ESCALA Power7

PCI Adapter Placement for
E2-700, E2-700T, E2-705, E2-705T,
E2-715, E2-715T,
E4-700, E4-700T, E4-705 or E4-715

BULL

ESCALA Models Reference

The ESCALA Power7 publications concern the following models:

Bull Escala E1-700 / E3-700	(31E/2B ,8231-E2B)
Bull Escala E1-705	(31E/1C, 8231-E1C)
Bull Escala E1-715	(31E/1D, 8231-E1D)
Bull Escala E3-705	(31E/2C, 8231-E2C)
Bull Escala E3-715	(31E/2D, 8231-E2D)
Bull Escala E2-700 / E2-700T	(02E/4B, 8202-E4B)
Bull Escala E2-705 / E2-705T	(02E/4C, 8202-E4C)
Bull Escala E2-715 / E2-715T	(02E/4D, 8202-E4D)
Bull Escala E4-700 / E4-700T	(05F/6B, 8205-E6B)
Bull Escala E4-705	(05E/6C, 8205-E6C)
Bull Escala E4-715	(05E/6D, 8205-E6D)
Bull Escala E5-700	(33E/8B, 8233-E8B)
Bull Escala E5-715	(08E/8D, 8408-E8D)
Bull Escala M5-715	(09R/MD, 9109-RMD)
Bull Escala M6-700	(17M/MB, 9117-MMB)
Bull Escala M6-705	(17M/MC, 9117-MMC)
Bull Escala M6-715	(17M/MD, 9117-MMD)
Bull Escala M7-700	(79M/HB, 9179-MHB)
Bull Escala M7-705	(79M/HC, 9179-MHC)
Bull Escala M7-715	(79M/HD, 9179-MHD)
Bull Escala H9-700	(19F/HB, 9119-FHB)

References to 8236-E8C models are irrelevant.

Hardware

February 2013

Trademarks and Acknowledgements

We acknowledge the rights of the proprietors of the trademarks mentioned in this manual.

All brand names and software and hardware product names are subject to trademark and/or patent protection.

Quoting of brand and product names is for information purposes only and does not represent trademark misuse.

Contents

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.
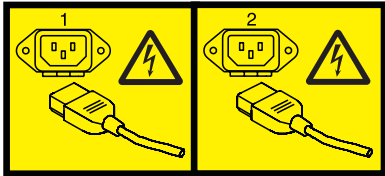
(R002)

(L001)

(L002)
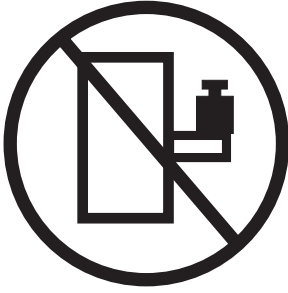
(L003)

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 02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, or 05E/6D

Find information about the Peripheral Component Interconnect (PCI), PCI-X, and PCI Express (PCIe) adapters that are supported for the 02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, or 05E/6D systems that contain the POWER7® processor and the associated I/O expansion units.

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

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 Gb 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 Gb 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 Gb Ethernet-SX PCI Express Adapter
5769	10 Gb Ethernet-SR PCI Express Adapter
5772	10 Gb Ethernet-LR PCI Express Adapter
5785	4 Port Async EIA-232 PCIe Adapter

Supported PCI adapters for the 02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, or 05E/6D

Find information about the Peripheral Component Interconnect (PCI), PCI-X, and PCI Express (PCIe) adapters that are supported for the 02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, or 05E/6D systems that contain the POWER7 processor and the associated I/O expansion units.

This section provides reference information that information technology (IT) personnel and service representatives can use in determining where to place PCI, PCI-X, and PCIe adapters in the 02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, or 05E/6D system and the associated I/O expansion units.

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

Table 2 on page 2 and Table 3 on page 9 list the adapters supported on the AIX, , or Linux operating systems. Not all adapters are supported on all operating systems. Exceptions are noted in the Description column.

PCI and PCI-X adapters

The following table lists PCI and PCI-X adapters supported for the 02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, or 05E/6D.

Table 2. PCI and PCI-X adapters supported on the AIX, , or Linux operating system

System supported	Feature code	CCIN	Description
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	2943	3-B	8-port Asynchronous EIA-232E/RS-422A PCI Adapter (FC 2943; CCIN 3-B) • PCI bus • 8 Async ports • OS support: AIX operating system
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5723	5723	2-port Asynchronous EIA-232 PCI Adapter (FC 5723; CCIN 5723) • PCI adapter • 2-port EIA-232 asynchronous serial communications • 16C850 UART equivalent • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	1905	1910	4 Gb Single-port Fibre Channel PCI-X 2.0 DDR Adapter (FC 1905; CCIN 1910) • PCI-X 2.0a, PCI 3.0, PCI-X Mode 2 - 266 MHz, PCI-X Mode 1 - 133 MHz, PCI - 66 MHz • High-speed data networking • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	1910	1910	4 Gb Dual-port Fibre Channel PCI-X 2.0 DDR Adapter (FC 1910; CCIN 1910) • PCI-X 2.0a, PCI 3.0, PCI-X Mode 2 - 266 MHz, PCI-X Mode 1 - 133 MHz, PCI - 66 MHz • High-speed data networking • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	1977	197E	2 Gb Fibre Channel PCI-X Adapter (FC 1977; CCIN 197E) • PCI-X, 64-bit • High bandwidth • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, and 02E/4D	2787	2787	PCI-X Fibre Channel Disk Unit Controller (FC 2787; CCIN 2787) • Short, 64-bit, 133 MHz • High bandwidth • IOP controlled • OS support: operating system
02E/4B, 02E/4C, and 02E/4D	5704	5704	2 Gb Fibre Channel Tape Controller (FC 5704, 6239; CCIN 5704) • Provides attachment to external tape devices • Extra-high bandwidth
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5716	280B	2 Gb Fibre Channel PCI-X Adapter (FC 5716; CCIN 280B) • PCI-X, 64-bit • High bandwidth • OS support: AIX and Linux operating systems

Table 2. PCI and PCI-X adapters supported on the AIX, , or Linux operating system (continued)

System supported	Feature code	CCIN	Description
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5749	576B	4 Gb Dual-port Fibre Channel PCI-X 2.0 DDR Adapter (FC 5749; CCIN 576B)
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5758	1910	4 Gb Single-port Fibre Channel PCI-X 2.0 DDR Adapter (FC 5758; CCIN 1910) • PCI-X 2.0a, PCI 3.0, PCI-X Mode 2 - 266 MHz, PCI-X Mode 1 - 133 MHz, PCI - 66 MHz • High-speed data networking • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5759	5759	4 Gb Dual-port Fibre Channel PCI-X 2.0 DDR Adapter (FC 5759; CCIN 5759) • Short, 64-bit, 3.3 V • High-speed data networking • Extra-high bandwidth • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, and 02E/4D	5760 and 5761	280E	4 Gb Single-port Fibre Channel PCI-X 2.0 DDR Adapter (FC 5760, 5761; CCIN 280D, 280E) • PCI-X 2.0a, PCI 3.0, PCI-X Mode 2 - 266 MHz, PCI-X Mode 1 - 133 MHz, PCI - 66 MHz • High-speed data networking • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	1980 and 2849	1980	POWER GXT135P Graphics Accelerator with digital support (FC 1980; CCIN 1980) • 32-bit PCI interface • 128-bit graphics processor • 8-bit or 24-bit color modes • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	1954		4-port 10/100/1000 Base-TX PCI-X adapter (FC 1954) • PCI-X 1.0a • Full-height, 64-bit • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	1978		IBM Gigabit Ethernet-SX PCI-X Adapter (FC 1978) • 64-bit PCI-X • One full-duplex 1000 Base-SX fiber connection to a gigabit Ethernet LAN • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	1979		IBM 10/100/1000 Base-TX Ethernet PCI-X Adapter (FC 1979) • 64-bit PCI-X • One full-duplex 10/100/1000 Base-TX UTP connection to a gigabit Ethernet • OS support: AIX and Linux operating systems

Table 2. PCI and PCI-X adapters supported on the AIX, , or Linux operating system (continued)

System supported	Feature code	CCIN	Description
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	1983	5706	2-port 10/100/1000 Base-TX Ethernet PCI-X Adapter (FC 1983; CCIN 5706) • Two full-duplex 10/100/1000 Base-TX UTP connections to gigabit Ethernet LANs • High bandwidth • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, and 02E/4D	1984	5707	IBM 2-port Gb Ethernet-SX PCI-X Adapter (FC 1984; CCIN 5707) • Two full-duplex 10/100/1000 Base-TX optical connections to gigabit Ethernet LANs • High bandwidth
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	1986	573B	1-Gb iSCSI TOE PCI-X Adapter (FC 1986; CCIN 573B) • Copper media adapter • iSCSI TOE (TCP/IP offload engine) • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	1987	573C	1-Gb iSCSI TOE PCI-X Adapter (FC 1987; CCIN 573C) • Optical media adapter • iSCSI TOE (TCP/IP offload engine) • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5700	5700	IBM Gigabit Ethernet-SX PCI-X Adapter (FC 5700; CCIN 5700) • One full-duplex 1000 Base-SX fiber connection to a gigabit Ethernet LAN • High bandwidth • OS support: AIX, , and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5701	5701	IBM 10/100/1000 Base-TX Ethernet PCI-X Adapter (FC 5701; CCIN 5701) • One full-duplex 10/100/1000 Base-TX UTP connection to a gigabit Ethernet • OS support: AIX, , and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5706	5706	2-port 10/100/1000 Base-TX Ethernet PCI-X Adapter (FC 5706; CCIN 5706) • Short, 32-bit or 64-bit, 3.3 V or 5 V • High bandwidth • OS support: AIX, , and Linux operating systems
02E/4B, 02E/4C, and 02E/4D	5707	5706	IBM 2-port Gb Ethernet-SX PCI-X Adapter (FC 5707; CCIN 5706) • Short, 32-bit or 64-bit, 3.3 V or 5 V • High bandwidth • OS support: AIX, , and Linux operating system
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5713	573B	1 Gb-TX iSCSI TOE PCI-X Adapter (FC 5713; CCIN 573B) • Short, 32-bit or 64-bit, 3.3 V or 5 V • High bandwidth • OS support: AIX, , and Linux operating systems

Table 2. PCI and PCI-X adapters supported on the AIX, , or Linux operating system (continued)

System supported	Feature code	CCIN	Description
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5714	573C	1 Gb iSCSI TOE PCI-X on Optical Media Adapter (FC 5714; CCIN 573C) • Short, 32-bit or 64-bit, 3.3 V or 5 V • High bandwidth • OS support: AIX, , and Linux operating systems
02E/4B, 02E/4C, and 02E/4D	5718	5718	10 Gb Ethernet-SR PCI-X Adapter (FC 5718; CCIN 5718) • Short, x4 • Extra-high bandwidth • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, and 02E/4D	5719	5719	10 Gb Ethernet-LR PCI-X Adapter (FC 5719; CCIN 5719) • Short, x4 • Extra-high bandwidth • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5721	573A	10 Gb Ethernet-SR PCI-X 2.0 DDR Adapter (FC 5721; CCIN 573A) • High bandwidth • OS support: AIX, , and Linux operating system
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5722	573A	10 Gb Ethernet-LR PCI-X 2.0 DDR Adapter (FC 5722; CCIN 573A) • High bandwidth • OS support: AIX, , and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5740	1954	4-port 10/100/1000 Base-TX PCI-X adapter (FC 5740; CCIN 1954) • PCI-X 1.0a • Full-height, 64-bit • High bandwidth • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	2738	28EF	2-port USB PCI Adapter (FC 2738; CCIN 28EF) • Short, 32-bit • 3.3 or 5 V • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	4764	4764	PCI-X Cryptographic Coprocessor (FC 4764; CCIN 4764) • Short, 64-bit, 3.3 V • OS support: AIX, , and Linux operating systems
02E/4B, 02E/4C, and 02E/4D	4801	4758	PCI Cryptographic Coprocessor (FC 4801; CCIN 4758) • Short, 32-bit, 33 MHz • IOP controlled • The adapter cannot be controlled by the load source IOP • OS support: operating system
02E/4B, 02E/4C, and 02E/4D	4805	2058	PCI Cryptographic Accelerator (FC 4805; CCIN 2058) • Short, 32-bit, 33 MHz • OS support: operating system

System supported	Feature code	CCIN	Description
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5900	572A	PCI-X DDR Dual-x4 3 Gb SAS Adapter (FC 5900; CCIN 572A) • Short, 64-bit, 3.3 V • Extra-high bandwidth • Supports a dual controller mode in a multi-initiator configuration • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5902	572B	PCI-X DDR Ext Dual-x4 3 Gb SAS RAID Adapter (FC 5902; CCIN 572B) • Long, 64-bit, 3.3 V • Extra-high bandwidth • The adapter must be connected and configured in a dual controller mode in a multi-initiator configuration, and this configuration requires that the adapters are installed in pairs. • This adapter supports disk expansion units. This adapter does not support media expansion units. • OS support: AIX and Linux operating systems

02E/4B, 02E/4C, and 02E/4D	5904	572F and 575C	PCI-X DDR 1.5 GB cache SAS RAID Adapter (FC 5904; CCIN 572F, 575C)
			• Long, 64-bit, 3.3 V
			• Extra-high bandwidth
			• No blind-swap cassette
			• Double-wide adapter requires two adjacent slots:
			  – 572F is the CCIN on the SAS controller side of the double-wide adapter.
			  – 575C is the CCIN on the write-cache side of the double-wide adapter.
			• OS support: AIX, , and Linux operating systems

02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5908	572F and 575C	PCI-X DDR 1.5 GB cache SAS RAID Adapter (FC 5908; CCIN 572F, 575C)
			• Long, 64-bit, 3.3 V
			• Extra-high bandwidth
			• Generation 3 blind-swap cassette
			• Double-wide adapter requires two adjacent slots:
			  – 572F is the CCIN on the SAS controller side of the double-wide adapter.
			  – 575C is the CCIN on the write-cache side of the double-wide adapter.
			• OS support: AIX, , and Linux operating systems

02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5912	572A	PCI-X DDR Dual-x4 3 Gb SAS Adapter (FC 5912; CCIN 572A) • Short, 64-bit, 3.3 V • Extra-high bandwidth • Supports a dual controller mode in a multi-initiator configuration • OS support: AIX, , and Linux operating systems

Table 2. PCI and PCI-X adapters supported on the AIX, , or Linux operating system (continued)

System supported	Feature code	CCIN	Description
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	1912	571A	PCI-X DDR 2.0 Dual Channel Ultra320 SCSI Adapter (FC 1912; CCIN 571A) • Short, 64-bit, 3.3 V • High bandwidth • OS support: AIX, , and Linuxoperating systems
02E/4B, 02E/4C, and 02E/4D	2749	2749	PCI Ultra Magnetic Media Controller (FC 2749; CCIN 2749) • Short, 32-bit, 33 MHz • IOP controlled • This adapter might encounter performance limitations in PCI-X expansion units and systems. • OS support: operating system
02E/4B, 02E/4C, and 02E/4D	2757	2757	PCI Ultra RAID Disk Controller (FC 2757; CCIN 2757) • Long, 64-bit • High bandwidth • IOP controlled • The controller must be mirrored to be supported. • This adapter might encounter performance limitations in PCI-X expansion units and systems. • OS support: operating system
02E/4B, 02E/4C, and 02E/4D	2780	2780	PCI-X Ultra4 RAID Disk Controller (FC 2780; CCIN 2780) • Long, 64-bit, 133 MHz • High bandwidth • IOP controlled • The controller must be mirrored to be supported. • OS support: operating system
02E/4B, 02E/4C, and 02E/4D	5580	2780	PCI-X Ultra4 RAID Disk Controller with Auxiliary-write cache IOA (FC 5580; CCIN 2780) • Long, 64-bit, 133 MHz • High bandwidth • IOP controlled auxiliary-write cache • The controller must be mirrored to be supported. • OS support: operating system
02E/4B, 02E/4C, and 02E/4D	5581	2757	PCI Ultra RAID Disk Controller with Auxiliary-write cache IOA (FC 5581; CCIN 2757) • Regular full-height • PCIe 2.0 adapter with x8 Generation 1 • IOP controlled auxiliary-write cache • Convergence enhanced Ethernet (CEE) supported • OS support: AIX, Linux, and operating systems (with VIOS).
02E/4B, 02E/4C, and 02E/4D	5583	571E	PCI-X Quad-Channel Ultra320 SCSI RAID Adapter (FC 5582, 5583, 5738, 5777; CCIN 571E) • PCI-X compliant • 64-bit, 3.3 V • OS support: AIX, , and Linux operating systems

System supported	Feature code	CCIN	Description
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5736	571A	PCI-X DDR 2.0 Dual Channel Ultra320 SCSI Adapter (FC 5736; CCIN 571A) • Short, 32-bit or 64-bit, 3.3 V • High bandwidth • OS support: AIX, , and Linux operating systems
02E/4B, 02E/4C, and 02E/4D	5776	571B	PCI-X Disk Controller (FC 5776; CCIN 571B) • Long, 64-bit, 266 MHz • Extra-high bandwidth • Dual-mode capable adapter • The controller must be mirrored to be supported • OS support: AIX, , and Linux operating systems
02E/4B, 02E/4C, and 02E/4D	5777	571F	PCI-X Disk Controller (FC 5777; CCIN 571F) • Long, 64-bit, 266 MHz • Extra-high bandwidth • Dual-mode capable adapter • The controller must be mirrored to be supported • OS support: operating system
02E/4B, 02E/4C, and 02E/4D	5778	571F	PCI-X Dual Channel Ultra320 SCSI RAID Adapter with Auxiliary Write Cache (double-wide) (FC 5778; CCIN 571F) • Long, 64-bit, 3.3 V, 266 MHz • Dual-mode capable adapter • Extra-high bandwidth • Double-wide adapter, requires two, adjacent slots. The SCSI controller side of the adapter pair requires a 64-bit slot. The controller side is the side with the external SCSI connectors. • When used in a logical partition (LPAR) environment, this double-wide adapter must have both slots of the adapter assigned to the same logical partition. When using DLPAR, both slots of the adapter must be managed together. • Because of the complexity of this adapter, concurrent maintenance is not supported through the HMC. Concurrent maintenance must be done from the Hardware Service Manager (HSM). • OS support: operating system
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5782	571F and 575B	PCI-X Dual Channel Ultra320 SCSI RAID Adapter with Auxiliary Write Cache (double-wide) (FC 5782; CCIN 571F and 575B) • Long, 64-bit, 3.3 V, 266 MHz • Dual-mode capable adapter • Extra-high bandwidth • Double-wide adapter, requires two adjacent slots. The SCSI controller side of the adapter pair requires a 64-bit slot. The controller side is the side with the external SCSI connectors. • OS support: operating system

System supported	Feature code	CCIN	Description
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	2947		ARTIC960Hx 4-port Multiprotocol PCI Adapter (FC 2947) • 32-bit PCI • Provides 4-ports with different protocols, EIA-232, EIA530, RS-449, X.21, or V.35 • OS support: AIX operating system
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	6805	2742	PCI 2-Line WAN IOA (FC 6805; CCIN 2742) • Short, 32-bit, 66 MHz • No IOP • OS support: and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	6808	2805	PCI Quad Modem IOA (FC 6808; CCIN 2805) • Long, 32-bit, 66 MHz • Non-CIM • OS support: operating system
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	6809	2805	PCI Quad Modem IOA (FC 6809; CCIN 2805) • Long, 32-bit, 66 MHz • CIM • OS support: operating system
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	6833	2793	PCI 2-Line WAN with Modem No IOP (FC 6833; CCIN 2793) • Two lines per port WAN with modem adapter • Non-CIM • OS support: and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	6834	2793	PCI 2-Line WAN with Modem No IOP CIM (FC 6834; CCIN 2793) • Two lines per port WAN with modem adapter • CIM • OS support: and Linux operating systems
02E/4B, 02E/4C, and 02E/4D	9483	576C	PCI Express 2-Line WAN with Modem (FC 9483; CCIN 576C) • Short, x4, PCIe • Non-CIM • OS support: AIX, , and Linux operating systems

PCIe adapters

The following table lists PCIe adapters.

Table 3. PCIe adapters supported on the AIX, , or Linux operating system

System supported	Feature code	CCIN	Description
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5277	57D2	4-port Async EIA-232 PCIe 1X LP Adapter (FC 5277; CCIN 57D2) • Low-profile adapter • Extra-high bandwidth • Short, x1 • OS support: AIX and Linux operating systems

Table 3. PCIe adapters supported on the AIX, , or Linux operating system (continued)

System supported	Feature code	CCIN	Description
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5289	57D4	PCIe 2-port Async EIA-232 PCIe 1X LPC Adapter (FC 5289; CCIN 57D4) • Short, x1 • PCIe 1.1 • Two ports through RJ45 by using the DB9 connector • EIA-232 Compatible • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5290	57D4	PCIe LP 2-port Async EIA-232 Adapter (FC 5290; CCIN 57D4) • 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 operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5785	57D2	4 Port Async EIA-232 PCIe Adapter (FC 5785; CCIN 57D2) • Short, x1 • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5273	577D	8 Gb PCI Express Dual-port Fibre Channel Adapter (FC 5273; CCIN 577D) • Low-profile adapter • Short, x8 • OS support: AIX, , and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5276	5774	4-Gb PCI Express Dual-port Fibre Channel Adapter (FC 5276; CCIN 5774) • Low-profile adapter • Short, x4 • OS support: AIX, , and Linux operating systems
02E/4C, 02E/4D, 05E/6C, and 05E/6D	5729	5729	PCIe2 FH 4-port 8 Gb Fibre Channel Adapter (FC 5729; CCIN 5729) • PCIe 2.1, x8 • Full-height, full length adapter with standard-size bracket • Extra-high bandwidth • OS support: AIX, , and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5735	577D	8 Gb PCI Express Dual-port Fibre Channel Adapter (FC 5735; CCIN 577D) • 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 operating systems

Table 3. PCIe adapters supported on the AIX, , or Linux operating system (continued)

System supported	Feature code	CCIN	Description
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5773	5773	4 Gb PCI Express Single Port Fibre Channel Adapter (FC 5773; CCIN 5773) • Short, x4 • High bandwidth • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5774	5774	4 Gb PCI Express Dual-port Fibre Channel Adapter (FC 5774; CCIN 5774) • Short, x4 • Extra-high bandwidth • OS support: AIX, , and Linux operating systems
02E/4D and 05E/6D	EN0A	577F	PCIe2 16 Gb 2-port Fibre Channel Adapter (FC EN0A; CCIN 577F) • Extra-high bandwidth • OS support: AIX, , and Linux operating systems
02E/4D and 05E/6D	EN0B	577F	PCIe2 LP 16 Gb 2-port Fibre Channel Adapter (FC EN0B; CCIN 577F) • Short, low-profile, x8 • Extra-high bandwidth • OS support: AIX, , and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	EN0Y	EN0Y	PCIe2 LP 8Gb 4-port Fibre Channel Adapter (FC EN0Y; CCIN EN0Y) • Short, low-profile • PCIe generation 2, x8 • Short form factor plus (SFF+) Host Bus Adapter (HBA) • Extra-high bandwidth • OS support: AIX, , and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5269	5269	POWER GXT145 PCI Express Graphics Accelerator (FC 5269; CCIN 5269) • Low-profile adapter • Short, x1 • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5748	5748	POWER GXT145 PCI Express Graphics Accelerator (FC 5748; CCIN 5748) • Short, x1 • Not hot-pluggable • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5260	576F	PCIe2 LP 4-port 1 GbE Adapter (FC 5260; CCIN 576F) • Low-profile adapter • PCIe generation 1 or generation 2, x4 • High bandwidth • Four-port 1 Gb Ethernet • OS support: AIX, , and Linux operating systems

Table 3. PCIe adapters supported on the AIX, , or Linux operating system (continued)

System supported	Feature code	CCIN	Description
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5270	2B3B	10 Gb FCoE PCIe Dual-port Adapter (FC 5270; CCIN 2B3B) • Low-profile adapter • Short, x8 • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5271	5717	4-port 10/100/1000 Base-TX PCI Express Adapter (FC 5271; CCIN 5717) • Low-profile adapter • Short, x4 • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5272	5272	10 Gb Ethernet-CX4 PCI Express Adapter (FC 5272; CCIN 5272) • Low-profile adapter • Short, x8 • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5274	5768	2-port Gb Ethernet-SX PCI Express Adapter (FC 5274; CCIN 5768) • Low-profile adapter • Short, x4 • OS support: AIX, , and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5275	2B54	10 Gb Ethernet-SR PCI Express Adapter (FC 5275; CCIN 2B54) • Low-profile adapter • Short, x8 • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5278	57B3	PCIe Dual-x4 SAS Adapter (FC 5278; CCIN 57B3) • Low-profile adapter • Extra-high bandwidth • Short, x8 • OS support: AIX, , and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5279	2B52	PCIe2 LP 2x10 GbE SFP+ Copper 2x1 GbE UTP Adapter (FC 5279; CCIN 2B52) • Low-profile, Short, x8 • PCIe 2 • OS support: Linux operating system
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5280	2B54	PCIe2 LP 2x10 GbE SR 2x1 GbE UTP Adapter (FC 5280; CCIN 2B54) • Low-profile, short, x8 • PCIe 2 • OS support: Linux operating system
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5281	5767	1 Gb Ethernet UTP 2-port PCIe Adapter (FC 5281; CCIN 5767) • Low-profile, short, x8 • PCIe 2 • OS support: AIX, , and Linux operating system

Table 3. PCIe adapters supported on the AIX, , or Linux operating system (continued)

System supported	Feature code	CCIN	Description
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5284	5287	PCIe2 LP 2-port 10 GbE SR Adapter (FC 5284; CCIN 5287) • Generation 2, x8 • Low-profile adapter • Extra-high bandwidth • 10 GBASE-SR short-reach optics • OS support: AIX, (supported only through VIOS), Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5286	5288	PCIe2 LP 2-port 10 GbE SFP+ Copper Adapter (FC 5286; CCIN 5288) • 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 operating systems
02E/4C, 02E/4D, 05E/6C, and 05E/6D	5287	5287	PCIe2 2-port 10 GbE SR Adapter (FC 5287; CCIN 5287) • Generation 2, x8 • Full-height adapter • Two 10 Gb Ethernet ports • 10 GBASE- Direct attach SFP+ twinax cable • OS support: AIX and Linux operating systems
02E/4C, 02E/4D, 05E/6C, and 05E/6D	5288	5288	PCIe2 LP 2-port 10 GbE SFP+ Copper Adapter (FC 5288; CCIN 5288) • Generation 2, full-height adapter • Two 10 Gb Ethernet ports • Requires available PCIe generation 2 slot • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5708	2B3B	10 Gb FCoE PCIe Dual-port Adapter (FC 5708; CCIN 2B3B) • Regular full-height • Extra-high bandwidth • PCIe 2.0 adapter with x8 generation 1 • Convergence enhanced Ethernet (CEE) supported • OS support: AIX, , and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5717	5717	4-port 10/100/1000 Base-TX PCI Express Adapter (FC 5717; CCIN 5717) • Short, x4 • High bandwidth • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5732	2B43	10 Gb Ethernet-CX4 PCI Express Adapter (FC 5732; CCIN 2B43) • Short, x8 • Extra-high bandwidth • OS support: AIX and Linux operating systems

Table 3. PCIe adapters supported on the AIX, , or Linux operating system (continued)

System supported	Feature code	CCIN	Description
02E/4C, 02E/4D, 05E/6C, and 05E/6D	5744	2B44	PCIe2 2x10 GbE SR 2x1 GbE UTP Adapter (FC 5744; CCIN 2B44) • Short, x8 • Full-height adapter • Extra-high bandwidth • PCIe generation 2 • OS support: Linux operating system
02E/4C, 02E/4D, 05E/6C, and 05E/6D	5745	2B43	PCIe2 2x10 GbE SFP+ Copper 2x1 GbE UTP Adapter (FC 5745; CCIN 2B43) • Short, x8 • PCIe 2 • Extra-high bandwidth • OS support: Linux operating system
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5767	5767	2-port 10/100/1000 Base-TX Ethernet PCI Express Adapter (FC 5767; CCIN 5767) • Short, x4 • High bandwidth • OS support: AIX, , and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5768	5768	2-port Gigabit Ethernet-SX PCI Express Adapter (FC 5768; CCIN 5768) • Short, x4 • High bandwidth • OS support: AIX, , and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5769	2B44	10 Gb Ethernet-SR PCI Express Adapter (FC 5769; CCIN 2B44) • Short, full-high, x8 • Low-profile capable • Extra-high bandwidth • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5772	576E	10 Gb Ethernet-LR PCI Express Adapter (FC 5772; CCIN 576E) • Short, x8 • Low-profile capable • Extra-high bandwidth • OS support: AIX, , and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5899	576F	PCIe2 4-port 1 GbE Adapter (FC 5899; CCIN 576F) • Regular-height adapter • PCIe generation 1 or generation 2, x4 • High bandwidth • Four-port 1 Gb Ethernet • OS support: AIX, , and Linux operating systems
02E/4C, 02E/4D, 05E/6C, and 05E/6D	9055	5767	PCIe 2-port 1 GbE TX adapter (FC 9055; CCIN 5767) • Full-height, PCIe x4 • PCIe 1.0a compliant • Two full-duplex 10/100/1000 Base-TX UTP connections to gigabit Ethernet (GbE) LANs • OS support: AIX, , and Linux operating systems

System supported	Feature code	CCIN	Description
02E/4C, 02E/4D, 05E/6C, and 05E/6D	EC27	EC27	PCIe2 LP 2-port 10 GbE RoCE SFP+ adapter (FC EC27; CCIN EC27) • Short, low-profile • PCIe generation 2, x8 • Extra-high bandwidth, low latency 10 Gb Ethernet • OS support: AIX and Linux operating systems • Firmware level 7.6 or later
02E/4C, 02E/4D, 05E/6C, and 05E/6D	EC28	EC27	PCIe2 2-port 10 GbE RoCE SFP+ adapter (FC EC28; CCIN EC27) • Regular-height adapter • PCIe generation 2, x8 • Extra-high bandwidth, low latency 10 Gb Ethernet • OS support: AIX and Linux operating systems • Firmware level 7.6 or later
02E/4C, 02E/4D, 05E/6C, and 05E/6D	EC29	EC29	PCIe2 LP 2-port 10 GbE RoCE SR adapter (FC EC29; CCIN EC29) • Low-profile adapter • PCIe generation 2, x8 • Extra-high bandwidth, low latency 10 Gb Ethernet • OS support: AIX and Linux operating systems • Firmware level 7.6 or later
02E/4C, 02E/4D, 05E/6C, and 05E/6D	EC30	EC29	PCIe2 2-port 10 GbE RoCE SR adapter (FC EC30; CCIN EC29) • Regular-height adapter • PCIe generation 2, x8 • Extra-high bandwidth, low latency 10 Gb Ethernet • OS support: AIX and Linux operating systems • Firmware level 7.6 or later
02E/4D and 05E/6D	EN0H	2B93	PCIe2 4-port (10 Gb FCoE, 1 GbE) SFP+ Adapter (FC EN0H, CCIN 2B93) • Extra-high bandwidth • OS support: AIX, , and Linux operating systems
02E/4D and 05E/6D	EN0J	2B93	PCIe2 LP 4-port (10 Gb FCoE, 1 GbE) SFP+ Adapter (FC EN0J, CCIN 2B93) • Extra-high bandwidth • OS support: AIX, , and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	2728	57D1	4-port USB PCIe Adapter (FC 2728; CCIN 57D1) • Low-profile adapter • Single-slot, half-length PCIe adapter • PCIe 1.1 • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	4807	4765	PCIe Cryptographic Coprocessor (FC 4807; CCIN 4765) • PCIe x4, full-height, half-length • OS support: AIX, and operating systems

System supported	Feature code	CCIN	Description
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	4808	4765	PCIe Cryptographic Coprocessor (FC 4808; CCIN 4765) • Generation 3 blind-swap cassette • PCIe x4, full-height, half-length • OS support: AIX and operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5283	58E2	PCIe2 LP 2-port 4X InfiniBand QDR Adapter (FC 5283; CCIN 58E2) • 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 operating systems
02E/4C, 02E/4D, 05E/6C, and 05E/6D	5285	58E2	PCIe2 2-port 4X InfiniBand QDR Adapter (FC 5285; CCIN 58E2) • Generation 2 full-height adapter • Extra-high bandwidth • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	2053	57CD	PCIe RAID and SSD SAS Adapter 3 Gb Low-profile (FC 2053; CCIN 57CD) • Low-profile adapter, requires two slots • Short, x8 • OS support: AIX, , and Linux operating systems • VIOS attachment requires version 2.2, or later
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	2054	57CD	PCIe RAID and SSD SAS Adapter 3 Gb Low-profile (FC 2054; CCIN 57CD) • Low-profile adapter, requires two slots • Short, x8 • OS support: AIX, , and Linux operating systems • VIOS attachment requires version 2.2, or later
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	2055	57CD	PCIe RAID and SSD SAS Adapter 3 Gb with Blind-Swap Cassette (FC 2055; CCIN 57CD) • Low-profile adapter, requires two slots • Short, x8 • OS support: AIX, , and Linux operating systems • VIOS attachment requires version 2.2, or later
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5278	57B3	PCIe Dual-x4 SAS Adapter (FC 5278; CCIN 57B3) • Low-profile adapter • Extra-high bandwidth • Short, x8 • OS support: AIX, , and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5805	574E	PCIe 380 MB Cache Dual - x4 3 Gb SAS RAID Adapter (FC 5805; CCIN 574E) • Short, dual x4 • SAS RAID adapter • Installed in pairs • OS support: AIX, , and Linux operating systems

System supported	Feature code	CCIN	Description
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5901	57B3	PCIe Dual - x4 SAS Adapter (FC 5901; CCIN 57B3) • Short • Extra-high bandwidth • OS support: AIX, , and Linux operating systems
02E/4B, 02E/4C, and 02E/4D	5903	574E	PCIe 380 MB Cache Dual x4 3 Gb SAS RAID Adapter (FC 5903; CCIN 574E) • Short • Extra-high bandwidth • Installed in pairs • OS support: AIX and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	5913	57B5	PCIe2 1.8-GB Cache RAID SAS Tri-port 6 Gb Adapter (FC 5913; CCIN 57B5) • Full-height, short, PCIe2 x8 • Transfer speed of 6 Gbps • Write cache backup of 1.8 GB • One PCIe x8 slot per adapter • Adapters are installed in pairs • OS support: AIX, , and Linux operating systems
02E/4C, 02E/4D, 05E/6C, and 05E/6D	ESA1	57B4	PCIe2 RAID SAS Adapter Dual-port 6 Gb (FC ESA1; CCIN 57B4) • Regular-height adapter • PCIe generation 2, x8 • OS support: AIX, , and Linux operating systems
02E/4C, 02E/4D, 05E/6C, and 05E/6D	ESA2	57B4	PCIe2 RAID SAS Adapter Dual-port 6 Gb LP (FC ESA2; CCIN 57B4) • Short, low-profile • PCIe generation 2, x8 • OS support: AIX, , and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	2893	576C	PCI Express 2-Line WAN with Modem (FC 2893; CCIN 576C) • Short, x4 • Non-CIM • OS support: AIX, , and Linux operating systems
02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, and 05E/6D	2894	576C	PCI Express 2-Line WAN with Modem (FC 2894; CCIN 576C) • Short, x4 • CIM • OS support: AIX, , and Linux operating systems

PCI adapter placement rules and slot priorities for the 02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, or 05E/6D

Some adapters must be placed in specific peripheral component interconnect (PCI), peripheral component interconnect-X (PCI-X), or PCI Express (PCIe) slots to function correctly or to perform optimally. Learn how to determine the slots in the server or expansion units where you can install the PCI adapters.

PCI slot descriptions for the 02E/4B and 05F/6B

Figure 1 shows the rear view of the server with the location codes for the PCI adapter slots. Figure 2 on page 19 shows the four PCIe x8 low-profile slots as an optional PCIe expansion feature. The PCIe expansion feature is installed at the GX++ slot 1. Each PCIe is a separate PCI host bridge (PHB).

The Table 4 on page 19 lists the adapter slot locations and details for the 02E/4B and 05F/6B.
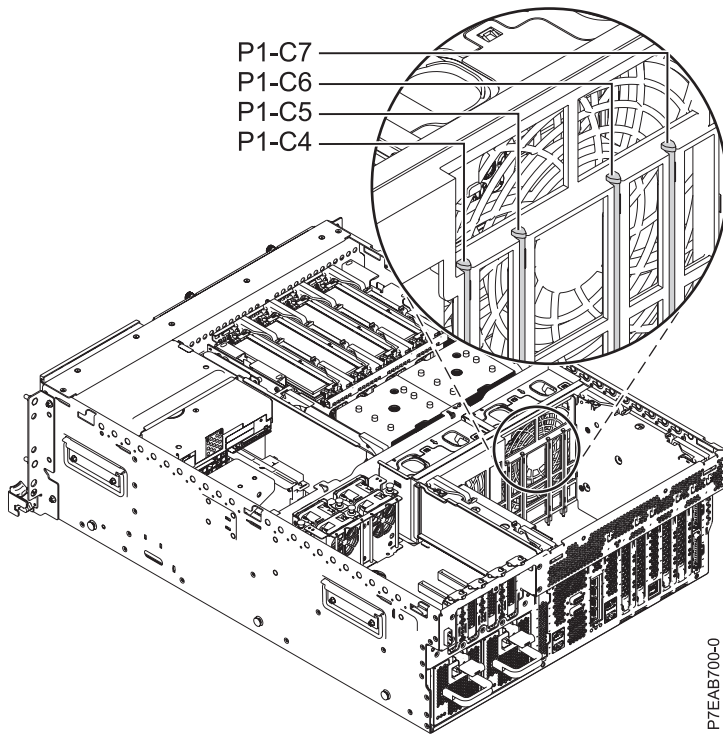

Figure 1. Rear view of the 02E/4B and the 05F/6B system with PCI slots location codes
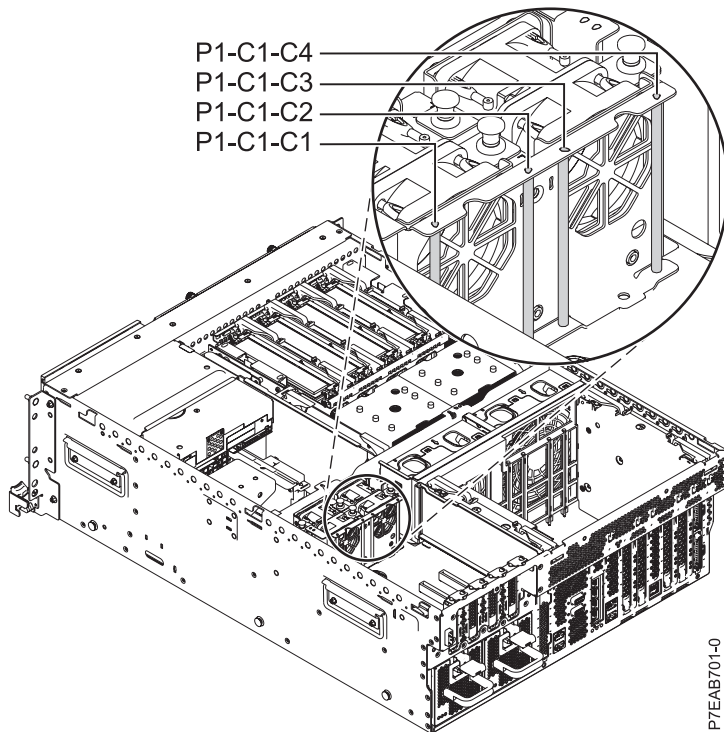
P1-C1-C4
P1-C1-C3
P1-C1-C2
P1-C1-C1

Figure 2. Rear view of the 02E/4B and the 05F/6B system, showing the PCI riser expansion with location codes

Table 4. PCI slot locations and descriptions for the 02E/4B and the 05F/6B

Slot	Location code	Description	PHB	Adapter size
Slot 1	P1-C4	PCIe x8	PCIe PHB0 module A	Short
Slot 2	P1-C5	PCIe x8	PCIe PHB1 module A	Short
Slot 3	P1-C6	PCIe x8	PCIe PHB2 module A	Short
Slot 4	P1-C7	PCIe x8	PCIe PHB3 module A	Short
Slot 5	P1-C1-C1	PCIe x8 low-profile	PCIe PHB0 module B	Low-profile
Slot 6	P1-C1-C2	PCIe x8 low-profile	PCIe PHB1 module B	Low-profile
Slot 7	P1-C1-C3	PCIe x8 low-profile	PCIe PHB3 module B	Low-profile
Slot 8	P1-C1-C4	PCIe x8 low-profile	PCIe PHB4 module B	Low-profile

- Regular full-height adapters can be installed only in the four full-height slots: P1-C4 to P1-C7.
- The low-profile adapters can be installed only in slot P1-C1-C1 to slot P1-C1-C4.
- The low-profile and full-height adapters are the same adapters but with different brackets for installing in the slots. Install the low-height cards in low-profile slots and full-height cards in full-height slots.
- Slots 5 - 8 are optional low-profile slots and are available only if the feature 5610 or 5685, is connected to the GX++ slot (P1-C1). If 5685 is installed, then these slots (slots 5 - 8) support generation-2 PCIe adapters.
- All slots support enhanced error handling (EEH).
- None of the internal PCIe slots are hot swappable. Turn off the system before inserting any of the PCIe adapters.
- Only the carriers that are used in the I/O expansion units are hot swappable.

PCI slot descriptions for 02E/4C, 02E/4D, 05E/6C, and 05E/6D

Figure 3 on page 20 shows the PCI slots and their location codes for 02E/4C, 02E/4D, 05E/6C, and 05E/6D systems. The 02E/4C, 02E/4D, 05E/6C, and 05E/6D systems have five PCIe x8 G2 full-height half-length slots and one PCIe x4 full-height half-length slot. All slots support enhanced error handling

(EEH), but are not hot pluggable. PCIe slots 1 and 4 have an x16 connector, and the other slots have x8 connector. Table 5 lists the adapter slot locations and details for the 02E/4C, 02E/4D, 05E/6C, and 05E/6D.
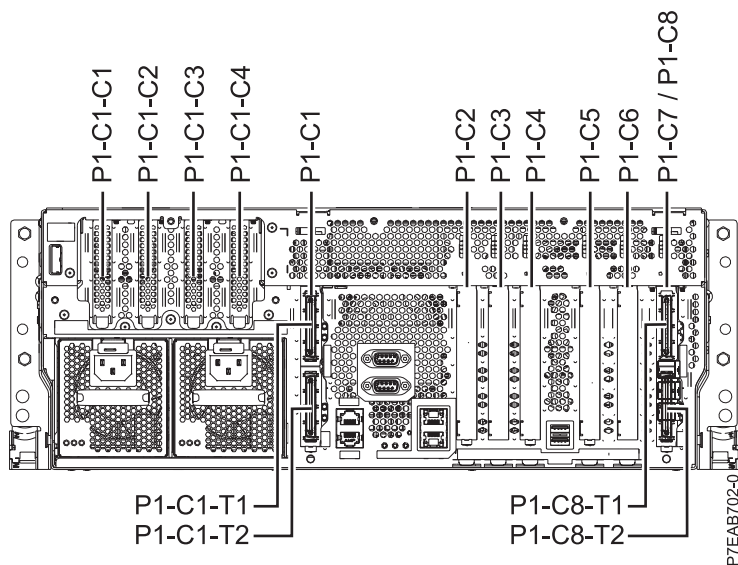
Figure 3. Rear view of the system showing the PCI slots with their location codes

Table 5. PCI slot locations and descriptions for the system

Slot	Location code	Description	PHB	Adapter size
Slot 1	P1-C2	PCIe x8 G2	PCIe-PHB5	Full-height Half-length
Slot 2	P1-C3	PCIe x8 G2	PCIe-PHB4	Full-height Half-length
Slot 3	P1-C4	PCIe x8 G2	PCIe-PHB3	Full-height Half-length
Slot 4	P1-C5	PCIe x8 G2	PCIe-PHB2	Full-height Half-length
Slot 5	P1-C6	PCIe x8 G2	PCIe-PHB1	Full-height Half-length
Slot 6	P1-C7	PCIe x4 G2	PCIe-PHB0	Full-height Half-length
• All slots support enhanced error handling (EEH).				
• None of the internal PCIe slots are hot swappable. Turn off the system before inserting any of the PCIe adapters.				

PCIe expansion units

PCIe expansion units, feature code (FC) 5685, provides connector slots for four low-profile generation-1 or generation-2 PCIe adapters and can be installed in slots C1-C1 to C1-C4. FC 5610 provides connector slots for four low-profile PCIe generation-1 adapters and can be installed in slots C1-C1 to C1-C4. The PCIe generation-2 adapters work best on FC 5685. PCIe expansion unit, FC 58/77 and FC 58/02 are supported on the system running AIX or Linux. The system can be configured to support up to two I/O expansion units per GX adapter.

Restriction: A GX channel adapter that has one or two of 58/77 or 58/02 expansion units, or one of each 58/77 and 58/02 expansion unit connected cannot have any other devices connected to that adapter.

Note: For optimum performance, you might want to limit the total number of expansion units containing high bandwidth and extra-high bandwidth adapters. See "Performance notes" on page 43.

The expansion units attach to a 4X channel adapter installed in the GX slots available in the system.

The maximum number of attached remote I/O drawers depends on the number of processor chip module units in the system.
- Systems with one processor chip module unit support up to two 58/02 or 58/77 expansion units. The system has only one GX adapter supported.
- Systems with two processor chip module units support up to four 58/02 or 58/77 expansion units, that is, two per GX channel adapter.

02E/4B, 02E/4C, or 02E/4D:
- If you install feature code 5610 or 5685 in the system, you cannot install the 5615 expansion unit and any I/O expansion drawers. This results in a total of eight internal slots.
- If you do not install feature code 5610 or 5685 in the system, a total of four internal slots are available and you can install an I/O expansion unit.

05F/6B, 05E/6C, or 05E/6D:
- If you install the feature code 5610 or 5685 in the system, only one 5615 expansion unit can be installed and results in a total of eight internal slots.
- If you do not install feature code 5610 or 5685 in the system, a total of four internal slots are available.

PCI, PCI-X, and PCIe adapters

Use this information to identify slot placement priorities in the system and the maximum number of adapters that can be installed in the system and attached expansion units. Verify whether the adapter is supported for your system. For details about the supported adapters, see "Supported PCI adapters for the 02E/4B, 02E/4C, 02E/4D, 05F/6B, 05E/6C, or 05E/6D" on page 1.

FCs 5767, 5768, and 9055 are the only adapters that can be installed in slot 6 (P1-C7). If a GX adapter is installed in GX++ slot 2 (P1-C8), FCs 5767, 5768, and 9055 must be installed in the other PCIe x8 slot.

Table 6. Adapter slot priorities and maximum PCI, PCI-X, and PCIe adapters supported

Feature code	Description	02E/4B and 05F/6B		02E/4C, 02E/4D, 05E/6C, and 05E/6D	
		Slot priorities[3]	Maximum number of adapters supported	Slot priorities[3]	Maximum number of adapters supported
2943	8-port Asynchronous EIA-232E/RS-422A PCI Adapter (FC 2943; CCIN 3-B) • PCI bus • 8 Async ports • OS support: AIX operating system	All slots have the same priority	24 and 32	All slots have the same priority	24 and 32

Table 6. Adapter slot priorities and maximum PCI, PCI-X, and PCIe adapters supported (continued)

Feature code	Description	02E/4B and 05F/6B		02E/4C, 02E/4D, 05E/6C, and 05E/6D	
		Slot priorities[3]	Maximum number of adapters supported	Slot priorities[3]	Maximum number of adapters supported
5723	2-port Asynchronous EIA-232 PCI Adapter (FC 5723; CCIN 5723) • PCI adapter • 2-port EIA-232 asynchronous serial communications • 16C850 UART equivalent • OS support: AIX and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
1905	4 Gb Single-port Fibre Channel PCI-X 2.0 DDR Adapter (FC 1905; CCIN 1910) • PCI-X 2.0a, PCI 3.0, PCI-X Mode 2 - 266 MHz, PCI-X Mode 1 - 133 MHz, PCI - 66 MHz • High-speed data networking • OS support: AIX and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
1910	4 Gb Dual-port Fibre Channel PCI-X 2.0 DDR Adapter (FC 1910; CCIN 1910) • PCI-X 2.0a, PCI 3.0, PCI-X Mode 2 - 266 MHz, PCI-X Mode 1 - 133 MHz, PCI - 66 MHz • High-speed data networking • OS support: AIX and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
1977[1]	2 Gb Fibre Channel PCI-X Adapter (FC 1977; CCIN 197E) • PCI-X, 64-bit • High bandwidth • OS support: AIX and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
2787[1]	PCI-X Fibre Channel Disk Unit Controller (FC 2787; CCIN 2787) • Short, 64-bit, 133 MHz • High bandwidth • IOP controlled • OS support: operating system	All slots have the same priority		All slots have the same priority	
5704[2]	2 Gb Fibre Channel Tape Controller (FC 5704, 6239; CCIN 5704) • Provides attachment to external tape devices • Extra-high bandwidth	All slots have the same priority		All slots have the same priority	

Feature code	Description	02E/4B and 05F/6B		02E/4C, 02E/4D, 05E/6C, and 05E/6D	
		Slot priorities[3]	Maximum number of adapters supported	Slot priorities[3]	Maximum number of adapters supported
5716[1]	2 Gb Fibre Channel PCI-X Adapter (FC 5716; CCIN 280B) • PCI-X, 64-bit • High bandwidth • OS support: AIX and Linux operating systems	All slots have the same priority		All slots have the same priority	
5749[2]	4 Gb Dual-port Fibre Channel PCI-X 2.0 DDR Adapter (FC 5749; CCIN 576B)	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
5758	4 Gb Single-port Fibre Channel PCI-X 2.0 DDR Adapter (FC 5758; CCIN 1910) • PCI-X 2.0a, PCI 3.0, PCI-X Mode 2 - 266 MHz, PCI-X Mode 1 - 133 MHz, PCI - 66 MHz • High-speed data networking • OS support: AIX and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
5759[2]	4 Gb Dual-port Fibre Channel PCI-X 2.0 DDR Adapter (FC 5759; CCIN 5759) • Short, 64-bit, 3.3 V • High-speed data networking • Extra-high bandwidth • OS support: AIX and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
5760 and 5761	4 Gb Single-port Fibre Channel PCI-X 2.0 DDR Adapter (FC 5760, 5761; CCIN 280D, 280E) • PCI-X 2.0a, PCI 3.0, PCI-X Mode 2 - 266 MHz, PCI-X Mode 1 - 133 MHz, PCI - 66 MHz • High-speed data networking • OS support: AIX and Linux operating systems	All slots have the same priority		All slots have the same priority	
1980 and 2849	POWER GXT135P Graphics Accelerator with digital support (FC 1980; CCIN 1980) • 32-bit PCI interface • 128-bit graphics processor • 8-bit or 24-bit color modes • OS support: AIX and Linux operating systems	All slots have the same priority	8	All slots have the same priority	8

Table 6. Adapter slot priorities and maximum PCI, PCI-X, and PCIe adapters supported (continued)

Feature code	Description	02E/4B and 05F/6B		02E/4C, 02E/4D, 05E/6C, and 05E/6D	
		Slot priorities[3]	Maximum number of adapters supported	Slot priorities[3]	Maximum number of adapters supported
1954	4-port 10/100/1000 Base-TX PCI-X adapter (FC 1954) • PCI-X 1.0a • Full-height, 64-bit • OS support: AIX and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
1978	IBM Gigabit Ethernet-SX PCI-X Adapter (FC 1978) • 64-bit PCI-X • One full-duplex 1000 Base-SX fiber connection to a gigabit Ethernet LAN • OS support: AIX and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
1979	IBM 10/100/1000 Base-TX Ethernet PCI-X Adapter (FC 1979) • 64-bit PCI-X • One full-duplex 10/100/1000 Base-TX UTP connection to a gigabit Ethernet • OS support: AIX and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
1983[1]	2-port 10/100/1000 Base-TX Ethernet PCI-X Adapter (FC 1983; CCIN 5706) • Two full-duplex 10/100/1000 Base-TX UTP connections to gigabit Ethernet LANs • High bandwidth • OS support: AIX and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
1984[1]	IBM 2-port Gb Ethernet-SX PCI-X Adapter (FC 1984; CCIN 5707) • Two full-duplex 10/100/1000 Base-TX optical connections to gigabit Ethernet LANs • High bandwidth	All slots have the same priority		All slots have the same priority	
1986	1-Gb iSCSI TOE PCI-X Adapter (FC 1986; CCIN 573B) • Copper media adapter • iSCSI TOE (TCP/IP offload engine) • OS support: AIX and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48

Feature code	Description	02E/4B and 05F/6B		02E/4C, 02E/4D, 05E/6C, and 05E/6D	
		Slot priorities[3]	Maximum number of adapters supported	Slot priorities[3]	Maximum number of adapters supported
1987	1-Gb iSCSI TOE PCI-X Adapter (FC 1987; CCIN 573C) • Optical media adapter • iSCSI TOE (TCP/IP offload engine) • OS support: AIX and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
5700	IBM Gigabit Ethernet-SX PCI-X Adapter (FC 5700; CCIN 5700) • One full-duplex 1000 Base-SX fiber connection to a gigabit Ethernet LAN • High bandwidth • OS support: AIX, , and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
5701	IBM 10/100/1000 Base-TX Ethernet PCI-X Adapter (FC 5701; CCIN 5701) • One full-duplex 10/100/1000 Base-TX UTP connection to a gigabit Ethernet • OS support: AIX, , and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
5706[1]	2-port 10/100/1000 Base-TX Ethernet PCI-X Adapter (FC 5706; CCIN 5706) • Short, 32-bit or 64-bit, 3.3 V or 5 V • High bandwidth • OS support: AIX, , and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
5707[1]	IBM 2-port Gb Ethernet-SX PCI-X Adapter (FC 5707; CCIN 5706) • Short, 32-bit or 64-bit, 3.3 V or 5 V • High bandwidth • OS support: AIX, , and Linux operating system	All slots have the same priority		All slots have the same priority	
5713[1]	1 Gb-TX iSCSI TOE PCI-X Adapter (FC 5713; CCIN 573B) • Short, 32-bit or 64-bit, 3.3 V or 5 V • High bandwidth • OS support: AIX, , and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
5714[1]	1 Gb iSCSI TOE PCI-X on Optical Media Adapter (FC 5714; CCIN 573C) • Short, 32-bit or 64-bit, 3.3 V or 5 V • High bandwidth • OS support: AIX, , and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48

Table 6. Adapter slot priorities and maximum PCI, PCI-X, and PCIe adapters supported (continued)

Feature code	Description	02E/4B and 05F/6B		02E/4C, 02E/4D, 05E/6C, and 05E/6D	
		Slot priorities[3]	Maximum number of adapters supported	Slot priorities[3]	Maximum number of adapters supported
5718[2]	10 Gb Ethernet-SR PCI-X Adapter (FC 5718; CCIN 5718) • Short, x4 • Extra-high bandwidth • OS support: AIX and Linux operating systems	All slots have the same priority		All slots have the same priority	
5719[2]	10 Gb Ethernet-LR PCI-X Adapter (FC 5719; CCIN 5719) • Short, x4 • Extra-high bandwidth • OS support: AIX and Linux operating systems	All slots have the same priority		All slots have the same priority	
5721[1]	10 Gb Ethernet-SR PCI-X 2.0 DDR Adapter (FC 5721; CCIN 573A) • High bandwidth • OS support: AIX, , and Linux operating system	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
5722[1]	10 Gb Ethernet-LR PCI-X 2.0 DDR Adapter (FC 5722; CCIN 573A) • High bandwidth • OS support: AIX, , and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
5740	4-port 10/100/1000 Base-TX PCI-X adapter (FC 5740; CCIN 1954) • PCI-X 1.0a • Full-height, 64-bit • High bandwidth • OS support: AIX and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
2738	2-port USB PCI Adapter (FC 2738; CCIN 28EF) • Short, 32-bit • 3.3 or 5 V • OS support: AIX and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
4764	PCI-X Cryptographic Coprocessor (FC 4764; CCIN 4764) • Short, 64-bit, 3.3 V • OS support: AIX, , and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48

Feature code	Description	02E/4B and 05F/6B		02E/4C, 02E/4D, 05E/6C, and 05E/6D	
		Slot priorities[3]	Maximum number of adapters supported	Slot priorities[3]	Maximum number of adapters supported
4801	PCI Cryptographic Coprocessor (FC 4801; CCIN 4758) • Short, 32-bit, 33 MHz • IOP controlled • The adapter cannot be controlled by the load source IOP • OS support: operating system	All slots have the same priority		All slots have the same priority	
4805	PCI Cryptographic Accelerator (FC 4805; CCIN 2058) • Short, 32-bit, 33 MHz • OS support: operating system	All slots have the same priority		All slots have the same priority	
5900[2]	PCI-X DDR Dual-x4 3 Gb SAS Adapter (FC 5900; CCIN 572A) • Short, 64-bit, 3.3 V • Extra-high bandwidth • Supports a dual controller mode in a multi-initiator configuration • OS support: AIX and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
5902[2]	PCI-X DDR Ext Dual-x4 3 Gb SAS RAID Adapter (FC 5902; CCIN 572B) • Long, 64-bit, 3.3 V • Extra-high bandwidth • The adapter must be connected and configured in a dual controller mode in a multi-initiator configuration, and this configuration requires that the adapters are installed in pairs. • This adapter supports disk expansion units. This adapter does not support media expansion units. • OS support: AIX and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48

Table 6. Adapter slot priorities and maximum PCI, PCI-X, and PCIe adapters supported (continued)

Feature code	Description	02E/4B and 05F/6B		02E/4C, 02E/4D, 05E/6C, and 05E/6D	
		Slot priorities[3]	Maximum number of adapters supported	Slot priorities[3]	Maximum number of adapters supported

5904[2]	PCI-X DDR 1.5 GB cache SAS RAID Adapter (FC 5904; CCIN 572F, 575C)
	• Long, 64-bit, 3.3 V
	• Extra-high bandwidth
	• No blind-swap cassette
	• Double-wide adapter requires two adjacent slots:
	  – 572F is the CCIN on the SAS controller side of the double-wide adapter.
	  – 575C is the CCIN on the write-cache side of the double-wide adapter.
	• OS support: AIX, , and Linux operating systems
		All slots have the same priority		All slots have the same priority	

5908[2]	PCI-X DDR 1.5 GB cache SAS RAID Adapter (FC 5908; CCIN 572F, 575C)
	• Long, 64-bit, 3.3 V
	• Extra-high bandwidth
	• Generation 3 blind-swap cassette
	• Double-wide adapter requires two adjacent slots:
	  – 572F is the CCIN on the SAS controller side of the double-wide adapter.
	  – 575C is the CCIN on the write-cache side of the double-wide adapter.
	• OS support: AIX, , and Linux operating systems
		All slots have the same priority	8 and 16	All slots have the same priority	8 and 16

5912[2]	PCI-X DDR Dual-x4 3 Gb SAS Adapter (FC 5912; CCIN 572A) • Short, 64-bit, 3.3 V • Extra-high bandwidth • Supports a dual controller mode in a multi-initiator configuration • OS support: AIX, , and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
1912[1]	PCI-X DDR 2.0 Dual Channel Ultra320 SCSI Adapter (FC 1912; CCIN 571A) • Short, 64-bit, 3.3 V • High bandwidth • OS support: AIX, , and Linuxoperating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48

Table 6. Adapter slot priorities and maximum PCI, PCI-X, and PCIe adapters supported (continued)

Feature code	Description	02E/4B and 05F/6B		02E/4C, 02E/4D, 05E/6C, and 05E/6D	
		Slot priorities[3]	Maximum number of adapters supported	Slot priorities[3]	Maximum number of adapters supported
2749	PCI Ultra Magnetic Media Controller (FC 2749; CCIN 2749) • Short, 32-bit, 33 MHz • IOP controlled • This adapter might encounter performance limitations in PCI-X expansion units and systems. • OS support: operating system	All slots have the same priority		All slots have the same priority	
2757[1]	PCI Ultra RAID Disk Controller (FC 2757; CCIN 2757) • Long, 64-bit • High bandwidth • IOP controlled • The controller must be mirrored to be supported. • This adapter might encounter performance limitations in PCI-X expansion units and systems. • OS support: operating system	All slots have the same priority		All slots have the same priority	
2780[1]	PCI-X Ultra4 RAID Disk Controller (FC 2780; CCIN 2780) • Long, 64-bit, 133 MHz • High bandwidth • IOP controlled • The controller must be mirrored to be supported. • OS support: operating system	All slots have the same priority		All slots have the same priority	
5580[1]	PCI-X Ultra4 RAID Disk Controller with Auxiliary-write cache IOA (FC 5580; CCIN 2780) • Long, 64-bit, 133 MHz • High bandwidth • IOP controlled auxiliary-write cache • The controller must be mirrored to be supported. • OS support: operating system	All slots have the same priority		All slots have the same priority	

Table 6. Adapter slot priorities and maximum PCI, PCI-X, and PCIe adapters supported (continued)

Feature code	Description	02E/4B and 05F/6B		02E/4C, 02E/4D, 05E/6C, and 05E/6D	
		Slot priorities[3]	Maximum number of adapters supported	Slot priorities[3]	Maximum number of adapters supported
5581	PCI Ultra RAID Disk Controller with Auxiliary-write cache IOA (FC 5581; CCIN 2757) • Regular full-height • PCIe 2.0 adapter with x8 Generation 1 • IOP controlled auxiliary-write cache • Convergence enhanced Ethernet (CEE) supported • OS support: AIX, Linux, and operating systems (with VIOS).	All slots have the same priority		All slots have the same priority	
5583	PCI-X Quad-Channel Ultra320 SCSI RAID Adapter (FC 5582, 5583, 5738, 5777; CCIN 571E) • PCI-X compliant • 64-bit, 3.3 V • OS support: AIX, , and Linux operating systems	All slots have the same priority		All slots have the same priority	
5736[1]	PCI-X DDR 2.0 Dual Channel Ultra320 SCSI Adapter (FC 5736; CCIN 571A) • Short, 32-bit or 64-bit, 3.3 V • High bandwidth • OS support: AIX, , and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
5776[2]	PCI-X Disk Controller (FC 5776; CCIN 571B) • Long, 64-bit, 266 MHz • Extra-high bandwidth • Dual-mode capable adapter • The controller must be mirrored to be supported • OS support: AIX, , and Linux operating systems	All slots have the same priority		All slots have the same priority	
5777[2]	PCI-X Disk Controller (FC 5777; CCIN 571F) • Long, 64-bit, 266 MHz • Extra-high bandwidth • Dual-mode capable adapter • The controller must be mirrored to be supported • OS support: operating system	All slots have the same priority		All slots have the same priority	

Feature code	Description	02E/4B and 05F/6B		02E/4C, 02E/4D, 05E/6C, and 05E/6D	
		Slot priorities[3]	Maximum number of adapters supported	Slot priorities[3]	Maximum number of adapters supported
5778	PCI-X Dual Channel Ultra320 SCSI RAID Adapter with Auxiliary Write Cache (double-wide) (FC 5778; CCIN 571F) • Long, 64-bit, 3.3 V, 266 MHz • Dual-mode capable adapter • Extra-high bandwidth • Double-wide adapter, requires two, adjacent slots. The SCSI controller side of the adapter pair requires a 64-bit slot. The controller side is the side with the external SCSI connectors. • When used in a logical partition (LPAR) environment, this double-wide adapter must have both slots of the adapter assigned to the same logical partition. When using DLPAR, both slots of the adapter must be managed together. • Because of the complexity of this adapter, concurrent maintenance is not supported through the HMC. Concurrent maintenance must be done from the Hardware Service Manager (HSM). • OS support: operating system	All slots have the same priority		All slots have the same priority	
5782[2]	PCI-X Dual Channel Ultra320 SCSI RAID Adapter with Auxiliary Write Cache (double-wide) (FC 5782; CCIN 571F and 575B) • Long, 64-bit, 3.3 V, 266 MHz • Dual-mode capable adapter • Extra-high bandwidth • Double-wide adapter, requires two adjacent slots. The SCSI controller side of the adapter pair requires a 64-bit slot. The controller side is the side with the external SCSI connectors. • OS support: operating system	All slots have the same priority	8 and 16	All slots have the same priority	8 and 16
2947	ARTIC960Hx 4-port Multiprotocol PCI Adapter (FC 2947) • 32-bit PCI • Provides 4-ports with different protocols, EIA-232, EIA530, RS-449, X.21, or V.35 • OS support: AIX operating system	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48

Table 6. Adapter slot priorities and maximum PCI, PCI-X, and PCIe adapters supported (continued)

Feature code	Description	02E/4B and 05F/6B		02E/4C, 02E/4D, 05E/6C, and 05E/6D	
		Slot priorities[3]	Maximum number of adapters supported	Slot priorities[3]	Maximum number of adapters supported
6805	ARTIC960Hx 4-port Multiprotocol PCI Adapter (FC 2947) • 32-bit PCI • Provides 4-ports with different protocols, EIA-232, EIA530, RS-449, X.21, or V.35 • OS support: AIX operating system	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
6808	PCI Quad Modem IOA (FC 6808; CCIN 2805) • Long, 32-bit, 66 MHz • Non-CIM • OS support: operating system	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
6809	PCI Quad Modem IOA (FC 6809; CCIN 2805) • Long, 32-bit, 66 MHz • CIM • OS support: operating system	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
6833	PCI 2-Line WAN with Modem No IOP (FC 6833; CCIN 2793) • Two lines per port WAN with modem adapter • Non-CIM • OS support: and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
6834	PCI 2-Line WAN with Modem No IOP CIM (FC 6834; CCIN 2793) • Two lines per port WAN with modem adapter • CIM • OS support: and Linux operating systems	All slots have the same priority	24 and 48	All slots have the same priority	24 and 48
5277	4-port Async EIA-232 PCIe 1X LP Adapter (FC 5277; CCIN 57D2) • Low-profile adapter • Extra-high bandwidth • Short, x1 • OS support: AIX and Linux operating systems	5, 7, 6, 8	4	7, 9, 8, 10	4

Table 6. Adapter slot priorities and maximum PCI, PCI-X, and PCIe adapters supported (continued)

Feature code	Description	02E/4B and 05F/6B		02E/4C, 02E/4D, 05E/6C, and 05E/6D	
		Slot priorities[3]	Maximum number of adapters supported	Slot priorities[3]	Maximum number of adapters supported
5289	PCIe 2-port Async EIA-232 PCIe 1X LPC Adapter (FC 5289; CCIN 57D4) • Short, x1 • PCIe 1.1 • Two ports through RJ45 by using the DB9 connector • EIA-232 Compatible • OS support: AIX and Linux operating systems	1, 3, 2, 4	12	6, 5, 4, 3, 2, 1	12
5290	PCIe LP 2-port Async EIA-232 Adapter (FC 5290; CCIN 57D4) • 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 operating systems	5, 7, 6, 8	2	7, 9, 8, 10	2
5785	4 Port Async EIA-232 PCIe Adapter (FC 5785; CCIN 57D2) • Short, x1 • OS support: AIX and Linux operating systems	1, 3, 2, 4	24 and 44	6, 5, 4, 3, 2, 1	25 and 45
5273	8 Gb PCI Express Dual-port Fibre Channel Adapter (FC 5273; CCIN 577D) • Low-profile adapter • Short, x8 • OS support: AIX, , and Linux operating systems	5, 7, 6, 8	4	7, 9, 8, 10	4
5276	4-Gb PCI Express Dual-port Fibre Channel Adapter (FC 5276; CCIN 5774) • Low-profile adapter • Short, x4 • OS support: AIX, , and Linux operating systems	5, 7, 6, 8		7, 9, 8, 10	
5729[1]	PCIe2 FH 4-port 8 Gb Fibre Channel Adapter (FC 5729; CCIN 5729) • PCIe 2.1, x8 • Full-height, full length adapter with standard-size bracket • Extra-high bandwidth • OS support: AIX, , and Linux operating systems	Not supported		6, 5, 4, 3, 2, 1	5

Table 6. Adapter slot priorities and maximum PCI, PCI-X, and PCIe adapters supported (continued)

Feature code	Description	02E/4B and 05F/6B		02E/4C, 02E/4D, 05E/6C, and 05E/6D	
		Slot priorities[3]	Maximum number of adapters supported	Slot priorities[3]	Maximum number of adapters supported
5735	8 Gb PCI Express Dual-port Fibre Channel Adapter (FC 5735; CCIN 577D) • 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 operating systems	1, 3, 2, 4	24 and 44	6, 5, 4, 3, 2, 1	25 and 45
5773[1]	4 Gb PCI Express Single Port Fibre Channel Adapter (FC 5773; CCIN 5773) • Short, x4 • High bandwidth • OS support: AIX and Linux operating systems	1, 3, 2, 4	24 and 44	6, 5, 4, 3, 2, 1	25 and 45
5774[2]	4 Gb PCI Express Dual-port Fibre Channel Adapter (FC 5774; CCIN 5774) • Short, x4 • Extra-high bandwidth • OS support: AIX, , and Linux operating systems	1, 3, 2, 4	24 and 44	6, 5, 4, 3, 2, 1	25 and 45
EN0A	PCIe2 16 Gb 2-port Fibre Channel Adapter (FC EN0A; CCIN 577F) • Extra-high bandwidth • OS support: AIX, , and Linux operating systems	Not supported		6, 5, 4, 3, 2, 1	5
EN0B	PCIe2 LP 16 Gb 2-port Fibre Channel Adapter (FC EN0B; CCIN 577F) • Short, low-profile, x8 • Extra-high bandwidth • OS support: AIX, , and Linux operating systems	Not supported		6, 5, 4, 3, 2, 1	4
EN0Y[2]	PCIe2 LP 8Gb 4-port Fibre Channel Adapter (FC EN0Y; CCIN EN0Y) • Short, low-profile • PCIe generation 2, x8 • Short form factor plus (SFF+) Host Bus Adapter (HBA) • Extra-high bandwidth • OS support: AIX, , and Linux operating systems	5, 7, 6, 8[2]	4	7, 9, 8, 10[2]	4

Table 6. Adapter slot priorities and maximum PCI, PCI-X, and PCIe adapters supported (continued)

Feature code	Description	02E/4B and 05F/6B		02E/4C, 02E/4D, 05E/6C, and 05E/6D	
		Slot priorities[3]	Maximum number of adapters supported	Slot priorities[3]	Maximum number of adapters supported
5269	POWER GXT145 PCI Express Graphics Accelerator (FC 5269; CCIN 5269) • Low-profile adapter • Short, x1 • OS support: AIX and Linux operating systems	5, 7, 6, 8	4	7, 9, 8, 10	4
5748	POWER GXT145 PCI Express Graphics Accelerator (FC 5748; CCIN 5748) • Short, x1 • Not hot-pluggable • OS support: AIX and Linux operating systems	All slots have the same priority	8	All slots have the same priority	8
5260[2]	PCIe2 LP 4-port 1 GbE Adapter (FC 5260; CCIN 576F) • Low-profile adapter • PCIe generation 1 or generation 2, x4 • High bandwidth • Four-port 1 Gb Ethernet • OS support: AIX, , and Linux operating systems	5, 7, 6, 8	4	7, 9, 8, 10	4
5270	10 Gb FCoE PCIe Dual-port Adapter (FC 5270; CCIN 2B3B) • Low-profile adapter • Short, x8 • OS support: AIX and Linux operating systems	5, 7, 6, 8	4	7, 9, 8, 10	4
5271	4-port 10/100/1000 Base-TX PCI Express Adapter (FC 5271; CCIN 5717) • Low-profile adapter • Short, x4 • OS support: AIX and Linux operating systems	5, 7, 6, 8	4	7, 9, 8, 10	4
5272	10 Gb Ethernet-CX4 PCI Express Adapter (FC 5272; CCIN 5272) • Low-profile adapter • Short, x8 • OS support: AIX and Linux operating systems	5, 7, 6, 8	4	7, 9, 8, 10	4

Table 6. Adapter slot priorities and maximum PCI, PCI-X, and PCIe adapters supported (continued)

Feature code	Description	02E/4B and 05F/6B		02E/4C, 02E/4D, 05E/6C, and 05E/6D	
		Slot priorities[3]	Maximum number of adapters supported	Slot priorities[3]	Maximum number of adapters supported
5274	2-port Gb Ethernet-SX PCI Express Adapter (FC 5274; CCIN 5768) • Low-profile adapter • Short, x4 • OS support: AIX, , and Linux operating systems	5, 7, 6, 8	4	7, 9, 8, 10	4
5275	10 Gb Ethernet-SR PCI Express Adapter (FC 5275; CCIN 2B54) • Low-profile adapter • Short, x8 • OS support: AIX and Linux operating systems	5, 7, 6, 8	4	7, 9, 8, 10	4
5278	PCIe Dual-x4 SAS Adapter (FC 5278; CCIN 57B3) • Low-profile adapter • Extra-high bandwidth • Short, x8 • OS support: AIX, , and Linux operating systems	1, 3, 2, 4	4	7, 9, 8, 10	4
5279	PCIe2 LP 2x10 GbE SFP+ Copper 2x1 GbE UTP Adapter (FC 5279; CCIN 2B52) • Low-profile, Short, x8 • PCIe 2 • OS support: Linux operating system	5, 7, 6, 8	4	7, 9, 8, 10	4
5280	PCIe2 LP 2x10 GbE SR 2x1 GbE UTP Adapter (FC 5280; CCIN 2B54) • Low-profile, short, x8 • PCIe 2 • OS support: Linux operating system	5, 7, 6, 8	4	7, 9, 8, 10	4
5281	1 Gb Ethernet UTP 2-port PCIe Adapter (FC 5281; CCIN 5767) • Low-profile, short, x8 • PCIe 2 • OS support: AIX, , and Linux operating system	5, 7, 6, 8	4	7, 9, 8, 10	4

Table 6. Adapter slot priorities and maximum PCI, PCI-X, and PCIe adapters supported (continued)

Feature code	Description	02E/4B and 05F/6B		02E/4C, 02E/4D, 05E/6C, and 05E/6D	
		Slot priorities[3]	Maximum number of adapters supported	Slot priorities[3]	Maximum number of adapters supported
5284[2]	PCIe2 LP 2-port 10 GbE SR Adapter (FC 5284; CCIN 5287) • Generation 2, x8 • Low-profile adapter • Extra-high bandwidth • 10 GBASE-SR short-reach optics • OS support: AIX, (supported only through VIOS), Linux operating systems	5, 7, 6, 8	4	7, 9, 8, 10	4
5286	PCIe2 LP 2-port 10 GbE SFP+ Copper Adapter (FC 5286; CCIN 5288) • 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 operating systems	5, 7, 6, 8	4	7, 9, 8, 10	4
5287	PCIe2 2-port 10 GbE SR Adapter (FC 5287; CCIN 5287) • Generation 2, x8 • Full-height adapter • Two 10 Gb Ethernet ports • 10 GBASE- Direct attach SFP+ twinax cable • OS support: AIX and Linux operating systems	Not supported		1, 2, 3, 4, 5, 6	5
5288	PCIe2 LP 2-port 10 GbE SFP+ Copper Adapter (FC 5288; CCIN 5288) • Generation 2, full-height adapter • Two 10 Gb Ethernet ports • Requires available PCIe generation 2 slot • OS support: AIX and Linux operating systems	Not supported		1, 2, 3, 4, 5, 6	5
5708[2]	10 Gb FCoE PCIe Dual-port Adapter (FC 5708; CCIN 2B3B) • Regular full-height • Extra-high bandwidth • PCIe 2.0 adapter with x8 generation 1 • Convergence enhanced Ethernet (CEE) supported • OS support: AIX, , and Linux operating systems	1, 3, 2, 4	24 and 44	1, 2, 3, 4, 5, 6	25 and 45

Table 6. Adapter slot priorities and maximum PCI, PCI-X, and PCIe adapters supported (continued)

Feature code	Description	02E/4B and 05F/6B		02E/4C, 02E/4D, 05E/6C, and 05E/6D	
		Slot priorities[3]	Maximum number of adapters supported	Slot priorities[3]	Maximum number of adapters supported
5717[1]	4-port 10/100/1000 Base-TX PCI Express Adapter (FC 5717; CCIN 5717) • Short, x4 • High bandwidth • OS support: AIX and Linux operating systems	1, 3, 2, 4	24 and 42	1, 2, 3, 4, 5, 6	25 and 45
5732[2]	10 Gb Ethernet-CX4 PCI Express Adapter (FC 5732; CCIN 2B43) • Short, x8 • Extra-high bandwidth • OS support: AIX and Linux operating systems	1, 3, 2, 4	24 and 44	1, 2, 3, 4, 5, 6	25 and 45
5744	PCIe2 2x10 GbE SR 2x1 GbE UTP Adapter (FC 5744; CCIN 2B44) • Short, x8 • Full-height adapter • Extra-high bandwidth • PCIe generation 2 • OS support: Linux operating system	Not supported		1, 2, 3, 4, 5, 6	5
5745	PCIe2 2x10 GbE SFP+ Copper 2x1 GbE UTP Adapter (FC 5745; CCIN 2B43) • Short, x8 • PCIe 2 • Extra-high bandwidth • OS support: Linux operating system	Not supported		1, 2, 3, 4, 5, 6	5
5767[1]	2-port 10/100/1000 Base-TX Ethernet PCI Express Adapter (FC 5767; CCIN 5767) • Short, x4 • High bandwidth • OS support: AIX, , and Linux operating systems	1, 3, 2, 4	24 and 44	1, 2, 3, 4, 5, 6	25 and 45
5768[1]	2-port Gigabit Ethernet-SX PCI Express Adapter (FC 5768; CCIN 5768) • Short, x4 • High bandwidth • OS support: AIX, , and Linux operating systems	1, 3, 2, 4	24 and 44	6, 5, 4, 3, 2, 1	25 and 45

Table 6. Adapter slot priorities and maximum PCI, PCI-X, and PCIe adapters supported (continued)

Feature code	Description	02E/4B and 05F/6B		02E/4C, 02E/4D, 05E/6C, and 05E/6D	
		Slot priorities[3]	Maximum number of adapters supported	Slot priorities[3]	Maximum number of adapters supported
5769[2]	10 Gb Ethernet-SR PCI Express Adapter (FC 5769; CCIN 2B44) • Short, full-high, x8 • Low-profile capable • Extra-high bandwidth • OS support: AIX and Linux operating systems	5, 7, 6, 8	24 and 44	1, 2, 3, 4, 5, 6	25 and 45
5772[2]	10 Gb Ethernet-LR PCI Express Adapter (FC 5772; CCIN 576E) • Short, x8 • Low-profile capable • Extra-high bandwidth • OS support: AIX, , and Linux operating systems	1, 3, 2, 4	24 and 44	1, 2, 3, 4, 5, 6	25 and 45
5899[1]	PCIe2 4-port 1 GbE Adapter (FC 5899; CCIN 576F) • Regular-height adapter • PCIe generation 1 or generation 2, x4 • High bandwidth • Four-port 1 Gb Ethernet • OS support: AIX, , and Linux operating systems	4,1,2,3[1]	24 and 44	6, 1, 2, 3, 4, 5 [1]	26 and 45
9055	PCIe 2-port 1 GbE TX adapter (FC 9055; CCIN 5767) • Full-height, PCIe x4 • PCIe 1.0a compliant • Two full-duplex 10/100/1000 Base-TX UTP connections to gigabit Ethernet (GbE) LANs • OS support: AIX, , and Linux operating systems	Not supported		1, 2, 3, 4, 5, 6[2]	1
EC27[2]	PCIe2 LP 2-port 10 GbE RoCE SFP+ adapter (FC EC27; CCIN EC27) • Short, low-profile • PCIe generation 2, x8 • Extra-high bandwidth, low latency 10 Gb Ethernet • OS support: AIX and Linux operating systems • Firmware level 7.6 or later	Not supported		7, 9, 8, 10[2]	4

Table 6. Adapter slot priorities and maximum PCI, PCI-X, and PCIe adapters supported (continued)

Feature code	Description	02E/4B and 05F/6B		02E/4C, 02E/4D, 05E/6C, and 05E/6D	
		Slot priorities[3]	Maximum number of adapters supported	Slot priorities[3]	Maximum number of adapters supported
EC28[2]	PCIe2 2-port 10 GbE RoCE SFP+ adapter (FC EC28; CCIN EC27) • Regular-height adapter • PCIe generation 2, x8 • Extra-high bandwidth, low latency 10 Gb Ethernet • OS support: AIX and Linux operating systems • Firmware level 7.6 or later	Not supported		1, 2, 3, 4, 5, 6[2]	5
EC29[2]	PCIe2 LP 2-port 10 GbE RoCE SR adapter (FC EC29; CCIN EC29) • Low-profile adapter • PCIe generation 2, x8 • Extra-high bandwidth, low latency 10 Gb Ethernet • OS support: AIX and Linux operating systems • Firmware level 7.6 or later	Not supported		7, 9, 8, 10[2]	4
EC30[2]	PCIe2 2-port 10 GbE RoCE SR adapter (FC EC30; CCIN EC29) • Regular-height adapter • PCIe generation 2, x8 • Extra-high bandwidth, low latency 10 Gb Ethernet • OS support: AIX and Linux operating systems • Firmware level 7.6 or later	Not supported		1, 2, 3, 4, 5, 6[2]	5
EN0H	PCIe2 4-port (10 Gb FCoE, 1 GbE) SFP+ Adapter (FC EN0H, CCIN 2B93) • Extra-high bandwidth • OS support: AIX, , and Linux operating systems	Not supported		1, 2, 3, 4, 5, 6[2]	5
EN0J	PCIe2 LP 4-port (10 Gb FCoE, 1 GbE) SFP+ Adapter (FC EN0J, CCIN 2B93) • Extra-high bandwidth • OS support: AIX, , and Linux operating systems	Not supported		1, 2, 3, 4, 5, 6[2]	4
2728	4-port USB PCIe Adapter (FC 2728; CCIN 57D1) • Low-profile adapter • Single-slot, half-length PCIe adapter • PCIe 1.1 • OS support: AIX and Linux operating systems	5, 7, 6, 8	24 and 44	5, 4, 3, 2, 1	25 and 45

Table 6. Adapter slot priorities and maximum PCI, PCI-X, and PCIe adapters supported (continued)

Feature code	Description	02E/4B and 05F/6B		02E/4C, 02E/4D, 05E/6C, and 05E/6D	
		Slot priorities[3]	Maximum number of adapters supported	Slot priorities[3]	Maximum number of adapters supported
4807	PCIe Cryptographic Coprocessor (FC 4807; CCIN 4765) • PCIe x4, full-height, half-length • OS support: AIX, and operating systems	5, 7, 6, 8	2	7, 9, 8, 10	2
4808	PCIe Cryptographic Coprocessor (FC 4808; CCIN 4765) • Generation 3 blind-swap cassette • PCIe x4, full-height, half-length • OS support: AIX and operating systems	Installed in the expansion units and not supported in the system	8	Installed in the expansion units and not supported in the system	8
5283[2]	PCIe2 LP 2-port 4X InfiniBand QDR Adapter (FC 5283; CCIN 58E2) • 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 operating systems	5, 7, 6, 8	2	7, 9, 8, 10	2
5285[2]	PCIe2 2-port 4X InfiniBand QDR Adapter (FC 5285; CCIN 58E2) • Generation 2 full-height adapter • Extra-high bandwidth • OS support: AIX and Linux operating systems	1, 3, 2, 4	2	1, 2, 3, 4, 5, 6	2
2053[2]	PCIe RAID and SSD SAS Adapter 3 Gb Low-profile (FC 2053; CCIN 57CD) • Low-profile adapter, requires two slots • Short, x8 • OS support: AIX, , and Linux operating systems • VIOS attachment requires version 2.2, or later	5 and 6 in 02E/4B, 7 and 8 in 05F/6B	2	7 and 8 in 02E/4C, 9 and 10 in05E/6C	2
2054[2]	PCIe RAID and SSD SAS Adapter 3 Gb Low-profile (FC 2054; CCIN 57CD) • Low-profile adapter, requires two slots • Short, x8 • OS support: AIX, , and Linux operating systems • VIOS attachment requires version 2.2, or later	3 and 4 or 1 and 2	2	4 and 5 or 2 and 3	2

Table 6. Adapter slot priorities and maximum PCI, PCI-X, and PCIe adapters supported (continued)

Feature code	Description	02E/4B and 05F/6B		02E/4C, 02E/4D, 05E/6C, and 05E/6D	
		Slot priorities[3]	Maximum number of adapters supported	Slot priorities[3]	Maximum number of adapters supported
2055[2]	PCIe RAID and SSD SAS Adapter 3 Gb with Blind-Swap Cassette (FC 2055; CCIN 57CD) • Low-profile adapter, requires two slots • Short, x8 • OS support: AIX, , and Linux operating systems • VIOS attachment requires version 2.2, or later	Installed in the expansion units and not supported in the system	10 and 20	Installed in the expansion units and not supported in the system	10 and 20
5805	PCIe 380 MB Cache Dual - x4 3 Gb SAS RAID Adapter (FC 5805; CCIN 574E) • Short, dual x4 • SAS RAID adapter • Installed in pairs • OS support: AIX, , and Linux operating systems	1, 3, 2, 4	24 and 44	1, 2, 3, 4, 5, 6	25 and 45
5901[2]	PCIe Dual - x4 SAS Adapter (FC 5901; CCIN 57B3) • Short • Extra-high bandwidth • OS support: AIX, , and Linux operating systems	1, 3, 2, 4	24 and 44	5, 4, 3, 2, 1	25 and 45
5903[2]	PCIe 380 MB Cache Dual x4 3 Gb SAS RAID Adapter (FC 5903; CCIN 574E) • Short • Extra-high bandwidth • Installed in pairs • OS support: AIX and Linux operating systems	1, 3, 2, 4		1, 2, 3, 4, 5, 6	
5913	PCIe2 1.8-GB Cache RAID SAS Tri-port 6 Gb Adapter (FC 5913; CCIN 57B5) • Full-height, short, PCIe2 x8 • Transfer speed of 6 Gbps • Write cache backup of 1.8 GB • One PCIe x8 slot per adapter • Adapters are installed in pairs • OS support: AIX, , and Linux operating systems	1, 3, 2, 4	18 and 24	1, 2, 3, 4, 5, 6	18 and 24

Table 6. Adapter slot priorities and maximum PCI, PCI-X, and PCIe adapters supported (continued)

Feature code	Description	02E/4B and 05F/6B		02E/4C, 02E/4D, 05E/6C, and 05E/6D	
		Slot priorities[3]	Maximum number of adapters supported	Slot priorities[3]	Maximum number of adapters supported
ESA1	PCIe2 RAID SAS Adapter Dual-port 6 Gb (FC ESA1; CCIN 57B4) • Regular-height adapter • PCIe generation 2, x8 • OS support: AIX, , and Linux operating systems	Not supported		Not supported	20 and 40
ESA2	PCIe2 RAID SAS Adapter Dual-port 6 Gb LP (FC ESA2; CCIN 57B4) • Short, low-profile • PCIe generation 2, x8 • OS support: AIX, , and Linux operating systems	Not supported		7, 9, 8, 10	2
2893	PCI Express 2-Line WAN with Modem (FC 2893; CCIN 576C) • Short, x4 • Non-CIM • OS support: AIX, , and Linux operating systems	1, 3, 2, 4	24 and 44	5, 4, 3, 2, 1	25 and 45
2894	PCI Express 2-Line WAN with Modem (FC 2894; CCIN 576C) • Short, x4 • CIM • OS support: AIX, , and Linux operating systems	1, 3, 2, 4	24 and 44	5, 4, 3, 2, 1	25 and 45
9483	PCI Express 2-Line WAN with Modem (FC 9483; CCIN 576C) • Short, x4, PCIe • Non-CIM • OS support: AIX, , and Linux operating systems	1, 3, 2, 4		6, 5, 4, 3, 2, 1	

[1] High-bandwidth storage adapter. See the "Performance notes" before installing this adapter.

[2] Extra high-bandwidth adapter. See the "Performance notes" before installing this adapter.

[3] The adapters are installed in this order in the system for best performance.

Performance notes

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

Performance notes regarding GX++ channel adapters and I/O expansion units

The I/O expansion units must be limited to one expansion unit per GX++ channel controller (FC 5615) Do not connect multiple expansion units to the same GX++ channel controller.

Table 6 on page 21 shows 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. If you must expand the I/O capacity of the system for extra-high bandwidth adapters, use high-performance I/O expansion units such as 5610, 5685, 57/96, 58/02, or 58/77.

The following tables provide guidelines on the maximum number of high bandwidth and extra-high bandwidth adapters you can use and still maintain optimum performance.

Note: Because of the many types of application workloads, these guidelines cannot cover all cases. The numbers in the following tables are suggestions for single types of adapters that are running exclusively. For systems with mixed adapter types or that have high aggregate bandwidth requirements, consult a support representative for additional guidelines.

Extra-high bandwidth storage adapters

Table 7. Maximum number of extra-high bandwidth storage adapters for best performance

System configuration	Adapters in system slots C4 to C7	Low profile adapters in system slots C1-C1 to C1-C4 if FC 5610 or 5685 is used	Adapters per 5615 with one or more 57/96	Adapters per 5615 with one or two 58/02 or 58/77	System maximum
System with one processor chip module unit	3 (2 for 5735)	3^1 (2 for 5237)	4	6 (4 for 5735)	9
System with two processor chip module units	3 (2 for 5735)	3^1 (2 for 5237)	4 (8 in 2 drawers)	6 (12 in 2 drawers) (4 / 8 for 5735)	15 (10 for 5735)
[1]Split adapters across both internal slots C4 to C7 and the four-slot riser slots C1-C1 to C1-C4 if FC 5610 or 5685 is used.					
You can install extra high-performance adapters in three out of the four base slots and in three out of four of FC 5610 or 5685 slots.					

Extra-high bandwidth Ethernet adapters

Table 8. Maximum number of extra-high bandwidth Ethernet adapters for best performance

System configuration	Adapters in system slots C4 - C7	Low profile adapters in system slots C1-C1 to C1-C4 if FC 5610 or FC 5685 is used	Adapters per 5615 with one or more 57/96	Adapters per 5615 with one or two 58/02 or 58/77	System maximum
System with one processor chip module unit	2	2	2	4	4
System with two processor chip module units	2	2	2 (4 in 2 drawers)	4 (8 in 2 drawers)	8
For best performance, extra high-bandwidth Ethernet adapters must be installed in 58/02 or 58/77 expansion drawers when available, instead of using internal system unit slots. A maximum of two adapters in slots P1-C4 through P1-C7, and a maximum of two adapters in slots P1-C1-C1 through P1-C1-C4 can be installed.					

I/O expansion units

Find information about the Peripheral Component Interconnect (PCI), PCI-X, and PCI Express (PCIe) adapters supported in the I/O expansion units that are supported for the systems servers that contain the POWER7 processor.

PCI slot priorities for the 57/96 expansion unit

Find information about the PCI slots in the 57/96 expansion unit.

System description

The 57/96 expansion unit is a 19-inch, rack-mountable, I/O expansion drawer that is designed to be attached to the system unit using the 12X channel bus and 12X cables.

The 57/96 can accommodate six generation 3 blind-swap adapter cassettes. Cassettes can be installed and removed without removing the drawer from the rack.

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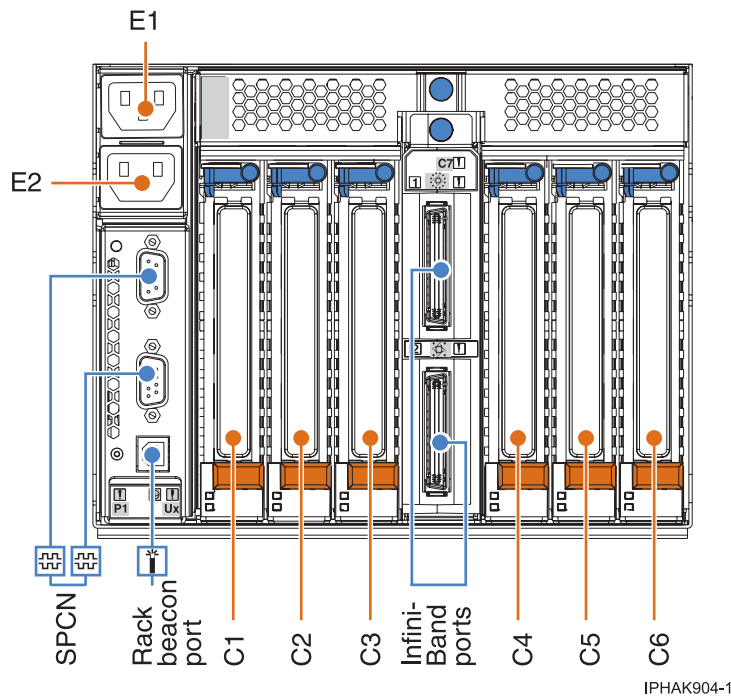
Figure 4. Rear view

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

Location code	Description
C1, C2, C3, C4, C5, and C6	PCI-X DDR slots. See also "PCI slot descriptions" on page 46.
C7-T1 and C7-T2	12X Channel remote I/O ports.
C8-T1 and C8-T2	Dual port system power control network (SPCN) connectors.
E1 and E2	Power supply connectors.

PCI slot descriptions

Table 10. Slot properties. This table describes the PCI-X DDR slots.

PHB2 A	PHB3 A	PHB4 A	PHB1 B	PHB2 B	PHB3 B
Slot 1	Slot 2	Slot 3	Slot 4	Slot 5	Slot 6
Long	Long	Long	Long	Long	Long
64 bit 3.3V, 266 MHz	64 bit 3.3V, 266 MHz	64 bit 3.3V, 266 MHz	64 bit 3.3V, 266 MHz	64 bit 3.3V, 266 MHz	64 bit 3.3V, 266 MHz
C1	C2	C3	C4	C5	C6

- Each PCI-X DDR slot is a separate PCI host bridge (PHB).
- All slots are compatible with PCI and PCI-X DDR adapters.
- Short adapters can go in long slots.

Slot priorities

Slot priority for all adapters is 1, 4, 2, 5, 3, and 6. For a list of supported adapters, see the placement information for the base system unit to which the expansion unit is attached.

PCI 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.

Note: PCIe2 adapters that provide extra-high bandwidths are not supported in the 58/02 and 58/77 expansion units.
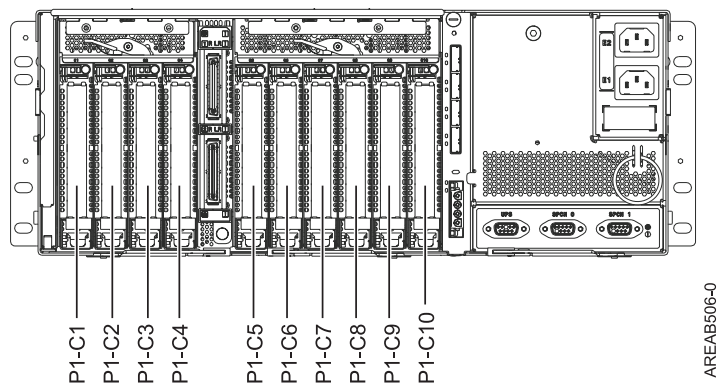

Figure 5. Rear view. This figure shows the rear view of the expansion unit.

Table 11. Location code descriptions. This table describes the location codes that are shown in Figure 5 on page 46.

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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Technical Regulations, Department M372
IBM-Allee 1, 71139 Ehningen, Germany
Tele: +49 7032 15 2941
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