

Power Systems

*Managing devices for the 8412-EAD,
9117-MMB, 9117-MMC, 9117-MMD,
9179-MHB, 9179-MHC, or 9179-MHD*

IBM

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9179-MHB, 9179-MHC, or 9179-MHD*

IBM

Note

Before using this information and the product it supports, read the information in "Safety notices" on page v, "Notices" on page 27, 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.

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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)

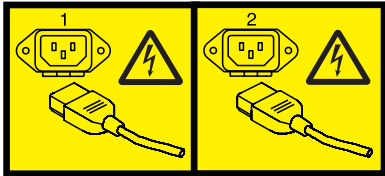
(L001)



(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 8412-EAD, 9117-MMB, 9117-MMC, 9117-MMD, 9179-MHB, 9179-MHC, or 9179-MHD

Learn about managing media and communications devices.

The topic collection 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 specific devices.

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

- SATA Slimline DVD-RAM Drive (FC 5762)
- SATA Slimline DVD-RAM Drive (FC 5771)
- External USB 1.44 MB Diskette Drive (FC 2591)
- RDX USB External Dock (EU04)
- RDX Removable Disk Drives (1106, 1107, EU01, EU08, and EU15)

Related concepts:

“Class B Notices” on page 32

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 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 reads type II (removable from cartridge) DVD-RAM discs. The drive also reads CD-ROM, CD-R, CD-RW, DVD-R, DVD+R, DVD-RW, and DVD+RW. System boot and installation functions are supported with CD and DVD media.

Specifications

- FRU part number: 44V4220
- Custom card identification number (CCIN): 6331 model 004

Note: The model field is subject to change.

- Media:
 - Reads CD-ROM, CD-R, CD-RW, DVD-ROM, DVD-RAM, DVD-R, DVD+R, DVD-RW, and DVD+RW 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.

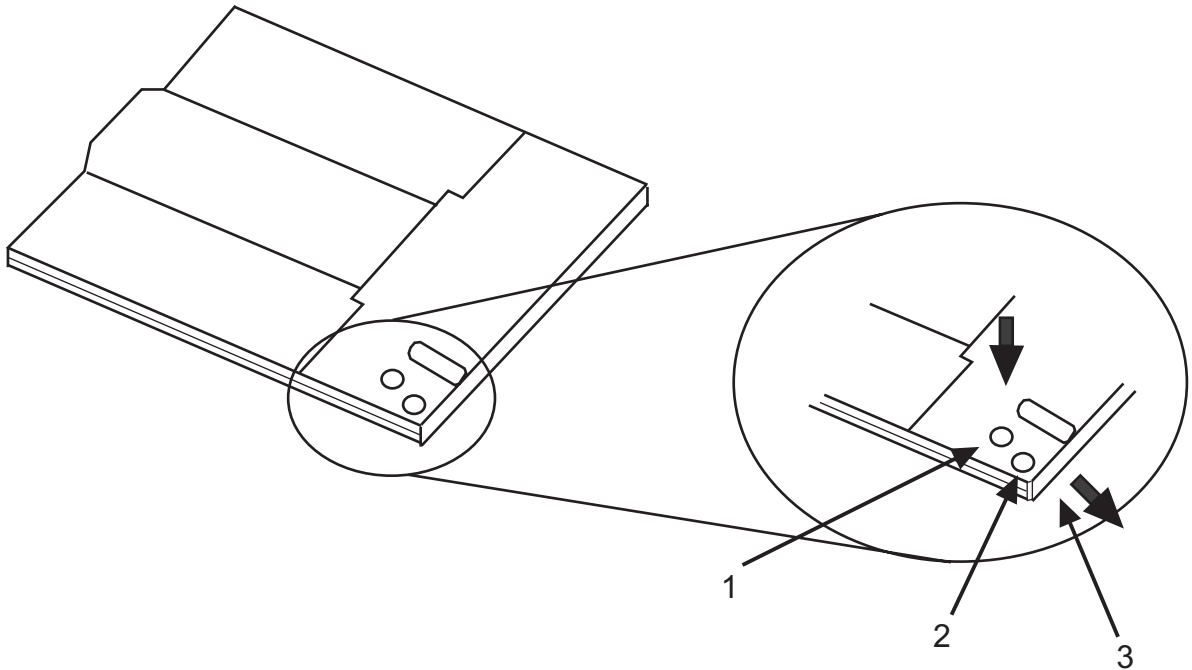


Table 1. Index number and corresponding description for removing a disc from the cartridge

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 2. External USB 1.44 MB diskette drive features

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

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.

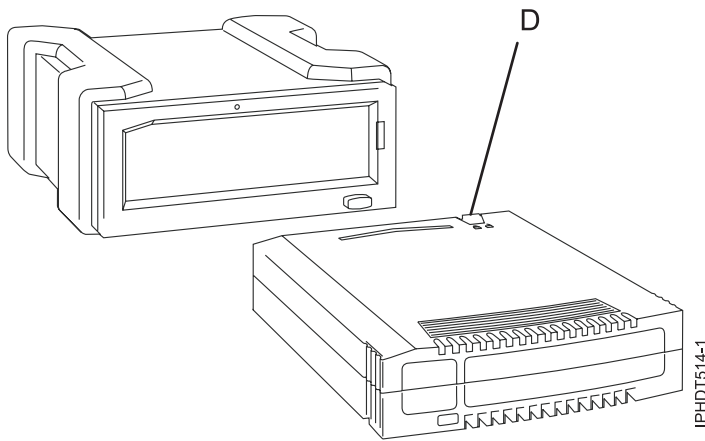
RDX USB External Dock (1104 and EU04) and RDX Removable Disk Drives (1106, 1107, EU01, EU08, and EU15)

Learn about the features of this drive.

Description

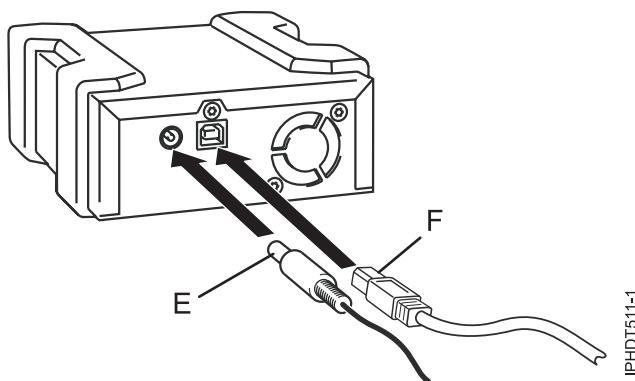
The USB removable disk drive consists of a docking station, which holds a removable disk drive. The docking station is available as an external device. The disk drive is a backup and restore device that can be used as an alternative to tape drives. The removable disk drive is not a replacement for regular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

Figure 1. Front view and external drive with removable disk drive



D Write-protect switch

Figure 2. 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 3. 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 3.

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 4. 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 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 5. 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 6. 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 7. 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 desktside 7036-P16 unit

To install the desktside 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 18.

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 18.

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 18.

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 later

This 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 18.

2. Ensure that the Digi RealPort Software is installed on the server. Type the following command: `ls | 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 18.

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 18.

2. Ensure that the Digi RealPort Software is installed on the server. Type the following command: `lslpp -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 18.

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.”

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 8. 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

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

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Avis de conformité à la réglementation d'Industrie Canada

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European Community contact:
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Tele: +49 7032 15 2941
email: lugi@de.ibm.com

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

Der verantwortliche Ansprechpartner des Herstellers in der EU ist:
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IBM-Allee 1, 71139 Ehningen, Germany
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email: lugi@de.ibm.com

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- 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.
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IBM-Allee 1, 71139 Ehningen, Germany
Tel: +49 7032 15 2941
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