

Remote Supervisor Adapter II



Installation Guide

Remote Supervisor Adapter II



Installation Guide

Note: Before using this information and the product it supports, read the general information in Appendix B, "IBM Statement of Limited Warranty Z125-4753-07 11/2002," on page 37 and Appendix C, "Notices," on page 59.

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Safety

Before installing this product, read the Safety Information.

قبل تركيب هذا المنتج، يجب قراءة الملاحظات الأمنية

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

在安裝本產品之前，請仔細閱讀 **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 ασφαλείας (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 pečítajte 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.

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:

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.

To Disconnect:

1. Turn everything OFF.
2. First, remove power cords from outlet.
3. Remove signal cables from connectors.
4. Remove all cables from devices.

Statement 2:



CAUTION:

When replacing the lithium battery, use only IBM 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.

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.



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. Introduction

This document provides information about installing the IBM® Remote Supervisor Adapter II in IBM @server™ servers, including how to:

- Install and cable your adapter
- Download the software and firmware needed to configure the adapter

Your Remote Supervisor Adapter II documentation might be updated occasionally to include information about new features, a translated version of the documentation might be available in your language, or technical updates might be available to provide additional information that is not included in your adapter documentation. These updates are available from the IBM Web site. Complete the following steps to check for updated documentation and technical updates:

1. Go to <http://www.ibm.com/pc/support/>.
2. In the **Learn** section, click **Online publications**.
3. On the “Online publications” page, in the **Brand** field, select **Servers**.
4. In the **Family** field, select **Rack/Storage Enclosures**.
5. Click **Display documents**.

After you install and configure the Remote Supervisor Adapter II, use the Remote Supervisor Adapter II Web interface to use the Remote Supervisor Adapter II features. For more information, see the *IBM Remote Supervisor Adapter II User's Guide* on the *IBM Documentation CD*.

For service, assistance, or additional information, see Appendix A, “Getting help and technical assistance,” on page 35.

Important: Moving the Remote Supervisor Adapter II from one server type (for example, an IBM @server xSeries 235) to another server type (for example, an IBM @server xSeries 345) is not supported.

Installation prerequisites

Before installing the Remote Supervisor Adapter II, perform the following tasks:

- Make sure you have an Internet connection. You will need an Internet connection during the installation process to download software and firmware from the IBM Support Web site. For information about how to download the Remote Supervisor Adapter II files, see “Obtaining Remote Supervisor Adapter II software and firmware” on page 22.

- Install the operating system on your server before you install the device drivers for the Remote Supervisor Adapter II. For information about installing the operating system, see the documentation that comes with your server.

Installation requirements

The following items are required to install the Remote Supervisor Adapter II:

- Supported IBM @server xSeries® server
- Remote Supervisor Adapter II device drivers, which are supported on the following operating systems:
 - Microsoft® Windows® 2000 Server
 - Microsoft Windows 2000 Advanced Server
 - Microsoft Windows Server 2003 Standard Edition
 - Microsoft Windows Server 2003 Enterprise Edition
 - Red Hat Linux 7.3
 - SuSE Linux 8.0

Note: A later version of Red Hat Linux or SuSE Linux might be supported for your server. To determine whether there is a supported Remote Supervisor Adapter II device driver for your server model running your version of Red Hat Linux or SuSE Linux, go to <http://www.ibm.com/pc/support/>.

- Documentation that comes with your server

For software requirements to use the Web interface, see the *Remote Supervisor Adapter II User's Guide*.

Note: The Remote Supervisor Adapter II Web interface does not support the double-byte character set (DBCS) languages.

Remote Supervisor Adapter II features

The Remote Supervisor Adapter II provides the following standard features:

- Access to critical server settings
- Access to server vital product data (VPD)
- Advanced Predictive Failure Analysis® (PFA) support
- Alphanumeric or numeric pager alerts
- Automatic notification and alerts
- Automated Server Restart (ASR)
- Continuous health monitoring and control
- Domain Name System (DNS) server support

- Dynamic Host Configuration Protocol (DHCP) support
- E-mail alerts
- Enhanced user authority Levels
- Event logs that are time stamped, saved on the Remote Supervisor Adapter II, and can be attached to e-mail alerts
- Independent power, which enables around-the-clock access to the server even when the server power is off
- LAN and Advanced System Management (ASM) interconnect remote access
- Operating-system-failure screen capture
- Remote access through Ethernet and ASM interconnect peer-to-peer network
- Remote disk enabling the attachment of a diskette drive, CD-ROM drive, or disk image to a server
- Remote firmware update and access to critical server settings
- Remote power control
- Seamless remote accelerated graphics
- Secure Web server user interface
- Server console redirection
- Simple Network Management Protocol (SNMP) support
- Remote firmware update
- User authentication using a secure connection to a Lightweight Directory Access Protocol (LDAP) server

The IBM Documentation CD

The IBM *Documentation* CD contains documentation for your Remote Supervisor Adapter II in Portable Document Format (PDF) and includes the IBM Documentation Browser to help you find information quickly.

Hardware and software requirements

The IBM *Documentation* CD requires the following minimum hardware and software:

- Microsoft Windows NT 4.0 (with Service Pack 3 or later), Windows 98, Windows 2000, or Red Hat Linux
- 100 MHz microprocessor
- 32 MB of RAM
- Adobe Acrobat Reader 3.0 (or later) or xpdf, which comes with Linux operating systems

Note: Acrobat Reader software is included on the CD, and you can install it when you run the Documentation Browser.

Using the IBM Documentation Browser

Use the Documentation Browser to browse the contents of the CD, read brief descriptions of the books, and view books using Adobe Acrobat Reader or xpdf. The Documentation Browser automatically detects the regional settings in use in your system and displays the books in the language for that region (if available). If a book is not available in the language for that region, the English version is displayed.

Use one of the following procedures to start the Documentation Browser:

- If you are using a Windows operating system, insert the CD into your CD-ROM drive and click **Start --> Run**. In the **Open** field, type

```
e:\win32.bat
```

where *e* is the drive letter of your CD-ROM drive, and click **OK**.

- If you are using Red Hat Linux, insert the CD into your CD-ROM drive; then, run the following command from the `/mnt/cdrom` directory:

```
sh runLinux.sh
```

Select **Remote Supervisor Adapter II** from the **Product** menu. The **Available Topics** list displays all the books for your adapter. Some books might be in folders. A plus sign (+) indicates each folder or book that has additional books under it. Click the plus sign to display the additional books.

When you select a book, a description of the book appears under **Topic Description**. To select more than one book, press and hold the Ctrl key while you select the books. Click **View Book** to view the selected book or books in Acrobat Reader or xpdf. If you selected more than one book, all the selected books are opened in Acrobat Reader or xpdf.

To search all the books, type a word or word string in the **Search** field and click **Search**. The books in which the word or word string appears are listed in order of the most occurrences. Click a book to view it, and press Ctrl+F to use the Acrobat search function or Alt+F to use the xpdf search function within the book.

Click **Help** for detailed information about using the Documentation Browser.

Related publications

This *Installation Guide* provides general information about your Remote Supervisor Adapter II, including information about features, how to install and configure your Remote Supervisor Adapter II, how to configure an ASM interconnect network, and how to get help.

In addition to this *Installation Guide*, the following documentation is provided in Portable Document Format (PDF) on the IBM *Documentation* CD that comes with your Remote Supervisor Adapter II.

- *IBM Remote Supervisor Adapter II User's Guide*

This publication describes the features and functions of the Remote Supervisor Adapter II Web interface.

- *Safety Information*

This publication 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* book.

Notices and statements used in this book

The caution and danger statements that appear in this book are also in the multilingual *Safety Information* book, which is on the IBM *Documentation* CD. Each statement is numbered for reference to the corresponding statement in the *Safety Information* book.

The following notices and statements are used in the documentation:

- **Notes:** These notices provide important tips, guidance, or advice.
- **Important:** These notices provide information or advice that might help you avoid inconvenient or problem situations.
- **Attention:** These notices indicate potential damage to programs, devices, or data. An attention notice is placed just before the instruction or situation in which damage could occur.
- **Caution:** These statements indicate situations that can be potentially hazardous to you. A caution statement is placed just before the description of a potentially hazardous procedure step or situation.
- **Danger:** These statements indicate situations that can be potentially lethal or extremely hazardous to you. A danger statement is placed just before the description of a potentially lethal or extremely hazardous procedure step or situation.

Unpacking and verifying components

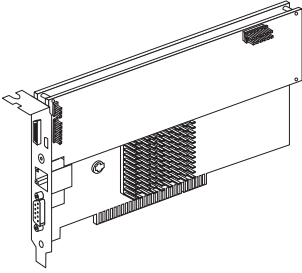
The following sections list the items that come with the Remote Supervisor Adapter II and describe the Remote Supervisor Adapter II components. You must install the Remote Supervisor Adapter II in a peripheral component interconnect (PCI) expansion slot.

Inventory checklist

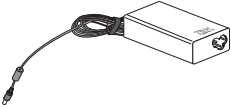
The Remote Supervisor Adapter II option package contains the following items.

Notes:

1. Not all items are required for all servers.
 2. The illustrations in this document might differ slightly from your hardware.
- Remote Supervisor Adapter II



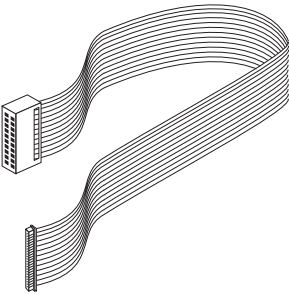
- Power-supply adapter



- Power cord



- 20-pin ribbon cable



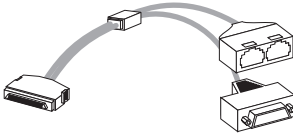
- Mini-USB cable



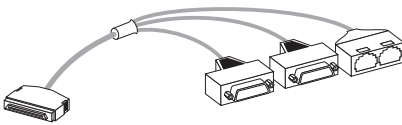
- Universal power cord



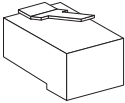
- Advanced System Management (ASM) breakout cable with one serial connector (might not come with your adapter)



- ASM breakout cable with dual serial connectors (might not come with your adapter)



- RS-485 terminator plugs (comes with two)



- IBM *Documentation* CD

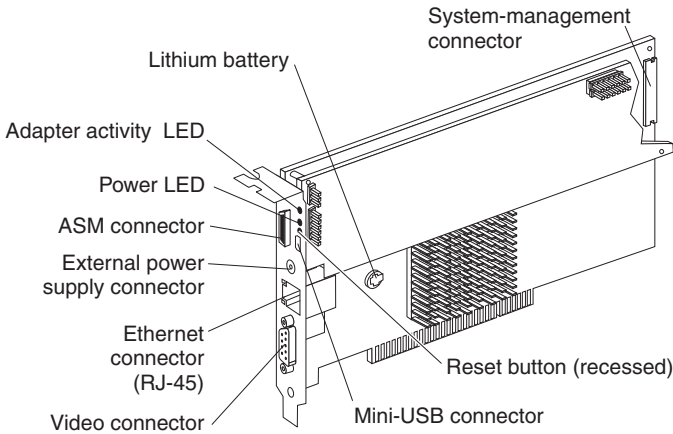
This CD contains the Remote Supervisor Adapter II documentation and the Documentation Browser.

You might need the following items that are not provided with the Remote Supervisor Adapter II option package:

- Category 3 or Category 5 cable to connect the Remote Supervisor Adapter II to your LAN
- Category 3 or Category 5 cable to connect the Remote Supervisor Adapter II to an ASM interconnect network
- Serial RS-232 cable to connect a modem to the Advanced System Management (ASM) breakout cable

Remote Supervisor Adapter II components

The following illustration shows the Remote Supervisor Adapter II and the locations of the connectors and components.



Adapter activity LED

The amber adapter activity LED indicates the status of the Remote Supervisor Adapter II. When the LED is flashing, the Remote Supervisor Adapter II is functioning normally. When the LED is lit continuously, there is a problem with the Remote Supervisor Adapter II. When the LED is off, the Remote Supervisor Adapter II is not functioning.

Power LED

The green power LED indicates the status of the power connection. The power LED is lit when one or both of the following situations occur:

- The Remote Supervisor Adapter II is receiving power from the server in which it is installed.
- The external power-supply adapter is connected to the Remote Supervisor Adapter II and to a properly grounded electrical outlet.

ASM connector

Connect the ASM breakout cable to the ASM connector to enable system management through the serial connector and through the ASM RS-485 connectors.

External power-supply connector

Connect the power-supply adapter that comes with the Remote Supervisor Adapter II to this connector. Using the power-supply adapter is optional. It provides power to the Remote Supervisor Adapter II, independent of the server power supply.

Ethernet connector (RJ-45)

Connect a Category 3 (10 Mbps) or Category 5 (100 Mbps) Ethernet cable to this connector to enable a LAN connection. The Ethernet connector LEDs on the Remote Supervisor Adapter II are described in “Cabling the Ethernet LAN connector” on page 15.

Video connector

Connect the server monitor to this connector.

Mini-USB connector

Connect one end of the mini-USB cable to the mini-USB connector on the Remote Supervisor Adapter II and the other end of the mini-USB cable to the server USB connector.

Reset button

Insert and press the open end of a paper clip (or a similar device) into the hole of the recessed Reset button to manually reset the Remote Supervisor Adapter II.

Lithium battery

The lithium battery provides backup for the Remote Supervisor Adapter II real-time clock.

System-management connector

Connect the 20-pin ribbon cable that comes with the Remote Supervisor Adapter II to the system-management connector on the Remote Supervisor Adapter II and to the Remote Supervisor Adapter connector (sometimes referred to as system-management connector) on the system board in your server.

Chapter 2. Installing and cabling the Remote Supervisor Adapter II

This chapter describes how to install and cable the Remote Supervisor Adapter II in supported xSeries servers and how to download software and firmware files from the IBM Support Web site. (See Table 1 on page 12 for a list of supported xSeries servers.)

Before you begin

Before you begin installing the Remote Supervisor Adapter II in your server, read the following information:

- Read the safety information beginning on page v and the guidelines in “Handling static-sensitive devices.” This information will help you work safely with your server and options.
- Verify and complete the installation prerequisites. See “Installation prerequisites” on page 1.
- Unpack and verify the components. See “Unpacking and verifying components” on page 5.

Handling static-sensitive devices

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

To reduce the possibility of damage from 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 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 server 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 server without setting down the device. If it is necessary to set down the device, place it back into its static-protective package. Do not place the device on your server cover or on a metal surface.
- Take additional care when handling devices during cold weather. Heating reduces indoor humidity and increases static electricity.

Installing the adapter

Complete the following steps to install the Remote Supervisor Adapter II in an xSeries server:

1. Turn off the server and attached devices, and disconnect all power cords and external cables.
2. Remove the server from the rack cabinet (if applicable).
3. Remove the server cover. For instructions, see the documentation that comes with your server.
4. Using Table 1, determine which expansion slot you will use for the Remote Supervisor Adapter II.

Table 1. Remote Supervisor Adapter II required PCI slot

Server ¹	Required PCI slot
xSeries 205 Type 8480	1
xSeries 235 Type 8671	1
xSeries 255 Type 8685	1
xSeries 305 Type 8673	1
xSeries 345 Type 8670	5

¹For installation information for supported xSeries servers not listed in this table, see the documentation that comes with your server.

Attention: Expansion-slot covers must be installed on all vacant slots. This maintains the electronic emission characteristics of the server and ensures proper cooling of server components.

5. Remove the expansion-slot cover. Store it in a safe place for future use.

Attention: Avoid touching the components and gold-edge connectors on the adapter.

6. Connect the 20-pin ribbon cable to the system board using the procedure in “Connecting the 20-pin ribbon cable to the system board or riser card” on page 13. Then, return to step 7.

7. Remove the adapter from the static-protective package.

8. Complete the following steps to install the adapter. For more information, see the *Option Installation Guide* that comes with your server.

- a. Carefully grasp the adapter by its top edge or upper corners, and align it with PCI slot on the system board.

Attention: When you install the adapter in the server, be sure that it is completely and correctly seated in the system-board connector before you apply power. Incomplete insertion might cause damage to the system board or the adapter.

- b. Press the adapter firmly into the PCI slot.

9. Connect the free end of the 20-pin ribbon cable to the Remote Supervisor Adapter II using the procedure in “Connecting the 20-pin ribbon cable to the Remote Supervisor Adapter II” on page 14. Then, return to step 10.
10. Replace the server cover.
11. Connect the mini-USB cable to the mini-USB connector on the Remote Supervisor Adapter II and to the USB connector on the server.
12. Install the server in the rack cabinet (if applicable).
13. Connect the external cables and power cords that you disconnected in step 1 on page 12.
14. Connect the Ethernet cable to the Ethernet connector on the Remote Supervisor Adapter II. For more information, see “Cabling the Ethernet LAN connector” on page 15; then, return to step 15.
15. Connect the video cable of your video device to the video connector on the Remote Supervisor Adapter II. If the video device is already connected to the server, remove the video cable from the server and connect it to the video connector on the Remote Supervisor Adapter II.
16. If you want redundant power, which gives you access to the Remote Supervisor Adapter II event log when the main server power source is unavailable, connect the external power-supply adapter that comes with the Remote Supervisor Adapter II. For information about connecting the power-supply adapter, see “Connecting the external power-supply adapter” on page 16. Then, return to step 17.
17. If your Remote Supervisor Adapter II came with an ASM breakout cable with one serial connector and you want to connect the Remote Supervisor Adapter II to a modem or to an ASM interconnect network, see “Connecting the ASM breakout cable with one serial connector” on page 19.

Note: Connecting a modem to the Remote Supervisor Adapter II using the ASM breakout cable with one serial connector provides dial-out support only.

18. If your Remote Supervisor Adapter II came with an ASM breakout cable with dual serial connectors and you want to connect the Remote Supervisor Adapter II to a modem, terminal server, or to an ASM interconnect network, see “Connecting the ASM breakout cable with dual serial connectors” on page 20.
19. Go to “Obtaining Remote Supervisor Adapter II software and firmware” on page 22.

Connecting the 20-pin ribbon cable to the system board or riser card

The 20-pin ribbon cable connects the Remote Supervisor Adapter II to the server system board or riser card and is required for power and data transfer.

Complete the following steps to connect the 20-pin ribbon cable to the server system board or riser card:

1. Connect one end of the 20-pin ribbon cable to the Remote Supervisor Adapter II connector (sometimes referred to as the system-management connector) on the system board or riser card. The 20-pin ribbon cable connector ends are keyed for proper installation. For the connector location on your server system board, see Table 2 or the documentation that comes with your server.

Table 2. System board connector locations for 20-pin ribbon cable

Server ¹	System board connector location for the 20-pin ribbon cable
xSeries 205 Type 8480	CN20
xSeries 235 Type 8671	J27
xSeries 255 Type 8685	J16
xSeries 305 Type 8673	CN12
xSeries 345 Type 8670	J2
¹ For system board connector locations for supported xSeries servers not listed in this table, see the documentation that comes with your server.	

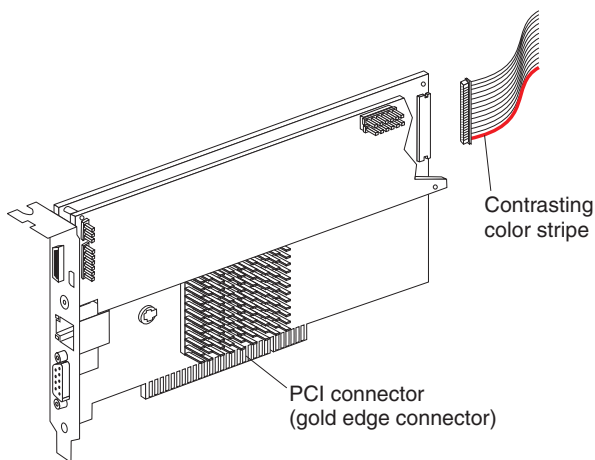
2. Return to step 7 on page 12.

Connecting the 20-pin ribbon cable to the Remote Supervisor Adapter II

Complete the following steps to connect the 20-pin ribbon cable to the Remote Supervisor Adapter II.

Attention: You can damage the system-management connector on the Remote Supervisor Adapter II if the 20-pin ribbon cable is not properly connected to it. When you connect the ribbon cable to the Remote Supervisor Adapter II, be sure that the contrasting color stripe on the ribbon cable is closest to the adapter edge that has the PCI connector (gold edge connectors).

1. Before connecting the 20-pin ribbon cable to the Remote Supervisor Adapter II, connect the cable to the server system board or riser card and install the Remote Supervisor Adapter II in the server.
2. Connect the free end of the 20-pin ribbon cable to the system-management connector on the Remote Supervisor Adapter II. The 20-pin ribbon cable connector ends are keyed for proper installation.



Attention: Route cables so that they do not block the flow of air from the fans.

3. Return to step 10 on page 13.

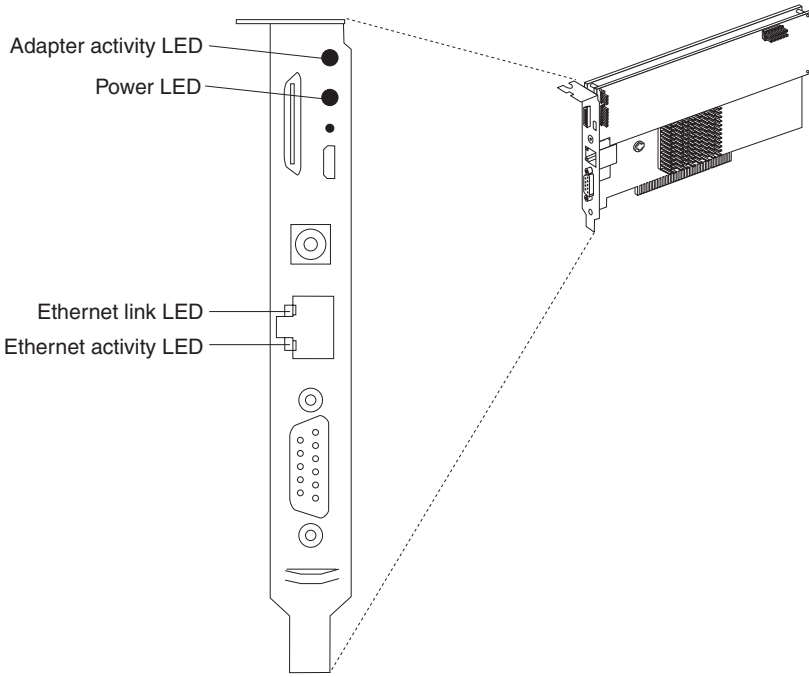
Cabling the Ethernet LAN connector

You can manage your server remotely through the Remote Supervisor Adapter II using the Web-based user interface.

Note: To remotely monitor a server through the Remote Supervisor Adapter II Web interface, you must connect a Category 3 or Category 5 Ethernet cable from your LAN to the Ethernet connector on the Remote Supervisor Adapter II. This connection is not the LAN connection for the server. To connect the server itself to your Ethernet network, you will need to connect a second Category 3 or Category 5 Ethernet cable from your network to the Ethernet connector on the server.

Complete the following steps to connect the Remote Supervisor Adapter II to your network using an Ethernet cable:

1. Connect one end of a Category 3 or Category 5 Ethernet cable to the Ethernet connector on the Remote Supervisor Adapter II. Connect the other end of the Ethernet cable to your network.
2. Check the Remote Supervisor Adapter II Ethernet LEDs and power and adapter activity LEDs. The location of the LEDs is shown in the following illustration. Then, return to step 15 on page 13.



Ethernet link LED

The green Ethernet link LED is lit when the Ethernet cable is connected properly.

Ethernet activity LED

The green Ethernet activity LED is flashing when there is Ethernet activity.

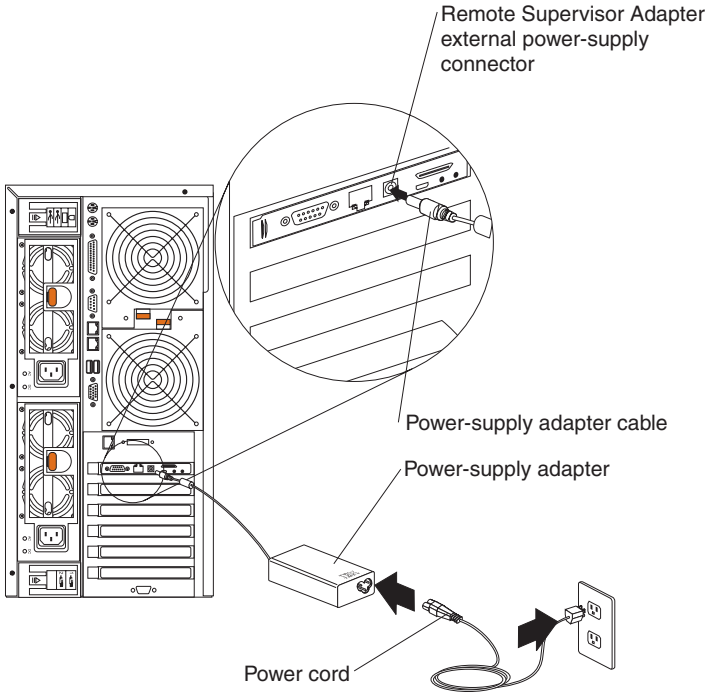
Connecting the external power-supply adapter

Connecting the power-supply adapter to the Remote Supervisor Adapter II is optional and provides access to the Remote Supervisor Adapter II event log when the main server power source is unavailable. After you connect the power-supply adapter to the Remote Supervisor Adapter II, you can use the power cord to connect the power-supply adapter to a properly grounded electrical outlet. You can use the universal power cord that comes with the Remote Supervisor Adapter II to connect the power-supply adapter to a power distribution unit (PDU) or to an uninterruptible power supply.

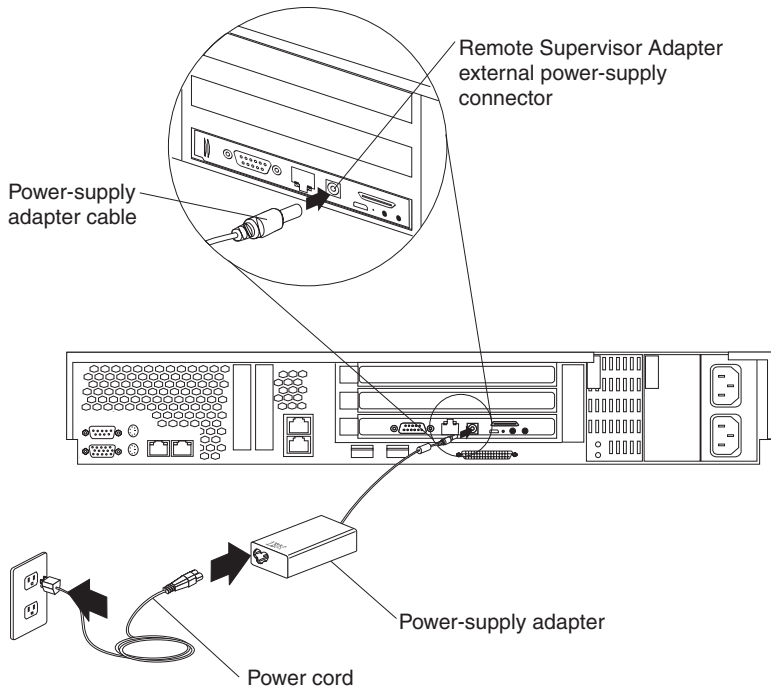
Complete the following steps to connect the power-supply adapter and power cord to your server:

1. If the server is running, shut down the operating system and turn off the server.
2. Disconnect the power cords from the server.
3. Connect the power-supply adapter cable to the external power-supply connector on the Remote Supervisor Adapter II.

The following illustration shows the location of the power-supply connector on a Remote Supervisor Adapter II installed in a tower-model server.



The following illustration shows the location of the power-supply connector on a Remote Supervisor Adapter II installed in a rack-mounted server.



4. Connect one end of the power cord to the connector on the power-supply adapter.
5. Connect the other end of the power cord to a properly grounded electrical outlet.

Note: You can connect one end of the universal power cord to the power-supply adapter; then, connect the other end to a power distribution unit (PDU) or to an uninterruptible power supply.

6. Check that the Remote Supervisor Adapter II power LED is lit, to verify that there is power to the Remote Supervisor Adapter II. For the location of the power LED, see the illustration in “Cabling the Ethernet LAN connector” on page 15.
7. Connect the power cords to the server and turn on the server.
8. Return to step 17 on page 13..

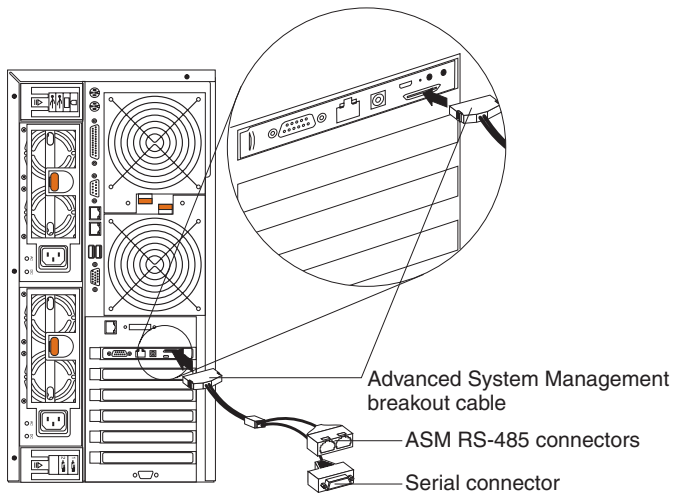
Connecting the ASM breakout cable with one serial connector

Note: If your Remote Supervisor Adapter II came with the ASM breakout cable with dual serial connectors, go to “Connecting the ASM breakout cable with dual serial connectors” on page 20. Otherwise, follow the procedures in this section.

The ASM breakout cable with one serial connector connects the Remote Supervisor Adapter II to a modem through the serial connector. or to the ASM interconnect network through the ASM RS-485 connectors.

Note: Connecting a modem to the Remote Supervisor Adapter II using the ASM breakout cable with one serial connector provides dial-out support only.

The following illustration shows how to connect the ASM breakout cable to the ASM connector on a Remote Supervisor Adapter II installed in a tower model server.



To connect the Remote Supervisor Adapter II to an ASM interconnect network, connect a Category 3 or Category 5 cable to one of the ASM RS-485 connectors on the ASM breakout cable. For more information, see Chapter 3, “Using the ASM interconnect network,” on page 27.

To connect the Remote Supervisor Adapter II to a modem, connect the modem to the serial connector on the ASM breakout cable.

Continue with “Obtaining Remote Supervisor Adapter II software and firmware” on page 22.

Connecting the ASM breakout cable with dual serial connectors

Note: If your Remote Supervisor Adapter II came with the ASM breakout cable with one serial connector, go to “Connecting the ASM breakout cable with one serial connector” on page 19. Otherwise, follow the procedures in this section.

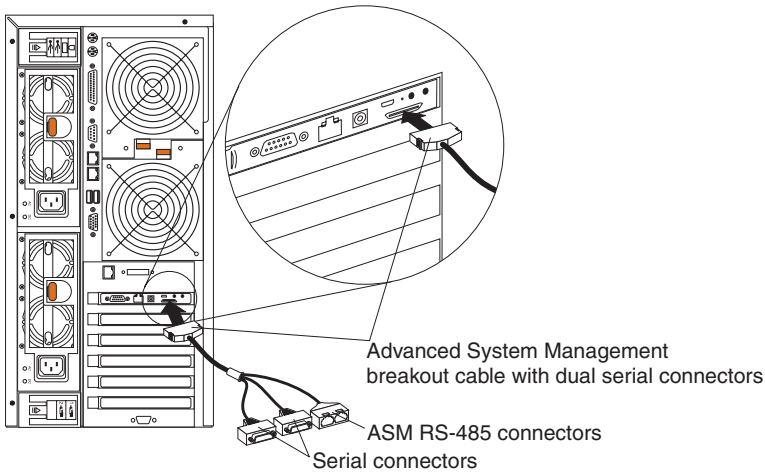
You can use the ASM breakout cable with dual serial connectors to connect the server serial port (using a null modem cable) to a client workstation using a terminal-emulation program such as Hilgraeve HyperTerminal or to a hardware terminal server (also using a null modem cable). The Remote Supervisor Adapter II acts as a pass-through device. Using this single serial connection to a terminal server or client workstation, a system administrator can access the serial features of both the operating system and the Remote Supervisor Adapter II. The Remote Supervisor Adapter II command-line interface provides text-based power control and server reset ability.

To use the ASM breakout cable with dual serial connectors for a single serial connection to a terminal server, make sure that:

- Your server basic input/output system (BIOS) code supports the single serial connection. This BIOS serial support is needed to provide power-on self-test (POST), setup, and end-to-end remote access.
- You update the Remote Supervisor Adapter II firmware. For more information, see “Obtaining Remote Supervisor Adapter II software and firmware” on page 22.
- Your operating system has serial support for text management in the operating system. The following operating systems have serial support:
 - Microsoft Windows Server 2003 Enterprise Edition with emergency management services for serial console support
 - Linux operating systems with Agetty serial console support

The following illustration shows how to connect the ASM breakout cable with dual serial connectors to the ASM connector on a Remote Supervisor Adapter

II installed in a tower model server.



The ASM breakout cable with dual serial connectors also connects the Remote Supervisor Adapter II to the ASM interconnect network through the ASM RS-485 connector or to a modem through the serial connector.

To connect the Remote Supervisor Adapter II to an ASM interconnect network, connect a Category 3 or Category 5 cable to one of the ASM RS-485 connectors on the ASM breakout cable. For more information, see Chapter 3, “Using the ASM interconnect network,” on page 27.

Two common Remote Supervisor Adapter II configurations are serial-to-serial redirection and serial-to-Telnet redirection. The hardware setup for these configurations is described in the following sections.

Serial-to-serial redirection

Serial-to-serial redirection enables the Remote Supervisor Adapter II to pass data between COM1 and COM2. This mode is useful when a single serial connection is required to a client computer or a hardware terminal server.

Complete the following steps to set up the hardware connections for the serial-to-serial configuration:

1. Connect the server serial connector to the Remote Supervisor Adapter II serial connector labeled COM1.
2. Connect the Remote Supervisor Adapter II serial port labeled COM2 to a terminal server or client serial port.
3. Configure the serial ports using the Remote Supervisor Adapter II Web interface. For more information, see the *User's Guide*.

Serial-to-Telnet redirection

Serial-to-Telnet redirection enables a system administrator to use the Remote Supervisor Adapter II as a serial terminal server. Either one or both serial ports can be accessed from a Telnet connection when serial redirection is enabled.

Complete the following steps to set up the hardware connections to configure the Remote Supervisor Adapter II for serial-to-Telnet redirection with CLI disabled:

1. Connect the Remote Supervisor Adapter II serial connector labeled COM2 to the server serial connector.
2. Connect an Ethernet cable to the Remote Supervisor Adapter II Ethernet connector.
3. Configure the serial ports using the Remote Supervisor Adapter II Web interface. For more information, see the *User's Guide*.

Continue with "Obtaining Remote Supervisor Adapter II software and firmware."

Obtaining Remote Supervisor Adapter II software and firmware

Before you can continue the installation and configuration of the Remote Supervisor Adapter II, you must download software and firmware from the IBM Support Web site. This section describes how to download the files from the Web site. Which files you need to download depends on your server type and operating system.

Note: Changes are made periodically to the IBM Support Web site to provide timely customer information and better navigation. The search methods in the following procedures are suggestions. You might need to modify the search process depending on the Web page design.

For Microsoft Windows 2000 and Windows Server 2003

If the server in which the Remote Supervisor Adapter II is installed is running the Microsoft Windows 2000 or Windows Server 2003 operating system, you will need to download one file, which contains the following software and firmware:

- Software and firmware installation instructions
- Video adapter basic input/output system (BIOS) update
- @server xSeries BIOS update with support for the Remote Supervisor Adapter II
- Diagnostics code update
- Remote Supervisor Adapter II device drivers

- Remote Supervisor Adapter II firmware code update
- Integrated service processor firmware update
- Video device driver
- Advanced Settings Utility program

The software and firmware files that you need are contained in one system service package for Windows installation kit. Complete the following steps to locate and download the package file.

1. Go to <http://www.ibm.com/pc/support/>.
2. In the left navigation pane, click **Search PC support**.
3. In the “Search PC support” window, under **Additional search options**, in the **Restrict to this document type** field, select **Downloads and drivers**.
4. In the **Restrict to this brand** field, select **Servers**.
5. Wait for the page to automatically refresh; then, in the **Restrict to this family** field, select your server model.
6. Wait for the page to automatically refresh; then, in the **Enter search terms** field, type "system service package". (Do not use the **Search** field.)
7. Click **Search**.
8. Select the system service package that corresponds to the server model and the operating system that is running on the server in which the Remote Supervisor Adapter II is installed. The file you download will be in *.exe format.
9. Click the file link to download the system service package to *d:\ibmssp*, where *d* is the hard disk drive letter. (Create the directory if necessary.)
10. Browse the *d:\ibmssp* directory and double click the *.exe file to extract the packaged files. Extract the files into the *d:\ibmssp* directory.
11. See the readme.txt file that is extracted into the *d:\ibmssp* directory for a list of the file names and their descriptions.
12. To ensure correct software installation, follow the detailed installation instructions in *Remote Supervisor Adapter II Installation Instructions for Windows Users*, which is in Portable Document Format (PDF) in the *d:\ibmssp* directory.

Note: If you do not have Adobe Acrobat Reader installed on the computer or server on which you unpacked the downloaded files, it is available on the IBM *Documentation* CD that comes with the Remote Supervisor Adapter II option package.

For SuSE Linux and Red Hat Linux

If the server in which the Remote Supervisor Adapter II is installed is running the Red Hat Linux or SuSE Linux operating system, you will need to download one file, which contains the following software and firmware:

- Software and firmware installation instructions
- Video adapter basic input/output system (BIOS) update
- @server xSeries™ BIOS update with support for the Remote Supervisor Adapter II
- Diagnostics code update
- Remote Supervisor Adapter II device drivers
- Remote Supervisor Adapter II firmware code update
- Advanced Settings Utility program

The software and firmware files that you need are contained in one system service package for Linux installation kit. Complete the following steps to locate and download the package file:

1. Go to <http://www.ibm.com/pc/support/>.
2. In the left navigation pane, click **Search PC support**.
3. In the “Search PC support” window, under **Additional search options**, in the **Restrict to this document type** field, select **Downloads and drivers**.
4. In the **Restrict to this brand** field, select **Servers**.
5. Wait for the page to automatically refresh; then, in the **Restrict to this family** field, select your server model.
6. Wait for the page to automatically refresh; then, in the **Enter search terms** field, type "system service package". (Do not use the **Search** field.)
7. Click **Search**.
8. Select the system service package that corresponds to the server model and the operating system that is running on the server in which the Remote Supervisor Adapter II is installed. The file you download will be in *.tgz format.
9. Click the file link to download the system service package.
10. From a command-line prompt, type "`tar -xvfz filename.tgz`", where *filename* is the name of the file you downloaded. This command will create a directory named `ibmssp` and extract the files to it.
11. See the `readme.txt` file that is extracted into the `ibmssp` directory for a list of the file names and their descriptions.
12. To ensure correct software installation, follow the detailed installation instructions in *Remote Supervisor Adapter II Installation Instructions for Linux Users*, which is in Portable Document Format (PDF) in the `ibmssp` directory.

Completing the installation

Complete the following steps to finish the installation of the Remote Supervisor Adapter II:

1. If you plan to configure Simple Network Management Protocol (SNMP) traps on the Remote Supervisor Adapter II, you must install and compile the management information bases (MIBs) on your SNMP manager. One MIB supports SNMP traps and the other MIB supports the Get, GetNext, and Set request and response operations. The MIBs are packaged with the Remote Supervisor Adapter II firmware update. For information about how to download the Remote Supervisor Adapter II firmware update, see “Obtaining Remote Supervisor Adapter II software and firmware” on page 22.
2. If you did not restart the server after installing the Remote Supervisor Adapter II device drivers, restart the server now.
3. See the *IBM Remote Supervisor Adapter II User’s Guide* for detailed instructions for completing the configuration of the Remote Supervisor Adapter II, including the following features:
 - Controlling the server remotely
 - Defining the login IDs and passwords
 - Monitoring remote server status using the Remote Supervisor Adapter II Web interface
 - Using Remote Disk to enable the attachment of a diskette drive, CD-ROM drive, or disk image to a server
 - Selecting the events that will receive alert notification
 - Setting up the secure Web server
 - Using a secure connection to a Lightweight Directory Access Protocol (LDAP) server for user authentication

If you want to set up an ASM interconnect network and have not already done so, go to Chapter 3, “Using the ASM interconnect network,” on page 27. If you do not want to set up an ASM interconnect network, your installation is now completed.

Chapter 3. Using the ASM interconnect network

This chapter includes information about how to configure and connect your server to function within an Advanced System Management (ASM) interconnect network.

Overview

You can connect service processors together to form an Advanced System Management (ASM) interconnect network. *Service processors* are Remote Supervisor Adapter IIs, Remote Supervisor Adapters, ASM processors, ASM PCI adapters, and integrated system management processors (ISMPs).

An ASM interconnect network provides two levels of functionality. First, the ASM interconnect network enables you to control and to configure settings for the servers in which other service processors are located. Second, the ASM interconnect network enables other service processors to use the resources (Ethernet or modem) of other Remote Supervisor Adapter IIs, Remote Supervisor Adapters, ASM processors (modems only), and ASM PCI adapters in the ASM interconnect network for sending alerts. This interconnect network is used when a service processor cannot send an alert and must forward the information to another service processor to send the alert.

Planning and cabling your ASM interconnect network

To support the most recent ASM features, a Remote Supervisor Adapter II must be the main gateway to your ASM interconnect network if the network also includes servers with Remote Supervisor Adapters, ASM PCI adapters, ASM processors, or ISMPs. The Remote Supervisor Adapter II forwards the ASM information generated by the servers attached to the ASM interconnect network to other servers on your Ethernet network or that are attached through a modem. The connected ASM processors, ASM PCI Adapters, and ISMPs are managed through the user interface and Web browser access of the Remote Supervisor Adapter II.

Before cabling the ASM interconnect network, review the following information:

- You must connect an ASM breakout cable to the Remote Supervisor Adapter II.
- You must connect an ASM interconnect module to the Remote Supervisor Adapter.
- The cables in an ASM interconnect network are hot-swappable.

- Make sure that the firmware for the Remote Supervisor Adapter II, Remote Supervisor Adapter, ASM processor, ASM PCI adapter, and ISMP is at the latest level.
- The servers in an ASM interconnect network are referred to by their assigned names, not by their positions in the rack cabinet.

An ASM interconnect network can have up to 24 RS-485 connections, depending on the configuration. The connections can include Remote Supervisor Adapter IIs, Remote Supervisor Adapters, ASM processors, ASM PCI adapters, and ISMPs. Use the following information to determine the number of servers and connections that you can have on your ASM interconnect network:

- Each Remote Supervisor Adapter II, Remote Supervisor Adapter, ASM processor, ASM PCI adapter, and ISMP in a server that is connected to the network uses one connection. For example, if a server that is connected to the network has a Remote Supervisor Adapter and an integrated ASM processor, the server uses two connections on the network.
- The network must include at least one server with a Remote Supervisor Adapter II or Remote Supervisor Adapter (either installed as an option or preinstalled in the server).
- On an ASM interconnect network, one ASM processor or one ASM PCI adapter can communicate with 11 RS-485 connections. These connections must be to ASM processors, ASM PCI adapters, Remote Supervisor Adapters, or Remote Supervisor Adapter IIs. The ASM processor and ASM PCI adapter cannot communicate with ISMPs.
- If your existing ASM interconnect network has 12 RS-485 connections that include only ASM processors, ASM PCI adapters, and at least one Remote Supervisor Adapter or Remote Supervisor Adapter II, you can also add up to 12 ISMP-based servers to this same network. The Remote Supervisor Adapter on this network will communicate with all 23 RS-485 connections; however, an ASM processor or ASM PCI adapter on this network will communicate with only the 11 non-ISMP RS-485 connections. The ASM processor and ASM PCI adapter will not recognize the ISMPs, but the ISMPs can be on the same ASM interconnect network.
- Make sure that the ASM interconnect network is set up as a bus, not as a ring. You must connect the servers to the ASM interconnect network in a series, with terminated beginning and end points. Be sure to use the RS-485 terminator plugs. For more information, see “Using the RS-485 terminator plugs on interconnected servers” on page 29.
- Make sure that the total combined length of all Ethernet cables connecting the servers in the ASM interconnect network does not exceed 91 m (300 ft).

Using the RS-485 terminator plugs on interconnected servers

The Remote Supervisor Adapter II comes with two RS-485 terminator plugs. To ensure successful RS-485 communication on your ASM interconnect network, you must install a terminator plug in the open connector at each end of the RS-485 bus. The illustrations in “ASM interconnect network configuration examples” on page 31 can help you determine where to put the RS-485 terminator plugs on your ASM interconnect network.

Considerations when configuring xSeries 232 and xSeries 342 servers

You can connect xSeries 232 and xSeries 342 servers to an ASM interconnect network using the integrated system management processor (ISMP) connectors located on the back of those servers. If the ISMP firmware level is revision 6 or 8, you must update the ISMP firmware. Go to <http://www.ibm.com/pc/support/> to obtain the latest ISMP firmware and update instructions.

Attention:

1. If your server BIOS code level is earlier than revision 1.02, you must update your server BIOS code before you update the ISMP firmware. BIOS update diskettes and update instructions are available from the IBM Support Web site.
2. Make sure that no servers or devices are connected to the server ISMP connectors when you update the ISMP firmware if its level is revision 6 or 8. You cannot update the firmware while devices are connected to the ISMP connectors.

You must connect at least one Remote Supervisor Adapter to the ASM interconnect network to support the connection of xSeries 232 and xSeries 342 servers using their ISMP connectors. If your Remote Supervisor Adapter firmware level is earlier than revision 17, you must update the Remote Supervisor Adapter firmware. Go to <http://www.ibm.com/pc/support/> to obtain the latest Remote Supervisor Adapter II firmware and update instructions.

Forwarding alerts

Remote Supervisor Adapters, ASM PCI adapters, ASM processors, and ISMPs that are connected to an ASM interconnect network share resources and system-management information. This section provides information about how alerts are forwarded in the ASM interconnect network.

During normal operation, each Remote Supervisor Adapter, ASM processor, ASM PCI adapter, and ISMP on the ASM interconnect network communicates with the other processors and adapters on the network. Processors or adapters that have a modem or Ethernet connection notify the other processors and adapters that these communication resources are available for use by other servers on the ASM interconnect network. These resources are then used as ASM interconnect network resources, enabling Remote Supervisor Adapters, ASM processors, ASM PCI adapters, and ISMPs on the ASM interconnect network to send alerts using a modem or the network, even if they do not have a modem or network connection physically attached.

Note: ISMPs can use the communication resources of a Remote Supervisor Adapter or Remote Supervisor Adapter II only.

When alerts are generated, they are forwarded to the Remote Supervisor Adapter II, Remote Supervisor Adapter, ASM processor, or ASM PCI adapter on the ASM interconnect network that has the communication resources to forward the alert. If no system on the ASM interconnect network meets the requirements, the alert is set for transmission if the connection type is configured or becomes available later.

If multiple modems or network connections exist in the ASM interconnect network, you cannot specify which system will receive an alert or which will use its modem or network connection to forward the alert. If an alert is forwarded to a Remote Supervisor Adapter II, Remote Supervisor Adapter, ASM processor, or ASM PCI adapter that is unable to deliver the alert (for example, the modem it is configured to use has failed or the network cannot resolve the destination IP address), the processor or adapter attempts to forward the alert to another system on the ASM interconnect network that has the communication resources to forward the alert.

Alerts are typically sent only once (per connection type), but an alert is forwarded to another interconnect device if the resources exist on other interconnect devices in the network. For example, on a three-ASM-processor network where ASM processor 1 generates a modem alert but does not have a modem and the two other ASM servers with ASM processors have modems connected to them, the following situation might occur:

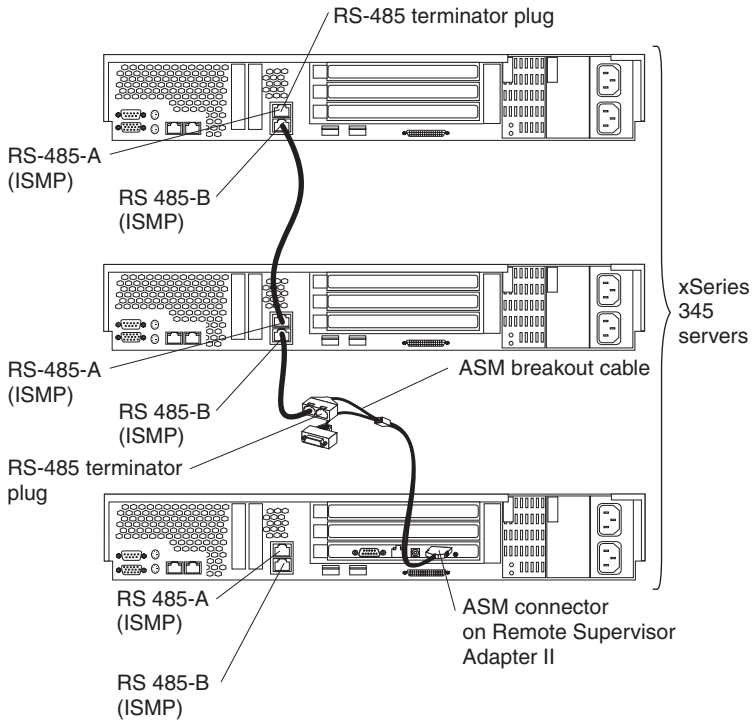
If ASM processor 1 generates an alert and the modem is disconnected from ASM processor 2 within 45 seconds before ASM processor 1 generates the alert, ASM processor 1 forwards the alert to ASM processor 2, having previously determined that ASM processor 2 had an available modem (which is now no longer available). When ASM processor 2 receives the forwarded alert, knowing its modem is not available, it determines that a modem is attached to ASM processor 3 and forwards the alert to ASM processor 3. Therefore, depending upon the time frame (45 seconds) within which a resource (modem)

fails, the alert might be forwarded multiple times until a device on the interconnect network can send the alert.

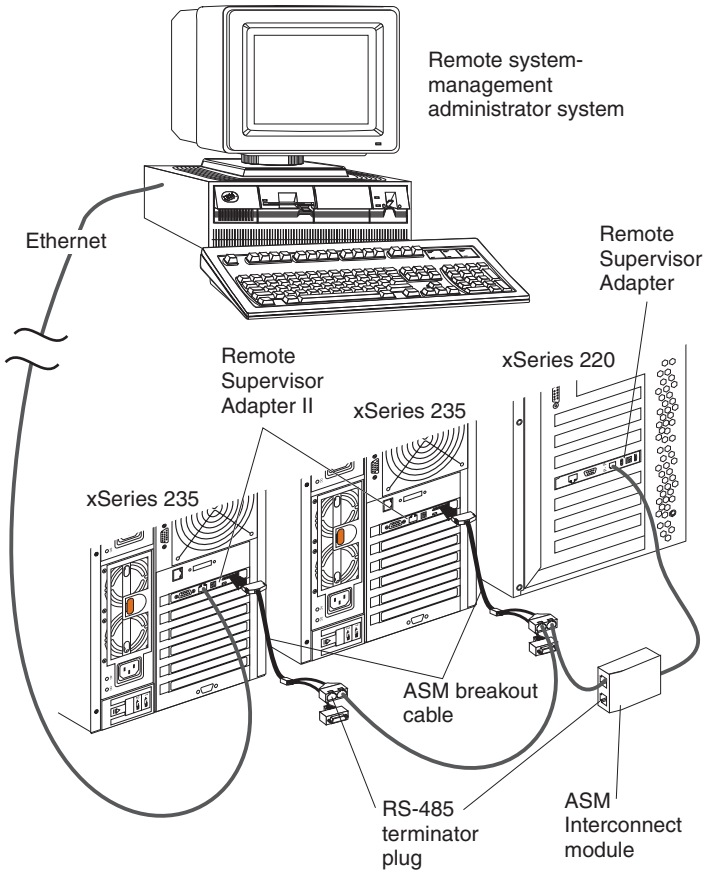
ASM interconnect network configuration examples

The illustrations in this section show sample ASM interconnect network configurations.

In the following example, there are three xSeries 345 servers connected on an ASM interconnect network.

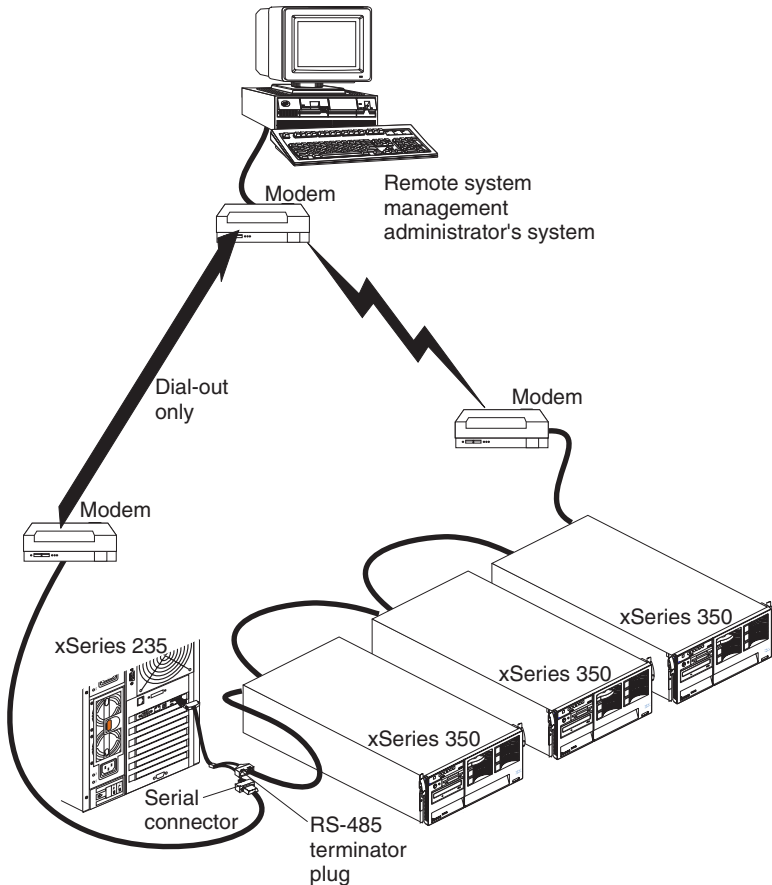


In the following example, an Ethernet cable connects the remote system management administrator's system to the Remote Supervisor Adapter II that is installed in an xSeries 235 server. In this case, the xSeries 235 server uses the LAN connection to forward system-management data generated by the other servers in the ASM interconnect network to the remote system-management administrator.



In the following example, a Remote Supervisor Adapter is installed in an xSeries 235 server and creates an interconnect network with the xSeries 235 server and the xSeries 350 servers. A modem is connected to the serial connector of the Remote Supervisor Adapter II (on one end of the ASM breakout cable), a modem is connected to the ASM PCI adapter in the server connected to the end of the ASM interconnect network, and a modem is connected to the remote system-management administrator's system.

Note: For information about connecting a modem to the serial port on an xSeries 350 server, see the documentation that comes with the server.



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 appendix contains information about where to go for additional information about IBM and IBM products, what to do if you experience a problem with your xSeries or IntelliStation[®] 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 is 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 *Hardware Maintenance Manual and Troubleshooting Guide* on the *IBM xSeries Documentation CD* or in the *IntelliStation Hardware Maintenance Manual* at the IBM Support Web site.
- Go to the IBM Support Web site at <http://www.ibm.com/pc/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 publications that are provided with your system and software. The information that comes with your system also describes the diagnostic tests that you can perform. Most xSeries and IntelliStation systems, operating systems, and programs come with information that contains troubleshooting procedures and explanations of error messages and error codes. If you suspect a software problem, see the information for the operating system or program.

Using the documentation

Information about your IBM xSeries or IntelliStation system and preinstalled software, if any, is available in the documentation that comes with your system. That documentation includes printed books, online books, 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/pc/support/> and follow the instructions. Also, you can order publications through the IBM Publications Ordering System at <http://www.elink.ibm.com/public/applications/publications/cgibin/pbi.cgi>.

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 xSeries and IntelliStation products, services, and support. The address for IBM xSeries information is <http://www.ibm.com/eserver/xseries/>. The address for IBM IntelliStation information is <http://www.ibm.com/pc/intellistation/>.

You can find service information for your IBM products, including supported options, at <http://www.ibm.com/pc/support/>.

Software service and support

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

For more information about Support Line and other IBM services, go to <http://www.ibm.com/services/>, or go to <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 Integrated Technology Services or through your IBM reseller, if your reseller is authorized by IBM to provide warranty service. Go to <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.

Appendix B. IBM Statement of Limited Warranty Z125-4753-07 11/2002

Part 1 - General Terms

Part 1 - General Terms

*This Statement of Limited Warranty includes Part 1 - General Terms, Part 2 - Country-unique Terms, and Part 3 - Warranty Information. The terms of Part 2 replace or modify those of Part 1. The warranties provided by IBM in this Statement of Limited Warranty apply only to Machines you purchase for your use, and not for resale. The term "Machine" means an IBM machine, its features, conversions, upgrades, elements, or accessories, or any combination of them. The term "Machine" does not include any software programs, whether pre-loaded with the Machine, installed subsequently or otherwise. **Nothing in this Statement of Limited Warranty affects any statutory rights of consumers that cannot be waived or limited by contract.***

What this Warranty Covers

IBM warrants that each Machine 1) is free from defects in materials and workmanship and 2) conforms to IBM's Official Published Specifications ("Specifications") which are available on request. The warranty period for the Machine starts on the original Date of Installation and is specified in Part 3 - Warranty Information. The date on your invoice or sales receipt is the Date of Installation unless IBM or your reseller informs you otherwise. Many features, conversions, or upgrades involve the removal of parts and their return to IBM. A part that replaces a removed part will assume the warranty service status of the removed part. Unless IBM specifies otherwise, these warranties apply only in the country or region in which you purchased the Machine.

THESE WARRANTIES ARE YOUR EXCLUSIVE WARRANTIES AND REPLACE ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. SOME STATES OR JURISDICTIONS DO NOT ALLOW THE EXCLUSION OF EXPRESS OR IMPLIED WARRANTIES, SO THE ABOVE EXCLUSION MAY NOT APPLY TO YOU. IN THAT EVENT, SUCH WARRANTIES ARE LIMITED IN DURATION TO THE WARRANTY PERIOD. NO WARRANTIES APPLY AFTER THAT PERIOD. SOME STATES OR JURISDICTIONS DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

What this Warranty Does not Cover

This warranty does not cover the following:

- any software programs, whether pre-loaded or shipped with the Machine, or installed subsequently;
- failure resulting from misuse (including but not limited to use of any Machine capacity or capability, other than that authorized by IBM in writing), accident, modification, unsuitable physical or operating environment, or improper maintenance by you;
- failure caused by a product for which IBM is not responsible; and
- any non-IBM products, including those that IBM may procure and provide with or integrate into an IBM Machine at your request.

The warranty is voided by removal or alteration of identification labels on the Machine or its parts.

IBM does not warrant uninterrupted or error-free operation of a Machine.

Any technical or other support provided for a Machine under warranty, such as assistance via telephone with “how-to” questions and those regarding Machine set-up and installation, is provided **WITHOUT WARRANTIES OF ANY KIND**.

How to Obtain Warranty Service

If the Machine does not function as warranted during the warranty period, contact IBM or your reseller to obtain warranty service. If you do not register the Machine with IBM, you may be required to present proof of purchase as evidence of your entitlement to warranty service.

What IBM Will Do to Correct Problems

When you call for service, you must follow the problem determination and resolution procedures that IBM specifies. A technician will attempt to make an initial diagnosis of your problem and help you resolve it over the telephone.

The type of warranty service applicable to your Machine is specified in Part 3 - Warranty Information.

You are responsible for downloading and installing designated Machine Code (microcode, basic input/output system code (called “BIOS”), utility programs, device drivers, and diagnostics delivered with an IBM Machine) and other software updates from an IBM Internet Web site or from other electronic media, and following the instructions that IBM provides.

If your problem can be resolved with a Customer Replaceable Unit (“CRU”) (e.g., keyboard, mouse, speaker, memory, hard disk drive and other easily replaceable parts), IBM will ship these parts to you for replacement by you.

If the Machine does not function as warranted during the warranty period and your problem cannot be resolved over the telephone, through your application of Machine Code or software updates, or with a CRU, IBM or your reseller, if approved by IBM to provide warranty service, will either, at its discretion, 1) repair it to make it function as warranted, or 2) replace it with one that is at least functionally equivalent. If IBM is unable to do either, you may return the Machine to your place of purchase and your money will be refunded.

IBM or your reseller will also manage and install selected engineering changes that apply to the Machine.

Exchange of a Machine or Part

When the warranty service involves the exchange of a Machine or part, the item IBM or your reseller replaces becomes its property and the replacement becomes yours. You represent that all removed items are genuine and unaltered. The replacement may not be new, but will be in good working order and at least functionally equivalent to the item replaced. The replacement assumes the warranty service status of the replaced item.

Your Additional Responsibilities

Before IBM or your reseller exchanges a Machine or part, you agree to remove all features, parts, options, alterations, and attachments not under warranty service.

You also agree to:

1. ensure that the Machine is free of any legal obligations or restrictions that prevent its exchange;
2. obtain authorization from the owner to have IBM or your reseller service a Machine that you do not own; and
3. where applicable, before service is provided:
 - a. follow the service request procedures that IBM or your reseller provides;
 - b. backup or secure all programs, data, and funds contained in the Machine;
 - c. provide IBM or your reseller with sufficient, free, and safe access to your facilities to permit IBM to fulfill its obligations; and
 - d. inform IBM or your reseller of changes in the Machine’s location.
4. (a) ensure all information about identified or identifiable individuals (Personal Data) is deleted from the Machine (to the extent technically possible), (b) allow IBM, your reseller or an IBM supplier to process on

your behalf any remaining Personal Data as IBM or your reseller considers necessary to fulfill its obligations under this Statement of Limited Warranty (which may include shipping the Machine for such processing to other IBM service locations around the world), and (c) ensure that such processing complies with any laws applicable to such Personal Data.

Limitation of Liability

IBM is responsible for loss of, or damage to, your Machine only while it is 1) in IBM’s possession or 2) in transit in those cases where IBM is responsible for the transportation charges.

Neither IBM nor your reseller are responsible for any of your confidential, proprietary or personal information contained in a Machine which you return to IBM for any reason. You should remove all such information from the Machine prior to its return.

Circumstances may arise where, because of a default on IBM’s part or other liability, you are entitled to recover damages from IBM. In each such instance, regardless of the basis on which you are entitled to claim damages from IBM (including fundamental breach, negligence, misrepresentation, or other contract or tort claim), except for any liability that cannot be waived or limited by applicable laws, IBM is liable for no more than

1. damages for bodily injury (including death) and damage to real property and tangible personal property; and
2. the amount of any other actual direct damages, up to the charges (if recurring, 12 months’ charges apply) for the Machine that is subject of the claim. For purposes of this item, the term “Machine” includes Machine Code and Licensed Internal Code (“LIC”).

This limit also applies to IBM’s suppliers and your reseller. It is the maximum for which IBM, its suppliers, and your reseller are collectively responsible.

UNDER NO CIRCUMSTANCES IS IBM, ITS SUPPLIERS OR RESELLERS LIABLE FOR ANY OF THE FOLLOWING EVEN IF INFORMED OF THEIR POSSIBILITY: 1) THIRD PARTY CLAIMS AGAINST YOU FOR DAMAGES (OTHER THAN THOSE UNDER THE FIRST ITEM LISTED ABOVE); 2) LOSS OF, OR DAMAGE TO, DATA; 3) SPECIAL, INCIDENTAL, OR INDIRECT DAMAGES OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES; OR 4) LOST PROFITS, BUSINESS REVENUE, GOODWILL OR ANTICIPATED SAVINGS. SOME STATES OR JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU. SOME STATES OR

JURISDICTIONS DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

Governing Law

Both you and IBM consent to the application of the laws of the country in which you acquired the Machine to govern, interpret, and enforce all of your and IBM's rights, duties, and obligations arising from, or relating in any manner to, the subject matter of this Statement of Limited Warranty, without regard to conflict of law principles.

THESE WARRANTIES GIVE YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE OR JURISDICTION TO JURISDICTION.

Jurisdiction

All of our rights, duties, and obligations are subject to the courts of the country in which you acquired the Machine.

Part 2 - Country-unique Terms

AMERICAS

ARGENTINA

Governing Law: *The following is added after the first sentence:*

Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the Ordinary Commercial Court of the city of Buenos Aires.

BRAZIL

Governing Law: *The following is added after the first sentence:*

Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the court of Rio de Janeiro, RJ.

PERU

Limitation of Liability: *The following is added at the end of this section:*

In accordance with Article 1328 of the Peruvian Civil Code the limitations and exclusions specified in this section will not apply to damages caused by IBM's willful misconduct ("dolo") or gross negligence ("culpa inexcusable").

NORTH AMERICA

How to Obtain Warranty Service: *The following is added to this Section:*

To obtain warranty service from IBM in Canada or the United States, call 1-800-IBM-SERV (426-7378).

CANADA

Limitation of Liability: *The following replaces item 1 of this section:*

1. damages for bodily injury (including death) or physical harm to real property and tangible personal property caused by IBM's negligence; and

Governing Law: *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:*

laws in the Province of Ontario.

UNITED STATES

Governing Law: *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:*

laws of the State of New York.

ASIA PACIFIC

AUSTRALIA

What this Warranty Covers: *The following paragraph is added to this section:*

The warranties specified in this Section are in addition to any rights you may have under the Trade Practices Act 1974 or other similar legislation and are only limited to the extent permitted by the applicable legislation.

Limitation of Liability: *The following is added to this section:*

Where IBM is in breach of a condition or warranty implied by the Trade Practices Act 1974 or other similar legislation, IBM's liability is limited to the repair or replacement of the goods or the supply of equivalent goods. Where that condition or warranty relates to right to sell, quiet possession or clear title, or the goods are of a kind ordinarily acquired for personal, domestic or household use or consumption, then none of the limitations in this paragraph apply.

Governing Law: *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:*

laws of the State or Territory.

CAMBODIA, LAOS, AND VIETNAM

Governing Law: *The following replaces “laws of the country in which you acquired the Machine” in the first sentence:*
laws of the State of New York, United States of America.

CAMBODIA, INDONESIA, LAOS, AND VIETNAM

Arbitration: *The following is added under this heading:*

Disputes arising out of or in connection with this Statement of Limited Warranty shall be finally settled by arbitration which shall be held in Singapore in accordance with the Arbitration Rules of Singapore International Arbitration Center (“SIAC Rules”) then in effect. The arbitration award shall be final and binding for the parties without appeal and shall be in writing and set forth the findings of fact and the conclusions of law.

The number of arbitrators shall be three, with each side to the dispute being entitled to appoint one arbitrator. The two arbitrators appointed by the parties shall appoint a third arbitrator who shall act as chairman of the proceedings. Vacancies in the post of chairman shall be filled by the president of the SIAC. Other vacancies shall be filled by the respective nominating party. Proceedings shall continue from the stage they were at when the vacancy occurred.

If one of the parties refuses or otherwise fails to appoint an arbitrator within 30 days of the date the other party appoints its, the first appointed arbitrator shall be the sole arbitrator, provided that the arbitrator was validly and properly appointed.

All proceedings shall be conducted, including all documents presented in such proceedings, in the English language. The English language version of this Statement of Limited Warranty prevails over any other language version.

HONG KONG S.A.R. OF CHINA AND MACAU S.A.R. OF CHINA

Governing Law: *The following replaces “laws of the country in which you acquired the Machine” in the first sentence:*
laws of Hong Kong Special Administrative Region of China.

INDIA

Limitation of Liability: *The following replaces items 1 and 2 of this section:*

1. liability for bodily injury (including death) or damage to real property and tangible personal property will be limited to that caused by IBM’s negligence; and
2. as to any other actual damage arising in any situation involving nonperformance by IBM pursuant to, or in any way related to the subject of this Statement of Limited Warranty, the charge paid by you for the

individual Machine that is the subject of the claim. For purposes of this item, the term “Machine” includes Machine Code and Licensed Internal Code (“LIC”).

Arbitration: *The following is added under this heading:*

Disputes arising out of or in connection with this Statement of Limited Warranty shall be finally settled by arbitration which shall be held in Bangalore, India in accordance with the laws of India then in effect. The arbitration award shall be final and binding for the parties without appeal and shall be in writing and set forth the findings of fact and the conclusions of law.

The number of arbitrators shall be three, with each side to the dispute being entitled to appoint one arbitrator. The two arbitrators appointed by the parties shall appoint a third arbitrator who shall act as chairman of the proceedings. Vacancies in the post of chairman shall be filled by the president of the Bar Council of India. Other vacancies shall be filled by the respective nominating party. Proceedings shall continue from the stage they were at when the vacancy occurred.

If one of the parties refuses or otherwise fails to appoint an arbitrator within 30 days of the date the other party appoints its, the first appointed arbitrator shall be the sole arbitrator, provided that the arbitrator was validly and properly appointed.

All proceedings shall be conducted, including all documents presented in such proceedings, in the English language. The English language version of this Statement of Limited Warranty prevails over any other language version.

JAPAN

Governing Law: *The following sentence is added to this section:*

Any doubts concerning this Statement of Limited Warranty will be initially resolved between us in good faith and in accordance with the principle of mutual trust.

MALAYSIA

Limitation of Liability: *The word “SPECIAL” in item 3 of the fifth paragraph is deleted.*

NEW ZEALAND

What this Warranty Covers: *The following paragraph is added to this section:*

The warranties specified in this section are in addition to any rights you may have under the Consumer Guarantees Act 1993 or other legislation which

cannot be excluded or limited. The Consumer Guarantees Act 1993 will not apply in respect of any goods which IBM provides, if you require the goods for the purposes of a business as defined in that Act.

Limitation of Liability: *The following is added to this section:*

Where Machines are not acquired for the purposes of a business as defined in the Consumer Guarantees Act 1993, the limitations in this section are subject to the limitations in that Act.

PEOPLE'S REPUBLIC OF CHINA (PRC)

Governing Law: *The following replaces "laws of the country in which you acquired the Machine" in the first sentence:*

laws of the State of New York, United States of America (except when local law requires otherwise).

PHILIPPINES

Limitation of Liability: *Item 3 in the fifth paragraph is replaced by the following:*

SPECIAL (INCLUDING NOMINAL AND EXEMPLARY DAMAGES), MORAL, INCIDENTAL, OR INDIRECT DAMAGES FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES; OR

Arbitration: *The following is added under this heading:*

Disputes arising out of or in connection with this Statement of Limited Warranty shall be finally settled by arbitration which shall be held in Metro Manila, Philippines in accordance with the laws of the Philippines then in effect. The arbitration award shall be final and binding for the parties without appeal and shall be in writing and set forth the findings of fact and the conclusions of law.

The number of arbitrators shall be three, with each side to the dispute being entitled to appoint one arbitrator. The two arbitrators appointed by the parties shall appoint a third arbitrator who shall act as chairman of the proceedings. Vacancies in the post of chairman shall be filled by the president of the Philippine Dispute Resolution Center, Inc. Other vacancies shall be filled by the respective nominating party. Proceedings shall continue from the stage they were at when the vacancy occurred.

If one of the parties refuses or otherwise fails to appoint an arbitrator within 30 days of the date the other party appoints its, the first appointed arbitrator shall be the sole arbitrator, provided that the arbitrator was validly and properly appointed.

All proceedings shall be conducted, including all documents presented in such proceedings, in the English language. The English language version of this Statement of Limited Warranty prevails over any other language version.

SINGAPORE

Limitation of Liability: *The words “SPECIAL” and “ECONOMIC” in item 3 in the fifth paragraph are deleted.*

EUROPE, MIDDLE EAST, AFRICA (EMEA)

THE FOLLOWING TERMS APPLY TO ALL EMEA COUNTRIES:

The terms of this Statement of Limited Warranty apply to Machines purchased from IBM or an IBM reseller.

Hot to Obtain Warranty Service: If you purchase a Machine in Austria, Belgium, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Monaco, Netherlands, Norway, Portugal, Spain, San Marino, Sweden, Switzerland, United Kingdom or Vatican State, you may obtain warranty service for that Machine in any of those countries from either (1) an IBM reseller approved to perform warranty service or (2) from IBM, provided the Machine has been announced and made available by IBM in the country in which you wish to obtain service. If you purchased a Personal Computer Machine in Albania, Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Federal Republic of Yugoslavia, Former Yugoslav Republic of Macedonia (FYROM), Moldova, Poland, Romania, Russia, Slovak Republic, Slovenia, or Ukraine, you may obtain warranty service for that Machine in any of those countries from either (1) an IBM reseller approved to perform warranty service or (2) from IBM.

If you purchase a Machine in a Middle Eastern or African country, you may obtain warranty service for that Machine from the IBM entity within the country of purchase, if that IBM entity provides warranty service in that country, or from an IBM reseller, approved by IBM to perform warranty service on that Machine in that country. Warranty service in Africa is available within 50 kilometers of an IBM approved service provider. You are responsible for transportation costs for Machines located outside 50 kilometers of an IBM approved service provider.

*Add the following paragraph in **Western Europe** (Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Liechtenstein, Luxembourg, Monaco, Netherlands, Norway, Portugal, Spain, San Marino, Sweden, Switzerland, United Kingdom, Vatican State):*

The warranty for Machines acquired in Western Europe shall be valid and applicable in all Western Europe countries provided the Machines have been announced and made available in such countries.

Governing Law:

The phrase “the laws of the country in which you acquired the Machine” is replaced by:

- 1) “the laws of Austria” in **Albania, Armenia, Azerbaijan, Belarus, Bosnia-Herzegovina, Bulgaria, Croatia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, FYR Macedonia, Moldova, Poland, Romania, Russia, Slovakia, Slovenia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan, and FR Yugoslavia;**
- 2) “the laws of France” in **Algeria, Benin, Burkina Faso, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo Republic, Djibouti, Democratic Republic of Congo, Equatorial Guinea, French Guiana, French Polynesia, Gabon, Gambia, Guinea, Guinea-Bissau, Ivory Coast, Lebanon, Madagascar, Mali, Mauritania, Mauritius, Mayotte, Morocco, New Caledonia, Niger, Reunion, Senegal, Seychelles, Togo, Tunisia, Vanuatu, and Wallis & Futuna;**
- 3) “the laws of Finland” in **Estonia, Latvia, and Lithuania;**
- 4) “the laws of England” in **Angola, Bahrain, Botswana, Burundi, Egypt, Eritrea, Ethiopia, Ghana, Jordan, Kenya, Kuwait, Liberia, Malawi, Malta, Mozambique, Nigeria, Oman, Pakistan, Qatar, Rwanda, Sao Tome, Saudi Arabia, Sierra Leone, Somalia, Tanzania, Uganda, United Arab Emirates, the United Kingdom, West Bank/Gaza, Yemen, Zambia, and Zimbabwe;** and
- 5) “the laws of South Africa” in **South Africa, Namibia, Lesotho and Swaziland.**

Jurisdiction: *The following exceptions are added to this section:*

- 1) In **Austria** the choice of jurisdiction for all disputes arising out of this Statement of Limited Warranty and relating thereto, including its existence, will be the competent court of law in Vienna, Austria (Inner-City);
- 2) in **Angola, Bahrain, Botswana, Burundi, Egypt, Eritrea, Ethiopia, Ghana, Jordan, Kenya, Kuwait, Liberia, Malawi, Malta, Mozambique, Nigeria, Oman, Pakistan, Qatar, Rwanda, Sao Tome, Saudi Arabia, Sierra Leone, Somalia, Tanzania, Uganda, United Arab Emirates, West Bank/Gaza, Yemen, Zambia, and Zimbabwe** all disputes arising out of this Statement of Limited Warranty or related to its execution, including summary proceedings, will be submitted to the exclusive jurisdiction of the English courts;
- 3) in **Belgium and Luxembourg**, all disputes arising out of this Statement of Limited Warranty or related to its interpretation or its execution, the law, and the courts of the capital city, of the country of your registered office and/or commercial site location only are competent;
- 4) in **France, Algeria, Benin, Burkina Faso, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo Republic, Djibouti, Democratic Republic of Congo, Equatorial Guinea, French Guiana, French Polynesia, Gabon, Gambia, Guinea, Guinea-Bissau,**

Ivory Coast, Lebanon, Madagascar, Mali, Mauritania, Mauritius, Mayotte, Morocco, New Caledonia, Niger, Reunion, Senegal, Seychelles, Togo, Tunisia, Vanuatu, and Wallis & Futuna all disputes arising out of this Statement of Limited Warranty or related to its violation or execution, including summary proceedings, will be settled exclusively by the Commercial Court of Paris; 5) **in Russia**, all disputes arising out of or in relation to the interpretation, the violation, the termination, the nullity of the execution of this Statement of Limited Warranty shall be settled by Arbitration Court of Moscow; 6) **in South Africa, Namibia, Lesotho and Swaziland**, both of us agree to submit all disputes relating to this Statement of Limited Warranty to the jurisdiction of the High Court in Johannesburg; 7) **in Turkey** all disputes arising out of or in connection with this Statement of Limited Warranty shall be resolved by the Istanbul Central (Sultanahmet) Courts and Execution Directorates of Istanbul, the Republic of Turkey; 8) in each of the following specified countries, any legal claim arising out of this Statement of Limited Warranty will be brought before, and settled exclusively by, the competent court of a) Athens for **Greece**, b) Tel Aviv-Jaffa for **Israel**, c) Milan for **Italy**, d) Lisbon for **Portugal**, and e) Madrid for **Spain**; and 9) **in the United Kingdom**, both of us agree to submit all disputes relating to this Statement of Limited Warranty to the jurisdiction of the English courts.

Arbitration: *The following is added under this heading:*

In Albania, Armenia, Azerbaijan, Belarus, Bosnia-Herzegovina, Bulgaria, Croatia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, FYR Macedonia, Moldova, Poland, Romania, Russia, Slovakia, Slovenia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan, and FR Yugoslavia all disputes arising out of this Statement of Limited Warranty or related to its violation, termination or nullity will be finally settled under the Rules of Arbitration and Conciliation of the International Arbitral Center of the Federal Economic Chamber in Vienna (Vienna Rules) by three arbitrators appointed in accordance with these rules. The arbitration will be held in Vienna, Austria, and the official language of the proceedings will be English. The decision of the arbitrators will be final and binding upon both parties. Therefore, pursuant to paragraph 598 (2) of the Austrian Code of Civil Procedure, the parties expressly waive the application of paragraph 595 (1) figure 7 of the Code. IBM may, however, institute proceedings in a competent court in the country of installation.

In Estonia, Latvia and Lithuania all disputes arising in connection with this Statement of Limited Warranty will be finally settled in arbitration that will be held in Helsinki, Finland in accordance with the arbitration laws of Finland then in effect. Each party will appoint one arbitrator. The arbitrators will then jointly appoint the chairman. If arbitrators cannot agree on the chairman, then the Central Chamber of Commerce in Helsinki will appoint the chairman.

EUROPEAN UNION (EU)

THE FOLLOWING TERMS APPLY TO ALL EU COUNTRIES:

Consumers have legal rights under applicable national legislation governing the sale of consumer goods. Such rights are not affected by the warranties provided in this Statement of Limited Warranty.

How to Obtain Warranty Service: *The following is added to this section:*

To obtain warranty service from IBM in EU countries, see the telephone listing in Part 3 - Warranty Information.

You may contact IBM at the following address:

IBM Warranty & Service Quality Dept.
PO Box 30
Spango Valley
Greenock
Scotland PA16 0AH

AUSTRIA, DENMARK, FINLAND, GREECE, ITALY, NETHERLANDS, PORTUGAL, SPAIN, SWEDEN AND SWITZERLAND

Limitation of Liability: *The following replaces the terms of this section in its entirety:*

Except as otherwise provided by mandatory law:

1. IBM's liability for any damages and losses that may arise as a consequence of the fulfillment of its obligations under or in connection with this Statement of Limited Warranty or due to any other cause related to this Statement of Limited Warranty is limited to the compensation of only those damages and losses proved and actually arising as an immediate and direct consequence of the non-fulfillment of such obligations (if IBM is at fault) or of such cause, for a maximum amount equal to the charges you paid for the Machine. For purposes of this item, the term "Machine" includes Machine Code and Licensed Internal Code ("LIC").

The above limitation shall not apply to damages for bodily injuries (including death) and damages to real property and tangible personal property for which IBM is legally liable.

2. **UNDER NO CIRCUMSTANCES IS IBM, ITS SUPPLIERS OR RESELLERS LIABLE FOR ANY OF THE FOLLOWING, EVEN IF INFORMED OF THEIR POSSIBILITY: 1) LOSS OF, OR DAMAGE TO, DATA; 2) INCIDENTAL OR INDIRECT DAMAGES, OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES; 3) LOST PROFITS, EVEN IF THEY ARISE AS AN IMMEDIATE CONSEQUENCE OF THE EVENT THAT GENERATED THE DAMAGES; OR 4) LOSS OF BUSINESS, REVENUE, GOODWILL, OR ANTICIPATED SAVINGS.**

FRANCE AND BELGIUM

Limitation of Liability: *The following replaces the terms of this section in its entirety:*

Except as otherwise provided by mandatory law:

1. IBM's liability for any damages and losses that may arise as a consequence of the fulfillment of its obligations under or in connection with this Statement of Limited Warranty is limited to the compensation of only those damages and losses proved and actually arising as an immediate and direct consequence of the non-fulfillment of such obligations (if IBM is at fault), for a maximum amount equal to the charges you paid for the Machine that has caused the damages. For purposes of this item, the term "Machine" includes Machine Code and Licensed Internal Code ("LIC").

The above limitation shall not apply to damages for bodily injuries (including death) and damages to real property and tangible personal property for which IBM is legally liable.

2. **UNDER NO CIRCUMSTANCES IS IBM, ITS SUPPLIERS OR RESELLERS LIABLE FOR ANY OF THE FOLLOWING, EVEN IF INFORMED OF THEIR POSSIBILITY: 1) LOSS OF, OR DAMAGE TO, DATA; 2) INCIDENTAL OR INDIRECT DAMAGES, OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES; 3) LOST PROFITS, EVEN IF THEY ARISE AS AN IMMEDIATE CONSEQUENCE OF THE EVENT THAT GENERATED THE DAMAGES; OR 4) LOSS OF BUSINESS, REVENUE, GOODWILL, OR ANTICIPATED SAVINGS.**

THE FOLLOWING TERMS APPLY TO THE COUNTRY SPECIFIED:

AUSTRIA

What this Warranty Covers: *The following replaces the first sentence of the first paragraph of this section:*

The warranty for an IBM Machine covers the functionality of the Machine for its normal use and the Machine's conformity to its Specifications.

The following paragraphs are added to this section:

The warranty period for Machines is 12 months from the date of delivery. The limitation period for consumers in action for breach of warranty is the statutory period as a minimum. In case IBM or your reseller is unable to repair an IBM Machine, you can alternatively ask for a partial refund as far as justified by the reduced value of the unrepaired Machine or ask for a cancellation of the respective agreement for such Machine and get your money refunded.

The second paragraph does not apply.

What IBM Will Do to Correct Problems: *The following is added to this section:*

During the warranty period, transportation for delivery of the failing Machine to IBM will be at IBM's expense.

Limitation of Liability: *The following paragraph is added to this section:*

The limitations and exclusions specified in the Statement of Limited Warranty will not apply to damages caused by IBM with fraud or gross negligence and for express warranty.

The following sentence is added to the end of item 2:

IBM's liability under this item is limited to the violation of essential contractual terms in cases of ordinary negligence.

EGYPT

Limitation of Liability: *The following replaces item 2 in this section:*

as to any other actual direct damages, IBM's liability will be limited to the total amount you paid for the Machine that is the subject of the claim. For purposes of this item, the term "Machine" includes Machine Code and Licensed Internal Code ("LIC").

Applicability of suppliers and resellers (unchanged).

FRANCE

Limitation of Liability: *The following replaces the second sentence of the first paragraph of this section:*

In such instances, regardless of the basis on which you are entitled to claim damages from IBM, IBM is liable for no more than: (items 1 and 2 unchanged).

GERMANY

What this Warranty Covers: *The following replaces the first sentence of the first paragraph of this section:*

The warranty for an IBM Machine covers the functionality of the Machine for its normal use and the Machine's conformity to its Specifications.

The following paragraphs are added to this section:

The minimum warranty period for Machines is twelve months. In case IBM or your reseller is unable to repair an IBM Machine, you can alternatively ask for

a partial refund as far as justified by the reduced value of the unrepaired Machine or ask for a cancellation of the respective agreement for such Machine and get your money refunded.

The second paragraph does not apply.

What IBM Will Do to Correct Problems: *The following is added to this section:*

During the warranty period, transportation for delivery of the failing Machine to IBM will be at IBM's expense.

Limitation of Liability: *The following paragraph is added to this section:*

The limitations and exclusions specified in the Statement of Limited Warranty will not apply to damages caused by IBM with fraud or gross negligence and for express warranty.

The following sentence is added to the end of item 2:

IBM's liability under this item is limited to the violation of essential contractual terms in cases of ordinary negligence.

HUNGARY

Limitation of Liability: *The following is added at the end of this section:*

The limitation and exclusion specified herein shall not apply to liability for a breach of contract damaging life, physical well-being, or health that has been caused intentionally, by gross negligence, or by a criminal act.

The parties accept the limitations of liability as valid provisions and state that the Section 314.(2) of the Hungarian Civil Code applies as the acquisition price as well as other advantages arising out of the present Statement of Limited Warranty balance this limitation of liability.

IRELAND

What this Warranty Covers: *The following is added to this section:*

Except as expressly provided in these terms and conditions, all statutory conditions, including all warranties implied, but without prejudice to the generality of the foregoing all warranties implied by the Sale of Goods Act 1893 or the Sale of Goods and Supply of Services Act 1980 are hereby excluded.

Limitation of Liability: *The following replaces the terms of this section in its entirety:*

For the purposes of this section, a “Default” means any act, statement, omission, or negligence on the part of IBM in connection with, or in relation to, the subject matter of this Statement of Limited Warranty in respect of which IBM is legally liable to you, whether in contract or tort. A number of Defaults which together result in, or contribute to, substantially the same loss or damage will be treated as one Default occurring on the date of occurrence of the last such Default.

Circumstances may arise where, because of a Default, you are entitled to recover damages from IBM.

This section sets out the extent of IBM’s liability and your sole remedy.

1. IBM will accept unlimited liability for death or personal injury caused by the negligence of IBM.
2. Subject always to the **Items for Which IBM is Not Liable** below, IBM will accept unlimited liability for physical damage to your tangible property resulting from the negligence of IBM.
3. Except as provided in items 1 and 2 above, IBM’s entire liability for actual damages for any one Default will not in any event exceed the greater of 1) EUR 125,000, or 2) 125% of the amount you paid for the Machine directly relating to the Default.

Items for Which IBM is Not Liable

Save with respect to any liability referred to in item 1 above, under no circumstances is IBM, its suppliers or resellers liable for any of the following, even if IBM or they were informed of the possibility of such losses:

1. loss of, or damage to, data;
2. special, indirect, or consequential loss; or
3. loss of profits, business, revenue, goodwill, or anticipated savings.

SLOVAKIA

Limitation of Liability: *The following is added to the end of the last paragraph:*

The limitations apply to the extent they are not prohibited under §§ 373-386 of the Slovak Commercial Code.

SOUTH AFRICA, NAMIBIA, BOTSWANA, LESOTHO AND SWAZILAND

Limitation of Liability: *The following is added to this section:*

IBM’s entire liability to you for actual damages arising in all situations involving nonperformance by IBM in respect of the subject matter of this Statement of Warranty will be limited to the charge paid by you for the individual Machine that is the subject of your claim from IBM.

UNITED KINGDOM

Limitation of Liability: *The following replaces the terms of this section in its entirety:*

For the purposes of this section, a “Default” means any act, statement, omission, or negligence on the part of IBM in connection with, or in relation to, the subject matter of this Statement of Limited Warranty in respect of which IBM is legally liable to you, whether in contract or tort. A number of Defaults which together result in, or contribute to, substantially the same loss or damage will be treated as one Default.

Circumstances may arise where, because of a Default, you are entitled to recover damages from IBM.

This section sets out the extent of IBM’s liability and your sole remedy.

1. IBM will accept unlimited liability for:
 - a. death or personal injury caused by the negligence of IBM; and
 - b. any breach of its obligations implied by Section 12 of the Sale of Goods Act 1979 or Section 2 of the Supply of Goods and Services Act 1982, or any statutory modification or re-enactment of either such Section.
2. IBM will accept unlimited liability, subject always to the **Items for Which IBM is Not Liable** below, for physical damage to your tangible property resulting from the negligence of IBM.
3. IBM’s entire liability for actual damages for any one Default will not in any event, except as provided in items 1 and 2 above, exceed the greater of 1) Pounds Sterling 75,000, or 2) 125% of the total purchase price payable or the charges for the Machine directly relating to the Default.

These limits also apply to IBM’s suppliers and resellers. They state the maximum for which IBM and such suppliers and resellers are collectively responsible.

Items for Which IBM is Not Liable

Save with respect to any liability referred to in item 1 above, under no circumstances is IBM or any of its suppliers or resellers liable for any of the following, even if IBM or they were informed of the possibility of such losses:

1. loss of, or damage to, data;
2. special, indirect, or consequential loss; or
3. loss of profits, business, revenue, goodwill, or anticipated savings.

Part 3 - Warranty Information

This Part 3 provides information regarding the warranty applicable to your Machine, including the warranty period and type of warranty service IBM provides.

Warranty Period

The warranty period may vary by country or region and is specified in the table below.

Note: “Region” means either Hong Kong or Macau Special Administrative Region of China.

Machine - IBM Remote Supervisor Adapter II

Country or Region of Purchase	Warranty Period	Type of Warranty Service*
Worldwide	Parts - 3 years Labor - 3 years	4
* See “Types of Warranty Service” for the legend and explanations of warranty-service types.		

A warranty period of 3 years on parts and 1 year on labor means that IBM provides warranty service without charge for:

1. parts and labor during the first year of the warranty period; and
2. parts only, on an exchange basis, in the second and third years of the warranty period. IBM will charge you for any labor provided in performance of the repair or replacement(s) in the second and third year of the warranty period.

Types of Warranty Service

If required, IBM provides repair or exchange service depending on the type of warranty service specified for your Machine in the above table and as described below. Warranty service may be provided by your reseller if approved by IBM to perform warranty service. Scheduling of service will depend upon the time of your call and is subject to parts availability. Service levels are response time objectives and are not guaranteed. The specified level of warranty service may not be available in all worldwide locations, additional charges may apply outside IBM’s normal service area, contact your local IBM representative or your reseller for country and location specific information.

1. Customer Replaceable Unit (“CRU”) Service

IBM will ship CRU parts to you for your replacement. If IBM instructs you to return the replaced CRU, you are responsible for returning it to IBM in accordance with IBM’s instructions. If you do not return the defective CRU,

if IBM so instructs, within 30 days of your receipt of the replacement CRU, IBM may charge you for the replacement.

2. On-site Service

IBM or your reseller will either repair or exchange the failing Machine at your location and verify its operation. You must provide suitable working area to allow disassembly and reassembly of the IBM Machine. The area must be clean, well lit and suitable for the purpose. **For some Machines, certain repairs may require sending the Machine to an IBM service center.**

3. Courier or Depot Service*

You will disconnect the failing Machine for collection arranged by IBM. IBM will provide you with a shipping container for you to return your Machine to a designated service center. A courier will pick up your Machine and deliver it to the designated service center. Following its repair or exchange, IBM will arrange the return delivery of the Machine to your location. You are responsible for its installation and verification.

4. Customer Carry-In or Mail-In Service

You will deliver or mail as IBM specifies (prepaid unless IBM specifies otherwise) the failing Machine suitably packaged to a location IBM designates. After IBM has repaired or exchanged the Machine, IBM will make it available for your collection or, for Mail-in Service, IBM will return it to you at IBM's expense, unless IBM specifies otherwise. You are responsible for the subsequent installation and verification of the Machine.

* This type of service is called ThinkPad® EasyServ or EasyServ in some countries.

The IBM Machine Warranty World Wide Web site at http://www.ibm.com/servers/support/machine_warranties/ provides a worldwide overview of IBM Limited Warranty for Machines, a Glossary of IBM definitions, Frequently Asked Questions (FAQs) and Support by Product (Machine) with links to Product Support pages. **The IBM Statement of Limited Warranty is also available on this site in 29 languages.**

To obtain warranty service contact IBM or your IBM reseller. In Canada or the United States, call 1-800-IBM-SERV (426-7378). In the EU countries, see the telephone numbers below.

EU Country Telephone List

Phone numbers are subject to change without notice.

Austria -- 43-1-24592-5901	Italy -- 39-02-482-9202
Belgium -- 02-718-4339	Luxembourg -- 352-360385-1
Denmark -- 4520-8200	Netherlands -- 020-514-5770

Finland -- 358-9-4591	Portugal -- 351-21-7915-147
France -- 0238-557-450	Spain -- 34-91-662-4916
Germany -- 07032-15-4920	Sweden -- 46-8-477-4420
Greece -- 30-210-688-1220	United Kingdom -- 01475-555-055
Ireland -- 353-1-815-4000	

Appendix C. Notices

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Important notes

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

CD-ROM drive speeds list the variable read rate. Actual speeds vary and are often less than the maximum possible.

When referring to processor storage, real and virtual storage, or channel volume, KB stands for approximately 1000 bytes, MB stands for approximately 1 000 000 bytes, and GB stands for approximately 1 000 000 000 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 may 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 available from IBM.

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

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IBM makes no representations or warranties with respect to non-IBM products. Support (if any) for the non-IBM products is provided by the third party, not IBM.

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

Product recycling and disposal

This unit contains materials such as circuit boards, cables, electromagnetic compatibility gaskets, and connectors which may contain lead and copper/beryllium alloys that require special handling and disposal at end of life. Before this unit is disposed of, these materials must be removed and recycled or discarded according to applicable regulations. IBM offers product-return programs in several countries. Information on product recycling offerings can be found on IBM's Internet site at <http://www.ibm.com/ibm/environment/products/prp.shtml>.

Battery return program

This product may contain a sealed lead acid, nickel cadmium, nickel metal hydride, lithium, or lithium ion battery. Consult your user manual or service manual for specific battery information. The battery must be recycled or disposed of properly. Recycling facilities may not be available in your area. For information on disposal of batteries outside the United States, go to <http://www.ibm.com/ibm/environment/products/batteryrecycle.shtml> or contact your local waste disposal facility.

In the United States, IBM has established a collection process for reuse, recycling, or proper disposal of used IBM sealed lead acid, nickel cadmium, nickel metal hydride, and battery packs from IBM equipment. For information on proper disposal of these batteries, contact IBM at 1-800-426-4333. Have the IBM part number listed on the battery available prior to your call.

In the Netherlands, the following applies.



Electronic emission notices

Federal Communications Commission (FCC) statement

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a

residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Class A emission compliance statement

This Class A digital apparatus complies with Canadian ICES-003.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Australia and New Zealand Class A statement

Attention: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

United Kingdom telecommunications safety requirement

Notice to Customers

This apparatus is approved under approval number NS/G/1234/J/100003 for indirect connection to public telecommunication systems in the United Kingdom.

European Union EMC Directive conformance statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a nonrecommended modification of the product, including the fitting of non-IBM option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22/European Standard

EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

Attention: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Taiwanese Class A warning statement

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Chinese Class A warning statement

聲 明
此为 A 级产品。在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取切实可行的措施。

Japanese Voluntary Control Council for Interference (VCCI) statement

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Power cords

For your safety, IBM provides a power cord with a grounded attachment plug to use with this IBM product. To avoid electrical shock, always use the power cord and plug with a properly grounded outlet.

IBM power cords used in the United States and Canada are listed by Underwriter's Laboratories (UL) and certified by the Canadian Standards Association (CSA).

For units intended to be operated at 115 volts: Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a parallel blade, grounding-type attachment plug rated 15 amperes, 125 volts.

For units intended to be operated at 230 volts (U.S. use): Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a tandem blade, grounding-type attachment plug rated 15 amperes, 250 volts.

For units intended to be operated at 230 volts (outside the U.S.): Use a cord set with a grounding-type attachment plug. The cord set should have the appropriate safety approvals for the country in which the equipment will be installed.

IBM power cords for a specific country or region are usually available only in that country or region.

IBM power cord part number	Used in these countries and regions
02K0546	China
13F9940	Australia, Fiji, Kiribati, Nauru, New Zealand, Papua New Guinea

IBM power cord part number	Used in these countries and regions
13F9979	Afghanistan, Albania, Algeria, Andorra, Angola, Armenia, Austria, Azerbaijan, Belarus, Belgium, Benin, Bosnia and Herzegovina, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo (Democratic Republic of), Congo (Republic of), Cote D'Ivoire (Ivory Coast), Croatia (Republic of), Czech Republic, Dahomey, Djibouti, Egypt, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Finland, France, French Guyana, French Polynesia, Germany, Greece, Guadeloupe, Guinea, Guinea Bissau, Hungary, Iceland, Indonesia, Iran, Kazakhstan, Kyrgyzstan, Laos (People's Democratic Republic of), Latvia, Lebanon, Lithuania, Luxembourg, Macedonia (former Yugoslav Republic of), Madagascar, Mali, Martinique, Mauritania, Mauritius, Mayotte, Moldova (Republic of), Monaco, Mongolia, Morocco, Mozambique, Netherlands, New Caledonia, Niger, Norway, Poland, Portugal, Reunion, Romania, Russian Federation, Rwanda, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, Slovakia, Slovenia (Republic of), Somalia, Spain, Suriname, Sweden, Syrian Arab Republic, Tajikistan, Tahiti, Togo, Tunisia, Turkey, Turkmenistan, Ukraine, Upper Volta, Uzbekistan, Vanuatu, Vietnam, Wallis and Futuna, Yugoslavia (Federal Republic of), Zaire
13F9997	Denmark
14F0015	Bangladesh, Lesotho, Macao, Maldives, Namibia, Nepal, Pakistan, Samoa, South Africa, Sri Lanka, Swaziland, Uganda
14F0033	Abu Dhabi, Bahrain, Botswana, Brunei Darussalam, Channel Islands, China (Hong Kong S.A.R.), Cyprus, Dominica, Gambia, Ghana, Grenada, Iraq, Ireland, Jordan, Kenya, Kuwait, Liberia, Malawi, Malaysia, Malta, Myanmar (Burma), Nigeria, Oman, Polynesia, Qatar, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Seychelles, Sierra Leone, Singapore, Sudan, Tanzania (United Republic of), Trinidad and Tobago, United Arab Emirates (Dubai), United Kingdom, Yemen, Zambia, Zimbabwe
14F0051	Liechtenstein, Switzerland
14F0069	Chile, Italy, Libyan Arab Jamahiriya
14F0087	Israel
1838574	Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, Bolivia, Brazil, Caicos Islands, Canada, Cayman Islands, Costa Rica, Colombia, Cuba, Dominican Republic, Ecuador, El Salvador, Guam, Guatemala, Haiti, Honduras, Jamaica, Japan, Mexico, Micronesia (Federal States of), Netherlands Antilles, Nicaragua, Panama, Peru, Philippines, Taiwan, United States of America, Venezuela
24P6858	Korea (Democratic People's Republic of), Korea (Republic of)

IBM power cord part number	Used in these countries and regions
34G0232	Japan
36L8880	Argentina, Paraguay, Uruguay
49P2078	India
49P2110	Brazil
6952300	Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, Bolivia, Caicos Islands, Canada, Cayman Islands, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guam, Guatemala, Haiti, Honduras, Jamaica, Mexico, Micronesia (Federal States of), Netherlands Antilles, Nicaragua, Panama, Peru, Philippines, Saudi Arabia, Thailand, Taiwan, United States of America, Venezuela

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