Remote Supervisor Adapter II SlimLine
and Remote Supervisor Adapter II

IBM

Installation Guide

Remote Supervisor Adapter II SlimLine
and Remote Supervisor Adapter II

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Installation Guide

Note: Before using this information and the product it supports, read the general information in Appendix B, "IBM Statement of Limited Warranty Z125-4753-08 04/2004," on page 41 and Appendix C, "Notices," on page 65.

Fifth Edition (April 2005)

Contents

Safety

Before installing this product, read the Safety Information.

قبل تركيب هذا المنتج، يجب قراءة الملاحظات الآمنية

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

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

安裝本產品之前，請先閱讀「安全資訊」。

Prije instalacije ovog produkta obavezno pročitajte Sigurnosne Upute.

Před instalací tohoto produktu si přečtěte příručku bezpečnostních instrukcí.

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

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

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

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.

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

לפני שתתקינו מוצר זה, קראו את הוראות הבטיחות.

A termék telepítése előtt olvassa el a Biztonsági előírásokat!

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

製品の設置の前に、安全情報をお読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

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

v

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

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

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

Перед установкой продукта прочтите инструкции по технике безопасности.

Pred inštaláciou tohto zariadenia si pečítaje Bezpečnostné predpisy.

Pred namestitvijo tega proizvoda preberite Varnostne informacije.

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

Läs säkerhetsinformationen innan du installerar den här produkten.

Important:

> All caution and danger statements in this documentation begin with a number. This number is used to cross reference an English caution or danger statement with translated versions of the caution or danger statement in the *IBM Safety Information* book.
>
> For example, if a caution statement begins with a number 1, translations for that caution statement appear in the *IBM Safety Information* book under statement 1.
>
> Be sure to read all caution and danger statements in this documentation before performing the instructions. Read any additional safety information that comes with your server or optional device before you install the device.

Statement 1:

DANGER

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

To avoid a shock hazard:

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

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

Statement 2:

CAUTION:
When replacing the lithium battery, use only IBM Part Number 33F8354 or an equivalent type battery recommended by the manufacturer. If your system has a module containing a lithium battery, replace it only with the same module type made by the same manufacturer. The battery contains lithium and can explode if not properly used, handled, or disposed of.

Do not:
- **Throw or immerse into water**
- **Heat to more than 100°C (212°F)**
- **Repair or disassemble**

Dispose of the battery as required by local ordinances or regulations.

Statement 5:

CAUTION:
The power control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.

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

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

Chapter 1. Introduction

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

- Install and cable the adapter
- Download the software and firmware that you need to configure the adapter

The Remote Supervisor Adapter II is a peripheral component interconnect (PCI) adapter that you must install in a PCI expansion slot. The Remote Supervisor Adapter II SlimLine is an adapter that you connect directly into the server system board.

Note: Throughout this document, the term *Remote Supervisor Adapter II* is used to denote both the Remote Supervisor Adapter II SlimLine and the Remote Supervisor Adapter II, unless otherwise noted.

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

1. Go to http://www.ibm.com/pc/support/.
2. In the **Browse by topic** section, click **Publications**.
3. On the Publications page, in the **Brand** field, select **Servers**.
4. In the **Family** field, select the server.
5. Click **Continue**.

For more information about using the Remote Supervisor Adapter II, see the *IBM Remote Supervisor Adapter II SlimLine and Remote Supervisor Adapter II User's Guide* on the IBM *Documentation* CD.

For service, assistance, or additional information, see Appendix A, "Getting help and technical assistance," on page 39.

Important: A Remote Supervisor Adapter II cannot be moved from one server type to another. For example, do not move a Remote Supervisor Adapter II from an IBM @server xSeries 235 to an IBM @server xSeries 345.

Remote Supervisor Adapter II features

The Remote Supervisor Adapter II provides the following standard features:

- Access to critical server settings
- Access to server vital product data (VPD)
- Advanced Predictive Failure Analysis® (PFA) support
- Alphanumeric or numeric pager alerts (not supported with the Remote Supervisor Adapter II SlimLine)
- Automatic notification and alerts
- Automated Server Restart (ASR)
- Continuous health monitoring and control
- Domain Name System (DNS) server support
- Dynamic Host Configuration Protocol (DHCP) support
- E-mail alerts
- Enhanced user authority levels
- Event logs that are time stamped, saved on the Remote Supervisor Adapter II, and can be attached to e-mail alerts
- Independent power, which enables around-the-clock access to the server even when the server power is off
- LAN and Advanced System Management (ASM) interconnect remote access (not supported with the Remote Supervisor Adapter II SlimLine)[1]
- Operating-system-failure screen capture
- Remote access through Ethernet and ASM interconnect peer-to-peer network
- Remote disk enabling the attachment of a diskette drive, CD drive, or disk image to a server
- Remote firmware update and access to critical server settings
- Remote power control
- Seamless remote accelerated graphics
- Secure Web server user interface
- Server console redirection (not supported with the Remote Supervisor Adapter II SlimLine)[1]
- Simple Network Management Protocol (SNMP) support
- Remote firmware update
- User authentication using a secure connection to a Lightweight Directory Access Protocol (LDAP) server

[1]IBM intends to make this feature available in the future for the Remote Supervisor Adapter II SlimLine.

Installation requirements

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

- Supported IBM @server server
- The latest Remote Supervisor Adapter II firmware and software for your server.

    Note: Make sure that you have an Internet connection during the installation process to download firmware and software from the IBM Support Web site. For information about how to download the Remote Supervisor Adapter II files, see "Obtaining Remote Supervisor Adapter II software and firmware" on page 24.

- Documentation that comes with your server

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

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

The IBM Documentation CD

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

Hardware and software requirements

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

- Microsoft® Windows NT® 4.0 (with Service Pack 3 or later), Windows® 2000, or Red Hat Linux.
- 100 MHz microprocessor.
- 32 MB of RAM.
- Adobe Acrobat Reader 3.0 (or later) or xpdf, which comes with Linux operating systems. Acrobat Reader software is included on the CD, and you can install it when you run the Documentation Browser.

Using the Documentation Browser

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

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

- If Autostart is enabled, insert the CD into the CD drive. The Documentation Browser starts automatically.
- If Autostart is disabled or is not enabled for all users, use one of the following procedures:
  - If you are using a Windows operating system, insert the CD into the CD drive and click **Start --> Run**. In the **Open** field, type

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

    where *e* is the drive letter of the CD drive, and click **OK**.
  - If you are using Red Hat Linux, insert the CD into the CD drive; then, run the following command from the /mnt/cdrom directory:

    ```
    sh runlinux.sh
    ```

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

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

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

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

Related documentation

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

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

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

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

- *Safety Information*

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

Notices and statements used in this document

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

The following notices and statements are used in this document:

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

Handling static-sensitive devices

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

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

- Limit your movement. Movement can cause static electricity to build up around you.
- Wear an electrostatic-discharge wrist strap, if one is available.
- Handle the device carefully, holding it by its edges or its frame.

- Do not touch solder joints, pins, or exposed circuitry.
- Do not leave the device where others can handle and damage it.
- While the device is still in its static-protective package, touch it to an unpainted metal part of the server for at least 2 seconds. This drains static electricity from the package and from your body.
- Remove the device from its package and install it directly into the server without setting down the device. If it is necessary to set down the device, put it back into its static-protective package. Do not place the device on the server cover or on a metal surface.
- Take additional care when handling devices during cold weather. Heating reduces indoor humidity and increases static electricity.

Remote Supervisor Adapter II SlimLine inventory checklist

The Remote Supervisor Adapter II SlimLine option package comes with the following items.

Notes:

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

- Remote Supervisor Adapter II SlimLine
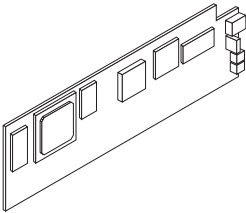
- Plastic cover (for the IBM @server xSeries 336 server only)
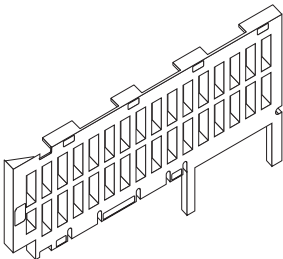
- Interposer (for the IBM @server xSeries 236 server only)

- Mounting bracket (for the IBM @server xSeries 236 server only)
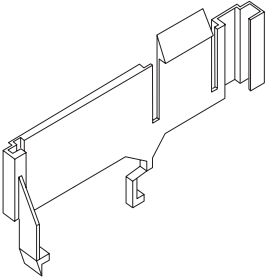
- IBM *Documentation* CD

  This CD contains the Remote Supervisor Adapter II SlimLine documentation, the Documentation Browser, and the Safety Information documentation.

You might need a Category 3 or Category 5 cable to connect the Remote Supervisor Adapter II to your LAN.

Remote Supervisor Adapter II inventory checklist and major components

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

Inventory checklist

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

Notes:

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

- Remote Supervisor Adapter II
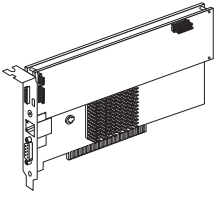
- Power-supply adapter

- Power cord

- 20-pin ribbon cable without Universal Serial Bus (USB) signals
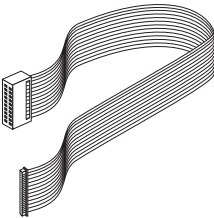
- 20-pin planar cable with USB signals
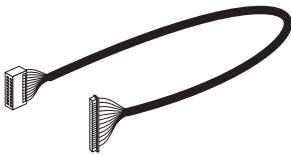
- Mini-USB cable

- Universal power cord

- ASM breakout cable with dual serial connectors
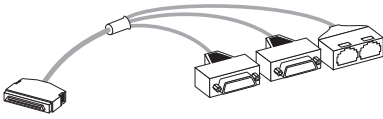
- RS-485 terminator plugs (comes with two)

- IBM *Documentation* CD

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

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

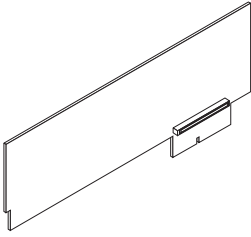- **For the IBM @server xSeries 305 server only:** To connect the Remote Supervisor Adapter II to the server system board and to the USB connector on an xSeries 305 server, you must use an xSeries 305 connectivity cable (shown in the following illustration), which must be purchased separately. For information about purchasing this option, contact your IBM marketing representative or IBM reseller. For detailed information about connecting the connectivity cable, see the Technical Update on the IBM Support Web site.
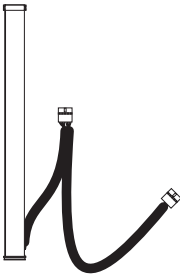
- Category 3 or Category 5 cable to connect the Remote Supervisor Adapter II to your LAN
- Category 3 or Category 5 cable to connect the Remote Supervisor Adapter II to an ASM interconnect network
- Serial RS-232 cable to connect a modem to the Advanced System Management (ASM) breakout cable

Remote Supervisor Adapter II components

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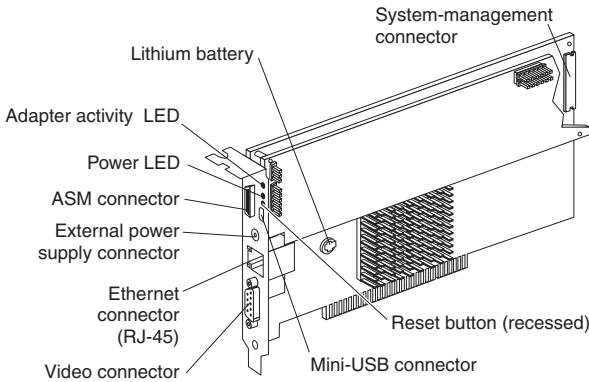
Adapter activity LED

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

Power LED

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

> • The Remote Supervisor Adapter II is receiving power from the server in which it is installed.

> • The external power-supply adapter is connected to the Remote Supervisor Adapter II and to a properly grounded electrical outlet.

ASM connector

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

External power-supply connector

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

Ethernet connector (RJ-45)

Connect a Category 3 (10 Mbps) or Category 5 (100 Mbps) Ethernet cable to this connector to enable a LAN connection. The Ethernet connector LEDs on the Remote Supervisor Adapter II are described in "Cabling the Ethernet LAN connector" on page 18.

Video connector

Connect the server monitor to this connector.

Mini-USB connector

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

Reset button

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

Lithium battery

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

System-management connector

Connect either the 20-pin ribbon cable without USB signals or the 20-pin planar cable with USB signals to the system-management connector on the Remote Supervisor Adapter II and to the Remote Supervisor Adapter connector (sometimes referred to as system-management connector) on the system board in the server. See Table 3 on page 16 to determine which cable to use.

Chapter 2. Installing and cabling the Remote Supervisor Adapter II

Important: To install and cable a Remote Supervisor Adapter II SlimLine, see Chapter 3, "Installing and cabling the Remote Supervisor Adapter II SlimLine," on page 29.

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

Before you begin

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

- Read the safety information beginning on page v and the guidelines in "Handling static-sensitive devices" on page 5. This information will help you work safely with the server and options.
- Verify the option package items. See "Inventory checklist" on page 7.

Installing the adapter

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

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

Table 1. Remote Supervisor Adapter II required PCI or PCI-X slot

IBM server[1]	Required PCI or PCI-X slot
xSeries 205 Type 8480	1
xSeries 206 Type 8482	2
xSeries 225 Type 8649	1
xSeries 226 Type 8648	2
xSeries 235 Type 8671	1
xSeries 255 Type 8685	1

Table 1. Remote Supervisor Adapter II required PCI or PCI-X slot (continued)

IBM server[1]	Required PCI or PCI-X slot
xSeries 305 Type 8673	1
xSeries 306 Type 8836	2
@server 326 Type 8848	2
xSeries 335 Type 8830 and Type 8676	1
xSeries 345 Type 8670	5
[1]For installation information for supported xSeries servers that are not listed in this table, see the documentation that comes with your server.	

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

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

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

6. Connect the 20-pin cable to the system board using the procedure in "Connecting the 20-pin cable to the system board or riser card" on page 16. Then, return to step 7.

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

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

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

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

   b. Press the adapter firmly into the PCI slot.

9. Connect the free end of the 20-pin cable to the Remote Supervisor Adapter II using the procedure in "Connecting the 20-pin cable to the Remote Supervisor Adapter II" on page 17. Then, return to step 10.

10. Replace the server cover.

11. Connect the mini-USB cable to the mini-USB connector on the Remote Supervisor Adapter II and to the USB connector on the server. For the USB cable type required, see Table 2 on page 15.

Table 2. USB cable type required

IBM server[1]	USB cable type
xSeries 205 Type 8480 xSeries 206 Type 8482 xSeries 235 Type 8671 xSeries 255 Type 8685 xSeries 306 Type 8836 xSeries 335 Type 8830 and Type 8676 xSeries 345 Type 8670	Mini-USB is required
xSeries 225 Type 8649 xSeries 226 Type 8648 @server 326 Type 8848	Mini-USB is not required.
xSeries 305 Type 8673	Connectivity cable option (part number 73P9304[2]) is required.
[1] For installation information for supported servers that are not listed in this table, see the documentation that comes with the server. [2] This cable option must be purchased separately.	

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

13. Connect the external cables and power cords that you disconnected in step 1 on page 13.

14. Connect the Ethernet cable to the Ethernet connector on the Remote Supervisor Adapter II. For more information, see "Cabling the Ethernet LAN connector" on page 18; then, return to step 15.

15. Connect the video cable of your video device to the video connector on the Remote Supervisor Adapter II. If the video device is already connected to the server, remove the video cable from the server and connect it to the video connector on the Remote Supervisor Adapter II.

16. If you want redundant power, which gives you access to the Remote Supervisor Adapter II event log when the main server power source is unavailable, connect the external power-supply adapter that comes with the Remote Supervisor Adapter II. For information about connecting the power-supply adapter, see "Connecting the external power-supply adapter" on page 19. Then, return to step 17.

    Note: Connecting the external power supply adapter is required for the IBM xSeries 305 server.

17. If you want to connect the Remote Supervisor Adapter II to a modem, terminal server, or to an ASM interconnect network, see "Connecting the ASM breakout cable with dual serial connectors" on page 22.

18. Go to "Obtaining Remote Supervisor Adapter II software and firmware" on page 24.

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

The 20-pin cable connects the Remote Supervisor Adapter II to the server system board or riser card and is required for power and data transfer. You will use either the 20-pin ribbon cable without USB signals or the 20-pin planar cable with USB signals, depending on your server model. Both cables come with the adapter.

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

1. Connect the applicable end of the 20-pin cable to the Remote Supervisor Adapter II connector (sometimes referred to as the system-management connector) on the system board or riser card. The 20-pin cable connector ends are keyed for correct installation. To determine the type of 20-pin cable required for the server and for the connector location on the server system board, see Table 3 and the documentation that comes with the server.

Table 3. 20-pin cable type requirements and system board connector locations

IBM server[1]	20-pin cable type[2]	System board connector location for the 20-pin cable
xSeries 205 Type 8480	Without USB signals	CN20
xSeries 206 Type 8482	Without USB signals	CONN2
xSeries 225 Type 8649	With USB signals	JMGT1
xSeries 226 Type 8648	With USB signals	JMGT1
xSeries 235 Type 8671	Without USB signals	J27
xSeries 255 Type 8685	Without USB signals	J16
xSeries 305 Type 8673	Connectivity cable option	CN12
xSeries 306 Type 8836	Without USB signals	CN18
@server 326 Type 8848	With USB signals	JMGT1
xSeries 335 Type 8830 and Type 8676	Without USB signals	J2
xSeries 345 Type 8670	Without USB signals	J2

[1] For system board connector locations for supported servers that are not listed in this table, see the documentation that comes with the server.

[2] For illustrations of the 20-pin cables that come with the Remote Supervisor Adapter II, see "Inventory checklist" on page 7.

2. Return to step 7 on page 14.

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

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

Attention: You can damage the system-management connector on the Remote Supervisor Adapter II if the 20-pin cable is not properly connected to it.

- **If you are connecting a 20-pin ribbon cable without USB signals** to the Remote Supervisor Adapter II, make sure that the contrasting color stripe on the ribbon cable is closest to the adapter edge that has the PCI connector (gold edge connectors).
- **If you are connecting the 20-pin planar cable with USB signals** to the Remote Supervisor Adapter II, make sure that the gold pins on the planar cable connector end are facing toward you when you hold the adapter so that the PCI connector (gold edge connectors) is at the bottom and the bracket is on the left side.

1. If you have not already done so, connect the 20-pin cable to the server system board or riser card and install the Remote Supervisor Adapter II in the server.
2. Connect the free end of the 20-pin cable to the system-management connector on the Remote Supervisor Adapter II using the following illustrations. The 20-pin cable connector ends are keyed for correct installation.

   To connect the 20-pin ribbon cable without USB signals:

Contrasting color stripe

PCI connector (gold edge connector)
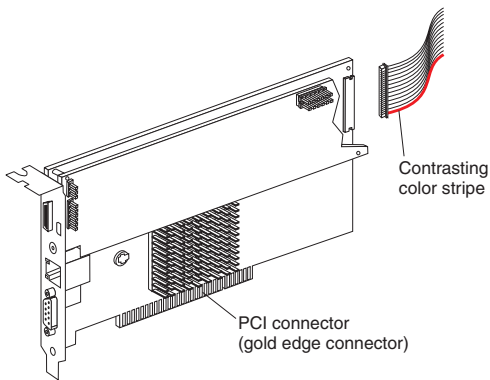
To connect the 20-pin planar cable with USB signals:

Gold pins
showing

PCI connector
(gold edge connector)
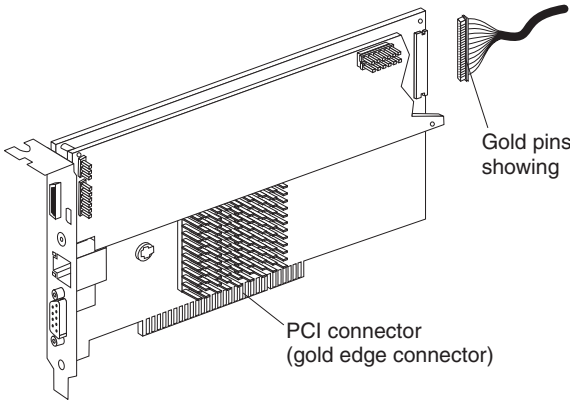
> **Attention:** Route cables so that they do not block the flow of air from the fans.

3. Return to step 10 on page 14.

Cabling the Ethernet LAN connector

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

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

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

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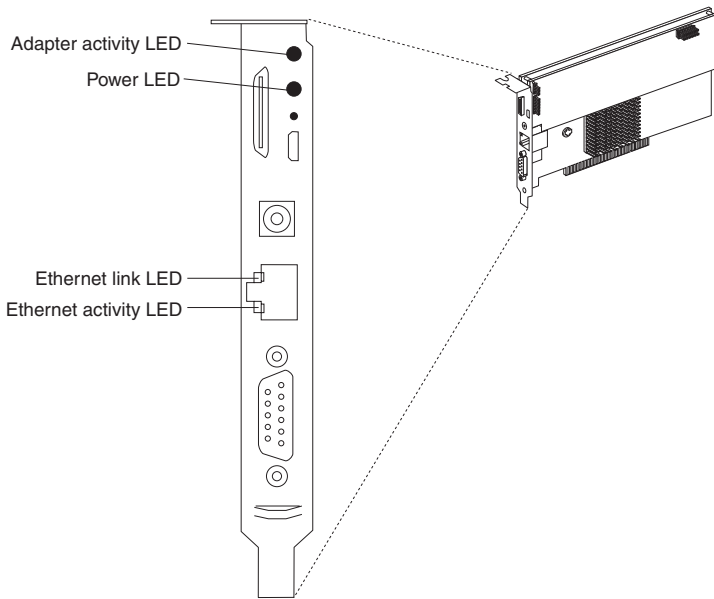
Ethernet link LED

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

Ethernet activity LED

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

Connecting the external power-supply adapter

Note: Connecting the external power supply adapter is required for the IBM xSeries 305 server.

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

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

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

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

Remote Supervisor Adapter external power-supply connector

Power-supply adapter cable

Power-supply adapter
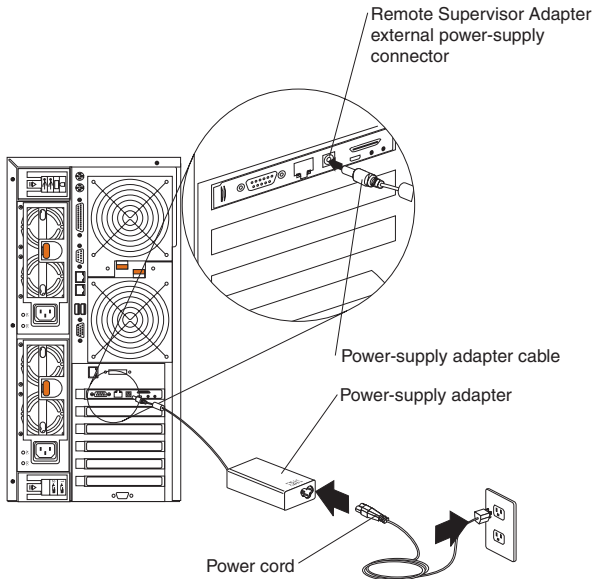
Power cord

The following illustration shows the location of the power-supply connector on a Remote Supervisor Adapter II that is installed in a rack-mounted server.
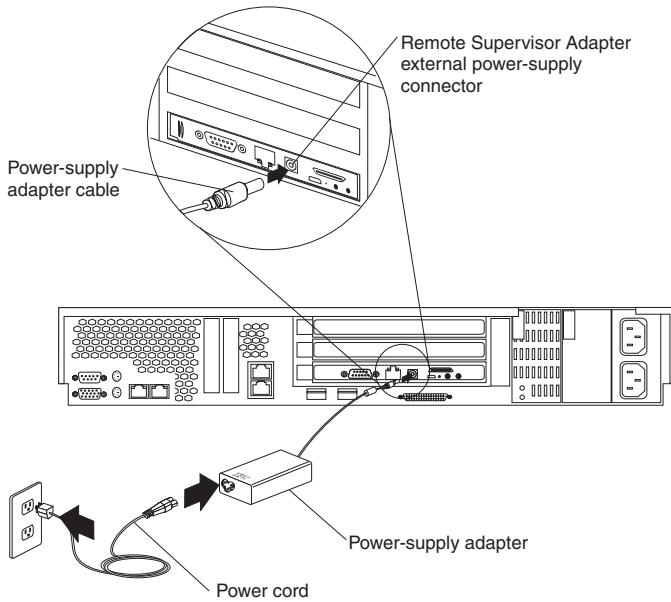
4. Connect one end of the power cord to the connector on the power-supply adapter.
5. Connect the other end of the power cord to a properly grounded electrical outlet.

   Note: You can connect one end of the universal power cord to the power-supply adapter; then, connect the other end to a power distribution unit (PDU) or to an uninterruptible power supply.
6. Check that the Remote Supervisor Adapter II power LED is lit, to make sure that there is power to the Remote Supervisor Adapter II. For the location of the power LED, see the illustration in "Cabling the Ethernet LAN connector" on page 18.
7. Connect the power cords to the server and turn on the server.
8. Return to step 17 on page 15.

Connecting the ASM breakout cable with dual serial connectors

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

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

- Your server basic input/output system (BIOS) code supports the single serial connection. This BIOS serial support is needed to provide power-on self-test (POST), setup, and end-to-end remote access.
- You update the Remote Supervisor Adapter II firmware. For more information, see "Obtaining Remote Supervisor Adapter II software and firmware" on page 24.
- Your operating system has serial support for text management in the operating system. The following operating systems have serial support:
  - Microsoft Windows Server 2003 Enterprise Edition with emergency management services for serial console support
  - Linux operating systems with Agetty serial console support

The following illustration shows how to connect the ASM breakout cable with dual serial connectors to the ASM connector on a Remote Supervisor Adapter II that is installed in a tower-model server.

Advanced System Management breakout cable with dual serial connectors

ASM RS-485 connectors
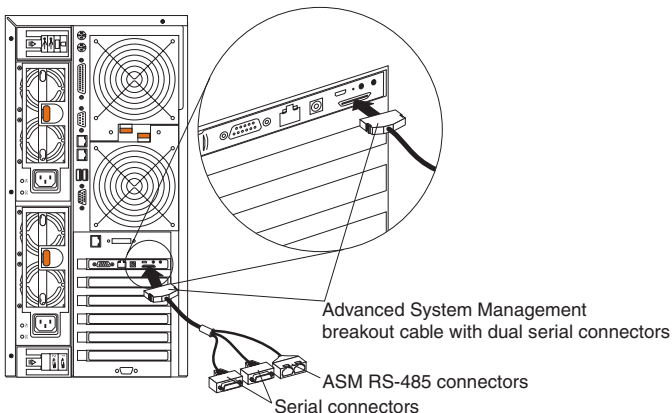
Serial connectors

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

To connect the Remote Supervisor Adapter II to an ASM interconnect network, connect a Category 3 or Category 5 cable to one of the ASM RS-485 connectors on the ASM breakout cable. For more information, see Chapter 4, "Using the ASM interconnect network," on page 31.

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

Serial-to-serial redirection

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

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

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

Serial-to-Telnet redirection

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

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

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

Continue with "Obtaining Remote Supervisor Adapter II software and firmware" on page 24.

Obtaining Remote Supervisor Adapter II software and firmware

The software and firmware that you need for the IBM Remote Supervisor Adapter II is available from the IBM Support Web site. This section describes how to download these files from the Web site. Which files you need to download depends on your server type and operating system.

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

Download the following software and firmware. You can perform a multiple-file download from the IBM Support Web site (see the instructions that follow).

- Software and firmware installation instructions (For information about downloading these documents, see step 11 on page 25.)
- Video adapter basic input/output system (BIOS) update
- Server BIOS code update with support for the Remote Supervisor Adapter II
- Diagnostics code update
- Remote Supervisor Adapter II Windows server software
- Remote Supervisor Adapter II USB interface daemon for Linux
- Remote Supervisor Adapter II support software for Novell NetWare
- Remote Supervisor Adapter II firmware code update
- Integrated service processor firmware update (if needed for your server)
- Video device driver (Microsoft Windows operating systems only)
- Advanced Settings Utility program

Complete the following steps to locate and download the files that you need:

1. Go to http://www.ibm.com/.
2. On the top of the page, click **Support & downloads**.
3. On the "Support & downloads" page, in the **Support topics** section, select **Multiple file download for personal computing**.
4. On the "Download and drivers" page, in the **Brand** field, select **Servers**.
5. In the **Family** field, select the server.
6. In the **Operating system** field, select the operating system.
7. Click **Continue**.
8. On the "Download and drivers" page, select the check box next to the software and firmware files that you need. After you select all of the files that you need, click **Continue**.

9. On the "Terms and conditions" page, click **I agree**.

10. Follow the instructions that guide you through the download process. Create one of the following directories as the target location in which to download the files:

   - **For Microsoft Windows operating systems:** \ibmssp, where *d* is the hard disk drive letter
   - **For Linux operating systems:** ibmssp
   - **For Novell NetWare operating systems:** *d*:\ibmrsa2, where *d* is the hard disk drive letter

   Note: Before installing the operating system-specific Remote Supervisor Adapter II software, make sure that the adapter is correctly configured for the operating system by using one of the following methods:

   - Use the Remote Supervisor Adapter II Web interface. See Chapter 3 in the *Remote Supervisor Adapter II SlimLine and Remote Supervisor Adapter II User's Guide* for information about configuring the adapter.
   - Use the following procedure:

      a. Turn on or restart the server.

      b. When the prompt `Press F1 for Configuration/Setup` appears, press F1. If you have set both a user (power-on) password and a supervisor (administrator) password, you must type the administrator password to access the full Configuration/Setup Utility menu. If you do not type the administrator password, a limited Configuration/Setup Utility menu is available.

      c. Select **Advanced Setup** and then select **RSA II Settings**.

      d. In the **OS USB Selection** field, select the value for your operating system:

      For Microsoft Windows and Novell NetWare: select **Other OS**.

      For Linux: select **Linux OS**.

      e. Select **Save Values** and **Reboot RSA II**.

11. For correct software and firmware installation:

   - Follow the instructions in the associated readme files. Make sure that you check for applicable hints and tips for the server in which you installed the Remote Supervisor Adapter II and for the server operating system. To check for hints and tips, complete the following steps:

      a. Go to http://www.ibm.com/pc/support/.

      b. In the **Browse by topic** section, click **Hints and tips**.

      c. On the "Hints and tips" page, in the **Brand** field, select **Servers**.

d. In the **Family** field, select the server.

e. In the **Operating system** field, select the operating system.

f. Click **Continue**.

g. In the **Refine results** field, select **Remote Supervisor Adapter II**.

- **For IBM xSeries 235, xSeries 255, and xSeries 345 servers only:** You can also follow the detailed installation instructions in the *IBM Remote Supervisor Adapter II Installation Instructions for Windows Users*, or *IBM Remote Supervisor Adapter II Installation Instructions for Linux Users*. These Portable Document Format (PDF) documents are available from the IBM Support Web site:

  a. Go to http://www.ibm.com/pc/support/.

  b. In the **Browse by topic** section, click **Publications**.

  c. On the Publications page, in the **Brand** field, select **Servers**.

  d. In the **Family** field, select the server.

  e. In the **Operating system** field, select the operating system.

  f. Click **Continue**.

Completing the installation

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

1. If you plan to configure Simple Network Management Protocol (SNMP) traps on the Remote Supervisor Adapter II, install and compile the management information bases (MIBs) on your SNMP manager. One MIB supports SNMP traps, and the other MIB supports the Get, GetNext, and Set request and response operations. The MIBs are packaged with the Remote Supervisor Adapter II firmware update. For information about how to download the Remote Supervisor Adapter II firmware update, see "Obtaining Remote Supervisor Adapter II software and firmware" on page 24.

2. If you did not restart the server after installing the Remote Supervisor Adapter II software, restart the server now.

3. See the *IBM Remote Supervisor Adapter II SlimLine and Remote Supervisor Adapter II User's Guide* for detailed instructions for completing the configuration of the Remote Supervisor Adapter II, including the following features:

   - Controlling the server remotely
   - Defining the login IDs and passwords
   - Monitoring remote server status using the Remote Supervisor Adapter II Web interface
   - Using Remote Disk to enable the attachment of a diskette drive, CD-ROM drive, or disk image to a server

- Selecting the events that will receive alert notification
- Setting up the secure Web server
- Using a secure connection to a Lightweight Directory Access Protocol (LDAP) server for user authentication

If you want to set up an ASM interconnect network and have not already done so, go to Chapter 4, "Using the ASM interconnect network," on page 31. If you do not want to set up an ASM interconnect network, the installation is now completed.

Chapter 3. Installing and cabling the Remote Supervisor Adapter II SlimLine

This chapter describes how to install and cable the Remote Supervisor Adapter II SlimLine in xSeries servers. (See Table 4 for a list of supported xSeries servers.)

To install and cable a Remote Supervisor Adapter II, see Chapter 2, "Installing and cabling the Remote Supervisor Adapter II," on page 13.

Before you begin

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

- Read the safety information beginning on page v and the guidelines in "Handling static-sensitive devices" on page 5. This information will help you work safely with the server and options.
- Verify the option package items. See "Remote Supervisor Adapter II SlimLine inventory checklist" on page 6.

Installing the adapter

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

1. Turn off the server and attached devices, and disconnect all power cords and external cables.
2. Remove the server from the rack (if applicable).
3. Remove the server cover. For instructions, see the documentation that comes with the server.
4. If necessary, remove the air baffle assembly.
5. Use the server documentation and Table 4 to determine the dedicated connector on the server system board into which you will install the Remote Supervisor Adapter II SlimLine.

Table 4. Remote Supervisor Adapter II SlimLine system board connector locations

IBM server[1]	System board connector location
xSeries 236 Type 8841	J37
xSeries 336 Type 8837	J41
xSeries 346 Type 8840	J21
[1]For installation information for supported xSeries servers that are not listed in this table, see the documentation that comes with your server.	

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

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

7. To install the Remote Supervisor Adapter II SlimLine in the server, follow the detailed installation instructions in the *Option Installation Guide* that comes with your server.

8. Replace the server cover.

9. Install the server in the rack (if applicable).

10. Connect the external cables and power cords that you disconnected in step 1 on page 29.

11. Connect an Ethernet cable to the Ethernet connector on the server. For more information, see "Cabling the Ethernet LAN connector." Then, return to step 12.

12. Go to "Obtaining Remote Supervisor Adapter II software and firmware" on page 24; then, go to "Completing the installation" on page 26.

Cabling the Ethernet LAN connector

You can manage your server remotely through the Remote Supervisor Adapter II SlimLine. Connect a Category 3 or Category 5 Ethernet cable from your Ethernet network to the Ethernet connector on the server that is dedicated to the Remote Supervisor Adapter II SlimLine.

For the location of the Ethernet port on the server that is used by the Remote Supervisor Adapter II SlimLine, see the documentation that comes with your server.

Chapter 4. Using the ASM interconnect network

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

Note: The Remote Supervisor Adapter II SlimLine does not support connecting to an ASM interconnect network.

Overview

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

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

Planning and cabling your ASM interconnect network

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

Before cabling the ASM interconnect network, review the following information:
- You must connect an ASM breakout cable to the Remote Supervisor Adapter II.
- You must connect an ASM interconnect module to the Remote Supervisor Adapter.

- The cables in an ASM interconnect network are hot-swappable.

- Make sure that the firmware for the Remote Supervisor Adapter II, Remote Supervisor Adapter, ASM processor, ASM PCI adapter, or ISMP is at the latest level.

- The servers in an ASM interconnect network are referred to by their assigned names, not by their positions in the rack cabinet.

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

- Each Remote Supervisor Adapter II, Remote Supervisor Adapter, ASM processor, ASM PCI adapter, and ISMP in a server that is connected to the network uses one connection. For example, if a server that is connected to the network has a Remote Supervisor Adapter and an integrated ASM processor, the server uses two connections on the network.

- The network must include at least one server with a Remote Supervisor Adapter II or Remote Supervisor Adapter (either installed as an option or preinstalled in the server).

- On an ASM interconnect network, one ASM processor or one ASM PCI adapter can communicate with 11 RS-485 connections. These connections must be to ASM processors, ASM PCI adapters, Remote Supervisor Adapters, or Remote Supervisor Adapter IIs. The ASM processor and ASM PCI adapter cannot communicate with ISMPs.

- If your existing ASM interconnect network has 12 RS-485 connections that include only ASM processors, ASM PCI adapters, and at least one Remote Supervisor Adapter or Remote Supervisor Adapter II, you can also add up to 12 ISMP-based servers to this same network. The Remote Supervisor Adapter on this network will communicate with all 23 RS-485 connections; however, an ASM processor or ASM PCI adapter on this network will communicate with only the 11 non-ISMP RS-485 connections. The ASM processor and ASM PCI adapter will not recognize the ISMPs, but the ISMPs can be on the same ASM interconnect network.

- Make sure that the ASM interconnect network is set up as a bus, not as a ring. You must connect the servers to the ASM interconnect network in a series, with terminated beginning and end points. Be sure to use the RS-485 terminator plugs. For more information, see "Using the RS-485 terminator plugs on interconnected servers" on page 33.

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

Using the RS-485 terminator plugs on interconnected servers

The Remote Supervisor Adapter II comes with two RS-485 terminator plugs. To ensure successful RS-485 communication on your ASM interconnect network, you must install a terminator plug in the open connector at each end of the RS-485 bus. The illustrations in "ASM interconnect network configuration examples" on page 35 can help you determine where to put the RS-485 terminator plugs on your ASM interconnect network.

Configuring xSeries 232 and xSeries 342 servers

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

Notes:

1. If your server BIOS code level is earlier than revision 1.02, you must update your server BIOS code before you update the ISMP firmware. BIOS update diskettes and update instructions are available from the IBM Support Web site.

2. Make sure that no servers or devices are connected to the server ISMP connectors when you update the ISMP firmware if its level is revision 6 or 8. You cannot update the firmware while devices are connected to the ISMP connectors.

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

Forwarding alerts

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

During normal operation, each Remote Supervisor Adapter, ASM processor, ASM PCI adapter, and ISMP on the ASM interconnect network communicates with the other processors and adapters on the network. Processors or adapters

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

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

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

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

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

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

ASM interconnect network configuration examples

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

In the following example, three xSeries 345 servers are connected on an ASM interconnect network.
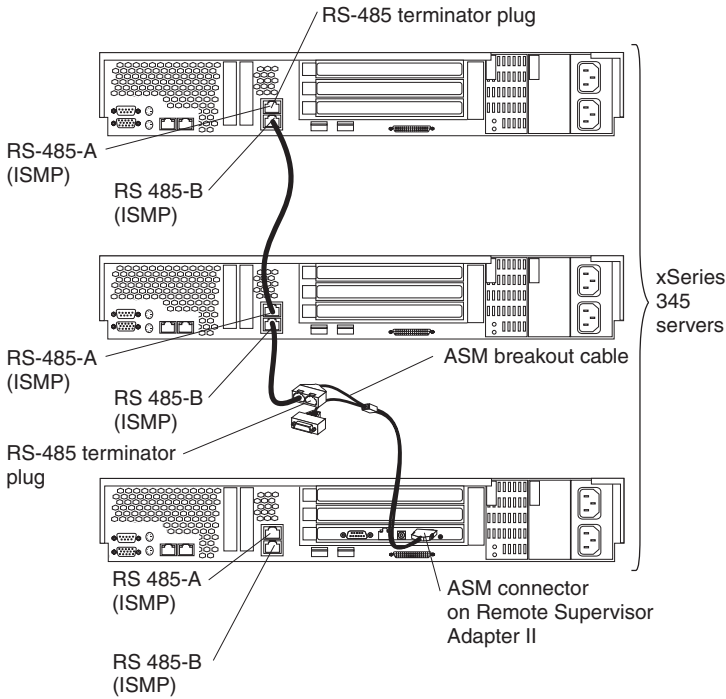
In the following example, an Ethernet cable connects the remote system management administrator's system to the Remote Supervisor Adapter II that is installed in an xSeries 235 server. In this case, the xSeries 235 server uses the LAN connection to forward system-management data that is generated by the other servers in the ASM interconnect network to the remote system-management administrator.
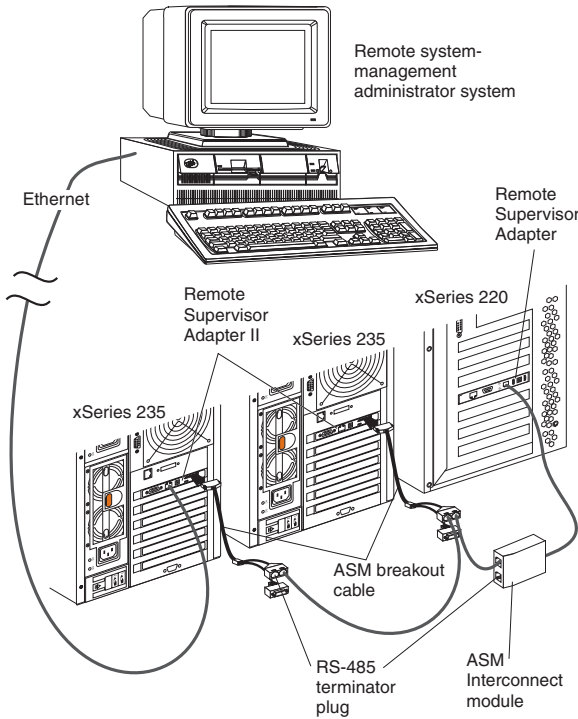
In the following example, a Remote Supervisor Adapter is installed in an xSeries 235 server and creates an interconnect network with the xSeries 235 server and the xSeries 350 servers. A modem is connected to the serial connector of the Remote Supervisor Adapter II (on one end of the ASM breakout cable), a modem is connected to the ASM PCI adapter in the server that is connected to the end of the ASM interconnect network, and a modem is connected to the remote system-management administrator's system.

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

Modem

Remote system
management
administrator's system

Dial-out
only

Modem

Modem

xSeries 350

xSeries 350

xSeries 235

xSeries 350

Serial
connector

RS-485
terminator
plug
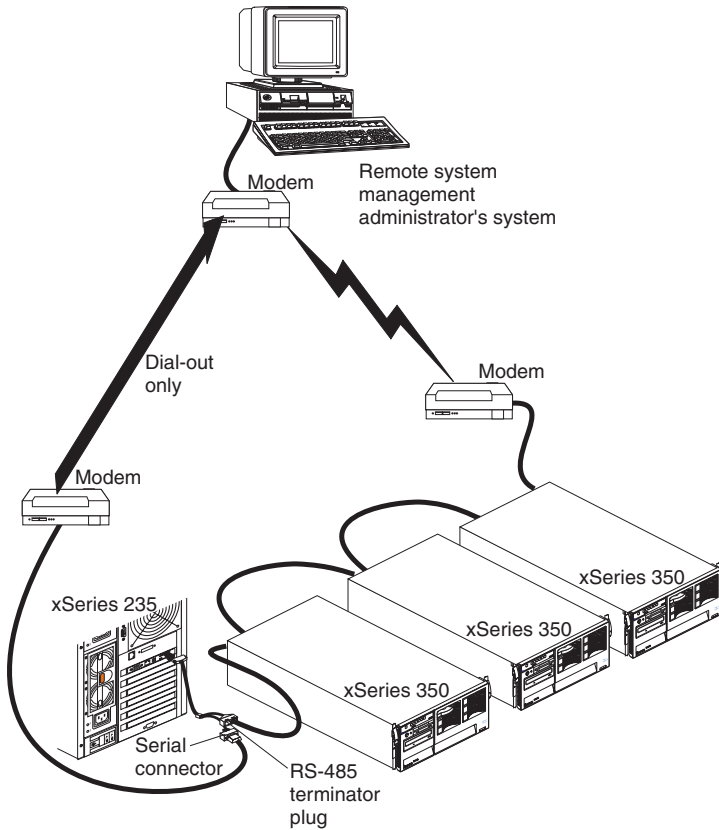
Appendix A. Getting help and technical assistance

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

Before you call

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

- Check all cables to make sure that they are connected.
- Check the power switches to make sure that the system is turned on.
- Use the troubleshooting information in your system documentation, and use the diagnostic tools that come with your system. Information about diagnostic tools is in the *Hardware Maintenance Manual and Troubleshooting Guide* or *Problem Determination and Service Guide* on the IBM Documentation CD that comes with your system.

  Note: For some IntelliStation models, the *Hardware Maintenance Manual and Troubleshooting Guide* is available only from the IBM support Web site.

- Go to the IBM support Web site at http://www.ibm.com/pc/support/ to check for technical information, hints, tips, and new device drivers or to submit a request for information.

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

Using the documentation

Information about your IBM @server or IntelliStation system and preinstalled software, if any, is available in the documentation that comes with your system. That documentation includes printed books, online books, readme files, and help files. See the troubleshooting information in your system documentation for instructions for using the diagnostic programs. The

troubleshooting information or the diagnostic programs might tell you that you need additional or updated device drivers or other software. IBM maintains pages on the World Wide Web where you can get the latest technical information and download device drivers and updates. To access these pages, go to http://www.ibm.com/pc/support/ and follow the instructions. Also, some publications are available through the IBM Publications Ordering System at http://www.elink.ibmlink.ibm.com/public/applications/publications/ cgibin/pbi.cgi.

Getting help and information from the World Wide Web

On the World Wide Web, the IBM Web site has up-to-date information about IBM @server and IntelliStation products, services, and support. The address for IBM xSeries and BladeCenter information is http://www.ibm.com/eserver/xseries/. The address for IBM IntelliStation information is http://www.ibm.com/pc/us/intellistation/.

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

Software service and support

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

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

Hardware service and support

You can receive hardware service through IBM Services or through your IBM reseller, if your reseller is authorized by IBM to provide warranty service. See http://www.ibm.com/planetwide/ for support telephone numbers, or in the U.S. and Canada, call 1-800-IBM-SERV (1-800-426-7378).

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

Appendix B. IBM Statement of Limited Warranty Z125-4753-08 04/2004

Part 1 - General Terms

Part 1 - General Terms

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

What this Warranty Covers

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

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

What this Warranty Does not Cover

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

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

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

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

How to Obtain Warranty Service

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

What IBM Will Do to Correct Problems

When you contact IBM for service, you must follow the problem determination and resolution procedures that IBM specifies. An initial diagnosis of your problem can be made either by a technician over the telephone or electronically by access to an IBM website.

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

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

If your problem can be resolved with a Customer Replaceable Unit ("CRU") (e.g., keyboard, mouse, speaker, memory, hard disk drive), IBM will ship the CRU to you for you to install.

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

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

Exchange of a Machine or Part

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

Your Additional Responsibilities

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

You also agree to:
1. ensure that the Machine is free of any legal obligations or restrictions that prevent its exchange;
2. obtain authorization from the owner to have IBM or your reseller service a Machine that you do not own; and
3. where applicable, before service is provided:
   a. follow the service request procedures that IBM or your reseller provides;
   b. backup or secure all programs, data, and funds contained in the Machine;
   c. provide IBM or your reseller with sufficient, free, and safe access to your facilities to permit IBM to fulfill its obligations; and
   d. inform IBM or your reseller of changes in the Machine's location.
4. (a) ensure all information about identified or identifiable individuals (Personal Data) is deleted from the Machine (to the extent technically possible), (b) allow IBM, your reseller or an IBM supplier to process on your behalf any remaining Personal Data as IBM or your reseller considers necessary to fulfill its obligations under this Statement of Limited Warranty (which may include shipping the Machine for such processing to other IBM

service locations around the world), and (c) ensure that such processing complies with any laws applicable to such Personal Data.

Limitation of Liability

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

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

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

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

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

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

Governing Law

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

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

<u>Jurisdiction</u>

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

Part 2 - Country-unique Terms

<u>AMERICAS</u>

ARGENTINA

Jurisdiction: *The following is added after the first sentence:*

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

BOLIVIA

Jurisdiction: *The following is added after the first sentence:*

Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the courts of the city of La Paz.

BRAZIL

Jurisdiction: *The following is added after the first sentence:*
Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the court of Rio de Janeiro, RJ.

CHILE

Jurisdiction: *The following is added after the first sentence:*

Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the Civil Courts of Justice of Santiago.

COLOMBIA

Jurisdiction: *The following is added after the first sentence:*

Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the Judges of the Republic of Colombia.

EQUADOR

Jurisdiction: *The following is added after the first sentence:*

Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the Judges of Quito.

MEXICO

Jurisdiction: *The following is added after the first sentence:*

Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the Federal Courts of Mexico City, Federal District.

PARAGUAY

Jurisdiction: *The following is added after the first sentence:*

Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the courts of the city of Asuncion.

PERU

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

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

URUGUAY

Jurisdiction: *The following is added after the first sentence:*

Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the City of Montevideo Court's Jurisdiction.

VENEZUELA

Jurisdiction: *The following is added after the first sentence:*

Any litigation arising from this Statement of Limited Warranty will be settled exclusively by the Courts of the Metropolitan Area Of the City of Caracas.

NORTH AMERICA

How to Obtain Warranty Service: *The following is added to this Section:*
To obtain warranty service from IBM in Canada or the United States, call 1-800-IBM-SERV (426-7378).

CANADA

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

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

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

UNITED STATES

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

ASIA PACIFIC

AUSTRALIA

What this Warranty Covers: *The following paragraph is added to this section:*
The warranties specified in this Section are in addition to any rights you may have under the Trade Practices Act 1974 or other similar legislation and are only limited to the extent permitted by the applicable legislation.

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

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

CAMBODIA AND LAOS

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

CAMBODIA, INDONESIA, AND LAOS

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

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

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

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

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

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

INDIA

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

1. liability for bodily injury (including death) or damage to real property and tangible personal property will be limited to that caused by IBM's negligence; and
2. as to any other actual damage arising in any situation involving nonperformance by IBM pursuant to, or in any way related to the subject of this Statement of Limited Warranty, the charge paid by you for the individual Machine that is the subject of the claim. For purposes of this item, the term "Machine" includes Machine Code and Licensed Internal Code ("LIC").

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

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

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

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

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

JAPAN

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

MALAYSIA

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

NEW ZEALAND

What this Warranty Covers: *The following paragraph is added to this section:*
The warranties specified in this section are in addition to any rights you may have under the Consumer Guarantees Act 1993 or other legislation which cannot be excluded or limited. The Consumer Guarantees Act 1993 will not apply in respect of any goods which IBM provides, if you require the goods for the purposes of a business as defined in that Act.

Limitation of Liability: *The following is added to this section:*
Where Machines are not acquired for the purposes of a business as defined in the Consumer Guarantees Act 1993, the limitations in this section are subject to the limitations in that Act.

PEOPLE'S REPUBLIC OF CHINA (PRC)

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

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

PHILIPPINES

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

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

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

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

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

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

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

SINGAPORE

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

<u>**EUROPE, MIDDLE EAST, AFRICA (EMEA)**</u>

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.

How to Obtain Warranty Service:

*Add the following paragraph in **Western Europe** (Andorra, Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Netherlands, Norway, Poland, Portugal, San Marino, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom, Vatican State, and any country subsequently added to the European Union, as from the date of accession):*

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

If you purchase a Machine in one of the Western European countries, as defined above, you may obtain warranty service for that Machine in any of those countries from either (1) an IBM reseller approved to perform warranty service or (2) from IBM, provided the Machine has been announced and made available by IBM in the country in which you wish to obtain service.

If you purchased a Personal Computer Machine in Albania, Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Federal Republic of Yugoslavia, Former Yugoslav Republic of Macedonia (FYROM), Moldova, Poland, Romania, Russia, Slovak Republic, Slovenia, or Ukraine, you may obtain warranty service for that Machine in any of those countries from either (1) an IBM reseller approved to perform warranty service or (2) from IBM.

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

Governing Law:

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

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

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

1) **In Austria** the choice of jurisdiction for all disputes arising out of this Statement of Limited Warranty and relating thereto, including its existence, will be the competent court of law in Vienna, Austria (Inner-City); 2) **in Angola, Bahrain, Botswana, Burundi, Egypt, Eritrea, Ethiopia, Ghana, Jordan, Kenya, Kuwait, Liberia, Malawi, Malta, Mozambique, Nigeria, Oman, Pakistan, Qatar, Rwanda, Sao Tome, Saudi Arabia, Sierra Leone, Somalia, Tanzania, Uganda, United Arab Emirates, West Bank/Gaza, Yemen, Zambia, and Zimbabwe** all disputes arising out of this Statement of Limited Warranty or related to its execution, including summary proceedings, will be submitted to the exclusive jurisdiction of the English courts; 3) in **Belgium** and **Luxembourg**, all disputes arising out of this Statement of Limited Warranty or related to its interpretation or its execution, the law, and the courts of the

capital city, of the country of your registered office and/or commercial site location only are competent; 4) **in France, Algeria, Benin, Burkina Faso, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo Republic, Djibouti, Democratic Republic of Congo, Equatorial Guinea, French Guiana, French Polynesia, Gabon, Gambia, Guinea, Guinea-Bissau, Ivory Coast, Lebanon, Madagascar, Mali, Mauritania, Mauritius, Mayotte, Morocco, New Caledonia, Niger, Reunion, Senegal, Seychelles, Togo, Tunisia, Vanuatu, and Wallis & Futuna** all disputes arising out of this Statement of Limited Warranty or related to its violation or execution, including summary proceedings, will be settled exclusively by the Commercial Court of Paris; 5) **in Russia**, all disputes arising out of or in relation to the interpretation, the violation, the termination, the nullity of the execution of this Statement of Limited Warranty shall be settled by Arbitration Court of Moscow; 6) **in South Africa, Namibia, Lesotho and Swaziland**, both of us agree to submit all disputes relating to this Statement of Limited Warranty to the jurisdiction of the High Court in Johannesburg; 7) **in Turkey** all disputes arising out of or in connection with this Statement of Limited Warranty shall be resolved by the Istanbul Central (Sultanahmet) Courts and Execution Directorates of Istanbul, the Republic of Turkey; 8) in each of the following specified countries, any legal claim arising out of this Statement of Limited Warranty will be brought before, and settled exclusively by, the competent court of a) Athens for **Greece**, b) Tel Aviv-Jaffa for **Israel**, c) Milan for **Italy**, d) Lisbon for **Portugal**, and e) Madrid for **Spain**; and 9) **in the United Kingdom**, both of us agree to submit all disputes relating to this Statement of Limited Warranty to the jurisdiction of the English courts.

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

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

In Estonia, Latvia and Lithuania all disputes arising in connection with this Statement of Limited Warranty will be finally settled in arbitration that will be held in Helsinki, Finland in accordance with the arbitration laws of Finland then in effect. Each party will appoint one arbitrator. The arbitrators will then

jointly appoint the chairman. If arbitrators cannot agree on the chairman, then the Central Chamber of Commerce in Helsinki will appoint the chairman.

EUROPEAN UNION (EU)

THE FOLLOWING TERMS APPLY TO ALL EU COUNTRIES:

The warranty for Machines acquired in EU countries is valid and applicable in all EU countries provided the Machines have been announced and made available in such countries.

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

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

You may contact IBM at the following address:
    IBM Warranty & Service Quality Dept.
    PO Box 30
    Spango Valley
    Greenock
    Scotland PA16 0AH

CONSUMERS

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

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

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

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

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

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

FRANCE AND BELGIUM

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

Except as otherwise provided by mandatory law:

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

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

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

THE FOLLOWING TERMS APPLY TO THE COUNTRY SPECIFIED:

AUSTRIA

The provisions of this Statement of Limited Warranty replace any applicable statutory warranties.

What this Warranty Covers: *The following replaces the first sentence of the first paragraph of this section:*
The warranty for an IBM Machine covers the functionality of the Machine for its normal use and the Machine's conformity to its Specifications.

The following paragraphs are added to this section:

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

The second paragraph does not apply.

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

During the warranty period, IBM will reimburse you for the transportation charges for the delivery of the failing Machine to IBM.

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

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

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

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

EGYPT

Limitation of Liability: *The following replaces item 2 in this section:*
as to any other actual direct damages, IBM's liability will be limited to the total amount you paid for the Machine that is the subject of the claim. For purposes of this item, the term "Machine" includes Machine Code and Licensed Internal Code ("LIC").

Applicability of suppliers and resellers (unchanged).

FRANCE

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

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

GERMANY

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

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

The following paragraphs are added to this section:

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

The second paragraph does not apply.

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

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

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

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

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

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

HUNGARY

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

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

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

IRELAND

What this Warranty Covers: *The following is added to this section:*
Except as expressly provided in these terms and conditions, all statutory conditions, including all warranties implied, but without prejudice to the generality of the foregoing all warranties implied by the Sale of Goods Act 1893 or the Sale of Goods and Supply of Services Act 1980 are hereby excluded.

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

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

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

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

Items for Which IBM is Not Liable

Save with respect to any liability referred to in item 1 above, under no circumstances is IBM, its suppliers or resellers liable for any of the following, even if IBM or they were informed of the possibility of such losses:
1. loss of, or damage to, data;
2. special, indirect, or consequential loss; or

3. loss of profits, business, revenue, goodwill, or anticipated savings.

SLOVAKIA

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

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

SOUTH AFRICA, NAMIBIA, BOTSWANA, LESOTHO AND SWAZILAND

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

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

UNITED KINGDOM

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

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

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

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

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

Items for Which IBM is Not Liable

Save with respect to any liability referred to in item 1 above, under no circumstances is IBM or any of its suppliers or resellers liable for any of the following, even if IBM or they were informed of the possibility of such losses:
1. loss of, or damage to, data;
2. special, indirect, or consequential loss; or
3. loss of profits, business, revenue, goodwill, or anticipated savings.

Part 3 - Warranty Information

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

Warranty Period

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

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

A warranty period of 3 years on parts and 1 year on labor means that IBM provides warranty service without charge for:
1. parts and labor during the first year of the warranty period; and
2. parts only, on an exchange basis, in the second and third years of the warranty period. IBM will charge you for any labor provided in performance of the repair or replacement(s) in the second and third year of the warranty period.

**IBM Remote Supervisor Adapter II ,
IBM Remote Supervisor Adapter II SlimLine**

Country or Region of Purchase	Warranty Period	Type of Warranty Service*
Worldwide	1 year	1
* See "Types of Warranty Service" for the legend and explanations of warranty-service types.		

Types of Warranty Service

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

1. **Customer Replaceable Unit ("CRU") Service**

   IBM provides replacement CRUs to you for you to install. CRU information and replacement instructions are shipped with your Machine and are available from IBM at any time on your request. Installation of Tier 1 CRUs is your responsibility. If IBM installs a Tier 1 CRU at your request, you will be charged for the installation. You may install a Tier 2 CRU yourself or request IBM to install it, at no additional charge, under the type of warranty service designated for your Machine. IBM specifies in the materials shipped with a replacement CRU whether a defective CRU must be returned to IBM. When return is required, 1) return instructions and a container are shipped with the replacement CRU, and 2) you may be charged for the replacement CRU if IBM does not receive the defective CRU within 30 days of your receipt of the replacement.

2. **On-site Service**

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

3. **Courier or Depot Service***

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

4. **Customer Carry-In or Mail-In Service**

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

5. **CRU and On-site Service**

This type of Warranty Service is a combination of Type 1 and Type 2 (see above).

6. **CRU and Courier or Depot Service**

   This type of Warranty Service is a combination of Type 1 and Type 3 (see above).

7. **CRU and Customer Carry-In or Mail-In Service**

   This type of Warranty Service is a combination of Type 1 and Type 4 (see above).

When a 5, 6 or 7 type of warranty service is listed, IBM will determine which type of warranty service is appropriate for the repair.

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

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

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

EU Country Telephone List

Phone numbers are subject to change without notice. For the warranty service contact telephone number in a country subsequently added to the EU and not yet reflected in the list below, contact IBM in that country or visit the website above for a current telephone listing.

Austria -- +43-1-24592-5901	Latvia -- +386-61-1796-699
Belgium -- +32-70-23-3392	Lithuania -- +386-61-1796-699
Cyprus -- +357-22-841100	Luxembourg -- +352-298-977-5063
Czech Republic -- +420-2-7213-1316	Malta -- +356-23-4175
Denmark -- +45-4520-8200	Netherlands -- +31-20-514-5770
Estonia -- +386-61-1796-699	Poland -- +48-22-878-6999
Finland -- +358-8001-4260	Portugal -- +351-21-892-7147
France -- +33-238-557-450	Slovakia -- +421-2-4954-1217
Germany -- +49-1805-253553	Slovenia -- +386-1-4796-699
Greece -- +30-210-680-1700	Spain -- +34-91-714-7983

Hungary -- +36-1-382-5720	Sweden -- +46-8-477-4420
Ireland -- +353-1-815-4000	United Kingdom -- +44-0870-550-0900
Italy -- +39-800-820-094	

Appendix C. Notices

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

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Chipkill	ThinkPad
EtherJet	Tivoli
e-business logo	Tivoli Enterprise
@server	Update Connector
FlashCopy	Wake on LAN
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NetView	xSeries
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Important notes

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

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

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

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

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

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

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

Product recycling and disposal

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

IBM encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. IBM offers a variety of programs and services to assist equipment owners in recycling their IT products. Information on product recycling offerings can be found on IBM's Internet site at http://www.ibm.com/ibm/environment/products/prp.shtml.

Battery return program

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

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

In the Netherlands, the following applies.
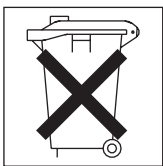
For Taiwan: Please recycle batteries.

Electronic emission notices

Federal Communications Commission (FCC) statement

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

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

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

Industry Canada Class A emission compliance statement

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

Avis de conformité à la réglementation d'Industrie Canada

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

Australia and New Zealand Class A statement

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

United Kingdom telecommunications safety requirement

Notice to Customers

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

European Union EMC Directive conformance statement

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

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22/European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

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

Taiwanese Class A warning statement

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

Chinese Class A warning statement

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

Japanese Voluntary Control Council for Interference (VCCI) statement

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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
02K0546	China
13F9940	Australia, Fiji, Kiribati, Nauru, New Zealand, Papua New Guinea
13F9979	Afghanistan, Albania, Algeria, Andorra, Angola, Armenia, Austria, Azerbaijan, Belarus, Belgium, Benin, Bosnia and Herzegovina, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo (Democratic Republic of), Congo (Republic of), Cote D'Ivoire (Ivory Coast), Croatia (Republic of), Czech Republic, Dahomey, Djibouti, Egypt, Equatorial Guinea, Eritrea, Estonia, Ethiopia, Finland, France, French Guyana, French Polynesia, Germany, Greece, Guadeloupe, Guinea, Guinea Bissau, Hungary, Iceland, Indonesia, Iran, Kazakhstan, Kyrgyzstan, Laos (People's Democratic Republic of), Latvia, Lebanon, Lithuania, Luxembourg, Macedonia (former Yugoslav Republic of), Madagascar, Mali, Martinique, Mauritania, Mauritius, Mayotte, Moldova (Republic of), Monaco, Mongolia, Morocco, Mozambique, Netherlands, New Caledonia, Niger, Norway, Poland, Portugal, Reunion, Romania, Russian Federation, Rwanda, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, Slovakia, Slovenia (Republic of), Somalia, Spain, Suriname, Sweden, Syrian Arab Republic, Tajikistan, Tahiti, Togo, Tunisia, Turkey, Turkmenistan, Ukraine, Upper Volta, Uzbekistan, Vanuatu, Vietnam, Wallis and Futuna, Yugoslavia (Federal Republic of), Zaire
13F9997	Denmark
14F0015	Bangladesh, Lesotho, Macao, Maldives, Namibia, Nepal, Pakistan, Samoa, South Africa, Sri Lanka, Swaziland, Uganda
14F0033	Abu Dhabi, Bahrain, Botswana, Brunei Darussalam, Channel Islands, China (Hong Kong S.A.R.), Cyprus, Dominica, Gambia, Ghana, Grenada, Iraq, Ireland, Jordan, Kenya, Kuwait, Liberia, Malawi, Malaysia, Malta, Myanmar (Burma), Nigeria, Oman, Polynesia, Qatar, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Seychelles, Sierra Leone, Singapore, Sudan, Tanzania (United Republic of), Trinidad and Tobago, United Arab Emirates (Dubai), United Kingdom, Yemen, Zambia, Zimbabwe
14F0051	Liechtenstein, Switzerland
14F0069	Chile, Italy, Libyan Arab Jamahiriya
14F0087	Israel

IBM power cord part number	Used in these countries and regions
1838574	Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, Bolivia, Brazil, Caicos Islands, Canada, Cayman Islands, Costa Rica, Colombia, Cuba, Dominican Republic, Ecuador, El Salvador, Guam, Guatemala, Haiti, Honduras, Jamaica, Japan, Mexico, Micronesia (Federal States of), Netherlands Antilles, Nicaragua, Panama, Peru, Philippines, Taiwan, United States of America, Venezuela
24P6858	Korea (Democratic People's Republic of), Korea (Republic of)
34G0232	Japan
36L8880	Argentina, Paraguay, Uruguay
49P2078	India
49P2110	Brazil
6952300	Antigua and Barbuda, Aruba, Bahamas, Barbados, Belize, Bermuda, Bolivia, Caicos Islands, Canada, Cayman Islands, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guam, Guatemala, Haiti, Honduras, Jamaica, Mexico, Micronesia (Federal States of), Netherlands Antilles, Nicaragua, Panama, Peru, Philippines, Saudi Arabia, Thailand, Taiwan, United States of America, Venezuela

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IBM ®

Part Number: 31R1074

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