System x iDataPlex dx360 FAQ for
Types 6313, 6316, 6385, 6390, 7831, and 7833

Hints and Tips

System x iDataPlex dx360 FAQ for
Types 6313, 6316, 6385, 6390, 7831, and 7833

Hints and Tips

Note: Before using this information and the product it supports, read the general information in “Notices,” on page 13.

First Edition (November 2008)

Contents

Chapter 1. Introduction

This document is intended to supplement the documentation provided with the IBM® System x™ iDataPlex™ dx360. It contains answers to some frequently asked questions about the components in the customized iDataPlex server solutions. For the iDataPlex dx360 servers, these components consist of the IBM System x iDataPlex dx360 Type 6316, 6390, or 7833 system-board tray, the IBM System x iDataPlex Types 6313, 6385, or 7831 2U flex chassis, and the IBM System x iDataPlex storage enclosure.

With the exception of the warranty period, the iDataPlex products are functionally equivalent as follows:

- IBM System x iDataPlex dx360 system-board tray Types 6316, 6390, and 7833 are functionally equivalent
- IBM System x iDataPlex 2U flex chassis Types 6313, 6385, and 7831 are functionally equivalent

For specific information about the warranty type or warranty duration, see the *IBM Machine Types 6313, 6316, 6385, 6386, 6388, 6389, 6390, 7825, 7831, 7832, 7833, 7834, and the Rear Door Heat eXchanger for the iDataPlex Rack Warranty and Support Information* document.

Related documentation

The following documentation is available for the IBM System x iDataPlex dx360 hardware configurations:

- *IBM System x iDataPlex dx360 Types 6313, 6316, 6385, 6390, 7831, and 7833 User's Guide*

  This document contains general information about how to use, upgrade, and configure the 2U chassis, the dx360 system-board tray, and the System x iDataPlex storage enclosure.
- *IBM System x iDataPlex dx360 Types 6313, 6316, 6385, 6390, 7831, and 7833 Problem Determination and Service Guide*

  This document contains information to help you solve problems yourself and information for service technicians. It contains information about the POST beep codes, error messages, and error logs; basic and advanced checkout procedures; troubleshooting tables; and Dynamic System Analysis (DSA) Preboot diagnostic programs.
- *IBM iDataPlex Rack Type 7825 Installation and User's Guide*

  This document provides general information about the iDataPlex rack, including information about planning and how to get help.
- *IBM Rear Door Heat eXchanger for the iDataPlex Rack Installation and Maintenance Guide*

  This document contains instructions and additional information for installing, setting up, and maintaining the IBM Rear Door Heat eXchanger for the iDataPlex Rack. Only professional movers, installers, or trained personnel may move, install, replace, remove, or transport the heat exchanger.
- *IBM System x iDataPlex Warranty and Support Information*

  This document contains information about the terms of the warranty and getting service and assistance.

- *IBM Safety Information*

  This document contains translated caution and danger statements. Each caution and danger statement that appears in the documentation has a number that you can use to locate the corresponding statement in your language in the *Safety Information* document.
- *Rack Safety Information*

  This document contains translated caution and danger statements. Each caution and danger statement that appears in the documentation has a number that you can use to locate the corresponding statement in your language in the *Rack Safety Information* document.

Getting updated documentation

The iDataPlex documentation might be updated occasionally, or technical updates might be available to provide additional information that is not included in the documentation. These updates are available from the IBM Systems Information Center. To check for updated iDataPlex information and technical updates, go to http://publib.boulder.ibm.com/infocenter/systems/scope/idataplex/index.jsp .

The updated iDataPlex documentation also is available from the IBM Support Web site. To check for updated documentation and technical updates, complete the following steps.

Note: Changes are made periodically to the IBM Web site. The actual procedure might vary slightly from what is described in this document.

1. Go to http://www.ibm.com/systems/support/.
2. Under **Product support**, click **System x**.
3. Under **Popular links**, click **Publications lookup**.
4. From the **Product family** menu, select **System x iDataPlex dx360 server** and click **Go**.

Features and specifications

The following information is a summary of the features and specifications of the iDataPlex dx360 hardware. Depending on the hardware configuration, some features might not be available, or some specifications might not apply.

Racks are marked in vertical increments of 4.45 cm (1.75 inches). Each increment is referred to as a unit, or “U.” A 1U-high device is 1.75 inches tall.

Table 1. Features and specifications

Microprocessor: Supports two dual-core or quad-core Intel® Xeon™ microprocessors in each system-board tray
Note: Use the BIOS Setup Utility program to determine the type and speed of the microprocessor.

Memory:

- Four-channel DIMMs: 16 DIMM connectors
- Types: Fully buffered double-data rate (DDR2) 667 MHz DIMMs with AMB+ or DDR2 800 MHz DIMMs with AMB+
- Supports 2 GB and 4 GB DIMMs (as of the date of this publication) with up to 64 GB of total memory in each system-board tray

Hard disk drives:

- The system-board tray supports one 3.5-inch simple-swap SAS or one 3.5-inch simple-swap SATA hard disk drive.
- The system-board tray with a storage enclosure attached can support up to four 3.5-inch simple-swap SAS hard disk drives or up to five 3.5-inch simple-swap SATA hard disk drives.

PCI expansion slots:

- Each system-board tray supports one PCIe expansion slot

Integrated functions:

- Intel baseboard management controller (BMC) with Intelligent Platform Management Interface (IPMI) 2.0 compliant firmware
- ATI ES1000 video controller with 32 MB DDR2 SDRAM
- Dual 10 Mb/100 Mb/1 GB network interface controllers
- Wake on LAN® support
- I/O Controller with six Serial ATA (SATA) ports
- Front panel connectors:
  - Two Universal Serial Bus (USB) 2.0 ports
  - One systems management serial port
  - VGA video port
  - Two Ethernet ports

Size (2U chassis):

- Height: 86 mm (3.386 inches)
- Depth: 473 mm (18.6 inches)
- Width: 446 mm (17.56 inches)
- Maximum weight: 6.98 kg (15.5 lb)

Environment:

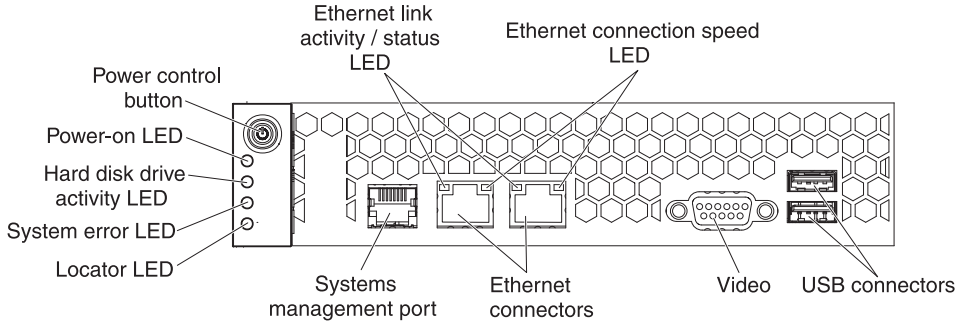
- Air temperature:
  - Server on: 10°C to 35°C (50°F to 95°F); altitude: 0 to 914.4 m (0 to 3000 ft). Derate maximum temperature by 1°C for every 304.8 m (1000 ft) increase in elevation to a maximum of 3,048.0 m (10000 ft) at an ambient temperature of 28°C.
  - Server off: 10°C to 43°C (59°F to 109.4°F); maximum altitude: 2133 m (7000 ft)
- Humidity:
  - Server on: 10% to 80%
  - Server off: 8% to 80%

Electrical Input:

- Input voltage low range: 100 V ac (minimum) to 127 V ac (maximum), 50 to 60 Hz, sine-wave input
- Input voltage high range: 200 V ac (minimum) to 240 V ac (maximum), 50 to 60 Hz, sine-wave input

Operator panel controls, LEDs, and connectors

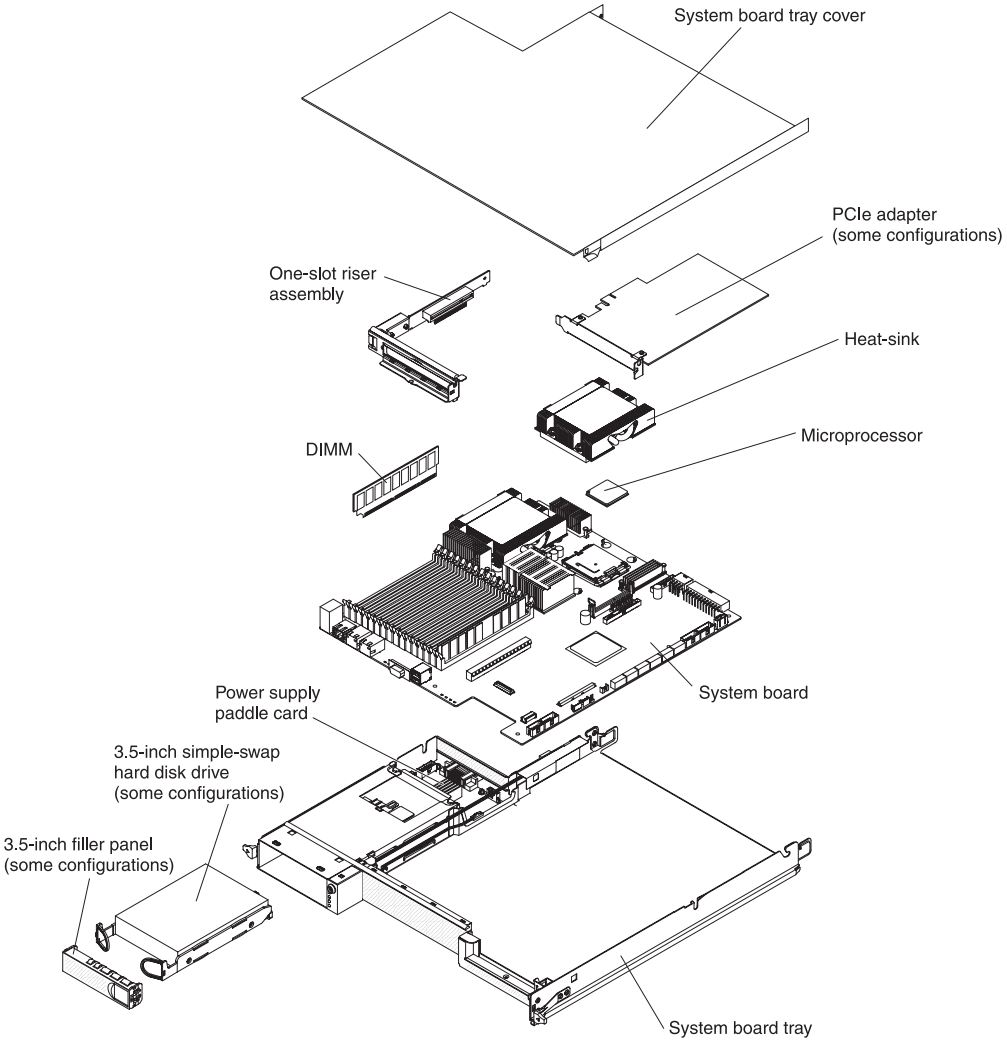
The following illustration shows the controls, LEDs, and connectors on the front of the dx360 system-board tray. The operator panel on the system-board tray is the same for all dx360 server configurations.



System-board tray components

The following illustration shows the major components in the dx360 system-board tray.

Note: The illustrations in this document might differ slightly from your hardware.



Chapter 2. Hints and tips

This chapter contains answers to some frequently asked questions about the iDataPlex dx360 servers. The topics are arranged alphabetically so that you can find the information easily. This information is intended to supplement the iDataPlex documentation listed in “Related documentation” on page 1.

Boot order

- **What is the iDataPlex dx360 boot order?**

  As shipped, the boot order for the iDataPlex dx360 server is set as follows:

  1. Network boot
  2. Hard disk drive boot
  3. Unified Extensible Firmware Interface (UEFI) boot

- **What is the factory default iDataPlex dx360 boot order?**

  If you reset the boot order for the iDataPlex dx360 server to its factory default setting, the boot order reverts to the manufacturer's setting, which is as follows:

  1. Hard disk drive boot
  2. Network boot
  3. Unified Extensible Firmware Interface (UEFI) boot

- **How can I change the iDataPlex dx360 boot order?**

  You can use the BIOS Setup Utility to change or temporarily override the boot order settings. To use the BIOS Setup Utility to change or override the boot order settings, complete the following steps:

  1. Turn off the system-board tray.
  2. Restart the system-board tray.
  3. Press F2.
  4. Select one of the following:
     - **Boot Options**

       Select this choice to view or permanently change the boot order settings in BIOS.
     - **Boot Manager**

       Select this choice to temporarily override the boot order settings in BIOS without changing the settings in the BIOS Configuration Utility. The next time the system-board tray is started, it returns to the startup sequence that is set in the BIOS Configuration Utility program.
  5. Select the startup device and press Enter to boot from the selected device.

Diagnostic programs

- **Does the iDataPlex dx360 support the IBM Dynamic System Analysis (DSA) Preboot programs?**

  The IBM Dynamic System Analysis (DSA) Preboot diagnostic programs are the primary method of testing the major components of the iDataPlex servers. There are some limitations to the number of DSA Preboot tests supported for the iDataPlex dx360.

- **How can I obtain a current image of the DSA Preboot diagnostic programs?**

  To download the latest version of the DSA Preboot programs, complete the following steps.

  Note: Changes are made periodically to the IBM Web site. The actual procedure might vary slightly from what is described in this document.

  1. Go to http://www.ibm.com/systems/support/.
  2. Under **Product support**, click **System x**.
  3. Under **Popular links**, click **Software and device drivers**.
  4. Click **Dynamic System Analysis (DSA)**.

  For additional information about using the DSA diagnostic programs, see the *IBM System x iDataPlex dx360 Problem Determination and Service Guide*.

Firmware updates

- **Can I update just the BIOS?**

  The firmware-update package contains the BIOS and BMC code. When you install the package, it automatically updates the BIOS and BMC code simultaneously. To view the current firmware levels, you can use the DSA Preboot program, or you can press F2 during startup to enter the BIOS Setup utility.

- **How can I obtain the current firmware-update package?**

  To download the latest firmware package for the iDataPlex dx360, complete the following steps.

  Note: Changes are made periodically to the IBM Web site. The actual procedure might vary slightly from what is described in this document.

  1. Go to http://www.ibm.com/systems/support/.
  2. Under **Product support**, click **System x**.
  3. Under **Popular links**, click **Software and device drivers**.
  4. Click **System x iDataPlex dx360 server** to display the matrix of downloadable files.
  5. Select the applicable file for your operating system and the file type for the medium that you want to use; then, download the flash update.

  For additional information about updating the firmware, see the *IBM System x iDataPlex dx360 Problem Determination and Service Guide*.

Hardware configuration

- **Can I mix iDataPlex dx320, dx340, and dx360 servers in the same rack?**

  To avoid potential problems, do not change the mixture of servers installed in a configured iDataPlex rack solution.

  As of the date of this publication, no iDataPlex rack solutions are available with a mixture of dx320, dx340, and dx360 servers. For up-to-date information about iDataPlex rack solutions that contain multiple types of servers, contact your IBM marketing representative or authorized reseller.

- **What iDataPlex dx360 server configurations are available?**

  Two basic server configurations are available as follows:

  – The 2U compute server consists of two identical iDataPlex dx360 system-board trays installed in a 2U chassis. The system-board trays function as two independent 1U servers. Each iDataPlex dx360 system-board tray supports one 3.5-inch simple-swap hard disk drive.

  – The 2U storage server consists of a dx360 system-board tray with a storage enclosure installed in a 2U chassis. The storage enclosure provides four additional 3.5-inch drive bays and enables the server to have up to four 3.5-inch simple-swap SAS hard disk drives or up to five 3.5-inch simple-swap SATA hard disk drives.

    Note: The drive bay in the system-board tray is not used when the storage enclosure contains 3.5-inch simple-swap SAS drives.

IP settings and alerts

- **Where are the BMC IP settings for the dx360 system-board tray?**

  You must issue IPMI commands to obtain the baseboard management controller (BMC) IP settings. Instructions for obtaining the BMC IP settings are provided in Retain Tip 9693.

- **Why can't I get Alerts from the iDataPlex dx360 system-board tray during the Address Resolution Protocol (ARP) process?**

  To receive Alerts during the ARP process, you must enter both the media access control (MAC) address and the IP address of the target device.

  Note: The BMC MAC address is on a label that is to the left of the PCIe slot on the front of the dx360 system-board tray.

Management tools

- **What management tools are available for the iDataPlex dx360?**

  The following tools have been tested and approved for use with the iDataPlex dx360:

  – Avocent 5300

  – IPMItool (available at http://ipmitool.sourceforge.net/)

  – Extreme Cluster Administration Toolkit (XCAT) (available at http://xcat.sourceforge.net/)

- **Is there a utility program that I can use to set all of the configuration parameters for all of the dx360 servers in my iDataPlex rack?**

  As of the date of this publication, the only utilities that are available to set all of the configuration parameters are the Intel `sysconfig` utilities. The `sysconfig` utilities are provided and supported by Intel, and you can download the utilities from the following sites:

  – Save and Restore System Configuration Utility for Linux: http://downloadcenter.intel.com/Detail_Desc.aspx?agr=Y&inst=yes &productid=2859&dwnldid=16919&stross=all&osfullname=all%20operating %20systems&lang=eng

  – Save and Restore System Configuration Utility for the EFI Shell: http://downloadcenter.intel.com/Detail_Desc.aspx?agr=Y&inst=yes &productid=2859&dwnldid=16923&stross=all&osfullname=all%20operating %20systems&lang=eng

Memory

- **Are memory upgrades available for the iDataPlex dx360?**

  Memory upgrades are not available for the iDataPlex dx360 servers. To avoid potential problems, do not attempt to upgrade the number or type of DIMMs in an iDataPlex dx360 system-board tray.

- **What type of memory is available for the iDataPlex dx360?**

  The iDataPlex dx360 system board has 16 DIMM connectors and supports fully buffered double-data rate (DDR2) 667 MHz DIMMs with AMB+ or DDR2 800 MHz DIMMs with AMB+. As of the date of this publication, the dx360 supports the following 2 GB and 4 GB DIMMs with up to 64 GB of total memory in each system-board tray.

  2 GB DIMM, DDR2–667 PC2-5300 555 fully buffered DIMM with AMB+

  4 GB DIMM, DDR2–667 PC2-5300 555 fully buffered DIMM with AMB+

  2 GB DIMM, DDR2–800 PC2-6400 666 fully buffered DIMM with AMB+

  4 GB DIMM, DDR2–800 PC2-6400 666 fully buffered DIMM with AMB+

  Notes:

  1. The 667 MHz DIMMs operate with all supported microprocessors. (See “Microprocessors” on page 9 for the list of supported microprocessors.)
  2. The 800 MHz DIMMs operate with only the Intel Xeon E5462 2.80 GHz/1600 MHz quad core and Intel Xeon E5472 3.00 GHz/1600 MHz quad core microprocessors.

Microprocessors

- **Are microprocessor upgrades available for the iDataPlex dx360?**

  Microprocessor upgrades are not available for the iDataPlex dx360 servers. The microprocessors are field replaceable units (FRUs). FRUs must be installed, removed, or replaced only by trained service technicians.

- **What microprocessors are available for the iDataPlex dx360?**

  The iDataPlex dx360 system board supports two dual-core or quad-core Intel Xeon microprocessors. As of the date of this publication, the following microprocessors are available for the iDataPlex dx360 system board:

  Intel Xeon L5410 2.33 GHz/1333 MHz quad core 50W

  Intel Xeon L5420 2.50 GHz/1333 MHz quad core 50W

  Intel Xeon E5420 2.50 GHz/1333 MHz quad core 80W

  Intel Xeon E5430 2.66 GHz/1333 MHz quad core 80W

  Intel Xeon E5462 2.80 GHz/1600 MHz quad core 80W

  Intel Xeon E5440 2.83 GHz/1333 MHz quad core 80W

  Intel Xeon L5240 3.00 GHz/1333 MHz dual core 40W

  Intel Xeon E5472 3.00 GHz/1600 MHz quad core 80W

Operating systems

What operating systems are supported for the iDataPlex dx360?

As of the date of this publication, the iDataPlex dx360 servers support Red Hat Enterprise Linux® 5.1 and SUSE Linux Enterprise Server (SLES) 10.1. For up-to-date information about the operating systems supported for the iDataPlex dx360, contact your IBM marketing representative or authorized reseller.

Passwords and security

- **Why did the iDataPlex dx360 server stop working and display the message `Invalid Password`?**

  The iDataPlex dx360 server will stop operating when an incorrect power-on password is entered three consecutive times. You can regain access to the dx360 server in any of the following ways:

  – If an administrator password is set, type the administrator password at the password prompt. Start the BIOS Setup Utility program and reset the user password.

  – Clear the password by using the clear jumper. (See the *IBM System x iDataPlex dx360 Problem Determination and Service Guide* for instructions.)

- **Why are all users allowed to connect to the iDataPlex dx360 with an IPMI command?**

  The iDataPlex dx360 is shipped with no configured password. When the iDataPlex dx360 is installed, the customer must set the password and authentication level if they want to restrict access to the server.

System-error LED

Why is the system-error LED on the iDataPlex dx360 system-board tray lit when there are no other error indications?

If the system-error LED on the front of the system-board tray is lit but there are no error indications, clear the BMC system-event log. This log does not clear itself, and if it begins to fill up, the system-error LED will be lit. Also, after you complete a repair or correct an error, clear the BMC system-event log to turn off the system-error LED.

Video

Why does the video take so long to appear during startup?

During startup, the iDataPlex dx360 BIOS Power on Self-Test (POST) verifies the memory and all hardware subsystems. The last step in the BIOS POST process is the video display initialization. BIOS requires approximately 40 seconds to complete the POST process and initialize the video display.

Chapter 3. 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 iDataPlex information is http://publib.boulder.ibm.com/infocenter/systems/scope/idataplex/index.jsp. 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 IBM Services or through your IBM reseller, if your reseller is authorized by IBM to provide warranty service. See http://www.ibm.com/planetwide/ for support telephone numbers, or 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

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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. 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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Some software might differ from its retail version (if available) and might not include user manuals or all program functionality.

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