

PCI Adapter Placement for E1-700, E1-705, E3-700 or E3-705

ESCALA Power7



REFERENCE
86 A1 87FF 04

ESCALA Power7

PCI Adapter Placement for E1-700, E1-705, E3-700 or E3-705

The ESCALA Power7 publications concern the following models:

- Bull Escala E5-700 (Power 750 / 8233-E8B)
- Bull Escala M6-700 (Power 770 / 9117-MMB)
- Bull Escala M6-705 (Power 770 / 9117-MMC)
- Bull Escala M7-700 (Power 780 / 9179-MHB)
- Bull Escala M7-705 (Power 780 / 9179-MHC)
- Bull Escala E1-700 (Power 710 / 8231-E2B)
- Bull Escala E1-705 (Power 710 / 8231-E1C)
- Bull Escala E2-700 / E2-700T (Power 720 / 8202-E4B)
- Bull Escala E2-705 / E2-705T (Power 720 / 8202-E4C)
- Bull Escala E3-700 (Power 730 / 8231-E2B)
- Bull Escala E3-705 (Power 730 / 8231-E2C)
- Bull Escala E4-700 / E4-700T (Power 740 / 8205-E6B)
- Bull Escala E4-705 (Power 740 / 8205-E6C)

References to Power 755 / 8236-E8C models are irrelevant.

Hardware

May 2012

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49008 ANGERS CEDEX 01
FRANCE

REFERENCE
86 A1 87FF 04

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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, a safety information booklet is included in the publications package shipped with the product. The booklet 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 in the booklet. You should also refer to the booklet any time you do not clearly understand any safety information in the U.S. English publications.

Laser safety information

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

Laser compliance

The 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 provided power cord. Do not use the 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.

(D005a)

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:

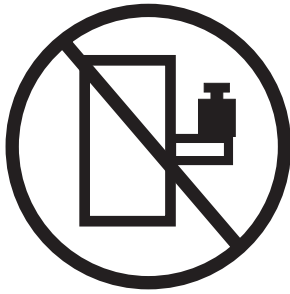
- Reduce the weight of the rack cabinet by removing equipment starting at the top of the rack cabinet. When possible, restore the rack cabinet to the configuration of the rack cabinet as you received it. If this configuration is not known, you must observe the following precautions:
 - Remove all devices 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)

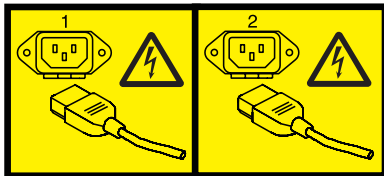
(L001)



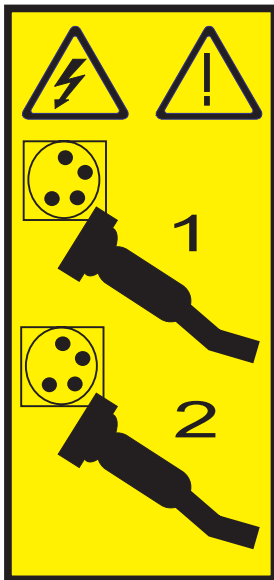
(L002)



(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 approved part. Recycle or discard the battery as instructed by local regulations. (C003a)

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

The following comments apply to the 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.

PCI adapter placement for the 31E/2B, 31E/1C, or 31E/2C

Find information about the peripheral component interconnect (PCI), PCI-X, and PCI Express (PCIe) adapters that are supported for the 7/10 (31E/1C) and 7/30 (31E/2B and 31E/2C) systems.

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

Table 1. Electromagnetic compatibility (EMC) Class B features

Feature	Description
1912, 5736	PCI-X DDR 2.0 Dual Channel Ultra320 SCSI Adapter
1983, 5706	Port 10/100/1000 Base-TX Ethernet PCI-X Adapter
1986, 5713	1 Gigabit iSCSI TOE PCI-X Adapter
2728	4-Port USB PCIe Adapter
4764	PCI-X Cryptographic Coprocessor
4807	PCIe Cryptographic Coprocessor
5717	4-Port 10/100/1000 Base-TX PCI Express Adapter
5732	10 Gigabit Ethernet-CX4 PCI Express Adapter
5748	POWER® GXT145 PCI Express Graphics Accelerator
5767	2-Port 10/100/1000 Base-TX Ethernet PCI Express Adapter
5768	2-Port Gigabit Ethernet-SX PCI Express Adapter
5769	10 Gigabit Ethernet-SR PCI Express Adapter
5772	10 Gigabit Ethernet-LR PCI Express Adapter
5785	4 Port Async EIA-232 PCIe Adapter

Supported PCI adapters for the 31E/2B, 31E/1C, or 31E/2C

Find information about the peripheral component interconnect (PCI), PCI-X, and PCI Express (PCIe) adapters that are supported for the 7/10 (31E/1C) and 7/30 (31E/2B and 31E/2C) systems.

Find reference information that information technology (IT) personnel and service representatives can use in determining where to install PCI adapters in the 31E/2B, 31E/1C, or 31E/2C.

Adapters supported on the AIX®, , or Linux operating system

Table 2 lists the adapters supported on the AIX, , and Linux operating systems. Not all adapters are supported on all operating systems. Exceptions are noted in the Description column.

The following table lists the supported PCIe adapters.

Table 2. PCIe adapters supported on the AIX, , or Linux operating system

System	Feature code /CCIN	Description
31E/2B, 31E/1C, and 31E/2C	5277	4-Port Async EIA-232 PCIe 1X LP Adapter (FC 5277) <ul style="list-style-type: none">• Low-profile adapter• Short, x1• OS support: AIX and Linux

Table 2. PCIe adapters supported on the AIX, , or Linux operating system (continued)

System	Feature code /CCIN	Description
31E/2C	5289	PCIe 2-port Async EIA-232 PCIe 1X LPC Adapter (FC 5289) <ul style="list-style-type: none"> • Short, x8, full-height adapter • PCIe 1.1 • 2 Ports through RJ45 by using the DB9 connector • EIA-232 Compatible • OS support: AIX and Linux
31E/2B, 31E/1C, and 31E/2C	5290	PCIe LP 2-port Async EIA-232 Adapter (FC 5290) <ul style="list-style-type: none"> • Low-profile adapter • PCIe 1.1 • Short, x8 • 2 Ports through RJ45 by using the DB9 connector • EIA-232 compatible • OS support: AIX and Linux
31E/2C	ESA1	PCIe2 RAID SAS Adapter Dual-port 6Gb (FC ESA1) <ul style="list-style-type: none"> • Regular-height adapter • PCIe generation-2, x8 • OS support: AIX, , and Linux
31E/1C and 31E/2C	ESA2	PCIe2 RAID SAS Adapter Dual-port 6Gb LP (FC ESA2) <ul style="list-style-type: none"> • Short, low-profile • PCIe generation-2, x8 • OS support: AIX, , and Linux
31E/2B, 31E/1C, and 31E/2C	2053	PCIe RAID and SSD SAS Adapter 3Gb Low-profile (FC 2053) <ul style="list-style-type: none"> • Low-profile adapter, requires two slots • Short, x8 • OS support: AIX, , and Linux • VIOS attachment requires version 2.2, or later
31E/2C	2055	PCIe RAID and SSD SAS Adapter 3Gb with Blind-Swap Cassette (FC 2055) <ul style="list-style-type: none"> • Low-profile adapter, requires two slots • Short, x8 • OS support: AIX, , and Linux • VIOS attachment requires version 2.2, or later
31E/2B, 31E/1C, and 31E/2C	5273	8 Gigabit PCI Express Dual Port Fibre Channel Adapter (FC 5273) <ul style="list-style-type: none"> • Low-profile adapter • Short, x8 • OS support: AIX, , and Linux

Table 2. PCIe adapters supported on the AIX, , or Linux operating system (continued)

System	Feature code /CCIN	Description
31E/2C	5735	<p>8-Gigabit PCI Express Dual Port Fibre Channel Adapter (FC 5735)</p> <ul style="list-style-type: none"> • Short, x8 • Extra-high bandwidth: If only one port is planned to be active in normal operation, the adapter is counted as an extra-high bandwidth adapter. If both ports are planned to be active, the adapter must be treated as two extra-high bandwidth adapters. • OS support: AIX, , and Linux
31E/2C	5773	<p>4 Gigabit PCI Express Single Port Fibre Channel Adapter (FC 5773)</p> <ul style="list-style-type: none"> • Short, x4 • High bandwidth • OS support: AIX and Linux
31E/2C	5774	<p>4 Gigabit PCI Express Dual Port Fibre Channel Adapter (FC 5774)</p> <ul style="list-style-type: none"> • Short, x4 • Extra-high bandwidth • OS support: AIX, , and Linux
31E/1C and 31E/2C	EN0Y	<p>PCIe2 LP 8Gb 4-port Fibre Channel Adapter (FC EN0Y)</p> <ul style="list-style-type: none"> • Short, low-profile • PCIe generation-2, x8 • Short form factor plus (SFF+) Host Bus Adapter (HBA) • Extra-high bandwidth • OS support: AIX, , and Linux
31E/1C and 31E/2C	5269	<p>POWER GXT145 PCI Express Graphics Accelerator (FC 5269)</p> <ul style="list-style-type: none"> • Low-profile adapter • Short, x1 • OS support: AIX and Linux
31E/2C	5748	<p>POWER GXT145 PCI Express Graphics Accelerator (FC 5748)</p> <ul style="list-style-type: none"> • Short, x1 • Not hot-pluggable • OS support: AIX and Linux
31E/2B, 31E/1C, and 31E/2C	5260	<p>PCIe2 LP 4-port 1GbE Adapter (FC 5260)</p> <ul style="list-style-type: none"> • Low-profile adapter • PCIe generation-1 or generation-2, x4 • High bandwidth • Four-port 1 Gb Ethernet • OS support: AIX, Linux, and

Table 2. PCIe adapters supported on the AIX, , or Linux operating system (continued)

System	Feature code /CCIN	Description
31E/2B, 31E/1C, and 31E/2C	5269	POWER GXT145 PCI Express Graphics Accelerator (FC 5269) <ul style="list-style-type: none"> • Low-profile adapter • Short, x1 • OS support: AIX and Linux
31E/2B, 31E/1C, and 31E/2C	5270	10Gb FCoE PCIe Dual Port Adapter (FC 5270) <ul style="list-style-type: none"> • Low-profile adapter • Short, x8 • OS support: AIX and Linux
31E/2B, 31E/1C, and 31E/2C	5271	4-Port 10/100/1000 Base-TX PCI Express Adapter (FC 5271) <ul style="list-style-type: none"> • Low-profile adapter • Short, x4 • OS support: AIX and Linux
31E/2B, 31E/1C, and 31E/2C	5272	10 Gigabit Ethernet-CX4 PCI Express Adapter (FC 5272) <ul style="list-style-type: none"> • Low-profile adapter • Short, x8 • OS support: AIX and Linux
31E/2B, 31E/1C, and 31E/2C	5274	2-Port Gigabit Ethernet-SX PCI Express Adapter (FC 5274) <ul style="list-style-type: none"> • Low-profile adapter • Short, x4 • OS support: AIX, , and Linux
31E/2B, 31E/1C, and 31E/2C	5275	10 Gigabit Ethernet-SR PCI Express Adapter (FC 5275) <ul style="list-style-type: none"> • Low-profile adapter • Short, x8 • OS support: AIX and Linux
31E/2B, 31E/1C, and 31E/2C	5276	4-Gigabit PCI Express Dual Port Fibre Channel Adapter (FC 5276) <ul style="list-style-type: none"> • Low-profile adapter • Short, x4 • OS support: AIX, , and Linux
31E/2B, 31E/1C, and 31E/2C	5278	PCIe Dual-x4 SAS Adapter (FC 5278) <ul style="list-style-type: none"> • Low-profile adapter • Short, x8 • OS support: AIX, , and Linux
31E/1C and 31E/2C	5279	PCIe2 LP 2x10GbE SFP+ Copper 2x1GbE UTP Adapter (FC 5279) <ul style="list-style-type: none"> • Low-profile, Short, x8 • PCIe 2 • OS support: Linux

Table 2. PCIe adapters supported on the AIX, , or Linux operating system (continued)

System	Feature code /CCIN	Description
31E/1C and 31E/2C	5280	<p>PCIe2 LP 2x10GbE SR 2x1GbE UTP Adapter (FC 5280)</p> <ul style="list-style-type: none"> • Low-profile, short, x8 • PCIe 2 • OS support: Linux
31E/2B, 31E/1C, and 31E/2C	5281	<p>1Gb Ethernet UTP 2-port PCIe Adapter (FC 5281)</p> <ul style="list-style-type: none"> • Low-profile, short, x8 • PCIe 2 • OS support: AIX, , and Linux
31E/1C and 31E/2C	5284	<p>PCIe2 LP 2-port 10GbE SR Adapter (FC 5284)</p> <ul style="list-style-type: none"> • Generation-2, low-profile capable, high-performance adapter • Capable of transferring data to a distance of 300 m over MMF-850 nm fiber cable • Requires available PCIe slot in the FC 5685 PCIe Riser Card (generation-2) • OS support: AIX, supported only through VIOS, Red Hat Enterprise Linux and SUSE Linux Enterprise Server
31E/1C and 31E/2C	5286	<p>PCIe2 LP 2-Port 10GbE SFP+ Copper Adapter (FC 5286)</p> <ul style="list-style-type: none"> • Generation-2, low-profile adapter • Two 10-Gb Ethernet ports • Requires available PCIe slot in the FC 5685 PCIe Riser Card (generation-2) • OS support: AIX and Linux
31E/2C	5708	<p>10Gb FCoE PCIe Dual Port Adapter (FC 5708)</p> <ul style="list-style-type: none"> • Regular full-height • PCIe 2.0 adapter with x8 Generation-1 • Convergence enhanced Ethernet (CEE) supported • OS support: AIX, Linux, and with VIOS.
31E/2C	5717	<p>4-Port 10/100/1000 Base-TX PCI Express Adapter (FC 5717)</p> <ul style="list-style-type: none"> • Short, x4 • High bandwidth • OS support: AIX and Linux
31E/2C	5732	<p>10 Gigabit Ethernet-CX4 PCI Express Adapter (FC 5732)</p> <ul style="list-style-type: none"> • Short, x8 • Extra-high bandwidth • OS support: AIX and Linux
31E/2C	5767	<p>2-Port 10/100/1000 Base-TX Ethernet PCI Express Adapter (FC 5767)</p> <ul style="list-style-type: none"> • Short, x4 • High bandwidth • OS support: AIX, , and Linux

Table 2. PCIe adapters supported on the AIX, , or Linux operating system (continued)

System	Feature code /CCIN	Description
31E/2C	5768	2-Port Gigabit Ethernet-SX PCI Express Adapter (FC 5768) <ul style="list-style-type: none"> • Short, x4 • High bandwidth • OS support: AIX, , and Linux
31E/2C	5769	10 Gigabit Ethernet-SR PCI Express Adapter (FC 5769) <ul style="list-style-type: none"> • Short, full-high, x8 • Low-profile capable • High bandwidth • OS support: AIX and Linux
31E/2C	5772	10 Gigabit Ethernet-LR PCI Express Adapter (FC 5772) <ul style="list-style-type: none"> • Short, x8 • Low-profile capable • Extra-high bandwidth • OS support: AIX, , and Linux
31E/1C and 31E/2C	9056	PCIe LP 2-Port 1GbE TX adapter (FC 9056) <ul style="list-style-type: none"> • Low-profile, PCIe x4 • PCIe 1.0a compliant • High bandwidth • Two full-duplex 10/100/1000 Base-TX UTP connections to gigabit Ethernet (GbE) LANs • OS support: AIX, , and Linux
31E/1C and 31E/2C	EC27	PCIe2 LP 2-Port 10GbE RoCE SFP+ adapter (FC EC27) <ul style="list-style-type: none"> • Short, low-profile • PCIe generation-2, x8 • Extra-high bandwidth, low latency 10 Gb Ethernet • OS support: AIX
31E/2C	2893/2894	PCI Express 2-Line WAN with Modem (FC 2893) <ul style="list-style-type: none"> • Short, x4 • Non-CIM • OS support: AIX, , and Linux
31E/2C	2728	4-Port USB PCIe Adapter (FC 2728) <ul style="list-style-type: none"> • Low-profile adapter • Single-slot, half-length PCIe adapter • PCIe 1.1 • OS support: AIX and Linux
31E/2C	4808	PCIe Cryptographic Coprocessor (FC 4808) <ul style="list-style-type: none"> • Generation-3 blind-swap cassette • PCIe x4, full-height, half-length • OS support: AIX and

Table 2. PCIe adapters supported on the AIX, , or Linux operating system (continued)

System	Feature code /CCIN	Description
31E/1C and 31E/2C	5283	PCIe2 LP 2-Port 4X InfiniBand QDR Adapter (FC 5283) <ul style="list-style-type: none"> • Generation-2 low-profile adapter • Extra-high bandwidth • Requires available PCIe slot in the FC 5685 PCIe Riser Card (generation-2) • OS support: AIX and Linux
31E/1C and 31E/2C	CCIN 57C3	PCIe2 Internal SAS RAID Adapter (CCIN 57C3) <ul style="list-style-type: none"> • Integrated enclosure RAID module (ERM) with the 58/88 PCIe storage enclosure • PCIe generation-2, x8 • OS support: AIX, , and Linux

PCI adapters placement rules and slot priorities for the 31E/2B, 31E/1C, or 31E/2C

Find information about the placement rules and slot priorities for the peripheral component interconnect (PCI), PCI-X, and PCI Express (PCIe) adapters that are supported for the 7/10 (31E/1C) and 7/30 (31E/2B and 31E/2C) systems that contain the POWER7[®] processor, and the associated I/O expansion units.

PCI adapter placement rules and slot priorities for the 31E/2B

Some adapters must be placed in specific PCI Express (PCIe) slots to function correctly or to perform optimally. Learn how to determine the slot to install PCI adapters for the 7/30 (31E/2B) system.

PCI slot descriptions

Figure 1 on page 8 shows the rear view of the 31E/2B system with the location codes for the PCI adapter slots. Table 3 on page 8 describes the slots. Table 4 on page 8 shows details of the slot priorities and the maximum supported adapters on the 31E/2B system.

All slots in this system are low-profile slots only. Each PCIe is a separate PCI host bridge (PHB).

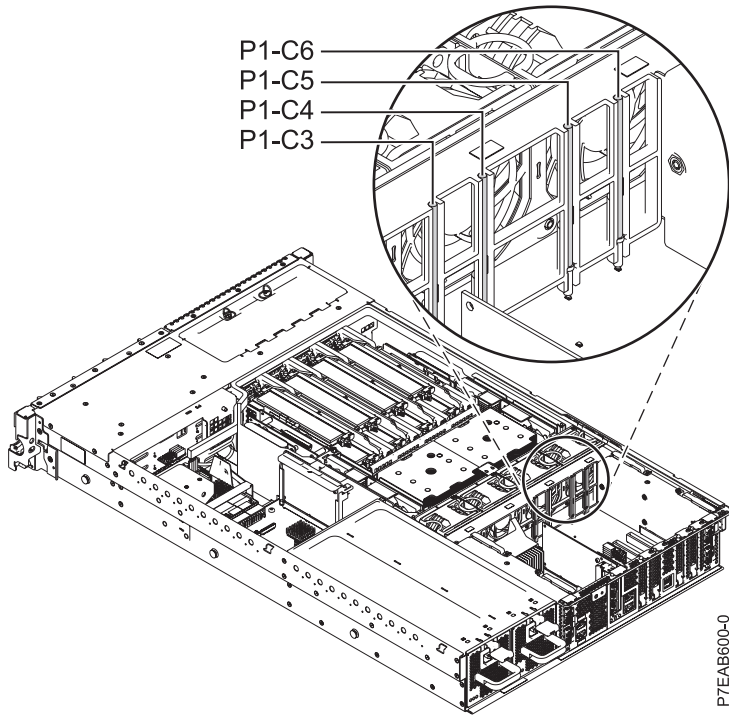


Figure 1. Rear view of the 31E/2B with location codes for the PCI slots

Table 3. PCI slot locations and descriptions

Slot	Location code	Description	PHB	Adapter size
Slot 1	P1-C3	PCIe x8	PCIe PHB0 module A	Low-profile
Slot 2	P1-C4	PCIe x8	PCIe PHB1 module A	Low-profile
Slot 3	P1-C5	PCIe x8	PCIe PHB2 module A	Low-profile
Slot 4	P1-C6	PCIe x8	PCIe PHB3 module A	Low-profile

PCIe adapters

All slots in this system are the same and have equal importance while installing the adapter. Use this information to identify slot placement priorities and the maximum number of specified adapters that you can install. All slots are equal and have equal importance.

Table 4. Adapter slot priorities and maximums for PCIe adapters

Feature code	Description	Maximum number of adapters supported per system
5277	4-Port Async EIA-232 PCIe 1X LP Adapter (FC 5277) <ul style="list-style-type: none"> • Low-profile adapter • Short, x1 • OS support: AIX and Linux 	4

Table 4. Adapter slot priorities and maximums for PCIe adapters (continued)

Feature code	Description	Maximum number of adapters supported per system
5290	PCIe LP 2-port Async EIA-232 Adapter (FC 5290) <ul style="list-style-type: none"> • Low-profile adapter • PCIe 1.1 • Short, x8 • 2 Ports through RJ45 by using the DB9 connector • EIA-232 compatible • OS support: AIX and Linux 	4
5273	8 Gigabit PCI Express Dual Port Fibre Channel Adapter (FC 5273) <ul style="list-style-type: none"> • Low-profile adapter • Short, x8 • OS support: AIX, , and Linux 	4
5276	4-Gigabit PCI Express Dual Port Fibre Channel Adapter (FC 5276) <ul style="list-style-type: none"> • Low-profile adapter • Short, x4 • OS support: AIX, , and Linux 	4
5269	POWER GXT145 PCI Express Graphics Accelerator (FC 5269) <ul style="list-style-type: none"> • Low-profile adapter • Short, x1 • OS support: AIX and Linux 	4
5260	PCIe2 LP 4-port 1GbE Adapter (FC 5260) <ul style="list-style-type: none"> • Low-profile adapter • PCIe generation-1 or generation-2, x4 • High bandwidth • Four-port 1 Gb Ethernet • OS support: AIX, Linux, and 	4
5270	10Gb FCoE PCIe Dual Port Adapter (FC 5270) <ul style="list-style-type: none"> • Low-profile adapter • Short, x8 • OS support: AIX and Linux 	4
5271	4-Port 10/100/1000 Base-TX PCI Express Adapter (FC 5271) <ul style="list-style-type: none"> • Low-profile adapter • Short, x4 • OS support: AIX and Linux 	4
5272	10 Gigabit Ethernet-CX4 PCI Express Adapter (FC 5272) <ul style="list-style-type: none"> • Low-profile adapter • Short, x8 • OS support: AIX and Linux 	4
5274	2-Port Gigabit Ethernet-SX PCI Express Adapter (FC 5274) <ul style="list-style-type: none"> • Low-profile adapter • Short, x4 • OS support: AIX, , and Linux 	4

Table 4. Adapter slot priorities and maximums for PCIe adapters (continued)

Feature code	Description	Maximum number of adapters supported per system
5275	10 Gigabit Ethernet-SR PCI Express Adapter (FC 5275) <ul style="list-style-type: none"> • Low-profile adapter • Short, x8 • OS support: AIX and Linux 	4
5281	1Gb Ethernet UTP 2-port PCIe Adapter (FC 5281) <ul style="list-style-type: none"> • Low-profile, short, x8 • PCIe 2 • OS support: AIX, , and Linux 	4
2053	PCIe RAID and SSD SAS Adapter 3Gb Low-profile (FC 2053) <ul style="list-style-type: none"> • Low-profile adapter, requires two slots • Short, x8 • OS support: AIX, , and Linux • VIOS attachment requires version 2.2, or later 	2
5278	PCIe Dual-x4 SAS Adapter (FC 5278) <ul style="list-style-type: none"> • Low-profile adapter • Short, x8 • OS support: AIX, , and Linux 	4
5281	1Gb Ethernet UTP 2-port PCIe Adapter (FC 5281) <ul style="list-style-type: none"> • Low-profile, short, x8 • PCIe 2 • OS support: AIX, , and Linux 	4

Performance notes

Use the information in this section to help determine the maximum number of adapters that can be placed in a system while still maintaining optimum performance.

Performance notes regarding GX++ channel adapters

Table 4 on page 8 identifies the slot placement priorities and the maximum number of specified adapters that can be installed for connectivity. However, for optimum performance, you might want to further limit the total number of high bandwidth and extra-high bandwidth adapters. The system supports the FC 5266 GX++ dual port adapter. When plugging in these adapters, if only one adapter is being configured it must be placed in the GX++ slot 2. This placement helps distribute the I/O traffic over the GX buses to the processors.

PCI adapter placement rules and slot priorities for the 31E/1C

Some adapters must be placed in specific PCI Express (PCIe) slots to function correctly or to perform optimally. Learn how to determine the slot to install PCI adapters for the 7/10 (31E/1C) system.

PCI slot descriptions

The 31E/1C system has five PCIe x8 G2 low-profile slots and one PCIe x4 low-profile slot. All slots support enhanced error handling (EEH), but are not hot pluggable. Figure 2 on page 11 shows the rear view of the system with the location codes for the PCI adapter slots. Table 5 on page 11 describes the

slots. All slots in this system are low-profile slots only. Each PCIe is a separate PCI host bridge (PHB). The PCIe slot 1 and slot 4 have an x16 connector and the other slots have an x8 connector.

For the information about the maximum adapters supported on your system, see Table 6.

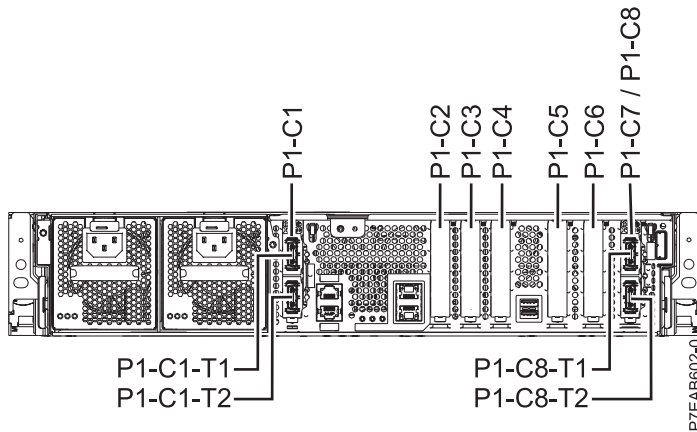


Figure 2. Rear view of the 31E/1C with location codes

Table 5. PCI slot locations and descriptions

Slot	Location code	Description	PHB	Adapter size
Slot 1	P1-C2	PCIe x8 G2	PCIe-PHB5	Low-profile
Slot 2	P1-C3	PCIe x8 G2	PCIe-PHB4	Low-profile
Slot 3	P1-C4	PCIe x8 G2	PCIe-PHB3	Low-profile
Slot 4	P1-C5	PCIe x8 G2	PCIe-PHB2	Low-profile
Slot 5	P1-C6	PCIe x8 G2	PCIe-PHB1	Low-profile
Slot 6 ^{1, 2}	P1-C7	PCIe x4 G2	PCIe-PHB0	Low-profile

² The following PCIe adapters are not supported at PCIe slot 6 (P1-C7):

- FC 5277
- FC 5269
- FC 5278

PCIe adapters

Use this information to identify slot placement priorities and the maximum number of specified adapters that you can install.

Table 6. Adapter slot priorities and maximums for PCIe adapters

Feature code	Description	Slot priorities	Maximum number of adapters supported
5277	4-Port Async EIA-232 PCIe 1X LP Adapter (FC 5277) <ul style="list-style-type: none"> • Low-profile adapter • Short, x1 • OS support: AIX and Linux 	1, 2, 3, 4, 5 ¹	5

Table 6. Adapter slot priorities and maximums for PCIe adapters (continued)

Feature code	Description	Slot priorities	Maximum number of adapters supported
5290	PCIe LP 2-port Async EIA-232 Adapter (FC 5290) <ul style="list-style-type: none"> • Low-profile adapter • PCIe 1.1 • Short, x8 • 2 Ports through RJ45 by using the DB9 connector • EIA-232 compatible • OS support: AIX and Linux 	1, 2, 3, 4, 5, 6	5
ESA2	PCIe2 RAID SAS Adapter Dual-port 6Gb LP (FC ESA2) <ul style="list-style-type: none"> • Short, low-profile • PCIe generation-2, x8 • OS support: AIX, , and Linux 	1, 2, 3, 4, 5, 6	2
2053	PCIe RAID and SSD SAS Adapter 3Gb Low-profile (FC 2053) <ul style="list-style-type: none"> • Low-profile adapter, requires two slots • Short, x8 • OS support: AIX, , and Linux • VIOS attachment requires version 2.2, or later 	1, 2, 3, 4, 5, 6	2
5273	8 Gigabit PCI Express Dual Port Fibre Channel Adapter (FC 5273) <ul style="list-style-type: none"> • Low-profile adapter • Short, x8 • OS support: AIX, , and Linux 	1, 2, 3, 4, 5, 6	5
EN0Y	PCIe2 LP 8Gb 4-port Fibre Channel Adapter (FC EN0Y) <ul style="list-style-type: none"> • Short, low-profile • PCIe generation-2, x8 • Short form factor plus (SFF+) Host Bus Adapter (HBA) • Extra-high bandwidth • OS support: AIX, , and Linux 	1, 2, 3, 4, 5, 6	5
5260	PCIe2 LP 4-port 1GbE Adapter (FC 5260) <ul style="list-style-type: none"> • Low-profile adapter • PCIe generation-1 or generation-2, x4 • High bandwidth • Four-port 1 Gb Ethernet • OS support: AIX, Linux, and 	1, 2, 3, 4, 5, 6	6
5269	POWER GXT145 PCI Express Graphics Accelerator (FC 5269) <ul style="list-style-type: none"> • Low-profile adapter • Short, x1 • OS support: AIX and Linux 	1, 2, 3, 4, 5 ¹	4
5270	10Gb FCoE PCIe Dual Port Adapter (FC 5270) <ul style="list-style-type: none"> • Low-profile adapter • Short, x8 • OS support: AIX and Linux 	1, 2, 3, 4, 5, 6	5

Table 6. Adapter slot priorities and maximums for PCIe adapters (continued)

Feature code	Description	Slot priorities	Maximum number of adapters supported
5271	4-Port 10/100/1000 Base-TX PCI Express Adapter (FC 5271) <ul style="list-style-type: none"> • Low-profile adapter • Short, x4 • OS support: AIX and Linux 	1, 2, 3, 4, 5, 6	5
5272	10 Gigabit Ethernet-CX4 PCI Express Adapter (FC 5272) <ul style="list-style-type: none"> • Low-profile adapter • Short, x8 • OS support: AIX and Linux 	1, 2, 3, 4, 5, 6	5
5274	2-Port Gigabit Ethernet-SX PCI Express Adapter (FC 5274) <ul style="list-style-type: none"> • Low-profile adapter • Short, x4 • OS support: AIX, , and Linux 	1, 2, 3, 4, 5, 6	5
5278	PCIe Dual-x4 SAS Adapter (FC 5278) <ul style="list-style-type: none"> • Low-profile adapter • Short, x8 • OS support: AIX, , and Linux 	1, 2, 3, 4, 5 ¹	5
5275	10 Gigabit Ethernet-SR PCI Express Adapter (FC 5275) <ul style="list-style-type: none"> • Low-profile adapter • Short, x8 • OS support: AIX and Linux 	1, 2, 3, 4, 5, 6	5
5276	4-Gigabit PCI Express Dual Port Fibre Channel Adapter (FC 5276) <ul style="list-style-type: none"> • Low-profile adapter • Short, x4 • OS support: AIX, , and Linux 	1, 2, 3, 4, 5, 6	6
5279	PCIe2 LP 2x10GbE SFP+ Copper 2x1GbE UTP Adapter (FC 5279) <ul style="list-style-type: none"> • Low-profile, Short, x8 • PCIe 2 • OS support: Linux 	1, 2, 3, 4, 5, 6	5
5280	PCIe2 LP 2x10GbE SR 2x1GbE UTP Adapter (FC 5280) <ul style="list-style-type: none"> • Low-profile, short, x8 • PCIe 2 • OS support: Linux 	1, 2, 3, 4, 5, 6	5
5281	1Gb Ethernet UTP 2-port PCIe Adapter (FC 5281) <ul style="list-style-type: none"> • Low-profile, short, x8 • PCIe 2 • OS support: AIX, , and Linux 	1, 2, 3, 4, 5, 6	5

Table 6. Adapter slot priorities and maximums for PCIe adapters (continued)

Feature code	Description	Slot priorities	Maximum number of adapters supported
5284	PCIe2 LP 2-port 10GbE SR Adapter (FC 5284) <ul style="list-style-type: none"> • Generation-2, low-profile capable, high-performance adapter • Capable of transferring data to a distance of 300 m over MMF-850 nm fiber cable • Requires available PCIe slot in the FC 5685 PCIe Riser Card (generation-2) • OS support: AIX, supported only through VIOS, Red Hat Enterprise Linux and SUSE Linux Enterprise Server 	1, 2, 3, 4, 5, 6	5
5286	PCIe2 LP 2-Port 10GbE SFP+ Copper Adapter (FC 5286) <ul style="list-style-type: none"> • Generation-2, low-profile adapter • Two 10-Gb Ethernet ports • Requires available PCIe slot in the FC 5685 PCIe Riser Card (generation-2) • OS support: AIX and Linux 	1, 2, 3, 4, 5, 6	5
9056	PCIe LP 2-Port 1GbE TX adapter (FC 9056) <ul style="list-style-type: none"> • Low-profile, PCIe x4 • PCIe 1.0a compliant • High bandwidth • Two full-duplex 10/100/1000 Base-TX UTP connections to gigabit Ethernet (GbE) LANs • OS support: AIX, , and Linux 	1, 2, 3, 4, 5, 6	1
EC27	PCIe2 LP 2-Port 10GbE RoCE SFP+ adapter (FC EC27) <ul style="list-style-type: none"> • Short, low-profile • PCIe generation-2, x8 • Extra-high bandwidth, low latency 10 Gb Ethernet • OS support: AIX 	1, 2, 3, 4, 5, 6	4
5283	PCIe2 LP 2-Port 4X InfiniBand QDR Adapter (FC 5283) <ul style="list-style-type: none"> • Generation-2 low-profile adapter • Extra-high bandwidth • Requires available PCIe slot in the FC 5685 PCIe Riser Card (generation-2) • OS support: AIX and Linux 	1, 2, 3, 4, 5, 6	2

¹The adapter can be installed in any slot other than slot 6 and is not supported in slot 6.

Performance notes

Use the information in this section to help determine the maximum number of adapters that can be placed in a system while still maintaining optimum performance.

Performance notes regarding GX++ channel adapters

Table 6 on page 11 identifies the slot placement priorities and the maximum number of specified adapters that can be installed for connectivity. However, for optimum performance, you might want to further limit the total number of high bandwidth and extra-high bandwidth adapters. The system supports only

one type of GX++ adapter, feature code (FC) EJ0H (GX++ LP 1-port PCIe2 x8 adapter). When plugging in these adapters, if only one adapter is being configured it must be placed in the GX++ slot 2. This placement helps distribute the I/O traffic over the GX buses to the processors.

PCI adapter placement rules and slot priorities for the 31E/2C

Some adapters must be placed in specific PCI Express (PCIe) slots to function correctly or to perform optimally. Learn how to determine the slot to install PCI adapters for the 7/30 (31E/2C) system.

PCI slot descriptions

The 31E/2C system has five PCIe x8 G2 low-profile slots and one PCIe x4 low-profile slot. All slots support enhanced error handling (EEH), but are not hot pluggable. Figure 3 shows the rear view of the system with the location codes for the PCI adapter slots. Table 7 provides information about the slots. All slots in this system are low-profile slots only. Each PCIe is a separate PCI host bridge (PHB). The PCIe slot 1 and slot 4 have an x16 connector and the other slots have x8 connector.

For the information about the maximum adapters supported on your system, see Table 8 on page 16.

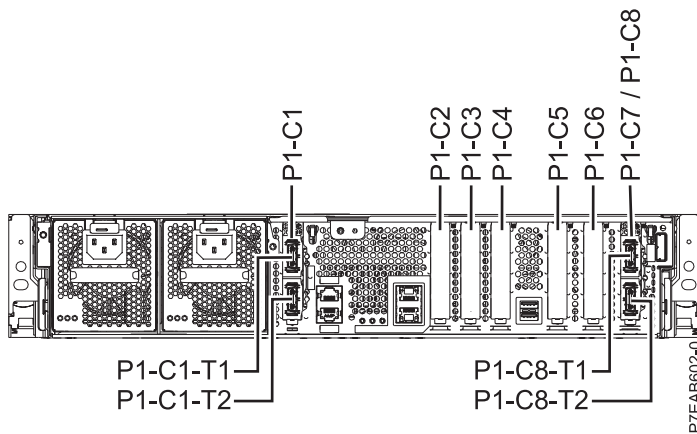


Figure 3. Rear view of the 31E/2C with location codes

Table 7. PCI slot locations and descriptions

Slot	Location code	Description	PHB	Adapter size
Slot 1 ¹	P1-C2	PCIe x8 G2	PCIe-PHB5	Low-profile
Slot 2	P1-C3	PCIe x8 G2	PCIe-PHB4	Low-profile
Slot 3	P1-C4	PCIe x8 G2	PCIe-PHB3	Low-profile
Slot 4	P1-C5	PCIe x8 G2	PCIe-PHB2	Low-profile
Slot 5 ¹	P1-C6	PCIe x8 G2	PCIe-PHB1	Low-profile
Slot 6 ^{1, 2}	P1-C7	PCIe x4 G2	PCIe-PHB0	Low-profile

Table 7. PCI slot locations and descriptions (continued)

Slot	Location code	Description	PHB	Adapter size
¹ Slot 1, slot 5, and slot 6 availability: <ul style="list-style-type: none"> • If the 2-Port 12X InfiniBand2 adapter (feature code (FC) EJ0G) is installed in GX++ slot 2 in the 31E/2C system, slot 6 (P1-C7), slot 5 (P1-C6), and slot 1 (P1-C2) are not available to install any PCI adapter. • The FC EJOG adapter occupies slot 6 and slot 5 • The SPCN connector on the GX adapter tailstock occupies slot 1 				
² The following PCIe adapters are not supported at PCIe slot 6 (P1-C7): <ul style="list-style-type: none"> • FC 5269 • FC 5277 • FC 5278 				

PCIe adapters

Use this information to identify slot placement priorities and the maximum number of specified adapters that you can install.

Table 8. Adapter slot priorities and maximums for PCIe adapters

Feature code	Description	Slot priorities	Maximum number of adapters supported
5277	4-Port Async EIA-232 PCIe 1X LP Adapter (FC 5277) <ul style="list-style-type: none"> • Low-profile adapter • Short, x1 • OS support: AIX and Linux 	1, 2, 3, 4, 5 ¹	5
5289	PCIe 2-port Async EIA-232 PCIe 1X LPC Adapter (FC 5289) <ul style="list-style-type: none"> • Short, x8, full-height adapter • PCIe 1.1 • 2 Ports through RJ45 by using the DB9 connector • EIA-232 Compatible • OS support: AIX and Linux 	1, 2, 3, 4, 5, 6	20
5290	PCIe LP 2-port Async EIA-232 Adapter (FC 5290) <ul style="list-style-type: none"> • Low-profile adapter • PCIe 1.1 • Short, x8 • 2 Ports through RJ45 by using the DB9 connector • EIA-232 compatible • OS support: AIX and Linux 	1, 2, 3, 4, 5, 6	2
ESA1	PCIe2 RAID SAS Adapter Dual-port 6Gb (FC ESA1) <ul style="list-style-type: none"> • Regular-height adapter • PCIe generation-2, x8 • OS support: AIX, , and Linux 	1, 2, 3, 4, 5, 6	20
ESA2	PCIe2 RAID SAS Adapter Dual-port 6Gb LP (FC ESA2) <ul style="list-style-type: none"> • Short, low-profile • PCIe generation-2, x8 • OS support: AIX, , and Linux 	1, 2, 3, 4, 5, 6	2

Table 8. Adapter slot priorities and maximums for PCIe adapters (continued)

Feature code	Description	Slot priorities	Maximum number of adapters supported
2053	<p>PCIe RAID and SSD SAS Adapter 3Gb Low-profile (FC 2053)</p> <ul style="list-style-type: none"> • Low-profile adapter, requires two slots • Short, x8 • OS support: AIX, , and Linux • VIOS attachment requires version 2.2, or later 	1, 2, 3, 4, 5, 6	2
2055	<p>PCIe RAID and SSD SAS Adapter 3Gb with Blind-Swap Cassette (FC 2055)</p> <ul style="list-style-type: none"> • Low-profile adapter, requires two slots • Short, x8 • OS support: AIX, , and Linux • VIOS attachment requires version 2.2, or later 	1, 2, 3, 4, 5, 6	10
5273	<p>8 Gigabit PCI Express Dual Port Fibre Channel Adapter (FC 5273)</p> <ul style="list-style-type: none"> • Low-profile adapter • Short, x8 • OS support: AIX, , and Linux 	1, 2, 3, 4, 5, 6	5
5735	<p>8-Gigabit PCI Express Dual Port Fibre Channel Adapter (FC 5735)</p> <ul style="list-style-type: none"> • Short, x8 • Extra-high bandwidth: If only one port is planned to be active in normal operation, the adapter is counted as an extra-high bandwidth adapter. If both ports are planned to be active, the adapter must be treated as two extra-high bandwidth adapters. • OS support: AIX, , and Linux 	1, 2, 3, 4, 5, 6	20
5773	<p>4 Gigabit PCI Express Single Port Fibre Channel Adapter (FC 5773)</p> <ul style="list-style-type: none"> • Short, x4 • High bandwidth • OS support: AIX and Linux 	1, 2, 3, 4, 5, 6	20
5774	<p>4 Gigabit PCI Express Dual Port Fibre Channel Adapter (FC 5774)</p> <ul style="list-style-type: none"> • Short, x4 • Extra-high bandwidth • OS support: AIX, , and Linux 	1, 2, 3, 4, 5, 6	20
EN0Y	<p>PCIe2 LP 8Gb 4-port Fibre Channel Adapter (FC EN0Y)</p> <ul style="list-style-type: none"> • Short, low-profile • PCIe generation-2, x8 • Short form factor plus (SFF+) Host Bus Adapter (HBA) • Extra-high bandwidth • OS support: AIX, , and Linux 	1, 2, 3, 4, 5, 6	5

Table 8. Adapter slot priorities and maximums for PCIe adapters (continued)

Feature code	Description	Slot priorities	Maximum number of adapters supported
5269	POWER GXT145 PCI Express Graphics Accelerator (FC 5269) <ul style="list-style-type: none"> • Low-profile adapter • Short, x1 • OS support: AIX and Linux 	1, 2, 3, 4, 5 ¹	5
5748	POWER GXT145 PCI Express Graphics Accelerator (FC 5748) <ul style="list-style-type: none"> • Short, x1 • Not hot-pluggable • OS support: AIX and Linux 	1, 2, 3, 4, 5, 6	8
5260	PCIe2 LP 4-port 1GbE Adapter (FC 5260) <ul style="list-style-type: none"> • Low-profile adapter • PCIe generation-1 or generation-2, x4 • High bandwidth • Four-port 1 Gb Ethernet • OS support: AIX, Linux, and 	1, 2, 3, 4, 5, 6	6
5269	POWER GXT145 PCI Express Graphics Accelerator (FC 5269) <ul style="list-style-type: none"> • Low-profile adapter • Short, x1 • OS support: AIX and Linux 	1, 2, 3, 4, 5, 6	5
5270	10Gb FCoE PCIe Dual Port Adapter (FC 5270) <ul style="list-style-type: none"> • Low-profile adapter • Short, x8 • OS support: AIX and Linux 	1, 2, 3, 4, 5, 6	5
5271	4-Port 10/100/1000 Base-TX PCI Express Adapter (FC 5271) <ul style="list-style-type: none"> • Low-profile adapter • Short, x4 • OS support: AIX and Linux 	1, 2, 3, 4, 5, 6	5
5272	10 Gigabit Ethernet-CX4 PCI Express Adapter (FC 5272) <ul style="list-style-type: none"> • Low-profile adapter • Short, x8 • OS support: AIX and Linux 	1, 2, 3, 4, 5, 6	5
5274	2-Port Gigabit Ethernet-SX PCI Express Adapter (FC 5274) <ul style="list-style-type: none"> • Low-profile adapter • Short, x4 • OS support: AIX, , and Linux 	1, 2, 3, 4, 5, 6	5
5275	10 Gigabit Ethernet-SR PCI Express Adapter (FC 5275) <ul style="list-style-type: none"> • Low-profile adapter • Short, x8 • OS support: AIX and Linux 	1, 2, 3, 4, 5 ¹	5

Table 8. Adapter slot priorities and maximums for PCIe adapters (continued)

Feature code	Description	Slot priorities	Maximum number of adapters supported
5276	4-Gigabit PCI Express Dual Port Fibre Channel Adapter (FC 5276) <ul style="list-style-type: none"> • Low-profile adapter • Short, x4 • OS support: AIX, , and Linux 	1, 2, 3, 4, 5, 6	5
5278	PCIe Dual-x4 SAS Adapter (FC 5278) <ul style="list-style-type: none"> • Low-profile adapter • Short, x8 • OS support: AIX, , and Linux 	1, 2, 3, 4, 5 ¹	5
5279	PCIe2 LP 2x10GbE SFP+ Copper 2x1GbE UTP Adapter (FC 5279) <ul style="list-style-type: none"> • Low-profile, Short, x8 • PCIe 2 • OS support: Linux 	1, 2, 3, 4, 5, 6	5
5280	PCIe2 LP 2x10GbE SR 2x1GbE UTP Adapter (FC 5280) <ul style="list-style-type: none"> • Low-profile, short, x8 • PCIe 2 • OS support: Linux 	1, 2, 3, 4, 5, 6	5
5281	1Gb Ethernet UTP 2-port PCIe Adapter (FC 5281) <ul style="list-style-type: none"> • Low-profile, short, x8 • PCIe 2 • OS support: AIX, , and Linux 	1, 2, 3, 4, 5, 6	5
5284	PCIe2 LP 2-port 10GbE SR Adapter (FC 5284) <ul style="list-style-type: none"> • Generation-2, low-profile capable, high-performance adapter • Capable of transferring data to a distance of 300 m over MMF-850 nm fiber cable • Requires available PCIe slot in the FC 5685 PCIe Riser Card (generation-2) • OS support: AIX, supported only through VIOS, Red Hat Enterprise Linux and SUSE Linux Enterprise Server 	1, 2, 3, 4, 5, 6	5
5286	PCIe2 LP 2-Port 10GbE SFP+ Copper Adapter (FC 5286) <ul style="list-style-type: none"> • Generation-2, low-profile adapter • Two 10-Gb Ethernet ports • Requires available PCIe slot in the FC 5685 PCIe Riser Card (generation-2) • OS support: AIX and Linux 	1, 2, 3, 4, 5, 6	5
5708	10Gb FCoE PCIe Dual Port Adapter (FC 5708) <ul style="list-style-type: none"> • Regular full-height • PCIe 2.0 adapter with x8 Generation-1 • Convergence enhanced Ethernet (CEE) supported • OS support: AIX, Linux, and with VIOS. 	1, 2, 3, 4, 5, 6	20

Table 8. Adapter slot priorities and maximums for PCIe adapters (continued)

Feature code	Description	Slot priorities	Maximum number of adapters supported
5717	4-Port 10/100/1000 Base-TX PCI Express Adapter (FC 5717) <ul style="list-style-type: none"> • Short, x4 • High bandwidth • OS support: AIX and Linux 	1, 2, 3, 4, 5, 6	20
5732	10 Gigabit Ethernet-CX4 PCI Express Adapter (FC 5732) <ul style="list-style-type: none"> • Short, x8 • Extra-high bandwidth • OS support: AIX and Linux 	1, 2, 3, 4, 5, 6	20
5767	2-Port 10/100/1000 Base-TX Ethernet PCI Express Adapter (FC 5767) <ul style="list-style-type: none"> • Short, x4 • High bandwidth • OS support: AIX, , and Linux 	1, 2, 3, 4, 5, 6	20
5768	2-Port Gigabit Ethernet-SX PCI Express Adapter (FC 5768) <ul style="list-style-type: none"> • Short, x4 • High bandwidth • OS support: AIX, , and Linux 	1, 2, 3, 4, 5, 6	20
5269	POWER GXT145 PCI Express Graphics Accelerator (FC 5269) <ul style="list-style-type: none"> • Low-profile adapter • Short, x1 • OS support: AIX and Linux 	1, 2, 3, 4, 5 ¹	5
5272	10 Gigabit Ethernet-CX4 PCI Express Adapter (FC 5272) <ul style="list-style-type: none"> • Low-profile adapter • Short, x8 • OS support: AIX and Linux 	1, 2, 3, 4, 5, 6	5
9056	PCIe LP 2-Port 1GbE TX adapter (FC 9056) <ul style="list-style-type: none"> • Low-profile, PCIe x4 • PCIe 1.0a compliant • High bandwidth • Two full-duplex 10/100/1000 Base-TX UTP connections to gigabit Ethernet (GbE) LANs • OS support: AIX, , and Linux 	1, 2, 3, 4, 5, 6	1
EC27	PCIe2 LP 2-Port 10GbE RoCE SFP+ adapter (FC EC27) <ul style="list-style-type: none"> • Short, low-profile • PCIe generation-2, x8 • Extra-high bandwidth, low latency 10 Gb Ethernet • OS support: AIX 	1, 2, 3, 4, 5, 6	4
2893/2894	PCI Express 2-Line WAN with Modem (FC 2893) <ul style="list-style-type: none"> • Short, x4 • Non-CIM • OS support: AIX, , and Linux 	1, 2, 3, 4, 5, 6	20

Table 8. Adapter slot priorities and maximums for PCIe adapters (continued)

Feature code	Description	Slot priorities	Maximum number of adapters supported
2728	4-Port USB PCIe Adapter (FC 2728) <ul style="list-style-type: none"> • Low-profile adapter • Single-slot, half-length PCIe adapter • PCIe 1.1 • OS support: AIX and Linux 	1, 2, 3, 4, 5, 6	20
4808	PCIe Cryptographic Coprocessor (FC 4808) <ul style="list-style-type: none"> • Generation-3 blind-swap cassette • PCIe x4, full-height, half-length • OS support: AIX and 	1, 2, 3, 4, 5, 6	8
5283	PCIe2 LP 2-Port 4X InfiniBand QDR Adapter (FC 5283) <ul style="list-style-type: none"> • Generation-2 low-profile adapter • Extra-high bandwidth • Requires available PCIe slot in the FC 5685 PCIe Riser Card (generation-2) • OS support: AIX and Linux 	1, 2, 3, 4, 5, 6	2

¹The adapter can be installed in any slot other than slot 6 and is not supported in slot 6.

Performance notes

Use the information in this section to help determine the maximum number of adapters that can be placed in a system while still maintaining optimum performance.

Performance notes regarding GX++ channel adapters

Table 8 on page 16 identifies the slot placement priorities and the maximum number of specified adapters that can be installed for connectivity. However, for optimum performance, you might want to further limit the total number of high-bandwidth and extra-high bandwidth adapters. The system supports the following GX++ adapters feature codes (FCs):

- FC EJ0G: 2-Port 12X InfiniBand2 adapter
- FC EJ0H: GX++ LP 1-port PCIe2 x8 adapter

When plugging FC EJ0G GX adapter, ensure that it is placed in GX++ slot 2. If this adapter is installed in GX++ slot 2, PCIe slot 6 (P1-C7) is not available to install any PCIe adapter. Also, the system power control network (SPCN) cable of this GX adapter is installed in PCIe slot 1 (P1-C2).

The FC EJ0H GX adapter can be installed in any GX++ slot. The PCIe cable, such as FC EN05 or FC EN07, connects the FC EJ0H GX adapter and the 58/88 PCIe storage enclosure to the system.

Note: The FC EJ0H GX adapter provides only half of the FC 58/88 PCIe storage enclosure connections required.

The I/O enclosures, such as FC 5802 and FC 5877, are supported for the 31E/2C system.

I/O expansion units

Learn about I/O expansion units that are supported on the systems systems that contain the POWER7 processor.

PCI adapters slot priorities for the 58/02 and 58/77 expansion units

Learn about the PCI Express (PCIe) slots in the 58/02 and 58/77 expansion units.

System description

The 58/02 and 58/77 expansion units are 19-inch, rack-mountable, I/O expansion drawers that are designed to be attached to the system using 12x double data rate (DDR) cables.

The expansion units can accommodate 10 generation-3 cassettes. These cassettes can be installed and removed without removing the drawer from the rack. The expansion units do not support I/O processor (IOP) adapters.

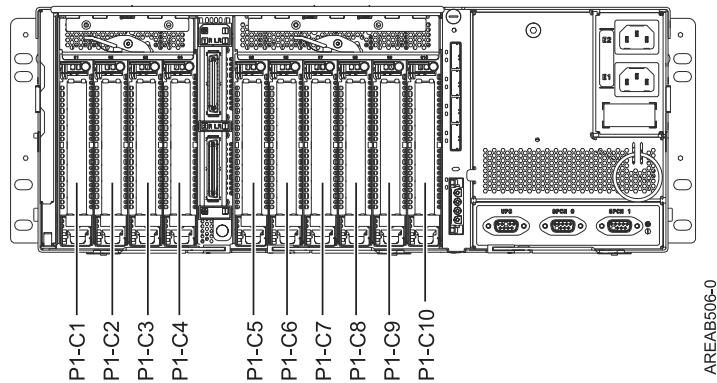


Figure 4. Rear view. This figure shows the rear view of the expansion unit.

Table 9. Location code descriptions. This table describes the location codes that are shown in Figure 4.

Location code	I/O chip	PCI host bridge (PHB)	Description
P1-C1	I/O chip 1	PHB1	PCIe x8 slot
P1-C2		PHB2	
P1-C3		PHB3	
P1-C4	I/O chip 2	PHB4	
P1-C5		PHB5	
P1-C6		PHB6	
P1-C7	I/O chip 3	PHB7	
P1-C8		PHB8	
P1-C9		PHB9	
P1-C10		PHB10	

Slot priority

The slot priority for all adapters is P1-C1, P1-C4, P1-C2, P1-C5, P1-C3, P1-C6, P1-C7, P1-C8, P1-C9, and P1-C10.

There are three I/O chips. Each I/O chip controls three or 4 PCI host bridges (PHBs) and each PCIe slot connects directly to a PHB.

- One I/O chip controls slots P1-C1, P1-C2, and P1-C3.
- A second I/O chip controls slots P1-C4, P1-C5, and P1-C6.
- A third I/O chips controls slots P1-C7, P1-C8, P1-C9, and P1-C10.

For best performance, fill P1-C1, P1-C4, P1-C2, P1-C5, P1-C3, and P1-C6 first with the highest bandwidth adapters. Then fill the remaining slots.

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Tele: +49 7032 15-2937
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