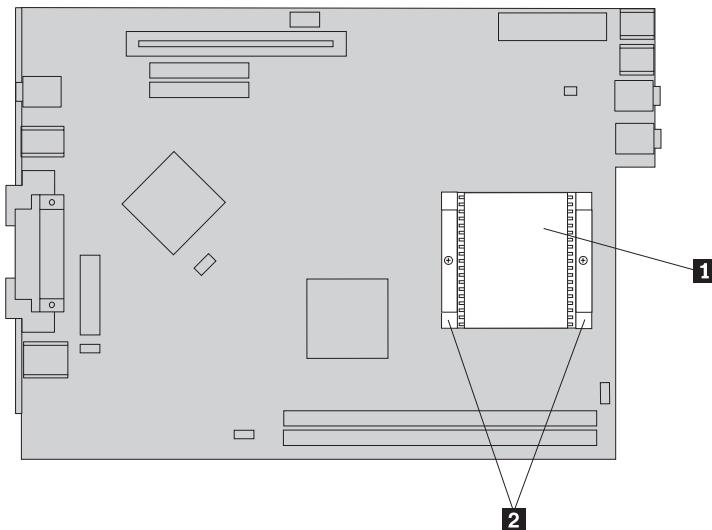
3. Remove the heat sink from the microprocessor by gently twisting the heat sink to break the seal formed by the thermal grease and lifting it straight up.
4. Place the heat sink on a clean work surface.
5. Release the microprocessor **1** from the system board socket by pulling outward and lifting the small handle **2** on the microprocessor socket to its maximum vertical position. Carefully lift the microprocessor off the socket.
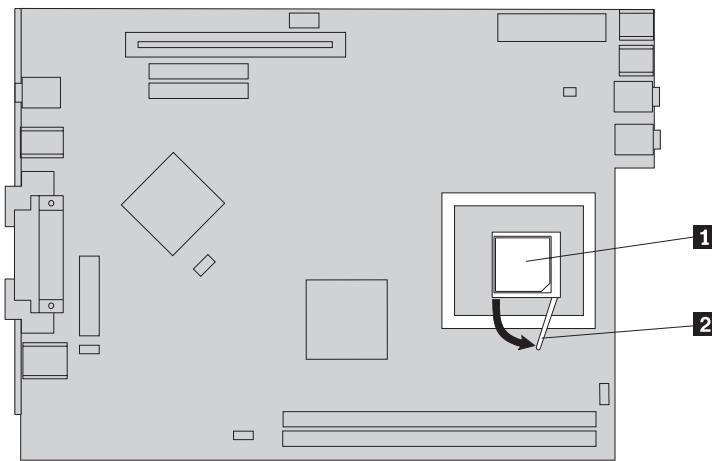
6. Make sure that the microprocessor socket handle is fully in the vertical position. Otherwise the microprocessor pins might be damaged when reinstalling the new microprocessor.

7. Position the microprocessor so that the pins are aligned with the socket and with the beveled corner **1** on the microprocessor is aligned in the socket as shown.
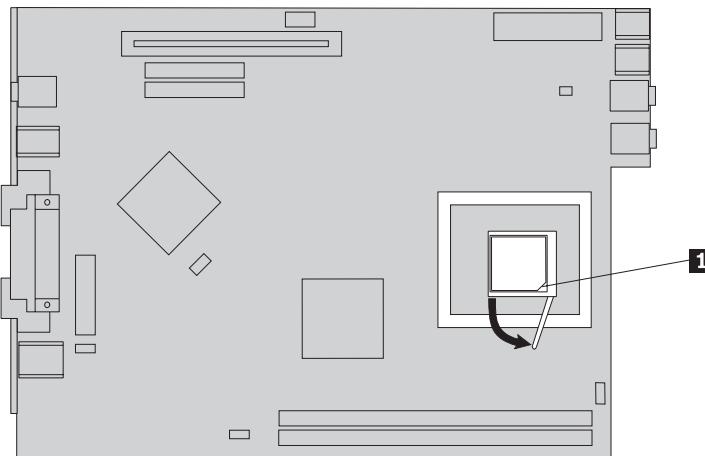
8. Lower the handle until it is fully in the down position and locked into the socket. This secures the microprocessor in the socket.

9. Remove the cleaning pad from its package and use the cleaning pad to wipe the thermal grease from the bottom of the heat sink.

   Notes:
   a. The cleaning pad and thermal grease are separate FRUs and are not included with the system board or microprocessor FRUs. These must be ordered separately and shipped along with the FRUs being replaced.
   b. Be sure that all of the thermal grease is removed.

   Note: 0.01ML is one tick mark on the syringe. If the grease is properly applied, approximately half (0.22ML) of the grease will remain in the syringe.

10. Use the thermal grease syringe to place 16 uniformly spaced dots of 0.01ML each on the top of the microprocessor.

Microprocessor

0.01 mL of thermal grease
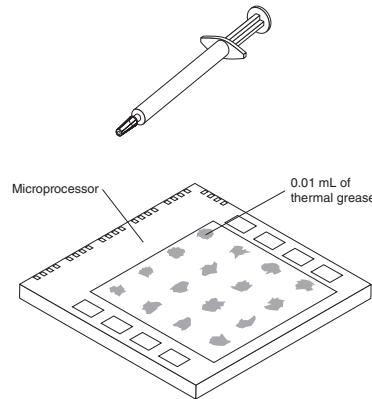
11. Place the heat sink into position on the microprocessor.

12. When tightening the screws that clamp the heat sink, do not overtighten. Tighten the clamp screws evenly by tightening one side some and then the other until they are both snug.

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

Removing and replacing an optical drive

1. Open the cover. See "Opening the cover" on page 90.
2. Push the optical drive eject button and slide the optical drive out of the front of the computer.
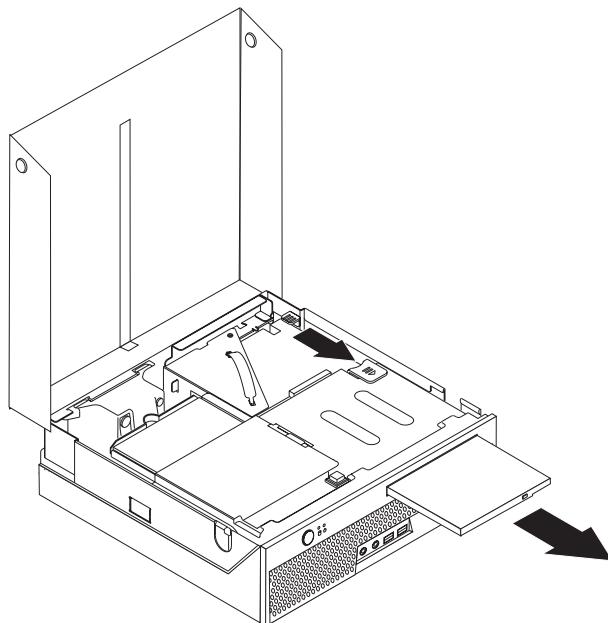
3. Slide the new drive into the bay until it is latched into position.
4. Go to "Completing the FRU replacement." on page 104.

Removing and replacing a hard disk drive

1. Open the cover. See "Opening the cover" on page 90.
2. Pivot the drive bay assembly upward to gain access to the hard disk drive.
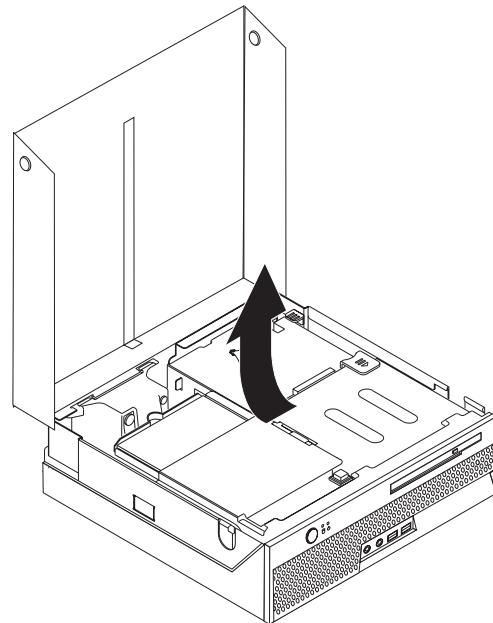
3. Disconnect the signal and power cables from the rear of the hard disk drive.
4. Lift the hard disk drive and bracket up to remove it from the drive bay.
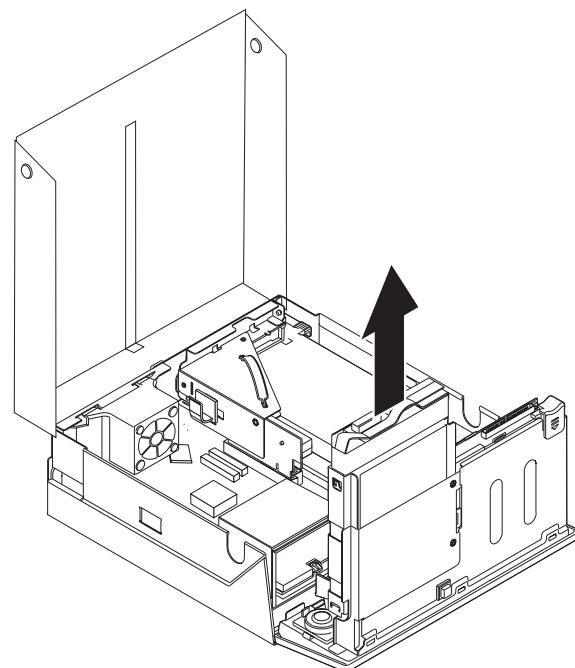
5. Note the orientation of the hard disk drive in the plastic bracket.
6. Remove the drive by flexing the plastic enough to slide the drive out.
7. Install the hard disk drive into the plastic bracket by flexing the plastic enough to slide the drive in.
8. Install the hard disk drive and bracket into the bay until it snaps into position.
9. Reconnect the signal and power cables to the rear of the hard disk drive.

Completing the FRU replacement.

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

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

1. Ensure that all components have been reassembled correctly and that no tools or loose screws are left inside your computer.
2. Make sure the cables are correctly routed and are retained by the cable clips.
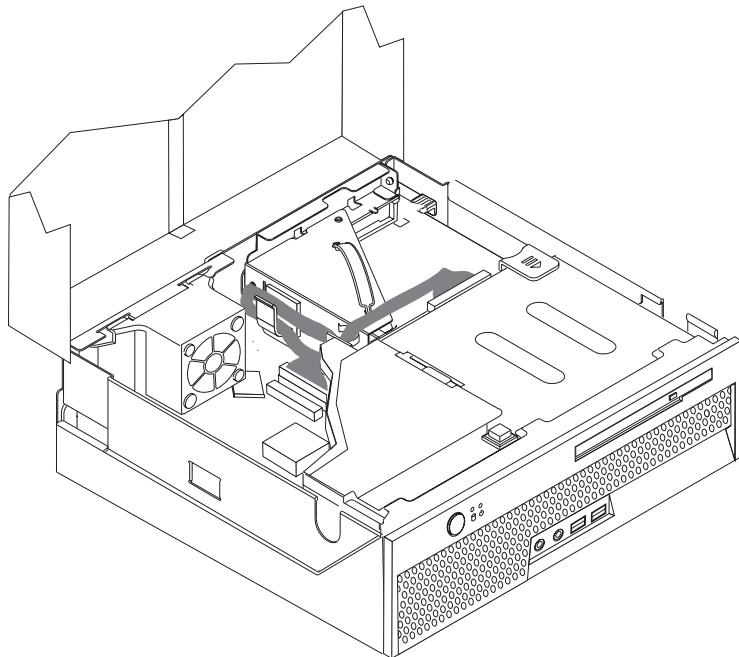
3. Lower the drive bay assembly.
4. Close the cover.
5. If your computer is being placed in the vertical position, attach the floor stand.

   Attention: To prevent overheating and possible component damage, always attach the floor stand when placing the computer in the vertical position.

6. Reconnect the external cables and power cords to the computer. See "Locating connectors on the front" on page 89 and "Locating the connectors on the rear" on page 90.
7. If you have replaced the system board, you must update (flash) the BIOS. See "Flash update procedures" on page 150.
8. Some FRU replacements rquire the configuration to be updated. See Chapter 6, "Using the Setup Utility," on page 53.

Chapter 9. FRU lists

> **Note:** A CRU (Customer Replaceable Unit) is identified by a single asterisk (*) or two asterisks (**) in the CRU ID column. An N in the CRU ID Column means that the part is not a CRU. A single asterisk (*) means that the part is a Tier 1 CRU; two asterisks (**) mean that the part is a Tier 2 CRU.

Machine Type 8086
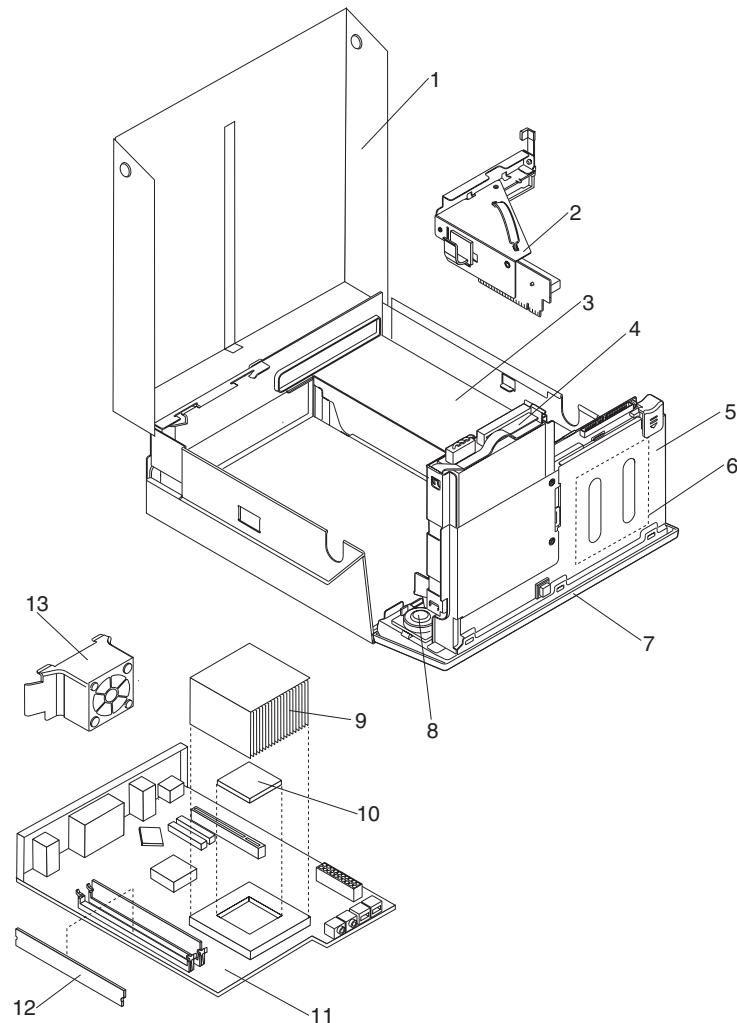
Item #	8086 FRUs	FRU#	CRU
1	Top Cover (all models)	89P6782	*
2	PCI riser card and bracket assembly (all models)	89P6790	*

Item #	8086 FRUs	FRU#	CRU
3	200 W power supply-Hipro PFC (models 42U 42F 42G 43U 44E 44J 45J 46U 46F 47J 48J 49U 49F 4AG 4BJ 4DJ 4EJ 3AS 3AP 3AL 3AD 3AY 41Q 41B 41H 42S 42P 42L 42D 42Y 46S 46P 46L 46D 46Y 49S 49P 49L 49D 49Y 4CC ARG B2K B3K B4K 1BA 1BT 1DK 1FK 1GK 1HJ 1JJ 1KJ 1LJ 3LJ 3MJ 3NJ 4FJ 4GJ B1B B1H 1BQ 1BV 1EB 1EH 4HC A3S A3P A3L A3Y 11J 14J 21S 22S 22P 22L 22Y 32S 32P 32L 32Y 21U 21G 34U A3U A4J A5U A8S A8Y 13S 13L 13Y 15U 16U 17U 18U 19U 21F 22U 24U 25U 26G 27E 27J 28J 29J 2AJ 32U 35U 36U 36F 37G A5G A6G A8G A9J 2BA 2BT 2BK 2CJ 36G 36M 36A 36T 36K 36R 36E 36J 38J 39J A5S A5Y A6C A6V 18S 18L 18Y 2BQ 2BC 2BB 2BH 2BV 35C 35B 35H 36S 36P 36L 36D 36Y 36Q 36C 36B 36H 36V CTO ACJ ADJ AEJ AFJ AGJ AHJ AJU AKU ALG 1AU ABU 2DJ 2EJ 2FU 2GE 2GJ 2HJ 2JU 2KJ 2LJ 2MJ 3AU 3AF 3BE 3BJ 3CJ 3DU 3EJ 3FJ 3GJ 3HJ 3JJ 3KJ 41A 41T)	89P6805	**
4	Hard disk drive 40GB 7200rpm EIDE ATA-100 (models A3S A3P A3L A3Y 21S 22S 22P 22L 22Y 32S 32P 32L 32Y 21U 21G 34U A3U A5U A8S A8Y 15U 16U 17U 18U 19U 21F 22U 24U 25U 32U 35U 36U 36F A5S A5Y A5G A6G A6C A6V A8G 18S 18L 18Y 2BA 2BQ 2BT 2BC 2BB 2BH 2BV 2BK 35C 35B 35H 36S 36P 36L 36D 36Y 36G 36M 36A 36Q 36T 36C 36B 36H 36V 36K 36R 36E 36J CTO AJU AKU ALG 1AU 2FU 3AU 3AF 3AS 3AP 3AL 3AD 3AY 41A 41Q 41T 41B 41H 42U 42F 42S 42P 42L 42D 42Y 42G 43U ARG B2K 1BA 1BQ 1BT 1BV 1DK)	19K1568	*
4	Hard disk drive 40GB 7200rpm EIDE ATA-100 (models A3S A3P A3L A3Y 21S 22S 22P 22L 22Y 32S 32P 32L 32Y 21U 21G 34U A3U A5U A8S A8Y 15U 16U 17U 18U 19U 21F 22U 24U 25U 32U 35U 36U 36F A5S A5Y A5G A6G A6C A6V A8G 18S 18L 18Y 2BA 2BQ 2BT 2BC 2BB 2BH 2BV 2BK 35C 35B 35H 36S 36P 36L 36D 36Y 36G 36M 36A 36Q 36T 36C 36B 36H 36V 36K 36R 36E 36J CTO AJU AKU ALG 1AU 2FU 3AU 3AF 3AS 3AP 3AL 3AD 3AY 41A 41Q 41T 41B 41H 42U 42F 42S 42P 42L 42D 42Y 42G 43U ARG B2K 1BA 1BQ 1BT 1BV 1DK)	40Y8757	*
4	Hard disk drive 80GB 7200rpm EIDE ATA-100 (models 11J 14J A4J 13S 13L 13Y 27E 27J 28J 29J 2AJ A9J 2CJ 38J 39J 26G 37G CTO ABU 2JU 3DU 46U 46F 46S 46P 46L 46D 46Y 49U 49F 49S 49P 49L 49D 49Y 4AG B1B B1H B3K B4K 1EB 1EH 1FK 1GK)	24P3665	*
4	Hard disk drive 80GB 7200rpm EIDE ATA-100 (models 11J 14J A4J 13S 13L 13Y 27E 27J 28J 29J 2AJ A9J 2CJ 38J 39J 26G 37G CTO ABU 2JU 3DU 46U 46F 46S 46P 46L 46D 46Y 49U 49F 49S 49P 49L 49D 49Y 4AG B1B B1H B3K B4K 1EB 1EH 1FK 1GK)	40Y8758	*
4	Hard disk drive 120GB 7200rpm EIDE ATA-100 (models CTO)	24P3687	*
4	Hard disk drive 120GB 7200rpm EIDE ATA-100 (models CTO)	40Y8759	*
4	Hard disk drive 40GB 7200rpm Serial ATA (models CTO)	71P7312	**
4	Hard disk drive 80GB 7200rpm Serial ATA (models CTO 1AU ABU ACJ ADJ AEJ AFJ AGJ AHJ 2DJ 2EJ 2GE 2GJ 2HJ 2KJ 2LJ 2MJ 3BE 3BJ 3CJ 3EJ 3FJ 3GJ 3HJ 3JJ 3KJ 44E 44J 45J 47J 48J 4AG 4BJ 4DJ 4EJ 1HJ 1JJ 1KJ 1LJ 3LJ 3MJ)	71P7293	*
4	Hard disk drive 80GB 7200rpm Serial ATA (models CTO 1AU ABU ACJ ADJ AEJ AFJ AGJ AHJ 2DJ 2EJ 2GE 2GJ 2HJ 2KJ 2LJ 2MJ 3BE 3BJ 3CJ 3EJ 3FJ 3GJ 3HJ 3JJ 3KJ 44E 44J 45J 47J 48J 4AG 4BJ 4DJ 4EJ 1HJ 1JJ 1KJ 1LJ 3LJ 3MJ)	40Y8761	*
4	Hard disk drive 160GB 7200rpm Serial ATA (models CTO 4CC 3NJ 4FJ 4GJ 4HC)	71P7297	*
4	Hard disk drive 160GB 7200rpm Serial ATA (models CTO 4CC 3NJ 4FJ 4GJ 4HC)	40Y8762	*
4	Hard disk drive 160GB 7200rpm Serial ATA (models CTO 4CC 3NJ 4FJ 4GJ 4HC)	40Y9035	*
5	Front Rotating Cage assembly (all models)	39M0612	**

Item #	8086 FRUs	FRU#	CRU
6	CD-ROM (24x) Plus Ultrabay Enhanced Drive (models 14J 21S 21U 21G 11J A4J A5U A8S A8Y 15U 16U 18U 19U 21F 24U 27E 27J 29J 35U 36U 36F A5S A5Y A5G A6G A6C A6V A8G A9J 18S 18L 18Y 2BA 2BQ 2BT 2BC 2BB 2BH 2BV 2BK 35C 35B 35H 36S 36P 36L 36D 36Y 36G 36M 36A 36Q 36T 36C 36B 36H 36V 36K 36R 36E 36J CTO AEJ AFJ AJU AKU ALG 2GE 2GJ 2HJ 3BE 3BJ 3CJ 41A 41Q 41T 41B 41H 42U 42F 42S 42P 42L 42D 42Y 42G 43U 44E 44J 45J ARG B1B B1H B2K B3K 1BA 1BQ 1BT 1BV 1DK 1EB 1EH 1FK 1HJ 1LJ 3LJ)	26K5427	*
6	CD-ROM (24x) Plus Ultrabay Enhanced Drive (models 14J 21S 21U 21G 11J A4J A5U A8S A8Y 15U 16U 18U 19U 21F 24U 27E 27J 29J 35U 36U 36F A5S A5Y A5G A6G A6C A6V A8G A9J 18S 18L 18Y 2BA 2BQ 2BT 2BC 2BB 2BH 2BV 2BK 35C 35B 35H 36S 36P 36L 36D 36Y 36G 36M 36A 36Q 36T 36C 36B 36H 36V 36K 36R 36E 36J CTO AEJ AFJ AJU AKU ALG 2GE 2GJ 2HJ 3BE 3BJ 3CJ 41A 41Q 41T 41B 41H 42U 42F 42S 42P 42L 42D 42Y 42G 43U 44E 44J 45J ARG B1B B1H B2K B3K 1BA 1BQ 1BT 1BV 1DK 1EB 1EH 1FK 1HJ 1LJ 3LJ)	40Y8793	*
6	CD-ROM (24x) Plus Ultrabay Enhanced Drive (models 14J 21S 21U 21G 11J A4J A5U A8S A8Y 15U 16U 18U 19U 21F 24U 27E 27J 29J 35U 36U 36F A5S A5Y A5G A6G A6C A6V A8G A9J 18S 18L 18Y 2BA 2BQ 2BT 2BC 2BB 2BH 2BV 2BK 35C 35B 35H 36S 36P 36L 36D 36Y 36G 36M 36A 36Q 36T 36C 36B 36H 36V 36K 36R 36E 36J CTO AEJ AFJ AJU AKU ALG 2GE 2GJ 2HJ 3BE 3BJ 3CJ 41A 41Q 41T 41B 41H 42U 42F 42S 42P 42L 42D 42Y 42G 43U 44E 44J 45J ARG B1B B1H B2K B3K 1BA 1BQ 1BT 1BV 1DK 1EB 1EH 1FK 1HJ 1LJ 3LJ)	39M3503	*
6	CD-ROM (24x) Plus Ultrabay Enhanced Drive (models 14J 21S 21U 21G 11J A4J A5U A8S A8Y 15U 16U 18U 19U 21F 24U 27E 27J 29J 35U 36U 36F A5S A5Y A5G A6G A6C A6V A8G A9J 18S 18L 18Y 2BA 2BQ 2BT 2BC 2BB 2BH 2BV 2BK 35C 35B 35H 36S 36P 36L 36D 36Y 36G 36M 36A 36Q 36T 36C 36B 36H 36V 36K 36R 36E 36J CTO AEJ AFJ AJU AKU ALG 2GE 2GJ 2HJ 3BE 3BJ 3CJ 41A 41Q 41T 41B 41H 42U 42F 42S 42P 42L 42D 42Y 42G 43U 44E 44J 45J ARG B1B B1H B2K B3K 1BA 1BQ 1BT 1BV 1DK 1EB 1EH 1FK 1HJ 1LJ 3LJ)	40Y8907	*
6	DVD-ROM (8x/24x) (models 26G 37G CTO 1AU 2FU 3AU 3AF 3AS 3AP 3AL 3AD 3AY 49U 49F 49S 49P 49L 49D 49Y 4AG)	26K5413	*
6	DVD-ROM (8x/24x) (models 26G 37G CTO 1AU 2FU 3AU 3AF 3AS 3AP 3AL 3AD 3AY 49U 49F 49S 49P 49L 49D 49Y 4AG)	40Y8787	*
6	DVD-ROM (8x/24x) (models 26G 37G CTO 1AU 2FU 3AU 3AF 3AS 3AP 3AL 3AD 3AY 49U 49F 49S 49P 49L 49D 49Y 4AG)	26K5455	*
6	DVD-ROM (8x/24x) (models 26G 37G CTO 1AU 2FU 3AU 3AF 3AS 3AP 3AL 3AD 3AY 49U 49F 49S 49P 49L 49D 49Y 4AG)	40Y8965	*
6	DVD-ROM/CD-RW Combo Drive 24x24x24x8x (models 32S 32P 32L 32Y 34U 13S 13L 13Y 25U 28J 2AJ 32U CTO AGJ AHJ ABU 2JU 2KJ 2LJ 3DU 3EJ 3FJ 46U 46F 46S 46P 46L 46D 46Y 47J 48J 4CC B4K 1GK 1JJ 1KJ 3MJ 4HC)	26K5407	*
6	DVD-ROM/CD-RW Combo Drive 24x24x24x8x (models 32S 32P 32L 32Y 34U 13S 13L 13Y 25U 28J 2AJ 32U CTO AGJ AHJ ABU 2JU 2KJ 2LJ 3DU 3EJ 3FJ 46U 46F 46S 46P 46L 46D 46Y 47J 48J 4CC B4K 1GK 1JJ 1KJ 3MJ 4HC)	40Y8783	*
6	DVD-ROM/CD-RW Combo Drive 24x24x24x8x (models 32S 32P 32L 32Y 34U 13S 13L 13Y 25U 28J 2AJ 32U CTO AGJ AHJ ABU 2JU 2KJ 2LJ 3DU 3EJ 3FJ 46U 46F 46S 46P 46L 46D 46Y 47J 48J 4CC B4K 1GK 1JJ 1KJ 3MJ 4HC)	26K5409	*
6	DVD-ROM/CD-RW Combo Drive 24x24x24x8x (models 32S 32P 32L 32Y 34U 13S 13L 13Y 25U 28J 2AJ 32U CTO AGJ AHJ ABU 2JU 2KJ 2LJ 3DU 3EJ 3FJ 46U 46F 46S 46P 46L 46D 46Y 47J 48J 4CC B4K 1GK 1JJ 1KJ 3MJ 4HC)	40Y8785	*
6	Rambo 4 -- slim (models CTO 2MJ 3GJ 3JJ 3KJ 4BJ 4DJ 4EJ)	26K5421	*
6	Multi-Burner Plus (Rambo 4) Ultrabay Enhanced Drive (models CTO 2MJ 3GJ 3JJ 3KJ 4BJ 4DJ 4EJ)	40Y8789	*
7	Main Bezel assembly (all models)	39M0613	*

Item #	8086 FRUs	FRU#	CRU
8	Speaker Cable assembly (all models)	03R0294	*
9	Heat Sink (models A3S A3P A3L A3Y 11J 14J 21S 22S 22P 22L 22Y 32S 32P 32L 32Y 21U 21G 34U A4J A5U A3U A8S A8Y 13S 13L 13Y 18U 19U 21F 22U 24U 25U 26G 27E 27J 28J 29J 2AJ 32U 35U 36U 36F 37G A5S A5Y A5G A6G A6C A6V A9J A8G 18S 18L 18Y 2BA 2BQ 2BT 2BC 2BB 2BH 2BV 2BK 2CJ 35C 35B 35H 36S 36P 36L 36D 36Y 36G 36M 36A 36Q 36T 36C 36B 36H 36V 36K 36R 36E 36J 38J 39J CTO ARG B1B B1H B2K B3K B4K 1BA 1BQ 1BT 1BV 1DK 1EB 1EH 1FK 1GK 1HJ 1JJ 1KJ 1LJ 3LJ 3MJ 3NJ 4FJ 4GJ 4HC ACJ ADJ AEJ AFJ AGJ AHJ AJU AKU ALG 2DJ 2EJ 2FU 2GE 2GJ 2HJ 2JU 2KJ 2LJ 2MJ 3AU 3AF 3AS 3AP 3AL 3AD 3AY 3BE 3BJ 3CJ 3DU 3EJ 3FJ 3GJ 3HJ 3JJ 3KJ 41A 41Q 41T 41B 41H 42U 42F 42S 42P 42L 42D 42Y 42G 43U 44E 44J 45J 46U 46F 46S 46P 46L 46D 46Y 47J 48J 49U 49F 49S 49P 49L 49D 49Y 4AG 4BJ 4CC 4DJ 4EJ)	89P6791	**
10	Microprocessor - 2.4GHz Northwood Celeron (multi VID) (models CTO)	19R1501	**
10	Microprocessor - 2.5GHz Northwood Celeron (multi VID) (models CTO)	19R1503	**
10	Microprocessor - 2.6GHz Northwood Celeron (multi VID) (models CTO)	19R1505	**
10	Microprocessor - 2.7GHz Northwood Celeron (multi VID) (models CTO)	19R1507	**
10	Microprocessor - 2.8GHz Northwood Celeron (multi VID) (models CTO)	19R1509	**
10	Microprocessor - 2.53GHz Northwood Celeron (multi VID) (models CTO A4J A9J ACJ ADJ)	19R2406	**
10	Microprocessor - 2.66GHz Northwood Celeron (multi VID) (models CTO A5U A5S A5Y A5G A6G A6C A6V AEJ AFJ AGJ AHJ AJU)	19R2409	**
10	Microprocessor - 2.8GHz Northwood Celeron (multi VID) (models A3S A3P A3L A3Y CTO A3U A8S A8Y A8G AKU)	19R2411	**
10	Microprocessor - 2.93GHz Northwood Celeron (multi VID) (models CTO-U CTO-G ALG ARG)	29R7261	**
10	Microprocessor - 3.06GHz Northwood Celeron (multi VID) (models CTO-U CTO-G B1B B1H B2K B3K B4K)	29R7263	**
10	Microprocessor - 2.6GHz Northwood P4 (multi VID) (models CTO)	19R2421	**
10	Microprocessor - 2.8GHz Northwood P4 (multi VID) (models CTO)	19R2423	**
10	Microprocessor - 2.66GHz Northwood P4 (non and multi VID) (models CTO)	19R1511	**
10	Microprocessor - 2.8GHz Northwood P4 (non and multi VID) (models CTO)	19R1513	**
10	Microprocessor - 3.06GHz Northwood P4 (multi VID) (models CTO)	19R1515	**
10	Microprocessor - 2.6GHz Northwood P4 (models CTO)	19R1520	**
10	Microprocessor - 2.8GHz Northwood P4 (models CTO)	19R1522	**
10	Microprocessor - 3.0GHz Northwood P4 (models CTO)	19R1524	**
10	Microprocessor - 3.2GHz Northwood P4 (models CTO)	19R1526	**
10	Microprocessor - 2.8GHZ Prescott P4 (models CTO 15U 16U 17U 1AU ABU 1BA 1BQ 1BT 1BV 1DK 1EB 1EH 1FK 1GK 1HJ 1JJ 1KJ 1LJ)	19R1528	**
10	Microprocessor - 2.8GHZ Prescott P4 (models 11J 14J CTO 13S 13L 13Y 18U 19U 18S 18L 18Y)	19R1530	**
10	Microprocessor - 3.0GHZ Prescott P4 (models 21S 22S 22P 22L 22Y CTO 21U 21G 21F 22U 24U 25U 26G 27E 27J 28J 29J 2AJ 2BA 2BQ 2BT 2BC 2BB 2BH 2BV 2BK 2CJ 2DJ 2EJ 2FU 2GE 2GJ 2HJ 2JU 2KJ 2LJ 2MJ)	19R1532	**
10	Microprocessor - 3.2GHZ Prescott P4 (models 32S 32P 32L 32Y CTO 34U 32U 35U 36U 36F 37G 35C 35B 35H 36S 36P 36L 36D 36Y 36G 36M 36A 36Q 36T 36C 36B 36H 36V 36K 36R 36E 36J 38J 39J 3AU 3AF 3AS 3AP 3AL 3AD 3AY 3BE 3BJ 3CJ 3DU 3EJ 3FJ 3GJ 3HJ 3JJ 3KJ 3LJ 3MJ 3NJ)	19R2435	**

Item #	8086 FRUs	FRU#	CRU
10	Microprocessor - 3.4GHZ Prescott P4 (models CTO-U CTO-G 41A 41Q 41T 41B 41H 42U 42F 42S 42P 42L 42D 42Y 42G 43U 44E 44J 45J 46U 46F 46S 46P 46L 46D 46Y 47J 48J 49U 49F 49S 49P 49L 49D 49Y 4AG 4BJ 4CC 4DJ 4EJ 4FJ 4GJ 4HC)	29R7265	**
11	System board, 10/1000, no POV (models 1GK 1HJ 1JJ 1KJ 1LJ 3LJ 3MJ 3NJ 4FJ 4GJ A3S A3P A3L A3Y 21S 22S 22P 22L 22Y 32S 32P 32L 32Y CTO 21U 21G A3U A5U A8S A8Y 15U 17U 18U 21F 22U 25U 32U 35U 36U 36F 13S 13L 13Y A5S A5Y A5G A6G A6C A6V A8G 18S 18L 18Y 2BA 2BQ 2BT 2BC 2BB 2BH 2BV 2BK 35C 35B 35H 36S 36P 36L 36D 36Y 36G 36M 36A 36Q 36T 36C 36B 36H 36V 36K 36R 36E 36J AJU AKU ALG 1AU ABU 2FU 2JU 3DU 41A 41Q 41T 41B 41H 42U 42F 42S 42P 42L 42D 42Y 42G 46U 46F 46S 46P 46L 46D 46Y 49U 49F 49S 49P 49L 49D 49Y 4CC ARG B1B B1H B2K B3K B4K 1BA 1BQ 1BT 1BV 1DK 1EB 1EH 1FK)	41T2092	**
11	System board, 10/1000, no POV (models 1GK 1HJ 1JJ 1KJ 1LJ 3LJ 3MJ 3NJ 4FJ 4GJ A3S A3P A3L A3Y 21S 22S 22P 22L 22Y 32S 32P 32L 32Y CTO 21U 21G A3U A5U A8S A8Y 15U 17U 18U 21F 22U 25U 32U 35U 36U 36F 13S 13L 13Y A5S A5Y A5G A6G A6C A6V A8G 18S 18L 18Y 2BA 2BQ 2BT 2BC 2BB 2BH 2BV 2BK 35C 35B 35H 36S 36P 36L 36D 36Y 36G 36M 36A 36Q 36T 36C 36B 36H 36V 36K 36R 36E 36J AJU AKU ALG 1AU ABU 2FU 2JU 3DU 41A 41Q 41T 41B 41H 42U 42F 42S 42P 42L 42D 42Y 42G 46U 46F 46S 46P 46L 46D 46Y 49U 49F 49S 49P 49L 49D 49Y 4CC ARG B1B B1H B2K B3K B4K 1BA 1BQ 1BT 1BV 1DK 1EB 1EH 1FK)	41T2094	**
11	System board, 10/1000, POV (models CTO 34U A4J 16U 19U 24U 27E 27J 28J 29J 2AJ 11J 14J 26G 37G A9J 2CJ 38J 39J ACJ ADJ AEJ AFJ AGJ AHJ 2DJ 2EJ 2GE 2GJ 2HJ 2KJ 2LJ 2MJ 3AU 3AF 3AS 3AP 3AL 3AD 3AY 3BE 3BJ 3CJ 3EJ 3FJ 3GJ 3HJ 3JJ 3KJ 43U 44E 44J 45J 47J 48J 4AG 4BJ 4DJ 4EJ 4HC)	41T2091	**
11	System board, 10/1000, POV (models CTO 34U A4J 16U 19U 24U 27E 27J 28J 29J 2AJ 11J 14J 26G 37G A9J 2CJ 38J 39J ACJ ADJ AEJ AFJ AGJ AHJ 2DJ 2EJ 2GE 2GJ 2HJ 2KJ 2LJ 2MJ 3AU 3AF 3AS 3AP 3AL 3AD 3AY 3BE 3BJ 3CJ 3EJ 3FJ 3GJ 3HJ 3JJ 3KJ 43U 44E 44J 45J 47J 48J 4AG 4BJ 4DJ 4EJ 4HC)	41T2093	**
12	Memory - 128MB NP SDRAM PC2700 (models CTO)	31P9120	*
12	Memory - 256MB NP SDRAM PC2700 (models A3S A3P A3L A3Y A3U A4J A5U A8S A8Y 15U A5S A5Y A5G A6G A6C A6V A8G A9J CTO ACJ ADJ AEJ AFJ AGJ AHJ ARG B1B B1H B2K 1BA 1BQ 1BT 1BV 1DK 1EB 1EH 1HJ 1JJ 1KJ 1LJ)	31P9121	*
12	Memory - 512MB NP SDRAM PC2700 (models 16U 17U CTO AJU AKU ALG 1AU ABU B3K B4K 1FK 1GK)	31P9122	*
12	Memory - 1 GB NP SDRAM PC2700 (models CTO)	31P9123	*
12	Memory - 128MB NP SDRAM PC3200 (models CTO)	22P9273	*
12	Memory - 256MB NP SDRAM PC3200 (models 11J 14J 22S 22P 22L 22Y 13S 13L 13Y 18U 22U 35U 18S 18L 18Y 2BA 2BQ 2BT 2BC 2BB 2BH 2BV 2BK 35C 35B 35H CTO 2DJ 2EJ 41A 41Q 41T 41B 41H)	73P2683	*
12	Memory - 512MB NP SDRAM PC3200 (models 21S 32S 32P 32L 32Y 21U 21G 34U 19U 21F 24U 25U 27E 27J 28J 29J 2AJ 32U 36U 36F 26G 37G 2CJ 36S 36P 36L 36D 36Y 36G 36M 36A 36Q 36T 36C 36B 36H 36V 36K 36R 36E 36J 38J 39J CTO 2FU 2GE 2GJ 2HJ 2JU 2KJ 2LJ 2MJ 3AU 3AF 3AS 3AP 3AL 3AD 3AY 3BE 3BJ 3CJ 3DU 3EJ 3FJ 3GJ 3HJ 3JJ 3KJ 42U 42F 42S 42P 42L 42D 42Y 42G 43U 44E 44J 45J 46U 46F 46S 46P 46L 46D 46Y 47J 48J 49U 49F 49S 49P 49L 49D 49Y 4AG 4BJ 4CC 4DJ 4EJ 3LJ 3MJ 3NJ 4FJ 4GJ 4HC)	73P2684	*
12	Memory - 1 GB NP SDRAM PC3200 (models CTO)	22P9274	*
13	50 mm exhaust fan (all models)	89P6789	*

The FRUs listed in the following table are not illustrated.

8086 FRUs	FRU#	CRU
Bezel, Ultra-Bay-Enhanced (all models)	89P6804	*
HSS Tray assembly (includes grommet/pins/brkt/gnd springs) (all models)	89P6778	*
Power/LED cable assembly with bracket (all models)	89P6779	*
Chassis, (includes: cover, fans, chassis base, planar mounting bracket, etc.) (all models)	89P6780	**
PATA HDD cable (all models)	89P6785	*
SATA HDD cable (all models)	89P6786	*
Ultra Bay Enhanced Cable/Card assembly	89P6787	**
60 mm front fan (all models)	89P6788	*
C-2 switch cable assembly (all models)	09K9827	*
Vertical stand (all models)	89P6792	*
Rear air deflector (all models)	89P6793	*
Miscellaneous hardware kit (all models)	89P6794	*
Battery 3.0V (all models)	33F8354	*
Mouse, PS/2 - 2-button (black)(models CTO)	24P0383	*
Mouse, PS/2 - 3-button (Ball) Wheel Mouse (models CTO)	24P0491	*
Mouse, Scrollpoint Optical (models CTO)	24P0499	*
Mouse, optical wheelmouse (models 41T 41B 41H 42U 42F 42S 42P 42L 42D 42Y 42G 43U 44E 44J 45J 46U 46F 46S 46P 46L 46D 46Y 47J 48J 49U 49F 49S 49P 49L 49D 49Y 4AG 4BJ 4CC 4DJ 4EJ ARG B1B B1H B2K B3K B4K 1BA 1BQ 1BT 1BV 1DK 1EB 1EH 1FK 1GK 1HJ 1JJ 1KJ 1LJ 3LJ 3MJ 3NJ 4FJ 4GJ 4HC A3S A3P A3L A3Y 11J 14J 21S 22S 22P 22L 22Y 32S 32P 32L 32Y 21U 21G 34U A3U A4J A5U A8S A8Y 13S 13L 13Y 15U 16U 17U 18U 19U 21F 22U 24U 25U 26G 27E 27J 28J 29J 2AJ 32U 35U 36U 36F 37G A5S A5Y A5G A6G A6C A6V A8G A9J 18S 18L 18Y 2BA 2BQ 2BT 2BC 2BB 2BH 2BV 2BK 2CJ 35C 35B 35H 36S 36P 36L 36D 36Y 36G 36M 36A 36Q 36T 36C 36B 36H 36V 36K 36R 36E 36J 38J 39J CTO AEJ AFJ AGJ AHJ AJU AKU ALG 1AU ABU 2FU 2GE 2GJ 2HJ 2JU 2KJ 2LJ 2MJ 3AU 3AF 3AS 3AP 3AL 3AD 3AY 3BE 3BJ 3CJ 3DU 3EJ 3FJ 3GJ 3JJ 3KJ 41A 41Q)	89P5089	*
PCI Modem Card (Soft), ATX V.90 (models CTO)	22P7943	*
IEEE 1394 Adapter -Firewire (models CTO)	73P2609	*
Speakers, Infinity Active T1 (Black) (models CTO)	25P4726	*
Speaker Power brick - US, CE, CF, LA, Taiwan (models CTO)	10K2587	*
Speaker Power brick - Europe (non-UK) (models CTO-G)	25P5704	*
Speaker Power brick - UK, Hong Kong (3 prong) (models CTO-G CTO-A)	25P5703	*
RJ11 connector adapter (Spain, Ireland) (All ″G″ models)	60H6043	*
RJ11 connector adapter (Austria) (All ″G″ models)	60H6045	*
RJ11 connector adapter (Belgium) (All ″G″ models)	60H6046	*
RJ11 connector adapter (Denmark) (All ″G″ models)	60H6047	*
RJ11 connector adapter (Norway, Finland) (All ″G″ models)	60H6048	*
RJ11 connector adapter (France) (All ″G″ models)	60H6049	*
RJ11 connector adapter (Germany) (All ″G″ models)	60H6050	*
RJ11 connector adapter (UK, NZ, HK) (All ″G″, ″M″, ″B″, ″H″ models)	60H6051	*
RJ11 connector adapter (Italy) (All ″G″ models)	60H6052	*
RJ11 connector adapter (Netherlands) (All ″G″ models)	60H6053	*
RJ11 connector adapter (Sweden) (All ″G″ models)	60H6054	*

8086 FRUs	FRU#	CRU
RJ11 connector adapter (Switzerland) (All ″G″ models)	60H6055	*

8086 Keyboards (Standard PS/2 Black)	FRU#	CRU
US English (models A3L 22L 32L 21U 21G 34U A3U A5U 13L 15U 16U 17U 18U 19U 22U 24U 25U 26G 27E 32U 35U 36U 37G A5G A6G A6C A8G 18L 2BA 2BC 2BH 35C 35H 36L 36G 36M 36A 36C 36H 36R 36E CTO AJU AKU ALG 1AU ABU 2FU 2GE 2JU 3AU 3AL 3BE 3DU 42U 42L 42G 43U 44E 46U 46L 49U 49L 4AG 4CC ARG B1H 1BA 1BQ 1EH)	89P8300	*
Arabic (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8301	*
Belgian/French (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8302	*
Belgian/UK (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8303	*
Bulgarian (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8305	*
Chinese/US (models A6V 2BB 2BV 35B 36B 36V B1B 1BV 1EB CTO-A)	89P8306	*
Czech (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8307	*
Danish (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8308	*
Dutch (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8309	*
French (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8310	*
French Canadian 445 (models 21F 36F CTO-U 3AF 42F 46F 49F)	89P8311	*
French Canadian 58 (models 21F 36F CTO-U 3AF 42F 46F 49F)	89P8312	*
German (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8313	*
Greek (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8314	*
Hebrew (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8315	*
Hungarian (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8316	*
Iceland (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8317	*
Italian 141 (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8318	*
Italian 142 (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8319	*
Japanese (models 11J 14J A4J 27J 28J 29J 2AJ A9J 2CJ 36J 38J 39J AEJ AFJ AGJ AHJ 2GJ 2HJ 2KJ 2LJ 2MJ 3BJ 3CJ 3EJ 3FJ 3GJ 3JJ 3KJ 44J 45J 47J 48J 4BJ 4DJ 4EJ 1HJ 1JJ 1KJ 1LJ 3LJ 3MJ 3NJ 4FJ 4GJ)	89P8320	*
Korean (models 2BK 36K B2K B3K B4K 1DK 1FK 1GK)	89P8321	*
LA Spanish (models A3S A3Y 21S 22S 22Y 32S 32Y A8S A8Y 13S 13Y A5S A5Y 18S 18Y 36S 36D 36Y 3AS 3AD 3AY 42S 42D 42Y 46S 46D 46Y 49S 49D 49Y CTO-L)	89P8322	*
Norwegian (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8323	*
Polish (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8324	*
Portuguese (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8325	*
Romanian (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8326	*
Russian/Cy (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8327	*
Russian/Cy (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8328	*
Serbian/Cyrillic (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8329	*
Slovak (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8330	*
Spanish (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8331	*
Swedish/Finn (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8332	*
Swiss F/G (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8333	*

8086 Keyboards (Standard PS/2 Black)	FRU#	CRU
Thailand (models 2BT 36T 1BT CTO-A)	89P8334	*
Turkish 440 (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8335	*
Turkish 179 (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8336	*
UK English (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8337	*
US Euro (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8338	*
Yugoslav/Latin (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	89P8339	*
Brazil/Portuguese (models A3P 22P 32P 36P 3AP 42P 46P 49P CTO-L)	89P8304	*

8086 Keyboards (Productivity USB, no hub)	FRU#	CRU
US English (models 41A 41Q 41H 4HC CTO)	89P8800	*
Chinese/US (models 41B CTO-A)	89P8807	*
Thailand (models 41T CTO-A)	89P8834	*

8086 Windows XP Home Recovery CDs	FRU#	CRU
US/UK/AP/TH (models A6G)	39J6250	*
FR/CF (models A6G)	39J6251	*
GR (models A6G)	39J6252	*
IT (models A6G)	39J6254	*
SP/LA (models A6G)	39J6253	*
DK (models A6G)	39J6257	*
NL (models A6G)	39J6260	*
AE (models A6G)	39J6264	*
SV (models A6G)	39J6256	*
HE (models A6G)	39J6261	*
FI (models A6G)	39J6258	*
NO (models A6G)	39J6259	*
PL (models A6G)	39J6262	*
PO (models A6G)	39J6268	*
RU (models A6G)	41D1948	*
RE (models A6G)	41D1947	*
HU (models A6G)	39J6267	*
CZ (models A6G)	39J6263	*
TR (models A6G)	39J6266	*
GK (models A6G)	39J6269	*
Japanese (models ACJ 2EJ)	30R4798	*
CS (models A6C 4CC 4HC)	30R4777	*
Taiwan-TC (models A6V)	30R4784	*
Korean (models B2K B3K B4K 1DK 1FK 1GK)	30R4770	*

8086 Windows XP Pro Recovery CDs	FRU#	CRU
US/UK/AP/TH (models A3L 22L 32L 21U 21G 34U A3U A5U 13L 15U 16U 17U 18U 19U 22U 24U 25U 26G 27E 32U 35U 36U 37G A5G A8G 18L 2BA 2BQ 2BT 2BH 35H 36L 36G 36M 36A 36Q 36T 36H 36R 36E CTO-U CTO-G AJU AKU ALG 1AU ABU 2FU 2GE 2JU 3AU 3AL 3BE 3DU 41A 41Q 41T 41H 42U 42L 42G 43U 44E 46U 46L 49U 49L 4AG ARG B1H 1BA 1BQ 1BT 1EH)	39J6414	*
FR/CF (models 21G 21F 26G 36F 37G A5G A8G 36G CTO-U CTO-G ALG 3AF 42F 42G 46F 49F 4AG ARG)	39J6415	*
GR (models 21G 21F 26G 36F 37G A5G A8G 36G CTO-G ALG 42G 4AG ARG)	39J6416	*
IT (models 21G 21F 26G 36F 37G A5G A8G 36G CTO-G ALG 42G 4AG ARG)	39J6418	*
BR (models A3P 22P 32P 36P 3AP 42P 46P 49P)	39J6419	*
SP/LA (models A3S A3Y 21S 22S 22Y 32S 32Y 21G A8S A8Y 13S 13Y 26G 37G A5S A5Y A5G A8G 18S 18Y 36S 36D 36Y 36G CTO-G ALG 3AS 3AD 3AY 42S 42D 42Y 42G 46S 46D 46Y 49S 49D 49Y 4AG ARG)	39J6417	*
DK (models 21G 21F 26G 36F 37G A5G A8G 36G CTO-G ALG 42G 4AG ARG)	39J6421	*
NL (models 21G 21F 26G 36F 37G A5G A8G 36G CTO-G ALG 42G 4AG ARG)	39J6424	*
AE (models 21G 21F 26G 36F 37G A5G A8G 36G CTO-G ALG 42G 4AG ARG)	39J6428	*
SV (models 21G 21F 26G 36F 37G A5G A8G 36G CTO-G ALG 42G 4AG ARG)	39J6420	*
HE (models 21G 21F 26G 36F 37G A5G A8G 36G CTO-G ALG 42G 4AG ARG)	39J6425	*
FI (models 21G 21F 26G 36F 37G A5G A8G 36G CTO-G ALG 42G 4AG ARG)	39J6422	*
NO (models 21G 21F 26G 36F 37G A5G A8G 36G CTO-G ALG 42G 4AG ARG)	39J6423	*
PL (models 21G 21F 26G 36F 37G A5G A8G 36G CTO-G ALG 42G 4AG ARG)	39J6426	*
PO (models 21G 21F 26G 36F 37G A5G A8G 36G CTO-G ALG 42G 4AG ARG)	39J6432	*
RU (models 21G 21F 26G 36F 37G A5G A8G 36G CTO-G ALG 42G 4AG ARG)	41D1950	*
RE (models 21G 21F 26G 36F 37G A5G A8G 36G CTO-G ALG 42G 4AG ARG)	41D1949	*
HU (models 21G 21F 26G 36F 37G A5G A8G 36G CTO-G ALG 42G 4AG ARG)	39J6431	*
CZ (models 21G 21F 26G 36F 37G A5G A8G 36G CTO-G ALG 42G 4AG ARG)	39J6427	*
TR (models 21G 21F 26G 36F 37G A5G A8G 36G CTO-G ALG 42G 4AG ARG))	39J6430	*
GK (models 21G 21F 26G 36F 37G A5G A8G 36G CTO-G ALG 42G 4AG ARG)	39J6433	*
SL (models 21G 21F 26G 36F 37G A5G A8G 36G CTO-G ALG 42G 4AG ARG)	39J6434	*
JP (models 11J 14J A4J 27J 28J 29J 2AJ A9J 2CJ 36J 38J 39J ADJ AEJ AFJ AGJ AHJ 2DJ 2GJ 2HJ 2KJ 2LJ 2MJ 3BJ 3CJ 3EJ 3FJ 3GJ 3HJ 3JJ 3KJ 44J 45J 47J 48J 4BJ 4DJ 4EJ 1HJ 1JJ 1KJ 1LJ 3LJ 3MJ 3NJ 4FJ 4GJ)	30R4834	*
CS (models 2BC 35C 36C)	30R4820	*
Taiwan-TC (models 2BV 36V 1BV)	30R4820	*
Hong Kong-TC (models 2BB 35B 36B 41B B1B 1EB)	30R4827	*
Korean (models 2BK 36K)	30R4806	*
Multilingual 1 (models 21G 26G 37G A5G A8G 36G ALG 42G 4AG ARG)	39J7221	*
Multilingual 2 (models 21G 26G 37G A5G A8G 36G ALG 42G 4AG ARG)	39J7222	*

8086 Power Cords	FRU#	CRU
Power Cord (models A3S A3P A3L 21S 22S 22P 22L 32S 32P 32L 21U 21G 34U A3U A5U A8S 13S 13L 15U 16U 17U 18U 19U 21F 22U 24U 25U 26G 32U 35U 36U 36F 37G A5S A5G A6G A6V A8G 18S 18L 2BA 2BT 2BV 36S 36P 36L 36D 36G 36A 36T 36V CTO-U CTO-G AJU AKU ALG 1AU ABU 2FU 2JU 3AU 3AF 3AS 3AP 3AL 3AD 3DU 41A 41T 42U 42F 42S 42P 42L 42D 42G 43U 46U 46F 46S 46P 46L 46D 49U 49F 49S 49P 49L 49D 4AG ARG 1BA 1BT 1BV)	6952301	*
Power Cord (ANZ) (models 36M)	13F9939	*
Power Cord (EMEA, ANZ, ASEAN Eng, Korea) (models 21G 26G 37G A5G A6G A8G 2BK 36G 36K 36R CTO-G ALG 42G 4AG ARG B2K B3K B4K 1DK 1FK 1GK)	13F9978	*
Power Cord (EMEA, ANZ, ASEAN Eng, HK Eng) (models 21G 26G 37G A5G A6G A8G 2BH 35H 36G 36H CTO-G ALG 41H 42G 4AG ARG B1H 1EH)	14F0032	*
Power Cord (EMEA) (models 21G 26G 37G A5G A6G A8G 2BK 36G 36K 36R CTO-G ALG 42G 4AG ARG)	13F9996	*
Power Cord (EMEA, LA) (models A3S A3P A3L A3Y 21S 22S 22P 22L 22Y 32S 32P 32L 32Y 21G A8S A8Y 13S 13L 13Y 26G 37G A5S A5Y A5G A6G A8G 18S 18L 18Y 36S 36P 36L 36D 36Y 36G CTO-G ALG 3AS 3AP 3AL 3AD 3AY 42S 42P 42L 42D 42Y 42G 46S 46P 46L 46D 46Y 49S 49P 49L 49D 49Y 4AG ARG)	14F0068	*
Power Cord (APU) (models A3Y 22Y 32Y A8Y 13Y A5Y 18Y 36Y 3AY 42Y 46Y 49Y)	36L8879	*
Power Cord (Japan) (models 11J 14J A4J 27E 27J 28J 29J 2AJ A9J 2CJ 36E 36J 38J 39J ACJ ADJ AEJ AFJ AGJ AHJ 2DJ 2EJ 2GE 2GJ 2HJ 2KJ 2LJ 2MJ 3BE 3BJ 3CJ 3EJ 3FJ 3GJ 3HJ 3JJ 3KJ 44E 44J 45J 47J 48J 4BJ 4DJ 4EJ 1HJ 1JJ 1KJ 1LJ 3LJ 3MJ 3NJ 4FJ 4GJ)	1838576	*
Power Cord (China, HK) (models A6C 2BC 2BB 2BH 35C 35B 35H 36C 36B 36H 41B 41H 4CC B1B B1H 1EB 1EH 4HC)	02K0545	*
Power Cord (EMEA) (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	14F0086	*
Power Cord (EMEA, ANZ, ASEAN Eng) (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	14F0014	*
Power Cord (EMEA) (models 21G 26G 37G A5G A6G A8G 36G CTO-G ALG 42G 4AG ARG)	14F0050	*
Power Cord (India) (models 2BQ 36Q 41Q 1BQ)	49P2078	*

Machine Type 8087

Item #	8087 FRUs	FRU#	CRU
1	Top Cover (all models)	89P6782	*
2	PCI riser card and bracket assembly (all models)	89P6790	*
3	200 W power supply-Hipro PFC (models 36U 36F 36S 36P 36L 36D 36Y 36G 36M 36A 36T 36C 36B 36H 36V 36K 36R 36J 36Q 35M CTO A1M 21M 22M)	89P6805	**
4	Hard disk drive 40GB 7200rpm EIDE ATA-100 (models 36U 36F 36S 36P 36L 36D 36Y 36G 36M 36A 36T 36C 36B 36H 36V 36K 36R 36J 36Q 36E 35M CTO A1M 21M)	19K1568	*
4	Hard disk drive 40GB 7200rpm EIDE ATA-100 (models 36U 36F 36S 36P 36L 36D 36Y 36G 36M 36A 36T 36C 36B 36H 36V 36K 36R 36J 36Q 36E 35M CTO A1M 21M)	40Y8757	*
4	Hard disk drive 40GB 7200rpm Serial ATA (models CTO)	71P7312	*
4	Hard disk drive 80GB 7200rpm EIDE ATA-100 (models CTO 22M)	24P3665	*
4	Hard disk drive 80GB 7200rpm EIDE ATA-100 (models CTO 22M)	40Y8758	*
4	Hard disk drive 80GB 7200rpm Serial ATA (models CTO)	71P7293	*
4	Hard disk drive 80GB 7200rpm Serial ATA (models CTO)	40Y8761	*
4	Hard disk drive 120GB 7200rpm EIDE ATA-100 (models CTO)	24P3687	*

Item #	8087 FRUs	FRU#	CRU
4	Hard disk drive 120GB 7200rpm EIDE ATA-100 (models CTO)	40Y8759	*
4	Hard disk drive 160GB 7200rpm Serial ATA (models CTO)	71P7297	*
4	Hard disk drive 160GB 7200rpm Serial ATA (models CTO)	40Y8762	*
4	Hard disk drive 160GB 7200rpm Serial ATA (models CTO)	40Y9035	*
5	Front Rotating Cage assembly (all models)	39M0612	**
6	CD-ROM (24x) Plus Ultrabay Enhanced Drive (models 36U 36F 36S 36P 36L 36D 36Y 36G 36M 36A 36T 36C 36B 36H 36V 36K 36R 36J 36Q 36E 35M CTO A1M)	26K5427	*
6	CD-ROM (24x) Plus Ultrabay Enhanced Drive (models 36U 36F 36S 36P 36L 36D 36Y 36G 36M 36A 36T 36C 36B 36H 36V 36K 36R 36J 36Q 36E 35M CTO A1M)	40Y8793	*
6	CD-ROM (24x) Plus Ultrabay Enhanced Drive (models 36U 36F 36S 36P 36L 36D 36Y 36G 36M 36A 36T 36C 36B 36H 36V 36K 36R 36J 36Q 36E 35M CTO A1M)	39M3503	*
6	CD-ROM (24x) Plus Ultrabay Enhanced Drive (models 36U 36F 36S 36P 36L 36D 36Y 36G 36M 36A 36T 36C 36B 36H 36V 36K 36R 36J 36Q 36E 35M CTO A1M)	40Y8907	*
6	DVD-ROM Drive (8X/24X) (models CTO)	26K5413	*
6	DVD-ROM (8x/24x) (models CTO)	40Y8787	*
6	DVD-ROM (8x/24x) (models CTO)	26K5455	*
6	DVD-ROM (8x/24x) (models CTO)	40Y8797	*
6	DVD-ROM/CD-RW Combo Drive 24x24x24x8x (models CTO 22M)	26K5407	*
6	DVD-ROM/CD-RW Combo Drive 24x24x24x8x (models CTO 22M)	40Y8783	*
6	DVD-ROM/CD-RW Combo Drive 24x24x24x8x (models CTO 22M)	26K5409	*
6	DVD-ROM/CD-RW Combo Drive 24x24x24x8x (models CTO 22M)	40Y8785	*
6	Rambo4 -- slim (models CTO)	26K5421	*
6	Multi-Burner Plus (Rambo 4) Ultrabay Enhanced Drive (models CTO)	40Y8789	*
7	Main Bezel assembly (all models)	39M0613	*
8	Speaker Cable assembly (all models)	03R0294	*
9	Heat Sink (models 36U 36F 36S 36P 36L 36D 36Y 36G 36M 36A 36T 36C 36B 36H 36V 36K 36R 36J 36Q 36E 35M A1M 21M 22M 21M 22M CTO)	89P6791	**
10	Microprocessor - 2.4GHZ Northwood Celeron (models CTO)	19R1501	**
10	Microprocessor - 2.6GHZ Northwood Celeron (models CTO)	19R1505	**
10	Microprocessor - 2.7GHZ Northwood Celeron (models CTO)	19R1507	**
10	Microprocessor - 2.8GHZ Northwood Celeron (models CTO)	19R1509	**
10	Microprocessor - 2.53GHZ Prescott Celeron (models CTO)	19R2406	**
10	Microprocessor - 2.66GHZ Prescott Celeron (models CTO)	19R2409	**
10	Microprocessor - 2.8GHZ Prescott Celeron (models CTO A1M)	19R2411	**
10	Microprocessor - 2.93GHZ Prescott Celeron (models CTO)	29R7261	**
10	Microprocessor - 3.06GHZ Prescott Celeron (models CTO)	29R7263	**
10	Microprocessor - 2.6GHZ Northwood P4 (models CTO)	19R2421	**
10	Microprocessor - 2.8GHZ Northwood P4 (models CTO)	19R2423	**
10	Microprocessor - 2.66GHZ Northwood P4 (models CTO)	19R1511	**
10	Microprocessor - 2.8GHZ Northwood P4 (models CTO)	19R1513	**
10	Microprocessor -3.06GHZ Northwood P4 (models CTO)	19R1515	**
10	Microprocessor - 2.6GHZ Northwood P4 (models CTO)	19R1520	**

Item #	8087 FRUs	FRU#	CRU
10	Microprocessor - 2.8GHZ Northwood P4 (models CTO)	19R1522	**
10	Microprocessor - 3.0GHZ Northwood P4 (models CTO)	19R1524	**
10	Microprocessor - 3.2GHZ Northwood P4 (models CTO)	19R1526	**
10	Microprocessor - 3.0GHZ Prescott P4 (models CTO)	19R1528	**
10	Microprocessor - 3.0GHZ Prescott P4 (models CTO)	19R1530	**
10	Microprocessor - 3.0GHZ Prescott P4 (models 35M CTO 21M 22M)	19R1532	**
10	Microprocessor - 3.2GHZ Prescott P4 (models 36U 36F 36S 36P 36L 36D 36Y 36G 36M 36A 36T 36C 36B 36H 36V 36K 36R 36J 36Q 36E CTO)	19R2435	**
10	Microprocessor - 3.4GHZ Prescott P4 (models CTO)	29R7265	**
11	System board, 10/1000, no POV (models 36U 36F 36S 36P 36L 36D 36Y 36G 36M 36A 36T 36C 36B 36H 36V 36K 36R 36J 36Q 36E CTO 35M A1M 21M 22M)	41T2092	**
11	System board, 10/1000, no POV (models 36U 36F 36S 36P 36L 36D 36Y 36G 36M 36A 36T 36C 36B 36H 36V 36K 36R 36J 36Q 36E CTO 35M A1M 21M 22M)	41T2094	**
11	System board, 10/1000, POV (models CTO)	41T2091	**
11	System board, 10/1000 POV (ver 1.3C) (models CTO 36U 36F 36S 36P 36L 36D 36Y 36G 36M 36A 36T 36C 36B 36H 36V 36K 36R 36J 36Q 36E 35M A1M 21M 22M)	41T2093	**
12	Memory - 128MB NP SDRAM PC2700 (models CTO)	31P9120	*
12	Memory - 256MB NP SDRAM PC2700 (models CTO)	31P9121	*
12	Memory - 512MB NP SDRAM PC2700 (models CTO A1M)	31P9122	*
12	Memory - 1 GB NP SDRAM PC2700 (models CTO)	31P9123	*
12	Memory - 128MB NP SDRAM PC3200 (models CTO)	22P9273	*
12	Memory - 256MB NP SDRAM PC3200 (models CTO)	73P2683	*
12	Memory - 512MB NP SDRAM PC3200 (models 36U 36F 36S 36P 36L 36D 36Y 36G 36M 36A 36T 36C 36B 36H 36V 36K 36R 36J 36Q 36E 35M CTO 21M 22M)	73P2684	*
12	Memory - 1 GB NP SDRAM PC3200 (models CTO)	22P9274	*
13	50 mm exhaust fan (all models)	89P6789	*

The FRUs listed in the following table are not illustrated.

8087 FRUs	FRU#	CRU
Bezel, Ultra-Bay-Enhanced (all models)	89P6804	*
HSS Tray assembly (includes grommet/pins/brkt/gnd springs) (all models)	89P6778	*
Power/LED cable assembly with bracket (all models)	89P6779	*
Chassis, (includes: cover, fans, chassis base, planar mounting bracket, etc.) (all models)	89P6780	**
PATA HDD cable (all models)	89P6785	*
SATA HDD cable (all models)	89P6786	*
Ultra Bay Enhanced Cable/Card assembly	89P6787	**
60 mm front fan (all models)	89P6788	*
C-2 switch cable assembly (all models)	09K9827	*
Vertical stand (all models)	89P6792	*
Rear air deflector (all models)	89P6793	*
Miscellaneous hardware kit (all models)	89P6794	*

8087 FRUs	FRU#	CRU
Battery 3.0V (all models)	33F8354	*
Mouse, PS/2 - 2-button (Black)(models CTO)	24P0383	*
Mouse, PS/2 - 3-Button (Ball) Wheel Mouse (models CTO)	24P0491	*
Mouse, Scrollpoint Optical (models CTO)	24P0499	*
Mouse, optical wheelmouse (models 36U 36F 36S 36P 36L 36D 36Y 36G 36M 36A 36T 36C 36B 36H 36V 36K 36R 36J 36Q 36E 35M CTO A1M 21M 22M)	89P5089	*
PCI Modem Card (Soft), ATX V.90 (models CTO)	22P7943	*
IEEE 1394 Adapter -Firewire (models CTO)	73P2609	*
Speakers, Infinity Active T1 (Black) (models CTO)	25P4726	*
Speaker Power brick - US, CE, CF, LA, Taiwan (models CTO-U)	10K2587	*
Speaker Power brick - Europe (non-UK) (models CTO-G)	25P5704	*
Speaker Power brick - UK, Hong Kong (3 prong) (models CTO-G CTO-A)	25P5703	*
RJ11 connector adapter (Spain, Ireland) (All "G" models)	60H6043	*
RJ11 connector adapter (Austria) (All "G" models)	60H6045	*
RJ11 connector adapter (Belgium) (All "G" models)	60H6046	*
RJ11 connector adapter (Denmark) (All "G" models)	60H6047	*
RJ11 connector adapter (Norway, Finland) (All "G" models)	60H6048	*
RJ11 connector adapter (France) (All "G" models)	60H6049	*
RJ11 connector adapter (Germany) (All "G" models)	60H6050	*
RJ11 connector adapter (UK, NZ, HK) (All "G", "M", "B", "H" models)	60H6051	*
RJ11 connector adapter (Italy) (All "G" models)	60H6052	*
RJ11 connector adapter (Netherlands) (All "G" models)	60H6053	*
RJ11 connector adapter (Sweden) (All "G" models)	60H6054	*
RJ11 connector adapter (Switzerland) (All "G" models)	60H6055	*

8087 Keyboards (Standard PS/2 Black)	FRU#	CRU
US English (models 36U 36L 36G 36M 36A 36C 36H 36R 36Q 36E 35M CTO-U A1M 21M 22M)	89P8300	*
Arabic (models 36G CTO-G)	89P8301	*
Belgian/French (models 36G CTO-G)	89P8302	*
Belgian/UK (models 36G CTO-G)	89P8303	*
Bulgarian (models 36G CTO-G)	89P8305	*
Chinese/US (models 36B 36V CTO-A)	89P8306	*
Czech (models 36G CTO-G)	89P8307	*
Danish (models 36G CTO-G)	89P8308	*
Dutch (models 36G CTO-G)	89P8309	*
French (models 36G CTO-G)	89P8310	*
French Canadian 445 (models 36F)	89P8311	*
French Canadian 58 (models 21F 36F)	89P8312	*
German (models 36G CTO-G)	89P8313	*
Greek (models 36G CTO-G)	89P8314	*

8087 Keyboards (Standard PS/2 Black)	FRU#	CRU
Hebrew (models 36G CTO-G)	89P8315	*
Hungarian (models 36G CTO-G)	89P8316	*
Iceland (models 36G CTO-G)	89P8317	*
Italian 141 (models 36G CTO-G)	89P8318	*
Italian 142 (models 36G CTO-G)	89P8319	*
Japanese (models 36J)	89P8320	*
Korean (models 36K)	89P8321	*
LA Spanish (models 36S 36D 36Y CTO-L)	89P8322	*
Norwegian (models 36G CTO-G)	89P8323	*
Polish (models 36G CTO-G)	89P8324	*
Portuguese (models 36G CTO-G)	89P8325	*
Romanian (models 36G CTO-G)	89P8326	*
Russian/Cy (models 36G CTO-G)	89P8327	*
Russian/Cy (models 36G CTO-G)	89P8328	*
Serbian/Cyrillic (models 36G CTO-G)	89P8329	*
Slovak (models 36G CTO-G)	89P8330	*
Spanish (models 36G CTO-G)	89P8331	*
Swedish/Finn (models 36G CTO-G)	89P8332	*
Swiss F/G (models 36G CTO-G)	89P8333	*
Thailand (models 36T CTO-A)	89P8334	*
Turkish 440 (models 36G CTO-G)	89P8335	*
Turkish 179 (models 36G CTO-G)	89P8336	*
UK English (models 36G CTO-G)	89P8337	*
US Euro (models 36G CTO-G)	89P8338	*
Yugoslav/Latin (models 36G CTO-G)	89P8339	*
Brazil/Portuguese (models 36P CTO-L)	89P8304	*

8087 Windows XP Home Recovery CDs	FRU#	CRU
US/UK/AP/TH (models CTO)	39J6250	*
FR/CF (models CTO)	39J6251	*
GR (models CTO-G)	39J6252	*
IT (models CTO-G)	39J6254	*
SP/LA (models CTO-G)	39J6253	*
DK (models CTO-G)	39J6257	*
NL (models CTO-G)	39J6260	*
AE (models CTO-G)	39J6264	*
SV (models CTO-G)	39J6256	*
HE (models CTO-G)	39J6261	*
FI (models CTO-G)	39J6258	*
NO (models CTO-G)	39J6259	*
PL (models CTO-G)	39J6262	*

8087 Windows XP Home Recovery CDs	FRU#	CRU
PO (models CTO-G)	39J6268	*
RU (models CTO-G)	39J6265	*
HU (models CTO-G)	39J6267	*
CZ (models CTO-G)	39J6263	*
TR (models CTO-G)	39J6266	*
GK (models CTO-G)	39J6269	*

8087 Windows XP Pro Recovery CDs	FRU#	CRU
US/UK/AP/TH (models 36U 36L 36G 36M 36A 36T 36H 36R 36Q 36E 35M CTO A1M 21M 22M)	39J6414	*
FR/CF (models 36F 36G)	39J6415	*
GR (models 36G)	39J6416	*
SP/LA (models 36S 36D 36Y 36G)	39J6417	*
IT (models 36P)	39J6418	*
BR (models 36S 36D 36Y 36G)	39J6419	*
SV (models 36G)	39J6420	*
DK (models 36G)	39J6421	*
FI (models 36G)	39J6422	*
NO (models 36G)	39J6423	*
NL (models 36G)	39J6424	*
HE (models 36G)	39J6425	*
PL (models 36G)	39J6426	*
CZ (models 36G)	39J6427	*
AE (models 36G)	39J6428	*
RU (models 36G)	41D1950	*
RE (models 36G)	41D1949	*
TR (models 36G)	39J6430	*
HU (models 36G)	39J6431	*
PO (models 36G)	39J6432	*
GK (models 36G)	39J6433	*
SL (models 36G)	39J6434	*
JP (models 36J)	30R4834	*
CS (models 36C)	30R4820	*
Taiwan-TC (models 36V)	30R4820	*
Hong Kong-TC (models 36B)	30R4827	*
Korean (models 2BK 36K)	30R4806	*
Multilingual 1 (models 36G)	39J7221	*
Multilingual 2 (models 36G)	39J7222	*

8087 Power Cords	FRU#	CRU
Power Cord (models 36U 36F 36S 36P 36L 36D 36G 36A 36T 36V CTO-U)	6952301	*

8087 Power Cords	FRU#	CRU
Power Cord (ANZ) (models 36M 35M A1M 21M 22M)	13F9939	*
Power Cord (EMEA, ANZ, ASEAN Eng, Korea) (models 36G 36K 36R CTO-G)	13F9978	*
Power Cord (EMEA, ANZ, ASEAN Eng, HK Eng) (models 36G 36H CTO-G)	14F0032	*
Power Cord (EMEA) (models 36G CTO-G)	13F9996	*
Power Cord (EMEA, LA) (models 36S 36P 36L 36D 36Y 36G CTO-G)	14F0068	*
Power Cord (APU) (models 36Y)	36L8879	*
Power Cord (Japan) (models 36J 36E)	1838576	*
Power Cord (China, HK) (models 36C 36B 36H)	02K0545	*
Power Cord (EMEA) (models 36G CTO-G)	14F0086	*
Power Cord (EMEA, ANZ, ASEAN Eng) (models 36G CTO-G)	14F0014	*
Power Cord (EMEA) (models 36G CTO-G)	14F0050	*
Power Cord (India) (models 36Q)	49P2055	*

Machine Type 8088
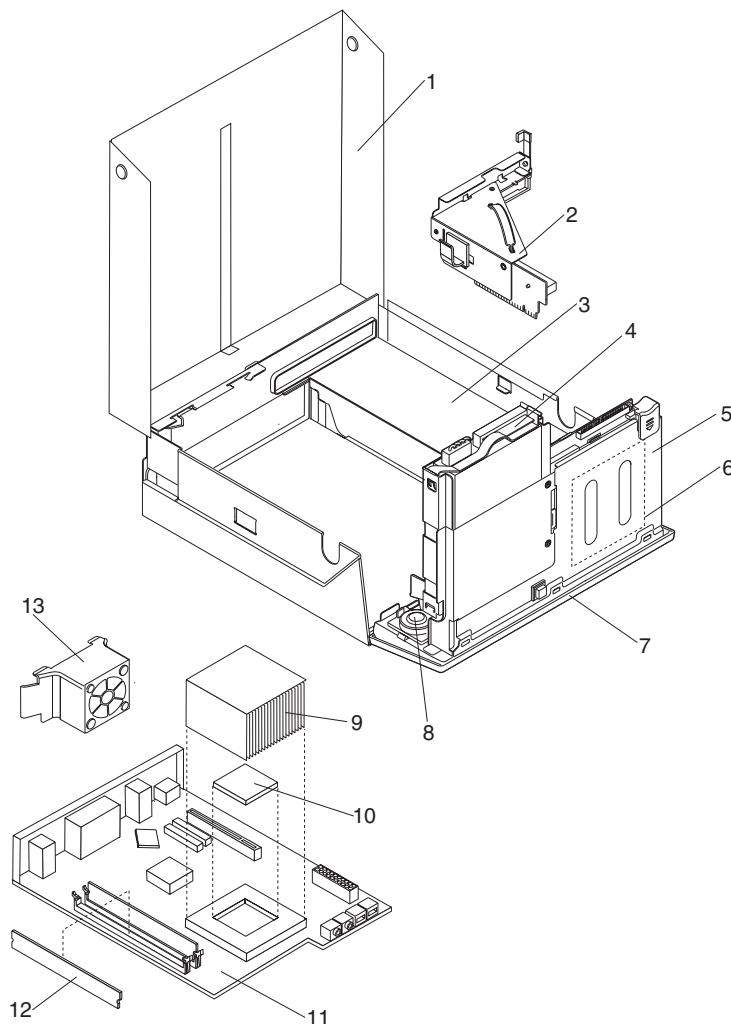
Item #	8088 FRUs	FRU#	CRU
1	Top Cover (all models)	89P6782	*
2	PCI riser card and bracket assembly (all models)	89P6790	*
3	200 W power supply-Hipro PFC (models 99U 99F 99S 99P 99L 99D 99Y 99G 99M 99A 99Q 99T 99C 99B 99H 99V 99K 99J CTO)	89P6805	**
4	Hard disk drive 40GB 7200rpm EIDE ATA-100 (models 99U 99F 99S 99P 99L 99D 99Y 99G 99M 99A 99Q 99T 99C 99B 99H 99V 99K 99J)	19K1568	*
4	Hard disk drive 40GB 7200rpm EIDE ATA-100 (models 99U 99F 99S 99P 99L 99D 99Y 99G 99M 99A 99Q 99T 99C 99B 99H 99V 99K 99J CTO)	40Y8757	*
4	Hard disk drive 40GB 7200rpm Serial ATA (models CTO)	71P7312	*
4	Hard disk drive 80GB 7200rpm EIDE ATA-100 (models CTO)	24P3665	*
4	Hard disk drive 80GB 7200rpm EIDE ATA-100 (models CTO)	40Y8758	*
4	Hard disk drive 120GB 7200rpm EIDE ATA-100 (models CTO)	24P3687	*
4	Hard disk drive 120GB 7200rpm EIDE ATA-100 (models CTO)	40Y8759	*
4	Hard disk drive 80GB 7200rpm Serial ATA (models CTO)	71P7293	*
4	Hard disk drive 80GB 7200rpm Serial ATA (models CTO)	40Y8761	*

Item #	8088 FRUs	FRU#	CRU
4	Hard disk drive 160GB 7200rpm Serial ATA (models CTO)	71P7297	*
4	Hard disk drive 160GB 7200rpm Serial ATA (models CTO)	40Y8762	*
4	Hard disk drive 160GB 7200rpm Serial ATA (models CTO)	40Y9035	*
5	Front Rotating Cage assembly (all models)	39M0612	**
6	CD-ROM (24x) Plus Ultrabay Enhanced Drive (models 99U 99F 99S 99P 99L 99D 99Y 99G 99M 99A 99Q 99T 99C 99B 99H 99V 99K 99J CTO)	26K5427	*
6	CD-ROM (24x) Plus Ultrabay Enhanced Drive (models 99U 99F 99S 99P 99L 99D 99Y 99G 99M 99A 99Q 99T 99C 99B 99H 99V 99K 99J CTO)	40Y8793	*
6	CD-ROM (24x) Plus Ultrabay Enhanced Drive (models 99U 99F 99S 99P 99L 99D 99Y 99G 99M 99A 99Q 99T 99C 99B 99H 99V 99K 99J CTO)	39M3503	*
6	CD-ROM (24x) Plus Ultrabay Enhanced Drive (models 99U 99F 99S 99P 99L 99D 99Y 99G 99M 99A 99Q 99T 99C 99B 99H 99V 99K 99J CTO)	40Y8907	*
6	DVD-ROM (8x/24x) (models CTO)	26K5413	*
6	DVD-ROM (8x/24x) (models CTO)	40Y8787	*
6	DVD-ROM (8x/24x) (models CTO)	26K5455	*
6	DVD-ROM (8x/24x) (models CTO)	40Y8797	*
6	DVD-ROM/CD-RW Combo Drive 24x24x24x8x (models CTO)	26K5407	*
6	DVD-ROM/CD-RW Combo Drive 24x24x24x8x (models CTO)	40Y8783	*
6	DVD-ROM/CD-RW Combo Drive 24x24x24x8x (models CTO)	26K5409	*
6	DVD-ROM/CD-RW Combo Drive 24x24x24x8x (models CTO)	40Y8785	*
6	Rambo 4 -- slim (models CTO)	26K5421	*
6	Multi-Burner Plus (Rambo 4) Ultrabay Enhanced Drive (models CTO)	40Y8789	*
7	Main Bezel assembly (all models)	39M0613	*
8	Speaker Cable assembly (all models)	03R0294	*
9	Heat Sink (models 99U 99F 99S 99P 99L 99D 99Y 99G 99M 99A 99Q 99T 99C 99B 99H 99V 99K 99J CTO)	89P6791	**
10	Microprocessor - 2.4GHZ Northwood Celeron (models CTO)	19R1501	**
10	Microprocessor - 2.6GHZ Northwood Celeron (models CTO)	19R1505	**
10	Microprocessor - 2.7GHZ Northwood Celeron (models CTO)	19R1507	**
10	Microprocessor - 2.8GHZ Northwood Celeron (models CTO)	19R1509	**
10	Microprocessor - 2.53GHZ Prescott Celeron (models CTO)	19R2406	**
10	Microprocessor - 2.66GHZ Prescott Celeron (models CTO)	19R2409	**
10	Microprocessor - 2.8GHZ Prescott Celeron (models CTO)	19R2411	**
10	Microprocessor - 2.93GHZ Prescott Celeron (models CTO)	29R7261	**
10	Microprocessor - 3.06GHZ Prescott Celeron (models CTO)	29R7263	**
10	Microprocessor - 2.6GHZ Northwood P4 (models CTO)	19R2421	**
10	Microprocessor - 2.8GHZ Northwood P4 (models CTO)	19R2423	**
10	Microprocessor - 2.66GHZ Northwood P4 (models CTO)	19R1511	**
10	Microprocessor - 2.8GHZ Northwood P4 (models CTO)	19R1513	**
10	Microprocessor -3.06GHZ Northwood P4 (models CTO)	19R1515	**
10	Microprocessor - 2.6GHZ Northwood P4 (models CTO)	19R1520	**
10	Microprocessor - 2.8GHZ Northwood P4 (models CTO)	19R1522	**

Item #	8088 FRUs	FRU#	CRU
10	Microprocessor - 3.0GHZ Northwood P4 (models CTO)	19R1524	**
10	Microprocessor - 3.2GHZ Northwood P4 (models CTO)	19R1526	**
10	Microprocessor - 3.0GHZ Prescott P4 (models CTO)	19R1528	**
10	Microprocessor - 3.0GHZ Prescott P4 (models CTO)	19R1530	**
10	Microprocessor - 3.0GHZ Prescott P4 (models 35M CTO)	19R1532	**
10	Microprocessor - 3.2GHZ Prescott P4 (models 99U 99F 99S 99P 99L 99D 99Y 99G 99M 99A 99Q 99T 99C 99B 99H 99V 99K 99J)	19R2435	**
10	Microprocessor - 3.4GHZ Prescott P4 (models CTO)	29R7265	**
11	System board, 10/1000, no POV (models 99U 99F 99S 99P 99L 99D 99Y 99G 99M 99A 99Q 99T 99C 99B 99H 99V 99K 99J CTO)	41T2092	**
11	System board, 10/1000, no POV (models 99U 99F 99S 99P 99L 99D 99Y 99G 99M 99A 99Q 99T 99C 99B 99H 99V 99K 99J CTO)	41T2094	**
11	System board, 10/1000, POV (models CTO)	41T2091	**
11	System board, 10/1000, POV (models CTO)	41T2093	**
12	Memory - 128MB NP SDRAM PC2700 (models CTO)	31P9120	*
12	Memory - 256MB NP SDRAM PC2700 (models CTO)	31P9121	*
12	Memory - 512MB NP SDRAM PC2700 (models CTO)	31P9122	*
12	Memory - 1 GB NP SDRAM PC2700 (models CTO)	31P9123	*
12	Memory - 128MB NP SDRAM PC3200 (models CTO)	22P9273	*
12	Memory - 256MB NP SDRAM PC3200 (models CTO)	73P2683	*
12	Memory - 512MB NP SDRAM PC3200 (models 99U 99F 99S 99P 99L 99D 99Y 99G 99M 99A 99Q 99T 99C 99B 99H 99V 99K 99J CTO)	73P2684	*
12	Memory - 1GB NP SDRAM PC3200 (models CTO)	22P9274	*
13	50 mm exhaust fan (all models)	89P6789	*

The FRUs listed in the following table are not illustrated.

8088 FRUs	FRU#	CRU
Bezel, Ultra-Bay-Enhanced (all models)	89P6804	*
HSS Tray assembly (includes grommet/pins/brkt/gnd springs) (all models)	89P6778	*
Power/LED cable assembly with bracket (all models)	89P6779	*
Chassis, (includes: cover, fans, chassis base, planar mounting bracket, etc.) (all models)	89P6780	**
PATA HDD cable (all models)	89P6785	*
SATA HDD cable (all models)	89P6786	*
Ultra Bay Enhanced Cable/Card assembly	89P6787	**
60 mm front fan (all models)	89P6788	*
C-2 switch cable assembly (all models)	09K9827	*
Vertical stand (all models)	89P6792	*
Rear air deflector (all models)	89P6793	*
Miscellaneous hardware kit (all models)	89P6794	*
Battery 3.0V (all models)	33F8354	*
Mouse, PS/2 - 2-button (Black)(models CTO)	24P0383	*

8088 FRUs	FRU#	CRU
Mouse, PS/2 - 3-button (Ball) Wheel Mouse (models CTO)	24P0491	*
Mouse, Scrollpoint Optical (models CTO)	24P0499	*
Mouse, optical wheelmouse (models 99U 99F 99S 99P 99L 99D 99Y 99G 99M 99A 99Q 99T 99C 99B 99H 99V 99K 99J CTO)	89P5089	*
PCI Modem Card (Soft), ATX V.90 (models CTO)	22P7943	*
IEEE 1394 Adapter -Firewire (models CTO)	73P2609	*
Speakers, Infinity Active T1 (Black) (models CTO)	25P4726	*
Speaker Power brick - US, CE, CF, LA, Taiwan (models CTO-U)	10K2587	*
Speaker Power brick - Europe (non-UK) (models CTO-G)	25P5704	*
Speaker Power brick - UK, Hong Kong (3 prong) (models CTO-G CTO-A)	25P5703	*
RJ11 connector adapter (Spain, Ireland) (All ″G″ models)	60H6043	*
RJ11 connector adapter (Austria) (All ″G″ models)	60H6045	*
RJ11 connector adapter (Belgium) (All ″G″ models)	60H6046	*
RJ11 connector adapter (Denmark) (All ″G″ models)	60H6047	*
RJ11 connector adapter (Norway, Finland) (All ″G″ models)	60H6048	*
RJ11 connector adapter (France) (All ″G″ models)	60H6049	*
RJ11 connector adapter (Germany) (All ″G″ models)	60H6050	*
RJ11 connector adapter (UK, NZ, HK) (All ″G″, ″M″, ″B″, ″H″ models)	60H6051	*
RJ11 connector adapter (Italy) (All ″G″ models)	60H6052	*
RJ11 connector adapter (Netherlands) (All ″G″ models)	60H6053	*
RJ11 connector adapter (Sweden) (All ″G″ models)	60H6054	*
RJ11 connector adapter (Switzerland) (All ″G″ models)	60H6055	*

8088 Keyboards (Standard PS/2 Black)	FRU#	CRU
US English (models 99U 99L 99G 99M 99A 99Q 99C 99H CTO)	89P8300	*
Arabic (models 99G CTO-G)	89P8301	*
Belgian/French (models 99G CTO-G)	89P8302	*
Belgian/UK (models 99G CTO-G)	89P8303	*
Bulgarian (models 99G CTO-G)	89P8305	*
Chinese/US (models 99B 99V CTO-A)	89P8306	*
Czech (models 99G CTO-G)	89P8307	*
Danish (models 99G CTO-G)	89P8308	*
Dutch (models 99G CTO-G)	89P8309	*
French (models 99G CTO-G)	89P8310	*
French Canadian 445 (models 99F CTO-U)	89P8311	*
French Canadian 58 (models 99F CTO-U)	89P8312	*
German (models 99G CTO-G)	89P8313	*
Greek (models 99G CTO-G)	89P8314	*
Hebrew (models 99G CTO-G)	89P8315	*
Hungarian (models 99G CTO-G)	89P8316	*
Iceland (models 99G CTO-G)	89P8317	*

8088 Keyboards (Standard PS/2 Black)	FRU#	CRU
Italian 141 (models 99G CTO-G)	89P8318	*
Italian 142 (models 99G CTO-G)	89P8319	*
Japanese (models 99J)	89P8320	*
Korean (models 36K)	89P8321	*
LA Spanish (models 99S 99D 99YCTO-L)	89P8322	*
Norwegian (models 99G CTO-G)	89P8323	*
Polish (models 99G CTO-G)	89P8324	*
Portuguese (models 99G CTO-G)	89P8325	*
Romanian (models 99G CTO-G)	89P8326	*
Russian/Cy (models 99G CTO-G)	89P8327	*
Russian/Cy (models 99G CTO-G)	89P8328	*
Serbian/Cyrillic (models 99G CTO-G)	89P8329	*
Slovak (models 99G CTO-G)	89P8330	*
Spanish (models 99G CTO-G)	89P8331	*
Swedish/Finn (models 99G CTO-G)	89P8332	*
Swiss F/G (models 99G CTO-G)	89P8333	*
Thailand (models 36T CTO-A)	89P8334	*
Turkish 440 (models 99G CTO-G)	89P8335	*
Turkish 179 (models 99G CTO-G)	89P8336	*
UK English (models 99G CTO-G)	89P8337	*
US Euro (models 99G CTO-G)	89P8338	*
Yugoslav/Latin (models 99G CTO-G)	89P8339	*
Brazil/Portuguese (models 36P CTO-L)	89P8304	*

8088 Windows XP Home Recovery CDs	FRU#	CRU
US/UK/AP/TH (models CTO)	39J6250	*
FR/CF (models CTO)	39J6251	*
GR (models CTO-G)	39J6252	*
IT (models CTO-G)	39J6254	*
SP/LA (models CTO-G)	39J6253	*
DK (models CTO-G)	39J6257	*
NL (models CTO-G)	39J6260	*
AE (models CTO-G)	39J6264	*
SV (models CTO-G)	39J6256	*
HE (models CTO-G)	39J6261	*
FI (models CTO-G)	39J6258	*
NO (models CTO-G)	39J6259	*
PL (models CTO-G)	39J6262	*
PO (models CTO-G)	39J6268	*
RU (models CTO-G)	39J6265	*
HU (models CTO-G)	39J6267	*

8088 Windows XP Home Recovery CDs	FRU#	CRU
CZ (models CTO-G)	39J6263	*
TR (models CTO-G)	39J6266	*
GK (models CTO-G)	39J6269	*

8088 Windows XP Pro Recovery CDs	FRU#	CRU
US/UK/AP/TH (models 99U 99L 99G 99M 99A 99Q 99T 99H)	39J6414	*
FR/CF (models 99F 99G)	39J6415	*
GR (models 99G)	39J6416	*
IT (models 21G 21F 26G 36F 37G A5G A8G 36G)	39J6418	*
BR (models 99P)	39J6419	*
SP/LA (models 99S 99D 99Y 99G)	39J6417	*
DK (models 99G)	39J6421	*
NL (models 99G)	39J6424	*
AE (models 99G)	39J6428	*
SV (models 99G)	39J6420	*
HE (models 99G)	39J6425	*
FI (models 99G)	39J6422	*
NO (models 99G)	39J6423	*
PL (models 99G)	39J6426	*
PO (models 99G)	39J6432	*
RU (models 99G)	41D1950	*
RE (models 99G)	41D1949	*
HU (models 99G)	39J6431	*
CZ (models 99G)	39J6427	*
TR (models 99G)	39J6430	*
GK (models 99G)	39J6433	*
SL (models 99G)	39J6434	*
JP (models 99J)	30R4834	*
CS (models 99C)	30R4820	*
Taiwan-TC (models 99V)	30R4820	*
Hong Kong-TC (models 99B)	30R4827	*
Korean (models 99K)	30R4806	*
Multilingual 1 (models 99G)	39J7221	*
Multilingual 2 (models 99G)	39J7222	*

8088 Power Cords	FRU#	CRU
Power Cord (models 99U 99F 99S 99P 99L 99D 99G 99A 99T 99V-U)	6952301	*
Power Cord (ANZ) (models 99M)	13F9939	*
Power Cord (EMEA, ANZ, ASEAN Eng, Korea) (models 99G 99K)	13F9978	*
Power Cord (EMEA, ANZ, ASEAN Eng, HK Eng) (models 99G 99H)	14F0032	*
Power Cord (EMEA) (models 99G)	13F9996	*

8088 Power Cords	FRU#	CRU
Power Cord (EMEA, LA) (models 99S 99P 99L 99D 99Y 99G)	14F0068	*
Power Cord (APU) (models 99Y)	36L8879	*
Power Cord (Japan) (models 99J)	1838576	*
Power Cord (China, HK) (models 99C 99B 99H)	02K0545	*
Power Cord (EMEA) (models 99G)	14F0086	*
Power Cord (EMEA, ANZ, ASEAN Eng) (models 99G)	14F0014	*
Power Cord (EMEA) (models 99G)	14F0050	*
Power Cord (India) (models 99Q)	49P2055	*

Machine Type 8089
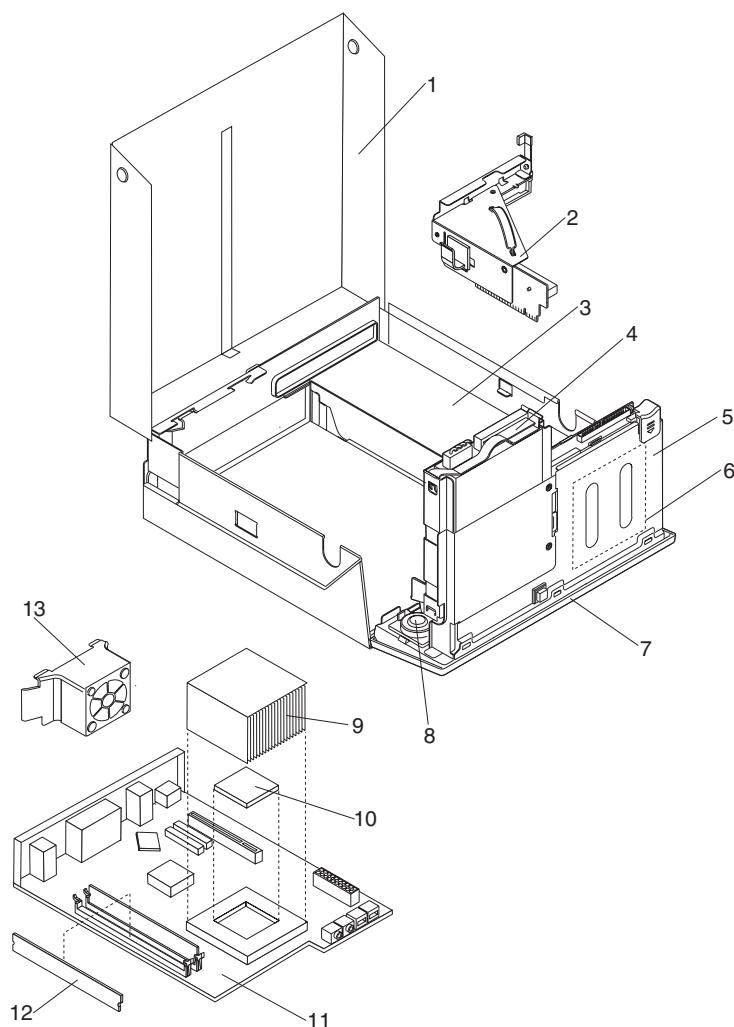
Item #	8089 FRUs	FRU#	CRU
1	Top Cover (all models)	89P6782	*
2	PCI riser card and bracket assembly (all models)	89P6790	*
3	200 W power supply-Hipro PFC (models 11U 12U 21U 22U 71G 72G 73G 74G 75G C1U C2U C3U C4U CTO 31U 32U 76G 77G C5U 23S 23D 13G)	89P6805	**
4	Hard disk drive 40GB 7200rpm EIDE ATA-100 (models 11U 12U 21U 22U 72G 74G 75G CTO 31U 32U 76G 13G)	19K1568	*
4	Hard disk drive 40GB 7200rpm EIDE ATA-100 (models 11U 12U 21U 22U 72G 74G 75G CTO 31U 32U 76G 13G)	40Y8757	*
4	Hard disk drive 40GB 7200rpm Serial ATA (models CTO)	71P7312	*
4	Hard disk drive 80GB 7200rpm EIDE ATA-100 (models 71G 73G CTO 23S 23D 77G)	24P3665	*
4	Hard disk drive 80GB 7200rpm EIDE ATA-100 (models 71G 73G CTO 23S 23D 77G)	40Y8758	*
4	Hard disk drive 120GB 7200rpm EIDE ATA-100 (models CTO)	24P3687	*
4	Hard disk drive 120GB 7200rpm EIDE ATA-100 (models CTO)	40Y8759	*
4	Hard disk drive 80GB 7200rpm Serial ATA (models CTO)	71P7293	*

Item #	8089 FRUs	FRU#	CRU
4	Hard disk drive 80GB 7200rpm Serial ATA (models CTO)	40Y8761	*
4	Hard disk drive 160GB 7200rpm Serial ATA (models CTO)	71P7297	*
4	Hard disk drive 160GB 7200rpm Serial ATA (models CTO)	40Y8762	*
4	Hard disk drive 160GB 7200rpm Serial ATA (models CTO)	40Y9035	*
5	Front Rotating Cage assembly (all models)	39M0612	**
6	CD-ROM (24x) Plus Ultrabay Enhanced Drive (models 11U 21U 72G 74G 75G CTO 31U 76G 13G)	26K5427	*
6	CD-ROM (24x) Plus Ultrabay Enhanced Drive (models 11U 21U 72G 74G 75G CTO 31U 76G 13G)	40Y8793	*
6	CD-ROM (24x) Plus Ultrabay Enhanced Drive (models 11U 21U 72G 74G 75G CTO 31U 76G 13G)	39M3503	*
6	CD-ROM (24x) Plus Ultrabay Enhanced Drive (models 11U 21U 72G 74G 75G CTO 31U 76G 13G)	40Y8907	*
6	DVD-ROM (8x/24x) (models 71G 73G CTO)	26K5413	*
6	DVD-ROM (8x/24x) (models 71G 73G CTO)	40Y8787	*
6	DVD-ROM (8x/24x) (models 71G 73G CTO)	26K5455	*
6	DVD-ROM (8x/24x) (models 71G 73G CTO)	40Y8797	*
6	DVD-ROM/CD-RW Combo Drive 24x24x24x8x (models 12U 22U CTO 23S 23D 32U 77G)	26K5407	*
6	DVD-ROM/CD-RW Combo Drive 24x24x24x8x (models 12U 22U CTO 23S 23D 32U 77G)	40Y8783	*
6	DVD-ROM/CD-RW Combo Drive 24x24x24x8x (models 12U 22U CTO 23S 23D 32U 77G)	26K5409	*
6	DVD-ROM/CD-RW Combo Drive 24x24x24x8x (models 12U 22U CTO 23S 23D 32U 77G)	40Y8785	*
6	Multi-Burner Plus (Rambo 4) Ultrabay Enhanced Drive (models CTO)	40Y8789	*
6	Rambo 4 -- slim (models CTO)	26K5421	*
7	Main Bezel assembly (all models)	39M0613	*
8	Speaker Cable assembly (all models)	03R0294	*
9	Heat Sink (models 11U 74G C1U 12U C2U 21U 22U 71G 75G C3U 72G 73G C4U CTO 23S 23D 31U 32U 76G 77G C5U 13G)	89P6791	**
10	Microprocessor - 2.4GHZ Northwood Celeron (models CTO)	19R1501	**
10	Microprocessor - 2.6GHZ Northwood Celeron (models CTO)	19R1505	**
10	Microprocessor - 2.7GHZ Northwood Celeron (models CTO)	19R1507	**
10	Microprocessor - 2.8GHZ Northwood Celeron (models CTO)	19R1509	**
10	Microprocessor - 2.53GHZ Prescott Celeron (models CTO)	19R2406	**
10	Microprocessor - 2.66GHZ Prescott Celeron (models CTO)	19R2409	**
10	Microprocessor - 2.8GHZ Prescott Celeron (models CTO)	19R2411	**
10	Microprocessor - 2.93GHZ Prescott Celeron (models CTO)	29R7261	**
10	Microprocessor - 3.06GHZ Prescott Celeron (models CTO)	29R7263	**
10	Microprocessor - 2.6GHZ Northwood P4 (models CTO)	19R2421	**
10	Microprocessor - 2.8GHZ Northwood P4 (models CTO)	19R2423	**
10	Microprocessor - 2.66GHZ Northwood P4 (models CTO)	19R1511	**

Item #	8089 FRUs	FRU#	CRU
10	Microprocessor - 2.8GHZ Northwood P4 (models CTO)	19R1513	**
10	Microprocessor -3.06GHZ Northwood P4 (models CTO)	19R1515	**
10	Microprocessor - 2.6GHZ Northwood P4 (models CTO)	19R1520	**
10	Microprocessor - 2.8GHZ Northwood P4 (models CTO)	19R1522	**
10	Microprocessor - 3.0GHZ Northwood P4 (models CTO)	19R1524	**
10	Microprocessor - 3.2GHZ Northwood P4 (models CTO)	19R1526	**
10	Microprocessor - 2.8GHZ Prescott P4 (models 11U 74G C1U CTO)	19R1528	**
10	Microprocessor - 2.8GHZ Prescott P4 (models 12U C2U 13G CTO)	19R1530	**
10	Microprocessor - 3.0GHZ Prescott P4 (models 21U 22U 71G 75G C3U CTO 23S 23D)	19R1532	**
10	Microprocessor - 3.2GHZ Prescott P4 (models 72G 73G C4U CTO 31U 32U)	19R2435	**
10	Microprocessor - 3.4GHZ Prescott P4 (models CTO 76G 77G C5U)	29R7265	**
11	System board, 10/1000, no POV (models 11U 12U 21U 22U 71G 72G 73G 74G 75G C1U C2U C3U C4U CTO 23S 23D 31U 32U 76G 77G C5U)	41T2092	**
11	System board, 10/1000, no POV (models 11U 12U 21U 22U 71G 72G 73G 74G 75G C1U C2U C3U C4U CTO 23S 23D 31U 32U 76G 77G C5U)	41T2094	**
11	System board, 10/1000 POV (ver 1.3C) (models CTO 11U 12U 21U 22U 71G 72G 73G 74G 75G C1U C2U C3U C4U 23S 23D 31U 32U 76G 77G C5U)	41T2093	**
11	System board, 10/1000, POV (models CTO)	41T2091	**
12	Memory - 128MB NP SDRAM PC2700 (models CTO)	31P9120	*
12	Memory - 256MB NP SDRAM PC2700 (models 11U 74G CTO)	31P9121	*
12	Memory - 512MB NP SDRAM PC2700 (models CTO)	31P9122	*
12	Memory - 1 GB NP SDRAM PC2700 (models CTO)	31P9123	*
12	Memory - 128MB NP SDRAM PC3200 (models CTO)	22P9273	*
12	Memory - 256MB NP SDRAM PC3200 (models 12U 21U 22U 72G 75G CTO 23S 23D 31U 32U 76G 13G)	73P2683	*
12	Memory - 512MB NP SDRAM PC3200 (models 71G 73G CTO 77G)	73P2684	*
12	Memory - 1GB NP SDRAM PC3200 (models CTO)	22P9274	*
13	50 mm exhaust fan (all models)	89P6789	*

The FRUs listed in the following table are not illustrated.

8089 FRUs	FRU#	CRU
Bezel, Ultra-Bay-Enhanced (all models)	89P6804	*
HSS Tray assembly (includes grommet/pins/brkt/gnd springs) (all models)	89P6778	*
Power/LED cable assembly with bracket (all models)	89P6779	*
Chassis, (includes: cover, fans, chassis base, planar mounting bracket, etc.) (all models)	89P6780	**
PATA HDD cable (all models)	89P6785	*
SATA HDD cable (all models)	89P6786	*
Ultra Bay Enhanced Cable/Card assembly	89P6787	**
60 mm front fan (all models)	89P6788	*
C-2 switch cable assembly (all models)	09K9827	*
Vertical stand (all models)	89P6792	*

8089 FRUs	FRU#	CRU
Rear air deflector (all models)	89P6793	*
Miscellaneous hardware kit (all models)	89P6794	*
Battery 3.0V (all models)	33F8354	*
Mouse, PS/2 - 2-button (Black)(models CTO)	24P0383	*
Mouse, PS/2 - 3-button (Ball) Wheel Mouse (models CTO)	24P0491	*
Mouse, Scrollpoint Optical (models CTO)	24P0499	*
Mouse, optical wheelmouse (models 11U 12U 21U 22U 71G 72G 73G 74G 75G CTO 23S 23D 31U 32U 76G 77G 13G)	89P5089	*
PCI Modem Card (Soft), ATX V.90 (models CTO)	22P7943	*
IEEE 1394 Adapter -Firewire (models CTO)	73P2609	*
Speakers, Infinity Active T1 (Black) (models CTO)	25P4726	*
Speaker Power brick - US, CE, CF, LA, Taiwan (models CTO)	10K2587	*
Speaker Power brick - Europe (non-UK) (models CTO-G)	25P5704	*
Speaker Power brick - UK, Hong Kong (3 prong) (models CTO-G CTO-A)	25P5703	*
RJ11 connector adapter (Spain, Ireland) (All "G" models)	60H6043	*
RJ11 connector adapter (Austria) (All "G" models)	60H6045	*
RJ11 connector adapter (Belgium) (All "G" models)	60H6046	*
RJ11 connector adapter (Denmark) (All "G" models)	60H6047	*
RJ11 connector adapter (Norway, Finland) (All "G" models)	60H6048	*
RJ11 connector adapter (France) (All "G" models)	60H6049	*
RJ11 connector adapter (Germany) (All "G" models)	60H6050	*
RJ11 connector adapter (UK, NZ, HK) (All "G", "M", "B", "H" models)	60H6051	*
RJ11 connector adapter (Italy) (All "G" models)	60H6052	*
RJ11 connector adapter (Netherlands) (All "G" models)	60H6053	*
RJ11 connector adapter (Sweden) (All "G" models)	60H6054	*
RJ11 connector adapter (Switzerland) (All "G" models)	60H6055	*

8089 Keyboards (Standard PS/2 Black)	FRU#	CRU
US English (models 11U 12U 21U 22U 71G 72G 73G 74G 75G CTO 31U 32U 76G 77G 13G)	89P8300	*
Arabic (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8301	*
Belgian/French (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8302	*
Belgian/UK (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8303	*
Bulgarian (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8305	*
Czech (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8307	*
Danish (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8308	*
Dutch (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8309	*
French (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8310	*
French Canadian 445 (models CTO-U)	89P8311	*
French Canadian 58 (models CTO-U)	89P8312	*
German (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8313	*
Greek (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8314	*

8089 Keyboards (Standard PS/2 Black)	FRU#	CRU
Hebrew (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8315	*
Hungarian (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8316	*
Iceland (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8317	*
Italian 141 (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8318	*
Italian 142 (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8319	*
LA Spanish (models 23S 23D CTO-L)	89P8322	*
Norwegian (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8323	*
Polish (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8324	*
Portuguese (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8325	*
Romanian (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8326	*
Russian/Cy (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8327	*
Russian/Cy (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8328	*
Serbian/Cyrillic (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8329	*
Slovak (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8330	*
Spanish (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8331	*
Swedish/Finn (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8332	*
Swiss F/G (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8333	*
Turkish 440 (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8335	*
Turkish 179 (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8336	*
UK English (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8337	*
US Euro (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8338	*
Yugoslav/Latin (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	89P8339	*

8089 Windows XP Home Recovery CDs	FRU#	CRU
US/UK/AP/TH (models CTO-U CTO-G)	39J6250	*
FR/CF (models CTO-U CTO-G)	39J6251	*
GR (models CTO-G)	39J6252	*
IT (models CTO-G)	39J6254	*
SP/LA (models CTO-G)	39J6253	*
DK (models CTO-G)	39J6257	*
NL (models CTO-G)	39J6260	*
AE (models CTO-G)	39J6264	*
SV (models CTO-G)	39J6256	*
HE (models CTO-G)	39J6261	*
FI (models CTO-G)	39J6258	*
NO (models CTO-G)	39J6259	*
PL (models CTO-G)	39J6262	*
PO (models CTO-G)	39J6268	*
RU (models CTO-G)	39J6265	*
HU (models CTO-G)	39J6267	*
CZ (models CTO-G)	39J6263	*

8089 Windows XP Home Recovery CDs	FRU#	CRU
TR (models CTO-G)	39J6266	*
GK (models CTO-G)	39J6269	*

8089 Windows XP Pro Recovery CDs	FRU#	CRU
US/UK/AP/TH (models 11U 12U 21U 22U 71G 72G 73G 74G 75G CTO-U CTO-G 31U 32U 76G 77G 13G)	39J6414	*
FR/CF (models 71G 72G 73G 74G 75G CTO-U CTO-G 76G 77G 13G)	39J6415	*
GR (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	39J6416	*
IT (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	39J6418	*
SP/LA (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	39J6417	*
DK (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	39J6421	*
NL (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	39J6424	*
AE (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	39J6428	*
SV (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	39J6420	*
HE (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	39J6425	*
FI (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	39J6422	*
NO (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	39J6423	*
PL (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	39J6426	*
PO (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	39J6432	*
RU (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	41D1950	*
RE (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	41D1949	*
HU (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	39J6431	*
CZ (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	39J6427	*
TR (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	39J6430	*
GK (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	39J6434	*
Multilingual 1 (models 71G 72G 73G 74G 75G 76G 77G 13G)	39J7221	*
Multilingual 2 (models 71G 72G 73G 74G 75G 76G 77G 13G)	39J7222	*

8089 Power Cords	FRU#	CRU
Power Cord (models 11U 12U 21U 22U 71G 72G 73G 74G 75G C1U C2U C3U C4U CTO-U CTO-G 23S 23D 31U 32U 76G 77G C5U 13G)	6952301	*
Power Cord (EMEA, ANZ, ASEAN Eng, Korea) (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	13F9978	*
Power Cord (EMEA, ANZ, ASEAN Eng, HK Eng) (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	14F0032	*
Power Cord (EMEA) (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	13F9996	*
Power Cord (EMEA, LA) (models 71G 72G 73G 74G 75G CTO-G 23S 23D 76G 77G 13G)	14F0068	*
Power Cord (EMEA) (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	14F0086	*
Power Cord (EMEA, ANZ, ASEAN Eng) (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	14F0014	*
Power Cord (EMEA) (models 71G 72G 73G 74G 75G CTO-G 76G 77G 13G)	14F0050	*

Machine Type 8090

Item #	8090 FRUs	FRU#	CRU
1	Top Cover (all models)	89P6782	*
2	PCI riser card and bracket assembly (all models)	89P6790	*
3	200 W power supply-Hipro PFC (models 11U A1U A2U 12U 21U 22U 71G 72G C1U C2U C3U C4U C5U C6U C7U A3U 23C 24B CTO A5U A7U 14U 26U 31U 32U 73G 73U 74U A4S A4Y A6S A6Y 13S 13Y 25S 25Y A8G 33C)	89P6805	**
4	Hard disk drive 40GB 7200rpm EIDE ATA-100 (models 11U A1U A2U 12U 21U 22U 71G 72G A3U CTO A4S A4Y A5U A6S A6Y A7U 14U 31U 32U 73G A8G)	19K1568	*
4	Hard disk drive 40GB 7200rpm EIDE ATA-100 (models 11U A1U A2U 12U 21U 22U 71G 72G A3U CTO A4S A4Y A5U A6S A6Y A7U 14U 31U 32U 73G A8G)	40Y8757	*
4	Hard disk drive 40GB 7200rpm Serial ATA (models CTO)	71P7312	*
4	Hard disk drive 80GB 7200rpm EIDE ATA-100 (models 23C 24B CTO 13S 13Y 25S 25Y 26U 33C)	24P3665	*
4	Hard disk drive 80GB 7200rpm EIDE ATA-100 (models 23C 24B CTO 13S 13Y 25S 25Y 26U 33C)	40Y8758	*
4	Hard disk drive 120GB 7200rpm EIDE ATA-100 (models CTO)	24P3687	*
4	Hard disk drive 120GB 7200rpm EIDE ATA-100 (models CTO)	40Y8759	*

Item #	8090 FRUs	FRU#	CRU
4	Hard disk drive 80GB 7200rpm Serial ATA (models CTO)	40Y8761	*
4	Hard disk drive 160GB 7200rpm Serial ATA (models CTO)	71P7297	*
4	Hard disk drive 160GB 7200rpm Serial ATA (models CTO)	40Y8762	*
4	Hard disk drive 160GB 7200rpm Serial ATA (models CTO)	40Y9035	*
5	Front Rotating Cage assembly (all models)	39M0612	**
6	CD-ROM (24x) Plus Ultrabay Enhanced Drive (models 11U A1U A2U 21U 71G 72G A3U CTO A7U 31U 73G A8G)	26K5427	*
6	CD-ROM (24x) Plus Ultrabay Enhanced Drive (models 11U A1U A2U 21U 71G 72G A3U CTO A7U 31U 73G A8G)	40Y8793	*
6	CD-ROM (24x) Plus Ultrabay Enhanced Drive (models 11U A1U A2U 21U 71G 72G A3U CTO A7U 31U 73G A8G)	39M3503	*
6	CD-ROM (24x) Plus Ultrabay Enhanced Drive (models 11U A1U A2U 21U 71G 72G A3U CTO A7U 31U 73G A8G)	40Y8907	*
6	DVD-ROM (8x/24x) (models 24B CTO)	26K5413	*
6	DVD-ROM (8x/24x) (models 24B CTO)	40Y8787	*
6	DVD-ROM (8x/24x) (models 24B CTO)	26K5455	*
6	DVD-ROM (8x/24x) (models 24B CTO)	40Y8797	*
6	DVD-ROM/CD-RW Combo Drive 8x24x (models 12U 22U 23C CTO A4S A4Y A5U A6S A6Y 13S 13Y 14U 25S 25Y 26U 32U 33C)	26K5407	*
6	DVD-ROM/CD-RW Combo Drive 24x24x24x8x (models 12U 22U 23C CTO A4S A4Y A5U A6S A6Y 13S 13Y 14U 25S 25Y 26U 32U 33C)	40Y8783	*
6	DVD-ROM/CD-RW Combo Drive 24x24x24x8x (models 12U 22U 23C CTO A4S A4Y A5U A6S A6Y 13S 13Y 14U 25S 25Y 26U 32U 33C)	26K5409	*
6	DVD-ROM/CD-RW Combo Drive 24x24x24x8x (models 12U 22U 23C CTO A4S A4Y A5U A6S A6Y 13S 13Y 14U 25S 25Y 26U 32U 33C)	40Y8785	*
6	Multi-Burner Plus (Rambo 4) Ultrabay Enhanced Drive (models CTO)	40Y8789	*
6	Rambo 4 -- slim (models CTO)	26K5421	*
7	Main Bezel assembly (all models)	39M0613	*
8	Speaker Cable assembly (all models)	03R0294	*
9	Heat Sink (models 11U A1U C1U A2U 71G C2U 72G C3U 12U C4U C5U 21U 22U C6U C7U A3U 23C 24B CTO A4S A5U A6S A6Y A7U 13S 13Y 14U 25S 25Y 26U 31U 32U 73G 73U 74U A8G 33C)	89P6791	**
10	Microprocessor - 2.4GHZ Northwood Celeron (models CTO)	19R1501	**
10	Microprocessor - 2.6GHZ Northwood Celeron (models CTO)	19R1505	**
10	Microprocessor - 2.7GHZ Northwood Celeron (models CTO)	19R1507	**
10	Microprocessor - 2.8GHZ Northwood Celeron (models CTO)	19R1509	**
10	Microprocessor - 2.53GHz Northwood Celeron (multi VID) (models A1U C1U A3U CTO A4S A4Y)	19R2406	**
10	Microprocessor - 2.66GHz Northwood Celeron (multi VID) (models A2U 71G C2U CTO A5U)	19R2409	**
10	Microprocessor - 2.8GHz Northwood Celeron (multi VID) (models 72G C3U CTO A6S A6Y A7U)	19R2411	**
10	Microprocessor - 2.93GHz Northwood Celeron (multi VID) (models CTO 73G 73U A8G)	29R7261	**
10	Microprocessor - 3.06GHz Northwood Celeron (multi VID) (models CTO)	29R7263	**

Item #	8090 FRUs	FRU#	CRU
10	Microprocessor - 2.6GHZ Northwood P4 (models CTO)	19R2421	**
10	Microprocessor - 2.8GHZ Northwood P4 (models CTO)	19R2423	**
10	Microprocessor - 2.66GHZ Northwood P4 (models CTO)	19R1511	**
10	Microprocessor - 2.8GHZ Northwood P4 (models CTO)	19R1513	**
10	Microprocessor -3.06GHZ Northwood P4 (models CTO)	19R1515	**
10	Microprocessor - 2.6GHZ Northwood P4 (models CTO)	19R1520	**
10	Microprocessor - 2.8GHZ Northwood P4 (models CTO)	19R1522	**
10	Microprocessor - 3.0GHZ Northwood P4 (models CTO)	19R1524	**
10	Microprocessor - 3.2GHZ Northwood P4 (models CTO)	19R1526	**
10	Microprocessor - 2.8GHZ Prescott P4 (models 11U 12U C4U CTO 13S 13Y 14U)	19R1528	**
10	Microprocessor - 2.8GHZ Prescott P4 (models C5U CTO)	19R1530	**
10	Microprocessor - 3.0GHZ Prescott P4 (models 21U 22U C6U 23C 24B CTO 25S 25Y 26U)	19R1532	**
10	Microprocessor - 3.2GHZ Prescott P4 (models C7U CTO 31U 32U)	19R2435	**
10	Microprocessor - 3.4GHZ Prescott P4 (models CTO 74U)	29R7265	**
11	System board, 10/1000, no POV (models 11U A1U A2U 12U 21U 22U C1U C2U C3U C4U C5U C6U C7U A3U 71G 72G 23C 24B CTO A4S A4Y A5U A6S A6Y A7U 13S 13Y 14U 25S 25Y 26U 31U 32U 73G 73U 74U A8G)	41T2092	**
11	System board, 10/1000, no POV (models 11U A1U A2U 12U 21U 22U C1U C2U C3U C4U C5U C6U C7U A3U 71G 72G 23C 24B CTO A4S A4Y A5U A6S A6Y A7U 13S 13Y 14U 25S 25Y 26U 31U 32U 73G 73U 74U A8G)	41T2094	**
11	System board, 10/1000, POV (models CTO 33C)	41T2093	**
11	System board, 10/1000, POV (models CTO 33C)	41T2091	**
12	Memory - 128MB NP SDRAM PC2700 (models CTO)	31P9120	*
12	Memory - 256MB NP SDRAM PC2700 (models 11U A1U A2U 71G 72G A3U CTO A4S A4Y A5U A6S A6Y A7U 13S 13Y 14U 73G A8G)	31P9121	*
12	Memory - 512MB NP SDRAM PC2700 (models CTO)	31P9122	*
12	Memory - 1 GB NP SDRAM PC2700 (models CTO)	31P9123	*
12	Memory -128MB NP SDRAM PC3200 (models CTO)	22P9273	*
12	Memory - 256MB NP SDRAM PC3200 (models 12U 21U 22U 23C 24B CTO 25S 25Y 26U 31U 32U 33C)	73P2683	*
12	Memory - 512MB NP SDRAM PC3200 (models 71G 73G CTO)	73P2684	*
12	Memory - 1GB NP SDRAM PC3200 (models CTO)	22P9274	*
13	50 mm exhaust fan (all models)	89P6789	*

The FRUs listed in the following table are not illustrated.

8090 FRUs	FRU#	CRU
Bezel, Ultra-Bay-Enhanced (all models)	89P6804	*
HSS Tray assembly (includes grommet/pins/brkt/gnd springs) (all models)	89P6778	*
Power/LED cable assembly with bracket (all models)	89P6779	*
Chassis, (includes: cover, fans, chassis base, planar mounting bracket, etc.) (all models)	89P6780	**
PATA HDD cable (all models)	89P6785	*

8090 FRUs	FRU#	CRU
SATA HDD cable (all models)	89P6786	*
Ultra Bay Enhanced Cable/Card assembly	89P6787	**
60 mm front fan (all models)	89P6788	*
C-2 switch cable assembly (all models)	09K9827	*
Vertical stand (all models)	89P6792	*
Rear air deflector (all models)	89P6793	*
Miscellaneous hardware kit (all models)	89P6794	*
Battery 3.0V (all models)	33F8354	*
Mouse, PS/2 - 2-button (Black)(models CTO)	24P0383	*
Mouse, PS/2 - 3-button (Ball) Wheel Mouse (models CTO)	24P0491	*
Mouse, Scrollpoint Optical (models CTO)	24P0499	*
Mouse, optical wheelmouse (models 11U A1U A2U 12U 21U 22U 71G 72G A3U 23C 24B CTO A4S A4Y A5U A6S A6Y A7U 13S 13Y 14U 25S 25Y 26U 31U 32U 73G A8G 33C)	89P5089	*
PCI Modem Card (Soft), ATX V.90 (models CTO A5U 14U 26U)	22P7943	*
IEEE 1394 Adapter -Firewire (models CTO)	73P2609	*
Speakers, Infinity Active T1 (Black) (models CTO A5U 26U)	25P4726	*
Speaker Power brick - US, CE, CF, LA, Taiwan (models CTO-U A5U 26U)	10K2587	*
Speaker Power brick - Europe (non-UK) (models CTO-G)	25P5704	*
Speaker Power brick - UK, Hong Kong (3 prong) (models CTO-G CTO-A)	25P5703	*
RJ11 connector adapter (Spain, Ireland) (All "G" models)	60H6043	*
RJ11 connector adapter (Austria) (All "G" models)	60H6045	*
RJ11 connector adapter (Belgium) (All "G" models)	60H6046	*
RJ11 connector adapter (Denmark) (All "G" models)	60H6047	*
RJ11 connector adapter (Norway, Finland) (All "G" models)	60H6048	*
RJ11 connector adapter (France) (All "G" models)	60H6049	*
RJ11 connector adapter (Germany) (All "G" models)	60H6050	*
RJ11 connector adapter (UK, NZ, HK) (All "G", "M", "B", "H" models)	60H6051	*
RJ11 connector adapter (Italy) (All "G" models)	60H6052	*
RJ11 connector adapter (Netherlands) (All "G" models)	60H6053	**
RJ11 connector adapter (Sweden) (All "G" models)	60H6054	*
RJ11 connector adapter (Switzerland) (All "G" models)	60H6055	*

8090 Keyboards (Standard PS/2 Black)	FRU#	CRU
US English (models 11U A1U A2U 12U 21U 22U 71G 72G A3U 23C CTO A5U A7U 14U 26U 31U 32U 73G A8G 33C)	89P8300	*
Arabic (models 71G 72G CTO-G 73G A8G)	89P8301	*
Belgian/French (models 71G 72G CTO-G 73G A8G)	89P8302	*
Belgian/UK (models 71G 72G CTO-G 73G A8G)	89P8303	*
Bulgarian (models 71G 72G CTO-G 73G A8G)	89P8305	*
Chinese/US (models 24B CTO-A)	89P8306	*
Czech (models 71G 72G CTO-G 73G A8G)	89P8307	*

8090 Keyboards (Standard PS/2 Black)	FRU#	CRU
Danish (models 71G 72G CTO-G 73G A8G)	89P8308	*
Dutch (models 71G 72G CTO-G 73G A8G)	89P8309	*
French (models 71G 72G CTO-G 73G A8G)	89P8310	*
German (models 71G 72G CTO-G 73G A8G)	89P8313	*
Greek (models 71G 72G CTO-G 73G A8G)	89P8314	*
Hebrew (models 71G 72G CTO-G 73G A8G)	89P8315	*
Hungarian (models 71G 72G CTO-G 73G A8G)	89P8316	*
Iceland (models 71G 72G CTO-G 73G A8G)	89P8317	*
Italian 141 (models 71G 72G CTO-G 73G A8G)	89P8318	*
Italian 142 (models 71G 72G CTO-G 73G A8G)	89P8319	*
LA Spanish (models A4S A4Y A6S A6Y 13S 13Y 25S 25Y CTO-L)	89P8322	*
Norwegian (models 71G 72G CTO-G 73G A8G)	89P8323	*
Polish (models 71G 72G CTO-G 73G A8G)	89P8324	*
Portuguese (models 71G 72G CTO-G 73G A8G)	89P8325	*
Romanian (models 71G 72G CTO-G 73G A8G)	89P8326	*
Russian/Cy (models 71G 72G CTO-G 73G A8G)	89P8327	*
Russian/Cy (models 71G 72G CTO-G 73G A8G)	89P8328	*
Serbian/Cyrillic (models 71G 72G CTO-G 73G A8G)	89P8329	*
Slovak (models 71G 72G CTO-G 73G A8G)	89P8330	*
Spanish (models 71G 72G CTO-G 73G A8G)	89P8331	*
Swedish/Finn (models 71G 72G CTO-G 73G A8G)	89P8332	*
Swiss F/G (models 71G 72G CTO-G 73G A8G)	89P8333	*
Turkish 440 (models 71G 72G CTO-G 73G A8G)	89P8335	*
Turkish 179 (models 71G 72G CTO-G 73G A8G)	89P8336	*
UK English (models 71G 72G CTO-G 73G A8G)	89P8337	*
US Euro (models 71G 72G CTO-G 73G A8G)	89P8338	*
Yugoslav/Latin (models 71G 72G CTO-G 73G A8G)	89P8339	*

8090 Windows XP Home Recovery CDs	FRU#	CRU
US/UK/AP/TH (models A3U CTO-U CTO-G A5U 14U 26U)	39J6250	*
FR/CF (models CTO-U CTO-G)	39J6251	*
GR (models CTO-G)	39J6252	*
IT (models CTO-G)	39J6254	*
SP/LA (models CTO-G A4S A4Y A6S A6Y 13S 13Y 25S 25Y)	39J6253	*
DK (models CTO-G)	39J6257	*
NL (models CTO-G)	39J6260	*
AE (models CTO-G)	39J6264	*
SV (models CTO-G)	39J6256	*
HE (models CTO-G)	39J6261	*
FI (models CTO-G)	39J6258	*
NO (models CTO-G)	39J6259	*

8090 Windows XP Home Recovery CDs	FRU#	CRU
PL (models CTO-G)	39J6262	*
PO (models CTO-G)	39J6268	*
RU (models CTO-G)	39J6265	*
HU (models CTO-G)	39J6267	*
CZ (models CTO-G)	39J6263	*
TR (models CTO-G)	39J6266	*
GK (models CTO-G)	39J6269	*
CS (models 23C)	30R4777	*
HK (models 24B)	27K6746	*

8090 Windows XP Pro Recovery CDs	FRU#	CRU
US/UK/AP/TH (models 11U A1U A2U 12U 21U 22U 71G 72G CTO-U CTO-G A7U 31U 32U 73G A8G)	39J6414	*
FR/CF (models 71G 72G CTO-G 73G A8G)	39J6415	*
GR (models 71G 72G CTO-G 73G A8G)	39J6416	*
IT (models 71G 72G CTO-G 73G A8G)	39J6418	*
SP/LA (models 71G 72G CTO-G 73G A8G)	39J6417	*
DK (models 71G 72G CTO-G 73G A8G)	39J6421	*
NL (models 71G 72G CTO-G 73G A8G)	39J6424	*
AE (models 71G 72G CTO-G 73G A8G)	39J6428	*
SV (models 71G 72G CTO-G 73G A8G)	39J6420	*
HE (models 71G 72G CTO-G 73G A8G)	39J6425	*
FI (models 71G 72G CTO-G 73G A8G)	39J6422	*
NO (models 71G 72G CTO-G 73G A8G)	39J6423	*
PL (models 71G 72G CTO-G 73G A8G)	39J6426	*
PO (models 71G 72G CTO-G 73G A8G)	39J6432	*
RU (models 71G 72G CTO-G 73G A8G)	41D1950	*
RE (models 71G 72G CTO-G 73G A8G)	41D1949	*
HU (models 71G 72G CTO-G 73G A8G)	39J6431	*
CZ (models 71G 72G CTO-G 73G A8G)	39J6427	*
TR (models 71G 72G CTO-G 73G A8G)	39J6430	*
GK (models 71G 72G CTO-G 73G A8G)	39J6434	*
CS (models 33C)	30R4820	*
Multilingual 1 (models 71G 72G 73G A8G)	39J7221	*
Multilingual 2 (models 71G 72G 73G A8G)	39J7222	*

8090 Power Cords	FRU#	CRU
Power Cord (models 11U A1U A2U 12U 21U 22U 71G 72G C1U C2U C3U C4U C5U C6U C7U A3U CTO-U CTO-G A4S A5U A6S A7U 13S 14U 25S 26U 31U 32U 73G 73U 74U)	6952301	*
Power Cord (EMEA, ANZ, ASEAN Eng, Korea) (models 71G 72G CTO-G 73G A8G)	13F9978	*
Power Cord (EMEA, ANZ, ASEAN Eng, HK Eng) (models 71G 72G CTO-G 73G A8G)	14F0032	*

8090 Power Cords	FRU#	CRU
Power Cord (EMEA) (models 71G 72G CTO-G 73G A8G)	13F9996	*
Power Cord (EMEA, LA) (models 71G 72G CTO-G A4S A4Y A6S A6Y 13S 13Y 25S 25Y 73G A8G)	14F0068	*
Power Cord (APU) (models A4Y A6Y 13Y 25Y)	36L8879	*
Power Cord (EMEA) (models 71G 72G CTO-G 73G A8G)	14F0086	*
Power Cord (EMEA, ANZ, ASEAN Eng) (models 71G 72G CTO-G 73G A8G)	14F0014	*
Power Cord (EMEA) (models 71G 72G CTO-G 73G A8G)	14F0050	*

Machine Type 8094
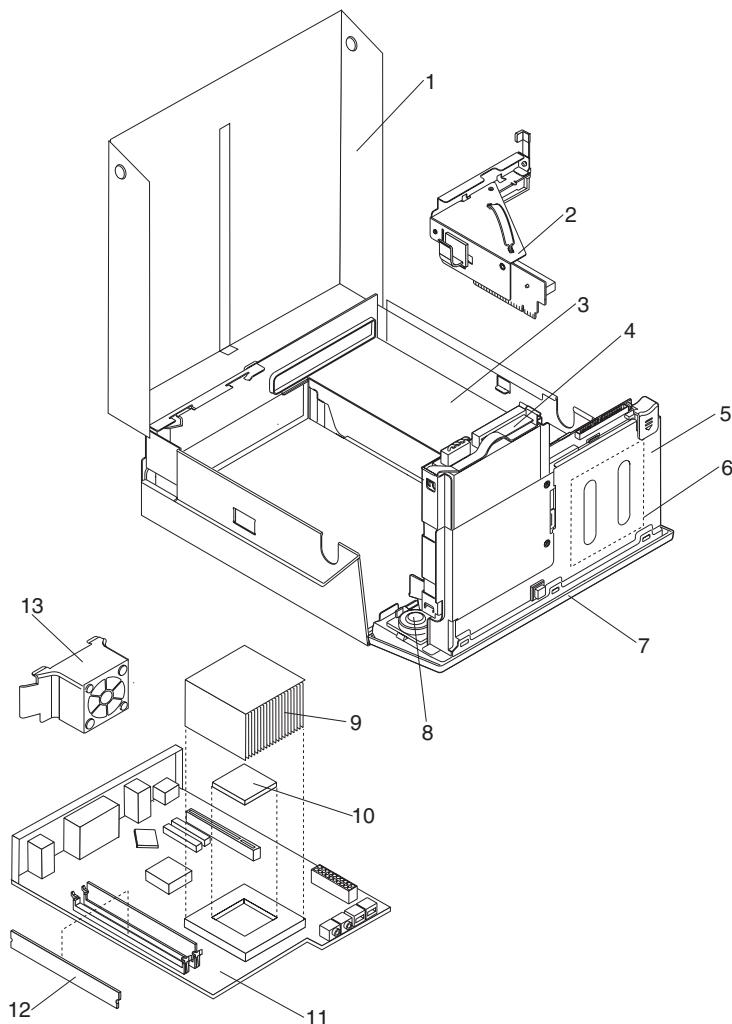
Item #	8094 FRUs	FRU#	CRU
1	Top Cover (all models)	89P6782	*
2	PCI riser card and bracket assembly (all models)	89P6790	*
3	200 W power supply-Hipro PFC (models CTO 11A 11T 11U 11Q 11B 11H 11V)	89P6805	**
4	Hard disk drive 40GB 7200rpm EIDE ATA-100 (models CTO 11A 11Q 11T 11U 11B 11H 11V)	19K1568	*
4	Hard disk drive 40GB 7200rpm EIDE ATA-100 (models CTO 11A 11Q 11T 11U 11B 11H 11V)	40Y8757	*
4	Hard disk drive 40GB 7200rpm Serial ATA (models CTO)	71P7312	*
4	Hard disk drive 80GB 7200rpm EIDE ATA-100 (models CTO)	24P3665	*
4	Hard disk drive 80GB 7200rpm EIDE ATA-100 (models CTO)	40Y8758	*
4	Hard disk drive 120GB 7200rpm EIDE ATA-100 (models CTO)	24P3687	*
4	Hard disk drive 120GB 7200rpm EIDE ATA-100 (models CTO)	40Y8759	*
4	Hard disk drive 80GB 7200rpm Serial ATA (models CTO)	71P7293	*
4	Hard disk drive 80GB 7200rpm Serial ATA (models CTO)	40Y8761	*
4	Hard disk drive 160GB 7200rpm Serial ATA (models CTO)	71P7297	*

Item #	8094 FRUs	FRU#	CRU
4	Hard disk drive 160GB 7200rpm Serial ATA (models CTO)	40Y8762	*
4	Hard disk drive 160GB 7200rpm Serial ATA (models CTO)	40Y9035	*
5	Front Rotating Cage assembly (all models)	39M0612	**
6	CD-ROM (24x) Plus Ultrabay Enhanced Drive (models CTO 11A 11Q 11T 11U 11B 11H 11V)	26K5427	*
6	CD-ROM (24x) Plus Ultrabay Enhanced Drive (models CTO 11A 11Q 11T 11U 11B 11H 11V)	40Y8793	*
6	CD-ROM (24x) Plus Ultrabay Enhanced Drive (models CTO 11A 11Q 11T 11U 11B 11H 11V)	39M3503	*
6	CD-ROM (24x) Plus Ultrabay Enhanced Drive (models CTO 11A 11Q 11T 11U 11B 11H 11V)	40Y8907	*
6	DVD-ROM (8x/24x) (models CTO)	26K5413	*
6	DVD-ROM (8x/24x) (models CTO)	40Y8787	*
6	DVD-ROM (8x/24x) (models CTO)	26K5455	*
6	DVD-ROM (8x/24x) (models CTO)	40Y8797	*
6	DVD-ROM/CD-RW Combo Drive 8x24x (models CTO)	92P6567	*
6	DVD-ROM/CD-RW Combo Drive 24x24x24x8x (models CTO)	26K5407	*
6	DVD-ROM/CD-RW Combo Drive 24x24x24x8x (models CTO)	40Y8783	*
6	DVD-ROM/CD-RW Combo Drive 24x24x24x8x (models CTO)	26K5409	*
6	DVD-ROM/CD-RW Combo Drive 24x24x24x8x (models CTO)	40Y8785	*
6	Multi-Burner Plus (Rambo 4) Ultrabay Enhanced Drive (models CTO)	40Y8789	*
6	Rambo 4 -- slim (models CTO)	26K5421	*
7	Main Bezel assembly (all models)	39M0613	*
8	Speaker Cable assembly (all models)	03R0294	*
9	Heat Sink (models CTO 11A 11Q 11T 11U 11B 11H 11V)	89P6791	**
10	Microprocessor - 2.4GHz Northwood Celeron (multi VID) (models CTO)	19R1501	**
10	Microprocessor - 2.5GHz Northwood Celeron (multi VID) (models CTO)	19R1503	**
10	Microprocessor - 2.6GHz Northwood Celeron (multi VID) (models CTO)	19R1505	**
10	Microprocessor - 2.7GHz Northwood Celeron (multi VID) (models CTO)	19R1507	**
10	Microprocessor - 2.8GHz Northwood Celeron (multi VID) (models CTO)	19R1509	**
10	Microprocessor - 2.53GHz Northwood Celeron (multi VID) (models CTO)	19R2406	**
10	Microprocessor - 2.66GHz Northwood Celeron (multi VID) (models CTO)	19R2409	**
10	Microprocessor - 2.8GHz Northwood Celeron (multi VID) (models CTO)	19R2411	**
10	Microprocessor - 2.93GHz Northwood Celeron (multi VID) (models CTO)	29R7261	**
10	Microprocessor - 3.06GHz Northwood Celeron (multi VID) (models CTO)	29R7263	**
10	Microprocessor - 2.6GHz Northwood P4 (multi VID) (models CTO)	19R2421	**
10	Microprocessor - 2.8GHz Northwood P4 (multi VID) (models CTO)	19R2423	**
10	Microprocessor - 2.66GHz Northwood P4 (non and multi VID) (models CTO)	19R1511	**
10	Microprocessor - 2.8GHz Northwood P4 (non and multi VID) (models CTO)	19R1513	**
10	Microprocessor - 3.06GHz Northwood P4 (multi VID) (models CTO)	19R1515	**
10	Microprocessor - 2.4GHz Northwood P4 (models CTO)	19R1518	**
10	Microprocessor - 2.6GHz Northwood P4 (models CTO)	19R1520	**

Item #	8094 FRUs	FRU#	CRU
10	Microprocessor - 2.8GHz Northwood P4 (models CTO)	19R1522	**
10	Microprocessor - 3.0GHz Northwood P4 (models CTO)	19R1524	**
10	Microprocessor - 3.2GHz Northwood P4 (models CTO)	19R1526	**
10	Microprocessor - 2.8GHZ Prescott P4 (models CTO 11A 11Q 11T 11U 11B 11H 11V)	19R1528	**
10	Microprocessor - 2.8GHZ Prescott P4 (models CTO)	19R1530	**
10	Microprocessor - 3.0GHZ Prescott P4 (models CTO)	19R1532	**
10	Microprocessor - 3.2GHZ Prescott P4 (models CTO)	19R2435	**
10	Microprocessor - 3.4GHZ Prescott P4 (models CTO)	29R7265	**
11	System board, 10/1000, no POV (models CTO 11A 11Q 11T 11U 11B 11H 11V)	41T2092	**
11	System board, 10/1000, no POV (models CTO 11A 11Q 11T 11U 11B 11H 11V)	41T2094	**
11	System board, 10/1000, POV (models CTO)	41T2091	**
11	System board, 10/1000 POV (ver 1.3C) (models CTO)	41T2093	**
12	Memory - 128MB NP SDRAM PC2700 (models CTO)	31P9120	*
12	Memory - 256MB NP SDRAM PC2700 (models CTO 11A 11Q 11T 11U 11B 11H 11V)	31P9121	*
12	Memory - 512MB NP SDRAM PC2700 (models CTO)	31P9122	*
12	Memory - 1 GB NP SDRAM PC2700 (models CTO)	31P9123	*
12	Memory - 128MB NP SDRAM PC3200 (models CTO)	22P9273	*
12	Memory - 256MB NP SDRAM PC3200 (models CTO)	73P2683	*
12	Memory - 512MB NP SDRAM PC3200 (models CTO)	73P2684	*
12	Memory - 1 GB NP SDRAM PC3200 (models CTO)	22P9274	*
13	50 mm exhaust fan (all models)	89P6789	*

The FRUs listed in the following table are not illustrated.

8094 FRUs	FRU#	CRU
Bezel, Ultra-Bay-Enhanced (all models)	89P6804	*
HSS Tray assembly (includes grommet/pins/brkt/gnd springs) (all models)	89P6778	*
Power/LED cable assembly with bracket (all models)	89P6779	*
Chassis, (includes: cover, fans, chassis base, planar mounting bracket, etc.) (all models)	89P6780	**
PATA HDD cable (all models)	89P6785	*
SATA HDD cable (all models)	89P6786	*
Ultra Bay Enhanced Cable/Card assembly	89P6787	**
60 mm front fan (all models)	89P6788	*
C-2 switch cable assembly (all models)	09K9827	*
Vertical stand (all models)	89P6792	*
Rear air deflector (all models)	89P6793	*
Miscellaneous hardware kit (all models)	89P6794	*
Battery 3.0V (all models)	33F8354	*
Mouse, PS/2 - 2-button (black) (models CTO)	24P0383	*
Mouse, PS/2 - 3-button (Ball) Wheel Mouse (models CTO)	24P0491	*

8094 FRUs	FRU#	CRU
Mouse, Scrollpoint Optical (models CTO)	24P0499	*
Mouse, optical wheelmouse (models CTO 11A 11Q 11T 11U 11B 11H 11V)	89P5089	*
PCI Modem Card (Soft), ATX V.90 (models CTO)	22P7943	*
IEEE 1394 Adapter -Firewire (models CTO)	73P2609	*
Speakers, Infinity Active T1 (Black) (models CTO)	25P4726	*
Speaker Power brick - US, CE, CF, LA, Taiwan (models CTO-U)	10K2587	*
Speaker Power brick - Europe (non-UK) (models CTO-G)	25P5704	*
Speaker Power brick - UK, Hong Kong (3 prong) (models CTO-G CTO-A)	25P5703	*
RJ11 connector adapter (Spain, Ireland) (All ″G″ models)	60H6043	*
RJ11 connector adapter (Austria) (All ″G″ models)	60H6045	*
RJ11 connector adapter (Belgium) (All ″G″ models)	60H6046	*
RJ11 connector adapter (Denmark) (All ″G″ models)	60H6047	*
RJ11 connector adapter (Norway, Finland) (All ″G″ models)	60H6048	*
RJ11 connector adapter (France) (All ″G″ models)	60H6049	*
RJ11 connector adapter (Germany) (All ″G″ models)	60H6050	*
RJ11 connector adapter (UK, NZ, HK) (All ″G″, ″M″, ″B″, ″H″ models)	60H6051	*
RJ11 connector adapter (Italy) (All ″G″ models)	60H6052	*
RJ11 connector adapter (Netherlands) (All ″G″ models)	60H6053	*
RJ11 connector adapter (Sweden) (All ″G″ models)	60H6054	*
RJ11 connector adapter (Switzerland) (All ″G″ models)	60H6055	*

8094 Keyboards (Standard PS/2 Black)	FRU#	CRU
US English (models CTO 11A 11Q 11U 11H)	89P8300	*
Arabic (models CTO-G)	89P8301	*
Belgian/French (models CTO-G)	89P8302	*
Belgian/UK (models CTO-G)	89P8303	*
Bulgarian (models CTO-G)	89P8305	*
Chinese/US (models CTO-A 11B 11V)	89P8306	*
Czech (models CTO-G)	89P8307	*
Danish (models CTO-G)	89P8308	*
Dutch (models CTO-G)	89P8309	*
French (models CTO-G)	89P8310	*
French Canadian 445 (models CTO-G)	89P8311	*
French Canadian 58 (models CTO-G)	89P8312	*
German (models CTO-G)	89P8313	*
Greek (models CTO-G)	89P8314	*
Hebrew (models CTO-G)	89P8315	*
Hungarian (models CTO-G)	89P8316	*
Iceland (models CTO-G)	89P8317	*
Italian 141 (models CTO-G)	89P8318	*
Italian 142 (models CTO-G)	89P8319	*

8094 Keyboards (Standard PS/2 Black)	FRU#	CRU
Norwegian (models CTO-G)	89P8323	*
Polish (models CTO-G)	89P8324	*
Portuguese (models CTO-G)	89P8325	*
Romanian (models CTO-G)	89P8326	*
Russian/Cy (models CTO-G)	89P8327	*
Russian/Cy (models CTO-G)	89P8328	*
Serbian/Cyrillic (models CTO-G)	89P8329	*
Slovak (models CTO-G)	89P8330	*
Spanish (models CTO-G)	89P8331	*
Swedish/Finn (models CTO-G)	89P8332	*
Swiss F/G (models CTO-G)	89P8333	*
Thailand (models 11T CTO-A)	89P8334	*
Turkish 440 (models CTO-G)	89P8335	*
Turkish 179 (models CTO-G)	89P8336	*
UK English (models CTO-G)	89P8337	*
US Euro (models CTO-G)	89P8338	*
Yugoslav/Latin (models 21G 26G 37G A5G A6G A8G 36G CTO-G)	89P8339	*

8094 Windows XP Pro Recovery CDs	FRU#	CRU
US/UK/AP/TH (models CTO 11A 11Q 11T 11U 11H)	39J6414	*
FR/CF (models CTO-G)	39J6415	*
GR (models CTO-G)	39J6416	*
IT (models CTO-G)	39J6418	*
SP/LA (models CTO-G)	39J6417	*
DK (models CTO-G)	39J6421	*
NL (models CTO-G)	39J6424	*
AE (models CTO-G)	39J6428	*
SV (models CTO-G)	39J6420	*
HE (models CTO-G)	39J6425	*
FI (models CTO-G)	39J6422	*
NO (models CTO-G)	39J6423	*
PL (models CTO-G)	39J6426	*
PO (models CTO-G)	39J6432	*
RU (models CTO-G)	39J6429	*
HU (models CTO-G)	39J6431	*
CZ (models CTO-G)	39J6427	*
TR (models CTO-G)	39J6430	*
GK (models CTO-G)	39J6434	*
Taiwan-TC (models 11V)	30R4820	*
Hong Kong-TC (models 11B)	30R4827	*

8094 Power Cords	FRU#	CRU
Power Cord (models CTO 11A 11T 11U 11V)	6952301	*
Power Cord (EMEA, ANZ, ASEAN Eng, Korea) (models CTO-G)	13F9978	*
Power Cord (EMEA, ANZ, ASEAN Eng, HK Eng) (models CTO-G 11H)	14F0032	*
Power Cord (EMEA) (models CTO-G)	13F9996	*
Power Cord (EMEA, LA) (models CTO-G)	14F0068	*
Power Cord (China, HK) (models 11B 11H)	02K0545	*
Power Cord (EMEA) (models CTO-G)	14F0086	*
Power Cord (EMEA, ANZ, ASEAN Eng) (models CTO-G)	14F0014	*
Power Cord (EMEA) (models CTO-G)	14F0050	*
Power Cord (India) (models 11Q)	49P2078	*

Chapter 10. Additional Service Information

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

Security features

Security features in this section include the following:
- Passwords
- Vital Product Data
- Management Information Format (MIF)
- Alert on LAN™

Hardware controlled Passwords

Hardware controlled passwords are set using the Setup Utility program. For more information about passwords, see "Using passwords" on page 53.

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" on page 150.

Management Information Format (MIF)

Management Information Format (MIF) is a file used to maintain a list of the system unit serial number along with all serialized components (for example, system board, riser card, memory, and processor).

At the time of computer manufacture, the EPROM is loaded with the serial numbers of the system and all major components.

A company called Retain-a-Group is a central data warehouse offering serial number data management. Retain-a-Group acts as a focal point to law enforcement. The customer has the option to purchase serial number information and services from Retain-a-Group. It is the customer's responsibility to maintain the MIF file and to inform Retain-a-Group of any changes to the file.

Some customers might request that their servicers assist them in maintaining the MIF file when serialized components are replaced during hardware service. This assistance is between the customer and the servicer. The servicer can use the DMI MIF Browser to update the MIF information in the EPROM. It is anticipated that some servicers might charge for this service.

To update the EPROM using the DMI MIF Browser, use the following procedure.

1. Click **Start** from the desktop, then **Programs**.
2. Select **SystemView Agent**
3. Select the **Serial Number Information** icon
4. Click the plus sign to expand.
5. Select the component you want to view or edit.
6. Double click on the component you want to change.
7. Enter new data in the *Value* field, then click **Apply**.

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.

- Current Level BIOS information
    - Run the Setup Utility to determine the level of BIOS installed.
- Sources for obtaining the latest level BIOS available
    1. Lenovo support web site:

        http://www.lenovo.com/think/support/
    2. Lenovo Customer Support Center
    3. Levels 1 and 2 Support

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

Flash update procedures

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

Updating (flashing) BIOS from a diskette or CD-ROM

1. Shut down the operating system and turn off the computer.
2. Insert the flash update diskette or CD-ROM.
3. Turn on the computer. The update begins.
4. When you are prompted to select a language, press the number on your keyboard that corresponds to the language; then press Enter.
5. When prompted to change the serial number, press Y, type the seven character serial number of your computer, and then press Enter.
6. When prompted to change the machine type/model, press Y, type the seven character machine type/model of your computer, and then press Enter.
7. Follow the instructions on the screen to complete the update.

Updating (flashing) BIOS from your operating system

Note: Due to constant improvements being made to the Lenovo Web site, Web page content (including the links referenced in the following procedure) is subject to change.

1. From your browser, type http://www.lenovo.com/think/support.
2. In the Use Quick path field, type your 4-digit machine type and click **Go**.
3. Under Browse by product, click **Downloads and drivers**.
4. Scroll down to the BIOS catagory and click on the **Flash Bios Update**.

5. On the Flash BIOS Update page, scroll down to locate the .txt file for the flash from the operating system version. Click the .txt file.

6. Print these instructions. This is very important because these instructions are not on the screen after the download begins.

7. From the browser, click **Back** to return to the list of files. Carefully follow the printed instructions to download, extract, and install the update.

Recovering from a POST/BIOS update failure

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

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

1. Open the cover.

2. Remove any parts necessary to gain access to the Clear CMOS/Recovery jumper.

3. Move the Clear CMOS/Recovery jumper from the standard position (pins 1 and 2) to pins 2 and 3.

4. Insert the BIOS flash diskette in the diskette drive.

5. Close the cover and reconnect the computer power cord to the computer and to an electrical outlet. Turn on the computer.

6. The recovery session takes two to three minutes. 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.

7. When the computer turns off, open the cover.

8. Move the Clear CMOS/Recovery jumper back to the original position (pins 1 and 2).

9. Remove the BIOS flash diskette from the diskette drive.

10. Close or install the cover and reconnect all external cables.

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).

Recovering software using the Rescue and Recovery program

The Rescue and Recovery program provides an environment that runs independently of the Windows operating system and is hidden from the Windows operating system. Because the Rescue and Recovery workspace is hidden, it is immune from most virus attacks and provides a safe place to perform rescue and recovery operations that might not be possible in the Windows environment. The following recovery solutions are provided by the Rescue and Recovery program:

- Create Product Recovery discs.
- Create rescue media.
- Back up your hard disk periodically.
- Create a Recovery Repair diskette.

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

- Rescue files
- Restore your backups

Starting the Rescue and Recovery workspace

To start the program:

1. If your computer is already on when you start this procedure, shut down the operating system and turn off the computer.
2. Repeatedly press the F11 key as you turn on the computer.

   Note: If a user password or an administrator password has been set, the Rescue and Recovery workspace is not displayed until you type the password.

3. The Rescue and Recovery workspace is displayed.

Refer to the *Quick Reference* that comes with the computer and the Rescue and Recovery help system for additional information about using the Rescue and Recovery program.

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