

Power Systems

*Managing devices for the 8231-E2B,  
8231-E1C, 8231-E1D, 8231-E2C,  
8231-E2D, or 8268-E1D*

**IBM**



Power Systems

*Managing devices for the 8231-E2B,  
8231-E1C, 8231-E1D, 8231-E2C,  
8231-E2D, or 8268-E1D*

**IBM**

**Note**

Before using this information and the product it supports, read the information in “Safety notices” on page v, “Notices” on page 47, the *IBM Systems Safety Notices* manual, G229-9054, and the *IBM Environmental Notices and User Guide*, Z125-5823.

This edition applies to IBM Power Systems™ servers that contain the POWER7 processor and to all associated models.

© Copyright IBM Corporation 2010, 2014.

US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

---

# Contents

<b>Safety notices</b>	<b>v</b>
<b>Managing devices for the 8231-E2B, 8231-E1C, 8231-E1D, 8231-E2C, 8231-E2D, or 8268-E1D</b>	<b>1</b>
Managing tape drives	1
Tape drives	1
Tape drive media	3
Preparing the tape drive for installation	8
80/160 GB DAT160 SAS tape drive (FC 1124)	8
Cleaning the tape drive (FC 1124)	9
Loading and unloading tape cartridges	11
Loading a tape cartridge	11
Unloading a tape cartridge	11
Setting the write-protect switch (FC 1124)	11
Status lights (FC 1124)	12
Tape cartridges (FC 1124)	14
Resetting the tape drive	15
Managing DVD drives	15
SATA Slimline DVD-RAM Drive (FC 5762)	15
SATA Slimline DVD-RAM Drive (FC 5771)	15
Handling and storing the DVD media	16
Opening a DVD tray manually	17
DVD-RAM type II disc	17
Managing diskette drives	18
External USB 1.44 MB diskette drive (FC 2591)	18
Managing disk devices	19
Managing removable disk drives	19
RDX USB Internal Dock (1103, 1123, EU03, and EU23) and RDX Removable Disk Drives (1106, 1107, EU01, EU08 and EU15)	20
RDX USB External Dock (1104 and EU04) and RDX Removable Disk Drives (1106, 1107, EU01, EU08, and EU15)	25
Managing communications devices	30
LAN-Attached Remote Asynchronous Node 16 (model 7036-P16)	30
7036-P16 description and overview	30
Installing 7036-P16 hardware	32
Installing Digi RealPort software for the 7036-P16 device	33
Configuring the 7036-P16 device and tty	35
Configuring the 7036-P16 into the network	38
Using diagnostic aids for the 7036-P16	40
Replacing and reconfiguring the 7036-P16	42
Field replacement units for the 7036-P16	45
<b>Notices</b>	<b>47</b>
Trademarks	48
Electronic emission notices	48
Class A Notices	48
Class B Notices	52
Terms and conditions	55



---

## Safety notices

Safety notices may be printed throughout this guide:

- **DANGER** notices call attention to a situation that is potentially lethal or extremely hazardous to people.
- **CAUTION** notices call attention to a situation that is potentially hazardous to people because of some existing condition.
- **Attention** notices call attention to the possibility of damage to a program, device, system, or data.

### World Trade safety information

Several countries require the safety information contained in product publications to be presented in their national languages. If this requirement applies to your country, safety information documentation is included in the publications package (such as in printed documentation, on DVD, or as part of the product) shipped with the product. The documentation contains the safety information in your national language with references to the U.S. English source. Before using a U.S. English publication to install, operate, or service this product, you must first become familiar with the related safety information documentation. You should also refer to the safety information documentation any time you do not clearly understand any safety information in the U.S. English publications.

Replacement or additional copies of safety information documentation can be obtained by calling the IBM Hotline at 1-800-300-8751.

### German safety information

Das Produkt ist nicht für den Einsatz an Bildschirmarbeitsplätzen im Sinne § 2 der Bildschirmarbeitsverordnung geeignet.

### Laser safety information

IBM® servers can use I/O cards or features that are fiber-optic based and that utilize lasers or LEDs.

### Laser compliance

IBM servers may be installed inside or outside of an IT equipment rack.

## DANGER

When working on or around the system, observe the following precautions:

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- Connect power to this unit only with the IBM provided power cord. Do not use the IBM provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
- Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.
- Connect any equipment that will be attached to this product to properly wired outlets.
- 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 procedures when installing, moving, or opening covers on this product or attached devices.

To Disconnect:

1. Turn off everything (unless instructed otherwise).
2. Remove the power cords from the outlets.
3. Remove the signal cables from the connectors.
4. Remove all cables from the devices.

To Connect:

1. Turn off everything (unless instructed otherwise).
2. Attach all cables to the devices.
3. Attach the signal cables to the connectors.
4. Attach the power cords to the outlets.
5. Turn on the devices.

(D005)

## DANGER



Observe the following precautions when working on or around your IT rack system:

- Heavy equipment—personal injury or equipment damage might result if mishandled.
- Always lower the leveling pads on the rack cabinet.
- Always install stabilizer brackets on the rack cabinet.
- To avoid hazardous conditions due to uneven mechanical loading, always install the heaviest devices in the bottom of the rack cabinet. Always install servers and optional devices starting from the bottom of the rack cabinet.
- Rack-mounted devices are not to be used as shelves or work spaces. Do not place objects on top of rack-mounted devices.



- Each rack cabinet might have more than one power cord. Be sure to disconnect all power cords in the rack cabinet when directed to disconnect power during servicing.
- Connect all devices installed in a rack cabinet to power devices installed in the same rack cabinet. Do not plug a power cord from a device installed in one rack cabinet into a power device installed in a different rack cabinet.
- An electrical outlet that is not correctly wired could place hazardous voltage on the 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.

#### CAUTION

- Do not install a unit in a rack where the internal rack ambient temperatures will exceed the manufacturer's recommended ambient temperature for all your rack-mounted devices.
- Do not install a unit in a rack where the air flow is compromised. Ensure that air flow is not blocked or reduced on any side, front, or back of a unit used for air flow through the unit.
- Consideration should be given to the connection of the equipment to the supply circuit so that overloading of the circuits does not compromise the supply wiring or overcurrent protection. To provide the correct power connection to a rack, refer to the rating labels located on the equipment in the rack to determine the total power requirement of the supply circuit.
- *(For sliding drawers.)* Do not pull out or install any drawer or feature if the rack stabilizer brackets are not attached to the rack. Do not pull out more than one drawer at a time. The rack might become unstable if you pull out more than one drawer at a time.
- *(For fixed drawers.)* This drawer is a fixed drawer and must not be moved for servicing unless specified by the manufacturer. Attempting to move the drawer partially or completely out of the rack might cause the rack to become unstable or cause the drawer to fall out of the rack.

(R001)

**CAUTION:**

Removing components from the upper positions in the rack cabinet improves rack stability during relocation. Follow these general guidelines whenever you relocate a populated rack cabinet within a room or building:

- Reduce the weight of the rack cabinet by removing equipment starting at the top of the rack cabinet. When possible, restore the rack cabinet to the configuration of the rack cabinet as you received it. If this configuration is not known, you must observe the following precautions:
  - Remove all devices in the 32U position and above.
  - Ensure that the heaviest devices are installed in the bottom of the rack cabinet.
  - Ensure that there are no empty U-levels between devices installed in the rack cabinet below the 32U level.
- If the rack cabinet you are relocating is part of a suite of rack cabinets, detach the rack cabinet from the suite.
- Inspect the route that you plan to take to eliminate potential hazards.
- Verify that the route that you choose can support the weight of the loaded rack cabinet. Refer to the documentation that comes with your rack cabinet for the weight of a loaded rack cabinet.
- Verify that all door openings are at least 760 x 230 mm (30 x 80 in.).
- Ensure that all devices, shelves, drawers, doors, and cables are secure.
- Ensure that the four leveling pads are raised to their highest position.
- Ensure that there is no stabilizer bracket installed on the rack cabinet during movement.
- Do not use a ramp inclined at more than 10 degrees.
- When the rack cabinet is in the new location, complete the following steps:
  - Lower the four leveling pads.
  - Install stabilizer brackets on the rack cabinet.
  - If you removed any devices from the rack cabinet, repopulate the rack cabinet from the lowest position to the highest position.
- If a long-distance relocation is required, restore the rack cabinet to the configuration of the rack cabinet as you received it. Pack the rack cabinet in the original packaging material, or equivalent. Also lower the leveling pads to raise the casters off of the pallet and bolt the rack cabinet to the pallet.

(R002)

(L001)



(L002)



(L003)



or



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 IEC 60825 as a class 1 laser product. Consult the label on each part for laser certification numbers and approval information.

**CAUTION:**

This product might contain one or more of the following devices: CD-ROM drive, DVD-ROM drive, DVD-RAM drive, or laser module, which are Class 1 laser products. Note the following information:

- Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.
- Use of the controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.

(C026)

**CAUTION:**

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. (C027)

**CAUTION:**

This product contains a Class 1M laser. Do not view directly with optical instruments. (C028)

**CAUTION:**

Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following information: laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam. (C030)

**CAUTION:**

The battery contains lithium. To avoid possible explosion, do not burn or charge the battery.

*Do Not:*

- \_\_\_ Throw or immerse into water
- \_\_\_ Heat to more than 100°C (212°F)
- \_\_\_ Repair or disassemble

Exchange only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations. In the United States, IBM has a process for the collection of this battery. For information, call 1-800-426-4333. Have the IBM part number for the battery unit available when you call. (C003)

## **Power and cabling information for NEBS (Network Equipment-Building System) GR-1089-CORE**

The following comments apply to the IBM servers that have been designated as conforming to NEBS (Network Equipment-Building System) GR-1089-CORE:

The equipment is suitable for installation in the following:

- Network telecommunications facilities
- Locations where the NEC (National Electrical Code) applies

The intrabuilding ports of this equipment are suitable for connection to intrabuilding or unexposed wiring or cabling only. The intrabuilding ports of this equipment *must not* be metallically connected to the interfaces that connect to the OSP (outside plant) or its wiring. These interfaces are designed for use as intrabuilding interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE) and require isolation from the exposed OSP cabling. The addition of primary protectors is not sufficient protection to connect these interfaces metallically to OSP wiring.

**Note:** All Ethernet cables must be shielded and grounded at both ends.

The ac-powered system does not require the use of an external surge protection device (SPD).

The dc-powered system employs an isolated DC return (DC-I) design. The DC battery return terminal *shall not* be connected to the chassis or frame ground.

---

## Managing devices for the 8231-E2B, 8231-E1C, 8231-E1D, 8231-E2C, 8231-E2D, or 8268-E1D

Learn about managing media and communications devices.

The topic contains reference information that information technology (IT) personnel and service representatives can use to learn about using and managing removable media devices and communications devices. You can also find specifications and installation notes for the specific devices.

**Note:** The following features are the electromagnetic compatibility (EMC) Class B features. See the EMC Class B Notices in the Hardware Notices section.

- 80/160 GB DAT160 SAS Tape Drive (FC 1124)
- SATA Slimline DVD-RAM drive (FC 5762)
- SATA Slimline DVD-RAM Drive (FC 5771)
- Internal 3.5 in. RDX USB 3.0 Dock (EU23)
- RDX USB 2.0 External Dock (1104)
- RDX USB External Dock (EU04)
- RDX Removable Disk Drives (1106, 1107, EU01, EU08, and EU15)

### Related concepts:

“Class B Notices” on page 52

### Related information:



Adapters, Devices, and Cable Information for Multiple Bus Systems (SA38-0516)

Learn about earlier media and communications devices that are not covered in Managing devices, and that were available before October 2003.

---

## Managing tape drives

Learn about using and managing removable media devices. Find specifications and installation notes for specific drives.

### Tape drives

Learn general information about tape drives.

Select the appropriate information from this list:

- Tape drive overview
- Tape drive environment and use
- Tape handling and storage
- Environmental issues
- Tape drive cleaning
- SCSI hardware issues
- Microcode updates

### Tape drive overview

Your tape drive must be installed in the cleanest possible environment. Additionally, tape drives require high quality, data grade tapes and cleaning on a regular basis. Media must also be stored and handled properly. Improper use, storage or handling of tape drives or media may void your warranty or service

agreement. If a tape drive stops functioning due to a component failure during the tape drive warranty or maintenance time, the tape drive supplier will replace the tape drive unit. The tape drive supplier will replace any defective tape drive under the terms and conditions of the warranty or service agreement.

The tape drive is a streaming device used primarily for:

- Saving and restoring system data files
- Archiving important records
- Distributing operating system software upgrades

**Note:** The following information describes hardware features and functions. While the hardware supports them, the availability of these features and functions depends upon support from the operating system. For information about support for features and functions, see the documentation for your operating system.

## Tape drive environment and use

Tape drives require specific maintenance and environmental conditions to operate well over time. Using high-quality, data-grade media, handling and storing this media correctly, operating the tape drive in a clean environment, and keeping the tape drive correctly cleaned can help you to avoid problems with your tape drive.

If a tape drive stops functioning due to a component failure during the tape drive warranty or maintenance time, the service provider will replace the tape drive unit. The service provider will replace any defective tape drive under the terms and conditions of its warranty or service agreement. It is the service provider's objective to work with you to identify the cause of any tape-drive problem and provide a solution.

## Tape handling and storage

Most tape is supplied in a sealed cartridge so that the tape will remain clean. Opening the cartridge allows dirt and airborne particles to enter and then become a source of contamination. The cartridge should only be opened by the tape drive and not an operator. The tape also is held under proper tension inside the cartridge. If the cartridge is dropped, this tension will be relaxed.

**Attention:** Inserting a dropped cartridge into a tape drive can cause incorrect loading and result in a jam. This action will ruin the tape and can cause physical damage if the cartridge is not removed correctly.

When the tapes are stored, they must be replaced in their protective containers and stored on their end. The storage area must be clean, dry, at normal room temperature, and away from any magnetic fields. Improper use, storage, or handling of tape drives or media might void your warranty or service agreement.

## Environmental issues

Tape drives are designed to operate in a clean environment. Problems can be caused by dirt, dust, fibers, and airborne particles. Airborne particles are the most difficult to address. When a tape is installed into the tape drive, the clearance between the heads and the tape is measured in microns. Particles can damage the tape or the head if they come in contact with either. Customers are responsible to provide a clean operating environment for the tape drive and system.

## Tape drive cleaning

No matter how clean the environment, debris can build up on the heads of any tape drive. Every time tape motion occurs, some of the media surface comes off on the heads. Over time, this surface builds up

and causes errors in reading and writing. Customers are responsible to clean the tape drive in accordance with the cleaning information that was provided with the tape drive.

Cleaning cartridges can be used a limited number of times. After a cleaning cartridge has been used to its maximum number of times, the cartridge is considered expired. When cartridges expire, they must be replaced. Never reuse an expired cleaning cartridge. Doing so allows previously removed dirt to be reintroduced to the tape drive. Place a mark on the cleaning cartridge after each use, to best determine when your cleaning cartridge has expired.

## SCSI hardware issues

**Note:** If you are installing the auto-docking version of this device on your system, this section does not apply to your system. For information about the auto-docking feature, see your system documentation.

SCSI bus cables and terminators can affect tape drive performance. Use cables and terminators that are designed specifically to keep the SCSI bus as free of noise as possible. Generic cables or terminators can adversely affect the SCSI bus performance. If your service provider's analysis indicates a problem with inferior cables, it might be necessary for the customer to replace them.

## Microcode updates

To make certain that the tape drives work their best, your system supplier might release changed microcode for the tape drives. When a microcode change is developed, your system supplier makes the change available to you through its service organization or by electronic delivery. You might be responsible for installing new microcode as it becomes available. However, microcode can be installed by your service provider or your system administrator. For more information, contact your authorized service provider.

## Tape drive media

Learn about using the different types of tape drive media.

**Attention:** Your system supplier might support only the media that it sells. If the supplier's analysis indicates that the problem is caused by using inferior media, it is the customer's responsibility to replace the inferior media.

Select the appropriate information from this list:

- Types of cartridges
- Recommendations for data cartridge usage
- Prolonging head life
- Storage and shipping environments
- Tape cartridge storage
- Operating in harsh environments
- Ordering tape and data cartridges

## Types of cartridges

Tape devices use the following media cartridges.

### Data cartridge

Use the data cartridge to save or restore programs or data.

### Test cartridge

Use the specially labeled test cartridge to run the AIX® system diagnostics (for information about running diagnostics, refer to your AIX documentation). Do not use the test cartridge to save or restore customer programs or data.

## Cleaning cartridge

Use the specially labeled cleaning cartridge to clean the device.

**Attention:** Use of other than the IBM specified cleaning cartridge can damage your device and might void your warranty.

To order additional cartridges, refer to Ordering tape cartridges.

## Recommendations for data cartridge usage

The following list describes recommended guidelines that will help to protect your data and prolong the life of your tape cartridges and the device:

- Use only the tape cartridge specified for your type of tape device.
- Remove the tape cartridge from the drive when the drive is not in use.
- Back up and then discard any tape cartridge that repeatedly produces error messages (the error information is in the System Error Log).
- On the data cartridge, do not open the door that covers the tape. The door protects the tape from dirt, dust, and damage.
- Do not touch the tape. Any substance transferred to the tape by touching could cause loss of data.
- To avoid problems with loading and unloading, use only one label on a cartridge. Multiple or poorly placed labels can clog the drive load mechanism.
- Do not use poor-quality tape cartridges. They can cause excessive read or write errors, and they might damage the tape drive.
- Discard any tape cartridges that are dropped, because the impact might damage the tape's internal mechanism.
- Make sure the environment is kept clean and constant. Do not operate in a dusty environment and always maintain a constant environment. A consistent storage and operating environment reduces media exposure to climatic stress.
- Use only the recommended cleaning cartridge to clean the tape drive. Use of other than recommended cleaning cartridges can damage your drive and might void the warranty.
- Printers and copiers can produce paper dust and toner dust. Locate the tape unit away from these items. High traffic areas near hallways and doors can also produce excess dust and dirt.
- Record all important information on the tape label. Information, such as the model and number of the system or tape drive, the date, the density, any error statistics, and include a log number. Also note the operating environment and compression mode.

## Prolonging head life

New technology found in the tape device is read and write compatible with newer tape cartridges. Due to media characteristics, extended use of older tape cartridges might increase head wear on the drive. An indication of this head wear is an increase in soft (recoverable) errors. Using newer tape cartridges may have enhanced characteristics that can reduce drive head wear and maximize the overall advantages of the tape device.

## Storage and shipping environments

Before using a tape cartridge, let it acclimatize to the operating environment by placing the cartridge in the operating environment for as long as it has been away from the environment or for 24 hours, whichever is less. Acclimatization is necessary for any data cartridge exposed to an environmental change in humidity or to temperature changes of 11°C (20°F) or more. To determine the appropriate operating environment, see Tape drive environment and use.



Retrieval of archived data can be performed on a tape unit that is clean and fully operational. Try to make the recovery environment the same as the operating environment. Allow tapes at least 24 hours to acclimatize to the environment of the tape unit.

The recommended environment for storage and shipment of cartridges is shown in Table 1.

*Table 1. Recommended environment for data cartridges*

Environmental Factor	Storage	Shipping
Temperature	5°C - 32°C (41°F - 90°F)	-40 - 52°C (-40 - 125°F)
Relative Humidity (noncondensing)	20% - 60%	5% - 80%
Maximum Wet Bulb	26°C (79°F)	26°C (79°F)

## Tape cartridge storage

Tape drives record data using densities similar to hard disk drives. Because most computer systems are not located in a dust-free, climate-controlled environment, you must exercise special care when dealing with tape cartridges and tape drives. They must be treated as a valuable asset used to protect your business data.

Use the following guidelines for storing your tape cartridges:

- Keep temperature and humidity constant at the levels listed in Table 1.
- Always store tape cartridges in their protective cases. The storage case helps prevent damage from dust and physical misuse. When the tape cartridges are not in use or being stored, keep them in their storage cases and stand on edge in a designated storage location. Do not stack cartridges on the flat side or stack other items on top of the tape cartridges. Handle your tape cartridges with care to reduce archival problems.
- Keep protective cases for tape cartridges closed except when inserting or removing a cartridge. Contamination can build up and be transferred to the tape cartridge if the protective case is left open.
- Exercise stored tapes at least once every 12 months. Run the tape from Beginning of Data (BOD) to End of Data (EOD) and back to BOD at normal operating speeds. Exercise tapes stored in a warmer environment more frequently.
- Sunlight can damage the tape and the cartridge shell. Store tape cartridges out of the direct sunlight.

**Attention:** Operation outside of the recommended environment can result in possible loss of data or failure of the drive.

## Operating in harsh environments


The device is suited to streaming operations, as opposed to multiple stop-and-start, random-search tape operations. When the tape is used for frequent stop-and-start operations, it is beneficial to still have as much streaming movement as possible. This can be accomplished by ensuring that any save or restore operation is the only active operation being performed.

Do not use any tape for archival purposes if it has been used outside of the ranges specified in Table 1 for an extended period of time. The magnetic and physical strength of the tape will have deteriorated as a result of its exposure to the environment. Do not store important data on such a tape; transfer the data to a newer tape for reliable archiving.

## Ordering tape and data cartridges

All tape cartridges are not alike. The tape composition and length, and the construction of the cartridge itself can all affect the quality and capacity of the recording and the performance of your tape drive. A poor quality tape cartridge might appear to work adequately in your system, yet it can leave contamination in the tape path or impede the speed of the recording.

The length and composition of the tape, and the size, shape, and construction of the cartridge shell must all be considered when selecting the tape cartridge to be used with your system. IBM supports using only data and cleaning cartridges supplied by IBM. Use only data-grade tape media for backup and data processing.

To order cartridges in the United States and Canada, call 1-888-IBM-MEDIA, or go to [Storage media](#) .

To order cartridges in other locations, contact your local provider of IBM storage products.

*Table 2. Recommended test, cleaning, and 4mm data cartridges for the specific type of tape drive*

Tape drive	Part number	Type of cartridge	Capacity
DDS3	59H3466	Test Cartridge	11.5m
	21F8763	Cleaning Cartridge	50 cleanings
	59H3465	Data Cartridge	12 GB
DDS4	59H4457	Test Cartridge	11.5m
	21F8763	Cleaning Cartridge	50 cleanings
	59H4458	Data Cartridge	20 GB
DAT72	59H4457	Test Cartridge	11.5m
	21F8763	Cleaning Cartridge	50 cleanings
	18P7912	Data Cartridge	36 GB
DAT160	23R5636	Test Cartridge	155m
	23R5638	Cleaning Cartridge	25 cleanings (minimum)
	23R5635	Data Cartridge	80 GB
DAT320	46C1938	Test Cartridge	153m
	46C1937	Cleaning Cartridge	27 cleanings (minimum)
			50 cleanings (average)
			70 cleaning (maximum)
46C1936	Data Cartridge	160 GB	

*Table 3. Recommended 8-mm data cartridges*

Part number	Type of cartridge	Length
35L1044	20 GB AME with SmartClean Data Cartridge	75 m (246 ft)
09L5323	40 GB AME with SmartClean Data Cartridge	150 m (492 ft)
18P6484	60 GB AME with SmartClean Data Cartridge	225 m (738 ft)
35L1409	Cleaning Cartridge	

Table 4. Recommended VXA X-type data cartridges

Part number	Type of cartridge	Length
24R2137	80/160 GB X23 VXA Data Cartridge	230 m (754 ft)
24R2136	40/80 GB X10* VXA Data Cartridge	124 m (406 ft)
24R2134	20/40 GB X6* VXA Data Cartridge	62 m (203 ft)
24R2135	VXA X6* Test Cartridge	62 m (203 ft)
24R2138	VXA 20 X Cleaning Cartridge	

**Note:** \*X type media requires a minimum microcode level of 2105.

Table 5. Recommended VXA V Type data cartridges

Part number	Type of cartridge	Length
19P4876	80/160 GB V23 VXA Data Cartridge	230 m (754 ft)
24R2136	40/80 GB V10 VXA Data Cartridge	124 m (406 ft)
19P4878	20/40 GB V6 VXA Data Cartridge	62 m (203 ft)
19P4879	VXA V6 Test Cartridge	62 m (203 ft)
19P4880	VXA 20 V Cleaning Cartridge	

**Note:** V cartridges are the original VXA cartridge.

Table 6. LTO Ultrium data cartridges

Part number	Type of cartridge	Length
08L9120	100/200GB LTO Ultrium 1 Data Cartridge	610 m (2000 ft )
08L9870	200/400GB LTO Ultrium 2 Data Cartridge	610 m (2000 ft )
24R1922	LTO-3 Data Cartridge (400GB/800GB)	
96P1203	LTO-3 Worm Data Cartridge	
95P4436	LTO-4 Data Cartridge (800GB/1.6TB)	
95P4450	LTO-4 Worm Data Cartridge	
45E1129	LTO-4 Test Cartridge	
24R0395	LTO Gen-2 Test Cartridge	610 m (2000 ft )
35L2086	Universal Cleaning Cartridge	
46X1290	LTO-5 Data Cartridge( 1.5 TB / 3.0 TB) Write/Read	
46C2009	LTO-5 Test Cartridge( 1.5 TB / 3.0 TB) Write/Read	
46X1292	LTO-5 Worm Data Cartridge Write 1x/Read many	

Table 7. RDX data cartridges

Feature code	IBM part number	Type of cartridge
1106	46C5375	160 GB RDX Removable Hard Disk Cartridge
EU08	46C5377	320 GB RDX Removable Hard Disk Cartridge

Table 7. RDX data cartridges (continued)

Feature code	IBM part number	Type of cartridge
1107	46C5379	500 GB RDX Removable Hard Disk Cartridge
EU01	46C2335	1 TB RDX Removable Hard Disk Cartridge
EU15	46C2831	1.5 TB RDX Removable Hard Disk Cartridge

## Preparing the tape drive for installation

Find what you need to know before you install a SCSI tape drive.

### Handling recommendations

**Attention:** Be sure to read these instructions before you remove the device from its anti-static bag or any time you handle it.

For optimum performance, always follow these recommendations:

- Handle the drive carefully and by its external metal chassis. Keep your hands away from the printed circuit boards, components, and printed circuit (flex) cables.
- If possible, work on a cushioned surface, and do not drop the device onto the work surface.
- If you move the device to an environment that is colder or warmer than its previous environment, keep the drive in its package and allow the package to reach the current room temperature. This action prevents potential data loss or damage to the device. Allow one hour of acclimatization for each 10 degrees C (18 degrees F) difference between the ship or storage temperature and the room temperature.

**Note:** If you are installing the auto-docking version of this device on your system, the remainder of this information does not apply to your system. For information about the auto-docking feature, see your system documentation.

### Planning your serial-attached SCSI (SAS) device layout

SAS devices do not require you to set a SCSI address before connecting to a SAS bus.

### Configuring the tape drive

To configure the drive after installation, boot your system unit. Device drivers are provided in the operating systems that support the drive. Your operating system recognizes the drive and automatically updates your system unit configuration.

### Updating microcode levels




Media devices contain microcode that you can update. For instructions about how to obtain and install the latest microcode levels for your device, go to Fix Central.

## 80/160 GB DAT160 SAS tape drive (FC 1124)

Learn about the features of this media device.

The 80/160 GB DAT160 SAS tape drive (FC 1124) information applies only to an 8231-E2B, 8231-E1C, 8231-E1D, 8231-E2C, 8231-E2D, or 8268-E1D system. For an 8231-E2B system, the FC 1124 requires FC 5263, DASD/Media backplane - 3 SFF DASD/SATA DVD/HHTape.

Table 8. 80/160 GB DAT160 SAS tape drive

Feature	Description
<b>Description</b>	<p>The 80/160 GB DAT160 SAS tape drive is a 3.5-inch, half-high, SAS drive, which provides a high capacity for save/restore and achieve functions. To see an illustration of this drive, see Figure 1 on page 12. This tape drive uses IBM DAT160, 4 mm data cartridges and is compression capable, providing a capacity of up to 160 GB with 2:1 compression ratio.</p> <p>Characteristics:</p> <ul style="list-style-type: none"> <li>• FRU part number: 46C2215 or 46C2691</li> <li>• Custom card identification number (CCIN): 63A0</li> <li>• Media part numbers: see Tape cartridges</li> <li>• Capacity: 80 GB native mode, 160 GB (typical) compression mode</li> <li>• Form factor: 3.5-inch half high</li> <li>• Media: DAT160, DAT72, and DDS4 media</li> <li>• Technology: helical scan, rotating head</li> <li>• Operation: streaming</li> <li>• Data transfer rate: 6 MBps native mode, 12 MBps (typical) compression</li> <li>• Interface: integrated, internal SAS</li> <li>• Compatibility: DDS4 (read/write), DAT72 (read/write), and DAT160 (read/write)</li> <li>• Attributes provided: 4 mm tape capability, test cartridge, cleaning cartridge, and a data cartridge</li> <li>• Attributes required: One 1.6-inch (41 mm) half-high media bay and one integrated, internal SAS</li> </ul>
<b>Tools</b>	<p>The following tools and documentation are needed to complete the installation:</p> <ul style="list-style-type: none"> <li>• A flat-blade screwdriver (if this device is not an auto-docking feature on your system)</li> <li>• Your system unit documentation, including any service documentation</li> <li>• Your operating system documentation</li> </ul> <p>Contact the place of purchase if an item is missing or damaged.  <b>Note:</b> If you are installing the auto-docking version of this device on your system, see your system documentation for information about the auto-docking feature.</p>
<b>Media</b>	<p>This tape drive uses 4 mm data cartridges for saving and restoring system data. It is designed to use only DDS (Digital Data Storage) data cartridges. The cartridges are identified by one of the following DDS symbols:</p> <div style="text-align: center;">  <span style="font-size: small;">Or</span>  <span style="font-size: small;">Or</span>  </div> <p>The tape drive reads and writes data to tape cartridges that are in the DDS4, DAT72, or DAT160 format.</p>
<b>Related information</b>	<p>Your package contains the following items:</p> <ul style="list-style-type: none"> <li>• The tape drive</li> <li>• Media kit containing: <ul style="list-style-type: none"> <li>– One cleaning cartridge</li> <li>– One test tape</li> </ul> </li> <li>• Specific hardware for attaching the drive to your specific system, as detailed on the parts listing provided with your drive.</li> </ul>

### Cleaning the tape drive (FC 1124)

You will need to clean your tape drive. Use the procedure in this topic to perform this task.

Clean the device whenever the Fault status light comes on or a system I/O error related to the device occurs.

**Attention:** Use only the recommended cleaning cartridge to clean the tape drive. Use of other than recommended cleaning cartridges can damage your drive and might void the warranty. The cleaning cartridge for this drive is P/N 23R5638. The cartridge is physically larger than previous cleaning cartridges and it is the only cleaning cartridge that can be used in this drive. The older, narrower cleaning cartridges do not work in the 1124 tape drive and are ejected from the drive without cleaning the drive.

The tape drive will turn on the cleaning indicator for the following reasons:

- The tape drive exceeds internal preset error thresholds in the drive.
- A cleaning cartridge that has been used the maximum number of times is inserted in the drive. The cleaning indicator is turned on to indicate that the cleaning process was not done and the cleaning cartridge is no longer usable.
- The tape drive exceeds the maximum recommended time between cleaning.

The maximum recommended time between preventive-maintenance cleaning is 50 tape motion hours. Tape motion hours are defined as the time that the tape drive is moving tape. If the tape drive reaches 50 tape motion hours since the tape drive was last cleaned, the drive will turn on the cleaning required LED to indicate the drive needs cleaning. The tape drive will continue to operate but the tape drive should be cleaned at the next opportunity to insert a cleaning cartridge.

**Note:** Operating the tape drive in a low-humidity environment causes the drive to request cleaning more often than in normal humidity environment. In extreme low-humidity conditions of less than 15% relative humidity, the tape drive might request cleaning every 10 tape motion hours or even more frequently. For this reason, it is best not to use the tape drive in extremely low-humidity environments.

To clean the tape drive, complete the following steps:

1. Make sure that the power is on for the tape drive.
2. If a tape cartridge is in the tape drive, eject and remove the cartridge.
3. Grasp the cleaning cartridge by the outer edges, with the window-side up and the write-protect switch facing you.
4. Slide the cartridge into the opening on the front of the drive until the loading mechanism pulls the cartridge into the drive and the drive door closes.

After the cleaning cartridge has been inserted, the remainder of the cleaning process is automatic. The tape drive does the following actions:

- Loads the cleaning cartridge into the tape drive.
- Cleans the drive by moving the cleaning tape forward for approximately 30 seconds.
- Unloads the cleaning cartridge when the cleaning operation is complete.
- Indicates a successful cleaning operation by turning off the Cleaning status light (if the Cleaning light was on prior to the cleaning process. Otherwise, the Cleaning light remains solid to indicate that the cleaning cartridge is no longer usable. Obtain a new cleaning cartridge and repeat the process.)

**Note:** If the cleaning operation completes but the Cleaning light remains on, repeat the cleaning procedure with a new cleaning cartridge. If the light still remain on, contact your authorized service representative.

If you attempt to use a depleted cleaning cartridge, the drive automatically detects the error and ejects the cartridge. If the Cleaning status light was on prior to the cleaning process, it stays on; if the Cleaning light was off, the depleted cartridge causes the light to come on.

If a system error occurs, clean the drive and retry the operation. If the operation fails, replace the data cartridge, clean the drive again, then retry the operation.

## Loading and unloading tape cartridges

Learn about loading and unloading tape cartridges from this drive.

To avoid problems with loading and unloading tape cartridges use only one label on a cartridge. If the tape cartridge has too many labels or poorly placed labels, the drive-load mechanism might clog.

### Loading a tape cartridge:

To load a tape cartridge, complete the following steps:

1. Make sure that the tape device power is on.
2. Grasp the tape cartridge by the outer edges, with the window side up and the write-protect switch facing you.

**Note:** Make sure that the write-protect switch is correctly set.

3. Slide the tape cartridge into the opening on the front of the device until the loading mechanism pulls the tape cartridge into the drive and the drive door closes.

To indicate that the load operation was successful, the ready status light comes on.

### Unloading a tape cartridge:

To unload a tape cartridge, complete the following steps:

1. Make sure that the tape device power is on.
2. Press the Unload button. The device rewinds, unloads, and ejects the tape cartridge.

The process might take from 15 seconds to several minutes, depending on the position of the tape and the amount of data written. During this task, the status lights do the following sequence:

- The ready status light turns off.
- The activity status light flashes during the unload operation.
- The activity status light turns off when the cartridge is ejected from the tape drive.

**Attention:** An emergency eject and reset feature can be used to release the tape cartridge and to reset the drive. Use the emergency eject feature if the cartridge does not move correctly or if the unload process fails. The emergency eject and reset feature procedure might result in loss of data. To perform an emergency eject operation of the tape cartridge or a reset operation of the drive, press and hold the Unload button for at least 10 seconds. If a cartridge is in the drive, the cartridge automatically ejects without rewinding the tape.

## Setting the write-protect switch (FC 1124)

You might need to set the write-protect switch on the media. Use the information in this topic to perform this task.

**Attention:** Do not attempt to change the write-protect settings after the tape cartridge is loaded in the drive, because this might cause unpredictable results, and might damage the tape or the drive.

The position of the write-protect switch on the tape cartridge determines when you can write to the tape.

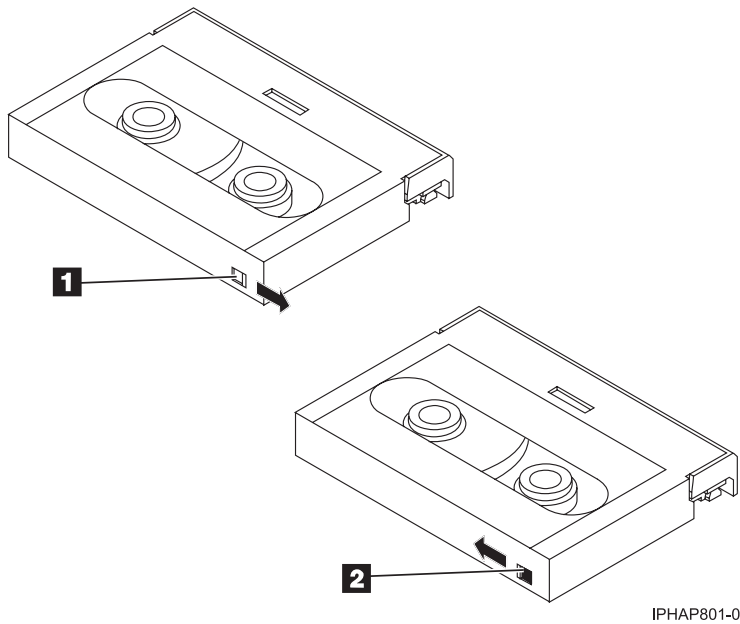


Table 9. Index number and corresponding description for the front view of the drive

Index	Description
<b>1</b>	When the switch is set to the right, data can be written to and read from the tape.
<b>2</b>	When the switch is set to the left, data can only be read.

### Status lights (FC 1124)

You might need to read the status lights on your tape drive to determine the operating status of the drive. Use the information in this topic to perform this task.

The following illustration is a front view of the tape drive:

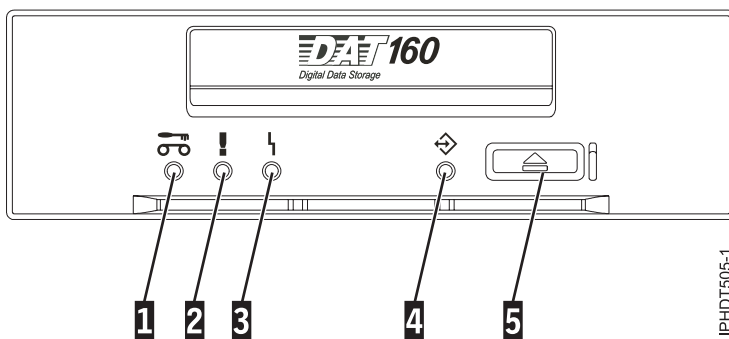


Figure 1. Front view of tape drive

Table 10. Index number and corresponding description for the front view of the drive

Index number	Description
<b>1</b>	Cleaning LED (amber)
<b>2</b>	Media fault LED (amber)
<b>3</b>	Drive fault LED (amber)



Table 10. Index number and corresponding description for the front view of the drive (continued)

Index number	Description
<b>4</b>	Ready/Activity LED (green)
<b>5</b>	Unload/Reset button

The combinations of the lights and their definitions are shown in the following table.

Table 11. Definition of status light combinations









Activity	Cleaning (amber) 	Media fault (amber) 	Drive fault (amber) 	Ready/Activity (green) 
Power on LED test (2.0 seconds)	On	On	On	On
Power on self-test (POST) activity	Off	Off	Off	Flashing
POST failed	Off	Off	Flashing	Off
POST passed	On <sup>1</sup> or off	Off	Off	Off
Data cartridge loading	On <sup>1</sup> or off	Off	Off	Flashing
Data cartridge loaded, no activity	On <sup>1</sup> or off	On <sup>2</sup> or off	Flashing <sup>3</sup> or off	On
Data cartridge loaded, activity	On <sup>1</sup> or off	On <sup>2</sup> or off	Flashing <sup>3</sup> or off	Flashing
Data cartridge unloading	On <sup>1</sup> or off	On <sup>2</sup> or off	Flashing <sup>3</sup> or off	Flashing
Data cartridge ejected	On <sup>1</sup> or off	On or off	Flashing <sup>3</sup> or off	Off
Cleaning cartridge loaded, activity	On	Off	Flashing <sup>3</sup> or off	Flashing
Cleaning succeeded, cleaning cartridge ejected	Off	Off	Flashing <sup>3</sup> or off	Off
Cleaning failed, cleaning cartridge ejected	On <sup>1</sup>	On	Flashing <sup>3</sup> or off	Off
Unrecoverable drive failure <sup>4</sup>	On <sup>1</sup> or off	On or off	Flashing	Flashing
Unrecoverable media failure <sup>4</sup>	On <sup>1</sup>	On	Off	Flashing, on, or off
Firmware download: download and reprogram	Flashing	Off	Off	Flashing
Firmware download: possible unload	See Data cartridge unloading			
Firmware download: reset in 1 second	On	On	On	On
Firmware download: self-test	See Power on self-test activity, and then see either POST passed or POST failed.			

Table 11. Definition of status light combinations (continued)

Activity	Cleaning (amber) 	Media fault (amber) 	Drive fault (amber) 	Ready/Activity (green) 
Firmware download reprogram failure	Off	Off	Flashing	Off
SCSI diagnostics test in progress	See Data cartridge loaded, activity			
SCSI diagnostics test passed	See Data cartridge loaded, no activity			
SCSI diagnostics test failed, tape ejected	On	On	On	Flashing
	After data cartridge ejects, see Data cartridge ejected.			
Tape diagnostics test in progress	See Data cartridge loading and then:			
	Flashing	Off	Off	Flashing
Tape diagnostics test passed, tape ejected	Off	Off	Off	Flashing
	After data cartridge ejects, see Data cartridge ejected.			
Tape diagnostics test failed, tape ejected	On	On	On	Flashing
	After data cartridge ejects, see Data cartridge ejected.			
<p><sup>1</sup> A solid amber Cleaning LED indicates that the drive needs cleaning. The drive will continue to function but needs cleaning as soon as possible. Do not ignore the indicator by cycling the power to turn it off.</p> <p><sup>2</sup> The media has reached the end of its useful life and should be replaced. Any data should be copied to a new cartridge as soon as possible.</p> <p><sup>3</sup> Flashing in this state indicates a problem with write/read performance.</p> <p><sup>4</sup> An unrecoverable drive failure is an error condition that results in the drive not being able to function unless initiator, operator, or service intervention is applied. An unrecoverable drive failure is usually the result of a hardware error condition. One of the following actions is needed to clear the flashing fault LED:</p> <ul style="list-style-type: none"> <li>• Hard SCSI reset</li> <li>• Cartridge emergency eject</li> <li>• Power cycle</li> <li>• Retry firmware download</li> </ul> <p>An unrecoverable media failure is usually the result of a defective cartridge, media, or cartridge state, and will require the drive to eject the cartridge (if possible) to clear the On LED.</p>				

## Tape cartridges (FC 1124)

Learn about the types of tape cartridges that are available for this drive.

### Available tape cartridges

Table 12. 4 mm data cartridges

IBM part number	Type of cartridge
23R5635 (cartridge feature code 5689)	DAT160 80 GB Data Cartridge
23R5636	4 mm Test Cartridge
23R5638	4 mm Cleaning Cartridge

Most bulk eraser devices do not have the capability to erase the 4 mm data cartridge.

## Resetting the tape drive

You might need to reset your tape drive. Use the procedure in this topic to perform this task.

Use this information to reset your tape drive, without affecting server operation. Allow up to 2 minutes for the entire tape drive process to complete.

**Attention:** Resetting a tape drive before the current backup operation has completed can cause loss of customer data.

To reset the tape drive, complete the following steps:

1. Press and hold the eject button for 20 seconds, and then release the button. The LEDs on the drive flash while the reset function is in process.
2. After the LEDs stop flashing, wait approximately one minute for the drive to complete the reset operation. The drive is then ready to use.

---

## Managing DVD drives

Learn about using and managing removable media devices. Find specifications and installation notes for specific drives.

### SATA Slimline DVD-RAM Drive (FC 5762)

Learn about the specifications of this DVD-RAM drive.

The serial advanced technology attachment (SATA) Slimline DVD-RAM Drive is an internal, low profile DVD-RAM drive that is capable of reading and writing 4.7 GB DVD-RAM discs, as well as reading a multitude of other optical media discs. This drive also reads type II (removable from cartridge) DVD-RAM discs. System boot and installation functions are supported with CD-ROM and DVD-RAM media.

#### Specifications

- FRU part number: 44V4220
- Custom card identification number (CCIN): 6331 model 004
- Media:
  - Reads CD-ROM, CD-R, CD-RW, DVD-ROM, and DVD-RAM discs
  - Writes 4.7 GB DVD-RAM discs
- Interface: SATA
- Connector: Slimline SATA
- Connector: SATA
- Loading tray: supports 12 cm and 8 cm discs
- Operating positions: vertical or horizontal (8 cm discs require horizontal operation)
- Form factor: 12.7 mm Slimline
- DVD video: not supported
- AIX 5.1 only reads CD-type formatted DVD media
- Requirements: 1 Slimline media bay

### SATA Slimline DVD-RAM Drive (FC 5771)

Learn about the specifications of this DVD-RAM drive.

The serial advanced technology attachment (SATA) Slimline DVD-RAM Drive is an internal, low profile DVD-RAM drive that is capable of reading and writing 4.7 GB DVD-RAM discs, as well as reading a

multitude of other optical media discs. This drive also reads type II (removable from cartridge) DVD-RAM discs. System boot and installation functions are supported with CD-ROM and DVD-RAM media.

## Specifications

- FRU part number: 74Y7341
- Custom card identification number (CCIN): 6331 model 004
- Media:
  - Reads CD-ROM, CD-R, CD-RW, DVD-ROM, and DVD-RAM discs
  - Writes 4.7 GB DVD-RAM discs
- Interface: SATA
- Connector: Slimline SATA
- Connector: SATA
- Loading tray: supports 12 cm and 8 cm discs
- Operating positions: vertical or horizontal (8 cm discs require horizontal operation)
- Form factor: 12.7 mm Slimline
- DVD video: not supported
- AIX 5.1 only reads CD-type formatted DVD media
- Requirements: 1 Slimline media bay

## Handling and storing the DVD media

Learn how to handle and store the DVD media.

DVD media must be handled with care. Leaving the media exposed allows dirt particles to accumulate and to become a source of contamination. Handling the DVD media with care reduces errors and improves the performance.

### Restrictions on using DVD media

#### Correct ways to handle DVD media:

1. Handle media by the outer edge or the center hole.
2. Store media in jewel cases specified for DVDs.
3. Return media to storage cases immediately after use to minimize the effects of environmental changes.
4. Store media in a cool, dry environment in which the air is clean.
5. Remove dirt, foreign materials, fingerprints, smudges, and liquids by wiping with a clean cotton fabric in a straight line from the center of the disc toward the outer edge.
6. Check the media surface before recording.

#### Incorrect ways to handle DVD media:

1. Touch the surface of the media.
2. Bend the media.
3. Use adhesive labels on the media.
4. Expose media to extreme heat or high humidity.
5. Expose media to prolonged sunlight or other sources of ultraviolet light.
6. Write or mark in the data area of the media.
7. Clean by wiping in a circular direction going around the disc.

## Opening a DVD tray manually

Under usual conditions, the tray automatically opens when you press the Load/Unload button. If it does not automatically open, you can use the emergency eject feature to open the tray manually.

Follow these steps to manually open the tray:

1. Follow your operating system instructions for shutting down your system, then turn off the power to your system unit. Unplug the power cord from the wall outlet.
2. Insert the straightened end of a paper clip into the emergency eject hole until you feel some resistance.
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 usual for the tray to make a clicking sound while you are pulling it open.

## DVD-RAM type II disc

The DVD-RAM type II disc can be removed from its cartridge and played in a DVD-ROM or DVD-RAM drive that is compatible with the DVD-RAM type II disc.

**Attention:** Be careful when handling removed discs. Debris, dust particles, fingerprints, smears, or scratches can affect recording and playback of discs. Do not use solvents to clean disc surfaces. To clean a disc, use a soft, lint free cloth and gently wipe the disc surface outwards from the center hole to the outer edge. Do not rub, make circular motions or try to follow the circular lines in the disc. When labeling a disc, write only on the printed label side, using a soft felt-tip marker. Do not use a hard-tip pen to write on disc surface. Keep out of direct sunlight, high temperatures, and humidity. Do not attach labels to either side of the disc.

## Removing a disc from the cartridge

To remove a disc from the cartridge, do the following steps:

**Note:** Handle the disc only by its edges.

1. Use the tip of a ballpoint pen to push the locking pin up and out of the disc cartridge.
2. Use the tip of a ballpoint pen to push down on the lock button while pulling the cartridge lid open.
3. With the cartridge lid open, slide the disc out of the cartridge.

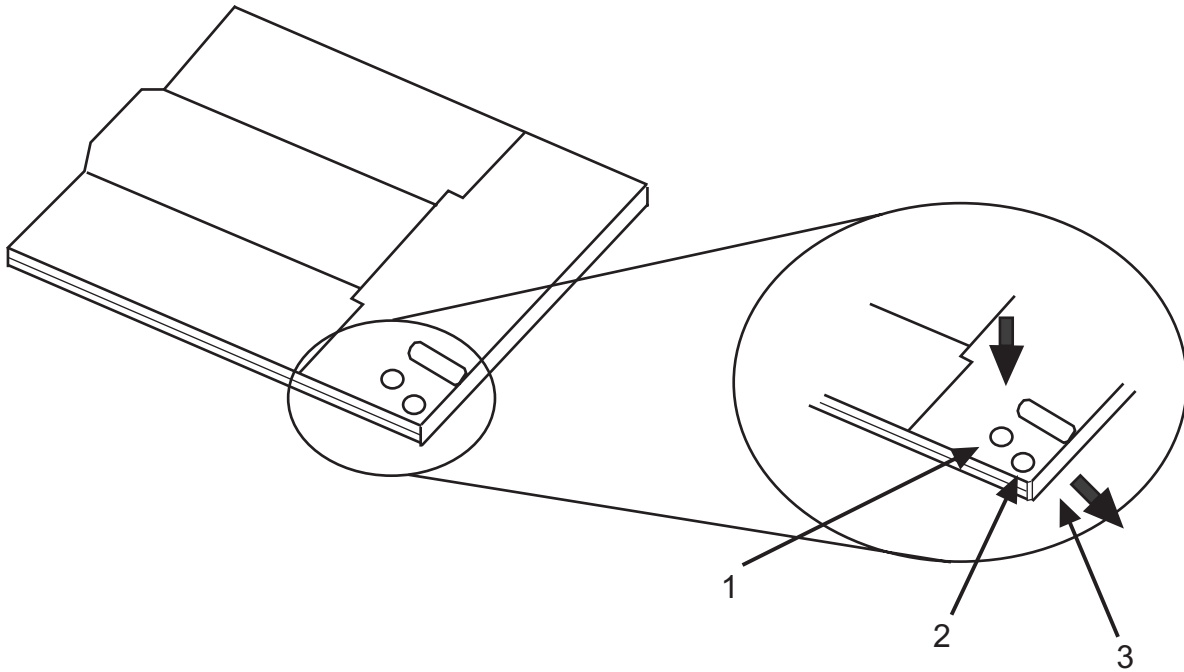


Table 13. Index number and corresponding description for removing a disc from the cartridge

Index number	Description
1	Locking Pin
2	Lock Button
3	Cartridge Lid

## Returning a disc to the cartridge

To return a disc to the cartridge, do the following steps:

**Notes:** Both the disc label and the cartridge label should be facing up. Handle the disc only by its edges.

1. Slide the disc into the cartridge.
2. Close the cartridge lid. Make sure the lock button snaps into position.
3. Install the locking pin.

---

## Managing diskette drives

Learn about the features of specific diskette drives.

### External USB 1.44 MB diskette drive (FC 2591)

Learn about the features of this media device.

The following provides information about the external USB 1.44 MB diskette drive.

Table 14. External USB 1.44 MB diskette drive features

Feature	Description
<b>Installation and removal</b>	<p>To install this external USB 1.44 MB diskette drive, complete the following steps:</p> <ol style="list-style-type: none"> <li>1. Unpack the device and ensure you have all the cables and parts.</li> <li>2. Connect the USB cables to an available USB port on the system unit.</li> <li>3. Wait for the system to recognize the new device (approximately 1-3 minutes).</li> </ol> <p>To remove this external USB 1.44 MB diskette drive, complete the following steps:</p> <ol style="list-style-type: none"> <li>1. Ensure you complete any processes running from or to the diskette drive.</li> <li>2. Eject any diskette you have in the device.</li> <li>3. Disconnect the device from the system unit.</li> </ol> <p>If you are installing this device on a system or partition running any other operating system, see the documentation for that operating system.</p>
<b>Description</b>	<p>The externally attached USB diskette drive provides storage capacity up to 1.44 MB on a high-density (2HD) diskette and 720 KB on a double-density diskette. Includes 350mm (13.7 in) captured cable with standard USB connector.</p> <p>Limitations:</p> <ul style="list-style-type: none"> <li>• Maximum 1 USB diskette per adapter</li> <li>• Up to 1 Keyboard and Mouse also supported on the adapter with the diskette drive at the same time</li> <li>• No system boot capability</li> <li>• Not to be operated upside down or with eject button down</li> </ul> <p>Characteristics:</p> <ul style="list-style-type: none"> <li>• FRU part number: 033P3339</li> <li>• Capacity - 1.44 MB (2HD disk) or 720 KB (double-density disk)</li> <li>• Physical Dimensions: Width=103mm (4.05 in), Height=17.6mm (.69 in), Depth=141.8-mm (5.58 in)</li> <li>• Color: Black</li> <li>• Data Rate: 12 Mbits/sec</li> <li>• Maximum Power Consumption: 2.36 Watt (seek)</li> <li>• Operates in all positions except those noted in the preceding limitations</li> <li>• Attributes provided: External diskette drive</li> <li>• Attributes required: 1 available USB port</li> </ul>

---

## Managing disk devices

Find information about managing disk devices.

To learn about managing disk devices for the AIX operating system, see Logical Volume Manager and `manage_disk_drivers` Command.

To learn about managing disk devices for the Linux operating system, see Linux Logical Volume Manager.

---

## Managing removable disk drives

Learn about using and managing removable disk drives. Find specifications and installation notes for specific drives.

## RDX USB Internal Dock (1103, 1123, EU03, and EU23) and RDX Removable Disk Drives (1106, 1107, EU01, EU08 and EU15)

Learn about the features of this drive.

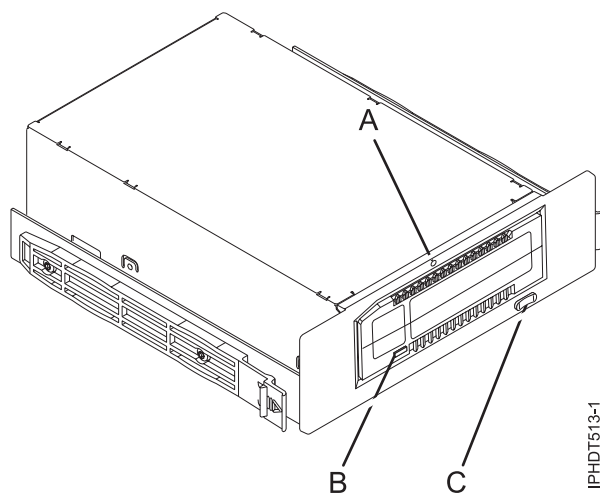
### Description

The feature code (FC) 1123 and FC EU23 information applies only to an 8231-E2B, 8231-E1C, 8231-E1D, 8231-E2C, 8231-E2D, or 8268-E1D system.

The FC 1103 and FC EU03 information applies only to an 8202-E4B, 8202-E4C, 8202-E4D, 8205-E6B, 8205-E6C, or 8205-E6D system.

The USB Removable Disk Drive consists of a docking station, which holds a removable disk drive. The docking station is available as an internal or external device. The disk drive is a backup and restore device that can be used as an alternative to tape drives. The removable disk drive is not a replacement for regular disk drives and cannot be used as part of a disk array. The following illustrations show the internal drives.

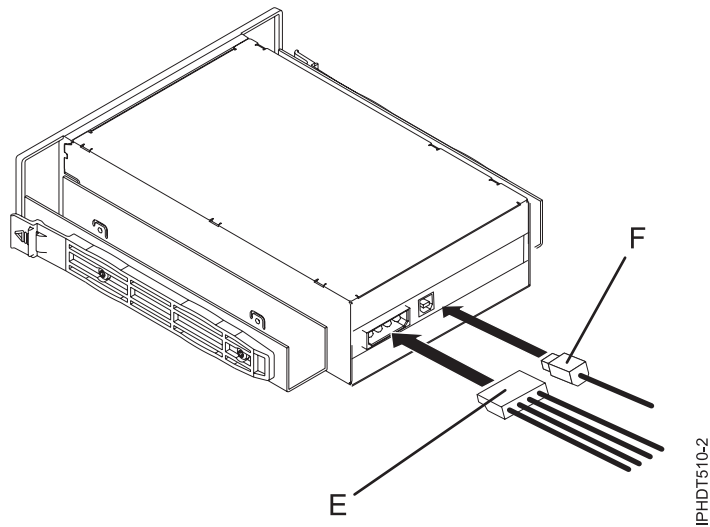
Figure 2. Internal drive, front view



- A Emergency eject hole
- B Cartridge indicator light
- C Eject button and power indicator light

Figure 3. Rear view and connectors on the internal drive





E Power connector

F USB connector

## Feature codes and part numbers

Learn about the feature codes (FCs) and part numbers for the USB Removable Disk Drive.

### FC 1103 - USB Internal Docking Station for Removable Disk Drive

FC 1103 uses an internal USB cable to connect to the internal USB media device connector on the system backplane of a system that supports this feature. The internal USB media device cable and power cable are included in the feature code.

FC 1103 provides the following parts:

- 46C5370 (FRU: 46C5380) - USB Internal docking station
- 46K7435 - Internal USB media device cable (12 inch)
- 46K7434 - Internal power cable (11 inch) with right angle power connector
- 44V3429 - Two drive slide assembly rails
- 1621187 - Four flat blade screws

### FC 1123 - USB Internal Docking Station for Removable Disk Drive

FC 1123 uses an internal USB cable to connect to the internal USB media device connector on the system backplane of a system that supports this feature. The internal USB media device cable and power cable are included in the feature code.

FC 1123 provides the following parts:

- 46C2425 (FRU: 46C2217) - Internal 3.5" RDX USB Dock
- 46K5031 - Internal USB media device cable (12 inch)
- 46K5032 - Internal power cable (11 inch)

Requires FC 5263

DASD/Media Backplane - 3 SFF DASD/SATA DVD/HHTape. The FC 5263 is supported on the 8231-E2B system.

**Note:** A single mounting clip (74Y5182) is provided with the system and is not part of this FC 5263.

### FC EU03 - USB Internal Docking Station for Removable Disk Drive

FC EU03 uses an internal USB cable to connect to the internal USB media device connector on the system backplane of a system that supports this feature. The internal USB media device cable and power cable are included in the feature code.

FC EU03 provides the following parts:

- 46C2332 (FRU: 46C2346) - Internal RDX USB 3.0 Dock
- 46K7435 - Internal USB media device cable (12 inch)
- 46K7434 - Internal power cable (11 inch) with right angle power connector
- 44V3429 - Two drive slide assembly rails
- 1621187 - Four flat blade screws

### FC EU23 - USB Internal Docking Station for Removable Disk Drive

FC EU23 uses an internal USB cable to connect to the internal USB media device connector on the system backplane of a system that supports this feature. The internal USB media device cable and power cable are included in the feature code.

**Note:** The FC EU23 is not supported on IBMi systems, because IBMi does not support the split backplane on the systems that support FC EU23.

FC EU23 provides the following parts:

- 46C2443 (FRU: 46C2444) - Internal 3.5" RDX USB 3.0 Dock
- 46K7435 - Internal USB media device cable (12 inch)
- 46K7434 - Internal power cable (11 inch) with right angle power connector

Requires FC 5263

DASD/Media Backplane - 3 SFF DASD/SATA DVD/HHTape. The FC 5263 is supported on the 8231-E2B system.

**Note:** A single mounting clip (74Y5182) is provided with the system and is not part of this FC 5263.

### Removable disk drives

Table 15. Removable disk drives

Feature code	Part number	Description
1106	46C5375	160 GB Removable Disk Drive
1107	46C5379	500 GB Removable Disk Drive
EU01	46C2335	1 TB Removable Disk Drive
EU08	46C5377	320 GB Removable Disk Drive
EU15	46C2831	1.5 TB Removable Disk Drive

### Purchasing additional removable disk drives

For best results, use only the removable disk drives that are shown in Table 15.

The removable disk drives are a supply item that can be ordered as a feature code. To order in the United States and Canada, call 1-888-IBM-MEDIA. To order drives in other locations, contact your local provider of IBM storage products or see Storage Media (<http://www.storage.ibm.com/media/>).

The removable disk drives are not a service item. IBM service representatives are not dispatched to service or replace the removable disk drives.

## Storing removable disk drives

Store removable disk drives in their protective containers, on a flat surface with the top side up. The storage area must be clean and dry, must have normal room temperature, and must be away from any magnetic fields. For best storage life, use the removable disk drives every six months.

## Supported USB adapters and cables

**Attention:** The docking station only supports the USB cable that is provided as part of the feature code. The docking station does not support attachment by using USB hubs, add-on USB cables, or USB cable extenders.

The internal docking station can be connected to the internal USB media device connector on the system backplane of POWER7<sup>®</sup> processor-based systems.

**Note:** When the internal USB media device port on the system backplane is used for the docking station, the port is disabled for any other use. This information does not apply to an 8231-E2B, 8231-E1C, 8231-E1D, 8231-E2C, 8231-E2D, or 8268-E1D system.

## Specifications

### Interface

USB 2.0

### Mksysb

Yes

### Bootable

Yes

### Physical form factor (internal docking station)

5.25 inch half high

3.5 inch half high for an 8231-E2B, 8231-E1C, 8231-E1D, 8231-E2C, 8231-E2D, or 8268-E1D system (FC 1123)

### Environmental

USB Removable Disk Drive	Operating conditions	Non-operating conditions
Temperature	5°C to 55°C	-40°C to 65°C
Relative humidity	8 - 90% noncondensing	5 - 95% noncondensing
Maximum wet bulb temperature	29.4°C noncondensing	40°C noncondensing
Maximum temperature gradient	20°C per hour	20°C per hour
Altitude	-300 m to 3048 m (10,000 ft)	-300 m to 12,192 m (40,000 ft)

## Supported operating systems

USB Removable Disk Drive is supported on the following versions of operating systems:

- AIX 5L Version 5.3 with the 5300-11 Technology Level, or later
- IBM i 7.1 with the Technology Refresh PTF Group Level 5, or later
- AIX Version 6.1 with the 6100-04 Technology Level, or later
- Red Hat Enterprise Linux version 3 Update 7, or later
- SUSE Linux Enterprise Server 10, or later

## Using the USB Removable Disk Drive for backup and restore

The disk drive is a backup and restore device that can be used as an alternative to tape drives. The removable disk drive is not a replacement for regular disk drives and cannot be used as part of a disk array.

**Note:** If power is lost during a backup to the disk, the data can be compromised. Verify the data or rerun the backup.

## Using the drive with AIX

AIX names the drive `usbmsx`, for example, `usbms1`, and `usbms2`. AIX also can use the device as a raw device, for example, `rusbms1` and `rusbms2`.

AIX uses the removable disk drive differently depending on the program being used. The AIX `mksysb` command builds a list of files to back up, creates a universal disk format (UDF) file system, and puts a boot image and the root volume group on the removable disk drive. When the `mksysb` process is complete the removable disk drive can be used to boot the system. If you mount the removable disk drive, you can display and copy files to and from the UDF file system on the removable disk drive.

The AIX `tar`, `backup`, `restore`, `dd`, and `cpio` commands can write to the removable disk drive as a raw device or nonraw device. You might get improved performance by using the device as a raw device.

See the AIX documentation for additional information.

## Using the drive with IBM i

IBM i configures the drive as a removable media drive with a name in the format `RMSxx`, for example, `RMS01`.

The drive and cartridge are used with optical commands and utilities (for example, `WRKOPTVOL` and `INZOPT`), and reports media in the `QOPT` file system.

See the IBM i documentation for information about using IBM i copy and backup commands.

## Using the drive with Linux

Linux configures the drive as a disk drive with a name in the format `sdx`, for example, `sda`, `sdb`, and `sdc`.

See the Linux documentation for information about using Linux copy and backup commands.

## Setting the write-protect switch

The removable disk drives have a red, write-protect tab that is located on the back of the drive. To write-protect a drive, slide the write-protect tab toward the lock symbol. To disengage write protection, slide the tab to the unlock symbol.

## Using the emergency eject function

To eject a removable disk drive, press the eject button. If a drive is stuck, complete the following steps:

1. If you are using the internal docking station, power off the system. If you are using the external docking station, unplug the power cable from the device.
2. Insert a large straightened paper clip (or similar object) into the emergency eject hole. Do not insert the object in the hole at an angle. Keep the object straight and apply some force to eject the drive.

3. When the drive has been ejected by the docking station, grasp the exposed sides of the drive and pull the drive straight out.
4. Restart your system to reset the docking station. If you are using the external docking station, reconnect the power cable for the docking station and then restart the system.

## Status lights

yea

Learn about the power indicator and drive indicator status lights on the USB Removable Disk Drive.

### Power indicator

The eject button is illuminated by a power indicator light. The following table describes the operation of the power indicator.

*Table 16. Power indicator*

Indicator status	Meaning	Description
Off	No power	Docking station does not have power.
Steady green	Ready	Power is on and the docking station is working correctly.
Flashing green	Ejecting	Cartridge is ejecting.
Flashing amber	Fault	Docking station has detected a fault condition with the docking station.

### Removable disk drive indicator

The disk drive has an indicator light that displays the status of the drive. The following table describes the operation of the drive indicator.

*Table 17. Cartridge indicator*

Indicator status	Meaning	Description
Off	Not ready	Drive is not inserted correctly or the docking station has no power.
Steady green	Ready	Drive is ready.
Flashing green	Activity	Drive is reading, writing, or seeking.
Flashing amber	Fault	Docking station has detected a fault condition with the cartridge.

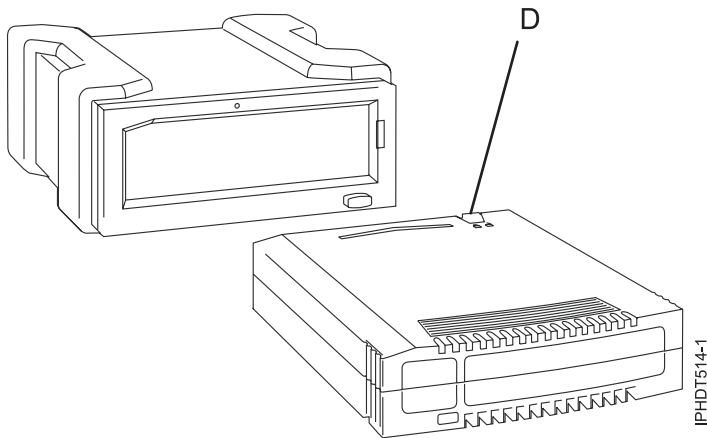
## RDX USB External Dock (1104 and EU04) and RDX Removable Disk Drives (1106, 1107, EU01, EU08, and EU15)

Learn about the features of this drive.

### Description

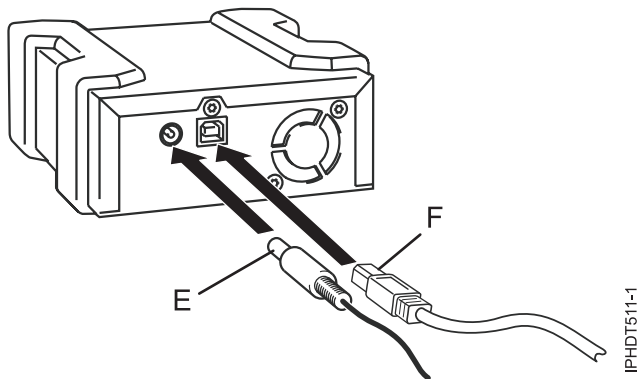
The USB removable disk drive consists of a docking station, which holds a removable disk drive. The docking station is available as an external device. The disk drive is a backup and restore device that can be used as an alternative to tape drives. The removable disk drive is not a replacement for regular disk drives and cannot be used as part of a disk array. The following illustrations show the external drives.

Figure 4. Front view and external drive with removable disk drive



D Write-protect switch

Figure 5. Rear view and connectors on the external drive



E Power connector

F USB connector

## Feature codes and part numbers

Learn about the feature codes (FCs) and part numbers for the USB Removable Disk Drive.

### FC 1104 - USB External Docking Station for Removable Disk Drive

FC 1104 uses an external USB cable to connect to an external USB port. The 1104 feature code includes a USB cable, an external power supply, and a power cord as part of the feature code.

FC 1104 provides the following parts:

46C5381 - USB external docking station

44E8889 - External USB cable

49Y9890 - External power supply with power cord and universal plugs for all supported geographies

39M5516 - Power cord (1 m) that connects the power supply to the rack power distribution unit

## FC EU04 - USB External Docking Station for Removable Disk Drive

FC EU04 uses an external USB cable to connect to an external USB port. The EU04 feature code includes a USB cable, an external power supply, and a power cord as part of the feature code.

FC EU04 provides the following parts:

46C2333 (FRU: 46C2347) - External RDX USB 3.0 Dock

05H5081 (FRU: 05H5080) - External USB 3.0 Cable (2.7 m or 8'10")

81Y3649 (FRU: 81Y8905) - External power supply with power cord and universal plugs for all supported geographies

39M5516 (FRU: 39M5516) - Power cord (1 m) that connects the power supply to the rack power distribution unit

## Removable disk drives

Table 18. Removable disk drives

Feature code	Part number	Description
1106	46C5375	160 GB Removable Disk Drive
EU08	46C5377	320 GB Removable Disk Drive
1107	46C5379	500 GB Removable Disk Drive
EU01	46C2335	1 TB Removable Disk Drive
EU15	46C2831	1.5 TB Removable Disk Drive

## Purchasing additional removable disk drives

For best results, use only the removable disk drives that are shown in Table 18.

The removable disk drives are a supply item that can be ordered as a feature code. To order in the United States and Canada, call 1-888-IBM-MEDIA. To order drives in other locations, contact your local provider of IBM storage products or see Storage Media (<http://www.storage.ibm.com/media/>).

### Note:

The removable disk drives are not a service item. IBM service representatives are not dispatched to service or replace the removable disk drives.

## Storing removable disk drives

Store removable disk drives in their protective containers, on a flat surface with the top side up. The storage area must be clean and dry, must have normal room temperature, and must be away from any magnetic fields. For best storage life, use the removable disk drives every six months.

## Supported USB adapters and cables

**Attention:** The docking station only supports the USB cable that is provided as part of the feature code. The docking station does not support attachment by using USB hubs, add-on USB cables, or USB cable extenders.

The external docking station can be connected to the external, integrated USB ports on POWER7 processor-based systems or can be connected to the USB ports on 4-Port USB PCI Express Adapter (FC 2728).

The internal docking station can be connected to the internal USB port on the control panel of POWER7 processor-based systems.

**Note:** When the USB port on the control panel is used for the docking station, the port is disabled for any other use. This information does not apply to an 8231-E2B, 8231-E1C, 8231-E1D, 8231-E2C, 8231-E2D, or 8268-E1D system.

**Note:**

## Specifications

### Interface

USB 2.0

### Mksysb

Yes

### Bootable

Yes

### Physical form factor (internal docking station)

5.25 inch half high

### Environmental

*Table 19. Operation conditions*

USB Removable Disk Drive	Operating conditions	Non-operating conditions
Temperature	5 -55 C	-40 -65 C
Relative humidity	8 - 90% noncondensing	5 - 95% noncondensing
Maximum wet bulb temperature	29.4 C noncondensing	40 C noncondensing
Maximum temperature gradient	20 C per hour	20 C per hour
Altitude	-300 to 3048 m (10,000 ft)	-300 to 12,192 m (40,000 ft)

## Supported operating systems

USB Removable Disk Drive is supported on the following versions of operating systems:

- AIX 5L Version 5.3 with the 5300-11 Technology Level, or later
- IBM i 7.1 with the Technology Refresh PTF Group Level 5, or later
- AIX Version 6.1 with the 6100-04 Technology Level, or later
- Red Hat Enterprise Linux version 3 Update 7, or later
- SUSE Linux Enterprise Server 10, or later

## Using the USB Removable Disk Drive for backup and restore

The disk drive is a backup and restore device that can be used as an alternative to tape drives. The removable disk drive is not a replacement for regular disk drives and cannot be used as part of a disk array.

**Note:** If power is lost during a backup to the disk, the data can be compromised. Verify the data or rerun the backup.

## Using the drive with AIX

AIX names the drive `usbmsx`, for example, `usbms1`, and `usbms2`. AIX also can use the device as a raw device, for example, `rusbms1` and `rusbms2`.

AIX uses the removable disk drive differently depending on the program being used. The AIX `mksysb` command builds a list of files to back up, creates a universal disk format (UDF) file system, and puts a



boot image and the root volume group on the removable disk drive. When the **mksysb** process is complete the removable disk drive can be used to boot the system. If you mount the removable disk drive, you can display and copy files to and from the UDF file system on the removable disk drive.

The AIX **tar**, **backup**, **restore**, **dd**, and **cpio** commands can write to the removable disk drive as a raw device or non raw device. You might get improved performance by using the device as a raw device.

See the AIX documentation for additional information.

## Using the drive with IBM i

IBM i configures the drive as a removable media drive with a name in the format RMSxx, for example, RMS01.

The drive and cartridge are used with optical commands and utilities (for example, WRKOPTVOL and INZOPT), and reports media in the QOPT file system.

See the IBM i documentation for information about using IBM i copy and backup commands.

## Using the drive with Linux

Linux configures the drive as a disk drive with a name in the format sdx, for example, sda, sdb, and sdc.

See the Linux documentation for information about using Linux copy and backup commands.

## Setting the write-protect switch

The removable disk drives have a red, write-protect tab that is located on the back of the drive. To write-protect a drive, slide the write-protect tab toward the lock symbol. To disengage write protection, slide the tab to the unlock symbol.

## Using the emergency eject function

To eject a removable disk drive, press the eject button. If a drive is stuck, complete the following steps:

1. If you are using the internal docking station, power off the system. If you are using the external docking station, unplug the power cable from the device.
2. Insert a large straightened paper clip (or similar object) into the emergency eject hole. Do not insert the object in the hole at an angle. Keep the object straight and apply some force to eject the drive.
3. When the drive has been ejected by the docking station, grasp the exposed sides of the drive and pull the drive straight out.
4. Restart your system to reset the docking station. If you are using the external docking station, reconnect the power cable for the docking station and then restart the system.

## Status lights

Learn about the power indicator and drive indicator status lights on the USB Removable Disk Drive.

### Power indicator

The eject button is illuminated by a power indicator light. The following table describes the operation of the power indicator.

Table 20. Power indicator

Indicator status	Meaning	Description
Off	No power	Docking station does not have power.
Steady green	Ready	Power is on and the docking station is working correctly.
Flashing green	Ejecting	Cartridge is ejecting.
Flashing amber	Fault	Docking station has detected a fault condition with the docking station.

### Removable disk drive indicator

The disk drive has an indicator light that displays the status of the drive. The following table describes the operation of the drive indicator.

Table 21. Cartridge indicator

Indicator status	Meaning	Description
Off	Not ready	Drive is not inserted correctly or the docking station has no power.
Steady green	Ready	Drive is ready.
Flashing green	Activity	Drive is reading, writing, or seeking.
Flashing amber	Fault	Docking station has detected a fault condition with the cartridge.

### Installing the docking station for the removable disk drive

Keep in mind the following points when you install FC 1104, the USB External Docking Station for Removable Disk Drive:

- A rack shelf is not included with FC 1104.
- The docking station can be rested on a flat surface in a rack or on a table top next to a rack.
- Ensure that the device is on a flat surface, is right-side up, and is not likely to be bumped, dropped, or otherwise damaged or jolted.
- If the docking station is placed by itself on a rack shelf, it will have space on the sides of the device. No filler panels are provided with the docking station.
- If the docking station is placed on a rack shelf, ensure that the docking station has sufficient air flow but that it does not affect the air flow of the other systems in the rack.
- Do not block the fan on the back of the docking station.

---

## Managing communications devices

Learn about the LAN-Attached Remote Asynchronous Node (RAN) 16 (model 7036-P16).

### LAN-Attached Remote Asynchronous Node 16 (model 7036-P16)

Learn about installing, removing, replacing and managing the LAN-Attached Remote Asynchronous Node (RAN) 16 (model 7036-P16).

**Note:** Additional information can be found on the software CD provided with this device.

#### 7036-P16 description and overview

Learn about the product description, characteristics, and throughput considerations for this device.

## Product description

The 7036-P16 is a 16-port EIA-232 LAN-Attached Remote Asynchronous Node (RAN) for Power® Systems servers. The 7036-P16 provides connectivity to asynchronous EIA-232 devices, such as modems, terminal type (tty) terminals, printers, and so on.

The 7036-P16 can be used in a rack-mounted or table-top configuration. Hardware to mount the 7036-P16 in a rack or to use on a table top is included in the package. When installed in a rack, take care with routing the cables to ensure the cables do not interfere with other devices mounted in the rack.

The 7036-P16, when used with Digi RealPort software, will convert the serial data stream to and from attached asynchronous EIA-232 devices into TCP/IP traffic. After the data is on the TCP/IP network, a host system attached to the same network can treat the attached devices as if the devices were connected directly to the host system.

## Product characteristics

### Safety:

- UL CD certified to EN60950 3rd Edition
- CSA C22.2 No 60950
- UL recognized to UL60950 3rd Edition

### Physical characteristics:

- Physical Dimensions: (16.8in./42.7cm)x(6.6in./16.76cm)x(1.6in./4.06cm)
- Weight: 7.05 lb./3.2 kg

### Environmental Limits:

- **Operating**
  - Temperature: 0 - 40 C (ambient air temperature)
  - Humidity: 5 - 95% (noncondensing)
  - Wet Bulb: 29 C
  - Altitude: 0 - 7000 ft
- **Storage**
  - Temperature: 1 - 60 C
  - Humidity: 5 - 80% (non-condensing)
  - Wet Bulb: 29 C
- **Shipping**
  - Temperature: -40 to 60 C
  - Humidity: 5 - 100% (non-condensing)
  - Wet Bulb: 29 C

## Power Consumption

Table 22. 7036-P16 power consumption

Voltage (input)	Current (amp)	Watt
100 - 250 VAC nominal	0.8 A Maximum	12 W typical
90 - 264 VAC maximum	40A in rush	
47/63 Hz	2A fuse	

## Throughput considerations

The limits on throughput are a function of the network and the server or server partition to which the 7036-P16 ports are configured.

### System port throughput:

The 7036-P16 supports full-duplex operation up to 230 kbps on all ports. Operation with all 16 ports running full-duplex at 230 kbps is supported.

### Network throughput:

The 7036-P16 is an Ethernet attached device and as such, any number may be attached to a given network. However, attaching more devices to any network reduces the overall network throughput and care must be taken to not overload any given network.

Testing has shown that as many as eight 7036-P16 devices may be attached to a network without adversely affecting network throughput. Eight 7036-P16 devices will support up to 128 asynchronous EIA-232 connections. More devices may be attached, but network performance may be adversely affected.

### Server or partition throughput:

Each 7036-P16 provides 16-Ports of asynchronous EIA-232 connectivity over a 10/100 Ethernet port at speeds up to 230 kbps. Given that any number of 7036-P16s may be attached to a server or partition, a single server or partition could in effect have a very large number of asynchronous EIA-232 connections that could adversely affect any single server or partition.

## Installing 7036-P16 hardware

You might need to install this hardware. Use the procedure in this section to perform this task.

The following information describes the materials and procedures for installing this device. A Phillips screwdriver is required to complete the installation of this unit.

Before you install the 7036-P16 unit, verify that the hardware package contains the following items:

- 7036-P16 unit
- 7036-P16 software and documentation CD
- 7036-P16 Quick Setup Guide
- Brackets to mount 7036-P16 on rack
- Rubber feet for tabletop usage
- Power cord (North American 120 V ac use only)
- RJ-45 to DB25 serial cable DB25 wired per EIA-232 specification
- RJ-45 to DB09 serial cable DB09 matches pin configuration on existing DB09 system ports on Power Systems servers
- RJ-45 wrap plug for diagnostics.

### Installing the deskside 7036-P16 unit

To install the deskside 7036-P16 unit, do the following steps:

1. Unpack the hardware.
2. Remove the rubber feet from the plastic bag.
3. Attach the rubber feet to the bottom of the 7036-P16 in the locations indicated.
4. Attach the power cord. A power cord for use in North America is provided.
5. Use an Ethernet cable to connect the 7036-P16 to the network.

6. Connect serial devices as needed.

## Installing the rack-mounted 7036-P16 unit

To install the rack-mounted 7036-P16 unit, do the following steps:

1. Unpack the hardware.
2. Remove the right-angle brackets and screws from the plastic bag.
3. Use a Phillips screw to attach the brackets in the predrilled holes on the sides of the 7036-P16.
4. Mount the 7036-P16 in the same location from which the 7036-P16 was removed.
5. Attach the power cord. A power cord for use with 120 V ac is provided.

Optional rack power cord feature codes (FC) are available to connect the 7036-P16 to the rack Power Distribution Unit (PDU). These cords come in various lengths. They are identified by the following feature codes:

- FC 6458: Power Cord (14-foot), Drawer to IBM PDU, 250V/10A
- FC 6672: Power Cord (9-foot), Drawer to IBM PDU, 250V/10A
- FC 6671: Power Cord (5-foot), Drawer to IBM PDU, 250V/10A

The previous features are only available for use in racks less than 25U in size.

6. Use an Ethernet cable to connect the 7036-P16 to the network.
7. Connect serial devices as needed.

## Installing Digi RealPort software for the 7036-P16 device

You might need to install the Digi RealPort software on an AIX or Linux host server. Use the procedure in this section to perform this task.

### Digi RealPort software-support packages

The following is a list of the software packages available on the software CD provided with the 7036-P16 unit:

- The Digi RealPort software package for AIX supports the following AIX levels:
  - AIX 5L™ 5.2.0.75 (and later)
  - AIX 5L 5.3.0.30 (and later)
- The Digi RealPort software package for Linux supports the following Linux levels:
  - Linux Red Hat Version RHEL4, Update 3
  - Linux SUSE Version SLES 9 SP2

### Installing the Digi RealPort software

To install the Digi RealPort software, do the following steps:

1. Install all updates and packages required to bring the operating system to the supported levels.
2. Install all Linux packages required to compile and create binaries from the Digi RealPort Software source code.

The following is a list of Linux packages that are required to install the Digi RealPort software:

- gcc
- gcc-64bit
- gcc-c++
- gcc-g77-64bit
- gcc-info
- gcc-locale
- gcc-objc

- gcc-objc-64bit
- kernel sources
- glibc-devel-64bit
- ncurses-64bit
- ncurses-devel

3. Install the Digi RealPort software. To install the software, see the following procedures.

### Installing the AIX Digi RealPort software

To install the software package for the AIX environment, do the following steps:

1. Log in to the host server as the root user.
2. Insert the CD-ROM into the CD-ROM drive.
3. Type the following command: `smitty install_all`
4. Press F4.
5. Select `digiasync`, then press Enter.
6. Use the cursor to scroll to `ACCEPT` new license agreement
7. Press F4.
8. Select `Yes`, then press Enter.

When installation commences, do not interfere until the installation completes. A successful installation will return an OK message. An unsuccessful installation will return a FAILED message.

If you receive an OK message, continue to the next step. If you receive a failed message, review the `smit.log` file to determine why the installation failed.

9. Press F10.
10. Type: `lslpp -l | grep digi`  
If the Digi RealPort package installed correctly, you will receive a message. The following are examples of return messages:
  - `digiasync.realport.obj 3.8.7.0 COMMITTED Digi RealPort Driver`
  - `digiasync.realport.obj 3.8.7.0 COMMITTED Digi RealPort Driver`
11. After the Digi RealPort Software is installed, the user may configure the 7036-P16 onto the network, if it is not already configured. For instructions on how to perform the network configuration, see “Configuring the 7036-P16 into the network” on page 38.

### Installing the Linux SUSE Digi RealPort software

To install the software package for the Linux SUSE environment, do the following steps:

1. Log in to the server as the root user.
2. If the CD-ROM is already inserted and mounted, then proceed to step 5.
3. Insert the CD-ROM into the CD-ROM drive.
4. Type: `mount -t auto /dev/cdrom /mnt`
5. Type: `cp /mnt/linux/40002086_M.src.rpm /usr/src/packages/SOURCES`
6. Type: `umount /mnt`
7. Type: `cd /usr/src/linux`
8. Type: `make mrproper`
9. Type: `make oldconfig`
10. Type: `cd /usr/src/packages/SOURCES`
11. Type: `rpmbuild --rebuild 40002086_M.src.rpm`
12. Type: `rpm -i /usr/src/packages/RPMS/ppc64/dgrp-1.9-6.ppc64.rpm`

13. Type: `rpm -qa | grep dgr`  
If the Digi RealPort Package installed correctly, the following is an example of the return message:  
`dgr-1.9.6`
14. After the Digi RealPort software is installed, the user may configure the 7036-P16 onto the network, if it is not already configured. For instructions on how to perform the network configuration, see “Configuring the 7036-P16 into the network” on page 38.

## Installing the Linux Red Hat Digi RealPort software

To install the software package for the Linux Red Hat environment, do the following steps:

1. Log in to the server as the root user.
2. If the CD-ROM is already inserted and mounted, then proceed to step 5.
3. Insert the CD-ROM into the CD-ROM drive.
4. Type: `mount -t auto /dev/cdrom /mnt`
5. Type: `cp /mnt/linux/40002086_M.src.rpm /usr/src/packages/SOURCES`
6. Type: `umount /mnt`
7. Type: `cd /usr/src/packages/SOURCES`
8. Type: `rpmbuild --rebuild 40002086_M.src.rpm`
9. Type: `rpm -i /usr/src/packages/RPMS/ppc64/dgrp-1.9-6.ppc64.rpm`
10. Type: `rpm -qa | grep dgr`  
If the Digi RealPort Package installed correctly, the following is an example of the return message:  
`dgr-1.9.6`
11. After the Digi RealPort software is installed, the user may configure the 7036-P16 onto the network, if it is not already configured. For instructions on how to perform the network configuration, see “Configuring the 7036-P16 into the network” on page 38.

## Configuring the 7036-P16 device and tty

You might need to configure the 7036-P16 as a serial device on a host server. Use the procedure in this section to perform this task.

The task consists of the following steps:

1. Configure the 7036-P16 as a serial device on a host server installed with one of the following operating systems:
  - AIX 5L 5.2.0.75, or later
  - AIX 5L 5.3.0.30, or later
  - Red Hat Enterprise Linux version 4, Update 3, or later
  - SUSE Linux Enterprise Server 9, SP2, or laterThis in effect binds the 7036-P16 to the host server.
2. Configure 7036-P16 system ports for use with Digi RealPort software.

## Configuring a 7036-P16 device on an AIX host server

### Assumptions:

- The target 7036-P16 and the host server are configured on an Ethernet network.
- The target 7036-P16 and the host server are attached to an Ethernet network.
- The Digi RealPort software is installed on the server.

### Gather the following information:

- IP Address of the target 7036-P16: [7036-P16 IP Address]

- IP Address of the host server: [Host Server IP Address]
- Root password of target 7036-P16

### Configure the 7036-P16 as a serial device on an AIX server:

1. Ensure that the 7036-P16 and the server are on the network. Ping the 7036-P16 by typing the following command: `ping -c 1 [IP Address of target 7036-P16]`  
If the 7036-P16 responds to the ping, then it is on the network and the user can proceed to the next step. If the 7036-P16 does not respond to the ping, then the 7036-P16 is not on the network and the user must perform the network configuration procedure, see “Configuring the 7036-P16 into the network” on page 38.
2. Ensure that the Digi RealPort Software is installed on the server. Type the following command: `lslpp -l | grep digi`  
The response indicates that the `digiasync.realport.obj` file is installed.

**Note:** If the response indicates the Digi RealPort Software is installed then proceed to step 3. If there is no response, then the Digi RealPort Software is not installed and the user must install the Digi RealPort Software, see “Configuring the 7036-P16 into the network” on page 38.

3. Type: `smitty devices`
4. Use the cursor to select: `Digi Device and Terminal Servers`, then press Enter.
5. Use the cursor to select: `Add a Digi Device and Terminal Servers`, then press Enter
6. Use the cursor to select: `cts_16_r`, then press Enter.
7. Move the cursor to the IP Address box and type: `[IP Address]`, then press Enter. This is the [IP Address of the target 7036-P16] used in Step 1.  
Upon successful completion of this command the user will see the following on the screen: `Command: OK stdout: yes stderr: no Before command completion, additional instructions may appear. sa[device number] Available`
8. Press F3.
9. To configure additional devices, repeat Steps 7. through 10.
10. Press F10 to exit from `smitty` and return to the server's command line.

After the serial device is configured, the terminal type (tty) ports may be configured.

### Configuring a 7036-P16 system port tty on an AIX host server

#### Assumptions:

- The target 7036-P16 and the host server are configured on an Ethernet network.
- The target 7036-P16 and the host server are attached to an Ethernet network.
- The Digi RealPort software is installed on the server.

#### Gather the following information:

- IP Address of the target 7036-P16: [7036-P16 IP Address]
- IP Address of the host server: [Host Server IP Address]
- Root password of target 7036-P16

#### Procedure:

1. Ensure that the 7036-P16 and the server are on the network. Ping the 7036-P16 by typing the following command: `ping -c 1 [IP Address of target 7036-P16]`



**Note:** If the 7036-P16 responds to the ping, then it is on the network and the user may proceed to the next step. If the 7036-P16 does not respond to the ping, then the 7036-P16 is not on the network and the user must perform the network configuration procedure, see “Configuring the 7036-P16 into the network” on page 38.

2. Ensure that the Digi RealPort Software is installed on the server. Type the following command: `ls | pp -l | grep digi`

**Note:** The response indicates that the **digiasync.realport.obj** file is installed. If the response indicates the Digi RealPort Software is installed then proceed to the next step. If there is no response, then the Digi RealPort Software is not installed and the user must install the Digi RealPort software, see “Configuring the 7036-P16 into the network” on page 38.

3. Type: `smitty tty`, then press Enter.
4. Use the cursor to select: Add a tty, then press Enter.
5. Use the cursor to select: `tty rs232 Asynchronous Terminal`, then press Enter.
6. Use the cursor to select: `sa[device number] Available IBM LAN Attached RAN 16`, then press Enter.
7. Enter a port number not already assigned to a tty, for example 1, and press Enter

Upon successful completion of this command the user sees the following on the screen: `Command: OK  
stdout: yes stderr: no Before command completion, additional instructions may appear.  
tty[number] Available`

**Note:** The [number] is the number assigned by **smitty** as the next available tty device.

8. Press F3.
9. To configure additional tty devices, repeat Steps 7. through 9.
10. Press F10 to exit from **smitty** and return to the server's command line.

This concludes the system port tty configuration on an AIX Server.

## Configuring the 7036-P16 as a tty device on a Linux host server

### Assumptions:

- The target 7036-P16 and the host server are configured on an Ethernet network.
- The target 7036-P16 and the host server are attached to an Ethernet network.
- The Digi RealPort software is installed on the server.

### Gather the following information:

- IP Address of the target 7036-P16: [7036-P16 IP Address]
- IP Address of the host server: [Host Server IP Address]
- Root password of target 7036-P16

### Procedure:

1. Ensure that the 7036-P16 and the server are on the network. Ping the 7036-P16 by typing the following command: `ping -c 1 [IP Address of target 7036-P16]`

**Note:** If the 7036-P16 responds to the ping, then it is on the network and the user may proceed to the next step. If the 7036-P16 does not respond to the ping, then the 7036-P16 is not on the network and the user must perform the network configuration procedure, see “Configuring the 7036-P16 into the network” on page 38.

2. Ensure that the Digi RealPort software is installed on the server. Type the following command: `rpm -qa | grep dgr`  
The response from the command is: `dgr-1.9.6`

**Note:** If there is no response, then the Digi RealPort software is not installed and the user must install the Digi RealPort Software, see the Linux Red Hat or the Linux SuSE installation procedure, see “Configuring the 7036-P16 into the network.”

3. Type the following command:

```
dgrp_cfg_node -v init [Device ID] [IP Address] [7036-P16 Port(s)]
```

Where: [Device ID] is any two characters that the user uses to identify the target 7036-P16. [IP Address] is the IP Address of the target 7036-P16. [7036-P16 Port(s)] correspond to the port number(s) being configured.

This concludes the system port tty configuration on a Linux Host server.

## Configuring the 7036-P16 into the network

You might need to configure the 7036-P16 device to work within the system network. Use the procedure in this section to perform this task.

The following sections describe methods for configuring the 7036-P16 in a network: the Ethernet method, the ping-ARP method, and the direct-terminal attach method.

### Network configuration methods and considerations

The 7036-P16 is an Ethernet device and as such it must be configured onto the network like any other Ethernet device. Various network configuration methods are available to the user.

### Configuring the 7036-P16 onto an Ethernet network

If the 7036-P16 is to be used in a network that supports Dynamic Host Configuration Protocol (DHCP), then the configuration will be performed by simply connecting to the network and powering up the 7036-P16. The 7036-P16 is shipped from the factory with the DHCP option enabled.

If DHCP is not supported on the network, then the user must choose between the ping-ARP configuration or the direct terminal attach method.

The ping-ARP configuration method is recommended for the following reasons:

- This method does not require the user to be in the same room as the 7036-P16.
- This method does not require any extra hardware, such as a terminal type (tty) terminal or cabling to attach the 7036-P16 to the tty terminal.
- This method works equally well for AIX and Linux installations.
- This method does not require the 7036-P16 be connected into a network that supports DHCP.

### Ping-ARP network configuration method

To configure the 7036-P16 device into the network using this method, do the following steps:

1. Gather the following information from the system or network administrator:
  - MAC Address: [MAC Address] (MAC Address label is on the back of the 7036-P16)
  - IP Address: [IP Address]
  - Default Gateway: [IP Gateway Address]
  - Name Server: [Name Server Address]
  - Subnet Mask: [Subnet mask]
  - Host Name: [Host Name]
  - Domain Name: [Domain Name]
2. Connect the power cord from the 7036-P16 to a power source and turn the power on.
3. Connect the Ethernet cable from the 7036-P16 to an Ethernet network.
4. Log in to a server as root user, and make sure the server is on the same subnet as the 7036-P16.

5. Manually update the server's ARP table.
6. Use the IP address and the 7036-P16's MAC address gathered in Step 1.  
The AIX and the Linux command line entries to update the ARP table are different, use the following examples on how to update the server's ARP table:  
AIX Command: `arp -s ether [IP Address] [MAC Address]`  
Linux Command: `arp -v -H ether -s [IP Address] [MAC Address]`
7. Ping the 7036-P16 using the IP address by typing: `ping -c 1 [IP Address]` The ping may time out before there is a response from the 7036-P16. Repeat the ping until the 7036-P16 responds. The ping response indicates that the IP address has been configured.
8. Use telnet to access the 7036-P16, using the IP address from the ping command: `telnet [IP Address]`
9. Log in to the 7036-P16 as root. Use the default password: `dbps`
10. After logging in, you can change the root password. To change the password, type: `newpass` Follow the prompts provided after entering the command.
11. To view the current configuration, type: `set config`
12. Type the following commands on the 7036-P16 command line using the information gathered in Step 1 to complete the IP Address configuration:
 

```
set config ip=[IP Address]
set config submask=[Subnet Mask]
set config gateway=[IP Gateway Address]
set config dns=[Name Server Address]
set config dhcp=off
set config hostname=[Host Name]
set config domain=[Domain Name]
```
13. As a precaution, you can deactivate the ping-ARP and RARP options. To deactivate the ping-ARP and RARP options type the following commands:
 

```
set config Ping-ARP=off
set config RARP=off
```
14. If the user plans to use the Digi RealPort software on the host server to control all the 7036-P16 ports, then the system ports must be configured for use with the Digi RealPort software. Type the following command: `set port range=* dev=rp`
15. Issue the reboot command to the 7036-P16 in order to permanently set the changes. Type the following command: `boot action=reset`

When the 7036-P16 reboots, then the network configuration is complete.

The 7036-P16 can now be accessed through the Ethernet connection. The user can program other features as required. See additional documentation on the *7036-P16 Software and Documentation CD*.

### Direct-attach configuration method

A regular tty terminal or a PC running a terminal emulation program, may be attached directly to any one of the 16 ports and commands entered on the 7036-P16 command line to configure the 7036-P16 onto the network.

This method requires the user to be in the same room as the 7036-P16. This method requires the user to have a tty terminal or a PC available. This method requires a serial cable to connect the tty terminal or PC to the server. This method is independent of the operating system installed on the server.

To configure the 7036-P16 device into the network using this method, do the following steps:

1. Gather the following information from the system or network administrator:
  - MAC Address: [MAC Address] (MAC Address label is on the back of the 7036-P16)
  - IP Address: [IP Address]

- Default Gateway: [IP Gateway Address]
  - Name Server: [Name Server Address]
  - Subnet Mask: [Subnet mask]
  - Host Name: [Host Name]
  - Domain Name: [Domain Name]
2. Connect the power cord from the 7036-P16 to a power source and power up.
  3. Connect the serial cable from tty terminal to the 7036-P16.
  4. Log in to the 7036-P16 as the root user, use the default password dbps.
  5. After login, you can change the root password. Type: newpass
  6. To view the current configuration, type: set config
  7. Type the following commands on the 7036-P16 command line using the information gathered in Step 1 to complete the IP Address configuration:
 

```
set config ip=[IP Address]
set config submask=[Subnet Mask]
set config gateway=[IP Gateway Address]
set config dns=[Name Server Address]
set config dhcp=off
set config hostname=[Host Name]
set config domain=[Domain Name]
```
  8. As a precaution, you can deactivate the Ping-ARP and RARP options. To deactivate the Ping-ARP and RARP options type the following commands:
 

```
set config Ping-ARP=off
set config RARP=off
```
  9. If you plan to use the Digi RealPort software on the host server to control all the 7036-P16 ports, then the system ports must be configured for use with the Digi RealPort software. Type the following command: set port range=\* dev=rp
  10. Issue the reboot command to the 7036-P16 in order to permanently set the changes. Type the following command: boot action=reset

When the 7036-P16 reboots, then the network configuration is complete.

The 7036-P16 may now be accessed via the Ethernet connection. The user can program other features as required. See additional documentation on the 7036-P16 Software and Documentation CD.

## Using diagnostic aids for the 7036-P16

You might need to use diagnostic programs to identify hardware problems. Use the procedure in this section to perform this task.

The 7036-P16 is not supported under AIX Diagnostics. A means to diagnose hardware problems with the 7036-P16 is provided by an executable program.

The purpose of this program is to diagnose hardware problems with the 7036-P16, such as bad connectors, faulty electronic components, and so on. The diagnostic is not intended to resolve protocol problems, network problems or a faulty host server to which the 7036-P16 may be attached.

## Requirements for using the 7036-P16 diagnostic program

- The 7036-P16 and the AIX host server must be on the same network.
- The Digi RealPort Software for AIX Package must be installed.
- The user must ensure the problems are not caused by a faulty host server, the network or a device attached to any one of the 16 system ports.
- The Diagnostic Program is run from the AIX host server.
- Wrap Plug IBM part number 43G0928.

## 7036-P16 diagnostic program capabilities

- Wrap data on each of the 16 system ports
- Monitor data on each of the 16 system ports
- Provide VPD (vital production data)

## Using the 7036-P16 diagnostic program

1. Log in to the AIX host server as root.
2. From the root home directory type:  
`./usr/sbin/tty/dpa-ncxa`
3. Press Enter.
4. The next screen will present a list of all the 7036-P16s configured on the host server. The list includes the device name and the IP Address for each 7036-P16. The user should look at the bottom of the screen for options.
5. Select a 7036-P16 on the list by using the cursor keys. The 7036-P16 selected is highlighted.
6. Type D to see the 7036-P16 product information.
7. Press enter to test an individual terminal type (tty) port on the selected 7036-P16. The next screen will present Port-1 of the 7036-P16 that was selected.
8. To select a different tty port, use the cursor keys to either increment or decrement the port number.
9. Once a tty port is selected, then select one of the following items:
  - a. Wrap data by typing a T. If this option is chosen, use wrap plug part number 43G0928. Insert the wrap plug into the tty port.
  - b. Monitor the data on the selected port by typing a D.
10. To exit the diagnostic program, press ESC.

## General purpose diagnostic procedures, visual inspections

### Ethernet cables

- Ensure an Ethernet cable is attached to the 7036-P16 and the host server.
- Ensure the Ethernet cable is wired correctly.
- Ensure the Ethernet cable is good.

### Serial cables

- Ensure a serial cable is attached to every 7036-P16 port that is in use.
- Ensure the serial cables are wired correctly.
- Ensure the serial cables are good.

## Investigating Ethernet network problems associated with the 7036-P16

1. Gather the following information:
  - For the 7036-P16:
    - MAC Address: [MAC Address] (MAC Address label is on the back of the 7036-P16)
    - IP Address: [7036-P16 IP Address]
    - Default Gateway: [IP Gateway Address]
    - Name Server: [Name Server Address]
    - Host Name: [Host Name] (if a host name is assigned)
  - For the host server:
    - Machine Type and Model
    - AIX Level
    - IP Address: [Host server IP Address]

- Default Gateway: [IP Gateway Address]
  - Name Server: [Name Server Address]
  - Host Name: [Host Name] (if a host name is assigned)
2. Ping the 7036-P16 from the host server by typing: `ping -c 1 [7036-P16 IP Address]`  
If the 7036-P16 responds to the ping, then both devices are on the network; the problem is not a network attachment problem. If the ping times out, then either the 7036-P16 or the host server is not on the network.
  3. Use traceroute to see where the link between the 7036-P16 and the host server is broken. Type:  
`traceroute [7036-P16 IP Address]`

## Replacing and reconfiguring the 7036-P16

You might need to create a 7036-P16 configuration file, reconfigure a 7036-P16 from a stored configuration file, or replace a 7036-P16. Use the procedures in this section to perform this task.

This section provides instructions on how to perform the following tasks:

- Creating a 7036-P16 configuration file
- Reconfiguring a 7036-P16 from a stored configuration file
- Replacing a 7036-P16

### Creating a 7036-P16 configuration file

Create a copy of the 7036-P16 configuration and to store it on the host server.

#### Hardware requirements:

- AIX or Linux host server with web access
- 7036-P16 attached to an Ethernet network

#### Gather the following information:

- IP Address of the target 7036-P16: [7036-P16 IP Address]
- IP Address of the host server: [Host Server IP Address]
- Root password of target 7036-P16

### 7036-P16 configuration file creation methods

The following are methods for creating a 7036-P16 configuration file:

- Web user interface method
- Command line method

Access the 7036-P16 command line and enter commands directly onto the 7036-P16. This method requires TFTP to be enabled on the host server.

#### Web user interface method

To create a configuration file using the web user interface method, do the following steps:

1. Use the host server to access the web interface of the target 7036-P16 by entering the 7036-P16 IP address in a browser's URL window, then log in as the root user.
2. Select Backup/Restore
3. Select Backup
4. Select Save
5. The program will create a file named **backup.cfg**. Consider changing that name to something more meaningful. Example: `backup_[IP Address].txt`

6. When the task is completed a Download Complete message will be posted to the screen.

### Command line method

To create a configuration file using the command line method, do the following steps:

1. Ensure the TFTP daemon is enabled on the host server. On an AIX server type the following on the command line: `ps -ef | grep tftp`  
If the TFTP daemon is enabled, the response will include two active TFTP processes and the user should proceed to Step 8. If the response indicates that only the grep process is active, then the TFTP daemon must be enabled.
2. To enable the TFTP daemon, type the following command: `smitty subsystem`
3. Select Start a Subsystem, then press Enter.
4. Press F4
5. Search the resulting list for `tftpd`, then press Enter.
6. Telnet to the target 7036-P16. Type: `telnet [IP Address of target 7036-P16]`, then press Enter.
7. Login as the root user, use the root password.
8. Type the following on the 7036-P16 command line:  
`cpconf tohost=[Host Server IP Address]:/tmp/backup_[IP Address].txt`  
The complete IP and terminal type (tty) port configuration information is now captured in the **backup\_[IP Address].txt** file. If the user changes the configuration, the user is strongly advised to recreate the **backup\_[IP Address].txt** file. The user should make a note of the file name created.

### Reconfiguring a 7036-P16 from a stored configuration file

Use a stored configuration file when replacing a 7036-P16.

#### Hardware requirements:

- AIX or Linux host server with web access
- 7036-P16 attached to an Ethernet network

#### Gather the following information:

- IP Address of the target 7036-P16: [7036-P16 IP Address]
- IP Address of the host server: [Host Server IP Address]
- Root password of target 7036-P16

#### 7036-P16 reconfiguration methods

The following are methods for creating a 7036-P16 configuration file:

- Web user interface method
- Command line method

Access the 7036-P16 command line and enter commands directly onto the 7036-P16. This method requires TFTP to be enabled on the host server.

#### Web user interface method

To modify the configuration file using the web user interface method, do the following steps:

1. Use the host server to access the web interface of the target 7036-P16 by entering the 7036-P16 IP address in a browser's URL window, then log in as the root user.
2. Select Backup/Restore
3. Select Browse and navigate to the directory where the stored file is kept on the host server.

4. Select the stored configuration file and click on Open. For example: backup\_[IP Address].txt The complete path to the stored file will appear in the Browse window.
5. Click on Restore.
6. Wait for the configuration to complete, then click on Done.
7. Click on Reboot.
8. The task is complete when the 7036-P16 reboots.

### Command line method

To modify the configuration file using the command line method, do the following steps:

1. Telnet to the target 7036-P16. Type: telnet [IP Address of target 7036-P16], then press Enter.
2. Login as root, use the root password.
3. To reconfigure the 7036-P16, type the following command:  
`cpconf fromhost=[Host Server IP Address]:/tmp/backup_[IP Address].txt`
4. Reboot the 7036-P16. Type: boot action=reset
5. When the 7036-P16 reboots, then the task is complete.

### Replacing a 7036-P16

**Attention:** Before replacing a 7036-P16, create a 7036-P16 configuration file.

You need a Phillips screwdriver to replace this unit.

To replace a 7036-P16 unit, do the following steps:

1. Gather the following IP information for the 7036-P16 unit to be replaced:
  - MAC Address: [MAC Address] (MAC Address label is on the back of the 7036-P16)
  - IP Address: [IP Address]
  - Default Gateway: [IP Gateway Address]
  - Name Server: [Name Server Address]
  - Subnet Mask: [Subnet mask]
  - Host Name: [Host Name]
  - Domain Name: [Domain Name]
2. Power off the 7036-P16.
3. Remove the power cord.
4. Remove the Ethernet cable.
5. Remove each serial cable, and make sure each cable is marked indicating from which tty port it was removed.
6. If the 7036-P16 is installed as a desktop unit, then remove the rubber feet from the plastic bag and attach them to the replacement 7036-P16.
7. If the 7036-P16 is used as a rack mounted device, then undo the screws from the rack and remove the 7036-P16 from the rack.
8. Remove the replacement 7036-P16 unit from the shipping package.
9. Remove the right angle brackets and screws from the plastic bag.
10. Use a Phillips screw to attach the brackets in the predrilled holes on the sides of the 7036-P16.
11. Mount the new 7036-P16 in the same location from which the previous 7036-P16 was removed.
12. Attach the power cord.
13. Attach the Ethernet cable.



14. Attach the serial cables, using the markings from Step 5 in order to restore each cable to its previous port.
15. After the 7036 is configured on the network, telnet to the target 7036-P16. Type: telnet [IP Address of target 7036-P16]
16. Log in as the root user.
17. To reconfigure the 7036-P16, type the following command:  

```
cpconf fromhost=[Host Server IP Address]:/tmp/backup_[IP Address].txt
```

### Field replacement units for the 7036-P16

Identify field replacement units (FRUs) for the 7036-P16.

The following table lists the FRUs for the 7036-P16.

*Table 23. FRUs for the 7036-P16*

Part number	Description
80P6911	7036-P16 FRU
10N7714	7036-P16 Software and Documentation CD. Form Number: LCD8-0170-01
03N6839	7036-P16 Rubber Feet and Brackets Accessory FRU
39J5823	RJ-45 to DB09 (male) cable
12H1204	DB25 to DB25 (male) cable



---

## Notices

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

The manufacturer may not offer the products, services, or features discussed in this document in other countries. Consult the manufacturer's representative for information on the products and services currently available in your area. Any reference to the manufacturer's product, program, or service is not intended to state or imply that only that product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any intellectual property right of the manufacturer may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any product, program, or service.

The manufacturer may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not grant you any license to these patents. You can send license inquiries, in writing, to the manufacturer.

**The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law:** THIS PUBLICATION IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. The manufacturer may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to websites not owned by the manufacturer are provided for convenience only and do not in any manner serve as an endorsement of those websites. The materials at those websites are not part of the materials for this product and use of those websites is at your own risk.

The manufacturer may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

Information concerning products not produced by this manufacturer was obtained from the suppliers of those products, their published announcements or other publicly available sources. This manufacturer has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to products not produced by this manufacturer. Questions on the capabilities of products not produced by this manufacturer should be addressed to the suppliers of those products.

All statements regarding the manufacturer's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

The manufacturer's prices shown are the manufacturer's suggested retail prices, are current and are subject to change without notice. Dealer prices may vary.

This information is for planning purposes only. The information herein is subject to change before the products described become available.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

If you are viewing this information in softcopy, the photographs and color illustrations may not appear.

The drawings and specifications contained herein shall not be reproduced in whole or in part without the written permission of the manufacturer.

The manufacturer has prepared this information for use with the specific machines indicated. The manufacturer makes no representations that it is suitable for any other purpose.

The manufacturer's computer systems contain mechanisms designed to reduce the possibility of undetected data corruption or loss. This risk, however, cannot be eliminated. Users who experience unplanned outages, system failures, power fluctuations or outages, or component failures must verify the accuracy of operations performed and data saved or transmitted by the system at or near the time of the outage or failure. In addition, users must establish procedures to ensure that there is independent data verification before relying on such data in sensitive or critical operations. Users should periodically check the manufacturer's support websites for updated information and fixes applicable to the system and related software.

## **Homologation statement**

This product may not be certified in your country for connection by any means whatsoever to interfaces of public telecommunications networks. Further certification may be required by law prior to making any such connection. Contact an IBM representative or reseller for any questions.

---

## **Trademarks**

IBM, the IBM logo, and [ibm.com](http://ibm.com) are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the web at [www.ibm.com/legal/copytrade.shtml](http://www.ibm.com/legal/copytrade.shtml).

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

Red Hat, the Red Hat "Shadow Man" logo, and all Red Hat-based trademarks and logos are trademarks or registered trademarks of Red Hat, Inc., in the United States and other countries.

---

## **Electronic emission notices**

When attaching a monitor to the equipment, you must use the designated monitor cable and any interference suppression devices supplied with the monitor.

## **Class A Notices**

The following Class A statements apply to the IBM servers that contain the POWER7 processor and its features unless designated as electromagnetic compatibility (EMC) Class B in the feature information.

## **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 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.

## **European Community Compliance Statement**

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC 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 non-recommended 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 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.

European Community contact:  
IBM Deutschland GmbH  
Technical Regulations, Department M372  
IBM-Allee 1, 71139 Ehningen, Germany  
Tele: +49 7032 15 2941  
email: lugi@de.ibm.com

**Warning:** 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.

## VCCI Statement - Japan

この装置は、クラスA 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

VCCI-A

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

This is a Class A product based on the standard of the VCCI Council. If this equipment is used in a domestic environment, radio interference may occur, in which case, the user may be required to take corrective actions.

### Japanese Electronics and Information Technology Industries Association (JEITA) Confirmed Harmonics Guideline (products less than or equal to 20 A per phase)

高調波ガイドライン適合品

### Japanese Electronics and Information Technology Industries Association (JEITA) Confirmed Harmonics Guideline with Modifications (products greater than 20 A per phase)

高調波ガイドライン準用品

## Electromagnetic Interference (EMI) Statement - People's Republic of China

### 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。

Declaration: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may need to perform practical action.

## Electromagnetic Interference (EMI) Statement - Taiwan

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。

The following is a summary of the EMI Taiwan statement above.

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

### IBM Taiwan Contact Information:

台灣IBM 產品服務聯絡方式：  
台灣國際商業機器股份有限公司  
台北市松仁路7號3樓  
電話：0800-016-888

## Electromagnetic Interference (EMI) Statement - Korea

이 기기는 업무용(A급)으로 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

## Germany Compliance Statement

### Deutschsprachiger EU Hinweis: Hinweis für Geräte der Klasse A EU-Richtlinie zur Elektromagnetischen Verträglichkeit

Dieses Produkt entspricht den Schutzanforderungen der EU-Richtlinie 2004/108/EG zur Angleichung der Rechtsvorschriften über die elektromagnetische Verträglichkeit in den EU-Mitgliedsstaaten und hält die Grenzwerte der EN 55022 Klasse A ein.

Um dieses sicherzustellen, sind die Geräte wie in den Handbüchern beschrieben zu installieren und zu betreiben. Des Weiteren dürfen auch nur von der IBM empfohlene Kabel angeschlossen werden. IBM übernimmt keine Verantwortung für die Einhaltung der Schutzanforderungen, wenn das Produkt ohne Zustimmung von IBM verändert bzw. wenn Erweiterungskomponenten von Fremdherstellern ohne Empfehlung von IBM gesteckt/eingebaut werden.

EN 55022 Klasse A Geräte müssen mit folgendem Warnhinweis versehen werden:  
"Warnung: Dieses ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funk-Störungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen zu ergreifen und dafür aufzukommen."

#### **Deutschland: Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Geräten**

Dieses Produkt entspricht dem "Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG)". Dies ist die Umsetzung der EU-Richtlinie 2004/108/EG in der Bundesrepublik Deutschland.

#### **Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) (bzw. der EMC EG Richtlinie 2004/108/EG) für Geräte der Klasse A**

Dieses Gerät ist berechtigt, in Übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen.

Verantwortlich für die Einhaltung der EMV Vorschriften ist der Hersteller:  
International Business Machines Corp.  
New Orchard Road  
Armonk, New York 10504  
Tel: 914-499-1900

Der verantwortliche Ansprechpartner des Herstellers in der EU ist:  
IBM Deutschland GmbH  
Technical Regulations, Abteilung M372  
IBM-Allee 1, 71139 Ehningen, Germany  
Tel: +49 7032 15 2941  
email: [lugi@de.ibm.com](mailto:lugi@de.ibm.com)

Generelle Informationen:

Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55022 Klasse A.

#### **Electromagnetic Interference (EMI) Statement - Russia**

**ВНИМАНИЕ!** Настоящее изделие относится к классу А.  
В жилых помещениях оно может создавать радиопомехи, для снижения которых необходимы дополнительные меры

#### **Class B Notices**

The following Class B statements apply to features designated as electromagnetic compatibility (EMC) Class B in the feature installation information.

#### **Federal Communications Commission (FCC) statement**

This equipment 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 IBM-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 IBM-authorized dealers. IBM is not responsible for any radio or television interference caused by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate this 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 Compliance Statement**

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

### **Avis de conformité à la réglementation d'Industrie Canada**

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

### **European Community Compliance Statement**

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC 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 non-recommended 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 B Information Technology Equipment according to 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 equipment.

European Community contact:  
IBM Deutschland GmbH  
Technical Regulations, Department M372  
IBM-Allee 1, 71139 Ehningen, Germany  
Tele: +49 7032 15 2941  
email: [lugi@de.ibm.com](mailto:lugi@de.ibm.com)

## VCCI Statement - Japan

この装置は、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。 VCCI-B

## Japanese Electronics and Information Technology Industries Association (JEITA) Confirmed Harmonics Guideline (products less than or equal to 20 A per phase)

高調波ガイドライン適合品

## Japanese Electronics and Information Technology Industries Association (JEITA) Confirmed Harmonics Guideline with Modifications (products greater than 20 A per phase)

高調波ガイドライン準用品

## IBM Taiwan Contact Information

台灣IBM 產品服務聯絡方式：  
台灣國際商業機器股份有限公司  
台北市松仁路7號3樓  
電話：0800-016-888

## Electromagnetic Interference (EMI) Statement - Korea

이 기기는 가정용(B급)으로 전자파적합기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다.

## Germany Compliance Statement

Deutschsprachiger EU Hinweis: Hinweis für Geräte der Klasse B EU-Richtlinie zur Elektromagnetischen Verträglichkeit

Dieses Produkt entspricht den Schutzanforderungen der EU-Richtlinie 2004/108/EG zur Angleichung der Rechtsvorschriften über die elektromagnetische Verträglichkeit in den EU-Mitgliedsstaaten und hält die Grenzwerte der EN 55022 Klasse B ein.

Um dieses sicherzustellen, sind die Geräte wie in den Handbüchern beschrieben zu installieren und zu betreiben. Des Weiteren dürfen auch nur von der IBM empfohlene Kabel angeschlossen werden. IBM übernimmt keine Verantwortung für die Einhaltung der Schutzanforderungen, wenn das Produkt ohne Zustimmung von IBM verändert bzw. wenn Erweiterungskomponenten von Fremdherstellern ohne Empfehlung von IBM gesteckt/eingebaut werden.

#### **Deutschland: Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Geräten**

Dieses Produkt entspricht dem "Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG)". Dies ist die Umsetzung der EU-Richtlinie 2004/108/EG in der Bundesrepublik Deutschland.

#### **Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) (bzw. der EMC EG Richtlinie 2004/108/EG) für Geräte der Klasse B**

Dieses Gerät ist berechtigt, in Übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen.

Verantwortlich für die Einhaltung der EMV Vorschriften ist der Hersteller:  
International Business Machines Corp.  
New Orchard Road  
Armonk, New York 10504  
Tel: 914-499-1900

Der verantwortliche Ansprechpartner des Herstellers in der EU ist:  
IBM Deutschland GmbH  
Technical Regulations, Abteilung M372  
IBM-Allee 1, 71139 Ehningen, Germany  
Tel: +49 7032 15 2941  
email: lugi@de.ibm.com

Generelle Informationen:

**Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55022 Klasse B.**

---

## **Terms and conditions**

Permissions for the use of these publications are granted subject to the following terms and conditions.

**Applicability:** These terms and conditions are in addition to any terms of use for the IBM website.

**Personal Use:** You may reproduce these publications for your personal, noncommercial use provided that all proprietary notices are preserved. You may not distribute, display or make derivative works of these publications, or any portion thereof, without the express consent of IBM.

**Commercial Use:** You may reproduce, distribute and display these publications solely within your enterprise provided that all proprietary notices are preserved. You may not make derivative works of these publications, or reproduce, distribute or display these publications or any portion thereof outside your enterprise, without the express consent of IBM.

**Rights:** Except as expressly granted in this permission, no other permissions, licenses or rights are granted, either express or implied, to the Publications or any information, data, software or other intellectual property contained therein.

IBM reserves the right to withdraw the permissions granted herein whenever, in its discretion, the use of the publications is detrimental to its interest or, as determined by IBM, the above instructions are not being properly followed.

You may not download, export or re-export this information except in full compliance with all applicable laws and regulations, including all United States export laws and regulations.

IBM MAKES NO GUARANTEE ABOUT THE CONTENT OF THESE PUBLICATIONS. THE PUBLICATIONS ARE PROVIDED "AS-IS" AND WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT, AND FITNESS FOR A PARTICULAR PURPOSE.





Printed in USA