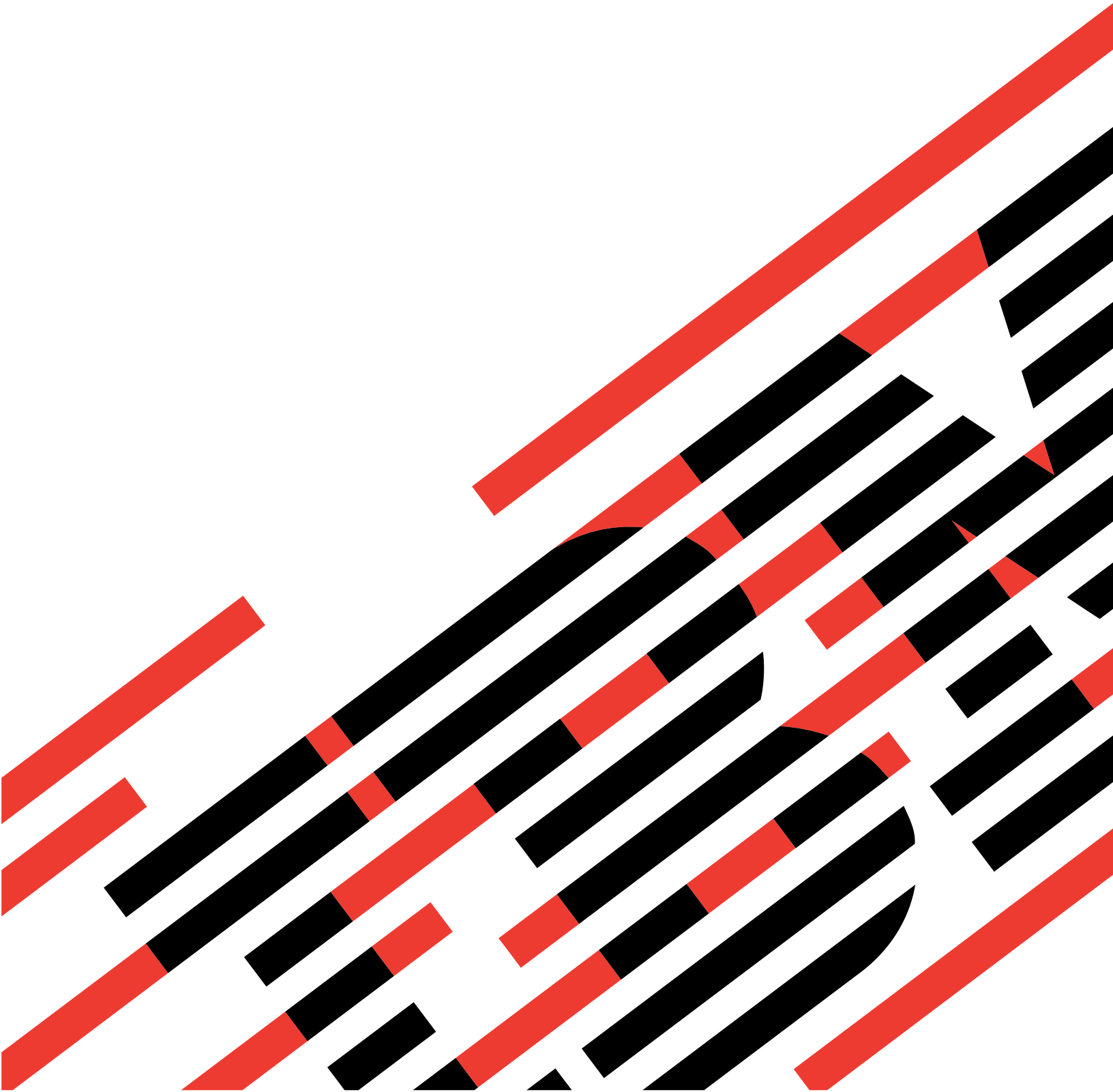
IBM

eserver

Service provider information
Resolving problems and verifying the repair



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Note

Before using this information and the product it supports, be sure to read the information in "Notices," on page 285 and the manual *IBM eServer Safety Information*, G229-9054.

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Contents

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Chapter 1. Resolving problems

This topic is intended to provide IBM® service providers with instructions for finding and replacing the failing component on system models 520, 550, 9124-720, 570, 590, and 595.

Before using this information and the products it supports, be sure to read Safety notices.

"Finding part locations"
Includes tables and diagrams for locating the failing part.

"Part assembly diagrams" on page 101
Includes detailed diagrams for identifying part numbers.

"Part number catalog" on page 171
Contains an extensive listing of part numbers for system parts and accessories.

"Removing and replacing parts" on page 205
Contains procedures for exchanging failing parts with new parts.

Finding part locations

The information in this section provides a cross reference to help you associate a part name, location code, or address with its physical location. After you determine the part number and location for a part, you can go directly to removal and replacement procedures for the part.

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"Locations — OpenPower™" on page 81

"Addresses" on page 81

Additional location information:

- Load source placement rules for i5/OS logical partitions
- Alternate restart device (IPL) placement rules for i5/OS logical partitions

Location codes

Servers (system unit and expansion units) use physical location codes to provide mapping of replaceable units. Location codes are produced by the server's firmware, which structures them so that they can be broken down to identify specific parts in a system. The location code format is the same for all IBM eServer hardware servers.

If you are working with a specific location code, the unit type and model immediately follow the first character (Utttt.mmm). Match the unit type and model to a link in the following table.

If the location code ends with **-Txx-Lxx**, the server's firmware could not identify the physical location. When a physical location cannot be identified, a logical location code is provided. Where logical location codes occur in enclosures, the locations article for the enclosure has the known conversions listed. For logical location codes with no conversion, you must contact your next level of support.

If the location code begins with **UTMPx**, the expansion I/O unit's machine type, model and serial number have not been set yet and this is a temporary unit identifier. To identify the unit, examine the display panels on all of the expansion I/O units connected to the server until you find one with the same characters in the first 5 digits of the top line in the unit's display. Record the unit's real machine type and model from the unit label. Match the unit's machine type and model in the following table and follow the link to determine the service information.

Unit type (Utttt.mmm)	Link to location information
0588	"Locations — 0588 and 5088 expansion units" on page 49
0595	"Locations — 0595 and 5095 expansion units" on page 60
2689	"Locations — Integrated xSeries adapter card (IXA)" on page 79
5088	"Locations — 0588 and 5088 expansion units" on page 49
5074	"Locations — 5074, 8079-002, and 8093-002 expansion units" on page 42
5079	"Locations — 5079 expansion unit" on page 48
5094	"Locations — 5094, 5294, and 8094-002 expansion units" on page 55
5095	"Locations — 0595 and 5095 expansion units" on page 60
5294	"Locations — 5094, 5294, and 8094-002 expansion units" on page 55
5790	"Locations — 7311-D10 7311-D11 and 5790 expansion unit" on page 72
5791	"Locations — 5791, 5794, and 7040-61D expansion unit" on page 65
5794	"Locations — 5791, 5794, and 7040-61D expansion unit" on page 65
7040	"Locations — 5791, 5794, and 7040-61D expansion unit" on page 65
7311.D10	"Locations — 7311-D10 7311-D11 and 5790 expansion unit" on page 72
7311.D11	"Locations — 7311-D10 7311-D11 and 5790 expansion unit" on page 72
7311.D20	"Locations — 7311-D20 expansion unit" on page 75
7879.001	"Locations — model 570" on page 19
787A.001	"Locations — model 520" on page 4

Unit type (Utttt.mmm)	Link to location information
787B.001	“Locations — model 550 and 9124-720” on page 11
787C.001	“Locations — model 590 and 595” on page 27
8079	“Locations — 5074, 8079-002, and 8093-002 expansion units” on page 42
8093	“Locations — 5074, 8079-002, and 8093-002 expansion units” on page 42
8094	“Locations — 5094, 5294, and 8094-002 expansion units” on page 55
nnnn.520	“Locations — model 520” on page 4
nnnn.550	“Locations — model 550 and 9124-720” on page 11
nnnn.570	“Locations — model 570” on page 19
nnnn.590	“Locations — model 590 and 595” on page 27
nnnn.595	“Locations — model 590 and 595” on page 27
nnnn.720	“Locations — model 550 and 9124-720” on page 11

Note: Locations for units that are not listed above are either not supported or there is a problem in the firmware. Contact your next level of support.

Physical location codes

Physical location codes provide a mapping of logical functions and components, such as backplanes, removable modules, connectors, ports, cables, and devices, to their specific locations within the physical structure of the server.

Location code format

The location code is an alphanumeric string of variable length, consisting of a series of location identifiers, separated by a dash. An example of a physical location for a fan is U*n*-A1.

The first position, represented by U*n* in the above example is displayed in the form:
U*tttt.mmm.sssssss*-A1

Where:
- The leftmost code is always U
- *tttt* represents the unit type for the unit
- *mmm* represents the model of the unit
- *sssssss* represents the serial number for the unit

Note: The *mmm* number might not be displayed on all location codes for all servers. If the *mmm* value is not displayed, the location code is displayed in the form:
U*tttt.sssssss*-A1

The location code is hierarchical; that is, each location identifier in the string represents a physical part. The order (from left to right), in which each identifier is shown, allows you to determine which parts contain other parts in the string.

The - (dash) separator character represents a relationship between two components in the unit. In the example of the fan, whose location code is U*n*-A1, the - (dash) shows that the fan (A1) is contained in the base unit (or U*n*). Modules, adapters, cables, and devices are all parts that are plugged into another part. Their location codes will always show that they are plugged into another part as components that make up the server. Another example, U*n*-P1-C9 is a memory DIMM, with (C9) plugged into a backplane (P1), which is inside the unit (U*n*).

For more information about what the various location code label prefixes mean, refer to Location code labels.

Note: For devices, certain error conditions might cause an i5/OS device to display an AIX format or device location.

Logical location codes

If the physical location cannot be mapped to a physical location code, the server's firmware will generate a logical location code. A logical location code is a sequence of location labels that identify the path that the system uses to communicate with a given resource.

Note: A resource has as many logical location codes as it has logical connections to the system. For example, an external tape device connected to two I/O adapters will have two logical location codes.

An example of a logical location code is:

```
U7879.001.10ABCDE-P3-C31-T2-L23
```

The first part of the location code (through the T2 label) represents the physical location code for the resource that communicates with the target resource. The remainder of the logical location code (L23) represents exactly which resource is indicated.

Location code labels

The following table explains what the location code label prefixes mean.

Note: These labels apply to system units only.

Table 1. Location code prefixes for system units

Prefix	Description	Example
A	Air moving device	Fan, blower
C	Card connector	IOP, IOA, DIMM, processor card
D	Device	Diskette, control panel
E	Electrical	Battery, power supply, ac charger
L	Logical path SCSI target	IDE address, Fibre channel LUN
N	Horizontal placement for an empty rack location	
P	Planar	System backplane
T	Port	
U	Unit	
V	Virtual planar	
W	Worldwide unique ID	
X	EIA value for an empty rack location	
Y	Firmware FRU	

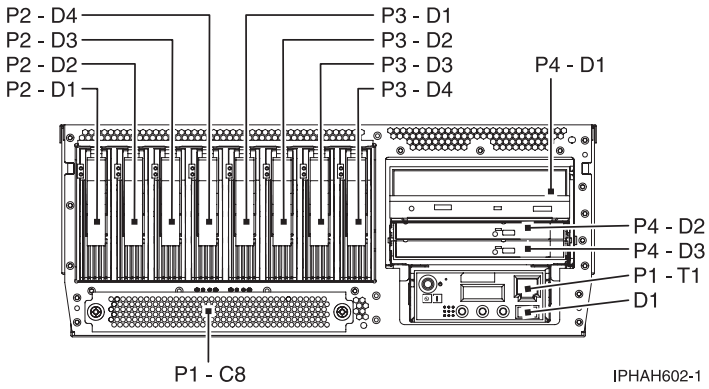
Locations — model 520

Mapping physical location codes

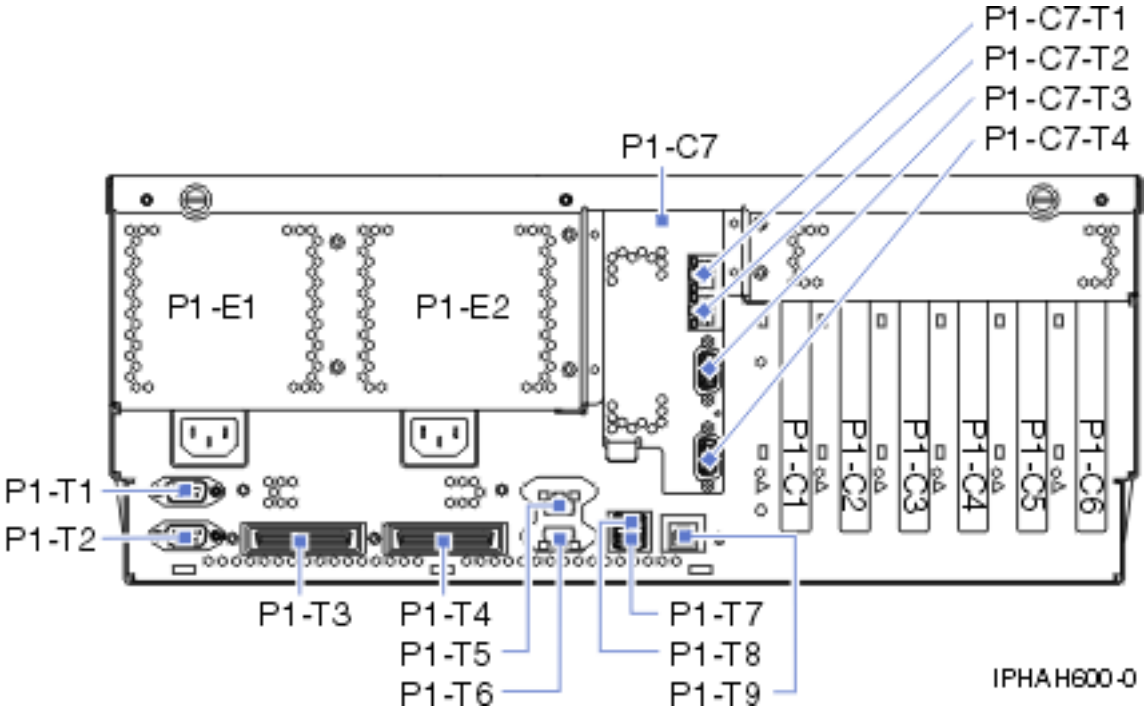
Note: The known logical location codes for this unit are listed next to the corresponding physical location in the following information. If you are working with a logical location code for this unit and it is not listed in the following information, contact your next level of support.

For address information, see “Addresses – model 520” on page 82.

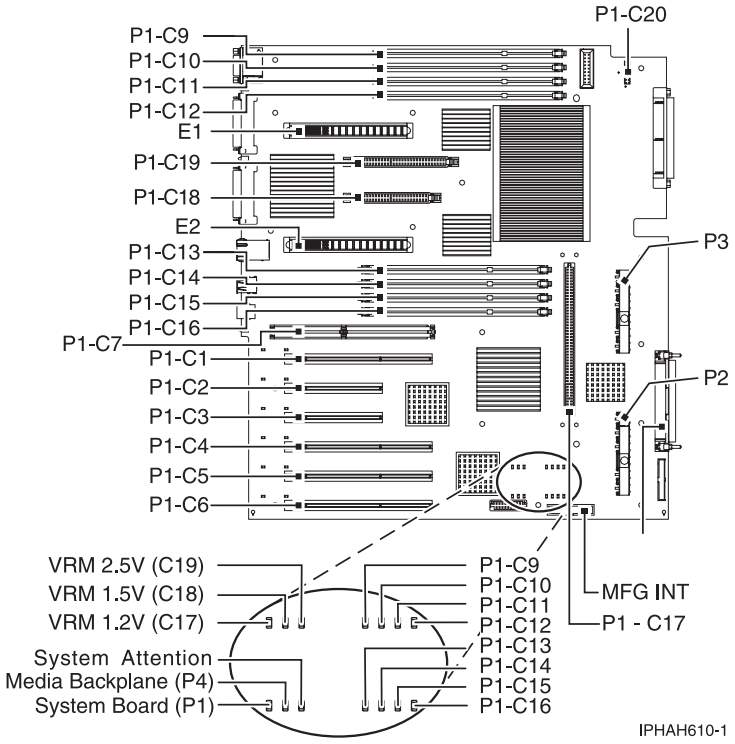
Use the following illustration to help you map a location code to a position on the front of the server.



Use the following illustration to help you map a location code to a position on the back of the server.



Use the following illustration to help you map a location code to its connector on the system backplane.



The following table contains location codes for the parts that make up the server.

Attention: After replacing any part on a server or expansion unit, perform Chapter 2, "Verifying the repair," on page 279.

Table 2. Physical location codes

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
System unit		U*n*		NA
Fans				
Fan 1		U*n*-A1	Power parts	Fan
Fan 2		U*n*-A2	Power parts	Fan
Fan 3		U*n*-A3	Power parts	Fan
Power supplies				
Power supply 1		U*n*-E1	Power parts	Power supply
Power supply 2		U*n*-E2	Power parts	Power supply
Backplanes				

Table 2. Physical location codes (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
System backplane • Processors • RIO Hub/HSL NIC • RIO/HSL I/O Bridge • RIO/HSL link • Ethernet controller • USB controller (AIX or Linux only) • IDE bridge (AIX or Linux only) • SCSI controller • Logic Oscillator	ANYPROC CLCKMOD FRPORT HSL_LNK IO_HUB IOBRDG MA_BRDG MABRCFG MASBUS MEMCTLR PIOCARD PPCISYS PRI_PCI SI_PHB SICNTRL SIIOADP SPBUS SYSBKPL TOPORT	U*n*-P1	• 522A • 5228 • 5229	System backplane
Disk drive (1 - 4) backplane		U*n*-P2	28D2	Disk drive backplane
Disk drive (5 - 8) backplane		U*n*-P3	28D2	Disk drive backplane
Media drive backplane		U*n*-P4	291E	Removable media drive enclosure and backplane
System backplane ports				
Serial port 1 (back of system backplane)		U*n*-P1-T1		NA
S1 serial connector (front of control panel)		U*n*-P1-T1		NA
Serial port 2 (rear of system backplane)		U*n*-P1-T2		NA
RIO/HSL left connector	HSL_LNK HSL2 HSL2_xx HSLH HSLH_xx	U*n*-P1-T3	"External cables" on page 196	RIO/HSL cables concurrent

Table 2. Physical location codes (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
RIO/HSL right connector	HSL_LNK HSL2 HSL2_xx HSLH HSLH_xx	U*n*-P1-T4	"External cables" on page 196	RIO/HSL cables concurrent
Integrated dual 1 GB Ethernet controller-port A		U*n*-P1-T5		NA
Integrated dual 1 GB Ethernet controller-port B		U*n*-P1-T6		NA
Integrated 2-port universal serial bus (USB) port 0 (AIX or Linux only)		U*n*-P1-T7		NA
Integrated 2-port universal serial bus (USB) port 1 (AIX or Linux only)		U*n*-P1-T8		NA
Rack indicator connector		U*n*-P1-T9		NA
Service processor				
Service processor card	SVCPROC	U*n*-P1-C7	28D7	Service processor
Time-of-day (TOD) battery	TOD_BAT	U*n*-P1-C7-E1	Power parts	Time-of-day battery
HMC 1 connector		U*n*-P1-C7-T1		NA
HMC 2 connector		U*n*-P1-C7-T2		NA
SPCN 0 connector		U*n*-P1-C7-T3		NA
SPCN 1 connector		U*n*-P1-C7-T4		NA
Adapters				
PCI adapter in slot 1	PIOCARD MASBUS SLOTERR	U*n*-P1-C1	"System parts" on page 172	PCI adapter

Table 2. Physical location codes (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
PCI adapter in slot 2	PIOCARD MASBUS SLOTERR	U*n*-P1-C2	"System parts" on page 172	PCI adapter
PCI adapter in slot 3	PIOCARD MASBUS SLOTERR	U*n*-P1-C3	"System parts" on page 172	PCI adapter
PCI adapter in slot 4	PIOCARD MASBUS SLOTERR	U*n*-P1-C4	"System parts" on page 172	PCI adapter
PCI adapter in slot 5	PIOCARD MASBUS SLOTERR	U*n*-P1-C5	"System parts" on page 172	PCI adapter
PCI adapter in slot 6	PIOCARD MASBUS SLOTERR	U*n*-P1-C6	"System parts" on page 172	PCI adapter
Dual channel SCSI RAID enablement card		U*n*-P1-C8	5709	RAID enablement card
PCI bridge set 1	BRDGSET BRDGST1	Un-P1 Un-P1-C1 Un-P1-C2 Un-P1-C4		Replace the system backplane and cards using the removal and replacement procedures corresponding to the locations indicated.
PCI bridge set 2	BRDGSET BRDGST2	Un-P1 Un-P1-C3 Un-P1-C5 Un-P1-C6		Replace the system backplane and cards using the removal and replacement procedures corresponding to the locations indicated.
Memory modules				
Memory module 1	MEMDIMM	U*n*-P1-C9	Memory parts	Memory
Memory module 2	MEMDIMM	U*n*-P1-C10	Memory parts	Memory
Memory module 3	MEMDIMM	U*n*-P1-C11	Memory parts	Memory
Memory module 4	MEMDIMM	U*n*-P1-C12	Memory parts	Memory
Memory module 5	MEMDIMM	U*n*-P1-C13	Memory parts	Memory
Memory module 6	MEMDIMM	U*n*-P1-C14	Memory parts	Memory
Memory module 7	MEMDIMM	U*n*-P1-C15	Memory parts	Memory
Memory module 8	MEMDIMM	U*n*-P1-C16	Memory parts	Memory

Table 2. Physical location codes (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
Vital product data (VPD) card		U*n*-P1-C20	"System parts" on page 172	VPD card
Voltage regulator for 1.2 V dc		U*n*-P1-C17	Power parts	Voltage regulator module
Voltage regulator for 1.5 V dc		U*n*-P1-C18	Power parts	Voltage regulator module
Voltage regulator for 2.5 V dc		U*n*-P1-C19	Power parts	Voltage regulator module
i5/OS™ operating system device physical locations				
Disk drive 1		U*n*-P2-D1	Disk unit parts	Disk drive
Disk drive 2		U*n*-P2-D2	Disk unit parts	Disk drive
Disk drive 3		U*n*-P2-D3	Disk unit parts	Disk drive
Disk drive 4		U*n*-P2-D4	Disk unit parts	Disk drive
Disk drive 5		U*n*-P3-D1	Disk unit parts	Disk drive
Disk drive 6		U*n*-P3-D2	Disk unit parts	Disk drive
Disk drive 7		U*n*-P3-D3	Disk unit parts	Disk drive
Disk drive 8		U*n*-P3-D4	Disk unit parts	Disk drive
SCSI media device (top media bay)		U *n* -P4-D1 (logical location Un-P1-T10-L7-L0)	Removable media device parts	SCSI removable media
IDE drive 1 (2nd media bay from the top)		U*n* -P4-D2 (logical location Un-P1-T10-L6-L0)	Removable media device parts	Slimline media device
IDE drive 2 (3rd media bay from the top)		U*n* -P4-D3 (logical location Un-P1-T12-L1)	Removable media device parts	Slimline media device
AIX® and Linux operating system device physical locations				
Disk drive 1 - 8		U*n*-P1-C*x*-T*x*-L*y*-L*z* (U*n*-P1-C*x*-T*x* is the port to which the device is connected. L*y* is the SCSI target, L*z* is the logical unit number)	Disk unit parts	Disk drive
SCSI media device (top media bay)		U*n*-P1-C*x*-T*x*-L*y*-L*z* (U*n*-P1-C*x*-T*x* is the port to which the device is connected. L*y* is the SCSI target, L*z* is the logical unit number)	Removable media device parts	SCSI removable media

Table 2. Physical location codes (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
IDE drive 1 (2nd media bay from the top)		U*n*-P1-C*x*-T*x*-L*y*-L*z* (U*n*-P1-C*x*-T*x* is the port to which the device is connected. L*y* is the SCSI target, L*z* is the logical unit number)	Removable media device parts	Slimline media device
IDE drive 2 (3rd media bay from the top)		U*n*-P1-C*x*-T*x*-L*y*-L*z* (U*n*-P1-C*x*-T*x* is the port to which the device is connected. L*y* is the SCSI target, L*z* is the logical unit number)	Removable media device parts	Slimline media device
Control panel				
Control panel (bottom media bay)		U*n* -D1	291D	Control panel
Temperature sensor		U*n* -D1	291D	Control panel
Server firmware				
Server firmware		U*n*-Y1		NA

Input/output adapter (IOA) assignment rules for i5/OS

The following table provides information necessary to identify the input/output processor (IOP) to which IOAs are assigned. The left column indicates the bridge set in which IOA assignment is allowed. Use the right column to determine the IOP to which an IOA is assigned. The first position in the list must be an IOP. The remaining positions might be IOPs or IOAs. IOAs are assigned to the first IOP located to their left in the list. Although IOAs can be manually reassigned using system service tools (SST)/dedicated service tools (DST), the IOA assignments return to the default order after each initial program load (IPL).

Multi-adapter bridge domain / Peripheral Component Interconnect (PCI) bridge set	IOA assignment rules
C1, C2, C4	C2, embedded Ethernet, C4
C6, C3, C5	C3, embedded SCSI, C5

Locations — model 550 and 9124-720

Note: The known logical location codes for this unit are listed next to the corresponding physical location in the following information. If you are working with a logical location code for this unit and it is not listed in the following information, contact your next level of support.

The following diagrams show field replaceable unit (FRU) layout in the system. Use these diagrams with the following tables.

If you need address information, refer to “Addresses – model 550” on page 83.

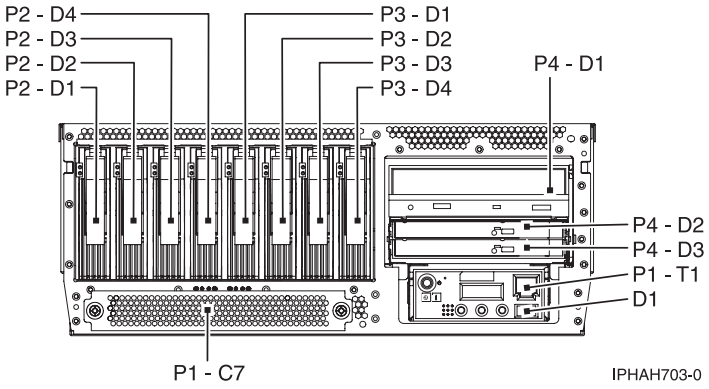


Figure 1. Front view of the system

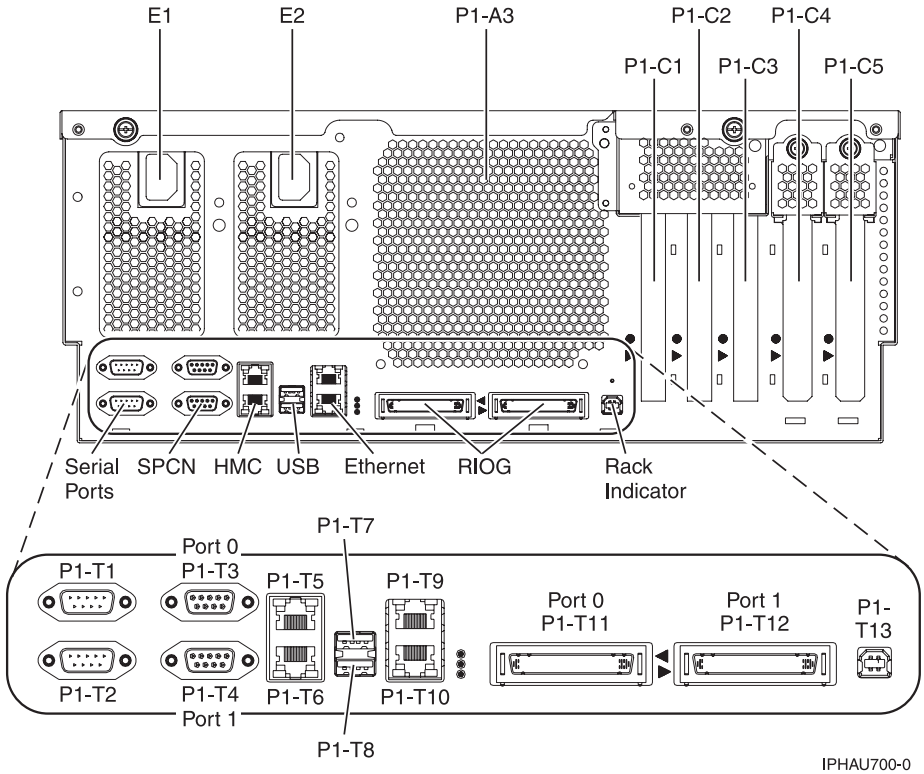


Figure 2. Back view of the system

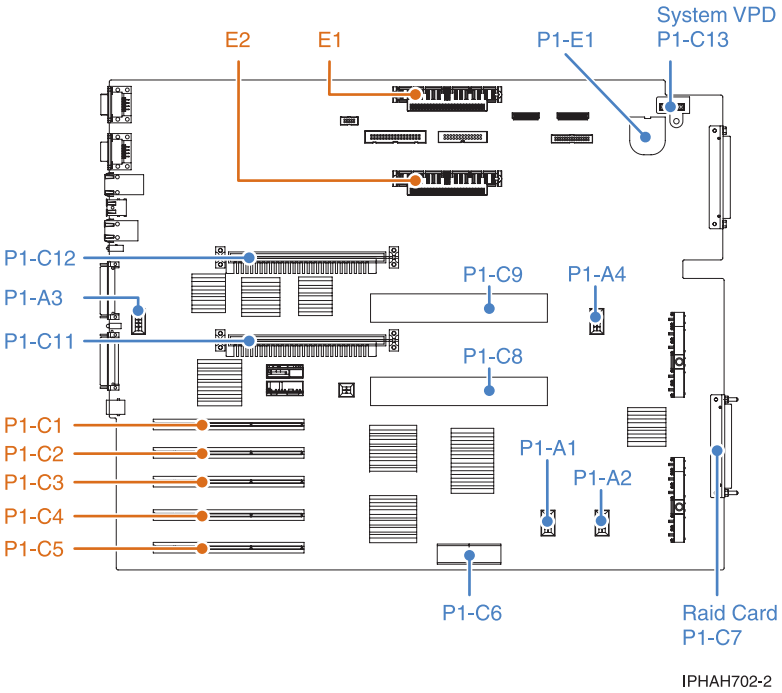


Figure 3. Top view of the system

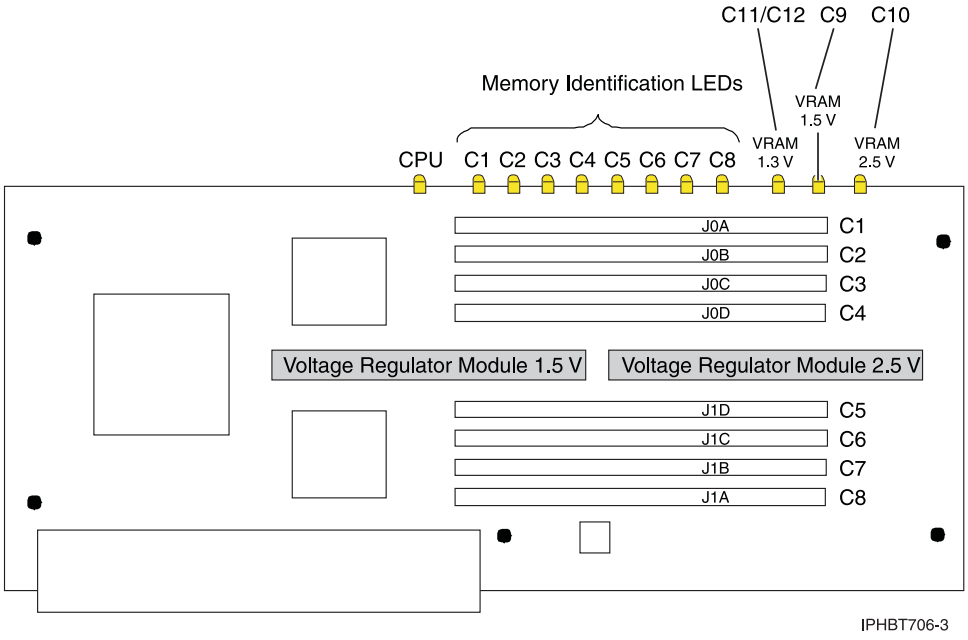


Figure 4. Memory module locations on the processor card

The following table provides location codes for parts that make up the server.

Attention: After replacing any part on a server or expansion unit, perform Chapter 2, “Verifying the repair,” on page 279.

Table 3. FRU locations and failing components

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
System unit		U*n*		
Fans				
PCI adapters fan 1		U*n*-A1	Power parts	Fans
PCI adapters fan 2		U*n*-A2	Power parts	Fans
Processor fan 1		U*n*-A3	Power parts	Fans
Processor fan 2		U*n*-A4	Power parts	Fans
Power supplies				
Power supply 1		U*n*-E1	51BA	Power supply
Power supply 2		U*n*-E2	51BA	Power supply
Backplanes				
System backplane • SPCN • Card enclosure or backplane • Multi-adapter bridge (all) • Service processor • RIO Hub/HSL NIC • RIO/HSL I/O Bridge • RIO/HSL link • Ethernet controller • USB controller (AIX or Linux only) • IDE bridge (AIX or Linux only) • SCSI controller • Logic oscillator	TWRCARD MA_BRDG MABRCFG PPCITWR PRI_PCI SI_PHB HSL_LNK PIOCARD MASBUS TWRBKPL SVCPROC SIIOADP SYSBKPL	U*n*-P1	28EC	System backplane
Time-of-day battery		U*n*-P1-E1	Power parts	Service processor time-of-day battery
Disk drive backplane		U*n*-P2	28F6 28F7 292C 292E	Disk drive backplane
Disk drive backplane		U*n*-P3	28F6 28F7 292C 292E	Disk drive backplane

Table 3. FRU locations and failing components (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
Media drive backplane		U*n*-P4	28D1 291E	Media device enclosure
System backplane ports				
Serial port 1		U*n*-P1-T1		
S1 serial connector (front of control panel)		U*n*-P1-T1		
Serial port 2		U*n*-P1-T2		
SPCN 0 (upper connector)		U*n*-P1-T3		
SPCN 1 (lower connector)		U*n*-P1-T4		
HMC 1 (upper connector)		U*n*-P1-T5		
HMC 2 (lower connector)		U*n*-P1-T6		
USB port 0 (upper connector)		U*n*-P1-T7		
USB port 1 (lower connector)		U*n*-P1-T8		
Ethernet port A		U*n*-P1-T9		
Ethernet port B		U*n*-P1-T10		
RIO/HSL connector (left connector)		U*n*-P1-T11		RIO/HSL cables concurrent
RIO/HSL connector (right connector)		U*n*-P1-T12		RIO/HSL cables concurrent
Rack indicator		U*n*-P1-T13		
Processor and processor regulator				
Processor card 1		U*n*-P1-C9	26F0 26F1 5237	Processor assembly
Processor card 2		U*n*-P1-C8	26F0 26F1 5237	Processor assembly
Voltage regulator 1.5V on Processor card 2		U*n*-P1-C8-C9	Power parts	Voltage regulator modules
Voltage regulator 2.5V/1.8V on Processor card 2		U*n*-P1-C8-C10	Power parts	Voltage regulator modules
Voltage regulator 1.5V on Processor card 1		U*n*-P1-C9-C9	Power parts	Voltage regulator modules

Table 3. FRU locations and failing components (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
Voltage regulator 2.5V/1.8V on Processor card 1		U*n*-P1-C9-C10	Power parts	Voltage regulator modules
Voltage regulator 1.2V for Processor card 2		U*n*-P1-C11	Power parts	Voltage regulator modules
Voltage regulator 1.2V for Processor card 1		U*n*-P1-C12	Power parts	Voltage regulator modules
VPD card		U*n*-P1-C13	System parts	VPD card
Adapters				
PCI adapter in slot 1	PIOCARD MASBUS SLOTERR	U*n*-P1-C1	System parts	PCI adapter
PCI adapter in slot 2	PIOCARD MASBUS SLOTERR	U*n*-P1-C2	System parts	PCI adapter
PCI adapter in slot 3	PIOCARD MASBUS SLOTERR	U*n*-P1-C3	System parts	PCI adapter
PCI adapter in slot 4	PIOCARD MASBUS SLOTERR	U*n*-P1-C4	System parts	PCI adapter
PCI adapter in slot 5	PIOCARD MASBUS SLOTERR	U*n*-P1-C5	System parts	PCI adapter
RIO/HSL adapter card	SIIOADP SIADPCD	U*n*-P1-C6	1806 1807	RIO/HSL adapter card
RIO/HSL adapter card connector (bottom)		U*n*-P1-C6-T0		RIO/HSL cables concurrent
RIO/HSL adapter card connector (top)		U*n*-P1-C6-T2		RIO/HSL cables concurrent
RAID enablement card		U*n*-P1-C7	5709	RAID enablement card
PCI bridge set 1	BRDGSET BRDGST1	U*n*-P1 U*n*-P1-C1 U*n*-P1-C2		Replace the system backplane and cards using the remove and replace procedures corresponding to the locations indicated.
PCI bridge set 2	BRDGSET BRDGST2	U*n*-P1 U*n*-P1-C3 U*n*-P1-C4 U*n*-P1-C5		Replace the system backplane and cards using the remove and replace procedures corresponding to the locations indicated.

Table 3. FRU locations and failing components (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
Memory modules				
Memory module 1	MEMDIMM	U*n*-P1-C8-C1	Memory parts	Memory modules
Memory module 2	MEMDIMM	U*n*-P1-C8-C2	Memory parts	Memory modules
Memory module 3	MEMDIMM	U*n*-P1-C8-C3	Memory parts	Memory modules
Memory module 4	MEMDIMM	U*n*-P1-C8-C4	Memory parts	Memory modules
Memory module 5	MEMDIMM	U*n*-P1-C8-C5	Memory parts	Memory modules
Memory module 6	MEMDIMM	U*n*-P1-C8-C6	Memory parts	Memory modules
Memory module 7	MEMDIMM	U*n*-P1-C8-C7	Memory parts	Memory modules
Memory module 8	MEMDIMM	U*n*-P1-C8-C8	Memory parts	Memory modules
Memory module 1	MEMDIMM	U*n*-P1-C9-C1	Memory parts	Memory modules
Memory module 2	MEMDIMM	U*n*-P1-C9-C2	Memory parts	Memory modules
Memory module 3	MEMDIMM	U*n*-P1-C9-C3	Memory parts	Memory modules
Memory module 4	MEMDIMM	U*n*-P1-C9-C4	Memory parts	Memory modules
Memory module 5	MEMDIMM	U*n*-P1-C9-C5	Memory parts	Memory modules
Memory module 6	MEMDIMM	U*n*-P1-C9-C6	Memory parts	Memory modules
Memory module 7	MEMDIMM	U*n*-P1-C9-C7	Memory parts	Memory modules
Memory module 8	MEMDIMM	U*n*-P1-C9-C8	Memory parts	Memory modules
i5/OS operating system device physical locations				
Disk drive 1		U*n*-P2-D1	Disk unit parts	Disk drive
Disk drive 2		U*n*-P2-D2	Disk unit parts	Disk drive
Disk drive 3		U*n*-P2-D3	Disk unit parts	Disk drive
Disk drive 4		U*n*-P2-D4	Disk unit parts	Disk drive
Disk drive 5		U*n*-P3-D1	Disk unit parts	Disk drive
Disk drive 6		U*n*-P3-D2	Disk unit parts	Disk drive
Disk drive 7		U*n*-P3-D3	Disk unit parts	Disk drive
Disk drive 8		U*n*-P3-D4	Disk unit parts	Disk drive
SCSI device		U*n*-P4-D1	Removable media device parts	Media device

Table 3. FRU locations and failing components (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
IDE device 1		U*n*-P4-D2	Removable media device parts	Media device
IDE device 2		U*n*-P4-D3	Removable media device parts	Media device
AIX and Linux operating system device physical locations				
Disk drive 1		U*n*-P1-C*x*-T*x*-L*y*-L*z* (U*n*-P1-C*x*-T*x* is the port to which the device is connected. L*y* is the SCSI target, L*z* is the logical unit number)	Disk unit parts	Disk drive
Disk drive 2		U*n*-P1-C*x*-T*x*-L*y*-L*z* (U*n*-P1-C*x*-T*x* is the port to which the device is connected. L*y* is the SCSI target, L*z* is the logical unit number)	Disk unit parts	Disk drive
Disk drive 3		U*n*-P1-C*x*-T*x*-L*y*-L*z* (U*n*-P1-C*x*-T*x* is the port to which the device is connected. L*y* is the SCSI target, L*z* is the logical unit number)	Disk unit parts	Disk drive
Disk drive 4		U*n*-P1-C*x*-T*x*-L*y*-L*z* (U*n*-P1-C*x*-T*x* is the port to which the device is connected. L*y* is the SCSI target, L*z* is the logical unit number)	Disk unit parts	Disk drive
Disk drive 5		U*n*-P1-C*x*-T*x*-L*y*-L*z* (U*n*-P1-C*x*-T*x* is the port to which the device is connected. L*y* is the SCSI target, L*z* is the logical unit number)	Disk unit parts	Disk drive
Disk drive 6		U*n*-P1-C*x*-T*x*-L*y*-L*z* (U*n*-P1-C*x*-T*x* is the port to which the device is connected. L*y* is the SCSI target, L*z* is the logical unit number)	Disk unit parts	Disk drive
Disk drive 7		U*n*-P1-C*x*-T*x*-L*y*-L*z* (U*n*-P1-C*x*-T*x* is the port to which the device is connected. L*y* is the SCSI target, L*z* is the logical unit number)	Disk unit parts	Disk drive

Table 3. FRU locations and failing components (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
Disk drive 8		U*n*-P1-C*x*-T*x*-L*y*-L*z* (U*n*-P1-C*x*-T*x* is the port to which the device is connected. L*y* is the SCSI target, L*z* is the logical unit number)	Disk unit parts	Disk drive
SCSI device			Removable media device parts	Media device
IDE device 1			Removable media device parts	Media device
IDE device 2			Removable media device parts	Media device
Control panel				
Control panel		U*n*-D1	291D	Control panel and signal cable
Temperature sensor		U*n*-D1	291D	Control panel and signal cable

Input/output adapter (IOA) assignment rules for i5/OS

The following table provides information necessary to identify the input/output processor (IOP) to which IOAs are assigned. The left column indicates the bridge set in which IOA assignment is allowed. Use the right column to determine the IOP to which an IOA is assigned. The first position in the list must be an IOP. The remaining positions might be IOPs or IOAs. IOAs are assigned to the first IOP located to their left in the list. Although IOAs can be manually reassigned using system service tools (SST)/dedicated service tools (DST), the IOA assignments return to the default order after each initial program load (IPL).

Multi-adapter bridge domain / Peripheral Component Interconnect (PCI) bridge set	IOA assignment rules
C1, C2	embedded Ethernet, embedded SCSI, C2
C3, C4, C5	C4, C5

Locations — model 570

Mapping physical location codes

Note: The known logical location codes for this unit are listed next to the corresponding physical location in the following information. If you are working with a logical location code for this unit and it is not listed in the following information, contact your next level of support.

For address information, see “Addresses – model 570” on page 83.

Use the following illustrations to help you map a location code to a position on the server.

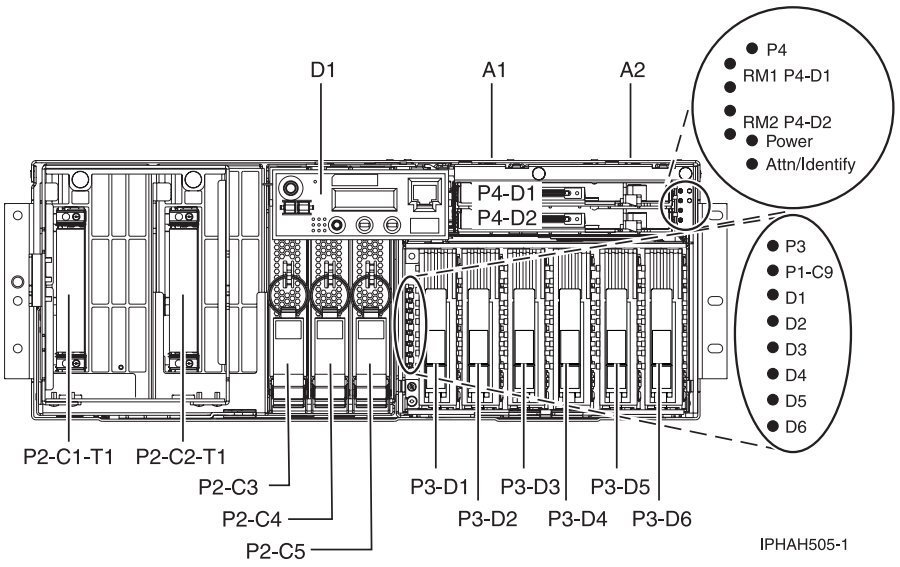


Figure 5. Front view of the system unit

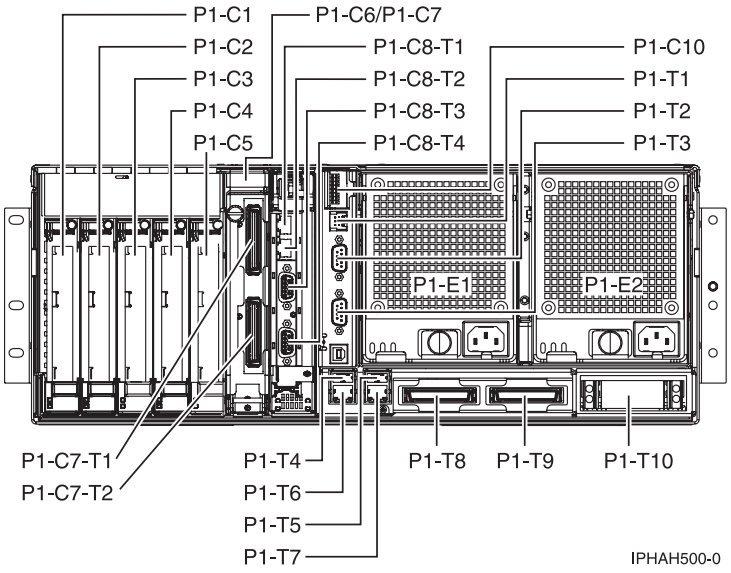


Figure 6. Back view of the system unit

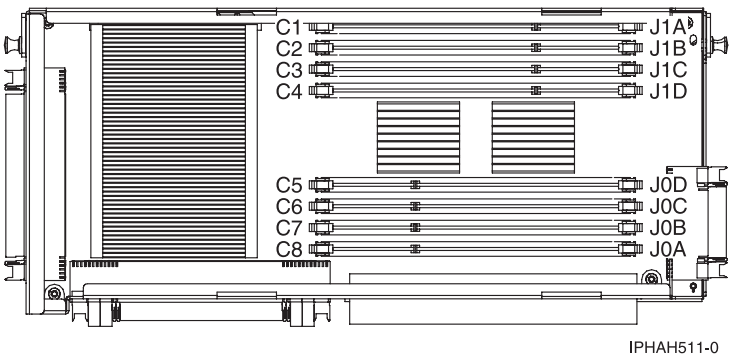


Figure 7. Memory module locations on the processor card (Un-P2-Cx)

Use the following illustration to map a node location when you are working with a multiple node installation. All of the nodes have the same location codes inside the system unit, only the serial number is different (U*tttt.mmm*.**sssssss**-).

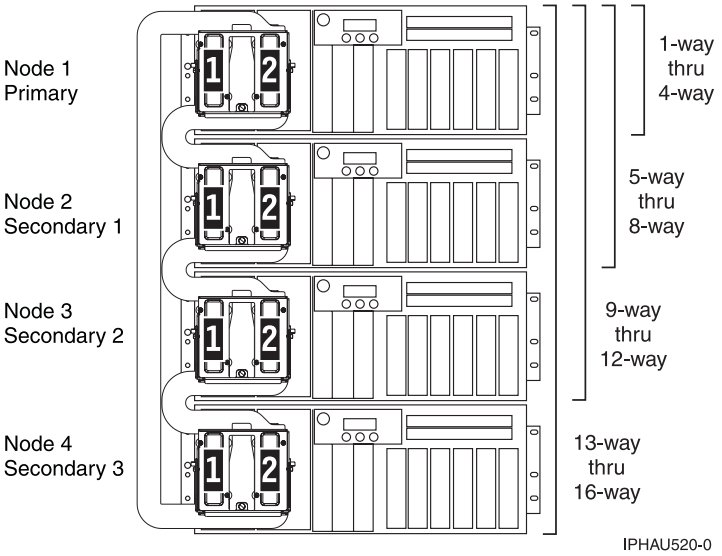


Figure 8. Multiple node locations with SMP processor cable shown

The following table contains location codes for the parts that make up the server.

Attention: After replacing any part on a server or expansion unit, perform Chapter 2, "Verifying the repair," on page 279.

Table 4. Physical location codes

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
System unit		U*n*	NA	NA
Fans				
Fan 1		U*n*-A1	Power parts	Fan
Fan 2		U*n*-A2	Power parts	Fan
Power supplies				
Power supply 1		U*n*-E1	Power parts	Power supply
Power supply 2		U*n*-E2	Power parts	Power supply
Backplanes				

Table 4. Physical location codes (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
Input/output backplane with embedded: • RIO Hub/HSL NIC • RIO/HSL link • Ethernet controller • USB controller (AIX or Linux only) • IDE bridge (AIX or Linux only) • SCSI controllers (2) • Logic oscillator	MA_BRDG MABRCFG PPCISYS PRI_PCI SI_PHB SIIOADP SICNTRL SYSBKPL HSL_LNK PIOCARD MASBUS SPBUS CLCKMOD IOBRDG IO_HUB FRPORT TOPORT	U*n*-P1	28DA	I/O backplane
SCSI controller 1– bus 0		U*n*-P1-T12		
SCSI controller 1– bus 1		U*n*-P1-T13		
SCSI controller 2– bus 0		U*n*-P1-T14		
IDE controller		U*n*-P1-T15		
Passthru card		U*n*-P1	25F8	I/O backplane
Regulator distribution connection backplane		U*n*-P2	27AE	System backplane
Disk drive backplane		U*n*-P3	28DB	Disk drive enclosure
SCSI/IDE card		U*n*-P3-C1	180A	SCSI-IDE converter card
Media drive backplane		U*n*-P4	28DC	Media device enclosure
Ports				
Serial port 1 (back of system unit)		U*n*-P1-T3		NA
S1 serial connector (front of control panel)		U*n*-P1-T3		NA
Serial port 2 (rear of system unit)		U*n*-P1-T2		NA
RIO/HSL adapter card	SI_CARD SICNTRL	U*n*-P1-C7	1800 1801	RIO/HSL adapter card
RIO/HSL adapter card connector	HSL_LNK HSL2 HSL2_xx HSLH HSLH_xx	U*n*-P1-C7-T1	"External cables" on page 196	RIO/HSL cables (concurrent)

Table 4. Physical location codes (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
RIO/HSL adapter card connector	HSL_LNK HSL2 HSL2_xx HSLH HSLH_xx	U*n*-P1-C7-T2	"External cables" on page 196	RIO/HSL cables (concurrent)
RIO/HSL left connector	HSL_LNK HSL2 HSL2_xx HSLH HSLH_xx	U*n*-P1-T8	"External cables" on page 196	RIO/HSL cables (concurrent)
RIO/HSL right connector	HSL_LNK HSL2 HSL2_xx HSLH HSLH_xx	U*n*-P1-T9	"External cables" on page 196	RIO/HSL cables (concurrent)
Integrated dual 1 GB Ethernet controller-port 1		U*n*-P1-T6		NA
Integrated dual 1 GB Ethernet controller-port 2		U*n*-P1-T7		NA
Integrated 2-port USB port 1 (AIX or Linux only)		U*n*-P1-T4		NA
Integrated 2-port USB port 2 (AIX or Linux only)		U*n*-P1-T5		NA
Rack indicator connector		U*n*-P1-T1		NA
System cable connector		U*n*-P1-T10		NA
Processor and processor regulator				
Processor card 1	MEMCTLR ANYPROC	U*n*-P2-C1	Processor parts	System processor
Processor card 2	MEMCTLR ANYPROC	U*n*-P2-C2	Processor parts	System processor
SMP processor cable		U*n*-P2-C1-T1 and U*n*-P2-C2-T2	"Model 570 cables" on page 184	SMP processor cable
Temperature sensor		U*n* -P2-C1 and U*n* -P2-C2	Processor parts	System processor
Voltage regulator 1		U*n*-P2-C3	Power parts	Voltage regulator card assembly
Voltage regulator 2		U*n*-P2-C4	Power parts	Voltage regulator card assembly
Voltage regulator 3		U*n*-P2-C5	Power parts	Voltage regulator card assembly
VPD card		U*n*-P1-C10	VPD parts	VPD card

Table 4. Physical location codes (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
Service processor				
Service processor card	SVCPROC	U*n*-P1-C8	28EA	Service processor assembly
Service processor cable	I2CBUS	U*n*-P1-T10	"Model 570 cables" on page 184	Service processor cable
Time-of-day (TOD)		U*n* -P1-C8	28EA	Service processor assembly
Time-of-day Battery	TOD_BAT	U*n*-P1-C8-E1	Power parts	Service processor time-of-day battery
HMC 1 connector		U*n*-P1-C8-T1		NA
HMC 2 connector		U*n*-P1-C8-T2		NA
SPCN 0 connector		U*n*-P1-C8-T3		NA
SPCN 1 connector		U*n*-P1-C8-T4		NA
Adapters				
PCI adapter in slot 1	PIOCARD MASBUS SLOTERR	U*n*-P1-C1	"System parts" on page 172	PCI adapter
PCI adapter in slot 2	PIOCARD MASBUS SLOTERR	U*n*-P1-C2	"System parts" on page 172	PCI adapter
PCI adapter in slot 3	PIOCARD MASBUS SLOTERR	U*n*-P1-C3	"System parts" on page 172	PCI adapter
PCI adapter in slot 4	PIOCARD MASBUS SLOTERR	U*n*-P1-C4	"System parts" on page 172	PCI adapter
PCI adapter in slot 5	PIOCARD MASBUS SLOTERR	U*n*-P1-C5	"System parts" on page 172	PCI adapter
PCI adapter in slot 6	PIOCARD MASBUS SLOTERR	U*n*-P1-C6	"System parts" on page 172	PCI adapter
Dual channel SCSI RAID enablement card		U*n*-P1-C9	5709	RAID enablement card
PCI bridge set 1	BRDGSET BRDGST1	U*n*-P1	28DA	I/O backplane
PCI bridge set 2	BRDGSET BRDGST2	U*n*-P1 U*n*-P1-C1 U*n*-P1-C2		Replace the I/O backplane and cards using the remove and replace procedures corresponding to the locations indicated.

Table 4. Physical location codes (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
PCI bridge set 3	BRDGSET BRDGST3	U*n*-P1 U*n*-P1-C3 U*n*-P1-C4 U*n*-P1-C5 U*n*-P1-C6		Replace the I/O backplane and cards using the remove and replace procedures corresponding to the locations indicated.
Memory modules				
Memory module 1	MEMDIMM	U*n*-P2-C1-C1	Memory parts	Memory module
Memory module 2	MEMDIMM	U*n*-P2-C1-C2	Memory parts	Memory module
Memory module 3	MEMDIMM	U*n*-P2-C1-C3	Memory parts	Memory module
Memory module 4	MEMDIMM	U*n*-P2-C1-C4	Memory parts	Memory module
Memory module 5	MEMDIMM	U*n*-P2-C1-C5	Memory parts	Memory module
Memory module 6	MEMDIMM	U*n*-P2-C1-C6	Memory parts	Memory module
Memory module 7	MEMDIMM	U*n*-P2-C1-C7	Memory parts	Memory module
Memory module 8	MEMDIMM	U*n*-P2-C1-C8	Memory parts	Memory module
Memory module 1	MEMDIMM	U*n*-P2-C2-C1	Memory parts	Memory module
Memory module 2	MEMDIMM	U*n*-P2-C2-C2	Memory parts	Memory module
Memory module 3	MEMDIMM	U*n*-P2-C2-C3	Memory parts	Memory module
Memory module 4	MEMDIMM	U*n*-P2-C2-C4	Memory parts	Memory module
Memory module 5	MEMDIMM	U*n*-P2-C2-C5	Memory parts	Memory module
Memory module 6	MEMDIMM	U*n*-P2-C2-C6	Memory parts	Memory module
Memory module 7	MEMDIMM	U*n*-P2-C2-C7	Memory parts	Memory module
Memory module 8	MEMDIMM	U*n*-P2-C2-C8	Memory parts	Memory module
i5/OS operating system device physical locations				
Disk drive 1		U*n*-P3-D1	Disk unit parts	Disk drive
Disk drive 2		U*n*-P3-D2	Disk unit parts	Disk drive
Disk drive 3		U*n*-P3-D3	Disk unit parts	Disk drive
Disk drive 4		U*n*-P3-D4	Disk unit parts	Disk drive
Disk drive 5		U*n*-P3-D5	Disk unit parts	Disk drive
Disk drive 6		U*n*-P3-D6	Disk unit parts	Disk drive
IDE drive 1		U*n*-P4-D1	Removable media device parts	Media device
IDE drive 2		U*n*-P4-D2	Removable media device parts	Media device
AIX and Linux operating system device physical locations				
Disk drive 1		U*n*-P1-C*x*-T*x*-L*y*-L*z* (U*n*-P1-C*x*-T*x* is the port to which the device is connected. L*y* is the SCSI target, L*z* is the logical unit number)	Disk unit parts	Disk drive

Table 4. Physical location codes (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
Disk drive 2		U*n*-P1-C*x*-T*x*-L*y*-L*z* (U*n*-P1-C*x*-T*x* is the port to which the device is connected. L*y* is the SCSI target, L*z* is the logical unit number)	Disk unit parts	Disk drive
Disk drive 3		U*n*-P1-C*x*-T*x*-L*y*-L*z* (U*n*-P1-C*x*-T*x* is the port to which the device is connected. L*y* is the SCSI target, L*z* is the logical unit number)	Disk unit parts	Disk drive
Disk drive 4		U*n*-P1-C*x*-T*x*-L*y*-L*z* (U*n*-P1-C*x*-T*x* is the port to which the device is connected. L*y* is the SCSI target, L*z* is the logical unit number)	Disk unit parts	Disk drive
Disk drive 5		U*n*-P1-C*x*-T*x*-L*y*-L*z* (U*n*-P1-C*x*-T*x* is the port to which the device is connected. L*y* is the SCSI target, L*z* is the logical unit number)	Disk unit parts	Disk drive
Disk drive 6		U*n*-P1-C*x*-T*x*-L*y*-L*z* (U*n*-P1-C*x*-T*x* is the port to which the device is connected. L*y* is the SCSI target, L*z* is the logical unit number)	Disk unit parts	Disk drive
IDE drive 1		U*n*-P1-C*x*-T*x*-L*y*-L*z* (U*n*-P1-C*x*-T*x* is the port to which the device is connected. L*y* is the SCSI target, L*z* is the logical unit number)	Removable media device parts	Media device
IDE drive 2		U*n*-P1-C*x*-T*x*-L*y*-L*z* (U*n*-P1-C*x*-T*x* is the port to which the device is connected. L*y* is the SCSI target, L*z* is the logical unit number)	Removable media device parts	Media device
Control panel				
Control panel (bottom media bay)		U*n* -D1	291D	Control panel

Table 4. Physical location codes (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
Server firmware				
Server firmware		U*n*-Y1		

Input/output adapter (IOA) assignment rules for i5/OS

The following table provides information necessary to identify the input/output processor (IOP) to which IOAs are assigned. The left column indicates the bridge set in which IOA assignment is allowed. Use the right column to determine the IOP to which an IOA is assigned. The first position in the list must be an IOP. The remaining positions might be IOPs or IOAs. IOAs are assigned to the first IOP located to their left in the list. Although IOAs can be manually reassigned using system service tools (SST)/dedicated service tools (DST), the IOA assignments return to the default order after each initial program load (IPL).

Multi-adapter bridge domain / Peripheral Component Interconnect (PCI) bridge set	IOA assignment rules
Adapters embedded in -P1 planar (no IOP)	embedded SCSI, embedded Ethernet
C1 - C2	embedded SCSI, C2
C3 - C6	C4, C5, C6

Locations — model 590 and 595

Note: The known logical location codes for this unit are listed next to the corresponding physical location in the information below. If you are working with a logical location code for this unit and it is not listed in the information below, contact your next level of support.

The following diagrams show field replaceable unit (FRU) layout in the system unit. Use them with the tables below.

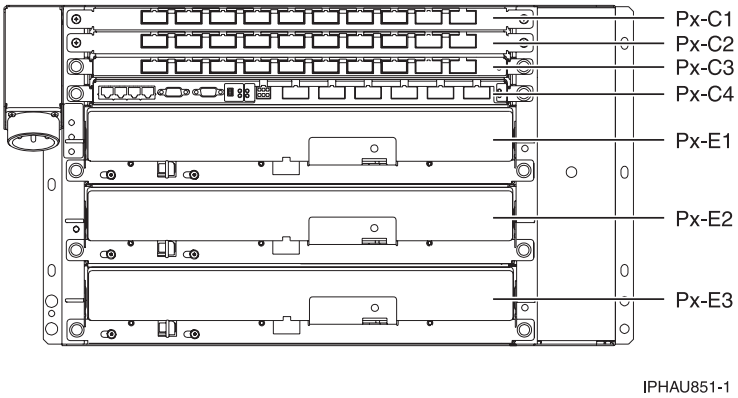


Figure 9. Bulk power assembly (BPA)

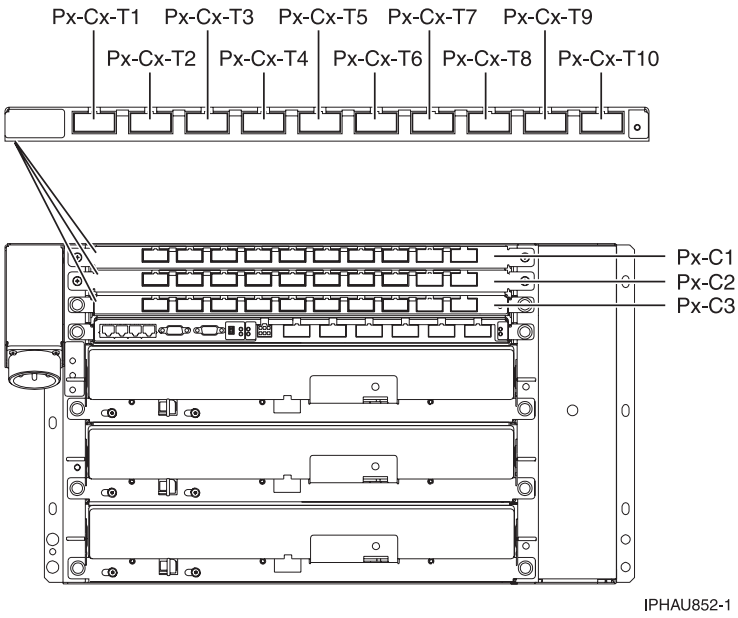


Figure 10. Bulk power distribution (BPD)

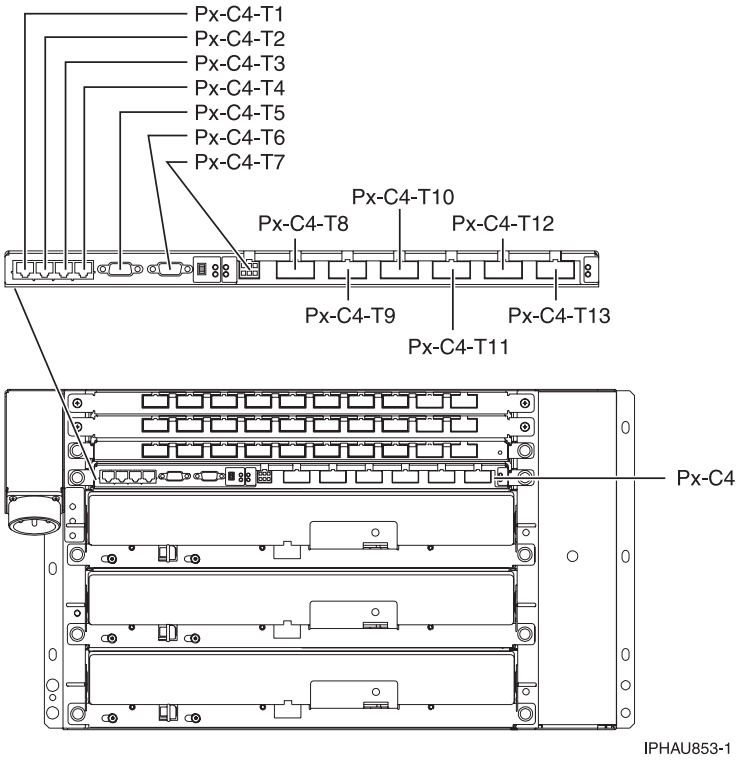


Figure 11. Bulk power controller (BPC)

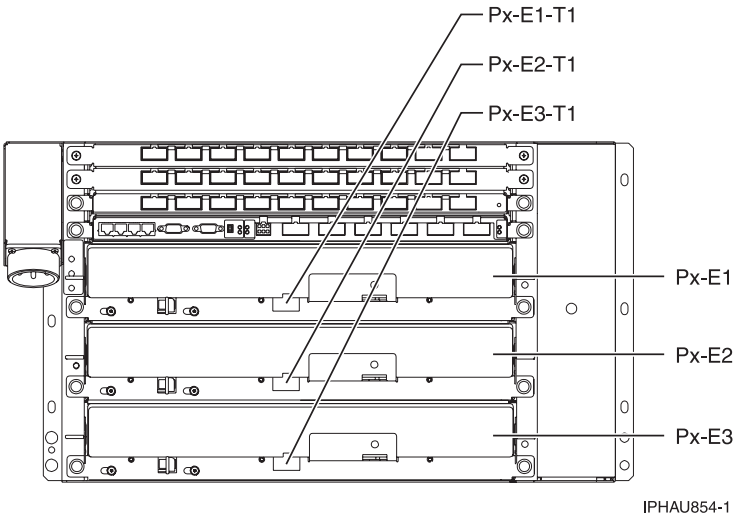


Figure 12. Bulk power regulator (BPR)

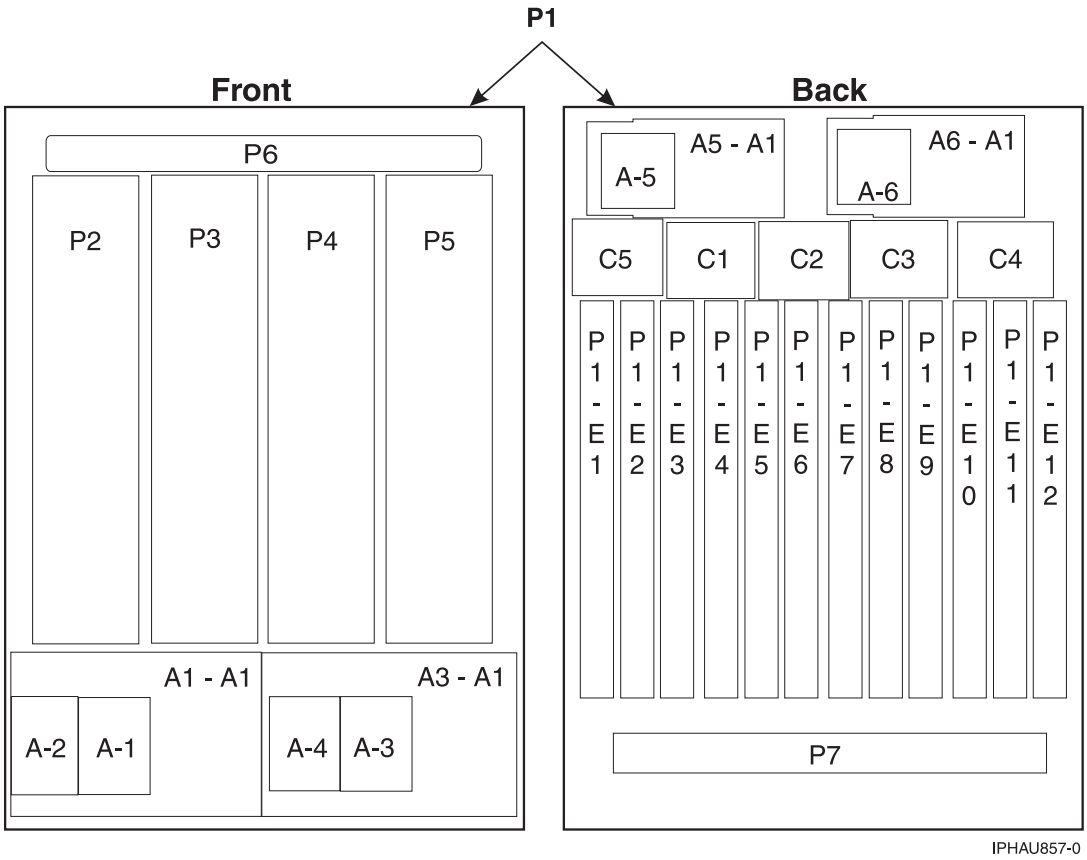


Figure 13. Processor subsystem assembly

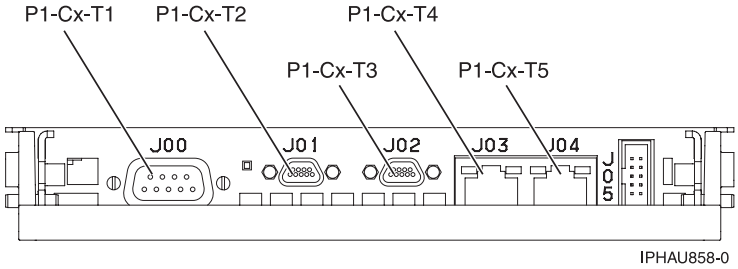


Figure 14. Service processor

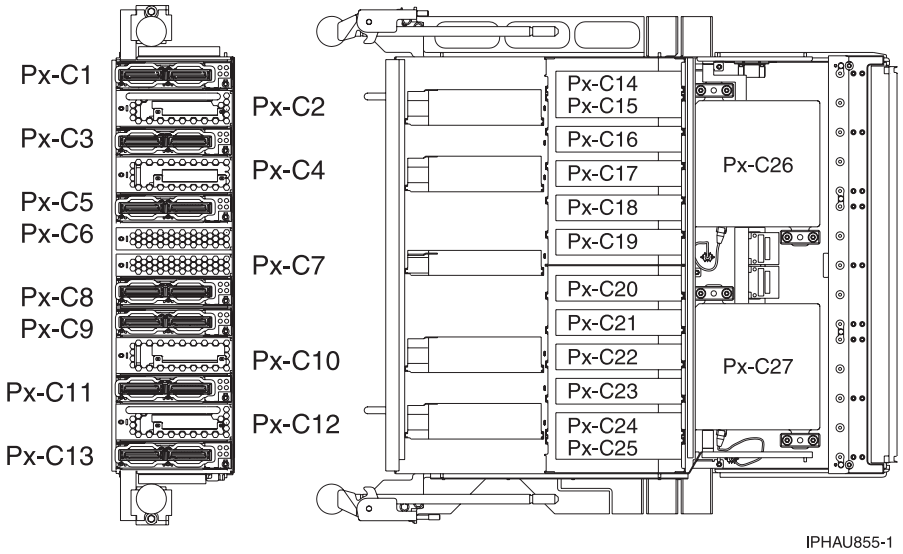


Figure 15. Node assembly

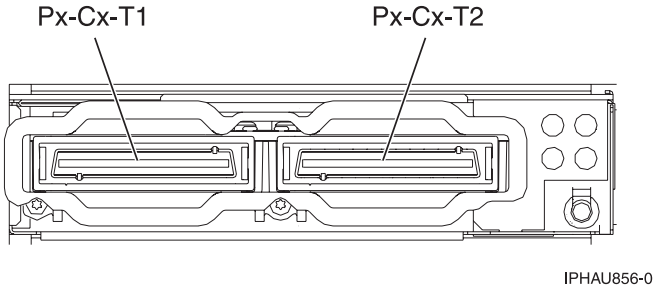


Figure 16. RIO/HSL cable connections

Use the following illustrations to help you map a location code to a position on the server. See Location codes"Location codes" on page 2 for an explanation of U*n*. See "Model 590 and595 cables" on page 184 for a listing of cables and plug locations.

Attention: After replacing any part on a server or expansion unit, perform Chapter 2, "Verifying the repair," on page 279.

Table 5. Bulk power assembly (BPA) FRU locations and failing components

Failing item name	Symbolic FRU name	Physical location code	Link to part number	Failing item removal and replacement procedures
System unit bulk power assembly (BPA)		U*n*		
Bulk power distribution (BPD) Where: • Bulk power distribution (BPD) 3A (front) is U*n*-P1-C1 • Bulk power distribution (BPD) 2A (front) is U*n*-P1-C2 • Bulk power distribution (BPD) 1A (front) is U*n*-P1-C3 • Bulk power distribution (BPD) 3B (back) is U*n*-P2-C1 • Bulk power distribution (BPD) 2B (back) is U*n*-P2-C2 • Bulk power distribution (BPD) 1B (back) is U*n*-P2-C3				
Bulk power distribution (BPD) *n*		U*n*-P*n*-C*n*	Power parts	"Removing and replacing parts on Model 590and595" on page 224
Bulk power distribution (BPD) *n* connector J00		U*n*-P*n*-C*n*-T1		
Bulk power distribution (BPD) *n* connector J01		U*n*-P*n*-C*n*-T2		
Bulk power distribution (BPD) *n* connector J02		U*n*-P*n*-C*n*-T3		
Bulk power distribution (BPD) *n* connector J03		U*n*-P*n*-C*n*-T4		
Bulk power distribution (BPD) *n* connector J04		U*n*-P*n*-C*n*-T5		
Bulk power distribution (BPD) *n* connector J05		U*n*-P*n*-C*n*-T6		
Bulk power distribution (BPD) *n* connector J06		U*n*-P*n*-C*n*-T7		
Bulk power distribution (BPD) *n* connector J07		U*n*-P*n*-C*n*-T8		

Table 5. Bulk power assembly (BPA) FRU locations and failing components (continued)

Failing item name	Symbolic FRU name	Physical location code	Link to part number	Failing item removal and replacement procedures
Bulk power distribution Thanks(BPD) *n* connector J08		U*n*-P*n*-C*n*-T9		
Bulk power distribution (BPD) *n* connector J09		U*n*-P*n*-C*n*-T10		
Bulk power controller (BPC) Where: • Bulk power controller (BPC) A (front) is U*n*-P1-C4 • Bulk power controller (BPC) B (back) is U*n*-P2-C4				
Bulk power controller (BPC) *n*		U*n*-P*n*-C4	Power parts	"Removing and replacing parts on Model 590and595" on page 224
Bulk power controller (BPC) *n* connector J00A		U*n*-P*n*-C4-T1		"Removing and replacing parts on Model 590and595" on page 224
Bulk power controller (BPC) *n* connector J00B		U*n*-P*n*-C4-T2		
Bulk power controller (BPC) *n* connector J00C		U*n*-P*n*-C4-T3		
Bulk power controller (BPC) *n* connector J00D		U*n*-P*n*-C4-T4		
Bulk power controller (BPC) *n* connector J01		U*n*-P*n*-C4-T5		
Bulk power controller (BPC) *n* connector J02		U*n*-P*n*-C4-T6		
Bulk power controller (BPC) *n* connector J03		U*n*-P*n*-C4-T7		
Bulk power controller (BPC) *n* connector J04		U*n*-P*n*-C4-T8		
Bulk power controller (BPC) *n* connector J05		U*n*-P*n*-C4-T9		
Bulk power controller (BPC) *n* connector J06		U*n*-P*n*-C4-T10		
Bulk power controller (BPC) *n* connector J07		U*n*-P*n*-C4-T11		

Table 5. Bulk power assembly (BPA) FRU locations and failing components (continued)

Failing item name	Symbolic FRU name	Physical location code	Link to part number	Failing item removal and replacement procedures
Bulk power controller (BPC) *n* connector J08		U*n*-P*n*-C4-T12		
Bulk power controller (BPC) *n* connector J09		U*n*-P*n*-C4-T13		
Bulk power regulator (BPR)				
Bulk power regulator (BPR) 3A (front)		U*n*-P1-E1	Power parts	"Removing and replacing parts on Model 590and595" on page 224
Bulk power regulator (BPR) 3A connector J00		U*n*-P1-E1-T1		
Bulk power regulator (BPR) 2A (front)		U*n*-P1-E2	Power parts	"Removing and replacing parts on Model 590and595" on page 224
Bulk power regulator (BPR) 2A connector J00		U*n*-P1-E2-T1		
Bulk power regulator (BPR) 1A (front)		U*n*-P1-E3	Power parts	"Removing and replacing parts on Model 590and595" on page 224
Bulk power regulator (BPR) 1A connector J00		U*n*-P1-E3-T1		
Bulk power regulator (BPR) 3B (back)		U*n*-P2-E1	Power parts	"Removing and replacing parts on Model 590and595" on page 224
Bulk power regulator (BPR) 3B connector J00		U*n*-P2-E1-T1		
Bulk power regulator (BPR) 2B (back)		U*n*-P2-E2	Power parts	"Removing and replacing parts on Model 590and595" on page 224
Bulk power regulator (BPR) 2B connector J00		U*n*-P2-E2-T1		
Bulk power regulator (BPR) 1B (back)		U*n*-P2-E3	Power parts	"Removing and replacing parts on Model 590and595" on page 224
Bulk power regulator (BPR) 1B connector J00		U*n*-P2-E3-T1		
Fans				
Bulk power fan (BPF) A (front)		U*n*-A1	Power parts	"Removing and replacing parts on Model 590and595" on page 224

Table 5. Bulk power assembly (BPA) FRU locations and failing components (continued)

Failing item name	Symbolic FRU name	Physical location code	Link to part number	Failing item removal and replacement procedures
Bulk power fan (BPF) B (back)		U*n*-A2	Power parts	"Removing and replacing parts on Model 590and595" on page 224
Emergency power off (EPO)				
Emergency power off (EPO)		U*n*-D1	Power parts	"Removing and replacing parts on Model 590and595" on page 224
Emergency power off (EPO) connector J00		U*n*-D1-T1		
Emergency power off (EPO) J01		U*n*-D1-T2		

Table 6. Processor subsystem assembly FRU locations and failing components

Failing item name	Symbolic FRU name	Physical location code	Link to part number	Failing item removal and replacement procedures
System unit processor subsystem assembly		U*n*		
Fans				
Motor drive assembly 1 (closest to the front)		U*n*-A1	Power parts	"Removing and replacing parts on Model 590and595" on page 224
Motor drive assembly 1 J00		U*n*-A1-T1		
Motor drive assembly 1 J01		U*n*-A1-T2		
Motor scroll assembly 1		U*n*-A1-A1	Power parts	"Removing and replacing parts on Model 590and595" on page 224
Motor drive assembly 2		U*n*-A2	Power parts	"Removing and replacing parts on Model 590and595" on page 224
Motor drive assembly 2 J00		U*n*-A2-T1		
Motor drive assembly 2 J01		U*n*-A2-T2		
Motor drive assembly 3 (closest to the front)		U*n*-A3	Power parts	"Removing and replacing parts on Model 590and595" on page 224
Motor drive assembly 3 J00		U*n*-A3-T1		

Table 6. Processor subsystem assembly FRU locations and failing components (continued)

Failing item name	Symbolic FRU name	Physical location code	Link to part number	Failing item removal and replacement procedures
Motor drive assembly 3 J01		U*n*-A3-T2		
Motor scroll assembly 2		U*n*-A3-A1	Power parts	"Removing and replacing parts on Model 590and595" on page 224
Motor drive assembly 4		U*n*-A4	Power parts	"Removing and replacing parts on Model 590and595" on page 224
Motor drive assembly 4 J00		U*n*-A4-T1		
Motor drive assembly 4 J01		U*n*-A4-T2		
Motor drive assembly 5		U*n*-A5	Power parts	"Removing and replacing parts on Model 590and595" on page 224
Motor drive assembly 5 J00		U*n*-A5-T1		
Motor drive assembly 5 J01		U*n*-A5-T2		
Motor scroll assembly 3		U*n*-A5-A1	Power parts	"Removing and replacing parts on Model 590and595" on page 224
Motor drive assembly 6		U*n*-A6	Power parts	"Removing and replacing parts on Model 590and595" on page 224
Motor drive assembly 6 J00		U*n*-A6-T1		
Motor drive assembly 6 J01		U*n*-A6-T2		
Motor scroll assembly 4		U*n*-A6-A1	Power parts	"Removing and replacing parts on Model 590and595" on page 224
Backplanes				
System backplane • SPCN • Card enclosure or backplane • Multi-adapter bridge (all) • Service processor		U*n*-P1		"Removing and replacing parts on Model 590and595" on page 224
Service processors				
Service processor 1		U*n*-P1-C1	System parts	"Removing and replacing parts on Model 590and595" on page 224
SPCN connector		U*n*-P1-C1-T1		

Table 6. Processor subsystem assembly FRU locations and failing components (continued)

Failing item name	Symbolic FRU name	Physical location code	Link to part number	Failing item removal and replacement procedures
Light strip connector (front)		U*n*-P1-C1-T2		
Light strip connector (back)		U*n*-P1-C1-T3		
HMC port 0 connector		U*n*-P1-C1-T4		
HMC port 1 connector		U*n*-P1-C1-T5		
Service processor 2		U*n*-P1-C4	System parts	"Removing and replacing parts on Model 590and595" on page 224
SPCN connector		U*n*-P1-C4-T1		
Light strip connector (front)		U*n*-P1-C4-T2		
Light strip connector (back)		U*n*-P1-C4-T3		
HMC port 0 connector		U*n*-P1-C4-T4		
HMC port 1 connector		U*n*-P1-C4-T5		
Nodes				
Node 0	SI_CARD SICNTRL SIIOADP SI_PHB	U*n*-P2		
Node 1	SI_CARD SICNTRL SIIOADP SI_PHB	U*n*-P3		
Node 2	SI_CARD SICNTRL SIIOADP SI_PHB	U*n*-P4		
Node 3	SI_CARD SICNTRL SIIOADP SI_PHB	U*n*-P5		
Processor and processor regulator Where P*x* is defined as: • P2 is node 0 • P3 is node 1 • P4 is node 2 • P5 is node 3				
MCM 0 for node *n*		U*n*-P*x*-C26	System parts	"Removing and replacing parts on Model 590and595" on page 224

Table 6. Processor subsystem assembly FRU locations and failing components (continued)

Failing item name	Symbolic FRU name	Physical location code	Link to part number	Failing item removal and replacement procedures
MCM 1 for node *n*		U*n*-P*x*-C27	System parts	"Removing and replacing parts on Model 590and595" on page 224
Distributed converter assembly (DCA) 30 for node 3		U*n*-P1-E1	System parts	"Removing and replacing parts on Model 590and595" on page 224
Distributed converter assembly (DCA) 30 J00		U*n*-P1-E1-T1		
Distributed converter assembly (DCA) 30 J01		U*n*-P1-E1-T2		
Distributed converter assembly (DCA) 31 for node 3		U*n*-P1-E2	System parts	"Removing and replacing parts on Model 590and595" on page 224
Distributed converter assembly (DCA) 31 J00		U*n*-P1-E2-T1		
Distributed converter assembly (DCA) 31 J01		U*n*-P1-E2-T2		
Distributed converter assembly (DCA) 32 for node 3		U*n*-P1-E3	System parts	"Removing and replacing parts on Model 590and595" on page 224
Distributed converter assembly (DCA) 32 J00		U*n*-P1-E3-T1		
Distributed converter assembly (DCA) 32 J01		U*n*-P1-E3-T2		
Distributed converter assembly (DCA) 20 for node 2		U*n*-P1-E4	System parts	"Removing and replacing parts on Model 590and595" on page 224
Distributed converter assembly (DCA) 20 J00		U*n*-P1-E4-T1		

Table 6. Processor subsystem assembly FRU locations and failing components (continued)

Failing item name	Symbolic FRU name	Physical location code	Link to part number	Failing item removal and replacement procedures
Distributed converter assembly (DCA) 20 J01		U*n*-P1-E4-T2		
Distributed converter assembly (DCA) 21 for node 2		U*n*-P1-E5	System parts	"Removing and replacing parts on Model 590and595" on page 224
Distributed converter assembly (DCA) 21 J00		U*n*-P1-E5-T1		
Distributed converter assembly (DCA) 21 J01		U*n*-P1-E5-T2		
Distributed converter assembly (DCA) 22 for node 2		U*n*-P1-E6	System parts	"Removing and replacing parts on Model 590and595" on page 224
Distributed converter assembly (DCA) 22 J00		U*n*-P1-E6-T1		
Distributed converter assembly (DCA) 22 J01		U*n*-P1-E6-T2		
Distributed converter assembly (DCA) 10 for node 1		U*n*-P1-E7	System parts	"Removing and replacing parts on Model 590and595" on page 224
Distributed converter assembly (DCA) 10 J00		U*n*-P1-E7-T1		
Distributed converter assembly (DCA) 10 J01		U*n*-P1-E7-T2		
Distributed converter assembly (DCA) 11 for node 1		U*n*-P1-E8	System parts	"Removing and replacing parts on Model 590and595" on page 224
Distributed converter assembly (DCA) 11 J00		U*n*-P1-E8-T1		

Table 6. Processor subsystem assembly FRU locations and failing components (continued)

Failing item name	Symbolic FRU name	Physical location code	Link to part number	Failing item removal and replacement procedures
Distributed converter assembly (DCA) 11 J01		U*n*-P1-E8-T2		
Distributed converter assembly (DCA) 12 for node 1		U*n*-P1-E9	System parts	"Removing and replacing parts on Model 590and595" on page 224
Distributed converter assembly (DCA) 12 J00		U*n*-P1-E9-T1		
Distributed converter assembly (DCA) 12 J01		U*n*-P1-E9-T2		
Distributed converter assembly (DCA) 00 for node 0		U*n*-P1-E10	System parts	"Removing and replacing parts on Model 590and595" on page 224
Distributed converter assembly (DCA) 00 J00		U*n*-P1-E10-T1		
Distributed converter assembly (DCA) 00 J01		U*n*-P1-E10-T2		
Distributed converter assembly (DCA) 01 for node 0		U*n*-P1-E11	System parts	"Removing and replacing parts on Model 590and595" on page 224
Distributed converter assembly (DCA) 01 J00		U*n*-P1-E11-T1		
Distributed converter assembly (DCA) 01 J01		U*n*-P1-E11-T2		
Distributed converter assembly (DCA) 02 for node 0		U*n*-P1-E12	System parts	"Removing and replacing parts on Model 590and595" on page 224
Distributed converter assembly (DCA) 02 J00		U*n*-P1-E12-T1		

Table 6. Processor subsystem assembly FRU locations and failing components (continued)

Failing item name	Symbolic FRU name	Physical location code	Link to part number	Failing item removal and replacement procedures
Distributed converter assembly (DCA) 02 J01		U*n*-P1-E12-T2		
Light strip, front		U*n*-P6	291A	"Removing and replacing parts on Model 590and595" on page 224
Light strip, back		U*n*-P7	291B	"Removing and replacing parts on Model 590and595" on page 224
Oscillator 1		U*n*-P1-C2	28E4	"Removing and replacing parts on Model 590and595" on page 224
Oscillator 2		U*n*-P1-C3	28E4	"Removing and replacing parts on Model 590and595" on page 224
Service processor 0		U*n*-P1-C4	28DE	"Removing and replacing parts on Model 590and595" on page 224
Service processor 1		U*n*-P1-C1	28DE	"Removing and replacing parts on Model 590and595" on page 224
VPD card		U*n*-P1-C5	System parts	"Removing and replacing parts on Model 590and595" on page 224
Adapters Where P*x* is defined as: • P2 is node 0 • P3 is node 1 • P4 is node 2 • P5 is node 3				
Adapter card 1 for node *n*	SI_CARD SICNTRL IO_HUB	U*n*-P*x*-C1	28D8 28EB	"Removing and replacing parts on Model 590and595" on page 224
Adapter card 2 for node *n*	SI_CARD SICNTRL IO_HUB	U*n*-P*x*-C3	28D8 28EB	"Removing and replacing parts on Model 590and595" on page 224
Adapter card 3 for node *n*	SI_CARD SICNTRL IO_HUB	U*n*-P*x*-C5	28D8 28EB	"Removing and replacing parts on Model 590and595" on page 224
Adapter card 4 for node *n*	SI_CARD SICNTRL IO_HUB	U*n*-P*x*-C6	28D8 28EB	"Removing and replacing parts on Model 590and595" on page 224
Adapter card 5 for node *n* **Note:** Cannot have any RIO/HSL cables attached.	SI_CARD SICNTRL IO_HUB	U*n*-P*x*-C8	28D8 28EB	"Removing and replacing parts on Model 590and595" on page 224

Table 6. Processor subsystem assembly FRU locations and failing components (continued)

Failing item name	Symbolic FRU name	Physical location code	Link to part number	Failing item removal and replacement procedures
Adapter card 6 for node *n*	SI_CARD SICNTRL IO_HUB	U*n*-P*x*-C9	28D8 28EB	"Removing and replacing parts on Model 590and595" on page 224
Adapter card 7 for node *n*	SI_CARD SICNTRL IO_HUB	U*n*-P*x*-C11	28D8 28EB	"Removing and replacing parts on Model 590and595" on page 224
Adapter card 8 for node *n*	SI_CARD SICNTRL IO_HUB	U*n*-P*x*-C13	28D8 28EB	"Removing and replacing parts on Model 590and595" on page 224
Multiplexer card for node *n*		U*n*-P*x*-C7	28E6	"Removing and replacing parts on Model 590and595" on page 224
Adapter ports Where P*x* is defined as: • P2 is node 0 • P3 is node 1 • P4 is node 2 • P5 is node 3 And where C*x* is defined as: • C1 is adapter 1 • C3 is adapter 2 • C5 is adapter 3 • C6 is adapter 4 • C8 is adapter 5 • C9 is adapter 6 • C11 is adapter 7 • C13 is adapter 8				
RIO/HSL connector J00		U*n*-P*x*-C*x* -T1		
RIO/HSL connector J01		U*n*-P*x*-C*x* -T2		
Memory parts Where P*x* is defined as: • P2 is node 0 • P3 is node 1 • P4 is node 2 • P5 is node 3				
Memory card 1 for node *n*		U*n*-P*x*-C2	Memory parts	"Removing and replacing parts on Model 590and595" on page 224
Memory card 2 for node *n*		U*n*-P*x*-C4	Memory parts	"Removing and replacing parts on Model 590and595" on page 224
Memory card 3 for node *n*		U*n*-P*x*-C10	Memory parts	"Removing and replacing parts on Model 590and595" on page 224

Table 6. Processor subsystem assembly FRU locations and failing components (continued)

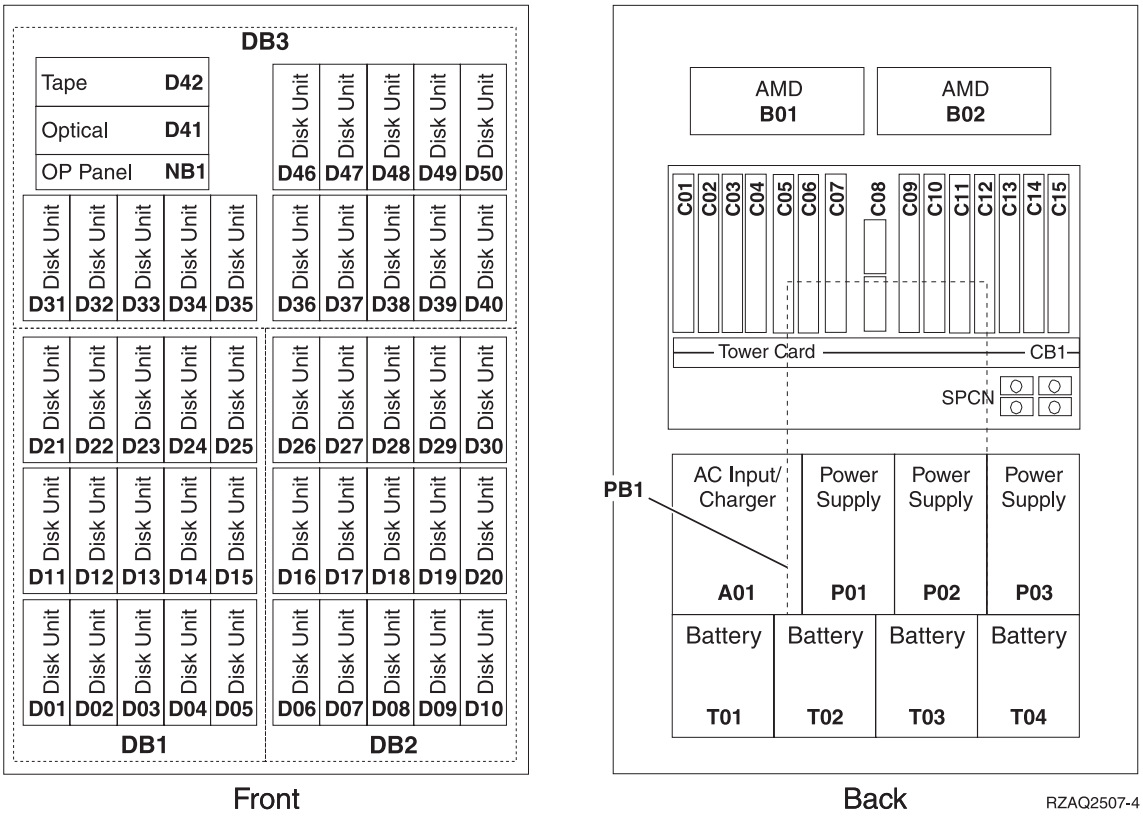
Failing item name	Symbolic FRU name	Physical location code	Link to part number	Failing item removal and replacement procedures
Memory card 4 for node *n*		U*n*-P*x*-C12	Memory parts	"Removing and replacing parts on Model 590and595" on page 224
Memory card 5 for node *n*		U*n*-P*x*-C14	Memory parts	"Removing and replacing parts on Model 590and595" on page 224
Memory card 6 for node *n*		U*n*-P*x*-15	Memory parts	"Removing and replacing parts on Model 590and595" on page 224
Memory card 7 for node *n*		U*n*-P*x*-C16	Memory parts	"Removing and replacing parts on Model 590and595" on page 224
Memory card 8 for node *n*		U*n*-P*x*-C17	Memory parts	"Removing and replacing parts on Model 590and595" on page 224
Memory card 9 for node *n*		U*n*-P*x*-C18	Memory parts	"Removing and replacing parts on Model 590and595" on page 224
Memory card 10 for node *n*		U*n*-P*x*-C19	Memory parts	"Removing and replacing parts on Model 590and595" on page 224
Memory card 11 for node *n*		U*n*-P*x*-C20	Memory parts	"Removing and replacing parts on Model 590and595" on page 224
Memory card 12 for node *n*		U*n*-P*x*-C21	Memory parts	"Removing and replacing parts on Model 590and595" on page 224
Memory card 13 for node *n*		U*n*-P*x*-C22	Memory parts	"Removing and replacing parts on Model 590and595" on page 224
Memory card 14 for node *n*		U*n*-P*x*-C23	Memory parts	"Removing and replacing parts on Model 590and595" on page 224
Memory card 15 for node *n*		U*n*-P*x*-C24	Memory parts	"Removing and replacing parts on Model 590and595" on page 224
Memory card 16 for node *n*		U*n*-P*x*-C25	Memory parts	"Removing and replacing parts on Model 590and595" on page 224

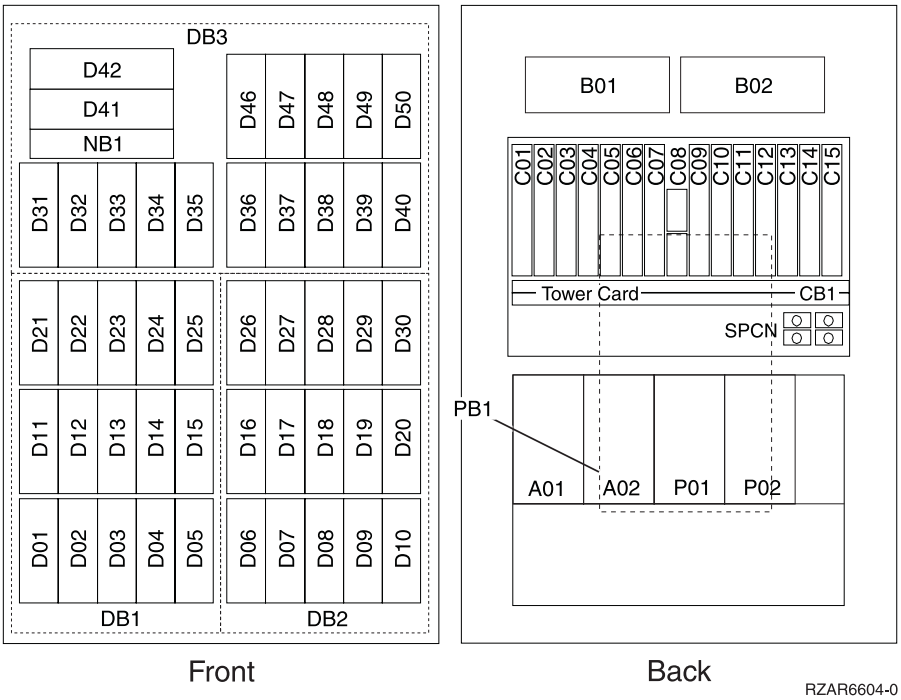
Locations — 5074, 8079-002, and 8093-002 expansion units

Note: The known logical location codes for this unit are listed next to the corresponding physical location in the following information. If you are working with a logical location code for this unit and it is not listed in the following information, contact your next level of support.

The following diagram shows the FRU layout in the 5074 expansion unit. Use it with the tables below. If you need address information, refer to "Addresses — 5074, 5079, 8079-002, and 8093-002 expansion unit" on page 85

on page 85.





The following table provides the components available for callout on 5074, 8079-002, and 8093-002 expansion units. It matches those components with the FRU containing the component. The other columns provide location information, a link to a remove and replace procedure, and additional information.

Attention: After replacing any part on a server or expansion unit, perform Chapter 2, "Verifying the repair," on page 279.

Table 7. FRU locations and failing components for 5074, 8079-002, and 8093-002 expansion units

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
Expansion unit backplane • SPCN • Card enclosure or backplane • Multi-adapter bridge (all)	TWRCARD MA_BRDG MABRCFG PPCITWR PRI_PCI HSL_LNK PIOCARD MASBUS TWRBKPL TWRPLNR	U*n*-CB1	28AB	"Exchanging the tower card on 5074, 5079, 8079-002, and 8093-002 expansion units" on page 237
PCI adapter in slot 1	PIOCARD MASBUS SLOTERR	U*n*-CB1-C01	"Part number catalog" on page 171	PCI adapters in the Installing hardware topic.
PCI adapter in slot 2	PIOCARD MASBUS SLOTERR	U*n*-CB1-C02		
PCI adapter in slot 3	PIOCARD MASBUS SLOTERR	U*n*-CB1-C03		
PCI adapter in slot 4	PIOCARD MASBUS SLOTERR	U*n*-CB1-C04		
PCI adapter in slot 5	PIOCARD MASBUS SLOTERR	U*n*-CB1-C05		
PCI adapter in slot 6	PIOCARD MASBUS SLOTERR	U*n*-CB1-C06		
PCI adapter in slot 7	PIOCARD MASBUS SLOTERR	U*n*-CB1-C07		
RIO/HSL adapter card • HSL adapter • PCI host bridge adapter	SIIOADP SIADPCD SI_PHB	U*n*-CB1-C08	2691	FC 5074, FC 5079, FC 5094, FC 5294 - Cards (dedicated)

Table 7. FRU locations and failing components for 5074, 8079-002, and 8093-002 expansion units (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
PCI adapter in slot 9	PIOCARD MASBUS SLOTERR	U*n*-CB1-C09	"Part number catalog" on page 171	PCI adapters in the Installing hardware topic.
PCI adapter in slot 10	PIOCARD MASBUS SLOTERR	U*n*-CB1-C10		
PCI adapter in slot 11	PIOCARD MASBUS SLOTERR	U*n*-CB1-C11		
PCI adapter in slot 12	PIOCARD MASBUS SLOTERR	U*n*-CB1-C12		
PCI adapter in slot 13	PIOCARD MASBUS SLOTERR	U*n*-CB1-C13		
PCI adapter in slot 14	PIOCARD MASBUS SLOTERR	U*n*-CB1-C14		
PCI adapter in slot 15	PIOCARD MASBUS SLOTERR	U*n*-CB1-C15		
PCI bridge set 1	BRDGSET BRDGST1	U*n*-CB1-C01 U*n*-CB1-C02 U*n*-CB1-C03 U*n*-CB1-C04		Replace the cards using the remove and replace procedures corresponding to the locations indicated.
PCI bridge set 2	BRDGSET BRDGST2	U*n*-CB1-C05 U*n*-CB1-C06 U*n*-CB1-C07 U*n*-CB1-C09 U*n*-CB1-C10		
PCI bridge set 3	BRDGSET BRDGST3	U*n*-CB1-C11 U*n*-CB1-C12 U*n*-CB1-C13 U*n*-CB1-C14 U*n*-CB1-C15		
Fan 1		U*n*-B01	"Part assembly diagrams for 5074 and 5094 expansion units" on page 131	"Exchanging the air moving devices on 5074, 5079, 8079-002, and 8093-002 expansion units" on page 227
Fan 2		U*n*-B02		
Power board		U*n*-PB1	"Part assembly diagrams for 5074 and 5094 expansion units" on page 131	"Exchanging the power distribution board on 5074, 5079, 8079-002, and 8093-002 expansion units" on page 235

Table 7. FRU locations and failing components for 5074, 8079-002, and 8093-002 expansion units (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
AC module / charger (single line cord)		U*n*-A01	"Part assembly diagrams for 5074 and 5094 expansion units" on page 131	"Exchanging the ac charger (A01) on 5074, 5079, 8079-002, and 8093-002 expansion units (single line cord)" on page 226
AC module (dual line cord)		U*n*-A01	"Part assembly diagrams for 5074 and 5094 expansion units" on page 131	"Exchanging ac modules (A01 and A02) on 5074, 5079, 8079-002, and 8093-002 expansion units (dual line cord)" on page 227
AC module (dual line cord)		U*n*-A02		
Power supply 1		U*n*-P01	"Part assembly diagrams for 5074 and 5094 expansion units" on page 131	"Exchanging the power supplies on 5074, 5079, 8079-002, and 8093-002 expansion units" on page 236
Power supply 2		U*n*-P02		
Power supply 3		U*n*-P03		
Battery 1		U*n*-T01	Power parts	"Exchanging the batteries on 5074, 5079, 8079-002, and 8093-002 expansion units" on page 227
Battery 2		U*n*-T02		
Battery 3		U*n*-T03		
Battery 4		U*n*-T04		
Device board 1		U*n*-DB1	283D	"Exchanging the device boards on 5074, 5079, 8079-002, and 8093-002 expansion units" on page 232
Device board 2		U*n*-DB2		
Device board 3		U*n*-DB3	283C	"Exchanging the device boards on 5074, 5079, 8079-002, and 8093-002 expansion units" on page 232
Display panel		U*n*-NB1	247B	"Exchanging the display panel on 5074, 5079, 8079-002, and 8093-002 expansion units" on page 234
Disk units 1–5		U*n*-DB1-D01 U*n*-DB1-D02 U*n*-DB1-D03 U*n*-DB1-D04 U*n*-DB1-D05	"Part number catalog" on page 171	Disk unit recovery procedures
Disk units 6–10		U*n*-DB2-D06 U*n*-DB2-D07 U*n*-DB2-D08 U*n*-DB2-D09 U*n*-DB2-D10	"Part number catalog" on page 171	Disk unit recovery procedures

Table 7. FRU locations and failing components for 5074, 8079-002, and 8093-002 expansion units (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
Disk units 11–15		U*n*-DB1-D11 U*n*-DB1-D12 U*n*-DB1-D13 U*n*-DB1-D14 U*n*-DB1-D15	"Part number catalog" on page 171	Disk unit recovery procedures
Disk units 16–20		U*n*-DB2-D16 U*n*-DB2-D17 U*n*-DB2-D18 U*n*-DB2-D19 U*n*-DB2-D20	"Part number catalog" on page 171	Disk unit recovery procedures
Disk units 21–25		U*n*-DB1-D21 U*n*-DB1-D22 U*n*-DB1-D23 U*n*-DB1-D24 U*n*-DB1-D25	"Part number catalog" on page 171	Disk unit recovery procedures
Disk units 26–30		U*n*-DB2-D26 U*n*-DB2-D27 U*n*-DB2-D28 U*n*-DB2-D29 U*n*-DB2-D30	"Part number catalog" on page 171	Disk unit recovery procedures
Disk units 31–40		U*n*-DB3-D31 U*n*-DB3-D32 U*n*-DB3-D33 U*n*-DB3-D34 U*n*-DB3-D35 U*n*-DB3-D36 U*n*-DB3-D37 U*n*-DB3-D38 U*n*-DB3-D39 U*n*-DB3-D40	"Part number catalog" on page 171	Disk unit recovery procedures
Optical		U*n*-DB3-D41	"Part number catalog" on page 171	Media device in an expansion unit in the Installing hardware topic.
Tape		U*n*-DB3-D42		
Disk units 46–50		U*n*-DB3-D46 U*n*-DB3-D47 U*n*-DB3-D48 U*n*-DB3-D49 U*n*-DB3-D50	"Part number catalog" on page 171	Disk unit recovery procedures
RIO/HSL adapter card connector	HSL_LNK HSL2 HSL2_xx HSLH HSLH_xx	U*n*-CB1-C08-00	"Part number catalog" on page 171	"Exchanging RIO/HSL cables" on page 264
RIO/HSL adapter card connector	HSL_LNK HSL2 HSL2_xx HSLH HSLH_xx	U*n*-CB1-C08-01		

Notes:

1. Card position C01 is required to be an processor.
2. Card postitions C05 and C11 are required to be either processors or Integrated xSeries® servers (IXS).
3. J11 is an RPO connection, J14 is an uninterruptible power supply (UPS) connector, J15 is an SPCN 1 connector, and J16 is an SPCN 2 connector.
4. Multi-adapter bridge domains are labeled **PCI Bridge Set** inside the unit.
5. The following table provides information necessary to identify the input/output processor (IOP) to which input/output adapters (IOAs) are assigned.
   - The left column indicates the domain in which IOA assignment is allowed.
   - The right column is used to determine the IOP to which an IOA is assigned.
   - The first position in the list must be an IOP. The remaining positions may be IOPs or IOAs. IOAs are assigned to the first IOP located to their left in the list. Although IOAs can be manually reassigned using SST/DST, the IOA assignments return to the default order after each IPL.

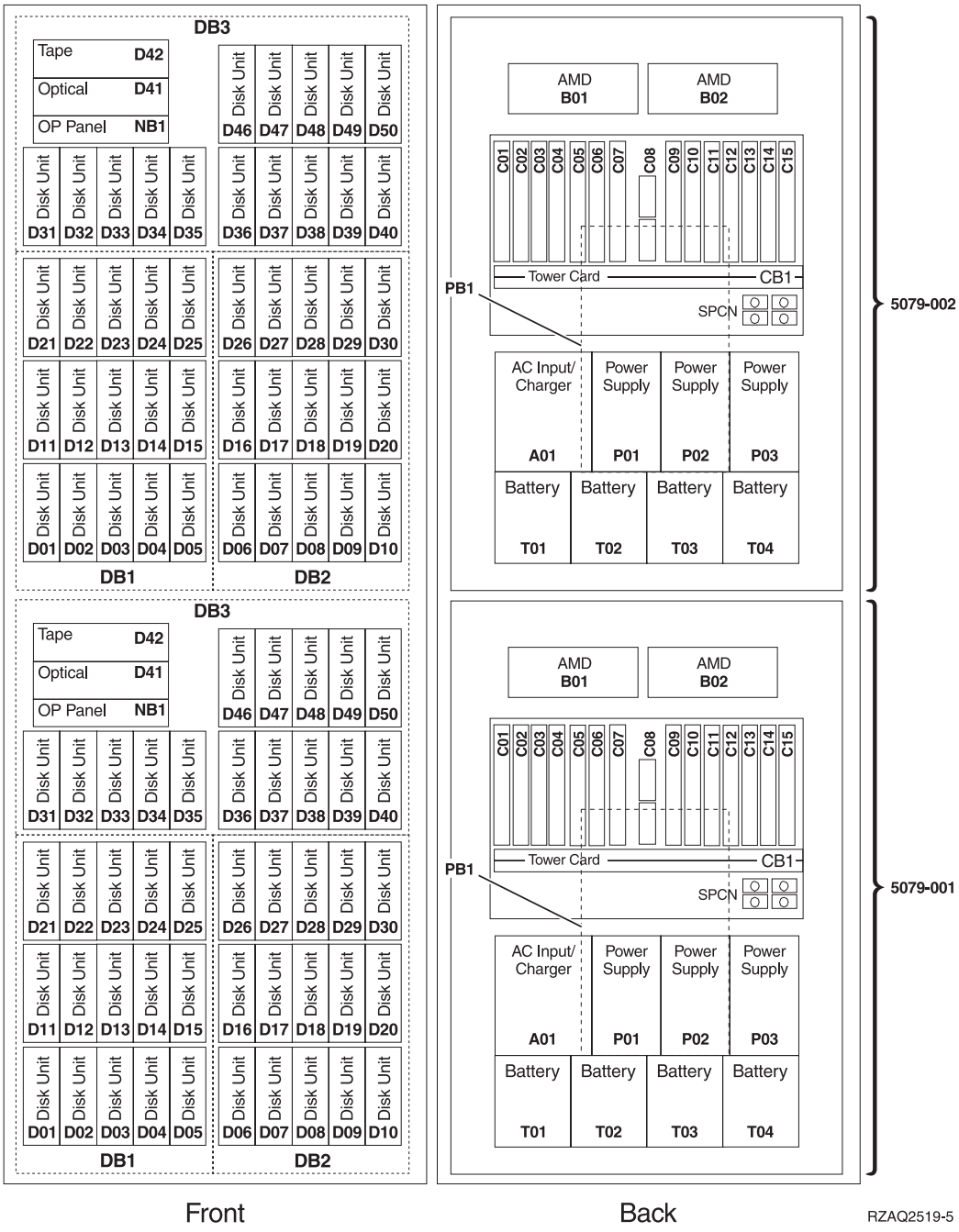
Table 8. IOA assignment rules

Multi-adapter bridge domain / PCI bridge set	IOA assignment rules
C01 - C04	C01, C02, C03, C04
C05 - C10 (Not including C08)	C05, C06, C07, C09, C10
C11 - C15	C11, C12, C13, C14, C15

Locations — 5079 expansion unit

The following diagram shows field replaceable unit (FRU) layout in the 5079 expansion unit. Use the diagram with the information that follows. Service the 5079 as two independent 5074 units in the same 1.8 meter rack (see “Locations — 5074, 8079-002, and 8093-002 expansion units” on page 42). If you need address information, refer to “Addresses — 5074, 5079, 8079-002, and 8093-002 expansion unit” on page 85.

Attention: After replacing any part on a server or expansion unit, perform Chapter 2, "Verifying the repair," on page 279.

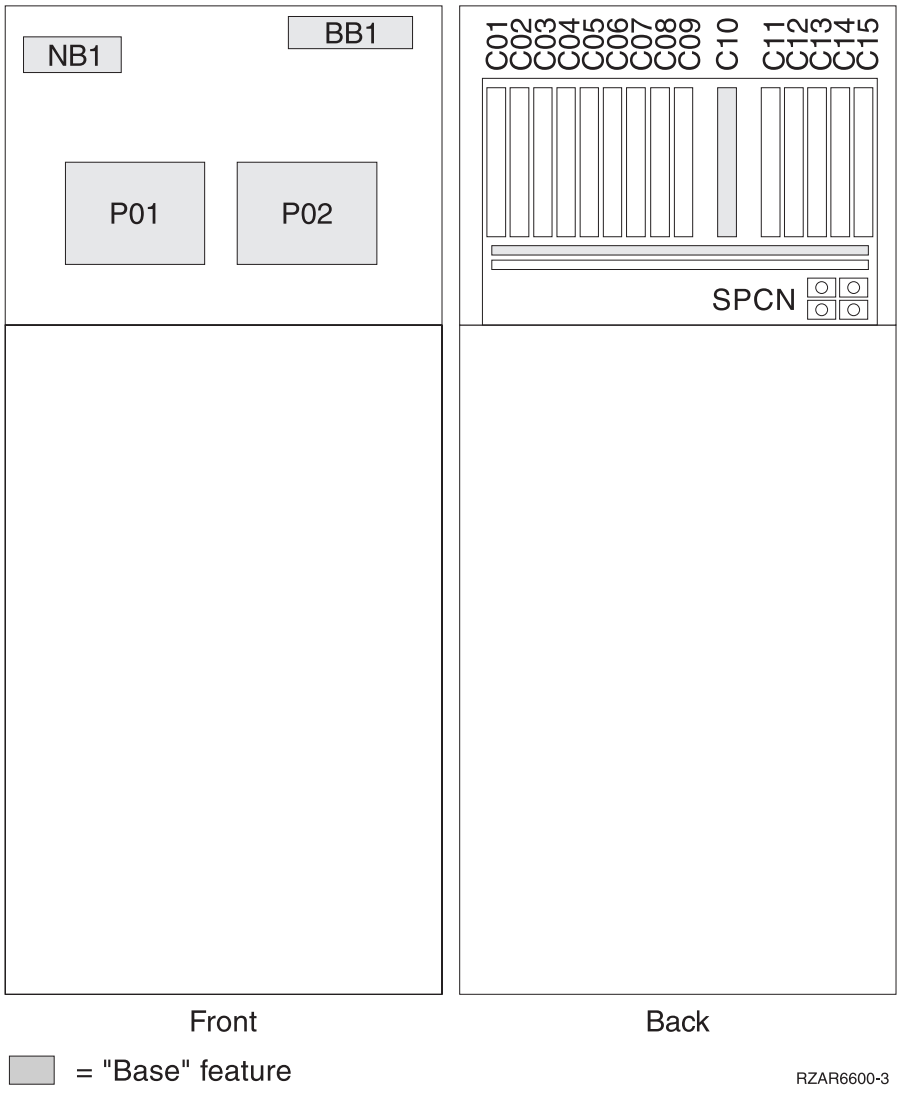


Locations — 0588 and 5088 expansion units

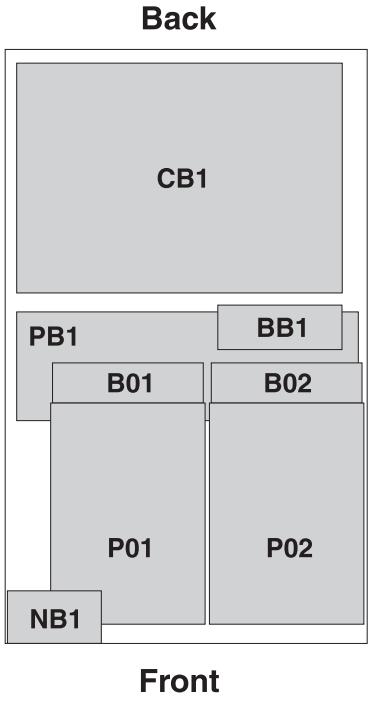
Note: The known logical location codes for this unit are listed next to the corresponding physical location in the following information. If you are working with a logical location code for this unit and it is not listed in the following information, contact your next level of support.

The following diagram shows field replaceable unit (FRU) layout in the 0588 and 5088 expansion units. Use it with the tables below. If you need address information, refer to "Addresses — 0588 and 5088 expansion unit" on page 90.

0588 and 5088 expansion units



0588 and 5088 expansion units, top view



The following table provides the components available for callout on the 0588 and 5088 expansion units. It matches those components with the FRU containing the component. The other columns give location information, a link to a removal and replacement procedure, and additional comments.

Attention: After replacing any part on a server or expansion unit, perform Chapter 2, "Verifying the repair," on page 279.

Table 9. FRU locations and failing components for 0588 and 5088 expansion units

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
Expansion unit backplane • SPCN • Card enclosure or backplane • Multi-adapter bridge (all)	TWRCARD MA_BRDG MABRCFG PPCITWR PRI_PCI HSL_LNK PIOCARD MASBUS TWRBKPL TWRPLNR	U*n*-CB1	28B8	"Exchanging the tower card on 5088 and 0588 expansion units" on page 242
PCI adapter in slot 1	PIOCARD MASBUS SLOTERR	U*n*-CB1-C01	"Part number catalog" on page 171	"Exchanging cards (concurrent) on 5088 and 0588 expansion units" on page 239

Table 9. FRU locations and failing components for 0588 and 5088 expansion units (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
PCI adapter in slot 2	PIOCARD MASBUS SLOTERR	U*n*-CB1-C02	"Part number catalog" on page 171	"Exchanging cards (concurrent) on 5088 and 0588 expansion units" on page 239
PCI adapter in slot 3	PIOCARD MASBUS SLOTERR	U*n*-CB1-C03	"Part number catalog" on page 171	"Exchanging cards (concurrent) on 5088 and 0588 expansion units" on page 239
PCI adapter in slot 4	PIOCARD MASBUS SLOTERR	U*n*-CB1-C04	"Part number catalog" on page 171	"Exchanging cards (concurrent) on 5088 and 0588 expansion units" on page 239
PCI adapter in slot 5	PIOCARD MASBUS SLOTERR	U*n*-CB1-C05	"Part number catalog" on page 171	"Exchanging cards (concurrent) on 5088 and 0588 expansion units" on page 239
PCI adapter in slot 6	PIOCARD MASBUS SLOTERR	U*n*-CB1-C06	"Part number catalog" on page 171	"Exchanging cards (concurrent) on 5088 and 0588 expansion units" on page 239
PCI adapter in slot 7	PIOCARD MASBUS SLOTERR	U*n*-CB1-C07	"Part number catalog" on page 171	"Exchanging cards (concurrent) on 5088 and 0588 expansion units" on page 239
PCI adapter in slot 8	PIOCARD MASBUS SLOTERR	U*n*-CB1-C08	"Part number catalog" on page 171	"Exchanging cards (concurrent) on 5088 and 0588 expansion units" on page 239
PCI adapter in slot 9	PIOCARD MASBUS SLOTERR	U*n*-CB1-C09	"Part number catalog" on page 171	"Exchanging cards (concurrent) on 5088 and 0588 expansion units" on page 239
RIO/HSL adapter card • HSL I/O adapter • PCI host bridge adapter	SIIOADP SIADPCD SI_PHB	U*n*-CB1-C10	"Part number catalog" on page 171	"Exchanging cards (concurrent) on 5088 and 0588 expansion units" on page 239
PCI adapter in slot 11	PIOCARD MASBUS SLOTERR	U*n*-CB1-C11	"Part number catalog" on page 171	"Exchanging cards (concurrent) on 5088 and 0588 expansion units" on page 239

Table 9. FRU locations and failing components for 0588 and 5088 expansion units (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
PCI adapter in slot 12	PIOCARD MASBUS SLOTERR	U*n*-CB1-C12	"Part number catalog" on page 171	"Exchanging cards (concurrent) on 5088 and 0588 expansion units" on page 239
PCI adapter in slot 13	PIOCARD MASBUS SLOTERR	U*n*-CB1-C13	"Part number catalog" on page 171	"Exchanging cards (concurrent) on 5088 and 0588 expansion units" on page 239
PCI adapter in slot 14	PIOCARD MASBUS SLOTERR	U*n*-CB1-C14	"Part number catalog" on page 171	"Exchanging cards (concurrent) on 5088 and 0588 expansion units" on page 239
PCI adapter in slot 15	PIOCARD MASBUS SLOTERR	U*n*-CB1-C15	"Part number catalog" on page 171	"Exchanging cards (concurrent) on 5088 and 0588 expansion units" on page 239
PCI bridge set 1	BRDGSET BRDGST1	U*n*-CB1-C01 U*n*-CB1-C02 U*n*-CB1-C03 U*n*-CB1-C04		Replace the cards using the remove and replace procedures corresponding to the locations indicated.
PCI bridge set 2	BRDGSET BRDGST2	U*n*-CB1-C05 U*n*-CB1-C06 U*n*-CB1-C07 U*n*-CB1-C08 U*n*-CB1-C09		Replace the cards using the remove and replace procedures corresponding to the locations indicated.
PCI bridge set 3	BRDGSET BRDGST3	U*n*-CB1-C11 U*n*-CB1-C12 U*n*-CB1-C13 U*n*-CB1-C14 U*n*-CB1-C15		Replace the cards using the remove and replace procedures corresponding to the locations indicated.
Power distribution board		U*n*-PB1	"Part assembly diagrams for 0588, 5079, 5088, and 5294 expansion units" on page 123	"Exchanging the power distribution board on 5088 and 0588 expansion units" on page 241
Power supply 1		U*n*-P01	"Part assembly diagrams for 0588, 5079, 5088, and 5294 expansion units" on page 123	"Exchanging the power supplies on 5088 and 0588 expansion units" on page 242

Table 9. FRU locations and failing components for 0588 and 5088 expansion units (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
Power supply 2		U*n*-P02	"Part assembly diagrams for 0588, 5079, 5088, and 5294 expansion units" on page 123	"Exchanging the power supplies on 5088 and 0588 expansion units" on page 242
Fan 1		U*n*-B01	"Part assembly diagrams for 0588, 5079, 5088, and 5294 expansion units" on page 123	"Exchanging the air moving device (AMD) on 5088 and 0588 expansion units" on page 238
Fan 2		U*n*-B02	"Part assembly diagrams for 0588, 5079, 5088, and 5294 expansion units" on page 123	"Exchanging the air moving device (AMD) on 5088 and 0588 expansion units" on page 238
Fan controller card	AMDCTRL	U*n*-BB1	"Part assembly diagrams for 0588, 5079, 5088, and 5294 expansion units" on page 123	"Exchanging the AMD controller card on 5088 and 0588 expansion units" on page 238
Display panel		U*n*-NB1	"Part number catalog" on page 171	"Exchanging the display panel on 5088 and 0588 expansion units" on page 241
RIO/HSL adapter card connector	HSL_LNK HSL2 HSL2_xx HSLH HSLH_xx	U*n*-CB1-C10-00	"Part number catalog" on page 171	"Exchanging RIO/HSL cables" on page 264
RIO/HSL adapter card connector	HSL_LNK HSL2 HSL2_xx HSLH HSLH_xx	U*n*-CB1-C10-01	"Part number catalog" on page 171	"Exchanging RIO/HSL cables" on page 264

Notes:

1. Card positions C01, C05, and C11 are required to be either I/O processors or Integrated xSeries servers (IXS).
2. J11 is an RPO connection, J14 is a uninterruptable power supply connector, J15 is an SPCN 1 connector, and J16 is an SPCN 2 connector.
3. Multi-adapter bridge domains are labeled **PCI Bridge Set** inside the I/O unit.
4. The following table provides information necessary to identify the IOP to which IOAs are assigned.
   - The left column indicates the domain in which IOA assignment is allowed.
   - The right column is used to determine the IOP to which an IOA is assigned.
   - The first position in the list must be an IOP. The remaining positions may be IOPs or IOAs. IOAs are assigned to the first IOP located to their left in the list. Although IOAs can be manually

reassigned using SST/DST, the IOA assignments return to the default order after each IPL.

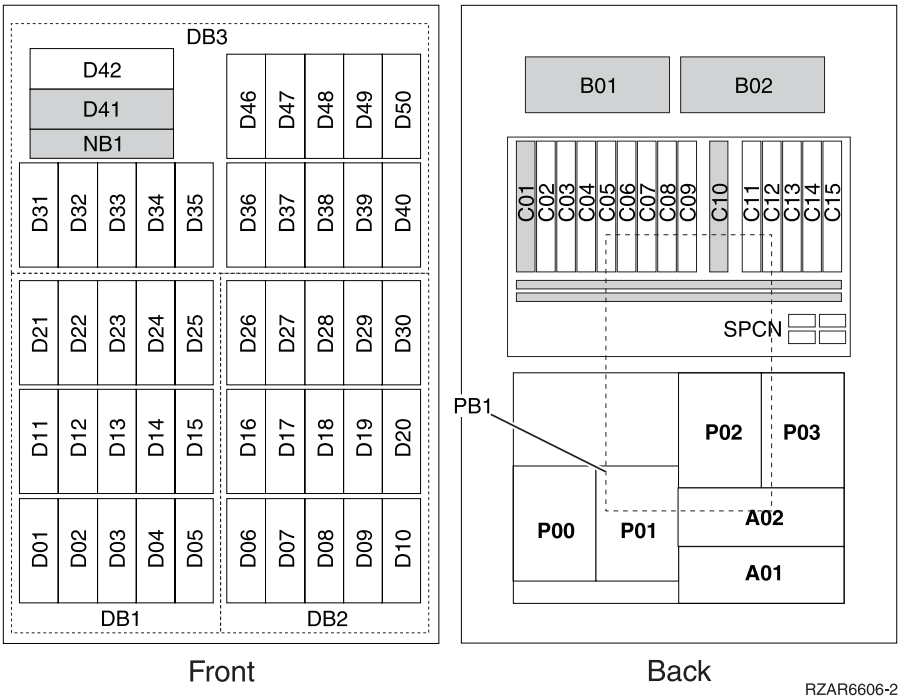
Table 10. Identify the IOP to which IOAs are assigned

Multi-adapter bridge domain / PCI bridge set	IOA assignment rules
C01 - C04	C01, C02, C03, C04
C05 - C09	C05, C06, C07, C08, C09
C11 - C15	C11, C12, C13, C14, C15

Locations — 5094, 5294, and 8094-002 expansion units

Note: The known logical location codes for this unit are listed next to the corresponding physical location in the information below. If you are working with a logical location code for this unit and it is not listed in the information below, contact your next level of support.

The following diagram shows FRU layout in the 5094 expansion unit. Use it with the tables below. If you need address information, refer to "Addresses — 5094, 5294, and 8094-002 expansion unit" on page 92.



Note: Do not install power supplies P00 and P01 ac jumper cables on the same ac module.

The following table gives the components available for callout on the 5094, 5294, and 8094-002 expansion I/O units. It matches those components with the FRU containing the component. The other columns give location information, a link to a removal and replacement procedure, and additional comments.

Attention: After replacing any part on a server or expansion unit, perform Chapter 2, "Verifying the repair," on page 279.

Table 11. FRU locations and failing components for 5094, 5294, and 8094-002 expansion units

Failing item name	Symbolic FRU name	Physical location code	Link to part number	Failing item removal and replacement procedures
Expansion unit backplane • SPCN • Card enclosure or backplane • Multi-adapter bridge (all)	TWRCARD MA_BRDG MABRCFG PPCITWR PRI_PCI HSL_LNK PIOCARD MASBUS TWRBKPL TWRPLNR	U*n*-CB1	28B7	"Exchanging the backplane on a 5094 expansion unit" on page 245
PCI adapter in slot 1	PIOCARD MASBUS SLOTERR	U*n*-CB1-C01	"Part number catalog" on page 171	PCI adapter in the Installing hardware topic.
PCI adapter in slot 2	PIOCARD MASBUS SLOTERR	U*n*-CB1-C02		
PCI adapter in slot 3	PIOCARD MASBUS SLOTERR	U*n*-CB1-C03		
PCI adapter in slot 4	PIOCARD MASBUS SLOTERR	U*n*-CB1-C04		
PCI adapter in slot 5	PIOCARD MASBUS SLOTERR	U*n*-CB1-C05		
PCI adapter in slot 6	PIOCARD MASBUS SLOTERR	U*n*-CB1-C06		
PCI adapter in slot 7	PIOCARD MASBUS SLOTERR	U*n*-CB1-C07		
PCI adapter in slot 8	PIOCARD MASBUS SLOTERR	U*n*-CB1-C08		
PCI adapter in slot 9	PIOCARD MASBUS SLOTERR	U*n*-CB1-C09		
RIO/HSL adapter card • HSL I/O adapter • PCI host bridge adapter	SIIOADP SIADPCD SI_PHB	U*n*-CB1-C10	2886 2887 28E7	FC 5074, FC 5079, FC 5094, FC 5294 - Cards (dedicated)

Table 11. FRU locations and failing components for 5094, 5294, and 8094-002 expansion units (continued)

Failing item name	Symbolic FRU name	Physical location code	Link to part number	Failing item removal and replacement procedures
PCI adapter in slot 11	PIOCARD MASBUS SLOTERR	U*n*-CB1-C11	"Part number catalog" on page 171	PCI adapter in the Installing hardware topic.
PCI adapter in slot 12	PIOCARD MASBUS SLOTERR	U*n*-CB1-C12		
PCI adapter in slot 13	PIOCARD MASBUS SLOTERR	U*n*-CB1-C13		
PCI adapter in slot 14	PIOCARD MASBUS SLOTERR	U*n*-CB1-C14		
PCI adapter in slot 15	PIOCARD MASBUS SLOTERR	U*n*-CB1-C15		
PCI bridge set 1	BRDGSET BRDGST1	U*n*-CB1-C01 U*n*-CB1-C02 U*n*-CB1-C03 U*n*-CB1-C04		Replace the cards using the remove and replace procedures corresponding to the locations indicated.
PCI bridge set 2	BRDGSET BRDGST2	U*n*-CB1-C05 U*n*-CB1-C06 U*n*-CB1-C07 U*n*-CB1-C08 U*n*-CB1-C09		
PCI bridge set 3	BRDGSET BRDGST3	U*n*-CB1-C11 U*n*-CB1-C12 U*n*-CB1-C13 U*n*-CB1-C14 U*n*-CB1-C15		
Fan 1		U*n*-B01	"Part assembly diagrams for 5074 and 5094 expansion units" on page 131	"Exchanging air moving devices on a 5094 expansion unit" on page 251
Fan 2		U*n*-B02		
Power board		U*n*-PB1	"Part assembly diagrams for 5074 and 5094 expansion units" on page 131	"Exchanging the power distribution backplane on a 5094 expansion unit" on page 251
AC module 1		U*n*-A01	Power parts	"Exchanging ac modules on a 5094 expansion unit (single line cord)" on page 244 **or** "Exchanging ac modules on a 5094 expansion unit (dual line cord)" on page 244
AC module 2		U*n*-A02		

Table 11. FRU locations and failing components for 5094, 5294, and 8094-002 expansion units (continued)

Failing item name	Symbolic FRU name	Physical location code	Link to part number	Failing item removal and replacement procedures
Power supply (dual line cord only)		U*n*-P00	"Part assembly diagrams for 5074 and 5094 expansion units" on page 131	"Exchanging power supplies on a 5094 expansion unit" on page 252
Power supply (single or dual line cord)		U*n*-P01		
Power supply (single or dual line cord)		U*n*-P02		
Power supply (single or dual line cord)		U*n*-P03		
Device board 1		U*n*-DB1	28CC	"Exchanging device boards (DB1 and DB2) on a 5094 expansion unit" on page 245
Device board 2		U*n*-DB2		
Device board 3		U*n*-DB3	28CB	"Exchanging device board (DB3) on a 5094 expansion unit" on page 247
Display panel		U*n*-NB1	247B	"Exchanging the display panel on a 5094 expansion unit" on page 251
Disk units 1–5		U*n*-DB1-D01 U*n*-DB1-D02 U*n*-DB1-D03 U*n*-DB1-D04 U*n*-DB1-D05	"Part number catalog" on page 171	Disk unit recovery procedures
Disk units 6–10		U*n*-DB2-D06 U*n*-DB2-D07 U*n*-DB2-D08 U*n*-DB2-D09 U*n*-DB2-D10	"Part number catalog" on page 171	Disk unit recovery procedures
Disk units 11–15		U*n*-DB1-D11 U*n*-DB1-D12 U*n*-DB1-D13 U*n*-DB1-D14 U*n*-DB1-D15	"Part number catalog" on page 171	Disk unit recovery procedures
Disk units 16–20		U*n*-DB2-D16 U*n*-DB2-D17 U*n*-DB2-D18 U*n*-DB2-D19 U*n*-DB2-D20	"Part number catalog" on page 171	Disk unit recovery procedures
Disk units 21–25		U*n*-DB1-D21 U*n*-DB1-D22 U*n*-DB1-D23 U*n*-DB1-D24 U*n*-DB1-D25	"Part number catalog" on page 171	Disk unit recovery procedures
Disk units 26–30		U*n*-DB2-D26 U*n*-DB2-D27 U*n*-DB2-D28 U*n*-DB2-D29 U*n*-DB2-D30	"Part number catalog" on page 171	Disk unit recovery procedures

Table 11. FRU locations and failing components for 5094, 5294, and 8094-002 expansion units (continued)

Failing item name	Symbolic FRU name	Physical location code	Link to part number	Failing item removal and replacement procedures
Disk units 31–40		U*n*-DB3-D31 U*n*-DB3-D32 U*n*-DB3-D33 U*n*-DB3-D34 U*n*-DB3-D35 U*n*-DB3-D36 U*n*-DB3-D37 U*n*-DB3-D38 U*n*-DB3-D39 U*n*-DB3-D40	"Part number catalog" on page 171	Disk unit recovery procedures
Media (optical)		U*n*-DB3-D41	"Part number catalog" on page 171	Media device in an expansion unit in the Installing hardware topic.
Media (tape)		U*n*-DB3-D42		
Disk units 46–50		U*n*-DB3-D46 U*n*-DB3-D47 U*n*-DB3-D48 U*n*-DB3-D49 U*n*-DB3-D50	"Part number catalog" on page 171	Disk unit recovery procedures
RIO/HSL adapter card connector	HSL_LNK HSL2 HSL2_xx HSLH HSLH_xx	U*n*-CB1-C10-00	"Part number catalog" on page 171	"Exchanging RIO/HSL cables" on page 264
RIO/HSL adapter card connector	HSL_LNK HSL2 HSL2_xx HSLH HSLH_xx	U*n*-CB1-C10-01		

Notes:

1. Card positions C01, C05, and C11 are required to be either I/O processors or Integrated xSeries servers (IXS).
2. J11 is an RPO connection, J14 is a uninterruptable power supply connector, J15 is an SPCN 1 connector, and J16 is an SPCN 2 connector.
3. Multi-adapter bridge domains are labeled **PCI Bridge Set** inside the I/O unit.
4. The following table provides information necessary to identify the IOP to which IOAs are assigned.
   - The left column indicates the domain in which IOA assignment is allowed.
   - The right column is used to determine the IOP to which an IOA is assigned.
   - The first position in the list must be an IOP. The remaining positions may be IOPs or IOAs. IOAs are assigned to the first IOP located to their left in the list. Although IOAs can be manually reassigned using SST/DST, the IOA assignments return to the default order after each IPL.

Table 12. Identify the IOP to which IOAs are assigned

Multi-adapter bridge domain / PCI bridge set	IOA assignment rules
C01 - C04	C01, C02, C03, C04
C05 - C09	C05, C06, C07, C08, C09
C11 - C15	C11, C12, C13, C14, C15

Locations — 0595 and 5095 expansion units

Note: The known logical location codes for this unit are listed next to the corresponding physical location in the information below. If you are working with a logical location code for this unit and it is not listed in the information below, contact your next level of support.

The following diagrams show field replaceable unit (FRU) layout in the 0595 and 5095 expansion units. Use them with the tables below. If you need address information, refer to "Addresses — 0595 and 5095 expansion unit" on page 98.

Figure 17. 5095 expansion unit

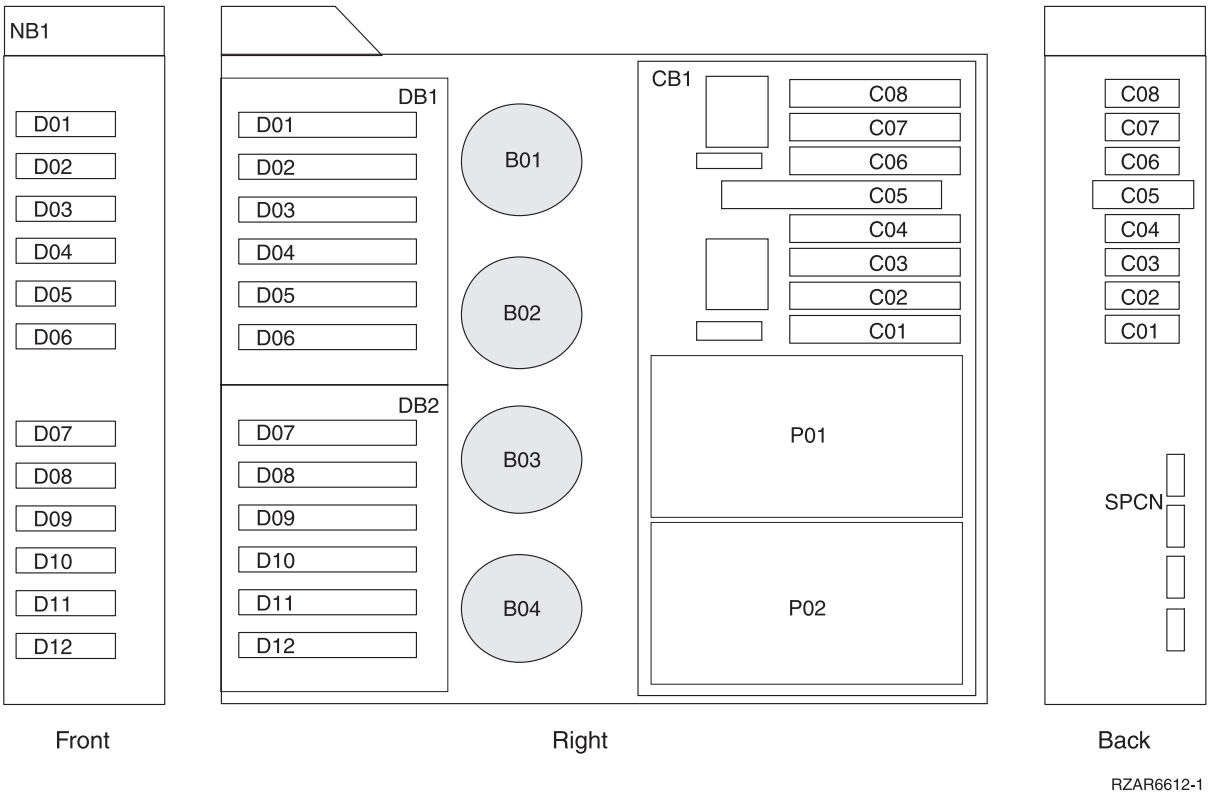
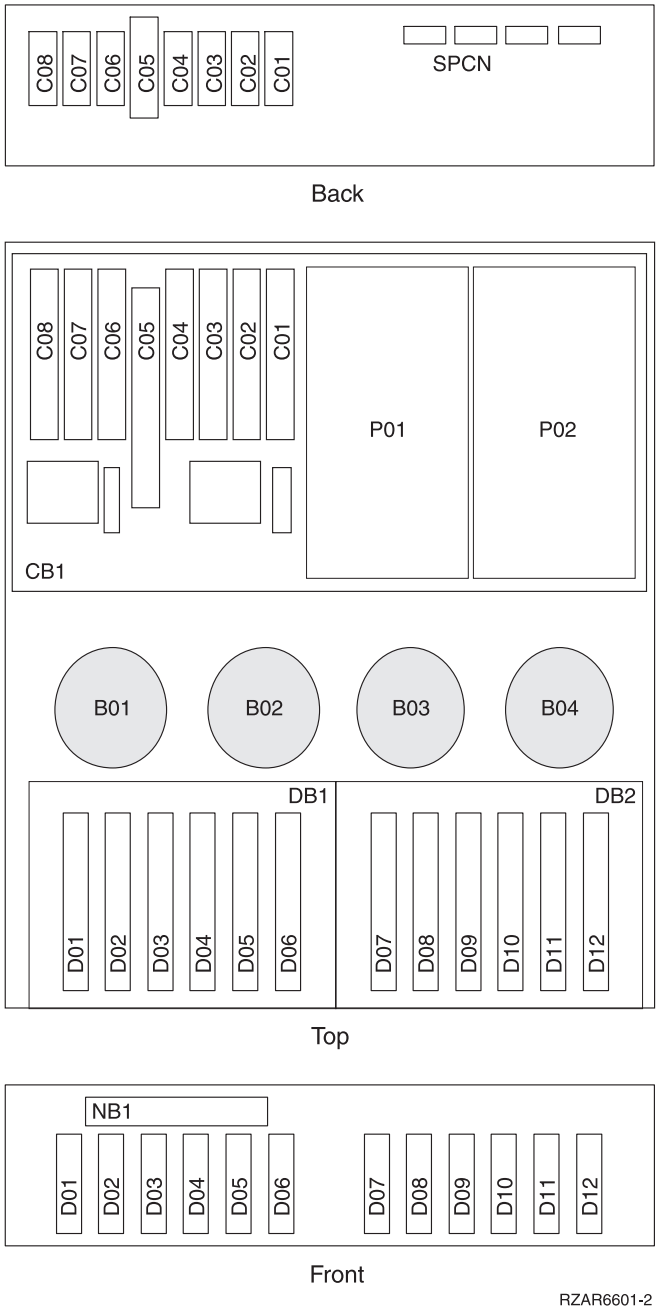


Figure 18. 0595 expansion unit



The following table gives the components available for callout on the 0595 and 5095 expansion units. It matches those components with the FRU containing the component. The other columns give location information, a link to a removal and replacement procedure, and additional comments.

Attention: After replacing any part on a server or expansion unit, perform Chapter 2, "Verifying the repair," on page 279.

Table 13. FRU locations and failing components for 0595 and 5095 expansion units

Failing item name	Symbolic FRU name	Physical location code	Link to part number	Failing item removal and replacement procedures
Backplane • SPCN • Card enclosure or backplane • Multi-adapter bridge (all)	TWRCARD MA_BRDG MABRCFG PPCITWR PRI_PCI HSL_LNK PIOCARD MASBUS TWRBKPL	U*n*-CB1	28BE	"Exchanging the I/O backplane assembly on 5095, 0595, and 7311-D20 expansion units" on page 258
PCI adapter in slot 1	PIOCARD MASBUS SLOTERR	U*n*-CB1-C01	"Part number catalog" on page 171	PCI adapter
PCI adapter in slot 2	PIOCARD MASBUS SLOTERR	U*n*-CB1-C02	"Part number catalog" on page 171	PCI adapter
PCI adapter in slot 3	PIOCARD MASBUS SLOTERR	U*n*-CB1-C03	"Part number catalog" on page 171	PCI adapter
PCI adapter in slot 4	PIOCARD MASBUS SLOTERR	U*n*-CB1-C04	"Part number catalog" on page 171	PCI adapter
RIO/HSL adapter card • HSL I/O adapter • RIO host bridge adapter	SIIOADP SIADPCD SI_PHB	U*n*-CB1-C05	2886 2887 28E7	RIO/HSL card
PCI adapter in slot 6	PIOCARD MASBUS SLOTERR	U*n*-CB1-C06	"Part number catalog" on page 171	PCI adapter
PCI adapter in slot 7	PIOCARD MASBUS SLOTERR	U*n*-CB1-C07	"Part number catalog" on page 171	PCI adapter
PCI adapter in slot 8	PIOCARD MASBUS SLOTERR	U*n*-CB1-C08	"Part number catalog" on page 171	PCI adapter
PCI bridge set 1	BRDGSET BRDGST1	U*n*-CB1-C01 U*n*-CB1-C02 U*n*-CB1-C03 U*n*-CB1-C04		Replace the system backplane and cards using the remove and replace procedures corresponding to the locations indicated.
PCI bridge set 2	BRDGSET BRDGST2	U*n*-CB1-C06 U*n*-CB1-C07 U*n*-CB1-C08		Replace the system backplane and cards using the remove and replace procedures corresponding to the locations indicated.
Fan 1		U*n*-B01	"Part assembly diagrams for 0595 and 5095 expansion units" on page 142	"Exchanging fans on 5095, 0595, and 7311-D20 expansion units" on page 256

Table 13. FRU locations and failing components for 0595 and 5095 expansion units (continued)

Failing item name	Symbolic FRU name	Physical location code	Link to part number	Failing item removal and replacement procedures
Fan 2		U*n*-B02	"Part assembly diagrams for 0595 and 5095 expansion units" on page 142	"Exchanging fans on 5095, 0595, and 7311-D20 expansion units" on page 256
Fan 3		U*n*-B03	"Part assembly diagrams for 0595 and 5095 expansion units" on page 142	"Exchanging fans on 5095, 0595, and 7311-D20 expansion units" on page 256
Fan 4		U*n*-B04	"Part assembly diagrams for 0595 and 5095 expansion units" on page 142	"Exchanging fans on 5095, 0595, and 7311-D20 expansion units" on page 256
Disk unit 1		U*n*-DB1-D01	"Part number catalog" on page 171	Disk drive
Disk unit 2		U*n*-DB1-D02	"Part number catalog" on page 171	Disk drive
Disk unit 3		U*n*-DB1-D03	"Part number catalog" on page 171	Disk drive
Disk unit 4		U*n*-DB1-D04	"Part number catalog" on page 171	Disk drive
Disk unit 5		U*n*-DB1-D05	"Part number catalog" on page 171	Disk drive
Disk unit 6		U*n*-DB1-D06	"Part number catalog" on page 171	Disk drive
Disk unit 7		U*n*-DB2-D07	"Part number catalog" on page 171	Disk drive
Disk unit 8		U*n*-DB2-D08	"Part number catalog" on page 171	Disk drive
Disk unit 9		U*n*-DB2-D09	"Part number catalog" on page 171	Disk drive
Disk unit 10		U*n*-DB2-D10	"Part number catalog" on page 171	Disk drive
Disk unit 11		U*n*-DB2-D11	"Part number catalog" on page 171	Disk drive

Table 13. FRU locations and failing components for 0595 and 5095 expansion units (continued)

Failing item name	Symbolic FRU name	Physical location code	Link to part number	Failing item removal and replacement procedures
Disk unit 12		U*n*-DB2-D12	"Part number catalog" on page 171	Disk drive
Power supply 1		U*n*-P01	"Part assembly diagrams for 0595 and 5095 expansion units" on page 142	Power supply
Power supply 2		U*n*-P02	"Part assembly diagrams for 0595 and 5095 expansion units" on page 142	Power supply
Device board 1		U*n*-DB1	28B9	"Exchanging disk drive backplane on 5095, 0595, and 7311-D20 expansion units" on page 257
Device board 2		U*n*-DB2	28B9	"Exchanging disk drive backplane on 5095, 0595, and 7311-D20 expansion units" on page 257
Display panel		U*n*-NB1	250C	"Exchanging the control panel on 5095, 0595, and 7311-D20expansion units" on page 257
RIO/HSL adapter card connector (bottom connector)	HSL_LNK HSL2 HSL2_xx HSLH HSLH_xx	U*n*-CB1-C05-00	"Part number catalog" on page 171	"Exchanging RIO/HSL cables" on page 264
RIO/HSL adapter card connector	HSL_LNK HSL2 HSL2_xx HSLH HSLH_xx	U*n*-CB1-C05-01	"Part number catalog" on page 171	"Exchanging RIO/HSL cables" on page 264

Notes:

1. Card positions C01 and C06 are required to be either I/O processors or Integrated xSeries servers (IXS).
2. J11 is an RPO connection, J14 is a uninterruptable power supply connector, J15 is an SPCN 1 connector, and J16 is an SPCN 2 connector.
3. Multi-adapter bridge domains are labeled **PCI Bridge Set** inside the expansion unit.
4. The following table provides information necessary to identify the IOP to which IOAs are assigned.
   - The left column indicates the domain in which IOA assignment is allowed.
   - The right column is used to determine the IOP to which an IOA is assigned.
   - The first position in the list must be an IOP. The remaining positions may be IOPs or IOAs. IOAs are assigned to the first IOP located to their left in the list. Although IOAs can be manually reassigned using SST/DST, the IOA assignments return to the default order after each IPL.

Table 14. Identify the IOP to which IOAs are assigned

Multi-adapter bridge domain / PCI bridge set	IOA assignment rules
C01 - C04	C01, C02, C03, C04
C06 - C08	C06, C07, C08

Locations — 5791, 5794, and 7040-61D expansion unit

Note: The known logical location codes for this unit are listed next to the corresponding physical location in the information below. If you are working with a logical location code for this unit and it is not listed in the information below, contact your next level of support.

The following diagrams show the field replaceable unit (FRU) layout for 5791 and 5794. Use them with the tables below.

The following diagrams also show the field replaceable unit (FRU) layout in the 7040-61D expansion unit. After you locate your part in the 7040-61D expansion unit, you should refer to the pSeries® 690 service guide (SA38-0589) for part number information.

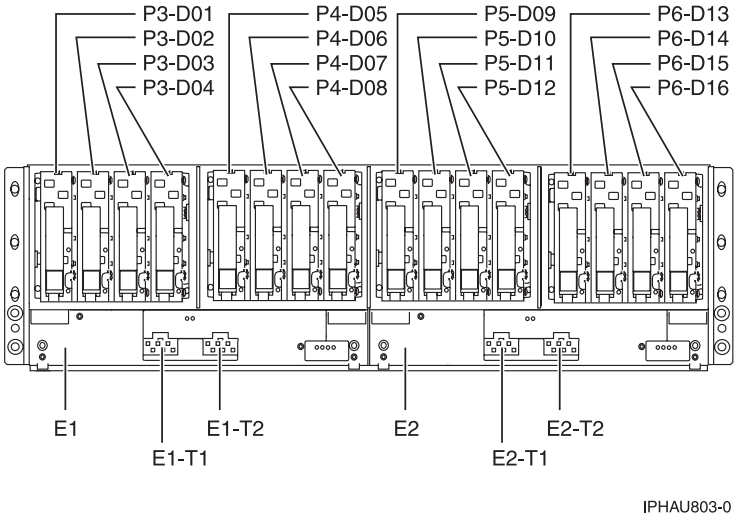


Figure 19. Front view

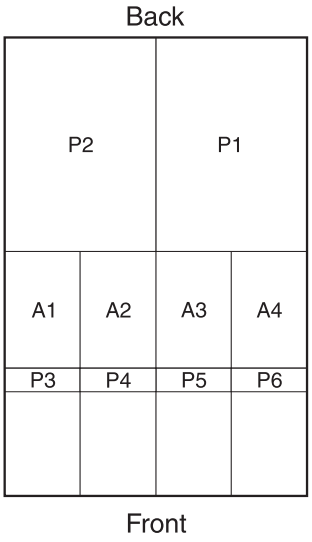


Figure 20. Top view

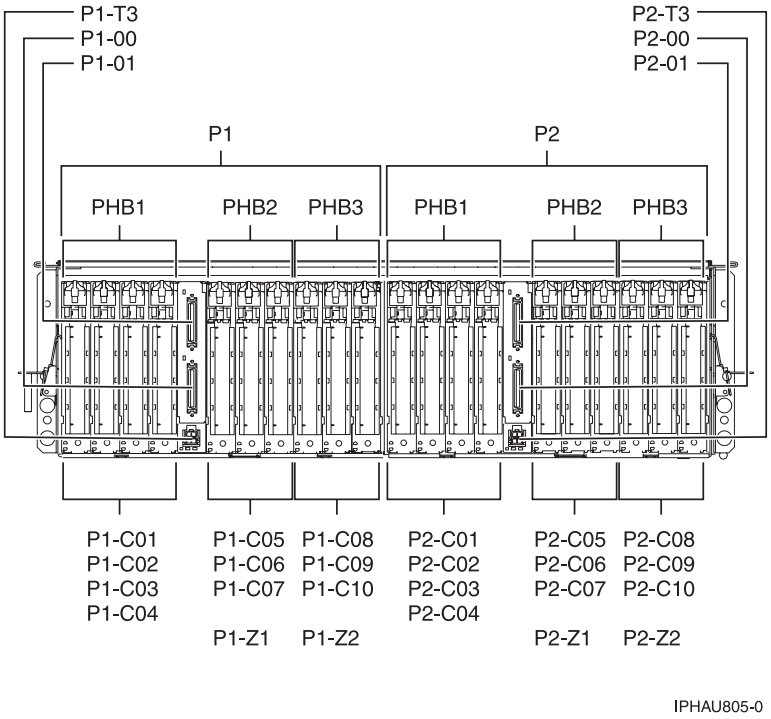


Figure 21. Back view

The following table gives the components available for callout. It matches those components with the FRU containing the component. The other columns give location information, a link to a removal and replacement procedure, and additional comments.

Attention: After replacing any part on a server or expansion unit, perform Chapter 2, “Verifying the repair,” on page 279.

Table 15. FRU locations and failing components

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
Backplane 1 • RIO/HSL • SCSI Controllers • SPCN node	MA_BRDG MABRCFG PPCITWR PRI_PCI SI_PHB SIIOADP PIOCARD MASBUS SLOTERR SIADPCD HSL_I4 HSL_LNK TWRPLNR	U*n*-P1		"Removing and replacing parts on 5791and5794" on page 258
Backplane 2 • RIO/HSL • SCSI Controllers • SPCN node	MA_BRDG MABRCFG PPCITWR PRI_PCI SI_PHB SIIOADP PIOCARD MASBUS SLOTERR SIADPCD HSL_I4 HSL_LNK TWRPLNR	U*n*-P2		"Removing and replacing parts on 5791and5794" on page 258
Disk drive backplane		U*n*-P3	Backplanes	"Removing and replacing parts on 5791and5794" on page 258
Disk drive backplane		U*n*-P4	Backplanes	"Removing and replacing parts on 5791and5794" on page 258
Disk drive backplane		U*n*-P5	Backplanes	"Removing and replacing parts on 5791and5794" on page 258
Disk drive backplane		U*n*-P6	Backplanes	"Removing and replacing parts on 5791and5794" on page 258
PCI adapter in slot 1	PIOCARD MASBUS SLOTERR	U*n*-P1-C01	System parts	"Removing and replacing parts on 5791and5794" on page 258
PCI adapter in slot 2	PIOCARD MASBUS SLOTERR	U*n*-P1-C02	System parts	"Removing and replacing parts on 5791and5794" on page 258

Table 15. FRU locations and failing components (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
PCI adapter in slot 3	PIOCARD MASBUS SLOTERR	U*n*-P1-C03	System parts	"Removing and replacing parts on 5791and5794" on page 258
PCI adapter in slot 4	PIOCARD MASBUS SLOTERR	U*n*-P1-C04	System parts	"Removing and replacing parts on 5791and5794" on page 258
PCI adapter in slot 5	PIOCARD MASBUS SLOTERR	U*n*-P1-C05	System parts	"Removing and replacing parts on 5791and5794" on page 258
PCI adapter in slot 6	PIOCARD MASBUS SLOTERR	U*n*-P1-C06	System parts	"Removing and replacing parts on 5791and5794" on page 258
PCI adapter in slot 7	PIOCARD MASBUS SLOTERR	U*n*-P1-C07	System parts	"Removing and replacing parts on 5791and5794" on page 258
PCI adapter in slot 8	PIOCARD MASBUS SLOTERR	U*n*-P1-C08	System parts	"Removing and replacing parts on 5791and5794" on page 258
PCI adapter in slot 9	PIOCARD MASBUS SLOTERR	U*n*-P1-C09	System parts	"Removing and replacing parts on 5791and5794" on page 258
PCI adapter in slot 10	PIOCARD MASBUS SLOTERR	U*n*-P1-C10	System parts	"Removing and replacing parts on 5791and5794" on page 258
PHB (PCI bridge set) 1	BRDGSET BRDGST1	U*n*-P1-C01 U*n*-P1-C02 U*n*-P1-C03 U*n*-P1-C04		Replace the cards using the removal and replacement procedures corresponding to the locations indicated.
PHB (PCI bridge set) 2	BRDGSET BRDGST2	U*n*-P1-C05 U*n*-P1-C06 U*n*-P1-C07		
PHB (PCI bridge set) 3	BRDGSET BRDGST3	U*n*-P1-C08 U*n*-P1-C09 U*n*-P1-C10		
PCI adapter in slot 1	PIOCARD MASBUS SLOTERR	U*n*-P2-C01	System parts	"Removing and replacing parts on 5791and5794" on page 258
PCI adapter in slot 2	PIOCARD MASBUS SLOTERR	U*n*-P2-C02	System parts	"Removing and replacing parts on 5791and5794" on page 258

Table 15. FRU locations and failing components (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
PCI adapter in slot 3	PIOCARD MASBUS SLOTERR	U*n*-P2-C03	System parts	"Removing and replacing parts on 5791and5794" on page 258
PCI adapter in slot 4	PIOCARD MASBUS SLOTERR	U*n*-P2-C04	System parts	"Removing and replacing parts on 5791and5794" on page 258
PCI adapter in slot 5	PIOCARD MASBUS SLOTERR	U*n*-P2-C05	System parts	"Removing and replacing parts on 5791and5794" on page 258
PCI adapter in slot 6	PIOCARD MASBUS SLOTERR	U*n*-P2-C06	System parts	"Removing and replacing parts on 5791and5794" on page 258
PCI adapter in slot 7	PIOCARD MASBUS SLOTERR	U*n*-P2-C07	System parts	"Removing and replacing parts on 5791and5794" on page 258
PCI adapter in slot 8	PIOCARD MASBUS SLOTERR	U*n*-P2-C08	System parts	"Removing and replacing parts on 5791and5794" on page 258
PCI adapter in slot 9	PIOCARD MASBUS SLOTERR	U*n*-P2-C09	System parts	"Removing and replacing parts on 5791and5794" on page 258
PCI adapter in slot 10	PIOCARD MASBUS SLOTERR	U*n*-P2-C10	System parts	"Removing and replacing parts on 5791and5794" on page 258
PHB (PCI bridge set) 1	BRDGSET BRDGST1	U*n*-P2-C01 U*n*-P2-C02 U*n*-P2-C03 U*n*-P2-C04		Replace the cards using the removal and replacement procedures corresponding to the locations indicated.
PHB (PCI bridge set) 2	BRDGSET BRDGST2	U*n*-P2-C05 U*n*-P2-C06 U*n*-P2-C07		
PHB (PCI bridge set) 3	BRDGSET BRDGST3	U*n*-P2-C08 U*n*-P2-C09 U*n*-P2-C10		
Fan 1 (left)		U*n*-A1	Power parts	"Removing and replacing parts on 5791and5794" on page 258
Fan 2		U*n*-A2	Power parts	"Removing and replacing parts on 5791and5794" on page 258

Table 15. FRU locations and failing components (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
Fan 3		U*n*-A3	Power parts	"Removing and replacing parts on 5791and5794" on page 258
Fan 4 (right)		U*n*-A4	Power parts	"Removing and replacing parts on 5791and5794" on page 258
Power supply 1 (left)		U*n*-E1	Power parts	"Removing and replacing parts on 5791and5794" on page 258
UPIC connector (left)		U*n*-E1-T1		
UPIC connector (right)		U*n*-E1-T2		
Power supply 2 (right)		U*n*-E2	Power parts	"Removing and replacing parts on 5791and5794" on page 258
UPIC connector (left)		U*n*-E2-T1		
UPIC connector (right)		U*n*-E2-T2		
RIO/HSL adapter card connector port 0 (bottom connector - P0)	HSL_LNK HSL2 HSL2_xx HSLH HSLH_xx	U*n*-P1-00		"Exchanging RIO/HSL cables" on page 264
RIO/HSL adapter card connector port 1 (top conector - P1)	HSL_LNK HSL2 HSL2_xx HSLH HSLH_xx	U*n*-P1-01		"Exchanging RIO/HSL cables" on page 264
RIO/HSL adapter card connector port 0 (bottom connector - P0)	HSL_LNK HSL2 HSL2_xx HSLH HSLH_xx	U*n*-P2-00		"Exchanging RIO/HSL cables" on page 264
RIO/HSL adapter card connector port 1 (top conector - P1)	HSL_LNK HSL2 HSL2_xx HSLH HSLH_xx	U*n*-P2-01		"Exchanging RIO/HSL cables" on page 264
Media subsystem power connector		U*n*-P1-T3		
Media subsystem power connector		U*n*-P2-T3		

Table 15. FRU locations and failing components (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
Integrated SCSI controller port		U*n*-P1-T5		
Integrated SCSI controller port		U*n*-P1-T6		
Integrated SCSI controller port		U*n*-P2-T5		
Integrated SCSI controller port		U*n*-P2-T6		
Device physical locations				
Disk drive 1		U*n*-P3-D01	Disk unit parts	"Removing and replacing parts on 5791and5794" on page 258
Disk drive 2		U*n*-P3-D02	Disk unit parts	"Removing and replacing parts on 5791and5794" on page 258
Disk drive 3		U*n*-P3-D03	Disk unit parts	"Removing and replacing parts on 5791and5794" on page 258
Disk drive 4		U*n*-P3-D04	Disk unit parts	"Removing and replacing parts on 5791and5794" on page 258
Disk drive 5		U*n*-P4-D05	Disk unit parts	"Removing and replacing parts on 5791and5794" on page 258
Disk drive 6		U*n*-P4-D06	Disk unit parts	"Removing and replacing parts on 5791and5794" on page 258
Disk drive 7		U*n*-P4-D07	Disk unit parts	"Removing and replacing parts on 5791and5794" on page 258
Disk drive 8		U*n*-P4-D08	Disk unit parts	"Removing and replacing parts on 5791and5794" on page 258
Disk drive 9		U*n*-P5-D09	Disk unit parts	"Removing and replacing parts on 5791and5794" on page 258
Disk drive 10		U*n*-P5-D10	Disk unit parts	"Removing and replacing parts on 5791and5794" on page 258

Table 15. FRU locations and failing components (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
Disk drive 11		U*n*-P5-D11	Disk unit parts	"Removing and replacing parts on 5791and5794" on page 258
Disk drive 12		U*n*-P5-D12	Disk unit parts	"Removing and replacing parts on 5791and5794" on page 258
Disk drive 13		U*n*-P6-D13	Disk unit parts	"Removing and replacing parts on 5791and5794" on page 258
Disk drive 14		U*n*-P6-D14	Disk unit parts	"Removing and replacing parts on 5791and5794" on page 258
Disk drive 15		U*n*-P6-D15	Disk unit parts	"Removing and replacing parts on 5791and5794" on page 258
Disk drive 16		U*n*-P6-D16	Disk unit parts	"Removing and replacing parts on 5791and5794" on page 258

Notes:

1. The following table provides information necessary to identify the IOP to which an IOA is assigned.
   - The left column indicates the domain in which IOA assignment is allowed.
   - The right column is used to determine the IOP to which an IOA is assigned.
   - The first position in the list must be an IOP. The remaining positions may be IOPs or IOAs. IOAs are assigned to the first IOP located to their left in the list. Although IOAs can be manually reassigned using SST/DST, the IOA assignments return to the default order after each IPL.

Table 16. Identify the IOP to which IOAs are assigned

Multi-adapter bridge domain / PCI bridge set	IOA assignment rules
P1-C01 through P1-C04	P1-C02, P1-C03, P1-C04
P1-C05 through P1-C07	P1-C06, P1-C07
P2-C01 through P2-C04	P2-C02, P2-C03, P2-C04
P2-C05 through P2-C07	P2-C06, P2-C07

Locations — 7311-D10 7311-D11 and 5790 expansion unit

Note: The known logical location codes for this unit are listed next to the corresponding physical location in the information below. If you are working with a logical location code for this unit and it is not listed in the information below, contact your next level of support.

The following diagrams show the field replaceable unit (FRU) layout in the 7311-D11 and 5790 expansion units. Use them with the tables below. If you need address information, refer to .

The following diagrams also show the field replaceable unit (FRU) layout in the 7311-D10 expansion unit. After you locate your part in the 7311-D10 expansion unit, you should refer to the 7311-D10 service guide (SA38-0627) for part number information and the removal and replacement procedures.

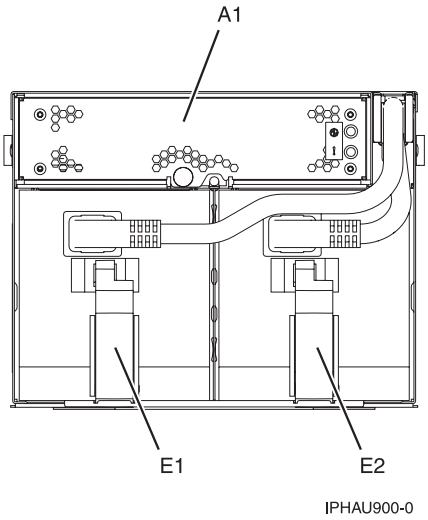


Figure 22. Front view of the expansion unit

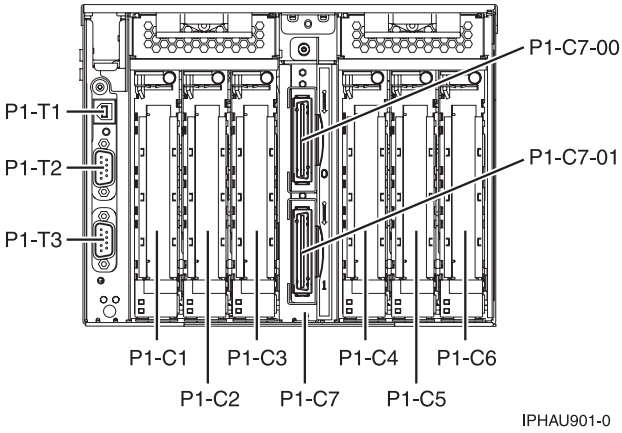


Figure 23. Back view of the expansion unit

The following table gives the components available for callout on the 7311-D11 and 5790 expansion units. It matches those components with the FRU containing the component. The other columns give location information, a link to a removal and replacement procedure, and additional comments.

Attention: After replacing any part on a server or expansion unit, perform Chapter 2, "Verifying the repair," on page 279.

Table 17. FRU locations and failing components

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item remove and replace procedures
Expansion unit		U*n*		
Fan				

Table 17. FRU locations and failing components (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item remove and replace procedures
Fan		U*n*-A1	Power parts	"Exchange the 7311-D11 fan assembly" on page 260
Power supplies				
Power supply 1		U*n*-E1	Power parts	"Exchange the 7311-D11 power supply" on page 261
Power supply 2		U*n*-E2	Power parts	"Exchange the 7311-D11 power supply" on page 261
Backplane				
I/O backplane	MA_BRDG TWRPLNR	U*n*-P1	282A, 28BB	"Exchange the 7311-D11 and 5790 I/O backplane assembly" on page 261
I/O backplane ports				
Rack beacon connector		U*n*-P1-T1		
Adapters				
PCI adapter in slot 1	PIOCARD MASBUS SLOTERR	U*n*-P1-C1	System parts	PCI adapter
PCI adapter in slot 2	PIOCARD MASBUS SLOTERR	U*n*-P1-C2	System parts	PCI adapter
PCI adapter in slot 3	PIOCARD MASBUS SLOTERR	U*n*-P1-C3	System parts	PCI adapter
PCI adapter in slot 4	PIOCARD MASBUS SLOTERR	U*n*-P1-C4	System parts	PCI adapter
PCI adapter in slot 5	PIOCARD MASBUS SLOTERR	U*n*-P1-C5	System parts	PCI adapter
PCI adapter in slot 6	PIOCARD MASBUS SLOTERR	U*n*-P1-C6	System parts	PCI adapter
PCI bridge set 1	BRDGST1	U*n*-P1 U*n*-P1-C1 U*n*-P1-C2 U*n*-P1-C3		Replace the I/O backplane and cards using the remove and replace procedures corresponding to the locations indicated.

Table 17. FRU locations and failing components (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item remove and replace procedures
PCI bridge set 2	BRDGST2	U*n*-P1 U*n*-P1-C4 U*n*-P1-C5 U*n*-P1-C6		Replace the I/O backplane and cards using the remove and replace procedures corresponding to the locations indicated.
RIO/HSL adapter card • HSL I/O adapter • RIO host bridge adapter	SIIOADP SIADPCD SI_PHB	U*n*-P1-C7	28FF	RIO/HSL card
RIO/HSL adapter card connector (top connector)	HSL_LNK HSL2 HSL2_xx HSLH HSLH_xx	U*n*-P1-C7-00		"Exchanging RIO/HSL cables" on page 264
RIO/HSL adapter card connector	HSL_LNK HSL2 HSL2_xx HSLH HSLH_xx	U*n*-P1-C7-01		"Exchanging RIO/HSL cables" on page 264

Locations — 7311-D20 expansion unit

Note: The known logical location codes for this unit are listed next to the corresponding physical location in the information below. If you are working with a logical location code for this unit and it is not listed in the information below, contact your next level of support.

The following diagrams show field replaceable unit (FRU) layout in the 7311-D20 expansion units. Use them with the tables below.

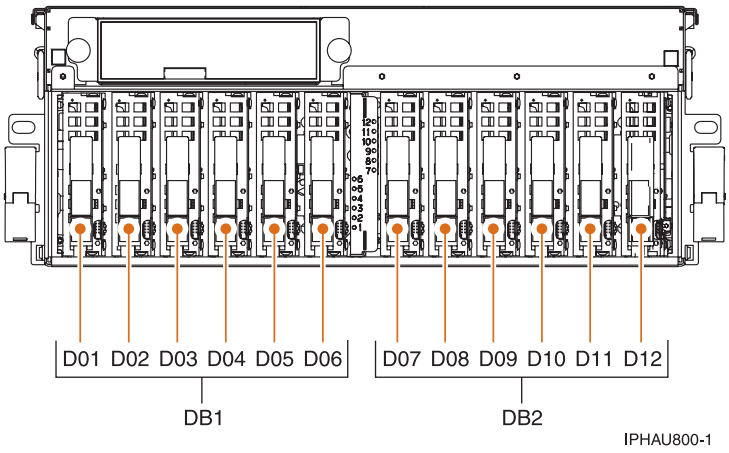


Figure 24. Front view of the 7311-D20 expansion unit

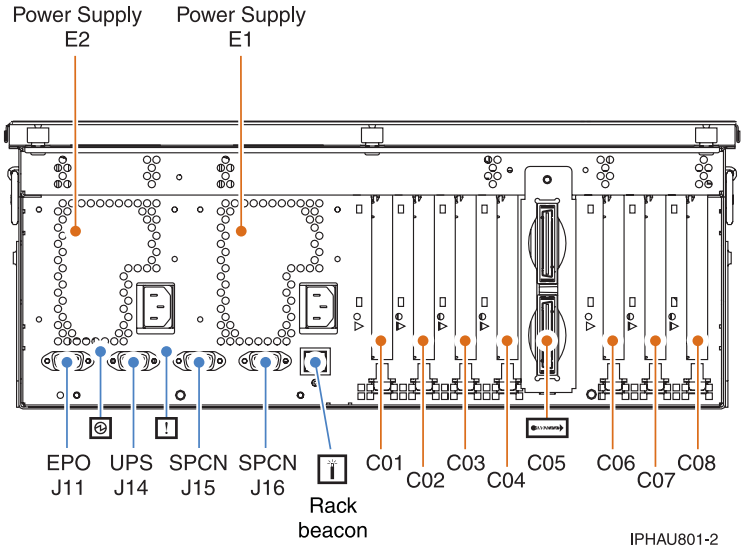


Figure 25. Rear view of the 7311-D20 expansion unit

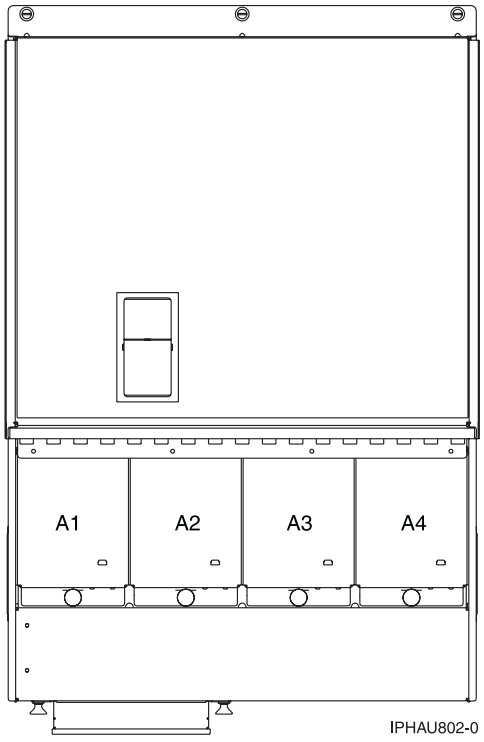


Figure 26. Top view of the 7311-D20 expansion unit

The following table gives the components available for callout on the 7311-D20 expansion units. It matches those components with the FRU containing the component. The other columns give location information, a link to a removal and replacement procedure, and additional comments.

Attention: After replacing any part on a server or expansion unit, perform Chapter 2, "Verifying the repair," on page 279.

Table 18. FRU locations and failing components for 7311-D20 expansion unit

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
Backplane • SPCN • Card enclosure or backplane • Multi-adapter bridge (all)	TWRCARD MA_BRDG MABRCFG PPCITWR PRI_PCI HSL_LNK PIOCARD MASBUS TWRBKPL TWRPLNR	U*n*-P1	28BE	I/O backplane assembly
PCI adapter in slot 1	PIOCARD MASBUS SLOTERR	U*n*-P1-C01		PCI adapter
PCI adapter in slot 2	PIOCARD MASBUS SLOTERR	U*n*-P1-C02		PCI adapter
PCI adapter in slot 3	PIOCARD MASBUS SLOTERR	U*n*-P1-C03		PCI adapter
PCI adapter in slot 4	PIOCARD MASBUS SLOTERR	U*n*-P1-C04		PCI adapter
RIO/HSL adapter card • HSL I/O adapter • RIO host bridge adapter	SIIOADP SIADPCD SI_PHB	U*n*-P1-C05		RIO/HSL card
PCI adapter in slot 6	PIOCARD MASBUS SLOTERR	U*n*-P1-C06		PCI adapter
PCI adapter in slot 7	PIOCARD MASBUS SLOTERR	U*n*-P1-C07		PCI adapter
PCI adapter in slot 8	PIOCARD MASBUS SLOTERR	U*n*-P1-C08		PCI adapter
PCI bridge set 1	BRDGSET BRDGST1	U*n*-P1 U*n*-P1-C01 U*n*-P1-C02 U*n*-P1-C03 U*n*-P1-C04		Replace the system backplane and cards using the remove and replace procedures corresponding to the locations indicated.
PCI bridge set 2	BRDGSET BRDGST2	U*n*-P1 U*n*-P1-C06 U*n*-P1-C07 U*n*-P1-C08		Replace the system backplane and cards using the remove and replace procedures corresponding to the locations indicated.

Table 18. FRU locations and failing components for 7311-D20 expansion unit (continued)

Failing item name	Symbolic failing item name	Physical location code	Link to part number	Failing item removal and replacement procedures
EPO connector (J11)		U*n*-P1-T1		
UPS connector (J14)		U*n*-P1-T2		
SPCN connector (J15)		U*n*-P1-T3		
SPCN connector (J16)		U*n*-P1-T4		
Rack beacon connector		U*n*-P1-T5		
Fan 1		U*n*-A1	Power parts	Fan
Fan 2		U*n*-A2	Power parts	Fan
Fan 3		U*n*-A3	Power parts	Fan
Fan 4		U*n*-A4	Power parts	Fan
Device physical locations				
Disk drive 1		U*n*-DB1-D01	Disk unit parts	Disk drive
Disk drive 2		U*n*-DB1-D02	Disk unit parts	Disk drive
Disk drive 3		U*n*-DB1-D03	Disk unit parts	Disk drive
Disk drive 4		U*n*-DB1-D04	Disk unit parts	Disk drive
Disk drive 5		U*n*-DB1-D05	Disk unit parts	Disk drive
Disk drive 6		U*n*-DB1-D06	Disk unit parts	Disk drive
Disk drive 7		U*n*-DB2-D07	Disk unit parts	Disk drive
Disk drive 8		U*n*-DB2-D08	Disk unit parts	Disk drive
Disk drive 9		U*n*-DB2-D09	Disk unit parts	Disk drive
Disk drive 10		U*n*-DB2-D10	Disk unit parts	Disk drive
Disk drive 11		U*n*-DB2-D11	Disk unit parts	Disk drive
Disk drive 12		U*n*-DB2-D12	Disk unit parts	Disk drive
Power supply 1		U*n*-E1	Power parts	Power supply
Power supply 2		U*n*-E2	Power parts	Power supply
Disk drive backplane		U*n*-DB1	Backplanes	Disk drive backplane
Disk drive backplane		U*n*-DB2	Backplanes	Disk drive backplane
RIO/HSL adapter card connector (bottom connector)	HSL_LNK HSL2 HSL2_xx HSLH HSLH_xx	U*n*-P1-C05-00		"Exchanging RIO/HSL cables" on page 264
RIO/HSL adapter card connector	HSL_LNK HSL2 HSL2_xx HSLH HSLH_xx	U*n*-P1-C05-01		"Exchanging RIO/HSL cables" on page 264

Notes:

1. J11 is an RPO connection, J14 is a uninterruptible power supply connector, J15 is an SPCN 1 connector, and J16 is an SPCN 2 connector.
2. Multi-adapter bridge domains are labeled **PCI Bridge Set** inside the expansion unit.
3. The following table provides information necessary to identify the IOP to which an IOA is assigned.
   - The left column indicates the domain in which IOA assignment is allowed.
   - The right column is used to determine the IOP to which an IOA is assigned.
   - The first position in the list must be an IOP. The remaining positions may be IOPs or IOAs. IOAs are assigned to the first IOP located to their left in the list. Although IOAs can be manually reassigned using SST/DST, the IOA assignments return to the default order after each IPL.

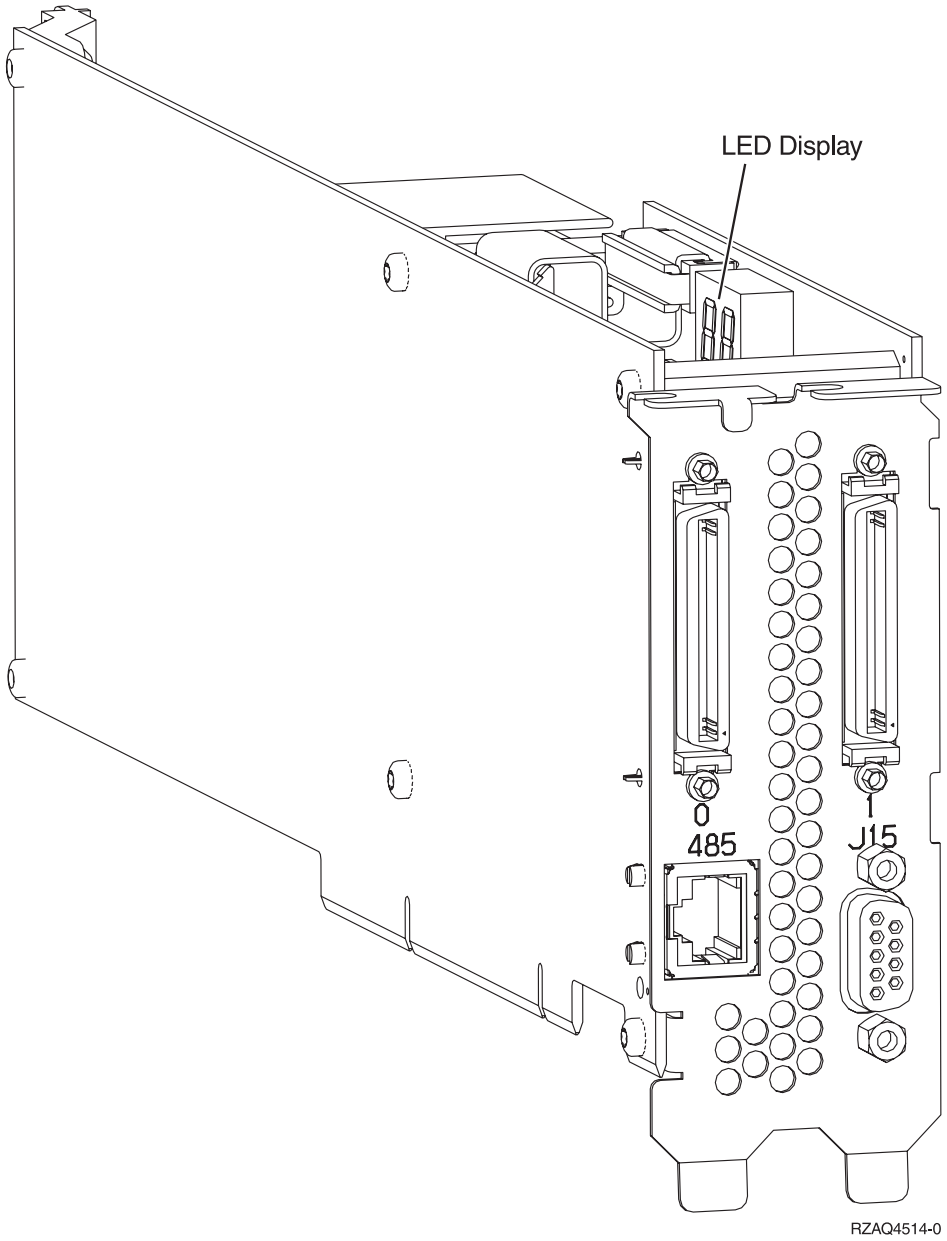
Table 19. Identify the IOP to which IOAs are assigned

Multi-adapter bridge domain / PCI bridge set	IOA assignment rules
C01 - C04	C01, C02, C03, C04
C06 - C08	C06, C07, C08

Locations — Integrated xSeries adapter card (IXA)

Note: The known logical location codes for this unit are listed next to the corresponding physical location in the following information. If you are working with a logical location code for this unit and it is not listed in the following information, contact your next level of support.

The following diagram shows FRU layout in the Integrated xSeries adapter card (IXA). Use it with the following table.



Attention: After replacing any part on a server or expansion unit, perform Chapter 2, "Verifying the repair," on page 279.

Table 20. FRU locations and failing components for Integrated xSeries adapter card (IXA) — machine type 1519

Position	FRU name	Possible failing component	Type, CCIN, or Part number	Remove and replace procedure
Position depends on xSeries server machine type and model. To locate, follow the HSL cable connections or the SPCN cable connections to the Integrated xSeries adapter card.	Integrated xSeries adapter	The failing component is either: • HSL I/O bridge • Multi-adapter bridge • SPCN • Embedded IOP • Card backplane	CCIN = 2689 listed under machine type 1519. **Note:** Machine type 1519 is not an iSeries™ machine type or an xSeries machine type. Machine type 1519 was created to list feature 2689 separately from iSeries and xSeries machine types. See the "Part number catalog" on page 171 for the part number.	Go to Removing and replacing Integrated xSeries Adapter (IXA). **Note:** Verify the frame ID by examining the frame ID displayed on the card's LED, which is visible when the panel covering the card is removed. **Note:** In an i5/OS Opticonnect environment, it is possible to have multiple xSeries servers with the same frame ID displayed but the power controlling system is different from the system you are servicing. Verify the SPCN cable is connected to the system you are servicing.
HSL cables on the HSL ports	HSL cable	HSL connection	See the "Part number catalog" on page 171.	"Exchanging RIO/HSL cables" on page 264

Locations — OpenPower™

The information in this section provides a cross reference to help you associate a part name, location code, or address with its physical location. After you determine the part number and location for a part, you can go directly to removal and replacement procedures for the part.

Locations — OpenPower 9124-720

Addresses

Select the system unit or expansion unit:

"Addresses – model 520" on page 82

"Addresses – model 550" on page 83

"Addresses – model 570" on page 83

"Addresses — 5074, 5079, 8079-002, and 8093-002 expansion unit" on page 85

"Addresses — 0588 and 5088 expansion unit" on page 90

"Addresses — 5094, 5294, and 8094-002 expansion unit" on page 92

"Addresses — 0595 and 5095 expansion unit" on page 98

"Addresses — external xSeries server, iSeries adapter (machine type 1519)" on page 101

Addresses – model 520

Use the address to find the location. Then go to "Locations — model 520" on page 4 to find additional information.

Table 21. IOP, IOA, and device address information for Model 520

Physical location code	Possible failing item	DSA (BBBBCcbb)	Unit address
		IOA and device DSA's do not conform to the following rules if the IOA is manually reassigned after IPL.	
Un-P1	Embedded Ethernet	0002-24-00	E6FFFFFF
Un-P1 (and Un-P1-C8 if RAID enablement card is installed)	Embedded SCSI	0003-20-00	4FFFFFFF
Un-P1-C1	IOP	0002-20-00	FFFFFFFF
Un-P1-C2	Storage IOA	0002-20-00	2FFFFFFF
Un-P1-C2	Communications / Workstation IOA	0002-20-00	E2FFFFFF
Un-P1-C3	Storage IOA	0003-20-00	2FFFFFFF
Un-P1-C3	Communications / Workstation IOA	0003-20-00	E2FFFFFF
Un-P1-C4	Storage IOA	0002-20-00	6FFFFFFF
Un-P1-C4	Communications / Workstation IOA	0002-20-00	E6FFFFFF
Un-P1-C5	Storage IOA	0003-20-00	6FFFFFFF
Un-P1-C5	Communications / Workstation IOA	0003-20-00	E6FFFFFF
Un-P1-C6	IOP	0003-20-00	FFFFFFFF
Un-P2-D1	Disk unit	0003-20-00	410F00FF
Un-P2-D2	Disk unit	0003-20-00	410200FF
Un-P2-D3	Disk unit	0003-20-00	410300FF
Un-P2-D4	Disk unit	0003-20-00	410400FF
Un-P3-D1	Disk unit	0003-20-00	400F00FF
Un-P3-D2	Disk unit	0003-20-00	400200FF
Un-P3-D3	Disk unit	0003-20-00	400300FF
Un-P3-D4	Disk unit	0003-20-00	400400FF
Un-P4-D1	SCSI media device (top bay)	0003-20-00	400700FF
Un-P4-D2	IDE drive 1 (2nd media bay from the top)	0003-20-00	400600FF
Un-P4-D3	IDE drive 2 (3nd media bay from the top)		

Addresses – model 550

Use the address to find the location. Then go to "Locations — model 550 and 9124-720" on page 11 to find additional information.

Table 22. IOP, IOA, and device address information for Model 550

Physical location code	Possible failing item	DSA (BBBBCcbb)	Unit address
		IOA and device DSA's do not conform to the following rules if the IOA is manually reassigned after IPL.	
Un-P1	Embedded Ethernet	0003-22-00	E3FFFFFF
Un-P1 (and Un-P1-C7 if RAID enablement card is installed)	Embedded SCSI	0003-20-00	4FFFFFFF
Un-P1-C1	IOP	0003-20-00	FFFFFFFF
Un-P1-C2	Storage IOA	0003-20-00	6FFFFFFF
Un-P1-C2	Communications / Workstation IOA	0003-20-00	E6FFFFFF
Un-P1-C3	IOP	0002-20-00	FFFFFFFF
Un-P1-C4	Storage IOA	0002-20-00	4FFFFFFF
Un-P1-C4	Communications / Workstation IOA	0002-20-00	E4FFFFFF
Un-P1-C5	Storage IOA	0002-20-00	6FFFFFFF
Un-P1-C5	Communications / Workstation IOA	0002-20-00	E6FFFFFF
Un-P2-D1	Disk unit	0003-20-00	400F00FF
Un-P2-D2	Disk unit	0003-20-00	400200FF
Un-P2-D3	Disk unit	0003-20-00	400300FF
Un-P2-D4	Disk unit	0003-20-00	400400FF
Un-P3-D1	Disk unit	0003-20-00	410F00FF
Un-P3-D2	Disk unit	0003-20-00	410200FF
Un-P3-D3	Disk unit	0003-20-00	410300FF
Un-P3-D4	Disk unit	0003-20-00	410400FF
Un-P4-D1	SCSI media device (top)	0003-20-00	400700FF
Un-P4-D2	IDE drive 1 (2nd from top)	0003-20-00	400600FF
Un-P4-D3	IDE drive 2 (3rd from top)		

Addresses – model 570

Use the address to find the location. Then go to "Locations — model 570" on page 19 to find additional information.

Table 23. IOP, IOA, and device address information for Model 570 primary unit

Physical location code	Possible failing item	DSA (BBBBCcbb)	Unit address
		IOA and device DSA's do not conform to the following rules if the IOA is manually reassigned after IPL.	
Un-P1	Embedded Ethernet	0001-24-00	E6FFFFFF
Un-P1 (and UN-P1-C9 if RAID enablement card is installed)	Embedded SCSI	0003-20-00	2FFFFFFF
Un-P1-C1	IOP	0003-20-00	FFFFFFFF
Un-P1-C2	Communications / Workstation IOA	0003-20-00	E6FFFFFF
Un-P1-C3	IOP	0002-20-00	FFFFFFFF
Un-P1-C4	Storage IOA	0002-20-00	2FFFFFFF
Un-P1-C4	Communications / Workstation IOA	0002-20-00	E2FFFFFF
Un-P1-C5	IOP	0002-24-00	FFFFFFFF
Un-P1-C5	Storage IOA	0002-20-00	4FFFFFFF
Un-P1-C5	Communications / Workstation IOA	0002-20-00	E4FFFFFF
Un-P1-C6	Storage IOA	The IOA has the same DSA as the first IOP found in the following list: C5, C4, C3.	6FFFFFFF
Un-P1-C6	Communications / Workstation IOA	The IOA has the same DSA as the first IOP found in the following list: C5, C4, C3.	E6FFFFFF
Un-P3-D1	Disk unit	0003-20-00	210200FF
Un-P3-D2	Disk unit	0003-20-00	210300FF
Un-P3-D3	Disk unit	0003-20-00	210400FF
Un-P3-D4	Disk unit	0003-20-00	200200FF
Un-P3-D5	Disk unit	0003-20-00	200300FF
Un-P3-D6	Disk unit	0003-20-00	200400FF
Un-P4-D1	IDE drive 1	0003-20-00	200600FF
Un-P4-D2	IDE drive 2		

Table 24. IOP, IOA, and device address information for Model 570 secondary units

Physical location code	Possible failing item	DSA (BBBBCcbb)	Unit address
		IOA and device DSA's do not conform to the following rules if the IOA is manually reassigned after IPL.	
Un-P1	Embedded Ethernet	zzzz-24-00	E6FFFFFF
Un-P1 (and UN-P1-C9 if RAID enablement card is installed)	Embedded SCSI	yyyy-20-00	2FFFFFFF
Un-P1-C1	IOP	yyyy-20-00	FFFFFFFF
Un-P1-C2	Communications / Workstation IOA	yyyy-20-00	E6FFFFFF
Un-P1-C3	IOP	xxxx-20-00	FFFFFFFF

Table 24. IOP, IOA, and device address information for Model 570 secondary units (continued)

Physical location code	Possible failing item	DSA (BBBBCcbb)	Unit address
Un-P1-C4	Storage IOA	xxxx-20-00	2FFFFFFF
Un-P1-C4	Communications / Workstation IOA	xxxx-20-00	E2FFFFFF
Un-P1-C5	IOP	xxxx-24-00	FFFFFFFF
Un-P1-C5	Storage IOA	xxxx-20-00	4FFFFFFF
Un-P1-C5	Communications / Workstation IOA	xxxx-20-00	E4FFFFFF
Un-P1-C6	Storage IOA	The IOA has the same DSA as the first IOP found in the following list: C5, C4, C3.	6FFFFFFF
Un-P1-C6	Communications / Workstation IOA	The IOA has the same DSA as the first IOP found in the following list: C5, C4, C3.	E6FFFFFF
Un-P3-D1	Disk unit	yyyy-20-00	210200FF
Un-P3-D2	Disk unit	yyyy-20-00	210300FF
Un-P3-D3	Disk unit	yyyy-20-00	210400FF
Un-P3-D4	Disk unit	yyyy-20-00	200200FF
Un-P3-D5	Disk unit	yyyy-20-00	200300FF
Un-P3-D6	Disk unit	yyyy-20-00	200400FF
Un-P4-D1	IDE drive 1	yyyy-20-00	200600FF
Un-P4-D2	IDE drive 2		

Addresses — 5074, 5079, 8079-002, and 8093-002 expansion unit

Use the address to find the location. Then go to "Locations — 5074, 8079-002, and 8093-002 expansion units" on page 42 to find additional information.

Table 25. IOP, IOA, and device address information for 5074, 5079, 8079-002, 8093-002 expansion units

Position	Possible failing item	DSA (BBBBCcbb)	Unit address
		IOA and device DSA's do not conform to the following rules if the IOA is manually reassigned after IPL.	
C01	IOP	xxxx-10-00	FFFFFFFF
C02	Storage IOA	xxxx-10-00	2FFFFFFF
C02	Communications / Workstation IOA	xxxx-10-00	E2FFFFFF
C03	IOP	xxxx-14-00	FFFFFFFF
C03	Storage IOA	xxxx-10-00	4FFFFFFF
C03	Communications / Workstation IOA	xxxx-10-00	E4FFFFFF
C04	Storage IOA	The IOA has the same DSA as the first IOP found in the following list: C03, C01.	6FFFFFFF
C04	Communications / Workstation IOA	The IOA has the same DSA as the first IOP found in the following list: C03, C01.	E6FFFFFF

Table 25. IOP, IOA, and device address information for 5074, 5079, 8079-002, 8093-002 expansion units (continued)

Position	Possible failing item	DSA (BBBBCcbb)	Unit address
C05 (IXS capable position)	IOP	yyyy-10-00	FFFFFFFF
C06 (empty if IXS in C05)	Storage IOA	yyyy-10-00	2FFFFFFF
C06 (empty if IXS in C05)	Communications / Workstation IOA	yyyy-10-00	E2FFFFFF
C07	IOP	yyyy-13-00	FFFFFFFF
C07	Storage IOA	yyyy-10-00	3FFFFFFF
C07	Communications / Workstation IOA	yyyy-10-00	E3FFFFFF
C07	IXS attached IOA	yyyy-10-00	E003FFFF
C09	IOP	yyyy-14-00	FFFFFFFF
C09	Storage IOA	yyyy-10-00	4FFFFFFF
C09	Communications / Workstation IOA	yyyy-10-00	E4FFFFFF
C09	IXS attached IOA	yyyy-10-00	E004FFFF
C10	Storage IOA	The IOA has the same DSA as the first IOP found in the following list: C09, C07, C05.	6FFFFFFF
C10	Communications / Workstation IOA	The IOA has the same DSA as the first IOP found in the following list: C09, C07, C05.	E6FFFFFF
C10	IXS attached IOA	The IOA has the same DSA as the first IOP found in the following list: C09, C07, C05.	E006FFFF
C11 (IXS capable position)	IOP	yyyy-20-00	FFFFFFFF
C12 (empty if IXS in C11)	Storage IOA	yyyy-20-00	2FFFFFFF
C12 (empty if IXS in C11)	Communications / Workstation IOA	yyyy-20-00	E2FFFFFF
C13	IOP	yyyy-23-00	FFFFFFFF
C13	Storage IOA	yyyy-20-00	3FFFFFFF
C13	Communications / Workstation IOA	yyyy-20-00	E3FFFFFF
C13	IXS attached IOA	yyyy-20-00	E003FFFF
C14	IOP	yyyy-24-00	FFFFFFFF
C14	Storage IOA	yyyy-20-00	4FFFFFFF
C14	Communications / Workstation IOA	yyyy-20-00	E4FFFFFF
C14	IXS attached IOA	yyyy-20-00	E004FFFF

Table 25. IOP, IOA, and device address information for 5074, 5079, 8079-002, 8093-002 expansion units (continued)

Position	Possible failing item	DSA (BBBBCcbb)	Unit address
C15	Storage IOA	The IOA has the same DSA as the first IOP found in the following list: C14, C13, C11.	6FFFFFFF
C15	Communications / Workstation IOA	The IOA has the same DSA as the first IOP found in the following list: C14, C13, C11.	E6FFFFFF
C15	IXS attached IOA	The IOA has the same DSA as the first IOP found in the following list: C14, C13, C11.	E006FFFF
D01	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x00300FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D02	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x00400FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D03	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x00500FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D04	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x00600FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D05	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x00700FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D06	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x00300FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D07	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x00400FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D08	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x00500FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D09	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x00600FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D10	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x00700FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)

Table 25. IOP, IOA, and device address information for 5074, 5079, 8079-002, 8093-002 expansion units (continued)

Position	Possible failing item	DSA (BBBBCcbb)	Unit address
D11	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x10300FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D12	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x10400FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D13	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x10500FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D14	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x10600FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D15	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x10700FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D16	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x10300FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D17	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x10400FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D18	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x10500FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D19	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x10600FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D20	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x10700FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D21	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x20300FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D22	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x20400FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D23	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x20500FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)

Table 25. IOP, IOA, and device address information for 5074, 5079, 8079-002, 8093-002 expansion units (continued)

Position	Possible failing item	DSA (BBBBCcbb)	Unit address
D24	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x20600FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D25	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x20700FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D26	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x20300FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D27	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x20400FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D28	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x20500FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D29	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x20600FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D30	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x20700FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D31	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x00100FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D32	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x00200FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D33	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x00300FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D34	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x00400FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D35	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x00500FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D36	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x10300FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)

Table 25. IOP, IOA, and device address information for 5074, 5079, 8079-002, 8093-002 expansion units (continued)

Position	Possible failing item	DSA (BBBBCcbb)	Unit address
D37	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x10400FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D38	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x10500FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D39	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x10600FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D40	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x10700FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D41	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x00600FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D42	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x00700FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D46	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x20300FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D47	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x20400FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D48	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x20500FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D49	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x20600FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D50	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x20700FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)

Addresses — 0588 and 5088 expansion unit

Use the address to find the location. Then go to “Locations — 0588 and 5088 expansion units” on page 49 to find additional information.

Table 26. IOP, IOA, and device address information for 0588 and 5088 expansion unit

Position	Possible failing item	DSA (BBBBCcbb)	Unit address
		IOA and device DSA's do not conform to the following rules if the IOA is manually reassigned after IPL.	
C01 (IXS capable position)	IOP	xxxx-20-00	FFFFFFFF
C02 (empty if IXS in C01)	Storage IOA	xxxx-20-00	2FFFFFFF
C02 (empty if IXS in C01)	Communications / Workstation IOA	xxxx-20-00	E2FFFFFF
C03	IOP	xxxx-24-00	FFFFFFFF
C03	Storage IOA	xxxx-20-00	4FFFFFFF
C03	Communications / Workstation IOA	xxxx-20-00	E4FFFFFF
C03	IXS attached IOA	xxxx-20-00	E004FFFF
C04	Storage IOA	The IOA has the same DSA as the first IOP found in the following list: C03, C01.	6FFFFFFF
C04	Communications / Workstation IOA	The IOA has the same DSA as the first IOP found in the following list: C03, C01.	E6FFFFFF
C04	IXS attached IOA	The IOA has the same DSA as the first IOP found in the following list: C03, C01.	E006FFFF
C05 (IXS capable position)	IOP	yyyy-20-00	FFFFFFFF
C06 (empty if IXS in C05)	Storage IOA	yyyy-20-00	2FFFFFFF
C06 (empty if IXS in C05)	Communications / Workstation IOA	yyyy-20-00	E2FFFFFF
C07	IOP	yyyy-23-00	FFFFFFFF
C07	Storage IOA	yyyy-20-00	3FFFFFFF
C07	Communications / Workstation IOA	yyyy-20-00	E3FFFFFF
C07	IXS attached IOA	yyyy-20-00	E003FFFF
C08	IOP	yyyy-24-00	FFFFFFFF
C08	Storage IOA	The IOA has the same DSA as the first IOP found in the following list: C07, C05.	4FFFFFFF
C08	Communications / Workstation IOA	The IOA has the same DSA as the first IOP found in the following list: C07, C05.	E4FFFFFF
C08	IXS attached IOA	The IOA has the same DSA as the first IOP found in the following list: C07, C05.	E004FFFF
C09	Storage IOA	The IOA has the same DSA as the first IOP found in the following list: C08, C07, C05.	6FFFFFFF
C09	Communications / Workstation IOA	The IOA has the same DSA as the first IOP found in the following list: C08, C07, C05.	E6FFFFFF
C09	IXS attached IOA	The IOA has the same DSA as the first IOP found in the following list: C08, C07, C05.	E006FFFF
C11 (IXS capable position)	IOP	zzzz-20-00	FFFFFFFF

Table 26. IOP, IOA, and device address information for 0588 and 5088 expansion unit (continued)

Position	Possible failing item	DSA (BBBBCcbb)	Unit address
C12 (empty if IXS in C11)	Storage IOA	zzzz-20-00	2FFFFFFF
C12 (empty if IXS in C11)	Communications / Workstation IOA	zzzz-20-00	E2FFFFFF
C13	IOP	zzzz-23-00	FFFFFFFF
C13	Storage IOA	zzzz-20-00	3FFFFFFF
C13	Communications / Workstation IOA	zzzz-20-00	E3FFFFFF
C13	IXS attached IOA	zzzz-20-00	E003FFFF
C14	IOP	zzzz-24-00	FFFFFFFF
C14	Storage IOA	The IOA has the same DSA as the first IOP found in the following list: C13, C11.	4FFFFFFF
C14	Communications / Workstation IOA	The IOA has the same DSA as the first IOP found in the following list: C13, C11.	E4FFFFFF
C14	IXS attached IOA	The IOA has the same DSA as the first IOP found in the following list: C13, C11.	E004FFFF
C15	Storage IOA	The IOA has the same DSA as the first IOP found in the following list: C14, C13, C11.	6FFFFFFF
C15	Communications / Workstation IOA	The IOA has the same DSA as the first IOP found in the following list: C14, C13, C11.	E6FFFFFF
C15	IXS attached IOA	The IOA has the same DSA as the first IOP found in the following list: C14, C13, C11.	E006FFFF

Addresses — 5094, 5294, and 8094-002 expansion unit

Use the address to find the location. Then go to "Locations — 5094, 5294, and 8094-002 expansion units" on page 55 to find additional information.

Table 27. IOP, IOA, and device address information for 5094 Expansion Unit

Position	Possible failing item	DSA (BBBBCcbb)	Unit address
		IOA and device DSA's do not conform to the following rules if the IOA is manually reassigned after IPL.	
C01 (IXS capable position)	IOP	xxxx-20-00	FFFFFFFF
C02 (empty if IXS in C01)	Storage IOA	xxxx-20-00	2FFFFFFF
C02 (empty if IXS in C01)	Communications / Workstation IOA	xxxx-20-00	E2FFFFFF
C03	IOP	xxxx-24-00	FFFFFFFF
C03	Storage IOA	xxxx-20-00	4FFFFFFF
C03	Communications / Workstation IOA	xxxx-20-00	E4FFFFFF
C03	IXS attached IOA	xxxx-20-00	E004FFFF
C04	Storage IOA	The IOA has the same DSA as the first IOP found in the following list: C03, C01.	6FFFFFFF

Table 27. IOP, IOA, and device address information for 5094 Expansion Unit (continued)

Position	Possible failing item	DSA (BBBBCcbb)	Unit address
C04	Communications / Workstation IOA	The IOA has the same DSA as the first IOP found in the following list: C03, C01.	E6FFFFFF
C04	IXS attached IOA	The IOA has the same DSA as the first IOP found in the following list: C03, C01.	E006FFFF
C05 (IXS capable position)	IOP	yyyy-20-00	FFFFFFFF
C06 (empty if IXS in C05)	Storage IOA	yyyy-20-00	2FFFFFFF
C06 (empty if IXS in C05)	Communications / Workstation IOA	yyyy-20-00	E2FFFFFF
C07	IOP	yyyy-23-00	FFFFFFFF
C07	Storage IOA	yyyy-20-00	3FFFFFFF
C07	Communications / Workstation IOA	yyyy-20-00	E3FFFFFF
C07	IXS attached IOA	yyyy-20-00	E003FFFF
C08	IOP	yyyy-24-00	FFFFFFFF
C08	Storage IOA	The IOA has the same DSA as the first IOP found in the following list: C07, C05.	4FFFFFFF
C08	Communications / Workstation IOA	The IOA has the same DSA as the first IOP found in the following list: C07, C05.	E4FFFFFF
C08	IXS attached IOA	The IOA has the same DSA as the first IOP found in the following list: C07, C05.	E004FFFF
C09	Storage IOA	The IOA has the same DSA as the first IOP found in the following list: C08, C07, C05.	6FFFFFFF
C09	Communications / Workstation IOA	The IOA has the same DSA as the first IOP found in the following list: C08, C07, C05.	E6FFFFFF
C09	IXS attached IOA	The IOA has the same DSA as the first IOP found in the following list: C08, C07, C05.	E006FFFF
C11 (IXS capable position)	IOP	zzzz-20-00	FFFFFFFF
C12 (empty if IXS in C11)	Storage IOA	zzzz-20-00	2FFFFFFF
C12 (empty if IXS in C11)	Communications / Workstation IOA	zzzz-20-00	E2FFFFFF
C13	IOP	zzzz-23-00	FFFFFFFF
C13	Storage IOA	zzzz-20-00	3FFFFFFF
C13	Communications / Workstation IOA	zzzz-20-00	E3FFFFFF
C13	IXS attached IOA	zzzz-20-00	E003FFFF
C14	IOP	zzzz-24-00	FFFFFFFF
C14	Storage IOA	The IOA has the same DSA as the first IOP found in the following list: C13, C11.	4FFFFFFF
C14	Communications / Workstation IOA	The IOA has the same DSA as the first IOP found in the following list: C13, C11.	E4FFFFFF
C14	IXS attached IOA	The IOA has the same DSA as the first IOP found in the following list: C13, C11.	E004FFFF

Table 27. IOP, IOA, and device address information for 5094 Expansion Unit (continued)

Position	Possible failing item	DSA (BBBBCcbb)	Unit address
C15	Storage IOA	The IOA has the same DSA as the first IOP found in the following list: C14, C13, C11.	6FFFFFFF
C15	Communications / Workstation IOA	The IOA has the same DSA as the first IOP found in the following list: C14, C13, C11.	E6FFFFFF
C15	IXS attached IOA	The IOA has the same DSA as the first IOP found in the following list: C14, C13, C11.	E006FFFF
D01	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x00300FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D02	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x00400FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D03	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x00500FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D04	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x00600FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D05	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x00700FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D06	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x00300FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D07	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x00400FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D08	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x00500FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D09	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x00600FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)

Table 27. IOP, IOA, and device address information for 5094 Expansion Unit (continued)

Position	Possible failing item	DSA (BBBBCcbb)	Unit address
D10	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x00700FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D11	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x10300FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D12	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x10400FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D13	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x10500FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D14	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x10600FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D15	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x10700FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D16	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x10300FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D17	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x10400FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D18	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x10500FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D19	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x10600FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)

Table 27. IOP, IOA, and device address information for 5094 Expansion Unit (continued)

Position	Possible failing item	DSA (BBBBCcbb)	Unit address
D20	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x10700FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D21	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x20300FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D22	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x20400FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D23	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x20500FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D24	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x20600FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D25	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″L-1″.	x20700FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D26	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x20300FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D27	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x20400FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D28	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x20500FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D29	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x20600FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)

Table 27. IOP, IOA, and device address information for 5094 Expansion Unit (continued)

Position	Possible failing item	DSA (BBBBCcbb)	Unit address
D30	Disk unit	The disk unit has the same DSA as the IOA attached to the internal cable labeled ″R-2″.	x20700FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D31	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x00100FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D32	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x00200FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D33	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x00300FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D34	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x00400FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D35	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x00500FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D36	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x10300FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D37	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x10400FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D38	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x10500FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D39	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x10600FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)

Table 27. IOP, IOA, and device address information for 5094 Expansion Unit (continued)

Position	Possible failing item	DSA (BBBBCcbb)	Unit address
D40	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x10700FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D41	Optical	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x00600FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D42	Tape	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x00700FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D46	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x20300FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D47	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x20400FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D48	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x20500FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D49	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x20600FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)
D50	Disk unit	The disk unit has the same DSA as the IOA attached to the internal flat ribbon cable.	x20700FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address)

Addresses — 0595 and 5095 expansion unit

Use the address to find the location. Then go to (Locations — 5095, 0595 expansion I/O xxunit) to find additional information.

Table 28. IOP, IOA, and device address information for 5095, 0595 expansion unit

Position	Possible failing item	DSA (BBBBCcbb)	Unit address
		IOA and device DSA's do not conform to the following rules if the IOA is manually reassigned after IPL.	

Table 28. IOP, IOA, and device address information for 5095, 0595 expansion unit (continued)

Position	Possible failing item	DSA (BBBBCcbb)	Unit address
C01 (IXS capable position)	IOP	xxxx-20-00	FFFFFFFF
C02 (empty if IXS in C01)	Storage IOA	xxxx-20-00	2FFFFFFF
C02 (empty if IXS in C01)	Communication, workstation IOA	xxxx-20-00	E2FFFFFF
C03	IOP	xxxx-24-00	FFFFFFFF
C03	Storage IOA	xxxx-20-00	4FFFFFFF
C03	Communication, workstation IOA	xxxx-20-00	E4FFFFFF
C03	IXS attached IOA	xxxx-20-00	E004FFFF
C04	Storage IOA	The IOA has the same DSA as the first IOP found in the following list: C03, C01.	6FFFFFFF
C04	Communication, workstation IOA	The IOA has the same DSA as the first IOP found in the following list: C03, C01.	E6FFFFFF
C04	IXS attached IOA	The IOA has the same DSA as the first IOP found in the following list: C03, C01.	E006FFFF
C06	IOP	yyyy-20-00	FFFFFFFF
C07	Storage IOA	yyyy-20-00	2FFFFFFF
C07	Communication, workstation IOA	yyyy-20-00	E2FFFFFF
C08	Storage IOA	yyyy-20-00	6FFFFFFF
C08	Communication, workstation IOA	yyyy-20-00	E6FFFFFF
C08	IXS attached IOA	yyyy-20-00	E006FFFF
D01, D07	Disk unit	The disk unit has the same DSA as the IOP controlling the storage IOA.	xy0100FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address and y is I/O bus 0, 1, 2, or 3. Storage IOA buses begin with 0 and are numbered from the tailstock toward the middle of the card. Find the storage IOA with the same DSA and xFFFFFFF address, then trace the I/O bus cable to determine if the position is D01 or D07.)

Table 28. IOP, IOA, and device address information for 5095, 0595 expansion unit (continued)

Position	Possible failing item	DSA (BBBBCcbb)	Unit address
D02, D08	Disk unit		xy0200FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address and y is I/O bus 0, 1, 2, or 3. Storage IOA buses begin with 0 and are numbered from the tailstock toward the middle of the card. Find the storage IOA with the same DSA and xFFFFFFF address, then trace the I/O bus cable to determine if the position is D02 or D08.)
D03, D09	Disk unit		xy0300FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address and y is I/O bus 0, 1, 2, or 3. Storage IOA buses begin with 0 and are numbered from the tailstock toward the middle of the card. Find the storage IOA with the same DSA and xFFFFFFF address, then trace the I/O bus cable to determine if the position is D03 or D09.)
D04, D10	Disk unit		xy0400FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address and y is I/O bus 0, 1, 2, or 3. Storage IOA buses begin with 0 and are numbered from the tailstock toward the middle of the card. Find the storage IOA with the same DSA and xFFFFFFF address, then trace the I/O bus cable to determine if the position is D04 or D10.)
D05, D11	Disk unit		xy0E00FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address and y is I/O bus 0, 1, 2, or 3. Storage IOA buses begin with 0 and are numbered from the tailstock toward the middle of the card. Find the storage IOA with the same DSA and xFFFFFFF address, then trace the I/O bus cable to determine if the position is D05 or D11.)

Table 28. IOP, IOA, and device address information for 5095, 0595 expansion unit (continued)

Position	Possible failing item	DSA (BBBBCcbb)	Unit address
D06, D12	Disk unit		xy0F00FF (where x is the same as the first character of the xFFFFFFF IOA Unit Address and y is I/O bus 0, 1, 2, or 3. Storage IOA buses begin with 0 and are numbered from the tailstock toward the middle of the card. Find the storage IOA with the same DSA and xFFFFFFF address, then trace the I/O bus cable to determine if the position is D06 or D12.)

Addresses — external xSeries server, iSeries adapter (machine type 1519)

Table 29. IOP and IOA address information for external xSeries Server, iSeries Adapter — Machine Type 1519

Position	Possible failing component	DSA	Unit address
SE1	2689 Integrated xSeries Adapter (IOP)	xxxx-10-00	FFFFFFFF
SE1	2689 Integrated xSeries Adapter (IOA)	xxxx-10-00	E0FFFFFF

Part assembly diagrams

Select the assembly diagrams you would like to view. Refer to How to use this parts listing for more details.

Note: Some part numbers listed in the part assembly diagrams may not be orderable. If you need a part that is not orderable, contact your next level of support.

"Part assembly diagrams for model 520" on page 102

"Part assembly diagrams for model 550and 9124-720" on page 107

"Part assembly diagrams for model 570" on page 112

"Part assembly diagrams for model 590 and model 595" on page 116

"Part assembly diagrams for 0588, 5079, 5088, and 5294 expansion units" on page 123

"Part assembly diagrams for 5074 and 5094 expansion units" on page 131

"Part assembly diagrams for 0595 and 5095 expansion units" on page 142

"Part assembly diagrams for 5791and5794" on page 149

"Part assembly diagrams for 7311-D11 and 5790" on page 150

"Part assembly diagrams for 7311-D20" on page 154

"Part assembly diagrams for 7014-T00 and 7014-T42 rack" on page 160

"Part assembly diagrams for OpenPower" on page 171

How to use this parts listing

- If two assemblies contain a majority of identical parts, they are broken down on the same list. Common parts are shown by one index number. Parts peculiar to one or the other of the assemblies are listed separately and identified by description.
- "AR" (as required) in the ***Units*** column indicates that the quantity is not the same for all machines.
- "NP" (non-procurable) in the ***Units*** column indicates that the part is non-procurable and that the individual parts or the next higher assembly should be ordered.
- "NR" (not recommended) in the ***Units*** column indicates that the part is procurable but not recommended for field replacement and that the next higher assembly should be ordered.
- "R" (restricted) in the ***Units*** column indicates that the part has a restricted availability.
- "NONUM" (no number) indicates that the part number is not available.
- "REF" (reference) indicates that the part is shown for reference and may be listed more than once.

Part assembly diagrams for model 520

Front cover assembly for model 520

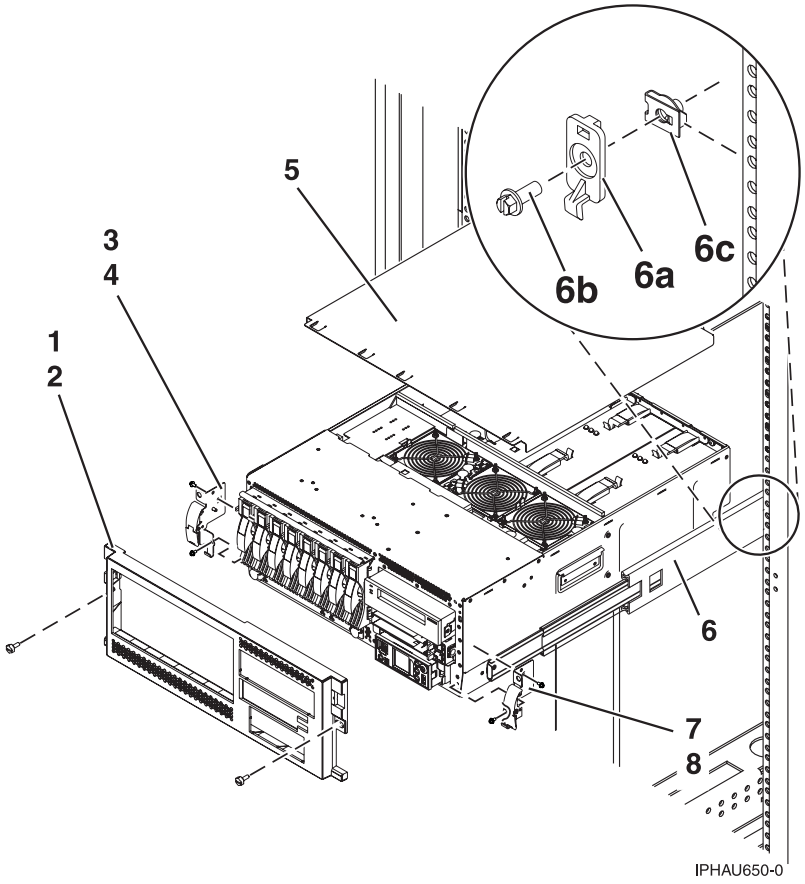


Table 30. Front cover assembly part numbers for model 520

Index number	Part number	Units	Description
1	97P5037	1	Front cover assembly (IBM eServer™ i5)
	53P4500	1	Front cover assembly (IBM eServer p5)
2	04N6587	2	Thumbscrew, front cover mounting

Table 30. Front cover assembly part numbers for model 520 (continued)

Index number	Part number	Units	Description
3	53P4517	1	Rack handle assembly, left
4	09P3744	2	Screw
5	53P3941	1	Cover, top access
6	97P5760	AR	Rail kit
6a	NONUM	AR	- Rack latch (included in rail kit)
6b	NONUM	AR	- Screw (included in rail kit)
6c	NONUM	AR	- Nut clip (included in rail kit)
7	53P4519	1	Rack handle assembly, right
8	09P3744	2	Screw

Final assembly for model 520

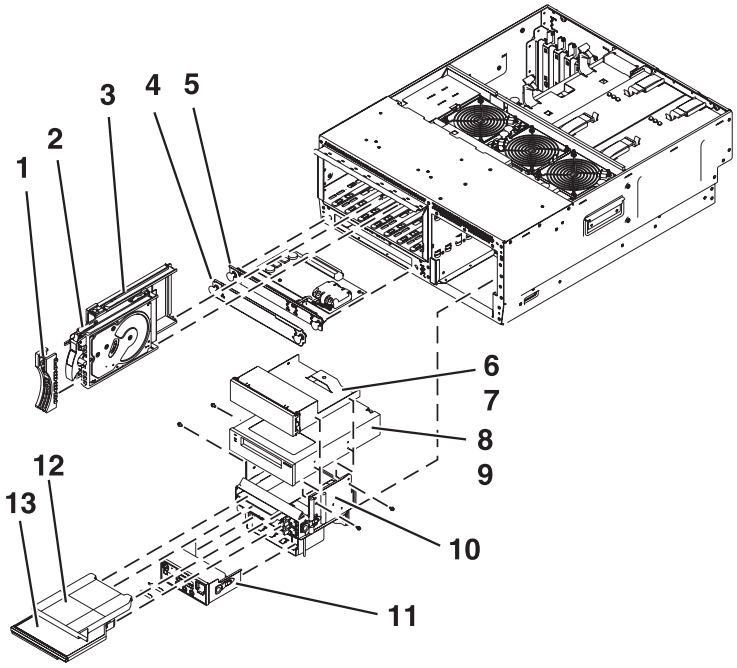


Table 31. Final assembly part numbers for model 520

Index number	Part number	Units	Description
1	97P4178	AR	Disk unit bezel
2	see “Part number catalog” on page 171	AR	Disk unit assembly
3	97P4179	AR	Disk unit filler assembly
4	53P4407	1	RAID enablement filler
5	see “Part number catalog” on page 171	1	RAID enablement card assembly
6	97P9137	1	Media device filler
7	33G3907	4	Screw

Table 31. Final assembly part numbers for model 520 (continued)

Index number	Part number	Units	Description
8	see “Part number catalog” on page 171	1	Media device
9	33G3907	4	Screw
10	97P3815	1	Media enclosure assembly (IBM eServer i5)
		1	Media enclosure assembly (IBM eServer p5)
11	see “Part number catalog” on page 171	1	Control panel assembly
	71P8467	1	Power button shield
12	53P5867	1	Media device filler
13	see “Part number catalog” on page 171	AR	Media device

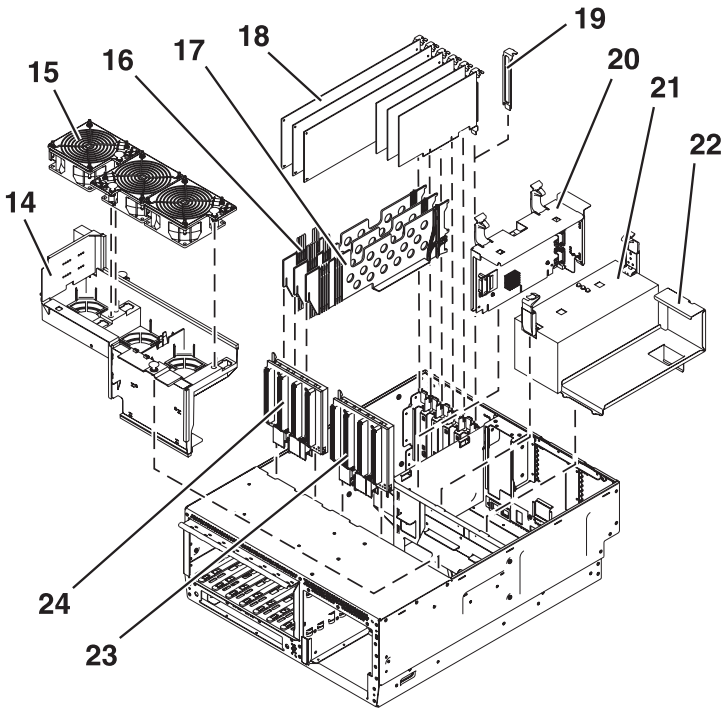


Table 32. Final assembly part numbers for model 520, continued

Index number	Part number	Units	Description
14	97P4349	1	Fan tray assembly
15	see “Part number catalog” on page 171	3	Fan assembly
16	53P5869	2	PCI divider assembly, long
17	53P4327	1	PCI divider, long
17	53P4324	3	PCI divider, short

Table 32. Final assembly part numbers for model 520, continued (continued)

Index number	Part number	Units	Description
18	see "Part number catalog" on page 171	AR	PCI adapter assembly
19		AR	PCI adapter filler
20	see "Part number catalog" on page 171	1	Service processor assembly
21	see "Part number catalog" on page 171	AR	Power supply assembly
22	53P5868	1	Power supply filler
23	see "Part number catalog" on page 171	1	Disk unit backplane assembly
24	see "Part number catalog" on page 171	1	Disk unit backplane assembly
24	53P4415	1	Disk unit backplane filler

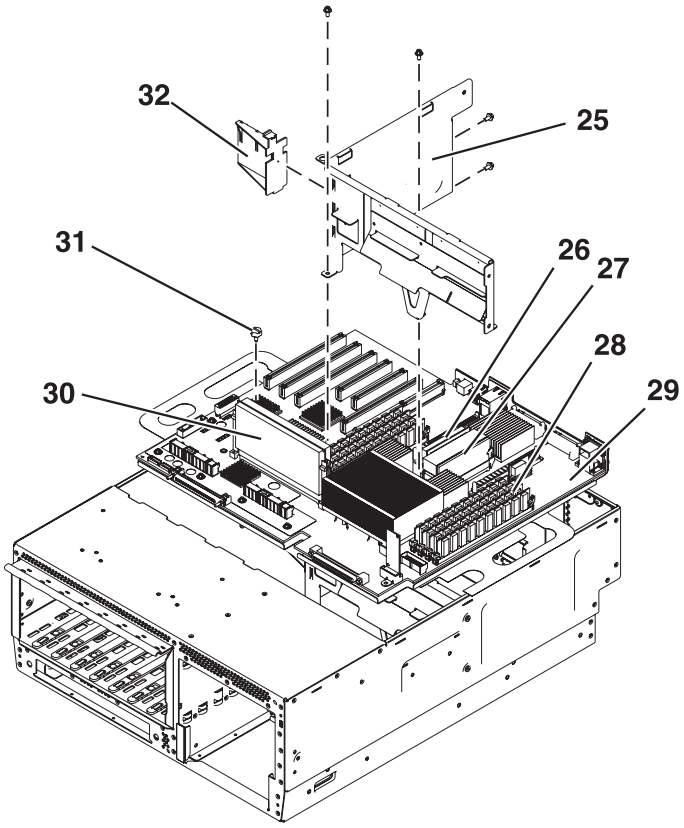


Table 33. Final assembly part numbers for model 520, continued

Index number	Part number	Units	Description
25	53P4521	1	Mounting bracket, power supply
25	09P3744	7	Screw

Table 33. Final assembly part numbers for model 520, continued (continued)

Index number	Part number	Units	Description
26	see “Part number catalog” on page 171	1	1.5V or 2.5V voltage regulator
27	see “Part number catalog” on page 171	1	2.5V voltage regulator
28	see “Part number catalog” on page 171	AR	Memory DIMMs
29	see “Part number catalog” on page 171	1	System backplane
30	see “Part number catalog” on page 171	1	1.2V voltage regulator
31	28L0657	1	Thumbscrew, planar mounting
32	53P4521	1	Mounting guide, short PCI divider
	see “Part number catalog” on page 171	1	VPD card

Stand-alone cover assembly for model 520

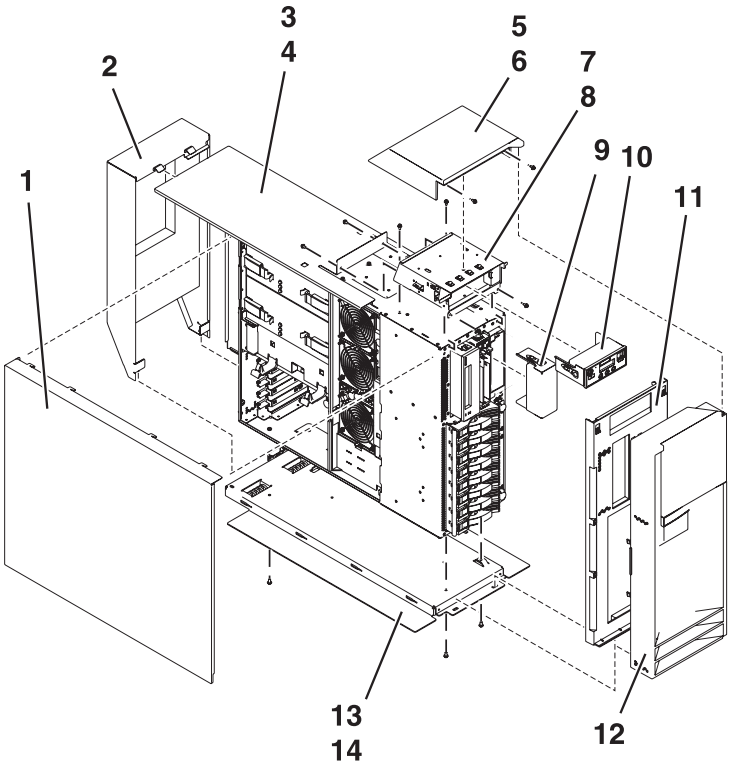


Table 34. Stand-alone cover assembly part numbers for model 520

Index number	Part number	Units	Description
1	97P5037	1	Cover assembly, service access

Table 34. Stand-alone cover assembly part numbers for model 520 (continued)

Index number	Part number	Units	Description
2	53P4500	1	Cover assembly, back
3	04N6587	1	Cover assembly, top
4	53P4517	2	Screw
5	97P5284	1	Cover assembly, top cap
6	09P3744	2	Screw
7	53P4519	1	Bracket
8	09P3744	4	Screw
9	97P2731	1	Control panel filler
10	see “Part number catalog” on page 171	1	Control panel
	71P8467	1	Power button shield
11	97P5038	1	Door assembly (IBM eServer i5)
	97P4144	1	Door assembly (IBM eServer p5)
12	97P5907	1	Cover assembly, front
13	53P4519	1	Tip plate
14	09P3744	4	Screw

Part assembly diagrams for model 550and 9124-720

Final assembly for model 550 and 9124-720

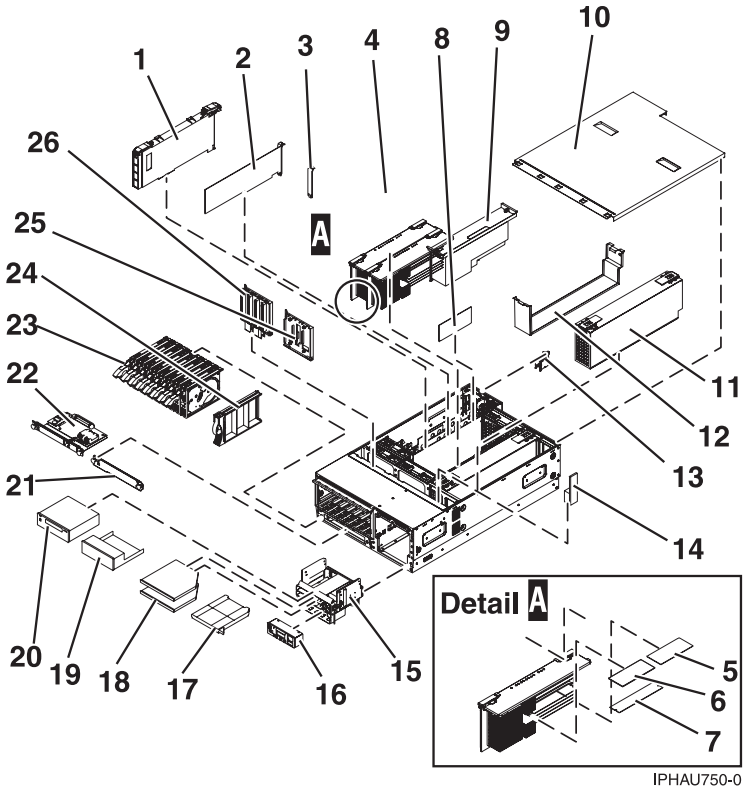


Table 35. Final assembly part numbers for model 550 and 9124-720

Index number	Part number	Units	Description
1	see “Part number catalog” on page 171	1	RIO/HSL adapter
2	see “Part number catalog” on page 171	AR	PCI adapter
3	NONUM	AR	PCI blank
4	see “Part number catalog” on page 171	AR	System processor
5	see “Part number catalog” on page 171	1	Voltage regulator (1.5 V)
6	see “Part number catalog” on page 171	1	Voltage regulator (2.5 V)
7	see “Part number catalog” on page 171		Memory module
8	see “Part number catalog” on page 171	1	Voltage regulator (1.3 V)
9	NONUM	AR	System processor filler
10		1	Top cover
11	see “Part number catalog” on page 171	1	Power supply
12	NONUM	1	Power supply filler
13	NONUM	1	PCI attachment assembly
14	see “Part number catalog” on page 171	1	VPD card
15	see “Part number catalog” on page 171	1	Media backplane assembly
16	see “Part number catalog” on page 171	1	Control panel assembly
	71P8467	1	Power button shield
17		AR	Media device filler
18	see “Part number catalog” on page 171	AR	Media device
19	NONUM	AR	Media device filler
20	see “Part number catalog” on page 171	AR	Media device
21	NONUM	AR	RAID enablement card filler

Table 35. Final assembly part numbers for model 550 and 9124-720 (continued)

Index number	Part number	Units	Description
22	see “Part number catalog” on page 171	AR	RAID enablement card assembly
23	see “Part number catalog” on page 171	AR	Disk unit assembly
24	NONUM	AR	Disk unit filler assembly
25	NONUM	AR	Disk unit backplane filler
26	see “Part number catalog” on page 171	AR	Disk unit backplane assembly

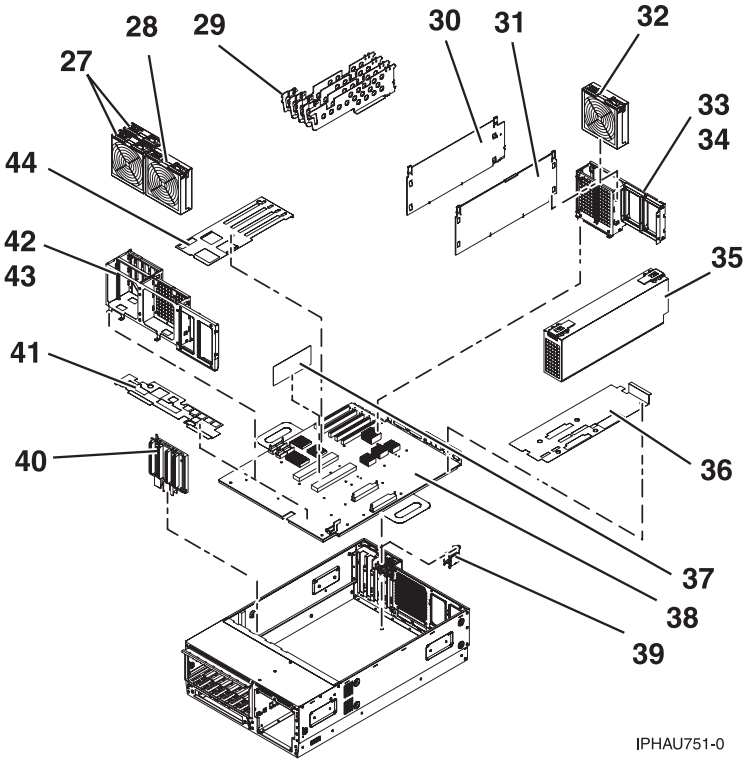


Table 36. Final assembly part numbers for model 550 and 9124-720, continued

Index number	Part number	Units	Description
27	see “Part number catalog” on page 171	2	Fan, PCI
28	see “Part number catalog” on page 171	1	Fan, Processor
29	NONUM	4	PCI adapter divider
30	NONUM	1	Processor divider
31	NONUM	1	Power supply divider

Table 36. Final assembly part numbers for model 550 and 9124-720, continued (continued)

Index number	Part number	Units	Description
32	see “Part number catalog” on page 171	1	Fan, Processor
33	NONUM	1	Rear support
34	NONUM		Screw, rear support
35	see “Part number catalog” on page 171	AR	Power supply
36	NONUM	1	Power supply insulator sheet
37	see “Part number catalog” on page 171	1	Voltage regulator (1.3V)
38	see “Part number catalog” on page 171	1	System backplane
39	NONUM	1	PCI attachment assembly
40	see “Part number catalog” on page 171	AR	Disk unit backplane assembly
41	NONUM	1	System insulator sheet
42	NONUM	1	Front support
43	NONUM		Screw, front support
44	NONUM	1	PCI card insulator sheet

Stand-alone cover assembly

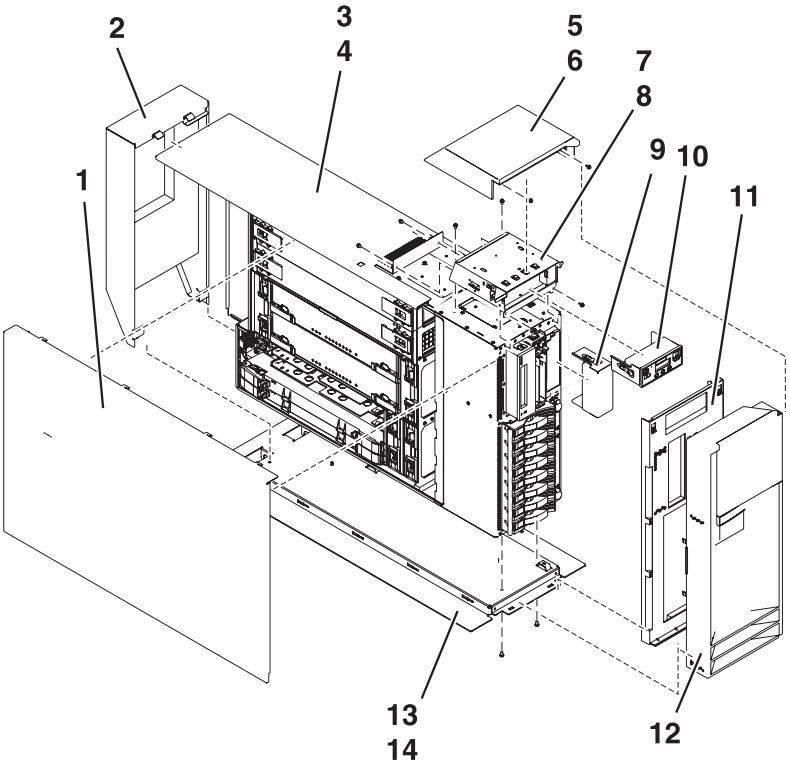


Table 37. Stand-alone cover assembly part numbers

Index number	Part number	Units	Description
1	97P5244	1	Side cover
2	97P3772	1	Back cover
3	97P5241	1	Side wrap
4			Screw
5	97P5284	1	Top cap
6	09P3744	2	Screw
7	97P5912	1	Control panel mounting bracket assembly
8			Screw
9	97P2731	1	Control panel filler
10		1	Control panel
	71P8467	1	Power button shield
11	97P5038	1	Door assembly (iSeries)
	97P4144	1	Door assembly (pSeries)
12	97P5907		Front cover
13	97P5238		Tip plate

Part assembly diagrams for model 570

Front cover assembly for model 570

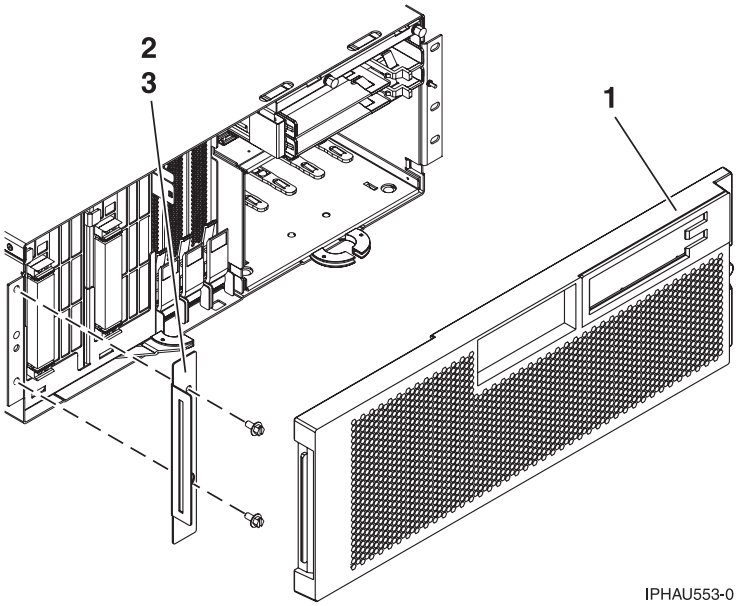


Table 38. Front cover assembly part numbers for model 570

Index number	Part number	Units	Description
1	97P4696	1	Front cover assembly (IBM eServer i5)
	97P6058	1	Front cover assembly (IBM eServer p5)
2	97P4698	1	Bracket, front cover mounting
3	04N6587	2	Screw

Final assembly (front) for model 570

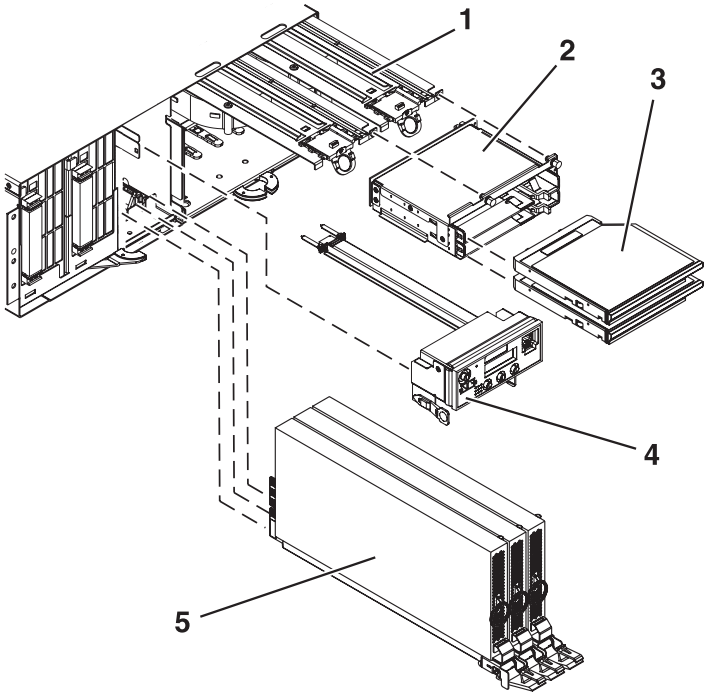


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Table 39. Final assembly (front) part numbers for model 570

Index number	Part number	Units	Description
1	see “Part number catalog” on page 171	2	Fan assembly
2	97P3060	1	Removable media enclosure assembly
3	see “Part number catalog” on page 171	2	Removable media assembly
3	97P9137	AR	Removable media filler assembly
4	see “Part number catalog” on page 171	1	Control panel assembly
	71P8467	1	Power button shield
5	97P5188	3	Voltage regulator assembly

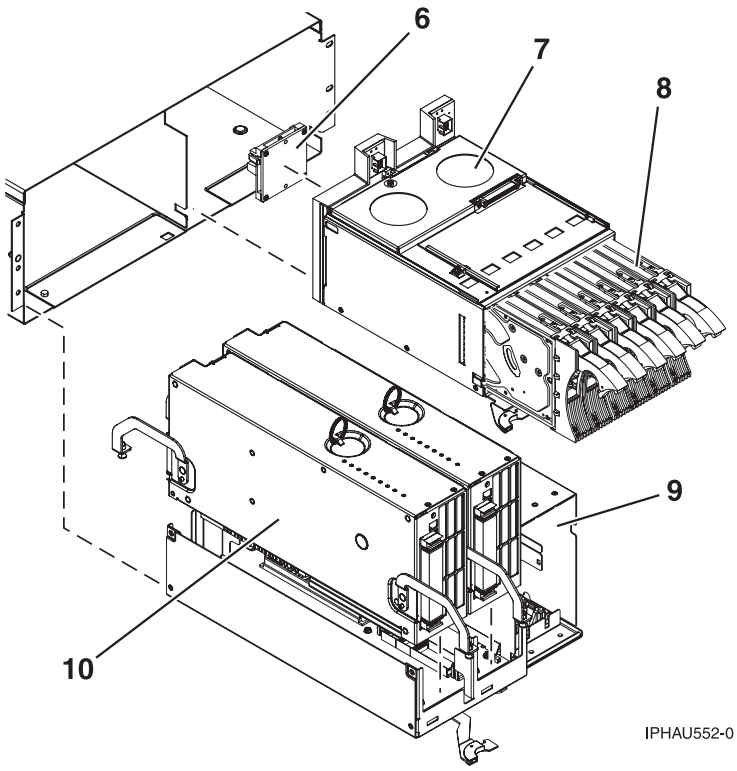


Table 40. Final assembly (front) part numbers for model 570, continued

Index number	Part number	Units	Description
6	80P4685	1	SCSI-IDE converter card assembly
7	97P3059	1	Disk unit enclosure assembly
8	see “Part number catalog” on page 171	AR	Disk unit assembly
	97P4179	AR	Disk unit filler assembly
9	see “Part number catalog” on page 171	1	System processor backplane
10	see “Part number catalog” on page 171	2	System processor assembly

Final assembly (back) for model 570

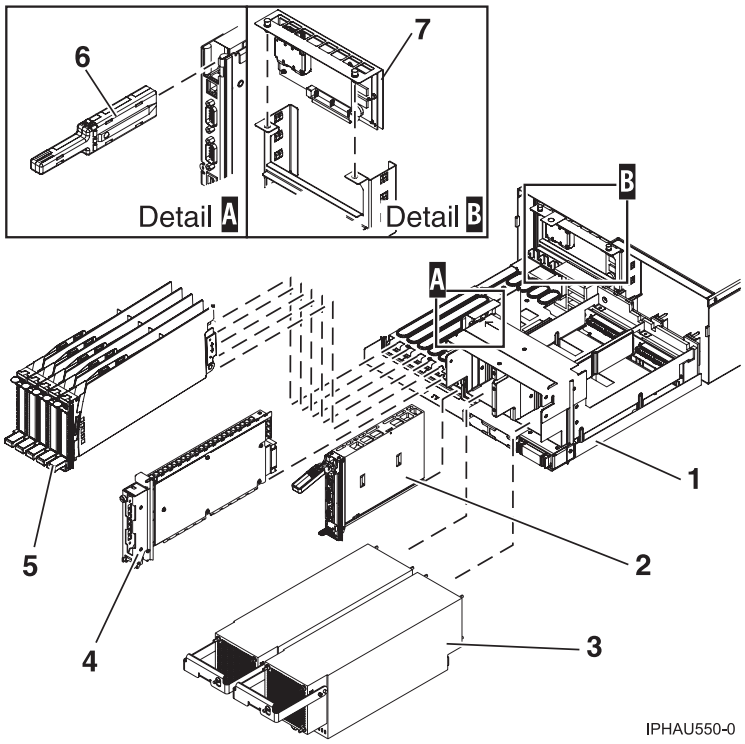


Table 41. Final assembly (back) part numbers for model 570

Index number	Part number	Units	Description
1	see "Part number catalog" on page 171	1	I/O backplane assembly
2	see "Part number catalog" on page 171	1	Service processor assembly
3	see "Part number catalog" on page 171	2	Power supply assembly
4	see "Part number catalog" on page 171	AR	RIO/HSL card assembly
5	97P5663	AR	PCI adapter assembly
	97P4918	AR	Short PCI adapter assembly (Un-P1-C6 only)
6	see "Part number catalog" on page 171	1	VPD card
7	see "Part number catalog" on page 171	1	RAID enablement card assembly

Part assembly diagrams for model 590 and model 595

Final assembly

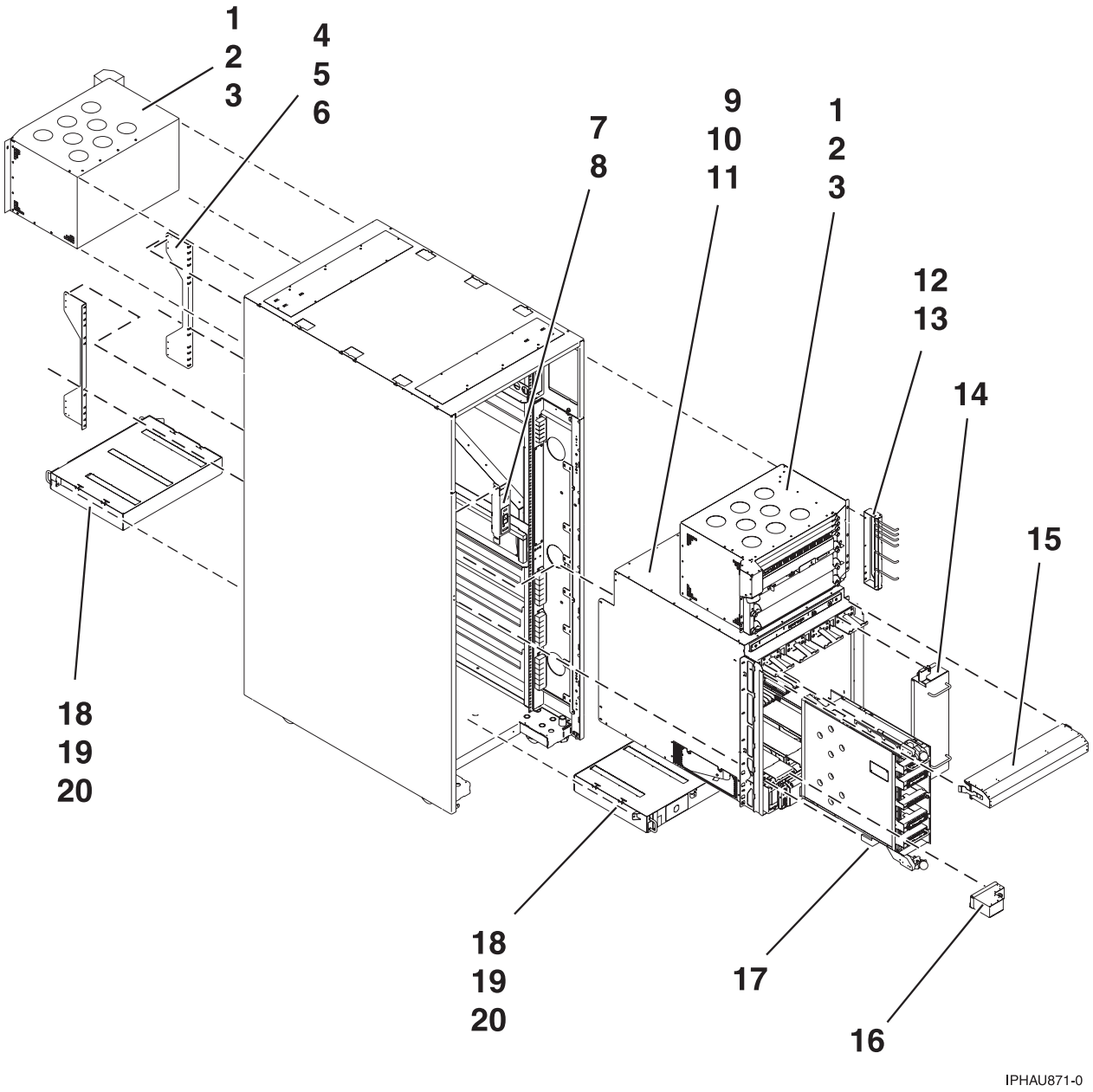


Table 42. Final assembly part numbers

Index number	Part number	Units per assembly	Description
1	44P4543	AR	Bulk power assembly (BPA) For detail breakdown, see the Bulk power assembly (BPA).
2	77G0599	2	Screw, BPE mounting
3	74F1823	5	Nut clip
4		2	Bracket, processor subsystem assembly rear

Table 42. Final assembly part numbers (continued)

Index number	Part number	Units per assembly	Description
5	77G0599	8	Screw, processor subsystem assembly rear bracket mounting
6	74F1823	8	Nut clip
7	44P2718	1	Unit emergency power off (UEPO) switch assembly
8	2665528	2	Screw, UEPO mounting
9		AR	Processor subsystem assembly For detail breakdown, see the Processor subsystem assembly.
10	77G0599	AR	Screw, processor subsystem assembly mounting
11	74F1823	AR	Nut clip
12	11P3843	1	Cable bracket
13	77G0599	3	Screw, cable bracket
14	44P3384	AR	Filler, node
15	12R6625	1	Cover, EMC
16	12R6626	4	Cover, EMC
17		AR	Node assembly For detail breakdown, see the Node assembly.
18	11P3732	AR	Internal battery feature (IBF)
19	77G0599	2	Screw
20	5589089	2	Washer
	74F1823	2	Nut clip

Bulk power assembly (BPA)

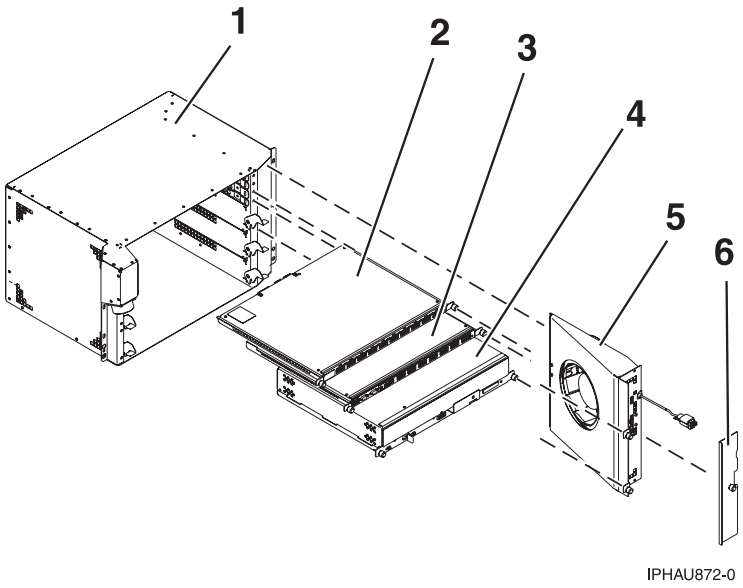


Table 43. Bulk power assembly (BPA) part numbers

Index number	Part number	Units per assembly	Description
1	44P4543	1	Bulk power assembly
2	See Part number catalog	AR	Bulk power distribution assembly
3	See Part number catalog	1	Bulk power controller assembly
4	See Part number catalog	AR	Bulk power regulator assembly
5	See Part number catalog	1	Bulk power fan
6	44P0550	1	Cover, bulk power fan

Cover assembly

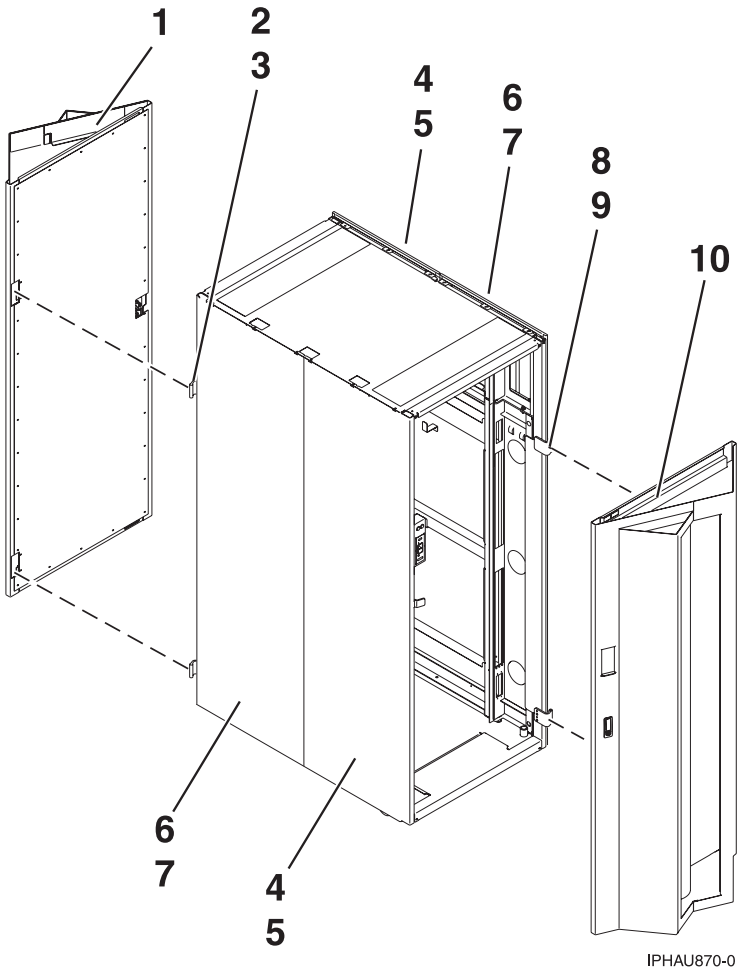


Table 44. Cover assembly part numbers

Index number	Part number	Units per assembly	Description
1	12R7208	AR	Cover kit (acoustical)
	12R7207	AR	Cover kit (slim)
	44P4678	AR	Cover kit, 8691 (acoustical)
	44P4541	AR	Cover kit, 8691 (slim)
	44P2670	AR	Filter, cover
2	11P4106	2	Hinge, back cover
3	2665525	4	Screw, hinge
4	44P0126	2	Cover, right-side
5	54G2882	3	Screw, cover mounting
6	44P0126	2	Cover, left-side
7	54G2882	3	Screw, cover mounting
8	11P3535	2	Hinge, front cover
9	2665525	4	Screw, hinge
10	See index number 1	1	Cover kit

Processor subsystem assembly

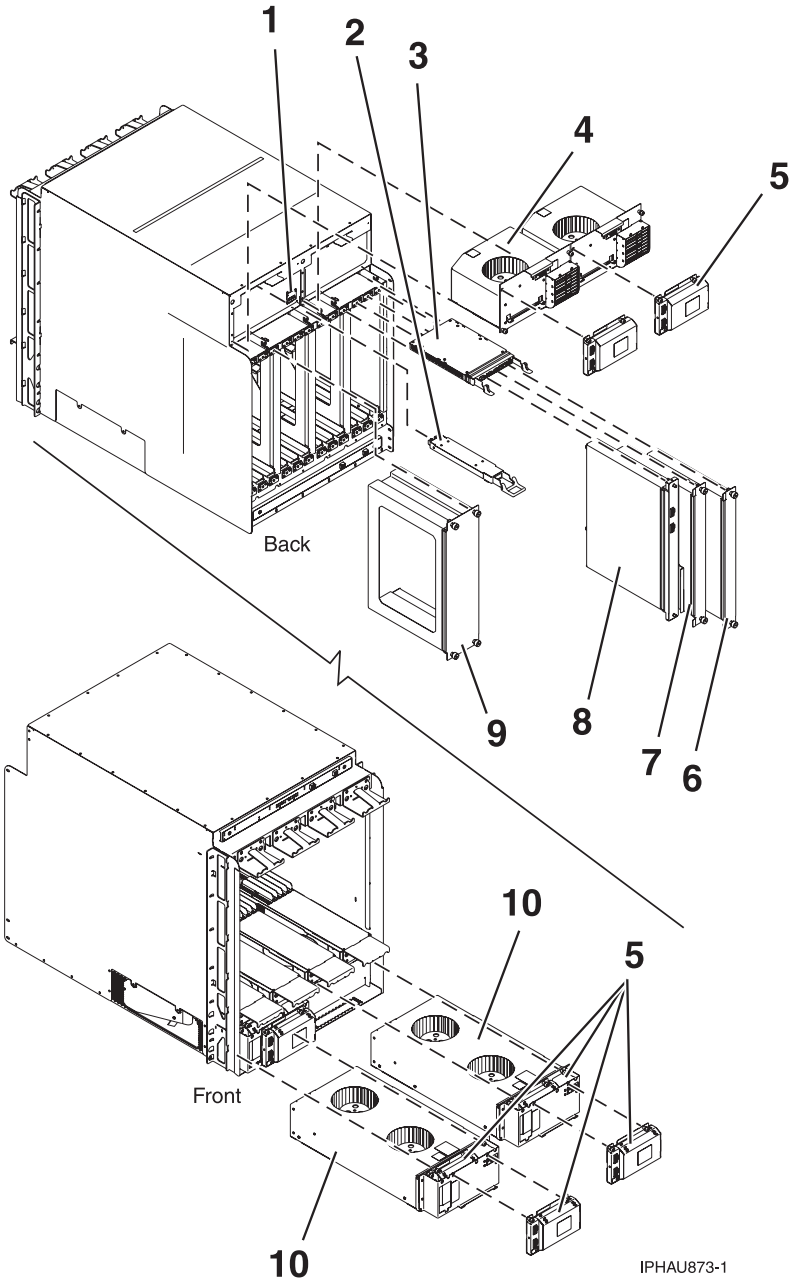


Table 45. Processor subsystem assembly part numbers

Index number	Part number	Units per assembly	Description
1	See Part number catalog	1	VPD card
2	See Part number catalog	1	Clock card
3	See Part number catalog	AR	Service processor card
4	12R6227	1	Motor scroll assembly - left
	12R6228	1	Motor scroll assembly - right

Table 45. Processor subsystem assembly part numbers (continued)

Index number	Part number	Units per assembly	Description
5	See Part number catalog	4	Motor drive assembly
6	12R6949	AR	Filler, distributed converter assembly (DCA) - single
7	12R6950	AR	Jumper, distributed converter assembly (DCA)
8	See Part number catalog	AR	Distributed converter assembly (DCA)
9	12R6732	AR	Filler, distributed converter assembly (DCA) - triple
10	See Part number catalog	1	Blower assembly, right
10	See Part number catalog	1	Blower assembly, left

Node assembly

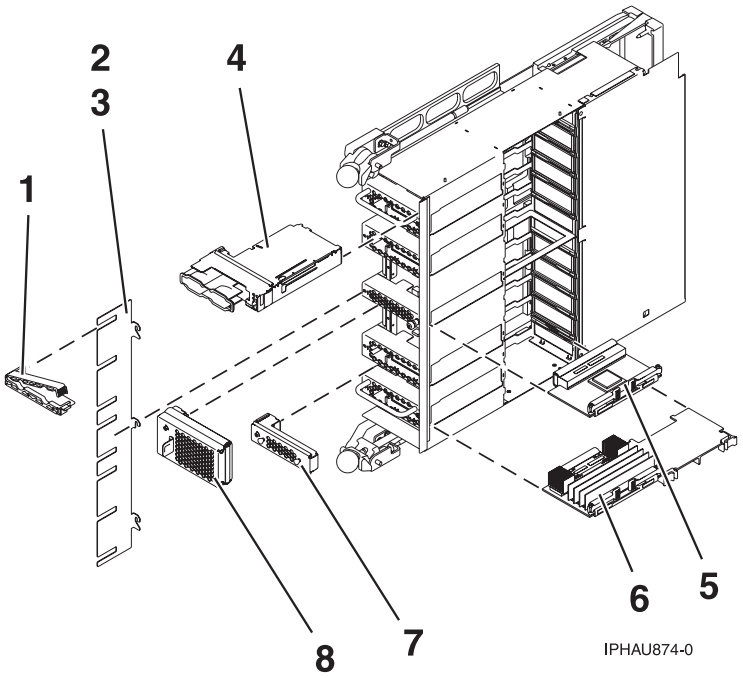


Table 46. Node assembly part numbers

Index number	Part number	Units per assembly	Description
1	12R7089	AR	Cable clamp
2	12R7088	1	Cable management bracket
3		AR	Screw
4	44P2750	AR	I/O card cassette
5	See Part number catalog	AR	Multiplexer card
6	See Part number catalog	AR	Memory card

Table 46. Node assembly part numbers (continued)

Index number	Part number	Units per assembly	Description
7	12R6700	AR	Baffle, single
8	12R7296	AR	Baffle, double
	See Part number catalog	AR	Processor MCM kit

Part assembly diagrams for 0588, 5079, 5088, and 5294 expansion units

Cover assembly for 0588 and 5079 expansion units

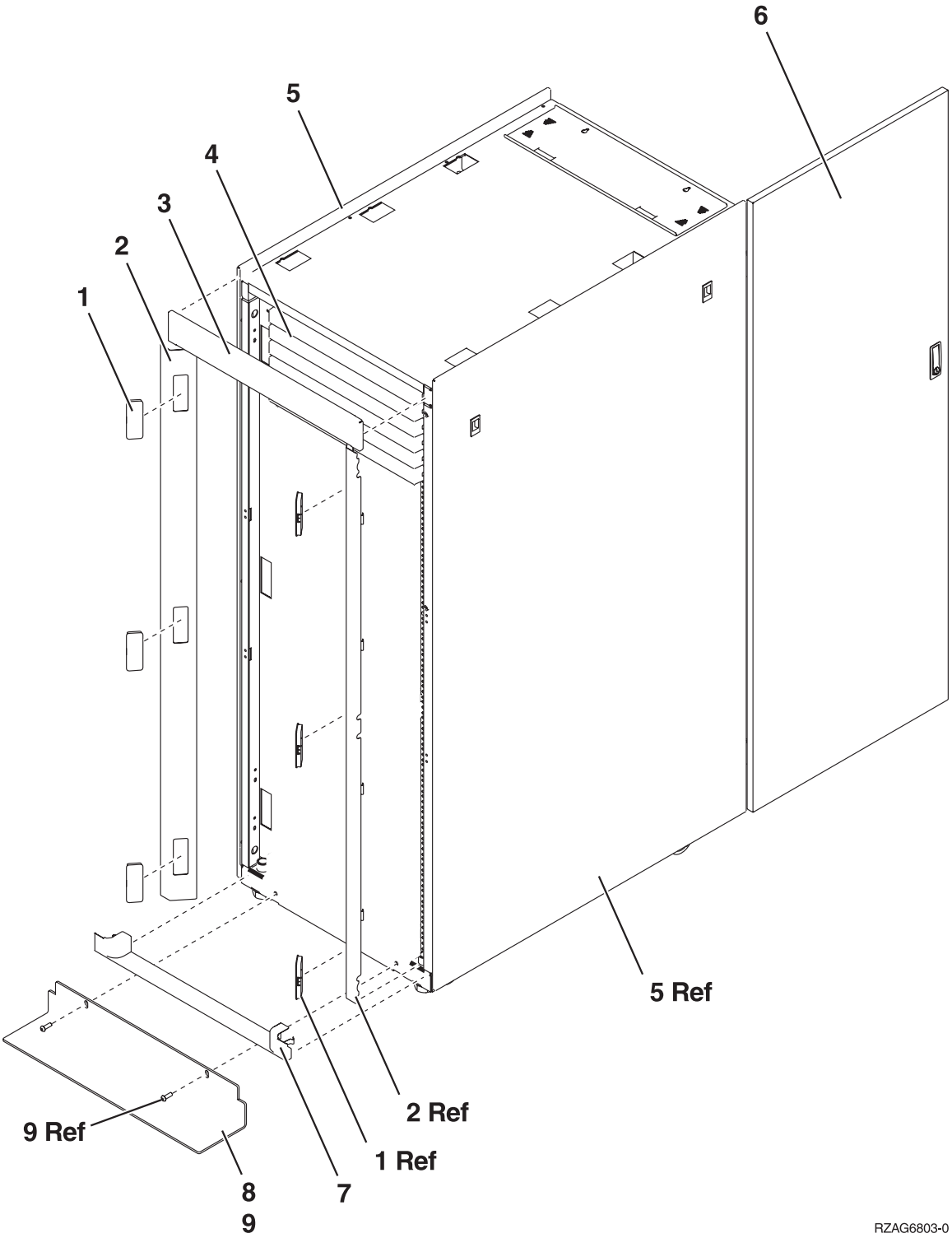


Table 47. Cover assembly part numbers for 0588 and 5079 expansion units

Index	Part number	Units	Description
1	05N6809	6	Cover, trim kit

Table 47. Cover assembly part numbers for 0588 and 5079 expansion units (continued)

Index	Part number	Units	Description
2	12K0034	2	Side bezel, trim kit
3	12K0032	1	Top bezel, trim kit
4	97H9754	AR	1 high black EIA filler
4	97H9755	AR	3 high black EIA filler
4	97H9756	AR	5 high black EIA filler
5	31L7519	2	Cover, side
6	31L7523	1	Cover, Back
7	12K0024	1	Bottom bezel, trim kit
8	31L8305	1	Tip plate
9	24L0558	1	Screw M8x25

Cover assembly for 5088 expansion unit

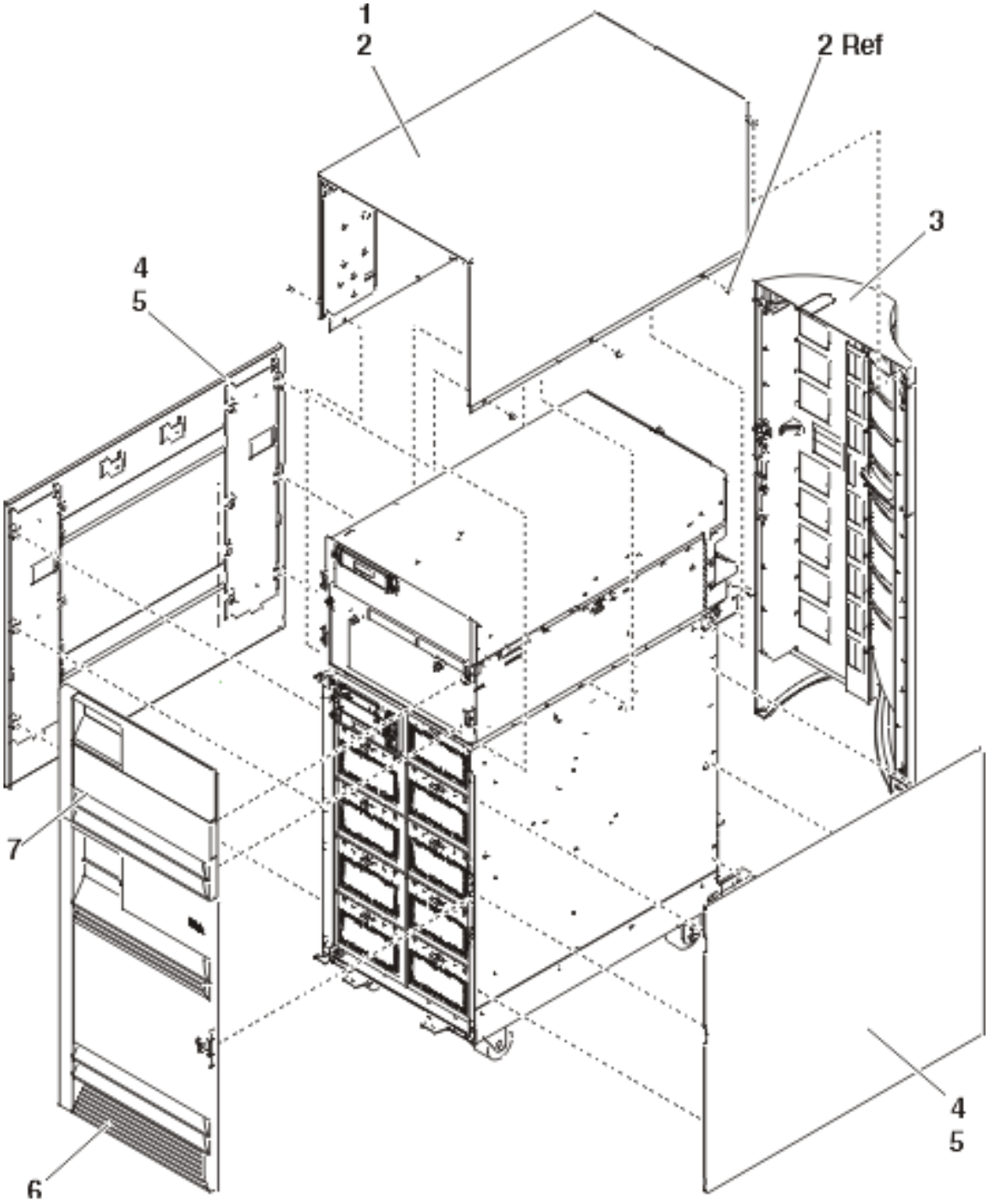


Table 48. Cover assembly part numbers for 5088 expansion unit

Index	Part number	Units	Description
1	21P4986	1	Top cover
2	1621811	6	Screw, M4 (10mm)
3	44L0247	1	Back cover
4	24L0824	2	Side cover
5	1621811	16	Screw, M4 (10mm)

Table 48. Cover assembly part numbers for 5088 expansion unit (continued)

Index	Part number	Units	Description
6	24L1069	1	Front cover, lower
7	44L0252	1	Front cover, upper

Final assembly for 5088 expansion unit

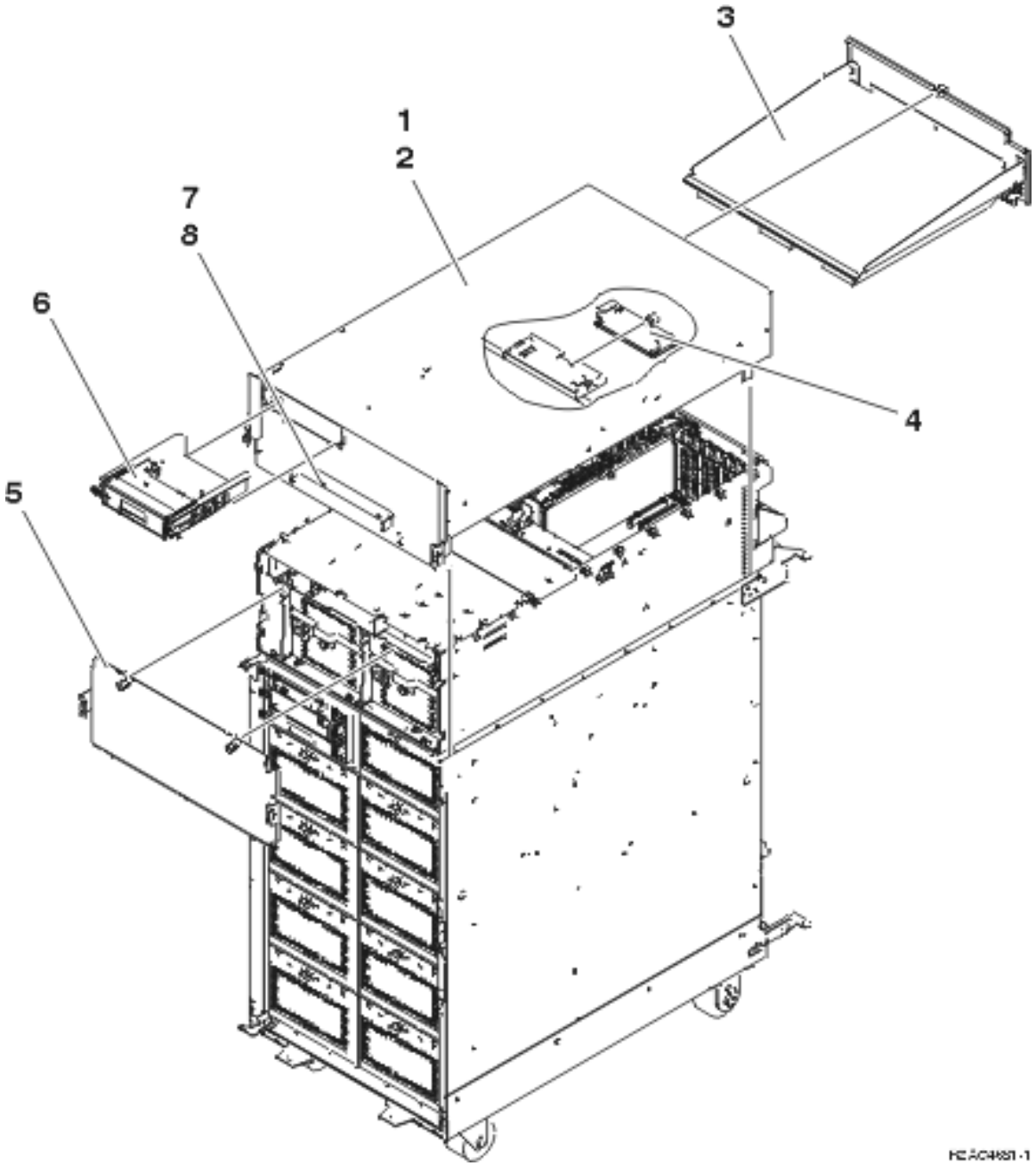


Table 49. Final assembly part numbers for 5088 expansion unit

Index	Part number	Units	Description
1	04N4523	1	Top wrap assembly
2	00G1268	4	Screws, M4X

Table 49. Final assembly part numbers for 5088 expansion unit (continued)

Index	Part number	Units	Description
3	04N4499	1	Back EMC shield
4	11K1107	1	Air-moving device (AMD) control card
5	04N4500	1	Front EMC shield
6	24L0962	1	Display panel assembly
8	00G1268	2	Screws, M4X

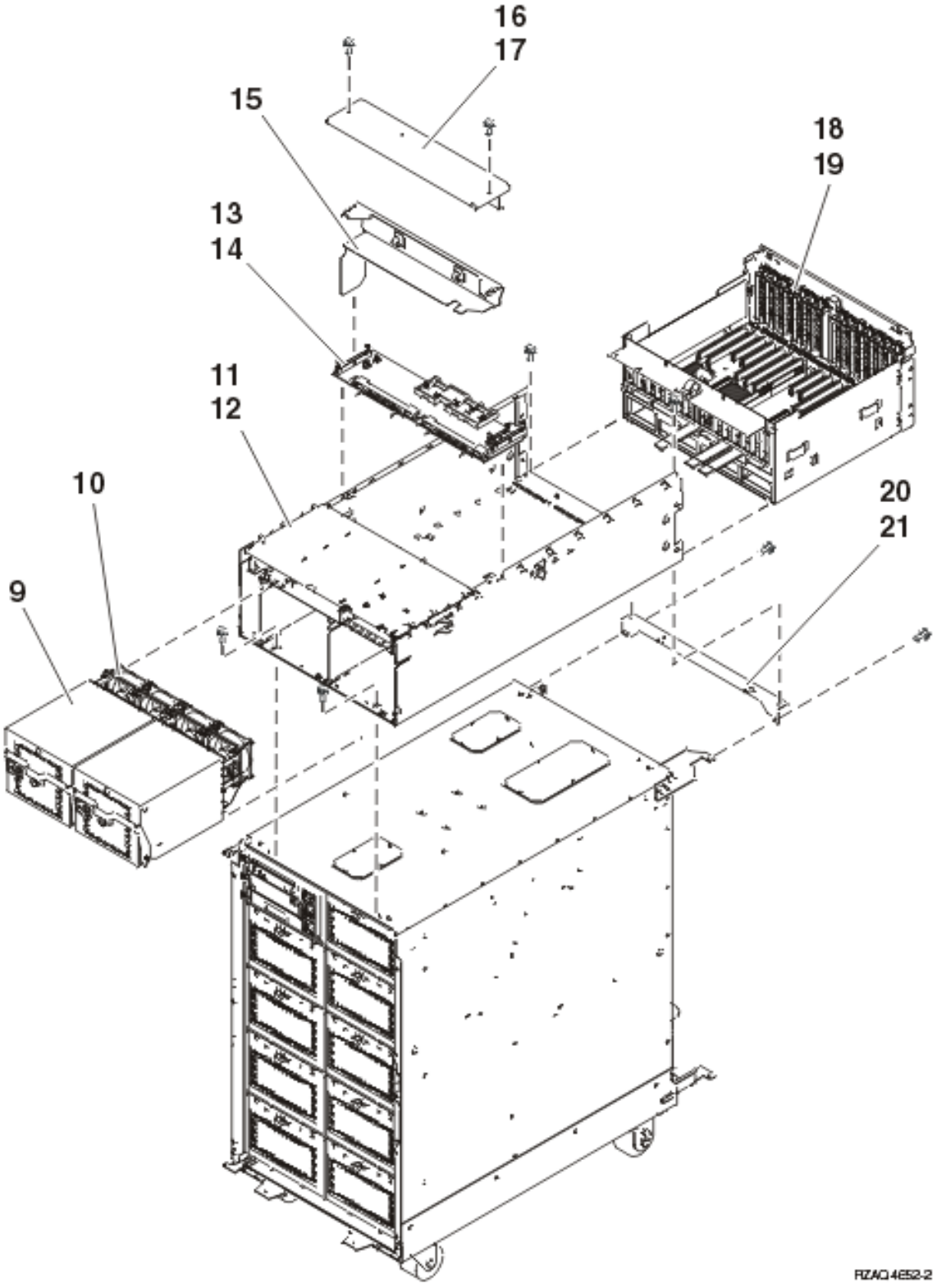


Table 50. Final assembly part numbers for 5088 expansion unit, continued

Index	Part number	Units	Description
9	00P3918	2	AC power supply

Table 50. Final assembly part numbers for 5088 expansion unit, continued (continued)

Index	Part number	Units	Description
10	41L5448	2	Air-moving device
11	21P4894	1	Chassis
12	1621811	6	Screw, M4 (10mm)
13	00P2382	1	Power distribution
14	00G1268	6	Screws, M4X
15	44K0243	1	Cable tray
16	41L5206	1	Cover
17	00G1268	2	Screw, M4X
18	53P2354	AR	PCI node board assembly
19	00G1268	6	Screw, M4X
20	04N4498	1	Mounting bracket
21	1621811	2	Screw, M4 (10mm)
NA	04N3038	AR	Power supply to PDU line cord
NA	21P6094	AR	Miscellaneous power cable
NA	41L5650	AR	SPCN cable
NA	41L5649	AR	Display panel cable
NA	41L5652	AR	Fan control cable

Optional hardware assembly for 0588, 5079, and 5294 expansion units

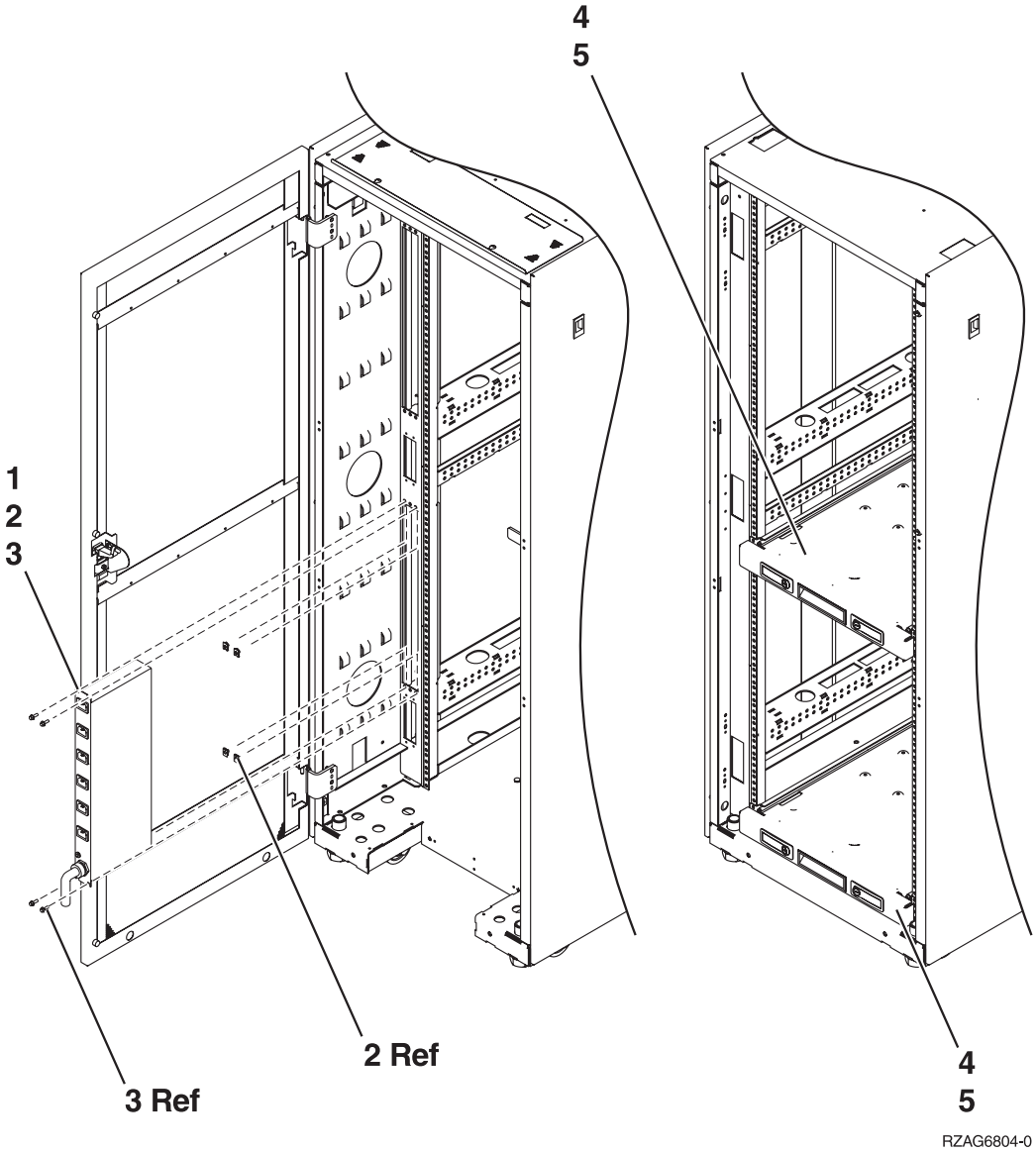


Table 51. Optional hardware assembly part numbers for 0588, 5079, and 5294 expansion units

Index	Part number	Units	Description
1	00P2200	1	Power distribution unit (PDU) single phase U.S.
1	00P2201	1	PDU two phase
1	00P2202	1	PDU three phase
1	00P2203	1	PDU single phase World Trade
2	1624779	4	Nut clip
3	74F1823	4	Screw
5	1624779	16	Screw

Part assembly diagrams for 5074 and 5094 expansion units

Cover assembly for 5074 and 5094 expansion units

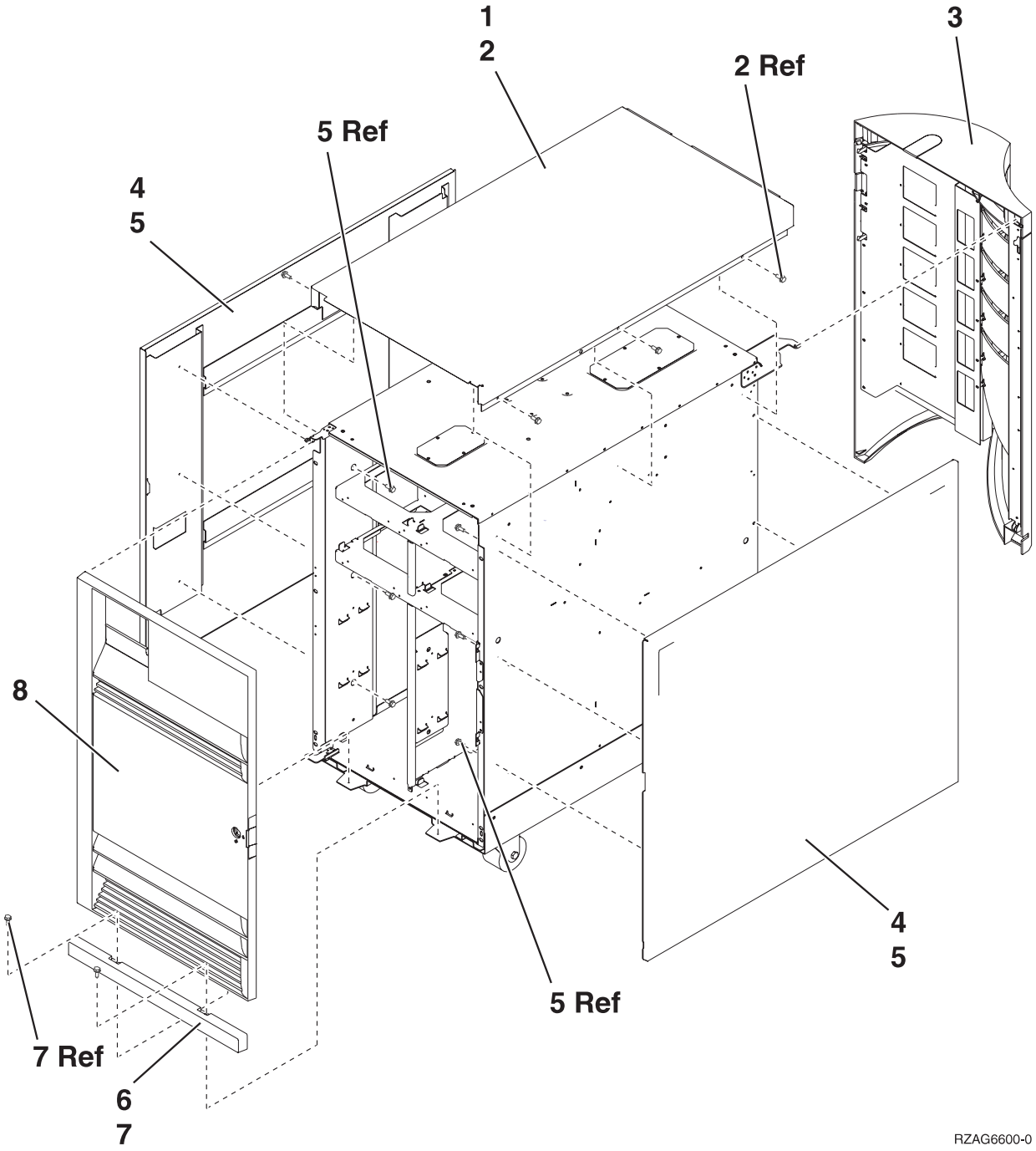


Table 52. Cover assembly part numbers for 5074 and 5094 expansion units

Index	Part number	Units	Description
1	24L0825	1	Top cover
2	1621811	4	Screw, M4 (10mm)
	• 24L1079 • 24L1071	1	• Back cover • Hinge pin, top

Table 52. Cover assembly part numbers for 5074 and 5094 expansion units (continued)

Index	Part number	Units	Description
4	24L0824	1	Side cover
5	1621811	12	Screw, M4 (10mm)
6	24L1078	1	Front filler cover
7	1621811	2	Screw, M4 (10mm)
8	• 24L1069 • 24L1071	1	• Front cover • Hinge pin, top

Final assembly for 5074 and 5094 expansion units

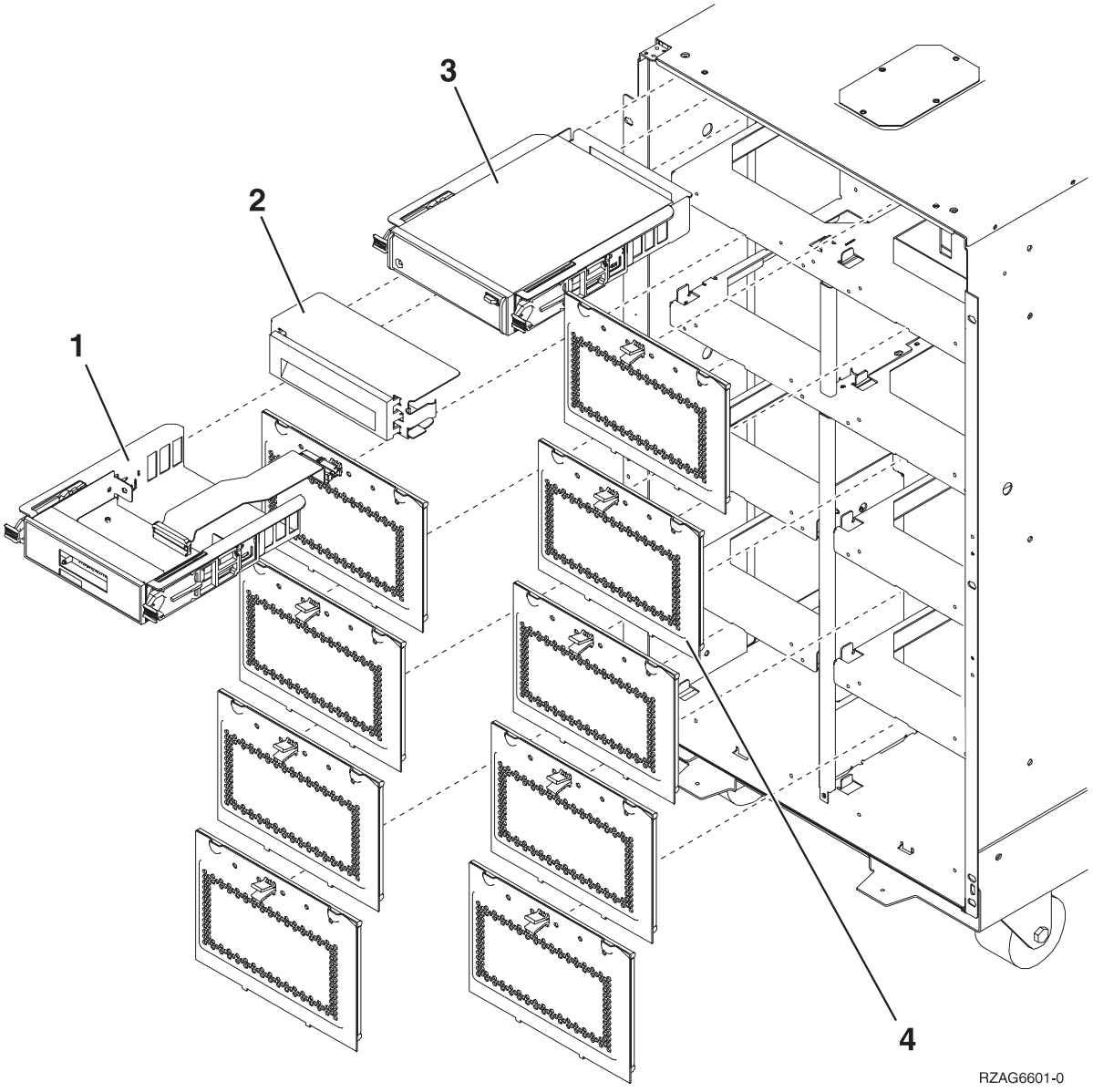


Table 53. Final assembly part numbers for 5074 and 5094 expansion units

Index	Part number	Units	Description
1	24L0962	1	Display panel (NB1)

Table 53. Final assembly part numbers for 5074 and 5094 expansion units (continued)

Index	Part number	Units	Description
2	44H8406	AR	Filler (removable media)
2		AR	Optical storage unit. See “System parts” on page 172 for details.
3		AR	Removable media. See “System parts” on page 172 for details.
4	24L0821	AR	Disk unit EMC access plate

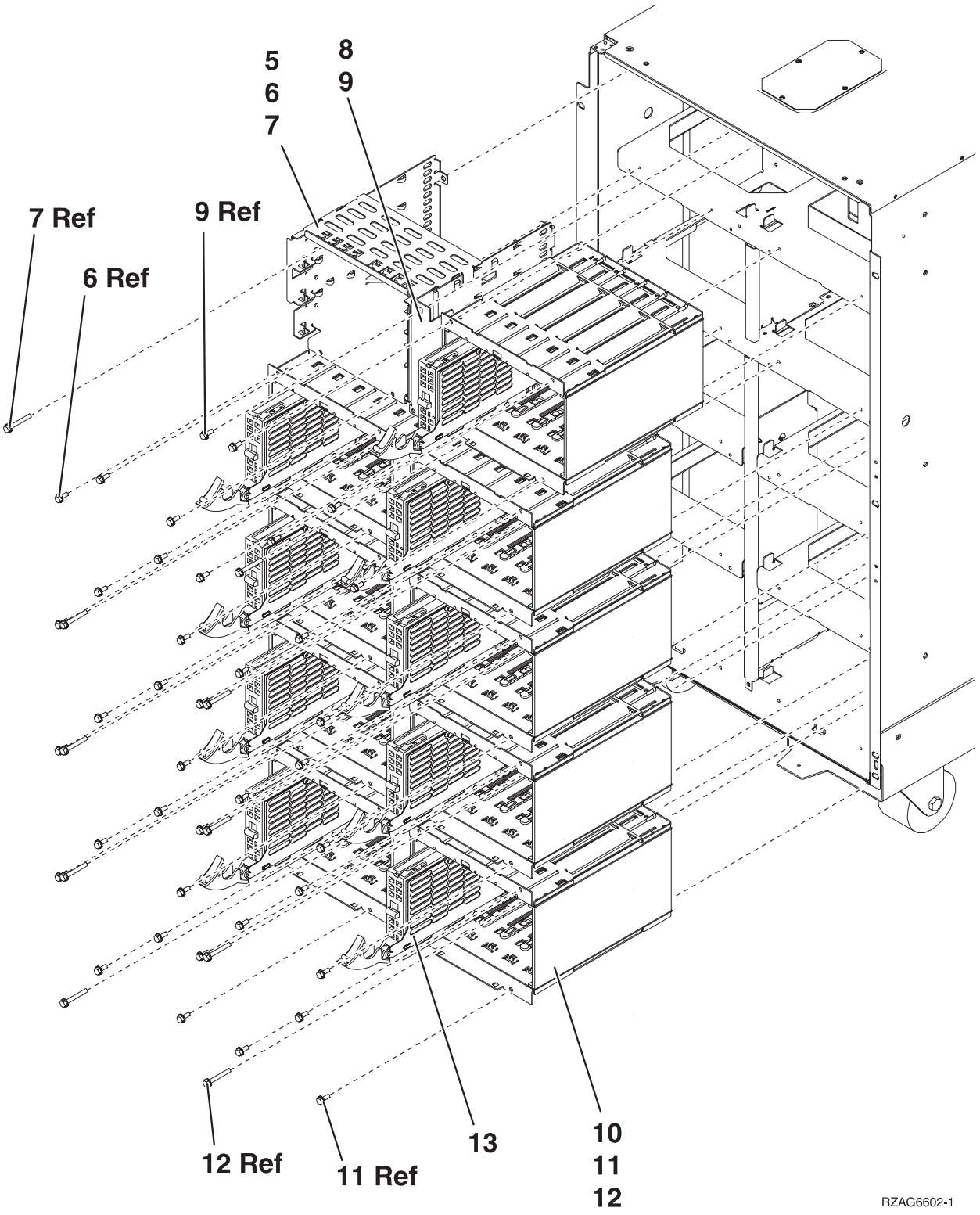


Table 54. Final assembly part numbers for 5074 and 5094 expansion units, continued

Index	Part number	Units	Description
5	NONUM	1	Removable media cage assembly
6	1621811	2	Screw, M4 (10mm)

Table 54. Final assembly part numbers for 5074 and 5094 expansion units, continued (continued)

Index	Part number	Units	Description
7	1621817	2	Screw
8	24L1067	1	Center support bracket
9	1621811	2	Screw, M4 (10mm)
10	NONUM	AR	Five disk unit cage assembly
11	1621811	12	Screw, M4 (10mm)
12	1621817	6	Screw
13		AR	Disk unit assembly. See “System parts” on page 172 for details.

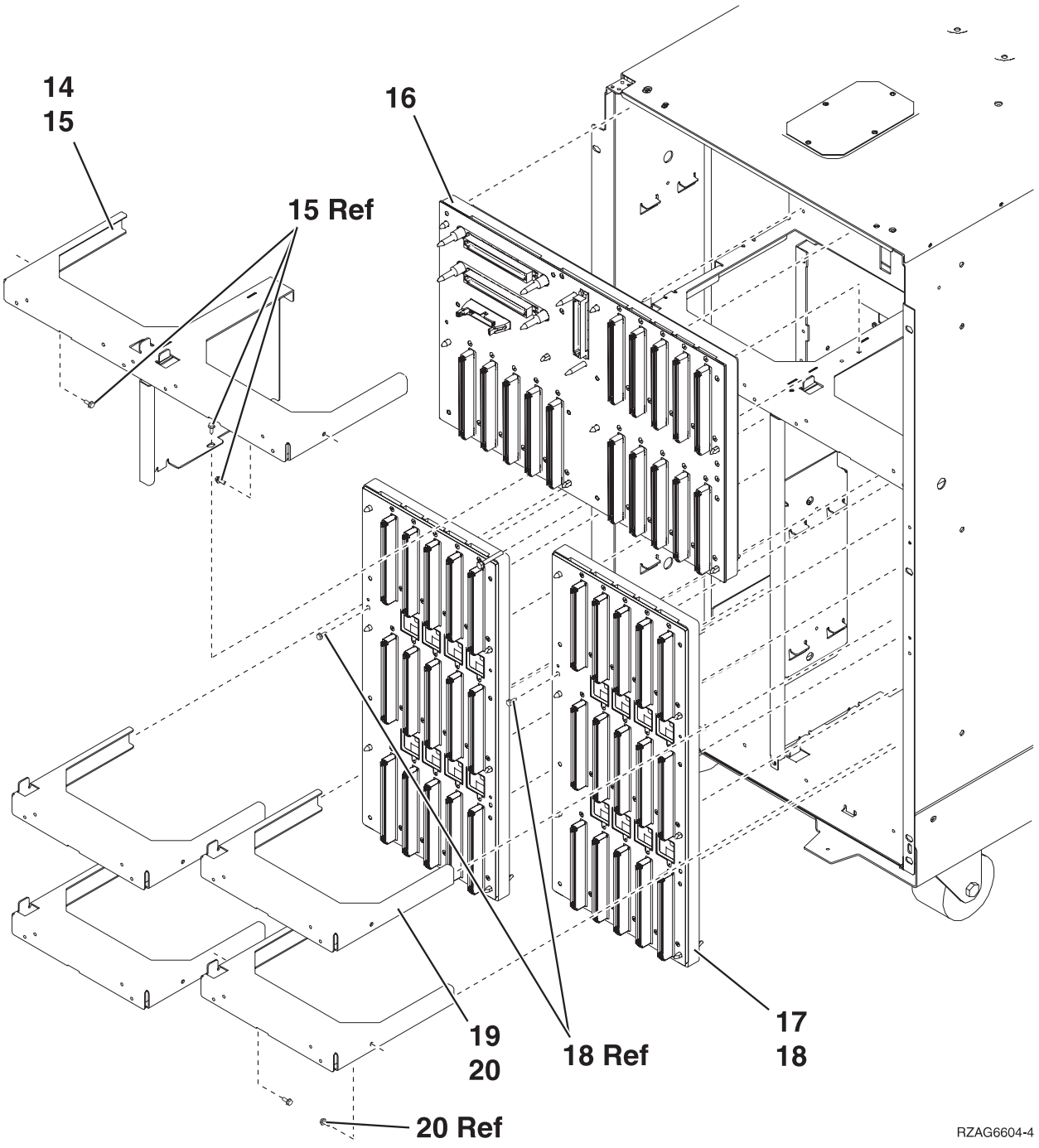


Table 55. Final assembly part numbers for 5074 and 5094 expansion units, continued

Index	Part number	Units	Description
14	NONUM	1	Shelf, base disk unit
15	1621811	3	Screw, M4 (10mm)
16	• 24L0892 (5074) • 53P4001 (5094)	1	Base disk unit board/stiffener assembly (DB3)
17	• 24L1029 (5074) • 53P4002 (5094)	AR	Disk unit board/stiffener assembly (DB1 and DB2)

Table 55. Final assembly part numbers for 5074 and 5094 expansion units, continued (continued)

Index	Part number	Units	Description
18	1621838	1	Screw
19	NONUM	AR	Shelf, disk unit
20	1621811	2	Screw, M4 (10mm)

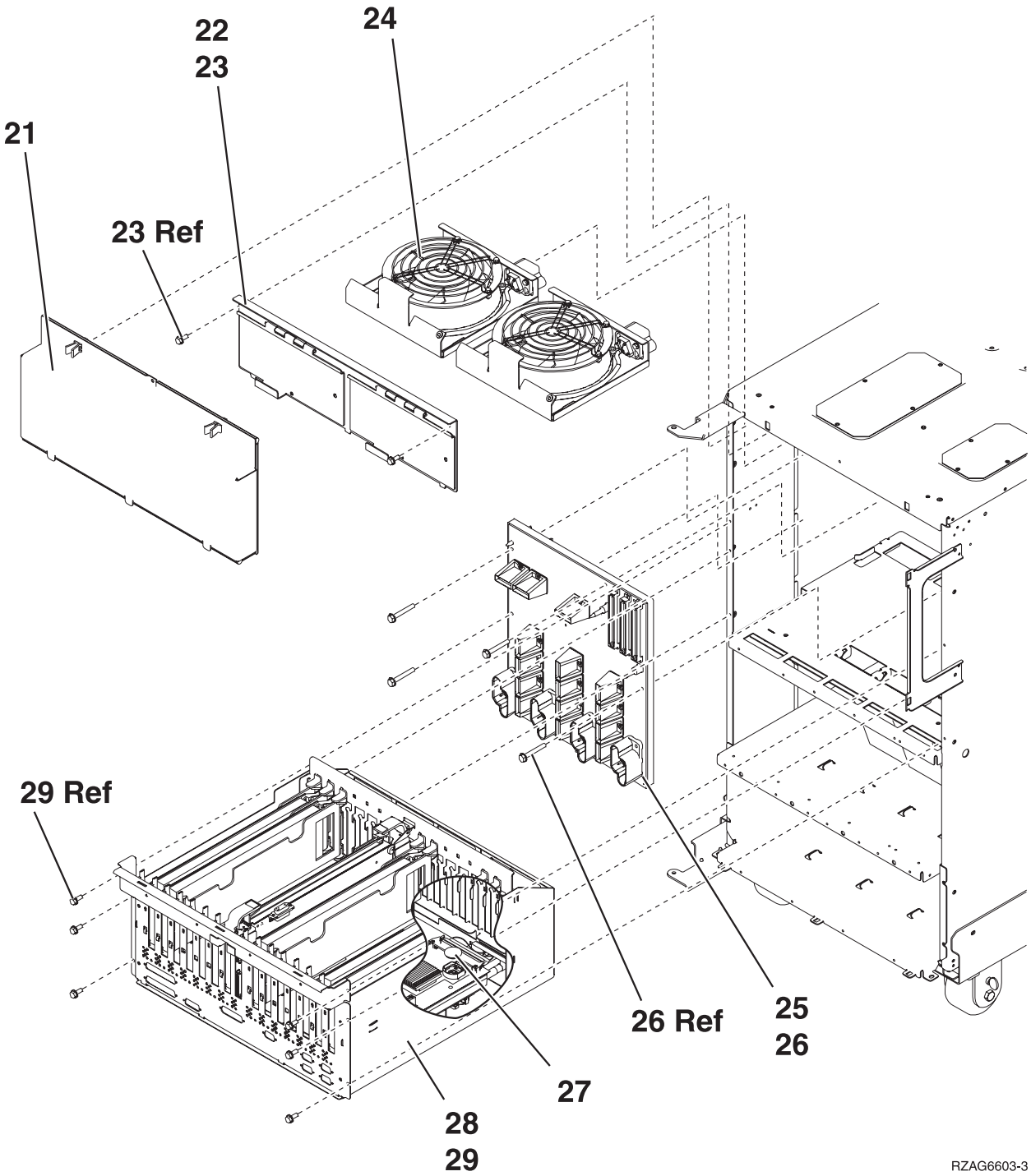


Table 56. Final assembly part numbers for 5074 and 5094 expansion units, continued

Index	Part number	Units	Description
21	24L0823	1	EMC access plate
22	NONUM	1	Air-moving device (AMD) door assembly
23	1621811	2	Screw, M4 (10mm)
24	04N3345	2	Air-moving device (AMD) (B01, B02)
25	24L0891	1	Power board/stiffener assembly (PB1)
26	1621816	6	Screw
27	16G8095	1	Time of day (TOD) battery
28	• 97H7307 (5074) • 53P3271 (5094)	1	PCI card cage assembly
29	1621811	6	Screw, M4 (10mm) **Note:** This applies only to the 5074.

Final assembly for 5074 (single line cord)

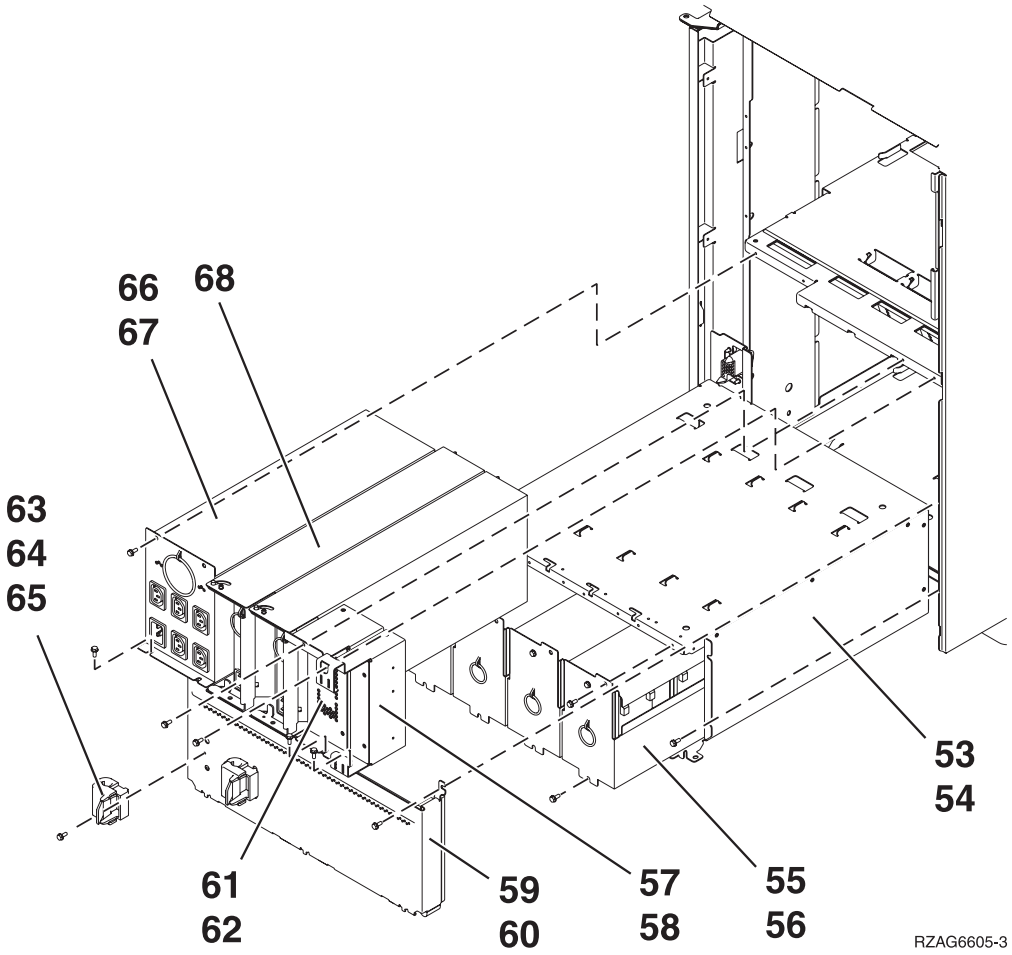


Table 57. Final assembly part numbers for 5074 (single line cord)

Index	Part number	Units	Description
53	53P4651	1	Power subframe assembly
54	1621811	12	Screw, M4 (10mm)

Table 57. Final assembly part numbers for 5074 (single line cord) (continued)

Index	Part number	Units	Description
55	97H7318	1	Battery pack. This part number includes four batteries. For additional information, refer to symbolic FRU BATRY.
56	1621811	12	Screw, M4 (10mm)
57	24L0940	AR	Filler, spacer
58	1621811	2	Screw, M4 (10mm)
59	NONUM	1	EMC access plate
60	1621811	2	Screw, M4 (10mm)
61	24L0939	AR	Filler, power supply
62	1621811	2	Screw, M4 (10mm)
63	44H8641	2	Cable clamp, top
64	44H8640	2	Cable clamp, base
65	1621811	2	Screw, M4 (10mm)
66	97H7316	1	Battery charger
67	1621811	4	Screw, M4 (10mm)
68	90H6629	3	Power supply, 765 watts (P01, P02, P03)

Final assembly for 5074 (two power supply dual line cord)

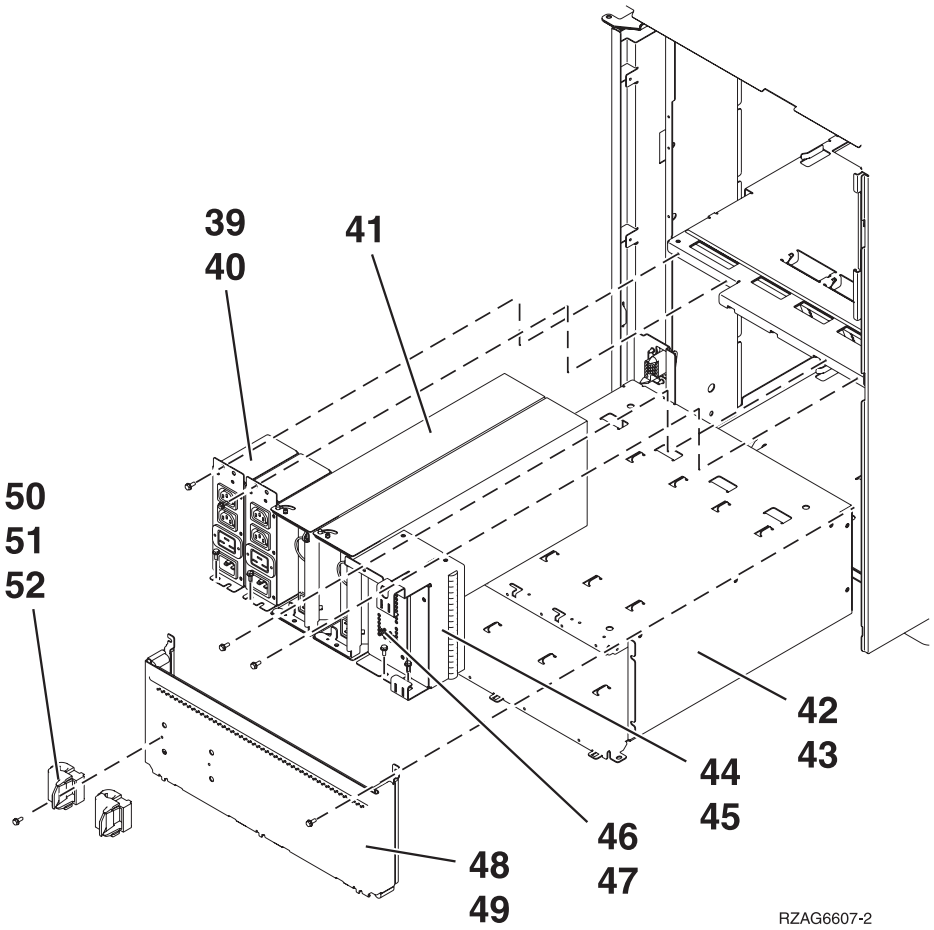


Table 58. Final assembly part numbers for 5074 (two power supply dual line cord)

Index	Part number	Units	Description
39	21P6347	2	AC module
40	1621811	4	Screw, M4 (10mm)
41	53P1038	2	Power supply, 840 watts (P01, P02)
42	53P4651	1	Power subframe assembly
43	1621811	12	Screw, M4 (10mm)
44	24L0940	AR	Filler, Spacer
45	1621811	2	Screw, M4 (10mm)
46	24L0939	AR	Filler, power supply
47	1621811	2	Screw, M4 (10mm)
48	NONUM	1	EMC access plate
49	1621811	2	Screw, M4 (10mm)
50	44H8641	2	Cable clamp, Top
51	44H8640	2	Cable clamp, Base
52	1621811	2	Screw, M4 (10mm)

Final assembly for 5094 expansion unit

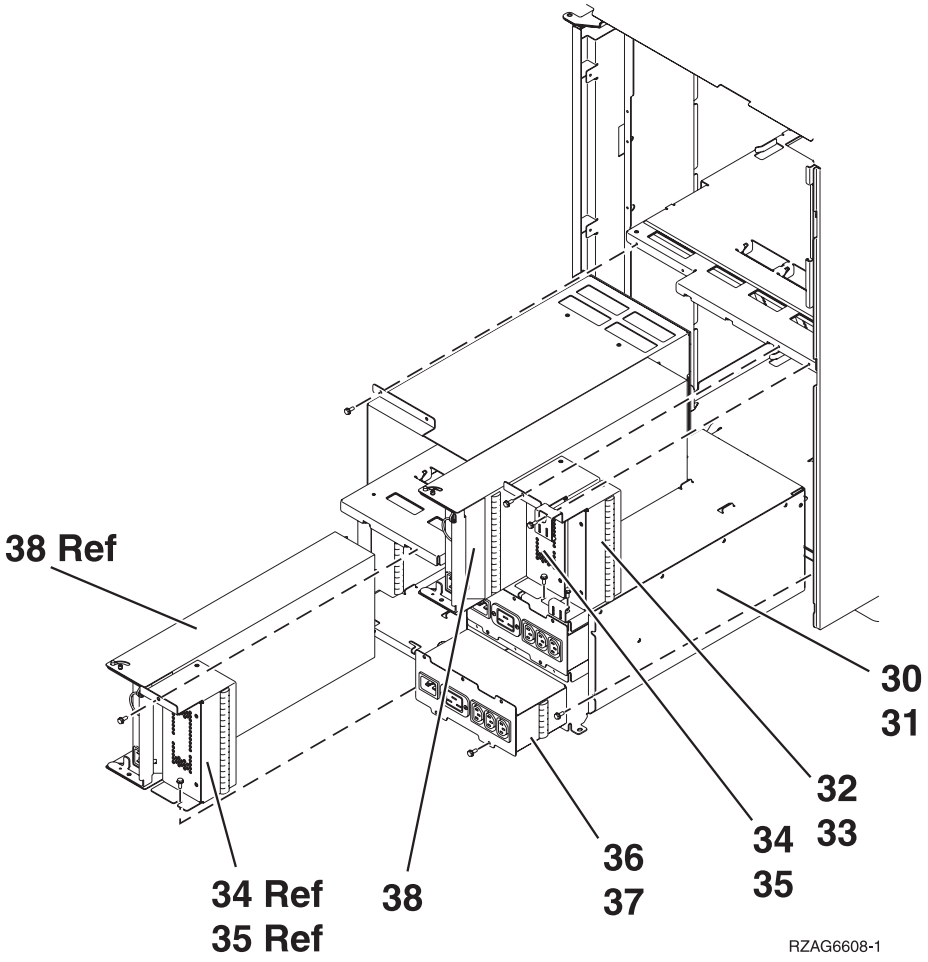


Table 59. Final assembly part numbers for 5094 expansion unit

Index	Part number	Units	Description
30	53P5259	1	Power subframe assembly for dual line cord
31	1621811	8	Screw, M4 (10mm)
32	24L0940	2	Filler, spacer
33	1621811	2	Screw, M4 (10mm)
34	24L0939	2	Filler, power supply
35	1621811	4	Screw, M4 (10mm)
36	53P5263	2	AC power distribution assembly. See symbolic FRU ACMODUL.
37	1621811	4	Screw, M4 (10mm)
38	53P1038	4	Power supply assembly - 840W (P00, P01, P02, P03)

Part assembly diagrams for 0595 and 5095 expansion units

Cover assembly for 5095 expansion unit

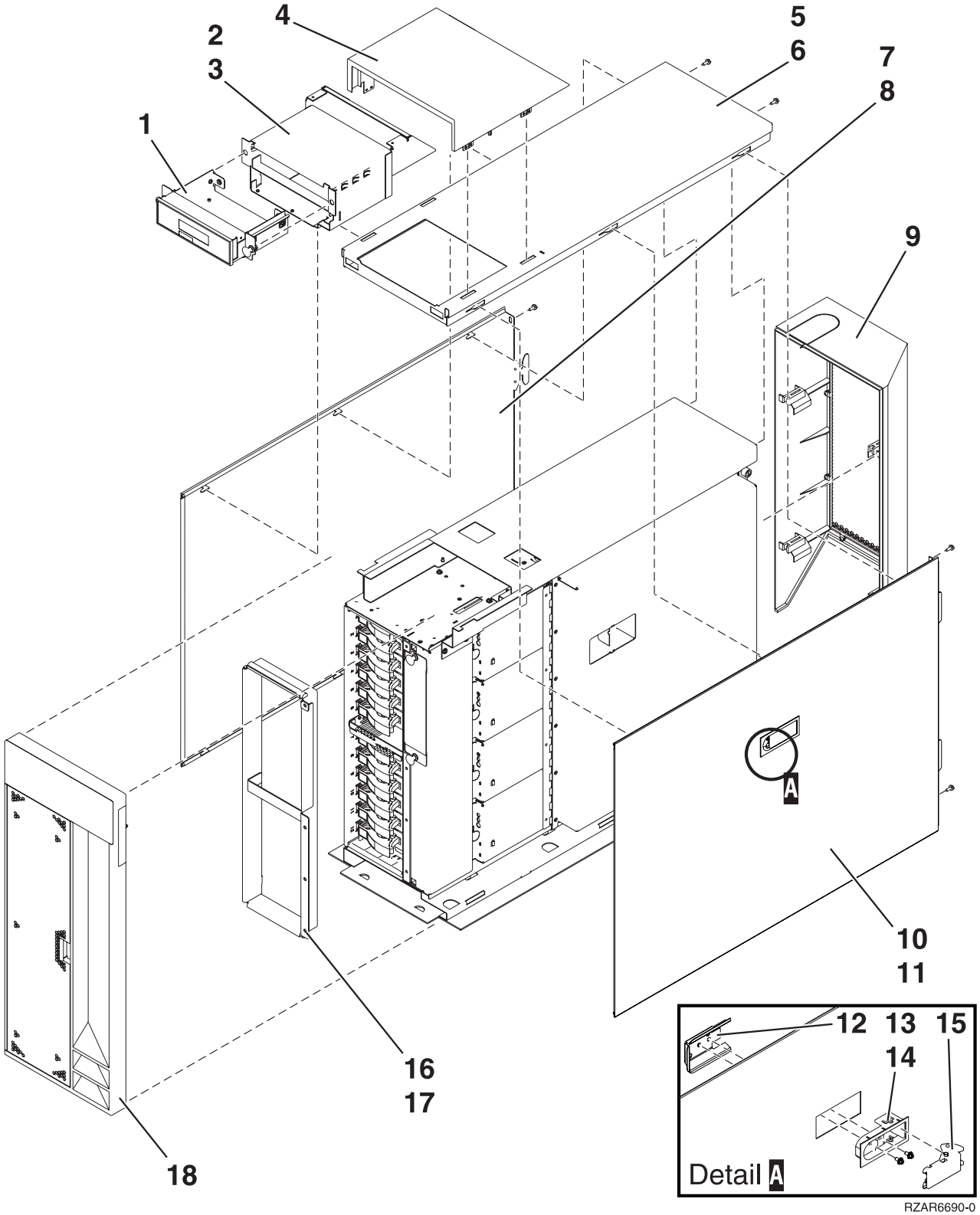


Table 60. Cover assembly part numbers for 5095 expansion unit

Index	Part number	Units	Description
1	53P0330	1	Display panel tray assembly
2	NONUM	1	Display panel enclosure assembly
3	53P0320	5	Screw
4	53P0308	1	Cover, display panel
5	53P0280	1	Cover, top
6	53P0320	2	Screw
7	53P0285	1	Cover, left side
8	53P0320	2	Screw
9	53P0303	1	Cover assembly, back
10	53P0286	1	Cover assembly, right side
11	53P0320	2	Screw
12	53P0322	1	EMC bracket
13	06P5858	1	Latch housing
14	03K9553	2	Screw, M3.5 x 7
15	06P5857	1	Latch handle
16	53P0234	1	Bracket, DASD filler
17	44H7336	4	Screw
18	53P1359	1	Cover assembly, front

Final assembly for 0595 expansion unit (rack mounted)

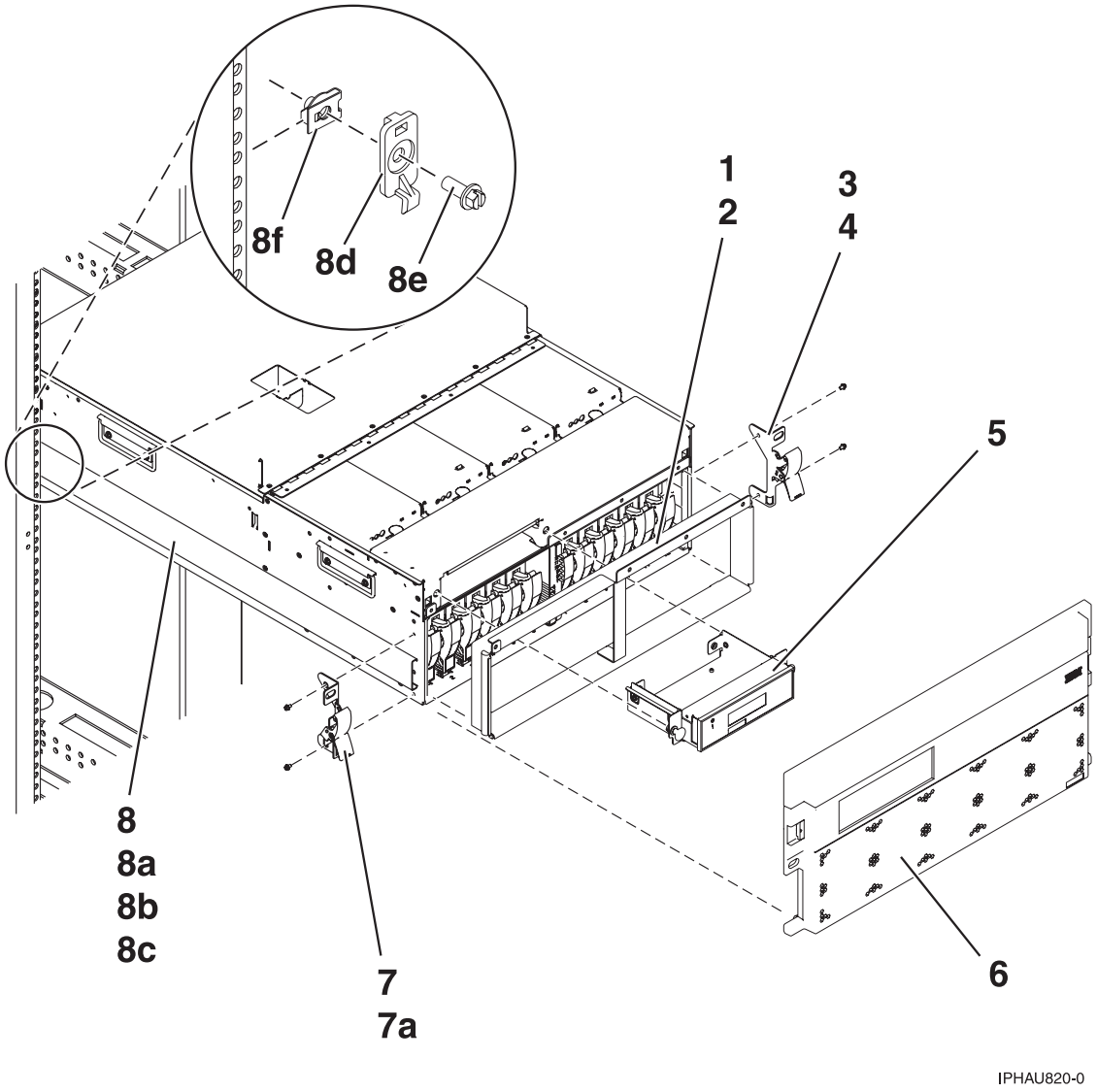


Table 61. Final assembly part numbers for 0595 expansion unit (rack mounted)

Index	Part number	Units	Description
1	53P0234	1	Bracket, DASD filler
2	75G2878	4	Screw, M3.5 x 8mm
3	53P2573	1	Latch assembly, right
4	75G2878	2	Screw, M3.5 x 8mm
5	53P0330	1	Display panel tray assembly
6	53P1457	1	Cover assembly, front
7	53P2572	1	Latch assembly, left
7a	75G2878	2	Screw, M3.5 x 8mm
8	53P0296	1	Cable management arm. General location, but not shown.
8a	53P3451	1	Slide assembly, left side
8b	53P3452	1	Slide assembly, right side

Table 61. Final assembly part numbers for 0595 expansion unit (rack mounted) (continued)

Index	Part number	Units	Description
8c	53P3726	AR	Rail-mounting kit
8d	NONUM	AR	- Rack latch (included in rail-mounting kit)
8e	NONUM	AR	- Screw (included in rail-mounting kit)
8f	NONUM	AR	- Nut clip (included in rail-mounting kit)

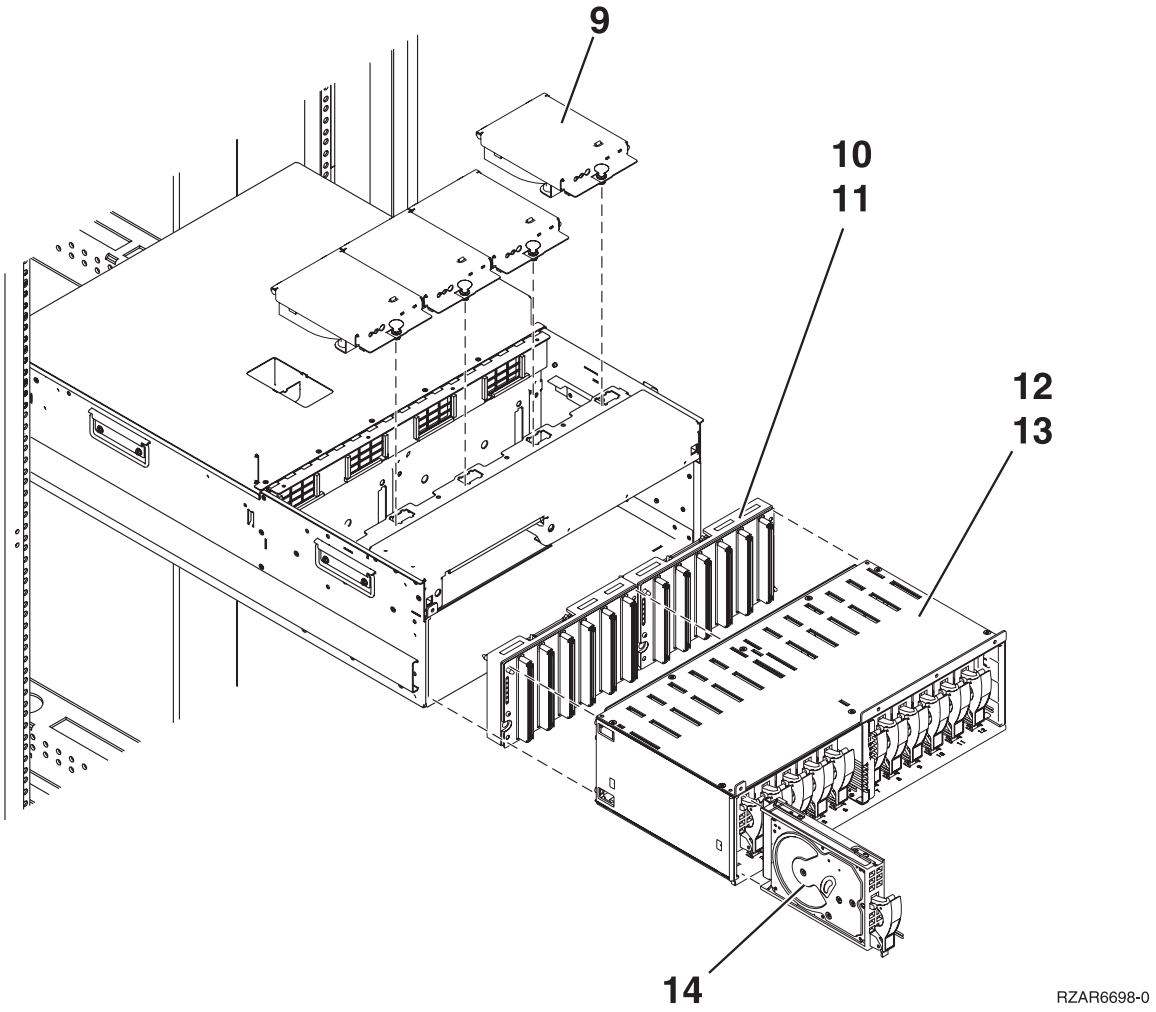


Table 62. Final assembly part numbers for 0595 expansion unit (rack mounted), continued

Index	Part number	Units	Description
9	53P0262	4	Blower assembly
10	97P3138	2	Disk unit enclosure backplane
11	75G2878	8	Screw, M3.5 x 8mm
12	53P0250	2	Disk unit enclosure
13	75G2878	4	Screw, M3.5 x 8mm
14	See “Part number catalog” on page 171	AR	Disk unit
14	See “Part number catalog” on page 171	AR	Disk unit

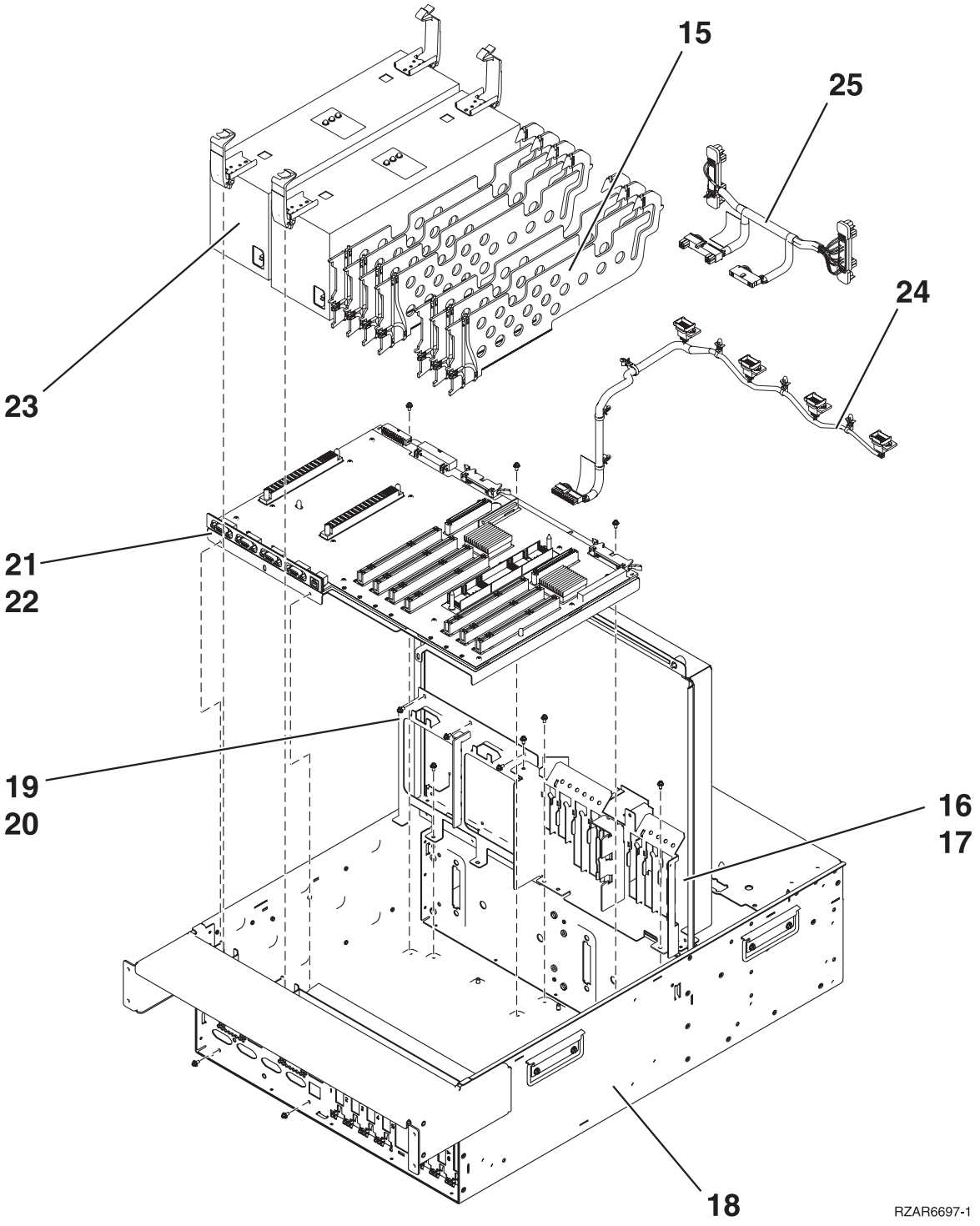


Table 63. Final assembly part numbers for 0595 expansion unit (rack mounted), continued

Index	Part number	Units	Description
15	53P2728	1	PCI divider
	53P2729	1	PCI divider (C01, C06)
16	NONUM	NP	PCI headstock
17	75G2878	3	Screw, M3.5 x 8mm

Table 63. Final assembly part numbers for 0595 expansion unit (rack mounted), continued (continued)

Index	Part number	Units	Description
18	53P0222	NP	Frame assembly
19	NONUM	NP	Power bulkhead
20	75G2878	5	Screw, M3.5 x 8mm
21	53P2970	AR	PCI backplane assembly CB1
22	75G2878	5	Screw, M3.5 x 8mm
23	21P7602	AR	Power supply
23	53P0233	AR	Filler, power supply
24	53P4065	1	AMD cable
25	53P4016	1	Disk unit cable

Final assembly for 5095 expansion unit

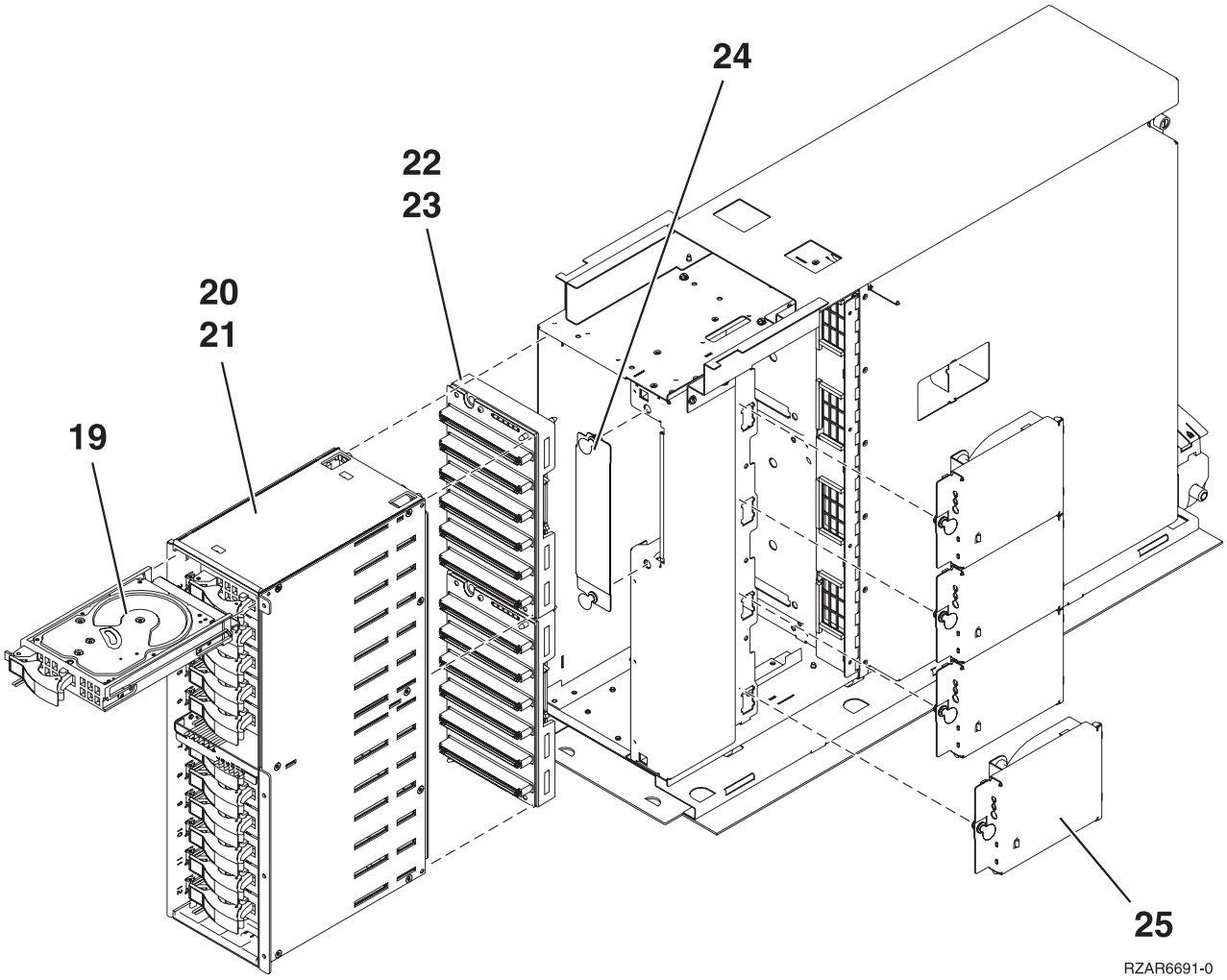


Table 64. Final assembly part numbers for 5095 expansion unit

Index	Part numbers	Units	Description
19	21P3593	AR	Disk unit
19	24L0900	AR	Disk unit

Table 64. Final assembly part numbers for 5095 expansion unit (continued)

Index	Part numbers	Units	Description
20	53P0250	2	Disk unit enclosure
21	44H7366	AR	Screw, M3.5 x 8mm
21	53P0319	AR	Screw
22	97P3138	2	Disk unit enclosure backplane
23	53P0321	8	Screw
24	53P0262	1	EMC enclosure
25	53P0262	4	Air-moving device (blower assembly)

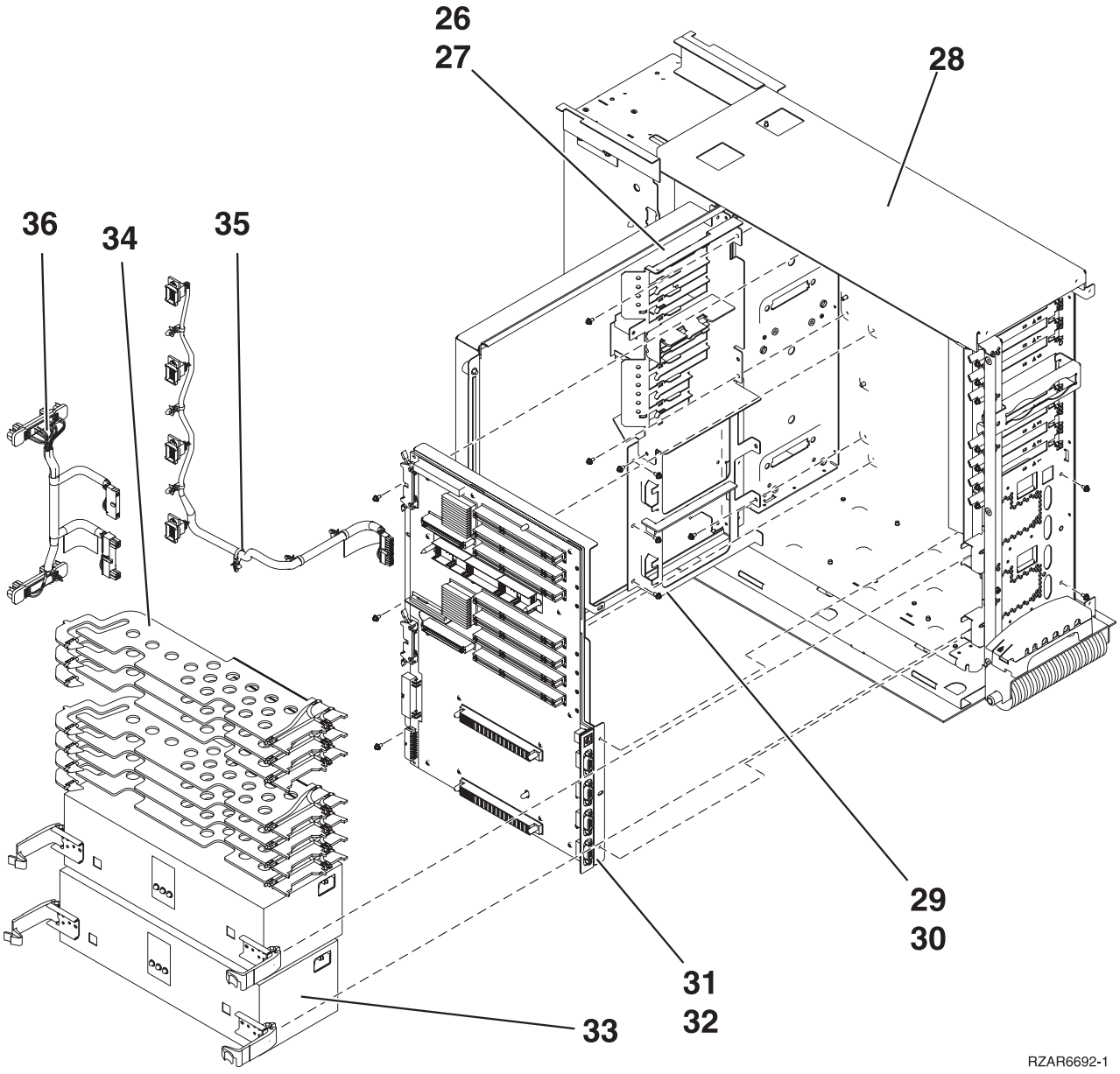


Table 65. Final assembly part numbers for 5095 expansion unit, continued

Index	Part numbers	Units	Description
26	53P0249	1	Bracket, PCI Headstock

Table 65. Final assembly part numbers for 5095 expansion unit, continued (continued)

Index	Part numbers	Units	Description
27	44H7366	3	Screw
28	53P0222	NP	Frame assembly
29	21P7602	1	Bracket, power supply
30	44H7366	4	Screw
31	53P0239	1	Processor backplane assembly
32	44H7366	5	Screw
33	21P7602	AR	Power supply
33	53P0233	AR	Filler, Power supply
34	53P2728	AR	PCI divider
34	53P2729	AR	PCI divider

Part assembly diagrams for 5791and5794

Final assembly

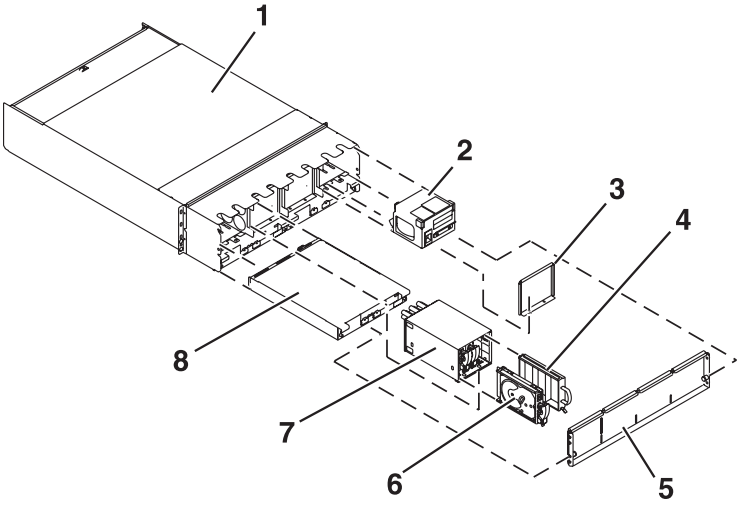


Table 66. Final assembly (front) part numbers

Index number	Part number	Units per assembly	Description
1		1	Chassis
	07H5247	2	Frame rail
2	11P4624	AR	Fan assembly
3	44P1277	AR	Disk drive enclosure filler
4	11P3662	AR	Disk drive filler
5	44P0189	1	Front cover
6		AR	Disk drive
7	11P4855	AR	Disk unit enclosure and backplane assembly
	11P2436		Screw
	11P3457		Screw
	11P3667		Screw

Table 66. Final assembly (front) part numbers (continued)

Index number	Part number	Units per assembly	Description
8	11P3582	2	Power supply

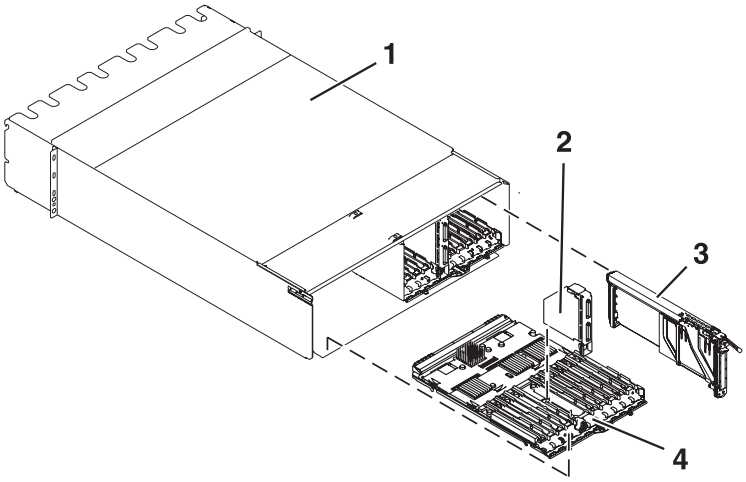


Table 67. Final assembly (back) part numbers

Index number	Part number	Units per assembly	Description
1		1	Chassis
2		2	RIO/HSL riser card, part of the I/O backplane
3	11P4861	AR	PCI adapter cassette assembly
	44P0239	AR	PCI adapter cassette assembly
	11P4089	AR	PCI adapter cassette filler
4	44P1055	AR	Cassette for standard PCI adapter
	44P1390	AR	Cassette for standard PCI adapter
	44P3320	AR	Cassette for standard PCI adapter
5	44P0323	AR	Adapter clip for Gigabit Ethernet
	44P0324	AR	Adapter clip for Ultra3 SCSI
	44P0321	AR	Adapter clip for 10/100 BaseT Ethernet
	44P0406	AR	Adapter clip for Gigabit fibre channel PCI
	11P4861	AR	PCI filler
6		AR	I/O backplane

Part assembly diagrams for 7311-D11 and 5790

Note: Refer to the 7311-D10 service guide (SA38-0627) for 7311-D10 part number information.

Final assembly for 7311-D11 and 5790

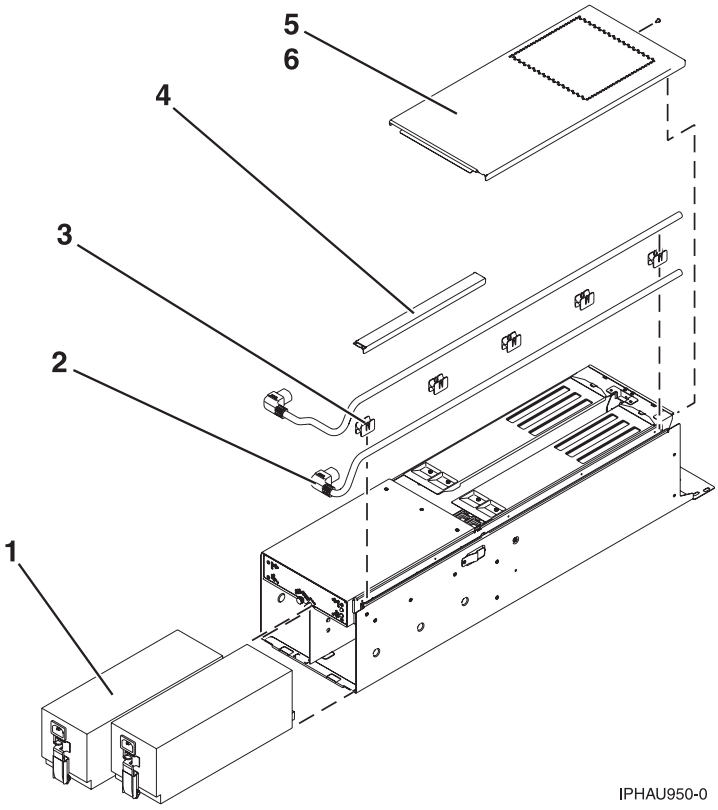


Table 68. Final assembly part numbers for 7311-D11 and 5790

Index number	Part number	Units	Description
1	see “Part number catalog” on page 171	2	Power supply
2	see “Part number catalog” on page 171	2	Cable, power
3	09P3185	5	Guide, power cable
4	80P2654	1	Cover, power cable channel
5	80P2646	1	Access cover
6	1624743	2	Screw, access cover

Final assembly for 7311-D11 and 5790, continued

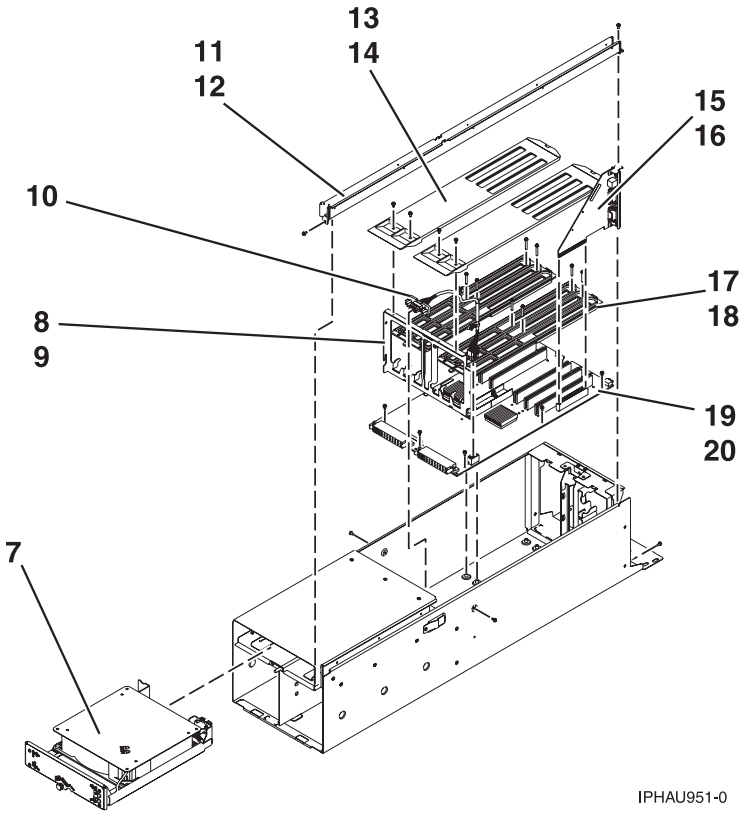


Table 69. Final assembly for 7311-D11 and 5790, continued

Index number	Part number	Units	Description
7	80P2650	1	Fan assembly
8	80P2645	1	Bracket, bulkhead
9	1621829	2	Screw, bulkhead bracket
10	09P5417	1	Cable, fan
11	80P2648	1	Tray, power cable
12	1621829	2	Screw, tray mounting
13	80P2648	2	Guide, upper
14	1621829	4	Screw, upper guide mounting
15			SPCN connector card (included with index number 20)
16			Screw (included with index number 20)
17	80P2666	2	Guide, lower
18	1624749	8	Screw, lower guide mounting
19	see “Part number catalog” on page 171	1	I/O backplane assembly (includes SPCN connector card)
20	1624743	6	Screw, backplane mounting

Final assembly for 7311-D11 and 5790, continued

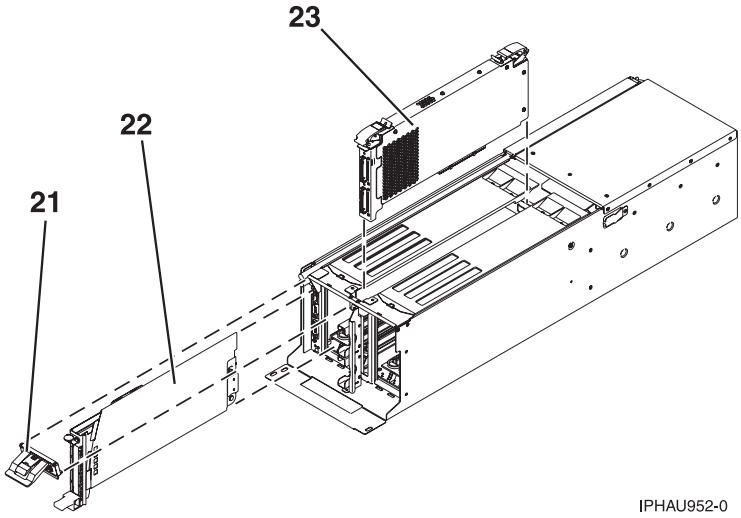


Table 70. Final assembly for 7311-D11 and 5790, continued

Index number	Part number	Units	Description
21	80P2669	2	Filler, EMC
22	97P5663	AR	PCI cassette
23	see "Part number catalog" on page 171	1	RIO/HSL card

Rack mounting enclosure for 7311-D11 and 5790

Table 71. Rack mounting enclosure part numbers for 7311-D11 and 5790

Index number	Part number	Units	Description
	09P4778	1	Front cover
	04N6587	2	Thumbscrew, shipping
		1	Two-position I/O subsystem mounting assembly
	1624779	4	Screw, I/O subsystem mounting
	03N3845	1	Left rail
	03N3847	1	Right rail
	1624779	8	Screw, rail mounting
	74F1823	12	Nut clip, rail mounting
	80P2665	2	Cable support bracket
	00G1268	2	Screw, bracket mounting
	80P2663	2	I/O subsystem retention bracket
	93H4729	2	Screw, expansion unit attach
	93H4729	2	Screw, I/O subsystem attach
	80P2664	1	Back filler for empty I/O subsystem space
	93H4729	2	Screw, filler mounting

Part assembly diagrams for 7311-D20

I/O backplane and cabling assembly for 7311-D20

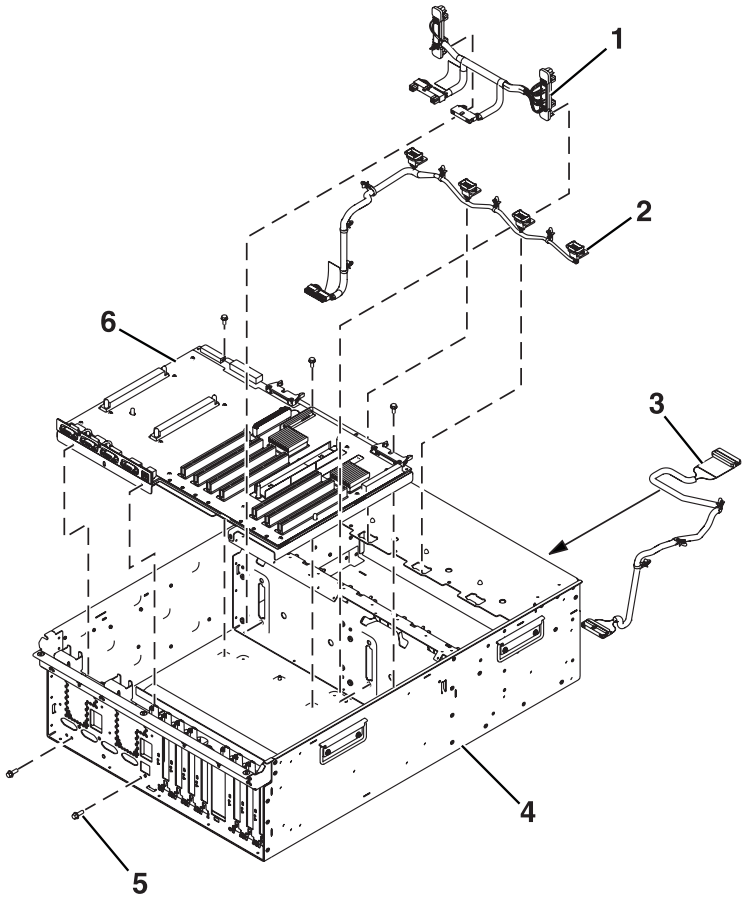


Table 72. I/O backplane and cabling assembly part numbers for D20

Index number	Part number	Units	Description
1	53P0416	1	DASD cable
2	53P0419	1	Blower cable
3	53P0414	1	Control panel cable
4	53P0220	1	Chassis assembly
5	44H7366	5	Mounting screw, stiffener
6	see “Part number catalog” on page 171	1	I/O Backplane

PCI adapters assembly for 7311-D20

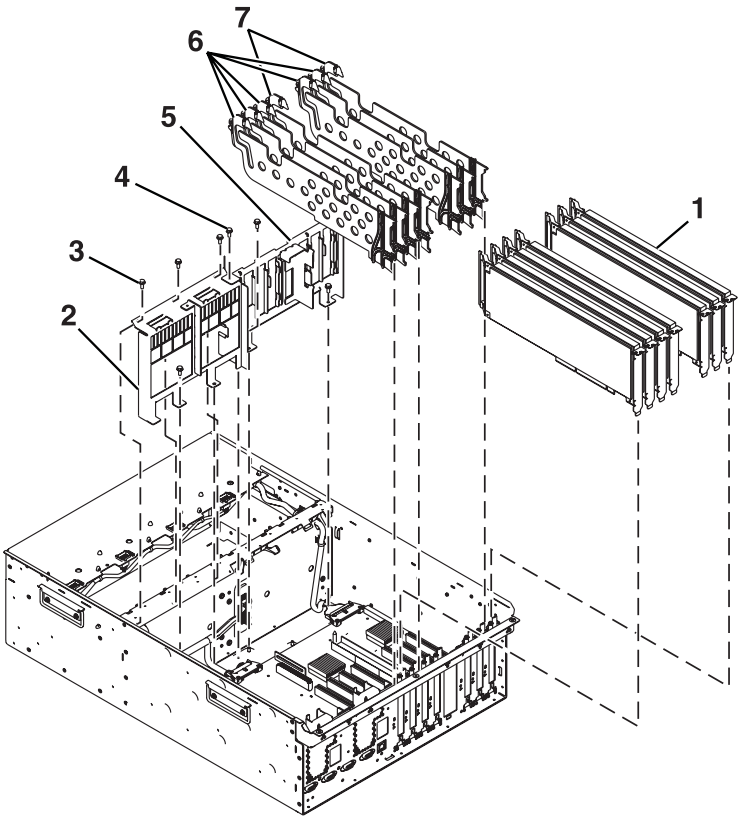


Table 73. PCI adapters assembly part numbers for 7311-D20

Index number	Part number	Units	Description
1		7 (maximum quantity)	PCI adapter
2	53P0248	1	Power supply bulkhead
3	44H7366	4	Screw, power bulkhead mounting
4	44H7366	3	Screw, PCI plate mounting
5	53P0249	1	PCI adapter headstock bracket
6	53P2728	5	PCI dividers
7	53P2729	2	PCI dividers

Power, RIO/HSL adapter, and cabling assembly for 7311-D20

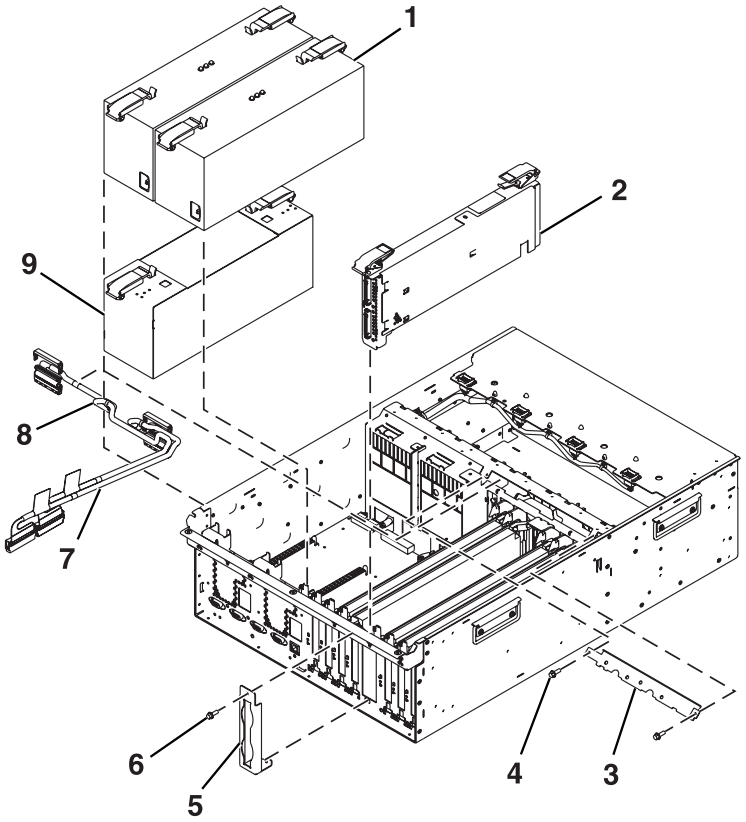


Table 74. Power, RIO/HSL adapter, and cabling assembly part numbers for D20

Index number	Part number	Units	Description
1	see “Part number catalog” on page 171	2 (maximum quantity)	Power supply
2	see “Part number catalog” on page 171	1	RIO/HSL bus adapter
	see “Part number catalog” on page 171	1	RIO/HSL-2 bus adapter
3	53P2690	3	Cable bracket, SCSI
4	44H7366	1	Screw, SCSI cable
5	53P0639	5	RIO/HSL-2 cable bracket
6	44H7366	2	Screw, RIO/HSL-2 cable bracket
7	53P0417	Configuration dependent	SCSI bus cable
8	53P0418	Configuration dependent	SCSI bus cable
9	53P0233	1	Power supply filler

Operator panel assembly for 7311-D20

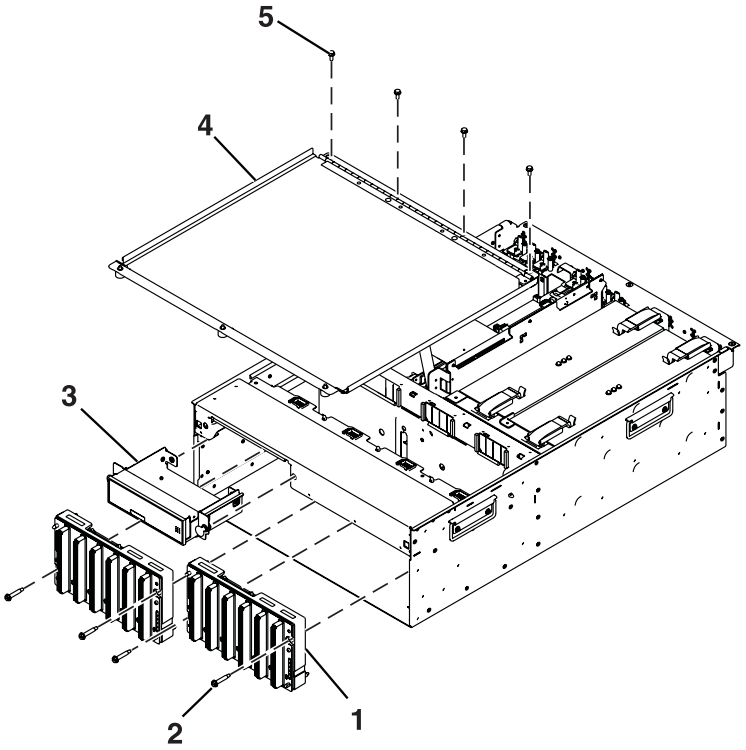


Table 75. Operator panel assembly part numbers for 7311-D20

Index number	Part number	Units	Description
1	see “Part number catalog” on page 171	2	Disk-drive-backplane (disk drive enclosure included)
2	53P0321	4	Screw, disk-drive-backplane mounting
3	see “Part number catalog” on page 171	1	Operator panel
4	53P0275	1	Processor cover
5	44H7366	4	Screw, cover-mounting

Fans and disk drives assembly for 7311-D20

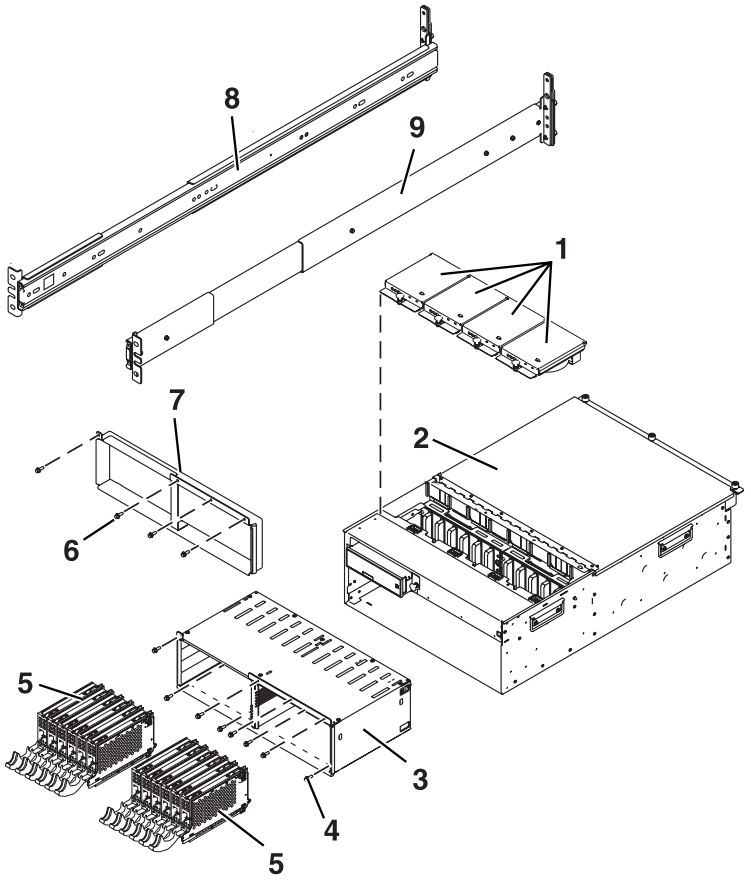


Table 76. Fans and disk drives assembly part numbers for 7311-D20

Index number	Part number	Units	Description
1	see "Part number catalog" on page 171	4	Fan
2			7311-D20
3	53P0257	1	Disk-drive enclosure 12 pack (disk drive backplanes included)
4	53P0319	8	Screw, disk drive enclosure mounting
5	see "Part number catalog" on page 171		Disk drives
6	53P0234	4	Screw, filler-plate mounting
7	44H7366	1 (optional)	Disk drive filler plate
8	53P3451	1	Left rail
9	53P3452	1	Right rail

Covers and brackets assembly for 7311-D20

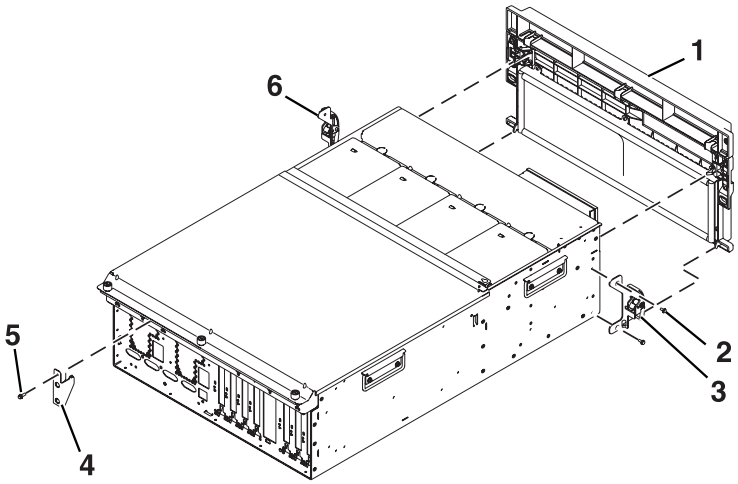


Table 77. Covers and brackets assembly part numbers for 7311-D20

Index number	Part number	Units	Description
1	53P1457	1	Front bezel
2	44H7366	2	Screw, latch bracket
3	53P2572	1	Latch bracket assembly left
4	53P0295	4	Cable arm bracket
5	44H7366	1	Screw, cable arm bracket
6	53P2573	1	Latch bracket assembly right

Part assembly diagrams for 7014-T00 and 7014-T42 rack

Frames, side panels, and top cover assembly for 7014-T00 and 7014-T42

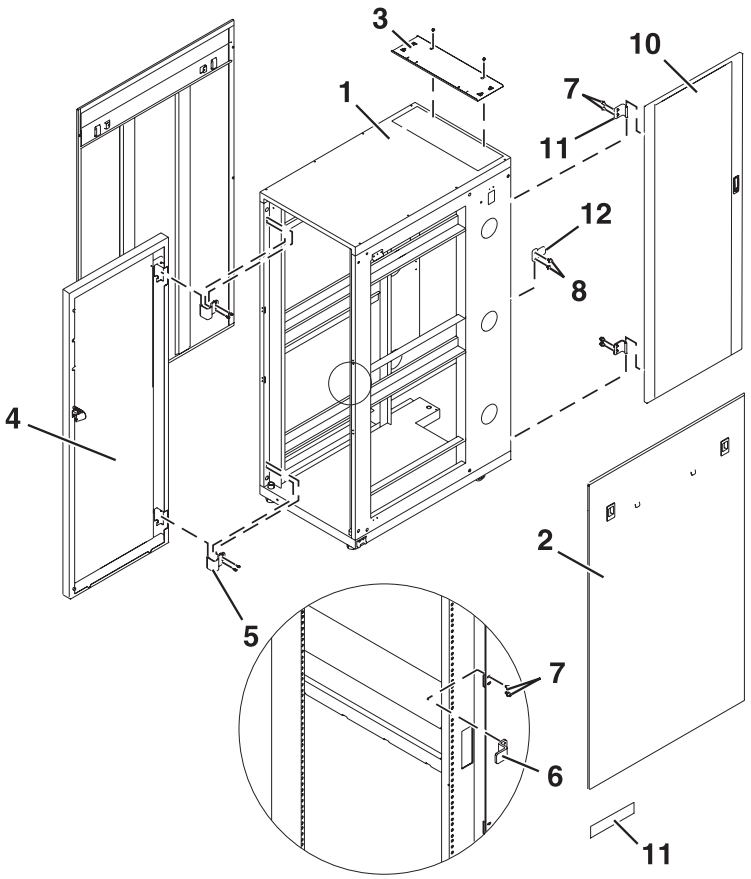


Table 78. Frames, side panels, and top cover assembly part numbers for 7014-T00 and 7014-T42

Index Number	Part Number	Units	Description
1	05N4868	1	Frame (7014-T00 black, 1.8 m)
	05N4867	1	Frame (7014-T00, white, 1.8 m)
	11P0313	1	Frame (7014-T42, black, 2.0 m)
	11P0314	1	Frame (7014-T42, white, 2.0 m)
2	05N6478	2	Side panel (7014-T00 and 7014-T42, black)
	05N6477	2	Side panel (7014-T00 and 7014-T42, white)
3	21L4290	1	Top cover (7014-T00 and 7014-T42, white, 7014-T42 cable access)
	21L4277	1	Top cover (7014-T00 and 7014-T42, black, 7014-T42 cable access)

Table 78. Frames, side panels, and top cover assembly part numbers for 7014-T00 and 7014-T42 (continued)

Index Number	Part Number	Units	Description
4	05N4863	1	7014-T00, black (55 mm)
	11P0319	1	7014-T42, black (55 mm)
	12K0456	1	7014-T00, white (35 mm)
	11P0318	1	7014-T42, white (35 mm)
	32P1029	1	7014-T00, High Perforation front door for 1.8M racks, black
	45P1429	1	7014-T42, High Perforation front door for 2M racks, black
	21P4049	1	7014-T00, (100 mm)
	21P4729	1	7014-T42, (100 mm)
5	31L7547	2	Hinge (55 mm)
	09N9686	2	Hinge (High Perforation front Door)
	05N4865	2	Hinge (35 mm)
	21P4042	2	Hinge (100 mm)
6	31L7545	1	Latch plate (55 mm)
	05N4866	1	Latch plate (35 mm)
	21P4043	1	Latch plate (100 mm)
7	31L8594	4	Screw
8	31L7540	2	Screw
9	51H9502	11	Hook-and-loop fastener
10	11P0725	1	7014-T00, with foam, round, white (20 mm)
	11P0723	1	7014-T42, with foam, round, white (20 mm)
	21P4468	1	7014-T00, with foam, hex, black (20 mm)
	21P4467	1	7014-T42, with foam, hex, black (20 mm)
11	31L7533	2	Hinge (20 mm)
12	31L7531	1	Latch plate (20 mm)

Top frame assembly for 7014-T42

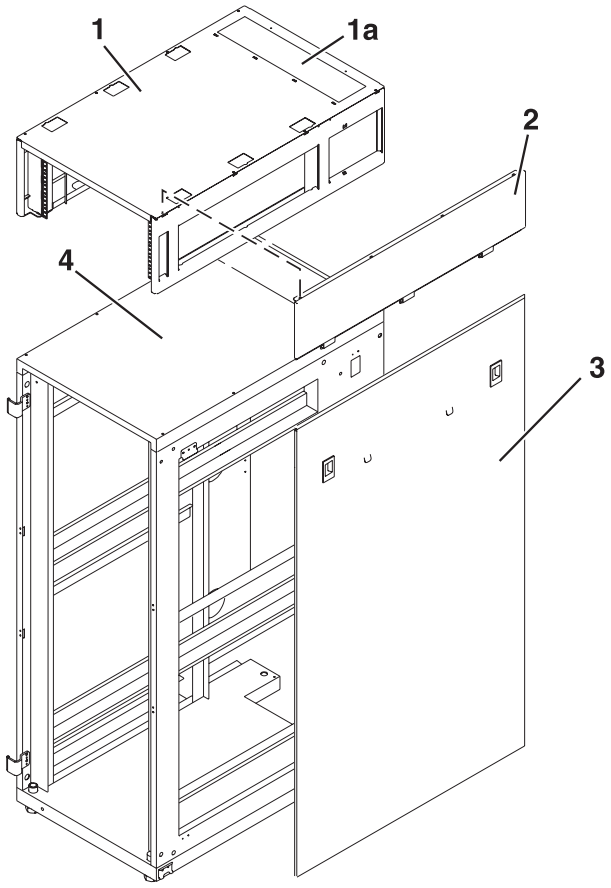


Table 79. Top frame assembly part numbers for 7014-T42

Index number	Part number	Units	Description
1	**21L4296	1	Top frame
** This is the only orderable top frame part number. This part has a default color of white. If you need to have a black top frame, you must request it when you place the order along with the 21L4296 part number.			
1a	21L4277	1	Top Cable Access Cover (Black)
1a	21L4290	1	Top Cable Access Cover (White)
2	31L7536	2	Top Frame Side Panel (Black)
2	05N6805	2	Top Frame Side Panel (White)
3	05N6478	2	Lower Side Panel (Black)
3	05N6477	2	Lower Side Panel (White)
4	11P0313	1	Rack Frame (Black)
4	11P0314	1	Rack Frame (White)

Earthquake brace assembly for 7014-T00 and 7014-T42

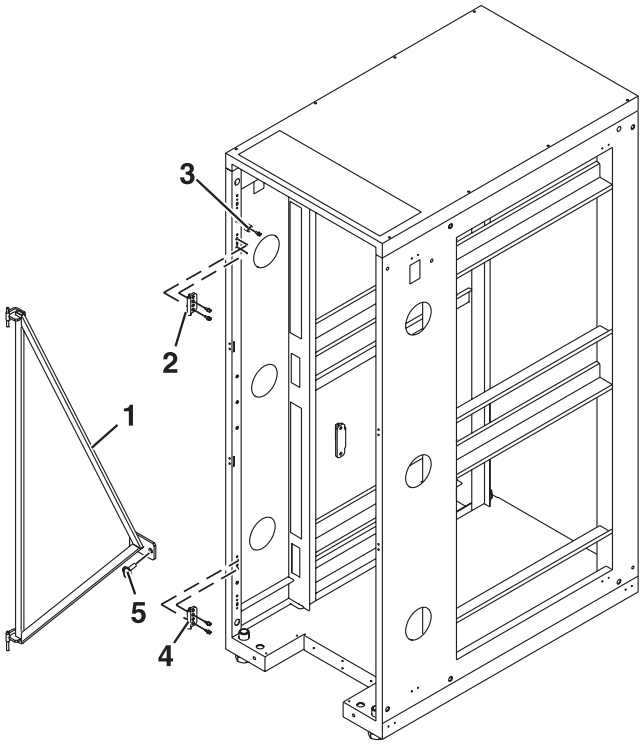


Table 80. Earthquake brace assembly part numbers for 7014-T00 and 7014-T42

Index number	Part number	Units	Description
1	05N4697	1	Earthquake brace kit
2	*	2	Hinge
3	*	1	Spacer
4	*	7	Screw
5	76X4687	1	Bolt

* Shown for reference only.

Blank fillers assembly for 7014-T00 and 7014-T42

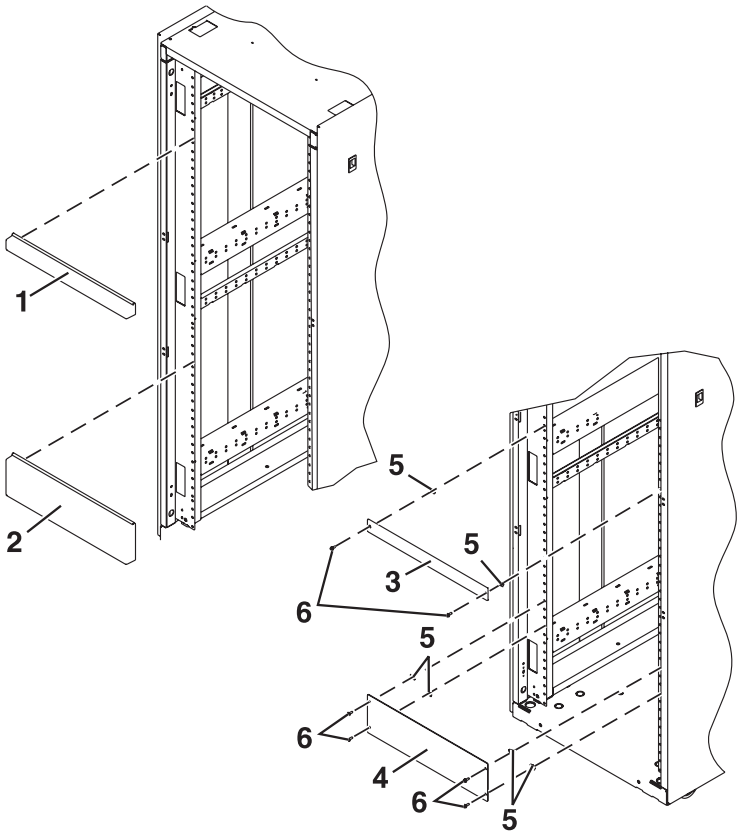


Table 81. Blank fillers assembly part numbers for 7014-T00 and 7014-T42

Index number	Part number	Units	Description
1	97H9754	As needed	1U Filler snap (black)
	62X3443	As needed	1U Filler snap (white)
2	97H9755	As needed	3U Filler snap (black)
	62X3444	As needed	3U Filler snap (white)
3	12J4072	As needed	1U Filler screw (black)
4	12J4073	As needed	3U Filler screw (black)
5	74F1823	2/Item3	M5 Nut clip
	74F1823	4/Item4	M5 Nut clip
6	1624779	2/Item3	M5 X 14 Hex flange
	1624779	4/Item4	M5 X 14 Hex flange

Power distribution bus assembly for 7014-T00 and 7014-T42

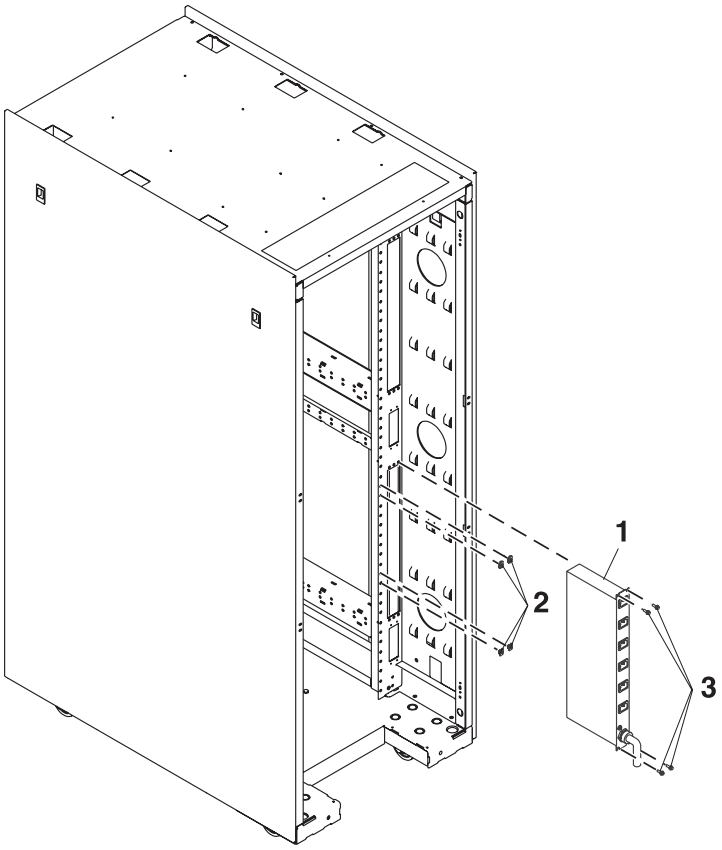


Table 82. Power distribution bus assembly part numbers for 7014-T00 and 7014-T42

Index number	Part number	Units	Description
1	00P2200	1	Type 6 power distribution panel (1 phase U.S.)
	00P2201	1	Type 6 power distribution panel (2/3 phase)
	00P2202	1	Type 6 power distribution panel (3 phase)
	00P22023	1	Type 6 power distribution panel (1 Phase World Trade)
	00P3663	1	Type 7 Power distribution panel (1 Phase)
	00P3665	1	Type 7 Power distribution panel (1 Phase World Trade)
	00P3667	1	Type 7 Power distribution panel (3 Phase World Trade)
2	1624779	4	Nut Clip
3	74F1823	4	Screw

Note: Type 6 power distribution buses have six IEC320-C13, 200 V to 240 V ac outlets. Type 7 power distribution buses have nine IEC320-C13, 200 V to 240 V ac outlets and two IEC320-C19, 200 V to 240 V ac outlets.

Stabilizer assembly for 7014-T00 and 7014-T42

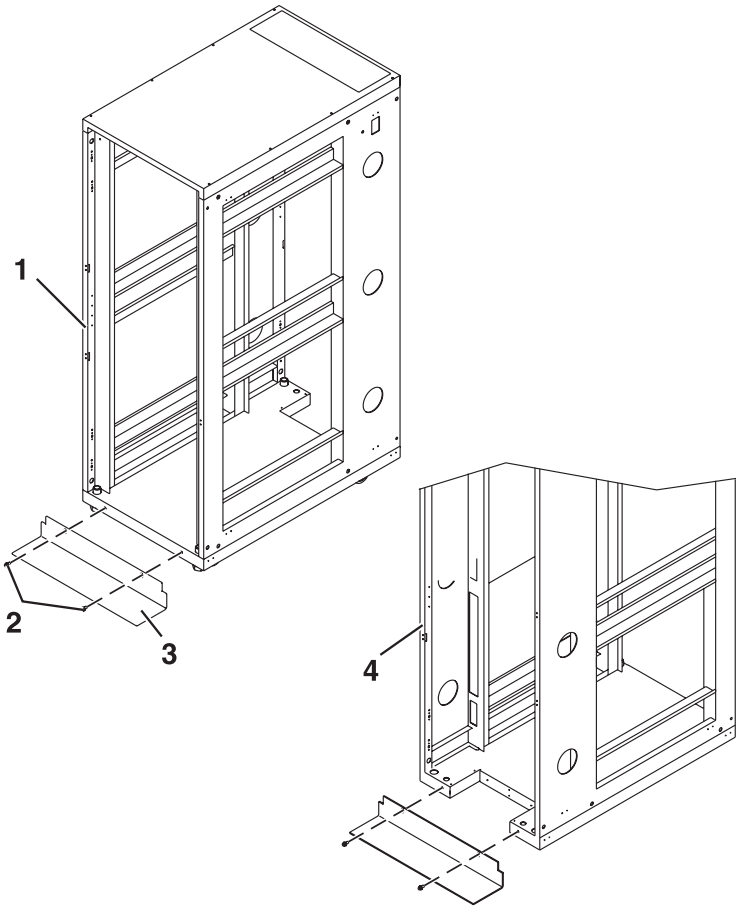


Table 83. Stabilizer assembly for 7014-T00 and 7014-T42

Index number	Part number	Units	Description
1	31L8305	1	Front stabilizer kit (black)
1	31L8306	1	Front stabilizer kit (white)
2	44P1850	1	Back stabilizer kit (black)
2	44P1851	1	Back stabilizer kit (white)
*	*	4	Screw, M8X25 button head (provided as part of stabilizer kit)

* Shown for reference only. Screws are included in the stabilizer kits.

Power distribution panel assembly for 7014-T00 and 7014-T42

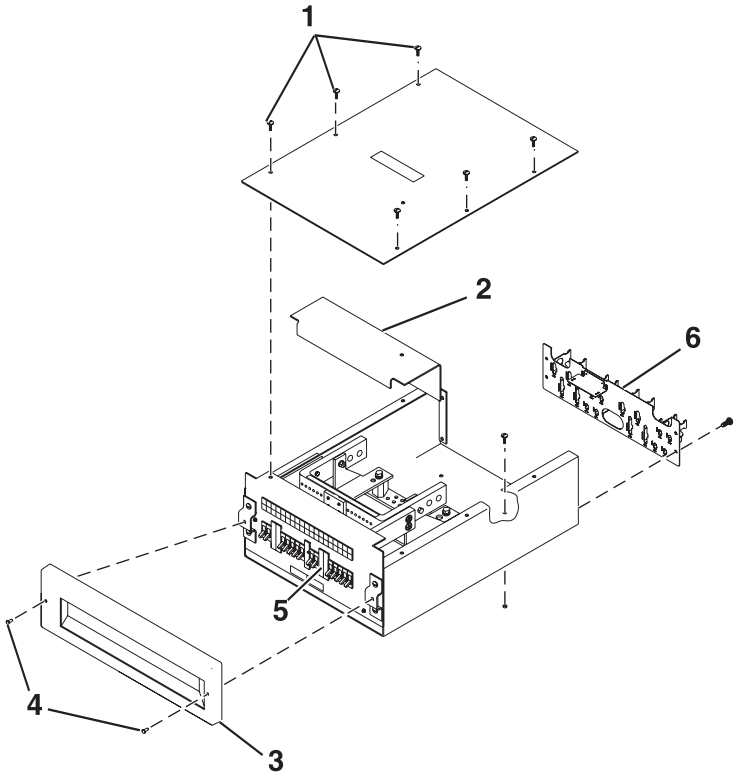


Table 84. Power distribution panel assembly part numbers for 7014-T00 and 7014-T42

Index number	Part number	Units	Description
1	1621191	6	Screw, M4 x 10
2	88G4824	1	Bus bar shield
3	93H4918	1	Front bezel
4	93H4919	2	Screws, 10-32 button head
5	*	varies	Filler plate for empty circuit breaker positions
6		1	I/O Panel
7	93H7601	varies	1 amp Circuit Breaker
	93H7600	varies	5 amp Circuit Breaker
	08L0335	varies	20 amp Circuit Breaker
	93H6391	varies	30 amp Circuit Breaker
	8185537	varies	50 amp Circuit Breaker

* Shown for reference only.

Power distribution panel interior assembly for 7014-T00 and 7014-T42

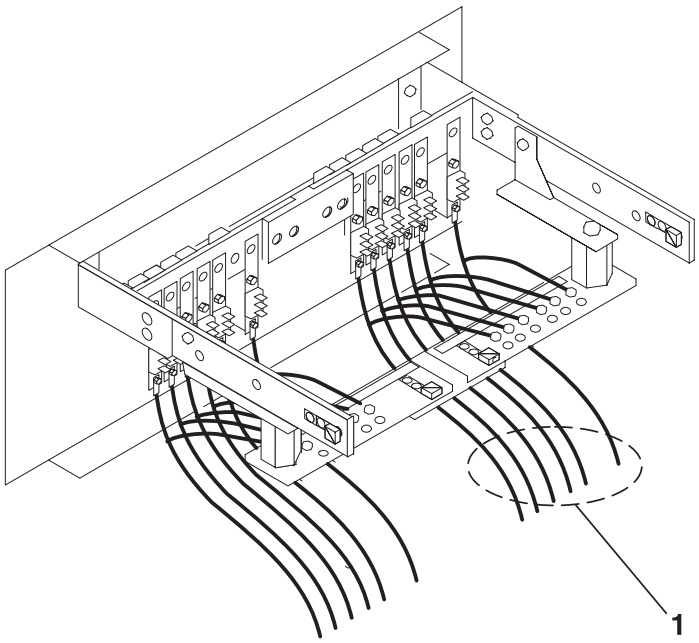


Table 85. Power distribution panel interior assembly part numbers for 7014-T00 and 7014-T42

Index number	Part number	Units	Description
1	00P1793	varies	20 amp cable
	11K0402	varies	30 amp cable
	11K0401	varies	50 amp cable

Leveling feet assembly for 7014-T00 and 7014-T42

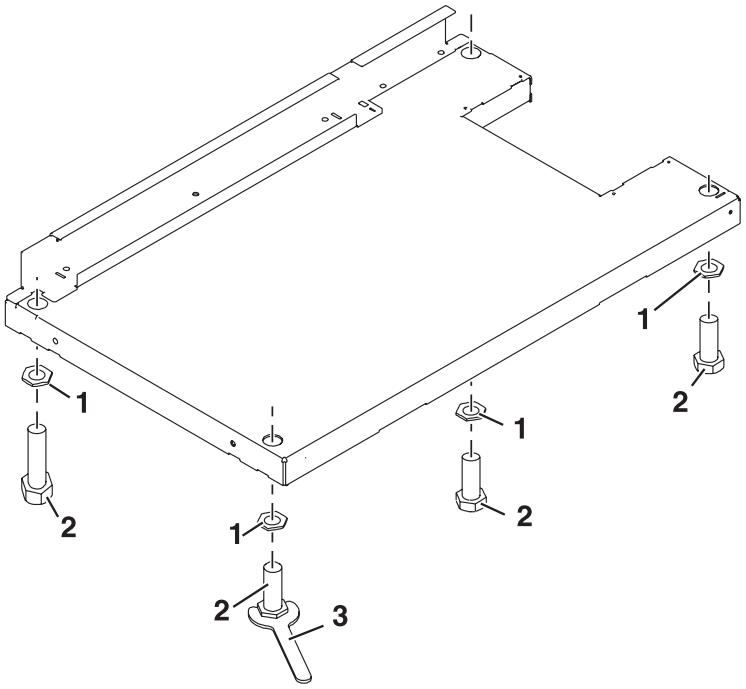


Table 86. Leveling feet assembly part numbers for 7014-T00 and 7014-T42

Index number	Part number	Units	Description
1	*	4	Jam nut
2	*	4	Leveling Feet
3	31L8313	1	Wrench

* Shown for reference only.

Brace assembly for 7014-T42

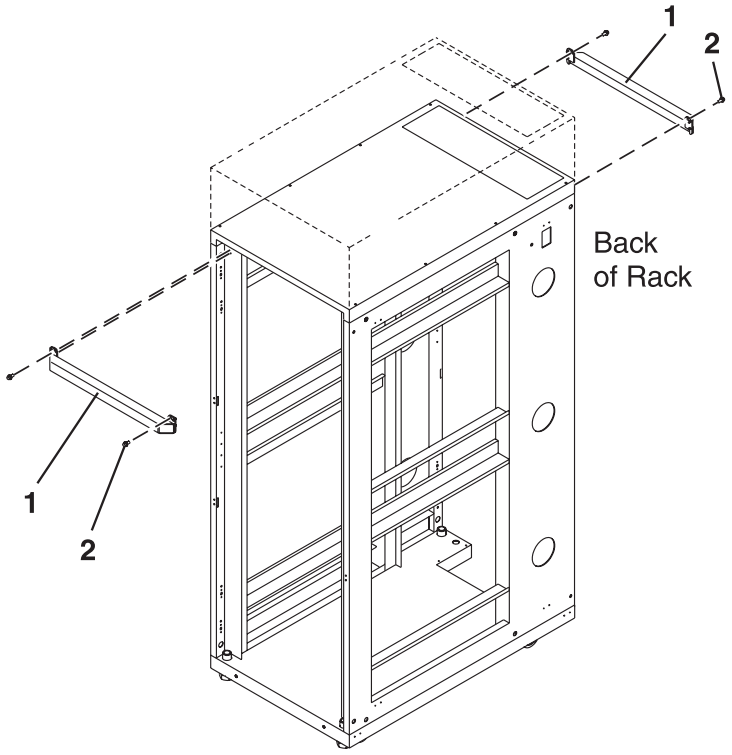


Table 87. Brace assembly part numbers for 7014-T42

Index number	Part number	Units	Description
1	12K0489	2	Brace
2	*	4	Bolt

* Shown for reference only.

Rack beacon assembly for 7014-T00 and 7014-T42

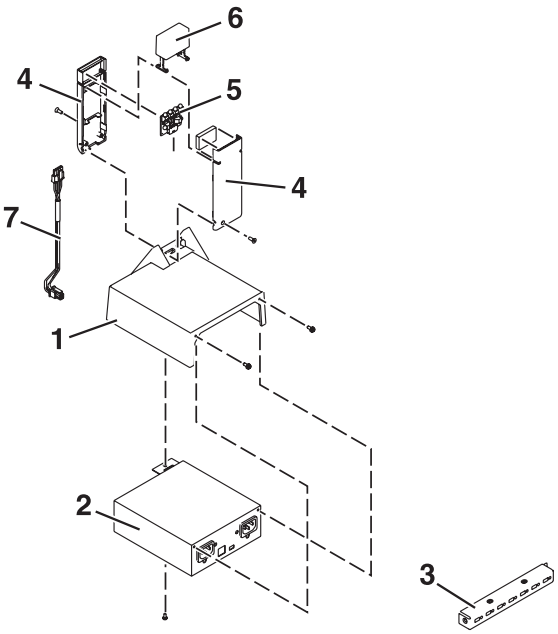


Table 88. Rack beacon assembly part numbers for 7014-T00 and 7014-T42

Index number	Part number	Units	Description
1	53P1775	1	Cover
2	53P1774	1	Power Supply
3	53P2231	1	Junction Box Assembly
4	53P1776	2	Arm
5	53P3997	1	Card Assembly
6	53P1777	1	Lens
7	53P2236	1	Cable
Not Shown	53P2237	Varies	USB Cable
Not Shown	53P2854	1	USB Cable

Part assembly diagrams for OpenPower

Select the assembly diagrams you would like to view. Refer to How to use this parts listing for more details.

Part assembly diagrams for OpenPower 9124-720

Part number catalog

This catalog contains only the part numbers likely to be needed during hardware servicing, and should not be treated as a complete part number listing.

"System parts" on page 172
Refer to this listing for part numbers related to any subsystem such as power, memory, or processor.

"Cables" on page 183
Refer to this listing for all cable part numbers.

"Miscellaneous parts" on page 198
Refer to this listing for part numbers to miscellaneous items such as keyboards, cable wraps, or cleaning kits.

"Hardware Management Console (HMC) parts" on page 200
Refer to this listing for all HMC part numbers.

System parts

The following table correlates a hardware type, description, system unit and expansion unit on which the hardware is allowed, and a part number.

Note: If you are looking for parts related to a Hardware Management Console (HMC), go to "Hardware Management Console (HMC) parts" on page 200.

Choose the part you want to replace:

- Backplanes
- Bus parts
- Cables
- Control or display panels
- Disk unit parts
- Integrated xSeries parts
- Memory parts
- Non-storage IOA and IOP parts
- PCI parts
- Power parts
- Processor parts
- Removable media device parts
- Storage parts
- VPD parts

Backplanes

Type	Description	Model or expansion units	Part number
25F8	Passthru card	570	97P4214
27AE	System processor backplane	570	80P2834
282A	I/O backplane	7311-D11	80P4915
283C	Device Backplane (DB3)	5074, 5079, 8093-002	04N6601
283D	Device Backplane (DB1 and DB2)	5074, 5079, 8093-002	04N6602
28B9	Device backplane assembly (DB1 and DB2) (concurrent maintenance)	5095, 0595	97P3138
	Disk drive backplane	7311-D20	53P0257
28BB	I/O backplane	7311-D11	80P4114
28BE	I/O backplane	5095, 7311-D20	53P3472
28CB	Device backplane (DB3)	5094, 5294, 8093-001	53P4001
28CC	Device Backplane (DB1 and DB2)	5094, 5294, 8093-001	53P4002

Type	Description	Model or expansion units	Part number
28D1	Media backplane	550, 9124-720	80P4137
28D2	Disk unit backplane	520	80P4610
28DA	I/O backplane	570	97P5851
28DB	Disk unit backplane	570	80P4812
28DC	Media backplane	570	80P4556
28E0	System backplane	590 595	12R6528
28EC	System backplane	550, 9124-720	80P4863
28F6	Disk drive backplane	550, 9124-720	80P4770
28F7	Disk drive backplane	550, 9124-720	80P4772
291E	Media backplane	520	97P3815
292C	Disk drive backplane	550, 9124-720	80P5393
292E	Disk drive backplane	550, 9124-720	80P5105
522A	System backplane (1W 1.5 GHz SCM processor)	520	80P4518
5228	System backplane (1W 1.65 GHz DCM processor)	520	80P4590
5229	System backplane (2W 1.65 GHz DCM processor)	520	80P4589

Bus parts

Type	Description	Model or expansion units	Part number
1800	RIO/HSL card (copper)	570	97P3751
1801	RIO/HSL card (optical)	570	53P5574
1806	RIO/HSL card (copper)	550	80P5478
1807	RIO/HSL card (optical)	550	80P5482
2691	HSL I/O bridge	5074, 5079, 8079-002 expansion units	04N6907
2739	Optical bus adapter	5074, 5079, 5078, and 0578	23L7829
2779	Bus adapter	All	21P5342
2886	Bus adapter with two external ports (optical)	0595, 5094, 5095, 5088, 5294, and 8094	53P2270
2887	Bus adapter with two external ports (clustering only)	0595, 5094, 5095, 5088, 5294, and 8094	53P2272
28D8	RIO/HSL card	590 595	80P5011
28E7	RIO/HSL-2 card	7311-D20, 0595, 5094, 5095 5088, 5294, and 8094	97P2459
28EB	RIO/HSL card (optical)	595	00P3579
28FF	RIO/HSL card	7311-D11	80P4904
	RIO/HSL card	7311-D20	53P3800

Cables

Name	Description	Model or expansion units	Part number
PWRC01	SCSI device power cable	520	53P4486
SIGC01	SCSI device signal cable	520	97P5103
SIGC02	Control panel cable	520	97P5198

Control and display panels

Type	Description	Model or expansion units	Part number
247B	Display panel	5074, 5088, 0588, 5094	24L0962
250C	Display panel	5095, 0595	53P0330
291D	Control panel	520	97P1980
		550, 9124-720	97P4935
		570	97P4940
	Operator panel	7311-D20	53P0330

Disk unit parts

Type	Description	Model or expansion units	Part number
4326	Disk unit and carrier	All	53P3348
4327	Disk unit and carrier	All	53P3360
6600	Disk unit and carrier. Remove the disk unit from the system to determine the part number of the failing component.	All	N/A
6607	Disk unit and carrier	All	44L0061
6713	Disk unit and carrier	All	44L0062
6714	Disk unit and carrier	All	44L0063
6717	Disk unit and carrier	All	97H7332
6718	Disk unit and carrier	All	04N2737
6719	Disk unit and carrier	All	04N4638

Integrated xSeries parts

Type	Description	Model or expansion units	Part number
0446	512 MB IXS memory module	All	26P0989
0447	1 GB IXS memory module	All	26P1159
2689	1. 2689-100 Integrated xSeries Adapter (IXA) 2. 2689-200 Integrated xSeries Adapter (IXA) 3. SPCN Y-cable 4. RS485 cable	All	1. 21P5840 2. 97P4635 3. 04N2652 4. 21P4162

Type	Description	Model or expansion units	Part number
2890-001	Integrated xSeries Server (IXS)	All	23L4306
2890-002	Integrated xSeries Server (IXS)	All	04N6176
2890-003	Integrated xSeries Server (IXS)	All	53P1887
2892-001	Integrated xSeries Server (IXS)	All	21P6867
2892-002	Integrated xSeries Server (IXS)	All	97P3108
2895	128 MB IXS memory module	All	29L0955
2896	256 MB IXS memory module	All	29L0956
2897	1 GB IXS memory module	All	29L0957

Memory parts

Type	Description	Model or expansion units	Part number
303E	2/4 GB memory card	590 595	12R6719
303F	4/8 GB memory card	590 595	12R6721
3043	512 MB main storage	570	53P1611
3044	1 GB main storage	570	53P1632
3046	2 GB main storage	570	53P1639
304E	16 GB DDR-1 memory card	590 595	12R6723
3093	512 MB main storage	520	53P1613
3094	1 GB main storage	520	53P1634
3096	2 GB main storage	520	53P1641
309B	Main storage 256 MB DDR1 memory DIMM	520 9124-720	53P3222
309D	Main storage 512 MB DDR1 memory DIMM	570	53P3226
309E	Main storage 1 GB DDR1 memory DIMM	570	53P3228
309F	Main storage 1 GB DDR1 memory DIMM	570	53P3230
30AA	Main storage 2 GB DDR1 memory DIMM	570	53P3232
30AC	Main storage 4 GB DDR1 memory DIMM (stacked)	520 550	16R0711
30B3	Main storage 4 GB DDR1 memory DIMM	570	44P3960
30D2	Main storage 512 MB DDR1 memory DIMM	520 550	00P5767

Type	Description	Model or expansion units	Part number
30D3	Main storage 1 GB DDR1 memory DIMM	520 550	00P5769
30D5	Main storage 2 GB DDR1 memory DIMM (stacked)	520 550	00P5773
30DC	4 GB DDR-2 memory card	590 595	12R6774
30DE	Main storage .5 GB DDR1 memory DIMM (Capacity on Demand)	570	16R0713
30F0	Main storage 512 MB DDR2 memory DIMM	570	16R1521
30F2	Main storage 1 GB DDR2 memory DIMM	570	16R0223
30F7	Main storage 8 GB DDR1 memory DIMM	570	16R1221
30F9	32 GB DDR-1 memory card	590 595	12R7104
30FB	Main storage 512 MB DDR1 memory DIMM	9124-720	12R6971
30FC	Main storage 1 GB DDR1 memory DIMM	9124-720	12R6973
30FD	Main storage 2 GB DDR1 memory DIMM (stacked)	9124-720	12R6975
30FE	Main storage 4 GB DDR1 memory DIMM (stacked)	9124-720	12R6977
310D	Main storage 256 MB DDR1 memory DIMM	9124-720	12R6967

Non-storage IOA and IOP parts

Type	Description	Model or expansion units	Part number
2058	PCI cryptographic co-processor	All	11P3106
2723	Ethernet IOA	All	21H9201
2742	2-line communications IOA	All	21P5267
2743	Ethernet 1 Gb/sec IOA	All	09P2098
2744	Token ring 100 Mb/sec IOA	All	23L4288
2745	Multiline communications IOA	All	21H5490
2746	Twinaxial IOA	All	21H5497
2750	ISDN communications IOA	All	97H7674
2751	ISDN communications IOA	All	97H7675
2760	Ethernet 1 Gigabit/sec IOA	All	00P1690

Type	Description	Model or expansion units	Part number
2761	Integrated Modem IOA 1. United States 2. Europe 3. Germany 4. Australia 5. Spain 6. Czechoslovakia	All	1. 97H7678 2. 97H7679 3. 97H7680 4. 97H7681 5. 97H7682 6. 97H7683
2771	V.90 WAN IOA 1. All **EXCEPT** Australia, New Zealand 2. Australia, New Zealand	All	1. 04N4519 2. 04N4520
2772	Two-port V.90 socket modem IOA 1. All **EXCEPT** Australia, New Zealand 2. Australia, New Zealand	All	1. 04N4537 2. 04N4539
2793	V.92 communications IOA 1. All **EXCEPT** Australia, New Zealand 2. Australia, New Zealand	All	1. 21P5289 2. 21P5295
2805	4-port V.92 Communications IOA 1. All **EXCEPT** Australia, New Zealand 2. Australia, New Zealand	All	1. 21P8186 2. 21P8190
2838	100 Mbps Ethernet IOA	All	21H5460
2842	Combined function IOP - 32 MB	All	04N5090
2843	Combined function IOP - 64 MB	All	04N5095
2844	Combined function IOP - 64 MB	All	21P6018
2849	10/100 Mbps Ethernet IOA	All	53P0057
1. 4758-001 2. 4758-001	1. PCI cryptographic co-processor 2. PCI cryptographic co-processor battery kit	1. All 2. All	1. 04K8979 2. 09J8199
1. 4758-023 2. 4758-023	1. PCI cryptographic co-processor 2. PCI cryptographic co-processor battery kit	1. All 2. All	1. 10J0593 2. 09J8199 (need to order 2 kits)
5700	Ethernet 1 GB/sec IOA	All	09P5386
5701	Ethernet 1 GB/sec IOA	All	09P5389
5706	1Gbps Ethernet-TX IOA (UTP)	All	00P6131
5707	Ethernet 1 GB/sec IOA	All	00P6132

PCI parts

Type	Description	Model or expansion units	Part number
28AB	PCI drawer	5074, 5079, 8079-002	97H7307
28B7	PCI drawer	5094, 5294, 8094-002	53P6023
28B8	PCI drawer	5088, 0588	53P2354

Power parts

Type/CCIN	Description	Model or expansion units	Part number
	AC input/battery charger	5074 or 5079 (single line cord), 9074, 9079	97H7316
	AC module	5074 or 5079 (2 power supply dual line cord)	21P6347
	AC module	5094	53P5263
	Battery power unit	5074, 5079	97H7318
	Blower assembly, left	590 595	12R6227
	Blower assembly, right	590 595	12R6228
	Bulk power controller (BPC) assembly	590 595	12R6304
	Bulk power distribution (BPD) assembly	590 595	12R6302
	Bulk power distribution fan	590 595	44P3865
	Bulk power regulator (BPR) assembly	590 595	12R7021
	Distributed converter assembly (DCA)	590 595	12R6595
	Fan	520	97P3153
	Fan, processor	550 9124-720	97P4365
	Fan, PCI adapters	550 9124-720	97P4366
	Fan	570	53P5070
	Fan tray assembly	520	97P4349
	Fan	7311-D11	80P2650
	Fan	7311-D20	53P0262
	Motor drive assembly (MDA)	590 595	12R6660
28E8	Voltage regulator	570	97P5678
	Power supply (850W redundant)	520	97P2330
51BA	Power supply	550 9124-720	97P5883
	Power supply	570	97P5676

Type/CCIN	Description	Model or expansion units	Part number
	Power supply	5088, 0588	00P3918
	Power supply	5095, 0595	21P7602
	Power supply	5074, 5079, 5094, 5294, 8093, 8094	53P1038
	Power supply	7311-D11	
	Power supply	7311-D20	53P4832
	Time of day battery	All	16G8095
	1.2V voltage regulator	520	44P3193
	1.5V voltage regulator	520	00P5981
	2.5V voltage regulator	520	00P4639
	1.3V voltage regulator	550 9124-720	44P3193
	1.5V voltage regulator	550 9124-720	24P6892
	2.5V voltage regulator	550 9124-720	97P2642

Processor parts

Type	Description	Model or expansion units	Part number
	Processors	520	Replace the system backplane (see Backplane parts)
26EA	Processor 0/2W 1.65 GHz	570	80P4617
26EB	Processor 2W 1.90 GHz	570	80P5171
26EF	Processor 2W 1.50 GHz	570	80P5161
26F0	Processor card 1W 1.5 GHz	9124-720	80P5737
26F1	Processor card 2W 1.65 GHz	9124-720	80P5231
26F2	Processor 2W 1.65 GHz	570	80P5166
28D7	Service processor card	520	80P4633
28DE	Service processor card	590 595	60H1656
28E4	Oscillator card	590 595	97P6244
28E6	Multiplexer (MUX) card	590 595	12R7360
28EA	Service processor card (pSeries only)	570	80P6027
	Service processor card (iSeries only)	570	80P3901
29AB	Processor 2W 1.90 GHz	570	80P5371
291A	Light panel assembly, front	590 595	12R6765

Type	Description	Model or expansion units	Part number
291B	Light panel assembly, back	590 595	12R6766
5237	Processor 0/2W 1.65 GHz	550	80P5228
52A4	Processor 0/8W 1.65 GHz MCM kit	590 595	12R6876

Removable media device parts

Note: If you do not find the part you are looking for here, refer to "Miscellaneous parts" on page 198.

Type	Description	Model or expansion units	Part number
180A	SCSI-to-IDE controller card	570	80P4685
358X	External ultrium drive; refer to the device maintenance information manual to determine the part number(s) to replace.		
3590	Model Exx - External 1/2 cartridge tape drive.	All.	Refer to the device service information.
4685	VXA2 tape drive	Model 520	19P4898
		5074, 5079, 5094, 5294 expansion units	97P3046
		Externally attached drives	Refer to the device service information to determine part number(s).
6321	CD-ROM	5074, 5079, 5094, 5294 expansion units	97H7330
6330	DVD-RAM	5074, 5079, 5094, 5294 expansion units	53P2646
6331	DVD-RAM Slimline	Models 520, 550, 570	97P3693
6333	DVD-RAM combo	5074, 5079, 5094, 5294 expansion units	97P3714
6336	DVD-ROM	5074, 5079, 5094, 5294 expansion units	97P2376
6337	DVD-ROM Slimline	Models 520, 550, 570	00P4775
6381	Internal 1/4 inch cartridge drive with QIC-2GB (DC) on the door.	All expansion units	59H2742
6382	Internal 1/4 inch cartridge drive with QIC-4GB (DC) on the door.	Model 520	59H3745
		5074, 5079, 5094, 5294 expansion units	53P2647
		All other expansion units	59H3745
6383	Internal 1/4 Inch cartridge drive with MLR1-S on the front cover	5074, 5079, 5094, 5294 expansion units	24L1064
		All other expansion units	59H4533
6384	Internal 1/4 inch cartridge drive with SLR60 on the front cover.	Model 520	19P4089
		5074, 5079, 5094, 5294 expansion units	53P2386

Type	Description	Model or expansion units	Part number
6386	Internal 1/4 inch cartridge drive with MLR3 on the front cover.	5074, 5079, 5094, 5294 expansion units	24L1065
		All other expansion units	59H4130
6387	Internal 1/4 inch cartridge drive with SLR100 on the front cover.	Model 520	09L5276
		5074, 5079, 5094, 5294 expansion units	53P2650
7207 Model 122	External 1/4 inch cartridge drive with QIC-4GB-DC on the door	All	59H4434
• 7208 • 7208 model 342 and 345	External 8mm tape drive.		Refer to the device service information.
7239 model 308	External 1/4 inch cartridge tape library		Refer to the device service information.
9348	External 1/2 inch reel tape unit.	Refer to the instructions for 9348.	

Storage parts

Type	Description	Model or expansion units	Part number
2765	Fibre channel IOA (for removable media attachment only)	All	03N2451
2766	Fibre channel IOA (for disk drive attachment only)	All	03N2453
2748	Storage IOA 1. Card (non-Japan) 2. Card (Japan) 3. Cache battery pack (non-Japan) 4. Cache battery pack (Japan) 5. Mode jumper	All	1. 91H3987 2. 23L2841 3. 44L0302 4. 44L0301 5. 23L3442
2749	Storage IOA (external removable media)	All	04N2296
2757	Storage IOA 1. Card 2. Cache battery pack	All	1. 21P5899 2. 53P0941
2763	Storage IOA 1. Card 2. Cache battery pack	All	1. 91H4082 2. 44L0313
2767	Storage IOA	All	04N2304
2778	Storage IOA 1. Card 2. Cache battery pack 3. Mode jumper	All	1. 21P3735 2. 44L0313 3. 23L3442

Type	Description	Model or expansion units	Part number
2780	Storage IOA 1. Card 2. Cache battery pack	All	1. 97P6094 2. 97P4846
2782	Storage IOA 1. Card 2. Cache battery pack	All	1. 21P6477 2. 44L0313
2787	Fibre Channel IOA (for disk drive attachment only)	All	00P4339
5702	Storage IOA	All	53P0978
5703	Storage IOA 1. Card 2. Cache battery pack	All	1. 53P3880 2. 44L0313
5704	Fibre Channel IOA (for removable media attachment only)	All	00P4297
5709	RAID enablement card	520, 550, 9124-720	97P2823
		570	97P3158
	Battery pack	All	44L0313
570B	Imbedded storage IOA	520	Replace the system backplane (see Backplanes).
570C	Imbedded storage IOA	570	Replace the I/O backplane (see Backplanes).

VPD parts

Type	Description	Model or expansion units	Part number
528D	VPD card	9113-550	80P5154
528E	VPD card	9117-570	80P5110
528F	VPD card	9111-520	80P3249
529A	VPD card	9119-590, 9119-595	
52A1	VPD card	9124-720	80P5154
7450	VPD card	9406-520	80P3235
7451	VPD card	9406-520	80P3237
7452	VPD card	9406-520	80P3239
7453	VPD card	9406-520	80P3241
7454	VPD card	9406-520	80P3243
7455	VPD card	9406-520	80P3245
7456	VPD card	9406-520	80P3247
7457	VPD card	9406-520	80P3377
7458	VPD card	9406-520	80P3921
7459	VPD card	9406-520	80P4438
7462	VPD card	9406-550	80P3255
7463	VPD card	9406-550	80P3257

Type	Description	Model or expansion units	Part number
7469	VPD card	9406-570	80P3369
7470	VPD card	9406-570	80P3371
7471	VPD card	9406-570	80P5122
7472	VPD card	9406-570	80P5124
7473	VPD card	9406-570	80P5126
7474	VPD card	9406-570	80P5128
7475	VPD card	9406-570	80P5130
7476	VPD card	9406-570	80P5132
7488	VPD card	9406-570	80P4559
7489	VPD card	9406-570	80P4561
7490	VPD card	9406-570	80P5140
7491	VPD card	9406-570	80P5142
7494	VPD card	9406-570	80P5192
7495	VPD card	9406-570	80P5194
7496	VPD card	9406-595	80P5680
7497	VPD card	9406-595	80P5682
7498	VPD card	9406-595	80P5684
7499	VPD card	9406-595	80P5686
7559	VPD card	9406-570	80P5142
7570	VPD card	9406-570	80P5148

Instructions for 9348:

Is one of the following status codes displayed anywhere on the 9348 control panel? (x = any number)

```
Exxx
Fxxx
***xx
******
```

- **No:** Refer to the 9348 Service Information and use the ″Running Diagnostic Tests″ procedure to run Diagnostic Test 1. If the test fails, use the 9348 Service Information to determine the failing items.
- **Yes:** Use the ″Status Codes″ section of the 9348 Service Information to determine the failing items. For other device types, refer to the device's service information to determine the part number or part numbers that need to be replaced.

Cables

Select the type of cable you are working with:

- "Power and signal cables"
- "External cables" on page 196

Power and signal cables

The following diagrams illustrate the logical cable connections in the system unit, and in the expansion unit.

Select the unit that you are working on.

- "Model 520 cables" on page 184
- "Model 550and 9124-720 cables" on page 184

- "Model 570 cables"
- "Model 590 and595 cables"
- "5074, 5079, 5094, 5294, 8079-002, 8093-002, 8094-002 expansion unit cables" on page 188
- "5088 and 0588 expansion unit cables" on page 193
- "5095 and 0595 expansion unit cables" on page 194
- "7311-D20 expansion unit cables" on page 195

Model 520 cables:

Table 89. Model 520 - cables

Name	Description	Part number
	DVD cable	97P2141
	SCSI signal cable	97P5103
	Fan cable	53P4483
	Device power cable	53P4486
	Control panel cable	97P5263

Model 550and 9124-720 cables:

Table 90. Model 550 and 9124-720 - cables

Name	Description	Part number
	DVD cable	97P2141
	SCSI signal cable	97P5103
	Device power cable	53P4486
	Control panel cable	97P5263

Model 570 cables:

Table 91. Model 570 - cables

Name	Description	Part number
	8-way SMP processor cable assembly	97P3869
	12-way SMP processor cable assembly	97P3871
	16-way SMP processor cable assembly	97P3873
	8-way Service processor cable assembly	97P3870
	12-way Service processor cable assembly	97P3872
	16-way Service processor cable assembly	97P3874

Model 590 and595 cables:

Table 92. Model 590 and 595 cables

Name	Description	Part number
	Bulk power controller (BPC) A (P1-C4-T6) to emergency power off (EPO) switch J00	11P1595
	Bulk power controller (BPC) B (P2-C4-T6) to emergency power off (EPO) switch J01	11P1596
	Bulk power controller (BPC) A (P1-C4-T4) to bulk power controller (BPC) B (P2-C4-T4)	44P4082

Table 92. Model 590 and 595 cables (continued)

Name	Description	Part number
	Bulk power controller (BPC) B (P2-C4-T4) to bulk power controller (BPC) A (P1-C4-T4)	44P4083
	Bulk power controller (BPC) A (P1-C4-T2) to service processor 1 (P1-C1-T4)	16R0038
	Bulk power controller (BPC) B (P2-C4-T2) to service processor 1 (P1-C1-T4)	16R0039
	Bulk power controller (BPC) A (P1-C4-T3) to service processor 2 (P1-C4-T5)	16R0040
	Bulk power controller (BPC) B (P2-C4-T3) to service processor 2 (P1-C4-T5)	16R0041
	Service processor 1 (P1-C1-T2) to front light strip J00 (P6)	16R0067
	Service processor 1 (P1-C1-T3) to back light strip J00 (P7)	16R0068
	Service processor 2 (P1-C4-T1) to front light strip J01 (P6)	16R0069
	Service processor 2 (P1-C4-T2) to back light strip J01 (P7)	16R0070
	Motor drive assembly 1 J00 (A1-T1) to bulk power controller (BPC) J04 (P1-C4-T8)	16R0059
	Motor drive assembly 1 J01 (A1-T2) to bulk power controller (BPC) J04 (P2-C4-T8)	16R0060
	Motor drive assembly 2 J00 (A2-T1) to bulk power controller (BPC) J05 (P1-C4-T9)	16R0061
	Motor drive assembly 2 J01 (A2-T2) to bulk power controller (BPC) J05 (P2-C4-T9)	16R0062
	Motor drive assembly 3 J00 (A3-T1) to bulk power controller (BPC) J06 (P1-C4-T10)	16R0063
	Motor drive assembly 3 J01 (A3-T2) to bulk power controller (BPC) J06 (P2-C4-T10)	16R0064
	Motor drive assembly 4 J00 (A4-T1) to bulk power controller (BPC) J07 (P1-C4-T11)	16R0065
	Motor drive assembly 4 J01 (A4-T2) to bulk power controller (BPC) J07 (P2-C4-T11)	16R0066
	Motor drive assembly 5 J00 (A5-T1) to bulk power distribution (BPD) 2A J06 (P1-C2-T7)	16R0079
	Motor drive assembly 5 J01 (A5-T2) to bulk power distribution (BPD) 2B J06 (P2-C2-T7)	16R0080
	Motor drive assembly 6 J00 (A6-T1) to bulk power distribution (BPD) 2A J07 (P1-C2-T8)	16R0081
	Motor drive assembly 6 J01 (A6-T2) to bulk power distribution (BPD) 2B J07 (P2-C2-T8)	16R0082
	Distributed converter assembly (DCA) 00 J00 (P1-E10-T1) to bulk power controller (BPC) J08 (P2-C4-T12)	16R0602
	Distributed converter assembly (DCA) 00 J01 (P1-E10-T2) to bulk power controller (BPC) J08 (P2-C2-T12)	16R0603
	Distributed converter assembly (DCA) 01 J00 (P1-E11-T1) to bulk power controller (BPC) J09 (P1-C2-T13)	16R0604
	Distributed converter assembly (DCA) 01 J01 (P1-E11-T2) to bulk power controller (BPC) J09 (P2-C2-T13)	16R0605
	Distributed converter assembly (DCA) 02 J00 (P1-E12-T1) to bulk power distribution (BPD) 1A J08 (P1-C3-T9)	16R0606
	Distributed converter assembly (DCA) 02 J01 (P1-E12-T2) to bulk power distribution (BPD) 1B J08 (P2-C3-T9)	16R0607

Table 92. Model 590 and 595 cables (continued)

Name	Description	Part number
	Distributed converter assembly (DCA) 10 J00 (P1-E7-T1) to bulk power distribution (BPD) 2A J08 (P1-C2-T9)	16R0608
	Distributed converter assembly (DCA) 10 J01 (P1-E7-T2) to bulk power distribution (BPD) 2B J08 (P2-C2-T9)	16R0609
	Distributed converter assembly (DCA) 11 J00 (P1-E8-T1) to bulk power distribution (BPD) 2A J09 (P1-C2-T10)	16R0610
	Distributed converter assembly (DCA) 11 J01 (P1-E8-T2) to bulk power distribution (BPD) 2B J09 (P2-C2-T10)	16R0611
	Distributed converter assembly (DCA) 12 J00 (P1-E9-T1) to bulk power distribution (BPD) 1A J09 (P1-C3-T10)	16R0612
	Distributed converter assembly (DCA) 12 J01 (P1-E9-T2) to bulk power distribution (BPD) 1B J09 (P2-C3-T10)	16R0613
	Distributed converter assembly (DCA) 20 J00 (P1-E4-T1) to bulk power distribution (BPD) 2A J00 (P1-C2-T1)	16R0614
	Distributed converter assembly (DCA) 20 J01 (P1-E4-T2) to bulk power distribution (BPD) 2B J00 (P2-C2-T1)	16R0615
	Distributed converter assembly (DCA) 21 J00 (P1-E5-T1) to bulk power distribution (BPD) 2A J01 (P1-C2-T2)	16R0616
	Distributed converter assembly (DCA) 21 J01 (P1-E5-T2) to bulk power distribution (BPD) 2B J01 (P2-C2-T2)	16R0617
	Distributed converter assembly (DCA) 22 J00 (P1-E6-T1) to bulk power distribution (BPD) 2A J02 (P1-C2-T3)	16R0618
	Distributed converter assembly (DCA) 22 J01 (P1-E6-T2) to bulk power distribution (BPD) 2B J02 (P2-C2-T3)	16R0619
	Distributed converter assembly (DCA) 30 J00 (P1-E1-T1) to bulk power distribution (BPD) 2A J03 (P1-C2-T4)	16R0620
	Distributed converter assembly (DCA) 30 J01 (P1-E1-T2) to bulk power distribution (BPD) 2B J03 (P2-C2-T4)	16R0621
	Distributed converter assembly (DCA) 31 J00 (P1-E2-T1) to bulk power distribution (BPD) 2A J04 (P1-C2-T5)	16R0622
	Distributed converter assembly (DCA) 31 J01 (P1-E2-T2) to bulk power distribution (BPD) 2B J04 (P2-C2-T5)	16R0623
	Distributed converter assembly (DCA) 32 J00 (P1-E3-T1) to bulk power distribution (BPD) 2A J05 (P1-C2-T6)	16R0624
	Distributed converter assembly (DCA) 32 J01 (P1-E3-T2) to bulk power distribution (BPD) 2B J05 (P2-C2-T6)	16R0625
	Bulk power distribution (BPD) 1A J04 (P1-C3-T5) to primary rack EIA position 1U J00 (E1-T1)	44P1884
	Bulk power distribution (BPD) 1B J04 (P2-C3-T5) to primary rack EIA position 1U J01 (E1-T2)	44P1885
	Bulk power distribution (BPD) 1A J05 (P1-C3-T6) to primary rack EIA position 1U J00 (E2-T1)	44P1886
	Bulk power distribution (BPD) 1B J05 (P2-C3-T6) to primary rack EIA position 1U J01 (E2-T2)	44P1887
	Bulk power distribution (BPD) 1A J02 (P1-C3-T3) to primary rack EIA position 5U J00 (E1-T1)	44P1880

Table 92. Model 590 and 595 cables (continued)

Name	Description	Part number
	Bulk power distribution (BPD) 1B J02 (P2-C3-T3) to primary rack EIA position 5U J01 (E1-T2)	44P1881
	Bulk power distribution (BPD) 1A J03 (P1-C3-T4) to primary rack EIA position 5U J00 (E2-T1)	44P1882
	Bulk power distribution (BPD) 1B J03 (P2-C3-T4) to primary rack EIA position 5U J01 (E2-T2)	44P1883
	Bulk power distribution (BPD) 1A J00 (P1-C3-T1) to primary rack EIA position 9U J00 (E1-T1)	44P1876
	Bulk power distribution (BPD) 1B J00 (P2-C3-T1) to primary rack EIA position 9U J01 (E1-T2)	44P1877
	Bulk power distribution (BPD) 1A J01 (P1-C3-T2) to primary rack EIA position 9U J00 (E2-T1)	44P1878
	Bulk power distribution (BPD) 1B J01 (P2-C3-T2) to primary rack EIA position 9U J01 (E2-T2)	44P1879
	Bulk power distribution (BPD) 1A J06 (P1-C3-T7) to primary rack EIA position 13U J00 (E1-T1)	44P1910
	Bulk power distribution (BPD) 1B J06 (P2-C3-T7) to primary rack EIA position 13U J01 (E1-T2)	44P1911
	Bulk power distribution (BPD) 1A J07 (P1-C3-T8) to primary rack EIA position 13U J00 (E2-T1)	44P1912
	Bulk power distribution (BPD) 1B J07 (P2-C3-T8) to primary rack EIA position 13U J01 (E2-T2)	44P1913
	Bulk power distribution (BPD) 2A J00 (P1-C2-T1) to expansion rack EIA position 1U J00 (E1-T1)	11P4506
	Bulk power distribution (BPD) 2B J00 (P2-C2-T1) to expansion rack EIA position 1U J01 (E1-T2)	11P4507
	Bulk power distribution (BPD) 2A J01 (P1-C2-T2) to expansion rack EIA position 1U J00 (E2-T1)	11P4508
	Bulk power distribution (BPD) 2B J01 (P2-C2-T2) to expansion rack EIA position 1U J01 (E2-T2)	11P4509
	Bulk power distribution (BPD) 2A J02 (P1-C2-T3) to expansion rack EIA position 5U J00 (E1-T1)	11P4510
	Bulk power distribution (BPD) 2B J02 (P2-C2-T3) to expansion rack EIA position 5U J01 (E1-T2)	11P4511
	Bulk power distribution (BPD) 2A J03 (P1-C2-T4) to expansion rack EIA position 5U J00 (E2-T1)	11P4512
	Bulk power distribution (BPD) 2B J03 (P2-C2-T4) to expansion rack EIA position 5U J01 (E2-T2)	11P4513
	Bulk power distribution (BPD) 2A J04 (P1-C2-T5) to expansion rack EIA position 9U J00 (E1-T1)	11P4514
	Bulk power distribution (BPD) 2B J04 (P2-C2-T5) to expansion rack EIA position 9U J01 (E1-T2)	11P4515
	Bulk power distribution (BPD) 2A J05 (P1-C2-T6) to expansion rack EIA position 9U J00 (E2-T1)	11P4516
	Bulk power distribution (BPD) 2B J05 (P2-C2-T6) to expansion rack EIA position 9U J01 (E2-T2)	11P4517

Table 92. Model 590 and 595 cables (continued)

Name	Description	Part number
	Bulk power distribution (BPD) 2A J06 (P1-C2-T7) to expansion rack EIA position 13U J00 (E1-T1)	12R6245
	Bulk power distribution (BPD) 2B J06 (P2-C2-T7) to expansion rack EIA position 13U J01 (E1-T2)	12R6246
	Bulk power distribution (BPD) 2A J07 (P1-C2-T8) to expansion rack EIA position 13U J00 (E2-T1)	12R6247
	Bulk power distribution (BPD) 2B J07 (P2-C2-T8) to expansion rack EIA position 13U J01 (E2-T2)	12R6248
	Bulk power distribution (BPD) 2A J08 (P1-C2-T9) to expansion rack EIA position 19U J00 (E1-T1)	44P4097
	Bulk power distribution (BPD) 2B J08 (P2-C2-T9) to expansion rack EIA position 19U J01 (E1-T2)	44P4098
	Bulk power distribution (BPD) 2A J09 (P1-C2-T10) to expansion rack EIA position 19U J00 (E2-T1)	44P4099
	Bulk power distribution (BPD) 2B J09 (P2-C2-T10) to expansion rack EIA position 19U J01 (E2-T2)	44P4100
	Bulk power distribution (BPD) 3A J00 (P1-C1-T1) to expansion rack EIA position 23U J00 (E1-T1)	44P4195
	Bulk power distribution (BPD) 3B J00 (P2-C1-T1) to expansion rack EIA position 23U J01 (E1-T2)	44P4196
	Bulk power distribution (BPD) 3A J01 (P1-C1-T2) to expansion rack EIA position 23U J00 (E2-T1)	44P4197
	Bulk power distribution (BPD) 3B J01 (P2-C1-T2) to expansion rack EIA position 23U J01 (E2-T2)	44P4198
	Bulk power distribution (BPD) 3A J02 (P1-C1-T3) to expansion rack EIA position 27U J00 (E1-T1)	44P4199
	Bulk power distribution (BPD) 3B J02 (P2-C1-T3) to expansion rack EIA position 27U J01 (E1-T2)	44P4200
	Bulk power distribution (BPD) 3A J03 (P1-C1-T4) to expansion rack EIA position 27U J00 (E2-T1)	44P4201
	Bulk power distribution (BPD) 3B J03 (P2-C1-T5) to expansion rack EIA position 27U J01 (E2-T2)	44P4202
	Bulk power distribution (BPD) 3A J04 (P1-C1-T6) to expansion rack EIA position 31U J00 (E1-T1)	44P4203
	Bulk power distribution (BPD) 3B J04 (P2-C1-T6) to expansion rack EIA position 31U J01 (E1-T2)	44P4204
	Bulk power distribution (BPD) 3A J05 (P1-C1-T7) to expansion rack EIA position 31U J00 (E2-T1)	44P4205
	Bulk power distribution (BPD) 3B J05 (P2-C1-T7) to expansion rack EIA position 31U J01 (E2-T2)	44P4206
	Bulk power regulator (BPR) to Internal battery feature (IBF) in primary rack	11P4248
	Bulk power regulator (BPR) to Internal battery feature (IBF) in expansion rack	11P2998
	Bulk power regulator (BPR) back to Internal battery feature (IBF) front	60G7534

5074, 5079, 5094, 5294, 8079-002, 8093-002, 8094-002 expansion unit cables:

Note: The 5079 expansion unit is serviced as two 5074 units in the same frame. Cable names and part numbers are repeated in the upper and lower section of the 5079 frame.

There are two figures and tables, one for single power cord configurations and one for dual power cord configurations.

Figure 27. Single power cord 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion unit - power and signal cables

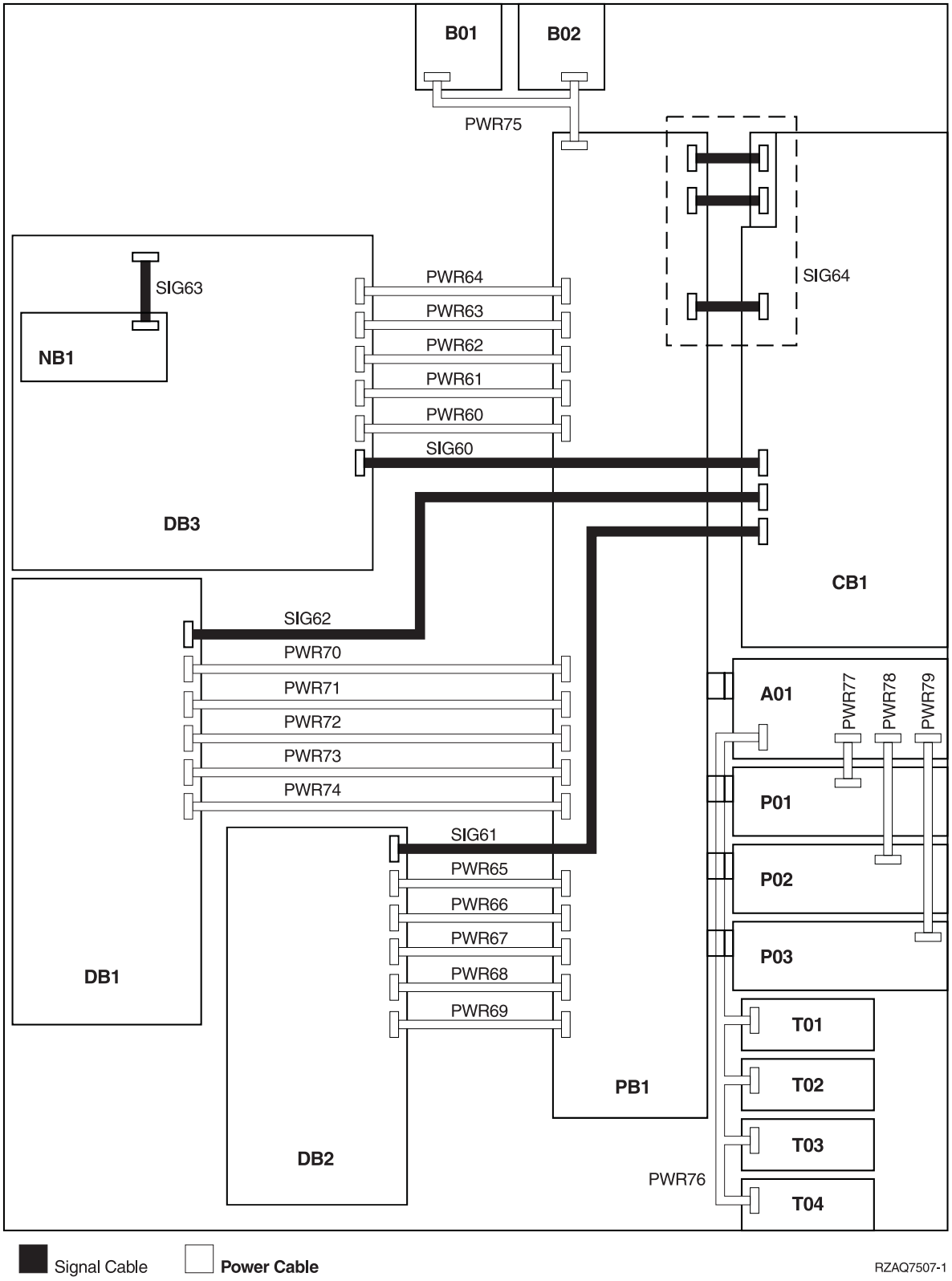

B01
B02
PWR75
SIG64
SIG63
NB1
PWR64
PWR63
PWR62
PWR61
PWR60
SIG60
DB3
CB1
SIG62
PWR70
PWR71
PWR72
PWR73
PWR74
A01
PWR77
PWR78
PWR79
P01
P02
P03
SIG61
PWR65
PWR66
PWR67
PWR68
PWR69
DB1
T01
T02
T03
T04
PB1
DB2
PWR76
Signal Cable
Power Cable
RZAQ7507-1

Table 93. Single power cord 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion unit - power cables

Name	Description	Part number
PWR60	Power distribution board (PB1) to Device board 3 (DB3)	24L1886
PWR61 to PWR64	Power distribution board (PB1) to Device board 3 (DB3)	97H7483
PWR65	Power distribution board (PB1) to Device board 2 (DB2)	97H7544
PWR66 to PWR69	Power distribution board (PB1) to Device board 2 (DB2)	97H7543
PWR70	Power distribution board (PB1) to Device board 1 (DB1)	97H7544
PWR71 to PWR74	Power distribution board (PB1) to Device board 1 (DB1)	97H7543
PWR75	Power distribution board (PB1) to AMDs (B01 and B02)	97H7475
PWR76	Charger (A01) to Batteries (T01 through T04)	97H7474
PWR77	Charger (A01) to Power supply 1 (P01)	04N2181
PWR78	Charger to Power supply 2 (P02)	04N2181
PWR79	Charger to Power supply 3 (P03)	04N2181

Table 94. Single power cord 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion unit - signal cables

Name	Description	Part number
SIG60	IOA in expansion unit card (CB1) to Device board 3 (DB3)	97H7481
SIG61	IOA in expansion unit card (CB1) to Device board 2 (DB2)	44L0070
SIG62	IOA in expansion unit card (CB1) to Device board 1 (DB1)	97H7484
SIG63	Control panel (NB1) to Device board 3 (DB3)	24L1752
SIG64	Expansion unit card (CB1) to Power distribution board (PB1 - includes P/N 97H7476, 97H7477, 97H7607) (Part of the expansion unit card FRU assembly)	24L0843

Figure 28. Dual power cord 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion unit - power and signal cables

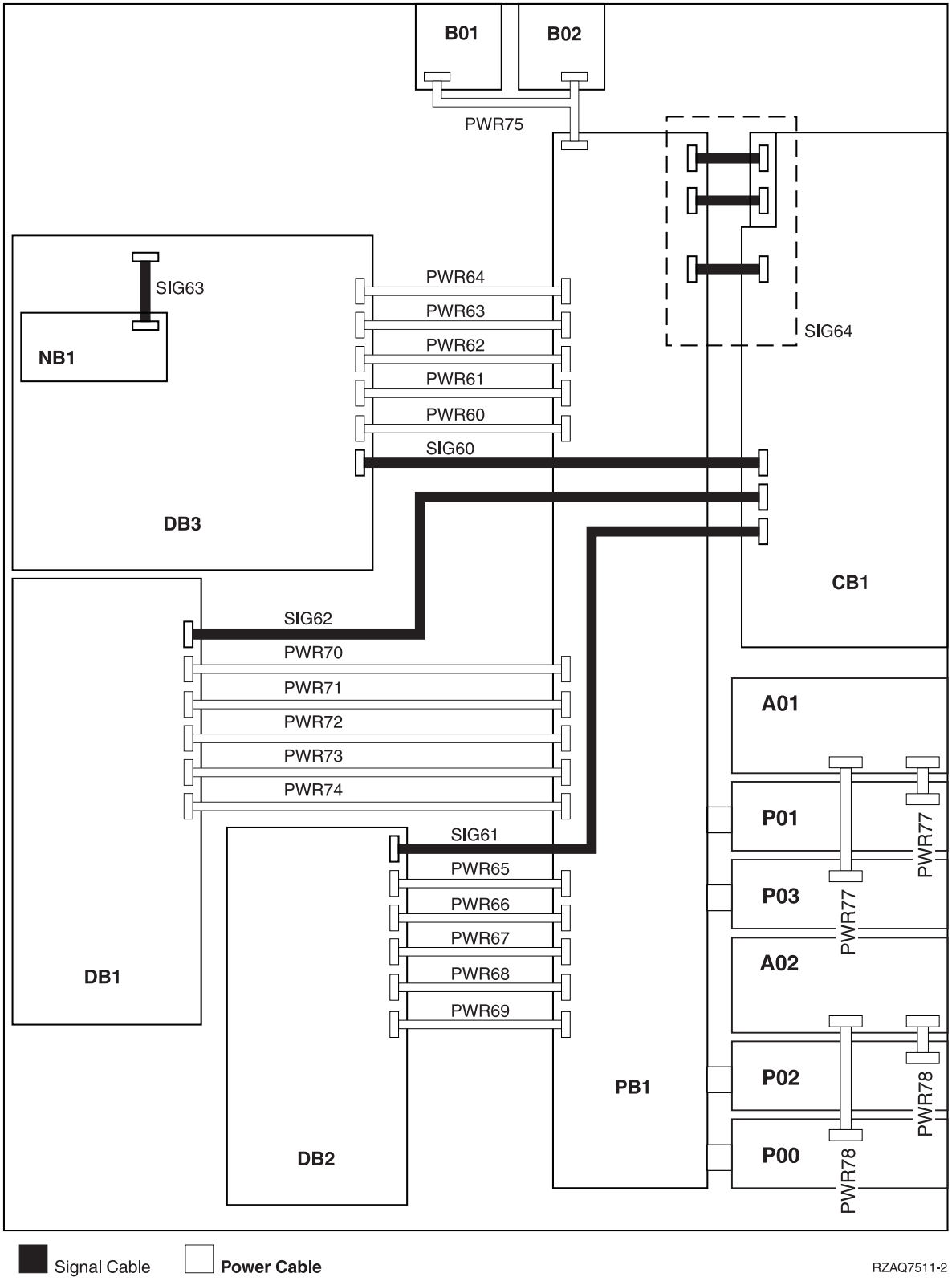

B01
B02
PWR75
SIG64
SIG63
NB1
PWR64
PWR63
PWR62
PWR61
PWR60
SIG60
DB3
CB1
SIG62
PWR70
PWR71
PWR72
PWR73
PWR74
A01
P01
PWR77
P03
PWR77
A02
SIG61
PWR65
PWR66
PWR67
PWR68
PWR69
DB1
PB1
P02
PWR78
DB2
P00
PWR78
Signal Cable
Power Cable
RZAQ7511-2

Table 95. Dual power cord 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion unit - power cables

Name	Description	Part number
PWR60	Power distribution board (PB1) to Device board 3 (DB3)	24L1886
PWR61 to PWR64	Power distribution board (PB1) to Device board 3 (DB3)	97H7483
PWR65	Power distribution board (PB1) to Device board 2 (DB2)	97H7544
PWR66 to PWR69	Power distribution board (PB1) to Device board 2 (DB2)	97H7543
PWR70	Power distribution board (PB1) to Device board 1 (DB1)	97H7544
PWR71 to PWR74	Power distribution board (PB1) to Device board 1 (DB1)	97H7543
PWR75	Power distribution board (PB1) to AMDs (B01 and B02)	97H7475
PWR77	AC input (A01) to Power supply 1 (P01 and P03)	04N2181
PWR78	AC input (A02) to Power supply 2 (P00 and P02)	04N2181

Table 96. Dual power cord 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion unit - signal cables

Name	Description	Part number
SIG60	IOA in expansion unit card (CB1) to Device board 3 (DB3)	97H7481
SIG61	IOA in expansion unit card (CB1) to Device board 2 (DB2)	44L0070
SIG62	IOA in expansion unit card (CB1) to Device board 1 (DB1)	97H7484
SIG63	Control panel (NB1) to Device board 3 (DB3)	24L1752
SIG64	Expansion unit card (CB1) to Power distribution board (PB1 - includes P/N 97H7476, 97H7477, 97H7607) (Part of expansion unit card FRU assembly)	24L0843

5088 and 0588 expansion unit cables:

Figure 29. 5088 and 0588 expansion units — power and signal cables

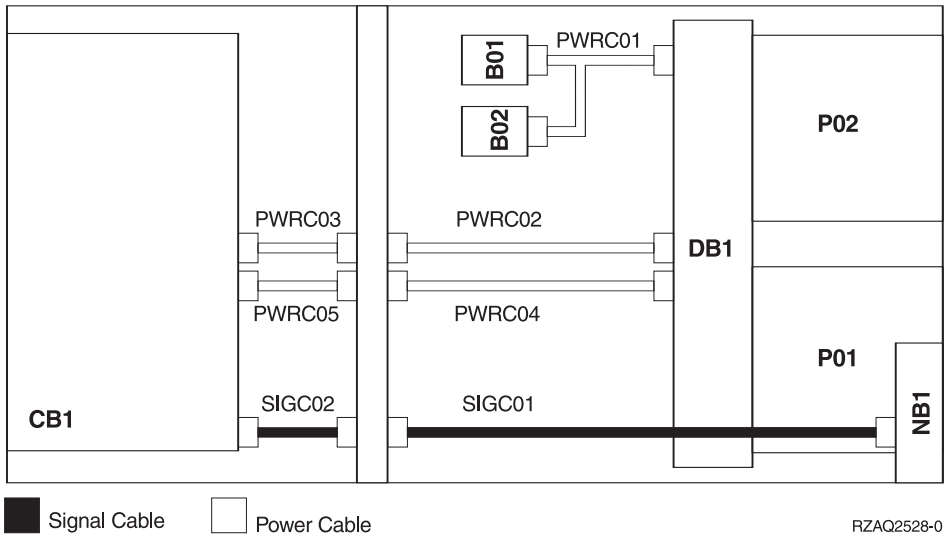


Table 97. 5088 and 0588 expansion units — power cables

Name	Description	Part number
PWRC01	Power Distribution Backplane (PB1) to AMDs (B01 and B02)	41L5652
PWRC02	Power Distribution Backplane (PB1) to SPCN connector	41L5650
PWRC03	SPCN connector to expansion unit card (CB1)	21P6096
PWRC04	Power Distribution Backplane (PB1) to Power connector	21P6094
PWRC05	Power connector to expansion unit card (CB1)	21P6095

Table 98. 5088 and 0588 expansion units — signal cables

Name	Description	Part number
SIGC01	Control panel (NB1) to Control panel connector	41L5649
SIGC02	Control panel (NB1) to expansion unit card (CB1)	41L5517

5095 and 0595 expansion unit cables: Use the diagram and table below for information about the power and signal cables for 5095 and 0595 expansion units.

Figure 30. 5095 and 0595 expansion units - power and signal cables

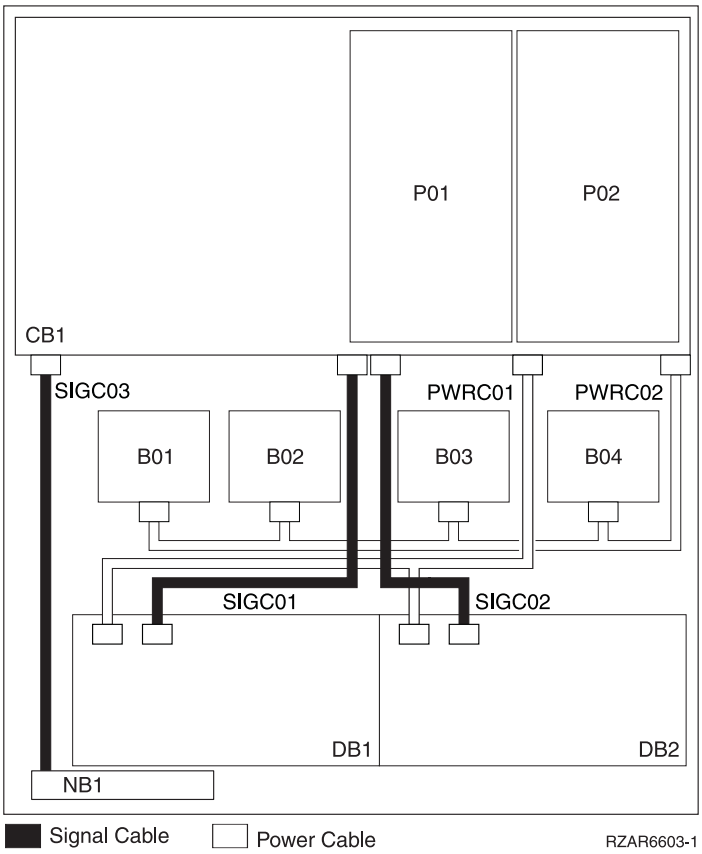


Table 99. 5095 and 0595 expansion units - power cables

Name	Description	Part number
PWRC01	CB1 to device backplanes DB1 and DB2	52P0416
PWRC02	CB1 to Air moving devices (AMDs) B01, B02, B03, and B04	53P4065

Table 100. 5095 and 0595 expansion units - signal cables

Name	Description	Part number
SIGC01	CB1 to Device backplane (DB1, left/top)	53P0417
SIGC02	CB1 to Device backplane (DB2, right/bottom)	53P0418
SIGC03	Operation panel (NB1) to System unit backplane (CB1)	53P0414

7311-D20 expansion unit cables:

Table 101. 7311-D20 expansion unit - power cables

Name	Description	Part number
	Disk unit cable	53P0416
	Fan cable	53P0419

Table 102. 7311-D20 expansion unit - signal cables

Name	Description	Part number
	SCSI cable	53P0417
	SCSI cable	53P0418

Table 102. 7311-D20 expansion unit - signal cables (continued)

Name	Description	Part number
	Control panel cable	53P0414

External cables

Choose the type of external cable you are working with:

- General external cables
- External ac line cords

Table 103. General external cables

Description	Units	Part number
Internal modem cable (FC1010) - Austria		21H4902
Internal modem cable (FC1011) - Belgium		21H4903
Internal modem cable (FC1012) - Africa		21H4904
Internal modem cable (FC1013) - Israel		21H4905
Internal modem cable (FC1014) - Italy		75G3802
Internal modem cable (FC1015) - France		75G3803
Internal modem cable (FC1016) - Germany		75G3804
Internal modem cable (FC1017) - UK		75G3805
Internal modem cable (FC1018) - Iceland/Sweden		75G3806
Internal modem cable (FC1019) - Australia		75G3807
Internal modem cable (FC1020) - HK/NZ		75G3808
Internal modem cable (FC1021) - Finland/Norway		75G3809
Internal modem cable (FC1022) - Netherlands		75G3810
Internal modem cable (FC1023) - Switzerland		75G3811
Internal modem cable (FC1024) - Denmark		75G3812
Internal modem cable (FC1025) - US/Canada		87G6236
Cable, token ring (FC2745) 8 feet		6339098
Cable, Ethernet (FC4723) RJ-45		75G2865
Cable, 8 Port Twinax (FC4746)		21F5093
Cable, ISDN RJ-45		97H7699
Cable, ATM filtered (FC4815)		97H7385
Cable, VIDEO EXT (FC0325)		44H8676
Cable, mouse, keyboard extension (FC0325)		44H8677
Keyboard/mouse splitter cable (CCIN 2890)		07G3794
V/S COMM - 6m cable (031A)		44L0007
VSCOM (6 meters) (31B)		04N3886
V.24 - 20′ cable (0348)		44H7480
V.24 - 20′ cable - Germany (0348)		44H7482
V.24 - 20′ cable - Japan (0348)		44H7484
V.24 - 50′ cable (0349)		44H7481
V.24 - 50′ cable - Germany (0349)		44H7483
V.24 - 50′ cable - Japan (0349)		44H7485

Table 103. General external cables (continued)

Description	Units	Part number
V.24 - 20′ cable (0350)		44H7486
V.24 - 20′ cable - Germany (0350)		44H7489
V.24 - 20′ cable - Japan (0350)		44H7492
V.24 - 50′ cable (0351)		44H7487
V.24 - 50′ cable - Germany (0351)		44H7490
V.24 - 50′ cable - Japan (0351)		44H7491
V.24 - 80′ cable (0352)		44H7488
V.24 - 80′ cable - Germany (0352)		44H7491
V.24 - 80′ cable - Japan (0352)		44H7494
V.35 - 20′ cable (0353)		44H7495
V.35 - 50′ cable (0354)		44H7496
V.35 - 80′ cable (0355)		44H7497
V.36 - 20′ cable (0356)		44H7498
V.36 - 50′ cable (0357)		44H7499
V.36 - 80′ cable (0358)		44H7500
X.21 - 20′ cable (0359)		44H7501
X.21 - 50′ cable (0360)		44H7502
RS232 - 80′ cable (0365)		97H7386
RS232 - 80′ cable - Germany (0365)		97H7387
RS232 - 80′ cable - Japan (0365)		97H7388
RIO/HSL cable (3 meters) (1460)		44L0005
RIO/HSL cable (6 meters) (1461)		97H7490
RIO/HSL cable (15 meters) (1462)		04N7014
RIO/HSL optical cable (6 meters) (1470)		21P5014
RIO/HSL optical cable (30 meters) (1471)		21P5015
RIO/HSL optical cable (100 meters) (1472)		21P5016
RIO/HSL optical cable (250 meters) (1473)		21P6326
RIO/HSL to RIO/HSL-2 (6 meters) (1474)		21P5477
RIO/HSL to RIO/HSL-2 (10 meters) (1475)		21P5458
RIO/HSL-2 (1.2 meters) (1481, 3146)		21P5454
RIO/HSL-2 (1.75 meters) (1307, 3156)		00P5238
RIO/HSL-2 (1.75 meters) (1308, 3158)		00P5239
RIO/HSL-2 (3.5 meters) (1482, 3147)		53P2676
RIO/HSL-2 (10 meters) (1483, 3148)		21P5456
RIO/HSL-2 (15 meters) (1485)		21P5457
Remote control panel cable		53P5704
Serial-UPS conversion cable 1827		97P4299
SPCN cable (2 meters) (1463, 6001)		87G6235
SPCN cable (3 meters) (6006)		09P1251
SPCN cable (6 meters) (1464, 6008)		21F9469

Table 103. General external cables (continued)

Description	Units	Part number
SPCN cable (15 meters) (1465, 6007)		21F9358
SPCN cable (30 meters) (1466. 6029)		21F9359
SPCN cable (60 meters) (1467)		21F9360
Optical SPCN cable (100 meters) (0369)		21F9415
Optical SPCN cable (250 meters) (1468)		21P6325
External SCSI cable (.5 meters)		49G6456
External SCSI cable (4.5 meters)		49G6457
External SCSI cable (12 meters)		49G6458
External SCSI cable (18 meters)		49G6459
SPCN Y-cable		04N2652
RS485 cable		21P4162
J-TAG A cable (033A)		97H7486
J-TAG C cable (033B)		97H7487
J-TAG E cable (033C)		97H7604
50 micron Fibre Channel conversion cable (0371)		11P1373
62.5 micron Fibre Channel conversion cable (0372)		11P1374
AC Jumper Non-DLC (5094 - 5294 only) A01 to A02		44H8388
SPCN optical adapter		90H6287
SPCN port cable (frame-to-node)		21F9362
Frame-to-frame cable		87G6235
SPCN optical adapter		90H6287

Table 104. External ac line cords

Description	Units per assembly	Feature code	Length	Part number
Line power cord, US, Canada, Japan, 30 AMP 480 V ac 1 2	2	1303	14 feet	11P0916
Line power cord, US, Canada, Japan, 60 AMP 240 V ac 1 2	2	1301	14 feet	11P0367
Line power cord, US, Chicago, 30 AMP 480 V ac 1 2	2	1302	6 feet	11P0914
Line power cord, US, Chicago, 60 AMP 240 V ac 1 2	2	1300	6 feet	11P0365
World trade line power cord, 50 AMP 240 V ac 2	2	1304	14 feet	11P0918

Miscellaneous parts

Use this parts listing for part numbers, units, and descriptions of cleaning, testing, and miscellaneous parts.

Miscellaneous parts

Description	Units	Part number
QIC cleaning cartridge		59H4366
Test tape QIC 4GB		59H3661
Test tape QIC 16GB		87G1626
Test tape QIC 25GB		59H4127
Test tape QIC 50GB		35L0967
Cleaning kit, optical cables		46G6844
CD-ROM test disk (FC 4425, FC 4525)		81F8902
DVD test disk (FC 4430, FC 4530)		19P0484
DVD cleaning kit		19P0489
Mouse (FC 1700)		76H5078
II card wrap (TR LAN) FC 2744	AR	6165899
LL card wrap	AR	21H3548
MM card wrap	AR	21H3547
NN card wrap	AR	42H0540
OO card wrap (WS PCI)	AR	45H2364
QQ card wrap (WAN PCI)	AR	44H7479
SS RJ-45 card wrap FC 2838 and FC 2892	AR	21H4811
UU card wrap (ISDN) FC 2750	AR	97H7749
VV card wrap (ISDN) FC 2751	AR	97H7745
WW card wrap FC 2761	AR	97H7754
XX card wrap (FC 2744)	AR	44L0082
YY card wrap (FC 2743)	AR	16G5609
ZZ card wrap USB (FC 2890 and FC 2892)	AR	04N5682
Optical card wrap	AR	75G2725
GL card wrap (Ethernet) - (FC 2760 and FC 5701)	AR	21P4745
GM card wrap (FC 2742 and FC 2793)	AR	53P1677
ASYNC cable wrap	1	17G2642
V.24AD cable wrap	1	21H3761
RS232AD cable wrap	1	21H3762
V35AD cable wrap	1	21H3763
RS449AD cable wrap	1	21H3790
X21AD cable wrap	1	21H3791
Twinax port tester (93X2040)	AR	59X4262
Adapter, 25 pin to 9 pin EIA232	AR	46G0298
Battery, Integrated xSeries (TM) Server (IXS) (2890) adapter card	AR	15F8409
DIMM, Integrated xSeries (TM) Server (IXS) (2890) adapter card IOP	AR	08J0653
FC 5077 jumper	AR	04N2653
PCI card filler plate		03K8992
PCI U3 DASD tray		53P2599

Description	Units	Part number
GF card wrap - (FC 2765, 2766, 2787, 5700, 5704)	AR	11P3847
V35GM cable wrap	AR	53P1678
Power cord retainer clip (Models 270, 800, 810, 820, 825, and FC 5075)	AR	5556740

Hardware Management Console (HMC) parts

This information contains part number information for parts that are added to the base personal computer of the Hardware Management Console (HMC). These additional parts, when added to one of the following listed personal computers, make up your Hardware Management Console . For personal computer parts information not listed, refer to the hardware maintenance manual for the personal computer that you are servicing. See the IBM Personal computing Web site (http://www.pc.ibm.com)

 for details.

The following table contains a cross-reference equivalent of the HMC machine type and model number to the personal computer machine type and model number.

HMC machine type and model number	Personal computer (PC) machine type and model number	Supporting hardware maintenance manual part number
7310-CR2	8676 Model 22X	48P9908
7310-C03	8187 Model F4U	74P2661

7310-CR2 Hardware Management Console parts

Machine type 7310-CR2 uses a personal computer machine type of 8676 Model 22X for its base configuration. To access the personal computer hardware maintenance manuals, go to http://www.pc.ibm.com.

Note: Each PC hardware maintenance manual may reference more than one machine type in its title. If necessary, to cross reference to the original PC hardware maintenance manual, make sure that you find the hardware maintenance manual for the PC machine type and model for the HMC that you are servicing.

Index	Description	Units	Part numbers
1	Top cover assembly	1	24P0708
2	Fan, DASD	1	00N6991
3	Power Supply (332W)		49P2090
4	Heatsink Retention Module	1	24P0836
5	Hot-Swap SCSI Backplane		32P1932
6	Operator Information Card		48P9086
7	Bezel Filler		06P6245
8	Bezel, Hot Swap Trim		24P0720
9	Bezel, Non-Hot Swap Trim		24P0723
10	40GB IDE Drive (7200 RPM)		19K1568
11	USB Tray		32P0580
12	12.7, 3 MODE Diskette Drive		36L8645
13	24X CD-ROM drive (primary)		06P5263
13	24X CD-ROM drive		33P3231
13	DVD-RAM		33P3307
14	Bracket, CD-ROM Drive/Diskette Drive		32P1925
15	Interposer Card		48P9028
16	Microprocessor Fan		24P1118
17	Baffle		24P0742
17a	Chassis		32P1924
18	System Board		88P9728 25R3039
19	256 PC2100 ECC Memory DIMM		09N4306
19	512 MB Memory DIMM		09N4307
19	1 GB Memory DIMM		09N4308
20	9.0 1U/13A VRM Card,		74P4407
21	533/3.06-0K L3 Microprocessor		02R8908
22	533 Heatsink		24P0891

The following table contains part descriptions and part numbers for parts not shown in the 7310-CR2 illustration.

Description	Units	Part Numbers
3.0V Battery		33F8354
Mouse		24P0507
Mouse Cable		00N6954
C2T Cable (FC 4271) 0.26 m, HMC to HMC, (Keyboard/Video/Mouse)		00N7003
C2T Cable (FC 4272) 2 m, HMC to HMC, (Keyboard/Video/Mouse)		00N7006
-48V Connector		01R1199
40x20 Fan Assembly Duct		24P0892
1U Tool-less Rail Kit		24P1121
Service Label		33P2339
eServer xSeries Nameplate		33P2205
Non-Hot Swap Hard Disk Drive Rail Kit		32P1928
3.5V Riser Assembly		25P3359
Jumper Cord		36L8886
CD-ROM Drive Power Cable		24P0867
CD-ROM Signal Cable		24P0851
Hard Disk Drive Power Fixed 2-Drop Cable		24P0865
Cable, switch and USB		24P0853
Cable, diskette drive signal		24P0790
Cable, IDE drive		24P0788
Hot-Swap SCSI Assembly Cable		24P0786
Cable, hard disk drive 4-pin power		24P0622
Hard Disk Drive Backplane to System Board Cable		00N6988
Power cord		6952300
Miscellaneous parts kit - contains: CD-ROM drive spring rod (1); diskette drive spring rod (1); screws (10); PCI card support bracket (1); icon light pipe (1); rear light pipe (1); CD-ROM drive blank bezel (1); diskette drive blank bezel (1); slotted M3x5 screws (18); I/O bracket (2) fan bracket (1); 40 mm by 20 mm fan bracket (1) (all models) FRU		32P1926

7310-C03 Hardware Management Console parts

Machine type 7310-C03 uses a personal computer machine type of 8187 Model F4U for its base configuration. To access the personal computer hardware maintenance manuals, go to http://www.pc.ibm.com.

Note: Each PC hardware maintenance manual may reference more than one machine type in its title. If necessary, to cross reference to the original PC hardware maintenance manual, make sure that you find the hardware maintenance manual for the PC machine type and model for the HMC that you are servicing.

Index	Description	Units	Part Numbers
1	Top cover assembly	1	88P5962
2	Power supply, 230W	1	74P4300 74P4301
3	DVD-RAM		33P3309
	DVD-RW drive		26K5383
	CD-ROM drive		33P3243
4	HDD, 40 GB EIDE	1	19K1568
5	FDD, 3.5 1.44 MB		76H4091
6	Chassis/top cover kit		88P5963
7	System board, Gigabit Ethernet, POV		89P7944
8	Intel™ P4 3.0 GHz		88P5870
	Fan sink		01R3330 32P4004

The following table contains part descriptions and part numbers for parts not shown in the 7310-C03 illustration.

Description	Units	Part Numbers
256 MB SDRAM		31P9121
512 MB SDRAM		31P9122
RFID antenna - hook-and-loop fastner		03K9654
3.0V Battery		33F8354
Speaker with cable		00N5151
COM Port to Modem Async Cable		21L4322
Cable, C2 assembly		09K9827
5.25 EMC shield		19K5548
Retention kit		88P5915
Planar shield kit		88P5931
Cable, FDD		88P6515
Cable, HDD		88P5928
Cable, ATA66 1 drop		88P5967
Cable, ATA66 2 drop		88P5971
Cable, SATA		88P5927
Service label		88P5964
Bezel kit		49P4371
Pivot lock, 3.5 FDD		09N5748
Pivot lock, 5.25 DASD		09N5747
Fan bracket assembly		88P6700
Miscellaneous hardware kit		88P5965
Cable, CD-ROM audio		75H9219
Mouse		24P0507
Keylock assembly, random		88P5920
HDD mounting bracket assembly		88P5916
Cable assembly, power/LED		37L5092
Cable, second serial port		49P4530
Cable, dual USB 2.0		49P4365
ASYNC 8–Way Adapter		93H6541
ASYNC 128–Way Adapter		93H6545
10/100 Ethernet Adapter		09P5023

Power cords

The manufacturer provides a power cord with a grounded attachment plug to use with this product. To avoid electrical shock, always use the power cord and plug with a properly grounded outlet.

Power cords used in the United States and Canada are listed by Underwriter's Laboratories (UL) and certified by the Canadian Standards Association (CSA).

For units intended to be operated at 115 volts: Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a parallel blade, grounding-type attachment plug rated 15 amperes, 125 volts.

For units intended to be operated at 230 volts (U.S. use): Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a tandem blade, grounding-type attachment plug rated 15 amperes, 250 volts.

For units intended to be operated at 230 volts (outside the U.S.): Use a cord set with a grounding-type attachment plug. The cord set should have the appropriate safety approvals for the country in which the equipment will be installed.

The power cords listed in the following table are specifically designed for a country or region and are usually available only in that country or region.

Power Cord Part Number	**Used in these Countries and Regions**
13F9940	Argentina, Australia, China (PRC), New Zealand, Papua New Guinea, Paraguay, Uruguay, Western Samoa
13F9979	Afghanistan, Algeria, Andorra, Angola, Austria, Belgium, Benin, Bulgaria, Burkina Faso, Burundi, Cameroon, Central African Rep., Chad, China (Macau S.A.R.), Czech Republic, Egypt, Finland, France, French Guiana, Germany, Greece, Guinea, Hungary, Iceland, Indonesia, Iran, Ivory Coast, Jordan, Lebanon, Luxembourg, Malagasy, Mali, Martinique, Mauritania, Mauritius, Monaco, Morocco, Mozambique, Netherlands, New Caledonia, Niger, Norway, Poland, Portugal, Romania, Senegal, Slovakia, Spain, Sudan, Sweden, Syria, Togo, Tunisia, Turkey, former USSR, Vietnam, former Yugoslavia, Zaire, Zimbabwe
13F9997	Denmark
14F0015	Bangladesh, Burma, Pakistan, South Africa, Sri Lanka
14F0033	Antigua, Bahrain, Brunei, Channel Islands, China (Hong Kong S.A.R.), Cyprus, Dubai, Fiji, Ghana, India, Iraq, Ireland, Kenya, Kuwait, Malawi, Malaysia, Malta, Nepal, Nigeria, Polynesia, Qatar, Sierra Leone, Singapore, Tanzania, Uganda, United Kingdom, Yemen, Zambia
14F0051	Liechtenstein, Switzerland
14F0069	Chile, Ethiopia, Italy, Libya, Somalia
14F0087	Israel
1838574	Thailand
6952301	Bahamas, Barbados, Bermuda, Bolivia, Brazil, Canada, Cayman Islands, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Japan, Korea (South), Liberia, Mexico, Netherlands Antilles, Nicaragua, Panama, Peru, Philippines, Saudi Arabia, Suriname, Taiwan, Trinidad (West Indies), United States of America, Venezuela

Removing and replacing parts

This is the starting point for all removal and replacement procedures. Perform the following steps.

Attention: When you are removing the cover while the system is powered on, errors may occur due to electromagnetic interference.

1. See "Finding part locations" on page 1 to locate the part you are replacing.
2. Find the appropriate procedure in this topic for the field replaceable unit (FRU) you are removing, and follow the instructions.

   Attention: If you are removing an IOA, IOP, IXS card, disk unit, or removable media unit, you might be able to keep the system powered on and perform a concurrent exchange.
3. When you have completed the procedure, install the new unit by reversing the removal and replacement procedure unless otherwise noted.
4. After exchanging an item, see Chapter 2, "Verifying the repair," on page 279.

Choose the system unit or expansion unit on which you want to remove or replace a part:

"Removing and replacing parts on model 520" on page 207

"Removing and replacing parts on model 550and 9124-720" on page 213

"Removing and replacing parts on model 570" on page 219

"Removing and replacing parts on Model 590and595" on page 224

"HMC removal and replacement procedures" on page 224

"Removing and replacing parts on 5074, 5079, 8079-002, and 8093-002 expansion units" on page 226

"Removing and replacing parts on 5088 and 0588 expansion units" on page 238

"Removing and replacing parts on 5094 and 5294 expansion units" on page 243

"Removing and replacing parts on 5095 and 0595 expansion units" on page 256

"Removing and replacing parts on 5791and5794" on page 258

"Removing and replacing parts on 7311-D11and 5790 expansion units" on page 258

"Removing and replacing parts on 7311-D20 expansion units" on page 262

"Exchanging RIO/HSL cables" on page 264

"Removing and replacing type 2748, 2757, 2763, 2778, 2782, 4758, 4764, 5703 cards" on page 265

"Removing and replacing parts on OpenPower" on page 277

Removing and replacing Integrated xSeries Adapter (IXA)

Removing and replacing parts on model 520

DANGER

Electrical voltage and current from power, telephone, and communication cables are hazardous.

To avoid a shock hazard:

- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
- **Connect all power cords to a properly wired and grounded electrical outlet. Ensure 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 below when installing, moving, or opening covers on this product or attached devices.**

  To Disconnect:

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

  To Connect:

  1. **Turn everything OFF (unless instructed otherwise)**
  2. **Attach all cables to devices.**
  3. **Attach signal cables to connectors.**
  4. **Attach power cords to outlet.**
  5. **Turn device ON.**

  (D005)

Choose the part you want to replace:

Note: For most parts on a model 520, the removal and replacement procedures are customer tasks and can be found in the Installing hardware topic. Use the following links to go directly to these procedures.

Control panel and signal cable

Disk drive

Disk drive backplane

Fans

Fan tray assembly

Media device

Media device enclosure

Memory modules

PCI adapter

PCI adapter dividers and light pipes

Power supply

Rack-mounted system unit latch bracket

RAID enablement card

Service processor assembly

Storage I/O adapter cache battery pack

System backplane

Time-of-day battery

Voltage regulator modules

VPD card

Exchanging the system backplane on a model 520

Use this procedure to remove and replace a 520 system backplane.

To complete these procedures, you might also need to perform removal and replacements from these topics:

- Control panel
- Removable media enclosure
- Fan assembly
- Power supplies
- Voltage regulators
- Disk drives and disk drive backplanes
- PCI adapters and dividers
- Service processor
- SCSI RAID backplane

If you are planning to use this information in printed form, be sure to print all of the information you need. You can find all of the information, in both HTML or PDF format, in the Installing features and parts topic.

Before performing the following procedures, read the System Safety Inspection.

Attention: If you are servicing a rack-mounted system unit, it is strongly recommended that the system drawer be removed from the rack. If you are servicing a stand-alone system unit, it is strongly recommended that the system be placed on its side, on a flat and stable surface. To avoid potential breakage, the system front foot must not be resting on the surface.

Removing the 520 system backplane

Replacing the 520 system backplane

Removing the system backplane

Attention: Before you remove or disconnect any components, note where they are connected or installed in the system.

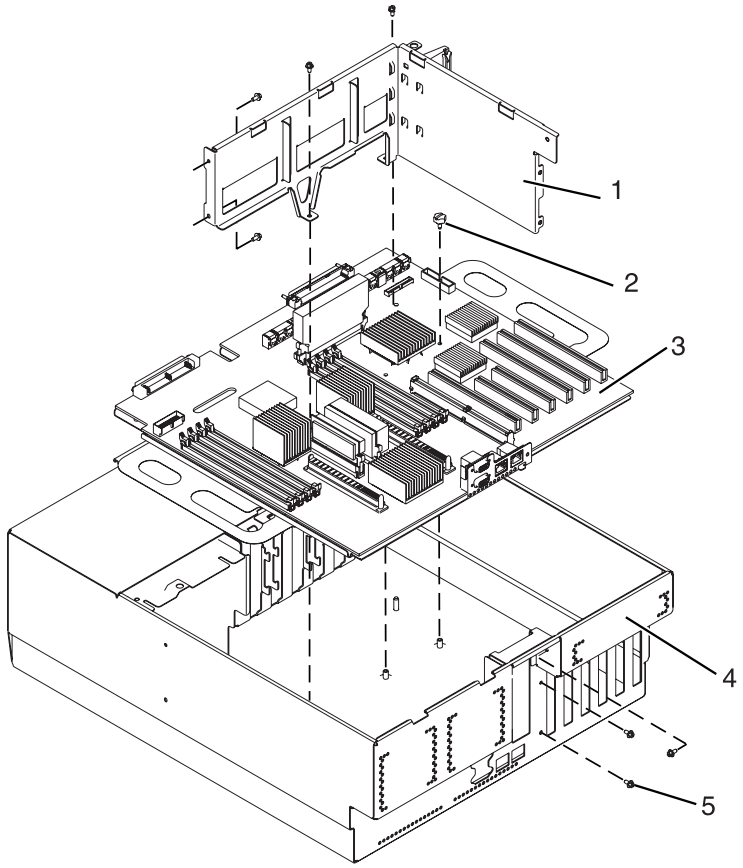
1. If you are removing the system backplane as part of another procedure, continue to the next step. If you are removing the system backplane because it is not operational, verify that it is the failing part. See Identify a failing part.
2. Perform the following to prepare the system:
   a. Ensure that the customer has taken appropriate actions to remove the server from normal use.
   b. Power off the system. For instructions, see Stopping the system.
   c. Disconnect the power source from the system.

      Note: This system might be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.
   d. Attach a wrist strap to a metal surface of your hardware to prevent electrostatic discharge from damaging your hardware. If you do not have a wrist strap, touch a metal surface of the system before installing or replacing hardware.

      Note: Follow the same precautions that you would use if you were not using the wrist strap. A wrist strap is for static control. It will not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
3. Remove the model 520 front cover.
4. Label and disconnect all other cables located at the rear of the system.
5. Place the model 520 in the service position.
6. Remove the model 520 service access cover.
7. Record the slot number and location of each adapter that is installed in the server.
8. Remove the PCI adapters (see Removing the model 520 PCI adapter with the system power off).
9. Remove the PCI adapter dividers (see Removing a model 520 PCI adapter).
10. Remove both power supplies, if two are present in the system, or remove the power supply and filler (see Removing the model 520 power supply).
11. Remove the model 520 service processor assembly and time-of-day battery.
12. Remove the model 520 media-device enclosure.

    Note: If there is a cable from the media bay enclosure to the control panel, unplug the cable as you remove the control panel from the media bay enclosure.
13. Remove the VPD card (see Exchanging the VPD card).
14. Remove the disk drives (see Remove a disk drive).
15. Remove the model 520 fan tray assembly.
16. Remove the disk drive backplanes (see Replace a model 520 disk drive backplane).
17. Remove model 520 memory modules.
18. Remove the model 520 voltage regulator modules.

19. Remove the 7 hex-head screws holding the power supply bay chassis bracket as shown in the following illustration.



1 Power supply bay chassis bracket
2 Blue thumbscrew
3 System backplane (shown with voltage regulator modules attached)
4 System chassis (shown in service position)
5 Hex-head screw (7)

20. Remove the power supply bay chassis bracket.
21. Remove the blue thumbscrew holding the system backplane to the chassis. Do not remove any other screws from the backplane. The blue thumbscrew is the only screw that needs to be removed in order to release the backplane from the chassis.
22. To remove the system backplane from the chassis, lift the front edge of the system backplane and pull it towards the front of the system. Lift the system backplane up and out of the system chassis.

    Attention: Use care when removing the system backplane. Standoffs attached to the chassis base might damage the components attached to the bottom of the system backplane. Do not lift the system backplane by any of the attached modules.
23. Place the system backplane in a safe place.

Replacing the system backplane

To replace the system backplane, do the following:

1. Attach a wrist strap to a metal surface of your hardware to prevent electrostatic discharge from damaging your hardware. If you do not have a wrist strap, touch a metal surface of the system before installing or replacing hardware.

Note: Follow the same precautions that you would use if you were not using the wrist strap. A wrist strap is for static control. It will not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.

2. If necessary, remove the system backplane from the antistatic package.
3. Carefully grasp the system backplane along two edges.
4. Lower the system backplane at an angle, so that the rear of the backplane connects with the system chassis first.
5. Slide the system backplane toward the back of the system chassis, and align the retaining screw hole with the mating screw hole located on the system chassis.

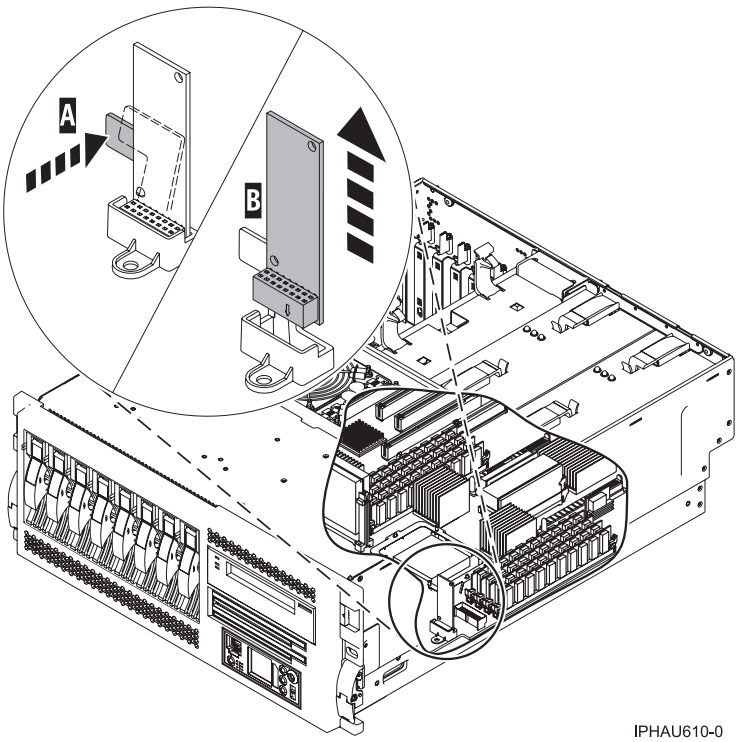
   Note: Use care when replacing the system backplane. Standoffs attached to the chassis base may damage the components attached to the bottom of the system backplane.
6. Replace the thumbscrew that secures the system backplane to the system chassis.
7. Replace the power supply bay chassis bracket. Insert and tighten the 7 hex-head screws.
8. Replace the voltage regulator modules.
9. Replace the model 520 memory modules.
10. Replace the disk drive backplanes (see Replace a model 520 disk drive backplane).
11. Replace the model 520 fan tray assembly.
12. Replace the disk drives (see Replace a disk drive).
13. Replace the VPD card (see Exchanging the VPD card).
14. Replace the model 520 media-device enclosure.

    Note: If there is a cable from the media device enclosure to the control panel, reconnect the control panel cable as you install the media device enclosure.
15. Replace the model 520 service processor assembly and time-of-day battery.
16. Replace both power supplies, if two were present in the system, or replace the power supply and filler (see Replacing the model 520 power supply).
17. Replace the PCI adapter dividers (see Replace a model 520 PCI adapter divider).
18. Replace the PCI adapters (see Replacing the model 520 PCI adapter with the system power off).
19. Replace the model 520 service access cover.
20. Replace the model 520 front cover.
21. Place the model 520 in the operating position.
22. Reconnect all signal and power cables to the back of the system.
23. Reconnect the power source to the system.
24. Perform the following to set the configuration ID and MTMS values:
    a. Use the HMC or PC Web browser to access the ASMI (see Accessing the Advanced System Management Interface).
    b. Follow the instructions in Changing processing unit power control network identifier to update the processing unit power control network ID. Change the identifier to **B4**.
    c. Follow the instructions in Setting the system enclosure type to change the system enclosure type.
25. Start the system.
26. If you replaced the system backplane as part of another procedure, return to that procedure now. If you replaced it because it was not operational, verify that the new resource is functional. See Chapter 2, “Verifying the repair,” on page 279.

Exchanging the VPD card on the model 520

To exchange the VPD card on the model 520, perform the following procedure:

1. If you are removing the VPD card as part of another procedure, continue to the next step. If you are removing the VPD card because it is not operational, verify that it is the failing part. See Identify a failing part.
2. Power off the system. To review the power-off procedure, go to Powering on and powering off.
3. Disconnect the line cords to each power supply.
4. Remove the model 520 media device enclosure. For further instructions, see Remove the model 520 media device enclosure.
5. Unlock the VPD card by pressing on retaining bracket **A** .
6. Remove the VPD card from its bracket **B** .
7. To install a VPD card, reverse this procedure. Ensure retaining pin fully engages VPD card.
8. Use ASMI to set the system identifiers. This can be done by using a Hardware Management Console (HMC) or PC to access the ASMI. Refer to Accessing the Advanced System Management Interface for information about setting up the ASMI, and Managing your server using the Advanced System Management Interface for information about using the ASMI. Update the system configuration settings. For further information, see Programming vital product data and Setting the system identifiers.
9. If you replaced the VPD card as part of another procedure, return to that procedure now. If you replaced it because it was not operational, verify that the new resource is functional. See Chapter 2, "Verifying the repair," on page 279.**This ends the procedure.**



IPHAU610-0

Removing and replacing parts on model 550and 9124-720

DANGER

Electrical voltage and current from power, telephone, and communication cables are hazardous.

To avoid a shock hazard:

- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
- **Connect all power cords to a properly wired and grounded electrical outlet. Ensure 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 below when installing, moving, or opening covers on this product or attached devices.**

  To Disconnect:

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

  To Connect:

  1. **Turn everything OFF (unless instructed otherwise)**
  2. **Attach all cables to devices.**
  3. **Attach signal cables to connectors.**
  4. **Attach power cords to outlet.**
  5. **Turn device ON.**

  (D005)

Choose the part you want to replace:

Note: For most parts on a model 550 and 9124-720, the removal and replacement procedures are customer tasks and can be found in the Installing hardware topic. Use the following links to go directly to these procedures.

Control panel and signal cable

Disk drive

Disk drive backplane

Fans

Media device

Media device enclosure

Memory modules

PCI adapter

PCI adapter dividers and light pipes

Power supply

Processor assembly

Rack-mounted system unit latch bracket

RAID enablement card

RIO/HSL adapter card

RIO/HSL cables concurrent

Storage I/O adapter cache battery pack

System backplane

Time-of-day battery

Voltage regulator modules

VPD card

Exchanging the system backplane on a model 550 and 9124-720

Use this procedure to remove and replace a 550 or 9124-720 system backplane.

If you are planning to use this information in printed form, be sure to print all of the information you need. You can find all of the information, in both HTML or PDF format, in the Installing features and parts topic.

Before performing the following procedures, read the System Safety Inspection.

Attention: If you are servicing a rack-mounted system unit, it is strongly recommended that the system drawer be removed from the rack. If you are servicing a stand-alone system unit, it is strongly recommended that the system be placed on its side, on a flat and stable surface. To avoid potential breakage, the system front foot must not be resting on the surface.

Attention: Before you remove or disconnect any components, note where they are connected or installed in the system.

Note: When you replace the system backplane assembly or time-of-day battery, you will lose the service processor settings.

Check and record the following service processor settings:

- System name setting. Refer to Changing system name.
- System power settings. Refer to Controlling the system power.
- ASMI service aids settings. Refer to Troubleshooting the system using system service aids.
- System configuration settings. Refer to Changing system configuration.
- Network services settings. Refer to Configuring network services.
- Login profile settings. Refer to Setting up login profile.

- Processing unit power control network identifier . Refer to Changing processing unit power control network identifier.
- Server firmware. Refer to Server firmware fixes. The system may need to be updated to the latest server firmware code level after you replace the service processor.
- Also service processor settings that may have been set using operating system commands.

1. If you are removing the system backplane as part of another procedure, continue to the next step. If you are removing the system backplane because it is not operational, verify that it is the failing part. See Identify a failing part.
2. Perform the following to prepare the system:
   a. Ensure that the customer has taken appropriate actions to remove the server from normal use.
   b. Power off the system. For instructions, see Stopping the system.
   c. Disconnect the power source from the system.

      Note: This system might be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.
   d. Attach a wrist strap to a metal surface of your hardware to prevent electrostatic discharge from damaging your hardware. If you do not have a wrist strap, touch a metal surface of the system before installing or replacing hardware.

      Note: Follow the same precautions that you would use if you were not using the wrist strap. A wrist strap is for static control. It will not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
3. Remove the front cover. For instructions, see Remove the front cover.
4. Label and disconnect all other cables located at the rear of the system.
5. Place the system in the service position. For instructions, see Place the unit in the service position.
6. Remove the service access cover. For instructions, see Remove the service access cover.
7. Remove the media-device enclosure. For instructions, see Remove the media-device enclosure.

   Note: If there is a cable from the media-device enclosure to the control panel, unplug the cable as you remove the control panel from the media-device enclosure.
8. Remove the RAID enablement card, if present. For instructions, see Remove the RAID enablement card.
9. Record the slot number and location of each disk drive that is installed in the server.
10. Remove the disk drives. For instructions, see Remove a disk drive.
11. Remove the disk drive backplanes (see Replace a disk drive backplane).
12. Remove the fans. For instructions, see Remove the fans.
13. Record the slot number and location of each adapter that is installed in the server.
14. Remove the PCI adapters. For instructions, see Remove the PCI adapter with the system power off.
15. Remove the PCI adapter dividers. For instructions, see Remove a PCI adapter.
16. Remove both power supplies, if two are present in the system, or remove the power supply and filler. For instructions, see Remove the power supply.
17. Remove both processor assemblies, if two are present in the system, or remove the processor assembly and filler. For instructions, see Remove the processor assembly.
18. Remove the voltage regulator module. For instructions, see Remove the voltage regulator module.
19. Remove the processor and power supply dividers.
20. Remove the screws holding the front support bracket.
21. Remove the front support bracket.
22. Remove the VPD card. For instructions, see Remove the VPD card.
23. Remove the time-of-day battery. For instructions, see Remove the time-of-day battery.

24. Remove the screws holding the rear support bracket.
25. Remove the rear support bracket.
26. Remove the PCI adapter insulator sheet, power supply insulator sheet, and system insulator sheet.
27. To remove the system backplane and mounting plate from the chassis, lift the front edge of the system backplane and mounting plate until it clears the locating pins, then pull it towards the front of the system. Lift the system backplane and mounting plate up and out of the system chassis.
28. Remove the screws holding the system backplane to the mounting plate.
29. To replace the backplane, reverse steps in the removal procedure.
30. Do not start the system at this time. You will be instructed when to start the system in the procedure to restore service processor settings that follows.
31. After you replace the system backplane assembly, do the following to restore service processor and SPCN settings
    a. Enable network access to the service processor by doing one of the following.
    - If the network connection uses the Dynamic Host Configuration Protocol (DHCP) to establish an IP address, and uses a Hardware Management Console (HMC) as the DHCP server, no additional configuration is necessary to enable network access to the service processor. Do the following:
        1) Ensure that the service processor is connected to the existing service network by verifying that the HMC cable is connected to the HMC port on the service processor assembly.
        2) Connect all system power cables by plugging them into power outlets.

           Note: Do not start the system at this time.
        3) Can you access the service network?
           – No: Continue with the next step.
           – Yes: Go to step 31c on page 217.
    - If the network connection uses DHCP to establish an IP address, but does not use an HMC as the DHCP server, do the following:
        1) Complete any network configuration necessary to allow the DHCP server to recognize and assign an IP address to the service processor.
        2) Ensure that the service processor is connected to the existing service network by verifying that the network cable is connected to the network port on the service processor assembly.
        3) Connect all system power cables by plugging them into power outlets.

           Note: Do not start the system at this time.
        4) Can you access the service network?
           – No: Continue with the next step.
           – Yes: Go to step 31c on page 217.
    - If the network connection uses static IP address assignments (not HMC managed), do the following:
        1) Connect a client with a Web browser directly to the service processor network port using one of the following URLs:
           – https://192.168.2.147
           – https://192.168.3.147
        2) Connect all system power cables by plugging them into power outlets.

           Note: Do not start the system at this time.
        3) Log on to the Advanced System Management Interface (ASMI) with the user ID `admin` and the default password `admin`.

4) Change the admin user ID's password and the general user ID's password. Refer to Changing the password.
5) Configure network access using the static IP address. Refer to Configuring network access.
6) Can you access the service network?
   – No: Continue with the next step.
   – Yes: Go to step 31c.

b. If you are not able to access the service network, reset the service processor network interfaces (and passwords) by doing the following:
   1) Move both service processor reset toggle switches from their current position to the opposite position.
   2) Go to step 31a on page 216.

c. Reset the processing unit power control network identifier using the ASMI. Do the following to set the configuration ID and MTMS values:
   1) Follow the instructions in Changing processing unit power control network identifier to update the processing unit power control network ID. Change the identifier to B5.
   2) Follow the instructions in Setting the system enclosure type to change the system enclosure type.

d. The customer must do the following:
   1) Change the admin user ID's password and the general user ID's password. Refer to Changing the password.
   2) Set the system name. Refer to Viewing system name.
   3) Set the time of day. If this server uses an HMC, set the time of day using the ASMI. Refer to Viewing time of day. If this server does not use an HMC, set the time of day using the appropriate operating system command.
   4) Reenter any of the following settings that you previously changed through the ASMI, unless you want to use the defaults:
      • System power settings. Refer to Controlling the system power.
      • ASMI service aids settings. Refer to Troubleshooting the system using system service aids.
      • System configuration settings. Refer to Changing system configuration.
      • Network services settings. Refer to Configuring network services.
      • Login profile settings. Refer to Setting up login profile.
   5) Reenter any service processor settings that you may have set using operating system commands. You recorded these settings before removing the service processor.
   6) Reactivate any Capacity on Demand devices using the ASMI. Refer to Using on-demand utilities.
   7) If the system is managed by an HMC and runs logical partitions, restore the logical partition profiles. Refer to Restoring profile data using the HMC.
   8) Verify the time of day for each partition after the system is powered on and the partitions are activated. If necessary, set the time of day using the appropriate operating system command for each logical partition.
   9) If your system is managed by an HMC, reset the HMC access password. From the HMC command line, type:

      ```
      chsyspwd -m managed system -t access --passwd --newpasswd newpassword
      ```

      where:
      • The value for *managed system* is the new service processor's managed system name.
      • No value for – –passwd is entered thereby allowing authentication.
      • The value for *newpassword* is the new password value.
   10) If necessary, update to the latest server firmware level. Refer to Server firmware fixes.

11) Reboot in slow mode.
12) Start the system.

32. If you replaced the system backplane as part of another procedure, return to that procedure now. If you replaced it because it was not operational, verify that the new resource is functional. See Chapter 2, "Verifying the repair," on page 279.

Exchanging the VPD card on the model 550and 9124-720

To exchange the VPD card on the model 550 and 9124-720, perform the following procedure:

1. If you are removing the VPD card as part of another procedure, continue to the next step. If you are removing the VPD card because it is not operational, verify that it is the failing part. See Identify a failing part.
2. Perform the following to prepare the system:
   a. Ensure that the customer has taken appropriate actions to remove the server from normal use.
   b. Power off the system. For instructions, see Stopping the system.
   c. Disconnect the power source from the system.

      Note: This system might be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.
   d. Attach a wrist strap to a metal surface of your hardware to prevent electrostatic discharge from damaging your hardware. If you do not have a wrist strap, touch a metal surface of the system before installing or replacing hardware.

      Note: Follow the same precautions that you would use if you were not using the wrist strap. A wrist strap is for static control. It will not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
3. Remove the front cover. For instructions, see Remove the model 550 front cover.
4. Remove the media-device enclosure. For instructions, see Remove the 550 and 9124-720 media-device enclosure.

   Note: If there is a cable from the media-device enclosure to the control panel, unplug the cable as you remove the control panel from the media-device enclosure.
5. Pull the VPD card free by pushing the plastic tab behind the VPD card towards the back of the machine.
6. To insert a VPD card, reverse the steps in this procedure. A blank VPD card must be written back to the system. For further instructions, see Setting the system identifiers.
7. If you replaced the VPD card as part of another procedure, return to that procedure now. If you replaced it because it was not operational, verify that the new resource is functional. See Chapter 2, "Verifying the repair," on page 279.

Removing and replacing parts on model 570

DANGER

Electrical voltage and current from power, telephone, and communication cables are hazardous.

To avoid a shock hazard:

- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
- **Connect all power cords to a properly wired and grounded electrical outlet. Ensure 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 below when installing, moving, or opening covers on this product or attached devices.**

  To Disconnect:

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

  To Connect:

  1. **Turn everything OFF (unless instructed otherwise)**
  2. **Attach all cables to devices.**
  3. **Attach signal cables to connectors.**
  4. **Attach power cords to outlet.**
  5. **Turn device ON.**

  (D005)

Choose the part you want to replace:

Note: For most parts on a model 570, the removal and replacement procedures are customer tasks and can be found in the Installing hardware topic. Use the following links to go directly to these procedures.

Control panel

Disk drive

Disk drive enclosure and backplane

Fans

I/O backplane

Media

Media enclosure and backplane

Memory modules

PCI adapter

Power supply

RAID enablement card

RIO/HSL card

RIO/HSL cables concurrent

SCSI-IDE converter card

Service processor assembly and time-of-day battery

Service processor cable

SMP processor cable

System backplane

System processor card

Voltage regulator assembly

VPD card

Exchanging the I/O backplane on the model 570

To remove the I/O backplane from the model 570, perform the following procedure.

Attention: Before continuing with this procedure, check the SMP processor cable connections and the service processor cable connections. Reference codes, which can be caused by an SMP processor cable or a service processor cable connection, might instruct you to unnecessarily replace the I/O backplane or the service processor card. Before replacing an I/O backplane or a service processor card, check the SMP processor cable and the service processor cable connections (if the cables are installed) by using the following procedure:

1. If the server is started, stop all the system units that are connected by SMP processor cables and service processor cables.
2. Check each connection by removing the cable connectors from the server and checking for any damage to the connectors or cables.
3. Reconnect the SMP processor cables and service processor cables. Ensure that each connector is fully seated and secured into position.
4. Verify the server operation. If the problem is not corrected, continue with this procedure.

1. Power off the system (see Powering on and powering off).
2. Disconnect the plugs to each power supply.
3. Perform the following from the back of the system:
   a. Remove and label all cables from the back of the system.
   b. Remove the PCI adapter cards and empty cassettes from slots 1 through 6 (see model 570 PCI adapters and cassettes).
   c. Remove the model 570 power supplies.
   d. Remove the RIO/HSL card if it is installed in position -C7 (see RIO/HSL card).

Note: When completing the next step, you only need to remove the service processor assembly temporarily. Therefore you do not need to record the service processor settings or remove the time-of-day battery.

Attention: Do not remove the time-of-day battery. If you remove the time-of-day battery some of the service processor settings might be lost.

e. Remove the model 570 service processor assembly and time-of-day battery.

f. Remove the VPD card (see "Exchanging the VPD card on the model 570" on page 223).

4. Remove the model 570 front cover.

5. Perform the following from the front of the system:

   a. Remove the model 570 control panel.

   b. Remove the fans (see Remove the model 570 system unit fan).

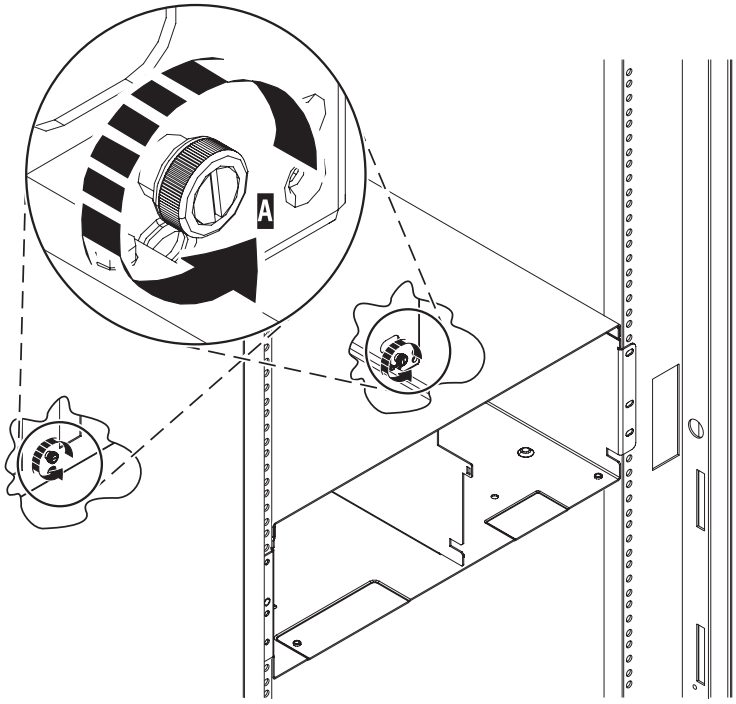
   c. Remove the model 570 media-device enclosure.

   d. Remove the model 570 disk drive enclosure.

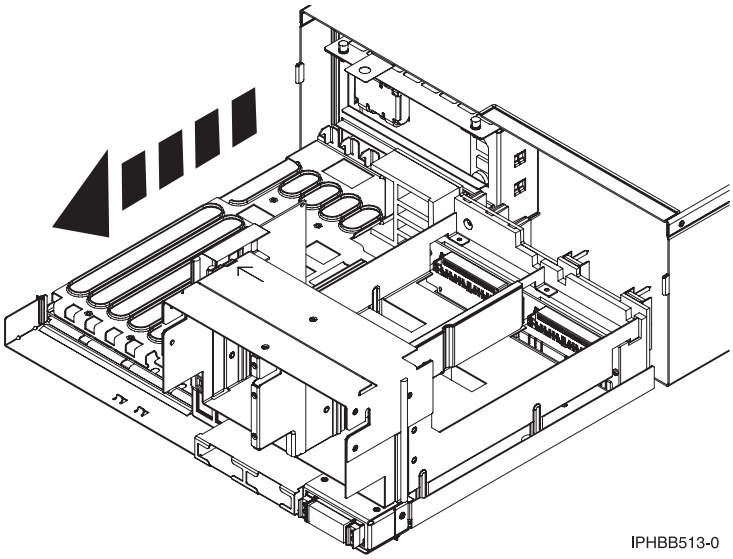
   e. Remove the voltage regulator card assembly (see model 570 voltage regulator assembly).

   f. Remove the model 570 system processor assembly.

6. Loosen the thumbscrews at the front of the backplane **A** .



7. Slide the backplane from the enclosure.

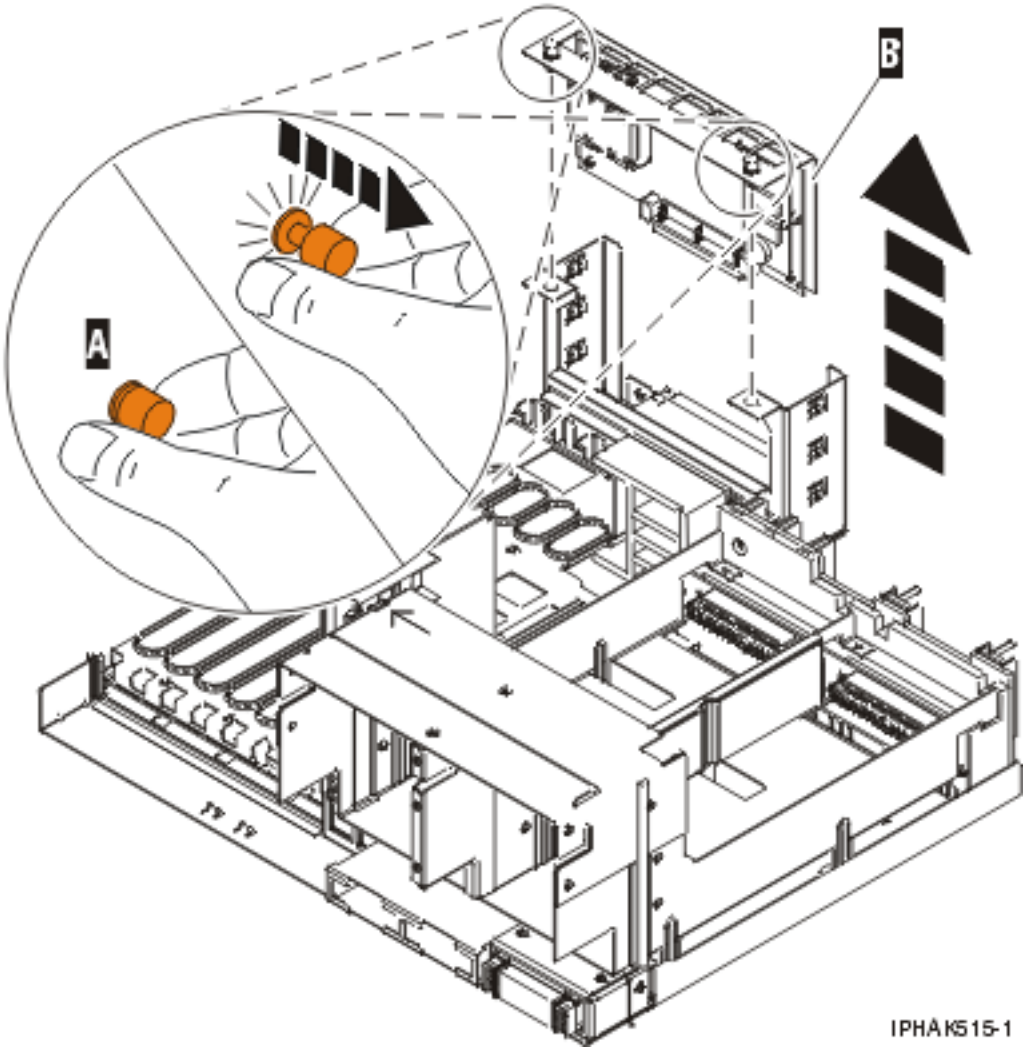


8. To install the new I/O backplane, reverse this procedure. Then continue with the next step.
9. Perform the following to set the configuration ID and MTMS values:
   a. Use the Hardware Management Console (HMC) or PC Web browser to access the ASMI (see Accessing the Advanced System Management Interface).
   b. To update the processing unit power control network ID, follow the instructions in Changing processing unit power control network identifier. Change the identifier to one of the following:
      - **B2** for a single enclosure system
      - **B3** for a multiple enclosure system
   c. To change the system enclosure type, follow the instructions in Setting the system enclosure type.
10. Reactivate any Capacity on Demand devices using the ASMI. Refer to Using on-demand utilities.**This ends the procedure.**

Exchanging the RAID Enablement card on the model 570

To remove the RAID enablement card, perform the following procedure.

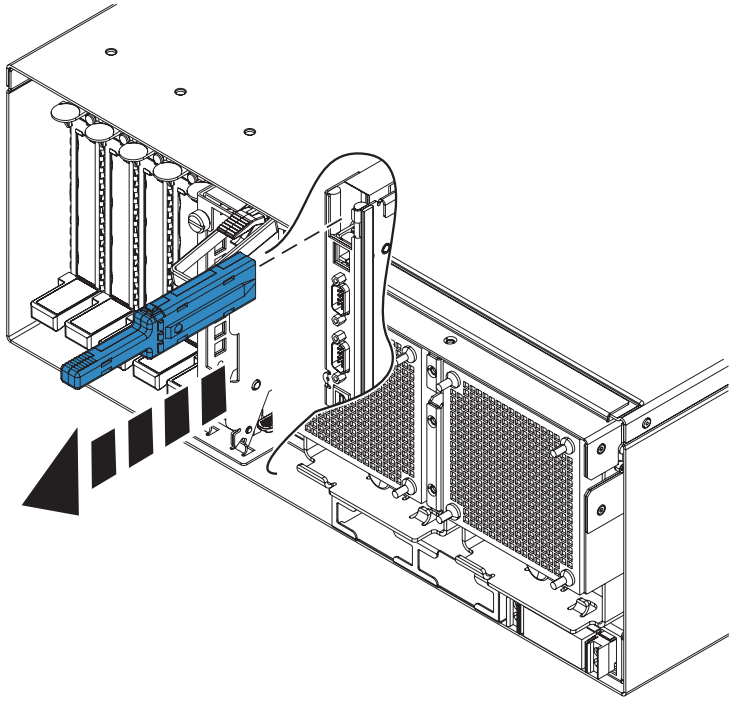
1. Remove the I/O backplane (see “Exchanging the I/O backplane on the model 570” on page 220).
2. Place the I/O backplane on a flat surface.
3. Unlock the restraining pins (A) located at the top of the RAID enablement card bracket (B).
4. Lift the RAID enablement card and bracket from the enclosure.
5. To replace the RAID enablement card, reverse the steps in this removal procedure. **This ends the procedure.**



Exchanging the VPD card on the model 570

To exchange the VPD card on the model 570, perform the following procedure:

1. Power off the system. To review the power off procedure, go to Powering on and powering off.
2. Disconnect the line cords to each power supply.
3. Pull out the VPD card by the blue handle.
4. To install a VPD card, reverse this procedure. Insert the VPD card with the key oriented to the right as shown and push until fully seated.
5. Use ASMI to set the system identifiers. This can be done by using a Hardware Management Console (HMC) or PC to access the ASMI. Refer to Accessing the Advanced System Management Interface for information about setting up the ASMI, and Managing your server using the Advanced System Management Interface for information about using the ASMI. Update the system configuration settings. For further information, see Programming vital product data and Setting the system identifiers. **This ends the procedure.**



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Removing and replacing parts on Model 590and595

Use the Service focal point application on the Hardware Management Console (HMC) to find information on how to remove and replace parts. Do the following to access the Service focal point application:

1. Log into the HMC as the service representative.
2. In the Navigation area, select the **Service Applications** icon.
3. Select the **Service Focal Point** icon.
4. Select **Exchange Parts**. The Exchange Parts window opens. Follow the instructions on the Exchange Parts window until you reach the removal and replacement procedures for the selected part.

HMC removal and replacement procedures

This section contains service procedures and procedures to help remove and replace parts that are part of the HMC.

Depending on the system configuration, when you are directed to exchange FRUs, run tests, or change configuration data, the customer's interface to the managed system may not be available. Before starting any of these tasks, notify the customer.

When you exchange a system board, battery, or adapter, follow the configuration procedures in this manual to ensure correct operation.

Attention: Removing power from an HMC may cause loss of data on the disk drives. If power must be removed, select **Power Off** from the HMC user interface. This action shuts down the operating system and turns off the power to the HMC. See Powering on and off.

HMC service procedures

The service procedures in this section help in performing maintenance tasks and installing updates to the HMC.

Attention: The system board, adapters, memory modules, and processor modules can be damaged by electrostatic discharge. If you are directed to exchange FRUs in a HMC, refer to the "Handling Electro-Static Discharge (ESD) Sensitive Devices" in the appropriate PC maintenance information manuals.

When you are referred to the hardware maintenance manual for the personal computer, use the hardware maintenance manual for the appropriate personal computer machine type.

Depending on the system configuration, when you are directed to exchange FRUs, run tests, or change configuration data, the customer's interface to the system hardware may not be available. Berfore starting any of these tasks, notify the customer.

When you exchange a system board, battery, or adapter, follow the configuration procedures in this manual to ensure correct operation.

When you exchange a disk drive, ensure the licensed internal code is loaded on the new drive. Use the "Restore the Hard Disk" procedures in the hardware maintenance manual for the personal computer machine type.

Removing power from the HMC may cause loss of data on the disk drive. If power must be removed, shut down the HMC. See Powering on and off.

Recovering the HMC

If the HMC has a problem and the customer has to recover the HMC, the procedure can be found in Recovering the HMC.

Attention: This procedure will restore the HMC image onto the disk drive in the HMC PC. Before performing this procedure, contact HMC support and also ensure that there are backups for all critical console data.

Backup Profiles

If the customer wants to back up critical data so that the data is available when it is needed, the procedure can be found in Backing up critical HMC data.

System board specifications

Your HMC system is based on one of the following listed PC machine types and models. Use the following table when cross referencing between a PC and HMC machine type and model number.

HMC machine type and model number	Personal computer (PC) machine type and model number	Supporting hardware maintenance manual part number
7310 model CR2	8676 model 22X	48P9908
7310 model C03	8187 model F4U	74P2661

For information about system board specifications, refer to the PC hardware maintenance manuals. These publications are available through the following web site:

`http://www.pc.ibm.com`

HMC fixes

For information about getting fixes or updates for the HMC code, refer to HMC fixes

Recovering an HMC after replacing a disk drive

If a customer has to replace a disk drive, they will have to recover the HMC image and restore their stored profile data. Go to Recovering the HMC for more information.

Replacing the Planar and Performing the Flash (BIOS/VPD) update procedure

After replacing the system planar, you should perform the flash BIOS/VPD update.

Attention: Refer to the information label located inside the system unit cover for any model-specific information.

To perform the flash (BIOS/VPD) update procedure, do the following:

1. Power off the computer.
2. Insert the flash update diskette into drive A.
3. Power on the computer.
4. When the Update Utility window opens, select the country/keyboard, then press Enter.
5. If the computer serial number was previously recorded, the number is displayed with an option to update it. Press **Y** to update the serial number.
6. Type the 7-digit serial number of the computer you are servicing, then press Enter.
7. Follow the instructions on the screen to complete the flash (BIOS/VPD) update procedure.

Removing and replacing parts on 5074, 5079, 8079-002, and 8093-002 expansion units

Choose the part you wish to replace on a 5074, 5079, 8079-002, or 8093-002 expansion unit:

- AC charger A01 (single line cord)
- AC modules A01 and A02 (dual line cord)
- Air moving devices B01 and B02
- Batteries T01, T02, T03, and T04
- Cards (concurrent)
- Cards (dedicated)
- Covers
- Device boards DB1, DB2, DB3
- Disk drives
- Display panel NB1
- Media device (D41 and D42)
- Power distribution board PB1
- Power supplies P00, P01, P02, and P03
- Tower card CB1

Exchanging the ac charger (A01) on 5074, 5079, 8079-002, and 8093-002 expansion units (single line cord)

Use this procedure to remove or replace the ac charger (A01) in a single line cord 5074, 5079, 8079-002, and 8093-002 expansion unit.

1. Power off the expansion unit (see Powering off an expansion unit).
2. Open the rear cover (see “Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units” on page 230).
3. Disconnect the incoming ac power cord from the expansion unit.
4. Disconnect all the power cords from the battery charger.

5. Remove the screws that are holding the charger to the frame.
6. Remove the battery charging unit.
7. Install the new ac charger by reversing this procedure. After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

Exchanging ac modules (A01 and A02) on 5074, 5079, 8079-002, and 8093-002 expansion units (dual line cord)

Use this procedure to remove or replace the ac module (A01 and A02) on a dual line cord 5074, 5079, 8079-002, or 8093-002 expansion unit.

Attention: Since this procedure can be performed concurrently, you do not need to power off the unit if it is already powered on.

1. Open the rear cover (see "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230).
2. Trace and disconnect the ac input line cord that connects to the ac module that needs replacing. Refer to "Locations — 5074, 8079-002, and 8093-002 expansion units" on page 42 or "Locations — 5079 expansion unit" on page 48 for location and address information.

   Attention: Do not disconnect the other system ac line cord when powered on.
3. Disconnect the power supply jumper cords from the ac module that you are working on.

   Attention: Do not disconnect the other system ac module power supply jumper cords.
4. Remove the top and bottom screws that hold the ac module to the frame.
5. Remove the ac module unit.
6. Install a new ac module by reversing this procedure. After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279.

   This ends the procedure.

Exchanging the air moving devices on 5074, 5079, 8079-002, and 8093-002 expansion units

Use this procedure to remove or replace the air moving device (AMD) (B01 and B02) on a 5074, 5079, 8079-002, or 8093-002 expansion unit.

Attention: Since this procedure can be performed concurrently, you do not need to power off the unit if it is already powered on.

1. Open the rear cover (see "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230).
2. Remove the EMC access plate located directly above the PCI card enclosure. Press the surfaces of the two latches together and tilt the top of the cover away from the frame to remove it.
3. Remove the screw from the AMD door assembly for the AMD that you are replacing.
4. Remove the AMD assembly by sliding it out of the enclosure, while holding the AMD access plate open.
5. Install the new AMD by reversing this procedure. The new AMD will automatically power on once it is installed.
6. After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279.

   This ends the procedure.

Exchanging the batteries on 5074, 5079, 8079-002, and 8093-002 expansion units

Use this procedure to remove or replace the batteries (T01, T02, T03, and T04) on 5074, 5079, 8079-002, and 8093-002 expansion units.

Attention: Since this procedure can be performed concurrently, you do not need to power off the unit if it is already powered on. However, removing the battery power unit while the system is running on battery power will cause the system to fail and may damage the battery power unit and the PCI card enclosure. (If the console will accept commands, the system is not running on battery power.)

CAUTION:
This part or unit is heavy, but has a weight smaller than 18 kg (39.7 lb.). Use care when lifting, removing, or installing this part or unit. (C008)

1. Open the rear cover (see "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230).
2. Remove the screws from the EMC access plate that is covering the batteries.
3. Remove the EMC access plate from the battery enclosure.
4. Remove the top and bottom screws from the battery unit.
5. Remove the battery power unit by pulling on the ring with two hands.

   CAUTION:
   Lead-acid batteries can present a risk of electrical burn from high, short-circuit current. Avoid battery contact with metal materials; remove watches, rings, or other metal objects, and use tools with insulated handles. To avoid possible explosion, do not burn.

   Exchange only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations. In the United States, IBM has a process for the collection of this battery. For information, call 1-800-426-4333. Have the IBM part number for the battery unit available when you call. (C004)
6. Install the new battery power unit by reversing this removal procedure. After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279.

   This ends the procedure.

Exchanging cards (concurrent) on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units

Use this procedure to remove or replace cards concurrently on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units.

Concurrent/dedicated guidelines

In some cases you do not need to power down the system to change PCI cards. Use the following guidelines to determine if you should use dedicated or concurrent removal and replacement procedures. If you use concurrent maintenance on a partitioned system, follow the procedures from the partition that owns the resource. If the resource is not owned, follow the procedure from the primary partition.

For 5074, 5079, 5094, and 5294 IXS cards:

The IXS cards require dedicated maintenance. Do **not** power down the individual card slot. You can power down the 5074 unit, or the top or bottom half of a 5079 or 5294 unit. See "Exchanging cards (dedicated) on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230.

For 5074, 5079, 5094, and 5294 cards - except IXS cards:

- Card positions that permit card level concurrent maintenance using HSM:
  - **For 5074 or 5079**: Card positions C01 through C07 and C09 through C15 permit card level concurrent maintenance using HSM. You can power down the individual card slot.
  - **For 5094 or 5294**: Card positions C01 through C09, and C11 through C15 permit card level concurrent maintenance using HSM. You can power down the individual card slot.

- If the resource is the load source IOA or the load source IOP, or any other storage IOA/IOP with critical DASD attached for the system, primary, or secondary partition, follow the on-screen instructions when you use HSM to power down the IOP or IOA. Instructions to use functions 68 and 69 on the control panel will be included.
- If the resource is the console IOA or the console IOP for the system or primary partition, you cannot power down the domain.
- If the resource is the console IOA or the console IOP for a secondary partition, then power down the secondary partition and follow the procedure from the primary partition.

CAUTION:
The system contains circuit cards and/or assemblies that contain lead solder. To avoid the release of lead (Pb) into the environment, do not burn. Discard the circuit card as instructed by local regulations. (C014)

Attention: All cards are sensitive to electrostatic discharge. See Working with electrostatic discharge-sensitive parts.

To remove cards concurrently:

1. On the command line, enter the Start System Service Tools command:
   STRSST

   If you cannot get to SST, select DST. See Dedicated Service Tools (DST) for details.

   Attention: Do not perform a system IPL to get to DST.
2. Select **Start a Service Tool** > **Hardware Service Manager** > **Packaging hardware resources**.
3. Select **Hardware contained within package** for the Frame ID that contains the IOA or IOP that you are removing.
4. Find the card position for the IOA or IOP that you are removing and select **Concurrent maintenance**.
5. A listing of the power domain is shown. Select the **Power off domain** function key. Everything within the IOA's or IOP's power domain will be powered off .
6. To see the status of the power domain, select the **Display power states** function key.
7. Find the IOA or IOP that you are removing and select **Toggle LED blink off/on**.
8. Remove the cover to access the card that you are removing from the system. See "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230.
9. Remove the EMC access plate that is located directly above the card enclosure. Press the two latching mechanisms together and tilt the top of the cover away from the frame to remove it.
10. Look at the power LED for the card that you are removing to ensure that it is powered off. The power LED is located to the left of and directly above the card slot. If the LED is blinking multiple times per second (rapidly) or it is off, then the card is powered off.
11. Disconnect and label any cables from the card that you wish to remove.
12. Turn the latch counter clockwise and lift upward on the black latch to release the card.
13. Gently pull the card off the backplane. **This ends the procedure.**

To replace cards concurrently:

1. Install the card in to the system by reversing the card removal procedure above.
2. Select the **Power on domain** function key for the IOA or IOP that you are installing.

   Note: To the right of the description field you will see one or both of the following symbols displayed:

   * indicates the location to which the system will assign the resource.

> indicates the location to which the resource was last assigned.

3. Press **Enter**. The Work with Controlling Resource display will appear.
4. Determine the location where you want to assign the resource and select **Assign to** for that location.
5. Wait for the Hardware Resource Concurrent Maintenance display to appear with the message indicating that the power on is complete.
6. After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279.
7. If you have exchanged a 2766 or 2787 Fibre Channel IOA, the IBM external storage subsystem must be updated to use the world-wide port name of the new IOA. Refer to Updating the world-wide port name for a new 2766 or 2787 IOA for details. **This ends the procedure.**

Exchanging cards (dedicated) on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units

Use this procedure to remove or replace cards using dedicated maintenance on a 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion unit.

In some cases, you do not need to power down the system to change PCI cards. Use the guidelines in "Exchanging cards (concurrent) on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 228 to determine if you should use dedicated or concurrent exchange procedures.

CAUTION:
The system contains circuit cards and/or assemblies that contain lead solder. To avoid the release of lead (Pb) into the environment, do not burn. Discard the circuit card as instructed by local regulations. (C014)

Attention: All cards are sensitive to electrostatic discharge. See Working with electrostatic discharge-sensitive parts.

To remove or replace the cards (dedicated):

1. Power off the expansion unit. See Powering off an expansion unit.
2. Remove the ac power cord from the frame that you are working on.
3. Remove the cover to access the card that you are removing from the system. See "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units."
4. Remove the EMC access plate that is located directly above the card enclosure. Press the two latching mechanisms together and tilt the top of the cover away from the frame to remove it.
5. Disconnect and label any cables from the card that you wish to remove.
6. If you are removing an IXS card, then go to (Type 2890 or 2892 — Integrated xSeries Server (IXS) for iSeries).
7. Turn the latch counter clockwise and lift upward on the black latch to release the card.
8. Gently pull the card off the backplane.
9. Reverse this procedure to replace the card. After exchanging a failing item, go to Chapter 2, "Verifying the repair," on page 279.
10. If you have exchanged a 2766 or 2787 Fibre Channel IOA, the IBM external storage subsystem must be updated to use the world-wide port name of the new IOA. Refer to Updating the world-wide port name for a new 2766 or 2787 IOA for details. **This ends the procedure.**.

Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units

Use this procedure to remove or replace covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units.

Note: The front and rear covers will swing open a little more than 90 degrees. This makes it possible to replace all FRUs, without having to remove the covers.

- To open or remove the front cover, refer to Figure 1. Front cover - removal.
- To open or remove the rear cover, refer to Figure 2. Rear cover - removal.

Perform the following steps to open or remove each cover.

1. Unlock the cover (front only).
2. Open the cover by grasping its right side and pulling it towards you.
3. After opening the cover, press down on lever **B**, which is located inside along the top, left side of the cover.
4. Tilt the top of the cover away from the tower, and lift the cover off. **This ends the procedure.**

Figure 1. Front cover - removal

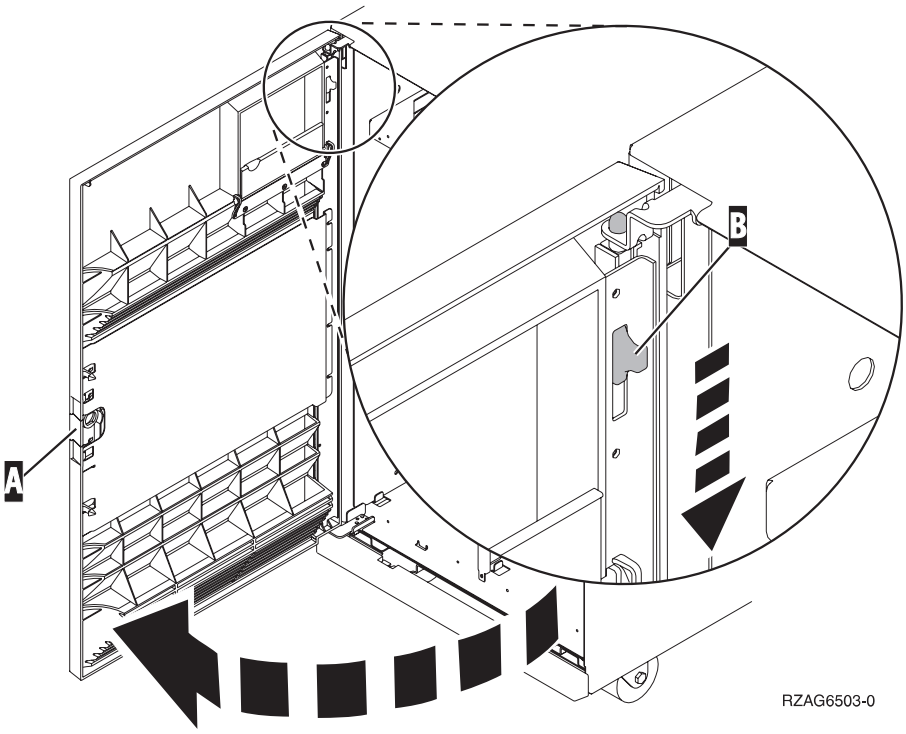
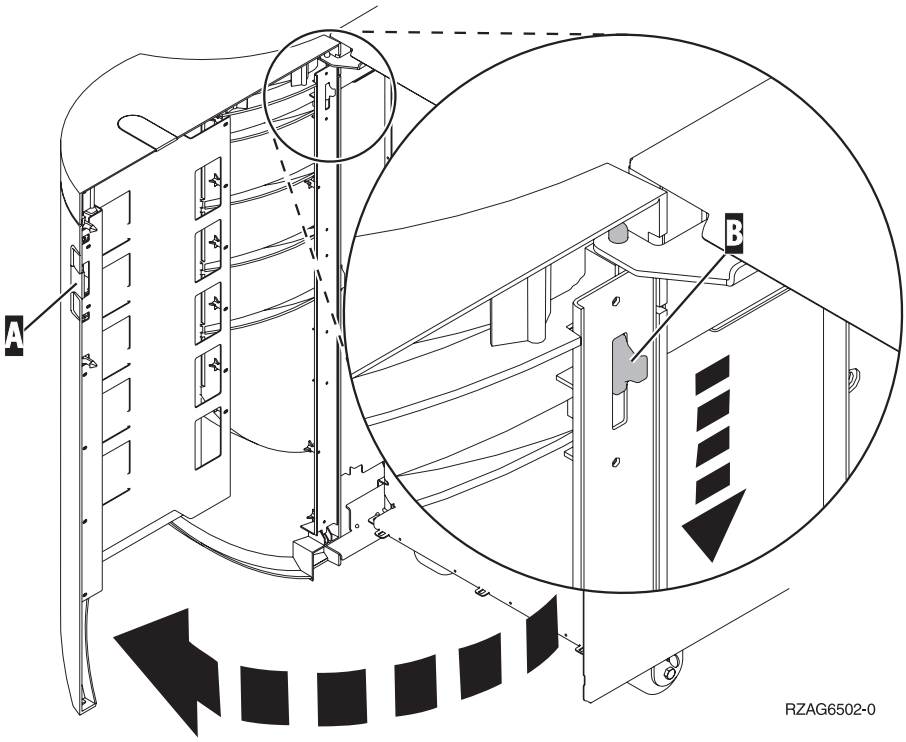


Figure 2. Rear cover - removal



Exchanging the device boards on 5074, 5079, 8079-002, and 8093-002 expansion units

Use this procedure to remove or replace the device board on 5074, 5079, 8079-002, and 8093-002 expansion units. There are separate procedures depending on the device board you are replacing:

Device boards DB1 and DB2

Device board DB3

Removing and replacing the device board (DB1 and DB2)

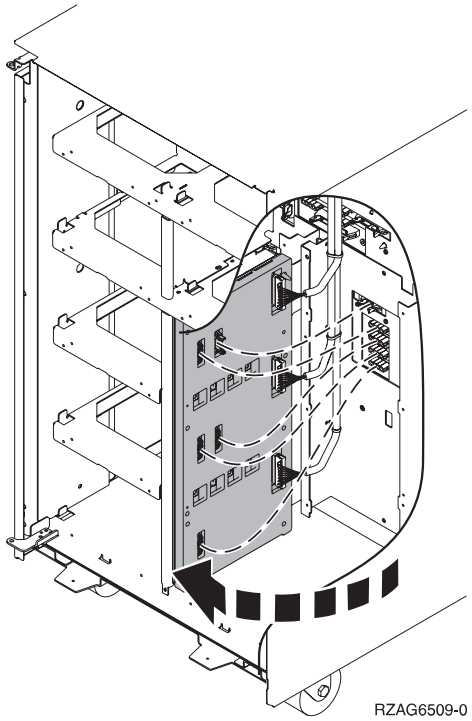
1. Power off the expansion unit (see Powering off an expansion unit).
2. Disconnect the power cord from the expansion unit.
3. Open the front cover (see "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230).
4. From the front of the expansion unit, do the following:
   a. Remove the EMC access plates from the disk unit enclosures that are located in front of the backplane that you are replacing. (For location information, see "Locations — 5074, 8079-002, and 8093-002 expansion units" on page 42.) Press the surfaces of the two latching mechanisms together and tilt the top of the cover away from the frame to remove it.
   b. Record the locations of the disk units and then remove them from the disk unit enclosures that you just uncovered.

      Attention: The disk units are sensitive to electrostatic discharge (see Working with electrostatic discharge-sensitive parts).
   c. Remove the screws that hold the disk unit cage assembly to the frame.
   d. Remove the two retaining screws that are located inside of the disk unit cage assembly (the top right and bottom left corners).
   e. Remove the disk unit cage assemblies.
   f. Remove the screws that hold the DASD shelf to the frame.
   g. Remove the DASD shelf from the frame.

5. Remove the retaining screw that is holding the DASD board assembly to the frame.
6. Pull the DASD board assembly out until it slides off the guide pins, then rotate the DASD board assembly 90 degrees. Record the locations of the cables that are located on the backside of the board assembly, and then remove them.

   Note: Both ends of the ribbon cables are marked **LH** or **RH**, indicating that one end of the cable is plugged in to either the left-hand (DB1) or right-hand (DB2) DASD board assembly. The other end of the cable is plugged in to either the left-most (LH) or right-most (RH) DASD controller card. The cables will crisscross in the center of the tower.

   Figure 1. Device board cabling



7. Remove the DASD board assembly.
8. Install the DASD board assembly by reversing the removal procedure. After exchanging an item, go to Chapter 2, “Verifying the repair,” on page 279. **This ends the procedure.**

Removing and replacing the device board (DB3)

1. Power off the expansion unit (see Powering off an expansion unit).
2. Disconnect the power cord from the expansion unit.
3. Open the rear cover (see “Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units” on page 230).
4. From the rear of the expansion unit do the following:
   a. Remove the EMC access plate that is located directly above the tower card enclosure. Press the surfaces of the two latching mechanisms together and tilt the top of the cover away from the frame to remove it.
   b. Remove the cables from the disk unit controller cards (IOAs) that are located inside the PCI card enclosure and record their card and port locations.
   c. Remove the screws that hold the tower card enclosure to the frame.
   d. Pull the tower card enclosure partially out of the frame while lifting the cables clear of the enclosure.

e. Press the release mechanism that is located along the top right side of the enclosure and carefully slide the enclosure towards you. Make sure that the cables are clear of the enclosure.
f. Remove the tower card enclosure from the frame.
g. Remove the screws from the EMC access plate that is located inside the frame and directly above the power distribution board.
h. Remove the EMC access plate.
i. Reach through the opening and remove the cables from the backside of the base DASD board assembly (DB3).

5. Open the front cover (see "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230).
6. From the front of the expansion unit do the following:
   a. Record the removable media locations and then remove them by pulling out on the handles that are located on each side of the unit.
   b. Remove the control panel by pulling on the handles that are located on each side of the unit and sliding it partially out of the tower. Then, unplug the cable from the rear of the control panel (see "Exchanging the display panel on 5074, 5079, 8079-002, and 8093-002 expansion units").
   c. Unplug the control panel cable from the base DASD board assembly (DB3).
   d. Remove the two retaining screws that are located inside of the removable media enclosure (the top right and lower left corners).
   e. Remove the removable media enclosure.
   f. Remove the EMC access plates from the disk unit enclosures that are located in front of the backplane (DB3). For location information, see "Locations — 5074, 8079-002, and 8093-002 expansion units" on page 42. Press the surfaces of the two latching mechanisms together and tilt the top of the cover away from the frame to remove it.
   g. Record the disk unit locations and then remove them from the disk unit enclosures that you just uncovered.

      Attention: The disk units are sensitive to electrostatic discharge (see Working with electrostatic discharge-sensitive parts).
   h. Remove the screws that hold the disk unit enclosures to the frame.
   i. Remove the retaining screws that are located inside the disk unit enclosure.
   j. Remove the disk unit enclosures.
   k. Remove the screws that hold the center support bracket and shelf for the disk unit and removable media enclosure to the frame.
   l. Remove the support bracket and shelf.
   m. Remove the base DASD board assembly (DB3).
7. Install the base DASD board assembly by reversing the removal procedure. After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

Exchanging the display panel on 5074, 5079, 8079-002, and 8093-002 expansion units

Use this procedure to remove or replace the display panel (NB1) on 5074, 5079, 8079-002, and 8093-002 expansion units.

Attention: The display panel is sensitive to electrostatic discharge (see Working with electrostatic discharge-sensitive parts).

1. Power off the expansion unit (see Powering off an expansion unit).
2. Disconnect the ac power cords from the expansion unit.
3. Open the front cover (see "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230).
4. Pull on the two side fasteners to release the display panel assembly.

5. Slide the panel partially out of the frame.
6. Disconnect the cables that are attached to the backside of the display panel.
7. Remove the display panel from the frame.
8. Reverse this procedure to install the new display panel.
9. After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279.

   This ends the procedure.

Exchanging the power distribution board on 5074, 5079, 8079-002, and 8093-002 expansion units

Use this procedure to remove or replace the power distribution board (PB1) on 5074, 5079, 8079-002, and 8093-002 expansion units.

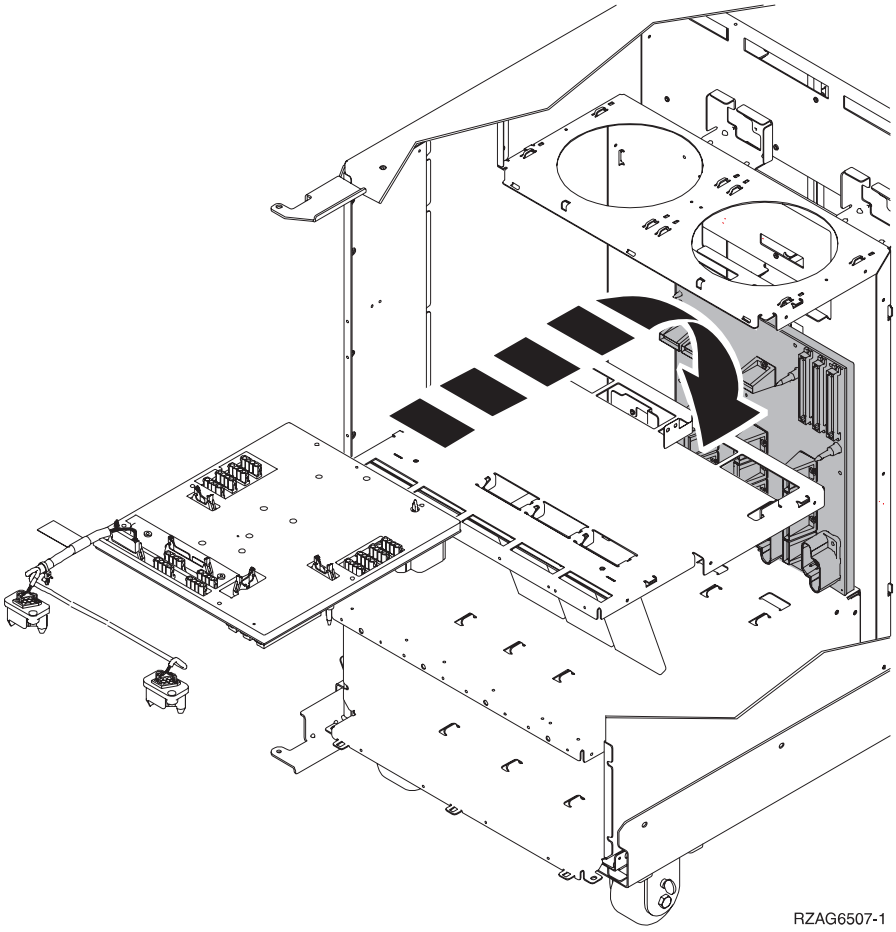
1. Remove both device boards, DB1 and DB2. Continue with the next step.
2. From the rear of the expansion unit, do the following:
   a. Open the rear cover (see "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230).
   b. Remove the EMC access plate that is located directly above the PCI card enclosure. Press the surfaces of the two latching mechanisms together and tilt the top of the cover away from the frame to remove it.
   c. Remove the cables from the disk unit controller cards that are located inside the PCI card enclosure and record their card and port locations.

      Attention: All cards are sensitive to electrostatic discharge (see Working with electrostatic discharge-sensitive parts).
   d. Remove the screws that hold the PCI card enclosure to the frame.
   e. Pull the PCI card enclosure partially out of the frame while lifting the cables clear of the enclosure.
   f. Press the release mechanism that is located along the top right side of the enclosure and carefully slide the enclosure towards you. Make sure that the cables are clear of the enclosure. Then continue with the next step.
3. Are you working on a dual line cord unit?

   Yes: Perform the following:
   a. Remove the ac modules (see "Exchanging ac modules (A01 and A02) on 5074, 5079, 8079-002, and 8093-002 expansion units (dual line cord)" on page 227).
   b. Remove the power supplies (see "Exchanging the power supplies on 5074, 5079, 8079-002, and 8093-002 expansion units" on page 236).
   c. Remove the blank filler plate(s).
   d. Continue with the next step.

   No: Perform the following:
   a. Remove the ac charger (see "Exchanging the ac charger (A01) on 5074, 5079, 8079-002, and 8093-002 expansion units (single line cord)" on page 226).
   b. Remove the power supplies (see "Exchanging the power supplies on 5074, 5079, 8079-002, and 8093-002 expansion units" on page 236).
   c. Remove the blank filler plate(s).
   d. Remove the four batteries (see "Exchanging the batteries on 5074, 5079, 8079-002, and 8093-002 expansion units" on page 227).
   e. Continue with the next step.
4. Remove the screws from the power subframe assembly.
5. From the front of the tower, reach through the frame and remove the cables from the backside of the power distribution backplane and note their locations.
6. From the rear of the tower, remove the mounting screws that holds the power distribution backplane to the frame.

7. Pull the power distribution backplane slightly towards you and lift it up to remove it from the frame.



8. Install the power distribution backplane by reversing the removal procedure. After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

Exchanging the power supplies on 5074, 5079, 8079-002, and 8093-002 expansion units

Use this procedure to remove or replace the power supply (P00, P01, P02, and P03) on 5074, 5079, 8079-002, and 8093-002 expansion units.

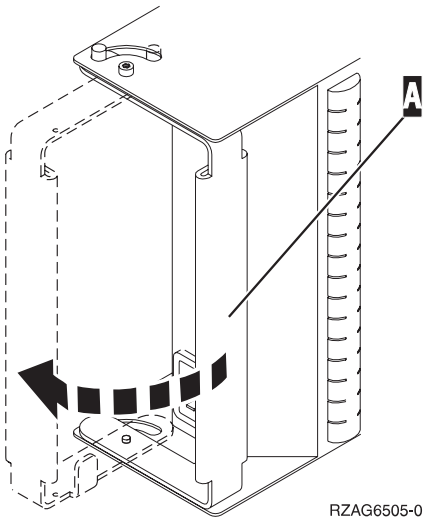
1. Is the system powered on?

   Yes: Do not power off the system. Continue with the next step.

   No: Continue with the next step.
2. Open the rear cover (see "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230).
3. Disconnect the power jumper cord from the unit that you are replacing.
4. Remove the bottom screw (if installed).
5. Rotate the handle from right to left to release the power supply from the frame.

   CAUTION:
   The power distribution outlets provide 200 to 240V ac. Use these outlets only for devices that operate within this voltage range. (C021)

6. Remove the power supply from the frame.



7. Install the new power supply by reversing this procedure.

   Note: Do not use excessive force when installing the power supply into the system. Insert it until the power supply engages the frame, then rotate the handle from left to right.

   After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

Exchanging the tower card on 5074, 5079, 8079-002, and 8093-002 expansion units

Use this procedure in conjunction with Powering off an expansion unit to remove or replace the tower card (CB1) on 5074, 5079, 8079-002, and 8093-002 expansion units.

1. Power off the expansion unit using Powering off an expansion unit, then continue with the next step.
2. Open the rear cover. See "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230.
3. Disconnect the power cords at each power supply from the unit you are working on (if you have not already done so).
4. From the rear of the expansion unit do the following:
   a. Remove the external cables from the rear of the PCI card enclosure and record their card and port locations.
   b. Remove the EMC access plate that is located directly above the PCI card enclosure. Press the surfaces of the two latching mechanisms together and tilt the top of the cover away from the frame to remove it.
   c. Remove the cables from the top of the PCI cards and record their card and port locations.

      Attention: All cards are sensitive to electrostatic discharge. See Working with electrostatic discharge-sensitive parts.
   d. Remove the screws that hold the PCI card enclosure to the frame.
   e. Pull the PCI card enclosure partially out of the frame while lifting the cables clear of the enclosure.
   f. Press the release mechanism that is located along the top right side of the enclosure and carefully slide the enclosure towards you. Make sure that the cables are clear of the enclosure.
5. Remove the PCI cards and HSL/RIO bridge adapter from the enclosure and note their locations. See "Exchanging cards (dedicated) on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230.
6. Install the new PCI card enclosure by reversing the above procedure.
7. Reconnect the power cord(s) and/or the power supply cords that you disconnected earlier.

Note: The tower will power on automatically.

8. Perform Setting expansion unit configuration ID and MTMS value and then continue with the next step of this procedure.
9. Go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

Removing and replacing parts on 5088 and 0588 expansion units

Choose the part you wish to exchange on a 5088 or 0588 expansion unit:

- Air moving devices B01 and B02
- AMD controller card BB1
- Cards (concurrent)
- Cards (dedicated)
- Covers
- Display panel NB1
- Power distribution backplane PB1
- Power supplies P01 and P02
- Tower card CB1

Exchanging the air moving device (AMD) on 5088 and 0588 expansion units

Use this procedure to remove or replace the air moving device (AMD) (B01 and B02) on 5088 and 0588 expansion units.

Attention: Since this procedure can be performed concurrently, you do not need to power off the unit if it is already powered on.

1. Remove the front cover (see "Exchanging the covers on 5088 and 0588 expansion units" on page 241).
2. Remove the upper EMC access plate.
3. Remove the ac line cord from the power supply attached to the AMD being replaced.
4. Remove the power supply that has the defective AMD attached by pulling down on the docking handle, and sliding the power supply with the two AMDs attached out of the expansion unit.
5. Remove the AMD from the power supply by pulling out on the latch knob and sliding the AMD to the left towards the latch.
6. Install the new AMD by reversing this removal procedure.

   Attention: Do not use excessive force when installing the new power supply into the system. Insert the power supply until it engages the frame, then lift the docking handle to lock the power supply into place.
7. After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

Exchanging the AMD controller card on 5088 and 0588 expansion units

Use this procedure to remove or replace the air moving device (AMD) controller card (BB1) on 5088 and 0588 expansion units.

1. Power down the PCI expansion unit (see Powering off an expansion unit).
2. Disconnect the two ac power cords from the ac box.
3. Remove the rear cover (see "Exchanging the covers on 5088 and 0588 expansion units" on page 241).
4. Remove the EMC access plate over the card enclosure by loosening the thumb screws and pulling it towards you.
5. Unclip and remove the cable by pressing down on the cable retainers to eject it.
6. Remove the AMD controller card by pulling out on the latch knob and sliding the card back toward you.

7. Install the new AMD controller card by reversing this removal procedure. After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

Exchanging cards (concurrent) on 5088 and 0588 expansion units

Use this procedure to remove or replace cards concurrently on 5088 and 0588 expansion units.

Concurrent/dedicated guidelines

In some cases, you do not need to power down the system to change PCI cards. If you choose to power down the expansion unit, see "Exchanging cards (dedicated) on 5088 and 0588 expansion units" on page 240. If you use concurrent maintenance on a partitioned system, follow the procedures from the partition that owns the resource. If the resource is not owned, follow the procedure from the primary partition.

For 5088 and 0588 IXS cards:

The IXS cards require dedicated maintenance, see "Exchanging cards (dedicated) on 5088 and 0588 expansion units" on page 240.

For 5088 and 0588 cards - except IXS cards:

- Card positions C01 through C09 and C11 through C15 permit card level concurrent maintenance using HSM. You can power down the individual card slot.
- If the resource is the load source IOA or the load source IOP, or any other storage IOA/IOP with critical DASD attached for the system, primary, or secondary partition, follow the on-screen instructions when you use HSM to power down the IOP or IOA. Instructions to use functions 68 and 69 on the control panel will be included.
- If the resource is the console IOA or the console IOP for the system or primary partition, you cannot power down the domain.
- If the resource is the console IOA or the console IOP for a secondary partition, then power down the secondary partition and follow the procedure from the primary partition.

CAUTION:
Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following: 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)

Attention: If removing the cover while powered on, errors may occur due to electromagnetic interference.

Attention: All cards are sensitive to electrostatic discharge (see Working with electrostatic discharge-sensitive parts).

1. From the Hardware Service Manager display, select **Packaging hardware resources —> Hardware contained in packaging** for the frame ID that you are working on.
2. Find the card position for the IOA or IOP that you are removing and select **Concurrent maintenance**.

   Attention: If multiple resources are shown with the same card position, one or more of these resources will show a status of *Missing* ("?" after the description). Only one resource will be listed as not missing. Select this resource for the concurrent maintenance operation.
3. A listing of the power domain is shown. Find the IOA or IOP that you are removing and select **Power off domain**. Everything within the IOA's or IOP's power domain will be powered off .
4. To see the status of the power domain, select **Display power status**.
5. Find the IOA or IOP that you are removing and select **Toggle LED blink off/on**.
6. Remove the cover to access the card that you are removing from the system (see "Exchanging the covers on 5088 and 0588 expansion units" on page 241).

7. Look at the power LED for the card that you are removing to ensure that it is powered off. The power LED is located above or in front of the card slot. If the LED is blinking multiple times per second (rapidly) or it is off, then the card is powered off.
8. Remove the rear cover (see "Exchanging the covers on 5088 and 0588 expansion units" on page 241).
9. Remove the EMC access plate, that is located directly above the card enclosure, by removing the three thumbscrews and pulling the access plate towards you.
10. Disconnect and label any cables from the card that you wish to remove.
11. Turn the latch counter-clockwise and lift up on the black latch to release the card.
12. Remove the card by gently pulling it out.
13. Install the card in to the system by reversing the card removal procedure.
14. Select **Power on domain** for the IOA or IOP that you are installing.

    Note: To the right of the description field you will see one or both of the following symbols displayed:

    * indicates the location to which the system will assign the resource.

    > indicates the location to which the resource was last assigned.
15. Press **Enter**. The Work with Controlling Resources display will appear.
16. Determine the location where you want to assign the resource and select **Assign to** for that location.
17. Wait for the Hardware Resource Concurrent Maintenance display to appear with the message indicating power on complete.
18. After exchanging the failing item, go to Chapter 2, "Verifying the repair," on page 279.
19. If you have exchanged a 2766 or 2787 Fibre Channel IOA, the IBM external storage subsystem must be updated to use the world-wide port name of the new IOA. Refer to Updating the world-wide port name for a new 2766 or 2787 IOA for details. **This ends the procedure.**

Exchanging cards (dedicated) on 5088 and 0588 expansion units

Use this procedure to remove or replace cards (dedicated) on 5088 and 0588 expansion units.

In some cases, you do not need to power down the system to change PCI cards. Use the guidelines in "Exchanging cards (concurrent) on 5088 and 0588 expansion units" on page 239 to determine if you should use dedicated or concurrent remove and replace procedures.

CAUTION:
The system contains circuit cards and/or assemblies that contain lead solder. To avoid the release of lead (Pb) into the environment, do not burn. Discard the circuit card as instructed by local regulations. (C014)

Attention: All cards are sensitive to electrostatic discharge (see Working with electrostatic discharge-sensitive parts).

1. Power off the PCI expansion unit (see Powering off an expansion unit).
2. Disconnect the two ac power cords from the AC box.
3. Remove the rear cover (see "Exchanging the covers on 5088 and 0588 expansion units" on page 241).
4. Remove the EMC access plate over the card enclosure by loosening the thumb screws and pulling it towards you.
5. Remove the retaining screws from the card enclosure.
6. Disconnect and label the cables that are attached to the back of the card enclosure.
7. Slide the card enclosure partially out of the frame.
8. Disconnect and label any cables from the card that you wish to remove.
9. Turn the latch counter-clockwise and lift up on the black latch to release the card.

Note: If you are removing an FC 2890 or 2892 IXS, then there are two latches that you will have to turn and release.

10. Remove the card by gently pulling it out.
11. Install the new card by reversing this procedure. After exchanging the failing item, go to Chapter 2, "Verifying the repair," on page 279.
12. If you have exchanged a 2766 or 2787 Fibre Channel IOA, the IBM external storage subsystem must be updated to use the world-wide port name of the new IOA. Refer to Updating the world-wide port name for a new 2766 or 2787 IOA for details. **This ends the procedure.**

Exchanging the covers on 5088 and 0588 expansion units

Use this procedure to remove or replace the covers on 5088 and 0588 expansion units.

Attention: If removing the cover while powered on, errors may occur due to electromagnetic interference.

- **To remove the front cover**, grasp the edges of the front cover and pull it towards you.
- **To open or remove the rear cover** when the expansion unit is mounted either on top of a 5074 or in a 0551 rack, perform the following steps:
  1. Grasp the right side of the cover and pull it towards you to open it.
  2. After opening the cover, press down on the lever that is located inside along the top, left side of the cover.
  3. Tilt the top of the cover away from the tower and lift the cover off.

  Note: Refer to Figure 2. Rear cover - removal in "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230 for details.

  This ends the procedure.

Exchanging the display panel on 5088 and 0588 expansion units

Use this procedure to remove or replace the display panel (NB1) on 5088 and 0588 expansion units.

CAUTION:
The system contains circuit cards and/or assemblies that contain lead solder. To avoid the release of lead (Pb) into the environment, do not burn. Discard the circuit card as instructed by local regulations. (C014)

Attention: The display panel is sensitive to electrostatic discharge (see Working with electrostatic discharge-sensitive parts).

1. Power down the expansion unit (see Powering off an expansion unit). Pull the power plugs that run from the expansion unit to the AC box of the unit below.
2. Open the front cover (see "Exchanging the covers on 5088 and 0588 expansion units").
3. Pull on the two side fasteners to release the display panel assembly.
4. Slide the panel partially out of the unit.
5. Disconnect the cables that are attached to backside of the display panel.
6. Remove the display panel from the unit.
7. Install the new display panel by reversing this procedure. After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

Exchanging the power distribution board on 5088 and 0588 expansion units

Use this procedure to remove or replace the power distribution board (PB1) on 5088 and 0588 expansion units.

1. Remove the top, front, and rear covers (see "Exchanging the covers on 5088 and 0588 expansion units").

2. Power down the expansion unit (see Powering off an expansion unit). Pull the power plugs that run from the unit to the ac box of the unit below.
3. Remove the center top plate.
4. Remove the two power supplies (see "Exchanging the power supplies on 5088 and 0588 expansion units").
5. From the top of the unit, remove and label the cables that connect to the power distribution board.
6. Remove the screws that secure the power distribution board to the expansion unit.
7. Pull the power distribution board out through the top of the expansion unit.
8. Install the new power distribution backplane by reversing this procedure.
9. After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

Exchanging the power supplies on 5088 and 0588 expansion units

Use this procedure to remove or replace the power supplies (P01 and P02) on 5088 and 0588 expansion units.

Note: Remove and replace only one power supply at a time.

Attention: Do not power off the system if it is powered on. This procedure can be performed concurrently.

1. Open the front cover (see "Exchanging the covers on 5088 and 0588 expansion units" on page 241).
2. Remove the ac line cord from the power supply being replaced.
3. Pull down on the docking handle located in the front of the power supply, to release the power supply from the expansion unit.
4. Remove the power supply.
5. Remove the air moving device (AMD) from the power supply by pulling out on the latch knob and sliding the AMD to the left (towards the latch).
6. Install the new power supply by reversing this procedure.

   Attention: Do not use excessive force when installing the new power supply into the system. Insert the power supply until it engages the frame, then lift the docking handle to lock the power supply into place.
7. After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

Exchanging the tower card on 5088 and 0588 expansion units

Use this procedure in conjunction with Powering off an expansion unit to remove or replace the tower card (CB1) on 5088 and 0588 expansion units.

1. Power off the expansion unit (see Powering off an expansion unit).
2. Open the rear cover (see "Exchanging the covers on 5088 and 0588 expansion units" on page 241).
3. Remove the ac power cord from the expansion unit.
4. From the rear of the expansion unit, remove the external cables from the rear of the PCI card enclosure and note their locations.
5. Remove the air flow baffle that is located directly above the PCI card enclosure. Loosen the three fasteners and slide the air flow baffle out the backside.
6. Remove the cables from the front of the PCI card assembly and note their locations.

   Attention: All cards are sensitive to electrostatic discharge (see Working with electrostatic discharge-sensitive parts).
7. Remove the screws that hold the PCI card enclosure to the frame.
8. Pull the PCI card enclosure out of the frame while lifting the cables clear of the enclosure.

9. Remove the PCI cards from the enclosure and note their locations (see "Exchanging cards (dedicated) on 5088 and 0588 expansion units" on page 240).
10. Remove the HSL/RIO I/O bridge adapter from the enclosure and note its location.
11. Install the new PCI card enclosure by reversing the above procedure.
12. Reconnect the power cord(s) and/or the power supply cords that you disconnected earlier.

    Note: The tower will power on automatically.
13. Perform Setting expansion unit configuration ID and MTMS value and then continue with the next step of this procedure.
14. Go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

Removing and replacing parts on 5094 and 5294 expansion units

DANGER

Electrical voltage and current from power, telephone, and communication cables are hazardous.

To avoid a shock hazard:

- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
- **Connect all power cords to a properly wired and grounded electrical outlet. Ensure 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 below when installing, moving, or opening covers on this product or attached devices.**

  To Disconnect:

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

  To Connect:

  1. **Turn everything OFF (unless instructed otherwise)**
  2. **Attach all cables to devices.**
  3. **Attach signal cables to connectors.**
  4. **Attach power cords to outlet.**
  5. **Turn device ON.**

  (D005)

Note: The 5294 expansion unit is two stacked 5094 units. Use these 5094 exhange procedures for a 5294 unit. Service 8094-002 expansion units with these procedures as well.

Choose the part you wish to remove or replace:

- AC modules A01 and A02 (single line cord)
- AC modules A01 and A02 (dual line cord)

- Backplane CB1
- Cards (concurrent)
- Cards (dedicated)
- Covers
- Device boards DB1 and DB2
- Device board DB3
- Disk unit (concurrent)
- Disk unit (dedicated)
- Display panel NB1
- Fans B01 and B02
- Power distribution backplane PB1
- Power supplies P00, P01, P02, and P03
- Removable media D41 and D42

Exchanging ac modules on a 5094 expansion unit (single line cord)

Use this procedure to remove or replace an ac module (A01 and A02) on a single line cord 5094 expansion unit.

1. Is the system or expansion unit with the failing ac module powered on?

   Yes: Continue with the next step.

   No: Go to step 3.
2. Is the failing ac module in location A02 (see "Locations — 5094, 5294, and 8094-002 expansion units" on page 55)?

   No: The failing ac module is in location A01. Power off the system (see Powering on and powering off) and continue with the next step.

   Yes: Do not power down the system or expansion unit if it is powered on; this procedure can be performed concurrently. Continue with the next step.
3. Open the rear cover (see "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230).
4. Trace and disconnect the ac input line cord that connects to the ac module that needs replacing (see "Locations — 5094, 5294, and 8094-002 expansion units" on page 55).

   Attention: Do not disconnect the other non-failing unit ac line cord when powered on.
5. Disconnect the power supply jumper cords from the ac module that you are working on.

   Attention: Do not disconnect the other system ac module power supply jumper cords.
6. Remove the top and bottom screws that hold the ac module to the expansion unit.
7. Remove the ac module unit.
8. Install the new ac module by reversing this procedure.

   Note: Do not install power supplies P00 and P01 ac jumper cables on the same ac input module.
9. After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

Exchanging ac modules on a 5094 expansion unit (dual line cord)

Use this procedure to remove or replace an ac module (A01 and A02) on a dual line cord 5094 expansion unit.

Note: Since this procedure can be performed concurrently, you do not need to power down the expansion unit if it is powered on.

1. Open the rear cover (see "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230).

2. Trace and disconnect the ac input line cord that connects to the ac module that needs replacing (see "Locations — 5094, 5294, and 8094-002 expansion units" on page 55).

   Attention: Do not disconnect the other system ac line cord when powered on.
3. Disconnect the power supply jumper cords from the ac module that you are working on.

   Attention: Do not disconnect the other expansion unit ac module power supply jumper cords.
4. Remove the left and right screws that hold the ac module to the expansion unit.
5. Remove the ac module unit.
6. Install the new ac module by reversing this procedure.

   Note: Do not install power supplies P00 and P01 ac jumper cables on the same ac input module.
7. After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

Exchanging the backplane on a 5094 expansion unit

Use this procedure in conjunction with Powering off an expansion unit to remove or replace the backplane on a 5094 expansion unit.

1. Power off the expansion unit using Powering off an expansion unit.

   Note: The primary I/O unit backplane cannot be replaced concurrently.
2. Open the rear cover (see "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230).
3. Disconnect the plugs to each power supply.
4. From the rear of the expansion unit do the following:
   a. Remove the external cables from the rear of the PCI card enclosure and note their locations.
   b. Remove the EMC access plate that is located directly above the PCI card enclosure. Press the surfaces of the two latching mechanisms together and tilt the top of the cover away from the frame to remove it.
   c. Remove the cables from the top of the PCI cards and note their locations.

      Attention: All cards are sensitive to electrostatic discharge (see Working with electrostatic discharge-sensitive parts).
   d. Remove the screws that hold the PCI card enclosure to the frame.
   e. Pull the PCI card enclosure partially out of the frame while lifting the cables clear of the enclosure.
   f. Press the release mechanism that is located along the top right side of the enclosure and carefully slide the enclosure towards you. Make sure that the cables are clear of the enclosure.
5. Remove the PCI cards from the enclosure and note their locations (see "Exchanging cards (dedicated) on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230).
6. Install the new PCI card enclosure by reversing the above procedure. Then continue with the next step.
7. Reconnect the power cord(s) and/or the power supply cords that you disconnected earlier.

   Note: The expansion unit will power on automatically.
8. Perform Setting expansion unit configuration ID and MTMS value and then continue with the next step of this procedure.
9. Go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

Exchanging device boards (DB1 and DB2) on a 5094 expansion unit

Use this procedure to remove or replace a device board (DB1 and DB2) on a 5094 expansion unit.

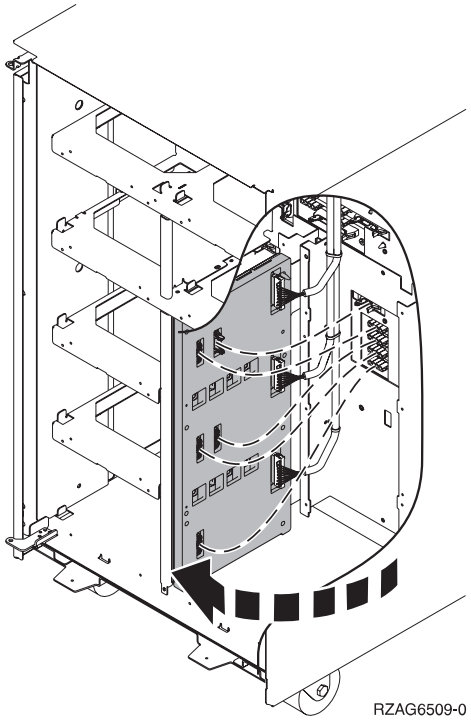
1. Power off the expansion unit (see Powering off an expansion unit).
2. Disconnect the power cord from the expansion unit.

3. Open the front cover (see "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230).
4. From the front of the expansion unit, perform the following:
   a. Remove the EMC access plates from the disk unit enclosures that are located in front of the board that you are replacing (see "Locations — 5094, 5294, and 8094-002 expansion units" on page 55). Press the surfaces of the two latching mechanisms together and tilt the top of the cover away from the frame to remove it.
   b. Record the locations of the disk units and then remove them from the disk unit enclosures that you just uncovered.

      Attention: The disk units are sensitive to electrostatic discharge (see Working with electrostatic discharge-sensitive parts).
   c. Remove the screws that hold the disk unit cage assembly to the frame.
   d. Remove the two retaining screws that are located inside of the disk unit cage assembly (the top right and bottom left corners).
   e. Remove the disk unit cage assemblies.
   f. Remove the screws that hold the DASD shelf to the frame.
   g. Remove the DASD shelf from the frame.
5. Remove the retaining screw that is holding the device board assembly to the frame.
6. Pull the device board assembly out until it slides off the guide pins, then rotate the device board assembly 90 degrees. Note the locations of the cables that are located on the backside of the board assembly, and then remove the cables.

   Note: Both ends of the ribbon cables are marked **LH** or **RH**, indicating that one end of the cable is plugged in to either the left-hand (DB1) or right-hand (DB2) device board assembly. The other end of the cable is plugged in to either the left-most (LH) or right-most (RH) DASD controller card. The cables will cross in the center of the tower.

   Figure 1. Device board cabling



7. Remove the device board assembly.
8. Install the new device board assembly by reversing this remove procedure.

9. After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

Exchanging device board (DB3) on a 5094 expansion unit

Use this procedure to remove or replace a device board (DB3) on a 5094 expansion unit.

1. Power off the expansion unit (see Powering off an expansion unit).
2. Disconnect the power cord from the expansion unit.
3. Open the rear cover (see "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230).
4. From the rear of the expansion unit do the following:
   a. Remove the EMC access plate that is located directly above the tower card enclosure. Press the surfaces of the two latching mechanisms together and tilt the top of the cover away from the frame to remove it.
   b. Remove the cables from the disk unit controller cards (IOAs) that are located inside the PCI card enclosure and note their locations.

      Note: Both ends of the ribbon cables are marked **LH** or **RH**, indicating that one end of the cable is plugged in to either the left-hand (DB1) or right-hand (DB2) DASD board assembly. The other end of the cable is plugged in to either the left-most (LH) or right-most (RH) DASD controller card. The cables will cross in the center of the tower.
   c. Remove the screws that hold the tower card enclosure to the frame.
   d. Pull the tower card enclosure partially out of the frame while lifting the cables clear of the enclosure.
   e. Press the release mechanism that is located along the top right side of the enclosure and carefully slide the enclosure towards you. Make sure that the cables are clear of the enclosure.
   f. Remove the tower card enclosure from the frame.
   g. Remove the screws from the EMC access plate that is located inside the frame and directly above the power distribution board.
   h. Remove the EMC access plate.
   i. Reach through the opening and remove the cables from the backside of the base device board assembly (DB3).
5. Open the front cover (see "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230).
6. From the front of the expansion unit do the following:
   a. Note the removable media locations and then remove them by pulling out on the handles that are located on each side of the unit.
   b. Remove the control panel by pulling on the handles that are located on each side of the unit and sliding it partially out of the unit. Then, unplug the cable from the rear of the control panel (see "Exchanging the display panel on a 5094 expansion unit" on page 251).
   c. Unplug the control panel cable from the base device board assembly (DB3).
   d. Remove the two retaining screws that are located inside of the removable media enclosure (the top right and lower left corners).
   e. Remove the removable media enclosure.
   f. Remove the EMC access plates from the disk unit enclosures that are located in front of the device board (DB3) (see "Locations — 5094, 5294, and 8094-002 expansion units" on page 55). Press the surfaces of the two latching mechanisms together and tilt the top of the cover away from the frame to remove it.
   g. Record the disk unit locations and then remove them from the disk unit enclosures that you just uncovered.

Attention: The disk units are sensitive to electrostatic discharge (see Working with electrostatic discharge-sensitive parts).

h. Remove the screws that hold the disk unit enclosures to the frame.

i. Remove the retaining screws that are located inside the disk unit enclosure.

j. Remove the disk unit enclosures.

k. Remove the screws that hold the center support bracket and shelf for the disk unit and removable media enclosure to the frame.

l. Remove the support bracket and shelf.

m. Remove the base device board assembly (DB3).

7. Install the new base device board assembly by reversing this removal procedure.
8. After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

Exchanging disk units (concurrent) on a 5094 expansion unit

Use this procedure to remove or replace a disk unit using concurrent maintenance on a 5094 expansion unit.

Attention: If removing the cover while powered on, errors may occur due to electromagnetic interference.

Attention: The disk unit is sensitive to electrostatic discharge (see Working with electrostatic discharge-sensitive parts).

1. Determine if the system has logical partitions before continuing with this procedure (see Determining if the system has logical partitions).
2. Were you directed here from the Disk unit recovery procedures?

   No: Go to Disk unit recovery procedures.

   Yes: After you have determined the location of the disk unit to replace, remove the front covers for access (see "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230). Then continue with the next step.
3. Remove the EMC access plate that is over the location of the disk unit that you are removing.
4. Perform the following to remove the disk unit:

   a. Select **System Service Tools (SST)**. If you cannot get to SST, select DST.

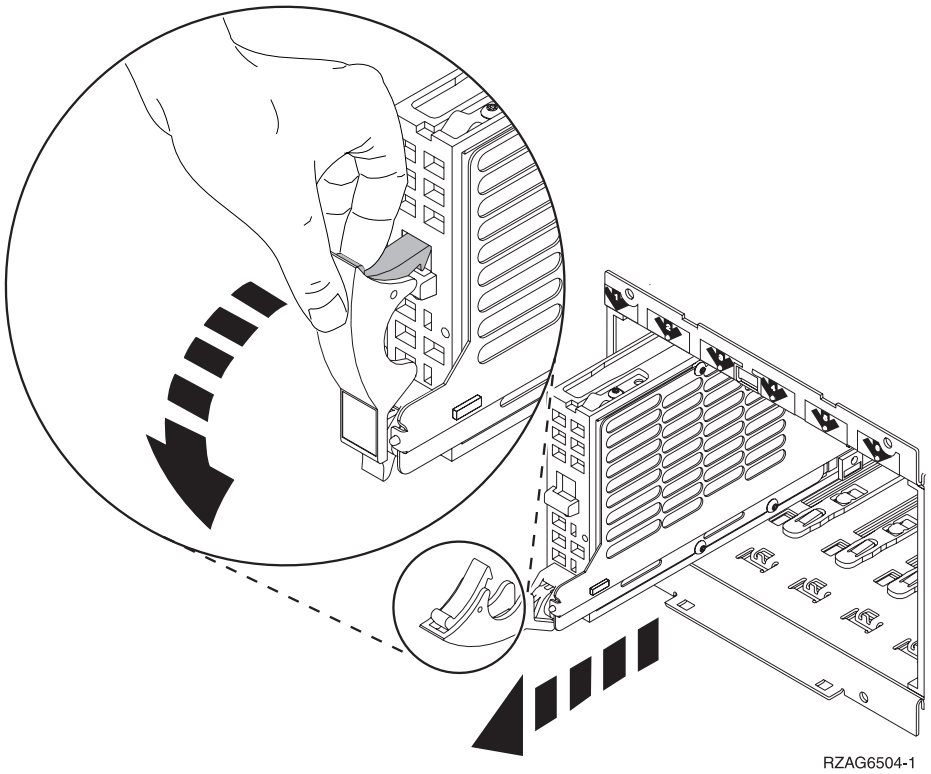
      Attention: Do not perform a system IPL to get to DST.

   b. Select **Start a Service Tool** > **Hardware Service Manager**.

   c. Select **Device Concurrent Maintenance** and enter the required information in the information fields.

   d. Press **Enter** on the console. After the delay time, the light above the device location will begin flashing. You now have nine seconds to pinch the two surfaces of the latching mechanism together and rotate the handle of the disk unit towards you. Pull the disk unit partially out of the tower. The light above the device location will go off and remain off as soon as the device is no longer making contact with the backplane.

      Attention: If you remove the device when the light is not flashing, data may be lost, the disk unit may be damaged, or the backplane may be damaged.



Wait another five seconds to allow time for the disk to stop spinning. Then pull the disk unit the remaining way out of the tower.

5. Are you finished with the repair?

   No: Continue with the next step.

   Yes: Replace the covers that were removed during this procedure and return to the procedure that sent you here. **This ends the procedure.**

6. Install the new disk unit by performing the following:
   a. Select **System Service Tools (SST)**. If you cannot get to SST, select DST.

      Attention: Do not perform a system IPL to get to DST.

   b. Select **Start a Service Tool** > **Hardware Service Manager**.
   c. Select **Device Concurrent Maintenance** and enter the required information in the information fields.

      Attention: Do not press Enter at this time.

   d. Slide the unit half-way into the tower. Ensure that the device does not make contact with the backplane at this time.
   e. Press **Enter** on the console. After the delay time, the light above the device location will begin flashing. You now have nine seconds to insert the disk unit:
      1) Put the disk unit part way into the desired slot and rotate the handle of the disk unit towards you.
      2) Then, push the disk unit completely into the slot and rotate the handle towards the disk unit to latch it into the slot. The light above the device location will go off and remain off for a few seconds when the device contacts the backplane. Then it should go on and remain on.

      Attention: If you install the device when the light is not flashing, data may be lost, the disk unit may be damaged, or the backplane may be damaged.

   f. Replace the covers that were removed during this procedure and return to the procedure that sent you here. **This ends the procedure.**

Exchanging disk units (dedicated) on a 5094 expansion unit

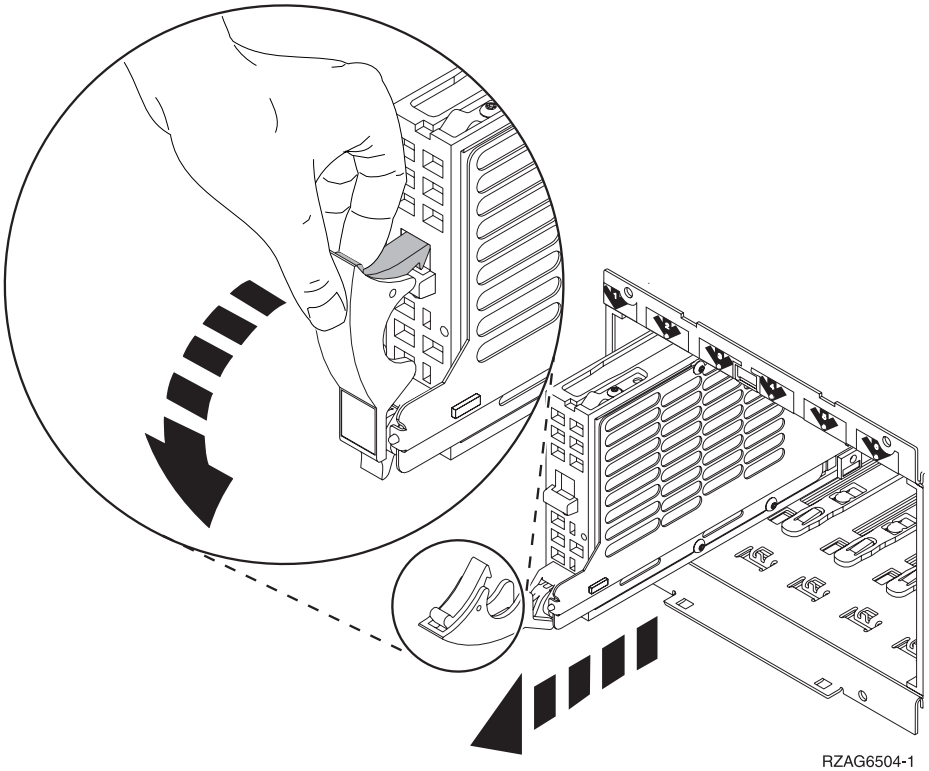
Use this procedure to remove or replace a disk unit using dedicated maintenance on a 5094 expansion unit.

Attention: The disk unit is sensitive to electrostatic discharge (see Working with electrostatic discharge-sensitive parts).

1. Determine if the system has logical partitions before continuing with this procedure (see Determining if the system has logical partitions).
2. Were you directed here from the Disk unit recovery procedures?

   No: Go to Disk unit recovery procedures.

   Yes: After you have determined the location of the disk unit to replace, remove the front covers for access (see "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230). Then continue with the next step.
3. Remove the EMC access plate that is over the location of the disk unit that you are removing (see "Locations — 5094, 5294, and 8094-002 expansion units" on page 55).
4. Remove the disk unit by performing the following:
   a. Power off the system (see Powering on and powering off).
   b. Disconnect the power cord.
   c. Pinch the two surfaces of the latching mechanism together and pull the handle towards you to release the disk unit from the slot.
   d. Remove the disk unit from the tower.



5. Are you finished with the repair?

   No: Continue with the next step.

   Yes: Replace the covers that were removed during this procedure and return to the procedure that sent you here. **This ends the procedure.**
6. Install the disk unit by performing the following:
   a. Power off the system (see Powering on and powering off).

b. Disconnect the power cord.
c. Put the disk unit part way into the desired slot and rotate the handle of the disk unit towards you.
d. Push the disk unit completely into the slot and rotate the handle towards the disk unit to latch it into the slot.
e. Replace the covers that were removed during this procedure and return to the procedure that sent you here. **This ends the procedure.**

Exchanging the display panel on a 5094 expansion unit

Use this procedure to remove or replace the display panel (NB1) on a 5094 expansion unit.

Attention: The display panel is sensitive to electrostatic discharge (see Working with electrostatic discharge-sensitive parts).

1. Power off the expansion unit (see Powering off an expansion unit).
2. Disconnect the ac power cord from the expansion unit. Note that dual line cord units have two power cords.
3. Open the front cover (see "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230).
4. Pull on the two side fasteners to release the display panel assembly.
5. Slide the panel partially out of the frame.
6. Disconnect the cables that are attached to the backside of the display panel.
7. Remove the display panel from the frame.
8. Reverse the above procedure to install the new panel.
9. After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

Exchanging air moving devices on a 5094 expansion unit

Use this procedure to remove or replace an air moving device (AMD) (B01 and B02) on a 5094 expansion unit.

Note: Since this procedure can be performed concurrently, you do not need to power down the expansion unit if it is powered on.

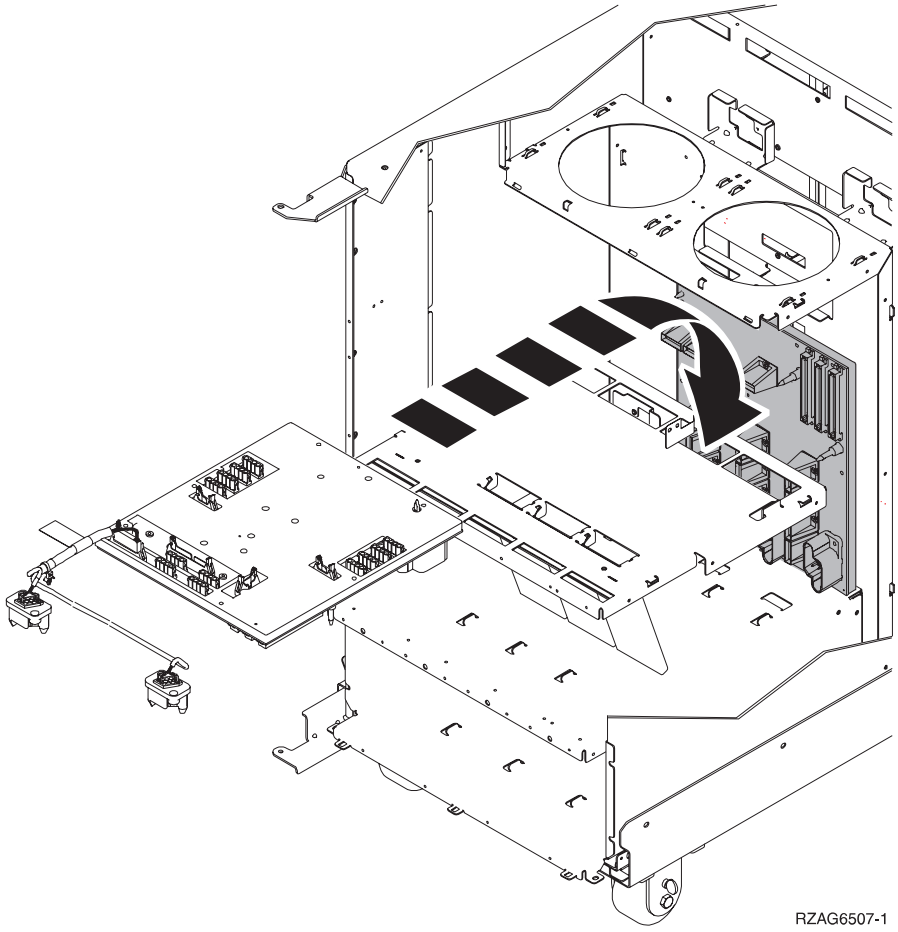
1. Open the rear cover (see "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230).
2. Remove the EMC access plate located directly above the PCI card enclosure. Press the surfaces of the two latches together and tilt the top of the cover away from the rack to remove it.
3. Remove the screw from the AMD door assembly for the AMD that you are replacing.
4. Remove the AMD assembly by sliding it out of the enclosure while holding the AMD access plate open.
5. Install the new AMD by reversing this procedure. The new AMD will automatically power on when it is installed.
6. After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

Exchanging the power distribution backplane on a 5094 expansion unit

Use this procedure to remove or replace the power distribution backplane (PB1) on a 5094 expansion unit.

1. You must remove both device boards DB1 and DB2 before continuing with this procedure. Perform "Exchanging device boards (DB1 and DB2) on a 5094 expansion unit" on page 245 for each backplane. After you have removed both device boards, return here and continue with the next step of this procedure.

2. Remove the rear cover (see "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230).
3. Remove the PCI drawer (see "Exchanging the backplane on a 5094 expansion unit" on page 245).
4. Remove the ac module (see "Exchanging ac modules on a 5094 expansion unit (single line cord)" on page 244 or "Exchanging ac modules on a 5094 expansion unit (dual line cord)" on page 244).
5. Remove all power supplies in the unit you are working on (see "Exchanging power supplies on a 5094 expansion unit").
6. Remove the screws from the power subframe assembly.
7. From the front of the unit, reach through and remove the cables from the backside of the power distribution backplane and note their locations.
8. From the rear of the unit, remove the mounting screws that hold the power distribution backplane to the unit.
9. Pull the power distribution backplane slightly towards you and lift it up to remove it from the unit.



10. Install the new power distribution backplane by reversing this procedure.

    Attention: Do not install power supplies P00 and P01 ac jumper cables on the same ac input module.
11. After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

Exchanging power supplies on a 5094 expansion unit

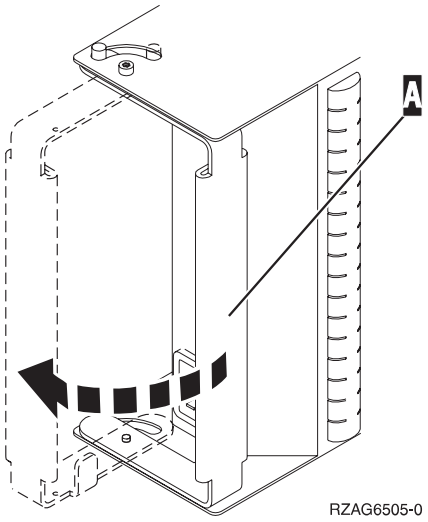
Use this procedure to remove or replace a power supply (P00, P01, P02, P03) on a 5094 expansion unit.

Note: Since this procedure can be performed concurrently, you do not need to power down the expansion unit if it is powered on.

1. Open the rear cover (see "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230).
2. Disconnect the ac power jumper cord from the unit you are replacing.
3. Remove the bottom screw (if installed).
4. Rotate the handle from right to left to release the power supply.

   CAUTION:
   The power distribution outlets provide 200 to 240V ac. Use these outlets only for devices that operate within this voltage range. (C021)
5. Remove the power supply.

   Figure 1. Removing the power supply - P00, P01, P02, P03



6. Install the new power supply by reversing this procedure.

   Attention: Do not slam the power supply in when installing it. Insert it until the power supply engages the unit, then rotate the handle from left to right.

   Attention: Do not install power supplies P00 and P01 ac jumper cables on the same ac input module.
7. After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

Exchanging removable media on a 5094 expansion unit

Use this procedure to remove or replace removable media (D41 and D42) on a 5094 expansion unit.

CAUTION:
This product may contain one or more of the following: CD-ROM, DVD-ROM, DVD-RAM, or laser module, which are Class 1 laser products. Please note the following:

- **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:
Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following: 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)

Perform the following to remove the removable media:

1. Determine if the system has logical partitions before continuing with this procedure (see Determining if the system has logical partitions).
2. Remove media (if any) from the device. If the eject button on a tape device is failing, go to (Tape cartridge — manual removal), then continue with the next step of this procedure. If the eject button on a DVD-RAM device is failing and will not open, do not attempt manual removal of optical media at this time. For optical devices other than DVD-RAM, go to (Optical media — Manual removal), and then continue with the next step of this procedure.
3. Are you removing a unit by using device concurrent maintenance?

   Yes: Continue with the next step.

   No: Perform the following:

   a. Power off the tower or expansion tower (see Powering on and powering off).
   b. Disconnect the power cord from the tower or expansion tower.
   c. Open the front cover (see "Exchanging the covers on 5074, 5079, 5094, 5294, 8079-002, 8093-002, and 8094-002 expansion units" on page 230).
   d. Pull on the handles, which are located on each side of the unit, and remove the unit. If the unit is DVD-RAM, and manual removal of optical media is required, go to (Optical media — manual removal).
   e. Install the new device by reversing this removal procedure. After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279.

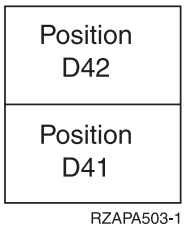
      Notes:

      1) If you need to remove a tape from the old tape unit, see (Tape cartridge - Manual removal).
      2) If you need to remove optical media from an optical device, go to (Optical media - Manual removal).

      This ends the procedure.
4. Before exchanging a removable media unit, you must ensure that the unit is not in use and is varied off.

   Note: If you are removing an optical storage unit, you must ensure that all of the removable media units in the tower or expansion tower are not in use and are varied off.
5. Use the figure to determine the location of the internal removable media unit. Record this location for later use.

   Figure 1. Internal removable media locations



6. Perform the following:
   a. Select **System Service Tools (SST)**. If you cannot get to SST, select DST.

      Do not perform a system IPL to get to DST.

b. Select **Start a Service Tool —> Hardware Service Manager —> Device Concurrent Maintenance** and enter the required information in the information fields. **Do not press the Enter key at this time.**

c. Read the remaining steps of this procedure and ensure that you understand the procedure before continuing.

d. Press the **Enter** key on the console. After the delay time, the light at the top right of the device will begin flashing. You now have 9 seconds to pull out firmly on the handles and pull the unit partially out of the tower.

Attention: If you remove the device when the light is **not** flashing, data may be lost, the unit may be damaged, or the backplane may be damaged.

Note: The light at the top right of the device will go off and remain off as soon as the device is no longer making contact with the backplane.

e. Remove the unit from the tower.

- If you need to remove a tape from the old tape unit, see (Tape cartridge - Manual removal).
- If you need to remove optical media from an optical device, go to (Optical media - Manual removal).

This ends the procedure.

Perform the following to replace the removable media:

1. Perform the following to install a new unit:

a. Select **Device Concurrent Maintenance** and enter the required information in the information fields. **Do not press the Enter key at this time.**

b. Read the remaining steps of this procedure and ensure that you understand the procedure before continuing.

c. Slide the unit partially into the tower. **Ensure that the device does not contact the backplane at this time.**

d. Press the **Enter** key on the console. After the delay time, the light at the top right of the device will begin flashing. You now have 9 seconds to push in firmly on the handles and push the unit completely into the frame.

Attention: If you install the device when the light is **not** flashing, data may be lost, the unit may be damaged, or the backplane may be damaged.

Note: The light at the top right of the device will go off and remain off for a few seconds when the device contacts the backplane. Then it should go on and remain on.

Did the light on the device go on and remain on?

No: Continue with the next step.

Yes: After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

2. Attempt the device concurrent maintenance procedure again without physically moving the unit.

Did the light above the device go on and remain on?

No: Continue with the next step.

Yes: After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

3. There is a power problem. One of the following is the problem:

- The new unit is defective.
- The backplane was damaged during the device concurrent maintenance procedure.
- There is a new problem with the power subsystem. **This ends the procedure.**

Removing and replacing parts on 5095 and 0595 expansion units

DANGER

Electrical voltage and current from power, telephone, and communication cables are hazardous.

To avoid a shock hazard:

- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
- **Connect all power cords to a properly wired and grounded electrical outlet. Ensure 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 below when installing, moving, or opening covers on this product or attached devices.**

  To Disconnect:

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

  To Connect:

  1. **Turn everything OFF (unless instructed otherwise)**
  2. **Attach all cables to devices.**
  3. **Attach signal cables to connectors.**
  4. **Attach power cords to outlet.**
  5. **Turn device ON.**

  (D005)

Choose the part you wish to replace:

- Control panel
- Covers
- Disk drive
- Disk drive backplane
- Fan or air moving device
- I/O backplane assembly
- PCI adapter
- Power supply
- RIO/HSL card

Exchanging fans on 5095, 0595, and 7311-D20 expansion units

Use this procedure to remove or replace a fan or air moving device (AMD) on 5095, 0595, and 7311-D20 expansion units.

Attention: At least three running fans and two power supplies **must** be installed and powered on to perform this procedure.

1. Are there at least three running fans and two power supplies installed and powered on in the expansion unit?

   Yes: Continue with the next step.

   No: Perform the following:

   a. Power off the expansion unit (Powering off an expansion unit).

   b. Remove the power cord from the rear of the expansion unit, and continue with the next step.
2. If you are servicing a rack-mounted unit, place the unit in the service position (see Place the rack-mounted system or expansion unit in the service position).
3. Remove the right or top side cover, depending on expansion unit orientation (see "Exchanging covers on 5095 and 0595 expansion units").
4. Pull the fastener on the front of the fan casing.
5. Pull open and remove the fan. The power connection will undock automatically.
6. Install the new fan by reversing this procedure. After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

Exchanging covers on 5095 and 0595 expansion units

Use this procedure to remove or replace the covers on 5095 and 0595 expansion units.

To remove the front cover: Pull the top of the cover away from the frame.

To remove the right side cover: Lift up on the latch and slide the cover to the rear of the unit.

To remove the rear cover: Lift the cover to detach.

Exchanging disk drive backplane on 5095, 0595, and 7311-D20 expansion units

Use this procedure to remove or replace a disk drive backplane on 5095, 0595, and 7311-D20 expansion units.

1. Power off the expansion unit (see Powering off an expansion unit).
2. Unplug the power cord from the back of the expansion unit.
3. If you are servicing a rack-mounted unit, place the unit in the service position (see Place the rack-mounted system or expansion unit in the service position).
4. Remove the front and right side covers (see "Exchanging covers on 5095 and 0595 expansion units").
5. Remove the EMC shield in front of the disk units by pulling out on the two side latches.
6. Remove the disk units from the disk unit enclosure. Label the position of each disk unit.
7. Remove the screws holding the disk unit enclosure to the frame. The screws are located on the front and inside rear of the disk unit enclosure.
8. Unplug and remove the cables plugged into the back of the disk drive backplane.
9. Pull the disk unit enclosure out of the frame.
10. Remove the disk drive backplane from the back of the disk unit enclosure.
11. Install a new disk drive backplane by reversing this removal procedure. **This ends the procedure.**

Exchanging the control panel on 5095, 0595, and 7311-D20expansion units

Use this procedure to remove or install the control or display panel on 5095, 0595, and 7311-D20 expansion units.

1. Power off the expansion unit (see Powering off an expansion unit).
2. Remove the front cover (see "Exchanging covers on 5095 and 0595 expansion units").
3. Remove the ac power cord from the expansion unit you are working on.
4. Pull the locks on each side of the control panel.
5. Slide the control panel approximately half way out and remove the cables from the rear of the panel.
6. Remove the control panel.

7. Install a new control panel by reversing this procedure. After exchanging an item, go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

Exchanging the I/O backplane assembly on 5095, 0595, and 7311-D20 expansion units

Use this procedure in conjunction with Powering off an expansion unit to remove or replace the I/O backplane assembly on 5095, 0595, and 7311-D20 expansion units.

1. Power off the expansion unit (see Powering off an expansion unit).
2. Remove the ac power cord from the expansion unit that you are working on.
3. If you are servicing a rack-mounted unit, place the unit in the service position (see Place the rack-mounted system or expansion unit in the service position).
4. Remove the side cover (see "Exchanging covers on 5095 and 0595 expansion units" on page 257).
5. Remove the PCI card access cover.
6. Remove the PCI cards, RIO/HSL I/O bridge adapter, and the card dividers.
7. Remove the power supplies.
8. Remove the five screws (three from the side and two from the back) that hold the backplane to the expansion unit. Notice the aligning pins near the top of the board, and the power connections near the bottom of the board, for when you reinstall the board.
9. Install the new backplane by reversing the above procedure.
10. Reconnect the power cord(s) and/or the power supply cords that you disconnected earlier.

    Note: The tower will power on automatically.
11. Perform Setting expansion unit configuration ID and MTMS value and then continue with the next step of this procedure.
12. Go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

Removing and replacing parts on 5791and5794

Use the Service focal point application on the Hardware Management Console (HMC) to find information on how to remove and replace parts. Do the following to access the Service focal point application:

1. Log into the HMC as the service representative.
2. In the Navigation area, select the **Service Applications** icon.
3. Select the **Service Focal Point** icon.
4. Select **Exchange Parts**. The Exchange Parts window opens. Follow the instructions on the Exchange Parts window until you reach the removal and replacement procedures for the selected part.

Removing and replacing parts on 7311-D11and 5790 expansion units

Note: Refer to the 7311-D10 service guide (SA38-0627) for 7311-D10 removal and replacement information.

DANGER

Electrical voltage and current from power, telephone, and communication cables are hazardous.

To avoid a shock hazard:

- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
- **Connect all power cords to a properly wired and grounded electrical outlet. Ensure 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 below when installing, moving, or opening covers on this product or attached devices.**

  To Disconnect:

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

  To Connect:

  1. **Turn everything OFF (unless instructed otherwise)**
  2. **Attach all cables to devices.**
  3. **Attach signal cables to connectors.**
  4. **Attach power cords to outlet.**
  5. **Turn device ON.**

  (D005)

Choose the part you want to replace:

Front cover

Service position

Service access cover

PCI adapter

Fan

I/O backplane

HSL or RIO card

Power supply

Remove the 7311-D11 expansion unit front cover

To remove the expansion unit front cover, do the following:

1. Open the front rack door.
2. Simultaneously press in both cover-release tabs.
3. Pivoting the cover out from the top, swing the top forward.
4. Pull the bottom of the cover up, then away from the expansion unit chassis. This action releases the two tab hooks located on the bottom of the expansion unit chassis.
5. To replace the front cover, reverse this removal procedure.

Place the 7311-D11 expansion unit in the service position

To place the expansion unit in the service position, do the following:

1. Ensure that the system unit to which the expansion unit is connected is shut down.
2. From the back of the rack, disconnect the expansion unit's power cables from the power distribution bus.
3. Remove the retaining screws located on the back of the expansion unit.
4. Label and disconnect all of the cables connected to the back of the expansion unit.
5. From the back of the rack, pull the expansion unit straight out until the unit stops.
6. Press the stop latch on the side of the enclosure.
7. Support the expansion unit as you pull it out from the back of the rack.
8. Place the expansion unit on a stable work surface.

To return the expansion unit to the operating position, do the following:

1. From the back of the rack, insert the expansion unit into the rack location from which it was removed. The end of the expansion unit that contains the power supplies goes toward the front of the rack.
2. Support the expansion unit as you push it toward the front of the rack.
3. Install the retaining screws in the back of the expansion unit.
4. Reconnect the cables to the back of the expansion unit.
5. Reconnect the power cables.
6. Restart the system.

Remove the 7311-D11 expansion unit service access cover

To remove the expansion unit service access cover, follow these steps:

1. Open the front rack door.
2. Place the expansion unit into the service position as described in "Place the 7311-D11 expansion unit in the service position."
3. Loosen the two captive thumbscrews located on the back of the service access cover.
4. From the back of the expansion unit, lift the cover and slide it backwards until the front disengages. Lift the cover off the expansion unit.
5. To replace the expansion unit service access cover, reverse this removal procedure.

Exchange the 7311-D11 fan assembly

To remove the fan assembly, do the following:

1. Locate the fan assembly on the front of the expansion unit.
2. Unscrew the thumbscrew that holds the fan into the expansion unit.
3. Pull the fan assembly straight out until it is clear of the expansion unit.
4. To replace the fan assembly, reverse this removal procedure.

Exchange the 7311-D11 and 5790 I/O backplane assembly

Note: The I/O backplane and the SPCN riser card are replaced as a pair.

Remove the I/O backplane assembly

1. Power off the system.
2. Put the I/O subsystem into the service position. (See"Place the 7311-D11 expansion unit in the service position" on page 260).
3. Label and remove the PCI adapters. (See PCI adapter).
4. Remove the service access cover. (See "Remove the 7311-D11 expansion unit service access cover" on page 260).
5. Remove the power supplies. (See "Exchange the 7311-D11 power supply").
6. Remove the RIO bus adapter. (See "Exchange the 7311-D11 HSL or RIO card").
7. Remove the screws that hold the line cord tray.
8. Remove the line cord tray.
9. Remove the two screws that hold the SPCN connector card
10. Remove the SPCN connector card from the I/O backplane.
11. Remove the screws that hold the upper PCI adapter mounting-guides, and remove the guides.
12. Remove the screws that hold the lower PCI adapter mounting-guides, and remove the guides.
13. Remove the screws from the bulkhead bracket.
14. Disconnect the fan cable from the bulkhead bracket.
15. Remove the bulkhead bracket.
16. Disconnect the fan cable from the I/O backplane.
17. Remove the screws that secure the I/O backplane to the subsystem chassis.
18. Lift up on the rear of the backplane and slide it towards the rear of the unit, enough to clear the pipe light. Then lift the backplane up and out of the subsystem chassis.
19. Install the new backplane by reversing the above procedure.
20. Perform Setting expansion unit configuration ID and MTMS value and then continue with the next step of this procedure.
21. Go to Chapter 2, "Verifying the repair," on page 279. **This ends the procedure.**

Exchange the 7311-D11 HSL or RIO card

To remove the HSL or RIO card, do the following:

1. Power off the system.
2. Put the expansion unit into the service position. (See "Place the 7311-D11 expansion unit in the service position" on page 260).
3. Remove the service access cover. (See "Remove the 7311-D11 expansion unit service access cover" on page 260).
4. Remove the screws that attach the HSL or RIO riser card to the expansion unit chassis.
5. Carefully pull the HSL or RIO card straight up and out of the slot.
6. To replace the HSL or RIO card, reverse this removal procedure.

Exchange the 7311-D11 power supply

To remove the power supply, do the following:

Attention: Do not remove two power supplies at the same time if performing an exchange with power on. Power supplies are considered as replaceable with power on only if you remove one power supply at a time. The power supplies can be removed from the front of the expansion unit.

1. Disconnect the power cord from the power supply.

2. Unlatch the power supply handle and rotate the handle downward to unseat the power supply.
   Attention: Do not remove a power supply for more than four minutes. If you cannot replace the power supply in less than four minutes, shut down the system and then remove the power supply.
3. Pull the power supply straight out from the expansion unit.
4. To replace the power supply, reverse this removal procedure.

Removing and replacing parts on 7311-D20 expansion units

DANGER

Electrical voltage and current from power, telephone, and communication cables are hazardous.

To avoid a shock hazard:

- **Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.**
- **Connect all power cords to a properly wired and grounded electrical outlet. Ensure 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 below when installing, moving, or opening covers on this product or attached devices.**

  To Disconnect:

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

  To Connect:

  1. **Turn everything OFF (unless instructed otherwise)**
  2. **Attach all cables to devices.**
  3. **Attach signal cables to connectors.**
  4. **Attach power cords to outlet.**
  5. **Turn device ON.**

  (D005)

Choose the part you want to replace:

PCI adapter

Disk drive

Disk drive backplane

Fan

I/O backplane assembly

Control panel

Power supply

RIO/HSL card

Exchange the RIO/HSL card

Remove the RIO/HSL card

To remove the RIO/HSL card from the subsystem, do the following:

1. Open the rack front door.
2. Shut down the system as described in Stop the system.
3. Put the expansion unit into the service position as described inPlace the expansion unit in the service position.
4. Disconnect the power source from the system.

   Note: This system may be equipped with a second power supply. Before continuing with this procedure, ensure that the power source to the system has been completely disconnected.
5. Open the service access cover.
6. Disconnect the RIO/HSL-2 cables from the RIO/HSL connectors located on the rear of the subsystem.
7. Identify, and then disconnect and label all cables that cross over the top of the RIO/HSL card. These cables might interfere with the removal and installation of the RIO/HSL card.
8. Release the release latches located on top of the RIO/HSL card.
9. Simultaneously lift both retention handles.
10. Pivot the release handles up until they are perpendicular (90 degrees) to the top of the RIO/HSL; card.

    Note: By placing the handles perpendicular to the top of the RIO/HSL card, the base or hinged portion of each handle acts as a cam and will gently pry the RIO/HSL card up, disconnecting it from its docking connector.
11. Remove the RIO/HSL card from the subsystem chassis, and put it in a safe place.

Replace the RIO/HSL card

To replace the RIO/HSL bus card, do the following:

1. Grasp the two RIO/HSL card release handles.
2. Pivot both handles upward to 90 degrees, ensuring that the handles are perpendicular to the RIO/HSL card. The handle cams have now been placed into the correct position to assist you when seating the RIO/HSL card into its docking connector.
3. Before inserting the RIO/HSL card into its bay, observe the alignment bracket. The alignment bracket is secured to the power bulkhead.
4. Insert the RIO/HSL card into its bay. Ensure that the power cable receptacle located on the back of the RIO/HSL card is facing the back of the subsystem chassis.
5. Lower the RIO/HSL card through the alignment bracket. The alignment bracket will catch the back edge of the RIO/HSL card closest to it.

   The RIO/HSL card should now be resting on the top of its docking connector. The docking connector has two large alignment pins located on each end. These alignment pins will ensure alignment of the RIO/HSL card to its docking connector when seated.
6. Lower the RIO/HSL card locking handles, carefully seating the RIO/HSL card into the docking connector. The plastic latch located beneath each handle clicks when the RIO/HSL card is fully seated. This click also indicates that the handle is locked in the closed position.

7. Reconnect the RIO/HSL-2 cables to the RIO/HSL card connectors located on the back of the chassis.
8. Reconnect the cables that were disconnected during the RIO/HSL card removal.
9. Reconnect the power source to the system.
10. Close and then secure the service access cover with the three thumbscrews located on its back edge.
11. Return the expansion unit to the operating position as described in Place the expansion unit in the operating position.
12. Power on the system as described in Start the system.
13. Close the rack front door.

Exchanging RIO/HSL cables

Use this procedure to replace the RIO/HSL cables concurrently. You will need to perform the following steps for both ends of the cable that you are replacing.

Attention: When a RIO/HSL cable is disconnected, it may result in the connection being lost between the units even after the cable is reconnected. This happens in rare cases depending on the state of the RIO/HSL hardware at both ends of the cable when the cable is disconnected. To fix this, you will need to cycle power on the unit with the locked RIO/HSL connection. If the system is HMC-managed, go to the HMC to cycle power to the affected unit. If the system is managed by AIX or Linux interfaces, fully power down the entire system. If the system is managed by i5/OS, follow the Power down, power on instructions to power down the units, reconnect the RIO/HSL cable, and power the units back on.

Note: You do not need to power off the system or expansion unit. If you are replacing a cable between a system unit and an expansion unit, connect the expansion unit end of the cable first. This will reduce the chances of the problem identified in the previous warning from happening with the system unit however, the problem may still occur with the I/O unit in rare cases.

1. Disconnect the cable at the unit, card location, and port on which you are working. See the previous note.
2. Is the connection an optical link?

   No: Wait at least thirty seconds.

   Yes: Clean the RIO/HSL cable connectors on the new cables and the cable port using the tools and procedures listed in the symbolic FRU OPTCLN. Continue with the next step.
3. Connect the new cable to the port.

Attention: For copper cables, you must fully connect the cable and tighten the connector's screws within 30 seconds of when the cable makes contact with the port. If you do not, the link will fail and you must disconnect and reconnect it again. If the connector screws are not tightened, errors will occur on the link and it will fail.

This ends the procedure.

Power down, power on instructions

Follow these steps if you accidentally pulled an RIO/HSL cable and lost RIO/HSL connections to frames that were in a loop.

1. From the Hardware Service Manager screen, select **Packaging hardware resources**.
2. Select the unit that has lost its RIO/HSL connection and select **Concurrent maintenance**. Then press *Enter*.
3. Select **Power off domain** to power off the unit tower.
4. After reconnecting the unit into the RIO/HSL loop, select **Power on domain**. **This ends the procedure.**

Removing and replacing type 2748, 2757, 2763, 2778, 2782, 4758, 4764, 5703 cards

Choose from the following exchange procedures:

Replacing the cache battery pack on type 2748, 2757, 2763, 2778, 2780, 2782, 5703, 5709 cards

Use this procedure to remove or replace the cache battery pack in from type 2748, 2757, 2763, 2778, 2780, 2782, 5703, and 5709 cards.

The following safety notice pertains to the 2748 cache battery pack.

CAUTION:
The battery is a nickel-cadmium battery. To avoid possible explosion, do not burn. Exchange only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations. In the United States, IBM has a process for the collection of this battery. For information, call 1-800-426-4333. Have the IBM part number for the battery unit available when you call. (C005)

The following safety notice pertains to the 2763, 2778, 2782, 5703, and 5709 cache battery packs.

CAUTION:
The battery is a nickel metal hydride battery. To avoid possible explosion, do not burn. Exchange only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations. In the United States, IBM has a process for the collection of this battery. For information, call 1-800-426-4333. Have the IBM part number for the battery unit available when you call. (C006)

The following safety notice pertains to the 2757 and 2780 cache battery pack.

CAUTION:
The battery is a lithium ion battery. To avoid possible explosion, do not burn. Exchange only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations. In the United States, IBM has a process for the collection of this battery. For information, call 1-800-426-4333. Have the IBM part number for the battery unit available when you call. (C007)

Attention: All cards are sensitive to electrostatic discharge. See Working with electrostatic discharge-sensitive parts.

Note: When replacing the cache battery pack, the battery must be disconnected for at least 15 seconds before connecting the new battery. This is the minimum amount of time needed for the card to recognize that the battery has been replaced.

To remove or replace the cache battery pack:

1. Is the cache battery pack on a type 2780 card?

   Yes: Go to step 15 on page 269.

   No: Continue with the next step.
2. To replace a cache battery pack and prevent possible data loss, force the cache battery pack into an error state before replacing it. To force the cache battery pack into an error state, perform the following:
   a. Select System Service Tools (SST). If you cannot get to SST, select DST. Do not perform a system IPL to get to DST.
   b. Select **Start a Service Tool** > **Hardware Service Manager**.
   c. Select **Work with resources containing cache battery packs** > **Force battery pack into error state** for the I/O card you are working with.
   d. On the Force Battery Packs Into Error State screen, verify the correct I/O adapter has been selected and choose the function key to confirm your choice.
   e. Continue with the next step.
3. Is the cache battery pack on a type 5709 card?

   No: Continue with the next step.

   Yes: Remove the RAID enablement card using one of the following procedures, then go to step 6:
   – For model 520: Remove the model 520 RAID enablement card
   – For model 570: "Exchanging the RAID Enablement card on the model 570" on page 222
4. Remove the card using the concurrent card remove and replace procedure for the model or expansion unit that you are working on (see "Removing and replacing parts" on page 205). Then continue with the next step.

   Note: If the concurrent card remove and replace procedure fails, then power the system down normally prior to replacing the cache battery pack (see Powering on and powering off).
5. Choose from the following options:
   • For type 2748, 2763, 2778, 2782, 5703, and 5709 cards, continue with the next step.
   • For type 2757 cards, go to step 11.
6. Locate the casing **A** that holds the battery pack (see Figure 31 on page 267, Figure 33 on page 268, or Figure 34 on page 269 below).
7. Squeeze the casing **A** to remove battery unit from the card.
8. Remove the plug that connects the battery unit and the card.

   Note: The plug fits in the board only one way so it cannot be inserted incorrectly during the replacement phase.
9. Remove the battery unit from the battery casing. Save the battery casing, as the replacement battery pack will not come equipped with a casing.

   Note: Ensure that the cache battery pack is disconnected for at least 15 seconds before connecting the new battery. This is the minimum amount of time needed for the card to recognize that the battery has been replaced.
10. Install the new cache battery pack by reversing this procedure. If necessary, refer to the replace the card using the concurrent card remove and replace procedure for the model or expansion unit that you are working on (see "Removing and replacing parts" on page 205). **This ends the procedure.**
11. For type 2757, locate the battery pack A (see Figure 32 on page 268).
12. Remove the plug that connects the battery unit and the card by pushing down on the latching mechanism and pulling the plug out of the connector.

    Note: The plug fits in the connector only one way so it cannot be inserted incorrectly during the replacement phase.

13. There are two pegs holding the battery pack in place. For each of these pegs, squeeze the peg and push it so that it comes out on the other side of the card. Then remove the cache battery pack.

    Note: Ensure that the cache battery pack is disconnected for at least 15 seconds before connecting the new battery. This is the minimum amount of time needed for the card to recognize that the battery has been replaced.

14. Install the new cache battery pack by reversing the procedure. If necessary, refer to the replace the card using the concurrent card remove and replace procedure for the model or expansion unit that you are working on (see "Removing and replacing parts" on page 205). **This ends the procedure.**

Figure 31. Cache battery pack and cache directory card for type 2748, 2763, and 2778

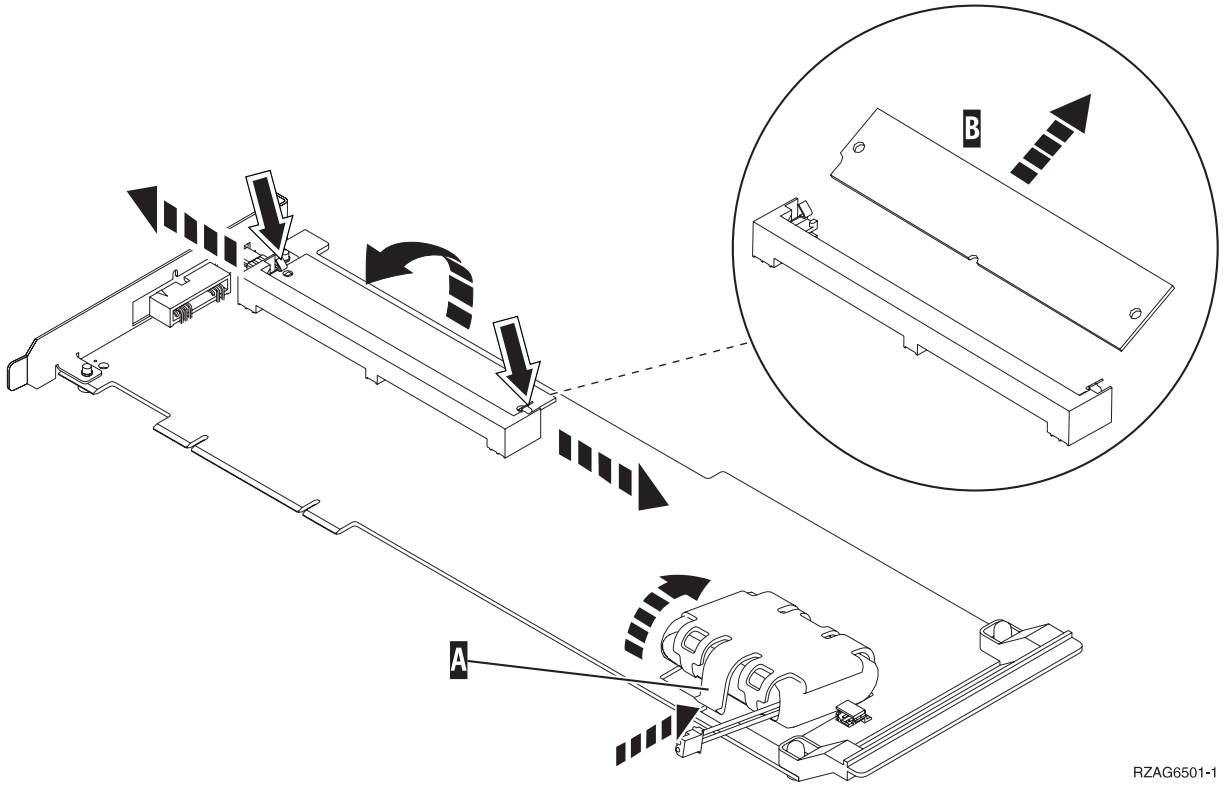


Figure 32. Cache battery pack and cache directory card for type 2757

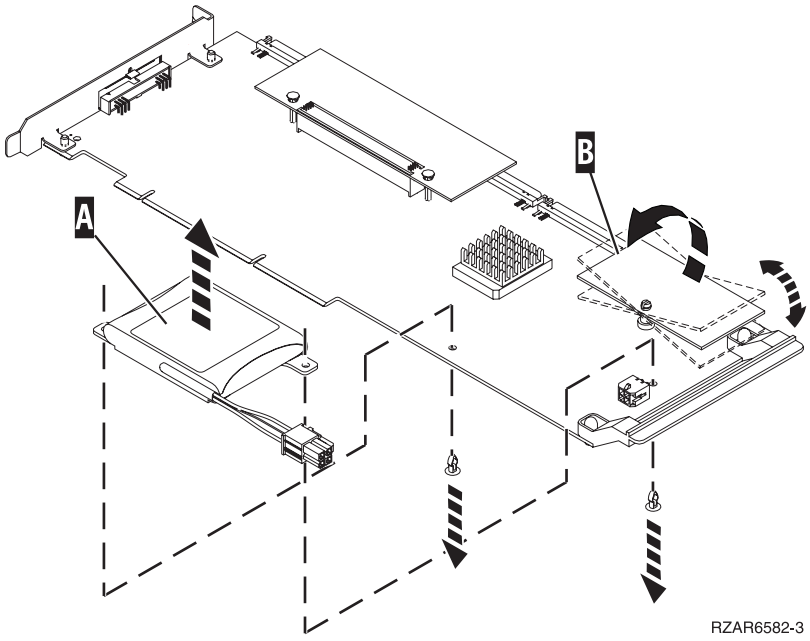


Figure 33. Cache battery pack and cache directory card for type 2782, 5703

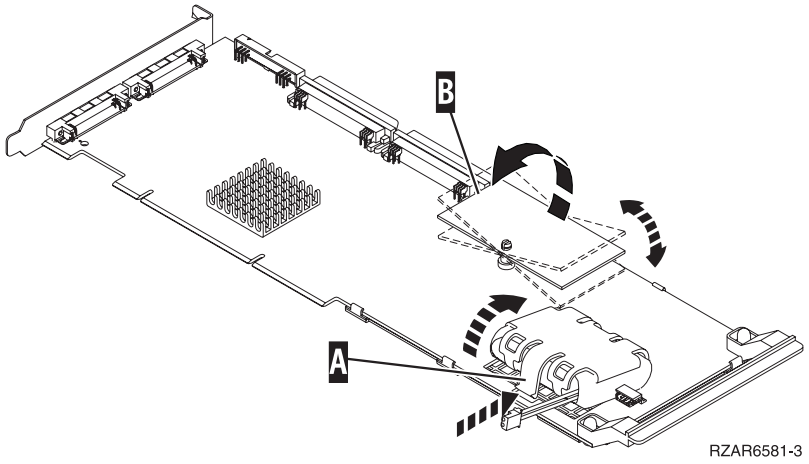
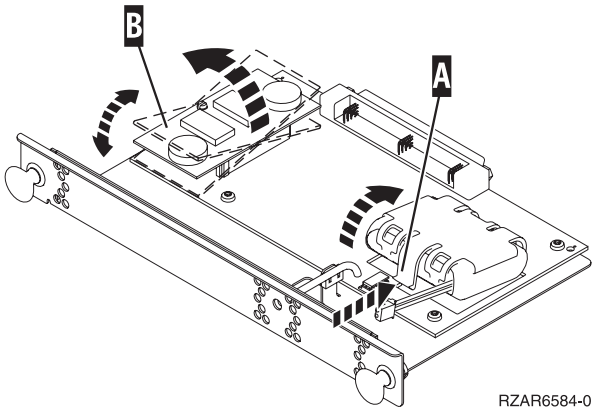
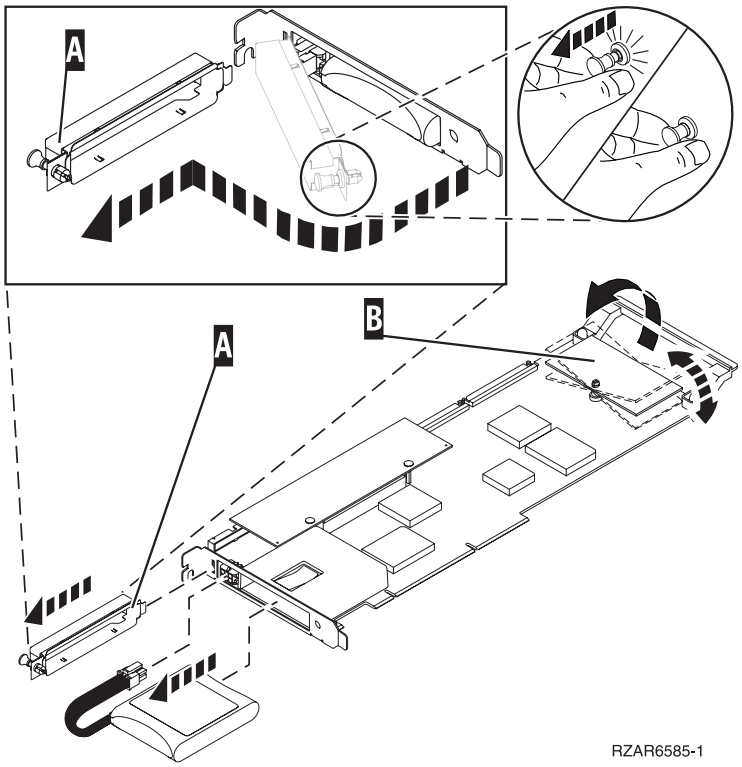


Figure 34. Cache battery pack and cache directory card for type 5709



15. The cache battery pack is on a type 2780 card. This cache battery pack can be removed from the 2780 card without removing the card from the system. Perform the following:
    a. Select System Service Tools (SST). If you cannot get to SST, select DST. Do not perform a system IPL to get to DST.
    b. Select **Start a Service Tool** > **Display/Alter/Dump** > **Display/Alter storage** > **Licensed Internal Code (LIC) data**.
    c. Select **Advanced analysis**. You may have to page down or scroll down to find this option.
    d. Select the **BATTERYINFO** command.
    e. On the Specify Advanced Analysis Options screen, type `-LIST` in the Options field and press Enter.
16. Find the resource name of the card you are working with. It is safe to replace the cache battery pack when **Yes** is listed next to **Battery pack can be safely replaced**.
17. Return to the Specify Advanced Analysis Options screen and type `-CONFR -IOA` *xxxx*, where *xxxx* is the card resource name that you are working with.
18. Return to the Specify Advanced Analysis Options screen and type `-LIST` in the Options field and press Enter. The **Can Be Safely Replaced** field should indicate **Yes**.

19. Use the following illustration to locate the metal cover **A** that holds the battery pack. Pull out on the push-rivet to release the metal cover **A**.



20. Remove the plug that connects the battery unit and the card. It is necessary to squeeze the retaining latch while gently pulling on the plug.
21. Remove the cache battery pack by gently pulling it out.
22. Install the new cache battery pack by reversing steps 19 through 21. Then continue with the next step.
23. Return to the Specify Advanced Analysis Options screen and type `-START -IOA xxxx`, where *xxxx* is the card resource name that you are working with. Ensure that you get the message **Cache started on IOA**. **This ends the procedure.**

Replacing the cache directory card on type 2748, 2757, 2763, 2778, 2780, 2782, 5703, 5709 cards

Attention: All cards are sensitive to electrostatic discharge. See Working with electrostatic discharge-sensitive parts.

1. Is the cache battery pack on a type 5709 card?

   No: Continue with the next step.

   Yes: Remove the RAID enablement card using one of the following procedures, then go to step 7 on page 271:

   – For model 520: Remove the model 520 RAID enablement card
   – For model 570: "Exchanging the RAID Enablement card on the model 570" on page 222

2. Remove the card using the concurrent card remove and replace procedure for the model or expansion unit that you are working on (see "Removing and replacing parts" on page 205).
3. Choose one of the following:
   - For type 2748, 2763, and 2778 cards, continue with the next step.
   - For type 2757, 2780, 2782, 5703, and 5709 cards, go to step 7 on page 271.
4. Locate the cache directory card **B**. It is a small rectangular card mounted on the I/O card (see Figure 35 on page 271 below).

Spread the tabs on each side of the cache directory card and raise the back of the cache directory card **B** up away from the I/O card. The cache directory card will pivot up about 20 degrees.

5. Pull cache directory card out.
6. Install the replacement cache directory card by wiggling it into place at a 20-degree angle before pushing it down and locking the tabs. Be sure that the holes on each side of the cache directory card are filled by the pegs on the cache card to ensure proper seating. **This ends the procedure.**
7. Locate the cache directory card **B**. It is a small rectangular card mounted on the I/O card (see Figure 36 on page 272, Figure 37 on page 272, Figure 38 on page 273, or Figure 39 on page 273 below).
8. Unseat the connector on the cache directory card by wiggling the two corners furthest from the mounting peg using a rocking motion. Then, pivot the cache directory card back over the mounting peg to disengage the cache directory card from the mounting peg.

   Note: For the type 2757 card, do not remove the larger card with two mounting pegs.
9. Install the replacement card by seating it on the connector and mounting peg.

Figure 35. Cache battery pack and cache directory card for type 2748, 2763, and 2778

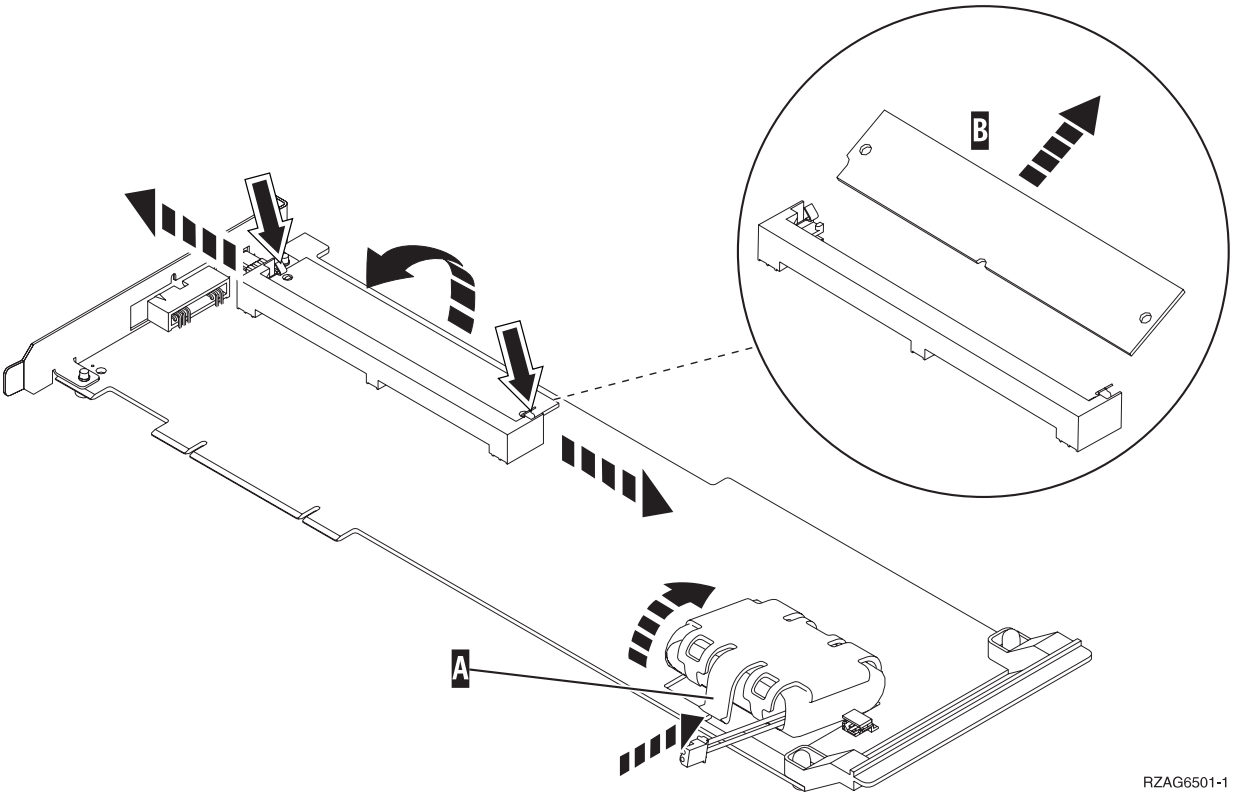


Figure 36. Cache battery pack and cache directory card for type 2757

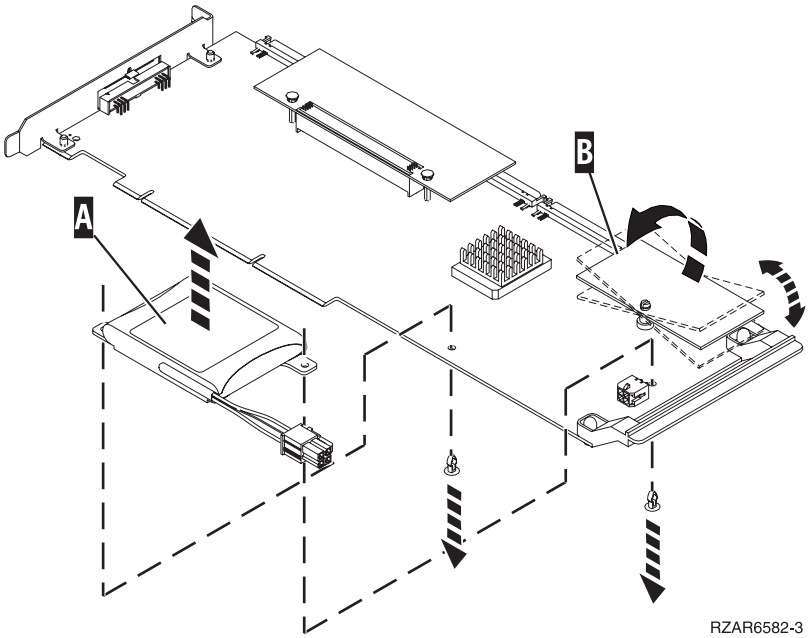


Figure 37. Cache battery pack and cache directory card for type 2782, 5703

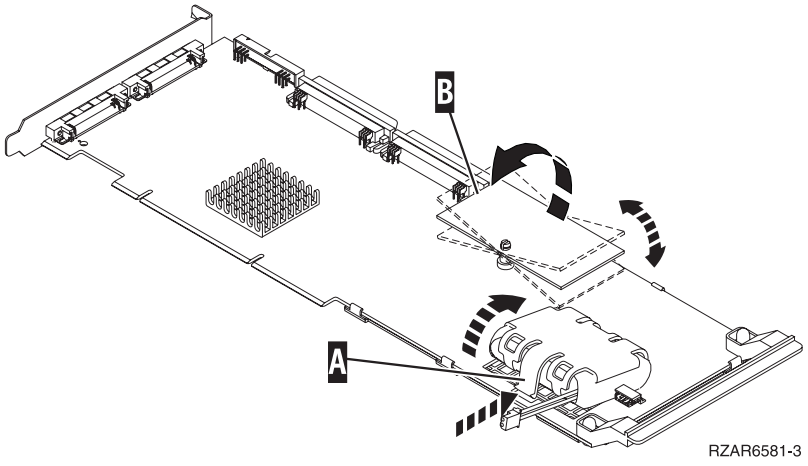


Figure 38. Cache battery pack and cache directory card for type 5709

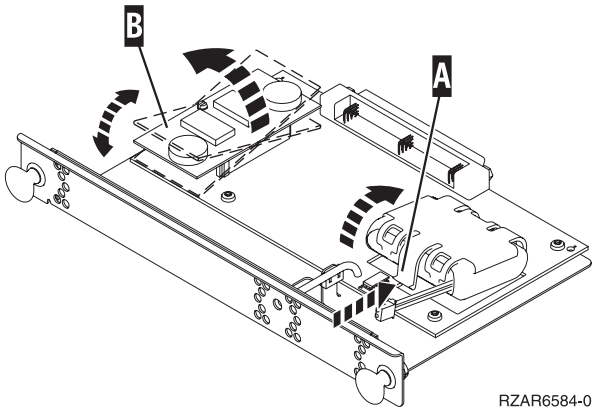
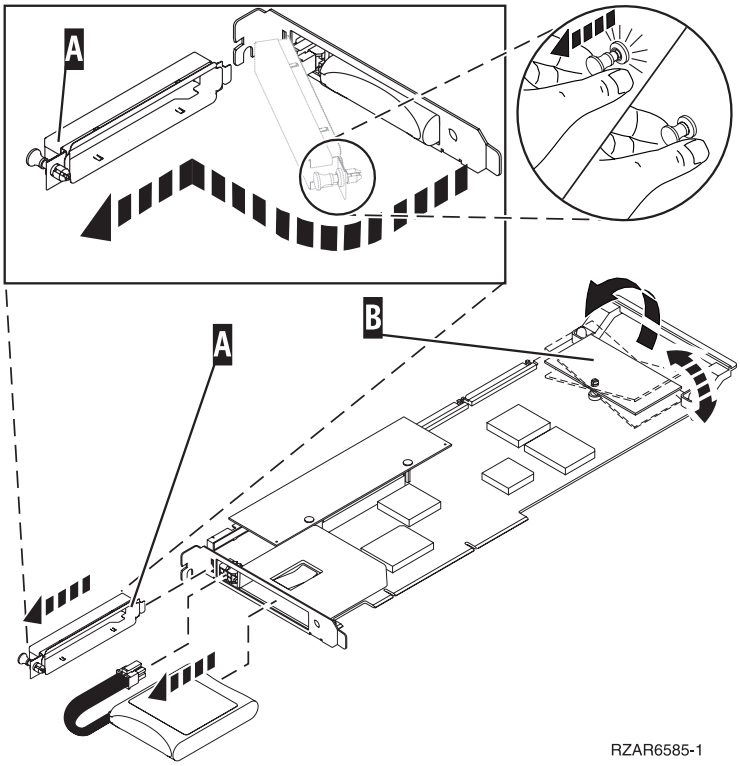


Figure 39. Cache battery pack and cache directory card for type 2780



Replacing the battery on a type 4758 card

Use this procedure to remove or replace the PCI cryptographic coprocessor card batteries in Type 4758.

Note: Two battery replacement kits (see "Part number catalog" on page 171) are required to replace the batteries in the 4758-023 card, since the card contains four batteries, and each battery replacement kit contains two new batteries. Other 4758 cryptographic adapter cards contain only two batteries, and therefore require only one battery replacement kit.

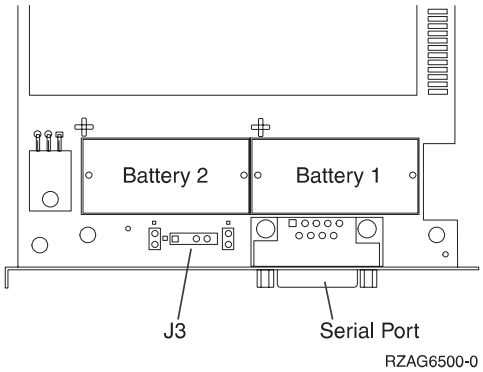
CAUTION:
The battery is a lithium ion battery. To avoid possible explosion, do not burn. Exchange only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations. In the United States, IBM has a process for the collection of this battery. For information, call 1-800-426-4333. Have the IBM part number for the battery unit available when you call. (C007)

Attention: Any loss of battery power erases data stored in the card's protected memory and renders the card useless.

To remove or replace the PCI Cryptographic coprocessor card's batteries:

1. Remove the cryptographic coprocessor card using the concurrent remove and replace procedure for cards on the system or expansion unit in which the card is located (see "Removing and replacing parts" on page 205).
2. Find the location of the lithium batteries. They are located in adjacent holders, with the Battery 2 holder above the J3 connector. Refer to the illustration below.

   Figure 1. Battery Locations on the 4758 PCI Cryptographic Coprocessor

   Note: The 4758-023 card contains four batteries, even though only two batteries are shown in the figure above. Battery 3 is directly above Battery 1, and Battery 4 is directly above Battery 2.
3. Is the card you are working on a 4758-023 card?
   - **Yes:** The card has four batteries. Go to step 11.
   - **No:** The card has two batteries. Continue with the next step.
4. Open the battery replacement kit. Insert one of the new batteries into the battery tray provided with the kit. The '+' on the battery must be oriented in the battery tray with the same polarity matching the '+' on the tray.
5. Connect the battery tray's cable to the J3 connector on the card. This maintains battery power to the card while the new batteries are installed.
6. Replace the battery in the Battery 1 position with a new battery. The '+' on the battery must be oriented in the holder with the same polarity matching the '+' on the holder.
7. Replace the battery in the Battery 2 position with the battery in the battery tray. The '+' on the battery must be oriented in the holder with the same polarity matching the '+' on the holder.
8. Remove the battery tray from the J3 connector and discard it.
9. Place the new battery warning label (part number 04K9421) over the two new batteries in Battery positions 1 and 2.
10. Reinstall the card.
    This ends the procedure.
11. The card is a 4758-023 card. Open both of the battery replacement kits. Insert one of the new batteries into the battery tray provided with the kit. The '+' on the battery must be oriented in the holder with the same polarity matching the '+' on the holder.

12. Connect the battery tray's cable to the J3 connector on the 4758 card. This maintains battery power to the card while the new batteries are installed.
13. Remove and discard the two battery warning labels which cover both sets of batteries.
14. Replace the battery in the Battery 1, 2, and 3 positions with a new battery. The '+' on the battery must be oriented in the holder with the same polarity matching the '+' on the holder.
15. Replace the battery in the Battery 4 position with the battery in the battery tray. The '+' on the battery must be oriented in the holder with the same polarity matching the '+' on the holder.
16. Remove the battery tray from the J3 connector and discard it.
17. Place one of the new Battery Warning labels (PN 04K9421) over the two new batteries in Battery positions 1 and 2. Place the other new Battery Warning label over the two new batteries in Battery positions 3 and 4.
18. Reinstall the card.
    This ends the procedure.

Disabling the cryptographic coprocessor on a type 4758 card

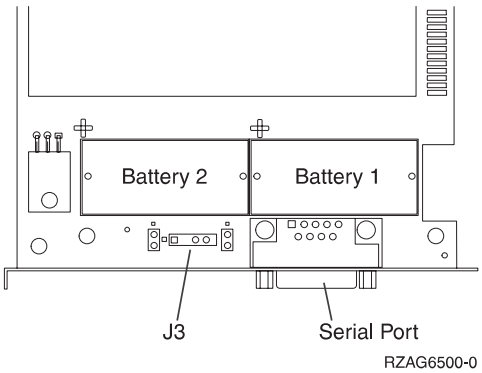
Attention: For security reasons, use the following procedure when replacing the cryptographic coprocessor.

Use this procedure to properly and permanently disable the Type 4758 PCI Cryptographic Coprocessor card. During disablement, the contents of the coprocessor's protected memory will be set to zeroes. The cryptographic master key and other data stored in the protected memory will be lost.

CAUTION:
The battery is a lithium ion battery. To avoid possible explosion, do not burn. Exchange only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations. In the United States, IBM has a process for the collection of this battery. For information, call 1-800-426-4333. Have the IBM part number for the battery unit available when you call. (C007)

1. Remove the Cryptographic Coprocessor card using the Cards (concurrent) remove and replace procedure for the system unit or tower in which the card is located. See "Removing and replacing parts" on page 205, choose the correct model, and then the Cards (concurrent) procedure.
2. Find the location of the lithium batteries. They are located in adjacent holders, with the Battery 2 above the J3 connector. Refer to the illustration below.

   Figure 1. Battery Locations on the PCI Cryptographic Coprocessor



   Note: The 4758-023 card contains four batteries, even though only two batteries are shown in the figure above. Battery 3 is directly above Battery 1, and Battery 4 is directly above Battery 2.

   Attention: The loss of battery power erases data stored in the card's protected memory and renders the card useless.
3. Remove the battery from each battery holder in sequential order. If this is a 4758-023 card, remove the batteries in the following order: Battery 1, Battery 2, Battery 3, Battery 4. For all other cards, remove Battery 1 and then Battery 2.

4. The PCI Cryptographic Coprocessor card has been disabled. You can now install the new card.
   This ends the procedure.

Replacing the battery on a type 4764 card

Use this procedure to remove or replace the PCI cryptographic coprocessor card batteries in Type 4764.

Note: Type 4764 cryptographic adapter cards contain only two batteries, and therefore require only one battery replacement kit (see "Part number catalog" on page 171).

CAUTION:
Only trained, authorized service providers may replace this battery. The battery contains lithium. To avoid possible explosion, do not burn or charge the battery. Do not:

- **Throw or immerse the battery in water,**
- **Heat the battery to more than 100°C (212°F),**
- **or repair or disassemble the battery.**

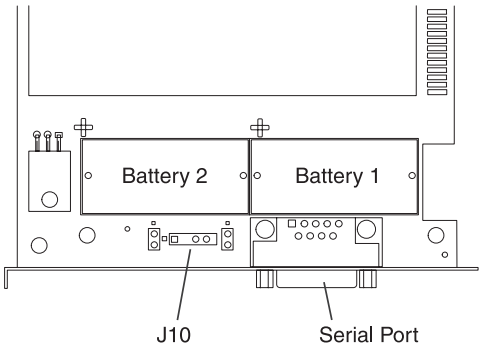
CAUTION:
Exchange only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations. In the United States, IBM has a process for the collection of this battery. For information, call 1-800-426-4333. Have the IBM part number for the battery unit available when you call. (C002)

Attention: Any loss of battery power erases data stored in the card's protected memory and renders the card useless.

To remove or replace the PCI Cryptographic coprocessor card's batteries:

1. Remove the cryptographic coprocessor card using the concurrent remove and replace procedure for cards on the system or expansion unit in which the card is located (see "Removing and replacing parts" on page 205).
2. Find the location of the lithium batteries. They are located in adjacent holders, with the Battery 2 holder above the J10 connector. Refer to the illustration below.

   Figure 1. Battery locations on the 4764 PCI cryptographic coprocessor



3. Open the battery replacement kit. Insert one of the new batteries into the battery tray provided with the kit. The '+' on the battery must be oriented in the battery tray with the same polarity matching the '+' on the tray.
4. Connect the battery tray's cable to the J310 connector on the card. This maintains battery power to the card while the new batteries are installed.
5. Replace the battery in the Battery 1 position with a new battery. The '+' on the battery must be oriented in the holder with the same polarity matching the '+' on the holder.
6. Replace the battery in the Battery 2 position with the battery in the battery tray. The '+' on the battery must be oriented in the holder with the same polarity matching the '+' on the holder.

7. Remove the battery tray from the J10 connector and discard it.
8. Place the new battery warning label over the two new batteries in Battery positions 1 and 2.
9. Reinstall the card.
   This ends the procedure.

Disabling the cryptographic coprocessor on a type 4764 card

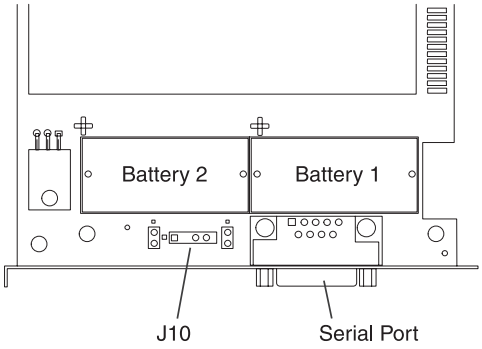
Attention: For security reasons, use the following procedure when replacing the cryptographic coprocessor.

Use this procedure to properly and permanently disable the Type 4764 PCI Cryptographic Coprocessor card. During disablement, the contents of the coprocessor's protected memory will be set to zeroes. The cryptographic master key and other data stored in the protected memory will be lost.

CAUTION:
The battery is a lithium ion battery. To avoid possible explosion, do not burn. Exchange only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations. In the United States, IBM has a process for the collection of this battery. For information, call 1-800-426-4333. Have the IBM part number for the battery unit available when you call. (C007)

1. Remove the Cryptographic Coprocessor card using the Cards (concurrent) remove and replace procedure for the system unit or tower in which the card is located. See "Removing and replacing parts" on page 205, choose the correct model, and then the Cards (concurrent) procedure.
2. Find the location of the lithium batteries. They are located in adjacent holders, with the Battery 2 above the J10 connector. Refer to the illustration below.

   Figure 1. Battery Locations on the PCI Cryptographic Coprocessor



   Attention: The loss of battery power erases data stored in the card's protected memory and renders the card useless.
3. Remove Battery 1 and then Battery 2.
4. The PCI Cryptographic Coprocessor card has been disabled. You can now install the new card.
   This ends the procedure.

Removing and replacing parts on OpenPower

Choose the system unit on which you want to remove or replace a part:

OpenPower 9124-720

Chapter 2. Verifying the repair

Use this information to verify hardware operation after making repairs to the system. Choose the platform you are working with:

AIX and Linux

i5/OS

HMC

Verifying the repair for AIX and Linux

Choose from the following:

- If you were sent here after completing a service action on an AIX server or partition, then go to Repair Checkout .
- If you were sent here after completing a service action on a Linux server or partition, then go to Verify the installed part.

End of call procedure for servers with Service Focal Point

1. For future reference, record the SRC or symptom and the location code of the FRU you replaced.
2. At the HMC, open Service Focal Point and examine the service action event log for any open service action events.
3. **Are there any service action events that are open?**

   No If the system attention LED is still on, turn off the LED as described in Activating and deactivating LEDs. This completes the repair, return the system to the customer.

   Yes Go to 4.
4. Record the list of open service action events.
5. From the list of serviceable events recorded in 4, perform 6 through 33 on page 281 for each open service action event.
6. Determine the error class of the serviceable event. Record for future use.
7. Examine the details of the open service action event.

   Is the error code associated with this service action event the same as recorded in ″Step 1322-1″?

   No Go to 8.

   Yes Go to 11 on page 280.
8. Examine the FRU list of the service action event.**Are there any FRUs listed for the service action event?**

   No Go to 11 on page 280.

   Yes Go to 9.
9. **Is the FRU list identical (same FRUs, same number of FRUs, and same order of FRUs) to the FRU list of the error code recorded in 1?**

   No Go to 10.

   Yes Go to 11 on page 280.
10. The FRU list is different.

    Is the FRU you replaced and recorded in 1 in the list of FRUs for this service action event?

    No Go to 33 on page 281.

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Note: There are service action events that will remain open when you leave this MAP. Further service actions may be required to complete the repair.

Yes Go to 11.

11. Examine the details of this service action event, and record the partition(s) involved in this service action event for use in a later step.
12. **Is the error code associated with this service action event of the form A11-xxx or A01-xxx?**

    No Go to 17.

    Yes Go to 13.
13. **Have you begun a list of "Axx" partitions from prior service action events that you processed in this MAP?**

    No Go to 14.

    Yes Go to 15.
14. Begin a new list of "Axx" partitions by copying the list of partitions obtained in 11. Go to 16.
15. Add the partition list obtained in 11 to the existing list of "Axx" partitions obtained from processing previous service action events in this MAP.
16. Remove all entries in the list of all partition(s) you recorded in 11. If you are referred to the list of partition(s) obtained in 11 in future steps, the list is empty. Go to 17.
17. Select and highlight the service action event from the "Error Associated With This Serviceable Event" window.
18. Click **Close Event**.
19. Add comments for the serviceable event. Include any unique additional information. Click **OK**.
20. The following steps will add or update FRU information.
21. **Did you replace, add, or modify a FRU of the open service action event?**

    No Go to 23.

    Yes Go to 22.
22. From the FRU list, select a FRU that you need to update. Double-click on the FRU, and update the FRU information. Go to 24.
23. Select the **No FRU Replaced for this Serviceable Event** option.
24. Click **OK** to close the service action event.
25. **Is the list of all partition(s) you recorded in 11 empty?**

    No Go to 26.

    Yes Go to 33 on page 281.
26. **Does the list of all partition(s) you recorded in 11 contain more than one entry?**

    No Go to 33 on page 281.

    Yes Go to 27.
27. **Is the error class recorded in 6 on page 279 AIX?**

    No Go to 33 on page 281.

    Yes Go to 28.
28. Perform the following steps for each entry in the list of all partition(s) you recorded in 11, except the partition you were using to debug the original problem.
29. From the HMC virtual terminal window of a partition in the list of all partitions, type `diag` at the AIX command prompt.
30. When the diagnostic operating instructions are displayed, do the following:

a. Press Enter.
b. Select the **Task Selection** option.

   Note: If the terminal type is not defined, you are prompted to define it before you can proceed.
c. Select the **Log Repair** option.
d. Select the resource associated with the repair action. If the repair action was reseating a cable or adapter, select the resource associated with that repair action. If the resource associated with your repair action is not displayed on the Resource List, select `sysplanar0`.
e. Click **Commit** after you have made your selection.

31. Exit from diagnostics in this partition and return to the AIX prompt.
32. **Have all the partitions in the list of all partition(s) you recorded in 11 on page 280 been processed?**

    No Go to 28 on page 280 to process the next partition in the list you recorded in 11 on page 280.

    Yes Go to 33.
33. **Have all the serviceable events recorded in 4 on page 279 been processed?**

    No Go to 5 on page 279 and process the next service action event in the list of serviceable events recorded in 4 on page 279.

    Yes Go to 34.
34. **While processing all service action events, were you directed to 14 on page 280?**

    No If the system attention LED is still on, turn off the LED as described in Activating and deactivating LEDs. This completes the repair. Return the system to the customer.

    Note: If during the processing of the list of open service action events, some service action events remained open, further service actions may be required to complete the repair.

    Yes Go to 35.
35. Perform the following steps for each entry in the list of "Axx" partitions you began recording in 14 on page 280, except the partition you were using to debug the original problem.
36. From the HMC virtual terminal window of a partition in the list of "Axx" partitions, type `diag` at the AIX command prompt.
37. When the diagnostic operating instructions are displayed, do the following:
    a. Press Enter.
    b. Select the **Task Selection** option.

       Note: If the terminal type is not defined, you are prompted to define it before you can proceed.
    c. Select the **Log Repair** option.
    d. Select the resource associated with the repair action. If the repair action was reseating a cable or adapter, select the resource associated with that repair action. If the resource associated with your repair action is not displayed on the Resource List, select `sysplanar0`.
    e. Click **commit** after you have made your selection.
38. Exit from diagnostics in this partition and return to the AIX prompt.
39. **Have all the partitions in the list of "Axx" partitions(s) you began recording in 14 on page 280 been processed?**

    No Go to 35 to process the next partition in the list you recorded in 14 on page 280.

    Yes If the system attention LED is still on, turn off the LED as described in Activating and deactivating LEDs. This completes the repair. Return the system to the customer.

Note: If during the processing of the list of open service action events, some service action events remained open, further service actions may be required to complete the repair.

Verifying the repair for i5/OS

Choose from the following:

- If you were sent here after completing a concurrent maintenance procedure, then follow the "Verifying a concurrent repair" instructions.
- If you were sent here after completing a dedicated maintenance procedure, then follow the "Verify a dedicated repair" on page 283 instructions.

Verifying a concurrent repair

Use this procedure to verify a repair that was performed using concurrent maintenance. Perform this procedure from partition on which you performed the service action.

1. Was concurrent maintenance just performed on an optical storage unit?

   No: Continue with the next step.

   Yes: The Product Activity Log (PAL®) and Service Action Log (SAL), in most cases, contains a reference code for the optical storage unit when concurrent maintenance is performed. You may ignore this reference code. Perform the following:

   – Perform the Verification procedures in the Service functions to verify that the problem is corrected.

   – Return the system to the customer and have the customer verify the system date and time. **This ends the procedure.**

2. Use the SAL to look for any new reference codes (see Using the Service Action Log). Are there any new reference codes?

   No: Go to step 5.

   Yes: Continue with the next step.

3. Is the new reference code the same as the original reference code?

   No: A new symptom may have occurred. Go to Start of call procedure to determine the cause of the problem. **This ends the procedure.**

   Yes: Continue with the next step.

4. Are there any other failing items that remain to be exchanged?

   Yes: Exchange the next failing item listed for reference code. **This ends the procedure.**

   No: Contact your next level of support for assistance. **This ends the procedure.**

5. Are you working with a tape device?

   No: Continue with the next step.

   Yes: Perform the Verification procedures in the Service functions to verify that the problem is corrected. After the verification test has completed, the tape device description will be set to the *failed* state because a resource change was detected. Perform the following:

   – Vary the tape device description off and then on.

   – Return the system to the customer and have the customer verify the system date and time. Then go to "Verifying the repair from the HMC" on page 283. **This ends the procedure.**

6. Are you working with an IOP or an IOA?

   No: Perform the Verification procedures in the Service functions to verify that the problem is corrected. Resources that normally vary on automatically during IPL, or that were previously varied on manually, may need to be varied back on after the verification procedures have been completed.

   Return the system to the customer and have the customer verify the system date and time. **This ends the procedure.**

Yes: Use the display hardware configuration service function to check for any missing or failed hardware:

a. On the command line, enter the Start System Service Tools command (STRSST). If you cannot get to SST, select DST (see Dedicated Service Tools (DST) in the Service functions).

   Attention: Do not IPL the system or partition to get to DST.

b. On the Start Service Tools Sign On display, type in a user ID with service authority and password.

c. Select **Start a service tool** > **Hardware service manager** > **Logical hardware resources** > **System bus resources**.

d. Select the function key for **Include non-reporting resources**.

e. If the IOP or IOA that you just replaced is a *failed* or *non-reporting* resource, the problem has not been fixed. Continue to the next failing item in the failing item list. **This ends the procedure.**

Verify a dedicated repair

Use this procedure to verify a repair that was performed using dedicated maintenance.

1. Perform the following:
   a. Verify that the power cable is plugged into the power outlet.
   b. Verify that power is available at the customer's power outlet.
2. Select the IPL type and mode for the system or partition that the customer uses (see IPL type, mode, and speed options in the Service functions).
3. Start an IPL by powering on the system or partition (see Powering on and powering off). Did the system complete the IPL?

   Yes: Continue with the next step.

   No: This may be a new problem, go to Start of call procedure. **This ends the procedure.**
4. Use the SAL or serviceable event view (if the system is HMC-managed) to look for any reference codes that are related to this IPL (see Using the Service Action Log). Are there any reference codes that are related to this IPL?

   Yes: Continue with the next step.

   No: If the problem was related to removable media or communications, perform the Verification procedures in the Service functions to verify that the problem is corrected. Then return the system to the customer and have the customer verify the system date and time. **This ends the procedure.**
5. Is the new reference code the same as the original reference code?

   Yes: Continue with the next step.

   No: A new symptom may have occurred, go to Start of call procedure. **This ends the procedure.**
6. Are there any other failing items that remain to be exchanged?

   Yes: Exchange the next failing item listed for this reference code. **This ends the procedure.**

   No: Contact your next level of support for assistance. **This ends the procedure.**

Verifying the repair from the HMC

Perform these procedures to close problem numbers, clear hardware messages, and prepare the server to return to the customer.

Before continuing in this procedure, ensure that:

- You return the server to state that the customer normally uses such as:
  - IPL type
  - IPL mode
  - the way the system is configured or partitioned

Attention: Before returning the system to the customer, take the system out of service mode. If the system is left in service mode, it automatically places a call for service every two hours.

- While you were performing the problem analysis on the original serviceable event, other serviceable-event numbers might have been opened. Close all serviceable events that were opened as a result of your service activity.
- Server verification has been performed and there are no problems that require additional service actions.
- If the repair was done using the HMC on-line repair procedures, ensure that the original serviceable event is now closed.

1. Is an HMC used to manage the server that you are servicing?

   No: Return to the Verifying the repair. **This ends the procedure.**

   Yes: Continue with step 2.
2. Are you closing a service event which was a repair on the HMC personal computer?

   No: Go to step 4.

   Yes: Continue with step 3.
3. Power on the HMC. Did the power-on process complete without errors?

   No: Go to the HMC isolation procedures. **This ends the procedure.**

   Yes: Ensure that the HMC can be used to perform server managment tasks, and return the HMC to normal operations. **This ends the procedure.**
4. Log into the HMC as the service representative role. If invalid user or invalid password displays, get the correct log on information from the system administer.
   a. If logged on the ″System Manager″, select the Exit menu item on the Console menu located on the ″System Manager″ window.
   b. Log on to the ″System Manager″ with the following: User identification service Password servmode
5. View Serviceable Event Details

   Note: Only the events that match all of the criteria you specify are shown.
   a. In the Navigation area, select the Service Applications icon.
   b. In the Navigation area, select the Service Focal Point icon.
   c. In the Contents area, select Manage Serviceable Events
   d. Designate the set of ″Serviceable Events″ you want to view. When you are finished, select the OK push button.
   e. The ″Service Event Overview″ window opens.
6. Close open or delayed events.
   a. Select the problem to close, on the Service Event Overview window.
   b. Select the menu Selected, located on the menu bar.
   c. Select menu item Close Event.
   d. Enter your comments in the ″Serviceable Event Comments″ window and select the Close Events push button.
   e. Close all events associated with the problem you were working on.
7. Did the Service Event Overview window contain the event(s) on which you were working?

   No: Go to Detecting problems. **This ends the procedure.**

   Yes: Return the HMC to normal operations. **This ends the procedure.**

Appendix. Notices

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Communications statements

The following Class A statements apply to these models:

5790
5791
5794
7311-D10
7311-D11
7311-D20
9111-520 (rack-mounted version)
9113-550
9117-570
9119-590
9119-595
9124-720
9405-520
9406-520
9406-550
9406-570
9406-595
9411-100

The following Class B statements apply to model 9111-520 (stand-alone version).

Federal Communications Commission (FCC) statement

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Responsible Party:

International Business Machines Corporation
New Orchard Road
Armonk, NY 10504

Telephone: 1-919-543-2193

Industry Canada Compliance Statement

This Class A digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Community Compliance Statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

Australia and New Zealand Class A statement

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

VCCI Statement - Japan

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

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

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

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

Per GB 9254–1998, the user manual for a Class A product must carry the following warning message (English translation from the Chinese standard) about use in a residential environment in Chinese (*Simplified Chinese*):

声　明

此为Ａ级产品，在生活环境中，
该产品可能会造成无线电干扰。
在这种情况下，可能需要用户对其
干扰采取切实可行的措施。

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

Electromagnetic Interference (EMI) Statement - Taiwan

警告使用者：
這是甲類的資訊產品，在
居住的環境中使用時，可
能會造成射頻干擾，在這
種情況下，使用者會被要
求採取某些適當的對策。

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

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

Radio Protection for Germany

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

Der Aussteller der Konformitätserklärung ist die IBM Germany.

Dieses Gerät erfüllt die Bedingungen der EN 55022 Klasse A. Für diese von Geräten gilt folgende Bestimmung nach dem EMVG:

Geräte dürfen an Orten, für die sie nicht ausreichend entstört sind, nur mit besonderer Genehmigung des Bundesministers für Post und Telekommunikation oder des Bundesamtes für Post und Telekommunikation betrieben werden. Die Genehmigung wird erteilt, wenn keine elektromagnetischen Störungen zu erwarten sind.

(Auszug aus dem EMVG vom 9.Nov.92, Para.3, Abs.4)

Hinweis

Dieses Genehmigungsverfahren ist von der Deutschen Bundespost noch nicht veröffentlicht worden.

The following Statement applies to this IBM product. The statement for other IBM products intended for use with this product will appear in their accompanying manuals.

Federal Communications Commission (FCC) statement

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

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

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Proper cables and connectors are available from IBM authorized dealers. IBM is not responsible for any radio or television interference caused by using other than recommended cables or connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interferences, and (2) this device must accept any interferences received, including interference that may cause undesired operation.

Responsible Party:

International Business Machines Corporation
New Orchard Road
Armonk, NY 10504

Telephone: 1-919-543-2193

Industry Canada Compliance Statement

This Class B digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations.

Avis de conformité à la réglementation d'Industrie Canada

Cet appareil numérique de la classe B respecte toutes les exigences du Réglement sur le matériel brouilleur du Canada.

European Community Compliance Statement

This product is in conformity with the protection requirements of EC Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

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

Properly shielded and grounded cables and connectors (IBM part number 75G5958 or its equivalent) must be used in order to reduce the potential for causing interference to radio and TV communications and to other electrical or electronic equipment. Such cables and connectors are available from IBM authorized dealers. IBM cannot accept responsibility for an interference caused by using other than recommended cables and connectors.

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Product recycling and disposal

This unit contains materials such as circuit boards, cables, electromagnetic compatibility gaskets and connectors which may contain lead and copper/beryllium alloys that require special handling and disposal at end of life. Before this unit is disposed of, these materials must be removed and recycled or discarded according to applicable regulations. IBM offers product-return programs in several countries. Information on product recycling offerings can be found on IBM's Internet site at http://www.ibm.com/ibm/environment/products/prp.shtml.

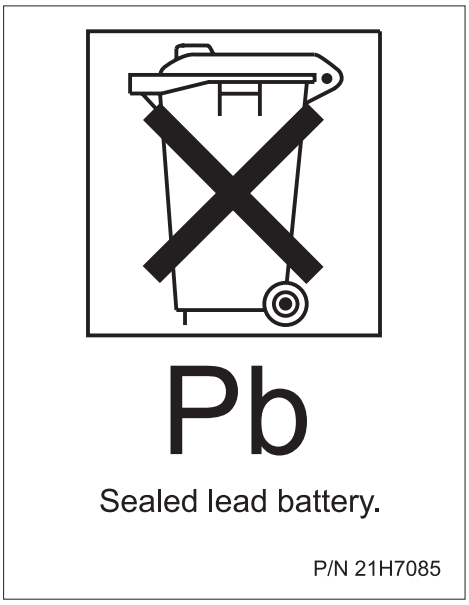
IBM encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. IBM offers a variety of programs and services to assist equipment owners in recycling their IT products. Information on product recycling offerings can be found on IBM's Internet site at http://www.ibm.com/ibm/environment/products/prp.shtml.

Battery return program

This product may contain sealed lead acid, nickel cadmium, nickel metal hydride, lithium, or lithium ion battery. Consult your user manual or service manual for specific battery information. The battery must be recycled or disposed of properly. Recycling facilities may not be available in your area. For information on disposal of batteries outside the United States, go to http://www.ibm.com/ibm/environment/products/batteryrecycle.shtml or contact your local waste disposal facility.

In the United States, IBM has established a return process for reuse, recycling, or proper disposal of used IBM sealed lead acid, nickel cadmium, nickel metal hydride, and other battery packs from IBM Equipment. For information on proper disposal of these batteries, contact IBM at 1-800-426-4333. Please have the IBM part number listed on the battery available prior to your call.

In the Netherlands, the following applies:



In Taiwan, the following applies. Please recycle batteries.

IBM Cryptographic Adapter Card Return Program

This machine may contain an optional feature, the cryptographic coprocessor card, which includes a polyurethane material that contains mercury. Follow local ordinances or regulations for disposal of this card. IBM has established a return program for certain IBM Cryptographic Adapter Cards. More information can be found at: http://www.ibm.com/ibm/environment/products/prp.shtml

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