

4.7GB SCSI-2 DVD-RAM Drive

Installation and Using Guide

Note

Before you install this product and use this information, be sure to read the product warranties and notices information included with the system unit in which you are installing the product.

First Edition (April 2001)

Before using this information and the product it supports, read the information in "Safety Information" on page v and "Appendix B. Notices" on page 25.

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Safety Information

DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

Before installing or removing signal cables, ensure that the power cables for the system unit and all attached devices are unplugged.

When adding or removing any additional devices to or from the system, ensure that the power cables for those devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.

Use one hand, when possible, to connect or disconnect signal cables to prevent a possible shock from touching two surfaces with different electrical potentials.

During an electrical storm, do not connect cables for display stations, printers, telephones, or station protectors for communications lines.

Laser Safety Information

CAUTION:

This product may contain a CD-ROM which is a class 1 laser product.

Laser Compliance

All Lasers are certified in the U.S. to conform to the requirements of DHHS 21 CFR Subchapter J for class 1 laser products. Outside the U.S., they are certified to be in compliance with the IEC 825 (first edition 1984) as a class 1 laser product. Consult the label on each part for laser certification numbers and approval information.

CAUTION:

All IBM laser modules are designed so that there is never any human access to laser radiation above a class 1 level during normal operation, user maintenance, or prescribed service conditions. Data processing environments can contain equipment transmitting on system links with laser modules that operate at greater than class 1 power levels. For this reason, never look into the end of an optical fiber cable or open receptacle. Only trained service personnel should perform the inspection or repair of optical fiber cable assemblies and receptacles.

Handling the 4.7GB SCSI-2 DVD-RAM Drive

Attention: Static electricity can damage your equipment. Leave the 4.7GB SCSI-2 DVD-RAM Drive in its bag until you are ready to install it in your system unit.

Electrostatic Discharge Protection

Take the following precautions whenever you handle the 4.7GB SCSI-2 DVD-RAM Drive or other static-sensitive devices:

- Use an anti-static wrist strap if you have one.
- Limit your movement. Movement can cause static electricity to build up around you.
- Hold the drive carefully by its frame or edges. Avoid touching solder joints, pins, or other printed circuitry.
- Do not place the drive on the system unit cover or on a metal table. If you must set it aside, put it back into its bag.
- Be very careful when you handle the drive during cold weather, as low humidity and heating increase static electricity.

About This Book

This book provides information about the 4.7GB SCSI-2 DVD-RAM Drive, and how to plan your SCSI device layout, set the SCSI address (also called a SCSI ID), as well as install and use the DVD-RAM drive. Use this book along with your specific system unit and operating system documentation.

ISO 9000

ISO 9000 registered quality systems were used in the development and manufacturing of this product.

Related Publications

Refer to your system unit and operating system documentation for information specific to your hardware and software configuration.

Trademarks and Acknowledgments

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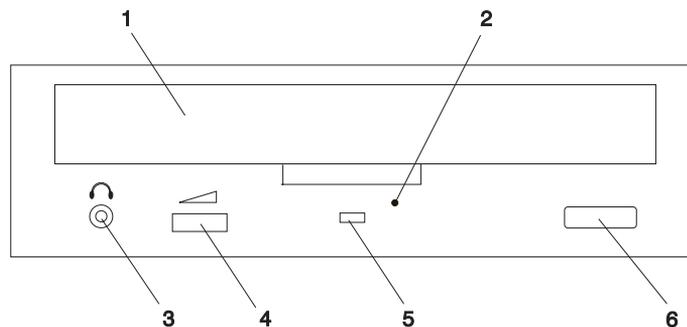
Other company, product, and service names may be trademarks or service marks of others.

Chapter 1. Overview

This chapter describes the features of the 4.7GB SCSI-2 DVD-RAM Drive. The DVD-RAM is a half-high, 5.25-inch, 8-bit, single-ended, tray-loading drive. Its distinctive features include the following:

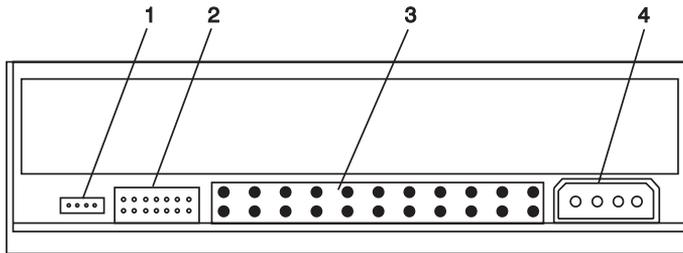
- SCSI-2 interface supports both synchronous and asynchronous data transfer
- DVD-RAM high-speed data transfer rate of 3600KB per second (24X) max at outer diameter due to constant RPM spin rate
- DVD-RAM high-speed data transfer rate of 2705KB per second (2X DVD)
- High-speed synchronous burst rate of 10MB per second
- Average random access time of 100ms for CD-ROM and 155ms for DVD-RAM
- Can be installed in either a vertical or horizontal orientation
- Loading tray accommodates 8cm discs (in the horizontal orientation only), 12cm discs (CD-ROM), and 4.7GB DVD cartridges
- Reads multi-session discs
- Reads CD-recordable discs
- Reads CD-RW discs
- Reads/writes 2.6GB, 4.7GB, and 9.4GB (double sided) DVD media
- Supports major CD-ROM formats: Mode 1, Mode 2 Form 1, and XA
- Contains headphone output and line output for audio

Front View of DVD-RAM Drive



- 1 CD/DVD Tray
- 2 Emergency Eject Hole
- 3 Headphone Jack
- 4 Volume Control
- 5 Status Light
- 6 Load/Unload Button

Rear View of DVD-RAM Drive



- 1 Audio Line Out Connector
- 2 Jumper Block and Pins
- 3 50-pin SCSI Interface Connector
- 4 Power Connector

Chapter 2. Preparing to Install the 4.7GB SCSI-2 DVD-RAM Drive

This chapter covers all the things you need to do before you install your 4.7GB SCSI-2 DVD-RAM Drive. Preparing to install the drive involves the following tasks:

- Verifying your hardware requirements
- Verifying your software requirements
- Making sure your package is complete
- Gathering tools and documentation
- Planning your SCSI device layout
- Determining your SCSI device address
- Setting the SCSI address

Verifying Your Hardware Requirements

The 4.7GB SCSI-2 DVD-RAM Drive requires the following hardware:

- An available bay large enough to hold a 5-1/4 inch half-high device
- A SCSI-2 adapter, which is either *built into* or *on a separate adapter card inside* your system unit
- A SCSI interface cable
- A 50- to 68-pin interposer

Verifying Your Software Requirements

The 4.7GB SCSI-2 DVD-RAM Drive is supported on AIX 4.3.3 operating system or later. Ensure that your operating system supports this DVD-RAM drive before you install it. Contact your support representative for assistance.

Checking Your Package

Check that your package contains the following items:

- The 4.7GB SCSI-2 DVD-RAM Drive
- Mounting screws
- A CD-ROM test disc
- A DVD-RAM test disc
- A 50- to 68-pin interposer
- A registration card
- 7 jumpers (included on the jumper block)
- Cleaning Kit

Contact the place of purchase if an item is missing or damaged.

Important: Be sure to retain your proof of purchase because it might be required to receive warranty service.

Gathering Tools and Documentation

To install the drive, you need the following items:

- A flat-blade screwdriver
- Your system unit documentation, including any service documentation
- Your operating system documentation

Planning Your SCSI Device Layout

SCSI devices include such hardware as disk drives, tape drives, CD-ROM drives, DVD-RAM drives, scanners, and printers. Some SCSI devices can be connected to or installed inside your system unit, while others can be installed externally. The devices are attached, in a daisy-chain configuration, to a SCSI adapter installed inside the system unit.

Each device in the chain has a unique SCSI address (also called a SCSI ID). When you connect more than one SCSI device, it is important that you plan the location and address of each device in the chain. You must also be sure to connect a terminator at each end of the chain. If you are using an internally connected device, the SCSI adapter provides the termination for that end. The last attached device must terminate the other end of the chain.

If your configuration includes both internal and external devices, you must connect a terminator to the last external device and terminate the internal SCSI cable. The adapter terminates one end of the chain, and the last device terminates the other end.

Determining Your SCSI Device Address

Before you install the 4.7GB SCSI-2 DVD-RAM Drive, you must set the SCSI address on the drive. First, you must determine which SCSI addresses are available to use. Then you choose an address and install jumpers on the drive to set the selected address. You can use any available SCSI address as long as no two SCSI devices on the same chain use the same address. No device can use address 7, which is reserved for the SCSI adapter.

SCSI addresses are in sequential order from highest to lowest priority. Refer to Table 1 below for the priority associated with each SCSI address. For optimum performance, choose the highest unused SCSI address between 6 and 0.

Note: Use only SCSI addresses 6 through 0 for this device.

Table 1. Data Access Priorities for SCSI Addresses

Priority	SCSI Address	SCSI Device Name
Highest Priority	7	Adapter
↓	6	
↓	5	
↓	4	

Table 1. Data Access Priorities for SCSI Addresses (continued)

Priority	SCSI Address	SCSI Device Name
↓	3	
↓	2	
↓	1	
Lowest Priority	0	

To find an available SCSI address on an AIX system, do the following:

1. At a system prompt, type:

```
lsdev -Cs scsi
```

Press Enter. Information similar to the following displays:

```
hdisk1 Available 00-01-00-1,0 1.0 GB SCSI Disk Drive
```

This information is interpreted as follows:

Column 1: device name (*hdisk1*)

Column 2: device status (*Available*)

Column 3: SCSI information (*00-01-00-1,0*)

Column 4: device type (*1.0 GB SCSI Disk Drive*)

In this example, the SCSI address for the device name (*hdisk1*) is 1 as shown in the 1,0 portion of the string in column 3. The 0 in the 1,0 portion of the string is the SCSI bus number for that device.

2. Find an available SCSI address for the DVD-RAM drive and choose the highest-priority unused address for yours. On Table 1, record the address you chose for your DVD-RAM drive, as well as the names and addresses of any other installed SCSI devices. Save this information for future reference.

Setting the SCSI Address

After you choose an available SCSI address for your DVD-RAM drive, you can install the jumpers on the drive to match the selected address. The SCSI address can be set from 0 to 6. Address 7 is reserved for the adapter. The 4.7GB SCSI-2 DVD-RAM Drive SCSI address is factory-set at 4. Refer to “Determining Your SCSI Device Address” on page 4 if you need instructions for selecting another SCSI address.

To set a SCSI address, you install jumpers onto pin positions 2, 3, and/or 4, located on the jumper block, to set each position to *On* or *Off*. (See Table 2 on page 6 below.) To set a position to *On*, insert a jumper onto both the top and bottom pins. To set a position to *Off*, insert the jumper onto the top pin only.

Note: Jumpers are also installed in other positions on the jumper block to enable or disable other functions.

Refer to the figure on page 7 and to Table 2 on page 6 below as you go through the following steps to set the SCSI address on this drive:

Attention: Be sure to read “Handling the 4.7GB SCSI-2 DVD-RAM Drive” on page vii before you begin.

1. Remove the drive from its bag.
2. Place the drive on top of the bag on a flat surface.
3. Refer to the figure on page 7. Locate pin positions **2**, **3**, and **4** on the drive. They are the first three positions on the left side of the jumper block as you view the drive from the back. The SCSI address is factory-set to 4.
4. Using Table 2 below as your guide, install jumpers in the correct positions to set the SCSI address you previously chose.

Table 2. SCSI Address Settings

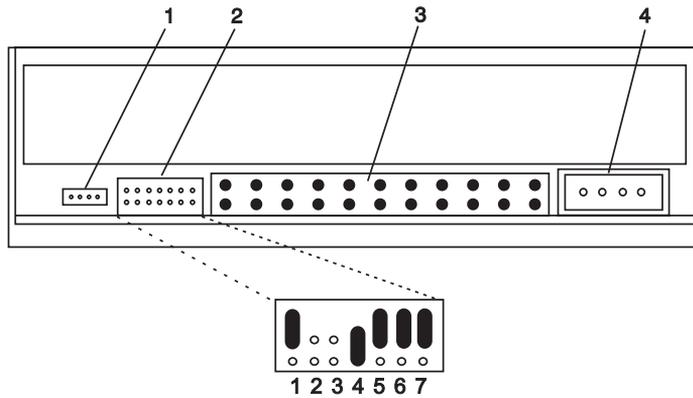
SCSI Address	Position 2	Position 3	Position 4
0	Off	Off	Off
1	On	Off	Off
2	Off	On	Off
3	On	On	Off
4	Off	Off	On
5	On	Off	On
6	Off	On	On

5. Make sure the jumper on position **1** is set to Off. This position does not enable or disable any function, and can be used as a spare jumper.
6. The jumper in position **5** should be set to Off. This position does not enable or disable any function, and can be used as a spare jumper.
7. Make sure the jumper in position **6** is set to Off. This disables the drive’s internal terminator power. Terminator power is provided by the system through the SCSI cable.
8. The jumper in position **7** should be set to Off. This position does not enable or disable any function, and can be used as a spare jumper.

You can remove spare jumpers and store them in a safe place or install them in the Off position on any unused pin position.

Rear View and Jumper Pin Positions on the 4.7GB SCSI-2 DVD-RAM Drive

The following figure shows the jumpers as they are set at the factory.



- 1 Audio Line Out Connector
- 2 Jumper Block and Jumper Pins
- 3 50-pin SCSI Interface Connector
- 4 Power Connector

Chapter 3. Installing the 4.7GB SCSI-2 DVD-RAM Drive

This chapter takes you through the steps of installing your 4.7GB SCSI-2 DVD-RAM Drive, which involves the following tasks:

Note: Make sure you have set the SCSI address. For more information, see “Setting the SCSI Address” on page 5.

- Installing the drive in your system unit
- Connecting the DVD-RAM drive
- Configuring the device driver software
- Verifying a successful installation

Installing and Connecting the 4.7GB SCSI-2 DVD-RAM Drive

After you set the SCSI address on your drive, you can install the drive into your system unit. The 4.7GB SCSI-2 DVD-RAM Drive must be installed into an available system unit bay and connected to a SCSI cable and power cable. Refer to “Rear View and Jumper Pin Positions on the 4.7GB SCSI-2 DVD-RAM Drive” on page 7 as you go through the following steps to install and connect the drive:

1. Follow your operating system instructions for shutting down your system, then turn off the power to your system unit. On an AIX system, type:

```
shutdown -F
```


at the system prompt, then press Enter. When halt completed displays, turn off the system unit power and unplug the power cord from the wall outlet.
2. Remove the covers of your system unit. Follow the instructions provided in your system unit documentation.
3. Install the drive in an available bay in your system unit. See the instructions in your system unit documentation for installing an internal device.

Note: Be sure to use the screws provided with this drive. Using the wrong size screws might cause damage to the drive.

4. Plug the 50- to 68-pin interposer into the SCSI interface connector located on the back of the drive.
5. Plug the SCSI interface cable into the 50- to 68-pin interposer located on the back of the drive.
6. Plug the power cable into the power connector located on the back of the drive.
7. If an audio card is installed in your system unit, plug the audio cable into the audio connector located on the back of the drive.
8. Follow the directions provided in your system unit documentation to reinstall the covers of your system unit.
9. Plug the power cord back into the wall outlet.
10. Turn on the power to your system unit so that the operating system can update the system configuration.

Save this book and store any extra parts in a safe place in case you ever change your configuration.

Configuring the 4.7GB SCSI-2 DVD-RAM Drive

To configure the DVD-RAM drive after installation, reboot your system unit. Device drivers are provided in AIX and other operating systems that support the 4.7GB SCSI-2 DVD-RAM Drive. Your operating system should recognize the drive and should automatically update your system unit configuration.

Verifying the Installation

See the instructions provided in your system unit documentation for verifying the successful installation of the drive. To verify the installation on an AIX system, type:

```
lsdev -Cs scsi
```

at the system prompt, then press Enter. A list of SCSI devices displays. An *Available* status indicates that the drive is installed and ready to use.

Chapter 4. Installing Device Drivers

Device driver software is provided in AIX and other operating systems that support this DVD-RAM drive. However, if you need to install device drivers, follow the installation procedures provided in your operating system documentation. This chapter provides instructions for installing device drivers on an AIX system.

Installing Device Drivers on an AIX System

To install device drivers:

1. At the system prompt, log in as a root user.
2. Insert the device driver media into the appropriate media device.
3. To start SMIT, type:

```
smit devinst
```

at the prompt, then press Enter. The Install Additional Device Software panel displays. The **INPUT device/directory for software** option is highlighted for selection.

4. Press F4 to display a list of input devices from which you can select. The cursor is already positioned on the input device entry field.
5. Either type the name of the input device in the entry field or select the appropriate device. Press Enter. The Install Additional Device Software panel displays the device you selected in the **INPUT device/directory for software** field. The **SOFTWARE to install** option is highlighted.
6. Press F4 to display a list of the device packages you can install.
7. To display the Find window, type:
/
in the field where the cursor is positioned.
8. Type the following device package name:
devices.scsi.disk.rte

Press Enter.
9. Press F7 to select the device package name, and press Enter. The Install Additional Device Software panel displays the completed required fields.
10. Press Enter. The **ARE YOU SURE** list displays.
11. Press Enter. The COMMAND STATUS panel displays. The term RUNNING is highlighted, indicating that the software is being installed and configured.
12. When RUNNING changes to OK, scroll down to the bottom of the panel and locate the Installation Summary. If the installation was successful, SUCCESS displays at the bottom of the panel in the Result column of the Installation Summary.
13. Remove the device driver software media from the media device.
14. Press F10 to exit SMIT.

15. To shut down and restart your system, type:
shutdown -Fr

Press Enter.

If you want to verify the installation, follow the steps provided in “Verifying the Installation” on page 10.

Chapter 5. Using the 4.7GB SCSI-2 DVD-RAM Drive

This chapter provides instructions for handling the 4.7GB SCSI-2 DVD-RAM Drive, as well as CD-ROM discs and DVD-RAM cartridges. Using the 4.7GB SCSI-2 DVD-RAM Drive involves the following tasks:

- Understanding the status lights
- Handling compact discs
- Loading a compact disc horizontally
- Loading a compact disc vertically
- Loading a DVD-RAM cartridge horizontally
- Loading a DVD-RAM cartridge vertically
- Opening the tray manually
- Playing an audio CD

Understanding the Status Lights

The status lights provide information about the operational status of the drive. The various conditions are explained below.

If light is:	Condition is:
Off	Drive is in standby mode with or without a disc loaded.
Blinking (Green)	Any of the following: <ul style="list-style-type: none">• Drive tray is inserted. The light blinks while the drive completes the initialization checkout.• Drive is reading data. The light blinks initially while data is being read, and then turns off.• Drive is in Play Audio Mode. The light blinks initially while the audio is playing, and then turns off.
Blinking (Amber)	Hardware error condition found during initialization or operation. <ul style="list-style-type: none">• Three consecutive blinks per second indicates Defect Management Area problem.• Two consecutive blinks per second indicates dirty lens or media.• One blink per second indicates internal device temperature is abnormally high.

Note: If any of these warning conditions occur, contact your service representative.

Maintaining the DVD-RAM Drive

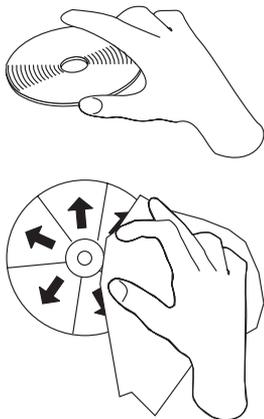
When this device is used for an extended period of time, it is possible that dust, etc., will accumulate on the lens portion of the optic head and on the surface of the media, making normal operation impossible. Although the proper frequency for cleanings depend on the environment and the conditions under which the device is used, the device should be cleaned once every one to four months, using a cleaning kit (sold separately – IBM PN 19P0489 -- CD/DVD Disc and Lens Cleaner).

Other Handling Considerations

Be sure to take the following additional precautions when you use the DVD-RAM drive:

1. Remove compact discs and DVD-RAM cartridges from the tray before you move the drive anywhere.
2. Do not place the drive where any of the following conditions exist:
 - High temperature
 - High humidity
 - Excessive dust
 - Excessive vibration or sudden shock
 - Inclined surface
 - Direct sunlight
3. Do not insert foreign objects into the drive.
4. Do not stack objects on the drive.
5. Do not remove the drive covers or attempt to service the drive yourself.

Handling Compact Discs



Compact discs are high-density media that must be handled with care and kept clean to ensure that they remain readable. Use the following precautions to ensure reliability:

- Hold the compact disc by the edges. Do not touch the surface of the compact disc.

- To remove dust or fingerprints, wipe the compact disc from the center to the outside of the compact disc, as shown.

Attention: Wiping the compact disc in a circular direction can cause loss of data.

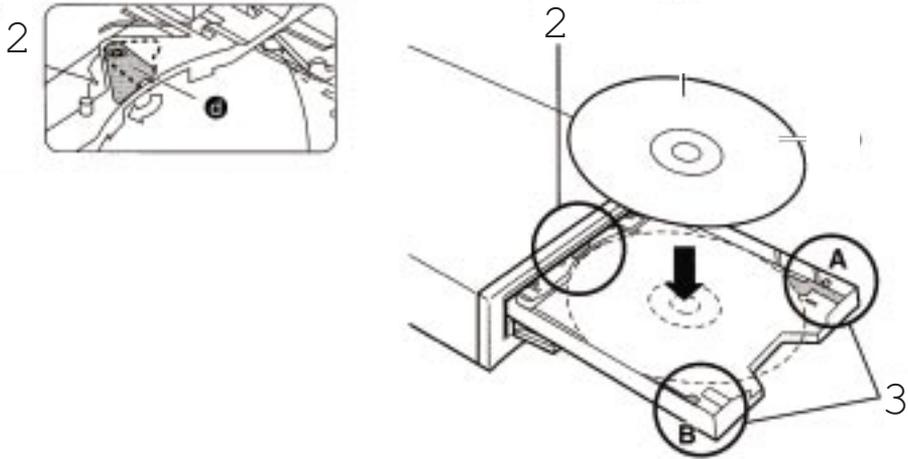
- Do not write on the surface.
- Do not store or place the compact disc in direct sunlight.
- Do not use benzene, thinners, or other cleaners to clean the compact disc.
- Do not drop or bend the compact disc.
- Do not store or place the compact disc in a dirty or dusty environment, or in a humid or hot location.
- Do not attempt to re-use labels.
- Store discs in their case when they are not in use.

Handling DVD-RAM Cartridges

There are two types of DVD-RAM disc cartridges: Type I and Type II. The disc of a Type II cartridge can be removed, while a Type I disc cannot. While a Type II disc is removed, it can only be read, not written. Furthermore, when a Type II disc is reinstalled in the cartridge, the device always writes on that disc in verify mode, regardless of the actual settings.

Note that if a Type II DVD-RAM disc becomes dirty or scratched and is then returned to its cartridge, the writing performance when using that disc may deteriorate, become unwritable, or even become unreadable in some cases.

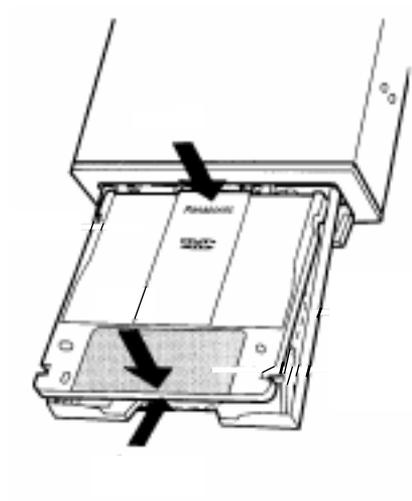
Loading a Compact Disc Horizontally



To load a compact disc into a horizontally mounted drive, do the following:

1. Press the Load/Unload button to open the tray. The tray slides out of the drive.
2. Fold away the stopper (D) at the back of the tray.
3. Lower disc holder A and B so that they are the same height as the tray.
4. Place the compact disc in the tray with the label facing up. The disc must fit inside the tray's disc guides (12cm and 8cm) for the DVD-RAM drive to be able to read the disc.
5. To close the tray, press the Load/Unload button, or gently push the tray in.

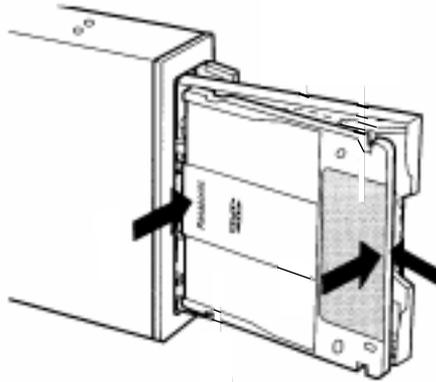
Loading a DVD-RAM Cartridge Horizontally



To load a DVD-RAM cartridge into a horizontally mounted drive, do the following:

1. Press the Load/Unload button to open the tray. The tray slides out of the drive.
2. Insert the DVD-RAM cartridge so that the label side of the shutter is facing up.
3. Push the DVD-RAM cartridge about 2cm toward the DVD-RAM drive.
4. Press gently on the shutter label so the DVD-RAM cartridge sits securely in the tray.
5. To close the tray, press the Load/Unload button, or gently push the tray in.

Loading a DVD-RAM Cartridge Vertically



Note: The DVD-RAM drive must be in the horizontal position if you are using an 8cm disc.

To load a DVD-RAM cartridge into a vertically mounted drive, do the following:

1. Press the Load/Unload button to open the tray. The tray slides out of the drive.
2. Insert the DVD-RAM cartridge so that the label-side of the shutter is facing up.
3. Push the DVD-RAM cartridge about 2cm toward the DVD-RAM drive.
4. Press gently on the shutter label so that the DVD-RAM cartridge sits firmly on the tray.
5. To close the tray, press the Load/Unload button, or gently push the tray in.

Note: Do not extend the two upper retaining tabs when you operate the drive in the vertical position.

Opening the Tray Manually

The tray should automatically open when you press the Load/Unload button. If it does not automatically open, follow these steps to force it open manually:

1. Shut down and turn off the power to your system unit.
2. Insert the straightened end of a paper clip into the emergency eject hole until you feel some resistance. See “Front View of DVD-RAM Drive” on page 1 if you are not sure where the emergency eject hole is located.
3. Continue to push in the paper clip while you pull out the tray with your fingernail.
4. Pull the tray completely open and remove the disc. It is normal for the tray to make a clicking sound while you are pulling it open.

Playing an Audio CD

To play an audio CD, you must either have headphones connected to the headphone jack located on the front of the drive or an audio card connected to the line out connector located on the back of the drive. You must also have an audio software application installed.

The headphone jack provides the connection for headphones using a 3.5mm (1/8-inch) stereo mini-plug. The volume control adjusts the audio output level for the headphones.

Appendix A. Communications Statements

The following statement applies to this product. The statement for other products intended for use with this product appears in their accompanying documentation.

Federal Communications Commission (FCC) Statement

Note: The 4.7GB SCSI-2 DVD-RAM Drive has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an authorized dealer or service representative for help.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Proper cables and connectors are available from authorized dealers. Neither the provider nor the manufacturer are 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.

Responsible Party:

- International Business Machines Corporation
- New Orchard Road
- Armonk, New York 10504
- Telephone: (919) 543-2193



European Union (EU) 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. The manufacturer cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of option cards supplied by third parties. Consult with your dealer or sales representative for details on your specific hardware.

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

International Electrotechnical Commission (IEC) Statement

This product has been designed and built to comply with IEC Standard 950.

United Kingdom Telecommunications Safety Requirements

This equipment is manufactured to the International Safety Standard EN60950 and as such is approved in the UK under the General Approval Number NS/G/1234/J/100003 for indirect connection to the public telecommunication network.

The network adapter interfaces housed within this equipment are approved separately, each one having its own independent approval number. These interface adapters, supplied by the manufacturer, do not use or contain excessive voltages. An excessive voltage is one which exceeds 70.7 V peak ac or 120 V dc. They interface with this equipment using Safe Extra Low Voltages only. In order to maintain the separate (independent) approval of the manufacturer's adapters, it is essential that other optional cards, not supplied by the manufacturer, do not use main voltages or any other excessive voltages. Seek advice from a competent engineer before installing other adapters not supplied by the manufacturer.

Avis de conformité aux normes du ministère des Communications du Canada

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

Canadian Department of Communications Compliance Statement

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

VCCI Statement

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

The following is a summary of the VCCI Japanese statement in the box above.

This product is a Class B Information Technology Equipment and conforms to the standards set by the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). This product is aimed to be used in a domestic environment. When used near a radio or TV receiver, it may become the cause of radio interference. Read the instructions for correct handling.

Radio Protection for Germany

Dieses Gerät ist berechtigt in Übereinstimmung mit dem deutschen EMVG vom 9.Nov.92 das EG-Konformitätszeichen zu führen.

Der Aussteller der Konformitätserklärung ist die IBM Germany.

Dieses Gerät erfüllt die Bedingungen der EN 55022 Klasse B.

Appendix B. Notices

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

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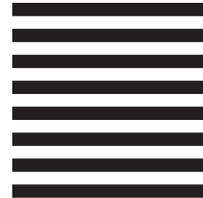
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