Remote Supervisor Adapter
Installation Guide

IBM

IBM® Remote Supervisor Adapter

IBM

Installation Guide

Note: Before using this information and the product it supports, be sure to read the general information in Appendix B, "Warranty information," on page 55.

Contents

Safety

Before installing this product, read the Safety Information.

مج، يجب قراءة   دات السلامة

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

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

安裝本產品之前，請先閱讀「安全資訊」。

Prije instalacije ovog produkta obavezno pročitajte Sigurnosne Upute.

Před instalací tohoto produktu si přečtěte příručku bezpečnostních instrukcí.

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

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

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

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.

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

לפני שתתקינו מוצר זה, קראו את הוראות הבטיחות.

A termék telepítése előtt olvassa el a Biztonsági előírásokat!

Prima di installare questo prodotto, leggere le Informazioni sulla Sicurezza

製品の設置の前に、安全情報をお読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

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

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

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

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

Перед установкой продукта прочтите инструкции по
технике безопасности.

v

Pred inštaláciou tohto zariadenia si pečítaje Bezpečnostné predpisy.

Pred namestitvijo tega proizvoda preberite Varnostne informacije.

Antes de instalar este producto lea la información de seguridad.

Läs säkerhetsinformationen innan du installerar den här produkten.

Statement 1

DANGER

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

To avoid a shock hazard:

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

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

Statement 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 3

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

- **Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.**

- **Use of controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.**

DANGER

> **Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following.**
>
> **Laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam.**

Statement 4

![warning triangle icon]

![lift 18 kg icon] ![lift 32 kg icon] ![lift 55 kg icon]
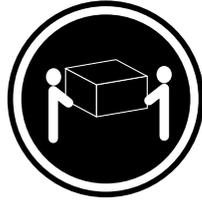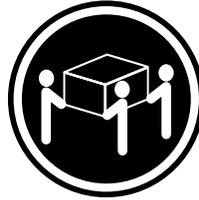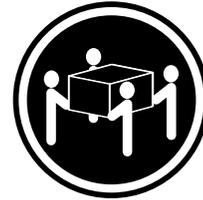
≥ 18 kg (39.7 lb)   ≥ 32 kg (70.5 lb)   ≥ 55 kg (121.2 lb)

CAUTION:
Use safe practices when lifting.

Statement 5

![warning and electrical hazard icons]

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 and electrical hazard icons with power cord diagram]
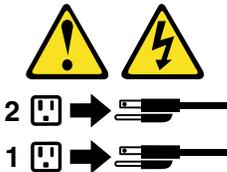
Statement 8

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

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

Chapter 1. Introduction

Thank you for purchasing an IBM® Remote Supervisor Adapter. This manual provides information for installing the Remote Supervisor Adapter in the IBM @server xSeries 220, xSeries 232, xSeries 330, and xSeries 342.

This *Installation Guide* provides the information to:

- Install and cable your adapter
- Install device drivers
- Configure your adapter

You can access the latest information about product updates from the http://www.ibm.com/pc/support IBM Support Web site. For service, assistance, or additional information on the World Wide Web, see Appendix A, "Getting information, help, and service," on page 51.

Installation prerequisites

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

- Obtain the most recent device drivers, Advanced System Management (ASM) firmware, DOS configuration utility, management information base (MIB), and documentation from the http://www.ibm.com/pc/support IBM Support Web site.

- Install the operating system on your server before you install the Advanced System Management device drivers. For information about installing the operating system, see the documentation that comes with your server.

  To install the operating system using ServerGuide™, use ServerGuide version 6.0.3, or later.

  Note: If you previously installed the operating system using ServerGuide version 6.0.2, make sure that you install the Advanced System Management device drivers from the *IBM Remote Supervisor Adapter Support* CD, or download the device drivers from the http://www.ibm.com/pc/support IBM Support Web site. Do not install the device drivers from the directory that ServerGuide 6.0.2 created on the hard disk during the installation of the operating system. For information about installing the device drivers, see "Installing adapter device drivers in the xSeries 220, 232, and 342" on page 33, or see "Installing ASM processor device drivers in the xSeries 330" on page 33.

- Update the basic input/output system (BIOS) code on your server. The latest level of BIOS code for your server is available from the http://www.ibm.com/pc/support IBM Support Web site. For information about how to update the BIOS code, see the documentation that comes with your server.

- If you are planning to configure Simple Network Management Protocol (SNMP) trap alerts on the Remote Supervisor Adapter, you must install and compile the management information base (MIB) on your SNMP manager. If you do not want to install the most recent device drivers, you can use the MIB that is provided in the \MIB directory on the *IBM Remote Supervisor Adapter Support* CD that comes with the Remote Supervisor Adapter.

- You must install the agent component of UM Server Extensions to use the following Advanced System Management (ASM) Web interface features:
  - Power/Restart
  - Remote Control

UM Server Extensions is on the system-management software CD that comes with the server. For information about installing the agent, see the documentation that comes with the system-management CD.

- To configure the remote alert recipients for Director over LAN or Director over modem, the remote alert recipient must be an IBM Director enabled server with UM Server Extensions.

Installation requirements

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

- IBM @server xSeries 220, xSeries 232, xSeries 330, or xSeries 342
- Advanced System Management device drivers for the Remote Supervisor Adapter, which are supported on the following operating systems:
  - Novell NetWare 4.2, or later
  - Microsoft® Windows NT® 4.0 Server (with Service Pack 4 or later)
  - Microsoft Windows® 2000 Server
  - Microsoft Windows 2000 Advanced Server
  - SCO UnixWare 7.1.1, or later
- Documentation that comes with your server

If you want to access the Remote Supervisor Adapter remotely through a Web browser, the supported Web browsers and browser requirements are:

- Microsoft Internet Explorer 4.0 (with Service Pack 1), or later
- Netscape Navigator 4.72, or later (version 6.0 is not currently supported)
- Java™ enabled Web browser (See your browser documentation or online Help for instructions about enabling its Java support.)
- Support for JavaScript 1.2, or later (See your browser documentation or online Help for instructions about enabling its JavaScript support.)
- Support of HTTP version 1.0, or later
- Minimum display resolution of 800 x 600 pixels and 256 colors

Note: The ASM Web interface and the ASM text-based inferface do not support the double-byte character set (DBCS) languages.

Remote Supervisor Adapter features

The Remote Supervisor Adapter provides the following:

- Continuous health monitoring and control
- Advanced Predictive Failure Analysis® (PFA)
- Configurable notification and alerts
- Event logs that are timestamped, saved by battery power unit, and can be attached to e-mail alerts
- Remote graphics console redirection
- LAN, serial, and Advanced System Management (ASM) interconnect remote access
- Point-to-point protocol (PPP) support
- Simple Network Management Protocol (SNMP)

- Domain Name System (DNS) and Dynamic Host Configuration Protocol (DHCP) support
- Remote power control
- Microsoft Windows NT and Windows 2000 blue-screen capture
- Remote firmware update and access to critical server settings
- Independent power, which enables around-the-clock access to the server even when the server power is off.

About your documentation

The documentation that comes with the Remote Supervisor Adapter includes the following:

- *IBM Remote Supervisor Adapter Installation Guide* (this book)

  This printed document is designed to assist you with the installation of the adapter.

- *IBM Documentation* CD

  This CD contains the publications for the Remote Supervisor Adapter in Adobe Acrobat Portable Document Format (PDF). The publications on the CD are:

  — *IBM Remote Supervisor Adapter Installation Guide* (this book)

  — *IBM Remote Supervisor Adapter User's Guide for the IBM @server xSeries 220, xSeries 232, and xSeries 342*

    This *User's Guide* describes the features and functions of the Advanced System Management (ASM) Web interface and the text-based user interface. Use this book if your server is an xSeries 220, xSeries 232, or xSeries 342.

  — *IBM Remote Supervisor Adapter User's Guide for the IBM @server xSeries 330*

    This *User's Guide* describes the features and functions of the Advanced System Management (ASM) Web interface and the text-based user interface. Use this book if your server is an xSeries 330.

  — *IBM Safety Information*

    Before you install the Remote Supervisor Adapter, be sure to read the caution and danger statements that are contained in this book.

System requirements for the IBM Documentation Browser

The *IBM Documentation* CD includes the IBM Documentation Browser. You can use the Documentation Browser to view the Remote Supervisor Adapter documentation from your server or any workstation that meets the following requirements:

- Microsoft Windows NT 4.0 (with Service Pack 4 or later), Windows 95, Windows 98, or Windows 2000

- 100 MHz Intel® Pentium®-class microprocessor

- 32 MB RAM

- Adobe Acrobat Reader 3.0 or later (Adobe Acrobat Reader software is included on your *IBM Documentation* CD, and you can install it when you run the Documentation Browser.)

Starting the IBM Documentation Browser

To start the Documentation Browser on a system running with Windows NT, Windows 95, Windows 98, or Windows 2000, do the following:

- If you have Autostart enabled, place the *IBM Documentation* CD in your CD-ROM drive. When you close the CD-ROM drive, the Documentation Browser program starts automatically.

- If you have disabled Autostart in your system, click **Start**→ **Run**; then in the open field (where x is the drive letter assigned to your CD-ROM drive), type:

  ```
  x:\docwin.cmd
  ```

  Click **OK**.

Using the IBM Documentation Browser

The IBM Documentation Browser enables you to browse the contents of the *IBM Documentation* CD, select from a list of available topics, see brief descriptions of the selected topics, and view selected topics using Adobe Acrobat Reader.

Note: The first time you run the Documentation Browser, you need to configure the preferences for your system. The Preferences window opens automatically. Use the Preferences window to specify the location of your Adobe Acrobat Reader (if installed) or to install Adobe Acrobat Reader. You can also specify the location of an HTML viewer (such as Netscape Navigator or Microsoft Internet Explorer). For more information, see the on-line Help available from the Preferences window.

To use the Documentation Browser:

1. From the Product drop box, select **Remote Supervisor Adapter**.

2. From the Topics selection list, select a book; then, click **View**. Adobe Acrobat Reader starts and the selected topics install automatically.

If you want to change the program preferences, click **Preferences**. Click **Help** for detailed information about using the IBM Documentation Browser. Click **Close** when you are finished.

Notices and statements used in this book

The caution and danger statements also appear in the multilingual safety information book provided on the *IBM Documentation CD*. Each statement is numbered for easy reference to the corresponding statement in the safety booklet.

The notice and statement definitions are as follows:

- **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 possible 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.

Handling static-sensitive devices

Attention: Static electricity can damage server components or options. To avoid damage, keep static-sensitive devices in their static-protective package until you are ready to install them.

To reduce the possibility of electrostatic discharge when you handle options and server components, observe the following precautions:

- Limit your movement. Movement can cause static electricity to build up around you.
- Handle the device carefully, holding it by its edges or its frame.
- Do not touch solder joints, pins, or exposed printed circuitry.
- Do not leave the device where others can handle and possibly damage the device.
- While the device is still in its static-protective package, touch it to an unpainted metal part of the server for at least two seconds. (This drains static electricity from the package and from your body.)
- Remove the device from its package and install it directly into your server without setting it down. If it is necessary to set the device down, place it in its static-protective package. Do not place the device on your server cover or any metal surface.
- Take additional care when handling devices during cold weather because heating reduces indoor humidity and increases static electricity.

Unpacking and verifying components

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

Inventory checklist

The Remote Supervisor Adapter option package contains the following items:

- Remote Supervisor Adapter
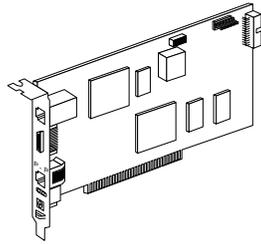
- Power-supply adapter (optional for the xSeries 330 type 8674; not needed for the xSeries 232, or xSeries 342)
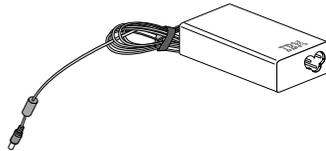
- Power cord
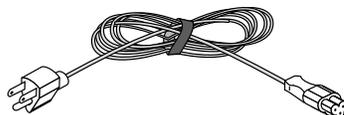
- 20-pin ribbon cable (not needed for the xSeries 330 type 8654)
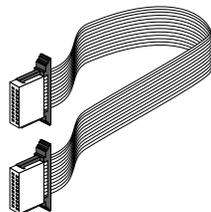
- Advanced System Management link cable (required only for xSeries 330 servers)
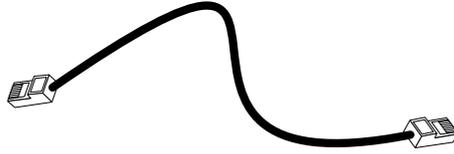
- Universal power cord

- Advanced System Management (ASM) Interconnect module (required for all xSeries 330 servers and certain ASM interconnect configurations)

  Attention: To avoid damage to the Ethernet connector on the Remote Supervisor Adapter, do not plug the ASM Interconnect module into the Ethernet (RJ-45) port.
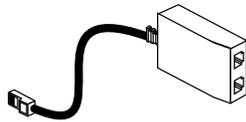
- *IBM Remote Supervisor Adapter Support* CD

  This CD contains information that helps you configure hardware and install device drivers.

- *IBM Documentation* CD

  The contents of this CD are described in "About your documentation" on page 3.

Remote Supervisor Adapter components

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

Lithium battery

System-management connector

Ethernet port (RJ-45)

Serial port (COM)

Advanced System Management (ASM) Interconnect Port (RJ-14)

Power and Error LEDs

External power supply connector
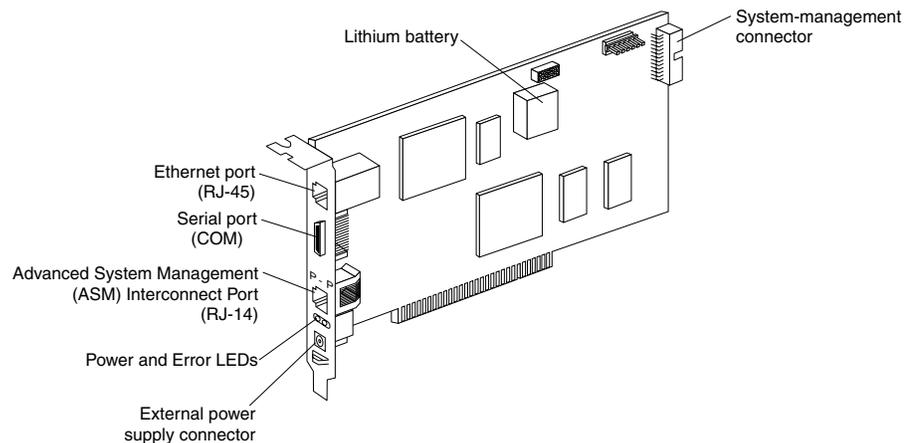
Descriptions of the Remote Supervisor Adapter components are as follows:

Ethernet port (RJ-45)
> Connect a Category 3 or Category 5 Ethernet cable to this port to enable a LAN connection or TELNET session. The Ethernet port LEDs on the Remote Supervisor Adapter are described in "Cabling the Ethernet LAN port" on page 25.
>
> **Attention:** The RJ-45 connectors on the IBM Remote Supervisor Adapter are only for Ethernet and Advanced System Management Interconnect use and are not for telecommunications use.

Serial port (COM)
> Connect a serial cable to this port to enable system management through a modem, or connect a null modem cable to enable system management through a workstation or mobile computer.

Advanced System Management (ASM) Interconnect port (RJ-14)
> Attach an ASM Interconnect module that comes with the Remote Supervisor Adapter to this port to connect the Remote Supervisor Adapter to the other devices on the ASM Interconnect network. This port is also called the P-P (peer-to-peer) port.

Power and error LEDs
> The green power LED indicates the status of the power connection. The amber error LED indicates an error on the Remote Supervisor Adapter.

External power-supply connector
> Connect the power-supply adapter that comes with the Remote Supervisor Adapter to this connector. This connection provides power to the Remote Supervisor Adapter, independent of the server power supply.

Lithium battery
> This provides backup of the Remote Supervisor Adapter real-time clock, event log, and configuration settings.

System-management connector

Connect the 20-pin ribbon cable that comes with the Remote Supervisor Adapter to this connector on the Remote Supervisor Adapter and to the system-management connector on the xSeries 220, xSeries 232, xSeries 342, or xSeries 330 type 8674 server system board.

Note: You do not use this connector when installing the adapter in the xSeries 330 type 8654.

Chapter 2. Installing and configuring the adapter

This chapter details how to install the Remote Supervisor Adapter in the xSeries 220, xSeries 232, xSeries 330, and xSeries 342 servers. The following general tasks are necessary to install and configure the Remote Supervisor Adapter.

Task 1. Verify and complete the installation prerequisites. See "Installation prerequisites" on page 1.

Task 2. Unpack and verify the components. See "Unpacking and verifying components" on page 6.

Task 3. Install the Remote Supervisor Adapter in the server.

Table 1. Adapter installation procedures.

Server	Installation procedure
xSeries 220	page 12
xSeries 330	page 16
xSeries 232	page 20
xSeries 342	page 23

Task 4. Connect the external power-supply adapter, if necessary for your server.

Task 5. Connect the Ethernet and serial port cables. See "Connecting the LAN and serial port cables" on page 25.

Task 6. Update the Remote Supervisor Adapter firmware. See "Updating the Remote Supervisor Adapter firmware" on page 27.

Task 7. Perform the initial configuration to enable remote access to the Remote Supervisor Adapter. See "Enabling remote access to the adapter" on page 28. Use this step to:
- Configure the Ethernet port
- Configure the serial (COM) port
- Set up the point-to-point protocol

Task 8. Install the Advanced System Management device drivers. See "Installing ASM processor device drivers in the xSeries 330" on page 33, or see "Installing adapter device drivers in the xSeries 220, 232, and 342" on page 33.

Task 9. Configure the remote control password to enable the ASM Web interface remote control features. See "Configuring the remote control password" on page 38.
Note: The remote control password is not available on the xSeries 330 servers.

Task 10. Complete the installation. See "Completing the installation" on page 39.

Task 11. Plan and cable the ASM interconnect network. See "Planning and cabling your interconnect network" on page 41.

xSeries 220 installation

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

Attention: When you handle static-sensitive devices, take precautions to avoid damage from static electricity. For details about handling static-sensitive devices, see "Handling static-sensitive devices" on page 5.

To install the Remote Supervisor Adapter, complete the following steps:

1. Review the safety precautions in "Safety" on page v.
2. Turn off the server and attached devices, and disconnect all external cables and power cords.
3. Remove the server from the rack cabinet (if applicable).
4. Remove the server cover. For instructions, see the documentation that comes with your server.
5. Remove the rear adapter retaining bracket from the server, as shown in the following illustration.

Expansion-slot cover

Rear adapter retaining bracket

Remote Supervisor Adapter
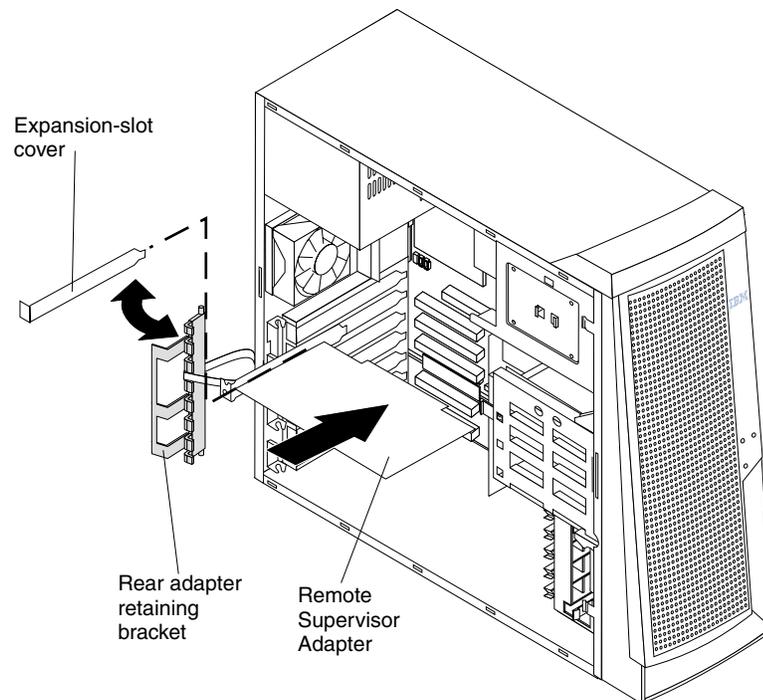
6. Remove the expansion-slot cover from PCI slot 2. Store it in a safe place for future use.

   Note: You must install the Remote Supervisor Adapter in PCI slot 2.

   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.

PCI 2
(J31)

xSeries 220 system board

System
management
(J32)
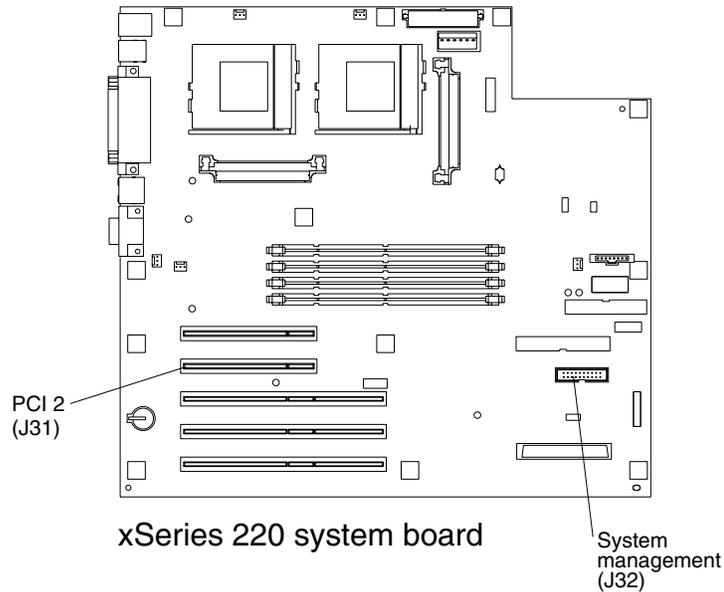
7. Remove the adapter from the static-protective package.

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

8. Install the adapter as follows:

   a. Carefully grasp the adapter by its top edge or upper corners, and align it with PCI slot 2 on the system board.

   b. Press the adapter firmly into the PCI slot.

      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.

9. Replace the rear adapter retaining bracket.

10. Connect the 20-pin ribbon cable as follows:

   a. Connect one end of the 20-pin ribbon cable to the system-management connector on the Remote Supervisor Adapter. The 20-pin ribbon cable connector ends are keyed for proper installation.
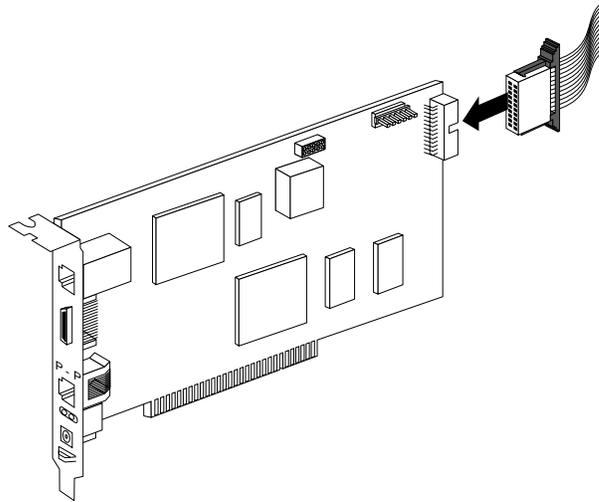
   b. Connect the other end of the cable to the system-management connector on the system board.

      The following illustration shows the location of the system-management connector on the xSeries 220 system board.

PCI 2 (J31)

xSeries 220 system board

System management (J32)
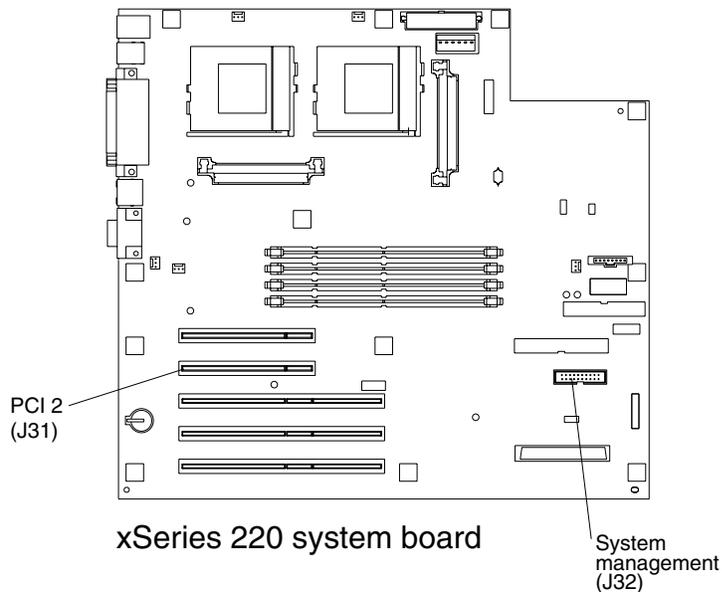
11. Replace the side cover.

12. Install the server in the rack cabinet (if applicable).

13. Connect the external cables and power cords that you disconnected in step 2 on page 12.

14. Continue with "Connecting the power-supply adapter to an xSeries 220" on page 15.

Connecting the power-supply adapter to an xSeries 220

You must attach the power-supply adapter that comes with the Remote Supervisor Adapter. After you connect the power-supply adapter to the Remote Supervisor Adapter, 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 to connect the power-supply adapter to a power distribution unit (PDU) or to an uninterruptible power supply (UPS).

To connect the power-supply adapter and power cord, complete the following steps.

1. Connect the power-supply control cable to the external power-supply connector on the Remote Supervisor Adapter.

2. Connect one end of the power cord to the connector on the power-supply adapter.

3. 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 (UPS).

4. Turn on the server.

5. Make sure that the Remote Supervisor Adapter power LED is green. To find the location of the power LED, see the illustration in "Cabling the Ethernet LAN port" on page 25.

6. Continue to "Connecting the LAN and serial port cables" on page 25.

xSeries 330 installation

Attention: When you handle static-sensitive devices, take precautions to avoid damage from static electricity. For details about handling static-sensitive devices, see "Handling static-sensitive devices" on page 5.

Your server comes with riser cards installed in the two peripheral component interconnect (PCI) expansion slots on the system board.

The following illustration shows the location of the 33 MHz PCI expansion slots on the system board. You must install the Remote Supervisor Adapter in PCI slot 2.

PCI slot 2
64 bit
33 MHz (J23)

PCI slot 1
64 bit
33 MHz (J10)
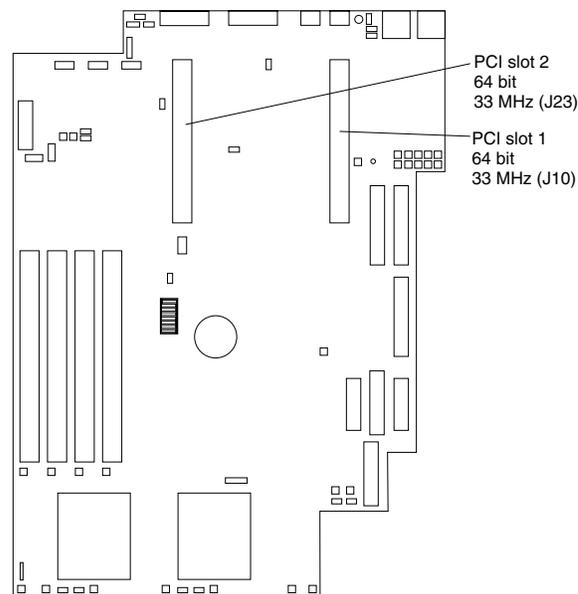
xSeries 330 System Board

To install the Remote Supervisor Adapter, complete the following steps:

1. Review the safety precautions in "Safety" on page v.
2. Turn off the server and attached devices, and disconnect all external cables and power cords.
3. Remove the server from the rack cabinet (if applicable).
4. Remove the server cover. For instructions, see the documentation that comes with your server.

5. Remove the expansion-slot clip that holds the expansion-slot cover in place by sliding it upward and off the frame of the server.
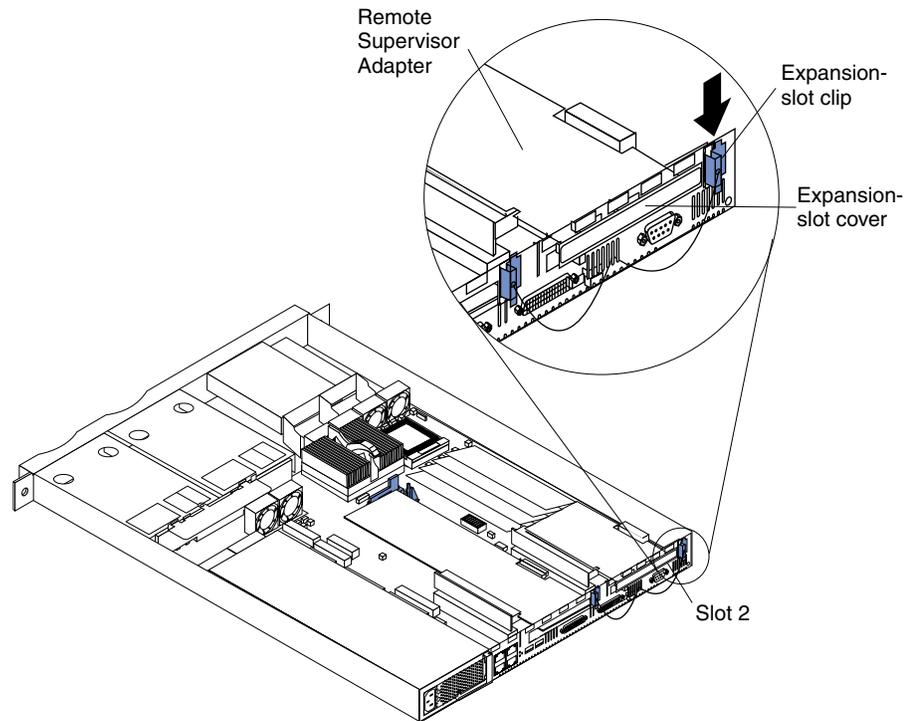
Remote
Supervisor
Adapter

Expansion-
slot clip

Expansion-
slot cover

Slot 2

6. Remove the expansion-slot cover from PCI slot 2. Store it in a safe place for future use.

   Attention: There must be an expansion-slot cover in all vacant slots. This maintains the electronic emission characteristics of the server and ensures proper cooling of server components.

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

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

8. Install the adapter as follows:

   a. Carefully grasp the adapter by its top edge or upper corners, and align it with PCI slot 2 connector on the PCI riser card.

      Note: You must install the Remote Supervisor Adapter in PCI slot 2.

   b. Press the adapter *firmly* into the PCI slot and replace the expansion-slot clip by sliding it down until it latches into place and securely holds the adapter.

      Attention: When you install the adapter in the server, be sure that it is completely and correctly seated in the connector before you apply power. Improper insertion might cause damage.
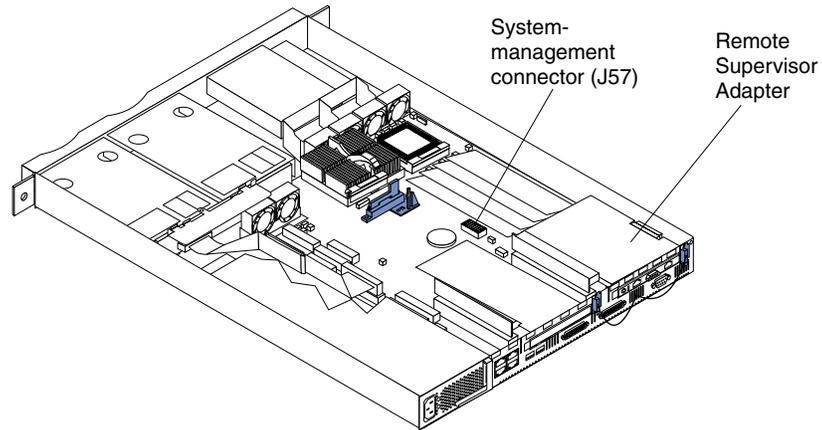
9. If the server is an xSeries 330 type 8654 (server type is located on the right-front side of the bezel) go to step 10 on page 19; otherwise, do the following:

   a. Connect one end of the 20-pin ribbon cable to the system-management connector on the Remote Supervisor Adapter. The xSeries 330 type 8674 provides power to the Remote Supervisor Adapter through this cable.
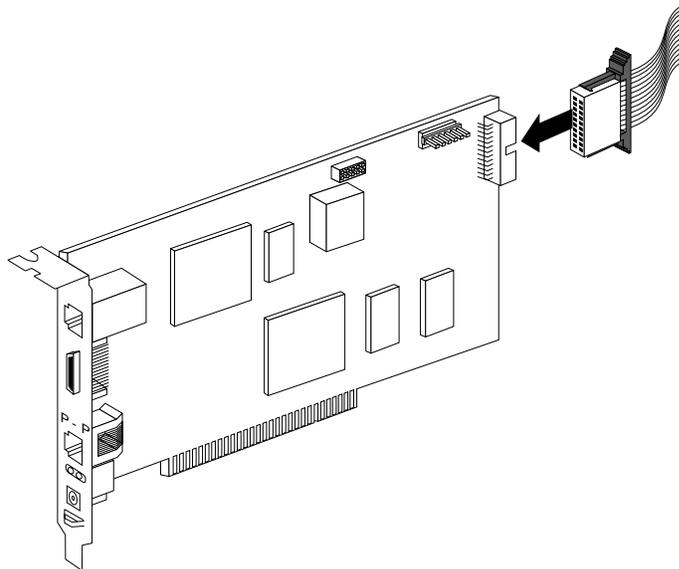
   b. Connect the other end of the 20-pin ribbon cable to the system-management connector (J57) on the system board. For the location of the system-management connector, see the illustration in step 8b.

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

10. Replace the cover on the server.

11. Install the server in the rack cabinet (if applicable).

12. Connect the external cables and power cords that you disconnected in step 2 on page 16.

13. If you are installing the Remote Supervisor Adapter in an xSeries 330 type 8654, go to "Connecting the power-supply adapter to an xSeries 330 type 8654"; Otherwise, go to "Connecting the ASM Interconnect module to the xSeries 330" on page 20.

   Note: For the xSeries 330 type 8674, power is provided from the server system board through the 20-pin ribbon cable. The power-supply adapter is optional, and provides redundant power when you install the Remote Supervisor Adapter in the xSeries 330 type 8674.

Connecting the power-supply adapter to an xSeries 330 type 8654

For the xSeries 330 type 8654, you must attach the power-supply adapter that comes with the Remote Supervisor Adapter. After you connect the power-supply adapter to the Remote Supervisor Adapter, 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 to connect the power-supply adapter to a power distribution unit (PDU) or to an uninterruptible power supply (UPS).

To connect the power-supply adapter and power cord, complete the following steps.

1. Connect the power supply control cable to the external power-supply connector on the Remote Supervisor Adapter.

2. Connect one end of the power cord to the connector on the power-supply adapter.

3. 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 (UPS).

4. Turn on the server.

5. Make sure that the Remote Supervisor Adapter power LED is green. For the location of the power LED, see the illustration in "Cabling the Ethernet LAN port" on page 25.

6. Continue with "Connecting the ASM Interconnect module to the xSeries 330".

Connecting the ASM Interconnect module to the xSeries 330

You must connect the Remote Supervisor Adapter to the service processor that is on the system board of the xSeries 330 using the ASM Interconnect module. This module comes with the Remote Supervisor Adapter. After you make that connection, if you are setting up an ASM interconnect network you can then connect the servers though the RS-485 ports as described in Chapter 4, "Using the ASM interconnect network," on page 41.

To connect the ASM Interconnect module to the Remote Supervisor Adapter, complete the following steps.

1. Connect the ASM Interconnect module to the Remote Supervisor Adapter ASM Interconnect (P-P) port.

ASM Interconnect port (P-P) on the Remote Supervisor Adapter

ASM Interconnect module

ASM link cable

ASM Interconnect port on xSeries 330 RS-485 Port (A)
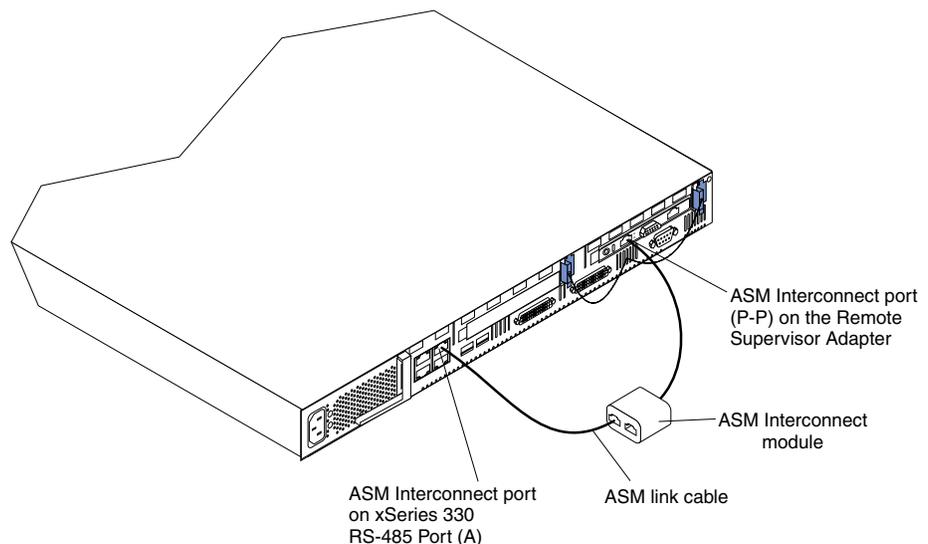
2. Connect one end of the ASM link cable (Category 3 or Category 5 Ethernet cable that comes with the Remote Supervisor Adapter) to the RS-485 port (A) on the server.

3. Connect the other end of the ASM link cable to the ASM Interconnect module.

4. Continue with "Connecting the LAN and serial port cables" on page 25.

xSeries 232 installation

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

Attention: When you handle static-sensitive devices, take precautions to avoid damage from static electricity. For details about handling static-sensitive devices, see "Handling static-sensitive devices" on page 5.

To install the Remote Supervisor Adapter, complete the following steps.

1. Review the safety precautions in "Safety" on page v.

2. Turn off the server and attached devices, and disconnect all external cables and power cords.

3. Remove the server from the rack cabinet (if applicable).

4. Remove the server cover. For instructions, see the documentation that comes with your server.

5. Remove the adapter-retention bracket.

6. Remove the expansion-slot cover from PCI slot 1.

   Attention: You must install an expansion-slot cover in all vacant slots. This maintains the electronic emission characteristics of the server and ensures proper cooling of server components.

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

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

8. Install the adapter as follows:

   a. Carefully grasp the adapter by its top edge or upper corners, and align it with the expansion slot.

      Note: You must install the Remote Supervisor Adapter in PCI slot 1.
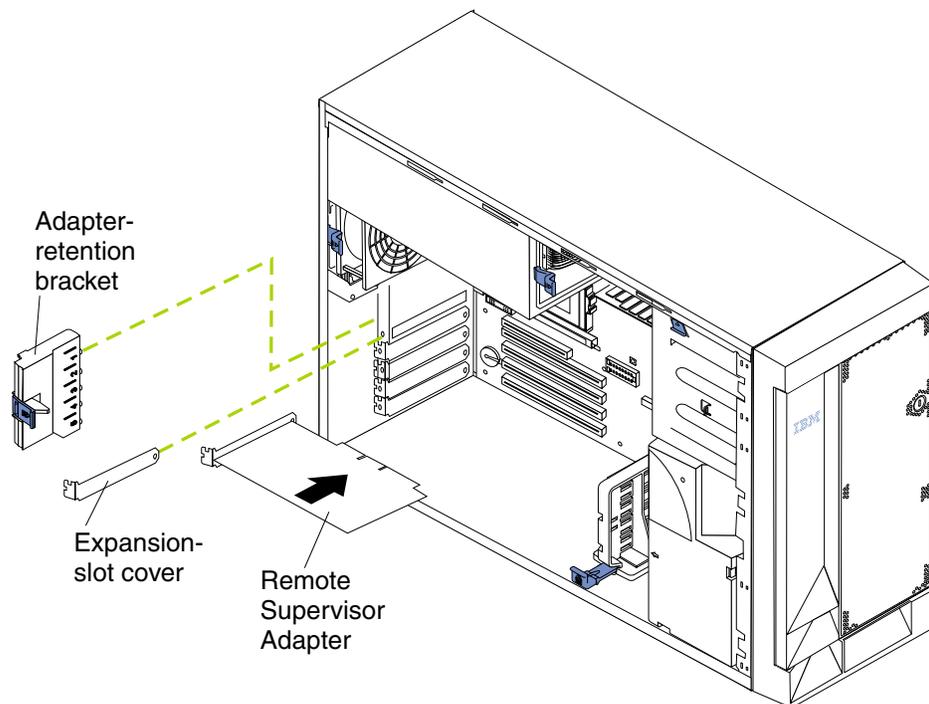
   b. Press the adapter *firmly* into the PCI slot.

   c. Replace the adapter-retention bracket by aligning the bottom tabs of the adapter-retention bracket with the holes at the top of the expansion slots, and press the adapter-retention bracket toward the back of the server until it clicks into the locked position.

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

9. Connect the 20-pin ribbon cable as follows:

    a. Connect one end of the 20-pin ribbon cable to the system-management connector on the Remote Supervisor Adapter. The 20-pin ribbon cable connector ends are keyed for proper installation.
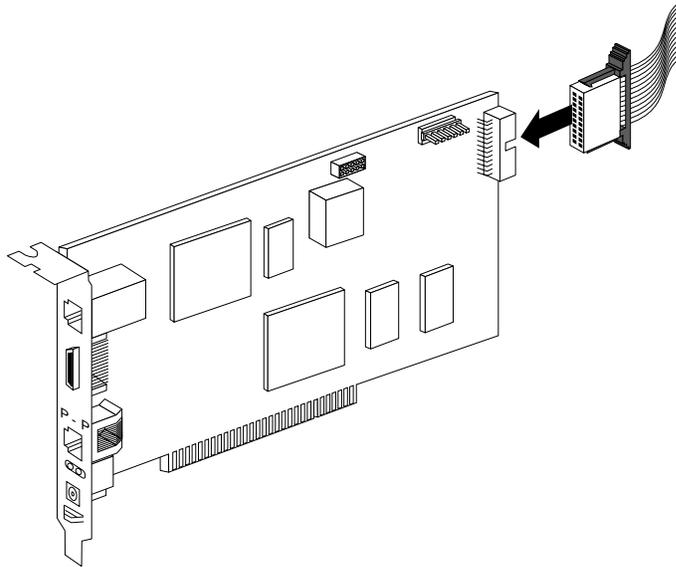
    b. Connect the other end of the cable to the system-management connector (J54) on the system board.

    The following illustration shows the location of the system-management connector on the xSeries 232 system board.
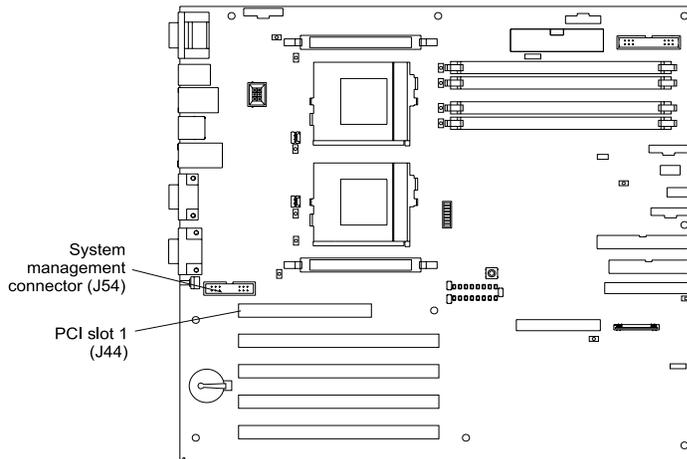
xSeries 232 System Board

10. Replace the server cover.

11. Install the server in the rack cabinet (if applicable).

12. Connect the external cables and power cords that you disconnected in step 2 on page 21.

13. Continue with "Connecting the LAN and serial port cables" on page 25.

xSeries 342 installation

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

Attention: When you handle static-sensitive devices, take precautions to avoid damage from static electricity. For details about handling static-sensitive devices, see "Handling static-sensitive devices" on page 5.

To install the Remote Supervisor Adapter, complete the following steps:

1. Review the safety precautions in "Safety" on page v.

2. Turn off the server and attached devices, and disconnect all external cables and power cords.

3. Remove the server from the rack cabinet (if applicable).

4. Remove the server cover. For instructions, see the documentation that comes with your server.

5. Remove the expansion-slot cover from PCI slot 1.

   a. Loosen and remove the screw on the top of the expansion-slot cover.

   b. Slide the expansion-slot cover out of the server. Store it in a safe place for future use.

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

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

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

7. Install the adapter as follows:

   a. Carefully grasp the adapter by its top edge or upper corners, and align it with the expansion slot.

      Note: You must install the Remote Supervisor Adapter in PCI slot 1.
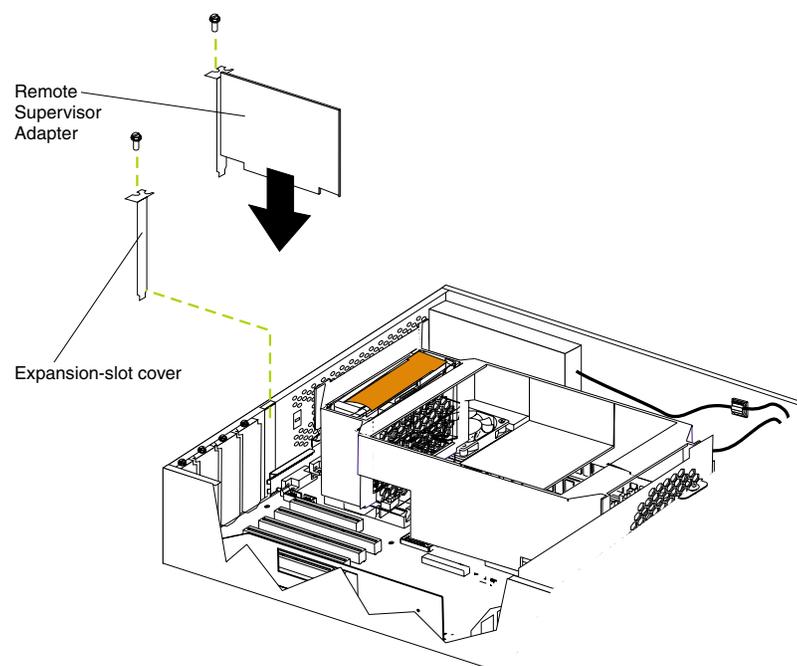
b. Press the adapter *firmly* into the PCI slot.

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

c. Insert and tighten the expansion-slot screw on the top of the adapter bracket.

8. Connect the 20-pin ribbon cable as follows:

a. Connect one end of the 20-pin ribbon cable to the system-management connector on the Remote Supervisor Adapter. The 20-pin ribbon cable connector ends are keyed for proper installation.
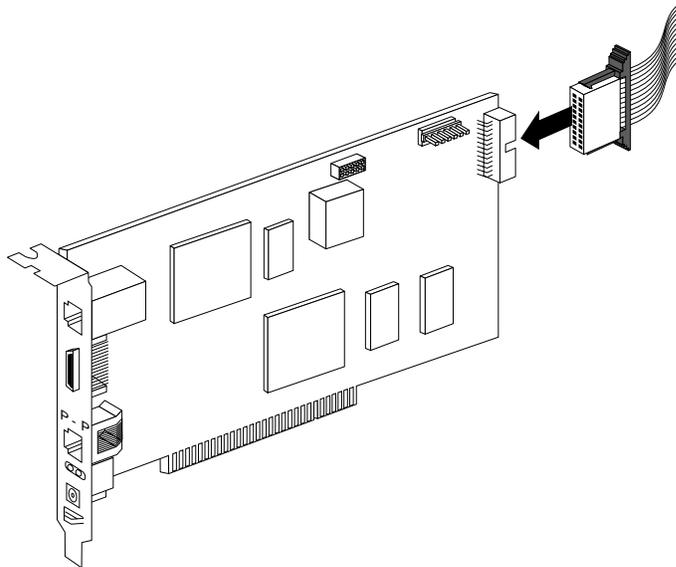
b. Connect the other end of the cable to the system-management connector (J54) on the system board.

The following illustration shows the location of the system-management connector on the xSeries 342 system board.

System management connector (J54)

PCI slot 1 (J44)
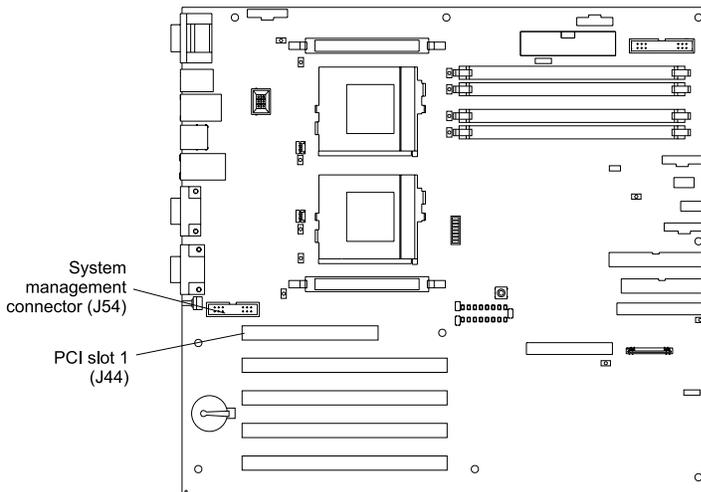
xSeries 342 System Board

9. Replace the server cover.

10. Install the server in the rack cabinet (if applicable).

11. Connect the external cables and power cords that you disconnected in step 2 on page 23.

12. Continue with "Connecting the LAN and serial port cables".

Connecting the LAN and serial port cables

You can manage your server remotely through the Remote Supervisor Adapter using the connections and user interfaces that are described in Table 2. Choose the interface method you want to use to perform remote management; then, perform the indicated cabling procedure.

Before you begin cabling your servers, and if you plan to set up an ASM interconnect network, go to Chapter 4, "Using the ASM interconnect network," on page 41 for instructions about cabling the ASM interconnect port and setting up the network. You might want to review the configuration examples in Chapter 4 before you connect the cables. Then, return here to continue the cabling procedures.

Table 2. Cabling tasks to enable remote access to the Remote Supervisor Adapter.

User interface to Remote Supervisor Adapter	Connection to Remote Supervisor Adapter	For the cabling procedure, see:
ASM Web interface using the HTTP protocol	LAN using the Ethernet port	"Cabling the Ethernet LAN port"
Text-based user interface using the TELNET protocol		
Text-based user interface using a modem or a null modem	Serial (COM) port	"Cabling the serial (COM) port" on page 26
ASM Web interface using point-to-point (PPP) protocol		
Text-based user interface using the TELNET protocol over PPP		

Cabling the Ethernet LAN port

To attach the Ethernet cables, complete the following steps.

Attention: To avoid damage to the Ethernet connector on the Remote Supervisor Adapter, do not plug the ASM Interconnect module into the Ethernet (RJ-45) port.

1. Connect one end of a Category 3 or Category 5 Ethernet cable to the Ethernet port on the Remote Supervisor Adapter. Connect the other end of the Ethernet cable to your network.

2. Check the Ethernet LEDs. The location of the LEDs is shown in the following illustration.
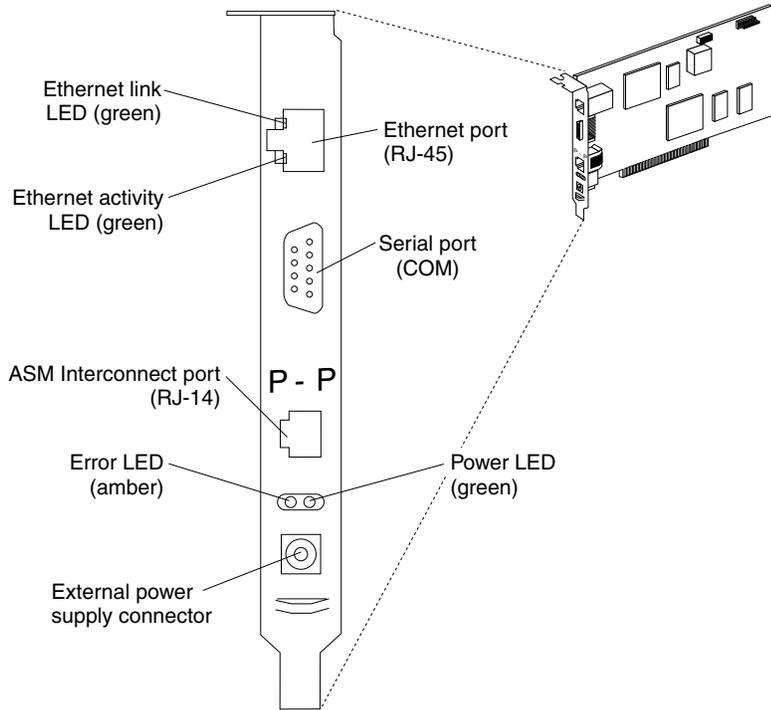
Ethernet link LED
> The green Ethernet link LED is lit when the Ethernet cable is connected properly.

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

If you want to use the serial port connection, continue with "Cabling the serial (COM) port"; otherwise, go to Chapter 3, "Using the DOS utility and configuring the adapter," on page 27.

Cabling the serial (COM) port

To cable the serial (COM) port, connect a modem or null modem cable to the serial port on the Remote Supervisor Adapter.

Continue with Chapter 3, "Using the DOS utility and configuring the adapter," on page 27.

Chapter 3. Using the DOS utility and configuring the adapter

This chapter discusses how to use the DOS utility to update the Remote Supervisor Adapter firmware, how to install device drivers, and how to enable remote access.

Updating the Remote Supervisor Adapter firmware

You must install the latest level of firmware on the Remote Supervisor Adapter. You can obtain the latest firmware code from http://www.ibm.com/pc/support IBM Support Web site. You can use the IBM Remote Supervisor Utility program to check the firmware level on the Remote Supervisor Adapter and to update the firmware. This Utility program is a DOS utility on the *IBM Remote Supervisor Adapter Support* CD that comes with the Remote Supervisor Adapter.

After you configure the Remote Supervisor Adapter to enable remote access through a Web connection, you can update the Remote Supervisor Adapter firmware using the ASM Web interface. The procedure to initially configure the Remote Supervisor Adapter for remote access is described in "Enabling remote access to the adapter" on page 28.

For information about using the ASM Web interface to monitor your server, see the *IBM Remote Supervisor Adapter User's Guide* that is appropriate for your server and is available in Adobe Acrobat Portable Document Format (PDF) on the *IBM Documentation* CD. You can find additional information from the http://www.ibm.com/pc/support IBM Support Web site.

To update the Remote Supervisor Adapter firmware, complete the following steps:

1. If you have not already done so, turn on the server.

2. Insert the *IBM Remote Supervisor Adapter Support* CD into the CD-ROM drive. Be sure to close the CD-ROM drive before the server completes power-on self-test (POST).

   Note: If you do not insert the CD and close the CD-ROM drive before POST completes, you must restart the server with the CD in the CD-ROM drive.

3. The CD starts automatically and the IBM Remote Supervisor Utility window opens.


```
                        IBM Remote Supervisor Utility



                Select Option:

                :  Hardware Status and Information
                :  Configuration Settings
                •  Update System Management Firmware

                Exit Utility




     <F1>  Help                                      <↑><↓>   Move
     <Esc> Exit                                      <Enter> Select
```

4. Use the Up Arrow and Down Arrow keys (↑ and ↓) to select **Update System Management Firmware**; then, press Enter. A warning window opens.

5. Press **Enter** to continue. The Firmware Update Options Menu window opens.

6. Use the arrow keys to select **Normal Flash - All subsystems**; then, press Enter.

7. The Firmware Update Status window opens and displays a message to confirm that you want to update the firmware. Press Enter. The system updates the Remote Supervisor Adapter firmware.

8. When the Remote Supervisor Adapter firmware update process is complete, press Enter to return to the Utility program main window.

9. Continue with "Enabling remote access to the adapter".

Enabling remote access to the adapter

The Remote Supervisor Adapter requires configuration to enable remote access through the Ethernet and serial ports. From Table 3, choose the interface method that you want to use to perform remote management; then, perform the indicated configuration procedure.

Table 3. Configuration tasks to enable remote access to the Remote Supervisor Adapter.

User interface to Remote Supervisor Adapter	Connection to Remote Supervisor Adapter	For the configuration procedure, see:
ASM Web interface using the HTTP protocol	LAN using the Ethernet port	"Configuring the Ethernet settings" on page 29
Text-based user interface using the TELNET protocol		
Text-based user interface using a modem or a null modem	Serial (COM) port	"Configuring the serial port" on page 30 and "Setting up point-to-point protocol" on page 32
ASM Web interface using point-to-point (PPP) protocol		
Text-based user interface using the TELNET protocol over PPP		

For detailed information about using the ASM Web interface and the text-based user interface, see the *IBM Remote Supervisor Adapter User's Guide* that is appropriate for your server.

Configuring the Ethernet settings

If you have an accessible, active, and configured dynamic host configuration protocol (DHCP) server on your network, the hostname, IP address, gateway address, subnet mask, and DNS server IP address are set automatically. You do not need to perform further configuration tasks to enable the Ethernet connection because the default value for the **DHCP Setting** field is Enabled. If you need to configure the serial port, go to "Configuring the serial port" on page 30; otherwise, go to "Configuring the remote control password" on page 38.

If you do not have a DHCP server on your network, complete the following steps to configure the Ethernet settings. If you completed the update firmware procedure and the Utility program main window is open, go to step 3.

1. If you have not already done so, turn on the server.

2. Insert the *IBM Remote Supervisor Adapter Support* CD into the CD-ROM drive. Be sure to close the CD-ROM drive before the server completes POST. The CD starts automatically and the IBM Remote Supervisor Utility window opens.

   Note: If you do not insert the CD and close the CD-ROM drive before POST completes, you must restart the server with the CD in the CD-ROM drive.

3. Use the Up Arrow and Down Arrow keys (↑ and ↓) to select **Configuration Settings**; then, press Enter. The Configuration Settings window opens.

4. Use the arrow keys to select **Ethernet Settings**; then, press Enter.

   The Ethernet Settings window opens.

   Note: The values in the following window are only examples; your settings will be different.

5. Use the arrow keys to navigate to each field. Your system administrator can provide the information for the following fields:

   Network Interface
   > The default value is Enabled; verify that it is still set to Enabled.

   IP Address
   > Type the IP address of the Remote Supervisor Adapter.

   Subnet Mask
   > Type the subnet mask used by the Remote Supervisor Adapter. The default value is 255.255.255.0.

   Gateway
   > Type the IP address of the gateway.

Host Name

> Type the hostname of the Remote Supervisor Adapter. The default hostname is ASMA<*burned-in MAC address*>.

For detailed information about the Ethernet settings, see the *IBM Remote Supervisor Adapter User's Guide* that is appropriate for your server.

6. Change the DHCP Setting field to **Disabled**. The default value is Enabled.

7. Press F6 to apply the change.

8. Press Esc. In the Warning window that opens, press Enter to restart the Remote Supervisor Adapter.

9. Press Esc to return to the Configuration Settings window.

    If you need to configure the serial port, go to "Configuring the serial port".

10. Press Esc to return to the Utility program main window.

11. Use the arrow keys to select **Exit Utility** from the menu or press Esc to close the Utility program.

12. Remove the CD from the CD-ROM drive. The server restarts automatically.

13. Continue with "Installing ASM processor device drivers in the xSeries 330" on page 33 or, "Installing adapter device drivers in the xSeries 220, 232, and 342" on page 33.

Configuring the serial port

To configure the Remote Supervisor Adapter serial port for access using a modem or null modem, complete the following steps. If you completed the procedure for configuring the Ethernet port, and the Configuration Settings window is open, go to step 4.

1. Turn on the server.

2. Insert the *IBM Remote Supervisor Adapter Support* CD into the CD-ROM drive. Be sure to close the CD-ROM drive before the server completes POST. The CD starts automatically, and the IBM Remote Supervisor Utility window opens.

    Note: If you do not insert the CD and close the CD-ROM drive before POST completes, you must restart the server with the CD in the CD-ROM drive.

3. Use the Up Arrow and Down Arrow keys (↑ and ↓) to select **Configuration Settings**; then, press Enter.

    The Configuration Settings window opens.

4. Use the arrow keys to select **Modem Settings**; then, press Enter.

    The Modem Settings window opens.

    Note: The values in the following window are only examples; your settings might be different.

```
                    IBM Remote Supervisor Utility


                              Modem Settings

    Port to configure: 1          Baud Rate: 57600
    Dedicated to ASM:  ENABLED_   Parity:    NONE_     Stop Bits: 1

    Initialization string:    ATZ_____
    Hang up string:           ATH0_____
    Return to factory settings: AT&F0_____

    Escape guard time:   100          Escape string:       +++_____
    Dial prefix string: ATDT_____   Dial postfix string: _____
    Auto answer string: ATS0=1_____  Auto answer stop:    ATS0=0_____
    Caller ID:          _____   Query string:        AT_


    <F1>  Help       <F2> Refresh    <→> Next Value      <↑><↓>  Move
    <Esc> Exit       <F6> Apply      < Previous Value
```

5. Verify the following serial port values:

    Baud Rate

    > The default is 57600. Make sure that the baud rate matches the baud rate of the device you are connecting to the serial port on the Remote Supervisor Adapter.

    Dedicated to ASM

    > The default is Disabled. If you are using point-to-point protocol (PPP), set this field to Enabled. If the value in this field is Enabled when the server is restarted, the serial port remains dedicated to system management and is not returned to the operating system.

    > **Note:** This feature is not available for the xSeries 330 servers.

    > You can dedicate the integrated serial port on the Remote Supervisor Adapter to system management or share it with the operating system. If the serial port is dedicated to system management, it serves only the Remote Supervisor Adapter and is always available for dial-in or dial-out alerting purposes. You cannot view the port using the operating system or any application.

    > If the serial port is shared with the operating system, it is dedicated to the Remote Supervisor Adapter only while the server is turned off or during POST. The port is returned to the operating system after POST completes. You can view the port using the operating system or any application. The Remote Supervisor Adapter takes over the port from the operating system only when information about a critical event is received. The Remote Supervisor Adapter dials out and transmits an alert and keeps the port dedicated until the server is restarted. The port is no longer available to the operating system or applications.

    Parity

    > The default is None.

    Stop Bits

    > The default is 1.

    Note: The data bits value is preset to 8 and cannot be changed.

    For detailed information about the serial port and modem settings, see the *IBM Remote Supervisor Adapter User's Guide* that is appropriate for your server.

6. If you made changes to the serial port settings, press F6 to apply the change.

7. Press Esc to return to the Configuration Settings window.

   If you need to set up point-to-point protocol, go to "Setting up point-to-point protocol".

8. Press Esc to return to the Utility program main window.

9. Use the arrow keys to select **Exit Utility** from the menu, or press Esc to close the Utility program.

10. Remove the CD from the CD-ROM drive. The Remote Supervisor Adapter restarts automatically.

11. Continue with "Installing ASM processor device drivers in the xSeries 330" on page 33, or "Installing adapter device drivers in the xSeries 220, 232, and 342" on page 33.

Setting up point-to-point protocol

The Remote Supervisor Adapter serial port supports point-to-point protocol (PPP). PPP enables TCP/IP communication over the serial port, which enables Web-based management and TELNET sessions over a modem. To set up PPP, complete the following steps. If you completed the procedure for configuring the serial port and the Configuration Settings window is open, go to step 4.

1. If you have not already done so, turn on the server.

2. Insert the *IBM Remote Supervisor Adapter Support* CD into the CD-ROM drive. Be sure to close the CD-ROM drive before the server completes POST. The CD starts automatically and the IBM Remote Supervisor Utility window opens.

   Note: If you do not insert the CD and close the CD-ROM drive before POST completes, you must restart the server with the CD in the CD-ROM drive.

3. Use the Up Arrow and Down Arrow keys (↑ and ↓) to select **Configuration Settings**; then, press Enter.

   The Configuration Settings window opens.

4. Use the arrow keys to select **PPP Settings**; then, press Enter.

   The PPP Settings window opens.

   Note: The values in these screens are examples.
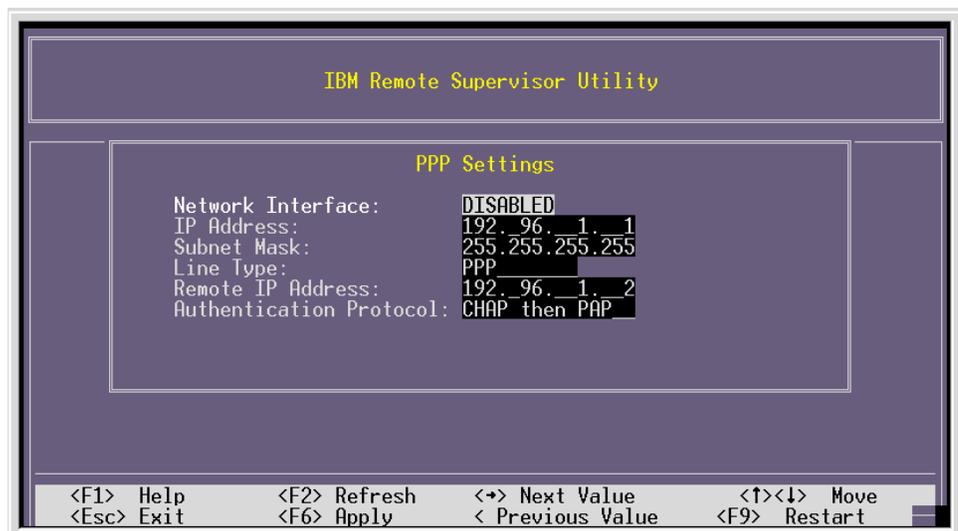
5. Use the arrow keys to navigate to each field. Verify the values in the following fields:

Network Interface

The default is Disabled. Change this field to Enabled.

IP Address

The default value is 192.96.1.1. You can use the default or another IP address, but the server must be able to establish a connection to that address. The default IP address (local and remote) is easily reconfigurable.

Subnet Mask

The default value is 255.255.255.255.

Line Type

The value is set to PPP.

Remote IP Address

The default value is 192.96.1.2.

Authentication Protocol

The default is CHAP then PAP. Make sure that the value in this field matches your client settings.

For detailed information about the PPP settings, see the *IBM Remote Supervisor Adapter User's Guide* that is appropriate for your server.

6. Press F6 to apply the changes.

7. Press Esc. In the Warning window that opens, press Enter to restart the Remote Supervisor Adapter.

8. Press Esc to return to the Configuration Settings window.

   If you need to configure the serial port, go to "Configuring the serial port" on page 30.

9. Press Esc to return to the Utility program main window.

10. Use the arrow keys to select **Exit Utility** from the menu or press Esc to close the Utility program.

11. Remove the CD from the CD-ROM drive. The server restarts automatically.

12. Continue with "Installing ASM processor device drivers in the xSeries 330" or "Installing adapter device drivers in the xSeries 220, 232, and 342".

Installing ASM processor device drivers in the xSeries 330

If this is the first time you are setting up this xSeries 330 server or if you previously set up this server without using ServerGuide, you must install the ASM processor device drivers that come with the server. This is a requirement because the Remote Supervisor Adapter controls and communicates with the xSeries 330 servers through the ASM processor that is integrated on the system board. The ASM processor device drivers are specifically designed to work with this integrated ASM processor. For more information, see the documentation that comes with the server.

Continue with "Completing the installation" on page 39.

Installing adapter device drivers in the xSeries 220, 232, and 342

You must install the Remote Supervisor Adapter device drivers for the xSeries 220, xSeries 232, and xSeries 342 servers. The adapter device drivers enable communication between the Remote Supervisor Adapter and the server in which it is installed. The device drivers are included on the *IBM Remote Supervisor Adapter Support* CD that comes with the adapter. You can also obtain the latest device drivers from the http://www.ibm.com/pc/support/ IBM Support Web site.

The following sections describe the procedure for installing the Remote Supervisor Adapter device drivers for your server, depending on your operating system.

Notes:

1. If installing device drivers manually, note the following:

   - Make sure that the operating system is installed on your server before you install the Remote Supervisor Adapter device drivers. For information about installing the operating system, see the documentation that comes with your server.

   - Be sure to stop any system-management application before installing the device drivers on the Remote Supervisor Adapter.

   For information about updating the device drivers, see your server documentation.

2. If installing device drivers using ServerGuide, note the following:

   - To install the operating system using ServerGuide, use ServerGuide version 6.0.3, or later. If you install the Remote Supervisor Adapter and then install Microsoft Windows NT or Windows 2000 using ServerGuide version 6.0.3 or later, the Advanced System Management device drivers are installed automatically.

   - If you previously installed the operating system with ServerGuide version 6.0.2, make sure that you install the Advanced System Management device drivers from the *IBM Remote Supervisor Adapter Support* CD, not from the directory that ServerGuide 6.0.2 created on the hard disk during its installation of the operating system. You can also obtain the latest device drivers from the http://www.ibm.com/pc/support IBM Support Web site.

After you install the Advanced System Management device drivers, go to "Configuring the remote control password" on page 38 to set the remote control password.

Installing Windows 2000 device drivers

To install the Advanced System Management device drivers for Windows 2000, use either the hardware wizard or a manual installation.

Note: If IBM Netfinity® Director, IBM Director, or UM Services is running on the server, be sure to stop the system-management application before proceeding.

Using the Hardware Wizard to install the device drivers

To use the automatic Windows Hardware Wizard to install the Remote Supervisor Adapter Advanced System Management device drivers for Windows 2000, complete the following steps.

1. Restart the server.

   The Hardware Wizard automatically checks for new hardware. When complete, the Found New Hardware Wizard window opens.

2. Click **Next**.

   The Remote Supervisor Adapter hardware is automatically detected as an Unknown device.

3. Select **Search for a suitable driver for my device**; then, click **Next**.

4. Insert the *IBM Remote Supervisor Adapter Support* CD into the CD-ROM drive on the server.

5. Under Optional search locations, select **CD-ROM drives**. Click **Next** to continue.

The Hardware Wizard locates appropriate drivers for the Remote Supervisor Adapter hardware, and then installs them from the CD. If the wizard finds multiple versions of the drivers, select the most recent version.

6. Follow the instructions in the wizard until the Finish message displays. Click **Finish** to complete the installation of the drivers.

   Note: The Hardware Wizard might repeat the installation process as it installs all of the Remote Supervisor Adapter device drivers.

7. Continue with "Configuring the remote control password" on page 38.

Manually installing the device drivers

To manually install the Windows 2000 device drivers, complete the following steps.

1. On the desktop, right-click the **My Computer** icon; then, select **Properties**.

2. Click the **Hardware** tab; then, click **Device Manager**.

   The Remote Supervisor Adapter hardware is detected automatically as an unknown device under other devices.

3. Select **Unknown device**; then, right-click and select **Properties**.

4. Click the Driver tab; then, select **Update Driver**.

   The Welcome to the Upgrade Device Driver Wizard window opens.

5. Click **Next**.

6. Select **Search for a suitable driver for my device**; then, click **Next**.

7. Insert the *IBM Remote Supervisor Adapter Support* CD into the CD-ROM drive on the server.

8. Under Optional search locations, select **CD-ROM drives**. Click **Next** to continue.

   The Hardware Wizard locates the appropriate drivers for the Remote Supervisor Adapter hardware, and then installs them from the CD. If the wizard finds multiple versions of the drivers, select the most recent version.

9. Follow the instructions in the Wizard until the Finish message displays. Click **Finish** to complete the installation of the drivers.

   Note: The Hardware Wizard might repeat the installation process as it installs all of the Remote Supervisor Adapter device drivers.

10. Continue with "Configuring the remote control password" on page 38.

Installing Windows NT device drivers

To install the Advanced System Management device drivers for Windows NT, use one of the following methods:

- Non-interactive

  The non-interactive method for installing the Advanced System Management device drivers accepts the default values for any window prompts that appear. You are prompted to respond only if an error occurs during installation.

- Interactive

  The normal, or interactive method, prompts you with instructions and waits for you to respond before continuing with the installation.

Note: If IBM Netfinity Director, IBM Director, UM Services, or IBM Netfinity Manager is running on the server, be sure to stop the system-management application before proceeding.

Using the non-interactive method

To use the non-interactive method, complete the following steps.

1. Open a Windows NT command prompt; then, type one of the following commands:

    - If the installation is from a diskette, type:

        `A:\NT\SETUP -q`

        (where *A* is the drive letter assigned to your diskette drive).

        Press Enter.

    - If the installation is from a CD, type:

        `D:\DD\NT\SETUP -q`

        (where *D* is the drive letter assigned to your CD-ROM drive).

        Press Enter.

2. Follow the instructions that appear in the window.

3. Continue with "Configuring the remote control password" on page 38.

Using the interactive method

To use the interactive method, complete the following steps.

1. Open a Windows NT command prompt; then, type one of the following commands:

    - If the installation is from a diskette, type:

        `A:\NT\SETUP`

        (where *A* is the drive letter assigned to your diskette drive).

        Press Enter.

    - If the installation is from a CD, type:

        `D:\DD\NT\SETUP`

        (where *D* is the drive letter assigned to your CD-ROM drive).

        Press Enter.

2. Follow the instructions that appear in the window.

3. Continue with "Configuring the remote control password" on page 38.

Installing Novell NetWare device drivers

To install the Advanced System Management device drivers for the Novell NetWare operating system, complete the following steps:

Note: If IBM Netfinity Director, IBM Director, or IBM Netfinity Manager is running on the server, be sure to stop the system-management application before proceeding.

1. From a system console session, type one of the following commands:

   - If the installation is from a diskette, type:

     LOAD A:\NETWARE\SETUP

     (where *A* is the drive letter assigned to your diskette drive).

     Press Enter.

   - If the installation is from a CD, type:

     LOAD D:\DD\NETWARE\SETUP

     (where *D* is the drive letter assigned to your CD-ROM drive).

     Press Enter.

2. Follow the instructions that appear in the window.

3. Continue with "Configuring the remote control password" on page 38.

Installing SCO UnixWare device drivers

Choose one of the following methods to install the SCO UnixWare Advanced System Management device drivers.

Note: If IBM Netfinity Director or IBM Director is running on the server, be sure to stop it before proceeding.

- To use the SCO UnixWare package utility, complete the following steps.

  1. Open a shell prompt.
  2. Type `scoadmin` and press Enter.
  3. Click **Application Installer**.
  4. Click to access the diskette or CD-ROM drive (for example, DISK_A or CD-ROM_1); then, install the package file that displays.
  5. Continue with "Configuring the remote control password" on page 38.

- To use the interactive installation from a shell prompt, complete the following steps.

  Note: The commands in the following steps are case-sensitive.

  1. Open a shell prompt.
  2. If the installation is from a diskette, type:

     `pkgadd –d diskette1`

  3. If the installation is from a CD, type:

     `pkgadd –d cdrom1`

  4. Continue with "Configuring the remote control password" on page 38.

- To use the non-interactive installation from a shell prompt, complete the following steps.

  Note: The commands in the following steps are case-sensitive.

  1. Open a shell prompt.
  2. If the installation is from a diskette, type:

     `pkgadd -d diskette1 -q-p-n uw7advmg`

  3. If the installation is from a CD, type:

     `pkgadd -d cdrom1 -q-p-n uw7advmg`

  4. Continue with "Configuring the remote control password".

Configuring the remote control password

If you want to use the remote control features of the Remote Supervisor Adapter ASM Web interface, you must configure the Remote Control password using the Configuration/Setup Utility program that comes with your server. This program is part of the basic input/output system (BIOS) code.

Note: This feature is not available on the xSeries 330 servers.

To set up a remote control password, complete the following steps:

1. Turn on the server, and watch the monitor screen.
2. When the message `Press F1 for Configuration/Setup` is displayed, press F1.

   The Configuration/Setup Utility main menu window opens.
3. Use the Up Arrow and Down Arrow keys (↑ and ↓) to select **System Security;** then, press Enter. The System Security window opens.
4. Select **Remote Control Security Settings**; then, press Enter. The Remote Control Security Settings window opens.
5. Enter the Remote Control Password that you will use each time you log into the remote control features of the Supervisor Adapter ASM Web Interface.
6. Select **Save New Remote Control Password**; then, press Enter.
7. In the System Security window, press Esc.
8. Select **Save Settings**; then, press Enter.
9. Confirm your selection; then, exit the Configuration/Setup Utility.
10. Continue with "Completing the installation" on page 39.

Completing the installation

To complete the installation of the Remote Supervisor Adapter:

1. If you did not restart the server after installing the ASM device drivers, restart the server now.

   Note: You do not need to restart the server if you are running the Windows NT operating system.

2. See the *IBM Remote Supervisor Adapter User's Guide* that is appropriate for your server for detailed instructions about completing the configuration of the Remote Supervisor Adapter features. These features include the following:

   • Defining the login IDs and passwords

   • Selecting the events that will receive alert notification

   • Monitoring remote server status using the ASM Web interface or a text-based user interface

   • Controlling the server remotely

If you want to set up an ASM interconnect network and have not already done so, go to Chapter 4, "Using the ASM interconnect network," on page 41. If you do not want to set up an ASM interconnect network, your installation is now complete.

Chapter 4. Using the ASM interconnect network

This chapter includes information about how to configure and connect your server to function within an ASM interconnect network.

Your ASM interconnect network can include as many as 12 individual ASM connections in a single bus. These connections can include Remote Supervisor Adapters, ASM processors, and ASM PCI Adapters. When your clients and servers are connected, they use the ASM interconnect network to share ASM resources, information, and alerts among multiple servers, without having to add additional communications hardware or network interface adapters.

An ASM interconnect network provides two levels of functionality. First, the ASM interconnect network enables you to configure settings and to control the servers where other Remote Supervisor Adapters, ASM processors, and ASM PCI Adapters on your network reside. Second, the ASM interconnect network enables other interconnect network devices to use the resources (Ethernet or modem) of other Remote Supervisor Adapters, ASM processors, and ASM PCI Adapters in the ASM interconnect network for sending alerts. This interconnect network is used when Remote Supervisor Adapters, ASM processors, or ASM PCI Adapters cannot send an alert and must forward the information to another one of these devices to send the alert.

Planning and cabling your interconnect network

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

Note: To ensure the stability of your system, be sure to have the latest level of firmware installed on the Remote Supervisor Adapter that is the main interconnect gateway for the ASM interconnect network. The latest level of firmware is available on the http://www.ibm.com/support IBM Support Web site.

You must connect an ASM Interconnect module to the Remote Supervisor Adapter and to each server that you connect to the ASM interconnect network bus. If your server has an integrated RS-485 ASM interconnect port (the xSeries 330 server has an integrated ASM interconnect port), you do not need to install an ASM Interconnect module between servers. However, you need to install an ASM Interconnect module to connect the Remote Supervisor Adapter to the ASM processor within the same server.

To connect your servers, note the following setup and configuration considerations:

- 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.

Attention: To avoid damage to the Ethernet connector on the Remote Supervisor Adapter, do not plug the ASM Interconnect module into the Ethernet (RJ-45) port.

- Make sure that the total combined length of all Ethernet cables connecting the server in the ASM interconnect network does not exceed 91 M (300 ft).

- Each Remote Supervisor Adapter, ASM PCI adapter, or ASM processor that is connected to the ASM interconnect network bus counts as one connection. For example, if an ASM PCI adapter is installed in a server that has an ASM processor, the processor and the adapter are connected to each other using one ASM interconnect connection but the processor and the adapter count as two connections on the ASM interconnect network bus.
- Be sure that the latest level of firmware is installed on the Remote Supervisor Adapter that is the gateway for the interconnect network. For more information on updating firmware, see "Updating the Remote Supervisor Adapter firmware" on page 27.

Forwarding alerts

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

During normal operation, each Remote Supervisor Adapter, ASM processor, or ASM PCI adapter 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 communications 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, or ASM PCI adapters 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.

When alerts are generated, they are forwarded to the 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, 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 other ASM processors have modems, the following might occur:

If ASM processor 1 generates an alert and the modem is unplugged from ASM processor 2 45 seconds prior to ASM processor 1 generating the alert, ASM processor 1 forwards the alert to ASM processor 2 having previously determined that ASM processor 2 has an available modem. When ASM processor 2 receives the forwarded alert, it determines that a modem is attached to ASM processor 3, and forwards the alert. Therefore, depending upon the time frame (45 seconds) within which a resource (modem) fails, the alert might be forwarded multiple times until an interconnect device can send the alert.

Cabling for the ASM interconnect network

Depending upon the servers you have, you might need additional ASM Interconnect modules or Category 5 or Category 3 Ethernet cables. The following table lists some IBM Netfinity® and IBM xSeries products, and indicates if you need to use an ASM Interconnect module to set up the ASM interconnect network.

Table 4. ASM interconnect network server list.

Server Name	ASM Interconnect module needed
xSeries 220	yes
Netfinity 5000	yes
Netfinity 5500	yes
Netfinity 5500-M10	yes
Netfinity 5500-M20	yes
Netfinity 5600 or xSeries 240	yes
Netfinity 4500R or xSeries 340	yes
xSeries 330	The ASM interconnect module is required to link the Remote Supervisor Adapter to the microprocessor in the server. Use the RS-485 ports to create the ASM interconnect network.
Netfinity 6000R or xSeries 350	no
Netfinity 7600	no
Netfinity 7100	no
xSeries 232	yes
xSeries 342	yes

For the servers that do not need an ASM Interconnect module, a module is still needed to connect the Remote Supervisor Adapter in the gateway server to the integrated ASM processor. After you make that connection, you can connect the servers in a daisy chain fashion through the RS-485 ports. For additional information, see "ASM interconnect network configuration examples" on page 46.

For additional information about installing the ASM Interconnect module in the xSeries 220 and the xSeries 330, see "Connecting the ASM Interconnect module to the xSeries 220" or "Connecting the ASM Interconnect module to the xSeries 330" on page 20.

Connecting the ASM Interconnect module to the xSeries 220

The ASM Interconnect module connects the Remote Supervisor Adapter to the ASM interconnect network. This module comes with the Remote Supervisor Adapter.

To connect the ASM interconnect cable to the Remote Supervisor Adapter, complete the following steps.

Attention: To avoid damage to the Ethernet connector, do not plug the ASM interconnect cable into the Ethernet (RJ-45) port.

1. Connect the ASM Interconnect module **2** to the Remote Supervisor Adapter ASM interconnect port **1** . This port is labeled P – P (for peer-to-peer) on the back panel of the adapter.

Note: The following illustration shows a Remote Supervisor Adapter installed in an xSeries 220 server.
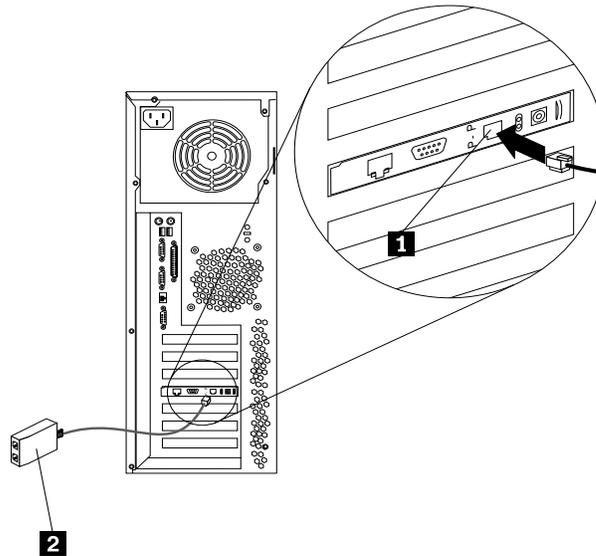
2. Connect one or two Category 3 or Category 5 Ethernet cables to the other end of the ASM Interconnect module.

3. Continue with "ASM interconnect network configuration examples" on page 46.

Connecting the ASM Interconnect module to the xSeries 232 or 342

The ASM Interconnect module connects the Remote Supervisor Adapter to the ASM interconnect network. This module comes with the Remote Supervisor Adapter option. For detailed instructions about installing the ASM Interconnect module on servers with ASM processors and ASM PCI adapters, see the documentation that comes with those devices.

To connect the ASM Interconnect module to the Remote Supervisor Adapter, complete the following steps.

1. Connect the ASM Interconnect module **2** to the Remote Supervisor Adapter ASM Interconnect port **1** . This port is labeled P – P (for peer-to-peer) on the back panel of the adapter.

Note: The following illustration shows a Remote Supervisor Adapter installed in an xSeries 232 server.
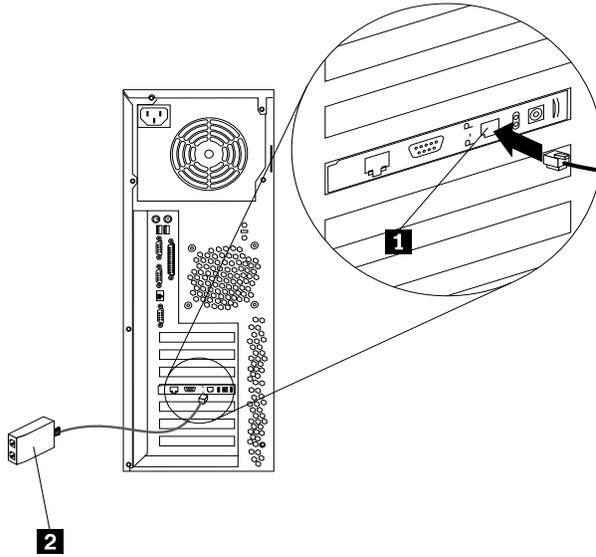
Note: The following illustration shows the Remote Supervisor Adapter installed in an xSeries 342 server.
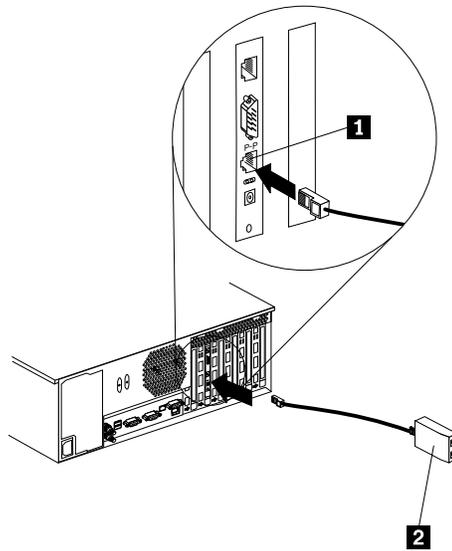
2. Connect one or two Category 3 or Category 5 Ethernet cables to the other end of the ASM Interconnect module.

3. Continue with "ASM interconnect network configuration examples" on page 46.

ASM interconnect network configuration examples

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

The following example shows a rack of xSeries 330 servers. The top server in the rack cabinet has a Remote Supervisor Adapter installed. The xSeries 330 with the Remote Supervisor Adapter will act as the gateway to the interconnect network, forwarding system-management data generated by the other systems in the ASM interconnect network bus to the system-management administration system that is connected to the network. This example environment uses all xSeries 330 servers.

Note: You might need to obtain additional cables or connectors to set up the ASM interconnect network.
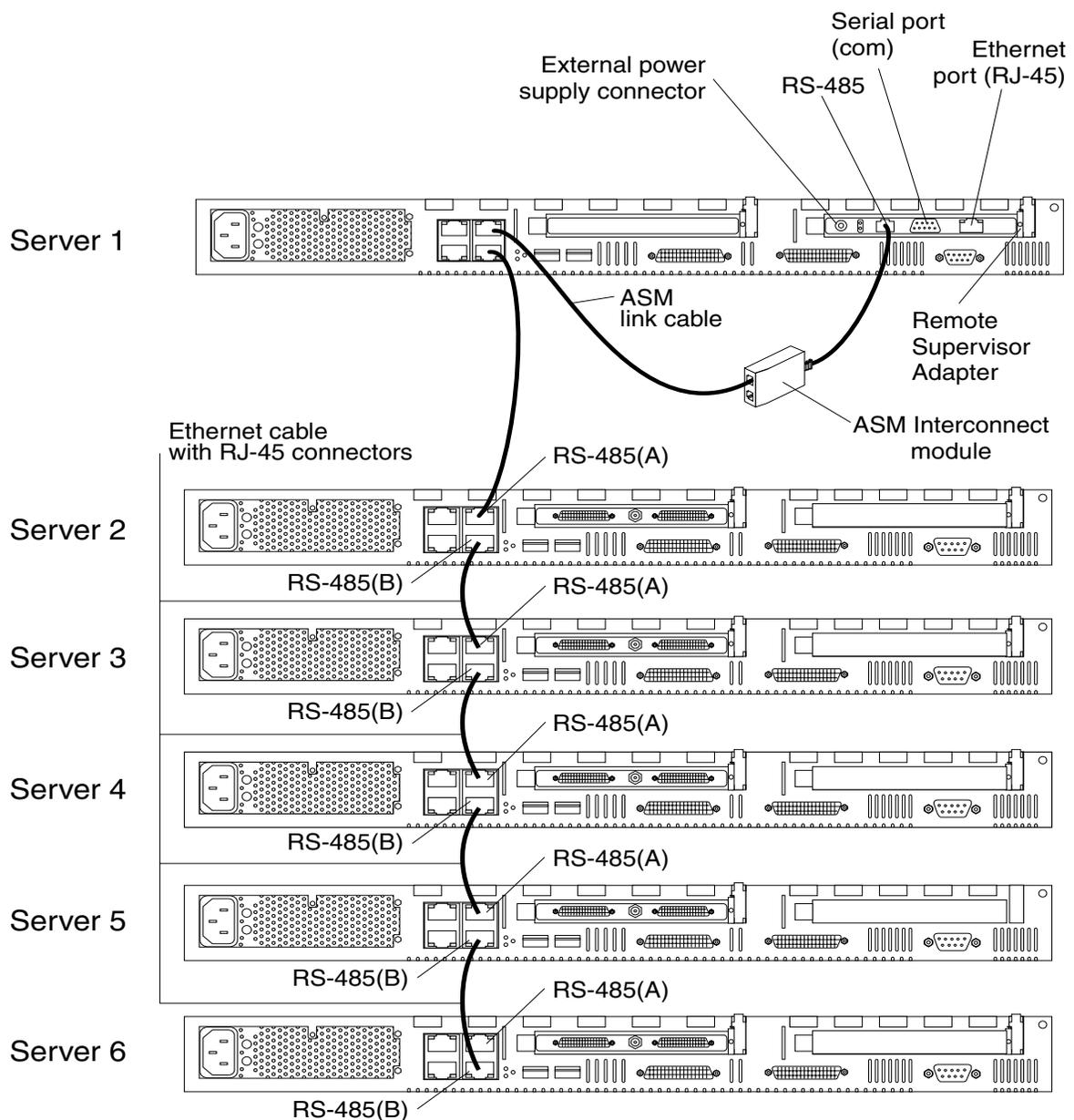
Note: The Remote Supervisor Adapter is installed in Server 1.

In the following example, an Ethernet cable connects the remote system management administrator's system to the Remote Supervisor Adapter that is installed in an xSeries 220. In this case, the xSeries 220 uses the LAN connection to forward system-management data generated by the other servers in the ASM interconnect network bus to the remote system-management administrator.

Remote system
management
administrator's system

Ethernet

Remote
Supervisor
Adapter

Note: A Remote
Supervisor Adapter is
required in each server.

xSeries 220
Server 1

xSeries 220
Server 2

xSeries 220
Server 3

ASM
Interconnect
modules
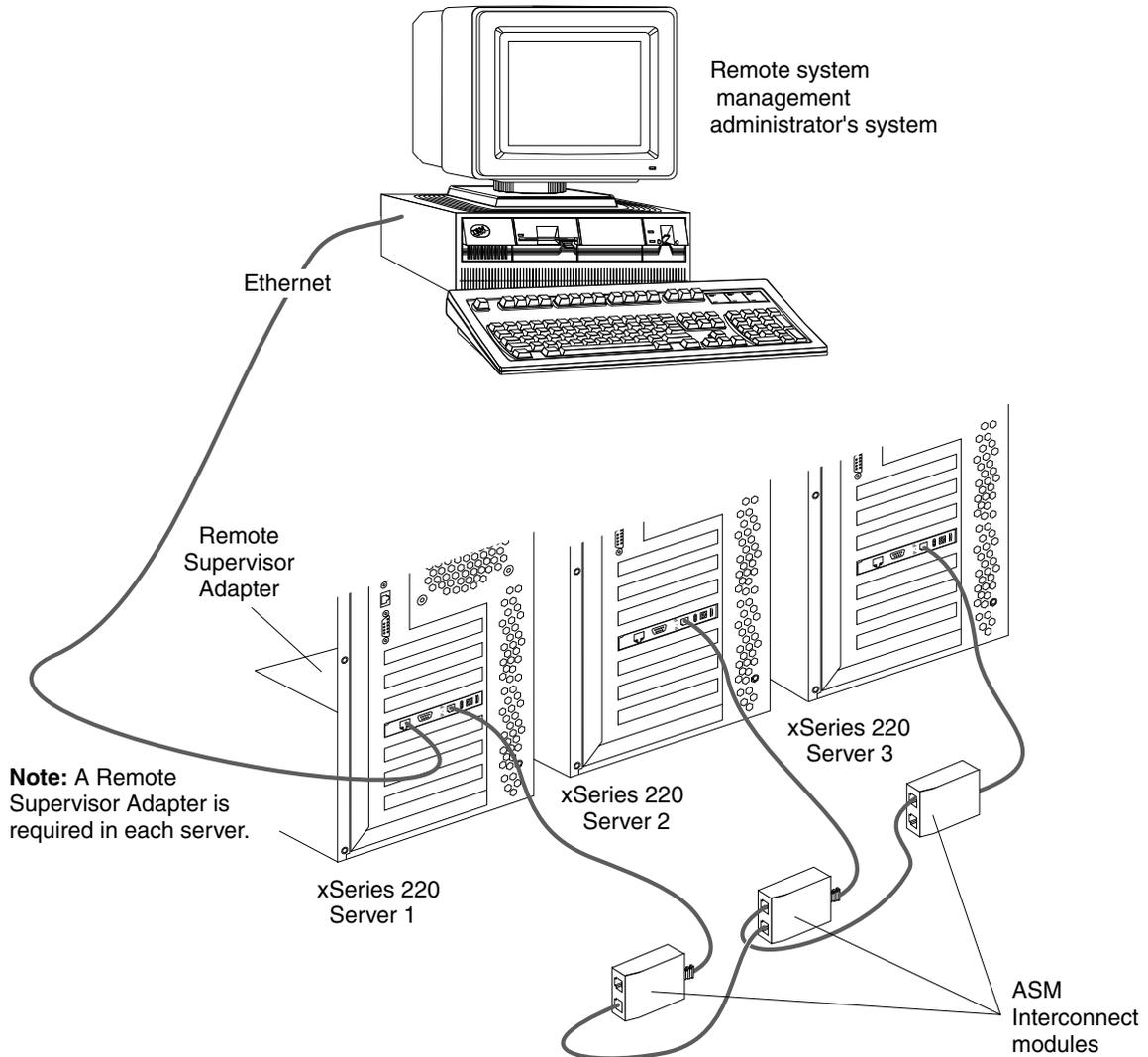
Note: The ASM Interconnect module is attached to the RS-485 P-P (peer to peer) port on the back panel of the Remote Supervisor Adapter in each server.

In the following example, an Ethernet cable connects the remote system management administrator's system to the Remote Supervisor Adapter that is installed in an xSeries 342. In this case, the xSeries 342 uses the LAN connection to forward system-management data generated by the other servers in the ASM interconnect network bus to the remote system-management administrator.
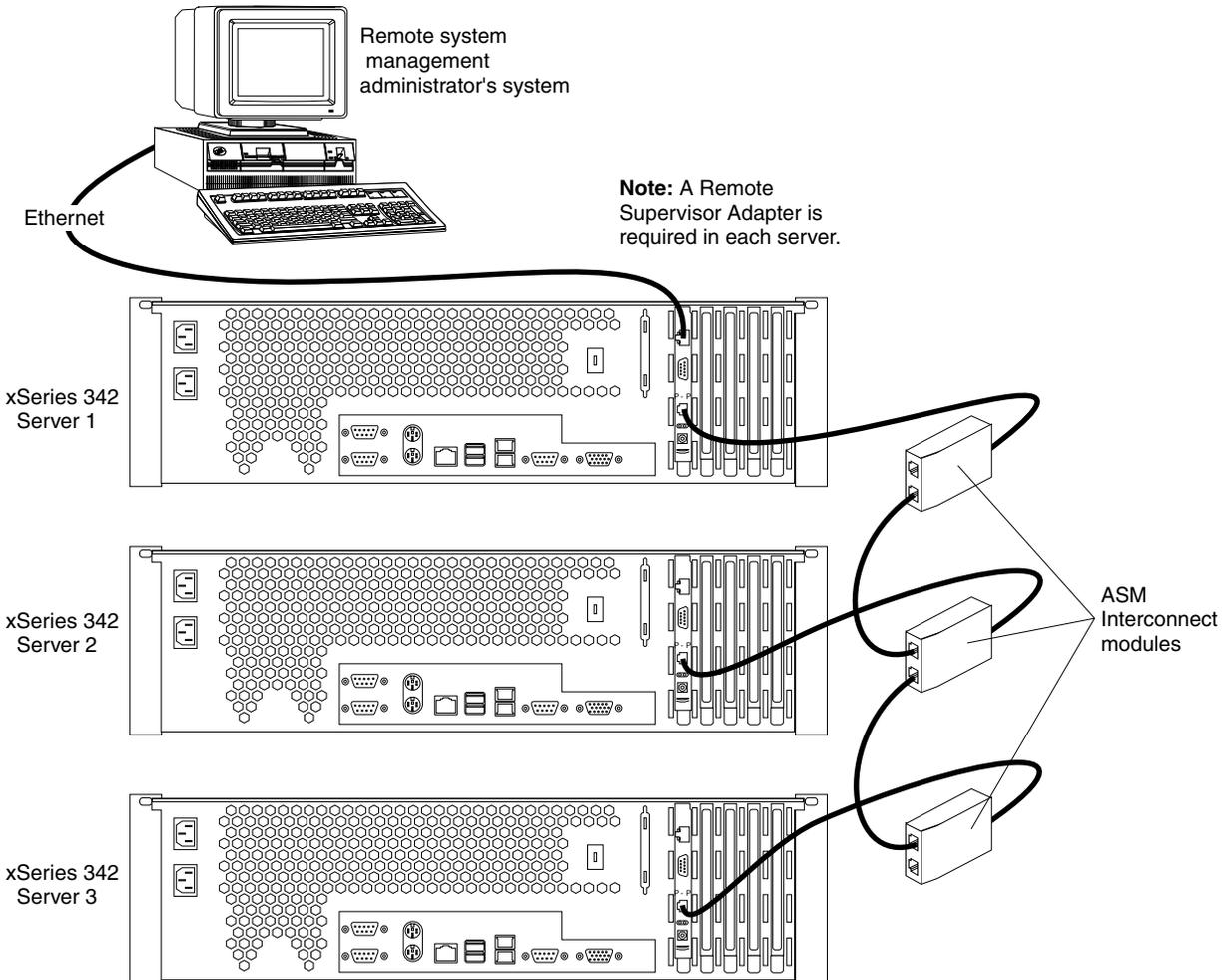
Note: The ASM Interconnect module is attached to the RS-485 P-P (peer to peer) port on the back panel of the Remote Supervisor Adapter in each server.

In the following example, a modem is connected to the serial (COM) port of the Remote Supervisor Adapter, a modem is connected to the ASM PCI adapter in the server connected to the end of the ASM interconnect network bus, and a modem is connected to the remote system-management administrator's system. Placing modems at opposite ends of the ASM interconnect network bus ensures that if an ASM interconnect connection in the bus fails, all of the systems on the ASM interconnect network have access to a modem to forward system-management data to the remote system-management administrator. This example environment contains multiple server models. The Remote Supervisor Adapter is installed in the xSeries 220, and creates an interconnect network with the xSeries 220 server and the xSeries 350 servers.

Remote system management administrator's system

Modem

Modem

Modem

xSeries 350

xSeries 350

xSeries 350

ASM Interconnect module

Remote Supervisor Adapter

xSeries 220
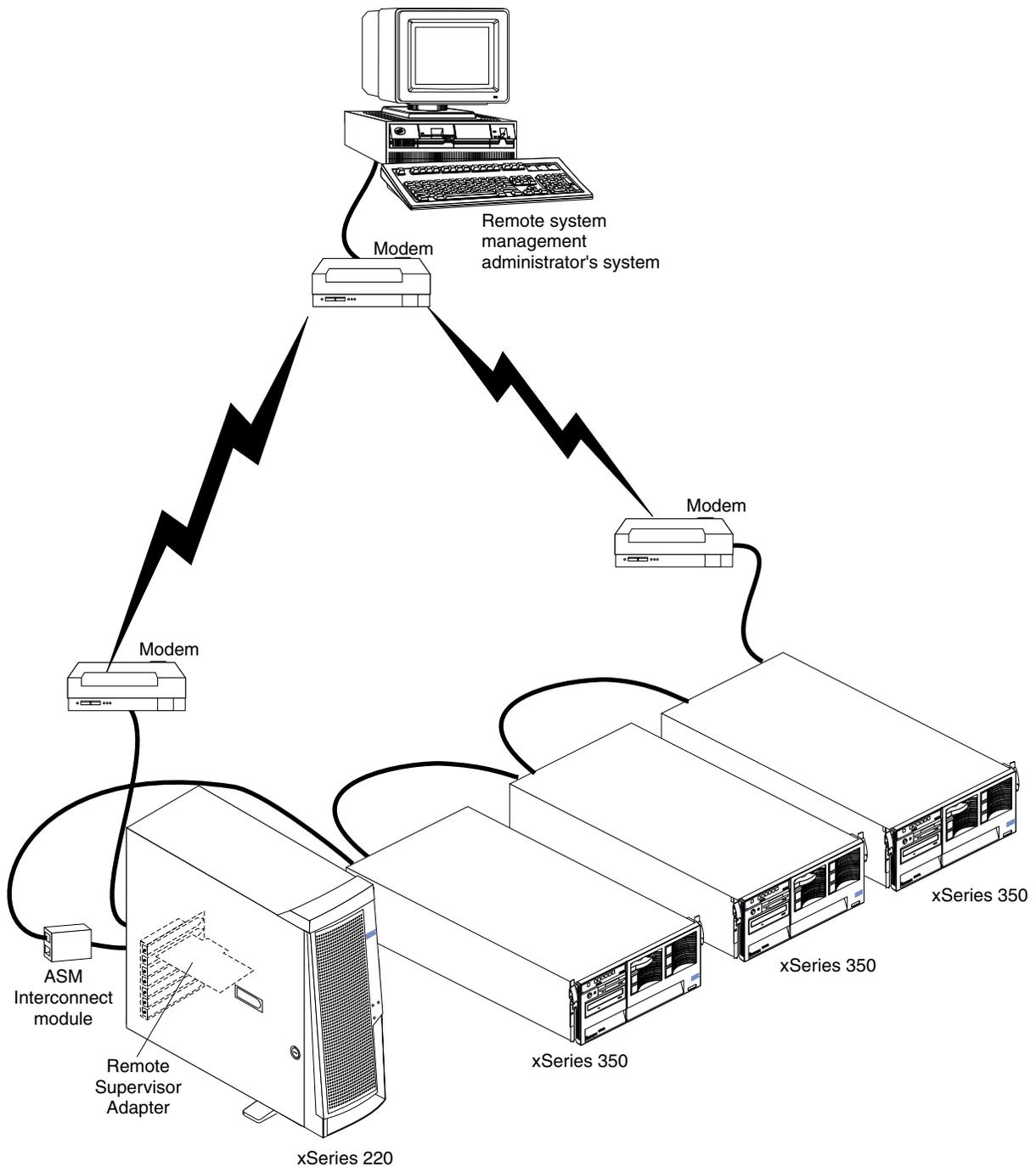
Appendix A. Getting information, help, and service

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

Getting information

Information about your IBM server product and preinstalled software, if any, is available in the documentation that comes with your server. That documentation includes printed books, online books, README files, and help files. In addition, information about IBM products is available on the World Wide Web and through the IBM Automated Fax System.

Using the World Wide Web

On the World Wide Web, the IBM Web site has up-to-date information about IBM products and support. The address for the IBM Personal Computing home page is http://www.ibm.com/pc/.

You can find support information for your IBM products at http://www.ibm.com/pc/support/.

If you click **Profile** from the support page, you can create a customized support page that is specific to your hardware, complete with Frequently Asked Questions, Parts Information, Technical Hints and Tips, and Downloadable Files. In addition, you can choose to receive e-mail notifications whenever new information becomes available about your registered products.

You also can order publications through the IBM Publications Ordering System at http://www.elink.ibmlink.ibm.com/public/applications/publications/cgibin/pbi.cgi.

Getting information by fax

If you have a touch-tone telephone and access to a fax machine, in the U.S. and Canada, you can receive, by fax, marketing and technical information on many topics, including hardware, operating systems, and local area networks (LANs).

You can call the IBM Automated Fax System 24 hours a day, 7 days a week. Follow the recorded instructions, and the requested information will be sent to your fax machine. In the U.S. and Canada, to access the IBM Automated Fax System, call 1-800-426-3395.

Getting help and service

If you have a problem with your server product, you will find a wide variety of sources available to help you.

Using the documentation and diagnostic programs

Many problems can be solved without outside assistance. If you experience a problem with your server product, the first place to start is the troubleshooting information in your IBM documentation. If you suspect a software problem, see the documentation,

including README files and online help, that comes with the operating system or application program.

Most IBM server products come with a set of diagnostic programs that you can use to help you identify hardware problems. See the troubleshooting information in your IBM documentation for instructions on 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.

Calling for service

If you have tried to correct the problem yourself and still need help, during the warranty period, you can get help and information by telephone through the IBM HelpCenter®. The following services are available during the warranty period:

- **Problem determination** - Trained personnel are available to assist you with determining if you have a hardware problem and deciding what action is necessary to fix the problem.
- **IBM hardware repair** - If the problem is determined to be caused by IBM hardware under warranty, trained service personnel are available to provide the applicable level of service.
- **Engineering Change management** - Occasionally, there might be changes that are required after a product has been sold. IBM or your reseller, if authorized by IBM, will make selected Engineering Changes (ECs) available that apply to your hardware.

The following items are not covered:

- Replacement or use of non-IBM parts or nonwarranted IBM parts. All warranted parts contain a 7-character identification in the format IBM FRU XXXXXXX.
- Identification of software problem sources.
- Configuration of BIOS as part of an installation or upgrade.
- Changes, modifications, or upgrades to device drivers.
- Installation and maintenance of network operating systems (NOS).
- Installation and maintenance of application programs.

Refer to your IBM Statement of Limited Warranty for a full explanation of IBM warranty terms. Be sure to retain your proof of purchase to obtain warranty service.

In the U.S. and Canada, these services are available 24 hours a day, 7 days a week. In the U.K., these services are available Monday through Friday, from 9:00 a.m. to 6:00 p.m.

Note: Response time will vary depending on the number and complexity of incoming calls.

In addition, you are eligible for IBM Start Up Support for 90 days after installation. This service provides assistance for:

- Setting up your network operating system
- Installing and configuring interface adapters
- Installing and configuring network adapters

Please have the following information ready when you call:

- Machine type and model
- Serial numbers of your IBM hardware products

- Description of the problem
- Exact wording of any error messages
- Hardware and software configuration information

Telephone numbers

Phone numbers are subject to change without notice. For the most up-to-date phone numbers, go to http://www.ibm.com/pc/support/ and click **Support Phone List**.

Country		Telephone number
Austria	Österreich	01-24 592 5901
Belgium - Dutch	Belgie	02-210 9820
Belgium - French	Belgique	02-210 9800
Canada	Toronto only	416-383-3344
Canada	Canada - all other	1-800-565-3344
Denmark	Danmark	45 20 82 00
Finland	Suomi	09-22 931 840
France	France	02 38 55 74 50
Germany	Deutschland	07032-1549 201
Ireland	Ireland	01-815 9202
Italy	Italia	02-482 9202
Luxembourg	Luxembourg	298-977 5063
Netherlands	Nederland	020-514 5770
Norway	Norge	23 05 32 40
Portugal	Portugal	21-791 51 47
Spain	España	91-662 49 16
Sweden	Sverige	08-477 4420
Switzerland	Schweiz/Suisse/Svizzera	058-333 0900
United Kingdom	United Kingdom	01475-555 055
U.S.A. and Puerto Rico	U.S.A. and Puerto Rico	1-800-772-2227

In all other countries or regions, contact your IBM reseller or IBM marketing representative.

Purchasing additional services

During and after the warranty period, you can purchase additional services, such as support for IBM and non-IBM hardware, operating systems, and application programs; network setup and configuration; upgraded or extended hardware repair services; and custom installations. Service availability and service name might vary by country or region.

For more information about these services, contact your IBM marketing representative.

Appendix B. Warranty information

This appendix contains the warranty period for your product, information about obtaining warranty service and support, and the IBM Statement of Limited Warranty.

Warranty period

Contact your place of purchase for warranty service information. Some IBM Machines are eligible for on-site warranty service depending on the country or region where service is performed.

Machine- IBM Remote Supervisor Adapter

Warranty period - Three years

Warranty service and support

With the original purchase of an IBM server product, you have access to extensive support. During the IBM Machine warranty period, you may call IBM or your reseller for problem-determination assistance under the terms of the IBM Statement of Limited Warranty.

The following services are available during the warranty period:

- **Problem determination** - Trained personnel are available to assist you with determining if you have a hardware problem and deciding what action is necessary to fix the problem.

- **IBM hardware repair** - If the problem is determined to be caused by IBM hardware under warranty, trained service personnel are available to provide the applicable level of service, either on-site or at an IBM service center as determined by IBM.

- **Engineering Change management** - Occasionally, there might be changes that are required after a product has been shipped from IBM. In those instances, IBM will make Engineering Changes (ECs) available that apply to your hardware.

The following items are not covered under warranty service:

- Replacement or use of non-IBM parts. All IBM parts contain a 7-character identification in the format IBM FRU XXXXXXX.

- Identification of non-IBM software problem sources.

- Installation of customer replaceable units (CRUs).

- Installation and configuration of machine code or licensed internal code that is designated as customer installable.

If you do not register your server with IBM, you might be required to present proof of purchase to obtain warranty service.

Before you call for service

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 server and software.

Most computers, operating systems, and application programs come with information that contains troubleshooting procedures and explanations of error messages and error codes. The information that comes with your server also describes the diagnostic tests that you can perform.

If you suspect a software problem, refer to the information for the operating system or application program.

Calling for service

Please have the following information ready:

- Machine type, model, and serial number
- Description of the problem
- Exact wording of any error messages
- Hardware and software configuration information

To find the telephone number for the HelpCenter nearest you, see "Telephone numbers" in the "Getting information, help, and service" chapter.

IBM Statement of Limited Warranty   Z125-4753-06 8/2000

This warranty statement consists of two parts: Part 1 and Part 2. Be sure to read Part 1 and the country-unique terms in Part 2 that apply to your country or region.

Part 1 - General Terms

This Statement of Limited Warranty includes Part 1 - General Terms and Part 2 - Country-unique Terms. 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, from IBM or your reseller. 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. Unless IBM specifies otherwise, the following warranties apply only in the country where you acquire the Machine. Nothing in this Statement of Limited Warranty affects any statutory rights of consumers that cannot be waived or limited by contract. If you have any questions, contact IBM or your reseller.

The IBM Warranty for Machines

IBM warrants that each Machine 1) is free from defects in materials and workmanship and 2) conforms to IBM's Official Published Specifications ("Specifications"). The warranty period for a Machine is a specified, fixed period commencing on its Date of Installation. The date on your sales receipt is the Date of Installation unless IBM or your reseller informs you otherwise.

If a Machine does not function as warranted during the warranty period, and IBM or your reseller are unable to either 1) make it do so or 2) replace it with one that is at least functionally equivalent, you may return it to your place of purchase and your money will be refunded.

Extent of Warranty

The warranty does not cover the repair or exchange of a Machine resulting from misuse, accident, modification, unsuitable physical or operating environment, improper maintenance by you, or failure caused by a product for which IBM is not responsible. The warranty is voided by removal or alteration of Machine or parts identification labels.

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. THESE WARRANTIES GIVE YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM JURISDICTION TO JURISDICTION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF EXPRESS OR IMPLIED WARRANTIES, SO THE ABOVE EXCLUSION OR LIMITATION MAY NOT APPLY TO YOU. IN THAT EVENT, SUCH WARRANTIES ARE LIMITED IN DURATION TO THE WARRANTY PERIOD. NO WARRANTIES APPLY AFTER THAT PERIOD.

Items Not Covered by Warranty

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, will be provided **WITHOUT WARRANTIES OF ANY KIND.**

Warranty Service

To obtain warranty service for a Machine, contact IBM or your reseller. If you do not register your Machine with IBM, you may be required to present proof of purchase.

During the warranty period, IBM or your reseller, if approved by IBM to provide warranty service, provides without charge certain types of repair and exchange service to keep Machines in, or restore them to, conformance with their Specifications. IBM or your reseller will inform you of the available types of service for a Machine based on its country of installation. At its discretion, IBM or your reseller will 1) either repair or exchange the failing Machine and 2) provide the service either at your location or a service center. IBM or your reseller will also manage and install selected engineering changes that apply to the Machine.

Some parts of IBM Machines are designated as Customer Replaceable Units (called "CRUs"), e.g., keyboards, memory, or hard disk drives. IBM ships CRUs to you for replacement by you. You must return all defective CRUs to IBM within 30 days of your receipt of the replacement CRU. You are responsible for downloading designated Machine Code and Licensed Internal Code updates from an IBM Internet Web site or from other electronic media, and following the instructions that IBM provides.

When 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. 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.

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 problem determination, problem analysis, and service request procedures that IBM or your reseller provides;
    b. secure all programs, data, and funds contained in a Machine;
    c. provide IBM or your reseller with sufficient, free, and safe access to your facilities to permit them to fulfill their obligations; and
    d. inform IBM or your reseller of changes in a Machine's location.

IBM is responsible for loss of, or damage to, your Machine 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 is responsible for any of your confidential, proprietary or personal information contained in a Machine which you return to IBM or your reseller for any reason. You should remove all such information from the Machine prior to its return.

Limitation of Liability

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.

   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 LIABLE FOR ANY OF THE FOLLOWING: 1) THIRD-PARTY CLAIMS AGAINST YOU FOR DAMAGES (OTHER THAN THOSE UNDER THE FIRST ITEM LISTED ABOVE); 2) LOSS OF, OR DAMAGE TO, YOUR RECORDS OR DATA; OR 3) SPECIAL, INCIDENTAL, OR INDIRECT DAMAGES OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES, LOST PROFITS OR LOST SAVINGS, EVEN IF IBM, ITS SUPPLIERS OR YOUR RESELLER IS INFORMED OF THEIR POSSIBILITY. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION 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 Agreement, without regard to conflict of law principles.

Part 2 - Country-unique Terms

AMERICAS

BRAZIL

Governing Law: *The following is added after the first sentence:*
Any litigation arising from this Agreement will be settled exclusively by the court of Rio de Janeiro.

NORTH AMERICA

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

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

The IBM Warranty for Machines: *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.

The following is added to this Section:
Disputes and differences arising out of or in connection with this Agreement shall be finally settled by arbitration which shall be held in Singapore in accordance with the rules of the International Chamber of Commerce (ICC). The arbitrator or arbitrators designated in conformity with those rules shall have the power to rule on their own competence and on the validity of the Agreement to submit to arbitration. The arbitration award shall be final and binding for the parties without appeal and the arbitral award shall be in writing and set forth the findings of fact and the conclusions of law.

All proceedings shall be conducted, including all documents presented in such proceedings, in the English language. 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 before proceeding upon the reference. The third arbitrator shall act as chairman of the proceedings. Vacancies in the post of chairman shall be filled by the president of the ICC. 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.

The English language version of this Agreement prevails over any other language version.

HONG KONG AND MACAU

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.

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;
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, IBM's liability will be limited to the charge paid by you for the individual Machine that is the subject of the claim.

JAPAN

Governing Law: *The following sentence is added to this Section:*
Any doubts concerning this Agreement will be initially resolved between us in good faith and in accordance with the principle of mutual trust.

NEW ZEALAND

The IBM Warranty for Machines: *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 this Section:*
Both you and IBM consent to the application of the laws of the State of New York (except when local law requires otherwise) to govern, interpret, and enforce all your and IBM's rights, duties, and obligations arising from, or relating in any manner to, the subject matter of this Agreement, without regard to conflict of law principles.

Any disputes arising from or in connection with this Agreement will first be resolved by friendly negotiations, failing which either of us has the right to submit the dispute to the China International Economic and Trade Arbitration Commission in Beijing, the PRC, for arbitration in accordance with its arbitration rules in force at the time. The arbitration tribunal will consist of three arbitrators. The language to be used therein will be English and Chinese. An arbitral award will be final and binding on all the parties, and will be enforceable under the Convention on the Recognition and Enforcement of Foreign Arbitral Awards (1958).

The arbitration fee will be borne by the losing party unless otherwise determined by the arbitral award.

During the course of arbitration, this Agreement will continue to be performed except for the part which the parties are disputing and which is undergoing arbitration.

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.

Warranty Service:

If you purchase an IBM Machine in Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland or United Kingdom, 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 an IBM Personal Computer Machine in Albania, Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Georgia, Hungary, Kazakhstan, Kirghizia, 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 an IBM 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 authorized service provider. You are responsible for transportation costs for Machines located outside 50 kilometers of an IBM authorized service provider.

Governing Law:

The applicable laws that govern, interpret and enforce rights, duties, and obligations of each of us arising from, or relating in any manner to, the subject matter of this Statement, without regard to conflict of laws principles, as well as Country-unique terms and competent court for this Statement are those of the country in which the warranty service is being provided, except that in 1) Albania, Bosnia-Herzegovina, Bulgaria, Croatia, Hungary, Former Yugoslav Republic of Macedonia, Romania, Slovakia, Slovenia, Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan, the laws of Austria apply; 2) Estonia, Latvia, and Lithuania, the laws of Finland apply; 3) Algeria, Benin, Burkina Faso, Cameroon, Cape Verde, Central African Republic, Chad, Congo, Djibouti, Democratic Republic of Congo, Equatorial Guinea, France, Gabon, Gambia, Guinea, Guinea-Bissau, Ivory Coast, Lebanon, Mali, Mauritania, Morocco, Niger, Senegal, Togo, and Tunisia, this Agreement will be construed and the legal relations between the parties will be determined in accordance with the French laws and all disputes arising out of this Agreement or related to its violation or execution, including summary proceedings, will be settled exclusively by the Commercial Court of Paris; 4) 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, United Kingdom, West Bank/Gaza, Yemen, Zambia, and Zimbabwe, this Agreement will be governed by English Law and disputes relating to it will be submitted to the exclusive jurisdiction of the English courts; and 5) in Greece, Israel, Italy, Portugal, and Spain any legal claim arising out of this Statement will be brought before, and finally settled by, the competent court of Athens, Tel Aviv, Milan, Lisbon, and Madrid, respectively.

THE FOLLOWING TERMS APPLY TO THE COUNTRY SPECIFIED:

AUSTRIA AND GERMANY

The IBM Warranty for Machines: *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 six 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.

Extent of Warranty: *The second paragraph does not apply.*

Warranty Service: *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.

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).*

IRELAND

Extent of Warranty: *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 items one and two of the first paragraph of this Section:*
1. death or personal injury or physical damage to your real property solely caused by IBM's negligence; and
2. the amount of any other actual direct damages, up to 125 percent of the charges (if recurring, the 12 months' charges apply) for the Machine that is the subject of the claim or which otherwise gives rise to the claim.

Applicability of suppliers and resellers (unchanged).

The following paragraph is added at the end of this Section:
IBM's entire liability and your sole remedy, whether in contract or in tort, in respect of any default shall be limited to damages.

ITALY

Limitation of Liability: *The following replaces the second sentence in the first paragraph:*
In each such instance unless otherwise provided by mandatory law, IBM is liable for no more than:
1. *(unchanged)*
2. as to any other actual damage arising in all situations involving nonperformance by IBM pursuant to, or in any way related to the subject matter of this Statement of Warranty, IBM's liability, will be limited to the total amount you paid for the Machine that is the subject of the claim.
Applicability of suppliers and resellers (unchanged).

The following replaces the third paragraph of this Section:
Unless otherwise provided by mandatory law, IBM and your reseller are not liable for any of the following: *(items 1 and 2 unchanged)* 3) indirect damages, even if IBM or your reseller is informed of their possibility.

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 items 1 and 2 of the first paragraph of this Section:*

1. death or personal injury or physical damage to your real property solely caused by IBM's negligence;
2. the amount of any other actual direct damages or loss, up to 125 percent of the charges (if recurring, the 12 months' charges apply) for the Machine that is the subject of the claim or which otherwise gives rise to the claim;

The following item is added to this paragraph:
3. breach of IBM's obligations implied by Section 12 of the Sale of Goods Act 1979 or Section 2 of the Supply of Goods and Services Act 1982.

Applicability of suppliers and resellers (unchanged).

The following is added to the end of this Section:
IBM's entire liability and your sole remedy, whether in contract or in tort, in respect of any default shall be limited to damages.

Appendix C. Notices

This publication was developed for products and services offered in the U.S.A.

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Netfinity Manager	

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Other company, product, or service names may be the trademarks or service marks of others.

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 1000000 bytes, and GB stands for approximately 1000000000 bytes.

When referring to hard disk drive capacity or communications volume, MB stands for 1000000 bytes, and GB stands for 1000000000 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.

IBM makes no representation or warranties regarding non-IBM products and services that are ServerProven, including but not limited to the implied warranties of

merchantability and fitness for a particular purpose. These products are offered and warranted solely by third parties.

Unless otherwise stated, 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.

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.

Taiwan electrical emission 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。

Japanese Voluntary Control Council for Interference (VCCI) statement

この装置は、情報処理装置等電波障害自主規制協議会(VCCI)の基準に
基づくクラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を
引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求
されることがあります。

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
13F9940	Argentina, Australia, China (PRC), New Zealand, Papua New Guinea, Paraguay, Uruguay, Western Samoa
13F9979	Afghanistan, Algeria, Andorra, Angola, Austria, Belgium, Benin, Bulgaria, Burkina Faso, Burundi, Cameroon, Central African Rep., Chad, China (Macau S.A.R.), Czech Republic, Egypt, Finland, France, French Guiana, Germany, Greece, Guinea, Hungary, Iceland, Indonesia, Iran, Ivory Coast, Jordan, Lebanon, Luxembourg, Malagasy, Mali, Martinique, Mauritania, Mauritius, Monaco, Morocco, Mozambique, Netherlands, New Caledonia, Niger, Norway, Poland, Portugal, Romania, Senegal, Slovakia, Spain, Sudan, Sweden, Syria, Togo, Tunisia, Turkey, former USSR, Vietnam, former Yugoslavia, Zaire, Zimbabwe
13F9997	Denmark
14F0015	Bangladesh, Burma, Pakistan, South Africa, Sri Lanka
14F0033	Antigua, Bahrain, Brunei, Channel Islands, China (Hong Kong S.A.R.), Cyprus, Dubai, Fiji, Ghana, India, Iraq, Ireland, Kenya, Kuwait, Malawi, Malaysia, Malta, Nepal, Nigeria, Polynesia, Qatar, Sierra Leone, Singapore, Tanzania, Uganda, United Kingdom, Yemen, Zambia
14F0051	Liechtenstein, Switzerland
14F0069	Chile, Ethiopia, Italy, Libya, Somalia
14F0087	Israel
1838574	Thailand
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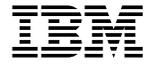
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