BladeCenter H 2980-watt Power Modules

IBM

Installation Guide

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Installation Guide

Note: Before using this information and the product it supports, read the general information in Appendix B, "Notices," on page 15; read the *IBM Safety Information* and the *IBM Systems Environmental Notices and User Guide*; and read the *Warranty and Support Information* document for your device on the IBM *Documentation* CD.

Contents

Safety

Before installing this product, read the Safety Information.

قبل تركيب هذا المنتج، يجب قراءة الملاحظات الآمنية

Antes de instalar este produto, leia as Informações de Segurança.

在安装本产品之前，请仔细阅读 Safety Information
（安全信息）。

安裝本產品之前，請先閱讀「安全資訊」。

Prije instalacije ovog produkta obavezno pročitajte Sigurnosne Upute.

Před instalací tohoto produktu si přečtěte příručku bezpečnostních instrukcí.

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

Ennen kuin asennat tämän tuotteen, lue turvaohjeet kohdasta Safety Information.

Avant d'installer ce produit, lisez les consignes de sécurité.

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.

Πριν εγκαταστήσετε το προϊόν αυτό, διαβάστε τις πληροφορίες ασφάλειας
(safety information).

לפני שתתקינו מוצר זה, קראו את הוראות הבטיחות.

A termék telepítése előtt olvassa el a Biztonsági előírásokat!

Prima di installare questo prodotto, leggere le Informazioni sulla Sicurezza.

製品の設置の前に、安全情報をお読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

Пред да се инсталира овој продукт, прочитајте информацијата за безбедност.

Les sikkerhetsinformasjonen (Safety Information) før du installerer dette produktet.

Przed zainstalowaniem tego produktu, należy zapoznać się
z książką "Informacje dotyczące bezpieczeństwa" (Safety Information).

Antes de instalar este produto, leia as Informações sobre Segurança.

Перед установкой продукта прочтите инструкции по
технике безопасности.

Pred inštaláciou tohto zariadenia si pečítaje Bezpečnostné predpisy.

Pred namestitvijo tega proizvoda preberite Varnostne informacije.

Antes de instalar este producto, lea la información de seguridad.

Läs säkerhetsinformationen innan du installerar den här produkten.

Important:

All caution and danger statements in this documentation begin with a number. This number is used to cross reference an English caution or danger statement with translated versions of the caution or danger statement in the *IBM® Safety Information* book.

For example, if a caution statement begins with a number 1, translations for that caution statement appear in the *IBM Safety Information* book under statement 1.

Be sure to read all caution and danger statements in this documentation before performing the instructions. Read any additional safety information that comes with your server or optional device before you install the device.

Statement 1:

DANGER

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

To avoid a shock hazard:

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

To Connect:	To Disconnect:
1. Turn everything OFF.	1. Turn everything OFF.
2. First, attach all cables to devices.	2. First, remove power cords from outlet.
3. Attach signal cables to connectors.	3. Remove signal cables from connectors.
4. Attach power cords to outlet.	4. Remove all cables from devices.
5. Turn device ON.	
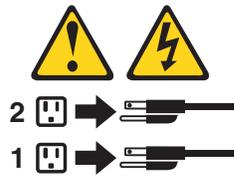
Statement 5:

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.

Statement 8:

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

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

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

ADVERTENCIA: El contacto con el cable de este producto o con cables de accesorios que se venden junto con este producto, pueden exponerle al plomo, un elemento químico que en el estado de California de los Estados Unidos está considerado como un causante de cancer y de defectos congénitos, además de otros riesgos reproductivos. *Lávese las manos después de usar el producto.*

Chapter 1. IBM BladeCenter H 2980-watt power modules

The IBM 2980-watt power modules for BladeCenter® H are more efficient, using less power without sacrificing performance. 2980-watt high-efficiency power modules can be added to a BladeCenter H Type 8852 unit to reduce power consumption or when more power is required to support some of the newer blade devices with higher power demands.

For more information about power requirements for specific blade devices, refer to the documents provided with the blade device or go to http://www.ibm.com/systems/support/.

This document provides instructions for:

- Installing additional 2980-watt power modules into a BladeCenter H Type 8852 unit.
- Upgrading an IBM BladeCenter H Type 8852 unit to 2980-watt power modules.
- Replacing a failing power module in an IBM BladeCenter H Type 8852 unit.

Use these instructions along with the documents provided with the IBM BladeCenter H Type 8852 unit to install the power modules.

The following illustration shows the 2980-watt power module and the LEDs on the module.
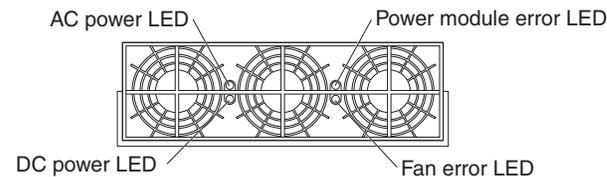
The LEDs on each power module indicate the condition of the power module and fan pack.

Note: The orientation of the power module shown in the illustration is for one of the top power-modules. The orientation for modules in the bottom power-module bays is rotated 180°.

- **DC power LED:** When this green LED is lit, the dc output from the power module to the other components and blade servers is present and within specifications. During typical operation, both the ac power and dc power LEDs are lit.
- **AC power LED:** When this green LED is lit, ac input to the power module is present and within specifications. During typical operation, both the ac power and dc power LEDs are lit.
- **Power module error LED:** When this amber LED is lit, a power module failure has occurred and it is not operating within specifications.
- **Fan error LED:** When this amber LED is lit, a fan pack has failed and is not operating within specifications.

Notes:

1. Power modules are needed in bays 1 and 2 if you install blade servers in blade bays 1 through 7 or if you install I/O modules in I/O module bays 1 through 4 or 7 through 10 (domain A).

2. Power modules are needed in power module bays 3 and 4 if you install blade servers in blade bays 8 through 14 or if you install I/O modules in any of I/O module bays 5 through 10 (domain B).

3. Operating with only one power module in a domain is *not* supported in BladeCenter H Type 8852 products.

4. If a power module fails, BladeCenter H blower modules will run at full speed and you *must* replace a failing power module as soon as possible to regain redundant power-module operation and to reset the blower modules to their normal operating speed.

System reliability considerations

To help ensure proper cooling and system reliability, make sure that:

- Each of the bays of the BladeCenter H unit must have either a module or filler module installed in it. When you remove a hot-swap device from a bay, be sure to immediately replace it with either another device or a filler.

- Route any device cables according to the instructions in the document provided with the device.

Handling static-sensitive devices

Attention: Static electricity can damage electronic devices and your BladeCenter unit. To avoid damage, keep static-sensitive devices in their static-protective packages until you are ready to install them.

To reduce the possibility of electrostatic discharge, observe the following precautions:

- Limit your movement. Movement can cause static electricity to build up around you.

- Handle the device carefully, holding it by its edges or its frame.

- Do not touch solder joints, pins, or exposed printed circuitry.

- Do not leave the device where others can handle and damage it.

- While the device is still in its static-protective package, touch it to an unpainted metal part of the BladeCenter unit for at least 2 seconds. This drains static electricity from the package and from your body.

- Remove the device from its package and install it directly into the BladeCenter unit without setting the device down. If it is necessary to set down the device, place it back into its static-protective package. Do not place the device on your BladeCenter unit or on a metal surface.

- Take additional care when handling devices during cold weather. Heating reduces indoor humidity and increases static electricity.

Installation guidelines

Read the following information before installing 2980-watt power module into an IBM BladeCenter H Type 8852 unit.

Note: The IBM BladeCenter H Type 8852 unit must be configured to support 2980-watt power modules. The power modules can only be added to a unit that includes advanced management modules (one or two) with a level of management module firmware that supports the 2980-watt power modules. If necessary, update your BladeCenter unit with the latest advanced

management module firmware using the instructions provided for those devices before you continue. (For latest-level firmware, go to http://www.ibm.com/systems/support/.)

Your BladeCenter unit contains either two or four hot-swap power modules. See the following illustration for the location of each power module bay. The illustration shows power modules installed in power-module bay 1 and bay 2 (domain A).
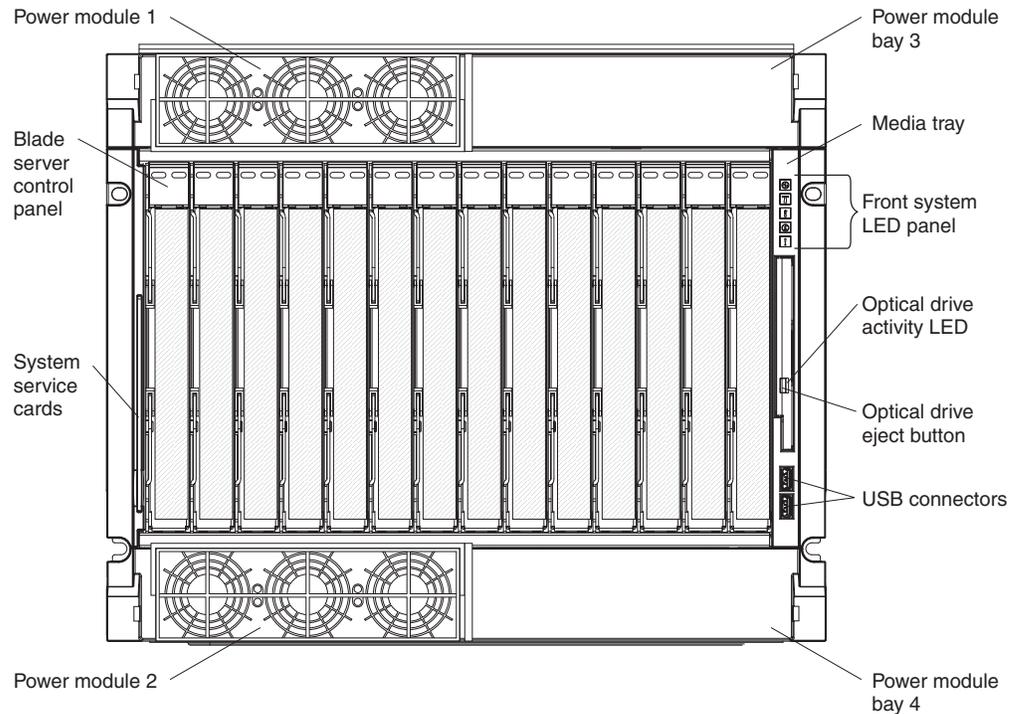
- To install additional 2980 power modules in domain B (power module bays 3 and 4), go to "Installing additional 2980-watt power modules."
- To upgrade a BladeCenter unit currently configured with power modules other than 2980 watts, go to "Upgrading to 2980-watt power modules" on page 5.
- To replace a failing 2980-watt power module, go to "Replacing a 2980-watt power module" on page 7.

Installing additional 2980-watt power modules

Attention: When using 2980-watt power modules in a BladeCenter H Type 8852 unit, all power modules must be 2980-watt modules.

Follow these instructions to install 2980-watt power modules into domain B of an IBM BladeCenter H Type 8852 unit that is powered on and has 2980-watt power modules installed in domain A.

1. Open the package containing the 2980-watt power modules and remove the power modules.

   Statement 8:

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

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

2. Remove the top and bottom bezels from the BladeCenter unit to access the power module bays:

   a. Press the blue release button on each end of the bezel.

   b. Pull the bezel away from the BladeCenter unit.

   Release buttons

   Release buttons
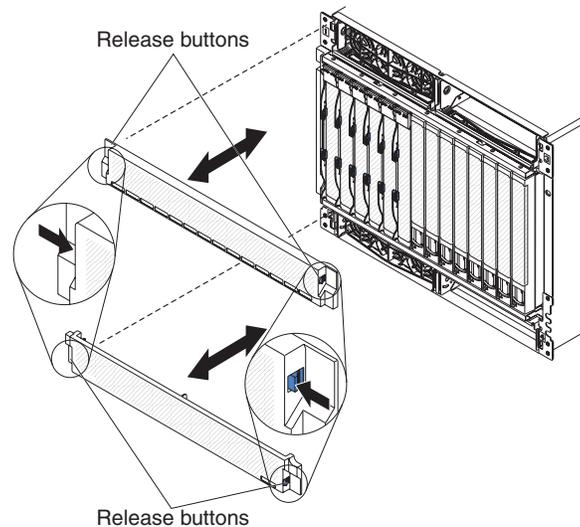
3. Remove the power module fillers from power module bays 3 and 4.

4. Make sure that the handle on the new power module is in the open position.

5. Orient the new power module to the power-module bay:
   - For the power-module bay 3, the rear connector on the power module must be facing down.
   - For the power-module bay 4, the rear connector on the power module must be facing up.

3rd power module

1

2

Handle (open)

Handle (open)

1

2

4th power module

1

2

Power-module filler

2

1
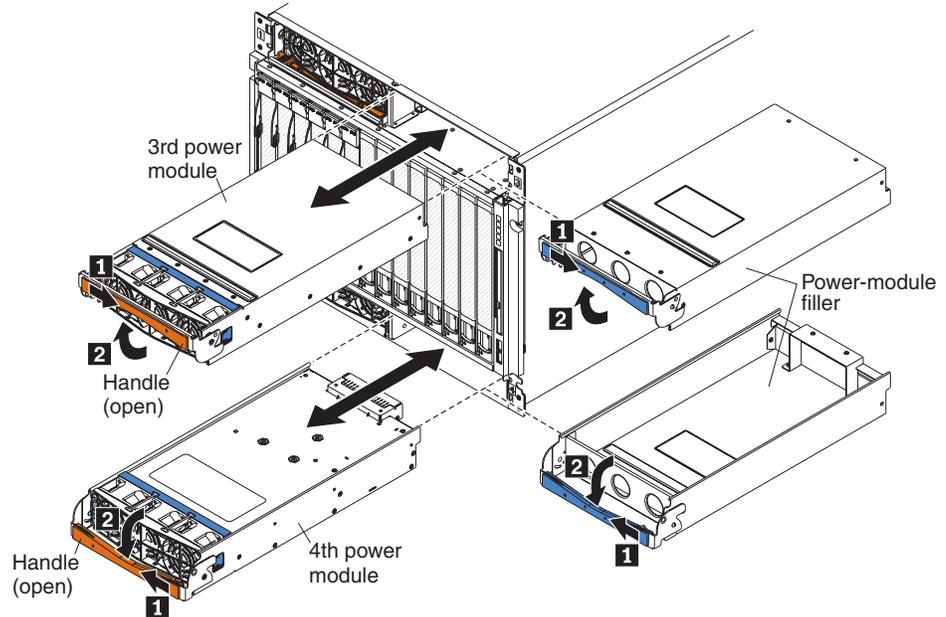
6. Slide a power module into bay 3 until it stops; then, push the handle to the closed position.
7. Slide another power module into bay 4 until it stops; then, push the handle to the closed position.
8. Align the blue tabs on the ends of the bezels with the corresponding holes in the front of the BladeCenter unit.
9. Firmly press the bezels into the BladeCenter unit until the tabs lock into place.
10. Make sure the LEDs on the modules indicate that they are operating properly. Verify that the dc and ac power LEDs on each power module are lit. During typical operation, both the ac and dc power LEDs are lit.

Upgrading to 2980-watt power modules

Attention: When using 2980-watt power modules in a BladeCenter H Type 8852 unit, all power modules must be 2980-watt modules.

Follow these instructions to upgrade an IBM BladeCenter H Type 8852 unit configured with power modules rated at less than 2980 watts to 2980-watt power modules.

1. If you have not already done so, update the firmware on all installed advanced management modules to the latest level to make sure they support 2980-watt power modules. To download latest-level firmware, go to http://www.ibm.com/ systems/support/.
2. Shut down all installed blade servers. For detailed instructions, see the *Installation and User's Guide* provided with the blade server.

3. Disconnect the BladeCenter power cords from the power source.

   Statement 5:

   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.

4. Remove the top and bottom bezels from the BladeCenter unit to access the power module bays:

   a. Press the blue release button on each end of the bezel.

   b. Pull the bezel away from the BladeCenter unit.

Release buttons

Release buttons
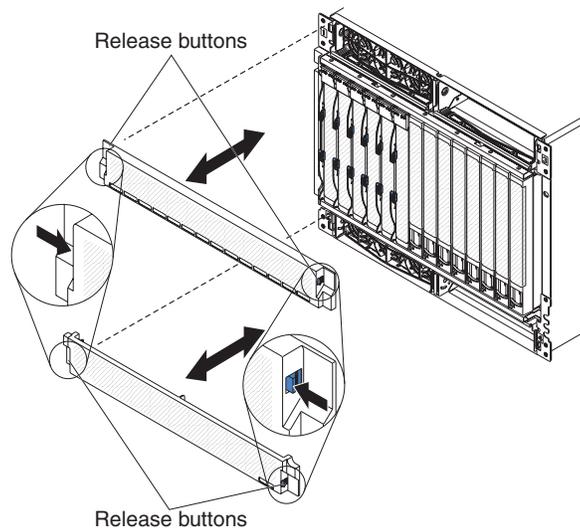
5. Remove all the power modules from the unit.

6. Set the removed modules aside. (If you plan to save these power modules for future reuse, be sure to store the modules together.)

7. Open the package containing the 2980-watt power modules and remove the power modules.

Statement 8:

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

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

8. Install a new 2980-watt power module in each power bay:
   a. Make sure that the handle on each power module is in the open position.
   b. Orient each power module to the selected power-module bay:
      • For the power-module bays 1 and 3, the rear connector on the power module must be facing down.
      • For the power-module bays 2 and 4, the rear connector on the power module must be facing up.
   c. Slide a power module into each open power-module bay until it stops.
   d. Push the release lever on the front of each module closed.

9. Install the top and bottom bezels on the BladeCenter unit:
   a. Align the blue tabs on the ends of the bezels with the corresponding holes in the front of the BladeCenter unit.
   b. Firmly press the bezels into the BladeCenter unit until the tabs lock into place.

10. Reconnect the BladeCenter power cords to the power source.

11. Restart any blade servers that were shut down in the BladeCenter unit.

12. Make sure the LEDs on the modules indicate that they are operating properly. Verify that the dc and ac power LEDs on each power module are lit and the power error LED is *not* lit.

Replacing a 2980-watt power module

Attention: When using 2980-watt power modules in a BladeCenter H Type 8852 unit, all power modules must be 2980-watt modules.

Complete the following steps to replace a failed 2980-watt power module in your BladeCenter unit.

1. Remove the top or bottom bezel from the BladeCenter unit as needed to access the failed power module:

a. Press the blue release button on each end of the bezel.

b. Pull the bezel away from the BladeCenter unit.

Release buttons

Release buttons
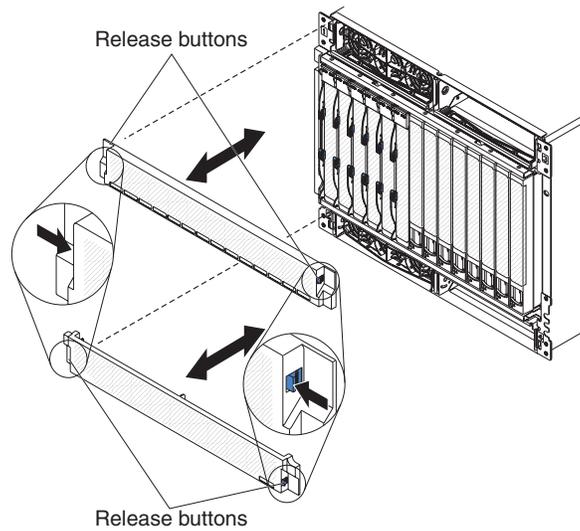
2. Open the handle on the failed power module using one of the following procedures:

- For a power module in one of the upper power-module bays (1 and 3), push the inner handle release to the right; then, pull the handle up to the open position.

- For a power module in one of the lower power-module bays (2 and 4), push the inner handle release to the left; then, pull the handle down to the open position.

The power module moves out of the bay approximately 0.6 cm (0.25 inch).

Statement 8:

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

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

3. Use the handle to pull the failed power module out of the power-module bay.

4. Install a new 2980-watt power module in the empty power-module bay:

a. Make sure that the handle on the new power module is in the open position.

     b. Orient the power module to the power-module bay:
- For the power-module bays 1 and 3, the rear connector on the power module must be facing down.
- For the power-module bays 2 and 4, the rear connector on the power module must be facing up.

     c. Slide the new power module into the open power-module bay until it stops.

     d. Push the release lever on the front of the module closed.

5. Install the top or bottom bezel on the BladeCenter unit:

     a. Align the blue tabs on the ends of the bezel with the corresponding holes in the front of the BladeCenter unit.

     b. Firmly press the bezel into the BladeCenter unit until the tabs lock into place.

6. Make sure the LEDs on the power module indicate that it is operating properly. Verify that the dc and ac power LEDs on the power module are lit. During typical operation, both the ac and dc power LEDs are lit.

Chapter 2. Parts listing

Replaceable components are of three types:

- **Tier 1 customer replaceable unit (CRU):** Replacement of a Tier 1 CRUs is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation.
- **Tier 2 customer replaceable unit (CRU):** You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge, under the type of warranty service that is designated for your server.
- **Field replaceable unit (FRU):** FRUs must be installed only by trained service technicians.

For more information about the terms of the warranty and getting service and assistance, see the *Warranty* document on the *BladeCenter Documentation CD* that comes with your BladeCenter unit.

If you are instructed to return a component, follow all the packaging instructions, and use any packaging materials that are supplied for shipping.

Customer replaceable components

The replaceable components in Table 1 are Tier 1 CRUs.

Table 1. Customer replaceable components

Name of component	CRU/FRU identifier
IBM BladeCenter H 2980-watt Power Module	39Y7415 (CRU)

If other BladeCenter components require replacement, see the following documentation that comes with these devices:

- BladeCenter *Problem Determination and Service Guide* or *Hardware Maintenance Manual and Troubleshooting Guide*
- *Installation and User's Guide* or *Installation Guide*

The latest versions of these documents are at http://www.ibm.com/systems/support/.

Appendix A. Getting help and technical assistance

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

Before you call

Before you call, make sure that you have taken these steps to try to solve the problem yourself:

- Check all cables to make sure that they are connected.
- Check the power switches to make sure that the system and any optional devices are turned on.
- Use the troubleshooting information in your system documentation, and use the diagnostic tools that come with your system. Information about diagnostic tools is in the *Problem Determination and Service Guide* on the IBM *Documentation* CD that comes with your system.
- Go to the IBM support Web site at http://www.ibm.com/systems/support/ to check for technical information, hints, tips, and new device drivers or to submit a request for information.

You can solve many problems without outside assistance by following the troubleshooting procedures that IBM provides in the online help or in the documentation that is provided with your IBM product. The documentation that comes with IBM systems also describes the diagnostic tests that you can perform. Most systems, operating systems, and programs come with documentation that contains troubleshooting procedures and explanations of error messages and error codes. If you suspect a software problem, see the documentation for the operating system or program.

Using the documentation

Information about your IBM system and preinstalled software, if any, or optional device is available in the documentation that comes with the product. That documentation can include printed documents, online documents, readme files, and help files. See the troubleshooting information in your system documentation for instructions for using the diagnostic programs. The troubleshooting information or the diagnostic programs might tell you that you need additional or updated device drivers or other software. IBM maintains pages on the World Wide Web where you can get the latest technical information and download device drivers and updates. To access these pages, go to http://www.ibm.com/systems/support/ and follow the instructions. Also, some documents are available through the IBM Publications Center at http://www.ibm.com/shop/publications/order/.

Getting help and information from the World Wide Web

On the World Wide Web, the IBM Web site has up-to-date information about IBM systems, optional devices, services, and support. The address for IBM System x® and xSeries® information is http://www.ibm.com/systems/x/. The address for IBM BladeCenter information is http://www.ibm.com/systems/bladecenter/. The address for IBM IntelliStation® information is http://www.ibm.com/intellistation/.

You can find service information for IBM systems and optional devices at
http://www.ibm.com/systems/support/.

Software service and support

Through IBM Support Line, you can get telephone assistance, for a fee, with usage,
configuration, and software problems with System x and xSeries servers,
BladeCenter products, IntelliStation workstations, and appliances. For information
about which products are supported by Support Line in your country or region, see
http://www.ibm.com/services/sl/products/.

For more information about Support Line and other IBM services, see
http://www.ibm.com/services/, or see http://www.ibm.com/planetwide/ for support
telephone numbers. In the U.S. and Canada, call 1-800-IBM-SERV
(1-800-426-7378).

Hardware service and support

You can receive hardware service through your IBM reseller or IBM Services. To
locate a reseller authorized by IBM to provide warranty service, go to
http://www.ibm.com/partnerworld/ and click **Find a Business Partner** on the right
side of the page. For IBM support telephone numbers, see http://www.ibm.com/
planetwide/. In the U.S. and Canada, call 1-800-IBM-SERV (1-800-426-7378).

In the U.S. and Canada, hardware service and support is available 24 hours a day,
7 days a week. In the U.K., these services are available Monday through Friday,
from 9 a.m. to 6 p.m.

IBM Taiwan product service

台灣 IBM 產品服務聯絡方式：
台灣國際商業機器股份有限公司
台北市松仁路 7 號 3 樓
電話：0800-016-888

IBM Taiwan product service contact information:
    IBM Taiwan Corporation
    3F, No 7, Song Ren Rd.
    Taipei, Taiwan
    Telephone: 0800-016-888

Appendix B. Notices

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Important notes

Processor speed indicates the internal clock speed of the microprocessor; other factors also affect application performance.

CD or DVD drive speed is the variable read rate. Actual speeds vary and are often less than the possible maximum.

When referring to processor storage, real and virtual storage, or channel volume, KB stands for 1024 bytes, MB stands for 1 048 576 bytes, and GB stands for 1 073 741 824 bytes.

When referring to hard disk drive capacity or communications volume, MB stands for 1 000 000 bytes, and GB stands for 1 000 000 000 bytes. Total user-accessible capacity can vary depending on operating environments.

Maximum internal hard disk drive capacities assume the replacement of any standard hard disk drives and population of all hard disk drive bays with the largest currently supported drives that are available from IBM.

Maximum memory might require replacement of the standard memory with an optional memory module.

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