Fujitsu M10-4S/SPARC M10-4S

Installation Guide

FUJITSU

ORACLE

Contents

Preface

This document describes methods of installing and setting up the SPARC M10-4S from Oracle or Fujitsu. The document assumes that the system has already been unpacked.

Fujitsu M10 is sold as SPARC M10 Systems by Fujitsu in Japan.
Fujitsu M10 and SPARC M10 Systems are identical products.

Audience

This document is designed for system administrators with advanced knowledge of computer networks and Oracle Solaris, the service engineers who are in charge of system maintenance, and field engineers.

Related Documentation

All documents for your server are available online at the following locations.

- Sun Oracle software-related documents (Oracle Solaris, etc.)
  https://docs.oracle.com/en/

- Fujitsu documents
  Global site

  https://www.fujitsu.com/global/products/computing/servers/unix/sparc/downloads/manuals/

  Japanese site

  https://www.fujitsu.com/jp/products/computing/servers/unix/sparc/downloads/manual/

The following table lists documents related to SPARC M10 Systems.

Documentation Related to the SPARC M10

Manual Names (*1)
Fujitsu M10/SPARC M10 Systems Product Notes
Fujitsu M10/SPARC M10 Systems Getting Started Guide (*2)
Fujitsu M10/SPARC M10 Systems Quick Guide
Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Important Legal and Safety Information (*2)
Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Safety and Compliance Guide
Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Security Guide
Software License Conditions for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10
Fujitsu SPARC Servers/SPARC Enterprise/PRIMEQUEST Common Installation Planning Manual
Fujitsu M10-1/SPARC M10-1 Installation Guide
Fujitsu M10-4/SPARC M10-4 Installation Guide
Fujitsu M10-4S/SPARC M10-4S Installation Guide
Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 System Operation and Administration Guide
Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Domain Configuration Guide
Fujitsu M10-1/SPARC M10-1 Service Manual
Fujitsu M10-4/Fujitsu M10-4S/SPARC M10-4/SPARC M10-4S Service Manual
Crossbar Box for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual
PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual
Fujitsu M10/SPARC M10 Systems PCI Card Installation Guide
Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 XSCF Reference Manual
Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 RCIL User Guide (*3)
Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 XSCF MIB and Trap Lists
Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Glossary
External USB-DVD Drive user guide

*1 The listed manuals are subject to change without notice.
*2 Printed manuals are provided with the product.
*3 This document applies specifically to the SPARC M12/M10 and FUJITSU ETERNUS disk storage system.

Notes on Safety

Read the following documents thoroughly before using or handling the SPARC M10 Systems.

- *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Important Legal and Safety Information*

- *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Safety and Compliance Guide*

Text Conventions

This manual uses the following fonts and symbols to express specific types of information.

Font/Symbol	Meaning	Example
AaBbCc123	What you type, when contrasted with on-screen computer output. This font is used to indicate an example of command input.	XSCF> **adduser jsmith**
AaBbCc123	The names of commands, files, and directories; on-screen computer output. This font is used to indicate an example of command output in the frame.	XSCF> **showuser -P** User Name: jsmith Privileges: useradm auditadm
Italic	Indicates the name of a reference manual.	See the *Fujitsu M10-1/SPARC M10-1 Installation Guide*.
" "	Indicates the names of chapters, sections, items, buttons, or menus.	See "Chapter 2 Network Connection."

Command Syntax in the Text

While the XSCF commands have a section number of (8) or (1), it is omitted from the text.
For details on the commands, see the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 XSCF Reference Manual*.

Syntax of the Command-Line Interface (CLI)

The command syntax is as follows:
- A variable that requires the input of a value is in Italics.
- An optional element is enclosed in [].
- A group of options for an optional keyword is enclosed in [] and delimited by |.

Document Feedback

If you have any comments or requests regarding this document, please take a moment to share them with us. Along with the manual code, manual title, and page number, state your points specifically at one of the following websites:

- Global site
  https://www.fujitsu.com/global/contact/

- Japanese site
  https://www.fujitsu.com/jp/products/computing/servers/unix/sparc/contact/

Chapter 1

Understanding the Installation Flow

This chapter describes the required workflows for installation of the SPARC M10-4S and PCI expansion unit, broken up into the following sections.
For the overview, configuration, and specifications of the SPARC M10-4S and PCI expansion unit, see the *Fujitsu M10/SPARC M10 Systems Quick Guide*.

- Workflow for the SPARC M10-4S
- Workflow for Installing the PCI Expansion Unit

1.1 Workflow for the SPARC M10-4S

The SPARC M10-4S is a 4U-size chassis that can be configured with up to 4 CPUs (64 cores). It employs the building block method. The one-building-block configuration (1BB configuration) with one chassis can be expanded to up to the 16BB configuration. For the connection of each SPARC M10-4S in a building block configuration, the rack types and the types of cables connecting each chassis vary depending on the number of chassis configurations. For details, see Table 1-1.
This section describes the workflow separately by how the chassis is connected.

Table 1-1   Configurations when the SPARC M10-4S is in a building block configuration

Item	Without expansion rack	With expansion rack
Mounting rack	Mounted in equipment rack	Mounted in expansion rack
Number of configurations	Up to 4BB configuration	2BB configuration to 16BB configuration (*1)
Chassis connection method	Direct connections between chassis	Connections through crossbar boxes
Crossbar cable type	Electrical cable	Optical cable

*1 For the 2BB configuration or larger, the chassis can be mounted on an expansion rack. Two expansion racks are necessary for the 9BB configuration or larger.

1.1.1   1BB configuration

In the 1BB configuration, the SPARC M10-4S is used alone.
This section describes the flow from SPARC M10-4S installation and installation of the PCI expansion unit, which is an option mounted in the SPARC M10-4S, to the initial system settings. The initial system settings are the settings implemented before system startup, and they include the XSCF setup, CPU Activation setting, and physical partition configuration. Skip the steps for the PCI expansion unit if it is not to be installed.

By clicking a reference enclosed in " " to display a section, you can see the details of the respective step. Italic font is used to indicate the name of a reference manual other than this manual.

Table 1-2   Workflow for 1BB configuration

Step (work time (*1))	Work description	Reference	
Installation work (approx. 38 minutes (*2))			
1	Check the latest information available in the *Fujitsu M10/SPARC M10 Systems Product Notes*.	*Fujitsu M10/SPARC M10 Systems Product Notes*	Required
2	Before installing the system, check the safety precautions, system specifications, and necessary conditions for installation.	"Chapter 2 Planning and Preparing for System Installation"	Required
3	Prepare the necessary tools/information for installation.	"3.1 Preparing the Necessary Tools/Information for Installation"	Required
4	Confirm the delivered components.	"3.2.1 Confirming the delivered components of the SPARC M10-4S"	Required
		"3.2.2 Confirming the delivered components of the PCI expansion unit"	Optional
5	Install the rack.	See the manual for each rack. "3.3.2 Securing the rack"	Required
6	Mount the SPARC M10-4S in the rack.	"3.4.1 Mounting the SPARC M10-4S in a rack"	Required
7	If there is a PCI expansion unit, mount it in the rack.	"3.4.2 Mounting the PCI expansion unit in a rack"	Optional
8	If there are optional components, mount them on the SPARC M10-4S or PCI expansion unit.	"3.5.1 Mounting optional components in the SPARC M10-4S"	Optional (*3)
		"3.5.2 Mounting optional components in the PCI expansion unit"	Optional (*3)
9	Connect serial cables, LAN cables, and power cords to the SPARC M10-4S.	"5.1 Connecting Cables to the SPARC M10-4S"	Required

Table 1-2 Workflow for 1BB configuration *(continued)*

Step (work time (*1))	Work description	Reference	
10	If there is a PCI expansion unit, connect the link cable and management cable to the PCI expansion unit. Attach the core to the power cord, and connect the power cord to the power supply unit.	"5.2 Connecting Cables to the PCI Expansion Unit"	Optional (*4)
Initial diagnosis (approx. 45 minutes)			
11	Connect the system management terminal to the SPARC M10-4S, and turn on the input power.	"6.1 Connecting the System Management Terminal to the Chassis" "6.2.2 Turning on the input power and starting the XSCF"	Required
12	Log in to the XSCF of the SPARC M10-4S, and check the firmware version number, altitude setting, and time setting.	"6.3 Logging In to the XSCF" "6.4 Checking the XCP Version" "6.5 Checking the Altitude Setting" "6.6 Checking the Time Setting"	Required
13	Perform an initial diagnosis test on the physical system board (PSB).	"6.7 Performing a Diagnosis Test"	Required
14	Check the status of mounted components.	"6.8 Checking the Component Status"	Required
Initial system settings (approx. 74 minutes)			
15	Set the password policy.	"7.1 Setting the Password Policy"	Required
16	Set a user account and password.	"7.2 Setting a User Account and Password"	Required
17	Configure the telnet or SSH service.	"7.3 Configuring the Telnet/SSH Service"	Required
18	Configure the HTTPS service.	"7.4 Configuring the HTTPS Service"	Required
19	Configure the XSCF network.	"7.5 Configuring the XSCF Network"	Required
20	When duplicating memory, configure memory mirroring.	"7.6 Configuring Memory Mirroring"	Optional
21	Create the PPAR configuration information (PCL).	"7.7 Creating a Physical Partition Configuration List (PCL)"	Required
22	Assign the system board (PSB) to the physical partition.	"7.8 Assigning a System Board (PSB) to a Physical Partition (PPAR)"	Required
23	Set a CPU operational mode for the physical partition.	"7.9 Setting a CPU Operational Mode for the Physical Partition"	Optional
24	Clear the difference between the system time and physical partition (PPAR) time.	"7.10 Synchronizing the Physical Partition (PPAR) Time and XSCF Time"	Required
25	Register a CPU Activation key to the XSCF.	"7.11 Registering a CPU Activation Key"	Required (*5)

Table 1-2   Workflow for 1BB configuration *(continued)*

Step (work time (*1))	Work description	Reference	
26	Assign CPU core resources to the physical partition.	"7.12 Assigning CPU Core Resources to a Physical Partition"	Required
27	Confirm the start/stop of the physical partition and the connection of the console.	"7.13 Starting and Stopping a Physical Partition (PPAR)"	Required
28	Save XSCF setting information and logical domain configuration information.	"7.14 Saving Configuration Information"	Required (*6)

*1 Average work time
*2 Time required for mounting optional components and installing the PCI expansion unit is not included.
*3 If the optional components are ordered together with the SPARC M10-4S, they are shipped mounted to the SPARC M10-4S. If the PCI expansion unit is also ordered, the optional components are shipped mounted to the PCI expansion unit.
*4 The link card is shipped mounted to the SPARC M10-4S.
*5 One CD-ROM disk containing a CPU Activation certificate is provided with the system. The system may be shipped with a registered CPU Activation key.
*6 If you have started Oracle Solaris and changed the configuration of a logical domain, save the logical domain configuration.

Note - The SPARC M10 systems have Oracle Solaris preinstalled. According to the purpose, either use the preinstalled Oracle Solaris as is or reinstall it.
To reinstall Oracle Solaris, install the latest Oracle VM Server for SPARC. For the latest information on the supported Oracle Solaris versions and SRU, see the *Fujitsu M10/SPARC M10 Systems Product Notes*.

1.1.2   Direct connections between chassis for up to the 4BB configuration (without an expansion rack)

A configuration with direct connections between chassis (without an expansion rack) directly connects each SPARC M10-4S with crossbar cables (electrical) and XSCF BB control cables. This configuration can be expanded to up to the 4BB configuration. This section describes the flow from installation of a building block configuration of up to 4BB and installation of the PCI expansion unit, which is an option mounted in the SPARC M10-4S, to the initial system settings.
The initial system settings are the settings implemented before system startup, and they include the XSCF setup, CPU Activation setting, and physical partition configuration. Skip the steps for the PCI expansion unit if it is not to be installed.

Note - Generally, there is no problem when the physical partition number for a physical partition being configured matches any of the existing SPARC M10-4S IDs (BB-IDs) in the system.
However, if you anticipate that the system may be reduced after operation starts, you need to consider the appropriate physical partition number for that case when determining the physical partition number. This is because any physical partition with a physical partition number that is the same as the BB-ID of the SPARC M10-4S to be removed must be stopped at the time of reduction.

Before configuring a physical partition, be sure to see "Chapter 4　Configuring a Physical Partition" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Domain Configuration Guide* and check the recommended method of configuring a physical partition.

Figure 1-1　　Direct connection between each chassis
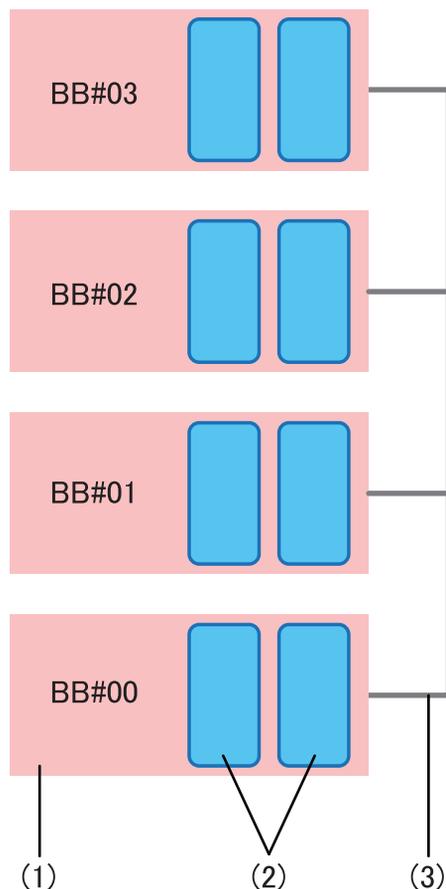
Number in figure	Description
1	SPARC M10-4S
2	Crossbar unit
3	Crossbar cable (electrical)

The number shown after BB# is the ID (BB-ID) identifying a chassis. The BB-IDs of the SPARC M10-4S are set, starting at 00.

By clicking a reference in " " to display a section, you can see the details of the respective step. Italic font is used to indicate the name of a reference manual other

than this manual.

Table 1-3   Workflow for direct connections between chassis (up to 4BB)

Step (work time (*1))	Work description	Reference	
Installation work (approx. 160 minutes (*2))			
1	Check the latest information available in the *Fujitsu M10/SPARC M10 Systems Product Notes*.	*Fujitsu M10/SPARC M10 Systems Product Notes*	Required
2	Before installing the system, check the safety precautions, system specifications, and necessary conditions for installation.	"Chapter 2 Planning and Preparing for System Installation"	Required
3	Prepare the necessary tools/ information for installation.	"3.1 Preparing the Necessary Tools/Information for Installation"	Required
4	Confirm the delivered components.	"3.2.1 Confirming the delivered components of the SPARC M10-4S"	Required
		"3.2.2 Confirming the delivered components of the PCI expansion unit"	Optional
5	Install the rack.	See the manual for each rack. "3.3.2 Securing the rack"	Optional
6	Mount the SPARC M10-4S in the rack.	"3.4.1 Mounting the SPARC M10-4S in a rack"	Optional
7	If there is a PCI expansion unit, mount it in the rack.	"3.4.2 Mounting the PCI expansion unit in a rack"	Optional
8	If there are optional components, mount them on the SPARC M10-4S or PCI expansion unit.	"3.5.1 Mounting optional components in the SPARC M10-4S"	Optional (*3)
		"3.5.2 Mounting optional components in the PCI expansion unit"	Optional (*3)
9	Set the ID required for identifying the SPARC M10-4S chassis.	"4.1 Setting the ID (BB-ID) Identifying a Chassis"	Required
10	Connect the XSCF BB control cables and the XSCF DUAL control cable to the SPARC M10-4S.	"4.2.1 Connecting XSCF cables"	Required
11	Connect crossbar cables (electrical) to the SPARC M10-4S.	"4.2.2 Connecting crossbar cables"	Required
12	Connect serial cables, LAN cables, and power cords to the SPARC M10-4S.	"5.1 Connecting Cables to the SPARC M10-4S"	Required
13	If there is a PCI expansion unit, connect the link cable and management cable to the PCI expansion unit. Attach the core to the power cord, and connect the power cord to the power supply unit.	"5.2 Connecting Cables to the PCI Expansion Unit"	Optional (*4)

Table 1-3   Workflow for direct connections between chassis (up to 4BB) *(continued)*

Step (work time (*1))	Work description	Reference	
14	Store the connected cables in the rack.	"5.4　Storing Cables"	Required
Initial diagnosis (approx. 100 minutes)			
15	Connect the system management terminal to the SPARC M10-4S that is the master XSCF.	"6.1　Connecting the System Management Terminal to the Chassis"	Required
16	Confirm that the SPARC M10-4S chassis identification IDs (BB-IDs) are set.	"6.2.1　Checking the BB-ID setting"	Required
17	Turn on the input power.	"6.2.2　Turning on the input power and starting the XSCF"	Required
18	Log in to the master XSCF of the SPARC M10-4S, and check the firmware version number, altitude setting, and time setting.	"6.3　Logging In to the XSCF" "6.4　Checking the XCP Version" "6.5　Checking the Altitude Setting" "6.6　Checking the Time Setting"	Required
19	Perform an initial diagnosis test on the physical system board (PSB).	"6.7　Performing a Diagnosis Test"	Required
20	Check the status of mounted components.	"6.8　Checking the Component Status"	Required
Initial system settings (approx. 92 minutes)			
21	Set the password policy.	"7.1　Setting the Password Policy"	Required
22	Set a user account and password.	"7.2　Setting a User Account and Password"	Required
23	Configure the telnet or SSH service.	"7.3　Configuring the Telnet/SSH Service"	Required
24	Configure the HTTPS service.	"7.4　Configuring the HTTPS Service"	Required
25	Configure the XSCF network.	"7.5　Configuring the XSCF Network"	Required
26	When duplicating memory, configure memory mirroring.	"7.6　Configuring Memory Mirroring"	Optional
27	Create the PPAR configuration information (PCL).	"7.7　Creating a Physical Partition Configuration List (PCL)"	Required
28	Assign the system board (PSB) to the physical partition.	"7.8　Assigning a System Board (PSB) to a Physical Partition (PPAR)"	Required
29	Set a CPU operational mode for the physical partition.	"7.9　Setting a CPU Operational Mode for the Physical Partition"	Optional
30	Clear the difference between the system time and physical partition (PPAR) time.	"7.10　Synchronizing the Physical Partition (PPAR) Time and XSCF Time"	Required
31	Add a CPU Activation key to the system.	"7.11　Registering a CPU Activation Key"	Required (*5)

Table 1-3   Workflow for direct connections between chassis (up to 4BB) *(continued)*

Step (work time (*1))	Work description	Reference	
32	Assign CPU core resources to the physical partition.	"7.12 Assigning CPU Core Resources to a Physical Partition"	Required
33	Confirm the start/stop of the physical partition and the connection of the console.	"7.13 Starting and Stopping a Physical Partition (PPAR)"	Required
34	Save XSCF setting information and logical domain configuration information.	"7.14 Saving Configuration Information"	Required (*6)

*1 Average work time for the 4BB configuration
*2 Time required for mounting optional components and installing the PCI expansion unit is not included.
*3 If the optional components are ordered together with the SPARC M10-4S, they are shipped mounted to the SPARC M10-4S. If the PCI expansion unit is also ordered, the optional components are shipped mounted to the PCI expansion unit.
*4 The link card is shipped mounted to the SPARC M10-4S.
*5 One CD-ROM disk containing a CPU Activation certificate is provided with the system. The system may be shipped with a registered CPU Activation key.
*6 If you have started Oracle Solaris and changed the configuration of a logical domain, save the logical domain configuration.

Note - The SPARC M10 systems have Oracle Solaris preinstalled. According to the purpose, either use the preinstalled Oracle Solaris as is or reinstall it.
To reinstall Oracle Solaris, install the latest Oracle VM Server for SPARC. For the latest information on the supported Oracle Solaris versions and SRU, see the *Fujitsu M10/SPARC M10 Systems Product Notes*.

1.1.3   Connections through crossbar boxes (with an expansion rack)

The configuration of connections through crossbar boxes connects each SPARC M10-4S unit by crossbar cables (optical) and XSCF cables through the crossbar boxes. It can be expanded to up to the 16BB configuration.
The crossbar box is mounted in an expansion rack. In addition to the crossbar boxes, dedicated power distribution units for supplying power, crossbar cables (optical), and XSCF cables are mounted in the expansion rack.

This section describes the flow from installation of a building block configuration that uses a crossbar box and installation of the PCI expansion unit, which is an option mounted in the SPARC M10-4S, to the initial system settings.
The initial system settings are the settings implemented before system startup, and they include the XSCF setup, CPU Activation setting, and physical partition configuration. Skip the steps for the PCI expansion unit if it is not to be installed.

Note - Generally, there is no problem when the physical partition number for a physical partition being configured matches any of the existing SPARC M10-4S IDs (BB-IDs) in the system.
However, if you anticipate that the system may be reduced after operation starts, you need to

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consider the appropriate physical partition number for that case when determining the physical partition number. This is because any physical partition with a physical partition number that is the same as the BB-ID of the SPARC M10-4S to be removed must be stopped at the time of reduction.

Before configuring a physical partition, be sure to see "Chapter 4   Configuring a Physical Partition" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Domain Configuration Guide* and check the recommended method of configuring a physical partition.

Figure 1-2   Connections through crossbar boxes
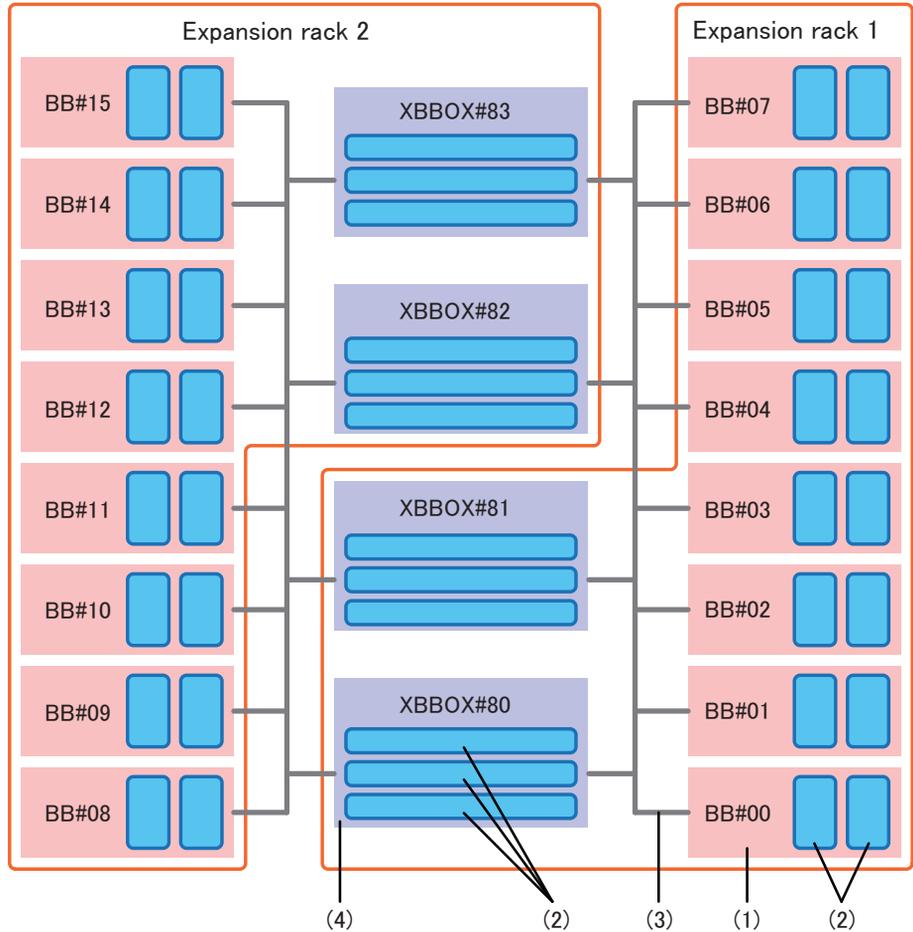
Number in figure	Description
1	SPARC M10-4S
2	Crossbar unit
3	Crossbar cable (optical)
4	Crossbar box

The number shown after BB# or XBBOX# is the ID (BB-ID) identifying the unit. The IDs of the SPARC M10-4S are set, starting at 00. The IDs of crossbar boxes are set, starting at 80.

By clicking a reference in " " to display a section, you can see the details of the respective step. Italic font is used to indicate the name of a reference manual other than this manual.

Table 1-4   Workflow for connections through crossbar boxes

Step (work time (*1))	Work description	Reference	
Installation work (approx. 59 minutes/approx. 280 minutes (*2))			
1	Check the latest information available in the *Fujitsu M10/SPARC M10 Systems Product Notes*.	*Fujitsu M10/SPARC M10 Systems Product Notes*	Required
2	Before installing the system, check the safety precautions, system specifications, and necessary conditions for installation.	"Chapter 2 Planning and Preparing for System Installation"	Required
3	Prepare the necessary tools/ information for installation.	"3.1 Preparing the Necessary Tools/Information for Installation"	Required
4	Confirm the delivered components.	"3.2.1 Confirming the delivered components of the SPARC M10-4S"	Required
		"3.2.3 Confirming the delivered components of an expansion rack"	Required
		"3.2.2 Confirming the delivered components of the PCI expansion unit"	Optional
5	Connect the power cords to a power distribution unit (PDU) of the rack.	"3.3.1 Connecting the power cords to the power distribution units of an expansion rack"	Required
6	Install the rack.	See the manual for each rack. "3.3.2 Securing the rack"	Required
7	Connect expansion racks 1 and 2. (*3)	"3.3.3 Connecting racks"	Required
8	Mount the PCI expansion unit in the rack.	"3.4.2 Mounting the PCI expansion unit in a rack"	Optional
9	If there are optional components, mount them on the SPARC M10-4S or PCI expansion unit.	"3.5.1 Mounting optional components in the SPARC M10-4S"	Optional (*4)
		"3.5.2 Mounting optional components in the PCI expansion unit"	Optional (*4)
10	Set the IDs required for identifying each SPARC M10-4S chassis and crossbar box chassis.	"4.1 Setting the ID (BB-ID) Identifying a Chassis"	Required

Table 1-4 Workflow for connections through crossbar boxes *(continued)*

Step (work time (*1))	Work description	Reference	
11	Connect the XSCF BB control cables to the crossbar box mounted in expansion rack 1. (*3)	"4.3.1　Connecting XSCF cables"	Required
12	Connect crossbar cables (optical) to the chassis.	"4.3.2　Connecting crossbar cables"	Required
13	Connect serial cables, XSCF LAN cables, and power cords to crossbar boxes. (*5)	"5.3　Connecting Cables to a Crossbar Box"	Required
14	Connect GbE LAN cables and power cords to the SPARC M10-4S. (*5)	"5.1　Connecting Cables to the SPARC M10-4S"	Required
15	If there is a PCI expansion unit, connect the link cable and management cable to the PCI expansion unit. Attach the core to the power cord, and connect the power cord to the power supply unit.	"5.2　Connecting Cables to the PCI Expansion Unit"	Optional (*6)
Initial diagnosis (approx. 117 minutes/approx. 151 minutes)			
16	Connect the system management terminal to the crossbar box that is the master XSCF.	"6.1　Connecting the System Management Terminal to the Chassis"	Required
17	Confirm that the identification IDs (BB-IDs) of each SPARC M10-4S chassis and crossbar box chassis are set.	"6.2.1　Checking the BB-ID setting"	Required
18	Turn on the input power.	"6.2.2　Turning on the input power and starting the XSCF"	Required
19	Log in to the master XSCF of the SPARC M10-4S, and check the firmware version number, altitude setting, and time setting.	"6.3　Logging In to the XSCF" "6.4　Checking the XCP Version" "6.5　Checking the Altitude Setting" "6.6　Checking the Time Setting"	Required
20	Perform an initial diagnosis test on the physical system board (PSB).	"6.7　Performing a Diagnosis Test"	Required
21	Check the status of mounted components.	"6.8　Checking the Component Status"	Required
Initial system settings (approx. 130 minutes/approx. 200 minutes)			
22	Set the password policy.	"7.1　Setting the Password Policy"	Required
23	Set a user account and password.	"7.2　Setting a User Account and Password"	Required
24	Configure the telnet or SSH service.	"7.3　Configuring the Telnet/SSH Service"	Required
25	Configure the HTTPS service.	"7.4　Configuring the HTTPS Service"	Required

Table 1-4 Workflow for connections through crossbar boxes *(continued)*

Step (work time (*1))	Work description	Reference	
26	Configure the XSCF network.	"7.5 Configuring the XSCF Network"	Required
27	When duplicating memory, configure memory mirroring.	"7.6 Configuring Memory Mirroring"	Optional
28	Create the PPAR configuration information (PCL).	"7.7 Creating a Physical Partition Configuration List (PCL)"	Required
29	Assign the system board (PSB) to the physical partition.	"7.8 Assigning a System Board (PSB) to a Physical Partition (PPAR)"	Required
30	Set a CPU operational mode for the physical partition.	"7.9 Setting a CPU Operational Mode for the Physical Partition"	Optional
31	Clear the difference between the system time and physical partition (PPAR) time.	"7.10 Synchronizing the Physical Partition (PPAR) Time and XSCF Time"	Required
32	Add a CPU Activation key to the system.	"7.11 Registering a CPU Activation Key"	Required (*7)
33	Assign CPU core resources to the physical partition.	"7.12 Assigning CPU Core Resources to a Physical Partition"	Required
34	Confirm the start/stop of the physical partition and the connection of the console.	"7.13 Starting and Stopping a Physical Partition (PPAR)"	Required
35	Save XSCF setting information and logical domain configuration information.	"7.14 Saving Configuration Information"	Required (*8)

*1 Average work time for the 8BB configuration/16BB configuration. Work time is written in the order of the 8BB configuration to 16BB configuration.
*2 Time required for mounting optional components and installing the PCI expansion unit is not included.
*3 Required if expansion rack 2 is used.
*4 If the optional components are ordered together with the chassis, they are shipped mounted to the chassis. If the PCI expansion unit is also ordered, the optional components are shipped mounted to the PCI expansion unit.
*5 Power cables between each chassis and power distribution box (PDU) are generally connected before shipment.
*6 The link card is shipped mounted to the SPARC M10-4S.
*7 One CD-ROM disk containing a CPU Activation certificate is provided with the system. The system may be shipped with a registered CPU Activation key.
*8 If you have started Oracle Solaris and changed the configuration of a logical domain, save the logical domain configuration.

Note - The SPARC M10 systems have Oracle Solaris preinstalled. According to the purpose, either use the preinstalled Oracle Solaris as is or reinstall it.
To reinstall Oracle Solaris, install the latest Oracle VM Server for SPARC. For the latest information on the supported Oracle Solaris versions and SRU, see the *Fujitsu M10/SPARC M10 Systems Product Notes*.

1.2 Workflow for Installing the PCI Expansion Unit

The PCI expansion unit is a 2U chassis with 11 PCIe slots, and it can connect to the SPARC M10-4S. Special attention is required for the installation location and the number of link cards that are installed in the SPARC M10-4S when the PCI expansion unit is mounted to the SPARC M10-4S. Install link cards according to the Table 1-5 rules.

Table 1-5   SPARC M10-4S link card installation rule

Maximum installable number	Link card installation location
[2-CPU configuration] 3	PCI#0 PCI#3 PCI#7
[4-CPU configuration] 5	PCI#0 PCI#1 PCI#3 PCI#5 PCI#7

Note - For details on the link card installation rule, see "Chapter 3   PCI Card Mounting Rules for the SPARC M10-4S" in the *Fujitsu M10/SPARC M10 Systems PCI Card Installation Guide*.

This section describes the workflow from the installation of the PCI expansion unit to the status check of components when the PCI expansion unit is installed with the system in the stopped state.

By clicking a reference enclosed in " " to display a section, you can see the details of the respective step. Italic font is used to indicate the name of a reference manual other than this manual.

Table 1-6   Workflow when installing the PCI expansion unit

Step (work time (*1))	Work description	Reference	
Installation work (approx. 38 minutes (*2))			
1	Check the latest information available in the *Fujitsu M10/SPARC M10 Systems Product Notes*.	*Fujitsu M10/SPARC M10 Systems Product Notes*	Required
2	Before installing the system, check the safety precautions, system specifications, and necessary conditions for installation.	"Chapter 2 Planning and Preparing for System Installation"	Required

Table 1-6 Workflow when installing the PCI expansion unit *(continued)*

Step (work time (*1))	Work description	Reference	
3	Prepare the necessary tools/information for installation.	"3.1 Preparing the Necessary Tools/Information for Installation"	Required
4	Confirm the delivered components.	"3.2.2 Confirming the delivered components of the PCI expansion unit"	Required
5	Install the rack.	See the manual for each rack. "3.3.2 Securing the rack"	Required (*3)
6	Mount the PCI expansion unit in the rack.	"3.4.2 Mounting the PCI expansion unit in a rack"	Required
7	Install the link card on the SPARC M10-4S.	"8.5 Installing a PCI Express Card" in the *Fujitsu M10-4/Fujitsu M10-4S/SPARC M10-4/SPARC M10-4S Service Manual*	Required
8	If there are optional components, mount them on the PCI expansion unit.	"3.5.2 Mounting optional components in the PCI expansion unit"	Optional (*4)
9	Connect the link cable and management cable to the PCI expansion unit. Attach the core to the power cord, and connect the power cord to the power supply unit.	"5.2 Connecting Cables to the PCI Expansion Unit"	Required
Initial diagnosis (approx. 45 minutes)			
10	Connect the system management terminal to the SPARC M10-4S that is the master XSCF.	"6.1 Connecting the System Management Terminal to the Chassis"	Required
11	Turn on the input power.	"6.2.2 Turning on the input power and starting the XSCF"	Required
12	Log in to the master XSCF.	"6.3 Logging In to the XSCF"	Required
13	Perform an initial diagnosis test on the physical system board (PSB).	"6.7 Performing a Diagnosis Test"	Required
14	Check the status of mounted components.	"6.8 Checking the Component Status"	Required

*1 Average work time
*2 Time required for mounting optional components is not included.
*3 This is not necessary if the PCI expansion unit is installed in an empty space in the installed rack.
*4 If the optional components are also ordered, they are shipped mounted to the PCI expansion unit.

1.2.1 Points to note on configurations with the PCI expansion unit connected

If you install a PCI expansion unit, keep the following points in mind.

- If the PCI expansion unit to be installed has PCIe cassettes, remove the PCIe cassettes with mounted PCIe cards from the PCI expansion unit. Then, connect the PCI expansion unit to the SPARC M10-4S so that Oracle Solaris in a logical domain (control domain or root domain) can recognize the PCI expansion unit. Install the PCIe cassettes with mounted PCIe cards in the PCI expansion unit where Oracle Solaris in the logical domain (control domain or root domain) recognizes the PCI expansion unit. Incorporate the PCIe cards of the PCI expansion unit in Oracle Solaris in the logical domain (control domain or root domain).

- Before installing the PCI expansion unit, execute the ldm list-constraints -x command of the Oracle Solaris in the control domain to save the configuration information of the logical domains to an XML file.
  If the logical domain configuration resets to the factory-default state as a result of restarting the physical partition, execute the ldm init-system -i command on Oracle Solaris in the control domain to restore the logical domain configuration information from the XML file.

- If you execute the setpciboxdio command of the XSCF firmware to set the enabling/disabling setting of the direct I/O function of the PCI expansion unit, perform it before you execute the addboard command to install the system board with the PCI expansion unit connected on the physical partition.

- When you have changed the setting of the direct I/O function with the setpciboxdio command of the XSCF firmware, do not restart the logical domains until you execute the ldm add-spconfig command of the Oracle Solaris in the control domain to save the logical domain configuration in XSCF.

The logical domain configuration of the physical partition resets to the factory-default state at the next startup of the control domain if the firmware version is XCP 2050 or later, and either of the following tasks is executed with the setpciboxdio command. Also, the OpenBoot PROM environment variables of the control domain may be initialized.

- When the enable/disable setting of the direct I/O function of the PCI expansion unit is changed

- When the installation/removal/replacement of the PCI expansion unit is performed for the PCIe slot of the SPARC M10-4S for which the direct I/O function of the PCI expansion unit has been enabled

You can execute the setpciboxdio command with or without the PCI expansion unit. Save the logical domain configuration information from Oracle Solaris to an XML file in advance. Also, keep a note of the setting information for the OpenBoot PROM environment variables of the control domain in advance to set them again.

Table 1-7 outlines the case where saving/restoring each type of information is required before executing the setpciboxdio command to change the enable/disable setting for the direct I/O function of the PCI expansion unit.

Table 1-7　Required operation for switching the enable/disable setting of the direct I/O function

PCI expansion unit mounted?	Current domain configuration	Reconfiguring Oracle VM Server for SPARC config	Setting OpenBoot PROM environment variables again
No	factory-default (Control domain only)	Not required	Not required
No	There is a logical domain other than the control domain	Required (XML file)	Required (*1)
Yes	factory-default (Control domain only)	Not required	Not required
Yes	There is a logical domain other than the control domain	Required (XML file)	Required (*1)

*1 Not required in XCP 2230 or later

Table 1-8 outlines the case where saving/restoring each type of information is required when performing the installation/removal/replacement of the PCI expansion unit for the PCIe slot of the SPARC M10-4S for which the direct I/O function of the PCI expansion unit has been enabled by executing the setpciboxdio command.

Note - When maintaining the PCI expansion unit by using the PCI hot plug (PHP) function, since the direct I/O function is disabled, the information does not need to be saved/restored.

Table 1-8　Required operation for when the installation/removal/replacement of the PCI expansion unit is performed for the PCIe slot of the SPARC M10-4S for which the direct I/O function has been enabled

Maintenance environment	Current domain configuration	Reconfiguring Oracle VM Server for SPARC config	Setting OpenBoot PROM environment variables again
When a PPAR is installed/removed after it has stopped	factory-default (Control domain only)	Not required	Not required
	There is a logical domain other than the control domain	Required (XML file)	Required (*2)
When a failed PCI expansion unit is replaced after the PPAR has stopped (*1)	factory-default (Control domain only)	Not required	Not required
	There is a logical domain other than the control domain	Required (XML file)	Required (*2)

Table 1-8 Required operation for when the installation/removal/replacement of the PCI expansion unit is performed for the PCIe slot of the SPARC M10-4S for which the direct I/O function has been enabled *(continued)*

Maintenance environment	Current domain configuration	Reconfiguring Oracle VM Server for SPARC config	Setting OpenBoot PROM environment variables again
When a normal PCI expansion unit is replaced after the PPAR has stopped (*1)	factory-default (Control domain only)	Not required	Not required
	There is a logical domain other than the control domain	Not required	Not required

*1 This includes the situation in which a link card, link cable, management cable, or link board is replaced.
*2 Not required in XCP 2230 or later

Note - Execute the ldm list-constraints -x command to save it to an XML file, and execute the ldm init-system -i command to restore it from an XML file. To display the information of OpenBoot PROM environment, execute the printenv command at the ok prompt. For a detailed procedure with these steps, see "1.7.3   How to Save/Restore the Logical Domain Configuration Information and the OpenBoot PROM Environment Variable" in the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

Chapter 2

Planning and Preparing for System Installation

This chapter describes what should be checked when planning SPARC M10 system installation. Before installation, you need to understand the system configuration and obtain all the information that will become prerequisite conditions for installation.

- Safety Precautions
- Items Requiring Confirmation before Installation
- Confirming the Physical Specifications of the System
- Confirming Rack Specifications
- Checking Environmental Conditions
- Checking Acoustic Noise Levels
- Checking Cooling Conditions
- Checking the Power Input Type
- Preparing Power Supply Facilities
- Checking External Interface Port Specifications
- Checking the Functions of the Operation Panel

2.1 Safety Precautions

This section describes precautions regarding installation of the SPARC M10 systems. Be sure to follow the precautions below when performing installation work. Failure to do so may lead to damage to the device or a malfunction.

- Follow all the stated precautions, warnings, and instructions for the chassis.
- Do not insert any foreign object into the chassis openings. Any object that touches a high-voltage part or causes a component to short circuit may lead to fire or electric shock.
- Contact a service engineer for details of chassis inspection.

Safety precautions when working with electricity

- Confirm that the voltage and frequency of your input power match the electric rating described on the system name plate label affixed on the server main unit.
- Make sure to wear a wrist strap when handling the internal disk (HDD/SSD), memory, CPU memory unit (upper/lower unit), or other printed circuit boards.
- Make sure to use grounded power outlets.
- Do not make mechanical or electrical modifications to the chassis. We do not take responsibility for regulatory compliance of a modified chassis.
- Do not disconnect a power cord from the chassis while the power is on.

Safety precautions regarding racks

- Racks must be fixed to the floor, ceiling, or nearest frame.
- The quakeresistant options kit may be supplied with the racks. The use of the quakeresistant options kit prevents the rack from toppling over when the chassis is pulled out from the slide rails for installation or maintenance.
- In the following cases, a safety evaluation must be performed by a service engineer before installation or maintenance.
  - If the quakeresistant options kit is not supplied and the rack is not fixed with bolts to the floor, a service engineer confirms the safety of the rack, such as by verifying that it does not topple over when the chassis is pulled out from the slide rails.
  - If the rack is mounted on a raised floor, a service engineer confirms that the floor can withstand the load when the chassis is pulled out from the slide rails. Fix the rack to the concrete floor beneath the raised floor by using the original mounting kit that serves this purpose.
- If multiple chassis are mounted in the rack, perform maintenance on one chassis at a time.

Safety precautions regarding installation work

- With this chassis installed in a closed or multi-unit rack assembly, the ambient temperature inside the rack operating environment may be greater than the ambient room temperature. Therefore, consideration must be given to installing the chassis in an environment compatible with the manufacturer's maximum rated ambient temperature.
  - Consideration of air-conditioning adjustments, such as with air circulation, is needed to prevent the ambient temperature inside the rack from exceeding the maximum ambient operating temperature of this chassis.
  - Maximum ambient operating temperature of this chassis: 35°C
- The installation of the chassis in a rack should allow for sufficient air flow for the chassis to operate safely.
  - This chassis has ventilation slits at the front and rear of the chassis.
  - To prevent overheating, do not cover or close these ventilation slits.

- The mounting of the chassis in the rack should not create any hazardous condition due to uneven mechanical loading. To keep the entire rack stable, fix the rack to the wall or floor by suitable means.
  - Be careful not to injure yourself or others when installing the chassis in the rack.

  - Do not install this chassis in the rack if the chassis may make the entire rack unstable.

  - Weight of this chassis in the maximum configuration:
    Model SP-4SBB (SPARC M10-4S): 60 kg
    Model SP-PCI-BOX (SPARC PCI-BOX): 22 kg

- If the chassis is supplied power from a power strip or the service outlet of another chassis, it may overload the power strip or the power cord of the other chassis.
  - Confirm that the power strip or the power cord of the service outlet exceeds the combined ratings of all the equipment to which it supplies power.
    Electrical ratings of this chassis:
    Model SP-4SBB: 200-240 VAC, 16.0-13.4 A, 50/60 Hz, Single phase (Maximum 2 inputs)
    (For India and Taiwan only: 200-240 VAC, 14.7-13.4 A, 50/60 Hz, single phase (Maximum 2 inputs))
    Model SP-PCI-BOX: 100-120/200-240 VAC, 5.0-4.2/2.5-2.1 A, 50/60 Hz, Single phase (Maximum 2 inputs)

- Be sure to securely ground the rack-mounted equipment. Pay particular attention to power supply connections other than the direct connections to branch circuits (e.g., use of power strips).

Caution - If all the power cords of this chassis are connected to one power strip, a high leakage current may flow through the grounding wire of the power strip. Be sure to connect the wire to ground before connecting the power supply. If the power strip is not directly connected to a branch circuit, a power strip that has an industrial-type attachment plug must be used.

- Install this equipment such that it is near a wall and a power outlet is easily accessible.

  - Rack configuration

Note - If the combination of chassis mounted in an installed rack differs from the specifications described in Figure 2-1 or Figure 2-2, re-verification by an appropriate safety certification body is necessary. For installation of the product, begin at the bottom of the rack.

Figure 2-1   Rack configuration (for the 16BB configuration)

Expansion rack 1	Expansion rack 2
BB#07	BB#15
BB#06	BB#14
BB#05	BB#13
BB#04	BB#12
XBBOX#81	XBBOX#83
XBBOX#80	XBBOX#82
BB#03	BB#11
BB#02	BB#10
BB#01	BB#09
BB#00	BB#08

PDU#1 PDU#0 PDU#3 PDU#2
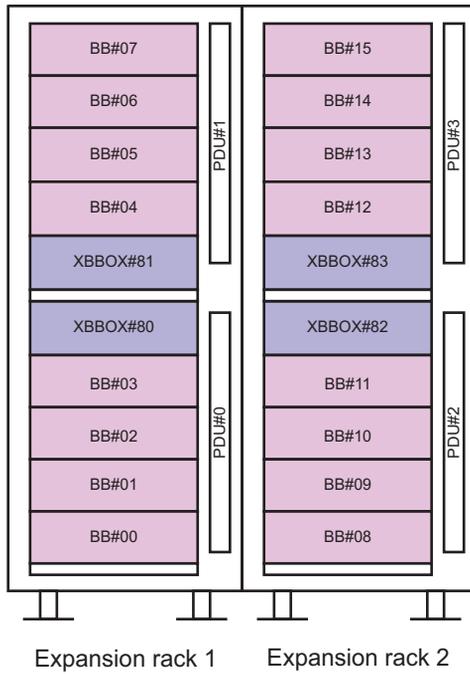
Figure 2-2　Rack configuration (for the PCI expansion unit)

PCI-BOX (2U)
PCI-BOX (2U)
PCI-BOX (2U)
PCI-BOX (2U)
PCI-BOX (2U)
PCI-BOX (2U)
PCI-BOX (2U)
PCI-BOX (2U)
PCI-BOX (2U)
PCI-BOX (2U)
PCI-BOX (2U)
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PCI-BOX (2U)
PCI-BOX (2U)
PCI-BOX (2U)
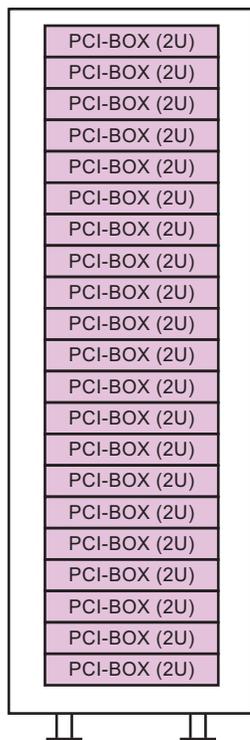
2.2　Items Requiring Confirmation before Installation

This section describes the items that you need to confirm before installing the SPARC M10 system. Before starting installation work, confirm that the requirements in Table 2-1 have been met.

Table 2-1　List of items requiring confirmation before installation

Check item		Check column
System configuration	- Has the system configuration been determined?	[　]
	- Has the required rack space been confirmed?	[　]
	- Has the number of racks been decided?	[　]
Training	- Have the system administrator and operators attended the required training courses?	[　]

Table 2-1   List of items requiring confirmation before installation *(continued)*

Check item		Check column
Installation location	- Has the system installation location been determined?	[ ]
	- Does the placement of each chassis meet the service area requirements?	[ ]
	- Have the chassis been placed so that their air intakes do not take in exhaust from other equipment?	[ ]
	- Have the rack installation requirements been met?	[ ]
Access route	- Has the access route for the rack been secured?	[ ]
Environmental conditions	- Does the installation location meet the temperature and humidity conditions?	[ ]
	- Can the environmental conditions at the installation location be thoroughly maintained and controlled?	[ ]
	- Have security measures been established for the installation location?	[ ]
	- Does the installation location have sufficient fire extinguishing equipment?	[ ]
Power supply facilities	- Do you know the voltage available for the racks where each chassis and peripheral will be mounted?	[ ]
	- Are the power supply facilities sufficient for the individual chassis, monitors, and peripherals?	[ ]
	- Are the power supply facilities within an appropriate distance from the racks?	[ ]
Network specifications	- Do you have the necessary information for network connections?	[ ]
CPU Activation	- Has the volume of resources to be used during initial installation been determined?	[ ]
	- Have the required CPU Activations been ordered?	[ ]

2.3   Confirming the Physical Specifications of the System

This section describes the physical specifications of the system that require confirmation before installation. Confirm that the installation location meets these requirements.

2.3.1 Size and weight

Table 2-2 lists the size and weight of each chassis.

Table 2-2   Physical specifications of each chassis

Item	SPARC M10-4S	Expansion rack	PCI expansion unit
Height	175 mm (6.9 in.) (4U)	2000 mm (78.7 in.)	86 mm (3.4 in.) (2U)
Width	440 mm (17.3 in.)	700 mm (27.6 in.)	440 mm (17.3 in.)
Depth	810 mm (31.9 in.)	1050 mm (41.3 in.)	750 mm (29.5 in.)
Weight	60 kg	780 kg	22 kg

2.4 Confirming Rack Specifications

Use a rack that meets the specified conditions for using the SPARC M10-4S with the 1BB configuration or using the SPARC M10-4S with direct connections between chassis.
If the SPARC M10-4S will be used with connections through crossbar boxes, an expansion rack with crossbar boxes mounted must be ordered.
The expansion racks are divided according to expandability as expansion rack 1 and expansion rack 2. For a configuration with up to 8 units connected, an order for expansion rack 1 is necessary. For a configuration with 9 to 16 units connected, an additional order for expansion rack 2 is necessary.
This section describes the items that must be confirmed to use a rack

2.4.1 Mounting conditions for general racks

1BB configuration/4BB configuration with direct connections between chassis

The SPARC M10-4S is designed for mounting in an equipment rack.
If the SPARC M10-4S units are connected by cables, mount the units side by side in a rack with no gap between them.

Figure 2-3   Chassis mounting locations (corresponding to BB-IDs) for the 4BB configuration
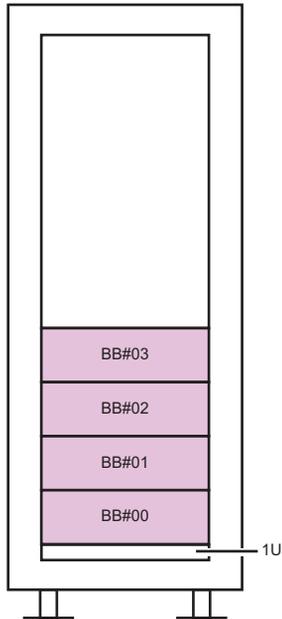
Note - For SPARC M10-4S maintenance, the cable support at the chassis rear moves underneath the chassis, so do not mount anything in the lowest shelf (1U) of the rack.

For mounting in a third-party rack, it is the customer's responsibility to confirm that the rack specifications match the specifications and requirements for the SPARC M10 systems (see Figure 2-4 and Table 2-3).

Figure 2-4   Dimensional drawings for third-party rack checks

Rack horizontal diagram
(horizontal cross section)

Rack column hole diagram
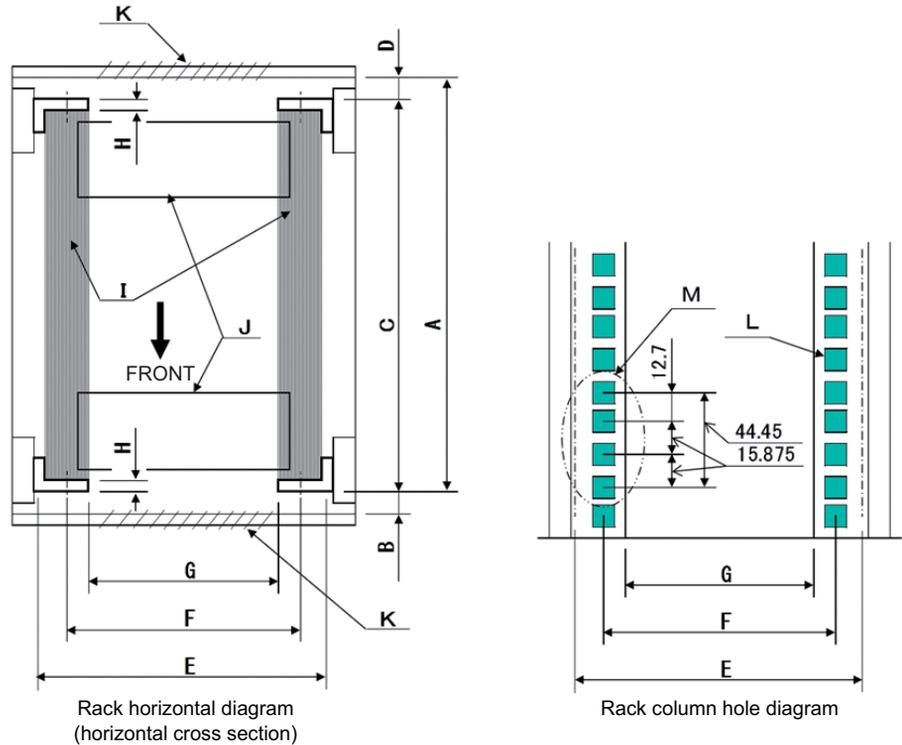
Note - The dimensions shown in the conditions do not include any protrusions.

Table 2-3   Third-party rack checklist

Description	Condition	Letter in figure
Rack type/Compliance standards	Equipment rack/EIA standard-compliant	--
Dimension between rear door (inside) and front column	SPARC M10-4S: At least 930 mm (36.6 in.) PCI-BOX: At least 848 mm (33.4 in.)	A
Dimension between front door (inside) and front column	SPARC M10-4S: At least 32 mm (1.3 in.) PCI-BOX: At least 24 mm (0.9 in.)	B
Dimension between front and rear columns	Within adjustment range of rack mount kit Adjustment range of the mount kit for each server SPARC M10-4S: 630 mm (24.8 in.) to 840 mm (33.1 in.) PCI-BOX: 630 mm (24.8 in.) to 840 mm (33.1 in.)	C

Table 2-3   Third-party rack checklist *(continued)*

Description	Condition	Letter in figure
Dimension between rear door (inside) and rear column	SPARC M10-4S: At least 158 mm (6.2 in.) PCI-BOX: At least 158 mm (6.2 in.)	D
Front panel mounting space of chassis	At least 483 mm (19.0 in.)	E
Distance between left and right chassis attachment holes (common to front and rear columns)	465 mm (18.3 in.)	F
Distance between left and right columns (common to front and rear columns)	At least 450 mm (17.7 in.)	G
Column thickness	2 mm (0.08 in.) to 2.5 mm (0.1 in.)	H
Structures other than columns	Rack has no structures between front and rear columns	I
Cable hatch	Rack has hatch on bottom surface, rear door, or elsewhere	J
Area of door vent openings	Front door: At least 73 % of door area Rear door: At least 73 % of door area	K
Size of attachment holes (common to front and rear columns)	Square hole with sides longer than 9.2 mm (0.36 in.) and not longer than 9.8 mm (0.38 in.) (*1) or M6 screw hole	L
Vertical pitch of chassis attachment holes (common to front and rear columns)	EIA standards, universal pitch	M
Door opening angle	Door opens to 130°	--
Strength	Rack has necessary strength/load capacity for mounting chassis	--
Grounding	Rack and units can be grounded	--
Toppling prevention measures	Rack can be prevented from toppling over	--
Earthquake resistance measures	Earthquake resistance measures can be implemented for rack	--

*1 If the SPARC M10-4S or PCI expansion unit has angled holes with sides of 9.0 mm (0.35 in.) to 9.2 mm (0.36 in.), a separate rack mount kit must be ordered.

- **Mounting on the lowest shelf of the rack**
  For the SPARC M10-4S, the cable support at the chassis rear moves underneath the chassis during maintenance, so do not mount the chassis on the lowest shelf (1U) of the rack. (See Figure 2-3)

- **Other conditions**
  In addition to structural conditions, the following condition must be taken into consideration.

- Install the rack such that the temperature inside the rack meets the temperature conditions for cooling the chassis when mounted in the rack. For details, see "2.5 Checking Environmental Conditions." Particularly, make sure that exhaust from the chassis does not re-enter the chassis through the air intakes. This requires measures such as covering the front and rear of empty spaces inside the rack.

2.4.2　Installation area for a general rack

Service areas

Service area requirements vary depending on the rack used.
When using an expansion rack, see "2.4.4　Installation area for an expansion rack."
When mounting each chassis in the designated rack, see the examples of service areas in Figure 2-5 and Figure 2-6. The rack width depends on the rack used.
When using a rack other than the designated rack, see the manual for the rack used.

Figure 2-5　　Example of service areas for the SPARC M10-4S (top view)
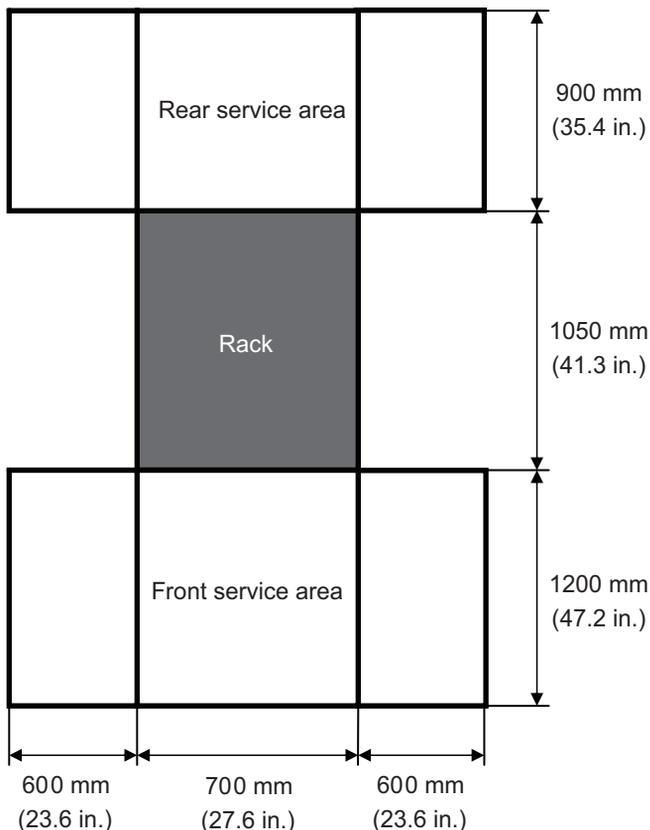
Figure 2-6   Example of service areas for the PCI expansion unit (top view)
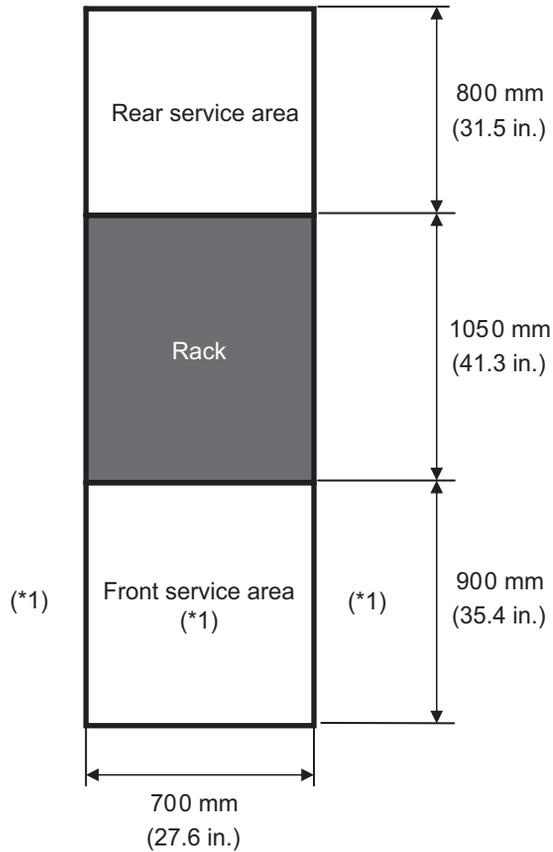
*1 To mount a chassis on the rack, an area with a depth of 1,200 mm (47.2 in.) is required in front of the rack, and areas with a width of 600 mm (23.6 in.) are required on both the left and right sides of the front service area. If there is a possibility that a chassis will be added later, secure an area with a depth of 1,200 mm (47.2 in.) in front of the rack and areas with a width of 600 mm (23.6 in.) on both the left and right sides of the front service area.

2.4.3 Mounting conditions for expansion racks

Building block configuration (connections through the crossbar boxes)

Dedicated power distribution unit (PDUs), crossbar boxes (XBBOXs), and crossbar cables (optical) are shipped mounted in a dedicated rack (expansion rack). Figure 2-7 and Figure 2-8 show the chassis mounting locations and cage nut locations, respectively.

Figure 2-7   Chassis mounting location in 16BB configuration as viewed from rack front (BB-ID correspondence)
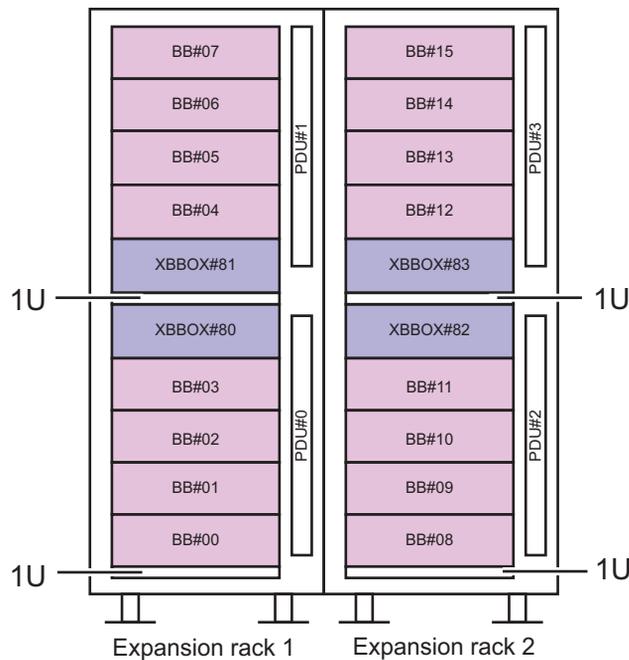
Figure 2-8   Cage nut locations

U	Expansion rack 1	Expansion rack 2	Cage nut positions	
			Front supporting column	Rear supporting column
42	M10-4S (#07)	M10-4S (#15)	41U top 40U bottom 39U center	40U center 39U center
41				
40				
39				
38	M10-4S (#06)	M10-4S (#14)	37U top 36U bottom 35U center	36U center 35U center
37				
36				
35				
34	M10-4S (#05)	M10-4S (#13)	33U top 32U bottom 31U center	32U center 31U center
33				
32				
31				
30	M10-4S (#04)	M10-4S (#12)	29U top 28U bottom 27U center	28U center 27U center
29				
28				
27				
26	XB-B0X (#81)	XB-B0X (#83)	25U top 24U bottom 23U center	24U center 23U center
25				
24				
23				
22	Blank panel	Blank panel	--	--
21	XB-B0X (#80)	XB-B0X (#82)	20U top 19U bottom 18U center	19U center 18U center
20				
19				
18				
17	M10-4S (#03)	M10-4S (#11)	16U top 15U bottom 14U center	15U center 14U center
16				
15				
14				
13	M10-4S (#02)	M10-4S (#10)	12U top 11U bottom 10U center	11U center 10U center
12				
11				
10				
9	M10-4S (#01)	M10-4S (#09)	8U top 7U bottom 6U center	7U center 6U center
8				
7				
6				
5	M10-4S (#00)	M10-4S (#08)	4U top 3U bottom 2U center	3U center 2U center
4				
3				
2				
1	Blank panel	Blank panel	--	--

The numbers enclosed in parentheses indicate the BB-IDs.

2.4.4　Installation area for an expansion rack

Confirm that the service areas (space used for maintenance) shown in Figure 2-9 are secured.

Figure 2-9　Example of service areas for an expansion rack (top view)
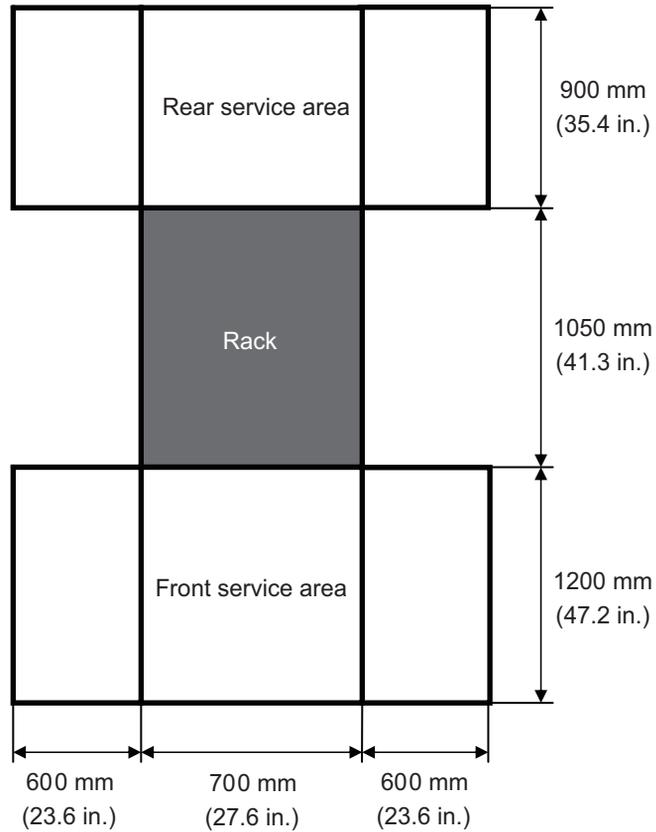
2.4.5 Bottom view of an expansion rack

Figure 2-10 shows the locations of openings for taking out/in cables, the leveling feet, and the casters on the bottom of the expansion rack. This top-view diagram shows the bottom of the inside of the expansion rack as viewed from directly above.

Note that the values shown are expansion unit design values. To fix the leveling feet to the floor, determine locations allowing for a tolerance of ±2 mm (±0.1 in.), which is the dimensional tolerance of the expansion racks.

Figure 2-10   Bottom view of an expansion rack, Unit: mm (in.)
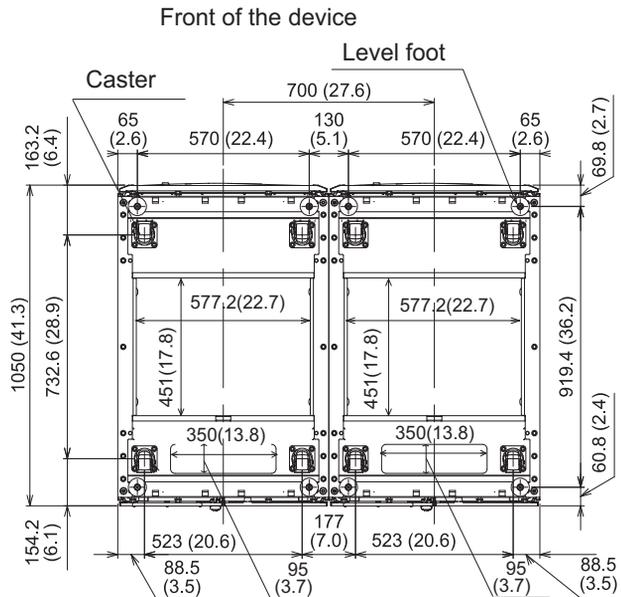
2.4.6 Points of concern when bringing in an expansion rack

This section describes the points of concern when an expansion rack or the server product is brought in.

- Before bringing in an expansion rack, confirm that the access route is wide enough for the package size as shown below.
  - For the simplified package (*1)
    W 700 mm x D 1,050 mm x H 2,000 mm (W 27.6 in. x D 41.3 in. x H 78.7 in.)

  - For the ordinary package
    W 1,260 mm x D 1,264 mm x H 2,160 mm (W 49.6 in. x D 49.8 in. x H 85.0 in.)

*1 With the simplified package, the device is not packed in a wooden crate or cardboard, but is covered only with a plastic bag.

- The expansion rack is shipped with both the SPARC M10-4S and crossbar boxes mounted in the rack. If it is difficult to bring in the rack while still packed, unpack it as needed to bring it in.

- If the access route has steps, a ramp may be necessary.

Figure 2-11   Example of using a ramp
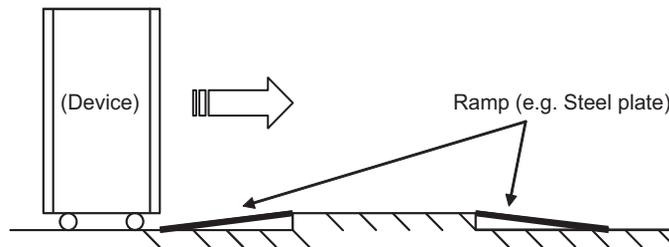
- Since the maximum weight of an expansion rack may be about 960 kg when packed and 780 kg when unpacked, confirm in advance that the access route has no problem with that weight.
  Example) Floor conditions on the access route

  Confirm that the load capacity is appropriate and casters will neither sink into the floor nor get caught on the floor.

- To bring in the device to an upper or lower floor of a building, confirm that an elevator can be used. Also confirm that the maximum load weight of the elevator bringing in the device is greater than the device weight.

- When pushing the rack to bring in the device, push the lower half of the rack to prevent it from toppling over. The rack may have a higher center of gravity depending on the devices mounted in the rack.
  Also, do not push the rack from the side. Otherwise, it may topple over.

- If you push on the area around the center of the front door or the air intake part, the door may be deformed. Instead, push on the corners of the door.

- Moving the rack-mounted server product from a cold place into a warm room causes condensation to form inside the product.
  Prevent condensation from occurring by adjusting the ambient temperature so that the temperature rise per hour does not exceed 15°C (59°F). For details regarding when condensation occurs, see the following table.

Table 2-4　　Device temperatures at which condensation occurs

		Indoor temperature in °C (°F)							Remarks
		10 (50)	15 (59)	20 (68)	25 (77)	30 (86)	35 (95)	40 (104)	
Relative humidity (%)	20	-7	-5	-3	1	5	9	13	Example)
	40	-3	2	7	11	16	20	24	If the temperature is 25°C (77°F) and the
	60	3	8	13	17	22	26	31	humidity is 60%,
	80	7	12	17	22	26	31	-	condensation forms in the device that is
	90	9	13	19	24	29	34	-	at 17°C (63°F) or lower.

- Special attention is needed for the work of unpacking an ordinary package. Perform the work of unpacking the rack package according to the following procedure. This work is not required for the simplified package.
  a. Place the rack package on a flat surface. The package shows the work area requirements. Referring to the description, select a work area.

  b. Use scissors or another tool to cut the polyester banding securing the package parts together. When cut, the polyester banding may spring up dangerously. Working from above, cut the polyester banding while pushing against it with one hand.

  c. Remove the package parts.

  d. Secure the ramps at the predefined locations. The package shows the predefined locations. Secure the ramps firmly with the four supplied U-shaped brackets. If they are not adequately secured, the rack becomes unstable when being removed from the palette and thereby a danger.

  e. Remove the plastic bag covering the rack.

  f. Remove the four brackets securing the rack to the palette by using a wrench or box wrench (nominal size 13 or 17).

  g. Remove the rack from the palette. Perform this work with three or more people. Do not stand in the path that the rack moves along. An unstable rack is dangerous.

Figure 2-12   Procedure for unpacking an ordinary package
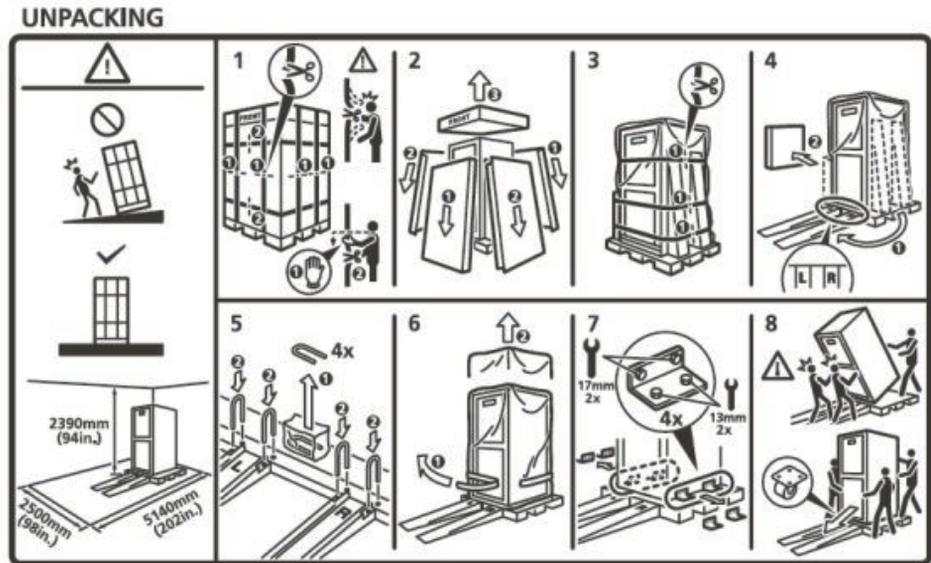
2.4.7   Method of fixing an expansion rack in place

To prevent the rack from toppling over in an earthquake, fix it in place appropriately. For details, see "3.3.2   Securing the rack."

2.5   Checking Environmental Conditions

This section describes the environmental conditions for the SPARC M10 systems. The server can be installed at locations that meet the environmental conditions listed in Table 2-5.

Note - When designing environmental control systems such as air conditioning facilities, confirm that the air taken in by each chassis meets the requirements specified in this section.

The environmental conditions described in Table 2-5 reflect test results from each chassis. The optimal conditions represent the recommended environment in operation. The component failure rate may increase substantially when the system operates for prolonged periods in an environment that is at or close to the operation-time (in operation) limit values, or when the system is installed in an environment that is at or close to the non-operation-time (not in operation) limit values. To minimize the occurrence of system downtime due to a component failure, set the temperature and humidity within the optimal condition range.

The following conditions must be met to prevent overheating:

- Neither warm air nor hot air blows directly on the front of the rack
- Neither warm air nor hot air blows directly on the front panel of any chassis

Table 2-5   Environmental conditions

Item	In operation	Not in operation	Optimal condition
Ambient temperature	5°C to 35°C 41°F to 95°F	- When unpacked 0°C to 50°C (32°F to 122°F) - When still packed -25°C to 60°C (-4°F to 140°F)	21°C to 23°C 70°F to 74°F
Relative humidity (*1)	- When installed in server room 20% RH to 80% RH - When installed in office (*2) 20% RH to 80% RH	- When installed in server room 8% RH to 80% RH - When installed in office (*2) 8% RH to 80% RH	45% RH or higher but less than 50% RH
Maximum wet-bulb temperature	- When installed in server room 26°C (78.8°F) - When installed in office (*2) 29°C (84.2°F)	- When installed in server room 27°C(80.6°F) - When installed in office (*2) 29°C (84.2°F)	
Altitude limit (*3)	0 m to 3,000 m (0 ft. to 10,000 ft.)	0 m to 12,000 m (0 ft. to 40,000 ft.)	
Temperature conditions	- When installed at 0 m to 500 m (0 ft. to 1,640 ft.) 5˚C to 35˚C (41˚F to 95˚F) - When installed at 500 m to 1,000 m (1,644 ft. to 3,281 ft.) 5˚C to 33˚C (41˚F to 91.4˚F) - When installed at 1,000 m to 1,500 m (3,284 ft. to 4,921 ft.) 5˚C to 31˚C (41˚F to 87.8˚F) - When installed at 1,500 m to 3,000 m (4,925 ft. to 9,843 ft.) 5˚C to 29˚C (41˚F to 84.2˚F)		

*1 No condensation is assumed regardless of temperature and humidity conditions.
*2 Only the PCI expansion unit can be installed in an office. Install the SPARC M10-4S in a dedicated room such as a server room.
*3 All the altitudes indicate heights above sea level.

2.5.1 Ambient temperature

To maintain system reliability and operator comfort, the optimal ambient temperature is 21°C to 23°C (70°F to 74°F). This temperature range makes it easy to maintain the relative humidity. While the system is operating within this range, even a failure of the air conditioning facilities does not cause it to suddenly stop.

2.5.2 Ambient relative humidity

To process data safely, the optimal ambient relative humidity is 45% or higher but less than 50%. The reasons for this are as follows:

- A humidity in the optimum range can protect the system from corrosion issues caused by high humidity

- A humidity in the optimum range means that even a failure of the air conditioning facilities does not cause the system to suddenly stop

- A humidity in the optimum range can prevent failures and malfunctions caused by electrostatic discharge

A relative humidity that is too low is conducive to generating a static electricity discharge. The resulting intermittent interference may cause a failure or temporary malfunction.

Electrostatic discharge is more likely to occur and harder to eliminate at locations with a relative humidity below 35%. Electrostatic discharge becomes a critical issue when the relative humidity falls below 30%. The set optimal relative humidity range is stricter than the guidelines applied to indoor locations with more relaxed environmental conditions such as general office environments. However, if the server is installed in a server room, this condition is not difficult to meet because server rooms utilize highly efficient moisture-proof materials and have fewer ventilation cycles.

2.5.3 Contaminant conditions

Table 2-6 provides the acceptable reference values for contaminants with regard to the SPARC M10 systems.

Table 2-6   Acceptable reference values for contaminants

Contaminant	Acceptable reference value
Hydrogen sulfide (H2S)	7.1 ppb or less
Sulfurous acid gas (sulfur oxide) (SO2)	37 ppb or less
Hydrogen chloride (HCI)	6.6 ppb or less
Chlorine (CI2)	3.4 ppb or less

Table 2-6   Acceptable reference values for contaminants *(continued)*

Contaminant	Acceptable reference value
Hydrogen fluoride (HF)	3.6 ppb or less
Nitrogen dioxide (nitrogen oxide) (NO2)	52 ppb or less
Ammonia (NH3)	420 ppb or less
Ozone (O3)	5 ppb or less
Oil vapor	0.2 mg/m^3 or less
Dust	0.15 mg/m^3 or less
Seawater (salt damage)	Do not install out at sea or within 500 m (1,640.4 ft.) of the seashore. (However, this does not apply if air conditioning facilities do not use outside air.)

2.6   Checking Acoustic Noise Levels

Table 2-7 provides the acoustic noise levels of the SPARC M10-4S.

The acoustic noise levels provided in Table 2-7 are measured based on the following conditions.

Measurement environment: ISO 7779 compliant
Ambient temperature: 23°C

Table 2-7   Acoustic noise levels of the SPARC M10-4S

Acoustic noise level	CPU type	CPU configuration	In operation	When idle
Sound power level	SPARC64 X	2 CPUs	7.5 B	6.9 B
		4 CPUs	8.2 B	6.9 B
	SPARC64 X+	2 CPUs	8.5 B	7.0 B
		4 CPUs	9.0 B	7.0 B
Sound pressure level	SPARC64 X	2 CPUs	58 dB	56 dB
		4 CPUs	64 dB	56 dB
	SPARC64 X+	2 CPUs	67 dB	57 dB
		4 CPUs	74 dB	57 dB

2.7 Checking Cooling Conditions

This section describes the cooling conditions for the SPARC M10 systems. Note the following conditions when installing the system:

- The air conditioning facilities for the room are sufficient to meet the cooling conditions of the entire system
- The air conditioning facilities have control functions for preventing excessive temperature changes

Table 2-8 lists the cooling conditions for each chassis.

Table 2-8   Cooling conditions

Configuration	Input voltage	CPU type	Maximum heat dissipation	Maximum exhaust airflow
SPARC M10-4S	200 to 240 VAC	SPARC64 X	10,460 kJ/hr (9,912 BTU/hr)	17.1 m^3/min
		SPARC64 X+	12,330 kJ/hr (11,690 BTU/hr)	18.7 m^3/min
Configuration including only expansion rack 1 (*1)	200 to 240 VAC (*2)	-	4,876 kJ/hr (4,622 BTU/hr)	29.8 m^3/min
	200 to 240 VAC (*3)	-	4,876 kJ/hr (4,622 BTU/hr)	
	380 to 415 VAC (*4)	-	4,876 kJ/hr (4,622 BTU/hr)	
Including expansion rack 2 (*1)	200 to 240 VAC (*2)	-	6,316 kJ/hr (5,988 BTU/hr)	29.8 m^3/min
	200 to 240 VAC (*2)	-	6,316 kJ/hr (5,988 BTU/hr)	
	380 to 415 VAC (*4)	-	6,316 kJ/hr (5,988 BTU/hr)	
PCI expansion unit	AC100 - 120 V	-	1,005 kJ/hr (953 BTU/hr)	4.5 m^3/min
	200 to 240 VAC	-	972 kJ/hr (921 BTU/hr)	

*1 The SPARC M10-4S is not mounted.
*2 Value for the single-phase power feed model
*3 Value for the three-phase delta power feed model
*4 Value for the three-phase star power feed model

The SPARC M10 systems are designed to function in an environment with natural convection airflow.

The following requirements must be followed to meet the environmental specifications.

- Ensuring sufficient airflow for the entire system
  Each chassis is equipped with a cooling function for front-to-rear cooling. Each chassis has air vents on the front. Exhaust is expelled from the rear of each chassis. The SPARC M10 systems use internal fans whose airflow reaches the maximum exhaust airflow shown in Table 2-8 under normal operating conditions.

  Example: 17.1 m^3 (603.8 ft.^{3}) per minute for each SPARC M10-4S unit

- Ensuring that temperature at the intake part of each chassis does not exceed the limit value
  Other devices mounted in the rack must not cause the temperature at the intake part of any chassis to exceed the limit value. This limit value in environmental

conditions assumes that each chassis operates with the rack door closed.

2.8 Checking the Power Input Type

This section describes the power input types that can be used with the SPARC M10 systems. To prevent serious accidents, confirm that the power supply facilities can supply sufficient redundant power to the system.

The server can use the following power input types:

- Redundant configuration of power supply units
- Dual power feed
- Three-phase power feed
- Uninterruptible power supply (UPS) connection (optional)

2.8.1 Redundant configuration of power supply units

Each chassis has power supply units in a redundant configuration as standard. If a failure occurs in one power supply unit, the system can still continue to operate with the other power supply unit. However, if a failure occurs in the external power supply, the system stops.

Figure 2-13 and Figure 2-14 show a power supply system with redundant power supply connections.

When connecting the power cords to the same input power supply, make sure to connect each power cord to the connection destination in a one-to-one manner.

Figure 2-13   Power supply system with redundant power supply connections
(SPARC M10-4S)

AC IN#1

AC IN#0

AC power

CB

CB

CB: Circuit breaker
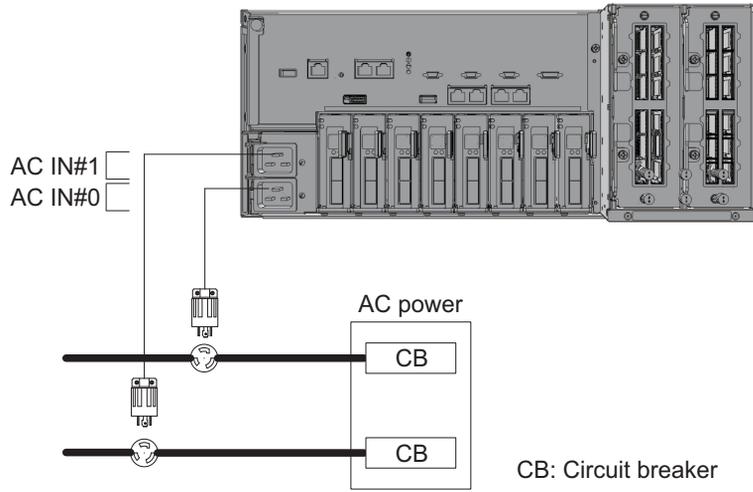
Figure 2-14   Power supply system with redundant power supply connections
(expansion rack)
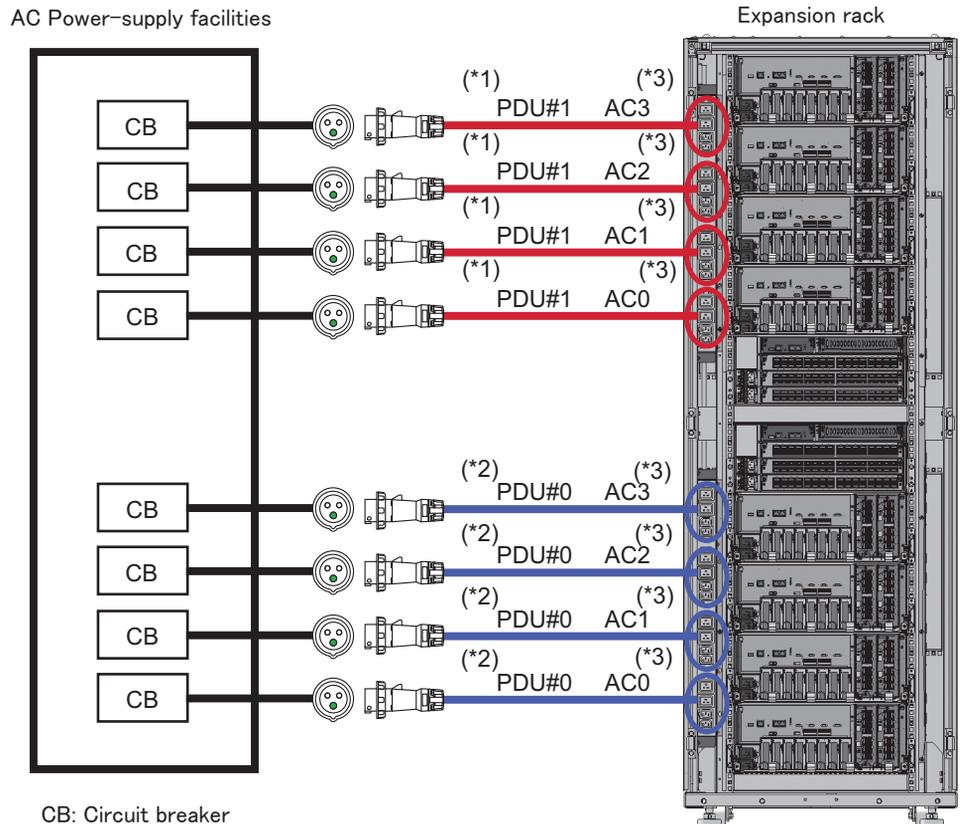
AC Power-supply facilities

Expansion rack

CB

(*1)
PDU#1   AC3

CB

(*1)
PDU#1   AC2

CB

(*1)
PDU#1   AC1

CB

(*1)
PDU#1   AC0

CB

(*2)
PDU#0   AC3

CB

(*2)
PDU#0   AC2

CB

(*2)
PDU#0   AC1

CB

(*2)
PDU#0   AC0

CB: Circuit breaker

(*3)

*1 For expansion rack 2, use PDU#3.
*2 For expansion rack 2, use PDU#2.
*3 Each PDU outlet is connected to the power cord shown in the figure. The system consumes no power when there is no device connected to the PDU outlets. For the wiring of power cords within the expansion rack, see Figure 2-22.

2.8.2   Dual power feed

Dual power feed is an option for receiving power feeds from two external power supplies. If a failure occurs in one external power supply, the system can still continue to operate with the external power supply on the other system.

Figure 2-15 and Figure 2-16 show a power supply system with dual power feed.

For dual system connections, connect the power cords to the input power supplies on separate systems.

Figure 2-15   Power supply system with dual power feed (SPARC M10-4S)

Figure 2-16   Power supply system with dual power feed (expansion rack)

*1 For expansion rack 2, use PDU#3.
*2 For expansion rack 2, use PDU#2.
*3 Each PDU outlet is connected to the power cord shown in the figure. The system consumes no power when there is no device connected to the PDU outlets. For the wiring of power cords within the expansion rack, see Figure 2-22.

2.8.3 Three-phase power feed

Three-phase power feed is a method of receiving power feeds from a three-phase power supply rather than a single-phase power supply.

The customer needs to prepare an external power distribution unit for three-phase power feed for the SPARC M10-4S. There are two types of three-phase power feed: three-phase star connection and three-phase delta connection.

An expansion rack can have three-phase power feed according to the selection of the three-phase star type or three-phase delta type. The power distribution units of an expansion rack are mounted inside the rack.

Figure 2-17, Figure 2-18, Figure 2-19 and Figure 2-20 show a power supply system with three-phase power feed.

Figure 2-17   Power supply system with three-phase power feed (star connection)
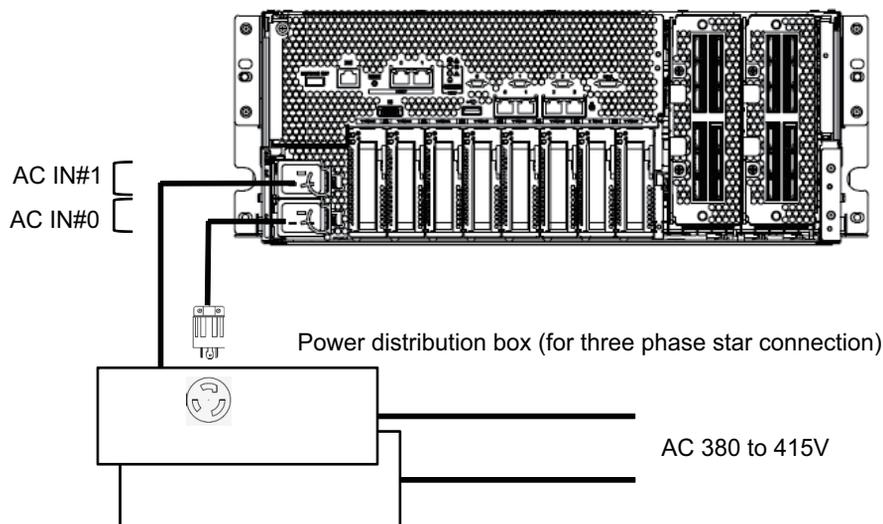
Figure 2-18   Power supply system with three-phase power feed (delta connection)

AC IN#1

AC IN#0

Power distribution box (for three phase delta connection)

AC 200 to 240V
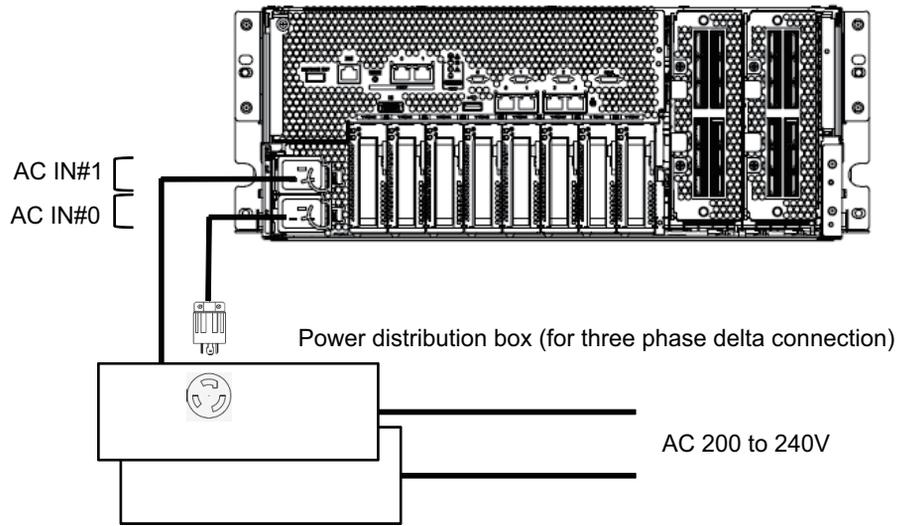
Figure 2-19   Power supply system with three-phase power feed (expansion rack: single power feed)
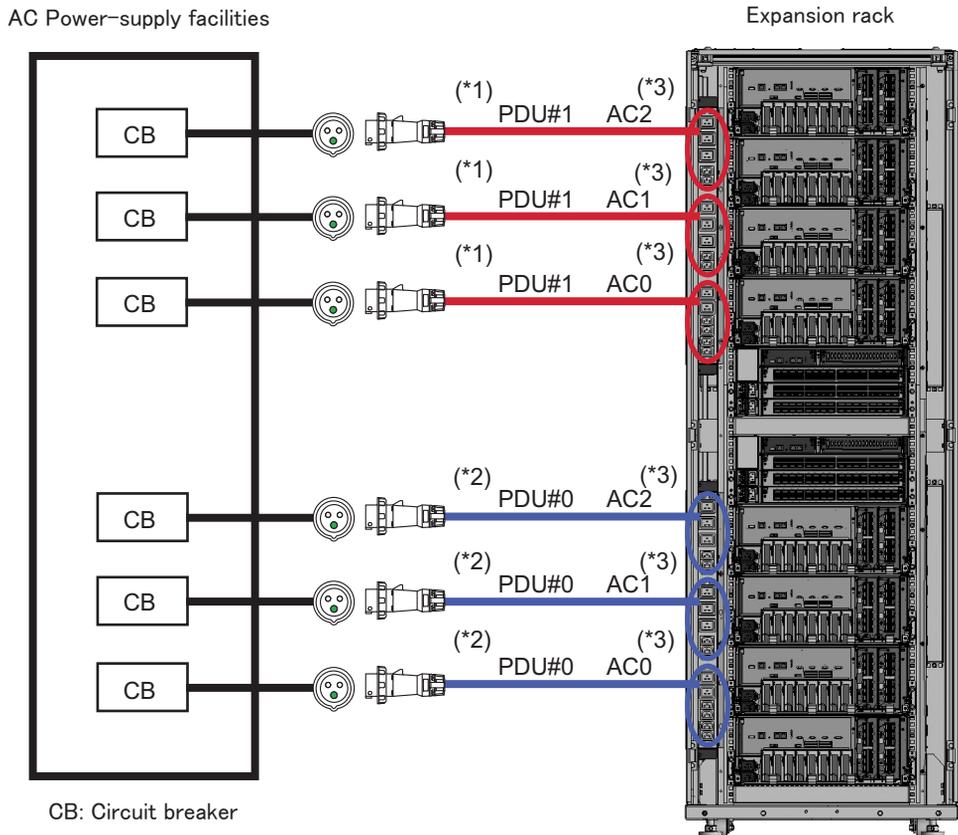
AC Power-supply facilities

Expansion rack

CB

(*1)
PDU#1

(*3)
AC2

CB

(*1)
PDU#1

(*3)
AC1

CB

(*1)
PDU#1

(*3)
AC0

CB

(*2)
PDU#0

(*3)
AC2

CB

(*2)
PDU#0

(*3)
AC1

CB

(*2)
PDU#0

(*3)
AC0

CB: Circuit breaker

*1 For expansion rack 2, use PDU#3.
*2 For expansion rack 2, use PDU#2.
*3 Each PDU outlet is connected to the power cord shown in the figure. The system consumes no power when there is no device connected to the PDU outlets. For the wiring of power cords within the expansion rack, see Figure 2-23.

Figure 2-20   Power supply system with three-phase power feed (expansion rack: dual power feed)
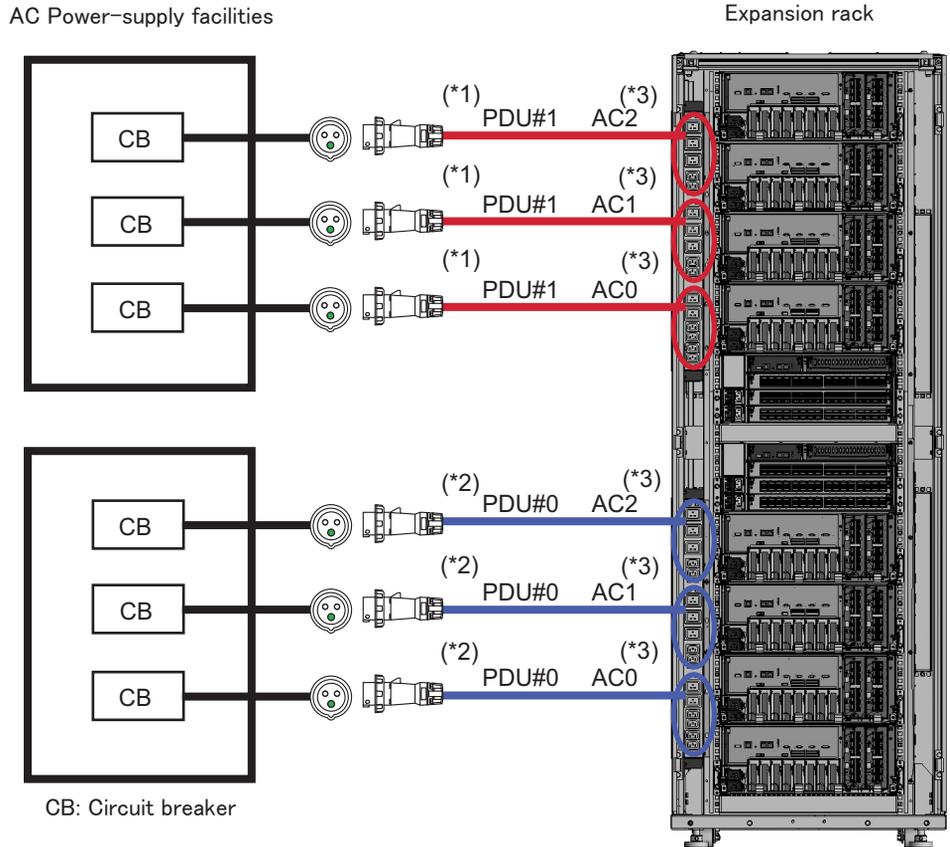
AC Power−supply facilities

Expansion rack

CB: Circuit breaker

*1 For expansion rack 2, use PDU#3.
*2 For expansion rack 2, use PDU#2.
*3 Each PDU outlet is connected to the power cord shown in the figure. The system consumes no power when there is no device connected to the PDU outlets. For the wiring of power cords within the expansion rack, see Figure 2-23.

2.8.4 Uninterruptible power supply (UPS) connection (optional)

Using an uninterruptible power supply (UPS) enables the stable supply of electrical power to the system in case of power failure, widespread power outage, etc.

If the customer has ordered UPSs, use a separate UPS for each power supply system. Connect PSU#0 and PSU#1 to the input power supplies of different systems. Figure 2-21 shows power supply systems with UPS connections.

Figure 2-21   Power supply system with UPS connections

CB: Circuit breaker
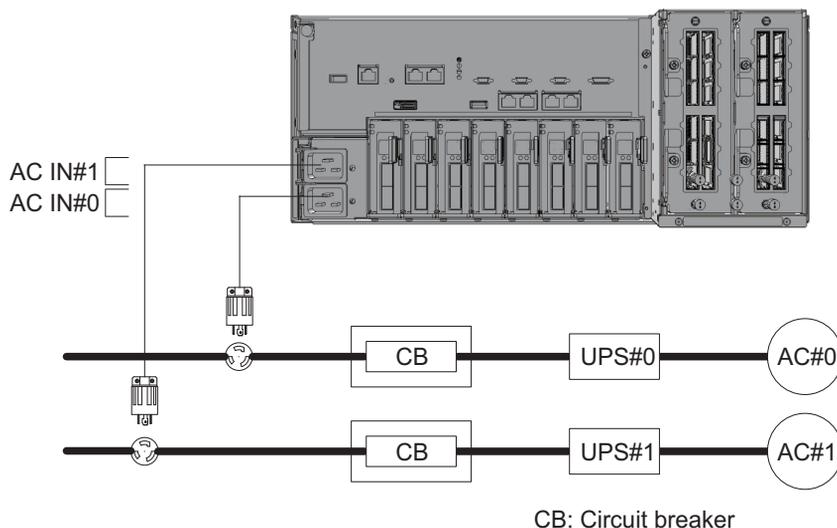
2.8.5 Internal rack connections of an expansion rack

Figure 2-22 and Figure 2-23 show the power supply systems of expansion racks.

Figure 2-22   Power supply connections for an expansion rack (single-phase power supply connection)
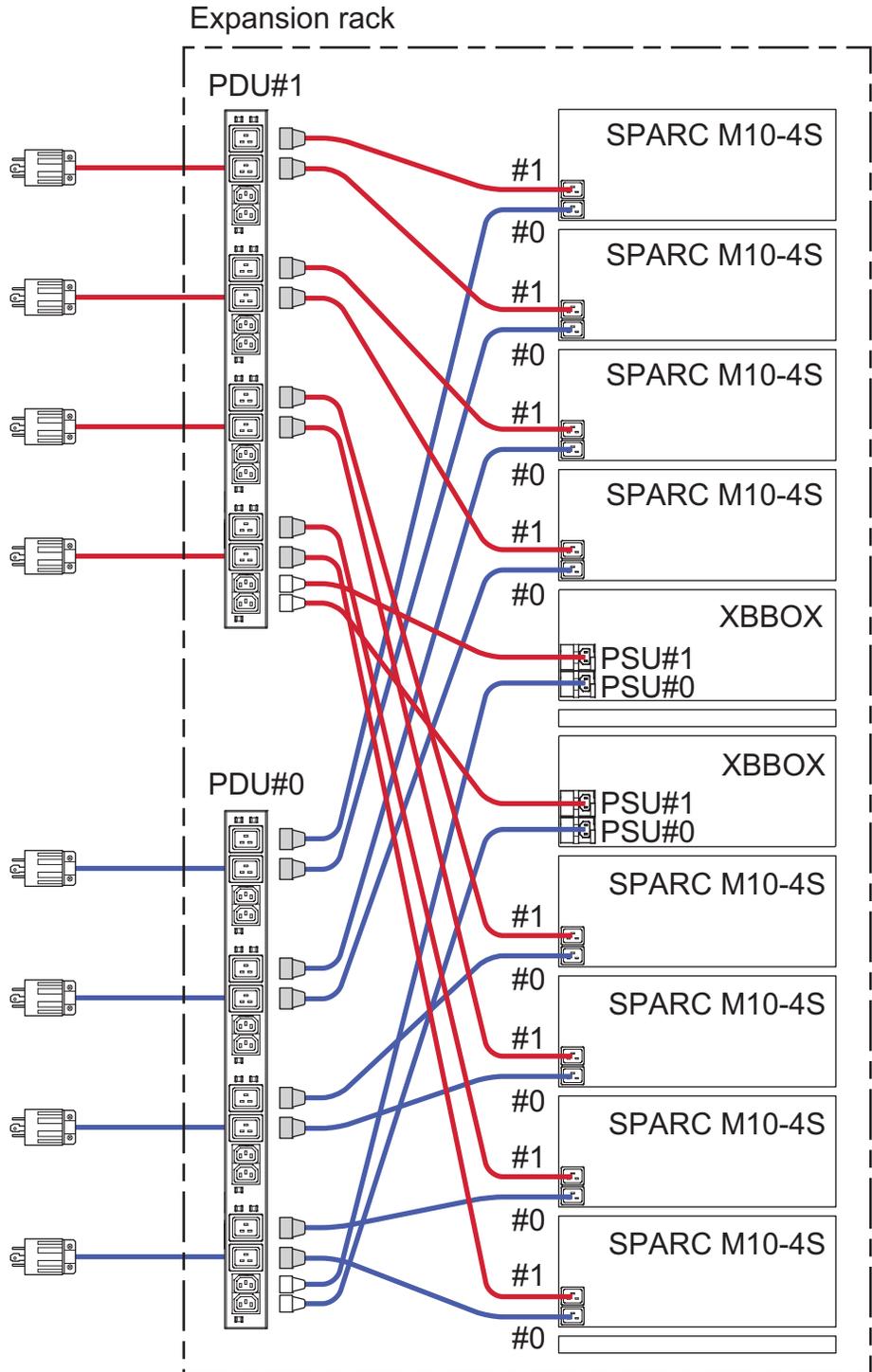
Figure 2-23   Power supply connections for an expansion rack (three-phase delta connection/three-phase star connection)
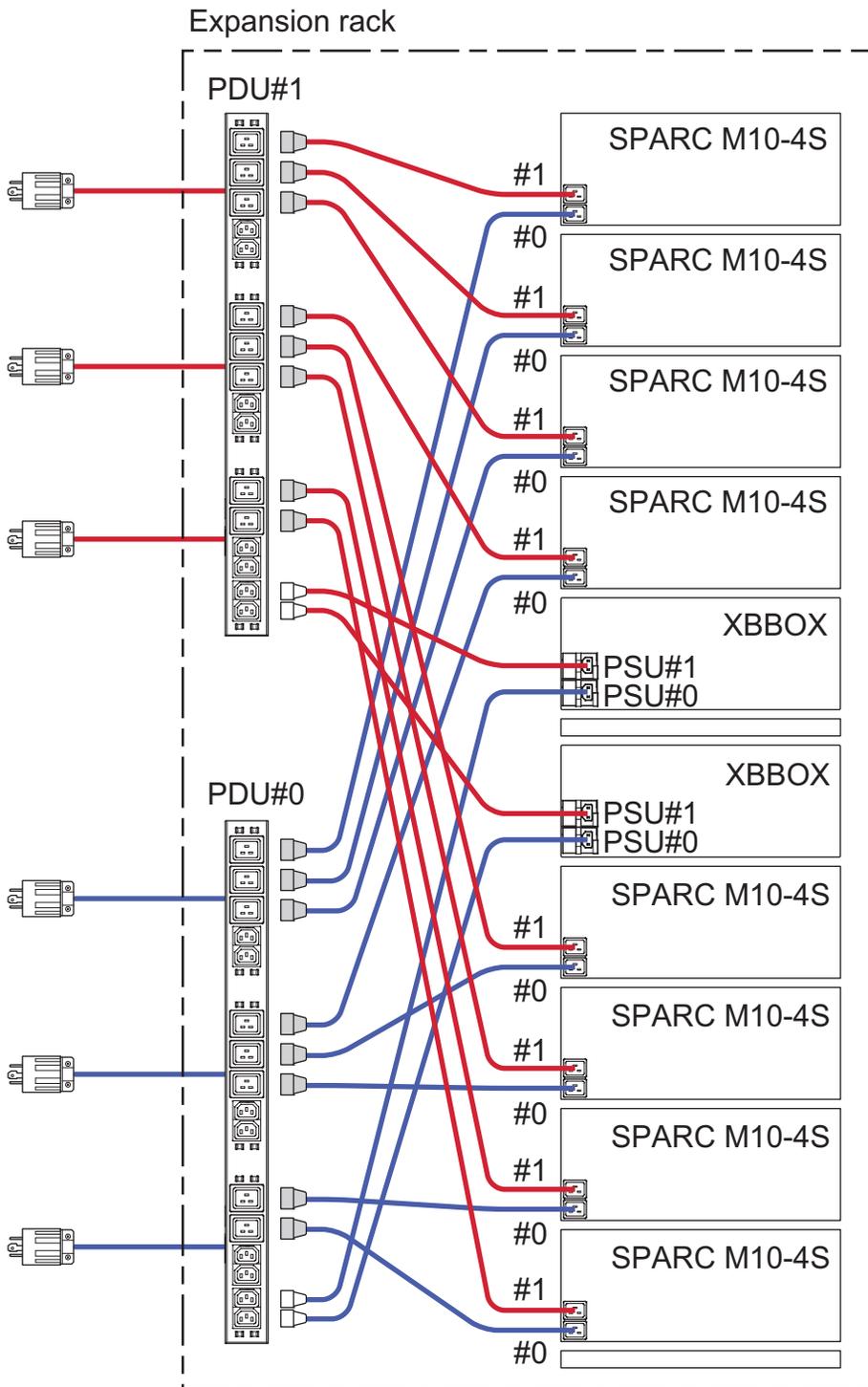
2.9 Preparing Power Supply Facilities

This section describes the electrical specifications, power cord specifications, facility power requirements, and grounding requirements of the SPARC M10 systems.

To minimize component failure rates, stable power supply such as with a dual power feed or uninterruptible power supply (UPS) must be prepared. The component failure rate is likely to be higher when the system operates in an environment with frequent power outages or unstable power supply than in an environment where the supply of power is stable.

Electrical work and installation must be performed in accordance with the electrical regulations of the region, municipality, or country.

Note - If the system will be used in a region where an appropriate input power outlet is not available, contact a certified electrician. Have the electrician remove the connectors from each power cord and connect the power cord to a dedicated branch circuit. Check the electrical regulations of the region about installation conditions.

2.9.1 Electrical specifications

Table 2-9 to Table 2-13 list the electrical specifications of each chassis.

Note - The values listed in Table 2-9 to Table 2-13 are based on values for the maximum configuration of each chassis. The actual values vary depending on the system configuration.

Table 2-9   Electrical specifications (SPARC M10-4S)

Item	Specification	
	CPU type: SPARC64 X	CPU type: SPARC64 X+
Input voltage	200 to 240 VAC	
Number of power cords	2 (1 for each PSU)	
Power cord length	Maximum length of 3.0 m (9.8 ft.)	
Redundancy	1+1 redundant configuration	
Frequency	50 Hz/60 Hz, single phase	
Maximum input current (*1)	14.8 A	16.0 A
Maximum power consumption	2,905 W	3,425 W
Apparent power	2,964 VA	3,495 VA
Rush current (*2)	45 A peak or less	

Table 2-9　Electrical specifications (SPARC M10-4S) *(continued)*

Item	Specification	
	CPU type: SPARC64 X	CPU type: SPARC64 X+
Leakage current (*2)	1.75 mA or less	

*1 The current that flows through each power cord in a redundant configuration is half the value listed in Table 2-9.
*2 The value is per power cord.

Table 2-10　Electrical specifications (Expansion rack: Single-phase power feed model) (*1)

Item	Specification	
	Expansion rack 1 only	Including expansion rack 2
Input voltage	200 to 240 VAC	200 to 240 VAC
Number of power cords	8	8
Power cord length	4.0 m (13.1 ft.)	4.0 m (13.1 ft.)
Redundancy (*2)	1+1 redundant configuration	1+1 redundant configuration
Frequency	50 Hz/60 Hz	50 Hz/60 Hz
Maximum input current (*3)(*4)(*5)	6.9 A	9.0 A
Maximum power consumption (*4)	1,354 W	1,754 W
Apparent power (*4)	1,382 VA	1,790 VA
Rush current (*4)	160 A peak or less	160 A peak or less
Leakage current (*4)	7.0 mA or less	7.0 mA or less

*1 The specifications apply to a single rack.
*2 For the SPARC M10-4S mounted in an expansion rack. If the mounted device is not the SPARC M10-4S, the configuration may be different depending on the power connection configuration of the device.
*3 When the SPARC M10-4S is mounted in the expansion rack, the tolerance per power cord is a value of 40 A.
For details on the device connected to each power cord, see Figure 2-22.
*4 The value is for an expansion rack without the SPARC M10-4S and other devices mounted. (Only crossbar boxes are mounted.) Only four power cords consume power.
If the SPARC M10-4S or other devices are mounted, the current values and the number of power cords that consume power are different.
*5 The current that flows through each power cord in a redundant configuration is half the value listed in Table 2-10.

Table 2-11　Electrical specifications (Expansion rack: Three-phase delta power feed model) (*1)

Item	Specification	
	Expansion rack 1 only	Including expansion rack 2
Input voltage	200 to 240 VAC	200 to 240 VAC
Number of power cords	6	6
Power cord length	4.0 m (13.1 ft.)	4.0 m (13.1 ft.)
Redundancy (*2)	1+1 redundant configuration	1+1 redundant configuration
Frequency	50 Hz/60 Hz	50 Hz/60 Hz
Maximum input current (*3)(*4)(*5)	4.0 A	5.2 A
Maximum power consumption (*4)	1,354 W	1,754 W
Apparent power (*4)	1,382 VA	1,790 VA

Table 2-11   Electrical specifications (Expansion rack: Three-phase delta power feed model) (*1) *(continued)*

Item	Specification	
	Expansion rack 1 only	**Including expansion rack 2**
Rush current (*4)	160 A peak or less	160 A peak or less
Leakage current (*4)	7.0 mA or less	7.0 mA or less

*1 The specifications apply to a single rack.
*2 For the SPARC M10-4S mounted in an expansion rack. If the mounted device is not the SPARC M10-4S, the configuration may be different depending on the power connection configuration of the device.
*3 When the SPARC M10-4S is mounted in the expansion rack, the tolerance per power cord is a value of 35 A.
For details on the device connected to each power cord, see Figure 2-23.
*4 The value is for an expansion rack without the SPARC M10-4S and other devices mounted. (Only crossbar boxes are mounted.)
Only four power cords consume power.
If the SPARC M10-4S or other devices are mounted, the current values and the number of power cords that consume power are different.
*5 The current that flows through each power cord in a redundant configuration is half the value listed in Table 2-11.

Table 2-12   Electrical specifications (Expansion rack: Three-phase star power feed model) (*1)

Item	Specification	
	Expansion rack 1 only	**Including expansion rack 2**
Input voltage	380 to 415 VAC	380 to 415 VAC
Number of power cords	6	6
Power cord length	4.0 m (13.1 ft.)	4.0 m (13.1 ft.)
Redundancy (*2)	1+1 redundant configuration	1+1 redundant configuration
Frequency	50 Hz/60 Hz	50 Hz/60 Hz
Maximum input current (*3)(*4)(*5)	2.1 A	2.7 A
Maximum power consumption (*4)	1,354 W	1,754 W
Apparent power (*4)	1,382 VA	1,790 VA
Rush current (*4)	160 A peak or less	160 A peak or less
Leakage current (*4)	7.0 mA or less	7.0 mA or less

*1 The specifications apply to a single rack.
*2 For the SPARC M10-4S mounted in an expansion rack. If the mounted device is not the SPARC M10-4S, the configuration may be different depending on the power connection configuration of the device.
*3 When the SPARC M10-4S is mounted in the expansion rack, the tolerance per power cord is a value of 24 A.
For details on the device connected to each power cord, see Figure 2-23.
*4 The value is for an expansion rack without the SPARC M10-4S and other devices mounted. (Only crossbar boxes are mounted.)
Only four power cords consume power.
If the SPARC M10-4S or other devices are mounted, the current values and the number of power cords that consume power are different.
*5 The current that flows through each power cord in a redundant configuration is half the value listed in Table 2-12.

Table 2-13   Electrical specifications (PCI expansion unit)

Item	Specification	
	Input voltage of 100 to 120 VAC	**Input voltage of 200 to 240 VAC**
Number of power cords	2 (1 for each PSU)	2 (1 for each PSU)
Power cord length	Maximum length of 3.0 m (9.8 ft.)	Maximum length of 3.0 m (9.8 ft.)
Redundancy	1+1 redundant configuration	1+1 redundant configuration

Table 2-13　　Electrical specifications (PCI expansion unit) *(continued)*

Item	Specification	
	Input voltage of 100 to 120 VAC	**Input voltage of 200 to 240 VAC**
Frequency	50 Hz/60 Hz, single phase	50 Hz/60 Hz, single phase
Maximum input current (*1)	2.9 A	1.4 A
Maximum power consumption	279 W	270 W
Apparent power	284 VA	276 VA
Rush current (*2)	40 A peak or less	40 A peak or less
Leakage current (*2)	1.75 mA or less	1.75 mA or less

*1 The current that flows through each power cord in a redundant configuration is half the value listed in Table 2-13.
*2 The value is per power cord.

2.9.2　　Power cord specifications

Table 2-14 and Table 2-15 list the power cords and connector shape for each chassis. Table 2-16 lists the power cords and connector shape of the PDU for the expansion rack used to connect five or more SPARC M10-4S units.

Table 2-14　　Power cords and connector shape (SPARC M10-4S)

Destination	Power cord type	Connector shape
Japan	IEC60320-C20 250V 16A NEMA L6-20P 250V 20A	IEC 60320-C19
North America	IEC60320-C20 250V 16A NEMA L6-20P 250V 20A IEC60309 250V 16A	
South America	IEC60309 250V 16A	
China	IEC60309 250V 16A	
Hong Kong	IEC60309 250V 16A	
Taiwan	NEMA L6-20P 250V 20A	
Korea	NEMA L6-20P 250V 20A	
India	IS1293 250V 16A	
Other countries	IEC60309 250V 16A	

Table 2-15　Power cords and connector shape (PCI expansion unit)

Destination	Power cord type	Connector shape
Japan	NEMA 5-15P 125V 15A NEMA L6-15P 250V 15A	IEC 60320-C13
North America	NEMA 5-15P 125V 15A NEMA L6-15P 250V 15A IEC60320-C14 250V 10A	
South America	IRAM2073 250V 10A NBR14136 250V 10A	
China	GB2099.1 250V 10A	
Hong Kong	BSI363A 250V 10A	
Taiwan	CNS10917 250V 10A	
Korea	KSC8305 250V 10A	
India	IS1293 250V 16A	
Other countries	IEC60309 250V 10A IEC60320-C14 250V 10A	

Table 2-16　Power cords and connector shape (PDU of an expansion rack)

Destination	Power cord type	Connector shape
Common	For 200 V power supply (*1) - For single-phase power supply 　connection 　IEC60309 60A 2P+E - For three-phase delta connection 　IEC60309 60A 3P+E - For three-phase star connection 　IEC60309 30A 3P+N+E 　IEC60309 32A 3P+N+E	IEC60320-C20

*1 The following two types of power cords are necessary for each chassis mounted in an expansion rack: 0.5 m (1.6 ft.) and 1.5 m (4.9 ft.) power cords. The customer needs to order these power cords for each chassis.

Note - For chassis with plugs that have a lock function, confirm that the chassis have a 15 A (20 A for the SPARC M10-4S) overcurrent protection device. If they do not have that device, provide 15 A (20 A for SPARC M10-4S) overcurrent protection using a circuit breaker or fuse. The plugs with a lock function are the NEMA L6-20, L6-15, and other plugs that are not parallel two-pole connectors with grounding electrodes.

2.9.3　Breaker characteristics

The breaker characteristics for the SPARC M10 systems must be taken into consideration to allow the devices to be used under the right conditions. Use circuit breakers that meet the following special conditions for the distribution panel

breakers on the equipment side.

Table 2-17 shows the distribution panel breaker capacity on the equipment side.

Table 2-17   Distribution panel breaker capacity on the equipment side

Device name	Power supply input	Distribution panel breaker capacity on equipment side	
		For Japan/North America/other countries	For Europe
SPARC M10-4S	Single-phase 200 to 240 VAC	20 A	16 A
Expansion rack	Single-phase 200 to 240 VAC	40 A	40 A
Expansion rack	Three-phase (delta) 200 to 240 VAC	35 A	35 A
Expansion rack	Three-phase (star) 380 to 415 VAC	24 A	24 A
PCI expansion unit	Single-phase 100 to 120 VAC	10 A	-
	Single-phase 200 to 240 VAC	10 A	10 A

Figure 2-24 shows the cutoff characteristics of the circuit breaker.

Use a breaker with cutoff characteristics that have a Long-time delay type equivalent to cutoff characteristic D (IEC/EN60898 or DIN VDE 0641 part II) shown in Figure 2-24, or one with longer cutoff characteristics.

Figure 2-24   Distribution panel breaker characteristics on the equipment side
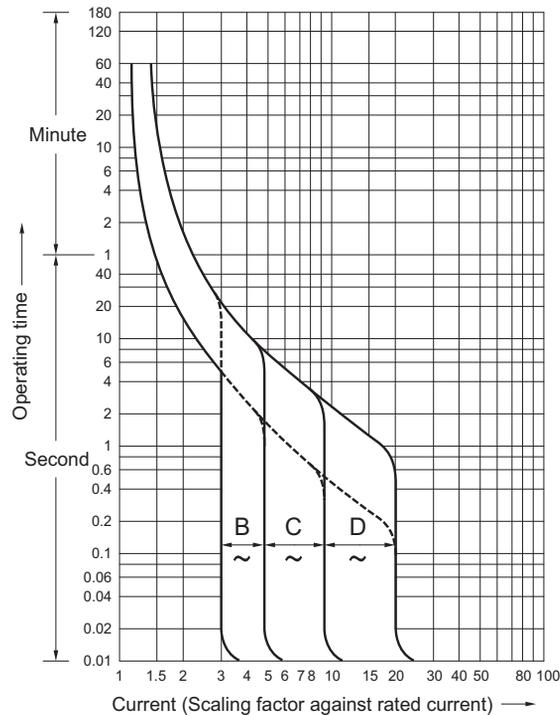
2.9.4   Grounding requirements

Ground each chassis appropriately according to the input power type.

- For single-phase input
  The components of each chassis do not include a grounded (three-wire type) power cord. Order the power cords that match the device. Always connect the power cords to grounded power outlets.

  When using an expansion rack, be sure to use the supplied power cords.

  To confirm the type of power supplied by the building, contact the facility administrator or a certified electrician.

- For three-phase input
  No power cord is supplied for three-phase input. Grounded power cords must be connected from the distribution panel directly to the terminal boards of power supply chassis as part of local electrical work.

  When using an expansion rack, be sure to use the supplied power cords.

  Although common grounding is possible with this device, grounding methods vary depending on the building of the installation. When using common grounding, ground devices such that the grounding resistance is equal to or less than 10 ohms. Be sure to have the facility administrator or a certified electrician

confirm the grounding method for the building and perform the grounding work.

Also, do not connect to the IT power distribution system of a power supply facility where the neutral phase of three phases is not grounded. Otherwise, equipment may malfunction or be damaged.

2.10 Checking External Interface Port Specifications

This section provides an overview of the specifications of the external interface ports required in installation and operation of the SPARC M10-4S.

You can use the following external interface ports on the SPARC M10-4S.

XSCF unit administration port

- Serial port
  The eXtended System Control Facility (XSCF) has one RS-232C-compliant serial port. You can monitor and control the system by connecting the system management terminal to the serial port. Functions that require TCP/IP are not available through the serial port.

- XSCF-LAN port
  In addition to the serial port, the XSCF has two 1000BASE-T LAN ports. You can remotely monitor and control the system by configuring a system control network using a LAN port. There are two types of interfaces available: a command-line interface (XSCF shell) and a browser user interface (XSCF Web).

  The XSCF-LAN ports support auto-negotiation only. Therefore, the communication speed/mode for the XSCF-LAN ports cannot be configured.

  Do not make a connection with a network switch or hub until you complete the network setting for the XSCF. If a connection is made before the completion of the setting, devices connected with others may become unable to communicate, or unauthorized login by a malicious third party to the XSCF of this chassis may not be preventable.

- XSCF USB port (for field engineers)
  Field engineers use this port to download information from the XSCF.

- XSCF DUAL control port
  Use this port to connect the master XSCF and the standby XSCF.

  The port implements the SP to SP communication protocol (SSCP) for the SPARC M10-4S.

- XSCF BB control port
  The port is used to connect the master XSCF and standby XSCF to each slave XSCF. There are three ports.

  The port implements the SP to SP communication protocol (SSCP) for the SPARC

M10-4S.

Other unit ports

- GbE LAN port
  The port is used to connect Oracle Solaris to the network. There are four ports.

  Connection to the network is also possible through a LAN card, which is provided by the customer, mounted in a PCI Express (PCIe) slot.

- SAS port
  This port is used to connect an external SAS device.

- USB port
  This is a general-purpose USB port. Use the port to connect an external USB DVD device, etc.

Figure 2-25 and Figure 2-26 show locations of external interface ports on the SPARC M10-4S.

LAN port LEDs

- LINK SPEED LED
  This LED indicates the communication speed of the XSCF-LAN port and GbE LAN port (Figure 2-27).

- ACT LED (green)
  This LED indicates the communication state of the XSCF-LAN port and GbE LAN port (Figure 2-27).

Figure 2-25   Locations of the ports for network connections (SPARC M10-4S)
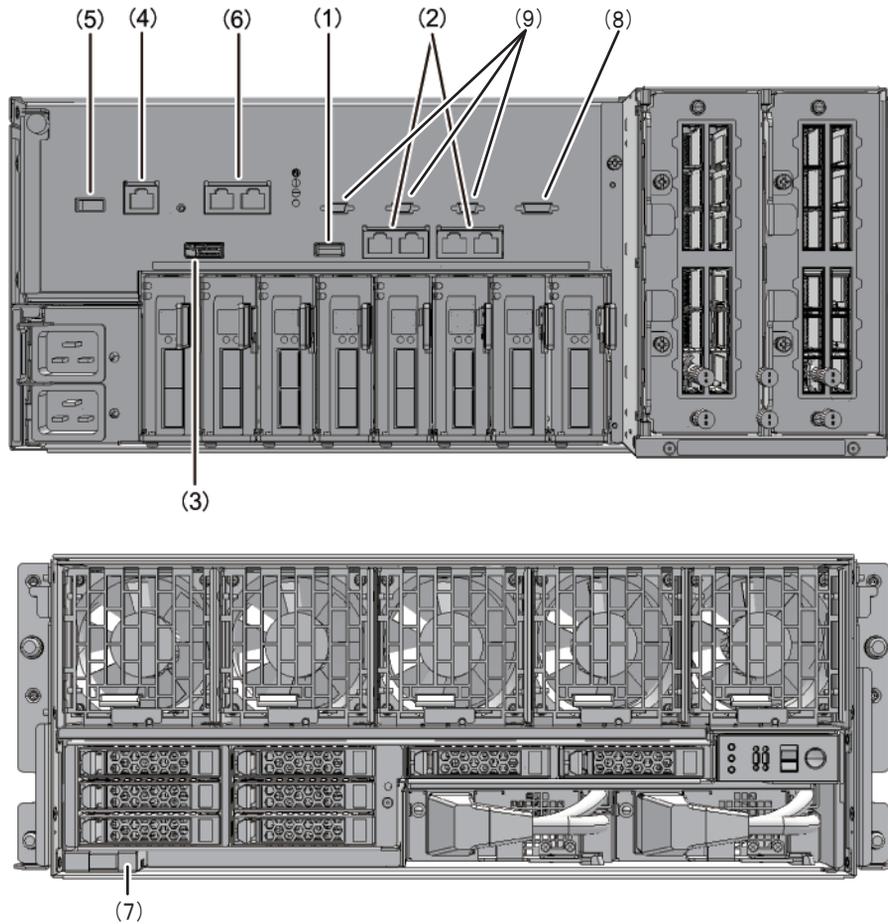
No.	Port	Number on board
1, 7	USB port	2
2	GbE LAN port	4
3	SAS port	1
4	Serial port	1
5	XSCF USB port (for field engineers)	1
6	XSCF-LAN port	2
8	XSCF DUAL control port	1
9	XSCF BB control port	3

Figure 2-26   Locations of the ports for network connections (crossbar box)
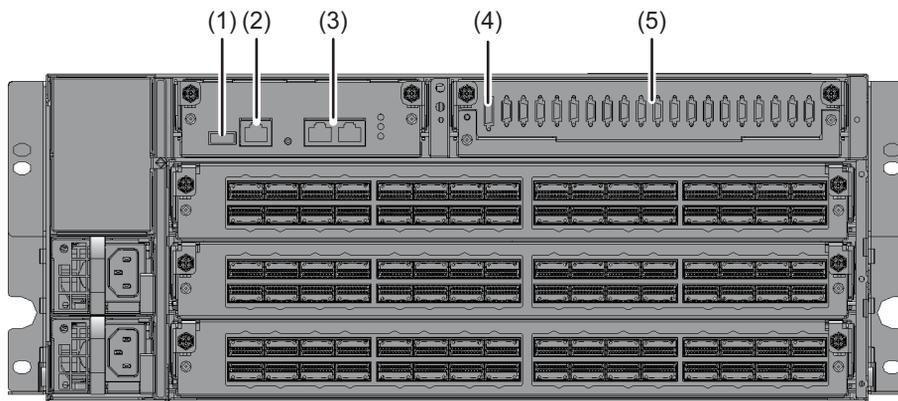
No.	Port	Number on board
1	XSCF USB port (for field engineers)	1
2	Serial port	1
3	XSCF-LAN port	2
4	XSCF DUAL control port	1
5	XSCF BB control port	19

Figure 2-27   LAN port LEDs

GbE LAN port
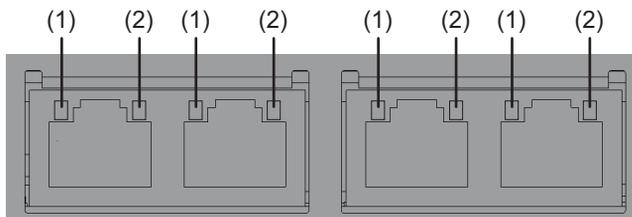
XSCF-LAN port
(SPARC M10-4S)
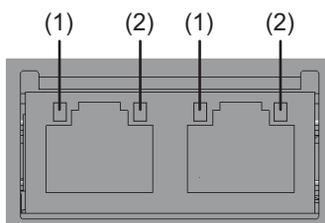
XSCF-LAN port
(crossbar box)
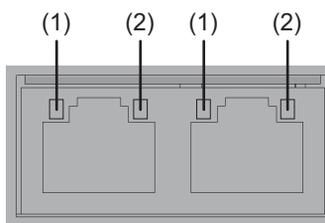
No.	Name	Color	State	Port
1	LINK SPEED	Amber	On	The communication speed is 1 Gbps.
		Green	On	The communication speed is 100 Mbps.
		-	Off	The communication speed is 10 Mbps.
2	ACT	Green	Blinking	The port is sending/receiving data.
		-	Off	The port is not sending/receiving data.

2.10.1   Network configuration example

Figure 2-28 and Figure 2-29 show network configuration examples. For details on network connections, see "1.3   Network Configuration" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 System Operation and Administration Guide*.

Figure 2-28   Network configuration example (SPARC M10-4S)
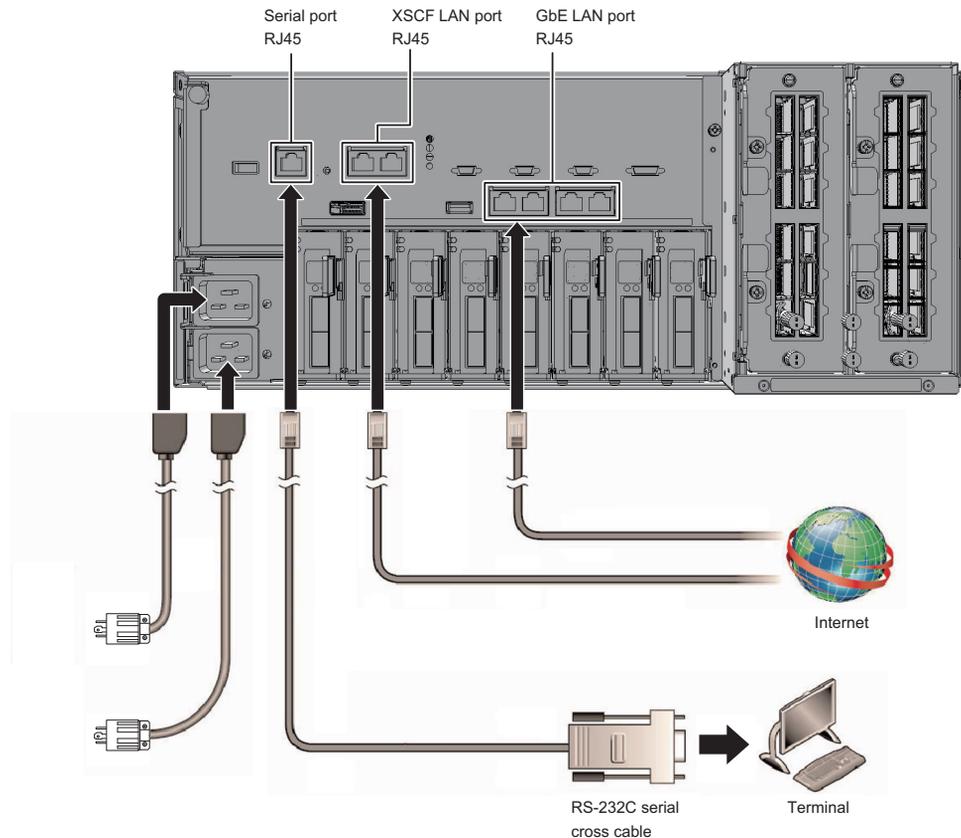
Figure 2-29   Network configuration example (crossbar box)
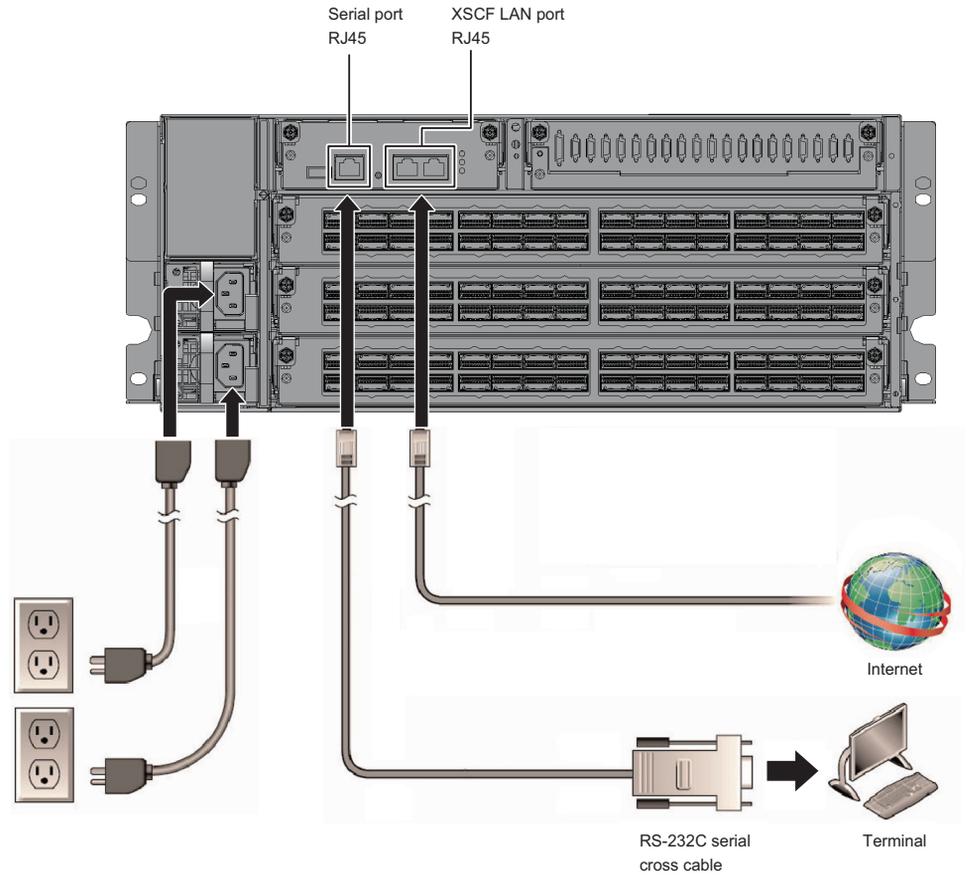
2.11 Checking the Functions of the Operation Panel

This section describes the functions of the operation panels mounted on the SPARC M10-4S and the crossbar box.
You can check system operation with the system display (LEDs) and operation functions on the operation panels.

Figure 2-29 shows the SPARC M10-4S operation panel, Figure 2-31 shows the crossbar box operation panel, and Table 2-18 shows the LEDs and switches on the operation panels.

For details on system operations not covered in the functional outline of Table 2-18, see "2.3   Confirming the Functions of the Operation Panel" in the *Fujitsu M10-4/ Fujitsu M10-4S/SPARC M10-4/SPARC M10-4S Service Manual*.

Note - In the building block configuration, the mode switch function and the POWER switch function are invalid on an operation panel other than the master XSCF.

Note - In the building block configuration with the crossbar box connected, all the functions of the operation panel becomes valid only on the operation panel of a crossbar box that is the master XSCF.

Figure 2-30   SPARC M10-4S operation panel
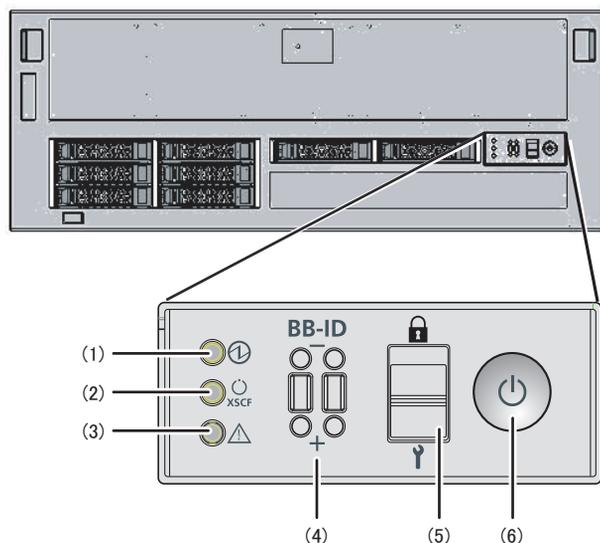
Figure 2-31   Crossbar box operation panel
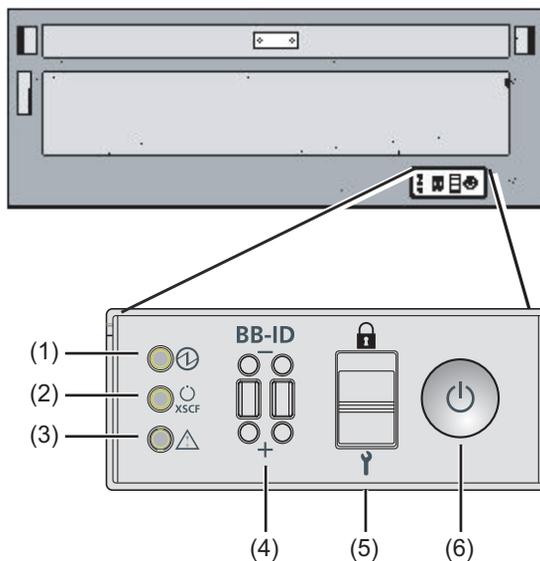
Table 2-18   LEDs and switches on the operation panels

No.	LED/Switch	Functional outline
1	POWER LED	Indicates the operating status of the system. 　On: The system is running. 　Off: The system is stopped. 　Blinking: The system is in the stop processing.
2	XSCF STANDBY LED	Indicates the XSCF status of the system. 　On: The XSCF is running. 　Off: The XSCF is stopped. 　Blinking: The XSCF is starting.
3	CHECK LED	Indicates whether the SPARC M10-4S is in an abnormal state. 　Off: Normal, or no power being supplied 　On: Hardware has detected an error.
4	BB-ID switch	Sets the ID identifying a chassis.
5	Mode switch	Sets the system operation mode.
6	POWER switch	Starts/Stops the system.

You can perform the following operations with the switches shown at (4) to (6) in Figure 2-30 and Figure 2-31.

- **BB-ID switch**
  This switch sets the ID number of the SPARC M10-4S/crossbar box in the building block configuration. Table 2-18 shows how to operate the BB-ID switch. For the

setting of the BB-ID number, see "4.1   Setting the ID (BB-ID) Identifying a Chassis."

- **Mode switch**
  This switch sets the start mode for the system. You can switch between Locked mode and Service mode on the mode switch by sliding the switch.

  - Locked mode (🔒)

  This switch sets the start mode for the system.

  You can switch from Service mode to Locked mode on the mode switch by sliding the switch.

  - Service mode (🔧)

  This mode is used during maintenance work.

  You can turn off the power with the POWER switch, but the switch is inhibited from turning on the power. Maintenance with the whole system stopped is performed in Service mode.

- POWER switch
  You can start or stop the system.

  In the building block configuration, the POWER switch is available for operation only on the SPARC M10-4S/crossbar box of the master XSCF. Set the same operation mode for the master XSCF and the standby XSCF.

Chapter 3

Installing the System

This chapter describes the work of preparing for installation, mounting a chassis in a rack, and mounting optional components.

- Preparing the Necessary Tools/Information for Installation
- Confirming Delivered Components
- Installing a Rack
- Mounting the Chassis in a Rack
- Mounting Optional Components

3.1 Preparing the Necessary Tools/ Information for Installation

This section describes the tools and information that are required in installation. Have these prepared before starting installation work.

Table 3-1   List of necessary tools

Name	Use
Phillips screwdriver (#2)	Used to attach cable support brackets and mount optional components
Phillips screwdriver (#3)	Used to connect racks and attach rails to the rack supporting columns
Wrench or box wrench (M8 screws securing rack package: nominal size 13)	Used to unpack an ordinary rack package
Wrench or box wrench (M10 screws securing rack package: nominal size 17)	Used to unpack an ordinary rack package
Allen wrench (M12 screws securing top cover: nominal size 8)	Used to connect racks

Table 3-1　　List of necessary tools (*continued*)

Name	Use
Wrench or box wrench (upper connecting screw M12: nominal size 19)	Used to connect racks
ESD mat and antistatic wrist strap	Used in the work of mounting optional components
Lifter (hydraulic or mechanical jack)	Used in the work of mounting chassis in racks
System management terminal (ASCII terminal, workstation, terminal server, patch panel connected to terminal server, etc.)	Used to connect to the XSCF and for the work of checking and configuring the XSCF firmware

3.2　Confirming Delivered Components

Here, confirm delivered components by referring to the List of Attachments that comes with the chassis. If any item is missing, incorrect, or damaged, contact the retailer from which the product was purchased or a sales representative.

- Confirming the delivered components of the SPARC M10-4S
- Confirming the delivered components of the PCI expansion unit
- Confirming the delivered components of an expansion rack

3.2.1　Confirming the delivered components of the SPARC M10-4S

This section describes the confirmation of delivered components of the SPARC M10-4S.

1. **Confirm the delivered components by referring to the List of Attachments that comes with the SPARC M10-4S.**
   Table 3-2 below is a list of accessories for the SPARC M10-4S. Table 3-3 is a list of accessories required for a building block configuration. The accessories may change without notice.

Table 3-2　　Reference: List of accessories for the chassis

Name	Quantity	Remarks
SPARC M10-4S chassis	1	(*1)
Fujitsu M10/SPARC M10 Systems Getting Started Guide	1	
Fujitsu M10/SPARC M10 Systems Important Legal and Safety Information	1	
CPU Activation CD-ROM	1	(*2)

Table 3-2   Reference: List of accessories for the chassis *(continued)*

Name	Quantity	Remarks
Power cord	2	For 200 VAC (*3)
Serial cable	1	
Rack mount kit	1 set	(*1)
Cable support	1 set	(*1)

*1 If the chassis is shipped mounted on a rack, this component is mounted on the rack.
*2 The disk contains the CPU Activation key information. One disk is supplied with the system.
*3 The power cord is ordered separately (required option), so it may not come with the product.

Table 3-3   List of accessories for a building block configuration (for direct connections between chassis)

Name	Quantity	Remarks
Crossbar cable (electrical)	(*1)	Electrical cable connected between crossbar units
XSCF BB control cable (2 m)	(*2)	Cable connected between XSCF units
XSCF DUAL control cable	1	Cable connected between XSCF units of the master XSCF and standby XSCF

*1 There are 8 cables for the 2BB configuration, 24 cables for the 3BB configuration, and 48 cables for the 4BB configuration.
*2 There is 1 cable for the 2BB configuration, 3 cables for the 3BB configuration, and 5 cables for the 4BB configuration.

Note - In a configuration with an expansion rack, the crossbar cables (optical), XSCF BB control cables, and XSCF DUAL control cable are already laid in the rack. For details, see "3.2.3   Confirming the delivered components of an expansion rack."

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2. **Check for incomplete engagement, incomplete contact, or looseness in the mounting of an internal disk that may have been caused by vibration during transportation or moving of the equipment. Also confirm that the PCI cassette lever is locked at the top.**

3.2.2   Confirming the delivered components of the PCI expansion unit

This section describes the confirmation of delivered components of the PCI expansion unit.

1. **Confirm the delivered components by referring to the List of Attachments that comes with the PCI expansion unit.**
   Table 3-4 below is a list of accessories for the PCI expansion unit. The accessories may change without notice.

Table 3-4   Reference: List of accessories for the PCI expansion unit

Name	Quantity	Remarks
PCI expansion unit	1	
Power cord	2	For 100 VAC or 200 VAC (*1)
Core	2	Used when attached to power cord
Rack mount kit	1 set	
Cable support	1 set	
Link cable (optical, 10 m)	2	Either of two types of cables is selected (*2)
Link cable (electrical, 3 m)		
Management cable	1	(*2)
Link card	1	Card for mounting in the SPARC M10-4S chassis (*3)

*1 The power cord is ordered separately (required option), so it may not come with the product.
*2 If ordered at the same time as the SPARC M10-4S, the cable is supplied with the SPARC M10-4S.
*3 If ordered at the same time as the SPARC M10-4S, the card is shipped mounted in the SPARC M10-4S.

2. **Confirm that the PCIe card cassette lever is locked at the bottom.**

3.2.3   Confirming the delivered components of an expansion rack

An expansion rack is a dedicated rack required for connecting each SPARC M10-4S unit through a crossbar box. Dedicated power distribution units (PDUs) for supplying power, crossbar boxes, crossbar cables (optical), and XSCF cables are mounted as standard in the expansion rack.

The expansion racks are expansion rack 1 and expansion rack 2. Expansion rack 1 is used for configurations up to the 8BB configuration. Expansion rack 2 is used for the 9BB to 16BB configurations.

Figure 3-1 is a list of accessories for expansion rack 1 and expansion rack 2. Figure 3-2 is a list of connecting kit components supplied with expansion rack 2.

Figure 3-1   Accessories for expansion racks 1 and 2
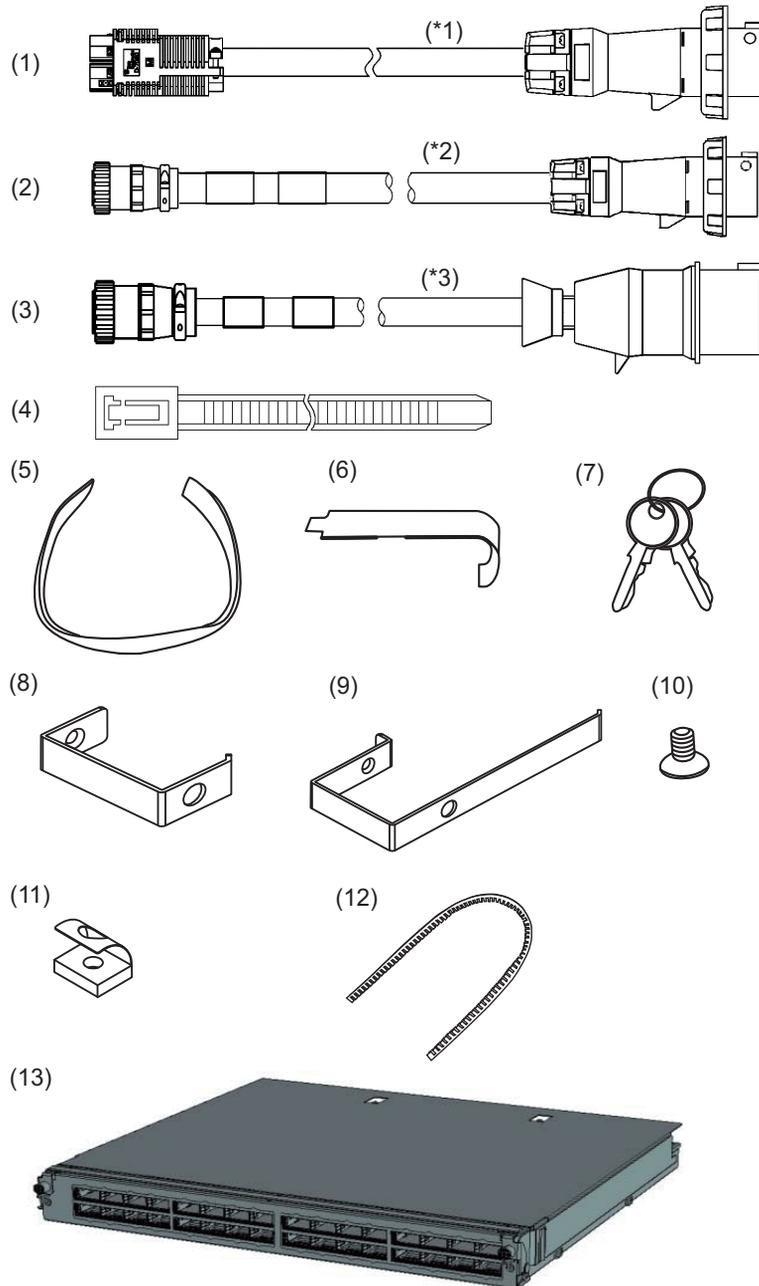
*1 Power cord for the single-phase power feed model
*2 Power cord for the three-phase delta power feed model
*3 Power cord for the three-phase star power feed model

Table 3-5   Reference: List of accessories for expansion rack 1

Number in figure	Name	Quantity	Remarks
1 to 3	PDU power cord (for connecting PDU and customer facilities)	8 or 6	(*1)
4	Binding band	8	
5	Hook-and-loop fastener strip	1 set	
6	Cage nut attachment tool	1	
7	Key (for both front and rear doors)	2	
8	Cable holder (F)	10	
9	Cable holder (R)	2	
10	M5 flat-head screw (for attaching cable holder)	12	
11	M5 core spring nut (for attaching cable holder)	12	
12	Protection bushing (for top cover opening)	3	

*1 Eight cables are supplied for the single-phase power supply, and six cables for the three-phase power supply.

Table 3-6   Reference: List of accessories for expansion rack 2

Number in figure	Name	Quantity	Remarks
1 to 3	PDU power cord (for connecting PDU and customer facilities)	8 or 6	(*1)
4	Binding band	8	
5	Hook-and-loop fastener strip	1 set	
6	Cage nut attachment tool	1	
7	Key (for both front and rear doors)	2	
8	Cable holder (F)	10	
9	Cable holder (R)	2	
10	M5 flat-head screw (for attaching cable holder)	12	
11	M5 core spring nut (for attaching cable holder)	12	
12	Protection bushing (for top cover opening)	3	
13	Crossbar unit	2	(*2)
-	Connecting kit	1 set	(*3)

*1 Eight cables are supplied for the single-phase power supply, and six cables for the three-phase power supply.
*2 If this component is ordered at the same time as expansion rack 1, it is shipped mounted in a crossbar box. Otherwise, it is an accessory.
*3 This is an accessory. For details, see Figure 3-2.

Figure 3-2　　Connecting kit components
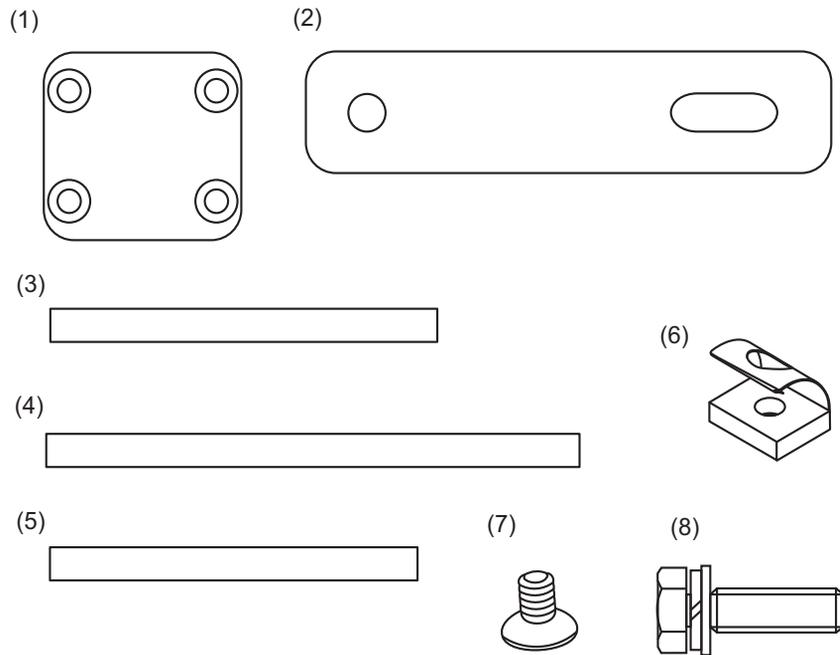
Table 3-7　　Reference: List of connecting kit components

Number in figure	Name	Quantity	Remarks
1	Lower connecting bracket	2	
2	Upper connecting bracket	2	
3	Horizontal connecting packing 1	1	Length: 880 mm (34.6 in.)
4	Vertical connecting packing 1	2	Length: 1,000 mm (39.4 in.)
5	Vertical connecting packing 2	2	Length: 860 mm (33.9 in.)
6	M6 core spring nut	8	For connecting lower part
7	M6 flat-head screw	8	For connecting lower part
8	M12 hexagon head bolt	4	For connecting upper part

3.3　　Installing a Rack

The expansion rack is shipped with the SPARC M10-4S chassis and crossbar boxes mounted. Power distribution units (PDUs) are also shipped mounted in the rack

together with crossbar cables (optical) and XSCF BB control cables.

This section describes the procedure for connecting the power cords to the power distribution units (PDUs), how to install the expansion rack, and the procedure for connecting the rack. For the methods of installing racks other than the expansion rack, see the manual for each rack.

3.3.1 Connecting the power cords to the power distribution units of an expansion rack

This section describes the procedure for connecting the power cords to the power distribution units (PDUs) of an expansion rack (referred to below as the rack).

1. **Turn off the circuit breaker switches (CB switches) on the PDUs.**
   Open the rear door of the rack, and pull up all the CB switches on the PDUs.

   When pulled up, a CB switch is turned off. When pushed in, the switch is turned on.

   Figure 3-3 shows the location of the PDU for single-phase power feed and the location of the CB switch on the PDU for three-phase power feed. Two units of either type of PDU are mounted for each expansion rack.

   A in Figure 3-3 is the CB switch. A PDU has 12 CB switches, so there are 24 switches per rack.

   Keep the CB switches turned off until you turn them on in "6.2.2   Turning on the input power and starting the XSCF."

Figure 3-3   Locations of the CB switches on the PDUs
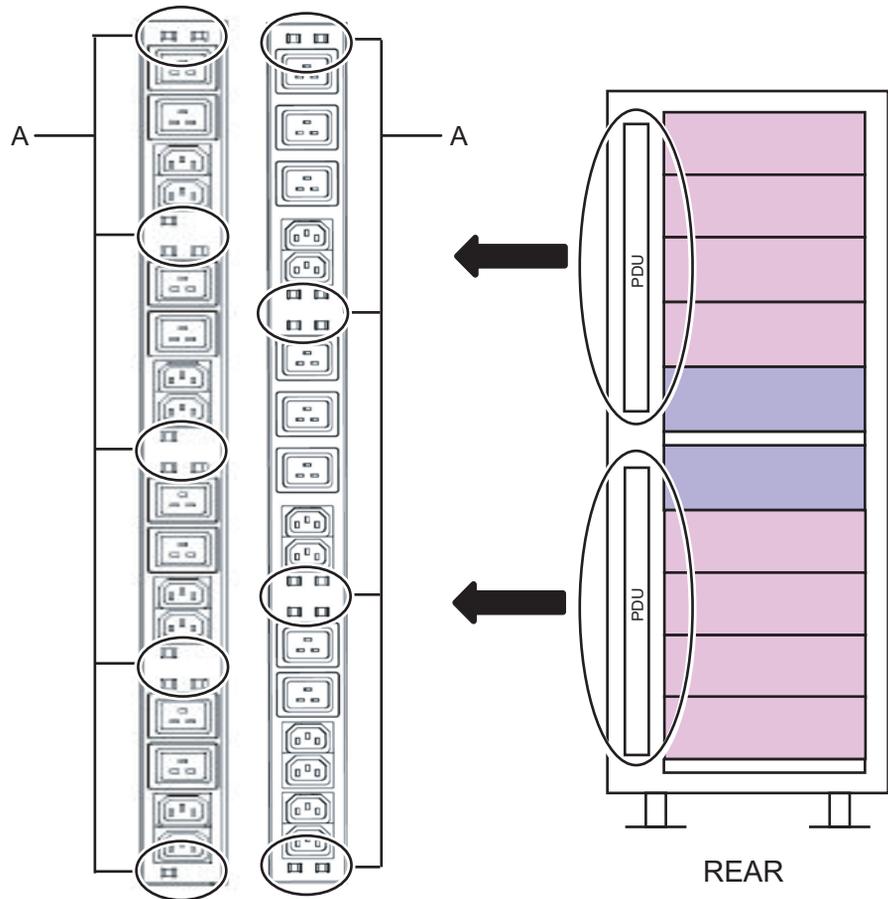
For single-phase   For three-phase
   power feed   power feed

2. **Remove the side plate on the right side as viewed from the front of the rack.**
   a. Remove the 10 screws securing the side plate.

   b. Remove the side plate by lifting it up.

Note - Be careful when removing the side plate because it weighs about 13 kg.

Remarks - Expansion rack 2 does not have the side plate.

Figure 3-4   Removing the side plate

FRONT
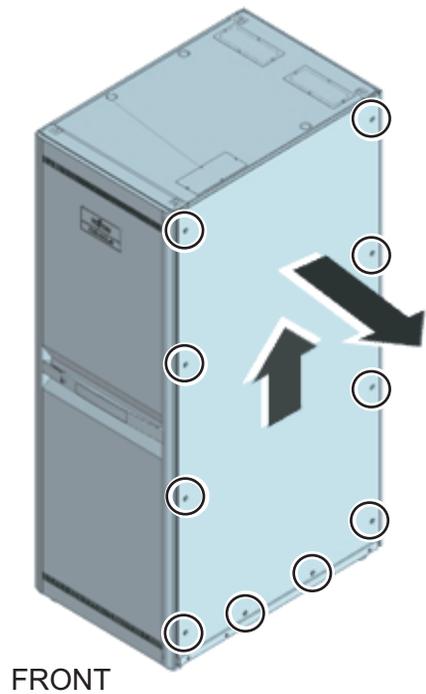
3. **Connect the power cords.**
   The wiring of the power cords may run from above the rack or below the rack.
   Perform this work by following the corresponding procedure.

Wiring the power cords from above the rack (ceiling side)

  a. Remove the four screws securing the top cover of the rack.
  b. Remove the top cover by lifting it up.

Note - Be careful because work on the top cover section is done high off the ground. Never do anything dangerous such as putting your foot on the rack, which would be very dangerous.

Figure 3-5   Removing the top cover
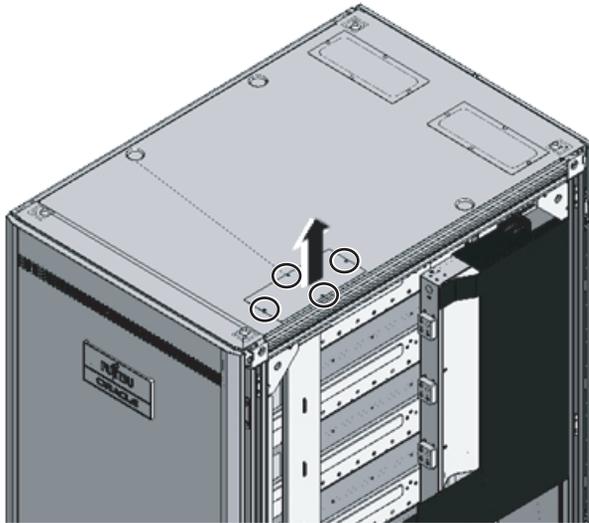
c. Fit the protection bushing (A in Figure 3-6) in the top opening of the rack.

Figure 3-6   Fitting in the protection bushing
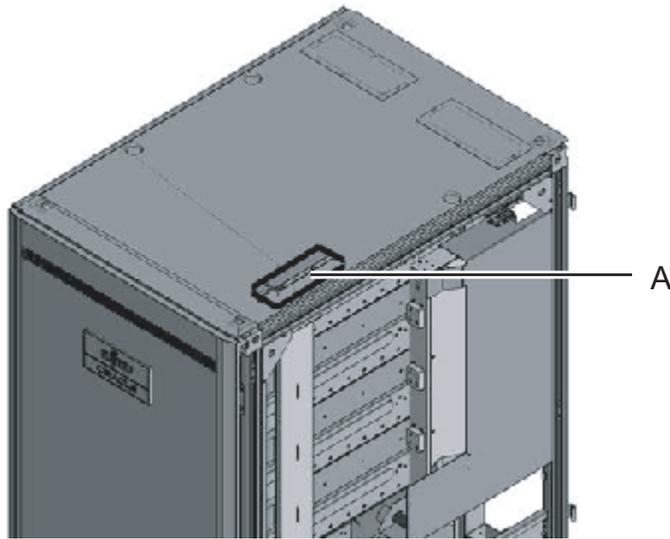
d. Insert the PDU connection side of the power cords through the top opening of the rack.
A in Figure 3-7 represents the power cord for single-phase power feed.
B in Figure 3-7 represents the power cord for three-phase power feed.

Figure 3-7   Inserting power cords
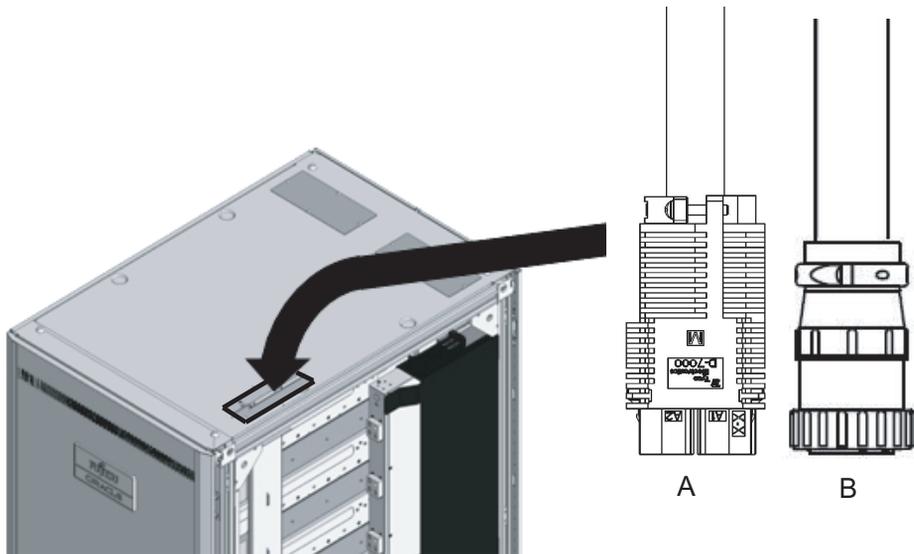
e. Connect the power cords to the PDUs.
   Each cable has an attached label showing the connection destination. Each PDU also has an indicator. So, match it with the right cable to connect the cable. For the PDU mounting locations, see Figure 3-8.

Figure 3-8   Connecting power cords

PDU#1 or PDU#3 (*1)

PDU#0 or PDU#2 (*1)

FRONT
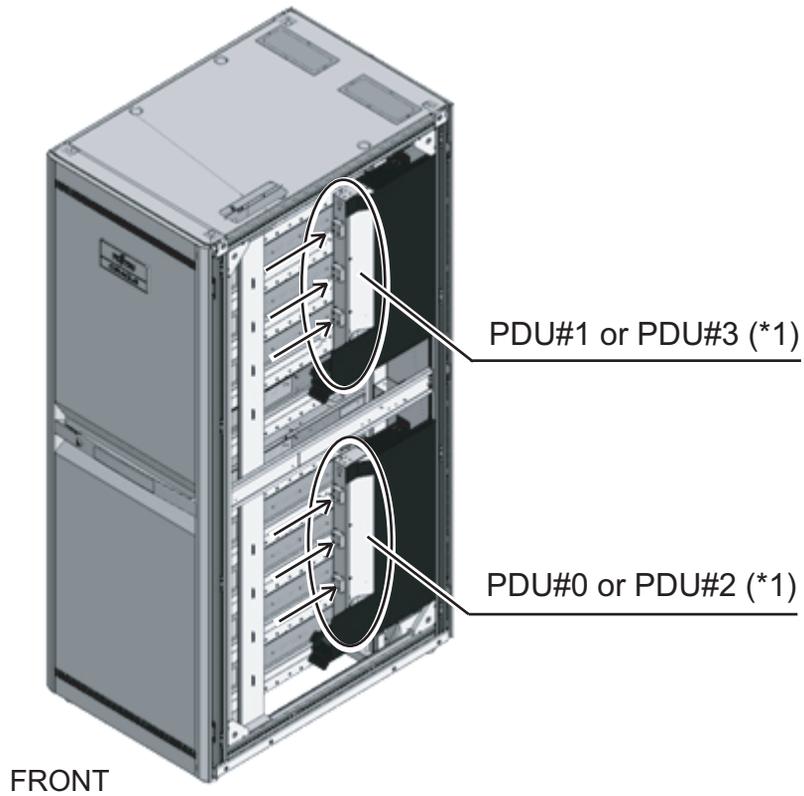
*1 PDU#0 and PDU#1 are for expansion rack 1. PDU#2 and PDU#3 are for expansion rack 2.

f. Secure all the power cords to the column, with the supplied binding bands (A in Figure 3-9).
When securing them, allow an extra length of about 30 cm (12 in.) in each power cord.

Remarks - Figure 3-9 shows single-phase power feed. The required lengths are the same as for three-phase power feed.

Figure 3-9   Securing power cords
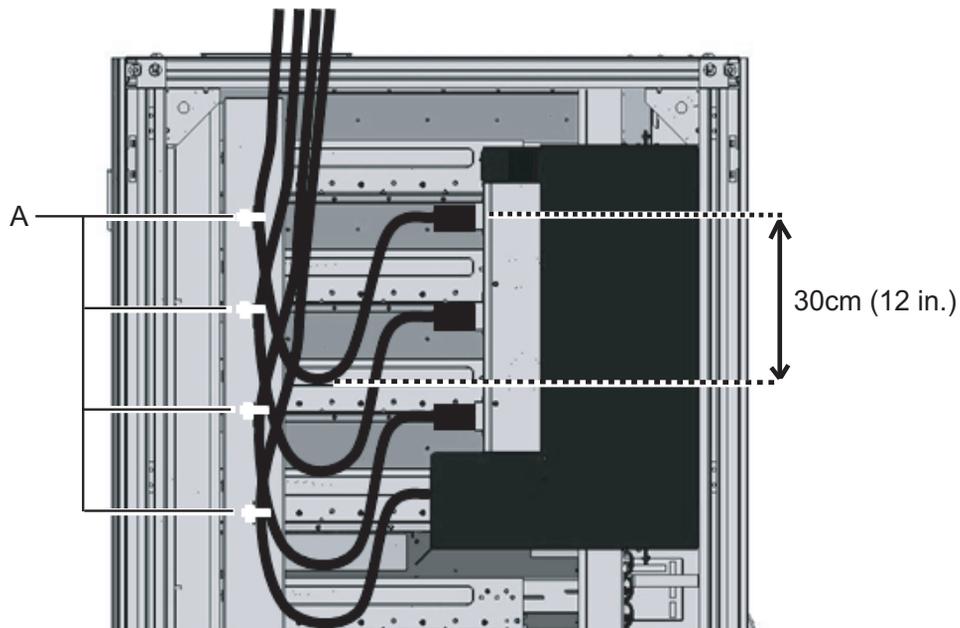
Wiring the power cords from below the rack (floor side)

a. Move the rack forward 50 cm (20 in.) from the power cord opening (A in Figure 3-10).

Figure 3-10　　Moving the rack
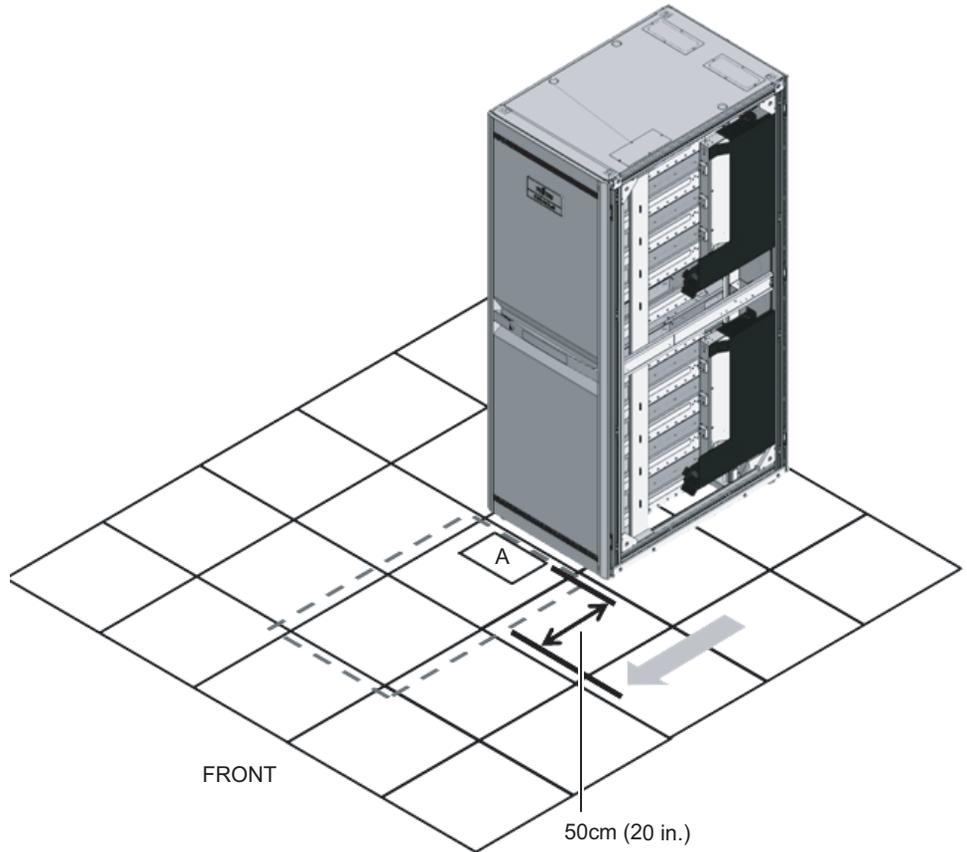
b. Draw in the PDU connection side of the power cords into the rack through the power cord opening.

A in Figure 3-11 represents the power cord for single-phase power feed.

B in Figure 3-11 represents the power cord for three-phase power feed.

Figure 3-11   Drawing in power cords
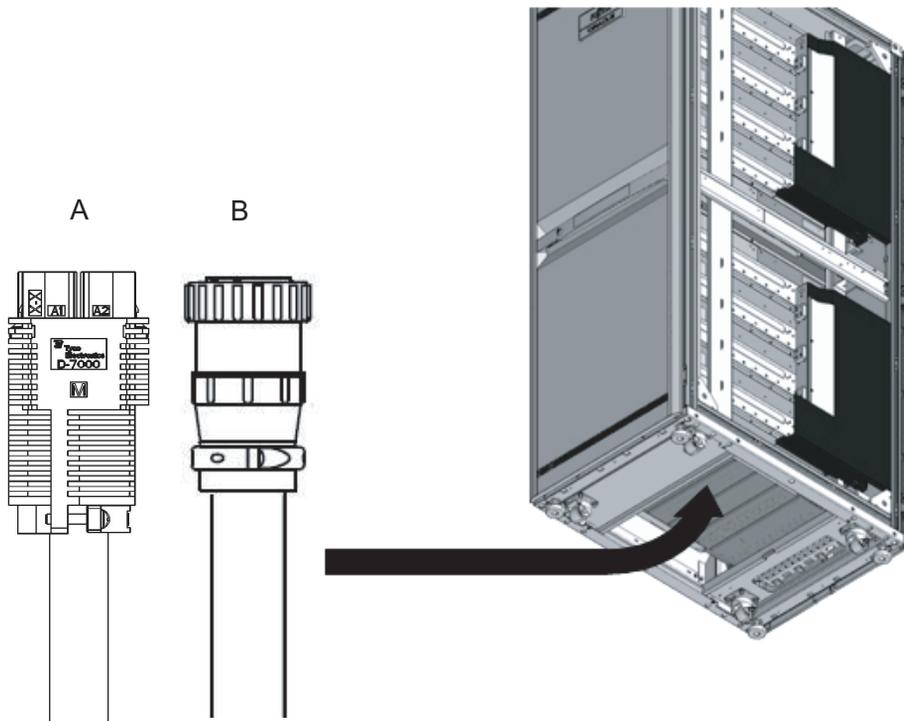
c. Connect the power cords to the PDUs.
   Each cable has an attached label showing the connection destination. Each PDU also has an indicator. So, match it with the right cable to connect the cable. For the PDU mounting locations, see Figure 3-12.

Figure 3-12   Connecting power cords

PDU#1 or PDU#3 (*1)

PDU#0 or PDU#2 (*1)

FRONT
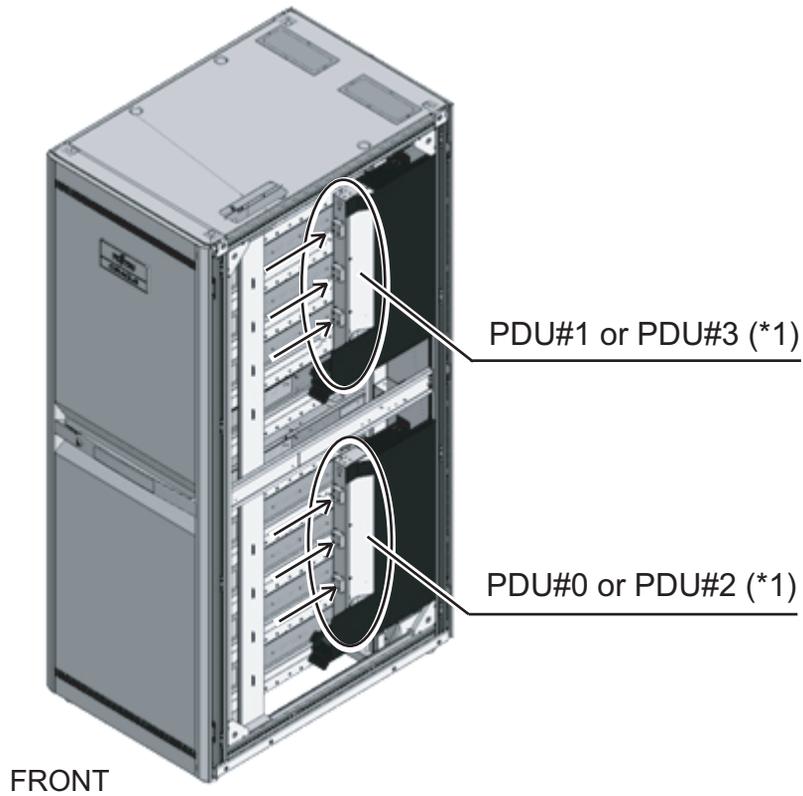
*1 PDU#0 and PDU#1 are for expansion rack 1. PDU#2 and PDU#3 are for expansion rack 2.

d. Secure all the power cords to the column, with the supplied binding bands (A in Figure 3-13).
When securing them, allow an extra length of about 30 cm (12 in.) in each power cord.

Figure 3-13   Securing power cords
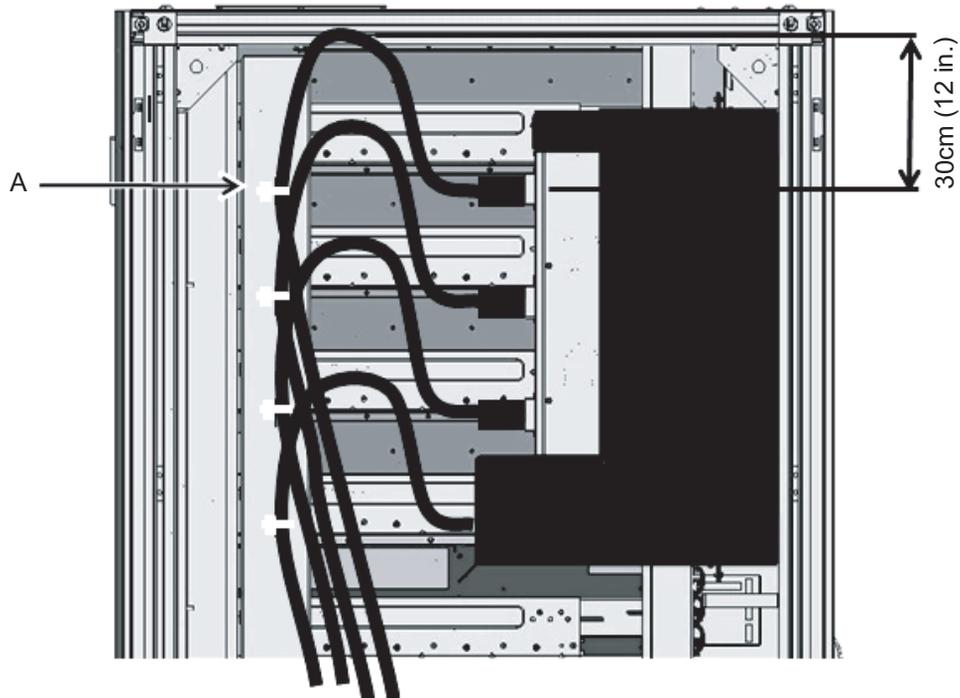
Remarks - Figure 3-13 shows single-phase power feed. The required lengths are the same as for three-phase power feed.

4. **Attach the side plate that was removed in step 2.**
   Attach the plate by reversing the removal procedure of step 2. Move the rack as appropriate into position for attaching the side plate.

5. **Move the rack to the installation location.**

3.3.2   Securing the rack

When installing the rack, always adjust the leveling feet as follows, regardless of whether the rack will be anchored to the building floor. Keep the rack level with the leveling feet. Make sure that the casters are approximately 2 mm (0.1 in.) above the floor surface. The casters must not support the weight of the rack.

For fixed installations of the rack

- Fixing in place using the quakeresistant options kit
  Attach the quakeresistant options kit (which is optional so must be ordered separately) around the rack (front, rear, and sides), and fix it to the slab (building floor) by using the holes in the kit.

Figure 3-14   Fixed in place by the quakeresistant options kit
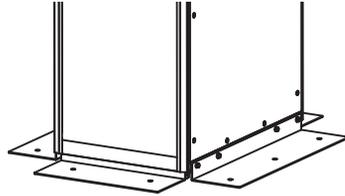
- Fixing in place using the leveling feet
  Fix the rack to the slab (building floor) by using holes with a depth of 17 mm (0.7 in.) for screws of size M20 on the bottom of the leveling feet of the rack.

Figure 3-15   Example of being fixed in place by the leveling feet
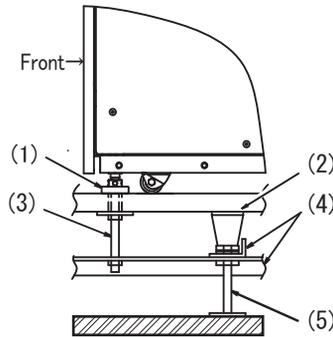
Number in figure	Description
1	Leveling foot
2	Free-access floor
3	Bolt (M20)
4	Frame
5	Supporting column

For non-fixed installations of the rack

■ Fixing in place using the toppling prevention stabilizer

Note - Attach the stabilizer as a measure to prevent the rack from toppling during system maintenance. For non-fixed installations, always attach the stabilizer when installing the rack.
The stabilizer is attached to the rack as shown below.

Figure 3-16   Illustration of L-shaped stabilizer attachment
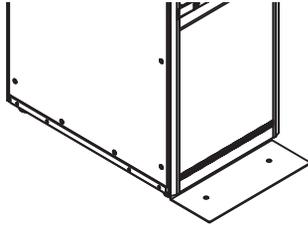
Warning - For a non-fixed installation of a rack, order the stabilizer and be sure to attach it. Pulling out the chassis from a rack without a stabilizer attached may cause the rack to topple over.

3.3.3   Connecting racks

In a configuration with expansion rack 2, connect racks directly. To connect the racks, connect a rack to the already installed rack (expansion rack 1).

Warning - Turn off all the circuit breaker switches (CB switches) of expansion rack 1 when installing an expansion rack. There is a risk of shock or equipment failure.

Caution - Make sure that two or more workers perform the work for connecting the racks. Failure to do so may result in injury. You may have to stand on a stepladder when working in the upper part of the rack. Be careful not to fall. Do not put your foot on the rack when connecting the racks. Before performing the work, ensure that expansion rack 1 does not move.

This section describes the procedure for connecting expansion rack 2 to the right side of expansion rack 1.

1. **Confirm that the connecting kit supplied with expansion rack 2 is complete.**

2. **Remove the front doors of expansion racks 1 and 2.**

a. Open the door about 90°.

b. Lifting up the door, remove the hinge (pin) on the main body of the rack. Then, slide the door laterally to remove it.

Caution - When attaching or removing the door, be careful not to catch your finger, etc. in the gap between the door and rack. The notch for the front door hinge has a bend for controlling the opening and closing angle, so you may find it difficult to slide the door laterally.

Figure 3-17   Removing the front door

FRONT
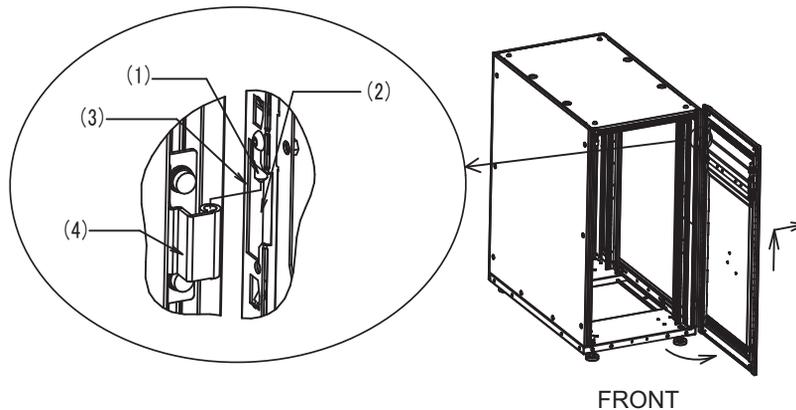
Number in figure	Description
1	Hinge on door
2	Notch for hinge
3	Bend for controlling opening and closing angle
4	Hinge on main body

3. **Remove the rear doors of expansion racks 1 and 2.**
   a. Open the door about 90°.

   b. Lifting up the door, remove the hinge (pin) on the main body of the rack. Then, slide the door laterally to remove it.

4. **Remove the screws securing the top cover of expansion rack 1, and remove the side plate.**
   a. Use an Allen wrench to remove the two M12 screws securing the top cover, at the front and rear on the right side, which is the connecting side. The removed screws will not be used.

   b. Remove the 10 screws securing the side plate, and remove the side plate.

Note - Be careful because work on the top cover section is done high off the ground. Never do anything dangerous such as putting your foot on the rack, which would be very dangerous.

Note - Be careful when removing the side plate because it weighs about 13 kg.

Figure 3-18   Removing the side plate
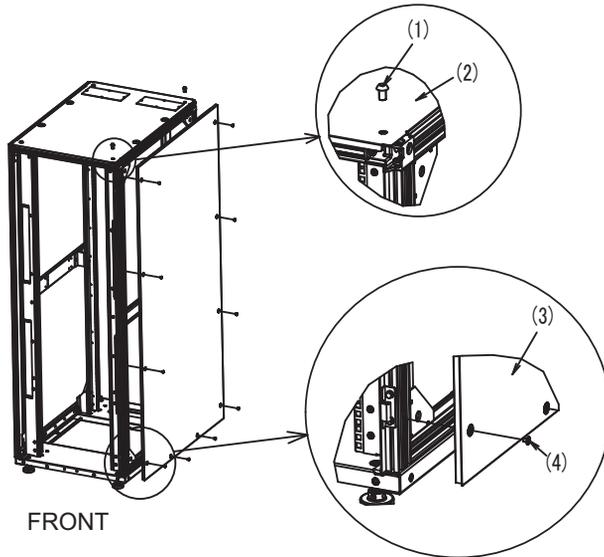
FRONT

Number in figure	Description
1	M12 screw
2	Top cover
3	Side plate
4	Screw

5. **Attach M6 core spring nuts to the front and rear of expansion rack 1.**
   a. Attach two M6 core spring nuts in the lower part of the vertical column (right side as viewed from the front) on the connecting side at the front of the rack.
   b. Attach two M6 core spring nuts in the lower part of the vertical column (left side as viewed from the rear) on the connecting side at the rear of the rack.

Figure 3-19   Attaching core spring nuts

FRONT   REAR
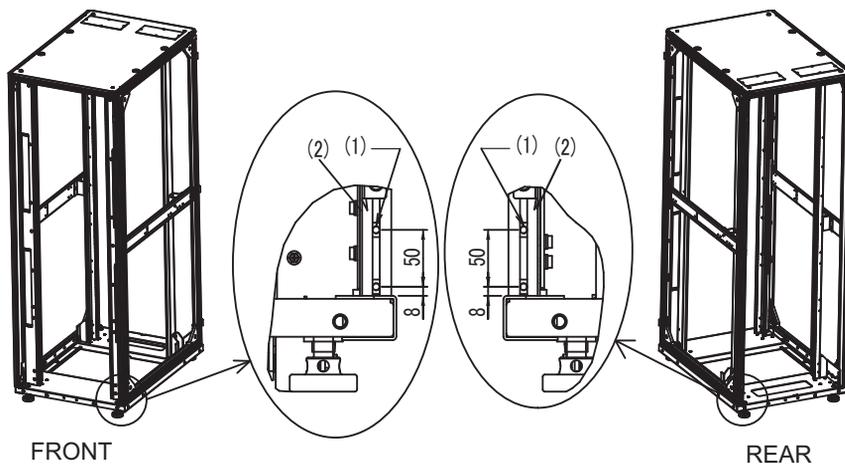
Number in figure	Description
1	M6 core spring nut
2	Vertical column

- **Procedure for attaching core spring nuts**
  Perform work by referring to Figure 3-20.

  a. Insert core spring nut A in direction C into the groove of vertical column B.
     Then, rotate it in direction D.
     Use the tip of a pen or a fine flat-bladed screwdriver, etc. to help you do this.

  b. Confirm that the core spring nut is not inclined in the groove of the aluminum
     frame.

Note - Check whether the screw section of the core spring nuts can be seen from outside of
the groove.

Figure 3-20   Attaching core spring nuts
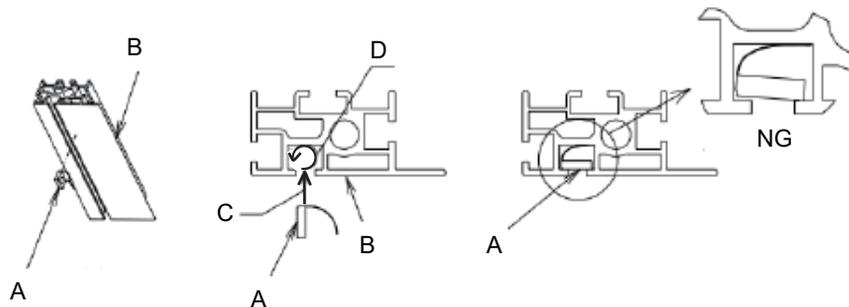
6. **Affix connecting packings.**

   a. Affix vertical connecting packings 1 and 2 to the front and rear vertical columns on the right side of expansion rack 1. You can affix either of them at the top.
   For the locations for affixing the connecting packings, see (4) in Figure 3-21.

   b. Affix the horizontal connecting packings to the horizontal column on the upper right side of expansion rack 1.
   For the locations for affixing the connecting packings, see (3) in Figure 3-21.

Figure 3-21   Affixing connecting packings
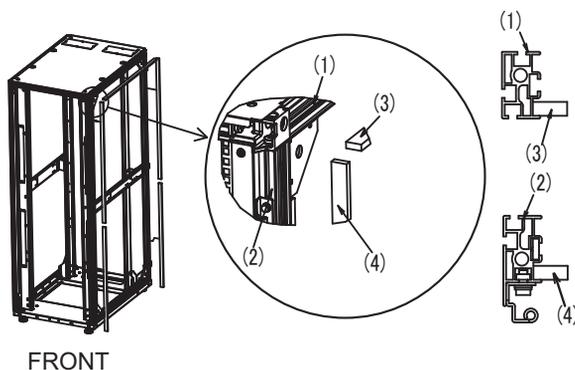
FRONT

Number in figure	Description
1	Horizontal column
2	Vertical column
3	Horizontal connecting packing
4	Vertical connecting packing

7. **Remove the screws securing the top cover of expansion rack 2, and attach M6 core spring nuts to the front and rear of the rack.**

   a. Use an Allen wrench to remove the two M12 screws securing the top cover, at the front and rear on the left side, which is the connecting side.

Note - Be careful because work on the top cover section is done high off the ground. Never do anything dangerous such as putting your foot on the rack, which would be very dangerous.

   b. Attach two M6 core spring nuts in the lower part of the vertical column (left side as viewed from the front) on the connecting side at the front of the rack.

   c. Attach two M6 core spring nuts in the lower part of the vertical column (right side as viewed from the rear) on the connecting side at the rear of the rack.

Figure 3-22   Attaching core spring nuts (expansion rack 2 side)
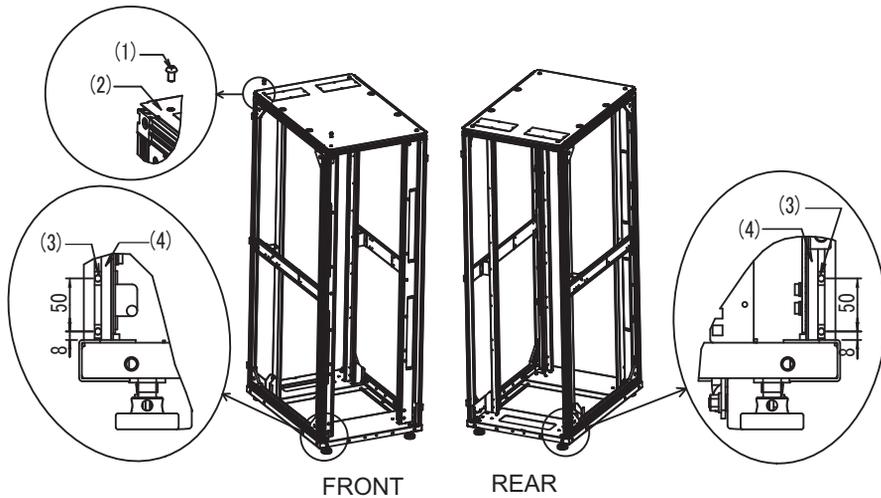
Number in figure	Description
1	M12 screw
2	Top cover
3	M6 core spring nut
4	Vertical column

8. **Align the heights of expansion racks 1 and 2.**
   a. Arrange expansion rack 2 next to expansion rack 1.
   b. Adjust the leveling feet of expansion rack 2 to align its height with that of expansion rack 1.

9. **Attach the upper and lower connecting brackets.**
   a. Align the upper connecting brackets with the top covers of expansion racks 1 and 2, and temporarily join them using M12 hexagon head bolts.

Note - Confirm that the heights of expansion racks 1 and 2 are aligned. If not, adjust the heights by using the leveling feet.

Note - Be careful because work on the top cover section is done high off the ground. Never do anything dangerous, such as putting your foot on the rack, which would be very dangerous.

Note - If a connecting packing protrudes or is recessed when you align expansion racks 1 and 2, adjust it by pulling or pushing it with your fingers.

Note - Before attaching the connecting brackets, confirm that the cables stored in the expansion rack 2 are packed. After the connecting brackets are secured, it may not be possible to remove the cables that pass between the racks. As needed, unpack the cables that pass between the racks, and pass them to expansion rack 1 (see 4.3) so that they can be taken out. For details on unpacking and packing location, see "4.3.2   Connecting crossbar cables."

    b. Using the M6 core spring nuts attached to the front and rear vertical columns of the rack in steps 5 and 7, secure the lower connecting brackets with M6 flat-head screws.

    c. Finally, tighten the M12 hexagon head bolts for securing the upper connecting brackets that have temporarily joined the racks.

Figure 3-23   Attaching connecting brackets

FRONT
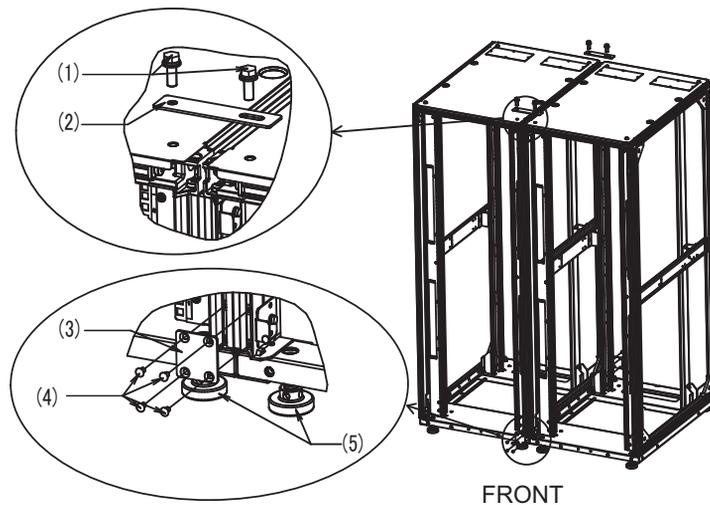
Number in figure	Description
1	M12 hexagon head bolt
2	Upper connecting bracket
3	Lower connecting bracket
4	M6 flat-head screw
5	Leveling foot

10. **Attach the side plate to expansion rack 2.**
     Attach the side plate removed from expansion rack 1 with the 10 screws of the side plate removed from expansion rack 1.

Note - Be careful when attaching the side plate because it weighs about 13 kg.

Figure 3-24   Attaching the side plate
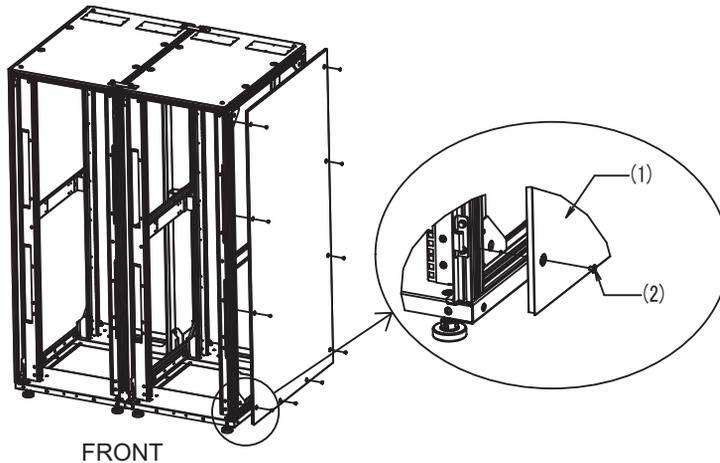
FRONT

Number in figure	Description
1	Side plate
2	Screw

11. **Attach the front and rear doors of expansion racks 1 and 2.**
    The work of connecting the racks ends when the front and rear doors are attached.

3.4   Mounting the Chassis in a Rack

This section describes the procedures for mounting the chassis in an equipment rack. The method of securing the rails differs depending on the rack type. As described in this section, the methods of securing them differ between the racks with supporting columns having square holes and the racks with supporting columns having M6 screw holes.

For rack details, see the manual for the rack used.

If the chassis has already been mounted in the rack, go to "3.5   Mounting Optional Components."

For the rack mounting procedure of each chassis, see the following sections:

- Mounting the SPARC M10-4S in a rack
- Mounting the PCI expansion unit in a rack

3.4.1 Mounting the SPARC M10-4S in a rack

1. **Confirm that the rack mount kit supplied with the SPARC M10-4S is complete.**

Note - The rack mount kit contains two types of cable support: Type-1 and Type-2. The Type-2 cable support is an integrated unit consisting of the parts indicated by numbers 2 to 5 in Figure 3-25. Steps 7 and 11 in the mounting procedure vary depending on the shape of the cable support. Attach the support according to the corresponding steps.

Figure 3-25   Rack mount kit

Number in figure	Name	Quantity	Remarks
1	Rail	2	Bilaterally symmetrical shape
2	Cable support (*1) (*2)	1	
3	Cable support bracket (*2)	2	Bilaterally symmetrical shape
4	M3 screw (*2)	2	
5	Cable support fixing bracket (*2)	2	Bilaterally symmetrical shape
6	M6 screw	10	
7	Cage nut	10	

*1 There are two types of cable support: Type-1 and Type-2. To distinguish between them, see Figure 3-26.
*2 The Type-2 cable support is an integrated unit consisting of these parts.

Figure 3-26   Type-2 cable support
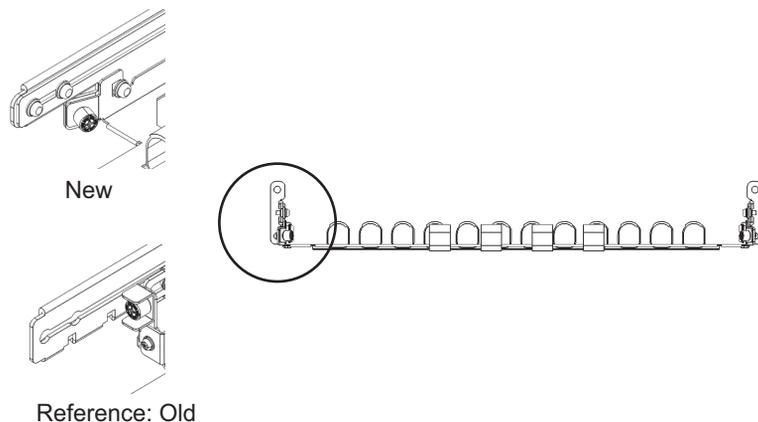
New

Reference: Old

2. **Confirm that the rack is secured in place to prevent the rack from toppling over.**
   For details, see "3.3.2   Securing the rack."

3. **Confirm the chassis mounting location in the rack. If necessary, mark the location on the supporting columns.**
   The mounting locations have been predetermined for the building block configurations. See Figure 2-3 in "2.4.1   Mounting conditions for general racks."

4. **Step 4 differs depending on the shape of the supporting column holes of the rack. Perform the work appropriate to the shape of the supporting column holes of the rack.**

- **For racks with supporting columns having square holes**

   Attach cage nuts to the left and right supporting columns of the rack.

- Attachment locations in the front supporting columns: (From the bottom) 1U center, 2U bottom, and 3U top
- Attachment locations in the rear supporting columns: (From the bottom) 1U center and 2U center

Figure 3-27   Cage nut attachment locations in the supporting columns of the rack
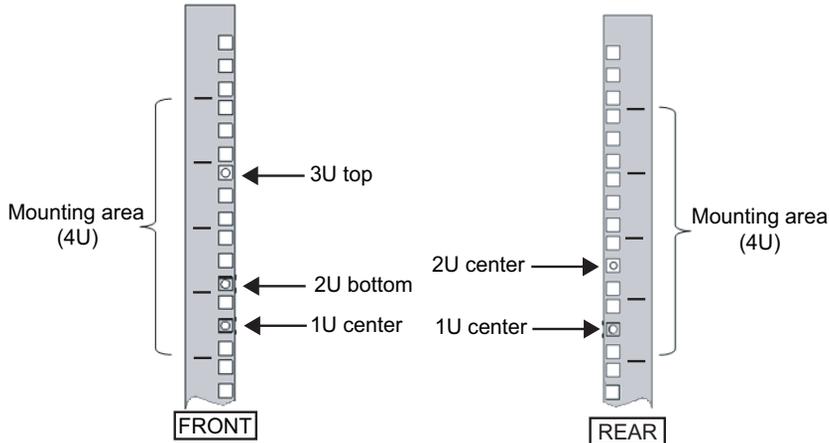
a. Attach cage nuts from the inside of the rack.
   Orient the hooks of the cage nut vertically.
   Hook the hook at one end of a cage nut into a cage nut attachment hole of the rack.
   Figure 3-28 shows a cage nut hooked on the lower part of a hole.

Figure 3-28   Orientation of the hooks of a cage nut
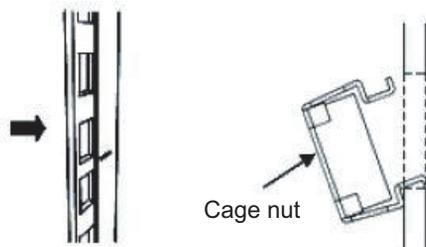
b. Insert the hook at the tip of the supplied cage nut attachment tool through a cage nut attachment hole from the front, and engage it with the hook at the other end of the cage nut.

Figure 3-29   Using the cage nut attachment tool
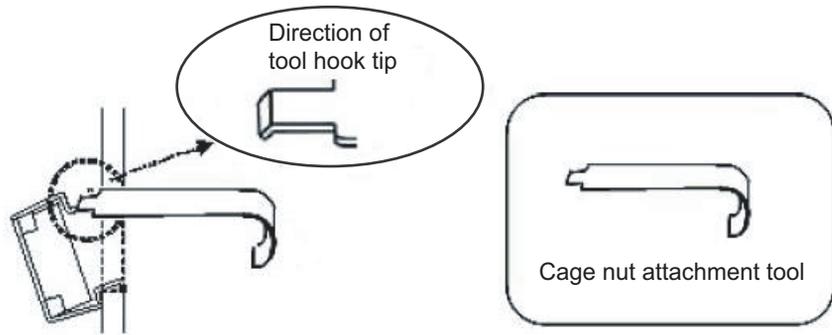
c. Pull the tool forward to attach the cage nut.
   Push in direction A while simultaneously pulling in direction B as shown in Figure 3-30.

Figure 3-30   Attaching a cage nut
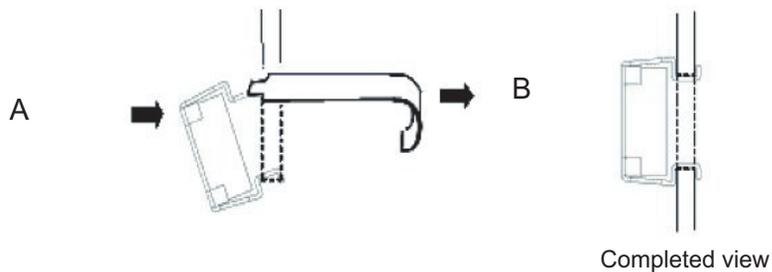
■ **For supporting columns with M6 screw holes**

   Remove the pins at the front and rear of the rail.

   a. Remove the screw (A in Figure 3-31) securing the rail pin.

   b. Remove the pin (B in Figure 3-31).

   c. Remove pins from the left and right rails in the same manner.

   d. Store the removed pins and screws (eight pins and eight screws in total) for future use when the chassis is moved.

Figure 3-31   Removing a rail pin
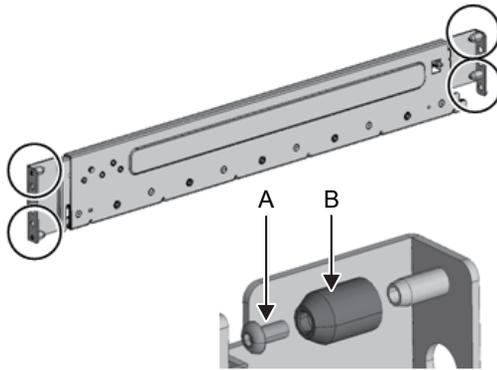
5. **Remove the one screw (A in Figure 3-32) from the side of the rail.**
    The removed screw will be used in step 8.

Figure 3-32   Screws on the sides of rails

FRONT   FRONT
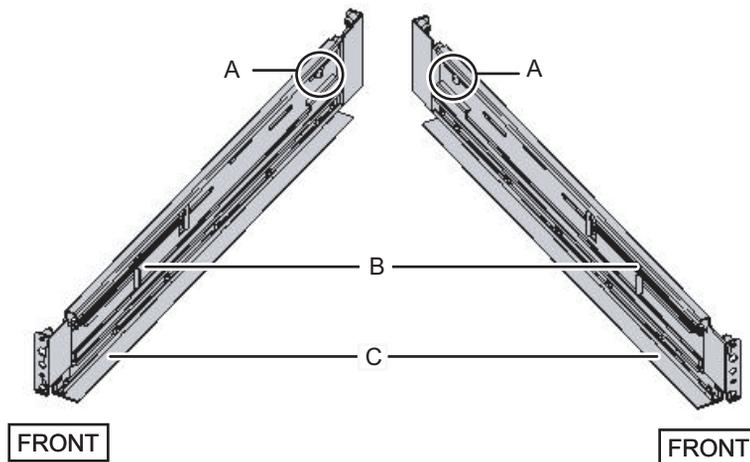
6. **Attach the rail to the rack.**
    Attach the rail such that the spring-loaded side (B in Figure 3-32) faces the front
    and the flange (C in Figure 3-32) faces the bottom.

    a. From the front of the rack, insert the rail protrusions into 2U top and 1U top
        in the front supporting column of the rack.

    b. Pull out the rail to as far as the depth of the rack.

    c. Insert the rail protrusions into 2U top and 1U bottom in the rear supporting
        column of the rack.

    d. Secure the rail with one M6 screw to the front supporting column of the rack.
        The fixing location is 2U bottom.

    e. Attach the other rail in the same manner.

Note - After removing its screw, hold the rail level with both hands. If the rail tilts, it may stretch.

Figure 3-33   Attaching the rail: Locations of protrusions
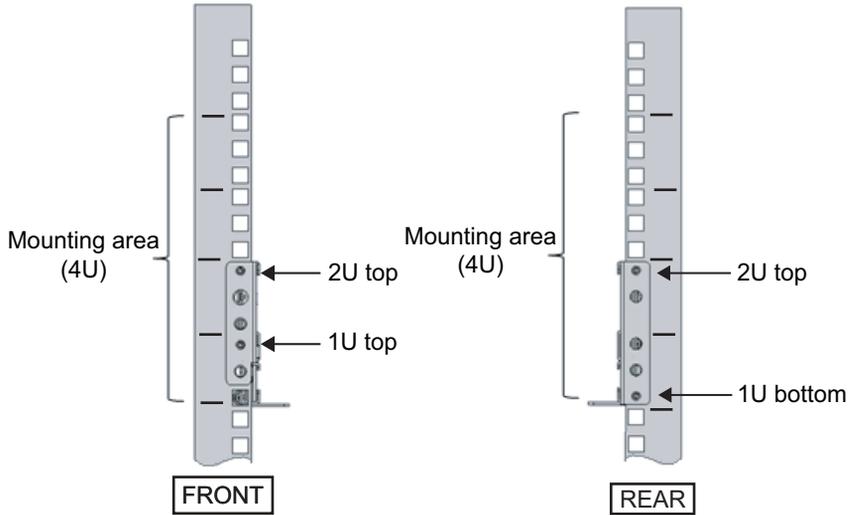
Figure 3-34   Attaching the rail: Fixing location of the screw
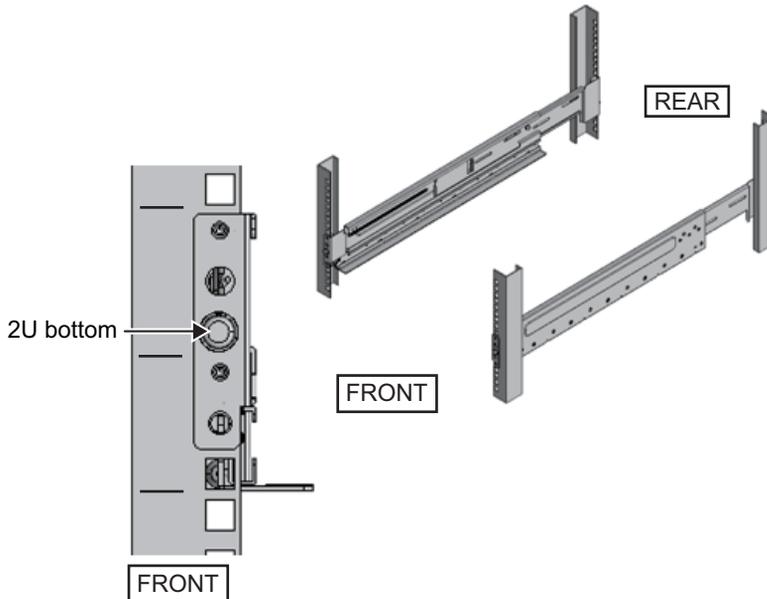
7. **Attach the cable support fixing brackets to the rear supporting columns of the rack.**
    For the Type-1 cable support

a. Orient the notches (B in Figure 3-35) on the cable support fixing brackets (A in Figure 3-35) face down.

b. From the rear of the rack, secure the rails and cable support brackets with two M6 screws to the rear supporting columns of the rack.

The fixing locations are 1U center and 2U center.

c. After attaching the cable support bracket, confirm that the rack door can close.

Note - If the door cannot close because the cable support fixing bracket or the cable support protrudes from the rear of the rack, do not attach the cable support bracket. However, secure the rail to the rack with two M6 screws.

Figure 3-35   Attaching the cable support fixing bracket
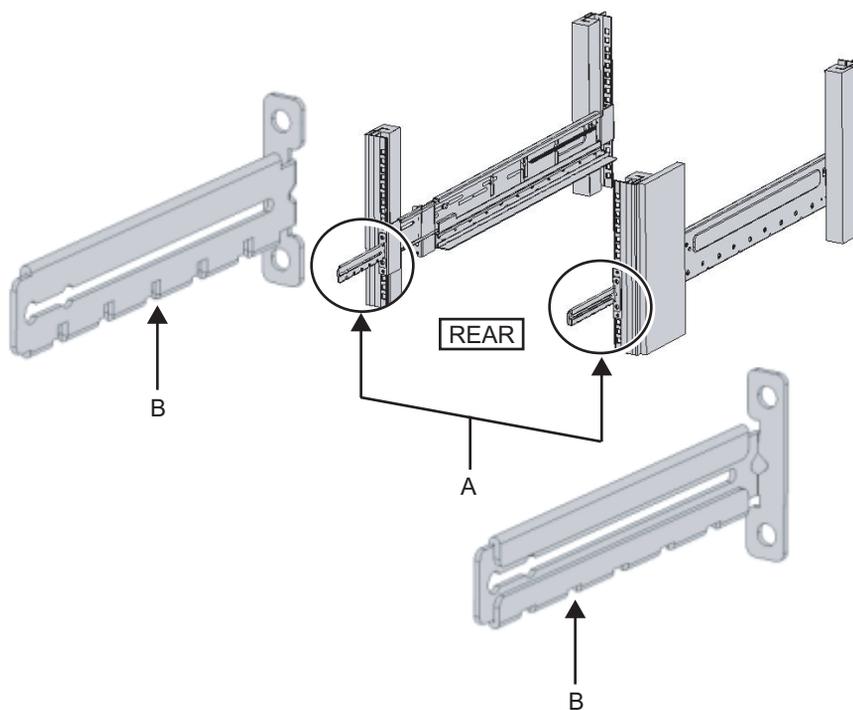
Figure 3-36   Securing the cable support fixing bracket and the rail

Mounting area (4U)

2U center

1U center

REAR
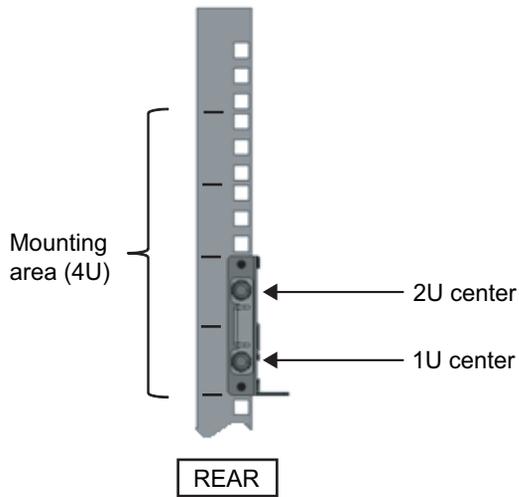
For the Type-2 cable support

a. Loosen the four screws (C in Figure 3-37) from the inside of the cable support.

Figure 3-37   Removing the cable support fixing brackets (1)

C
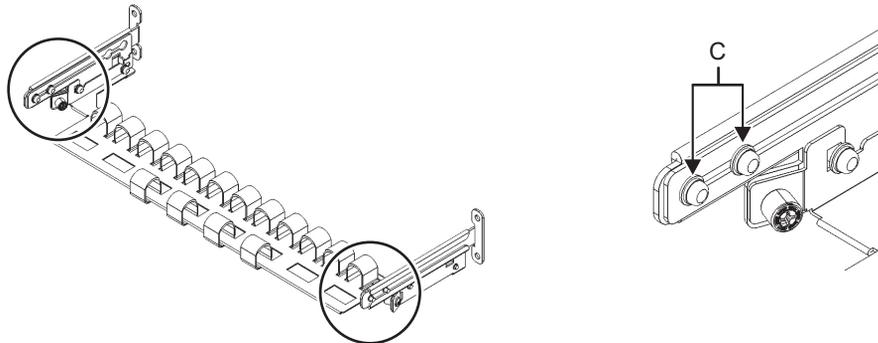
b. Slide the cable support fixing brackets (D in Figure 3-38) to remove them.

Figure 3-38   Removing the cable support fixing brackets (2)
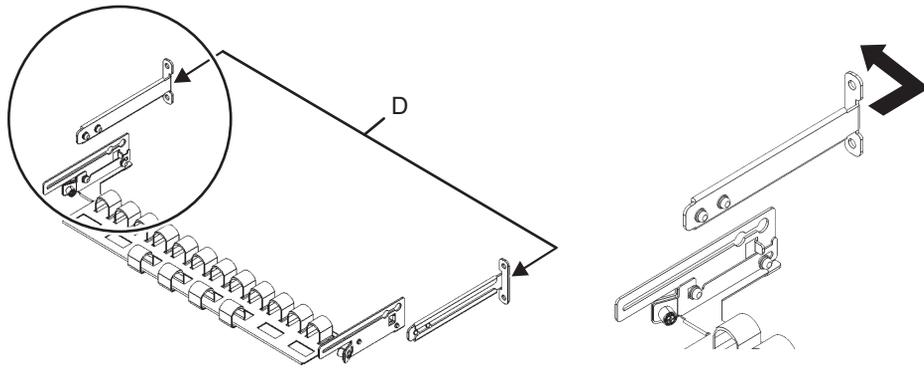
D

c. From the rear of the rack, secure the rails and cable support fixing brackets
    (D) with two M6 screws to the rear supporting columns of the rack.
    The fixing locations are 1U center and 2U center.

Figure 3-39   Attaching the cable support brackets

REAR

D
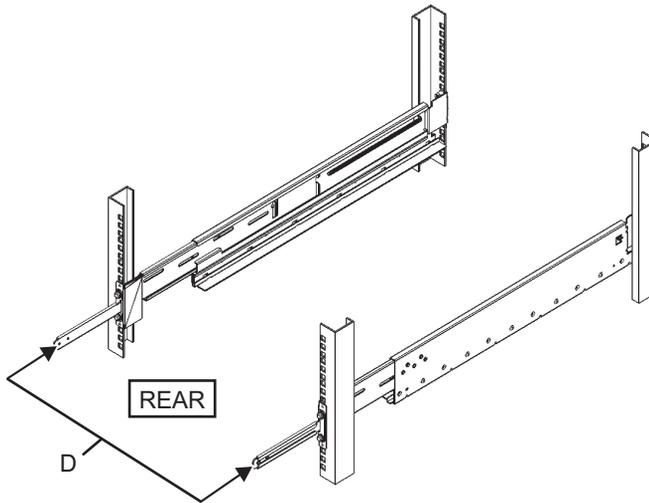
Figure 3-40   Securing the cable support fixing bracket and the rail
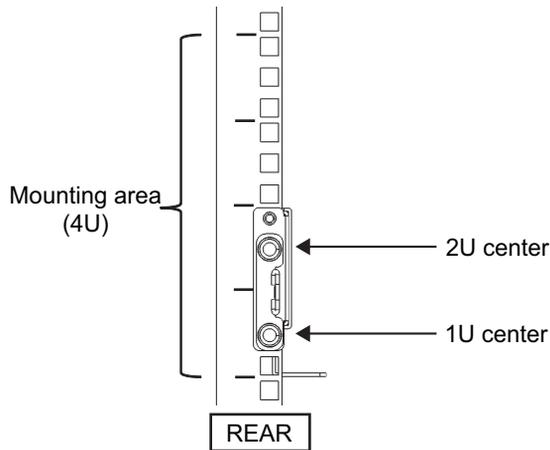
d. After attaching the cable support fixing brackets, confirm that the rack door can close.

Note - If the door cannot close because the cable support fixing bracket or the cable support protrudes from the rear of the rack, do not attach the cable support bracket. However, secure the rail to the rack with two M6 screws.

---

8. **Secure the rail sides by using the screws (M5) removed in step 5 (A in Figure 3-41)**.

Figure 3-41   Securing the sides of rails with screws
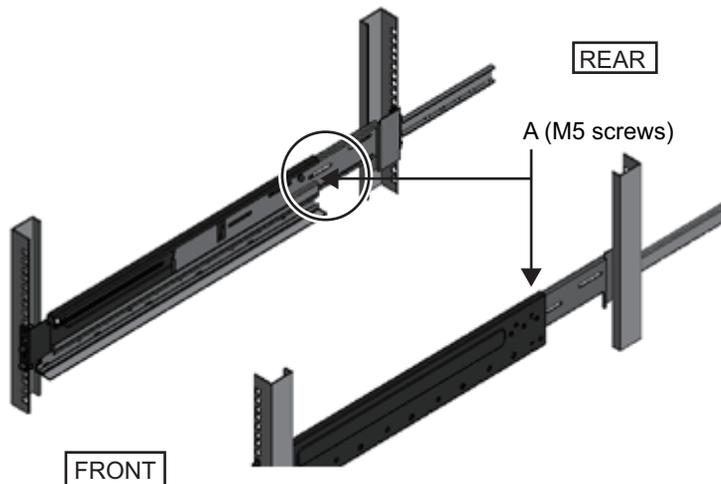
9. **Mount the chassis in the rack.**
    Mount the chassis from the front of the rack.

Note - The SPARC M10-4S weighs 60 kg. Mount the chassis in the rack with four or more people working together. Alternatively, use a lifter such as a hydraulic or mechanical jack.

   a. When using a lifter, secure it horizontally.

   b. Lift the chassis to the mounting location with the lifter or with human force.

   c. Put the rear part of the chassis on the flanges of the rails.

   d. Slide the chassis into the rack. At this time, store the handle on the side of the chassis. Also, confirm that the guide pins of the chassis (A in Figure 3-42) fit into their rail guides (B in Figure 3-42).

   e. Insert the chassis all the way to store it inside the rack.

Figure 3-42   Mounting in the rack
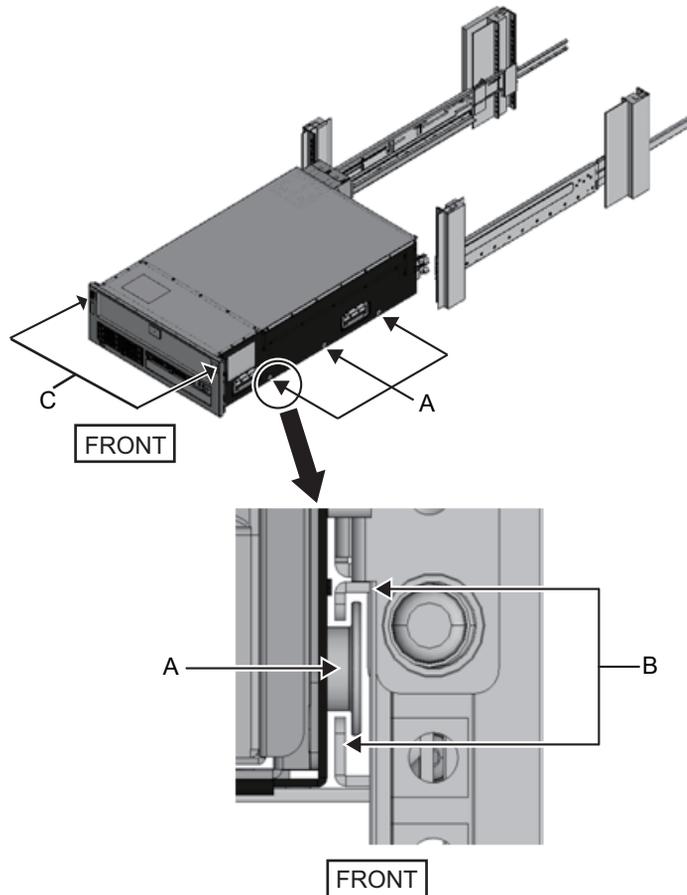
10. **Secure the chassis to the rack.**
    a. Push out the left and right slide locks on the front cover (C in Figure 3-42) to release the locks, and remove the front cover.

b. Tighten the four M6 screws at four locations on the front of the chassis (A in Figure 3-43) to secure it to the rack.

c. Insert the left and right hooks on the inside of the bottom of the front cover into the grooves at the bottom front of the chassis to attach the front cover.

Note - A label with the serial number of the chassis is affixed to the front cover. Be sure to attach the front cover to the corresponding chassis.

Figure 3-43   Securing the chassis
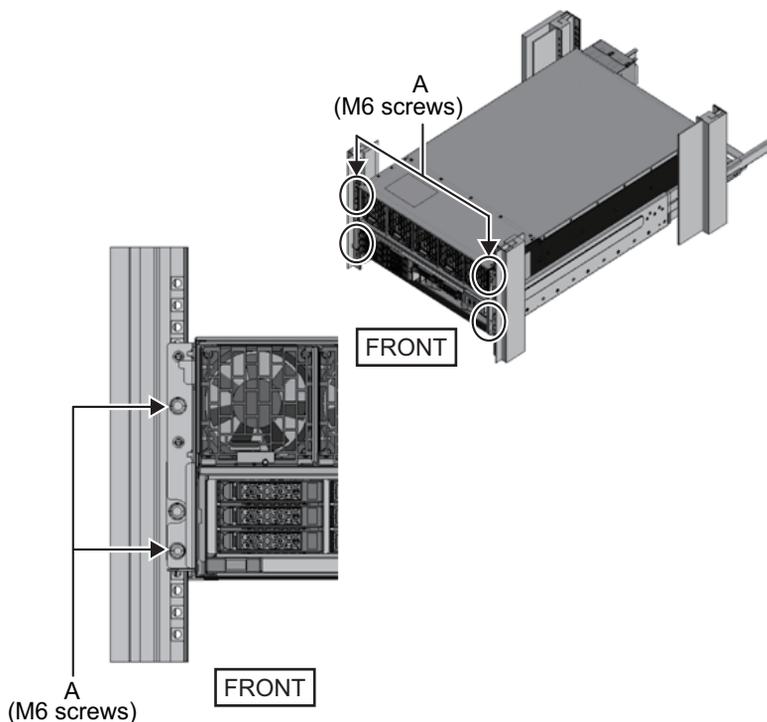
11. **Attach the cable support.**
    For the Type-1 cable support

    a. From the inside of the cable support fixing bracket, align the two screws in the right cable support bracket with the circular holes at the front of the groove, and attach the screws (A in Figure 3-44).

    b. Slide the cable support bracket toward the chassis while holding the latch (B in Figure 3-44) attached to it.

    c. Attach the left cable support bracket in the same manner.
       At this time, the left and right sides should have been slid the same amount (depth) toward the chassis.

    d. Secure the cable support with two M3 screws (C in Figure 3-45).

    e. Close the rear door of the rack, and confirm that the cable support does not

interfere. If it interferes, slide the cable support toward the chassis while holding the latches (B in Figure 3-44) of the left and right cable support brackets. The cable support should be in the position nearest the chassis, with the cable support bracket latches engaged.

    f. If the cable support interferes with the door even when you slide it toward the chassis as far as possible, remove the cable support.

Figure 3-44   Attaching the cable support brackets
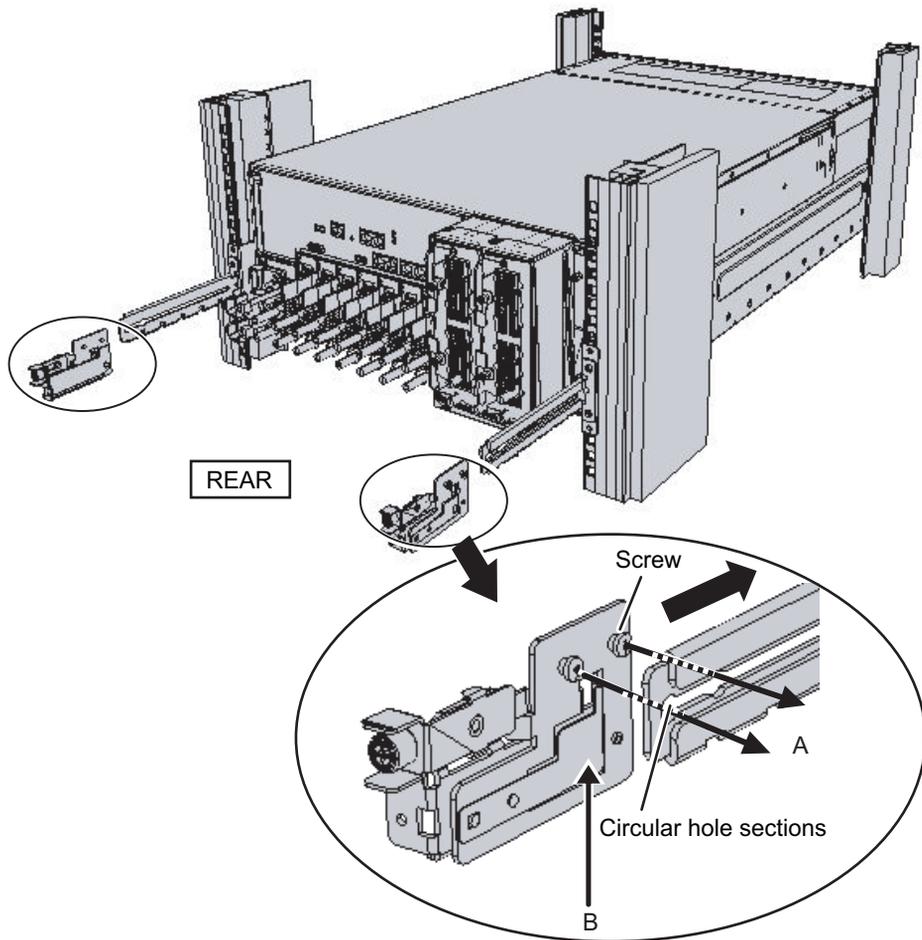
Figure 3-45   Attaching the cable support
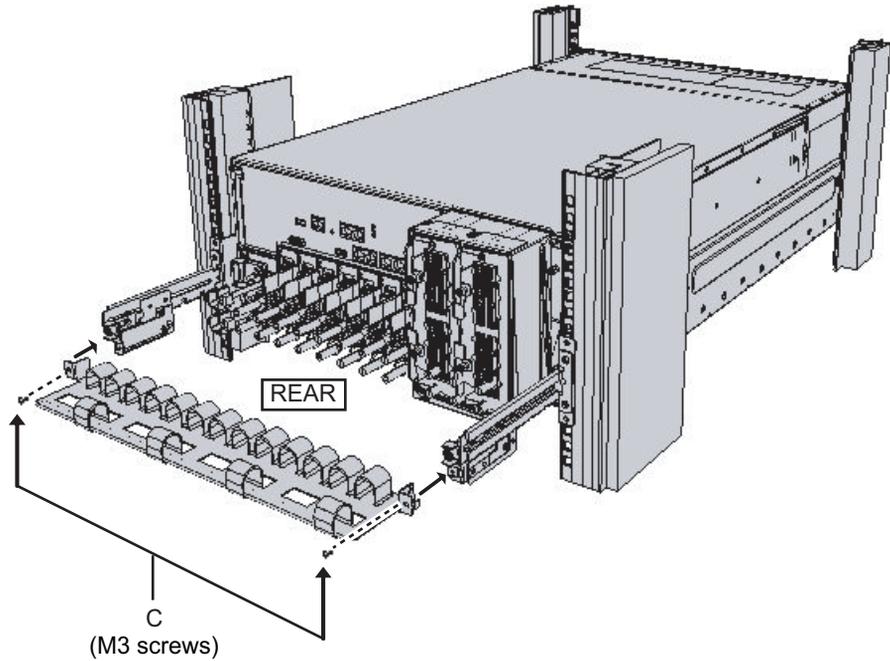
For the Type-2 cable support

a. Tilt the cable support to align the circular holes at the rear of the groove with the two screws of a cable support fixing bracket (D in Figure 3-46), and attach it. Level the cable support. Then, align the circular holes at the other side with the two screws, and attach it.

Figure 3-46   Attaching the cable support (1)
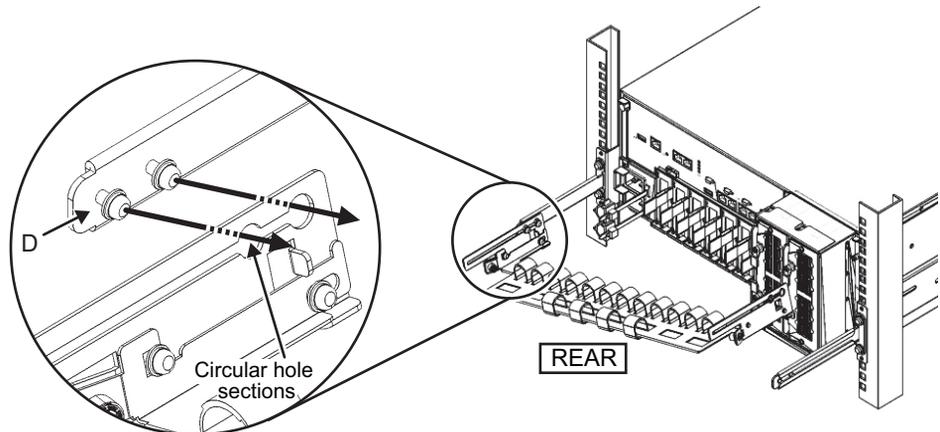
b. Slide in the cable support all the way, and tighten the four screws (C in Figure 3-47).

Figure 3-47   Attaching the cable support (2)
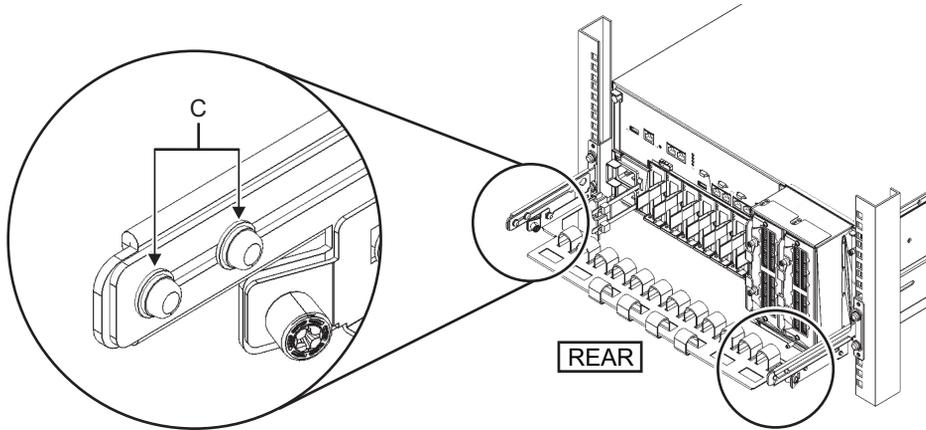
Note - If the dimension between the front and rear columns of the rack is less than 740 mm, secure the cable support without sliding it in all the way. The fixing location varies depending on the dimension between the front and rear columns of the rack. Based on Figure 3-48, align the scale marks (E in Figure 3-48) (spacing: 10 mm) on the cable support with the screws (F in Figure 3-48) of the fixing brackets to secure the cable support.

Figure 3-48   Attaching the cable support (3)
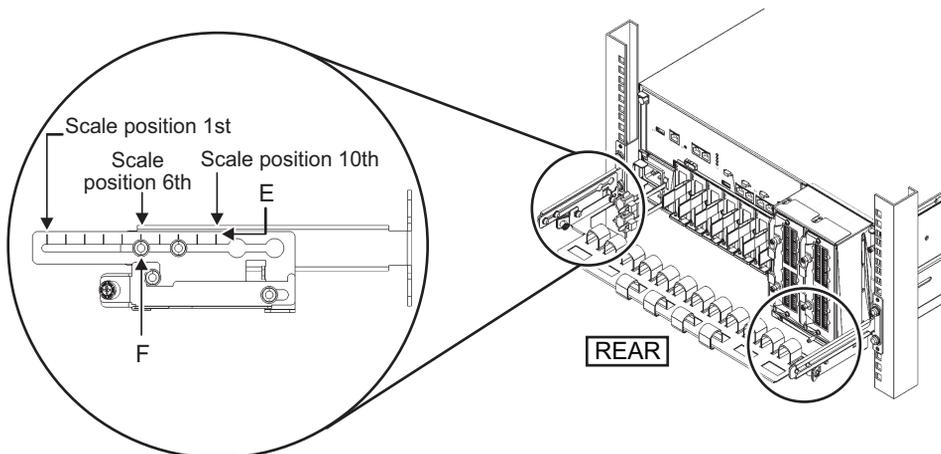
Table 3-8   Dimensions between the front and rear columns and scale positions

Dimension between front and rear columns (mm)	Scale position
740	1st
730	2nd
720	3rd
710	4th
700	5th
690	6th
680	7th
670	8th
660	9th
650	10th

Note - If you have difficulty laying a thick cable into the cable support, move forward the fixing location of the cable support to make the work easier.

    c. Close the rear door of the rack, and confirm that the cable support does not interfere. If the cable support interferes with the rear door, remove the cable support. Even if you remove the cable support, leave the rails secured with the two M6 screws to the rack.

12. **Detach the hook-and-loop fastener strips on the cable support.**
The detached hook-and-loop fastener strips are the four (A in Figure 3-49) on the right side as viewed from the rear of the chassis.

Figure 3-49   Detaching the hook-and-loop fastener strips (SPARC M10-4S)

REAR

A

Hook-and-loop fastener strip
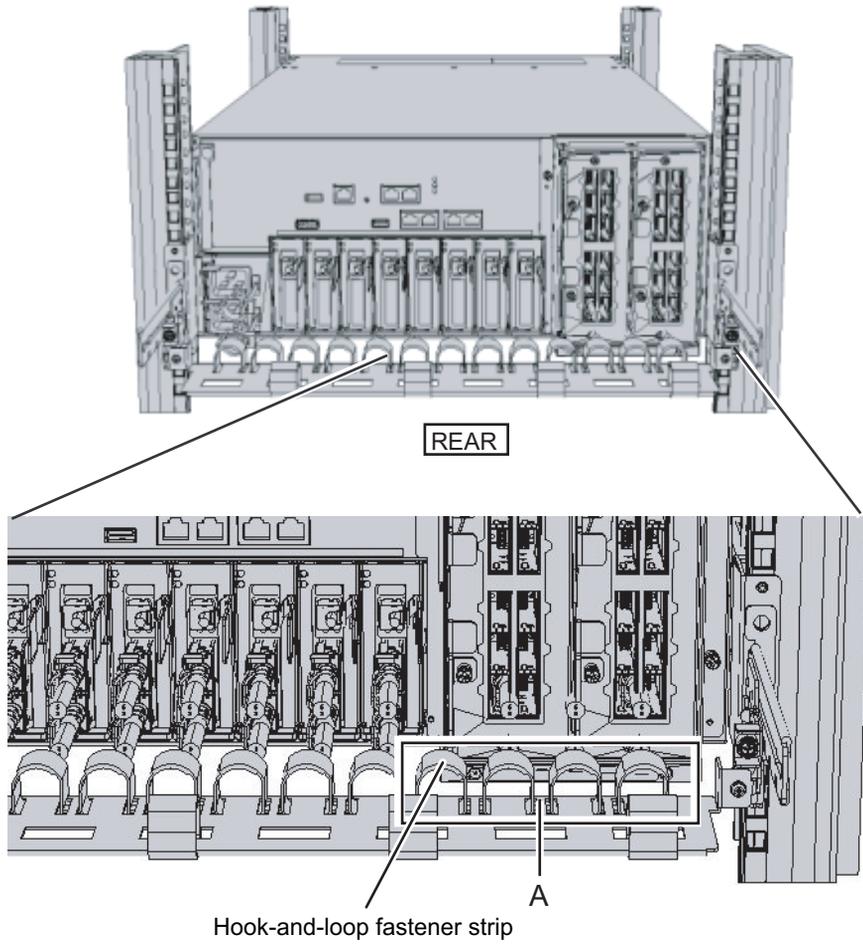
Figure 3-50   Completed SPARC M10-4S configuration
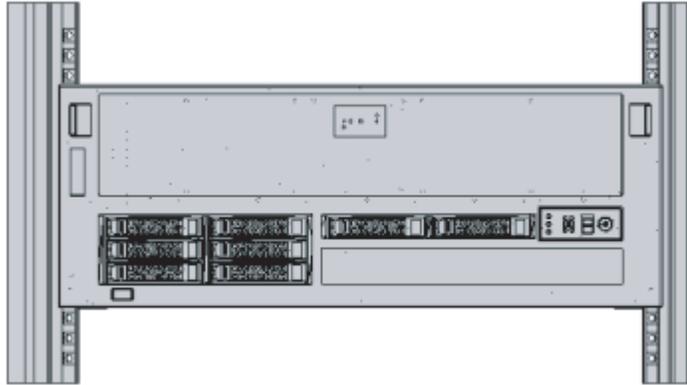
3.4.2   Mounting the PCI expansion unit in a rack

1. **Confirm that the rack mount kit supplied with the PCI expansion unit is complete.**

Note - The rack mount kit contains two types of cable support: Type-1 and Type-2. To distinguish the Type-2 cable support, see Figure 3-52. The Type-2 cable support is an integrated unit consisting of the parts indicated by numbers 2 to 5 in Figure 3-51. Steps 6 and 10 in the mounting procedure vary depending on the shape of the cable support. Attach the support according to the corresponding steps.

Note - The rack mount kit contains two types of rails: Type-1 and Type-2. To distinguish the Type-2 rail, see Figure 3-53. The mounting procedure varies depending on the shape of the rail. The text describes corresponding procedures, so attach the rail according to the relevant procedure.

Figure 3-51　Rack mount kit

Number in figure	Name	Quantity	Remarks
1	Rail	2	Bilaterally symmetrical shape
2	Cable support (*1) (*2)	1	
3	Cable support bracket (*2)	2	Bilaterally symmetrical shape
4	M3 screw (*2)	2	
5	Cable support fixing bracket (*2)	2	Bilaterally symmetrical shape
6	M6 screw	10	
7	Cage nut	10	

*1 There are two types of cable support: Type-1 and Type-2. To distinguish between them, see Figure 3-52.
*2 The Type-2 cable support is an integrated unit consisting of these parts.

Figure 3-52   Type-2 cable support
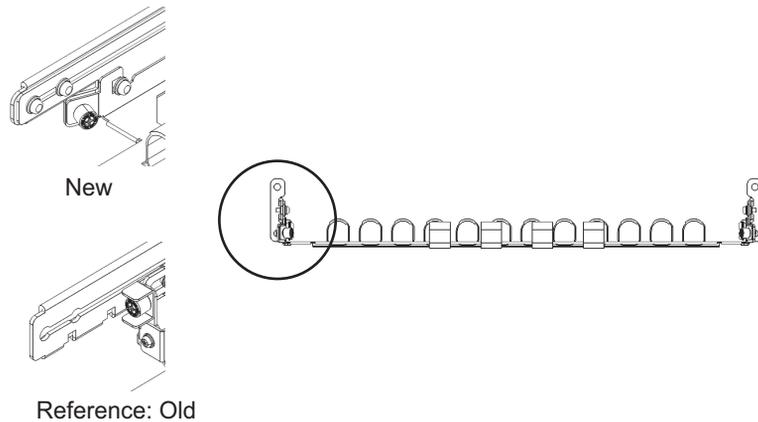
New

Reference: Old

Figure 3-53   Type-2 rail
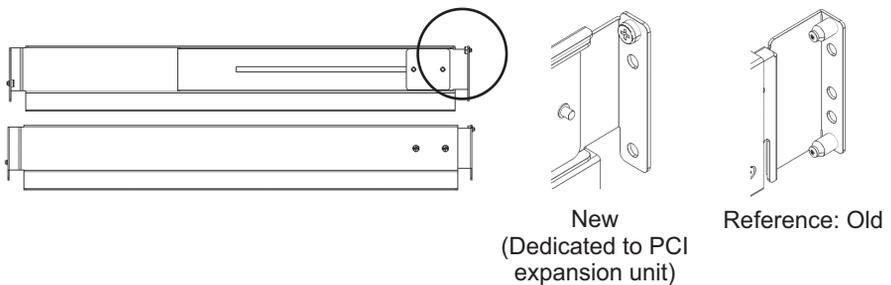
New
(Dedicated to PCI
expansion unit)

Reference: Old

2. **Confirm that the rack is secured in place to prevent the rack from toppling over.**
    For details, see "."

3. **Step 3 differs depending on the shape of the supporting column holes of the rack. Perform the work appropriate to the shape of the supporting column holes of the rack.**

■ **For racks with supporting columns having square holes**

Attach cage nuts to the left and right supporting columns of the rack.

- Attachment locations in the front supporting columns: (From the bottom) 1U center and 2U bottom

- Attachment locations in the rear supporting columns: (From the bottom) 1U center and 2U center

Figure 3-54   Cage nut attachment locations in the supporting columns of the rack
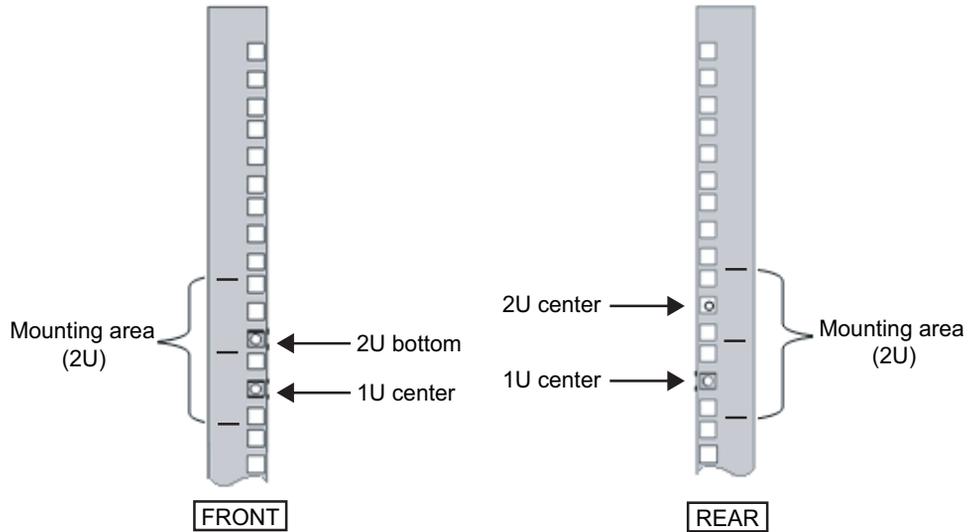
a. Attach cage nuts from the inside of the rack.
    Orient the hooks of the cage nut vertically.
    Hook the hook at one end of a cage nut into a cage nut attachment hole of the rack.
    Figure 3-55 shows a cage nut hooked on the lower part of a hole.

Figure 3-55   Orientation of the hooks of a cage nut
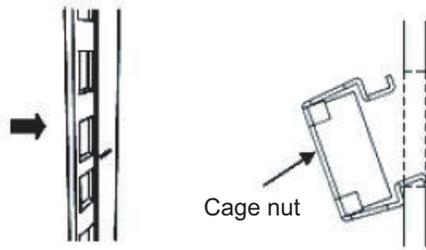
b. Insert the hook at the tip of the supplied cage nut attachment tool through a cage nut attachment hole from the front, and engage it with the hook at the other end of the cage nut.

Figure 3-56   Using the cage nut attachment tool
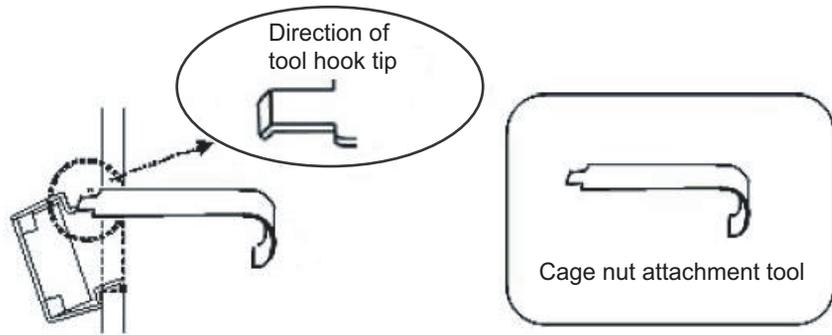
c. Pull the tool forward to attach the cage nut.
   Push in direction A while simultaneously pulling in direction B as shown in
   Figure 3-57.

Figure 3-57   Attaching a cage nut
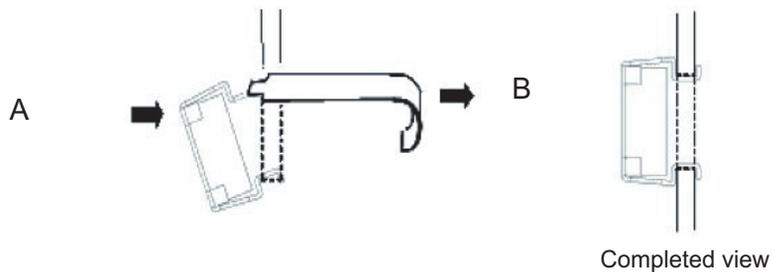
■ **For supporting columns with M6 screw holes**

   For the Type-1 rail

   Remove the pins at the front and rear of the rail.

   a. Remove the screw (A in Figure 3-58) securing the rail pin.

   b. Remove the pin (B in Figure 3-58).

   c. Remove pins from the left and right rails in the same manner.

   d. Store the removed pins and screws (eight pins and eight screws in total) for
      future use when the chassis is moved.

Figure 3-58   Removing pins from the Type-1 rail
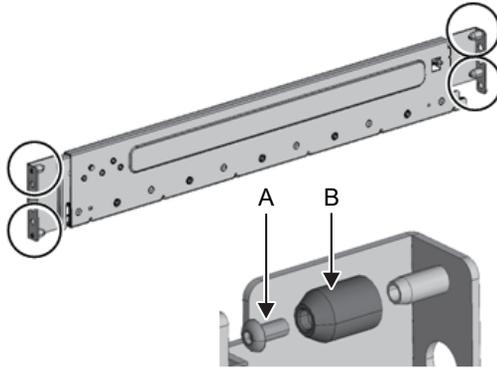
For the Type-2 rail

Remove the pins at the front and rear of the rail.

a. Remove the pins (A in Figure 3-59) at the front and rear of the left and right rails.

b. Store the removed pins (four pins in total) for future use when the chassis is moved.

Figure 3-59   Removing pins from the Type-2 rail
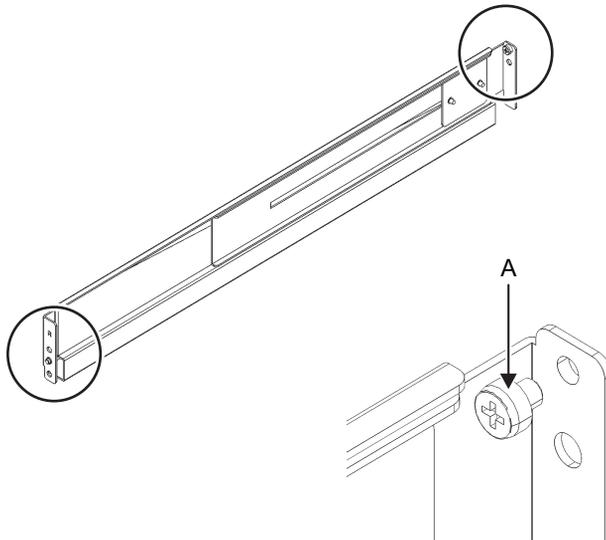
4. **Remove each screw from the side of the rail.**
   For the Type-1 rail, remove the one screw (A in Figure 3-60) from the side of the rail.

   For the Type-2 rail, loosen the two screws (B in Figure 3-61) from the side of the rail.

Note - After removing or loosening the screw or screws, hold the rail level with both hands. If the rail tilts, it may stretch.

Figure 3-60   Screw on the side of the Type-1 rail
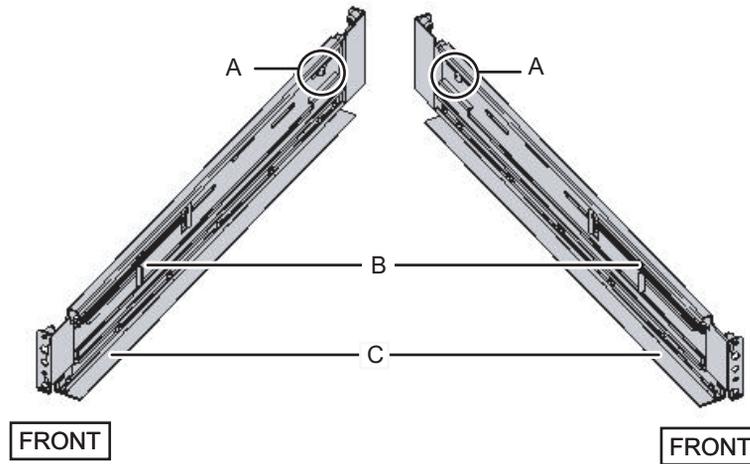
Figure 3-61   Screws on the side of the Type-2 rail
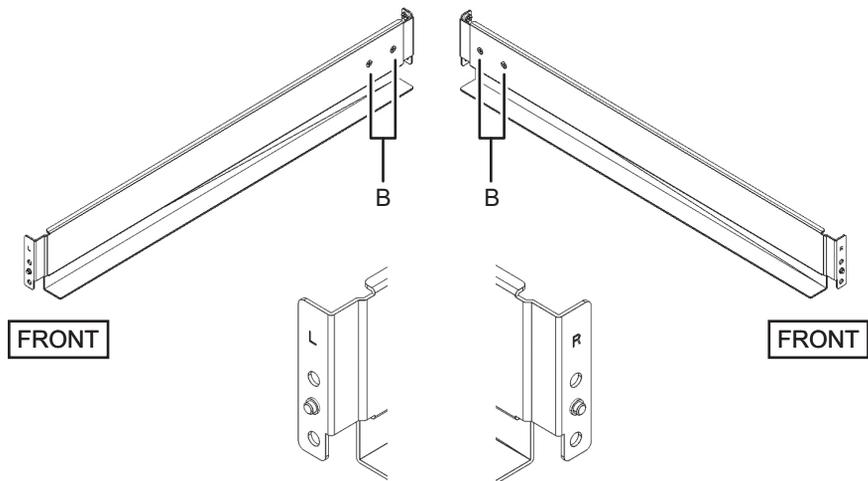
5.   **Attach the rail to the rack.**

Note - After removing its screw, hold the rail level with both hands. If the rail tilts, it may stretch.

     For the Type-1 rail

Attach the rail such that the spring-loaded side (B in Figure 3-60) faces the front and the flange (C in Figure 3-60) faces the bottom.

  a. From the front of the rack, insert the rail protrusions into 2U top and 1U top in the front supporting column of the rack.

  b. Pull out the rail to as far as the depth of the rack.

  c. Insert the rail protrusions into 2U top and 1U bottom in the rear supporting column of the rack.

  d. Secure the rail with one M6 screw to the front supporting column of the rack. The fixing location is 2U bottom.

  e. Attach the other rail in the same manner.

Figure 3-62   Attaching the Type-1 rail: Locations of protrusions
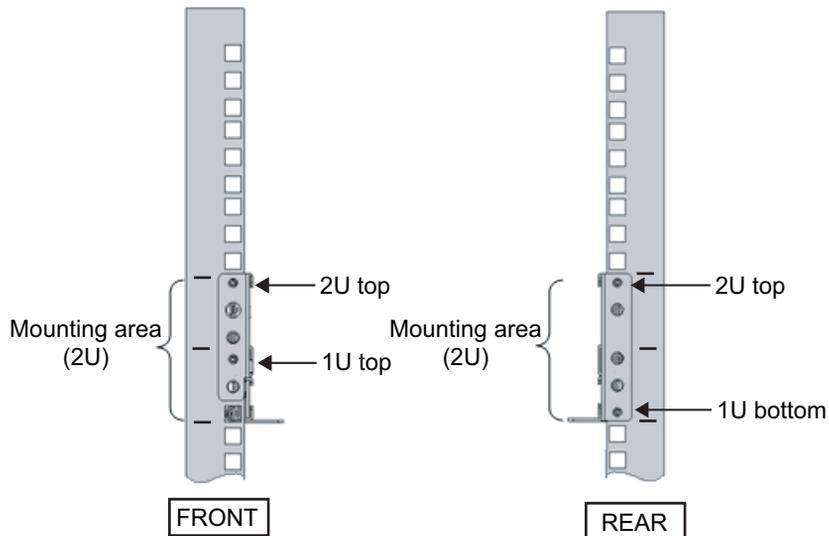
For the Type-2 rail

The letter [R] on a side of a rail indicates that the side is the front right side, and [L] indicates that the side is the front left side.

This step differs depending on the shape of the supporting column holes of the rack. Perform the work appropriate to the shape of the supporting column holes of the rack.

■ **For racks with supporting columns having square holes**

  a. From the rear of the rack, insert the rail protrusion into 1U top in the front supporting column of the rack.

  b. Pull out the rail to as far as the depth of the rack.

  c. Insert the rail protrusion into 2U top in the rear supporting column of the rack.

  d. Secure the rail with one M6 screw to the front supporting column of the rack. The fixing location is 2U bottom.

e. Attach the other rail in the same manner.

Figure 3-63   Attaching the Type-2 rail: Locations of protrusions (for supporting columns having square holes)
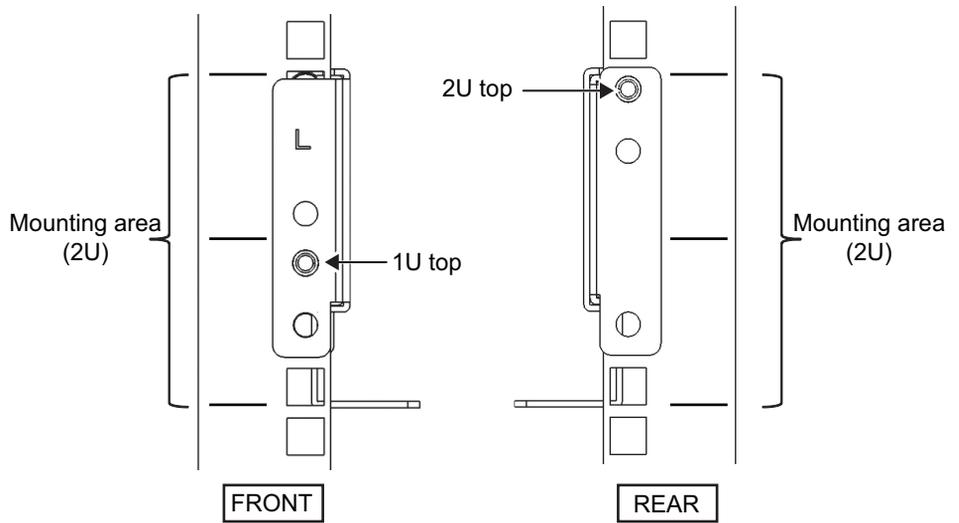
Figure 3-64   Attaching the Type-2 rail: Fixing location of the screw (for supporting columns having square holes)
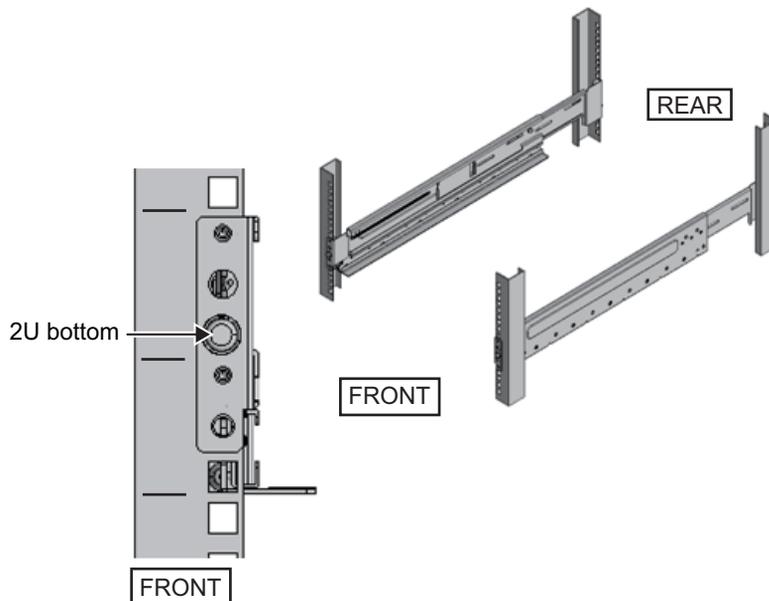
- **For supporting columns with M6 screw holes**
  This work requires a total of two workers in front of and behind the rack because the rails have no protrusions and cannot be temporarily secured.

a. From the front of the rack, vertically align the rail flange with 1U bottom in the front supporting column of the rack.

b. Secure the rail with one M6 screw to the front supporting column of the rack. The fixing location is 2U bottom.

c. Pull out the rail to as far as the depth of the rack.

d. Secure the rail with two M6 screws to the rear supporting column of the rack. The fixing locations are 1U center and 2U center.

Figure 3-65   Attaching the Type-2 rail: Fixing screws (for supporting columns with M6 screw holes)
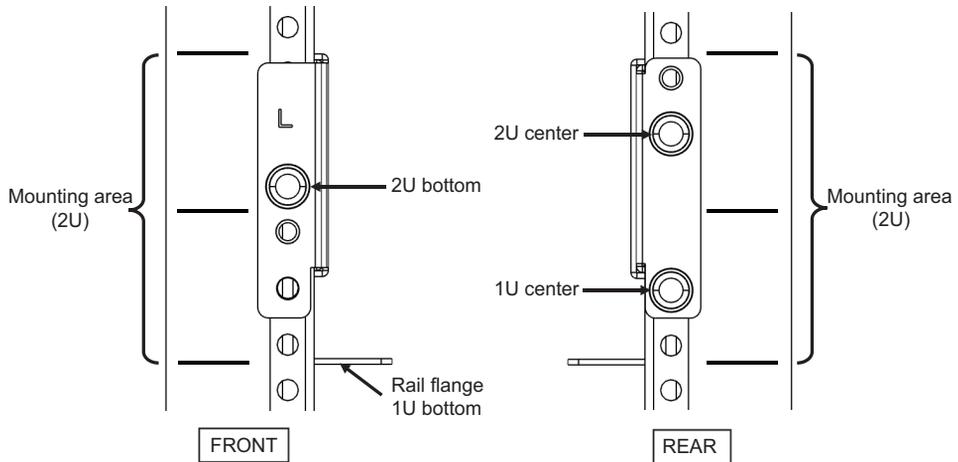
6. **Attach the cable support fixing brackets to the rear supporting columns of the rack.**
   For the Type-1 cable support

   a. Orient the notches (B in Figure 3-66) on the cable support fixing brackets (A in Figure 3-66) face down.

   b. From the rear of the rack, secure the rails and cable support brackets with two M6 screws to the rear supporting columns of the rack.

      The fixing locations are 1U center and 2U center.

   c. After attaching the cable support bracket, confirm that the rack door can close.

Note - If the door cannot close because the cable support fixing bracket or the cable support protrudes from the rear of the rack, do not attach the cable support bracket. However, secure the rail to the rack with two M6 screws.

Figure 3-66   Attaching the cable support fixing bracket
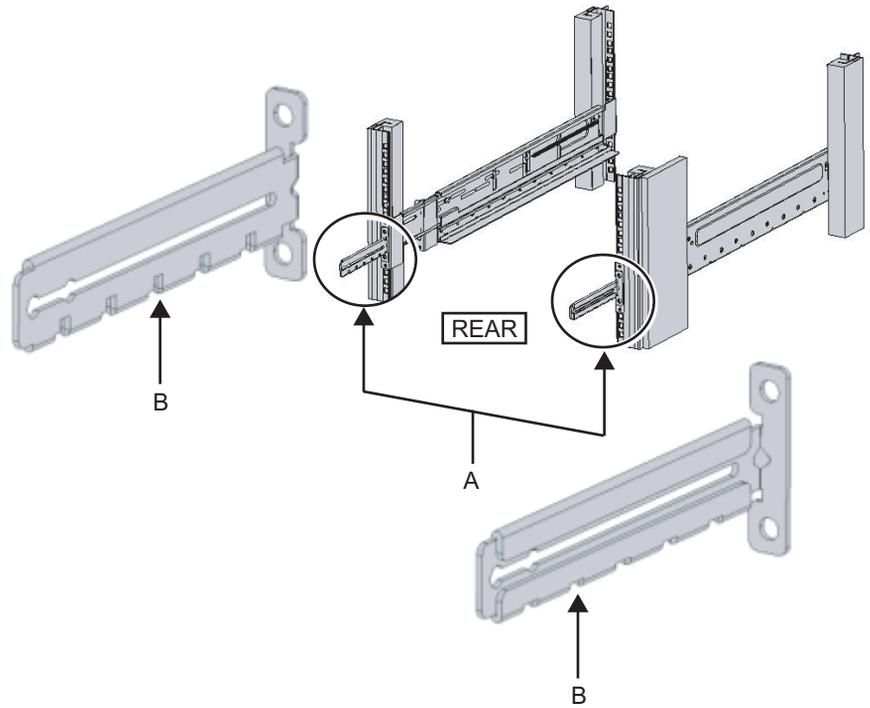
Figure 3-67   Securing the cable support fixing bracket and the rail
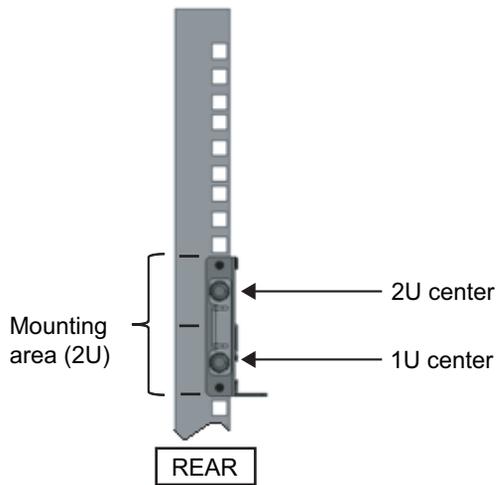
For the Type-2 cable support

a. Loosen the four screws (C in Figure 3-68) from the inside of the cable support.

Figure 3-68   Removing the cable support fixing brackets (1)
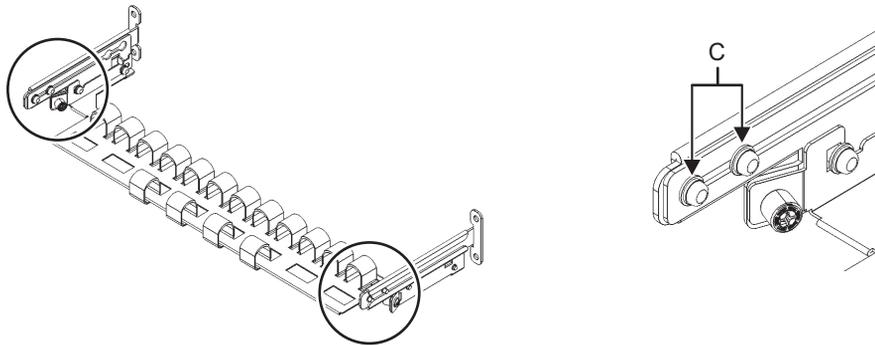
b. Slide the cable support fixing brackets (D in Figure 3-69) to remove them.

Figure 3-69   Removing the cable support fixing brackets (2)
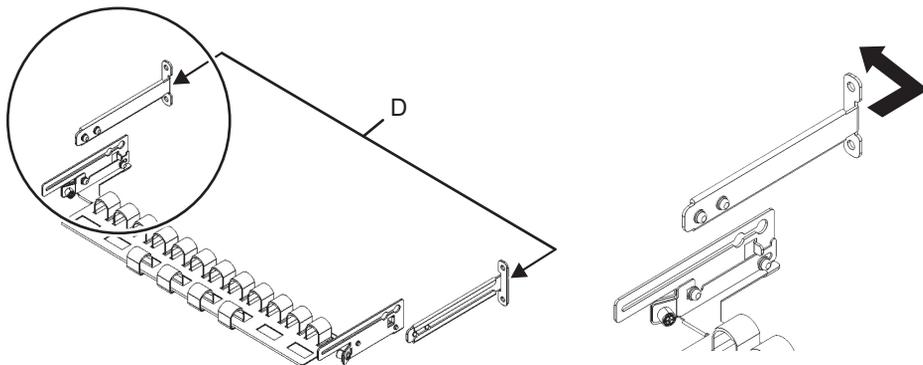
c. From the rear of the rack, secure the rails and cable support fixing brackets (D) with two M6 screws to the rear supporting columns of the rack. The fixing locations are 1U center and 2U center.

Figure 3-70   Attaching the cable support brackets
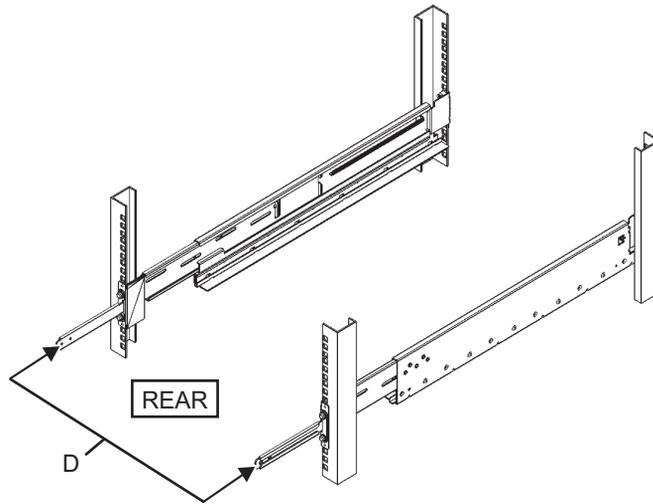
Figure 3-71   Securing the cable support fixing bracket and the rail
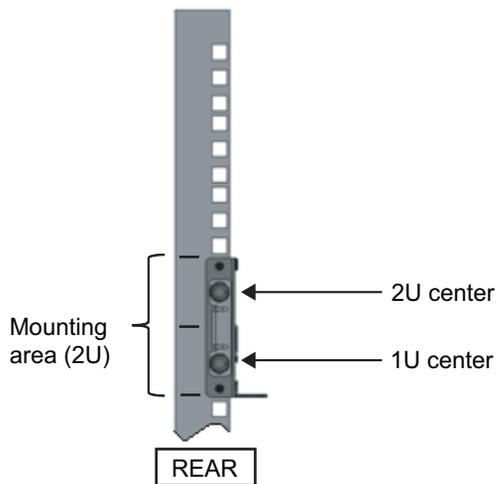
d. After attaching the cable support fixing brackets, confirm that the rack door can close.

Note - If the door cannot close because the cable support fixing bracket or the cable support protrudes from the rear of the rack, do not attach the cable support bracket. However, secure the rail to the rack with two M6 screws.

7. **Secure the side of the rail with screws (A in Figure 3-72).**
    For the Type-1 rail, secure the side of the rail with the screws (2 in total) removed in step 4.

For a Type-2 rail, tighten the side screws (4 in total) loosened in step 4 to secure the side of the rail.

Figure 3-72   Securing the sides of rails with screws
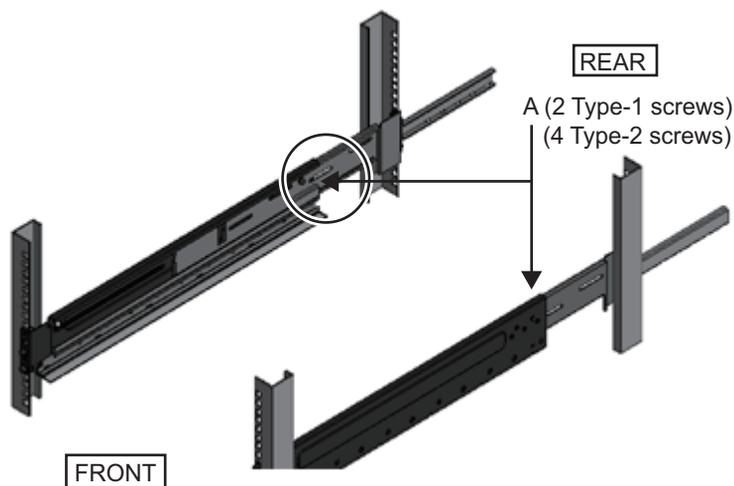
8. **Mount the PCI expansion unit in the rack.**
   Mount the chassis from the front of the rack.

Caution - The PCI expansion unit weighs 22 kg. Exercise thorough caution when mounting it in the rack.

Note - Mount the PCI expansion unit in the rack with two or more people working together. Alternatively, use a lifter.

   a. When using a lifter, secure it horizontally.

   b. Lift the chassis to the mounting location with the lifter or with human force.

   c. Put the rear part of the chassis on the flanges of the rails.

   d. Slide the PCI expansion unit into the rack. At this time, confirm that the PCI expansion unit sits on the rails and that the guide pins of the PCI expansion unit (A in Figure 3-73) fit into their rail guides (B in Figure 3-73).

   e. Insert the PCI expansion unit all the way to store it inside the rack.

Figure 3-73   Mounting in the rack
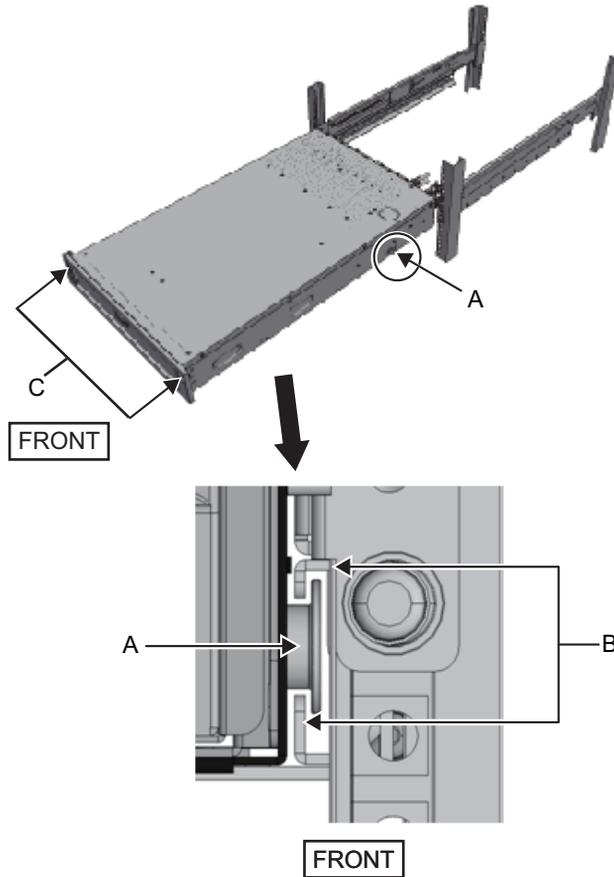
9. **Secure the PCI expansion unit in the rack.**
    a. Push out the left and right slide locks on the front cover (C in Figure 3-73) to release the locks, and remove the front cover.
    b. Tighten the two M6 screws at two locations on the front of the PCI expansion unit (A in Figure 3-74) to secure it to the rack.
    c. Insert the left and right hooks on the inside of the bottom of the front cover into the grooves at the bottom front of the PCI expansion unit to attach the front cover.

Note - A label with the serial number of the PCI expansion unit is affixed to the front cover. Be sure to attach the front cover to the corresponding chassis.

Figure 3-74   Securing the PCI expansion unit
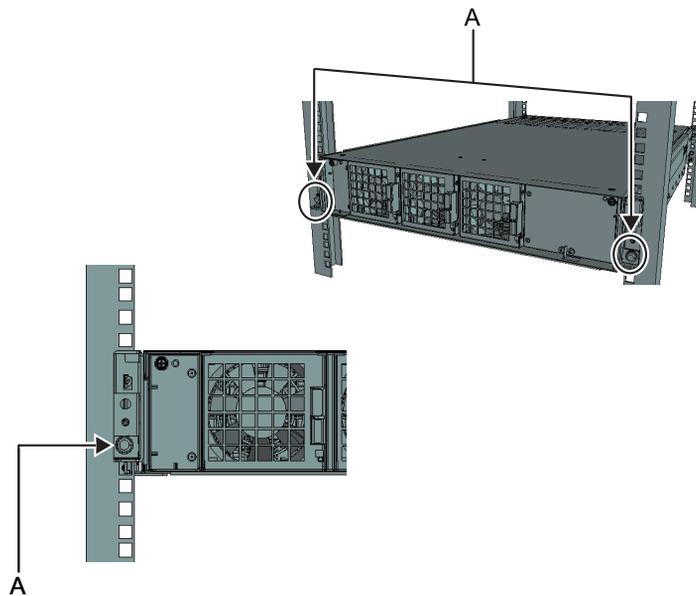
10. **Attach the cable support.**
    For the Type-1 cable support

    a. From the inside of the cable support fixing bracket, align the two screws in the right cable support bracket with the circular holes at the front of the groove, and attach the screws (A in Figure 3-75).

    b. Slide the cable support bracket toward the chassis while holding the latch (B in Figure 3-75) attached to it.

    c. Attach the left cable support bracket in the same manner. At this time, the left and right sides should have been slid the same amount (depth) toward the chassis.

    d. Secure the cable support with two M3 screws (C in Figure 3-76).

    e. Close the rear door of the rack, and confirm that the cable support brackets do not interfere. If it interferes, slide the cable support toward the chassis while holding the latches (B in Figure 3-75) of the left and right cable support brackets. The cable support should be in the position nearest the chassis, with the cable support bracket latches engaged.

    f. If the cable support interferes with the door even when you slide it toward the chassis as far as possible, remove the cable support.

Figure 3-75   Attaching the cable support brackets

REAR

Screw

A

Circular hole sections

B
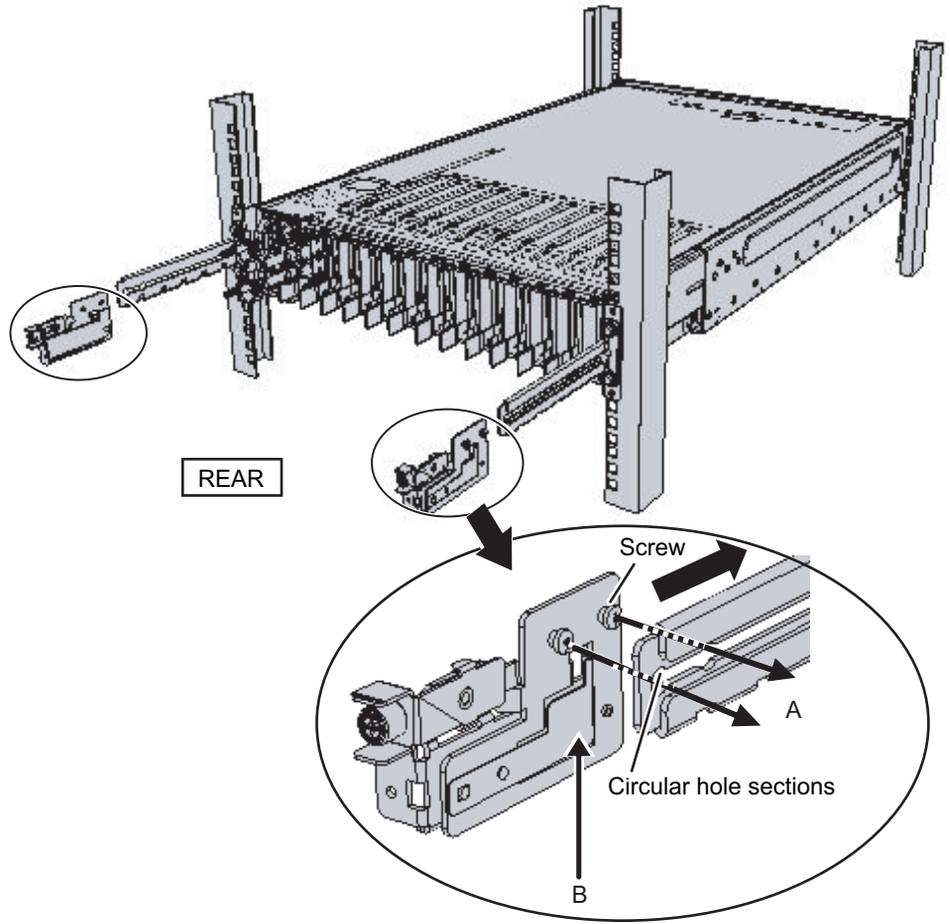
Figure 3-76   Attaching the cable support
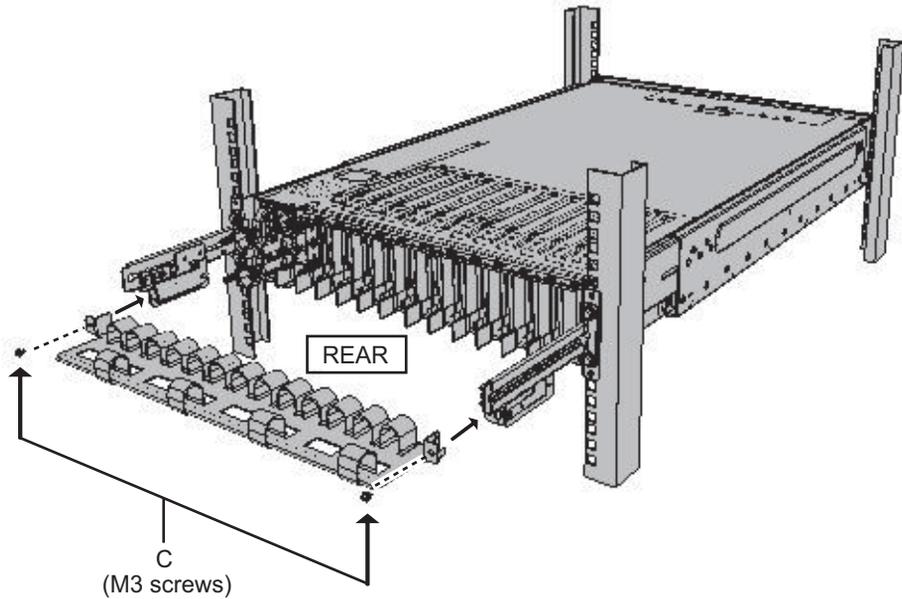
C
(M3 screws)

For the Type-2 cable support

a. Tilt the cable support to align the circular holes at the rear of the groove with
the two screws of a cable support fixing bracket (D in Figure 3-77), and attach
it. Level the cable support. Then, align the circular holes at the other side with
the two screws, and attach it.

Figure 3-77   Attaching the cable support (1)

D

Circular
hole sections
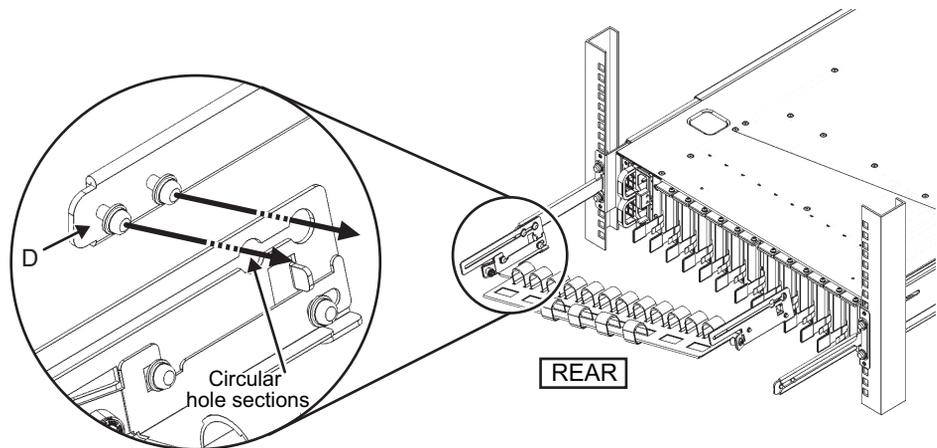
REAR

b. Slide in the cable support all the way, and tighten the four screws (C in Figure 3-78).

Figure 3-78   Attaching the cable support (2)
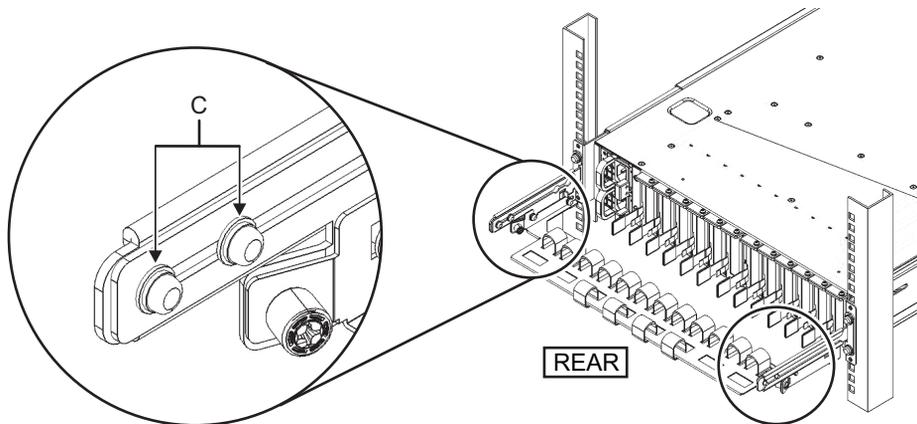
Note - If the dimension between the front and rear columns of the rack is less than 740 mm, secure the cable support without sliding it in all the way. The fixing location varies depending on the dimension between the front and rear columns of the rack. Based on Figure 3-79, align the scale marks (E in Figure 3-79) (spacing: 10 mm) on the cable support with the screws (F in Figure 3-79) of the fixing brackets to secure the cable support.

Figure 3-79   Attaching the cable support (3)
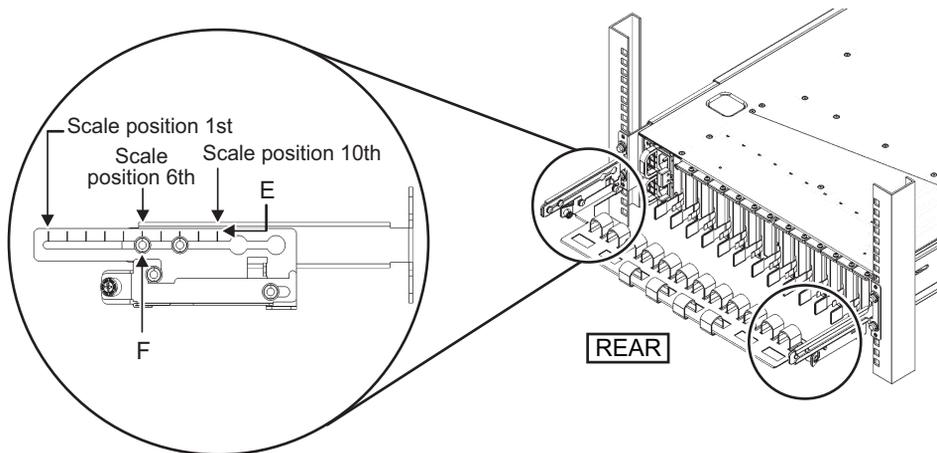
Table 3-9   Dimensions between the front and rear columns and scale positions

Dimension between front and rear columns (mm)	Scale position
740	1st
730	2nd
720	3rd
710	4th
700	5th
690	6th
680	7th
670	8th
660	9th
650	10th

Note - If you have difficulty laying a thick cable into the cable support, move forward the fixing location of the cable support to make the work easier.

  c. Close the rear door of the rack, and confirm that the cable support does not interfere. If the cable support interferes with the rear door, remove the cable support. Even if you remove the cable support, leave the rails secured with the two M6 screws to the rack.

Figure 3-80 Completed cable support attachment
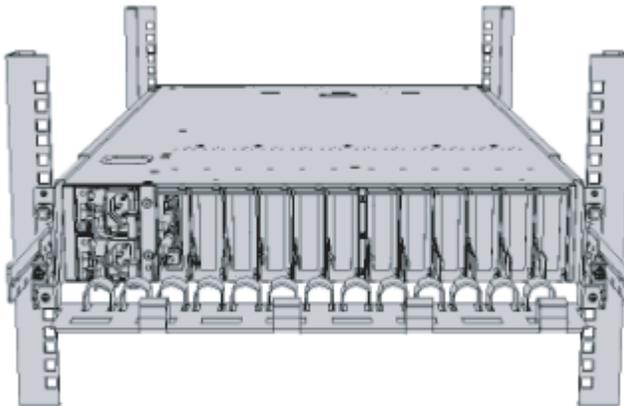
Figure 3-81   Completed PCI expansion unit configuration
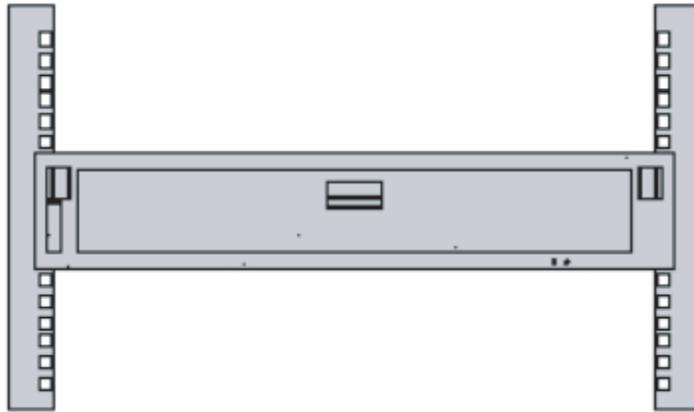
3.5   Mounting Optional Components

This section describes the procedures for mounting optional components such as memory and PCIe cards.

If the optional components are ordered together with the chassis, they are shipped mounted in the chassis. If the optional components are ordered separately, they will need to be mounted on site. Mount optional components after mounting the chassis in the rack.

- Mounting optional components in the SPARC M10-4S
- Mounting optional components in the PCI expansion unit

3.5.1   Mounting optional components in the SPARC M10-4S

The following table lists the optional components and references for the SPARC M10-4S. For detailed procedures, see the *Fujitsu M10-4/Fujitsu M10-4S/SPARC M10-4/SPARC M10-4S Service Manual*, and perform work accordingly. All the references in the table can be found in the *Fujitsu M10-4/Fujitsu M10-4S/SPARC M10-4/SPARC M10-4S Service Manual*.

| Table 3-10 | List of optional components and references for the SPARC M10-4S |

Optional component name	Reference
Memory	"Chapter 9 Maintaining the CPU Memory Unit/Memory"
Hard disk drive	"Chapter 10 Maintaining the Internal Disks"
PCIe card Link card	"Chapter 8 Maintaining the PCI Express Cards"

3.5.2   Mounting optional components in the PCI expansion unit

The following table lists the optional components and references for the PCI expansion unit. For detailed procedures, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*, and perform work accordingly. All the references in the table can be found in the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

| Table 3-11 | List of optional components and references for the PCI expansion unit |

Optional component name	Reference
PCIe card	"Chapter 8 Maintaining the PCI Express Cards"

Chapter 4

Configuring Building Block Connections

This chapter describes the procedures for setting the chassis IDs required in building block connection and for connecting cables between each chassis.

- Setting the ID (BB-ID) Identifying a Chassis
- Connecting Cables (for Direct Connections between Chassis)
- Connecting Cables (for Connections through Crossbar Boxes)

4.1 Setting the ID (BB-ID) Identifying a Chassis

This section describes the setting of the ID (referred to below as BB-ID) required for identifying each chassis in the system.
Set BB-IDs sequentially from 00.
See the following and check the mounting locations and BB-ID setting values of chassis.
- For direct connections between chassis: see Figure 2-3 in "2.4.1   Mounting conditions for general racks."
- For connections through crossbar boxes: see Figure 2-7 in "2.4.3   Mounting conditions for expansion racks."

Note - The default BB-ID value is 00. There are cases where each BB-ID is set by the factory at the time of shipping. A BB-ID has been set for any chassis that is shipped mounted in a rack.

Note - When connecting the SPARC M10-4S used as a standalone unit to a building block configuration, execute the restoredefaults command to return to the factory defaults before setting a BB-ID for it.

1. **Set a BB-ID for the SPARC M10-4S.**
   Set the BB-ID by operating the BB-ID switch on the operation panel on the front of the chassis. Set SPARC M10-4S BB-IDs sequentially from 00 to 15.

   a. Confirm that the set BB-ID for the SPARC M10-4S mounted at the very

bottom of the rack (BB#00) is 00.

If it is not 00, set it to 00 with a thin, pointed instrument.

b. Next, set 01 for the BB-ID of the SPARC M10-4S mounted second from the bottom of the rack (BB#01).

c. Sequentially set BB-IDs for all the SPARC M10-4S units while checking their mounting locations in the rack.

Figure 4-1   BB-ID switch of the SPARC M10-4S
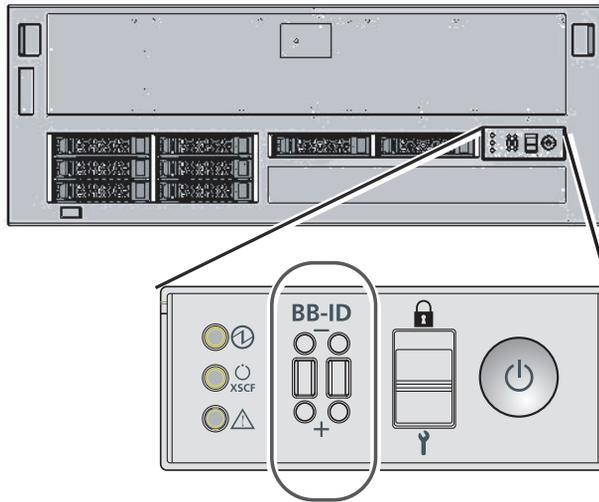
2. **Check the BB-ID settings of the crossbar boxes.**
A BB-ID is set for a crossbar box when shipped from the factory. Here, check the mounting locations of the crossbar boxes, and confirm that BB-IDs 80 to 83 are set sequentially.

If a setting is different, change the setting by operating the BB-ID switch on the operation panel on the front of the crossbar box.

Figure 4-2   BB-ID switch of a crossbar box
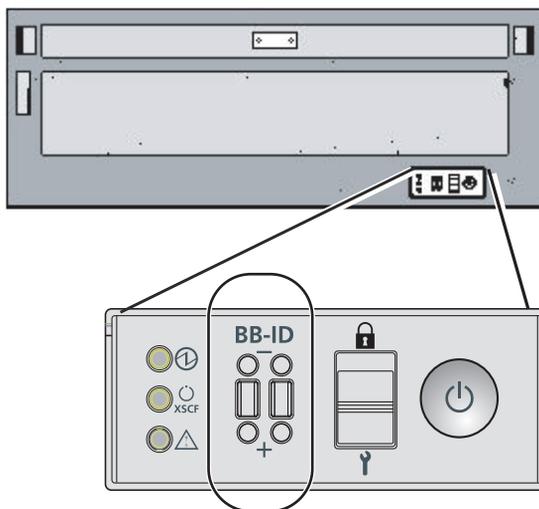
4.2 Connecting Cables (for Direct Connections between Chassis)

This section describes how to connect the XSCF cables connecting XSCF units, and how to connect the crossbar cables (electrical) connecting the crossbar units of each chassis. All ports for the cable connections are on the rear of the chassis.
For each configuration, "Appendix B   Cable Connection Information on Building Block Configurations" provides a cable routing diagram of connections and a cable list.

4.2.1 Connecting XSCF cables

There are two types of XSCF cables: XSCF DUAL control cable and XSCF BB control cable. Each cable has an attached label showing the connection destination port. Connect the cable to the port corresponding to the label. For port locations and examples of the appearance of the label, see Figure 4-3 and Figure 4-4.

1. **Connect the XSCF DUAL control cable between the XSCF of BB#00 and the XSCF of BB#01.**
   a. Connect the XSCF DUAL cable from the XSCF DUAL control port of BB#00 to the XSCF DUAL control port of BB#01.

      The XSCF DUAL control ports are marked DUAL.

2. **For the 2BB configuration, connect an XSCF BB control cable between the XSCF of BB#00 and the XSCF of BB#01.**

a. Connect the cable from port 0 of BB#00 to port 0 of BB#01.

The XSCF BB control ports are marked 0, 1, and 2 from left to right.

3. **For the 3BB configuration, connect XSCF cables to XSCF ports of BB#02, in addition to the connection of step 2.**
   a. Connect the cable from port 1 of BB#00 to port 0 of BB#02.

   b. Connect the cable from port 1 of BB#01 to port 1 of BB#02.

4. **For the 4BB configuration, connect XSCF cables to XSCF ports of BB#03, in addition to the connections of steps 2 and 3.**
   a. Connect the cable from port 2 of BB#00 to port 0 of BB#03.

   b. Connect the cable from port 2 of BB#01 to port 1 of BB#03.

Figure 4-3   XSCF port locations (chassis rear)
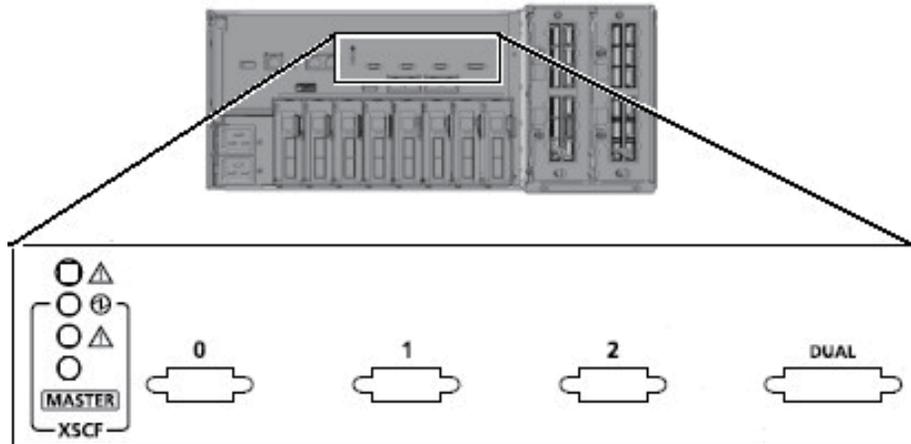
Figure 4-4   Examples of the appearance of an XSCF cable label
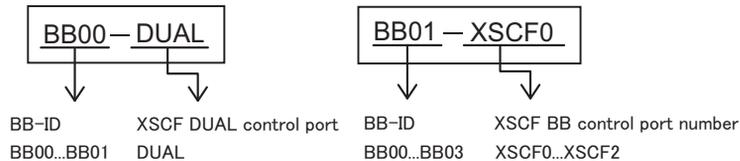
4.2.2   Connecting crossbar cables

Although the connection route varies depending on the BB configuration, the connection method is the same. Each cable has an attached label showing the connection destination port. Connect the cable to the port corresponding to the label. There are two ports with the same port number. Each port on the chassis is color-coded. Connect the port to the corresponding port of the same color. For port locations and examples of the appearance of the label, see Figure 4-5 and Figure 4-6.

The descriptions in this section use the 2BB configuration as an example.

Note - The crossbar cables (electrical) are connected from the XBU#1 side at the chassis rear in units of four cables. For the connection order, see "Appendix B Cable Connection Information on Building Block Configurations." After connecting all the cables, lay the cables as described in "5.4 Storing Cables." Do not lay the cables at this point.

Note - If you insert the connector with the tab pulled back, you may damage the connector.

Note - Confirm that the crossbar cables are correctly connected and firmly secured.

1. **Connect the crossbar cables (electrical) between XBU#1 of BB#00 and XBU#1 of BB#01.**
   Hold the connector and insert it straight into the opening when connecting each cable.

   Do not hold the cable or its tab part when inserting it.

   a. Connect a crossbar cable from the 0L port (pink) on XBU#1 of BB#00 to the 0L port (pink) on XBU#1 of BB#01.

   b. Connect a crossbar cable from the 0L port (black) on XBU#1 of BB#00 to the 0L port (black) on XBU#1 of BB#01.

   c. Connect a crossbar cable from the 0R port (light blue) on XBU#1 of BB#00 to the 0R port (light blue) on XBU#1 of BB#01.

   d. Connect a crossbar cable from the 0R port (black) on XBU#1 of BB#00 to the 0R port (black) on XBU#1 of BB#01.

2. **Connect the crossbar cables (electrical) between XBU#0 of BB#00 and XBU#0 of BB#01.**

   a. Connect a crossbar cable from the 0L port (pink) on XBU#0 of BB#00 to the 0L port (pink) on XBU#0 of BB#01.

   b. Connect a crossbar cable from the 0L port (black) on XBU#0 of BB#00 to the 0L port (black) on XBU#0 of BB#01.

   c. Connect a crossbar cable from the 0R port (light blue) on XBU#0 of BB#00 to the 0R port (light blue) on XBU#0 of BB#01.

   d. Connect a crossbar cable from the 0R port (black) on XBU#0 of BB#00 to the 0R port (black) on XBU#0 of BB#01.

Figure 4-5   Crossbar unit port numbers
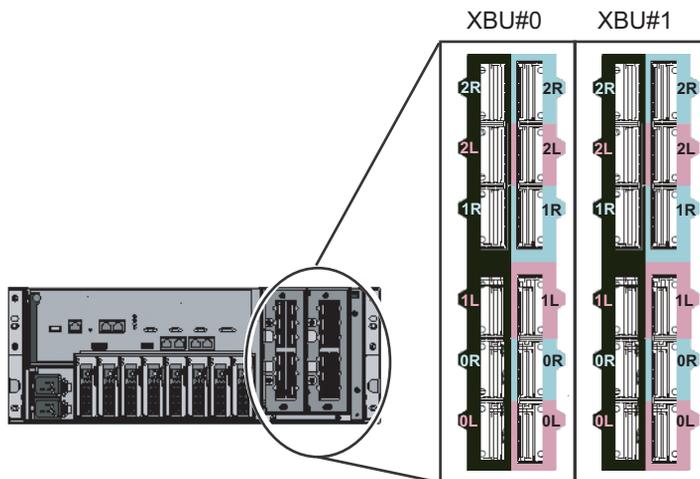
Figure 4-6   Example of the appearance of a crossbar cable label
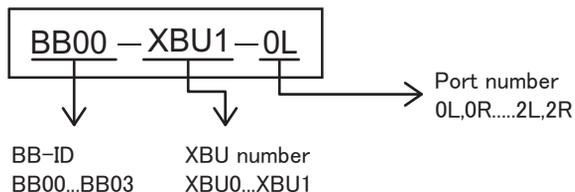
3. **Confirm that the crossbar cables (electrical) are correctly and firmly connected.**
   With the crossbar cables (electrical) connected to their ports, push in each cable while holding the joint (black resin part) (A in Figure 4-7) at the base of the connector of the crossbar cable (electrical).

Note - A loose crossbar cable connection may, on rare occasions, cause an error due to poor connection. After connecting a crossbar cable, push it in again so that it is tightly in place to prevent any improper connection. Do not hold only the cable when performing work at this time. Otherwise, the cable may bend out of shape.

Figure 4-7   Part to hold when checking a crossbar cable (electrical) connection
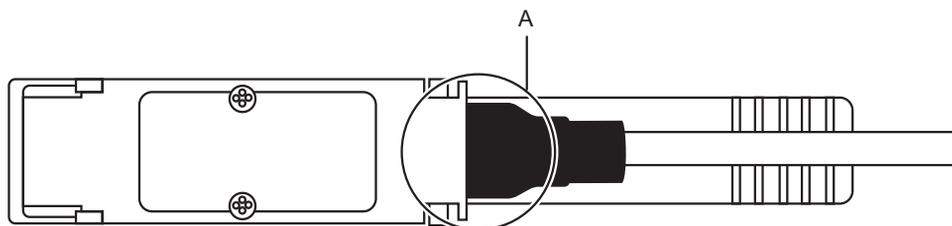
4.3 Connecting Cables (for Connections through Crossbar Boxes)

For connections through crossbar boxes, an expansion rack is shipped with the SPARC M10-4S and crossbar boxes mounted. The SPARC M10-4S and crossbar boxes are connected by crossbar cables (optical) and the XSCF units are connected by XSCF cables when the rack is shipped. For configurations up to the 8BB configuration, skip to "4.3.1   Connecting XSCF cables."

The 9BB configuration or larger requires two racks, so the crossbar cables (optical) and XSCF cables that pass between the racks need to be connected. For any subsequent installation expanding to the 9BB configuration or larger, the connections of the existing crossbar cables (optical) need to be changed.

This section describes how to connect the crossbar cables (optical) and XSCF cables that pass between the racks and how to move crossbar cables (optical).

For each configuration, "Appendix B   Cable Connection Information on Building Block Configurations" provides a cable connection diagram and a cable list.

4.3.1 Connecting XSCF cables

Cables that pass between racks are secured to expansion rack 2. Connect cables to their respective ports on expansion rack 1 through the empty space in the connecting part of the racks.

For the cable routes, see Figure 4-8.

When laying the cables, use the supplied hook-and-loop fastener strips to bundle them as appropriate.

1. **Pass the XSCF BB control cables stored in expansion rack 2 through the upper side of the connecting part of the racks (B in Figure 4-14).**

2. **Connect the XSCF BB control cables**.
   Each cable has an attached label showing the connection destination port. Connect the cable to the port corresponding to the label.

3. **Check the connection of the XSCF DUAL control cable.**
   Confirm that the cable is connected between the XSCF DUAL control port of XBBOX#80 and the XSCF DUAL control port of XBBOX#81.

Figure 4-8   Cable laying diagram

Expansion rack 2   Expansion rack 1

REAR
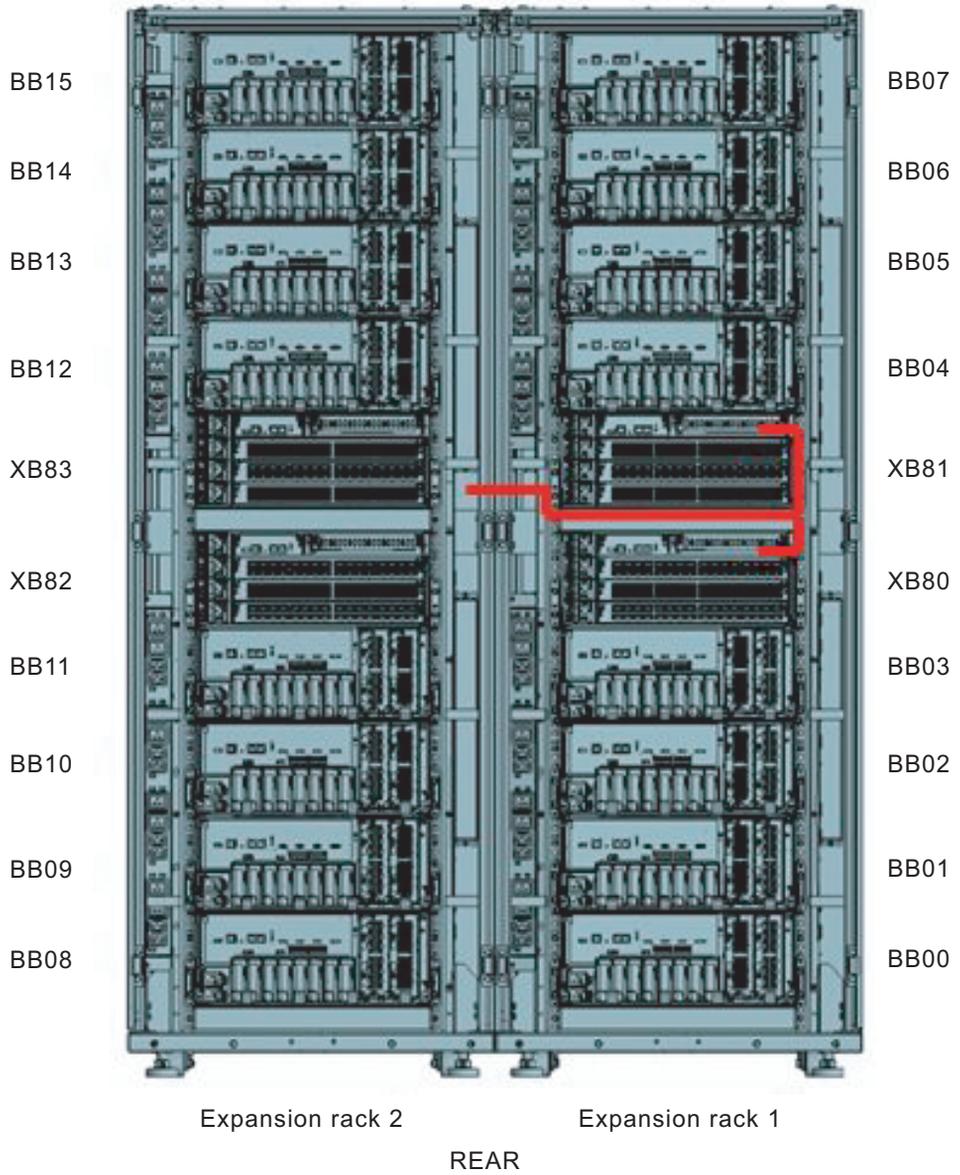
Figure 4-9   XSCF port locations (SPARC M10-4S side)
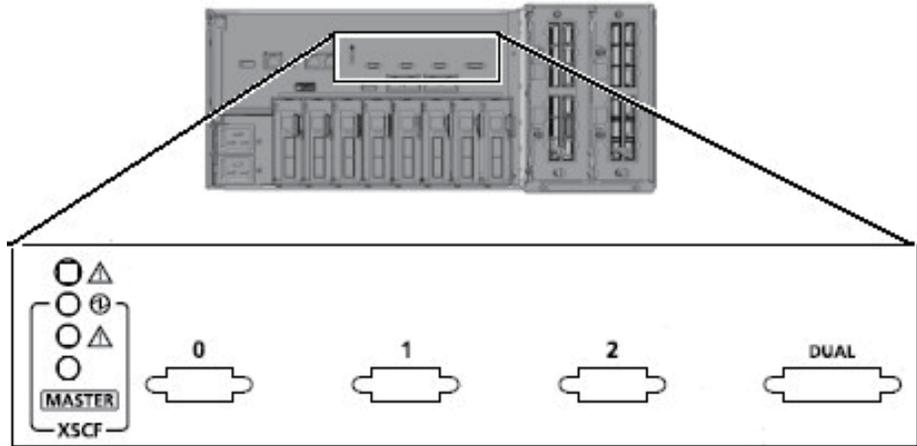
Figure 4-10   XSCF interface unit port locations (crossbar box side)
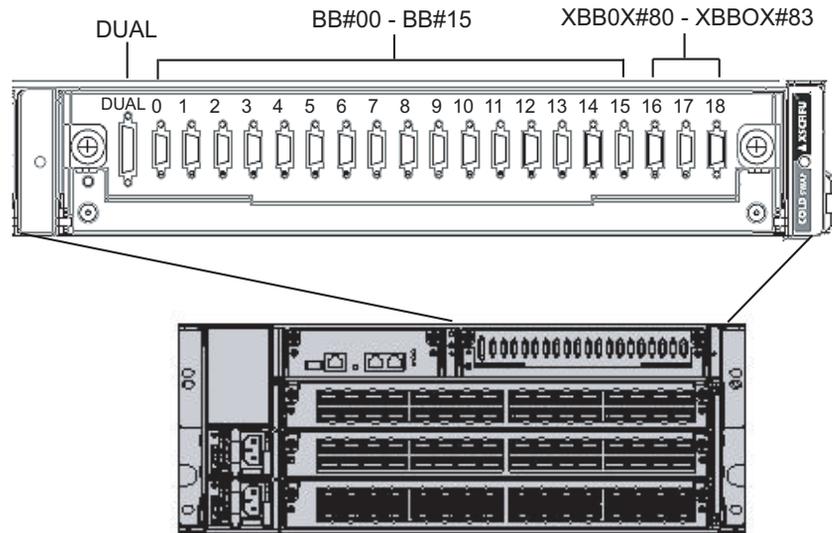
Figure 4-11   Example of the appearance of an XSCF cable label (SPARC M10-4S side)

BB08 — XSCF0

BB-ID   XSCF BB control port number
BB00...BB15   XSCF0...XSCF1
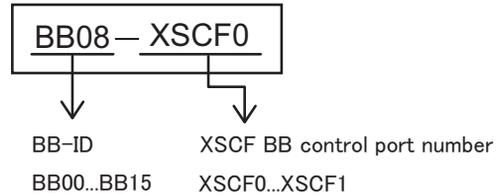
Figure 4-12   Examples of the appearance of an XSCF cable label (crossbar box side)

XB80 — DUAL

BB-ID   XSCF DUAL control port
XB80...XB81   DUAL

XB80 — XSCF8

BB-ID   XSCF BB control port number
XB80...XB83   XSCF0...XSCF18
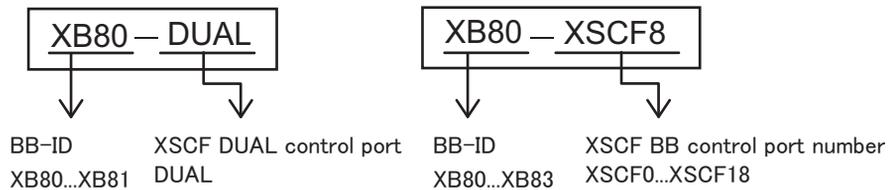
4.3.2   Connecting crossbar cables

Cables that pass between racks are secured to expansion rack 2. Connect cables to their respective ports on expansion rack 1 through the empty space in the connecting part of the racks. Each cable has an attached label showing the connection destination port. Connect the cable to the port corresponding to the label.
There are two ports with the same port number. Each port on the chassis is color-coded. Connect the port to the corresponding port of the same color.
For the cable routes, see Figure 4-15.
When laying the cables, use the supplied hook-and-loop fastener strips to bundle them as appropriate.

1. **Unpack the cables that will pass between the racks.**

   The cables are tied with hook-and-loop fastener strips, nylon ties, or the like to a side of the rack (A in Figure 4-13) or the rear of the rack (B in Figure 4-13) with their connectors wrapped in a bag.

   a. Remove the cable connectors from where they are secured on the rack.

   b. Unwrap the cable connectors.

Figure 4-13   Cable storage locations in expansion rack 2

REAR
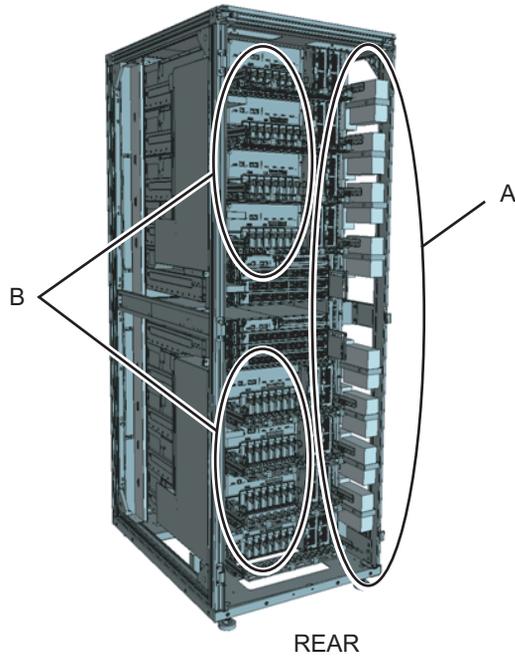
2. **Pass the crossbar cables (optical) unwrapped in step 1 between the upper and lower PDUs on the connecting part of the racks.**

Pass the crossbar cables (optical) connecting BB#00 to BB#03 and XB#80 through the lower side of the connecting part (A in Figure 4-14).

Pass the crossbar cables (optical) connecting BB#04 to BB#07 and XB#81 through the upper side of the connecting part (B in Figure 4-14).

Figure 4-14   Locations for passing cables between the racks
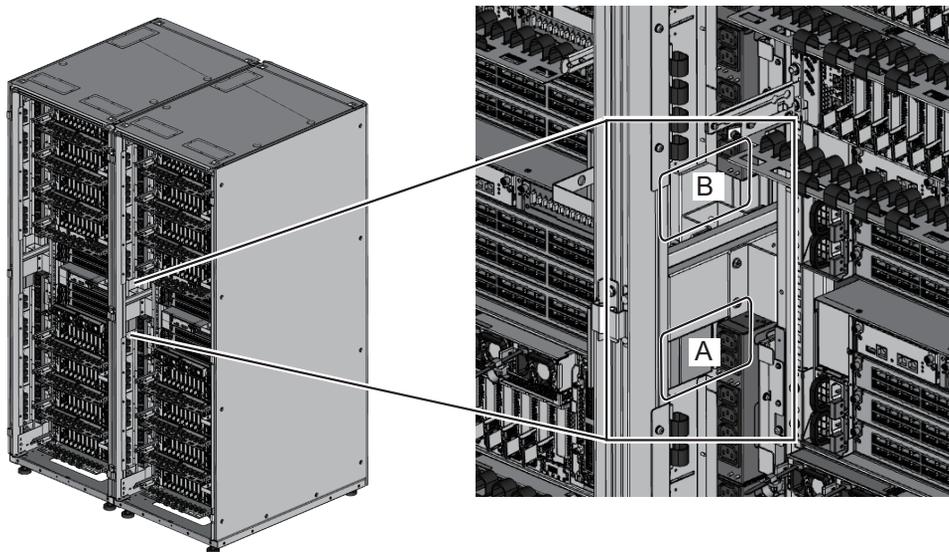
Figure 4-15   Cable laying diagram

BB15   BB07
BB14   BB06
BB13   BB05
BB12   BB04
XB83   XB81
XB82   XB80
BB11   BB03
BB10   BB02
BB09   BB01
BB08   BB00

Expansion rack 2   Expansion rack 1

REAR
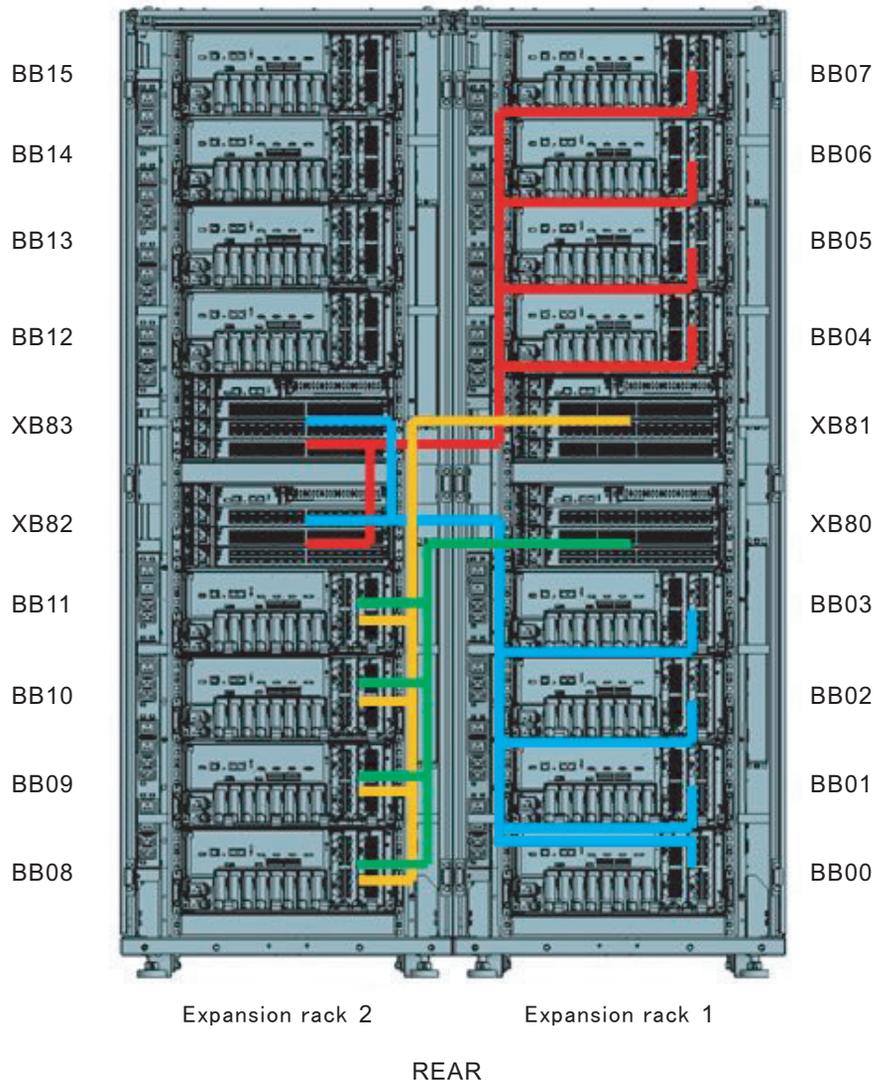
3. **Connect the crossbar cables (optical) to crossbar boxes.**
   The crossbar cables (optical) are laid in a bundle for each chassis. Connect cables without changing how they are laid.

   Each cable has an attached label showing the connection destination port. Connect the cable to the port corresponding to the label. There are two ports with the same port number. Each port on the chassis is color-coded. Connect the port to the corresponding port of the same color.

   Hold the connector of the crossbar cable (optical), and insert it straight into the opening. Do not hold the cable or its tab part when inserting it.

Figure 4-16   Crossbar cable (optical) shapes and tabs

Figure 4-17   Crossbar unit port numbers (SPARC M10-4S side)

Figure 4-18   Crossbar unit port numbers (crossbar box side)

Figure 4-19   Example of the appearance of a crossbar cable label

> BB00 — XBU0 — 2L
> XB82 — XBU2 — L0

BB-ID   –   XBU number   –   Port number
(BB00...BB15) - (XBU0...XBU1) - (0L,0R...2L,2R)

BB-ID   –   XBU number   –   Port number
(XB80...XB83) - (XBU0...XBU2) - (L0,R0...L7,R7)

Note - The label shows both the cable connection destination and the unit connected by the cable.

4. **Confirm that the crossbar cables (optical) are correctly and firmly connected.**
   With the crossbar cables (optical) connected to their ports, push in each cable while holding the joint (A in Figure 4-20) at the base of the connector of the crossbar cable (optical).

Note - A loose crossbar cable connection may, on rare occasions, cause an error due to poor connection. After connecting a crossbar cable, push it in again so that it is tightly in place to prevent any improper connection. Do not hold only the cable when performing work at this time. Otherwise, the cable may bend out of shape.

Figure 4-20   Part to hold when checking a crossbar cable (optical) connection
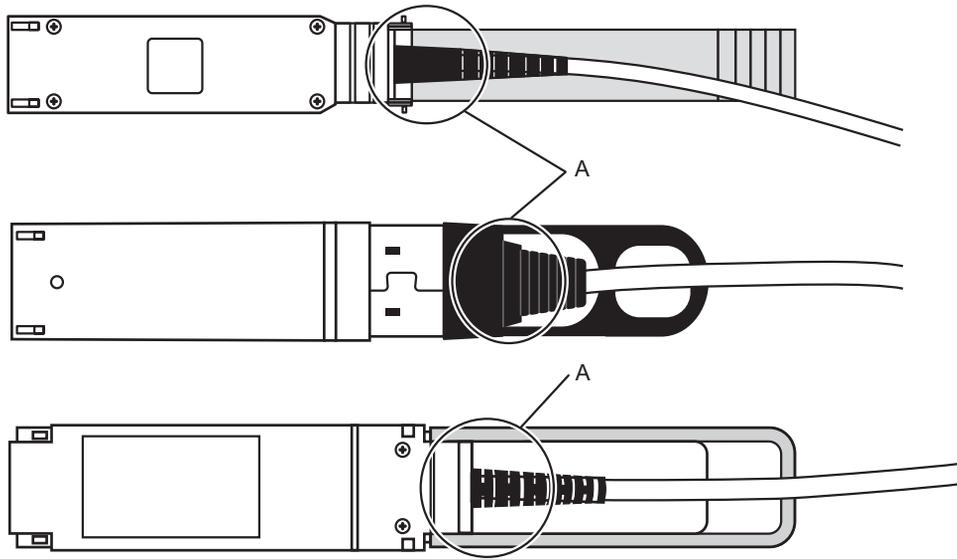
4.3.3   Changing crossbar cables (when subsequently installing expansion rack 2)

When subsequently installing expansion rack 2, you need to change the connections of crossbar cables (optical). This work is not necessary during the initial installation.

1. **Mount a crossbar unit in XBBOX#80/#81.**
    a. Remove the one screw (B in Figure 4-21) securing the blank panel.

    b. Remove the blank panel (A in Figure 4-21) from slot #2, where the crossbar unit is to be installed.

    c. Insert the crossbar unit into slot #2. The crossbar unit is supplied with expansion rack 2.

    d. Close the left and right levers of the crossbar unit, and tighten two screws (A in Figure 4-22).

Figure 4-21   Removing the blank panel
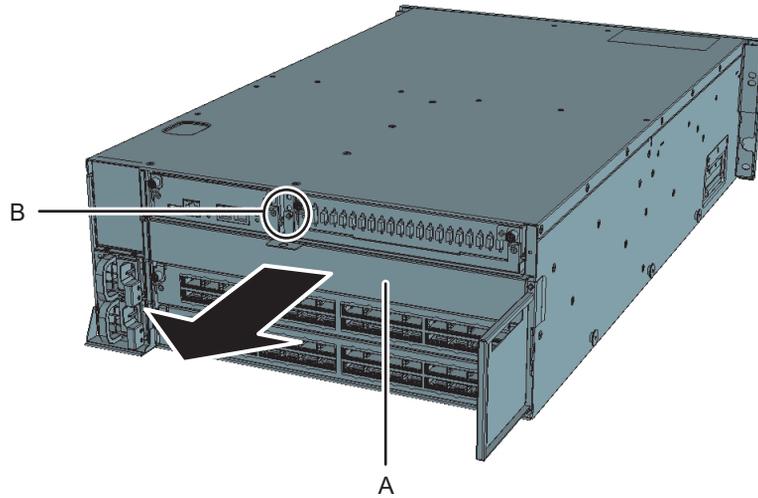
Figure 4-22   Mounting the crossbar unit
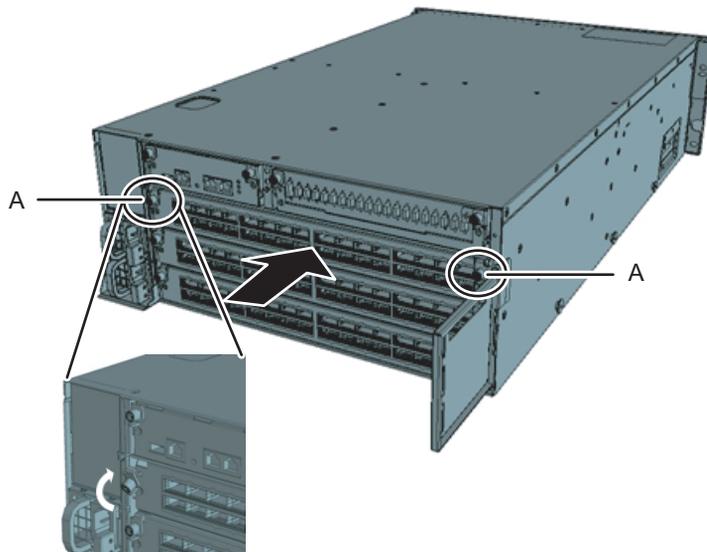
2. **Move the crossbar cables (optical) of XBBOX#80/#81.**
    a. Remove the crossbar cables (optical) from L4 to L7 and from R4 to R7 of
        crossbar unit #1 (see Figure 4-23). Hold the tab (A in Figure 4-24) of the
        crossbar cable (optical) and pull it straight out in the direction of the arrow to
        remove the cable.

Note - Do not hold the cable part when pulling out the crossbar cable. Pulling the cable part without the connector lock completely released may cause damage.

Figure 4-23   Moving cables of XBBOX#80/#81
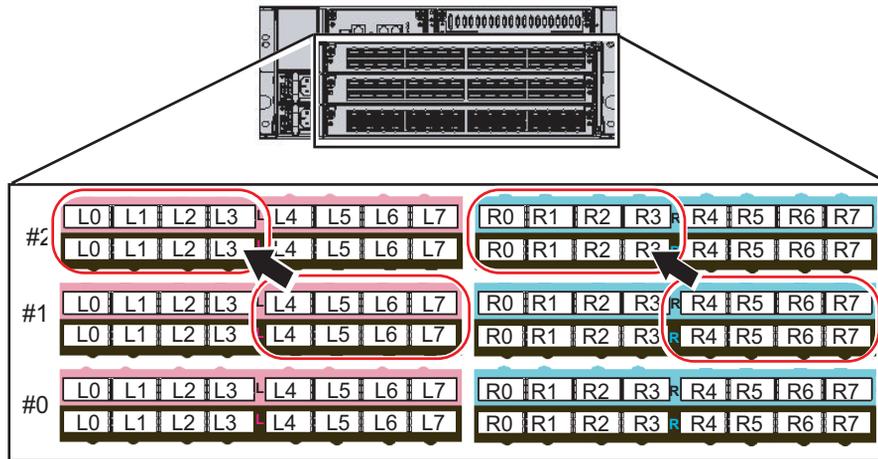
Figure 4-24   Crossbar cable (optical) tab and pulling direction
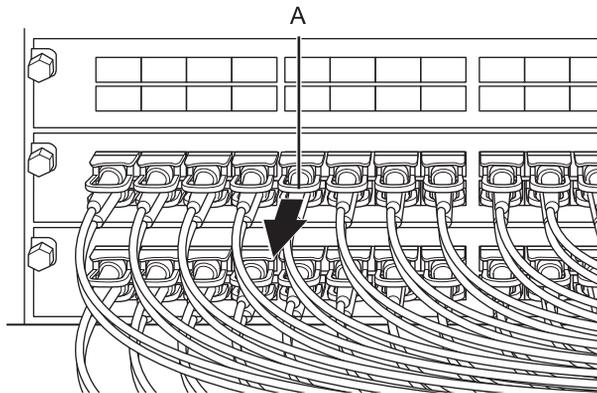
b. Replace the labels on the removed crossbar cables (optical). The replacement labels are supplied with expansion rack 2. Referring to Table 4-1, replace the labels.

Table 4-1   Label replacement table

Before change			After change	
XB80-XBU1-L4	Pink	->	XB80-XBU2-L0	Pink
XB80-XBU1-L4	Black	->	XB80-XBU2-L0	Black
XB80-XBU1-L5	Pink	->	XB80-XBU2-L1	Pink
XB80-XBU1-L5	Black	->	XB80-XBU2-L1	Black
XB80-XBU1-L6	Pink	->	XB80-XBU2-L2	Pink
XB80-XBU1-L6	Black	->	XB80-XBU2-L2	Black
XB80-XBU1-L7	Pink	->	XB80-XBU2-L3	Pink
XB80-XBU1-L7	Black	->	XB80-XBU2-L3	Black
XB80-XBU1-R4	Light blue	->	XB80-XBU2-R0	Light blue
XB80-XBU1-R4	Black	->	XB80-XBU2-R0	Black
XB80-XBU1-R5	Light blue	->	XB80-XBU2-R1	Light blue
XB80-XBU1-R5	Black	->	XB80-XBU2-R1	Black
XB80-XBU1-R6	Light blue	->	XB80-XBU2-R2	Light blue
XB80-XBU1-R6	Black	->	XB80-XBU2-R2	Black
XB80-XBU1-R7	Light blue	->	XB80-XBU2-R3	Light blue
XB80-XBU1-R7	Black	->	XB80-XBU2-R3	Black
XB81-XBU1-L4	Pink	->	XB81-XBU2-L0	Pink
XB81-XBU1-L4	Black	->	XB81-XBU2-L0	Black
XB81-XBU1-L5	Pink	->	XB81-XBU2-L1	Pink
XB81-XBU1-L5	Black	->	XB81-XBU2-L1	Black
XB81-XBU1-L6	Pink	->	XB81-XBU2-L2	Pink
XB81-XBU1-L6	Black	->	XB81-XBU2-L2	Black
XB81-XBU1-L7	Pink	->	XB81-XBU2-L3	Pink
XB81-XBU1-L7	Black	->	XB81-XBU2-L3	Black
XB81-XBU1-R4	Light blue	->	XB81-XBU2-R0	Light blue
XB81-XBU1-R4	Black	->	XB81-XBU2-R0	Black
XB81-XBU1-R5	Light blue	->	XB81-XBU2-R1	Light blue
XB81-XBU1-R5	Black	->	XB81-XBU2-R1	Black
XB81-XBU1-R6	Light blue	->	XB81-XBU2-R2	Light blue
XB81-XBU1-R6	Black	->	XB81-XBU2-R2	Black
XB81-XBU1-R7	Light blue	->	XB81-XBU2-R3	Light blue
XB81-XBU1-R7	Black	->	XB81-XBU2-R3	Black

c. Connect crossbar cables (optical) from L0 to L3 and from R0 to R3 of crossbar unit #2.

Mount the crossbar cables (optical) according to the labels.
Hold the connector of the crossbar cable (optical), and insert it straight into the opening.
Do not hold the cable or its tab part when inserting it.

Note - If you insert the connector with the tab pulled back, you may damage the connector.

Note - There are three types of crossbar cable (optical). Connect a crossbar cable (optical) of the same type to ports of the same port number. You can distinguish the type of crossbar cable (optical) by the tab shape (A in Figure 4-25).

Figure 4-25   Crossbar cable (optical) shapes and tabs
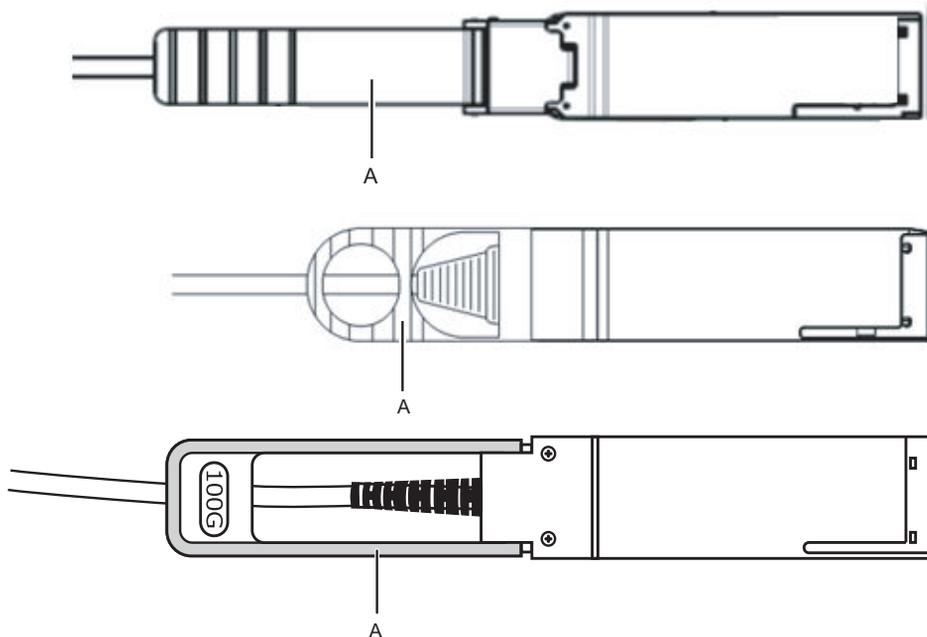
3.   **Move the BB#07 crossbar cables (optical) from BB#04.**
     a. Remove the crossbar cables (optical) from 1L and 1R of crossbar unit #0/#1.

Figure 4-26   Moving BB#07 cables from BB#04
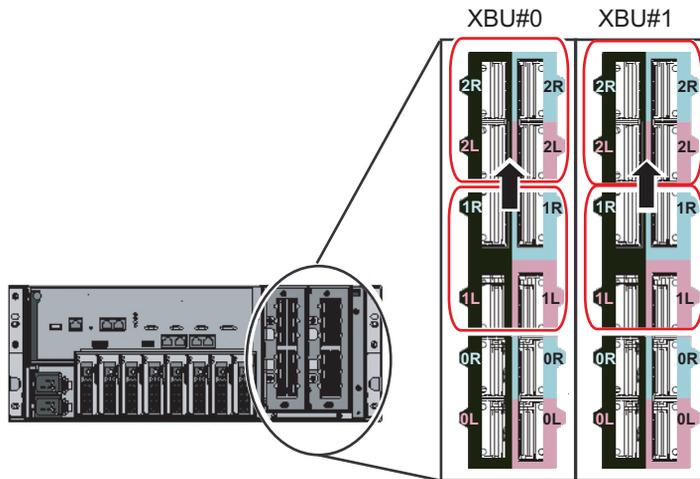
b. Replace the labels on the removed crossbar cables (optical).
    The replacement labels are supplied with expansion rack 2. Referring to Table
    4-2, replace the labels.

Table 4-2   Label replacement table

Before change			After change	
BB04-XBU0-1L	Pink	->	BB04-XBU0-2L	Pink
BB04-XBU0-1L	Black	->	BB04-XBU0-2L	Black
BB04-XBU0-1R	Light blue	->	BB04-XBU0-2R	Light blue
BB04-XBU0-1R	Black	->	BB04-XBU0-2R	Black
BB04-XBU1-1L	Pink	->	BB04-XBU1-2L	Pink
BB04-XBU1-1L	Black	->	BB04-XBU1-2L	Black
BB04-XBU1-1R	Light blue	->	BB04-XBU1-2R	Light blue
BB04-XBU1-1R	Black	->	BB04-XBU1-2R	Black
BB05-XBU0-1L	Pink	->	BB05-XBU0-2L	Pink
BB05-XBU0-1L	Black	->	BB05-XBU0-2L	Black
BB05-XBU0-1R	Light blue	->	BB05-XBU0-2R	Light blue
BB05-XBU0-1R	Black	->	BB05-XBU0-2R	Black
BB05-XBU1-1L	Pink	->	BB05-XBU1-2L	Pink
BB05-XBU1-1L	Black	->	BB05-XBU1-2L	Black
BB05-XBU1-1R	Light blue	->	BB05-XBU1-2R	Light blue
BB05-XBU1-1R	Black	->	BB05-XBU1-2R	Black
BB06-XBU0-1L	Pink	->	BB06-XBU0-2L	Pink
BB06-XBU0-1L	Black	->	BB06-XBU0-2L	Black

Table 4-2   Label replacement table *(continued)*

Before change			After change	
BB06-XBU0-1R	Light blue	->	BB06-XBU0-2R	Light blue
BB06-XBU0-1R	Black	->	BB06-XBU0-2R	Black
BB06-XBU1-1L	Pink	->	BB06-XBU1-2L	Pink
BB06-XBU1-1L	Black	->	BB06-XBU1-2L	Black
BB06-XBU1-1R	Light blue	->	BB06-XBU1-2R	Light blue
BB06-XBU1-1R	Black	->	BB06-XBU1-2R	Black
BB07-XBU0-1L	Pink	->	BB07-XBU0-2L	Pink
BB07-XBU0-1L	Black	->	BB07-XBU0-2L	Black
BB07-XBU0-1R	Light blue	->	BB07-XBU0-2R	Light blue
BB07-XBU0-1R	Black	->	BB07-XBU0-2R	Black
BB07-XBU1-1L	Pink	->	BB07-XBU1-2L	Pink
BB07-XBU1-1L	Black	->	BB07-XBU1-2L	Black
BB07-XBU1-1R	Light blue	->	BB07-XBU1-2R	Light blue
BB07-XBU1-1R	Black	->	BB07-XBU1-2R	Black

    c. Connect the crossbar cables (optical) to 2L and 2R of crossbar unit #0/#1.
      Mount the cables according to the labels.

4. **Confirm that the crossbar cables (optical) are correctly and firmly connected.**
   With the crossbar cables (optical) connected to their ports, push in each cable
   while holding the joint (A in Figure 4-27) at the base of the connector of the
   crossbar cable (optical).

Note - A loose crossbar cable connection may, on rare occasions, cause an error due to poor
connection. After connecting a crossbar cable, push it in again so that it is tightly in place to
prevent any improper connection. Do not hold only the cable when performing work at this
time. Otherwise, the cable may bend out of shape.

Figure 4-27   Part to hold when checking a crossbar cable (optical) connection
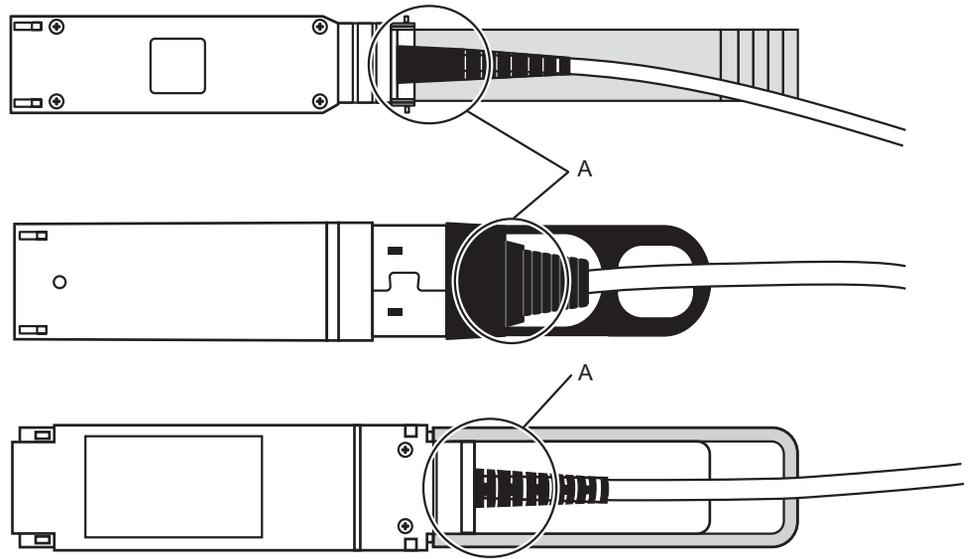
Chapter 5

Connecting Cables to the Chassis

This chapter describes the procedure for connecting the power cords, serial cable, and network cables to each chassis. All ports for the connections are on the rear of the chassis. For a description of each port, see "2.10   Checking External Interface Port Specifications."

- Connecting Cables to the SPARC M10-4S
- Connecting Cables to the PCI Expansion Unit
- Connecting Cables to a Crossbar Box
- Storing Cables

5.1   Connecting Cables to the SPARC M10-4S

This section describes the procedure for connecting the serial cable, network cables, and power cords to the SPARC M10-4S.

1. **Connect the serial cable supplied with the chassis from the serial port of the XSCF unit (A in Figure 5-1) to the system management terminal.**
   In a building block configuration, the system operates with batch operations by the chassis of the master XSCF. Connect the serial cable to the master XSCF.

Note - In a building block configuration with direct connections between chassis, BB#00 is usually the master XSCF, and BB#01 is the standby XSCF.
If the master is switched, BB#01 becomes the master XSCF, and BB#00 becomes the standby XSCF.

Note - In a building block configuration with connections through crossbar boxes, the system operates with batch operations by the master XSCF of the crossbar box. No serial cable is connected to the SPARC M10-4S.

Figure 5-1   Serial port location

A
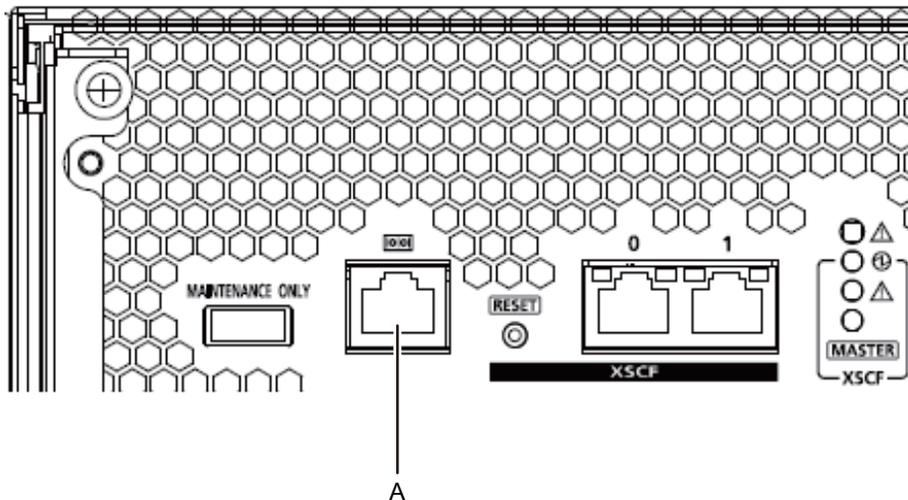
2. **Connect a LAN cable of Category 5 or higher from a GbE port (A in Figure 5-2) to the network switch or hub.**
The GbE ports are used for the user network. Connect the other servers, other PCs, UPS, etc. that are necessary for business via the network switch or hub.

Figure 5-2   GbE port locations
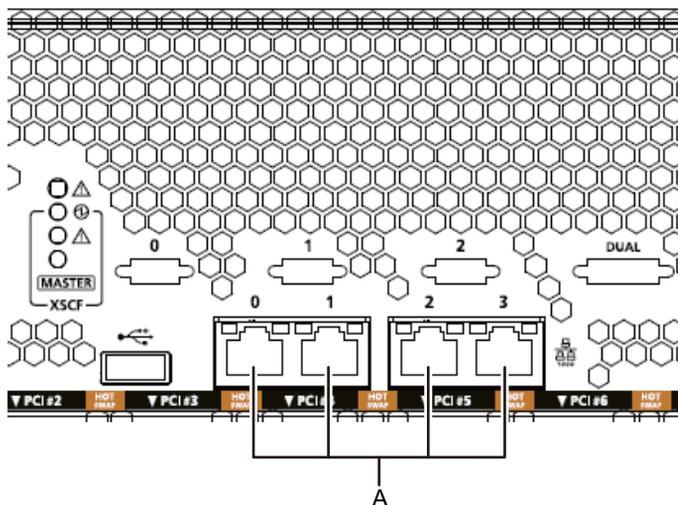
A

3. **If a PCIe card is mounted, connect a LAN cable and I/O cable to the respective ports on the PCIe card.**

4. **Secure the cables to the cable support.**
While leaving extra length, secure the cables connected to the PCIe card to the cable support.

5. **Connect the supplied power cords to the power supply units.**
   The work in this step differs depending on the rack where the SPARC M10-4S is mounted.

   Perform the work appropriate to the rack type.

■ **Mounting in a general rack**
   a. Connect the supplied power cords to the power supply units (A in Figure 5-5). Insert the power cords straight into the power supply units all the way.

■ **Mounting in an expansion rack**
   a. Affix destination labels to the power cords.
   Labels are affixed on the top panel of the crossbar box XBBOX#80 or XBBOX#82 at the rear of the expansion rack. (See Figure 5-4.)
   Affix labels with the same indications to both ends of each power cord.
   First affix the text part of a label to the power cord, and then wrap the label around the cord.
   For the label orientation and locations for affixing the labels, see Figure 5-3.
   For lists for affixing labels, see "B.6   Power Cord Connections in Expansion Racks."

Figure 5-3   Locations for affixing labels (for an expansion rack)
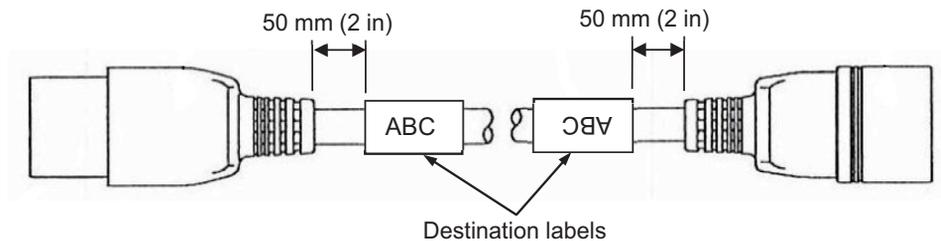
Figure 5-4   Destination label storage location: Top panel of the lower crossbar box

Destination labels

Crossbar box
(XBBOX#80 or #82)
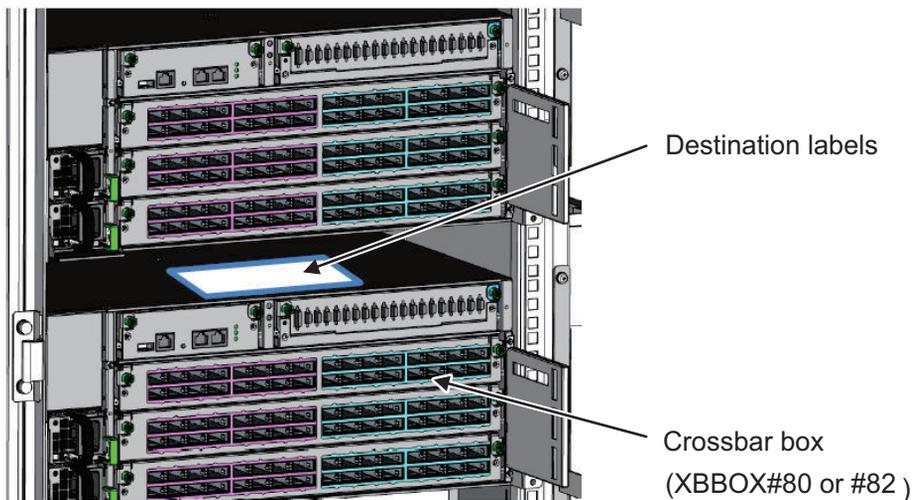
Rear of expansion rack

b. Connect the power cords to the power supply units (A in Figure 5-5)
   according to the destination labels.
   Insert the power cords straight into the power supply units all the way.

Figure 5-5   Power supply unit locations

ACIN#1

ACIN#0

A
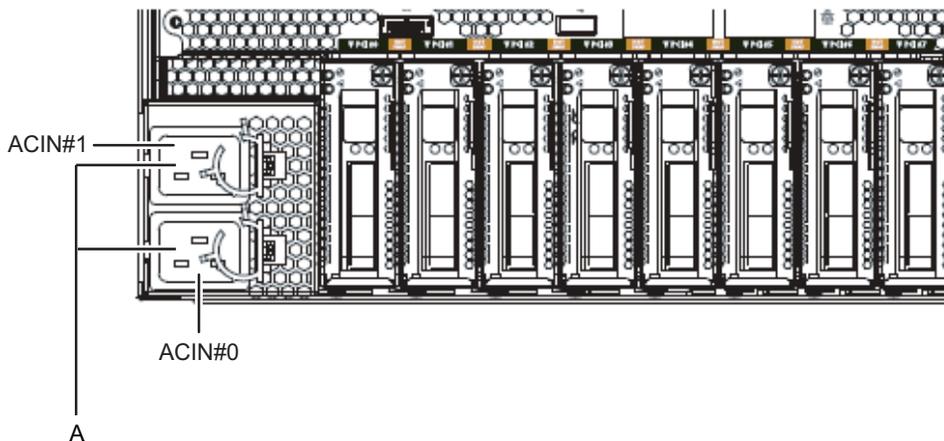
Note - Do not connect to an outlet at this point.

Figure 5-6   Inserting power cords
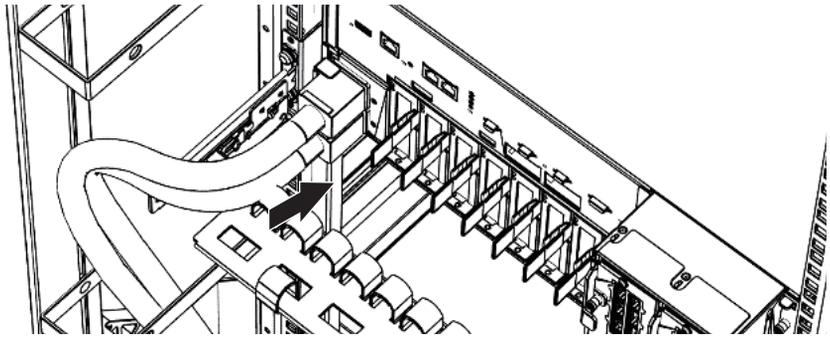
6. **Secure all the power cords with cable clamps.**
    Clip on the power cords to the cable clamps, and secure the cable clamps.
    After locking each clasp (A in Figure 5-7), push the cable clamp toward the front
    of the chassis to firmly secure the clamp.

Figure 5-7   Locking a cable clamp
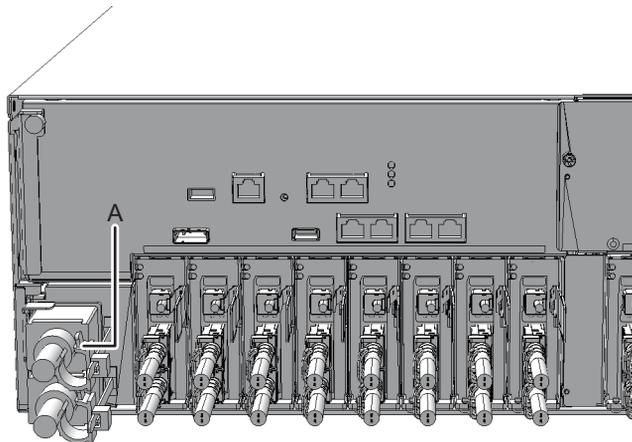
5.2   Connecting Cables to the PCI Expansion Unit

This section describes the procedure for connecting the management cable, link
cables, and power cords to the PCI expansion unit.

1. **Connect the management cable.**
    Connect the link board of the PCI expansion unit and the link card of the chassis
    by using the management cable. (See A in Figure 5-9 and A in Figure 5-10.)

2. **Connect link cables.**

    Connect the cables such that the port indications on the link card and link board match the labels on the cables.

    Each port on the link card and link board is color-coded and numbered. Connect the port to the corresponding port of the same color and number.

Note - The two link cables are the same. The labels on both ends of each cable have the same indications. When laying the cables, check their connections to confirm that the ends of the cables connected to the link card and link board are at the same ports shown on the labels.

Figure 5-8   Link cable (optical) shape
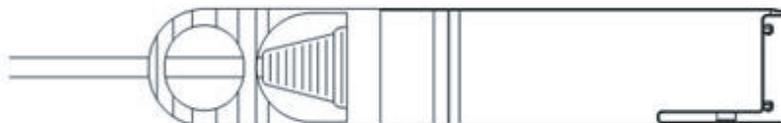
a. Connect one end of a link cable to the port (B in Figure 5-9) on the link board mounted in the PCI expansion unit.

b. Connect the other end to the port (B in Figure 5-10) on the link card of the SPARC M10-4S.

c. Connect one end of the other link cable to the port (C in Figure 5-9) on the link board mounted in the PCI expansion unit.

d. Connect the other end to the port (C in Figure 5-10) on the link card of the SPARC M10-4S.

Note - The two ports have the same shape and so may be incorrectly connected. Check the labels at both ends of each cable to confirm that the cable is connected to the correct ports. Hold the connector of the link cable (electrical) or link cable (optical), and insert it straight into the opening. Do not hold the cable or its tab part when inserting it.

Note - PCIe cassettes are mounted upside down in the SPARC M10-4S and the PCI expansion unit. Accordingly, the port locations of PCIe cards, including the link card, are also upside down. Be careful about this when mounting the cables.

Figure 5-9　　Connecting the link cables and management cable (PCI expansion unit side)
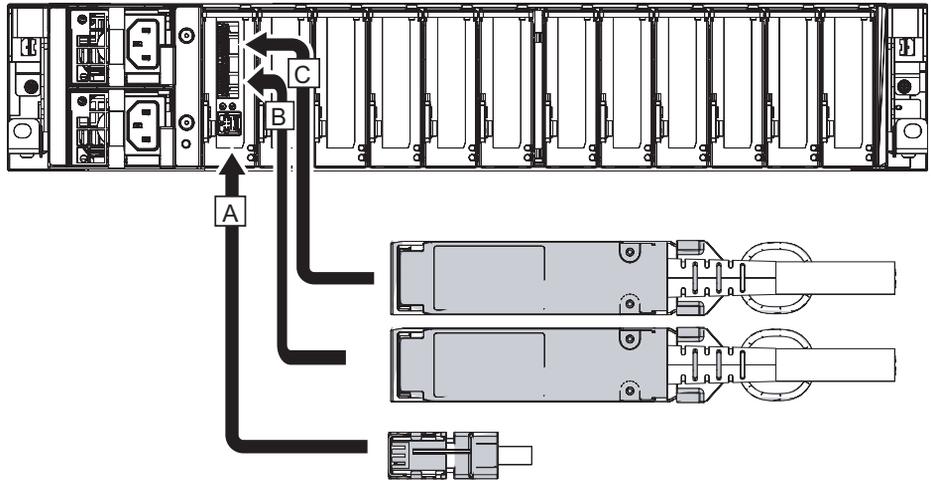
Figure 5-10　　Connecting the link cables and management cable (SPARC M10-4S side)
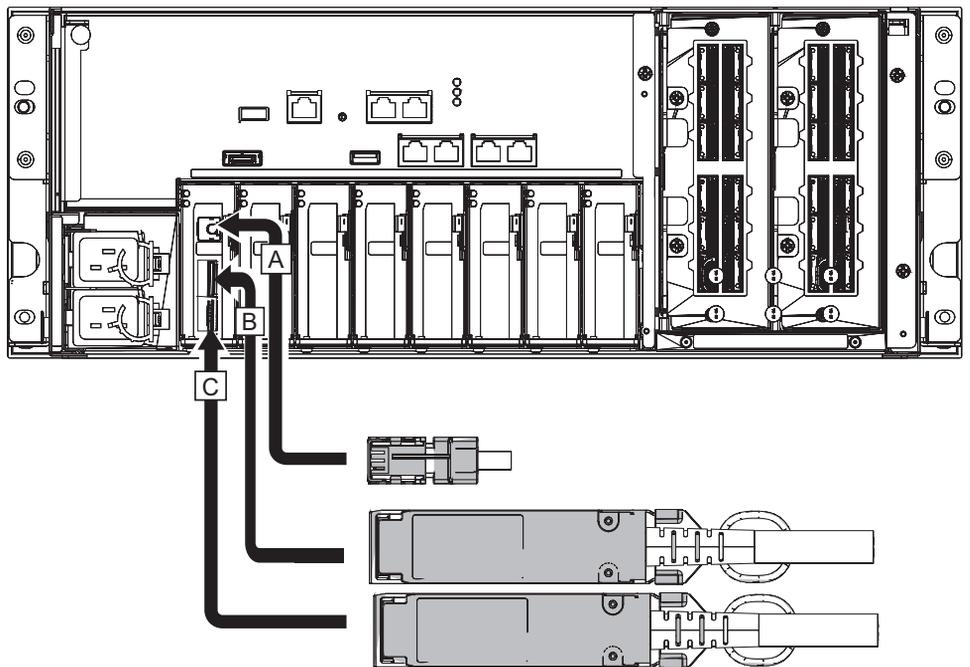
3. **If a PCIe card is mounted, connect a LAN cable and I/O cable to the respective ports on the PCIe card.**

4. **Secure the cables to the cable support.**

While leaving extra length, secure the cables connected to the PCIe card to the cable support.

5. **Attach a core to each supplied power cord, and connect the cord to a power supply unit.**

   a. Insert the power cord so that it fits into the groove of the core. Pinch the core closed until its latch is secured.
   Attach the core at a location 90 mm (3.5 in) from the end of the power cord connector. (See Figure 5-11.)

Figure 5-11   Core attachment location

90 mm (3.5 in)
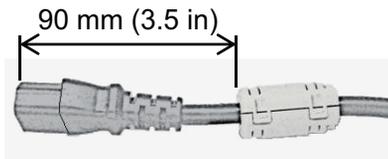
   b. Insert the power cord straight into the power supply unit (A in Figure 5-12) all the way.

Figure 5-12   Power supply unit locations

A
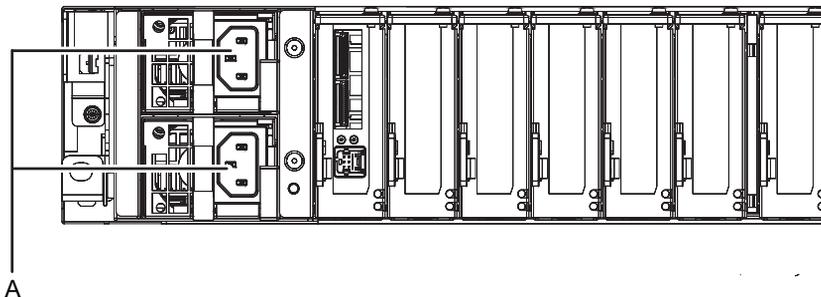
Note - Do not connect to an outlet at this point.

Figure 5-13   Attaching power cords
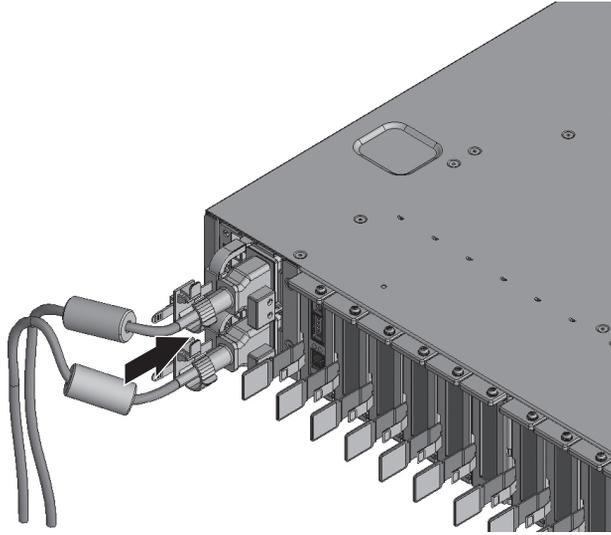
c. Secure the power cords with cable clamps.
   After locking each clasp (A in Figure 5-14), push the cable clamp toward the
   front of the chassis to firmly secure the clamp.

Figure 5-14   Locking a cable clamp
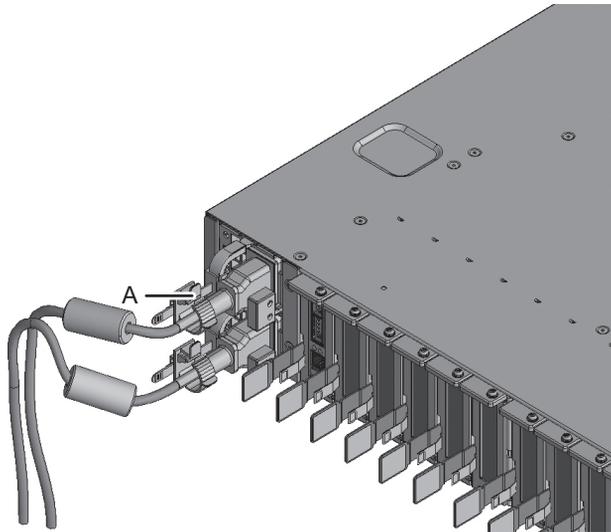
5.3 Connecting Cables to a Crossbar Box

This section describes the procedure for connecting the serial cable to a crossbar box.

1. **Connect the serial cable supplied with the chassis from the serial port of the XSCF unit (A in Figure 5-15) to the system management terminal.**
   In a building block configuration, the system operates with batch operations by the chassis of the master XSCF. Connect the serial cable to the master XSCF.

Note - In a building block configuration with connections through crossbar boxes, XBBOX#80 is usually the master XSCF, and XBBOX#81 is the standby XSCF. If the master is switched, XBBOX#81 becomes the master XSCF, and XBBOX#80 becomes the standby XSCF.

Note - In a building block configuration with connections through crossbar boxes, no serial cable is connected to the SPARC M10-4S.

Figure 5-15   Serial port location

A
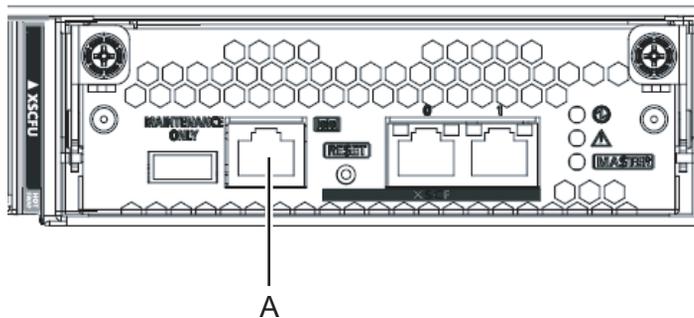
2. **Confirm that the SPARC M10-4S and crossbar box power cords are connected to the PDUs of the expansion rack.**
   The SPARC M10-4S and crossbar box power cords are shipped connected to the PDUs of the expansion rack.

   If the SPARC M10-4S has been mounted on site, connect the power cords to the PDUs at this time.

3. **Confirm that the CB switches of the PDUs of the expansion rack are OFF.**

5.4 Storing Cables

This section describes the procedure for storing the cables connected to the SPARC

M10-4S in a rack.
The procedures for storing the cables in the rack are described separately for the rack widths of 700 mm and 600 mm and the expansion rack. Check your rack before performing this work.

5.4.1 Rack with a width of 700 mm (27.6 in.)

For a rack with a width of 700 mm (27.6 in.), keep the power cords together at the left side and the other cables at the right side as viewed from the rear of the rack.

1. **Hang the power cords from the left side as viewed from the rear of the rack.**
   Place the power cords over the cable support fixing bracket (A in Figure 5-16) to hang them there as is.

Note - When bundling the power cords together with hook-and-loop fastener strips, take care to secure the extra length necessary for removing the power cords inserted in the power supply units.

Figure 5-16   Handling of power cords
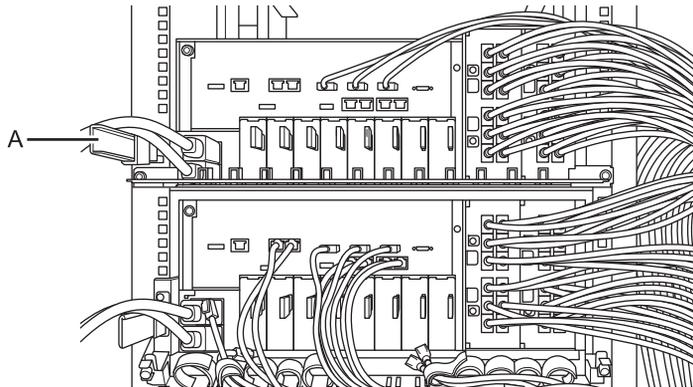
2. **First, store any interface cables other than crossbar cables (electrical). Then, store the crossbar cables (electrical).**
   a. Store the LAN cables and I/O cables connected as described in Chapter 5 in an empty space at the right side as viewed from the rear of the rack.

   b. Store the XSCF cable connected as described in Chapter 4 in an empty space at the right side as viewed from the rear of the rack.

   c. Store the crossbar cables (electrical) connected as described in Chapter 4 in an empty space on the right side as viewed from the rear of the rack.
      Cables fit neatly when stored in units of four connected cables.

Figure 5-17   Example of stored cables (4BB configuration)
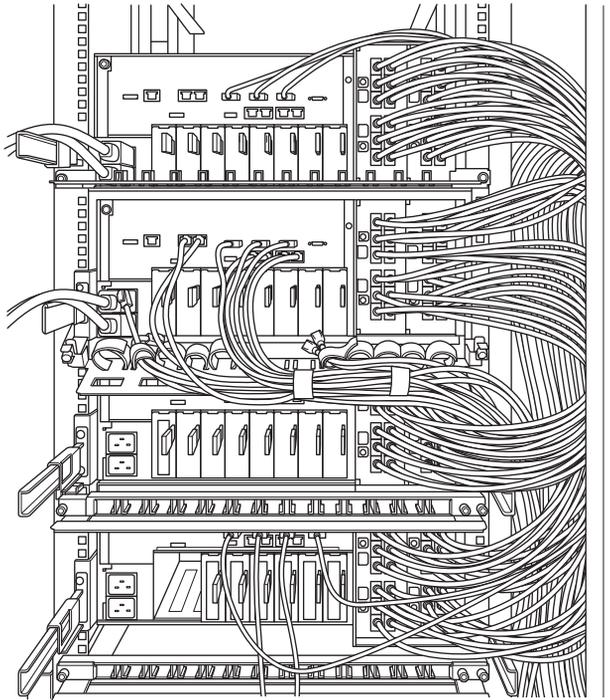
5.4.2   Rack with a width of 600 mm (23.6 in.)

For a rack with a width of 600 mm (23.6 in.), there is not enough space at a side of the rack. You need to distribute cables appropriately to the left and right sides and bundle them together there. This section describes the recommended method of storing the cables by using the 3BB configuration and 4BB configuration as examples. Store the cables properly according to the rack used.

4BB configuration

For the 4BB configuration, place the crossbar cables (electrical) connected to the 2L and 2R ports of XBU#0/#1 together at the right side as viewed from the rear of the rack. Place the other crossbar cables (electrical) together at the left side as viewed from the rear of the rack.

1. **Hang the power cords from the left side as viewed from the rear of the rack.**
   Place the power cords over the cable support fixing bracket to hang them there

as is.

Note - When bundling the power cords together with hook-and-loop fastener strips, take care to secure the extra length necessary for removing the power cords inserted in the power supply units.

---

2. **Place the crossbar cables (electrical) connected to the 0L/0R and 1L/1R ports of each XBU together at the left side as viewed from the rear of the rack.**

3. **Secure the crossbar cables (electrical) placed together at the left side to the cable support with hook-and-loop fastener strips.**

4. **Place the crossbar cables (electrical) connected to the 2L and 2R ports of each XBU together at the right side as viewed from the rear of the rack.**

5. **If a cable holder is supplied with the rack used, secure the crossbar cables (electrical) placed together at the right side to the cable holder of the rack.**

Figure 5-18   Example of stored cables (4BB configuration)
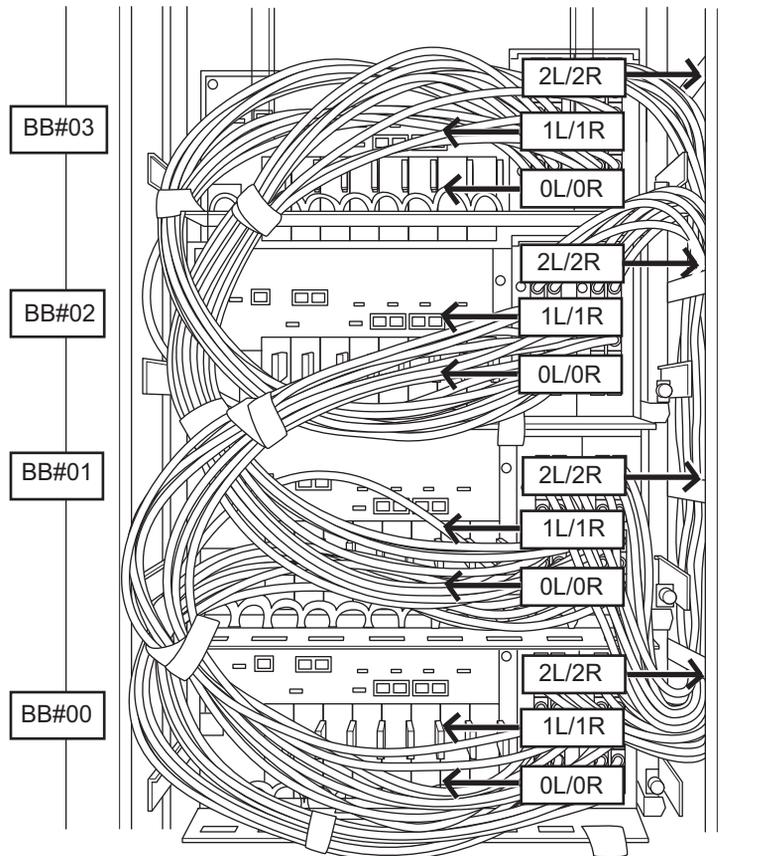
3BB configuration

For the 3BB configuration, place the crossbar cables (electrical) connected to the 1L and 1R ports of XBU#0/#1 together at the right side as viewed from the rear of the rack. Place the other crossbar cables (electrical) together at the left side as viewed from the rear of the rack.

1. **Hang the power cords from the left side as viewed from the rear of the rack.**
   Place the power cords over the cable support fixing bracket to hang them there as is.

Note - When bundling the power cords together with hook-and-loop fastener strips, take care to secure the extra length necessary for removing the power cords inserted in the power supply units.

---

2. **Place the crossbar cables (electrical) connected to the 0L/0R and 2L/2R ports of each XBU together at the left side as viewed from the rear of the rack.**

3. **Secure the crossbar cables (electrical) placed together at the left side to the cable support with hook-and-loop fastener strips.**

4. **Place the crossbar cables (electrical) connected to the 1L and 1R ports of each XBU together at the right side as viewed from the rear of the rack.**

5. **If a cable holder is supplied with the rack used, secure the crossbar cables (electrical) placed together at the right side to the cable holder of the rack.**

Figure 5-19   Example of stored cables (3BB configuration)
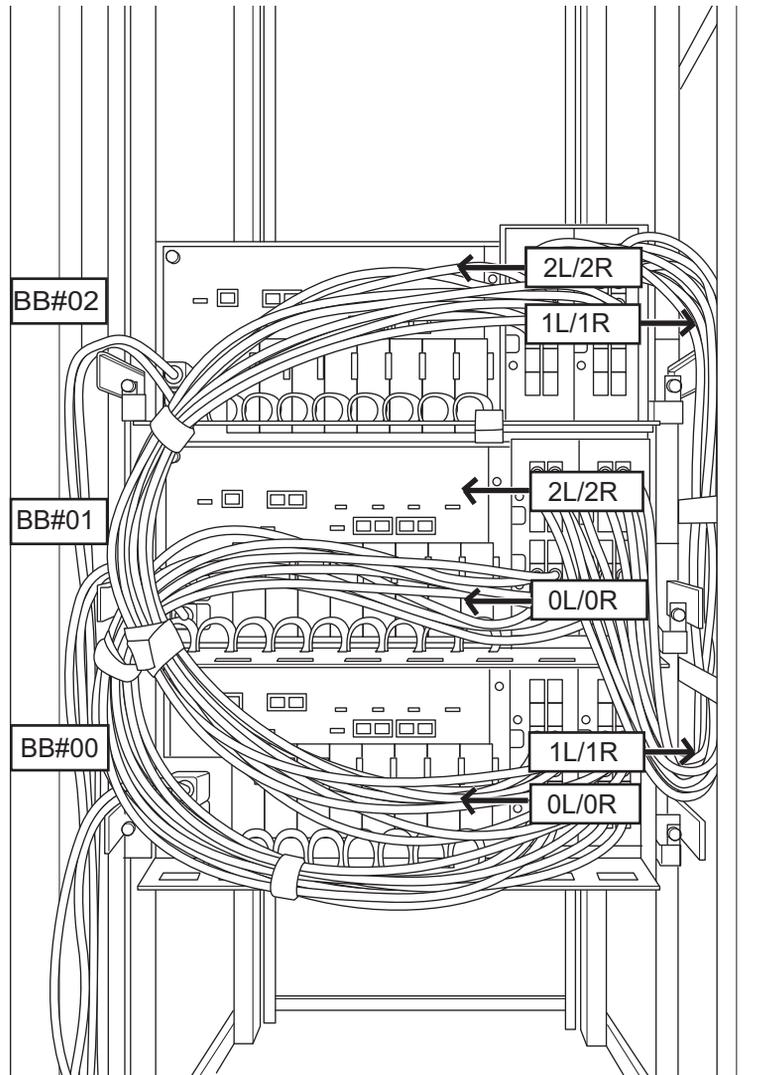
5.4.3   Expansion rack

For an expansion rack, keep the power cords together at the left side and the other cables at the right side as viewed from the rear of the rack.

Note - For an expansion rack, crossbar cables (optical) and XSCF cables are stored in the rack at the time of shipping. For details on connections, see "4.3   Connecting Cables (for Connections through Crossbar Boxes)."

1. **Hang the power cords from the left side as viewed from the rear of the rack.**
   According to the following procedure, connect the power cords of the SPARC M10-4S mounted in the expansion rack to the PDUs, and lay the power cords.

   a. Connect the power cords to the PDUs as instructed by the destination labels. See the power connection diagram appropriate to your power input type in "2.8   Checking the Power Input Type" about the placements of PDUs and their connections with the respective SPARC M10-4S to connect the power cords.
      For the SPARC M10-4S and PDU locations to connect with the power cords, see Figure 5-20.

Figure 5-20   Power cord wiring diagram

Rear of expansion rack
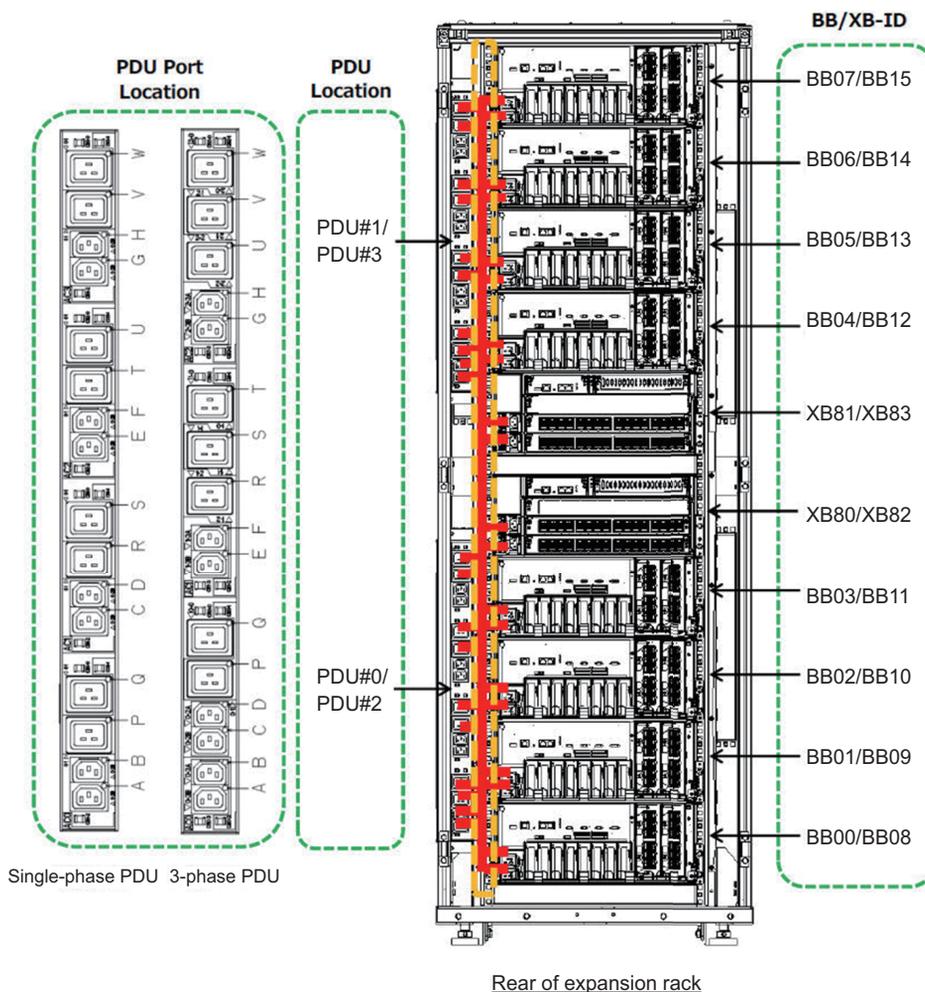
Figure 5-21   Example of the appearance of a power cord label

```
┌─────────────────────┐
│    PDU#0 – P        │
│  BB01 – ACIN#0      │
└─────────────────────┘
           │
           ↓

PDU Location  —  PDU Port Location
 (PDU#0...3)  —      (P...W)

     BB-ID      —   PSU Location
 (BB00...BB15)  —  (ACIN#0, #1)
```
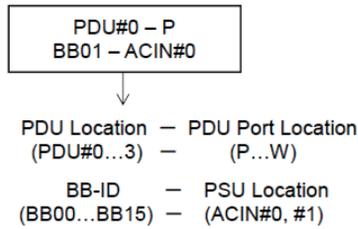
b. Use the space between a SPARC M10-4S and PDU to lay the extra length of power cords after wiring, and use the supplied hook-and-loop fastener strips to bundle them.

Note - When bundling the power cords together with hook-and-loop fastener strips, take care to secure the extra length necessary for removing the power cords inserted in the power supply units.

Chapter 6

Performing an Initial System Diagnosis

This chapter describes the procedures for connecting the system management terminal, turning on the input power, and checking components.
For details on the XSCF commands executed in each step, see the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 XSCF Reference Manual*.

- Connecting the System Management Terminal to the Chassis
- Turning on the input power and starting the XSCF
- Logging In to the XSCF
- Checking the XCP Version
- Checking the Altitude Setting
- Checking the Time Setting
- Performing a Diagnosis Test
- Checking the Component Status

6.1 Connecting the System Management Terminal to the Chassis

This section describes the procedures for checking the terminal software settings of the system management terminal and connecting the system management terminal to the serial port of the XSCF unit.

1. **Confirm that the terminal software for connecting the system management terminal has the following setting values**.

Table 6-1	Terminal software setting value
Setting item	Value
Baud rate	9600
Data length	8 bits
Parity	None
STOP bit	1 bit
Flow control	None
Delay	Other than 0

2. **Confirm that the system management terminal is connected to the serial port of the chassis.**
   For a building block configuration, confirm that the terminal is connected to the serial port of the master XSCF.

Note - For direct connections between chassis, BB#00 is usually the master XSCF, and BB#01 is the standby XSCF. For connections through crossbar boxes, XBBOX#80 is usually the master XSCF, and XBBOX#81 is the standby XSCF. If the master is switched, BB#01 or XBBOX#81 becomes the master XSCF, and BB#00 or XBBOX#80 becomes the standby XSCF. For the mounting locations of BB#00 and BB#01, see Figure 2-3 in "2.4.1   Mounting conditions for general racks."

6.2 Turning On the Input Power

This section describes the procedures for connecting the power cords to outlets, turning on the input power, and starting the XSCF.

6.2.1 Checking the BB-ID setting

Confirm that the BB-IDs are set properly before turning on the input power.

Note - If a BB-ID is not set or incorrectly set when the input power is turned on, the XSCF does not start normally. Therefore, confirm that the BB-ID settings are correct.

1. **Check the BB-IDs on the operation panel on the front of the SPARC M10-4S chassis.**
   Confirm that BB-IDs 00 to 15 are set sequentially.

2. **Check the BB-IDs on the operation panel on the front of the crossbar box chassis.**
   Confirm that BB-IDs 80 to 83 are set sequentially.

For details on setting them, see "4.1   Setting the ID (BB-ID) Identifying a Chassis."

6.2.2   Turning on the input power and starting the XSCF

1. **Set the mode switch on the operation panel to the Service position. For a building block configuration, set the mode switches on the master chassis and the chassis that has the standby XSCF to the Service position.**
    The Service position is indicated by a wrench icon. The Locked position is indicated by a lock icon.

Note - Set the master chassis and the chassis that has the standby XSCF to the same mode. If their settings are different, an asterisk (*) is shown beside the components in the output of the showhardconf or showstatus command.

Remarks - In a building block configuration with direct connections between chassis, change the mode switches of BB-ID#00 and #01 to Service mode. In a building block configuration with connections through crossbar boxes, change the mode switches of BB-ID#80 and #81 to Service mode.

Figure 6-1   Mode switch on the operation panel of the SPARC M10-4S
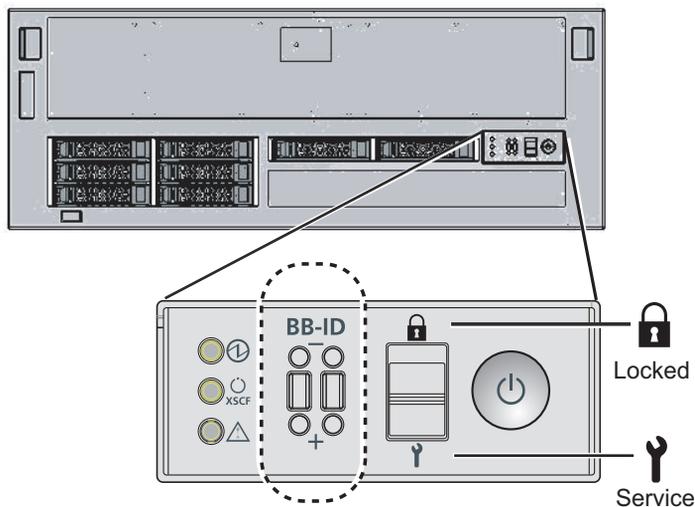
Figure 6-2   Mode switch on the operation panel of a crossbar box
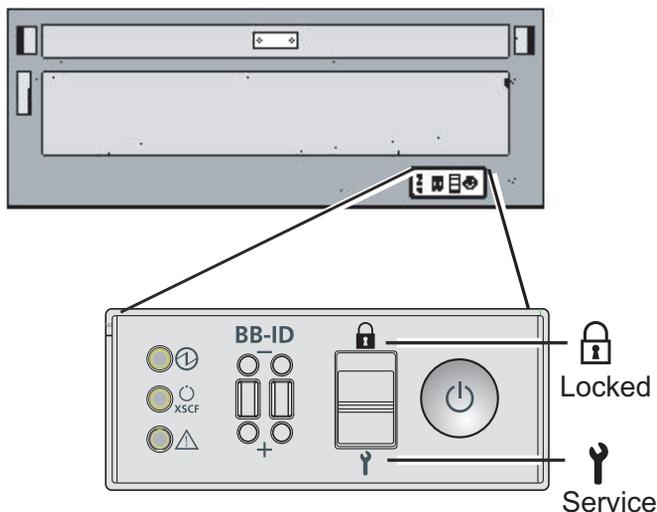
2. **Confirm that the power cord connector is connected to a power supply unit of the chassis.**

3. **Connect the power cord plug to an outlet.**
   a. If the outlet has a circuit breaker, turn on the circuit breaker switch.

   b. When using an expansion rack, open the rear door of the rack and push in all the CB switches on the PDU.
   When pushed in, a CB switch is turned on. When pulled up, the switch is turned off.
   Figure 3-3 shows the location of the PDU for single-phase power feed and the location of the CB switch on the PDU for three-phase power feed. Two units of either type of PDU are mounted for each expansion rack.
   A in Figure 3-3 is the CB switch. A PDU has 12 CB switches, so there are 24 switches per rack.

4. **Check the XSCF unit LEDs.**
   a. The CHECK LED of the XSCF unit goes on for an instant immediately after the input power is turned on.

   b. The READY LED of the XSCF unit flashes during XSCF initialization and stays on after the initialization completes.

   c. For a building block configuration, the MASTER LED of only the XSCF unit of the master XSCF goes on.

Note - In a building block configuration with direct connections between chassis, BB#00 is the chassis of the master XSCF. In a building block configuration with connections through crossbar boxes, BB#80 is the chassis of the master XSCF. If the MASTER LED of BB#00 or BB#80 does not go on, the master chassis may have been switched. Check the MASTER LED of the XSCF of BB#01 or BB#81. If it has been switched, connect the system management terminal to the chassis whose MASTER LED is on.

Figure 6-3　　Rear of the SPARC M10-4S
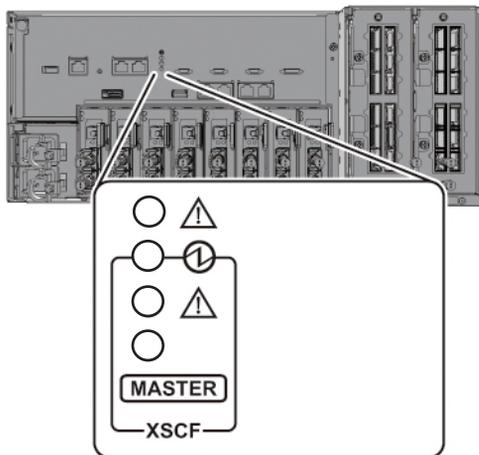
Figure 6-4　　Rear view of a crossbar box
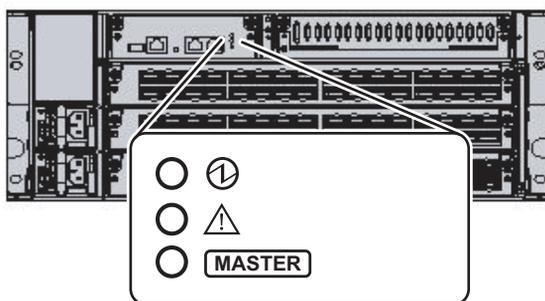
6.3　Logging In to the XSCF

This section describes the procedure for logging in to the XSCF by using the default XSCF user account.
Log in to the XSCF by using the default user account and authentication method until a user account appropriate to the user environment is registered for you. The default user privileges are useradm and platadm.

Remarks - platadm is mainly used to manage the whole system. useradm is mainly used to manage user accounts. For details on the user privilege types and the privileges, see Table 7-3.

1. **After the system management terminal displays "SCF_READY", press the [Enter] key.**

2. **After the login prompt appears, enter "default" for the login name.**

```
login: default
```

3. **After a message prompting operation of the mode switch appears, operate the mode switch on the operation panel as follows.**

   a. Switch the mode switch on the operation panel to the Locked position, and press the RETURN key.

```
Change the panel mode switch to Locked and press return... Omitted
```

   b. Leave the switch in that position for at least 5 seconds.

```
Leave it in that position for at least 5 seconds.
```

   c. Return the mode switch to the Service position, and press the RETURN key.

```
Change the panel mode switch to Service and press return... Omitted
```

Note - Complete this switching operation of the mode switch in 1 minute or less. If the operation exceeds 1 minute, login authentication times out.

4. **Confirm that the system management terminal displays the XSCF shell prompt.**

```
XSCF>
```

Note - The following message may be output after login for a building block configuration: "XSCF firmware update now in progress. BB#xx,please wait for XSCF firmware update complete." If so, the XCP firmware version is automatically being matched.
Execute the showlogs monitor command to confirm the message of "XCP firmware version synchronization completed," and then perform the next work.

6.4   Checking the XCP Version

This section describes the procedure for checking the XCP version.
In a building block configuration of the SPARC M10-4S, all the chassis must have the same XCP version. Confirm the XCP versions. If any chassis has a different version, update it so that all the versions are the same.

1. **Execute the version command.**
   The command comprehensively displays the version.

   In a building block configuration of the SPARC M10-4S, you can check which is the master/standby.

```
XSCF> version -c xcp
BB#00-XSCF#0 (Master)
XCP0 (Current): 2042
XCP1 (Reserve): 2042
BB#01-XSCF#0 (Standby)
XCP0 (Current): 2042
XCP1 (Reserve): 2042
BB#02-XSCF#0
XCP0 (Current): 2042
XCP1 (Reserve): 2042
BB#03-XSCF#0
XCP0 (Reserve): 2042
XCP1 (Current): 2042
```

The following example shows a building block configuration of the SPARC M10-4S. Here, BB#02 has a different XCP version, so it must be updated to match the version. Perform step 2 and subsequent steps.

```
XSCF> version -c xcp
BB#00-XSCF#0 (Master)
XCP0 (Current): 2042
XCP1 (Reserve): 2042
BB#01-XSCF#0 (Standby)
XCP0 (Current): 2042
XCP1 (Reserve): 2042
BB#02-XSCF#0
XCP0 (Current): 2041   * Different version
XCP1 (Reserve): 2041
BB#03-XSCF#0
XCP0 (Reserve): 2042
XCP1 (Current): 2042
```

2. **If the XCP version of a chassis differs, execute the flashupdate -c sync command to update the XCP version on that chassis.**
   The command matches the firmware version with the version on the master XSCF.

```
XSCF> flashupdate -c sync
XCP update is started. [3600sec]
  0..... 30..... 60..... 90.....120.....150.....180.....210.....240.....
270....300.....330.....360.....390.....420.....450.....480.....510.....
```

3. **Execute the version command, and confirm that the firmware version of each chassis matches.**

```
XSCF> version -c xcp
BB#00-XSCF#0 (Master)
XCP0 (Current): 2042
XCP1 (Reserve): 2042
BB#01-XSCF#0 (Standby)
XCP0 (Current): 2042
XCP1 (Reserve): 2042
BB#02-XSCF#0
XCP0 (Current): 2042
XCP1 (Reserve): 2042
BB#03-XSCF#0
XCP0 (Reserve): 2042
XCP1 (Current): 2042
```

6.5 Checking the Altitude Setting

This section describes the procedure for checking and setting the altitude of the installation location.
The setting in the factory default settings is 0 m. Check the setting value, and change it as needed.

Note - Setting the altitude in the system makes it possible to detect abnormal intake temperatures early. If the altitude of the installation location is unknown, set a high altitude. Abnormal temperatures can be detected from abnormal CPU temperatures, for example, even if no altitude is set in the system. This prevents critical damage to the system.

---

1. **Execute the showaltitude command.**
   The following example displays the system altitude. The factory default setting is 0 m.

```
XSCF> showaltitude
0m
```

2. **If the altitude setting is correct, skip step 2 and subsequent steps. To change the altitude, execute the setaltitude command.**
   The setting is in units of 100 m, and values less than 100 m are rounded up.

   The following example sets the altitude to 100 m.

```
XSCF> setaltitude -s altitude=100
100m
```

3. **Execute the rebootxscf command to reflect the setting. If you are also changing the setting values described in "6.6   Checking the Time Setting," you can skip step 3 and subsequent steps because the XSCF is reset in that**

procedure too.

Executing the rebootxscf command disconnects the XSCF session.

The following example resets all the XSCFs and automatically selects "y" for the confirmation message.

```
XSCF> rebootxscf -y -a
The XSCF will be reset. Continue? [y|n] :y
```

Note - If -a is specified, the command reboots the XSCF of every SPARC M10-4S and crossbar box. If you want to reset a specific SPARC M10-4S, specify -b bb_id.

4. **Log in to the XSCF again**.
   For details, see "6.3   Logging In to the XSCF."

6.6   Checking the Time Setting

This section describes the procedure for setting the system date and time.
The date and time in the factory default settings are set in coordinated universal time (UTC). If you want to display the time in the local time (JST), first set the time zone and then check the time. Change the setting as needed.

1. **Execute the showtimezone command to check the time zone.**
   The following example displays the factory default setting (UTC).

```
XSCF> showtimezone -c tz
UTC
```

2. **To set the time zone, execute the settimezone command, and check which time zones can be set.**
   If you do not want to set the time zone, skip steps 2 and 3.

   The following example displays a partial list of time zones that can be set.

```
XSCF> settimezone -c settz -a
Africa/Abidjan
Africa/Accra
Africa/Addis_Ababa
Africa/Algiers
Africa/Asmara
Africa/Asmera
Africa/Bamako
Africa/Bangui
.
.
```

3. **To set the time zone, execute the settimezone command.**

The following example sets the time zone to "Asia/Tokyo."

```
XSCF> settimezone -c settz -s Asia/Tokyo
Asia/Tokyo
```

4. **Execute the showdate command to display the XSCF time.**

If you have set the time zone, the command displays the time in the local time (JST).

The following example displays the current time in the local time.

```
XSCF> showdate
Sat Oct 20 14:53:00 JST 2012
```

5. **Execute the setdate command. Please execute it even when the time is correct.**

Setting the date and time resets the XSCF.

The following example sets the local time (JST) to 16:59:00 October 20, 2012.

```
XSCF> setdate -s 102016592012.00
Sat Oct 20 16:59:00 JST 2012
The XSCF will be reset. Continue? [y|n] :y
Sat Oct 20 7:59:00 UTC 2012
XSCF>
```

Note - If the reboot is canceled, the XSCF does not reflect the setting values even when reboot is by the rebootxscf command.

6. **Log in to the XSCF again**.

For details, see "6.3   Logging In to the XSCF."

7. **Execute the showtimezone command.**

Confirm the set time zone.

```
XSCF> showtimezone -c tz
        Asia/Tokyo
```

8. **Execute the showdate command.**

Confirm the set date and time.

```
XSCF> showdate
Sat Oct 20 17:10:00 JST 2012
```

6.7 Performing a Diagnosis Test

This section describes the procedure for performing an initial diagnosis of the specified physical system board (PSB) while the power is off.

Note - The PSB is powered on and off during the diagnosis test.
For power-on during the diagnosis test, CPU Activation keys do not need to have been registered.

---

1. **Execute the testsb command.**

   The testsb command performs an initial diagnosis of the specified physical system board (PSB).

   The command powers on and off the PSB during the diagnosis. By specifying options, you can check whether HDD/SSD/PCIe cards are mounted. You can also check the crossbar cable connections in a building block configuration.

   The following example performs an initial diagnosis of all mounted PSBs and checks the connection I/O.

   <Description of options specified>

   -v: Additionally displays detailed messages of the initial diagnosis

   -p: Executes the "probe-scsi-all" command of OpenBoot PROM and displays the results while a diagnosis is being processed

   -s: Executes the "show-devs" command of OpenBoot PROM and displays the results while a diagnosis is being processed

   -a: Diagnoses all the mounted PSBs

   -y: Automatically responds with "y" to a query

```
XSCF> testsb -v -p -s -a -y
Initial diagnosis is about to start, Continue?[y|n] :y
PSB power on sequence started.
POST Sequence 01 Banner
LSB#00: POST 1.9.0 (2012/09/25 16:52)
:

<<Displayed execution results of "probe-scsi-all">>
/pci@8000/pci@4/pci@0/pci@0/scsi@0

FCode Version 1.00.56, MPT Version 2.00, Firmware Version 13.00.66.00

Target a
  Unit 0   Disk   TOSHIBA  MBF2600RC       3706    1172123568 Blocks, 600 GB
  SASDeviceName 50000394281b6190  SASAddress 50000394281b6192   PhyNum 0
Target d
  Unit 0   Disk   TOSHIBA  MBF2600RC       3706    1172123568 Blocks, 600 GB
  SASDeviceName 50000394281b5a44  SASAddress 50000394281b5a46   PhyNum 1
```

```
<<Displayed execution results of "show-devs">>
/pci@8100/pci@4/pci@0/pci@1
/pci@8100/pci@4/pci@0/pci@1/QLGC,qlc@0,3
/pci@8100/pci@4/pci@0/pci@1/QLGC,qlc@0,2
/pci@8100/pci@4/pci@0/pci@1/ethernet@0,1
/pci@8100/pci@4/pci@0/pci@1/ethernet@0
/pci@8100/pci@4/pci@0/pci@1/QLGC,qlc@0,3/fp@0,0
/pci@8100/pci@4/pci@0/pci@1/QLGC,qlc@0,3/fp@0,0/disk
/pci@8100/pci@4/pci@0/pci@1/QLGC,qlc@0,2/fp@0,0
/pci@8100/pci@4/pci@0/pci@1/QLGC,qlc@0,2/fp@0,0/disk
  :
PSB Test    Fault
---- ------- --------
00-0 Passed  Normal
01-0 Passed  Normal
02-0 Passed  Normal
03-0 Passed  Normal

XSCF>
```

2. **Check the execution results of "probe-scsi-all" to confirm that all mounted internal disks are identified.**

3. **Check the execution results of "show-devs" to confirm that all mounted PCIe cards are identified.**

4. **Confirm that "Passed" and "Normal" appear for all PSBs in the results from the initial diagnosis**.
   If the results display anything other than the above, see "Appendix A Troubleshooting."

6.8   Checking the Component Status

This section describes the procedure for checking the configuration, status, and quantities of the mounted field replaceable units (FRUs).

1. **Execute the showhardconf command.**
   The command displays all the FRUs mounted in the chassis and their status. However, it does not display the status of I/O-related components such as PCIe cards and PCI expansion units while the system power is off.

   Example: SPARC M10-4S display example

```
XSCF> showhardconf -M
SPARC M10-4S;
    + Serial:2081230012; Operator_Panel_Switch:Service;
    + System_Power:Off; System_Phase:Cabinet Power Off;
    BB#00 Status:Normal; Role:Master; Ver:2209h; Serial:2081231002;
        + FRU-Part-Number:CA07361-D203 A2   /9999999              ;
        + Power_Supply_System:Single;
```

```
       + Memory_Size:512 GB;
      CMUL Status:Normal; Ver:0301h; Serial:PP140601D9  ;
          + FRU-Part-Number:CA07361-D251 A4   /9999999                  ;
          + Memory_Size:256 GB; Type: B ;    (*1)
          CPU#0 Status:Normal; Ver:4142h; Serial:00020203;
              + Freq:3.700 GHz; Type:0x20;   (*2)
              + Core:16; Strand:2;
                  Omitted
```

*1 For a CMU on which the SPARC64 X+ processor is mounted, "Type: B" is displayed. For a CMU on which the SPARC64 X processor is mounted, "Type: A" is displayed.

*2 If the SPARC64 X+ processor is mounted, "3.700 GHz; Type:0x20" is displayed. If the SPARC64 X processor is mounted, "3.000 GHz; Type:0x10" is displayed.

2. **Confirm that no FRU has an asterisk (*) displayed in front of it**.
   The asterisk (*) is a mark indicating the abnormal state of an FRU, where an error or degradation occurred.

   If a failure has occurred in any unit, see "A.2.2   Checking the contents of logs" and "A.2.3   Checking information on a component where a failure or degradation occurred."

3. **Execute the showhardconf -u command.**
   The command displays the quantities of mounted FRUs. However, it does not display the quantities of I/O-related components such as PCIe cards and PCI expansion units while the system power is off.

   Example: SPARC M10-4S display example

```
XSCF> showhardconf -u
SPARC M10-4S; Memory_Size:2048 GB;
+-----------------------------------+-----------+
| FRU                               | Quantity  |
+-----------------------------------+-----------+
| BB                                |     2     |
|     CMUL                          |     2     |
|         Type:B                    | (   2)    |
|         CPU                        |     4     |
|             Freq:3.700 GHz;       | (   4)    |
|         MEM                        |    64     |
|             Type:07; Size:16 GB;  | (  64)    |
|     CMUU                          |     2     |
|         Type:B                    | (   2)    |
|         CPU                        |     4     |
|             Freq:3.700 GHz;       | (   4)    |
|         MEM                        |    64     |
|             Type:07; Size:16 GB;  | (  64)    |
|     PCICARD                       |     3     |
|     LINKCARD                      |     0     |
|     PCIBOX                        |     0     |
|         IOB                        |     0     |
|         LINKBOARD                 |     0     |
|         PCI                        |     0     |
```

```
|           FANBP                    |      0      |
|           PSU                      |      0      |
|           FAN                      |      0      |
|       XBU                          |      4      |
|          Type:A                    |  (   4)     |
|       OPNL                         |      2      |
|       PSUBP                        |      2      |
|          Type:B                    |  (   2)     |
|          PSU                       |      4      |
|             Type:B                 |  (   4)     |
|          FANU                      |     10      |
| XBBOX                              |      0      |
|     XBU                            |      0      |
|     XSCFU                          |      0      |
|     OPNL                           |      0      |
|     XBBPU                          |      0      |
|        XSCFIFU                     |      0      |
|        PSU                         |      0      |
|        FANU                        |      0      |
+------------------------------------+------------+
```

4. **Execute the showlogs error command.**
   Confirm that no error is displayed. If an error is displayed, see "A.2.2   Checking the contents of logs."

   ```
   XSCF> showlogs error
   ```

5. **Execute the showstatus command.**
   When there is no problem, the command displays nothing.

   If a failure has occurred in any unit, an asterisk (*) and the unit status are displayed. See "A.2.3   Checking information on a component where a failure or degradation occurred."

   ```
   XSCF> showstatus
   ```

6. **To implement the initial system settings, go to "Chapter 7   Making the Initial System Settings." Otherwise, log out of the XSCF**.

Chapter 7

Making the Initial System Settings

This chapter describes the initial settings that must be implemented before system startup.

For details on the XSCF commands executed in each step, see the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 XSCF Reference Manual*.

- Setting the Password Policy
- Setting a User Account and Password
- Configuring the Telnet/SSH Service
- Configuring the HTTPS Service
- Configuring the XSCF Network
- Configuring Memory Mirroring
- Creating a Physical Partition Configuration List (PCL)
- Assigning a System Board (PSB) to a Physical Partition (PPAR)
- Setting a CPU Operational Mode for the Physical Partition
- Synchronizing the Physical Partition (PPAR) Time and XSCF Time
- Registering a CPU Activation Key
- Assigning CPU Core Resources to a Physical Partition
- Starting and Stopping a Physical Partition (PPAR)
- Saving Configuration Information

7.1 Setting the Password Policy

Passwords have limitations such as length and character type. Those password attributes conform to rules called the password policy.

The current password policy applies to every user account that is created. For this reason, check the current password policy, and adjust the password policy as needed before creating any user account.

1. **Execute the showpasswordpolicy command to check the password policy.**

```
XSCF> showpasswordpolicy
Mindays:  0
Maxdays:  99999
Warn:     7
Inactive: -1
Expiry:   0
Retry:    3
Difok:    3
Minlen:   9
Dcredit:  1
Ucredit:  1
Lcredit:  1
Ocredit:  1
Remember: 3
```

Table 7-1   Display contents of the showpasswordpolicy command

Display item	Description
Mindays	Minimum number of days after a password change before the next time that the password can be changed. 0 indicates that the password can be changed anytime.
Maxdays	Maximum number of days that a password is valid
Warn	Number of days after a password expiration warning is issued before the password actually expires
Inactive	Number of days after the password expiration time before the account is locked out. The default value is -1. The value of -1 means that the account is not locked after the password expires.
Expiry	Number of days that the account remains valid
Retry	Number of permitted retries to change a password
Difok	Number of characters to be included in the new password but are not included in the old password
Minlen	Minimum acceptable password length
Dcredit	A password that contains numeric characters can be shorter than the minimum acceptable password length (Minlen). The decreased number of characters is up to the number of numeric characters included in the password. Here, you can set the maximum value for this decrease.
Ucredit	A password that contains uppercase characters can be shorter than the minimum acceptable password length (Minlen). The decreased number of characters is up to the number of uppercase characters included in the password. Here, you can set the maximum value for this decrease.
Lcredit	A password that contains lowercase characters can be shorter than the minimum acceptable password length (Minlen). The decreased number of characters is up to the number of lowercase characters included in the password. Here, you can set the maximum value for this decrease.

Table 7-1   Display contents of the showpasswordpolicy command *(continued)*

Display item	Description
Ocredit	A password that contains non-alphanumeric characters can be shorter than the minimum acceptable password length (Minlen). The decreased number of characters is up to the number of non-alphanumeric characters included in the password. Here, you can set the maximum value for this decrease.
Remember	Number of passwords to be stored in the password history

2. **Execute the setpasswordpolicy command to set the password policy.**
   The setpasswordpolicy command sets the password policy with the following options.

Table 7-2   setpasswordpolicy command options

Option	Password policy
-n	Mindays
-M	Maxdays
-w	Warn
-i	Inactive
-e	Expiry
-y	Retry
-k	Difok
-m	Minlen
-d	Dcredit
-u	Ucredit
-l	Lcredit
-o	Ocredit
-r	Remember

The example below specifies the following:

- A retry count of up to 3
- A password length of 6 characters or more when the password contains 2 numeric characters. A password length of 8 characters or more when the password does not contain numeric characters
- An expiration time of 60 days
- 15 days ahead as the start date for warnings before the password expires
- 3 as the number of passwords to remember

```
XSCF> setpasswordpolicy -y 3 -m 8 -d 2 -u 0 -l 0 -o 0 -M 60 -w 15 -r 3
```

3. **Execute the showpasswordpolicy command, and confirm the settings.**

```
XSCF> showpasswordpolicy
Mindays:            0
Maxdays:            60
Warn:               15
Inactive:           -1
Expiry:             0
Retry:              3
Difok:              1
Minlen:             8
Dcredit:            2
Ucredit:            0
Lcredit:            0
Ocredit:            0
Remember:           3
```

7.2 Setting a User Account and Password

Set a user account and password appropriate to the use environment, and assign a user privilege to the user account. Be sure to register at least one user account having the platadm and useradm user privileges.

1. **Execute the adduser command to add a user account.**
   The following example specifies jsmith for the user account name. If -u is not specified, the UID is automatically assigned.

```
XSCF> adduser jsmith
```

The following example adds a user account with a UID specified.

```
XSCF> adduser -u 359 jsmith
```

2. **Execute the password command, and specify a password.**

```
XSCF> password jsmith
Password:
Retype new password:
passwd: password updated successfully
XSCF>
```

Note - A user with the useradm privilege can set the password for another specified user account regardless of the value specified in the setpasswordpolicy(8) command.

The following example specifies 60 days for the expiration time and 15 days ahead for the start date for warnings before the password expires.

```
XSCF> password -M 60 -w 15 jsmith
```

3. **Execute the setprivileges command to assign a user privilege to the user account.**
   The setprivileges command can set the following as user privileges for the entire system.

Table 7-3   User privileges

User privilege	Overview	Description of privilege
platadm	Manage the whole system.	- Can perform all hardware operations for the system. - Can manipulate all XSCF settings except those requiring the useradm and XSCF audit privileges. - Can add/delete hardware in a PPAR. - Can perform power operations for a physical partition. - Can refer to all of the status of the server.
useradm	Manage user accounts.	- Can create, delete, enable, and disable user accounts. - Can change user passwords and password profiles. - Can change user privileges.
auditop	Refer to the audit status.	Can refer to the XSCF audit status and audit methods.
auditadm	Control auditing.	- Can control XSCF auditing. - Can delete XSCF audit methods.
fieldeng	Allow use by field engineers.	Permits field engineers to only be able to perform maintenance work and change device configurations.

The following example specifies useradm and platadm for the user account.

```
XSCF> setprivileges jsmith useradm platadm
```

Note - The setprivileges command assigns the user privilege of the specified operand.
To add a new user privilege to a user account already assigned a user privilege, specify the existing user privilege too.

4. **Execute the showuser command to check information on a created user account.**

```
XSCF> showuser -l
User Name:          jsmith
UID:                359
Status:             Enabled
Minimum:            0
Maximum:            60
Warning:            15
Inactive:           -1
Last Change:        May 22, 2013
Password Expires:   Jul 21, 2013
Password Inactive:  Never
Account Expires:    Never
Privileges:         useradm
                    platadm
```

Note - Considering maintenance work, be sure to prepare a field engineer (FE) user account that has the fieldeng user privilege.
We recommend that the system administrator create accounts with the platadm, useradm, auditadm, and fieldeng user privileges.

7.3 Configuring the Telnet/SSH Service

To use the XSCF shell terminal and the control domain console of the specified physical partition, use Telnet or SSH.
SSH and Telnet can be concurrently enabled. However, a Telnet connection is not based on a secure connection protocol. We recommend disabling Telnet when SSH is enabled.

7.3.1 Configuring the Telnet service

This section describes how to configure the Telnet service.

1. **Execute the showtelnet command to display the Telnet setting.**
   The following example displays the Telnet service setting. The factory default setting is "disabled".

```
XSCF> showtelnet
Telnet status: disabled
```

2. **Execute the settelnet command to configure the Telnet service.**
   The following example specifies that the Telnet service be enabled.

```
XSCF> settelnet -c enable
Continue? [y|n] :y
```

3. **Execute the showtelnet command, and confirm that the Telnet setting is
   "enabled".**

```
XSCF> showtelnet
Telnet status: enabled
```

7.3.2　Configuring the SSH service

1. **Execute the showssh command to display the SSH settings.**
   The following example displays the SSH service settings. The factory default
   setting is "disabled".

```
XSCF> showssh
SSH status: disabled
RSA key:
DSA key:
```

2. **Execute the setssh command to configure the SSH service.**
   The following example specifies that the SSH service be enabled.

```
XSCF> setssh -c enable
Continue? [y|n] :y
```

3. **Execute the showssh command to display the host key and fingerprint.**
   A host key is generated when you enable the SSH service for the first time.

```
XSCF> showssh
SSH status: enabled
RSA key:
ssh-rsa
AAAAB3NzaC1yc2EAAAABIwAAAIEAt0IG3wfpQnGr51znS9XtzwHcBBb/UU0LN08S
ilUXE6j+avlxdY7AFqBf1wGxLF+Tx5pTa6HuZ8o8yUBbDZVJAAAAFQCfKPxarV+/
5qzK4A43Qaigkqu/6QAAAIBMLQl22G8pwibESrh5JmOhSxpLzl3P26ksI8qPr+7B
xmjLR0k=
Fingerprint:
1024 e4:35:6a:45:b4:f7:e8:ce:b0:b9:82:80:2e:73:33:c4
/etc/ssh/ssh_host_rsa_key.pub
DSA key:
ssh-dss
AAAAB3NzaC1kc3MAAACBAJSy4GxD7Tk4fxFvyW1D0NUDqZQPY3PuY2IG7QC4BQ1k
ewDnblB8/JEqI+8pnfbWzmOWU37KHL19OEYNAv6v+WZT6RElU5Pyb8F16uq96L8Q
DMswFlICMZgrn+ilJNStr6r8KDJfwOQMmK0eeDFj2mL40NOvaLQ83+rRwW6Ny/yF
1Rgv6PUpUqRLw4VeRb+uOfmPRrpe6/kb4z++lOhtp
```

```
WI9bay6CK0nrFRok+z54ez7BrDFBQVuNZx9PyEFezJG9ziEYVUag/23LIAiLxxBm
W9pqa/WxC21Ja4RQVN3009kmVwAAAIAON1LR/9Jdd7yyG18+Ue7eBBJHrCA0pkSz
vfzzFFj5XUzQBdabh5p5Rwz+1vriawFIZI9j2uhM/3HQdrvYSVBEdMjaasF9hB6T
/uFwP8yqtJf6Y9GdjBAhWuH8F13pX4BtvK9IeldqCscnOuu0e2rlUoI6GICMr64F
L0YYBSwfbwLIz6PSA/yKQe23dwfkSfcwQZNq/5pThGPi3tob5Qev2KCK2OyEDMCA
OvVlMhqHuPNpX+hE19nPdBFGzQ==
Fingerprint:
1024 9e:39:8e:cb:8a:99:ff:b4:45:12:04:2d:39:d3:28:15
/etc/ssh/ssh_host_dsa_key.pub
```

7.4   Configuring the HTTPS Service

The HTTPS service settings are intended for use of XSCF Web with a connection to
the XSCF-LAN and for use of a Web browser window. Use the settings described
here to enable/disable HTTPS and use HTTPS. HTTPS is disabled by default in these
systems. The XSCF Web console can be a secure console.

Note - We recommend enabling https for the maintenance work of XSCF log collection and
XCP firmware update.

1. **Execute the showhttps command to display the HTTPS service settings.**
    The following example displays an HTTPS service setting. The factory default
    setting is "disabled".

```
XSCF> showhttps
HTTPS status: disabled
```

2. **Execute the sethttps command to configure HTTPS.**
    The following example enables the HTTPS service.

```
XSCF> sethttps -c enable
The web serverkey or web server certificate which has been
signed by an external certification authority does not exist.
Created self-signed certificate for HTTPS service.Continue?
[y|n] :y
```

    If there is neither a Web server secret key nor a self-signed Web server certificate,
    the command with "enable" specified automatically configures self-signing,
    generates a Web server secret key, creates a Web server certificate, and enables
    HTTPS to complete this work at one time.

3. **Execute the showhttps command, and confirm that the HTTPS setting has
    changed to "enabled".**

```
XSCF> showhttps
HTTPS status: enabled
Server key: installed in Apr 24 12:34:56 JST 2006
CA key: installed in Apr 24 12:00:34 JST 2006
CA cert: installed in Apr 24 12:00:34 JST 2006
CSR:
-----BEGIN CERTIFICATE REQUEST-----
MIIBwjCCASsCAQAwgYExCzAJBgNVBAYTAmpqMQ4wDAYDVQQIEwVzdGF0ZTERMA8G
A1UEBxMIbG9jYWxpdHkxFTATBgNVBAoTDG9yZ2FuaXphdGlvbjEPMA0GA1UECxMG
b3JnYW5pMQ8wDQYDVQQDEwZjb21tb24xFjAUBgkqhkiG9w0BCQEWB2VlLm1haWww
gZ8wDQYJKoZIhvcNAQEBBQADgY0AMIGJAoGBAJ5D57X/k42LcipTWBWzv2GrxaVM
5GEyx3bdBW8/7WZhnd3uiZ9+ANlvRAuw/YYy7I/pAD+NQJesBcBjuyj9x+IiJl9F
MrI5fR8pOIywVOdbMPCar09rrU45bVeZhTyi+uQOdWLoX/Dhq0fm2BpYuh9WukT5
pTEg+2dABg8UdHmNAgMBAAGgADANBgkqhkiG9w0BAQQFAAOBgQAux1jH3dyB6Xho
PgBuVIakDzIKEPipK9qQfC57YI43uRBGRubu0AHEcLVue5yTu6G5SxHTCq07tV5g
38UHSg5Kqy9QuWHWMri/hxm0kQ4gBpApjNb6F/B+ngBE3j/thGbEuvJb+0wbycvu
5jrhB/ZV9k8X/MbDOxSx/U5nF+Zuyw==
-----END CERTIFICATE REQUEST-----
```

7.5 Configuring the XSCF Network

The XSCF network settings consist of XSCF network interface settings such as for the XSCF-LAN and the protocol for SP to SP communication (SSCP), routing settings, and DNS-related settings. For details on the purpose and configuration of the XSCF network, see "3.9.1   Using Services Through the XSCF Network" to "3.9.5 Understanding the IP Addresses that are Set with SSCP" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 System Operation and Administration Guide*.

Table 7-4 lists the setting items related to the XSCF network and the corresponding XSCF shell commands.
Here, set the essential items in the table. This manual does not describe cases about setting optional items. See "3.9   Configuring the XSCF Network" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 System Operation and Administration Guide*.

Table 7-4   Setting items related to the XSCF network

Setting item	Implemented as initial setting?	Reference	Related command
Host name/domain name	Optional	"7.5.1 Setting an XSCF host name and domain name"	sethostname showhostname
XSCF network IP address - XSCF-LAN - Net mask - Takeover IP address - SSCP	Implemented	"7.5.2 Setting an Ethernet (XSCF-LAN) IP address" "7.5.3 Setting a takeover IP address" "7.5.4 Setting an SSCP IP address"	setnetwork shownetwork setsscp showsscp

Table 7-4   Setting items related to the XSCF network *(continued)*

Setting item	Implemented as initial setting?	Reference	Related command
Adding/Deleting a network route - Destination IP address - Gateway - Net mask	Implemented	"7.5.5 Setting the routing"	setroute showroute
Adding/Deleting a DNS - Name server - Search path	Optional	"3.9.13 Setting the DNS for the XSCF" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 System Operation and Administration Guide*	setnameserver shownameserver
IP packet filtering rule	Optional	"3.9.14 Setting the IP Packet Filtering Rules for the XSCF Network" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 System Operation and Administration Guide*	setpacketfilters showpacketfilters
Applying the network	Implemented	"7.5.6 Applying network settings"	applynetwork rebootxscf

7.5.1   Setting an XSCF host name and domain name

1. **Execute the showhostname command to display host names.**
   The following example displays the factory default settings.

```
XSCF> showhostname -a
bb#00:localhost.localdomain
bb#01:localhost.localdomain
```

2. **Execute the sethostname command to set a host name.**
   For *hostname*, specify the host name to set. For *xscfu*, specify the chassis for the setting. You can specify it as follows depending on the system configuration:

   - For SPARC M10-4S (no crossbar box): bb#00, bb#01

   - For SPARC M10-4S (with crossbar boxes): xbbox#80, xbbox#81

```
XSCF> sethostname xscfu hostname
```

   The following example sets the host name scf0-hostname for BB#00 and the host name scf1-hostname for BB#01.

```
XSCF> sethostname bb#00 scf0-hostname
XSCF> sethostname bb#01 scf1-hostname
```

   The following example sets the host name scf0-hostname for XBBOX#80 and the host name scf1-hostname for XBBOX#81.

```
XSCF> sethostname xbbox#80 scf0-hostname
XSCF> sethostname xbbox#81 scf1-hostname
```

The following example sets the domain name example.com for the master XSCF
and standby XSCF.

```
XSCF> sethostname -d example.com
```

7.5.2 Setting an Ethernet (XSCF-LAN) IP address

The XSCF-LAN is a LAN established for user access to the XSCF. Two XSCF-LAN
ports can be used, depending on the network configuration.

1BB configuration

In the systems with one XSCF, set either or both of the following IP addresses:
- XSCF-LAN#0 of BB#00
- XSCF-LAN#1 of BB#00

Figure 7-1   Example of XSCF-LAN settings
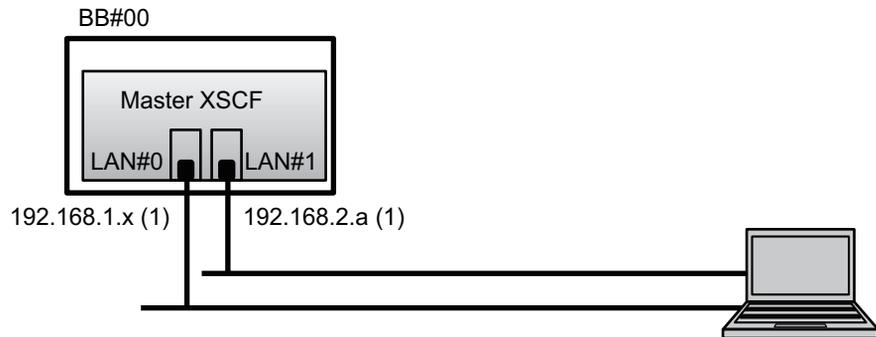
Remarks - Configure the XSCF-LAN#0 and XSCF-LAN#1 ports such that they are on
different subnets. (See (1) in Figure 7-1.)

1. **Execute the setnetwork command with network interface information specified.**
   The following example sets the IP addresses and net masks for XSCF-LAN#0 and
   XSCF-LAN#1 of BB#00 to enable them.

```
XSCF> setnetwork bb#00-lan#0 -m 255.255.255.0 192.168.1.x
XSCF> setnetwork bb#00-lan#1 -m 255.255.255.0 192.168.2.a
```

2BB configuration or larger (no crossbar box)

In the systems with multiple XSCFs, first set each XSCF-LAN IP address on the master XSCF side, and then set the XSCF-LAN IP address on the standby XSCF.
- XSCF-LAN#0 of BB#00 (master XSCF)
- XSCF-LAN#1 of BB#00 (master XSCF)
- XSCF-LAN#0 of BB#01 (standby XSCF)
- XSCF-LAN#1 of BB#01 (standby XSCF)

Figure 7-2   Example of XSCF-LAN settings
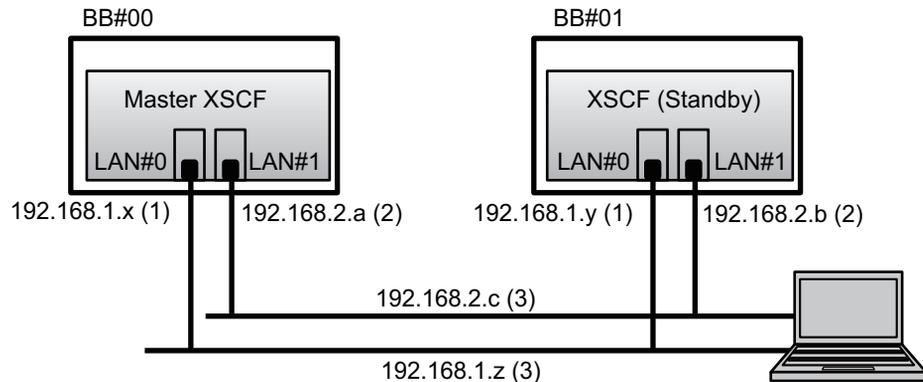
Remarks - For XSCF LAN ports with the same number, set addresses on the same subnet.
- Configure XSCF-LAN#0 of BB#00 and XSCF-LAN#0 of BB#01 on the same subnet. (See (1) in Figure 7-2.)
- Configure XSCF-LAN#1 of BB#00 and XSCF-LAN#1 of BB#01 on the same subnet. (See (2) in Figure 7-2.)

Remarks - Set different network addresses for the IP addresses of XSCF-LAN#0 and XSCF-LAN#1.
- Configure XSCF-LAN#0 of BB#00 and XSCF-LAN#1 of BB#00 on different subnets. (See (1) and (2) in Figure 7-2.)
- Configure XSCF-LAN#0 of BB#01 and XSCF-LAN#1 of BB#01 on different subnets. (See (1) and (2) in Figure 7-2.)

Remarks - Set one takeover IP address for each pair of XSCF-LAN#0 and XSCF-LAN#1. (See (3) in Figure 7-2.)
For details on the settings, see "7.5.3   Setting a takeover IP address."

1. **Execute the setnetwork command with network interface information specified.**
   The following example sets the IP addresses and net masks for XSCF-LAN#0 and XSCF-LAN#1 of BB#00 and BB#01 to enable them.

```
XSCF> setnetwork bb#00-lan#0 -m 255.255.255.0 192.168.1.x
XSCF> setnetwork bb#01-lan#0 -m 255.255.255.0 192.168.1.y
XSCF> setnetwork bb#00-lan#1 -m 255.255.255.0 192.168.2.a
XSCF> setnetwork bb#01-lan#1 -m 255.255.255.0 192.168.2.b
```

2BB configuration or larger (with crossbar boxes)

In the systems with multiple XSCFs, first set each XSCF-LAN IP address on the master XSCF side, and then set the XSCF-LAN IP address on the standby XSCF.
- XSCF-LAN#0 of XBBOX#80 (master XSCF)
- XSCF-LAN#1 of XBBOX#80 (master XSCF)
- XSCF-LAN#0 of XBBOX#81 (standby XSCF)
- XSCF-LAN#1 of XBBOX#81 (standby XSCF)

Figure 7-3   Example of XSCF-LAN settings
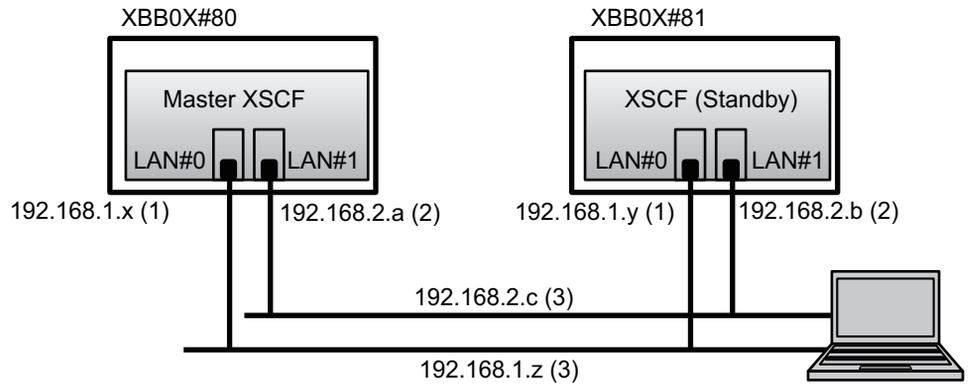
Remarks - For XSCF LAN ports with the same number, set addresses on the same subnet.
- Configure XSCF-LAN#0 of XBBOX#80 and XSCF-LAN#0 of XBBOX#81 on the same subnet. (See (1) in Figure 7-3.)
- Configure XSCF-LAN#1 of XBBOX#80 and XSCF-LAN#1 of XBBOX#81 on the same subnet. (See (2) in Figure 7-3.)

Remarks - Set different network addresses for the IP addresses of XSCF-LAN#0 and XSCF-LAN#1.
- Configure XSCF-LAN#0 of XBBOX#80 and XSCF-LAN#1 of XBBOX#80 on different subnets. (See (1) and (2) in Figure 7-3.)
- Configure XSCF-LAN#0 of XBBOX#81 and XSCF-LAN#1 of XBBOX#81 on different subnets. (See (1) and (2) in Figure 7-3.)

Remarks - Set one takeover IP address for each pair of XSCF-LAN#0 and XSCF-LAN#1. (See (3) in Figure 7-3.)
For details on the settings, see "7.5.3   Setting a takeover IP address."

1.   **Execute the setnetwork command with network interface information specified.**

The following example sets IP addresses and net masks for XSCF-LAN#0 and XSCF-LAN#1 of XBBOX#80 and XBBOX#81 to enable them.

```
XSCF> setnetwork xbbox#80-lan#0 -m 255.255.255.0 192.168.1.x
XSCF> setnetwork xbbox#81-lan#0 -m 255.255.255.0 192.168.1.y
XSCF> setnetwork xbbox#80-lan#1 -m 255.255.255.0 192.168.2.a
XSCF> setnetwork xbbox#81-lan#1 -m 255.255.255.0 192.168.2.b
```

7.5.3 Setting a takeover IP address

You can set a takeover IP address (virtual IP address) for a system that consists of multiple SPARC M10-4S units and has multiple XSCFs.
The setting of the takeover IP address enables takeover of the IP address after switching of the master and standby sides in cases of XSCF failover. By using the takeover IP address, users can always connect to the master XSCF without any need to pay attention to XSCF switching.

After setting the respective IP addresses for XSCF-LAN#0 and XSCF-LAN#1 as described in "7.5.2   Setting an Ethernet (XSCF-LAN) IP address," set one takeover IP address for each pair of XSCF-LAN#0 and XSCF-LAN#1. (See (3) in Figure 7-2 and Figure 7-3.)

1. **Set the takeover IP address of XSCF-LAN#0 or XSCF-LAN#1.**
   The following example sets the takeover IP address 192.168.1.z and net mask 255.255.255.0 for XSCF-LAN#0, and the takeover IP address 192.168.2.c and net mask 255.255.255.0 for XSCF-LAN#1.

```
XSCF> setnetwork lan#0 -m 255.255.255.0 192.168.1.z
XSCF> setnetwork lan#1 -m 255.255.255.0 192.168.2.c
```

7.5.4 Setting an SSCP IP address

For a system that consists of multiple SPARC M10-4S units and has multiple XSCFs, a network is configured between the XSCFs to enable mutual monitoring of states and exchange of system information. The interface protocol of this network is referred to as the protocol for SP to SP communication (SSCP).

The IP addresses used in this SSCP network are set by default. However, if the XSCF-LAN IP addresses and the default SSCP IP addresses have overlapping network addresses, other values must be set for the SSCP IP addresses. For details on SSCP IP addresses, see "3.9.5   Understanding the IP Addresses that are Set with SSCP" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 System Operation and Administration Guide*.
The IP addresses used with SSCP are classified and set in the following groups. These groups are distinguished by their SSCP link network IDs. At least two IP addresses

need to be set for the same SSCP port.

- **Group with the master XSCF and the XSCF of each BB:**
  SSCP link network ID 0 (See (1) in Figure 7-4.)

- **Group with the standby XSCF and the XSCF of each BB:**
  SSCP link network ID 1 (See (2) in Figure 7-4.)

- **Group with the master XSCF and the XSCF of each XBBOX:**
  SSCP link network ID 2 (See (3) in Figure 7-4.)

- **Group with the standby XSCF and the XSCF of each XBBOX:**
  SSCP link network ID 3 (See (4) in Figure 7-4.)

- **Group with the master XSCF and standby XSCF:**
  SSCP link network ID 4 (See (5) in Figure 7-4.)

Figure 7-4   XSCF network (SSCP)

BB#02   BB#03

Slave XSCF   Slave XSCF

(1)   (2)

BB#00   (5)   BB#01

Master XSCF   XSCF (Standby)
#0   #1   #0   #1

SPARC M10-4S (without crossbar box)

BB#00   BB#01   BB#xx

Slave
XSCF   Slave
XSCF   ...   Slave
XSCF

(1)   (2)

XBBOX#80   XBBOX#81

(5)

Master XSCF   XSCF (Standby)
#0   #1   #0   #1

(3)   Slave
XSCF   Slave
XSCF   (4)

XBBOX#82   XBBOX#83

SPARC M10-4S (with crossbar box)
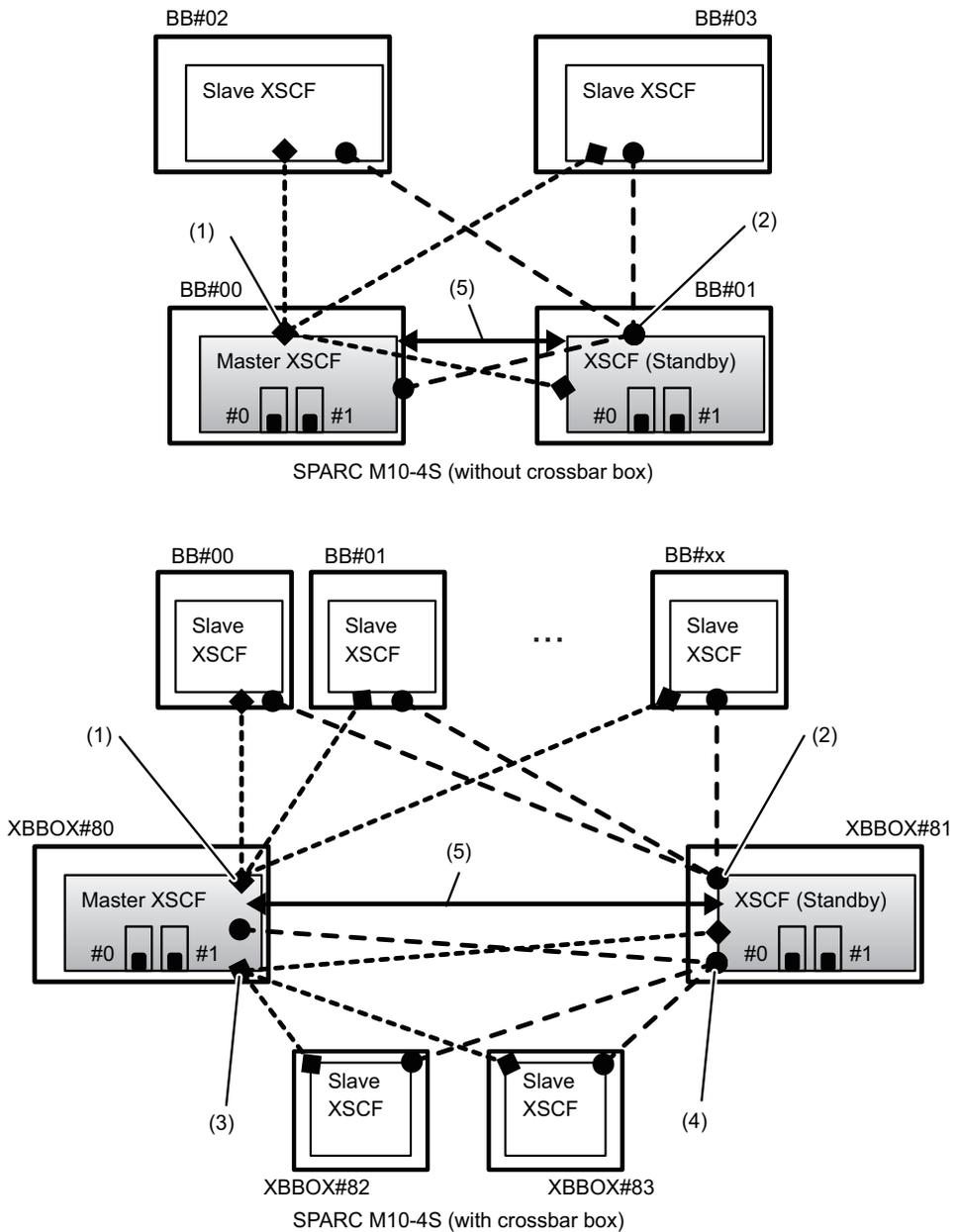
1. **Execute the showsscp command to display SSCP address information.**
   The following example displays information on all SSCP addresses on the
   SPARC M10-4S system in the 4BB configuration.

```
XSCF> showsscp -a
SSCP network ID:0 address 169.254.1.0
SSCP network ID:0 netmask 255.255.255.248
```

```
Location      Address
------------- ---------------
bb#00-if#0 169.254.1.1
bb#01-if#0 169.254.1.2
bb#02-if#0 169.254.1.3
bb#03-if#0 169.254.1.4
SSCP network ID:1 address 169.254.1.8
SSCP network ID:1 netmask 255.255.255.248
Location      Address
------------- ---------------
bb#00-if#1 169.254.1.9
bb#01-if#1 169.254.1.10
bb#02-if#1 169.254.1.11
bb#03-if#1 169.254.1.12
SSCP network ID:2 address 169.254.1.16
SSCP network ID:2 netmask 255.255.255.252
Location      Address
------------- ---------------
bb#00-if#2 169.254.1.17
bb#01-if#2 169.254.1.18
```

2. **Set an SSCP IP address (if needed).**
   The IP addresses used in this SSCP network are set by default. However, if the
   XSCF-LAN IP addresses and the default SSCP IP addresses have overlapping
   network addresses, then use setsscp to change the SSCP IP addresses.

   The following example sets, in interactive mode, the SSCP addresses and net
   masks of the SSCP link network for the SPARC M10-4S system in the 4BB
   configuration, with chassis directly interconnected.

```
XSCF> setsscp
How many BB[4] > 4
SSCP network ID:0 address [169.254.1.0 ] > 10.1.1.0
SSCP network ID:0 netmask [255.255.255.248] > 255.255.255.0
bb#00-if#0 address [10.1.1.1 ] >    [Enter] key
bb#01-if#0 address [10.1.1.2 ] >    [Enter] key
bb#02-if#0 address [10.1.1.3 ] >    [Enter] key
bb#03-if#0 address [10.1.1.4 ] >    [Enter] key

SSCP network ID:1 address [169.254.1.8 ] > 10.2.1.0
SSCP network ID:1 netmask [255.255.255.248] > 255.255.255.0
bb#00-if#1 address [10.2.1.1 ] >    [Enter] key
bb#01-if#1 address [10.2.1.2 ] >    [Enter] key
bb#02-if#1 address [10.2.1.3 ] >    [Enter] key
bb#03-if#1 address [10.2.1.4 ] >    [Enter] key

SSCP network ID:2 address [169.254.1.16 ] >
SSCP network ID:2 netmask [255.255.255.252] >
bb#00-if#2 address [169.254.1.17 ] >  [Enter] key
bb#01-if#2 address [169.254.1.18 ] >  [Enter] key
```

7.5.5   Setting the routing

1. **Execute the showroute command to display the routing environment.**

```
XSCF> showroute -a
Destination     Gateway         Netmask         Flags  Interface

Destination     Gateway         Netmask          Interface
```

2. **Execute the setroute command to set the default gateway.**
   For -n *address*, specify the IP address that is the routing information destination.
   If 0.0.0.0 is specified in *address*, the command sets the default routing information.

   For -g *address*, specify the gateway address used in routing.

   For *interface*, specify the network interface to be set. You can specify it as follows
   depending on the system configuration:

   - For SPARC M10-4S (no crossbar box): bb#00-lan#0, bb#00-lan#1, bb#01-lan#0,
     bb#01-lan#1
   - For SPARC M10-4S (with crossbar boxes): xbbox#80-lan#0, xbbox#80-lan#1,
     xbbox#81-lan#0, xbbox#81-lan#1

```
XSCF> setroute -c add -n address -g address interface
```

   The following example adds the default gateway IP address 192.168.1.1 for
   XSCF-LAN#0 of BB#00.

```
XSCF> setroute -c add -n 0.0.0.0 -g 192.168.1.1 bb#00-lan#0
```

   The following example adds the default gateway IP address 192.169.1.1 for
   XSCF-LAN#1 of XBBOX#80.

```
XSCF> setroute -c add -n 0.0.0.0 -g 192.168.2.1 xbbox#80-lan#1
```

7.5.6   Applying network settings

To complete configuration of the network, settings must be reflected and the XSCF
must be reset. The XSCF reset disconnects the XSCF session, so log in again.

1. **Execute the applynetwork command on the XSCF shell.**
   Execution of the command displays the network settings, so you can confirm the
   settings made.

```
XSCF> applynetwork
The following network settings will be applied:
  bb#00 hostname   :scf0-hostname
  bb#01 hostname   :scf1-hostname
  DNS domain name  :example.com

  interface        :bb#00-lan#0
  status           :up
  IP address       :192.168.1.x
  netmask          :255.255.255.0
  route            :-n 0.0.0.0 -m 0.0.0.0 -g 192.168.1.1

  interface        :bb#00-lan#1
  status           :down
  IP address       :192.168.2.a
  netmask          :255.255.255.0
  route            :-n 0.0.0.0 -m 0.0.0.0 -g 192.168.2.1

      Omitted

Continue? [y|n] :y
Please reset the all XSCFs by rebootxscf to apply the network settings.
Please confirm that the settings have been applied by executing
showhostname, shownetwork, showroute, showsscp and
shownameserver after
rebooting the all XSCFs.
```

2. **Execute the rebootxscf command to reset the XSCF and complete the settings.**

```
XSCF> rebootxscf -a
The XSCF will be reset. Continue? [y|n] :y
```

Execution of the command disconnects the XSCF connection.

The setting work from this step can be done through an XSCF-LAN connection too.

To switch from a serial connection to an XSCF-LAN connection, connect to the XSCF by specifying its IP address on a PC connected to the XSCF-LAN, and log in again.

3. **Execute the showhostname, shownetwork, showsscp, and showroute commands again to display the network settings, and confirm the new network information.**

7.6 Configuring Memory Mirroring

This section describes how to configure memory mirroring.

Note - The memory mirror configurations are optional.

The SPARC M10 systems support memory mirroring configurations to protect data through memory duplication. Data reliability increases, but the amount of available memory is halved.

The memory access controller controls writing of data to memory and reading of data from memory. The SPARC M10 systems configure the mirroring by grouping memory into sets controlled by two memory access controllers.

Note - The memory grouped together in a mirroring group must all have the same capacity and be the same rank.

1. **Execute the showfru command to check memory mirror mode.**
   Memory mirror mode is set in the factory default settings.

```
XSCF> showfru -a
Device    Location    Memory Mirror Mode
sb        00-0
  cpu     00-0-0      no
  cpu     00-0-1      no
  cpu     00-0-2      no
  cpu     00-0-3      no
```

2. **Execute the setupfru command to configure memory mirroring.**

```
XSCF> setupfru [-m {y|n}] device location
```

To configure memory mirroring, specify -m y.

For device, specify the device for which to configure the mirroring. To configure memory mirroring for all the CPUs mounted on the specified system board (PSB), specify sb. To configure it only for the specified CPU, specify cpu.

For location, specify the location of the target device. You can specify it in the xx-0-z format. For xx, specify a system board number. For z, specify a CPU chip number from 0 to 3.

The following example sets all the CPUs mounted on physical system board 00-0 to memory mirror mode.

```
XSCF> setupfru -m y sb 00-0
```

3.   **Execute the showfru command to check the set memory mirror mode.**

```
XSCF> showfru -a
Device   Location   Memory Mirror Mode
sb       00-0
  cpu    00-0-0    yes
  cpu    00-0-1    yes
  cpu    00-0-2    yes
  cpu    00-0-3    yes
```

7.7   Creating a Physical Partition Configuration List (PCL)

This section describes how to create a PPAR configuration list.

Note - Generally, there is no problem when the physical partition number for a physical partition being configured matches any of the existing SPARC M10-4S IDs (BB-IDs) in the system.
However, if you anticipate that the system may be reduced after operation starts, you need to consider the appropriate physical partition number for that case when determining the physical partition number. This is because any physical partition with a physical partition number that is the same as the BB-ID of the SPARC M10-4S to be removed must be stopped at the time of reduction.
Before configuring a physical partition, be sure to see "Chapter 4   Configuring a Physical Partition" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Domain Configuration Guide* and check the recommended method of configuring a physical partition.

A physical partition (PPAR) consists of physical system boards (PSBs). In the physical partition, the hardware resources of a physical system board (PSB) can be assigned to logical system boards (LSB).
Use the showpcl command to check a physical partition configuration list (PCL), and use the setpcl command to set a PCL.
For an explanation of the setpcl command options, see the setpcl command man page or the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 XSCF Reference Manual*.

- Physical system board (PSB)
  The PSB consists of all physical components mounted on a SPARC M10 System chassis such as CPUs and memory. For the SPARC M10-4S, a CPU memory unit (containing the <CMUL> on the bottom and the <CMUU> on top) is a physical system board (PSB). The other devices that are treated as physical system boards (PSBs) may include PCIe cards and disk devices. Sometimes, a physical unit of hardware being added/removed/replaced is described as a physical system board (PSB).

- Logical system board (LSB)
  The LSB is a logical unit name assigned to a physical system board (PSB). Each physical partition has a set of logical system boards (LSBs) assigned to it. A logical

system board number is used to control how resources such as kernel memory are assigned to each logical domain.

- System board
  This term is used to describe hardware resources in operations such as configuring or displaying a physical partition.

1. **Execute the showpcl command to check a physical partition configuration list (PCL).**
   No physical partition configuration list (PCL) is set in the factory default settings.

```
XSCF> showpcl -p 0
PPAR-ID    LSB    PSB    Status
```

2. **Execute the setpcl command to create a physical partition configuration list (PCL).**
   The following example maps system board 00-0 to logical system board 0 of physical partition 0.

```
XSCF> setpcl -p 0 -a 0=00-0
```

   The following example maps system boards 01-0, 02-0, and 03-0 to logical system boards 0, 1, and 2, respectively, of physical partition 1.

```
XSCF> setpcl -p 1 -a 0=01-0 1=02-0 2=03-0
```

3. **Execute the setpcl command to set the configuration policy for all physical partitions as a whole.**

```
XSCF> setpcl -p ppar_id -s policy=value
```

   In value, specify fru (part), psb (system board), or system (all physical partitions as a whole) as the degradation unit. The default setting is fru.

   The following example sets the configuration policy to "All physical partitions" for physical partitions 0 and 1.

```
XSCF> setpcl -p 0 -s policy=system
XSCF> setpcl -p 1 -s policy=system
```

4. **Execute the showpcl command, and confirm the set physical partition configuration list (PCL).**

```
XSCF> showpcl -a
PPAR-ID    LSB    PSB    Status
00                       Powered Off
```

```
          00     00-0
----------------------------
01                      Powered Off
          00     01-0
          01     02-0
          02     03-0
```

7.8 Assigning a System Board (PSB) to a Physical Partition (PPAR)

Based on the physical partition configuration list (PCL), assign a system board (PSB) to a logical system board (LSB) of the physical partition (PPAR).

1. **Execute the showboards command to check the system board (PSB) status.**

```
XSCF> showboards -a
PSB   PPAR-ID(LSB) Assignment  Pwr  Conn Conf Test    Fault
----  ------------ ----------- ---- ---- ---- ------- --------
00-0 SP            Unavailable n    n    n    Unknown Normal
01-0 SP            Unavailable n    n    n    Unknown Normal
02-0 SP            Unavailable n    n    n    Unknown Normal
03-0 SP            Unavailable n    n    n    Unknown Normal
```

2. **Execute the addboard command to assign the system board (PSB) to the physical partition.**
   The following example adds system board 00-0 to physical partition 0.

```
XSCF> addboard -c assign -p 0 00-0
PSB#00-0 will be assigned to PPAR-ID 0. Continue?[y|n] :y
```

The following example adds system boards 01-0, 02-0, and 03-00 to physical partition 1.

```
XSCF> addboard -c assign -p 1 01-0 02-0 03-0
PSB#01-0 will be assigned to PPAR-ID 1. Continue?[y|n] :y
PSB#02-0 will be assigned to PPAR-ID 1. Continue?[y|n] :y
PSB#03-0 will be assigned to PPAR-ID 1. Continue?[y|n] :y
```

3. **Execute the showboards command to check the system board (PSB) status.**

```
XSCF> showboards -a
PSB   PPAR-ID(LSB) Assignment  Pwr  Conn Conf Test    Fault
----  ------------ ----------- ---- ---- ---- ------- --------
00-0 00(00)        Assigned    n    n    n    Unknown Normal
```

```
01-0  01(00)        Assigned    n    n    n    Unknown Normal
02-0  01(01)        Assigned    n    n    n    Unknown Normal
03-0  01(02)        Assigned    n    n    n    Unknown Normal
```

7.9 Setting a CPU Operational Mode for the Physical Partition

This section describes how to set a CPU operational mode for the physical partition.

You can use the setpparmode command of the XSCF to set a CPU operational mode for each physical partition.
There are two CPU operational modes (cpumode) that are specifiable for the setpparmode command: auto mode and compatible mode.
The CPU operational mode is set to "auto" mode by default.

- **auto mode:**
  Enables the database speed-up instructions, which are expanded functions of the SPARC64 X+ processor.

  However, if the SPARC64 X+ processors and SPARC64 X processors are mixed, the SPARC64 X+ processors are operated compatibly with the SPARC64 X processor. To perform maintenance by using dynamic reconfiguration in a mixed configuration, specify compatible mode.

- **compatible mode:**
  Operates the SPARC64 X+ processor compatibly with the SPARC64 X processor.

  To configure a physical partition in which SPARC64 X+ processors and SPARC64 X processors are mixed, specify this mode.

Note - For XCP firmware versions and Oracle Solaris versions that support this function, see the *Fujitsu M10/SPARC M10 Systems Product Notes* for the latest XCP version (XCP 2210 or later) for your server.

---

1. **Execute the showpparmode command to check the CPU Mode of the physical partition.**
   "auto" mode is set as the factory default. In this mode it is automatically determined if the operation is performed in extended mode or compatible mode.

```
XSCF>showpparmode -p 0
Host-ID             :0f010f10
Diagnostic Level    :min
Message Level       :normal
Alive Check         :on
Watchdog Reaction   :reset
Break Signal        :on
```

```
Autoboot(Guest Domain) :on
Elastic Mode            :off
IOreconfigure           :true
CPU Mode                :auto
PPAR DR(Current)        :off
PPAR DR(Next)           :off
```

2. **To change the CPU mode to "compatible" mode, execute the setpparmode command and set the CPU Mode to "compatible".**

```
XSCF>setpparmode -p 0 -m cpumode=compatible
Diagnostic Level        :max -> -
Message Level           :normal -> -
Alive Check             :on -> -
Watchdog Reaction       :reset -> -
Break Signal            :on -> -
Autoboot(Guest Domain) :on -> -
Elastic Mode            :off -> -
IOreconfigure           :true -> -
CPU Mode                :auto -> compatible
PPAR DR                 :off -> -
The specified modes will be changed.
Continue? [y|n] :y
configured.
Diagnostic Level        :max
Message Level           :normal
Alive Check             :on (alive check:available)
Watchdog Reaction       :reset (watchdog reaction:reset)
Break Signal            :on (break signal:non-send)
Autoboot(Guest Domain) :on
Elastic Mode            :on
IOreconfigure           :false
CPU Mode                :compatible
PPAR DR                 :off
```

3. **Execute the showpparmode command, and confirm that the CPU Mode of the physical partition has been set to "compatible".**

```
XSCF>showpparmode -p 0
Host-ID                 :0f010f10
Diagnostic Level        :min
Message Level           :normal
Alive Check             :on
Watchdog Reaction       :reset
Break Signal            :on
Autoboot(Guest Domain) :on
Elastic Mode            :off
IOreconfigure           :true
CPU Mode                :compatible
PPAR DR(Current)        :off
PPAR DR(Next)           :off
```

7.10 Synchronizing the Physical Partition (PPAR) Time and XSCF Time

This section describes the procedure for clearing the difference between the system time and physical partition (PPAR) time.

The XSCF keeps the time difference from the physical partition. With each change by the setdate command to the system time, the difference is updated with the difference between the physical partition time and the changed system time.

To initialize the time difference between all physical partitions and the XSCF, execute the resetdateoffset command on the XSCF. This command synchronizes the physical partition times after physical partition startup with the XSCF time.

1. **Execute the showdate command to display the XSCF time.**
   If you have set the time zone, the command displays the time in the local time (JST).

   The following example displays the current time in the local time.

   ```
   XSCF> showdate
   Sat Oct 20 14:53:00 JST 2012
   ```

2. **Confirm that the set XSCF time is correct. To change the date and time, execute the setdate command.**
   For details, see "6.6   Checking the Time Setting."

3. **Execute the showdateoffset command to check the times difference between the XSCF system time and physical partition time.**
   The following example displays the difference between the system time and the time of PPAR-ID 0.

   ```
   XSCF> showdateoffset -p 0
   PPAR-ID Domain Date Offset
   00       0 sec
   ```

4. **Unless the time difference in step 3 was 0 seconds, execute the resetdateoffset command to initialize the difference between the XSCF system time and the time of the physical partition.**
   The time of each physical partition is set to the XSCF system time at the next physical partition startup.

   ```
   XSCF> resetdateoffset -p 0
   Clear the offset of PPAR-ID 0? [y|n] :y
   XSCF>
   ```

7.11 Registering a CPU Activation Key

7.11.1 CPU Activation key application conditions

- The unit of a CPU Activation key is two cores, and you can register any CPU Activation key individually with a purchased, borrowed, or leased SPARC M10 system. The key makes available the two CPU cores, which are assigned in units of a single core to a physical partition.
  Use the XSCF to add a CPU Activation key, and then you need to set the number of CPU Activations in the physical partition. As a result, you can assign CPU core resources.

- Each CPU Activation key can be registered with only one SPARC M10 system at the same time.

- Once registered with a SPARC M10 system, a CPU Activation key can be deleted from that system and then registered again with another SPARC M10 system.
  If a SPARC M10 system has stopped functioning, you can register a CPU Activation key of the stopped SPARC M10 system with another SPARC M10 system, without deleting the key from the stopped system.

- The number/type of software licenses used with the licensed CPU cores differs depending on the software. It is the responsibility of the customer to confirm that proper software licenses are installed for the addition of licensed CPU cores.

7.11.2 Checking a CPU Activation key

1. **Execute the showcodactivation command to check the CPU Activation key information.**
   In the following example, no CPU Activation key has been registered.

   In this case, perform the work in "7.11.3   Registering a CPU Activation key."

   ```
   XSCF> showcodactivation
   Index    Description Count
   ------- ----------- ------
   ```

   In the following example, a CPU Activation key has already been registered. In this case, skip the work described in "7.11.3   Registering a CPU Activation key" and go to "7.12   Assigning CPU Core Resources to a Physical Partition."

   ```
   XSCF> showcodactivation
   Index    Description Count
   ------- ----------- ------
   ```

```
        0 PROC            2
```

7.11.3   Registering a CPU Activation key

CPU Activation keys are provided on the CD-ROM labeled "SPARC M10-4S CPU Activation" supplied for system deployment. Have the CD-ROM on hand before registering a CPU Activation key.

The CPU Activation keys are contained in text files in the "ACTIVATION_KEY" folder on the CD-ROM. A file for registering the keys as a batch (XXXXX_XX.TXT) and another for registering them one at a time (XXXXX_XX_001.TXT, etc.) are provided. Use either file according to the situation.

The methods of registering a CPU Activation key with the system are as follows: specify and register the CPU Activation key file; or copy and paste the CPU Activation key contents.

How to specify and register the CPU Activation key file

1. **Copy the "ACTIVATION_KEY" contents on the CPU Activation key CD-ROM to a USB device.**
2. **Connect the USB device to the USB connector (where "MAINTENANCE ONLY" is printed) on the XSCF unit panel (rear panel) of the master XSCF.**
3. **Register the CPU Activation key by executing the addcodactivation command from the storage location of the key.**
    The following example specifies the "XXXXX_XX.TXT" file on a USB device to register CPU Activation keys.

```
XSCF> addcodactivation -F file:///media/usb_msd/XXXXX_XX.TXT
Above Key will be added, Continue?[y|n]: y
.......... done.
successfully added Activation Key count : 10.
```

4. **Execute the showcodactivation command, and confirm that the CPU Activation key is registered with the system.**

```
XSCF> showcodactivation
Index   Description Count
------- ----------- ------
      0 PROC            2
      1 PROC            2
      2 PROC            2
      3 PROC            2
      4 PROC            2
```

How to copy and paste the CPU Activation key contents

1. **Insert the CPU Activation key CD-ROM into the system administration terminal.**
2. **Open the ACTIVATION_KEY folder on the CD-ROM.**
3. **Open the relevant file (XXXX_XX_001.TXT), and copy the contents of the key.**
4. **Execute the addcodactivation command to register the CPU Activation key.**

   Specify the CPU Activation key by enclosing it in double quotation marks. You can enter the CPU Activation key by copying and pasting all of its contents.

   Enter "y" for the confirmation message.

   In the following example, a CPU Activation key for two CPU cores is registered.

```
XSCF> addcodactivation "Product: SPARC M10-x
SequenceNumber:xxxx
Cpu: noExpiration 2
Text-Signature-SHA256-RSA2048:
PSSrElBrse/r69AVSVFd38sT6AZm2bxeUDdPQHKbtxgvZPsrtYguqiNUieB+mTDC
nC2ZwUq/JjogeMpmsgd8awSphnJkpbud/87PkP4cUvz/sCPv5xM5M/J+94a3vvEh
IhfmafmVhnvpLvS1Umm6iypOXMASHpPjkWqRt1qvSNwYAYwO0mGXLCUNggamQ4dm
3K3taCYr7WmEEWaUt+H9k84bRTKIlSkePdRuBTrtzUoDRJ2oY3IM6M1/9tRYOMGH
BSr0n0kS0Hfl5hspsbpwTZwozuSayXOSgOZf+su04mri77VisyrfEGpnY053Ye3N
b1GCkFx1RH27FdVHiB2H0A=="
Above Key will be added, Continue?[y|n]: y
```

5. **Execute the showcodactivation command, and confirm that the CPU Activation key is registered with the system.**

```
XSCF> showcodactivation
Index   Description Count
------- ----------- ------
      0 PROC          2
```

At this point, CPU core resources are not yet ready for use on Oracle Solaris. To make CPU core resources ready for use, go to "7.12   Assigning CPU Core Resources to a Physical Partition" to assign them to a physical partition.

7.12   Assigning CPU Core Resources to a Physical Partition

After registering a CPU Activation key with a system, set the number of CPU Activations in a physical partition to assign CPU resources.

1. **Execute the setcod command interactively to set the number of CPU**

Activations in a physical partition and assign CPU resources.
For *ppar_id*, specify a PPAR-ID.

```
XSCF> setcod -p ppar_id -s cpu
```

The following example interactively assigns four CPU core resources to the physical partition.

```
XSCF> setcod -p 0 -s cpu
PROC Permits installed: 4 cores
PROC Permits assigned for PPAR 0 (4 MAX) [Permanent 0cores]
Permanent [0]:4

 PROC Permits assigned for PPAR will be changed.

 PROC Permits assigned for PPAR  0 :    0 ->   4

 Continue? [y|n] : y

 Completed.
XSCF>
```

2. **Execute the showcod command, and confirm the number of assigned CPU Activations.**
   The following example assigns four CPU core resources to physical partition 0.

```
XSCF> showcod -v -s cpu
PROC Permits installed : 4 cores
PROC Permits assigned for PPAR 0: 4 [Permanent 4cores]
XSCF>
```

3. **Similarly assign CPU core resources to all of the physical partitions.**

7.13 Starting and Stopping a Physical Partition (PPAR)

Check the start and stop of a physical partition (PPAR). For the initial settings, change the auto-boot? setting to "false" so that Oracle Solaris does not automatically boot immediately after the start of the physical partition.

1. **Execute the setpparparam command to change the auto-boot? setting, which is an OpenBoot PROM environment variable.**

```
XSCF> setpparparam -p 0 -s bootscript "setenv auto-boot? false"
OpenBoot PROM variable bootscript will be changed.
Continue? [y|n] :y
```

2. **Execute the poweron command to start the physical partition.**

```
XSCF> poweron -a
PPAR-IDs to power on:00,01
Continue? [y|n]:y
00:Powering on
01:Powering on
*Note*
This command only issues the instruction to power-on.
The result of the instruction can be checked by the "showpparprogress".
```

Note - It takes about 25 minutes for the SPARC M10-4S with a 4BB configuration to start a
physical partition.

3. **Execute the showpparprogress command.**
   You can check the progress, in the midst of processing, between physical
   partition power-on and up to before the start of POST.

   Confirm that the command displays "The sequence of power control is
   completed." and ends.

Note - Oracle Solaris does not start automatically because the auto-boot? setting is false.

```
XSCF> showpparprogress -p 0
PPAR Power On Preprocessing PPAR#0 [ 1/12]
PPAR Power On              PPAR#0 [ 2/12]
XBBOX Reset                PPAR#0 [ 3/12]
PSU On                     PPAR#0 [ 4/12]
CMU Reset Start            PPAR#0 [ 5/12]
XB Reset 1                 PPAR#0 [ 6/12]
XB Reset 2                 PPAR#0 [ 7/12]
XB Reset 3                 PPAR#0 [ 8/12]
CPU Reset 1                PPAR#0 [ 9/12]
CPU Reset 2                PPAR#0 [10/12]
Reset released             PPAR#0 [11/12]
CPU Start                  PPAR#0 [12/12]
The sequence of power control is completed.
XSCF>
```

4. **Execute the showdomainstatus command, and confirm that status is
   "OpenBoot Running".**

```
XSCF# showdomainstatus -p 0
Logical Domain Name   Status
primary               OpenBoot Running
XSCF#
```

5. **Execute the console command to connect to the console of the specified physical partition.**
   The auto-boot? setting is false, so you can confirm the start up to the ok prompt.

```
XSCF> console -p 0
Console contents may be logged.
Connect to PPAR-ID 0?[y|n] :y    [Enter] key

{0} ok
```

6. **Press the [Enter] key. Then, press the [#] (default value for the escape symbol) and [.] (period) keys to move from the console to the XSCF shell.**

```
{0} ok #.
exit from console.
XSCF>
```

7. **Execute the poweroff command to stop the physical partition.**

```
XSCF> poweroff -a
PPAR-IDs to power off :00,01
Continue? [y|n] :y
00 : Powering off
01 : Powering off

*Note*
This command only issues the instruction to power-off.
The result of the instruction can be checked by the "showpparprogress".
```

8. **Execute the showpparprogress command, and confirm that the command displays "The sequence of power control is completed." and ends.**

```
XSCF> showpparprogress -p 0
PPAR Power Off PPAR#0 [ 1/ 3]
CPU Stop       PPAR#0 [ 2/ 3]
PSU Off        PPAR#0 [ 3/ 3]
The sequence of power control is completed.
XSCF>
```

9. **Install Oracle Solaris, and configure the system.**
   Oracle Solaris is preinstalled on the SPARC M10 system. According to the purpose, either use the preinstalled Oracle Solaris as is or reinstall it.

   To reinstall Oracle Solaris, install the latest Oracle VM Server for SPARC. For the

latest information on the supported Oracle Solaris versions and FRUs, see the *Fujitsu M10/SPARC M10 Systems Product Notes*.

The *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Domain Configuration Guide* presents a logical domain configuration example in "Chapter 5   Logical Domain Configuration Example." For a detailed procedure, see the Oracle VM Server for SPARC manual of the version used. For details on the functions provided only by the SPARC M12/M10 systems, see the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 System Operation and Administration Guide*.

7.14   Saving Configuration Information

7.14.1   Saving logical domain configuration information

If you have changed the configuration of a logical domain, execute the ldm add-spconfig command to save the logical domain information.
If you do not save the logical domain configuration information, the domain will start with the previous configuration information the next time that the physical partition starts.
For details on how to save the configuration information on all logical domains to an XML file, see "10.12   Saving/Restoring Logical Domain Configuration Information in an XML File" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 System Operation and Administration Guide*.

1. **Switch from the XSCF shell to the control domain console of the target physical partition.**

2. **Execute the ldm list-spconfig command to display the currently saved logical domain configuration information.**

```
primary# ldm list-spconfig
```

3. **Execute the ldm add-spconfig command to save the logical domain status as configuration information.**
   The following example shows that the file named ldm_set1 is the save destination.

```
primary# ldm add-spconfig ldm_set1
```

4. **Execute the ldm list-spconfig command, and confirm that the configuration information was saved correctly.**

```
primary# ldm list-spconfig
```

7.14.2 Saving XSCF setting information

Save XSCF setting information.
This section describes procedures for saving XSCF setting information via a network and saving the setting information to a USB device.
For details on how to restore the setting information, see "10.10　Saving/Restoring XSCF Settings Information" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 System Operation and Administration Guide*.

- Specifying the target directory and saving the setting information via a network

1. Specify the target directory and the output file name, and execute the dumpconfig command.

```
XSCF> dumpconfig ftp://server/backup/backup-file.txt
```

2. **Confirm the identification information at the beginning of the saved configuration file when the data transfer has completed.**

- Saving the setting information to a USB device on the master XSCF

1. **Connect a USB device to a USB port on the XSCF unit panel (rear panel) of the master XSCF.**
2. **Specify the name of the output file for the local USB device on the XSCF, and execute the dumpconfig command.**

```
XSCF> dumpconfig file:///media/usb_msd/backup-file.txt
```

3. **After the data transfer has completed, remove the USB device from the USB port.**
4. **Confirm the identification information at the beginning of the saved configuration file.**

- Configuration file format

The saved configuration file has the following format:
- File name: User-specified name
- File format: base64 encoding text

Chapter 8

Before Expanding/Reducing a System with a Building Block Configuration

This chapter describes the workflow for expanding or downscaling a system by adding or removing, respectively, a SPARC M10-4S in a building block (BB) configuration. The workflow varies depending on the system configuration. Be sure to confirm the following before starting work:

- Confirming the System Configuration
- Confirming the Expansion Pattern of a Building Block Configuration
- Confirming the Reduction Pattern of a Building Block Configuration

8.1 Confirming the System Configuration

Before expansion/reduction, confirm the pre- and post-expansion/reduction system configurations. For details on system configurations, see the *Fujitsu M10/SPARC M10 Systems Quick Guide*.

8.2 Confirming the Expansion Pattern of a Building Block Configuration

This section describes the expansion patterns of building block configurations and the points of concern during expansion.

8.2.1 Confirming the expansion pattern

Figure 8-1 and Figure 8-2 show the expansion patterns of building block configurations. The necessary tasks vary depending on the expansion pattern. Check which pattern applies to your case. For details on system configurations, see the *Fujitsu M10/SPARC M10 Systems Quick Guide*.

Figure 8-1   Expansion patterns of building block configurations (up to the 8BB configuration)
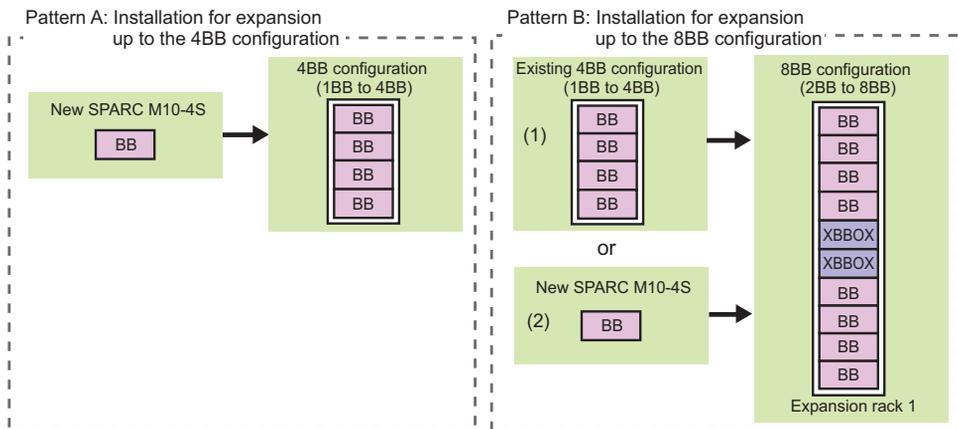
Figure 8-2   Expansion patterns of building block configurations (up to the 16BB configuration)
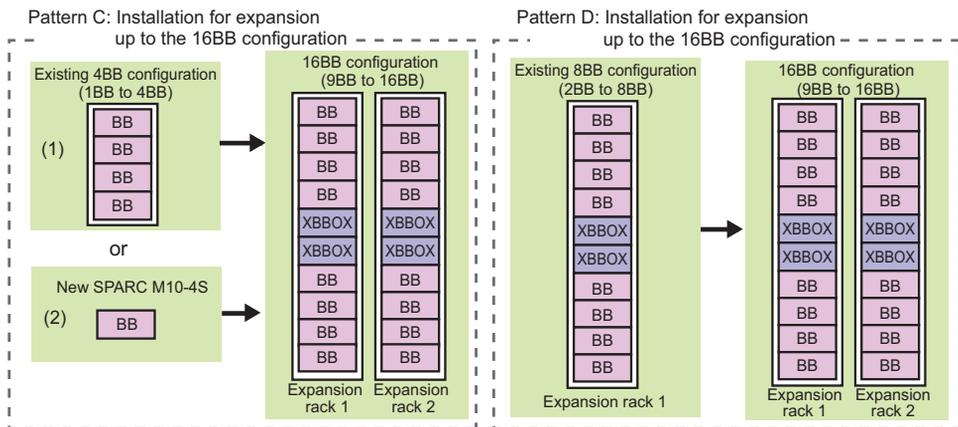
In the above figures, "BB" indicates the SPARC M10-4S and "XBBOX" indicates a crossbar box. The patterns in the figures correspond to Table 8-1.

Note - The crossbar box (XBBOX), when shipped, is mounted in a dedicated rack (expansion rack) together with dedicated power distribution units (PDUs) and crossbar cables (optical). Expansion racks are defined as expansion rack 1 and expansion rack 2 according to expandability.

Table 8-1   Expansion patterns and references

Pattern	Expansion description	Reference
A	Expansion up to the 4BB configuration (direct connections between chassis) Example: Expansion from the 1BB configuration to the 4BB configuration Expansion from the 2BB configuration to the 4BB configuration	"9.2 Adding the SPARC M10-4S"
B (1)	Expansion up to the 8BB configuration (connections through crossbar boxes) Example: New addition of expansion rack 1. The connections between the chassis in an existing multiple-BB configuration (direct connections between chassis) are released to change every chassis to the 1BB configuration and add them to expansion rack 1.	"9.3 Adding Expansion Rack 1 (Expansion to Up to the 8BB Configuration)"
B (2)	Addition of a new SPARC M10-4S in expansion rack 1	"9.2 Adding the SPARC M10-4S"
C (1)	Expansion up to the 16BB configuration (connections through crossbar boxes) Example: New addition of expansion rack 2. The connections between the chassis in an existing multiple-BB configuration (direct connections between chassis) are released to change every chassis to the 1BB configuration and add them to expansion rack 2.	"9.4 Adding Expansion Rack 2"
C (2)	Addition of a new SPARC M10-4S in expansion rack 2	"9.2 Adding the SPARC M10-4S"
D	Expansion from the 8BB configuration to the 16BB configuration (connections through crossbar boxes) Example: New addition of expansion rack 2	"9.4 Adding Expansion Rack 2"

8.2.2   Points of concern during expansion

Before adding the SPARC M10-4S/crossbar box, check the following items, which are points of concern.

- Before adding the SPARC M10-4S, save the system setting information with the dumpconfig command. In case of resetting the configuration to the original setting, you can restore the saved setting information to XSCF by using the restoreconfig command.

- Before adding the SPARC M10-4S, execute the showcodusage command to check the number of CPU Activations registered in the entire system.
  If the number of CPU Activations registered in the system is not enough when compared to the number of added CPU cores, you need to purchase a CPU Activation key and execute the addcodactivation command to add the CPU Activation key to the system. For details on adding a CPU Activation key, see "7.11.3   Registering a CPU Activation key."

- To make CPU core resources ready for use after registering a CPU Activation key, you need to set the number of CPU Activations in a physical partition and assign CPU core resources by using the setcod command.

- Any expansion from the 4BB configuration (direct connections between chassis) to the 8BB configuration requires the new installation of expansion rack 1. For details of expansion racks, see "2.4   Confirming Rack Specifications."

- Any expansion from the 4BB configuration (direct connections between chassis) to the 8BB configuration changes the master chassis from the SPARC M10-4S to a crossbar box mounted in an expansion rack. The existing SPARC M10-4S must be released from the system before the addition of the expansion rack.
  Multiple SPARC M10-4S units cannot be released at the same time. Do this work on one unit at a time.

- Any expansion from the 8BB configuration to the 9BB configuration or larger requires the new installation of expansion rack 2. For details of expansion racks, see "2.4   Confirming Rack Specifications."

- Any expansion from the 8BB configuration to the 9BB configuration or larger requires special attention because crossbar cables (optical) need to be laid all over again.

- Executing the addfru command for addition automatically updates firmware to match firmware versions. The update matches the version on the master XSCF, so we recommend updating XCP on the master XSCF to the latest version in advance.

- Suppose you add the SPARC M10-4S together with a PCI expansion unit connected to it and enable/disable the direct I/O function of the PCI expansion unit. In this case, execute the setpciboxdio command to enable/disable it before executing the addboard command for incorporation into the physical partition. Set the setting. When you have changed the setting of the direct I/O function, do not restart the logical domains until you execute the ldm add-spconfig command to save the logical domain configuration in XSCF.

- When adding a SPARC M10-4S on which SPARC64 X+ processors are mounted in a system in which only SPARC64 X processors are mounted, update the XCP firmware beforehand.
  For details, see "A.5   For Installation of the System Board Configured by the SPARC64 X+ Processor to the Physical Partition Configured Only by the SPARC64 X Processor" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Domain Configuration Guide*.

Remarks - The product model number of a chassis in which SPARC64 X+ processors are mounted begins with "SPMCG". Check the model indication on the label affixed on the upper right of the front cover or check the system nameplate on the right side surface of the chassis.

Table 8-2　　Relationship between the CPU configuration and firmware update

CPU configuration of the physical partition before addition	CPU configuration of the chassis to be added	XCP firmware/Oracle Solaris
SPARC64 X	SPARC64 X+	Update to versions supporting SPARC64 X+ is required beforehand. (*1)
SPARC64 X+	SPARC64 X+	Update is not required beforehand. (*2)
SPARC64 X+ and X mixed	SPARC64 X+	Update is not required beforehand. (*2)
SPARC64 X+	SPARC64 X	Update is not required beforehand. (*2)

*1 For XCP firmware versions and Oracle Solaris versions that support a system in which the SPARC64 X+ processor is mounted, see the *Fujitsu M10/SPARC M10 Systems Product Notes* for the latest XCP version.
*2 Executing the addfru command for addition automatically updates firmware to match firmware versions. The update matches the version on the master XSCF, so we recommend updating XCP on the master XSCF to the latest version in advance.

Notes on use of dynamic reconfiguration (DR) for the physical partition

Note - When using the dynamic reconfiguration function for the physical partition (PPAR DR), check the contents of "2.5　Dynamic Reconfiguration Conditions and Settings" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Domain Configuration Guide* beforehand.

- **When incorporating a system board (PSB) into a physical partition with the addboard command**
  The addboard command with the -c configure option specified cannot incorporate a system board (PSB) into a physical partition where the PPAR DR function is disabled. Execute the setpparmode command beforehand to set the PPAR DR setting to "on".

  For details, see "A.1　Updating a System That Does Not Support Physical Partition Dynamic Reconfiguration to One That Does Support It" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Domain Configuration Guide*.

Important - Be sure to save the logical domain configuration information before changing the PPAR DR mode setting.
When executing the setpparmode command to change the PPAR DR mode setting from "disable" to "enable" or vice versa, you must reset the physical partition to reflect the setting. This reset restores the logical domain configuration information to factory-default. Since the logical domain configuration information that has been saved beforehand is required for reconfiguration of the logical domain, be sure to save the logical domain configuration information before changing the PPAR DR mode setting. For details on how to save and restore logical domain configuration information, see "1.7.3　How to Save/Restore the Logical Domain Configuration Information and the OpenBoot PROM Environment Variable" in the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

- **When adding a system board (PSB) on which the SPARC64 X processor is mounted in auto mode**

  When the CPU operational mode is set to "auto" mode, an attempt to add a SPARC64 X-mounted system board (PSB) to a SPARC64 X+-mounted system by using dynamic reconfiguration (DR) fails because SPARC64 X+ functions are being used for operation.

  When adding the system board by using dynamic reconfiguration (DR), set the CPU operational mode to "compatible" mode beforehand.

  For the change procedure, see "2.6.2   CPU Operational Mode Settings" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Domain Configuration Guide*.

Important - Be sure to save the logical domain configuration information by list-constraints -x before changing the CPU operational mode.
The logical domain configuration information for Oracle VM Server for SPARC includes CPU operation information used by the logical domain.
If the configuration information of a logical domain operating by using SPARC64 X+ functions is applied to a physical partition operating by using SPARC64 X functions, inconsistency in the configuration information is detected. In this case, the XSCF switches the logical domain configuration information to factory-default, and then starts the physical partition.
Since the logical domain configuration information that has been saved beforehand is required for reconfiguration of the logical domain, be sure to save the logical domain configuration information before changing the CPU operational mode with the setpparmode command. For details on saving and restoring logical domain configuration information, see "1.7.3   How to Save/Restore the Logical Domain Configuration Information and the OpenBoot PROM Environment Variable" in the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

- **CPU configuration and CPU operational mode of the physical partition**

  Table 8-3 shows the relationship between the physical partition configuration, setting value of the CPU operational mode, and CPU operation.

Table 8-3   Relationship between the physical partition configuration, setting value of the CPU operational mode, and CPU operation

Physical partition configuration	Setting value of CPU operational mode	CPU operation
SPARC64 X+	auto	Operation by using SPARC64 X+ functions
SPARC64 X+	compatible	Operation compatible with the SPARC64 X
SPARC64 X+ and X mixed	auto or compatible	As to the SPARC64 X+, operation compatible with the SPARC64 X
SPARC64 X	auto or compatible	Operation by using SPARC64 X functions

---

Note - When adding a SPARC64 X processor to a PPAR, you must shut down the PPAR before adding the PSB to the PPAR.

8.3 Confirming the Reduction Pattern of a Building Block Configuration

This section describes the reduction patterns of the SPARC M10-4S and crossbar boxes and the points of concern during reduction.

8.3.1 Confirming the reduction pattern

Figure 8-3 shows the reduction patterns of building block configurations. The necessary tasks vary depending on the reduction pattern. Check which pattern applies to your case. For details on system configurations, see the *Fujitsu M10/SPARC M10 Systems Quick Guide*.

Remarks - For reduction patterns not described here, contact a sales representative.

Figure 8-3   Reduction patterns of building block configurations (removal of only the SPARC M10-4S)
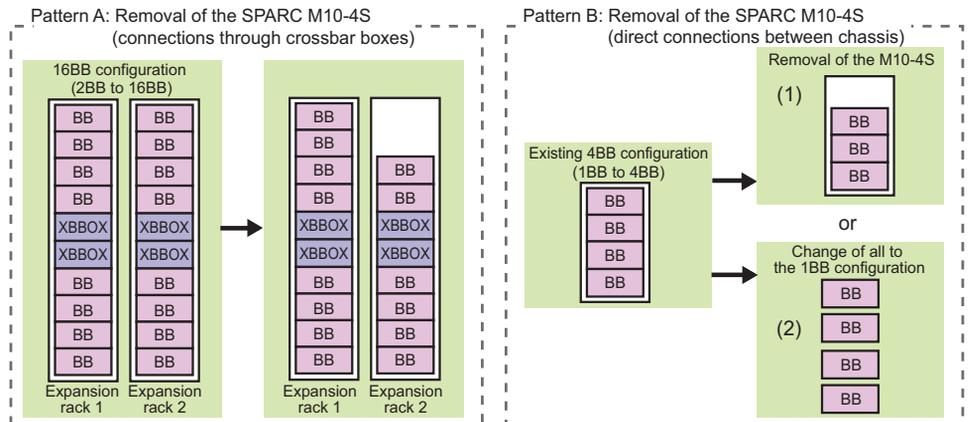
Figure 8-4   Reduction patterns of building block configurations (removal of expansion rack 2)
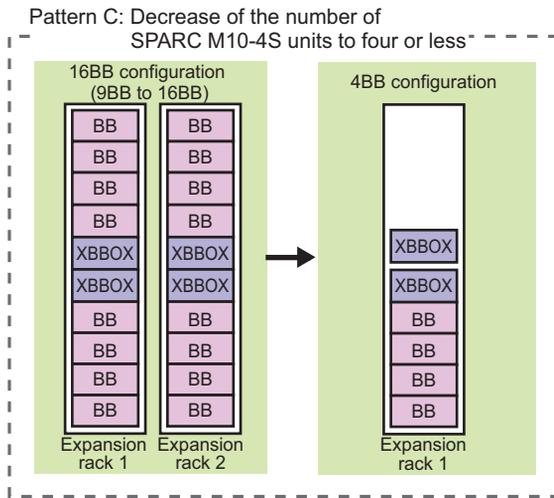
In the above figures, "BB" indicates the SPARC M10-4S and "XBBOX" indicates a crossbar box.

Table 8-4   Reduction patterns and references

Pattern	Reduction description	Reference
A	Removal of the SPARC M10-4S mounted in an expansion rack Example: From the 16BB configuration to the 14BB configuration, and from the 8BB configuration to the 6BB configuration	"10.2 Removing the SPARC M10-4S"
B (1)	Removal of the SPARC M10-4S with direct connections between chassis Example: From the 4BB configuration to the 3BB configuration, and from the 4BB configuration to the 2BB configuration	"10.2 Removing the SPARC M10-4S"
B (2)	Release of the connections between the chassis in an existing multiple-BB configuration (direct connections between chassis) to change every chassis to the 1BB configuration Example: From the 4BB configuration to the 1BB configuration	"10.2.3 Removing the server after stopping all the physical partitions (PPARs)"
C	Removal of expansion rack 2, and decrease of the number of SPARC M10-4S units to four or less Example: From the 16BB configuration (connections through crossbar boxes) to the 4BB configuration (connections through crossbar boxes)	"10.3 Removal of Expansion Rack 2, and Decrease of the Number of SPARC M10-4S Units to Four or Less"

8.3.2   Points of concern during reduction

Before removing the SPARC M10-4S, check the following items, which are points of

concern.

- If you stop a PPAR and remove the SPARC M10-4S belonging to the PPAR, logical domain configuration information is switched to factory-default the next time that the PPAR is powered on.
  In that case, reconfigure the logical domains by referring to the logical domain configuration information in the XML file saved at the system configuration time.

- Multiple SPARC M10-4S units cannot be released from the system by using the initbb command at the same time. Do this work on one unit at a time.

- The serial number of the chassis of either the master XSCF or standby XSCF is used as the system serial number. If the serial number of the standby chassis is being used as the system serial number, the initbb command cannot release the standby chassis. In this case, execute the switchscf command to switch the master XSCF.

- For the initialization of the chassis of the master XSCF, perform that work at the end.
  Execute the restoredefaults -c factory command to return to the factory defaults, including the CPU Activation key information. Perform this work with a serial connection to the master XSCF.

  For XCP 2041 or later, execute the restoredefaults -c factory -r activation command.

  To add a removed chassis into another system, you need to reinstall the key during the initial setup of the XSCF after the addition of the chassis.

- The physical partition number must match the BB-ID value of one of the SPARC M10-4S units in the system.
  Therefore, if there is a physical partition with the same number as that of the BB-ID of the SPARC M10-4S to be removed, stop that physical partition before removing the unit.

  If the removed SPARC M10-4S unit will not be used in the system, it will not be possible to use the corresponding physical partition. So reconfigure the physical partition with a different physical partition number.

Notes on use of dynamic reconfiguration (DR) for the physical partition

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Note - When using the dynamic reconfiguration function for the physical partition (PPAR DR), check the contents of "2.5 Dynamic Reconfiguration Conditions and Settings" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Domain Configuration Guide* beforehand.

- The command with the -c unassign option specified cannot release a system board (PSB) from a physical partition where the PPAR DR function is disabled, while the physical partition is operating. Execute the setpparmode command beforehand to set the PPAR DR setting to "on".
  For details, see "A.1 Updating a System That Does Not Support Physical Partition Dynamic Reconfiguration to One That Does Support It" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Domain Configuration Guide*.

- To release a system board (PSB) from the physical partition, execute the deleteboard command with the -c unassign option specified. After being released from the physical partition by the command with the -c unassign option specified, the system board (PSB) enters the system board pool.

- When the system board (PSB) is targeted for release from the physical partition, the free resources in the physical partition are used to move the logical domains that use the resources of the system board (PSB).
  According to the status of these free resources, you can specify the method of securing the resources used to move the logical domains by specifying the -m option of the deleteboard command.

  The following shows the functions when the -m option of the deleteboard command is specified.

  - -m unbind=none is specified

    Obtains resources for the move from available resources. When the command cannot secure the resources, it causes the release to fail.

  - -m unbind=resource is specified

    Obtains resources for the move from available resources. If even those resources are insufficient, it secures resources from each logical domain.

  - -m unbind=shutdown is specified

    Obtains resources for the move from available resources. If even those resources are insufficient, it secures resources from each logical domain. If the resources are still insufficient, it shuts down any one of the logical domains.

- If SPARC64 X processors and SPARC64 X+ processors are mixed in the CPU configuration of the physical partition with the CPU operational mode set to "compatible" mode, the CPU operates by using the functions of the SPARC64 X processor. Also if SPARC64 X processors are removed from this physical partition and only SPARC64 X+ processors are left in the CPU configuration of the physical partition, the CPU operates by using functions of the SPARC64 X processor.
  To use expanded functions of the SPARC64 X+ processor, execute the setpparmode command to change the CPU operational mode to auto.

Important - Be sure to save the logical domain configuration information before changing the CPU operational mode.
Since the logical domain configuration information that has been saved beforehand is required for reconfiguration of the logical domain, be sure to save the data before changing the CPU operational mode with the setpparmode command. For details on how to save and restore logical domain configuration information, see "1.7.3   How to Save/Restore the Logical Domain Configuration Information and the OpenBoot PROM Environment Variable" in the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

Table 8-5 shows the relationship between the physical partition configuration, setting value of the CPU operational mode, CPU operation, CPU configuration after the removal, and CPU operation after the removal.

Table 8-5 Relationship between the physical partition configuration, setting value of the CPU operational mode, CPU operation, CPU configuration after the removal, and CPU operation after the removal

Physical partition configuration	Setting value of CPU operational mode	CPU operation	Physical partition configuration after removal	CPU operation after removal
SPARC64 X	auto or compatible	Operation by using SPARC64 X functions	SPARC64 X	Operation by using SPARC64 X functions
SPARC64 X+	auto	Operation by using SPARC64 X+ functions	SPARC64 X+	Operation by using SPARC64 X+ functions
SPARC64 X+	compatible	Operation compatible with the SPARC64 X	SPARC64 X+	Operation compatible with the SPARC64 X
SPARC64 X+ and X mixed	auto	Operation compatible with the SPARC64 X	SPARC64 X+	Operation compatible with the SPARC64 X before PPAR restart Operation by using SPARC64 X+ functions after PPAR restart
SPARC64 X+ and X mixed	compatible	Operation compatible with the SPARC64 X	SPARC64 X+	Operation compatible with the SPARC64 X
SPARC64 X+ and X mixed	auto or compatible	Operation compatible with the SPARC64 X	SPARC64 X	Operation by using SPARC64 X functions

Chapter 9

Expanding a System with a Building Block Configuration

This chapter describes the procedure for adding the SPARC M10-4S in a building block (BB) configuration.
For the addition procedure, see the relevant section corresponding to an expansion pattern shown in "8.2   Confirming the Expansion Pattern of a Building Block Configuration."

- Preparing the Necessary Tools and Delivered Components for Expansion
- Adding the SPARC M10-4S
- Adding Expansion Rack 1 (Expansion to Up to the 8BB Configuration)
- Adding Expansion Rack 2
- Adding Expansion Racks 1 and 2

9.1   Preparing the Necessary Tools and Delivered Components for Expansion

This section describes the preparation for adding the SPARC M10-4S.

9.1.1   Preparing the necessary tools

The tools used to add the SPARC M10-4S are the same as those for initial installation. See "3.1   Preparing the Necessary Tools/Information for Installation."

Before starting addition work, be sure to see "8.2.2   Points of concern during expansion."

9.1.2   Confirming delivered components

To add the SPARC M10-4S, confirm the delivered components.

For details on the attachments for the chassis and the attachments required for a building block configuration, see "3.2.1　Confirming the delivered components of the SPARC M10-4S."

The components that must be added vary depending on the expansion pattern. Table 9-1 is a list of the components that must be added for expansion to up to the 4BB configuration with direct connections between chassis.

Table 9-1　　Components that must be added during expansion (up to the 4BB configuration)

No.	Expansion pattern	Name	Quantity
1	Expansion from 1BB to 2BB	Crossbar cable (electrical) (*1)	8
		XSCF BB control cable	1
		XSCF DUAL control cable	1
2	Expansion from 2BB to 3BB	Crossbar cable (electrical) (*1)	16
		XSCF BB control cable	2
3	Expansion from 3BB to 4BB	Crossbar cable (electrical) (*1)	24
		XSCF BB control cable	2

The configuration when two or more SPARC M10-4S units are added has a corresponding combination of the components shown above.
*1 Use electrical cables for the connections in direct connections between chassis.

Any expansion to the 5BB configuration or larger requires the new installation of an expansion rack.
For expansion to up to the 8BB configuration, expansion rack 1 is required. For the 9BB to 16BB configurations, expansion rack 2 is required in addition to expansion rack 1.
The dedicated power distribution units (PDUs), crossbar boxes, and cables required for the expansion are shipped mounted in the expansion racks. For details on the components of expansion racks 1 and 2, see "3.2.3　Confirming the delivered components of an expansion rack."

9.2　Adding the SPARC M10-4S

This section describes the procedure for adding only the SPARC M10-4S. This procedure corresponds to patterns A and B (2) in Figure 8-1 as well as pattern C (2) in Figure 8-2.
The SPARC M10-4S is added in one of three ways: addition while the physical partition (PPAR) that is the incorporation destination is operating, addition after only the physical partition is stopped, or addition after the input power to the entire system is turned off.

9.2.1 Adding the server while the target physical partition (PPAR) is operating

This section describes the SPARC M10-4S addition procedure for expanding from the 1BB configuration to the 2BB configuration while the target physical partition (PPAR) and the control domain are operating. To perform maintenance while the physical partition (PPAR) is operating, use dynamic reconfiguration (DR) for the physical partition.

For the software requirements required for this operation, see the latest *Product Notes*. For details on the XSCF commands executed in each step, see the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 XSCF Reference Manual*.

For details on the addition procedure for expanding from the 1BB configuration to the 2BB configuration, see also "A.4 For Expansion of a Newly Installed System of Version XCP 2220 or Later from the 1BB to 2BB Configuration" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Domain Configuration Guide*.

1. **Log in to the master XSCF.**
   Execute the showbbstatus command to confirm that the XSCF to which you have logged in is the master XSCF.

   If it is a standby XSCF, retry to log in to the master XSCF.

   ```
   XSCF> showbbstatus
   BB#00 (Master)
   ```

2. **Execute the showsscp command to check whether the IP address of the SP to SP communication protocol (SSCP) is a default value or a value set by a user.**

   ```
   XSCF> showsscp
   ```

   Note - For the default values of SSCP IP addresses, see "3.9.5 Understanding the IP Addresses that are Set with SSCP" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 System Operation and Administration Guide*.

   If the IP address is a default value and the default value should also be used for the IP address of the SPARC M10-4S to be added, go to the next step.

   To set a user value, use the setsscp command to set an IP address, use the applynetwork command to apply the SSCP IP address of the target SPARC M10-4S, and confirm that it was reflected. Then, execute the rebootxscf command to complete settings, and go to the next step. For details on the procedure, see "7.5.6 Applying network settings."

3. **Check the number of CPU Activations registered in the entire system.**
   If the number of CPU Activations registered in the system becomes short compared to the number of added CPU cores, purchase a CPU Activation key and execute the addcodactivation command to add the key to the system.

   The following example displays the CPU Activations in the system that are

already fully used.

```
XSCF> showcodusage -p resource
Resource In Use Installed CoD Permitted Status
-------- ------ --------- ------------- ------
PROC        64        64            64 OK
```

For details on adding a CPU Activation key, see "7.11.3   Registering a CPU
Activation key."

4. **Add the SPARC M10-4S.**
   a. Execute the addfru command, and add the SPARC M10-4S by following the
      messages.

Note - If no SSCP IP address is set, an error occurs.

Note - The addfru command cannot specify multiple chassis. Add one chassis at a time.

Note - When the addfru command is executed, the firmware of the building block to be
added is automatically matched to the version of the firmware of the building block in which
the master XSCF is operating. It is recommended that you update the XCP of the master
XSCF to the latest version beforehand.

The following example adds BB#1.

```
XSCF> addfru
-------------------------------------------------------------------
Maintenance/Addition Menu
Please select the chassis including added FRU.

No. FRU                 Status
--- ------------------- ---------------
 1  /BB#0               Normal
 2  /BB#1               Unmount
 3  /BB#2               Unmount
 4  /BB#3               Unmount
-------------------------------------------------------------------
Select [1-16|c:cancel] :2

Maintenance/Addition Menu
Please select the BB or a type of FRU to be added.

1. BB itself
2. PSU (Power Supply Unit)
-------------------------------------------------------------------
Select [1,2|c:cancel] :1

Maintenance/Addition Menu
Please select a FRU to be added.

No. FRU                 Status
```

```
--- ------------------ --------------
 1  /BB#1                Unmount
-----------------------------------------------------------------------
Select [1|b:back] :1
You are about to add BB#1.
Do you want to continue?[a:add|c:cancel] :a
Please execute the following steps:
1) After the added device is connected with the system,
   please turn on the breaker of the BB#1.
2) Please select[f:finish] :
```

    b. Mount the target SPARC M10-4S in the rack.

        Mount the target SPARC M10-4S in the rack when the above message, "1) After the added device is connected with the system, please turn on the breaker of the BB#1.", appears during command execution.

        For the mounting procedure, see "3.4.1   Mounting the SPARC M10-4S in a rack."

Remarks - When adding the SPARC M10-4S in an existing expansion rack, you need to remove the protection bracket and blank panel of the mounting space (A in Figure 9-1). The blank panel is secured with two M6 screws. The protection bracket is secured with four M6 screws.
Store the removed blank panel and M6 screws for future use when the SPARC M10-4S is removed. After adding the SPARC M10-4S, install the protection bracket and M6 screws at their original locations, for future use when the expansion rack is moved.

Figure 9-1   Protection bracket
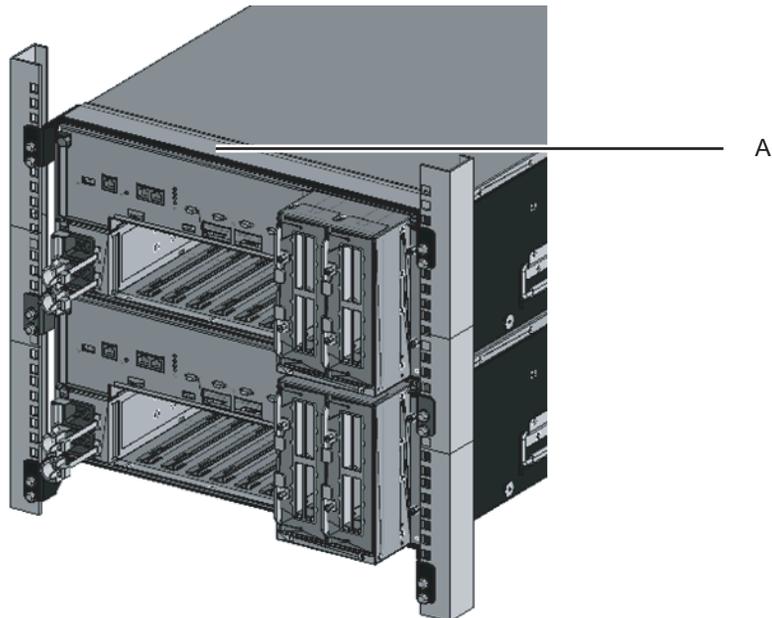
c. Set the ID of the target SPARC M10-4S.

For details, see "4.1   Setting the ID (BB-ID) Identifying a Chassis."

d. Connect the additional crossbar cables.

For a cable routing diagram of connections and a cable list, see "Appendix B Cable Connection Information on Building Block Configurations."

For details on the connections in direct connections between chassis, see "4.2 Connecting Cables (for Direct Connections between Chassis)."

e. Connect the additional XSCF BB control cables.

For a cable routing diagram of connections and a cable list, see "Appendix B Cable Connection Information on Building Block Configurations."

For details on the connections in direct connections between chassis, see "4.2 Connecting Cables (for Direct Connections between Chassis)."

f. The addition expands the 1BB configuration to a multiple BB configuration. So, connect the XSCF DUAL control cable.

Connect the XSCF DUAL cable from the XSCF DUAL control port of BB#00 to the XSCF DUAL control port of BB#01.

g. Connect LAN cables to the target SPARC M10-4S.

For details, see "5.1   Connecting Cables to the SPARC M10-4S."

h. Connect the power cords of the target SPARC M10-4S to the input power supply.

i. Enter [f] from the command execution screen of the master XSCF.

```
2) Please select[f:finish] :f

Waiting for BB#1 to enter install state.
[This operation may take up to 20 minute(s)]
(progress scale reported in seconds)
   0.....  30.... done

Waiting for BB#1 to enter ready state.
[This operation may take up to 45 minute(s)]
(progress scale reported in seconds)
   0.....  30.....  60... done

Do you want to start to diagnose BB#2?[s:start|c:cancel] :
```

j. Skip the diagnosis of the building block to be added, and then end the addfru command.

Enter [c] from the input screen of the addfru command of the master XSCF to skip the diagnosis processing for the BB to be added.

When "The addition of BB#1 has completed." is output, enter [f] and then [c] at the end to end the addfru command.

```
Do you want to start to diagnose BB#1?[s:start|c:cancel] :c

Diagnostic tests are about to be skipped.
Running diagnostic tests are strongly recommended before using
BB#1.
Are you sure you want to skip testing?[y:yes|n:no] :y

-------------------------------------------------------------------------------
Maintenance/Addition Menu
Status of the added FRU.

FRU                    Status
------------------ --------------
/BB#1                  Normal
-------------------------------------------------------------------------------
[Warning:007]
Running diagnostic tests on BB#1 is strongly recommended
after addfru has completed.
The addition of BB#2 has completed.[f:finish] :f

-------------------------------------------------------------------------------
Maintenance/Addition Menu
Please select the chassis including added FRU.
No. FRU                Status
--- ------------------ --------------
 1  /BB#0                 Normal
 2  /BB#1                 Normal
 3  /BB#2                 Unmount
 4  /BB#3                 Unmount
-------------------------------------------------------------------------------
Select [1,2|c:cancel] :c
```

5. **Diagnose the added SPARC M10-4S.**
   a. Execute the testsb command to perform a diagnosis test.

      Specify the PSB number of the diagnosis target PSB in XX-Y. XX is a BB-ID, and Y is fixed at 0.

      An initial diagnosis and connection I/O check are performed on the diagnosis target PSB.

      <Description of options specified>

      -v: Additionally displays detailed messages of the initial diagnosis

      -p: Executes the "probe-scsi-all" command of OpenBoot PROM and displays the results while a diagnosis is being processed

      -s: Executes the "show-devs" command of OpenBoot PROM and displays the results while a diagnosis is being processed

      -y: Automatically responds with "y" to a query

```
XSCF> testsb -v -p -s -y XX-Y
```

      The following example performs a diagnosis test on the added BB#01.

```
XSCF> testsb -v -p -s -y 01-0
Initial diagnosis is about to start, Continue?[y|n] :y
PSB#01-0 power on sequence started.
```

> If an error is displayed, see "A.2.4　Checking diagnosis results."

b. From the master XSCF, check the cables between the added chassis and the physical partition that is the incorporation destination.

> Execute the diagxbu command to check the cables.

> Specify the BB-ID of the added BB in XX. Specify the PPAR-ID of the incorporation destination in YY.

```
XSCF> diagxbu -y -b xx -p yy
```

> The following example performs a diagnosis between the added BB#01 and incorporation-destination PPAR#0.

```
XSCF> diagxbu -y -b 01 -p 00
XBU diagnosis is about to start, Continue?[y|n] :y
Power on sequence started. [7200sec]
  0..... 30..... 60..end
XBU diagnosis started. [7200sec]
  0..... 30..... 60..... 90.....120.....150.....180.....210.....240...../
270.....300.....330.....360.....390.....420.....450.....480.....510.....\
540.....570.....600.....630.....660.....690.....720.....750.....780.....\
810.....840.....870.....900.....930...end
completed.
Power off sequence started. [1200sec]
  0..... 30..... 60..... 90.....120.....150.....180.end
completed.
```

c. Execute the showlogs error command, and confirm that no error is displayed.

```
XSCF> showlogs error
```

> If an error is displayed, see "A.2.2　Checking the contents of logs."

d. Execute the showhardconf command to check the configuration, status, and quantities.

> For details, see "6.8　Checking the Component Status."

6. **The addition expands the 1BB configuration to a multiple-BB configuration. So, configure the XSCF network.**
For details, see "7.5.2　Setting an Ethernet (XSCF-LAN) IP address" and "7.5.3 Setting a takeover IP address."

After configuration, execute the applynetwork command to apply the settings, and confirm that they were reflected. Then, execute the rebootxscf command to complete settings, and go to the next step.　For details on the procedure, see "7.5.6　Applying network settings."

7. **To configure memory mirroring for the added SPARC M10-4S, set memory mirror mode.**

   For details, see "7.6 Configuring Memory Mirroring."

   If you do not use memory mirror mode, this step is not necessary.

8. **Register the system board of the added SPARC M10-4S in the physical partition configuration list.**

   a. Execute the showpcl command to check the physical partition configuration list.

```
XSCF> showpcl -p 0
PPAR-ID   LSB   PSB    Status
00                     Running
          00    00-0
```

   b. Execute the setpcl command to register a system board in the physical partition configuration list.

   Execute the setpcl command to register the system board of the added SPARC M10-4S in the physical partition configuration list for the incorporation destination.

   The following example associates physical system board (PSB) 01-0 with logical system board (LSB) 01 of physical partition 0.

```
XSCF> setpcl -p 0 -a 01=01-0
```

   c. Execute the showpcl command, and confirm the set physical partition configuration list.

```
XSCF> showpcl -p 0
PPAR-ID   LSB   PSB    Status
00                     Running
          00    00-0
          01    01-0
```

9. **Set the number of CPU Activations in the physical partition, and add CPU core resources.**

   a. Execute the showcodusage command to display the CPU Activation information.

   The following example displays the CPU Activation information. As shown, the number of CPU Activations registered in the entire system is 128, 64 CPU core resources are in use, and 64 CPU Activations are currently not in use.

```
XSCF> showcodusage -p resource
Resource In Use Installed CoD Permitted Status
-------- ------ --------- ------------- ------
PROC        64       128           128 OK: 64 cores available
```

Note - If the number of CPU Activations registered in the system is insufficient for the number of CPU cores to be used, request the customer to purchase CPU Activations to add CPU Activation keys. For details on adding a CPU Activation key, see "7.11.3 Registering a CPU Activation key."

b. Execute the showcod command to check the CPU Activation information set for the physical partition.

```
XSCF> showcod -p 0
PROC Permits assigned for PPAR 0: 64
```

c. If the assigned resources are insufficient, execute the setcod command to assign CPU core resources to the physical partition.

The following example adds 64 CPU core resources to physical partition 0.

```
XSCF> setcod -p 0 -s cpu -c add 64
PROC Permits assigned for PPAR 0 : 64 -> 128

PROC Permits assigned for PPAR will be changed.
Continue? [y|n] :y

Completed.
```

Note - The -c add, -c delete, and -c set options are not supported if the XSCF firmware is XCP 2250 or earlier. Specify the option of the setcod command as shown below to add or delete interactively.

```
XSCF> setcod -s cpu
```

d. Execute the showcod command again to check the CPU Activation information set for the physical partition.

```
XSCF> showcod -p 0
PROC Permits assigned for PPAR 0: 128
```

10. **Check the operation status of logical domains.**
    a. Connect to the control domain console of the physical partition, and then log in.

```
XSCF> console -p 0
```

b. Execute the ldm list-domain command to check the operation status of the logical domains.

Check the operation status of the logical domains through the combination of

[STATE] and [FLAGS]. When [STATE] is "active," the second character from the left of the string in [FLAGS] has one of the following meanings:

"n": Oracle Solaris operating

"t": OpenBoot PROM state

"-": Another state (including cases in which STATE is not active)

In the following example, you can see that the control domain, one guest domain, and one root domain are operating.

```
# ldm list-domain
NAME            STATE      FLAGS    CONS   VCPU  MEMORY   UTIL   UPTIME
primary         active     -n-cv-   UART   32    28G      0.0%   2h 3m
guest0          active     -n----   5100   64    64G      3.1%   33m
root-dom0       active     -n--v-   5000   32    32G      3.1%   47m
```

11. **Incorporate the system board of the added SPARC M10-4S into the physical partition.**

Note - Suppose you add the added SPARC M10-4S together with a PCI expansion unit connected to it and enable/disable the direct I/O function of the PCI expansion unit. In this case, execute the setpciboxdio command to enable/disable it before executing the addboard command for incorporation in the physical partition. When you have changed the setting of the direct I/O function, do not restart the logical domains until you execute the ldm add-spconfig command to save the logical domain configuration in XSCF.
Note - Pull out all the PCIe cassettes with the PCIe card for the PCI expansion unit to be installed. After incorporating the link card into the server, attach the pulled-out PCIe cassette to the PCI expansion unit. Then, install the PCIe card of the PCI expansion unit on the server by using PHP.

---

a. Return to the XSCF shell, execute the showboards command, and check the system board (PSB) status.

In the following example, system board 01-0 is in the system board pool.

```
XSCF> showboards -p 0
PSB    PPAR-ID(LSB) Assignment  Pwr  Conn Conf Test     Fault
----   ------------ ----------- ---- ---- ---- -------  --------
00-0   00(00)       Assigned    y    y    y    Passed   Normal
01-0   SP           Available   n    n    n    Passed   Normal
```

b. Execute the addboard -c configure command to incorporate the system board (PSB) into the physical partition.

The following example incorporates system board 01-0 into physical partition 0.

```
XSCF> addboard -c configure -p 0 01-0
PSB#01-0 will be configured into PPAR-ID 0. Continue?[y|n] :y
Start connecting PSB to PPAR. [3600sec]
```

```
   0..... 30..... 60..... 90.....120.....150.....180.....210.....240.....
270.....300.....330.....360.....390.....420.....450.....480.....510.....
540.....570.....600.....630.....660.....690.....720.....750.....780.....
810.....840.....870.....900.....930.....960.....end
Connected PSB to PPAR.
Start configuring PSB to Logical Domains (LDoms) Manager. [1800sec]
0.....end
Configured PSB to Logical Domains (LDoms) Manager.
Operation has completed.
```

Note - Incorporation of a system board (PSB) with the addboard command also incorporates the targeted hardware resources on the system board (PSB) into the physical partition after a hardware diagnosis is performed. Therefore, command execution may take some time to complete.

---

c. Execute the showresult command to confirm the end status of the previously executed addboard command.

In the following example, 0 is returned as the end status, so the execution of the addboard command has completed correctly.

```
XSCF> showresult
0
```

d. Execute the showboards command to check the system board (PSB) status.

Confirm that the added system board (PSB) is in the "Assigned" state and "y" is displayed for all of the [Pwr], [Conn], and [Conf] columns.

In the following example, since both the [Conn] and [Conf] fields display "y" for system board 01-0, the system board (PSB) has been added correctly.

```
XSCF> showboards -p 0
PSB  PPAR-ID(LSB) Assignment  Pwr  Conn Conf Test    Fault
---- ------------ ----------- ---- ---- ---- ------- --------
00-0 00(00)       Assigned    y    y    y    Passed  Normal
01-0 00(01)       Assigned    y    y    y    Passed  Normal
```

12. **Check the operation status of logical domains.**
    a. Execute the console command to connect to the console of the control domain, and then log in.

```
XSCF> console -p 0
```

b. Execute the ldm list-domain command, and confirm that the operation status of the logical domains has not changed after the system board (PSB) addition.

Check the operation status of the logical domains through the combination of [STATE] and [FLAGS]. When [STATE] is "active," the second character from the left of the string in [FLAGS] has one of the following meanings:

"n": Oracle Solaris operating

"t": OpenBoot PROM state

"-": Another state (including cases in which STATE is not active)

```
# ldm list-domain
NAME            STATE      FLAGS   CONS   VCPU   MEMORY   UTIL   UPTIME
primary         active     -n-cv-  UART   32     28G      0.0%   2h 3m
guest0          active     -n----  5100   64     64G      3.1%   33m
root-dom0       active     -n--v-  5000   32     32G      3.1%   47m
```

13. **Reconfigure the logical domains.**
    Assign the resources of the added SPARC M10-4S to an existing logical domain or a newly configured logical domain. For details, see the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Domain Configuration Guide*.

    After the reconfiguration, execute the ldm add-spconfig command to save the logical domain configuration in the XSCF.

9.2.2   Adding the server after stopping the target physical partition (PPAR)

This section describes the SPARC M10-4S addition procedure for expanding from the 2BB configuration to the 3BB configuration after stopping the target physical partition (PPAR).
Stop applications in guest domains as required.
For details on the XSCF commands executed in each step, see the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 XSCF Reference Manual*.

1. **Log in to the master XSCF.**
   Execute the showbbstatus command to confirm that the XSCF to which you have logged in is the master XSCF.

   If it is a standby XSCF, retry to log in to the master XSCF.

   ```
   XSCF> showbbstatus
   BB#00 (Master)
   ```

2. **Execute the showsscp command to check whether the IP address of the SP to SP communication protocol (SSCP) is a default value or a value set by a user.**

   ```
   XSCF> showsscp
   ```

   Note - For the default values of SSCP IP addresses, see "3.9.5   Understanding the IP Addresses that are Set with SSCP" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 System Operation and Administration Guide*.

If the IP address is a default value and the default value should also be used for the IP address of the SPARC M10-4S to be added, go to the next step.

To set a user value, use the setsscp command to set an IP address, use the applynetwork command to apply the SSCP IP address of the target SPARC M10-4S, and confirm that it was reflected. Then, execute the rebootxscf command to complete settings, and go to the next step. For details on the procedure, see "7.5.6 Applying network settings."

3. **Check the number of CPU Activations registered in the entire system.**
   If the number of CPU Activations registered in the system becomes short compared to the number of added CPU cores, purchase a CPU Activation key and execute the addcodactivation command to add the key to the system.

   The following example displays the CPU Activations in the system that are already fully used.

```
XSCF> showcodusage -p resource
Resource In Use Installed CoD Permitted Status
-------- ------ --------- ------------- ------
PROC        64        64            64 OK
```

   For details on adding a CPU Activation key, see "7.11.3 Registering a CPU Activation key."

4. **Execute the poweroff command to stop the physical partition that is the incorporation destination of the added SPARC M10-4S.**
   Specify the physical partition number of the incorporation destination in ppar_id.

```
XSCF> poweroff -y -p ppar_id
```

   The following example stops PPAR#0.

```
XSCF> poweroff -y -p 0
PPAR-IDs to power off:00
Continue? [y|n]:y
00:Powering off
*Note*
 This command only issues the instruction to power-off.
 The result of the instruction can be checked by the "showpparprogress".
```

5. **Add the SPARC M10-4S.**
   a. Execute the addfru command, and add the SPARC M10-4S by following the messages.

Note - If no SSCP IP address is set, an error occurs.

Note - The addfru command cannot specify multiple chassis. Add one chassis at a time.

Note - When the addfru command is executed, the firmware of the building block to be

added is automatically matched to the version of the firmware of the building block in which the master XSCF is operating. It is recommended that you update the XCP of the master XSCF to the latest version beforehand.

The following example adds BB#2.

```
XSCF> addfru
-------------------------------------------------------------------------
Maintenance/Addition Menu

Please select the chassis including added FRU.
No. FRU                 Status
--- ------------------- --------------
1   /BB#0               Normal
2   /BB#1               Normal
3   /BB#2               Unmount
4   /BB#3               Unmount
-------------------------------------------------------------------------
Select [1-16|c:cancel] :3
Maintenance/Addition Menu
Please select the BB or a type of FRU to be added.
1. BB itself
2. PSU (Power Supply Unit)
-------------------------------------------------------------------------
Select [1,2|c:cancel] :1
Maintenance/Addition Menu
Please select a FRU to be added.
No. FRU                 Status
--- ------------------- --------------
1   /BB#2               Unmount
-------------------------------------------------------------------------
Select [1|b:back] :1
You are about to add BB#2.
Do you want to continue?[a:add|c:cancel] :a
Please execute the following steps:
1) After the added device is connected with the system,
   please turn on the breaker of the BB#2.
2) Please select[f:finish] :
```

   b. Mount the target SPARC M10-4S in the rack.

Mount the target SPARC M10-4S in the rack when the above message, "1) After the added device is connected with the system, please turn on the breaker of the BB#2.", appears during command execution.

For the mounting procedure, see "3.4.1 Mounting the SPARC M10-4S in a rack."

Remarks - When adding the SPARC M10-4S in an existing expansion rack, you need to remove the protection bracket and blank panel of the mounting space (A in Figure 9-2). The blank panel is secured with two M6 screws. The protection bracket is secured with four M6 screws.
Store the removed blank panel and M6 screws for future use when the SPARC M10-4S is removed. Install the protection bracket and M6 screws at their original locations, for future

Figure 9-2   Protection bracket

c. Set the ID of the target SPARC M10-4S.

    For details, see "4.1   Setting the ID (BB-ID) Identifying a Chassis."

d. Connect the additional crossbar cables.

    For a cable routing diagram of connections and a cable list, see "Appendix B Cable Connection Information on Building Block Configurations."

    For details on the connections in direct connections between chassis, see "4.2 Connecting Cables (for Direct Connections between Chassis)."

Remarks - For connections through crossbar boxes, the additional crossbar cables (optical) are secured to the expansion rack. When packed, the cables are tied to a rack column with their connectors wrapped in a bag. Remove the cable connectors from the rack column and unpack them. For details, see Figure 4-13.

e. Connect the additional XSCF BB control cables.

    For a cable routing diagram of connections and a cable list, see "Appendix B Cable Connection Information on Building Block Configurations."

    For details on the connections in direct connections between chassis, see "4.2 Connecting Cables (for Direct Connections between Chassis)."

f. If the addition expands the 1BB configuration to a multiple BB configuration, connect the XSCF DUAL control cable from the XSCF DUAL control port of BB#00 to the XSCF DUAL control port of BB#01.

Since you are expanding the 2BB configuration to the 3BB configuration, this step is not necessary.

g. Connect LAN cables to the target SPARC M10-4S.

For details, see "5.1 Connecting Cables to the SPARC M10-4S."

h. Connect the power cords of the target SPARC M10-4S to the input power supply.

i. Enter [f] from the command execution screen of the master XSCF.

```
2) Please select[f:finish] :f

Waiting for BB#2 to enter install state.
[This operation may take up to 20 minute(s)]
(progress scale reported in seconds)
   0.....  30.... done

Waiting for BB#2 to enter ready state.
[This operation may take up to 45 minute(s)]
(progress scale reported in seconds)
   0.....  30.....  60... done

Do you want to start to diagnose BB#2?[s:start|c:cancel] :
```

j. Skip the diagnosis of the building block to be added, and then end the addfru command.

Enter [c] from the input screen of the addfru command of the master XSCF to skip the diagnosis processing for the BB to be added.

When "The addition of BB#2 has completed." is output, enter [f] and then [c] at the end to end the addfru command.

```
Do you want to start to diagnose BB#2?[s:start|c:cancel] :c

Diagnostic tests are about to be skipped.
Running diagnostic tests are strongly recommended before using
BB#2.
Are you sure you want to skip testing?[y:yes|n:no] :y


-------------------------------------------------------------------------------
Maintenance/Addition Menu
Status of the added FRU.

FRU                 Status
------------------- --------------
/BB#2               Normal
-------------------------------------------------------------------------------
[Warning:007]
Running diagnostic tests on BB#2 is strongly recommended
after addfru has completed.
The addition of BB#2 has completed.[f:finish] :f


-------------------------------------------------------------------------------
```

```
Maintenance/Addition Menu
Please select the chassis including added FRU.
No. FRU                 Status
--- ------------------- --------------
 1  /BB#0               Normal
 2  /BB#1               Normal
 3  /BB#2               Normal
 4  /BB#3               Unmount
-----------------------------------------------------------------------
Select [1,2|c:cancel] :c
```

6. **Diagnose the added SPARC M10-4S.**
   a. Execute the testsb command to perform a diagnosis test on the added SPARC M10-4S.

   Specify the PSB number of the diagnosis target PSB in XX-Y. XX is a BB-ID, and Y is fixed at 0.

   An initial diagnosis and connection I/O check are performed on the diagnosis target PSB.

   <Description of options specified>

   -v: Additionally displays detailed messages of the initial diagnosis

   -p: Executes the "probe-scsi-all" command of OpenBoot PROM and displays the results while a diagnosis is being processed

   -s: Executes the "show-devs" command of OpenBoot PROM and displays the results while a diagnosis is being processed

   -y: Automatically responds with "y" to a query

   ```
   XSCF> testsb -v -p -s -y XX-Y
   ```

   The following example performs a diagnosis test on the added BB#02.

   ```
   XSCF> testsb -v -p -s -y 02-0
   Initial diagnosis is about to start, Continue?[y|n] :y
   PSB#02-0 power on sequence started.
   ```

   If an error is displayed, see "A.2.4   Checking diagnosis results."

7. **Perform a diagnosis test on the crossbar cables.**
   a. Execute the showboards command to check the PSB number (BB-ID) assigned to the physical partition stopped in step 3 and the PSB number (BB-ID) of the added PSB.

   ```
   XSCF> showboards -a
   PSB   PPAR-ID(LSB) Assignment  Pwr  Conn Conf Test    Fault
   ----  ------------ ----------- ---- ---- ---- ------- --------
   00-0  00(00) (*1)   Assigned    n    n    n    Passed  Normal
   01-0  00(01) (*1)   Assigned    n    n    n    Passed  Normal
   02-0  SP     (*2)   Unavailable n    n    n    Passed  Normal
   ```

b. Execute the diagxbu command to check the cables.
Specify the BB-ID of the added BB in XX. (*2) indicates this BB-ID checked in step b.
In YY, specify the BB-ID of the BB incorporated into the physical partition. (*1) indicates this BB-ID checked in step b.

```
XSCF> diagxbu -y -b XX -t YY  [-t zz]
```

The following example performs a diagnosis between the added BB#02 and the incorporated BB#00 and BB#01 in PPAR#0.

```
XSCF> diagxbu -y -b 02 -t 00 -t 01
XBU diagnosis is about to start, Continue?[y|n] :y
Power on sequence started. [7200sec]
  0..... 30..... 60..... 90..end
XBU diagnosis started. [7200sec]
  0..... 30..... 60..... 90.....120.....150.....180.....210.....240.....|
270.....300.....330.....360.....390.....420.....450.....480.....510.....\
540.....570.....600.....630.....660.....690.....720.....750.....780.....|
810.....840.....870.....900.....930.....960.....990.....1020.....1050.....\
1080.....1110...end
completed.
Power off sequence started. [1200sec]
  0..... 30..... 60..... 90.....120.....150.....180.....210...end
completed.
```

c. Execute the showlogs error command, and confirm that no error is displayed.

```
XSCF> showlogs error
```

If an error is displayed, see "A.2.2   Checking the contents of logs."

d. Execute the showhardconf command to check the configuration, status, and quantities.

For details, see "6.8   Checking the Component Status."

8. **If the addition expanded the 1BB configuration to a multiple-BB configuration, configure the XSCF network.**
For details, see "7.5.2   Setting an Ethernet (XSCF-LAN) IP address" and "7.5.3 Setting a takeover IP address."

After configuration, execute the applynetwork command to apply the settings, and confirm that they were reflected. Then, execute the rebootxscf command to complete settings, and go to the next step.   For details on the procedure, see "7.5.6   Applying network settings."

Since you are expanding the 2BB configuration to the 3BB configuration, this work is not necessary.

9. **To configure memory mirroring for the added SPARC M10-4S, set memory mirror mode.**
For details, see "7.6   Configuring Memory Mirroring."

If you do not use memory mirror mode, this work is not necessary.

10. **Register the system board of the added SPARC M10-4S in the physical partition configuration list.**

   a. Execute the showpcl command to check the physical partition configuration list.

```
XSCF> showpcl -p 0
PPAR-ID   LSB   PSB   Status
00                    Powered off
          00    00-0
          01    01-0
```

   b. Execute the setpcl command to register the system board with the physical partition.

   The following example associates system board 02-0 with logical system board 02 of physical partition 0.

```
XSCF> setpcl -p 0 -a 02=02-0
```

   c. Execute the showpcl command, and confirm the configured physical partition.

```
XSCF> showpcl -p 0
PPAR-ID   LSB   PSB   Status
00                    Powered off
          00    00-0
          01    01-0
          02    02-0
```

11. **Set the number of CPU Activations in the physical partition, and add CPU core resources.**

   a. Execute the showcodusage command to display the CPU Activation information.

   The following example displays the CPU Activation information.

   The system here has 192 CPU core resources installed and 192 CPU Activations registered. The example shows that the CPU core resources are not in use and that the 192 CPU Activations are currently not in use.

```
XSCF> showcodusage -p resource
Resource In Use Installed CoD Permitted Status
-------- ------ --------- ------------- ------
PROC        0      192          192 OK: 192 cores available

Note:
 Please confirm the value of the "In Use" by the ldm command of
Oracle VM Server for SPARC.

 The XSCF may take up to 20 minutes to reflect the "In Use" of
```

```
logical domains.
```

b. Execute the showcod command to check the CPU Activation information set for the physical partition.

```
XSCF> showcod -p 0
PROC Permits assigned for PPAR 0: 64
```

c. If the assigned resources are insufficient, execute the setcod command to assign CPU resources to the physical partition.

The following example adds 64 CPU core resources to physical partition 0.

```
XSCF> setcod -p 0 -s cpu -c add 64
PROC Permits assigned for PPAR 0 : 128 -> 192

PROC Permits assigned for PPAR will be changed.
Continue? [y|n] :y

Completed.
```

Note - The -c add, -c delete, and -c set options are not supported if the XSCF firmware is XCP 2250 or earlier. Specify the option of the setcod command as shown below to add or delete interactively.

```
XSCF> setcod -s cpu
```

d. Execute the showcod command again to check the CPU Activation information set for the physical partition.

```
XSCF> showcod -p 0
PROC Permits assigned for PPAR 0: 192
```

12. **Incorporate the system board of the added SPARC M10-4S into the physical partition.**

Note - Suppose you add the added SPARC M10-4S together with a PCI expansion unit connected to it and enable/disable the direct I/O function of the PCI expansion unit. In this case, execute the setpciboxdio command to enable/disable it before executing the addboard command for incorporation in the physical partition. When you have changed the setting of the direct I/O function, do not restart the logical domains until you execute the ldm add-spconfig command to save the logical domain configuration in XSCF.

Note - Pull out all the PCIe cassettes with the PCIe card for the PCI expansion unit to be installed. After incorporating the link card into the server, attach the pulled-out PCIe cassette to the PCI expansion unit. Then, install the PCIe card of the PCI expansion unit on the server

by using PHP.

a. Return to the XSCF shell, execute the showboards command, and check the system board (PSB) status.

In the following example, system board 02-0 is in the system board pool.

```
XSCF> showboards -p 0
PSB   PPAR-ID(LSB) Assignment  Pwr  Conn Conf Test    Fault
----  ------------ ----------- ---- ---- ---- ------- --------
00-0 00(00)        Assigned    n    n    n    Passed  Normal
01-0 00(01)        Assigned    n    n    n    Passed  Normal
02-0 SP            Available   n    n    n    Passed  Normal
```

b. Execute the addboard command to assign the system board (PSB).

The following example assigns system board 02-0 to physical partition 0.

```
XSCF> addboard -c assign -p 0 02-0
PSB#02-0 will be assigned into PPAR-ID 0. Continue?[y|n] :y
```

c. Execute the showresult command to confirm the end status of the previously executed addboard command.

In the following example, 0 is returned as the end status, so the execution of the addboard command has completed correctly.

```
XSCF> showresult
0
```

d. Execute the showboards command to check the system board (PSB) status, and confirm that the system board (PSB) has been added.

```
XSCF> showboards -p 0
PSB   PPAR-ID(LSB) Assignment  Pwr  Conn Conf Test    Fault
----  ------------ ----------- ---- ---- ---- ------- --------
00-0 00(00)        Assigned    n    n    n    Passed  Normal
01-0 00(01)        Assigned    n    n    n    Passed  Normal
02-0 00(02)        Assigned    n    n    n    Passed  Normal
```

13. **Start the physical partition.**
The following example starts PPAR#0.

```
XSCF> poweron -y -p 0
```

14. **Execute the showpparstatus command to check the operation status of the physical partition.**
In the following example, the [PPAR Status] field displays "Running," so the physical partition is operating correctly.

```
XSCF> showpparstatus -p 0
PPAR-ID PPAR Status
00      Running
```

15. **Execute the showboards command to check the system board (PSB) status.**
    In the following example, since both the [Conn] and [Conf] fields display "y" for
    system board 02-0, the system board (PSB) has been added correctly.

```
XSCF> showboards -p 0
PSB   PPAR-ID(LSB) Assignment  Pwr  Conn Conf Test    Fault
----  ------------ ----------- ---- ---- ---- ------- --------
00-0 00(00)        Assigned    y    y    y    Passed  Normal
01-0 00(01)        Assigned    y    y    y    Passed  Normal
02-0 00(02)        Assigned    y    y    y    Passed  Normal
```

16. **Reconfigure the logical domains.**
    Assign the resources of the added SPARC M10-4S to an existing logical domain
    or a newly configured logical domain. For details, see the *Fujitsu SPARC M12
    and Fujitsu M10/SPARC M10 Domain Configuration Guide*.

    After the reconfiguration, execute the ldm add-spconfig command to save the
    logical domain configuration in the XSCF.

9.2.3   Adding the server after turning off the input power to the entire system

This section describes the procedure for adding the SPARC M10-4S after stopping the
entire system while work is in progress and turning off the input power.

For details on the XSCF commands executed in each step, see the *Fujitsu SPARC M12
and Fujitsu M10/SPARC M10 XSCF Reference Manual*.

Note - Suppose you add the SPARC M10-4S together with a PCI expansion unit connected to
it and enable/disable the direct I/O function of the PCI expansion unit. Then, at the next
startup, the logical domain configuration of the physical partition resets to the factory-
default state. See "1.7.2   Notes on Using the Direct I/O Function" and "1.7.3   How to
Save/Restore the Logical Domain Configuration Information and the OpenBoot PROM
Environment Variable" in the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu
M10/SPARC M10 Service Manual* and take action.

---

1. **Log in to the master XSCF.**
2. **Execute the showsscp command to check whether the IP address of the SP to
   SP communication protocol (SSCP) is a default value or a value set by a user.**

```
XSCF> showsscp
```

If the IP address is a default value and the default value should also be used for the IP address of the SPARC M10-4S to be added, go to the next step.

To set a user value, use the setsscp command to set an IP address, use the applynetwork command to apply the SSCP IP address of the target SPARC M10-4S, and confirm that it was reflected. Then, execute the rebootxscf command to complete settings, and go to the next step. For details on the step, see "3.9.15   Reflecting the XSCF Network Settings" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 System Operation and Administration Guide*.

3. **Check the number of CPU Activations registered in the entire system.**
   If the number of CPU Activations registered in the system becomes short compared to the number of added CPU cores, purchase a CPU Activation key and execute the addcodactivation command to add the key to the system.

   The following example displays the CPU Activations in the system that are already fully used.

```
XSCF> showcodusage -p resource
Resource In Use Installed CoD Permitted Status
-------- ------ --------- ------------- ------
PROC        64        64            64 OK
```

   For details on adding a CPU Activation key, see "7.11.3   Registering a CPU Activation key."

4. **Execute the poweroff command to stop the system.**

```
XSCF> poweroff -y -a
```

5. **Remove the power cords of all the chassis from the input power.**

6. **Mount the target SPARC M10-4S in the rack.**
   For the mounting procedure, see "3.4.1   Mounting the SPARC M10-4S in a rack."

Remarks - When adding the SPARC M10-4S in an existing expansion rack, you need to remove the protection bracket and blank panel of the mounting space (A in Figure 9-3). Note that there are cases where no protection bracket is attached, depending on the addition. The blank panel is secured with two M6 screws. The protection bracket is secured with four M6 screws.

Figure 9-3   Protection bracket
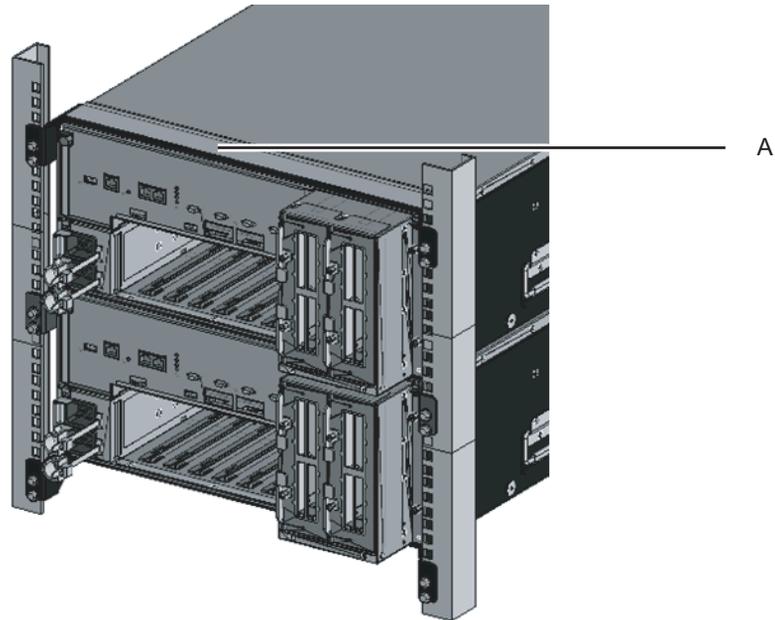
7. **Set the ID of the target SPARC M10-4S.**
    For details, see "4.1   Setting the ID (BB-ID) Identifying a Chassis."

8. **Connect the additional crossbar cables.**
    For a cable routing diagram of connections and a cable list, see "Appendix B Cable Connection Information on Building Block Configurations."

    For details on the connections in direct connections between chassis, see "4.2 Connecting Cables (for Direct Connections between Chassis)."

Remarks - For connections through crossbar boxes, the additional crossbar cables (optical) are secured to the expansion rack. When packed, the cables are tied to a rack column with their connectors wrapped in a bag. Remove the cable connectors from the rack column and unpack them. For details, see Figure 4-13.

---

9. **Connect the additional XSCF BB control cables.**
    For a cable routing diagram of connections and a cable list, see "Appendix B Cable Connection Information on Building Block Configurations."

    For details on the connections in direct connections between chassis, see "4.2 Connecting Cables (for Direct Connections between Chassis)."

10. **If the addition expands the 1BB configuration to up to the 4BB configuration with direct connections between chassis, connect the XSCF DUAL control cable.**
    For details, see "4.2   Connecting Cables (for Direct Connections between Chassis)."

11. **Connect LAN cables to the target SPARC M10-4S.**
    For details, see "5.1   Connecting Cables to the SPARC M10-4S."

12. **Connect the power cords of all the chassis to the input power.**

13. **Log in to the master XSCF.**

Note - If the message of "XSCF firmware update now in progress. BB#xx,please wait for XSCF firmware update complete." is output after login, the XCP firmware version is automatically being matched.
Execute the showlogs monitor command to confirm the message of "XCP firmware version synchronization completed," and then perform the next work.

---

14. **Execute the version command.**
    Confirm the XCP versions. If any chassis has a different version, update it so that all the versions are the same.

    The following example shows a building block configuration of the SPARC M10-4S. Here, BB#02 has a different XCP version, so it must be updated to match the version. Perform step 14.

```
XSCF> version -c xcp
BB#00-XSCF#0 (Master)
XCP0 (Current): 2051
XCP1 (Reserve): 2051
BB#01-XSCF#0 (Standby)
XCP0 (Current): 2051
XCP1 (Reserve): 2051
BB#02-XSCF#0
XCP0 (Current): 2050    * Different version
XCP1 (Reserve): 2050
```

15. **If the XCP version of a chassis differs, execute the flashupdate -c sync command to update the XCP version on that chassis.**
    The update matches the firmware version to the version on the XSCF of the master chassis. If you want to match the version of the latest XCP, update XCP on the master chassis to the latest version in advance, or update the XCP firmware here.

    For the firmware update procedure, see "Chapter 16 Updating the XCP Firmware" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 System Operation and Administration Guide*.

```
XSCF> flashupdate -c sync
XCP update is started. [3600sec]
  0..... 30..... 60..... 90.....120.....150.....180.....210....240.....
270.....300.....330.....360....390.....420.....450.....480.....510.....
```

16. **Execute the testsb command to perform a diagnosis test.**
    <Description of options specified>

    -v: Additionally displays detailed messages of the initial diagnosis

    -p: Executes the "probe-scsi-all" command of OpenBoot PROM and displays the results while a diagnosis is being processed

-s: Executes the "show-devs" command of OpenBoot PROM and displays the
results while a diagnosis is being processed

-a: Diagnoses all the mounted PSBs

-y: Automatically responds with "y" to a query

```
XSCF> testsb -v -p -s -a -y
Initial diagnosis is about to start, Continue?[y|n] :y
PSB power on sequence started.
POST Sequence 01 Banner
```

If an error is displayed, see "A.2.4 Checking diagnosis results."

Note - A cable check with the diagxbu command is not necessary because this command
with the -a option specified performs a diagnosis test on all the mounted system boards
(PSBs).

17. **Execute the showlogs error command, and confirm that no error is displayed.**

```
XSCF> showlogs error
```

If an error is displayed, see "A.2.2 Checking the contents of logs."

18. **Execute the showhardconf command from the master XSCF to check the
configuration, status, and quantities.**
For details, see "6.8 Checking the Component Status."

19. **If the addition expanded the 1BB configuration to a multiple-BB configuration,
configure the XSCF network.**
For details, see "7.5.2 Setting an Ethernet (XSCF-LAN) IP address" and "7.5.3
Setting a takeover IP address."

After configuration, execute the applynetwork command to apply the settings,
and confirm that they were reflected. Then, execute the rebootxscf command to
complete settings, and go to the next step. For details on the procedure, see
"7.5.6 Applying network settings."

20. **To configure memory mirroring for the added SPARC M10-4S, set memory
mirror mode.**
For details, see "7.6 Configuring Memory Mirroring."

21. **Create physical partition configuration information.**
For details, see "7.7 Creating a Physical Partition Configuration List (PCL)."

22. **Add the system board (PSB) to the physical partition.**
For details, see "7.8 Assigning a System Board (PSB) to a Physical Partition
(PPAR)."

23. **Set the number of CPU Activations in the physical partition, and add CPU
core resources.**
a. Execute the showcodusage command to display the CPU Activation
information.

The following example displays the CPU Activation information.

The system here has 192 CPU core resources installed and 192 CPU Activations registered. The example shows that the CPU core resources are not in use and that the 192 CPU Activations are currently not in use.

```
XSCF> showcodusage -p resource
Resource In Use Installed CoD Permitted Status
-------- ------ --------- ------------- ------
PROC           0       192            192 OK: 192 cores available

Note:
 Please confirm the value of the "In Use" by the ldm command of
Oracle VM Server for SPARC.

 The XSCF may take up to 20 minutes to reflect the "In Use" of
logical domains.
```

b. Execute the showcod command to check the CPU Activation information set for the physical partition.

```
XSCF> showcod -p 0
PROC Permits assigned for PPAR 0: 64
```

c. If the assigned resources are insufficient, execute the setcod command to assign CPU resources to the physical partition.

The following example adds 64 CPU core resources to physical partition 0.

```
XSCF> setcod -p 0 -s cpu -c add 64
PROC Permits assigned for PPAR 0 : 128 -> 192

PROC Permits assigned for PPAR will be changed.
Continue? [y|n] :y

Completed.
```

Note - The -c add, -c delete, and -c set options are not supported if the XSCF firmware is XCP 2250 or earlier. Specify the option of the setcod command as shown below to add or delete interactively.

```
XSCF> setcod -s cpu
```

d. Execute the showcod command again to check the CPU Activation information set for the physical partition.

```
XSCF> showcod -p 0
PROC Permits assigned for PPAR 0: 192
```

24. **Execute the poweron command to start the system.**

```
XSCF> poweron -y -a
```

25. **Execute the showpparstatus command to check the operation status of the physical partition.**
In the following example, the [PPAR Status] field displays "Running," so the physical partition is operating correctly.

```
XSCF> showpparstatus -p 0
PPAR-ID PPAR Status
00      Running
```

26. **Execute the showboards command to check the system board (PSB) status.**
In the following example, since both the [Conn] and [Conf] fields display "y" for system board 02-0, the system board (PSB) has been added correctly.

```
XSCF> showboards -p 0
PSB   PPAR-ID(LSB) Assignment  Pwr  Conn Conf Test    Fault
----  ------------ ----------- ---- ---- ---- ------- --------
00-0 00(00)        Assigned    y    y    y    Passed  Normal
01-0 00(01)        Assigned    y    y    y    Passed  Normal
02-0 00(02)        Assigned    y    y    y    Passed  Normal
```

27. **Reconfigure the logical domains.**
Assign the resources of the added SPARC M10-4S to an existing logical domain or a newly configured logical domain. For details, see the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Domain Configuration Guide*.

9.3 Adding Expansion Rack 1 (Expansion to Up to the 8BB Configuration)

This section describes the addition procedure for expansion of direct connections between chassis in a configuration of up to the 4BB configuration to connections through crossbar boxes in a configuration of up to the 8BB configuration. This procedure corresponds to pattern B (1) in Figure 8-1.

9.3.1 Changing a multiple-BB configuration into the 1BB configuration and releasing the connections

Remove the SPARC M10-4S from the existing multiple-BB configuration (direct connections between chassis), change it to the 1BB configuration, and release the

connections.

To move the SPARC M10-4S to an expansion rack, stop the entire system and then perform the work.
Note the following points on this work.

- All the system setting information will be cleared and reset to the factory defaults. Before removing the SPARC M10-4S, save the system setting information with the dumpconfig command. In case of resetting the configuration to the original setting, you can restore the saved setting information to XSCF by using the restoreconfig command.

- Multiple SPARC M10-4S units cannot be released from the system by using the initbb command at the same time.

- The serial number of the chassis of either the master XSCF or standby XSCF is used as the system serial number. If the serial number of the standby chassis is being used as the system serial number, the initbb command cannot release the standby chassis. In this case, execute the switchscf command to switch the master XSCF.

- For the initialization of the chassis of the master XSCF, perform that work at the end.
Execute the restoredefaults -c factory command to return to the factory defaults, including the CPU Activation key information. Perform this work with a serial connection to the master XSCF.

For XCP 2041 or later, execute the restoredefaults -c factory -r activation command.

The key must be reinstalled at initial setup of the XSCF after expansion.

1. **Log in to the master XSCF.**

2. **Execute the showhardconf command, and confirm the chassis serial number of the system board (PSB) targeted for release.**
For details, see "A.2.1   Checking the component status."

Note - The device serial of either the master XSCF or standby XSCF is used as the representative device serial. If the device serial of the standby XSCF is being used as the representative device serial, the initbb command cannot release the standby chassis. In this case, execute the switchscf command to switch the master XSCF.

---

3. **Execute the poweroff command to stop all the physical partitions.**

```
XSCF> poweroff -y -a
PPAR-IDs to power off:00,01,02 03
Continue? [y|n]:y
00:Powering off
01:Powering off
02:Powering off
03:Powering off
```

4. **Execute the deleteboard command from the master XSCF to release a system board (PSB) from the physical partition configuration.**
The following example releases system boards 00-0, 01-0, 02-0, and 03-0 from the

physical partition.

```
XSCF> deleteboard -c unassign 00-0 01-0 02-0 03-0
PSB#00-0 will be unassigned from PPAR immediately. Continue?[y|n] :y
PSB#01-0 will be unassigned from PPAR immediately. Continue?[y|n] :y
PSB#02-0 will be unassigned from PPAR immediately. Continue?[y|n] :y
PSB#03-0 will be unassigned from PPAR immediately. Continue?[y|n] :y
```

5. **Execute the showresult command, and confirm the end status of the previously executed deleteboard command.**
   In the following example, 0 is returned as the end status, so the execution of the deleteboard command has completed correctly.

```
XSCF> showresult
0
```

6. **Execute the showboards command to check the system board (PSB) status.**
   In the following example, system boards 00-0, 01-0, 02-0, and 03-0 are in the system board pool.

```
XSCF> showboards -a
PSB  PPAR-ID(LSB) Assignment  Pwr  Conn Conf Test    Fault
---- ------------ ----------- ---- ---- ---- ------- --------
00-0 SP           Available   n    n    n    Passed  Normal
01-0 SP           Available   n    n    n    Passed  Normal
02-0 SP           Available   n    n    n    Passed  Normal
03-0 SP           Available   n    n    n    Passed  Normal
```

7. **Execute the initbb command from the master XSCF to release the target SPARC M10-4S from the system and initialize it.**
   In bb_id, specify the ID (BB-ID) identifying the chassis.

```
XSCF> initbb -b bb_id
```

The following example releases BB#03 from the system and initializes it.

```
XSCF> initbb -b 3
You are about to initialize BB/XB-Box.
NOTE the following.
1. BB/XB-Box is excluded from the system and halted.
2. PPAR-ID of the same value as BB-ID becomes invalid.
Continue? [y|n] :y
```

Note - After the execution of the initbb command, the target chassis is released from the system and enters the stopped state. Do not disconnect the power cords or various cables until the XSCF STANDBY LED on the panel and the rear READY LED of the target chassis are off.

> **Note -** For the initialization of the chassis of the master XSCF, perform that work at the end. Execute the restoredefaults -c factory command to return to the factory defaults, including the CPU Activation key information. Perform this work with a serial connection to the master XSCF.
> For XCP 2041 or later, execute the restoredefaults -c factory -r activation command.
> The key must be reinstalled at initial setup of the XSCF after expansion.

8. **Remove the power cords from the power supply units of the target SPARC M10-4S.**

9. **Remove the XSCF BB control cables from the target SPARC M10-4S.**

10. **Remove the crossbar cables from the target SPARC M10-4S.**

> **Note -** Do not hold the cable part when pulling out the crossbar cable. Pulling the cable part without the connector lock completely released may cause damage.

11. **Remove the XSCF DUAL control cable.**

12. **Remove the target SPARC M10-4S from the rack.**
    Remove the SPARC M10-4S from the rack by reversing the mounting procedure. For the procedure for mounting in the rack, see "3.4.1 Mounting the SPARC M10-4S in a rack."

9.3.2 Installing expansion rack 1

This section describes the procedure for connecting power cords to a power distribution unit (PDU) of the expansion rack and then installing the rack.

1. **Confirm the delivered components of expansion rack 1.**
   For details, see "3.2.3 Confirming the delivered components of an expansion rack."

2. **Before installing the rack, connect the power cords to a power distribution unit (PDU) of the rack.**
   For details, see "3.3.1 Connecting the power cords to the power distribution units of an expansion rack."

3. **Install expansion rack 1.**
   For details, see "3.3.2 Securing the rack."

9.3.3 Adding the SPARC M10-4S in expansion rack 1

In expansion rack 1 installed in 9.3.2, mount the SPARC M10-4S that was changed to the 1BB configuration in 9.3.1. Then, perform installation work.

1. **Mount the SPARC M10-4S in the rack.**
   For details, see "3.4.1 Mounting the SPARC M10-4S in a rack."

2. **Set the ID required for identifying each chassis (BB-ID).**
   For details, see "4.1 Setting the ID (BB-ID) Identifying a Chassis."

3. **Connect the crossbar cables (optical) and XSCF BB control cables to each chassis.**
Crossbar cables (optical) and XSCF BB control cables are already laid in the expansion rack. The work here is to connect the cables to each port of the mounted chassis. Connect the cables according to the instructions written on the labels.

For a cable connection diagram and a cable list, see "B.4   2BB Configuration to 8BB Configuration (Connections through Crossbar Boxes)."

4. **Confirm that the crossbar cables (optical) are correctly and firmly connected.**
With the crossbar cables (optical) connected to their ports, push in each cable while holding the joint at the base of the connector of the crossbar cable (optical).

Note - A loose crossbar cable connection may, on rare occasions, cause an error due to poor connection. After connecting a crossbar cable, push it in again so that it is tightly in place to prevent any improper connection. Do not hold only the cable when performing work at this time. Otherwise, the cable may bend out of shape.

---

5. **Connect serial cables, LAN cables, and power cords to crossbar boxes.**
For details, see "5.3   Connecting Cables to a Crossbar Box."

6. **Connect the system management terminal to the crossbar box of the master XSCF, and then perform an initial diagnosis of the system.**
For details, see "Chapter 6   Performing an Initial System Diagnosis."

7. **Initialize the system settings from the crossbar box of the master XSCF.**
For details, see "Chapter 7   Making the Initial System Settings."

8. **Reconfigure the logical domains.**
Assign the resources of the added SPARC M10-4S to an existing logical domain or a newly configured logical domain. For details, see the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Domain Configuration Guide*.

9.4   Adding Expansion Rack 2

This section describes the procedure for adding expansion rack 2 for the 8BB configuration (2BB to 8BB) using expansion rack 1 to expand to the 16BB configuration (9BB to 16BB). This procedure corresponds to pattern D in Figure 8-2.
You need to stop the system during this work.

For details on the XSCF commands executed in each step, see the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 XSCF Reference Manual*.

1. **Log in to the master XSCF.**

2. **Execute the showsscp command from the master XSCF to check whether the IP address of the SP to SP communication protocol (SSCP) is a default value or a value set by a user.**

```
XSCF> showsscp
```

Note - For the default values of SSCP IP addresses, see "3.9.5   Understanding the IP Addresses that are Set with SSCP" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 System Operation and Administration Guide*.

If the IP address is a default value and the default value should also be used for the IP address of the SPARC M10-4S to be added, go to the next step.

To set a user value, use the setsscp command to set an IP address, use the applynetwork command to apply the SSCP IP address of the target SPARC M10-4S, and confirm that it was reflected. Then, execute the rebootxscf command to complete settings, and go to the next step. For details on the step, see "3.9.15   Reflecting the XSCF Network Settings" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 System Operation and Administration Guide*.

3. **Execute the poweroff command to stop the system.**

```
XSCF> poweroff -y -a
```

4. **Remove the power cords of all the chassis from the input power.**

5. **Connect the power cords to the PDU mounted in expansion rack 2.**
   For details, see "3.3.1   Connecting the power cords to the power distribution units of an expansion rack."

6. **Connect expansion racks 1 and 2.**
   For details, see "3.3.3   Connecting racks."

7. **Fix expansion rack 2 in place.**
   For details, see "3.3.2   Securing the rack."

8. **Add a crossbar unit to the crossbar boxes (BB#80, BB#81) mounted in expansion rack 1.**
   For details, see "Chapter 12   Maintaining the Crossbar Units" in the *Crossbar Box for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

9. **Mount the target SPARC M10-4S in the expansion rack.**
   For details, see "3.4.1   Mounting the SPARC M10-4S in a rack."

10. **Reattach the labels of the crossbar cables (optical), and replace the cables.**
    For details, see "4.3.3   Changing crossbar cables (when subsequently installing expansion rack 2)."

11. **Connect the crossbar cables (optical) and XSCF BB control cables to each chassis.**
    Crossbar cables (optical) and XSCF BB control cables are already laid in the expansion rack. The work here is to connect the cables to each port of the mounted chassis. Connect the cables according to the instructions written on the labels.

    For a cable connection diagram and a cable list, see "B.5   9BB Configuration to 16BB Configuration (Connections through Crossbar Boxes)."

12. **Connect the crossbar cables (optical) and XSCF BB control cables that pass between the racks.**
    For details, see "4.3.2   Connecting crossbar cables" and "4.3.1   Connecting XSCF cables."

13. **Set the ID of the SPARC M10-4S.**
    For details, see "4.1   Setting the ID (BB-ID) Identifying a Chassis."

14. **Connect serial cables and LAN cables to a crossbar box.**
    For details, see "5.1   Connecting Cables to the SPARC M10-4S" and "5.3 Connecting Cables to a Crossbar Box."

15. **Connect the power cords to the SPARC M10-4S.**

16. **Connect the system management terminal to the crossbar box of the master XSCF, and then perform an initial diagnosis of the system.**
    For details, see "Chapter 6   Performing an Initial System Diagnosis."

17. **Perform an initial setup of the added chassis.**
    For details, see the following.

    - "7.6   Configuring Memory Mirroring"
    - "7.7   Creating a Physical Partition Configuration List (PCL)"
    - "7.8   Assigning a System Board (PSB) to a Physical Partition (PPAR)"
    - "7.11   Registering a CPU Activation Key"
    - "7.12   Assigning CPU Core Resources to a Physical Partition"

18. **Reconfigure the logical domains.**
    Assign the resources of the added SPARC M10-4S to an existing logical domain or a newly configured logical domain. For details, see the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Domain Configuration Guide*.

9.5   Adding Expansion Racks 1 and 2

This section describes the addition procedure for expansion of direct connections between chassis in a configuration of up to the 4BB configuration to connections through crossbar boxes in a configuration of up to the 16BB configuration by adding expansion racks 1 and 2.
This procedure corresponds to pattern C in Figure 8-2.

9.5.1   Changing a multiple-BB configuration into the 1BB configuration and releasing the connections

Remove the SPARC M10-4S from the existing multiple-BB configuration (direct connections between chassis), change it to the 1BB configuration, and release the connections.

To move the SPARC M10-4S to an expansion rack, stop the entire system and then perform the work.
Note the following points on this work.

- All the system setting information will be cleared and reset to the factory defaults. Before removing the SPARC M10-4S, save the system setting information with the dumpconfig command. In case of resetting the configuration to the original setting, you can restore the saved setting information to XSCF by using the restoreconfig command.

- Multiple SPARC M10-4S units cannot be released from the system by using the initbb command at the same time.

- The serial number of the chassis of either the master XSCF or standby XSCF is used as the system serial number. If the serial number of the standby chassis is being used as the system serial number, the initbb command cannot release the standby chassis. In this case, execute the switchscf command to switch the master XSCF.

- For the initialization of the chassis of the master XSCF, perform that work at the end.
  Execute the restoredefaults -c factory command to return to the factory defaults, including the CPU Activation key information. Perform this work with a serial connection to the master XSCF.

  For XCP 2041 or later, execute the restoredefaults -c factory -r activation command.

  The key must be reinstalled at initial setup of the XSCF after expansion.

1. **Log in to the master XSCF.**
2. **Execute the showhardconf command, and confirm the chassis serial number of the system board (PSB) targeted for release.**
   For details, see "A.2.1   Checking the component status."

Note - If the serial number of the chassis of the master XSCF is not being used as the system serial number, execute the switchscf command to switch the master XSCF.

---

3. **Execute the poweroff command to stop all the physical partitions.**

```
XSCF> poweroff -y -a
PPAR-IDs to power off:00,01,02 03
Continue? [y|n]:y
00:Powering off
01:Powering off
02:Powering off
03:Powering off
```

4. **Execute the deleteboard command from the master XSCF to release a system board (PSB) from the physical partition configuration.**
   The following example releases system boards 00-0, 01-0, 02-0, and 03-0 from the physical partition.

```
XSCF> deleteboard -c unassign 00-0 01-0 02-0 03-0
PSB#00-0 will be unassigned from PPAR immediately. Continue?[y|n] :y
PSB#01-0 will be unassigned from PPAR immediately. Continue?[y|n] :y
PSB#02-0 will be unassigned from PPAR immediately. Continue?[y|n] :y
PSB#03-0 will be unassigned from PPAR immediately. Continue?[y|n] :y
```

5. **Execute the showresult command, and confirm the end status of the previously executed deleteboard command.**
   In the following example, 0 is returned as the end status, so the execution of the deleteboard command has completed correctly.

```
XSCF> showresult
0
```

6. **Execute the showboards command to check the system board (PSB) status.**
   In the following example, system boards 00-0, 01-0, 02-0, and 03-0 are in the system board pool.

```
XSCF> showboards -a
PSB   PPAR-ID(LSB) Assignment  Pwr  Conn Conf Test    Fault
----  ------------ ----------- ---- ---- ---- ------- --------
00-0  SP           Available   n    n    n    Passed  Normal
01-0  SP           Available   n    n    n    Passed  Normal
02-0  SP           Available   n    n    n    Passed  Normal
03-0  SP           Available   n    n    n    Passed  Normal
```

7. **Execute the initbb command from the master XSCF to release the target SPARC M10-4S from the system and initialize it.**
   In bb_id, specify the ID (BB-ID) identifying the chassis.

```
XSCF> initbb -b bb_id
```

The following example releases BB#03 from the system and initializes it.

```
XSCF> initbb -b 3
You are about to initialize BB/XB-Box.
NOTE the following.
1. BB/XB-Box is excluded from the system and halted.
2. PPAR-ID of the same value as BB-ID becomes invalid.
Continue? [y|n] :y
```

Note - After the execution of the initbb command, the target chassis is released from the system and enters the stopped state. Do not disconnect the power cords or various cables until the XSCF STANDBY LED on the panel and the rear READY LED of the target chassis are off.

> **Note -** For the initialization of the chassis of the master XSCF, perform that work at the end. Execute the restoredefaults -c factory command to return to the factory defaults, including the CPU Activation key information. Perform this work with a serial connection to the master XSCF.
> For XCP 2041 or later, execute the restoredefaults -c factory -r activation command.
> The key must be reinstalled at initial setup of the XSCF after expansion.

8. **Remove the power cords from the power supply units of the target SPARC M10-4S.**

9. **Remove the XSCF BB control cables from the target SPARC M10-4S.**

10. **Remove the crossbar cables from the target SPARC M10-4S.**

> **Note -** Do not hold the cable part when pulling out the crossbar cable. Pulling the cable part without the connector lock completely released may cause damage.

11. **Remove the XSCF DUAL control cable.**

12. **Remove the target SPARC M10-4S from the rack.**
    Remove the SPARC M10-4S from the rack by reversing the mounting procedure. For the procedure for mounting in the rack, see "3.4.1 Mounting the SPARC M10-4S in a rack."

9.5.2 Performing the work of installing the expansion racks

This section describes the procedure for connecting power cords to the power distribution units (PDUs) of expansion racks 1 and 2, and then connecting and installing the racks.

1. **Confirm the delivered components of expansion rack 1 and expansion rack 2.**
   For details, see "3.2.3 Confirming the delivered components of an expansion rack."

2. **Before installing the rack, connect the power cords to a power distribution unit (PDU) of the rack.**
   For details, see "3.3.1 Connecting the power cords to the power distribution units of an expansion rack."

3. **Connect expansion racks 1 and 2.**
   For details, see "3.3.3 Connecting racks."

9.5.3 Adding the SPARC M10-4S in the expansion racks

In the expansion rack installed in 9.5.2, mount the SPARC M10-4S that was changed to the 1BB configuration in 9.5.1. Then, perform installation work.

1. **Mount the SPARC M10-4S in the rack.**
   For details, see "3.4.1 Mounting the SPARC M10-4S in a rack."

2. **Set the ID required for identifying each chassis (BB-ID).**
    For details, see "4.1   Setting the ID (BB-ID) Identifying a Chassis."

3. **Connect the crossbar cables (optical) and XSCF BB control cables to each chassis.**
    Crossbar cables (optical) and XSCF BB control cables are already laid in the expansion rack. The work here is to connect the cables to each port of the mounted chassis. Connect the cables according to the instructions written on the labels.

    For details on the connection of the cables that pass between the racks, see "4.3.2   Connecting crossbar cables" and "4.3.1   Connecting XSCF cables."

    For a cable connection diagram and a cable list, see "B.5   9BB Configuration to 16BB Configuration (Connections through Crossbar Boxes)."

4. **Connect serial cables, LAN cables, and power cords to crossbar boxes.**
    For details, see "5.3   Connecting Cables to a Crossbar Box."

5. **Connect the system management terminal to the crossbar box of the master XSCF, and then perform an initial diagnosis of the system.**
    For details, see "Chapter 6   Performing an Initial System Diagnosis."

6. **Initialize the system settings from the crossbar box of the master XSCF.**
    For details, see "Chapter 7   Making the Initial System Settings."

7. **Reconfigure the logical domains.**
    Assign the resources of the added SPARC M10-4S to an existing logical domain or a newly configured logical domain. For details, see the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Domain Configuration Guide*.

Chapter 10

Removing a System with a Building Block Configuration

This chapter describes the procedure for removing the SPARC M10-4S in a building block (BB) configuration.
For the removal procedure, see the relevant section corresponding to a removal pattern shown in "8.3   Confirming the Reduction Pattern of a Building Block Configuration."

- Preparing the Necessary Tools for Removal
- Removing the SPARC M10-4S
- Removal of Expansion Rack 2, and Decrease of the Number of SPARC M10-4S Units to Four or Less

10.1   Preparing the Necessary Tools for Removal

The tools used to remove the SPARC M10-4S are the same as those for initial installation. See "3.1   Preparing the Necessary Tools/Information for Installation."

Before starting removal work, be sure to see "8.3.2   Points of concern during reduction."

10.2   Removing the SPARC M10-4S

This section describes the procedure for removing only the SPARC M10-4S. This procedure corresponds to pattern A and pattern B in Figure 8-3.
The SPARC M10-4S is removed in either of the following two ways: removal while the physical partition (PPAR) is operating, or removal by stopping only the physical partition that includes the SPARC M10-4S to be removed.
To change every SPARC M10-4S to the 1BB configuration as shown in pattern B (2) in Figure 8-3, stop all the physical partitions and then perform removal.

The physical partition number must match the BB-ID value of one of the SPARC M10-4S units in the system.
Therefore, if there is a physical partition with the same number as that of the BB-ID of the SPARC M10-4S to be removed, stop that physical partition before removing the unit.
This physical partition becomes unavailable after removal. So reconfigure the physical partition with a different physical partition number.

10.2.1 Removing the server while the target physical partition (PPAR) is operating

This section describes the removal procedure on the system in "Figure 10-1   2BB configuration example" from a 2BB configuration to a 1BB configuration while the target physical partition (PPAR) is in operation. To perform maintenance while the physical partition (PPAR) is operating, use dynamic reconfiguration (DR) for the physical partition.
For the software requirements required for this operation, see the latest *Fujitsu M10/SPARC M10 Systems Product Notes* and *Oracle VM Server for SPARC 3.2 Administration Guide*.

For details on the XSCF commands executed in each step, see the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 XSCF Reference Manual*.

Figure 10-1   2BB configuration example

1. **Log in to the master XSCF.**
   Execute the showbbstatus command to confirm that the XSCF to which you have logged in is the master XSCF.

   If it is a standby XSCF, retry to log in to the master XSCF.

```
XSCF> showbbstatus
BB#00 (Master)
```

2. **Execute the showhardconf command, and confirm the chassis serial number of the system board (PSB) targeted for release.**
   For details, see "A.2.1   Checking the component status."

> **Note -** If the serial number of the target chassis is being used as the system serial number, the initbb command cannot release the chassis. In this case, execute the switchscf command to switch the master XSCF.

3. **Execute the console command to connect to the console of the control domain, and then log in.**

```
XSCF> console -p 0
```

4. **Check the operation status and the resource use status of logical domains.**
   a. Execute the ldm list-domain command to check the operation status of the logical domains.

   Check the operation status of the logical domains through the combination of [STATE] and [FLAGS]. When [STATE] is "active," the second character from the left of the string in [FLAGS] has one of the following meanings:

   "n": Oracle Solaris operating

   "t": OpenBoot PROM state

   "-": Another state (including cases in which [STATE] is not "active")

   In this example, you can see that the control domain, two guest domains, and two root domains are operating.

```
# ldm list-domain
NAME          STATE      FLAGS    CONS    VCPU   MEMORY    UTIL   UPTIME
primary       active     -n-cv-   UART    16     14G       0.0%   10h 7m
guest0        active     -n----   5100    32     32G       0.0%   2h 20s
guest1        active     -n----   5101    32     32G       0.0%   2h 5s
root-dom0     active     -n--v-   5000    24     24G       0.0%   2h 43s
root-dom1     active     -n--v-   5001    24     24G       0.0%   2h 20s
```

   b. Execute the ldm list-devices command with the -a option specified to check the resource use status.

   The following example specifies the -a option to display all the resources bound to logical domains and all those not bound to logical domains.

```
# ldm list-devices -a
CORE
    ID       %FREE    CPUSET
    0        0        (0, 1)
    4        0        (8, 9)
    8        0        (16, 17)
(Omitted)
    184      0        (368, 369)
    188      100      (376, 377)
    512      100      (1024, 1025)
    516      100      (1032, 1033)
    520      100      (1040, 1041)
    524      100      (1048, 1049)
```

```
(Omitted)
VCPU
     PID      %FREE    PM
      0         0      no
      1         0      no
      8         0      no
      9         0      no
(Omitted)
    369         0      no
    376       100      ---
    377       100      ---
   1024       100      ---
   1025       100      ---
   1032       100      ---
   1033       100      ---
(Omitted)
```

5. **Release redundant configurations of system volumes and I/O devices of the control domain.**
   This example shows the procedure to release the I/O device of the SPARC M10-4S to be removed that is used in the control domain so that the building block BB-ID#01 can be released. If other redundant software is in use, see the document of each redundant software for details on the procedure to release the configuration.

   a. Release redundant configurations of system volumes of the control domain.

      The following example shows the procedure to release the ZFS mirror function of system volumes of the control domain.

      a-1) Execute the zpool status command on the control domain to check the state of the mirror configuration.

```
# zpool status rpool
  pool: rpool
 state: ONLINE
  scan: resilvered 28.7M in 0h0m with 0 errors on Tue Jan 21 10:10:01 2014
config:
        NAME                          STATE     READ WRITE CKSUM
        rpool                         ONLINE       0     0     0
          mirror-0                    ONLINE       0     0     0
            c2t50000393E802CCE2d0s0   ONLINE       0     0     0
            c3t50000393A803B13Ed0s0   ONLINE       0     0     0
errors: No known data errors
```

      a-2) Execute the zpool detach command to release the disk from the mirror configuration.

```
# zpool detach rpool c3t50000393A803B13Ed0
```

      a-3) Execute the zpool status command to confirm that the mirror configuration is released.

```
# zpool status rpool
  pool: rpool
 state: ONLINE
  scan: resilvered 28.7M in 0h0m with 0 errors on Tue Jan 21 10:10:01 2014
config:
        NAME                             STATE     READ WRITE CKSUM
        rpool                            ONLINE       0     0     0
          mirror-0                       ONLINE       0     0     0
            c2t50000393E802CCE2d0s0      ONLINE       0     0     0
errors: No known data errors
```

If there are any other devices on BB#01 in use, release the redundant configurations and stop using the devices. For how to release the redundant configurations and how to stop using the devices, refer to the documents of software in the redundant configurations and Oracle Solaris.

b. Delete the I/O configuration of the control domain.

b-1) Out of the physical I/O devices assigned to the control domain, delete the root complex of BB#01.

b-2) Change the control domain to the delayed reconfiguration mode.

This operation is not required if the root complexes are reconfigured dynamically.

The following shows the software conditions to reconfigure the root complexes dynamically.

- XCP 2240 or later

- Oracle VM Server for SPARC 3.2 or later

- Oracle Solaris 11.2 SRU11.2.8 or later

```
# ldm start-reconf primary
Initiating a delayed reconfiguration operation on the primary domain.
All configuration changes for other domains are disabled until the primary
domain reboots, at which time the new configuration for the primary domain
will also take effect.
```

b-3) Execute the ldm list-io command to check the root complexes assigned to the primary domain.

The following example tells that the root complexes with the device of BB1 are PCIE8 and PCIE12.

```
# ldm list-io | grep primary
PCIE0                                     BUS    PCIE0    primary  IOV
PCIE4                                     BUS    PCIE4    primary  IOV
PCIE8                                     BUS    PCIE8    primary  IOV
PCIE12                                    BUS    PCIE12   primary  IOV
/BB0/CMUL/NET0                            PCIE   PCIE0    primary  OCC
/BB0/CMUL/SASHBA                          PCIE   PCIE0    primary  OCC
/BB0/CMUL/NET2                            PCIE   PCIE4    primary  OCC
/BB1/CMUL/NET0                            PCIE   PCIE8    primary  OCC
```

```
/BB1/CMUL/SASHBA                                    PCIE    PCIE8     primary   OCC
/BB1/CMUL/NET2                                      PCIE    PCIE12    primary   OCC
```

b-4) Execute the ldm remove-io command to delete PCIE8 and PCIE12 from
the domain "primary".

```
# ldm remove-io PCIE8 primary
# ldm remove-io PCIE12 primary
```

b-5) Restart Oracle Solaris.

This operation is not required if the root complexes are reconfigured
dynamically.

```
# shutdown -i6 -g0 -y
```

b-6) Execute the ldm list-io command to confirm that the root complexes of
BB#01 are deleted from the control domain.

```
# ldm list-io | grep primary
PCIE0                                               BUS     PCIE0     primary   IOV
PCIE4                                               BUS     PCIE4     primary   IOV
/BB0/CMUL/NET0                                      PCIE    PCIE0     primary   OCC
/BB0/CMUL/SASHBA                                    PCIE    PCIE0     primary   OCC
/BB0/CMUL/NET2                                      PCIE    PCIE4     primary   OCC
```

c. Release the redundant configurations of virtual I/O devices assigned to the
guest domain.

To shut down the root domain (root-dom1) with the root complexes of BB#01
assigned before deleting the I/O devices, log in to each guest domain and
release the redundant configuration of the virtual I/O device from root-dom1.

For details on how to use software in redundant configurations, see the
document of each software in the redundant configuration.

The following shows an example of releasing the virtual network device
(vnet1) from the configuration of IPMP. For command details, see the Oracle
Solaris manual.

c-1) Log in to the guest domain (guest0).

```
# ldm list-domain
NAME             STATE       FLAGS     CONS    VCPU    MEMORY    UTIL    UPTIME
primary          active      -n-cv-    UART    64      56G       0.0%    4h 17m
guest0           active      -n----    5100    64      64G       0.0%    1h 13m
guest1           active      -n----    5101    64      64G       0.0%    1h 4m
root-dom0        active      -n--v-    5000    32      32G       0.0%    1h 47m
root-dom1        active      -n--v-    5001    32      32G       0.0%    1h 19m
# telnet localhost 5100
....
guest0#
```

c-2) Execute the dladm show-phys command to check the correspondence between the virtual network interface (vnet1) and the network interface name (net1).

c-3) Execute the ipmpstat -i command to confirm the configuration information of the network interface that configures IPMP.

```
guest0# ipmpstat -i
INTERFACE   ACTIVE   GROUP        FLAGS      LINK     PROBE      STATE
net0        yes      ipmp0        -smbM--    up       disabled   ok
net1        no       ipmp0        is-----    up       disabled   ok
guest0# if_mpadm -d net1
guest0# ipmpstat -i
INTERFACE   ACTIVE   GROUP        FLAGS      LINK     PROBE      STATE
net0        yes      ipmp0        -smbM--    up       disabled   ok
net1        no       ipmp0        -s---d-    up       disabled   offline
```

c-4) Execute the if_mpadm -d command, release net1 from the IPMP group, and execute the ipmpstat -i command to confirm that net1 is released. In the next example, confirm that STATE becomes offline.

Perform the same release work on the guest domain (guest1).

```
guest1# if_mpadm -d net1
guest1# ipmpstat -i
INTERFACE   ACTIVE   GROUP        FLAGS      LINK     PROBE      STATE
net0        yes      ipmp0        -smbM--    up       disabled   ok
net1        no       ipmp0        -s---d-    up       disabled   offline
```

d. Delete the virtual I/O devices assigned from the root domain to be stopped.

Execute the ldm remove-vdisk command and the ldm remove-vnet command, and perform the following procedure to delete the virtual disk (vdisk) and the virtual network device (vnet) assigned from the root domain to be stopped.

The following shows an example of executing the command to delete the virtual disk (vdisk11) and the virtual network device (vnet10) that uses the virtual I/O service of the BB#01 root domain (root1-dom1).

```
# ldm remove-vdisk vdisk11 guest0
# ldm remove-vnet vnet10 guest0
```

Perform the same deletion work on the guest domain (guest1).

6. **Check the resource use status of the I/O devices and release all the I/O devices of the SPARC M10-4S to be removed.**

a. Confirm the logical domain where the root complexes of the SPARC M10-4S to be released are assigned.

Execute the ldm list-io command to check the logical domain where the root complexes of BB#01 are assigned.

In the next example, only root-dom1 owns the PCIe end point that starts with

"/BB1/". Then, PCIE9, PCIE10, PCIE11, PCIE13, PCIE14, and PCIE15, which are the root complexes (BUS) of the PCIe end point, are assigned to root-dom1.

```
# ldm list-io
NAME                                    TYPE   BUS     DOMAIN     STATUS
----                                    ----   ---     ------     ------
PCIE0                                   BUS    PCIE0   primary    IOV
PCIE1                                   BUS    PCIE1   root-dom0  IOV
PCIE2                                   BUS    PCIE2   root-dom0  IOV
PCIE3                                   BUS    PCIE3   root-dom0  IOV
PCIE4                                   BUS    PCIE4   primary    IOV
PCIE5                                   BUS    PCIE5   root-dom0  IOV
PCIE6                                   BUS    PCIE6   root-dom0  IOV
PCIE7                                   BUS    PCIE7   root-dom0  IOV
PCIE8                                   BUS    PCIE8
PCIE9                                   BUS    PCIE9   root-dom1  IOV
PCIE10                                  BUS    PCIE10  root-dom1  IOV
PCIE11                                  BUS    PCIE11  root-dom1  IOV
PCIE12                                  BUS    PCIE12
PCIE13                                  BUS    PCIE13  root-dom1  IOV
PCIE14                                  BUS    PCIE14  root-dom1  IOV
PCIE15                                  BUS    PCIE15  root-dom1  IOV
....
/BB1/CMUL/NET0                          PCIE   PCIE8              UNK
/BB1/CMUL/SASHBA                        PCIE   PCIE8              UNK
/BB1/PCI0                               PCIE   PCIE9   root-dom1  OCC
/BB1/PCI3                               PCIE   PCIE10  root-dom1  OCC
/BB1/PCI4                               PCIE   PCIE10  root-dom1  OCC
/BB1/PCI7                               PCIE   PCIE11  root-dom1  OCC
/BB1/PCI8                               PCIE   PCIE11  root-dom1  OCC
/BB1/CMUL/NET2                          PCIE   PCIE12             UNK
/BB1/PCI1                               PCIE   PCIE13  root-dom1  OCC
/BB1/PCI2                               PCIE   PCIE13  root-dom1  OCC
/BB1/PCI5                               PCIE   PCIE14  root-dom1  OCC
/BB1/PCI6                               PCIE   PCIE14  root-dom1  OCC
/BB1/PCI9                               PCIE   PCIE15  root-dom1  OCC
/BB1/PCI10                              PCIE   PCIE15  root-dom1  OCC
```

b. Stop and release the root domain where the root complexes of the SPARC M10-4S to be released are assigned.

In the next example, we can confirm that the ldm stop-domain command and the ldm unbind-domain command are executed, the root domain (root-dom1) is released, and the root domain enters the inactive state.

```
# ldm stop-domain root-dom1
LDom root-dom1 stopped
# ldm unbind-domain root-dom1
# ldm list-domain
NAME            STATE     FLAGS     CONS    VCPU   MEMORY   UTIL   UPTIME
primary         active    -n-cv-    UART    16     14G      0.2%   4h 59m
guest0          active    -n----    5100    32     32G      0.0%   1h 55m
guest1          active    -n----    5101    32     32G      0.0%   1h 46m
```

```
root-dom0         active      -n--v-  5000   24   24G      0.0%  2h 29m
root-dom1         inactive    ------         24   24G
```

c. Confirm all the I/O devices of the building block to be removed are released.

Execute the ldm list-io command to confirm that the I/O devices are released.

```
# ldm list-io
NAME                                        TYPE  BUS    DOMAIN   STATUS
----                                        ----  ---    ------   ------
PCIE0                                       BUS   PCIE0  primary  IOV
PCIE1                                       BUS   PCIE1  root-dom0IOV
PCIE2                                       BUS   PCIE2  root-dom0IOV
PCIE3                                       BUS   PCIE3  root-dom0IOV
PCIE4                                       BUS   PCIE4  primary  IOV
PCIE5                                       BUS   PCIE5  root-dom0IOV
PCIE6                                       BUS   PCIE6  root-dom0IOV
PCIE7                                       BUS   PCIE7  root-dom0IOV
PCIE8                                       BUS   PCIE8
PCIE9                                       BUS   PCIE9
PCIE10                                      BUS   PCIE10
PCIE11                                      BUS   PCIE11
PCIE12                                      BUS   PCIE12
PCIE13                                      BUS   PCIE13
PCIE14                                      BUS   PCIE14
PCIE15                                      BUS   PCIE15
(Omitted)
```

7. **Go back to the XSCF shell and confirm the system board status of the SPARC M10-4S to be removed.**

Execute the showboards command to check the system board status.

Confirm that the system board of the SPARC M10-4S to be removed is in the Assigned state and "y" is displayed for all of the [Pwr], [Conn], and [Conf] columns.

```
XSCF> showboards -p 0
PSB  PPAR-ID(LSB) Assignment  Pwr  Conn Conf Test     Fault
---- ------------ ----------- ---- ---- ---- -------  --------
00-0 00(00)       Assigned    y    y    y    Passed   Normal
01-0 00(01)       Assigned    y    y    y    Passed   Normal
```

8. **Release the system board from the physical partition.**

a. Execute the deleteboard command to release the system board (PSB) from the physical partition.

The following example releases system board 01-0 from the physical partition to be in the system board pool.

```
XSCF> deleteboard -c unassign 01-0
PSB#01-0 will be unassigned from PPAR immediately. Continue?[y|n] :y
Start unconfigure preparation of PSB. [1200sec]
```

```
  0end
Unconfigure preparation of PSB has completed.
Start unconfiguring PSB from PPAR. [43200sec]
  0..... 30.end
Unconfigured PSB from PPAR.
PSB power off sequence started. [1200sec]
  0..... 30..... 60..... 90.....120.....150.end
Operation has completed.
```

> **Note** - In releasing the system board (PSB) by the deleteboard command, the hardware resource on the system board (PSB) is released from Oracle Solaris. Therefore, the command execution may take some time to complete.

    b. Execute the showresult command to confirm the end status of the previously executed deleteboard command.

      In the following example, 0 is returned as the end status, so the execution of the deleteboard command has completed correctly.

```
XSCF> showresult
0
```

    c. Execute the showboards command to check the system board (PSB) status.

      In the following example, system board 01-0 is in the system board pool.

```
XSCF> showboards -p 0
PSB   PPAR-ID(LSB) Assignment  Pwr  Conn Conf Test    Fault
----  ------------ ----------  ---- ---- ---- ------- --------
00-0 00(00)        Assigned    y    y    y    Passed  Normal
01-0 SP            Available   n    n    n    Passed  Normal
```

9. **Execute the ldm list-domain command on the control domain console of the physical partition, and confirm that the operation status of the logical domains has not changed after the system board (PSB) deletion.**

10. **Execute the initbb command from the master XSCF to release the target SPARC M10-4S from the system and initialize it.**
In bb_id, specify the ID (BB-ID) identifying the chassis.

```
XSCF> initbb -b bb_id
```

> **Note -** After the execution of the initbb command, the target chassis is released from the system and enters the stopped state. Do not disconnect the power cords or various cables until the XSCF STANDBY LED on the panel and the rear READY LED of the target chassis are off.

11. **Remove the power cords from the power supply units of the target SPARC**

M10-4S.

12. **Remove the XSCF BB control cables from the target SPARC M10-4S.**

13. **Remove the crossbar cables from the target SPARC M10-4S.**

Note - Do not hold the cable part when pulling out the crossbar cable. Pulling the cable part without the connector lock completely released may cause damage.

---

14. **You are performing removal to the 1BB configuration. So, remove the XSCF DUAL control cable.**

15. **Remove the target SPARC M10-4S from the rack.**
    Remove the SPARC M10-4S from the rack by reversing the mounting procedure. For the procedure for mounting in the rack, see "3.4.1　Mounting the SPARC M10-4S in a rack."

The removed SPARC M10-4S enters the factory default status because the initbb command is executed. If you want to use it as another system, see "1.1　Workflow for the SPARC M10-4S" to perform installation.

10.2.2　Removing the server after stopping the target physical partition (PPAR)

This section describes the SPARC M10-4S removal procedure for reducing to a 1BB configuration after stopping the target physical partition (PPAR).
Stop applications in guest domains as required.
For details on the XSCF commands executed in each step, see the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 XSCF Reference Manual*.

1. **Log in to the master XSCF.**
   Execute the showbbstatus command to confirm that the XSCF to which you have logged in is the master XSCF.

   If it is a standby XSCF, retry to log in to the master XSCF.

```
XSCF> showbbstatus
BB#00 (Master)
```

2. **Execute the showhardconf command, and confirm the chassis serial number of the system board (PSB) targeted for release.**
   For details, see "A.2.1　Checking the component status."

Note - If the serial number of the target chassis is being used as the system serial number, the initbb command cannot release the chassis. In this case, execute the switchscf command to switch the master XSCF.

---

3. **Execute the poweroff command to stop all the physical partitions including the SPARC M10-4S to be removed.**
   Specify the target PPAR number in ppar_id.

```
XSCF> poweroff -p ppar_id
```

The following example stops PPAR#0.

```
XSCF> poweroff -y -p 0
PPAR-IDs to power off:00
Continue? [y|n]:y
00:Powering off
*Note*
 This command only issues the instruction to power-off.
 The result of the instruction can be checked by the "showpparprogress".
```

4. **Execute the showpcl command, and confirm that the power of the physical partition has been turned off.**

```
XSCF> showpcl -p 0
PPAR-ID LSB PSB Status
00             Powered Off
        00   00-0
        01   01-0
```

5. **Execute the deleteboard command from the master XSCF to release a system board (PSB) from the physical partition configuration.**
   The following example releases system board 01-0 from the physical partition.

```
XSCF> deleteboard -c unassign 01-0
PSB#01-0 will be unassigned from PPAR immediately. Continue?[y|n] :y
```

6. **Execute the showresult command, and confirm the end status of the previously executed deleteboard command.**
   In the following example, 0 is returned as the end status, so the execution of the deleteboard command has completed correctly.

```
XSCF> showresult
0
```

7. **Execute the showboards command, and confirm that the released system board (PSB) is in pool state.**
   In the following example, system board 01-0 is in the system board pool.

```
XSCF> showboards -a
PSB   PPAR-ID(LSB) Assignment  Pwr  Conn Conf Test    Fault
----  ------------ ----------- ---- ---- ---- ------- --------
00-0 00(00)        Assigned    n    n    n    Passed  Normal
01-0 SP            Available   n    n    n    Passed  Normal
```

8. **Execute the initbb command from the master XSCF to release the target**

SPARC M10-4S from the system and initialize it.
In bb_id, specify the ID (BB-ID) identifying the chassis.

```
XSCF> initbb -b bb_id
```

The following example releases BB#01 from the system and initializes it.

```
XSCF> initbb -b 1
You are about to initialize BB/XB-Box.
NOTE the following.
1. BB/XB-Box is excluded from the system and halted.
2. PPAR-ID of the same value as BB-ID becomes invalid.
Continue? [y|n] :y
```

Note - After the execution of the initbb command, the target chassis is released from the system and enters the stopped state. Do not disconnect the power cords or various cables until the XSCF STANDBY LED on the panel and the rear READY LED of the target chassis are off.

9. **Remove the power cords from the power supply units of the target SPARC M10-4S.**

10. **Remove the XSCF BB control cables from the target SPARC M10-4S.**

11. **Remove the crossbar cables from the target SPARC M10-4S.**

Note - Do not hold the cable part when pulling out the crossbar cable. Pulling the cable part without the connector lock completely released may cause damage.

12. **You are performing removal to the 1BB configuration. So, remove the XSCF DUAL control cable.**

13. **Remove the target SPARC M10-4S from the rack.**
Remove the SPARC M10-4S from the rack by reversing the mounting procedure. For the procedure for mounting in the rack, see "3.4.1　Mounting the SPARC M10-4S in a rack."

The removed SPARC M10-4S enters the factory default status because the initbb command is executed. If you want to use it as another system, see "1.1　Workflow for the SPARC M10-4S" to perform installation.

10.2.3 Removing the server after stopping all the physical partitions (PPARs)

This section describes the SPARC M10-4S removal procedure after stopping all the physical partitions (PPARs). To change every SPARC M10-4S to the 1BB configuration as shown in pattern B (2) in Figure 8-3, stop all the physical partitions and then perform removal.

For details on the XSCF commands executed in each step, see the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 XSCF Reference Manual*.

1. **Log in to the master XSCF.**
   Execute the showbbstatus command to confirm that the XSCF to which you have logged in is the master XSCF.

   If it is a standby XSCF, retry to log in to the master XSCF.

   ```
   XSCF> showbbstatus
   BB#00 (Master)
   ```

2. **Execute the showhardconf command, and confirm the chassis serial number of the system board (PSB) targeted for release.**
   For details, see "A.2.1　Checking the component status."

   Note - If the serial number of the target chassis is being used as the system serial number, the initbb command cannot release the chassis. In this case, execute the switchscf command to switch the master XSCF.

   ---

3. **Execute the poweroff command to stop all the physical partitions.**

   ```
   XSCF> poweroff -y -a
   PPAR-IDs to power off:00,01,02,03
   Continue? [y|n]:y
   00:Powering off
   01:Powering off
   02:Powering off
   03:Powering off
   ```

4. **Execute the deleteboard command from the master XSCF to release a system board (PSB) from the physical partition configuration.**
   The following example releases system boards 00-0, 01-0, 02-0, and 03-0 from the physical partition.

   ```
   XSCF> deleteboard -c unassign 00-0 01-0 02-0 03-0
   PSB#00-0 will be unassigned from PPAR immediately. Continue?[y|n] :y
   PSB#01-0 will be unassigned from PPAR immediately. Continue?[y|n] :y
   PSB#02-0 will be unassigned from PPAR immediately. Continue?[y|n] :y
   PSB#03-0 will be unassigned from PPAR immediately. Continue?[y|n] :y
   ```

5. **Execute the showresult command, and confirm the end status of the previously executed deleteboard command.**
   In the following example, 0 is returned as the end status, so the execution of the deleteboard command has completed correctly.

```
XSCF> showresult
0
```

6. **Execute the showboards command to check the system board (PSB) status.**
   In the following example, system boards 00-0, 01-0, 02-0, and 03-0 are in the system board pool.

```
XSCF> showboards -a
PSB  PPAR-ID(LSB) Assignment  Pwr  Conn Conf Test    Fault
---- ------------ ----------- ---- ---- ---- ------- --------
00-0 SP           Available   n    n    n    Passed  Normal
01-0 SP           Available   n    n    n    Passed  Normal
02-0 SP           Available   n    n    n    Passed  Normal
03-0 SP           Available   n    n    n    Passed  Normal
```

7. **Execute the initbb command from the master XSCF to release the target SPARC M10-4S from the system and initialize it.**
   In bb_id, specify the ID (BB-ID) identifying the chassis.

```
XSCF> initbb -b bb_id
```

The following example releases BB#03 from the system and initializes it.

```
XSCF> initbb -b 3
You are about to initialize BB/XB-Box.
NOTE the following.
1. BB/XB-Box is excluded from the system and halted.
2. PPAR-ID of the same value as BB-ID becomes invalid.
Continue? [y|n] :y
```

Note - After the execution of the initbb command, the target chassis is released from the system and enters the stopped state. Do not disconnect the power cords or various cables until the XSCF STANDBY LED on the panel and the rear READY LED of the target chassis are off.

Note - For the initialization of the chassis of the master XSCF, perform that work at the end. Execute the restoredefaults -c factory command to return to the factory defaults, including the CPU Activation key information. Perform this work with a serial connection to the master XSCF.
For XCP 2041 or later, execute the restoredefaults -c factory -r activation command.
The key must be reinstalled at initial setup of the XSCF after installation.

---

8. **Remove the power cords from the power supply units of the target SPARC M10-4S.**

9. **Remove the XSCF BB control cables from the target SPARC M10-4S.**

10. **Remove the crossbar cables from the target SPARC M10-4S.**

11. **You are performing removal to the 1BB configuration. So, remove the XSCF DUAL control cable.**

12. **Remove the target SPARC M10-4S from the rack.**
    Remove the SPARC M10-4S from the rack by reversing the mounting procedure. For the procedure for mounting in the rack, see "3.4.1   Mounting the SPARC M10-4S in a rack."

The removed SPARC M10-4S enters the factory default status because the initbb command is executed. If you want to use it as another system, see "1.1   Workflow for the SPARC M10-4S" to perform installation.

10.3   Removal of Expansion Rack 2, and Decrease of the Number of SPARC M10-4S Units to Four or Less

This section describes the procedure to remove expansion rack 2 and reduce the SPARC M10-4S units to four or less in expansion rack 1 (connection via a crossbar box). This procedure corresponds to pattern C in Figure 8-3. You need to stop the system during this work.

For details on the XSCF commands executed in each step, see the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 XSCF Reference Manual*.

1. **Log in to the master XSCF.**
   Execute the showbbstatus command to confirm that the XSCF to which you have logged in is the master XSCF.

   If it is a standby XSCF, retry to log in to the master XSCF.

   ```
   XSCF> showbbstatus
   BB#00 (Master)
   ```

2. **Execute the showhardconf command, and confirm the chassis serial number of the system board (PSB) targeted for release.**
   For details, see "A.2.1   Checking the component status."

Note - If the serial number of the target chassis is being used as the system serial number, the initbb command cannot release the chassis. In this case, execute the switchscf command to switch the master XSCF.

3. **Execute the poweroff command to stop all the physical partitions.**

```
XSCF> poweroff -y -a
PPAR-IDs to power off:00,01,02,03,04,05,06,07,08,09,10,11
Continue? [y|n]:y
00:Powering off
01:Powering off
02:Powering off
03:Powering off
04:Powering off
05:Powering off
06:Powering off
07:Powering off
08:Powering off
09:Powering off
10:Powering off
11:Powering off
```

4. **Execute the deleteboard command from the master XSCF to release a system board (PSB) from the physical partition configuration.**
   The following example releases system boards 04-0, 05-0, 06-0, 07-0, 08-0, 09-0, 10-0, and 11-0 from the physical partition.

```
XSCF> deleteboard -c unassign 04-0 05-0 06-0 07-0 08-0 09-0 10-0 11-0
PSB#04-0 will be unassigned from PPAR immediately. Continue?[y|n] :y
PSB#05-0 will be unassigned from PPAR immediately. Continue?[y|n] :y
PSB#06-0 will be unassigned from PPAR immediately. Continue?[y|n] :y
PSB#07-0 will be unassigned from PPAR immediately. Continue?[y|n] :y
PSB#08-0 will be unassigned from PPAR immediately. Continue?[y|n] :y
PSB#09-0 will be unassigned from PPAR immediately. Continue?[y|n] :y
PSB#10-0 will be unassigned from PPAR immediately. Continue?[y|n] :y
PSB#11-0 will be unassigned from PPAR immediately. Continue?[y|n] :y
```

5. **Execute the showresult command, and confirm the end status of the previously executed deleteboard command.**
   In the following example, 0 is returned as the end status, so the execution of the deleteboard command has completed correctly.

```
XSCF> showresult
0
```

6. **Execute the showboards command to check the system board (PSB) status.**
   In the following example, system boards 04-0, 05-0, 06-0, 07-0, 08-0, 09-0, 10-0, and 11-0 are in the system board pool.

```
XSCF> showboards -a
PSB  PPAR-ID(LSB) Assignment  Pwr  Conn Conf Test    Fault
---- ------------ ----------- ---- ---- ---- ------- --------
00-0 00(00)       Assigned    n    n    n    Passed  Normal
01-0 00(01)       Assigned    n    n    n    Passed  Normal
02-0 00(02)       Assigned    n    n    n    Passed  Normal
03-0 00(03)       Assigned    n    n    n    Passed  Normal
```

```
04-0 SP          Available   n    n    n    Passed  Normal
05-0 SP          Available   n    n    n    Passed  Normal
06-0 SP          Available   n    n    n    Passed  Normal
07-0 SP          Available   n    n    n    Passed  Normal
08-0 SP          Available   n    n    n    Passed  Normal
09-0 SP          Available   n    n    n    Passed  Normal
10-0 SP          Available   n    n    n    Passed  Normal
11-0 SP          Available   n    n    n    Passed  Normal
```

7. **Execute the initbb command from the master XSCF to release the SPARC M10-4S to be removed from the system and initialize it.**
   In bb_id, specify the ID (BB-ID) identifying the chassis.

```
XSCF> initbb -b bb_id
```

The following example releases BB#11 from the system and initializes it.

```
XSCF> initbb -b 11
You are about to initialize BB/XB-Box.
NOTE the following.
1. BB/XB-Box is excluded from the system and halted.
2. PPAR-ID of the same value as BB-ID becomes invalid.
Continue? [y|n] :y
```

Note - After the execution of the initbb command, the target chassis is released from the system and enters the stopped state. Do not disconnect the power cords or various cables until the XSCF STANDBY LED on the panel and the rear READY LED of the target chassis are off.

---

8. **Execute step 7 on each chassis of the SPARC M10-4S to be removed.**
9. **Confirm that the LED of the SPARC M10-4S to be removed is off, and then disconnect all the power codes of the chassis from the input power.**
10. **Disconnect the cables that pass between the racks.**
    Crossbar cables (optical) that pass between the racks are laid with spiral tubes.

    Disconnect cables from expansion rack 1, and lay them together in expansion rack 2.
11. **Disconnect expansion rack 1 from expansion rack 2.**
    Disconnect the racks in the reverse order at the rack connection. For the procedure for the rack connection, see "3.3.3   Connecting racks."
12. **Remove the XSCF-BB control cables from the target SPARC M10-4S on expansion rack 1.**
13. **Remove the crossbar cables (optical) from the target SPARC M10-4S on expansion rack 1.**

Note - Do not hold the cable part when pulling out the crossbar cable. Pulling the cable part

without the connector lock completely released may cause damage.

14. **Remove the target SPARC M10-4S from expansion rack 1.**
    Remove the SPARC M10-4S from the rack by reversing the mounting procedure. For the procedure for mounting in the rack, see "3.4.1   Mounting the SPARC M10-4S in a rack."

The removed SPARC M10-4S enters the factory default status because the initbb command is executed. If you want to use it as another system, see "1.1   Workflow for the SPARC M10-4S" to perform installation.

Appendix A

Troubleshooting

This appendix describes the corrective actions for problems that may occur during installation work on the SPARC M10-4S.

- Understanding the Usual Problems and Their Corrective Actions
- Understanding Commands for Troubleshooting
- How to Restore a BB-ID from an Incorrect Setting

A.1 Understanding the Usual Problems and Their Corrective Actions

If operation is not normal during installation work, you may wonder whether there was a failure. In such cases, inspect the following items and take corrective measures accordingly.

Table A-1   List of problem case examples

Case	Possible cause	Corrective action
The input power cannot be turned on.	The power cord is disconnected.	Connect the power cord correctly.
	The breaker on the distribution board is turned off.	Turn on the breaker.
The system management terminal does not display the login prompt.	The serial cable is not connected to the serial port.	Connect the serial cable correctly to the serial port of the chassis. See Figure 5-1 in "5.1 Connecting Cables to the SPARC M10-4S." See Figure 5-15 in "5.3 Connecting Cables to a Crossbar Box."
		For a building block configuration, connect the serial cable to the serial port of the chassis whose MASTER LED of the XSCF unit is lit.

Table A-1 List of problem case examples *(continued)*

Case	Possible cause	Corrective action
After the input power is turned on, the MASTER LEDs on all chassis are lit.	BB-IDs have not been set.	Initialize each chassis to the factory default settings, and change the BB-IDs to the correct settings. See "A.3.1 BB-IDs not set (BB-ID 00)."
The XCP version check displays only BB#00.	BB-IDs have not been set.	Initialize each chassis to the factory default settings, and change the BB-IDs to the correct settings. See "A.3.1 BB-IDs not set (BB-ID 00)."
The XCP version check displays only BB#00 and BB#01 even though the configuration has at least three BBs.	The BB-IDs of BB#00 and BB#01 are reversed.	Initialize BB#00 and BB#01 to the factory default settings, and change the BB-IDs to the correct settings. See "A.3.3 Mistaken settings for BB#00 and BB#01."
The XCP version check does not display BB#03 even though the configuration has four BBs.	BB#03 has the wrong BB-ID setting.	Change the BB-ID to the correct setting. See "A.3.2 Mistaken setting of a BB-ID other than BB#00 or BB#01."
The component status check (by the showhardconf command) of a building block configuration displays only BB#00.	The XSCF cables between chassis are incorrectly connected.	Check messages by using the showlogs command. See "A.2.2 Checking the contents of logs."
"Failed" appears in the results of a diagnosis test performed on a building block configuration.	The crossbar cables between chassis are incorrectly connected.	Check messages by using the showlogs command. See "A.2.2 Checking the contents of logs."
The following errors are displayed by the showlogs error command executed in a system with a 3BB configuration or larger: - BB control cable detected unexpected - Cannot communicate with the other XSCF	The XSCF BB control cable is not completely in contact, or the cable is faulty.	Connect the XSCF BB control cable correctly. If the error is still displayed after you confirm the connection, replace the cable.

A.2   Understanding Commands for Troubleshooting

This section describes the XSCF shell commands used to check detailed error information and the system status.

A.2.1 Checking the component status

Use the showhardconf command to check the status of each field replaceable unit (FRU). The displayed information is as follows:

- Current configuration and status
- Quantities of mounted FRUs by FRU type, such as CPU, memory, and PCIe card
- Physical partition (PPAR) information
- PCI expansion unit information (displayed only when the power to the physical partition is on)
- PCIe card information (displayed only when the power to the physical partition is on)

showhardconf command

Use the showhardconf command to check the system hardware configuration and the status of each component.
A displayed asterisk (*) indicates the fault location regarding a unit where a failure or degradation occurred.
Status displays the following statuses.

- **Faulted:** Non-operational status of the relevant component due to failure
- **Degraded:** A part of the unit has failed, but the unit continues in operation.
- **Deconfigured:** The unit including its components on the lower layers is in a normal condition, but it has been degraded due to the influence of a failure or degradation of another unit.
- **Maintenance:** Maintenance work in progress. The addfru command, replacefru command, or initbb command is in operation.
- **Normal:** Normal status

Example: SPARC M10-4S display example

```
XSCF> showhardconf -M
SPARC M10-4S;
   + Serial:20xxxxxxxx; Operator_Panel_Switch:Locked;
    * System serial number
   + System_Power:On; System_Phase:Cabinet Power On;
    Partition#0 PPAR_Status:Powered Off;
    Partition#1 PPAR_Status:Initialization Phase;
   BB#00 Status:Normal; Role:Standby; Ver:2003h; Serial:2081231002;
                                                  * Chassis serial number
       + FRU-Part-Number:CA07361-D203 B0   /9999999                 ;
       + Power_Supply_System: ;
       + Memory_Size:512 GB;
       CMUL Status:Normal; Ver:0301h; Serial:PP140601D9  ;
           + FRU-Part-Number:CA07361-D251 A4   /9999999               ;
           + Memory_Size:256 GB; Type: B ;
           CPU#0 Status:Normal; Ver:4142h; Serial:00020203;
               + Freq:3.700 GHz; Type:0x20;
               + Core:16; Strand:2;
```

```
            CPU#1 Status:Normal; Ver:4142h; Serial:00020199;
                + Freq:3.700 GHz; Type:0x20;
                + Core:16; Strand:2;
            MEM#00A Status:Normal;
                + Code:2c800f36KSF2G72PZ-1G6E2 4532-E229CD95;
                + Type:07; Size:16 GB;
            MEM#01A Status:Normal;
                + Code:2c800f36KSF2G72PZ-1G6E2 4532-E229CD9C;
                + Type:07; Size:16 GB;
            MEM#02A Status:Normal;
                + Code:2c800f36KSF2G72PZ-1G6E2 4532-E229CDB4;
                + Type:07; Size:16 GB;
            MEM#03A Status:Normal;
                + Code:2c800f36KSF2G72PZ-1G6E2 4532-E229CDA6;
                + Type:07; Size:16 GB;
            MEM#04A Status:Normal;
                + Code:2c800f36KSF2G72PZ-1G6E2 4532-E229CD9D;
                + Type:07; Size:16 GB;
            MEM#05A Status:Normal;
                + Code:2c800f36KSF2G72PZ-1G6E2 4532-E229CD91;
                + Type:07; Size:16 GB;
            MEM#06A Status:Normal;
                + Code:2c800f36KSF2G72PZ-1G6E2 4532-E229CDA7;
                + Type:07; Size:16 GB;
            MEM#07A Status:Normal;
                + Code:2c800f36KSF2G72PZ-1G6E2 4532-E229CDB7;
                + Type:07; Size:16 GB;
            MEM#10A Status:Normal;
                + Code:2c800f36KSF2G72PZ-1G6E2 4532-E229CDB5;
                + Type:07; Size:16 GB;
            MEM#11A Status:Normal;
                + Code:2c800f36KSF2G72PZ-1G6E2 4532-E229CDB8;
                + Type:07; Size:16 GB;
            MEM#12A Status:Normal;
                + Code:2c800f36KSF2G72PZ-1G6E2 4532-E229CD94;
                + Type:07; Size:16 GB;
            MEM#13A Status:Normal;
                + Code:2c800f36KSF2G72PZ-1G6E2 4532-E229CDBD;
                + Type:07; Size:16 GB;
            MEM#14A Status:Normal;
                + Code:2c800f36KSF2G72PZ-1G6E2 4532-E229CDB9;
                + Type:07; Size:16 GB;
            MEM#15A Status:Normal;
                + Code:2c800f36KSF2G72PZ-1G6E2 4532-E229CDBA;
                + Type:07; Size:16 GB;
            MEM#16A Status:Normal;
                + Code:2c800f36KSF2G72PZ-1G6E2 4532-E229CDBC;
                + Type:07; Size:16 GB;
            MEM#17A Status:Normal;
                + Code:2c800f36KSF2G72PZ-1G6E2 4532-E229CDBB;
                + Type:07; Size:16 GB;
        CMUU Status:Normal; Ver:0301h; Serial:PP140601DH  ;
            + FRU-Part-Number:CA07361-D271 A3   /9999999                    ;
            + Memory_Size:256 GB; Type: B ;
            CPU#0 Status:Normal; Ver:4142h; Serial:00030239;
```

```
               + Freq:3.700 GHz; Type:0x20;
               + Core:16; Strand:2;
        CPU#1 Status:Normal; Ver:4142h; Serial:00020195;
               + Freq:3.700 GHz; Type:0x20;
               + Core:16; Strand:2;
        MEM#00A Status:Normal;
               + Code:2c800f36KSF2G72PZ-1G6E2 4532-3837DC35;
               + Type:07; Size:16 GB;
        MEM#01A Status:Normal;
               + Code:2c800f36KSF2G72PZ-1G6E2 4532-3837DC33;
               + Type:07; Size:16 GB;
        MEM#02A Status:Normal;
               + Code:2c800f36KSF2G72PZ-1G6E2 4532-E229CDC9;
               + Type:07; Size:16 GB;
        MEM#03A Status:Normal;
               + Code:2c800f36KSF2G72PZ-1G6E2 4532-E229CD9A;
               + Type:07; Size:16 GB;
        MEM#04A Status:Normal;
               + Code:2c800f36KSF2G72PZ-1G6E2 4532-3837DBE1;
               + Type:07; Size:16 GB;
        MEM#05A Status:Normal;
               + Code:2c800f36KSF2G72PZ-1G6E2 4532-3837DBD6;
               + Type:07; Size:16 GB;
        MEM#06A Status:Normal;
               + Code:2c800f36KSF2G72PZ-1G6E2 4532-E229CD98;
               + Type:07; Size:16 GB;
        MEM#07A Status:Normal;
               + Code:2c800f36KSF2G72PZ-1G6E2 4532-E229CD96;
               + Type:07; Size:16 GB;
        MEM#10A Status:Normal;
               + Code:2c800f36KSF2G72PZ-1G6E2 4532-E229CC88;
               + Type:07; Size:16 GB;
               Omitted
    PCI#0 Status:Normal; Name_Property:;
        + Vendor-ID:14e4; Device-ID:1648;
        + Subsystem_Vendor-ID:10cf; Subsystem-ID:13a0;
        + Model: LPe1250-F8-FJ;
    PCI#1 Status:Normal; Name_Property:;
        + Vendor-ID:14e4; Device-ID:1648;
        + Subsystem_Vendor-ID:10cf; Subsystem-ID:13a0;
        + Model: LPe1250-F8-FJ;
    XBU#0 Status:Normal; Ver:0101h; Serial:PP123002ZQ ;
        + FRU-Part-Number:CA07361-D102 A1 ;
    XBU#1 Status:Normal; Ver:0101h; Serial:PP123002ZN ;
        + FRU-Part-Number:CA07361-D102 A1 ;
    OPNL Status:Normal; Ver:0101h; Serial:PP1230020A ;
        + FRU-Part-Number:CA07361-D012 A1 ;
    PSUBP Status:Normal; Ver:0101h; Serial:PP123002ZS ;
        + FRU-Part-Number:CA07361-D202 A1 ;
    PSU#0 Status:Normal; Ver:303443h; Serial:MD12190452 ;
        + FRU-Part-Number:CA01022-0761 / ;
        + Power_Status:ON; AC:200 V; Type: A ;
    PSU#1 Status:Normal; Ver:303443h; Serial:MD12190454 ;
        + FRU-Part-Number:CA01022-0761 / ;
        + Power_Status:ON; AC:200 V; Type: A ;
```

```
      FANU#0 Status:Normal;
      FANU#1 Status:Normal;
      FANU#2 Status:Normal;
      FANU#3 Status:Normal;
      FANU#4 Status:Normal;
 BB#01 Status:Normal; Role:Standby Ver:0101h; Serial:7867000297;
                                               * Chassis serial number
      + FRU-Part-Number:CA20393-B50X A2 ;
      + Power_Supply_System:Single;
      + Memory_Size:256 GB;
                    Omitted
XBBOX#80 Status:Normal; Role:Master Ver:0101h; Serial:7867000297;
                                               * Chassis serial number
        + FRU-Part-Number:CA07361-D011 A0 /NOT-FIXD-01 ;
        + Power_Supply_System:Single;
        XBU#0 Status:Normal; Serial:PP0629L068
            + FRU-Part-Number:CA20393-B50X A2 ;
        XSCFU Status:Normal; Ver:0101h; Serial:7867000262 ;
            + FRU-Part-Number:CA20393-B56X A0
        XBBPU Status:Normal; Serial:PP0629L068
            + FRU-Part-Number:CA20393-B50X A2 ;
        XSCFIFU Status:Normal; Ver:0101h; Serial:PP12040198 ;
            + FRU-Part-Number:CA20365-B52X 001AA/NOT-FIXD-01 ; Type: A ;
        OPNL Status:Normal; Serial:PP0629L068
            + FRU-Part-Number:CA20393-B50X A2 ;
        PSU#0 Status:Normal; Ver:0201 Serial:0000000-ASTECB18 ;
            + FRU-Part-Number:CF00300-1898 0002 /300-1898-00-02;
            + Power_Status:ON; AC:200 V;
```

showhardconf -u command

Use the showhardconf command with the -u option to display the quantity of each
type of mounted field replaceable unit.
The CPU modules are displayed with the operating frequency, and the memory units
are displayed with the capacity per memory. If the option is omitted, the command
displays the current configuration information, status information, and physical
partition (PPAR) information for each field replaceable unit.

Example: SPARC M10-4S display example

```
XSCF> showhardconf -u
SPARC M10-4S; Memory_Size:2048 GB;
+----------------------------------+-----------+
| FRU                              | Quantity  |
+----------------------------------+-----------+
| BB                               |    2      |
|     CMUL                         |    2      |
|         Type:B                   | (  2)     |
|         CPU                      |    4      |
|             Freq:3.700 GHz;      | (  4)     |
|         MEM                      |    64     |
|             Type:07; Size:16 GB; | ( 64)     |
|     CMUU                         |    2      |
```

```
|        Type:B                      | (   2)    |
|          CPU                       |     4     |
|            Freq:3.700 GHz;         | (   4)    |
|          MEM                       |    64     |
|            Type:07; Size:16 GB;    | (  64)    |
|       PCICARD                      |     3     |
|       LINKCARD                     |     0     |
|       PCIBOX                       |     0     |
|          IOB                       |     0     |
|          LINKBOARD                 |     0     |
|          PCI                       |     0     |
|          FANBP                     |     0     |
|          PSU                       |     0     |
|          FAN                       |     0     |
|       XBU                          |     4     |
|          Type:A                    | (   4)    |
|       OPNL                         |     2     |
|       PSUBP                        |     2     |
|          Type:B                    | (   2)    |
|          PSU                       |     4     |
|            Type:B                  | (   4)    |
|          FAN                       |    10     |
| XBBOX                              |     0     |
|       XBU                          |     0     |
|       XSCFU                        |     0     |
|       OPNL                         |     0     |
|       XBBPU                        |     0     |
|          XSCFIFU                   |     0     |
|          PSU                       |     0     |
|          FANU                      |     0     |
+------------------------------------+-----------+
```

A.2.2   Checking the contents of logs

Use the showlogs command to check error logs.

showlogs command

The showlogs command is a command that displays the specified log. By default, the command displays the log in chronological order from the oldest time stamp. You can specify the following logs.
On individual systems, specify the type of log to display from the collected logs. You can specify one of the following:

- **error:** Error log

- **power:** Power log

- **event:** Event log

- **monitor:** Monitoring message log

On individual chassis of the SPARC M10 systems, specify the type of log to display from the collected logs.

- **env:** Temperature history

On individual physical partitions (PPARs), specify the type of log to display from the collected logs. You can specify one of the following:

- **console:** Console message log

- **panic:** Panic message log

- **ipl:** IPL message log

Example: Display example where an XSCF cable is incorrectly connected

```
XSCF> showlogs error
Date: Oct 29 16:35:09 JST 2012
    Code: 80000000-003bff0000ff0000ff-01a100040000000000000000
    Status: Alarm                    Occurred: Oct 29 16:35:01.895 JST 2012
    FRU : /BB#1
    Msg: BB control cable detected unexpected
```

Example: Display example where crossbar cables are incorrectly connected as shown in Figure A-1

```
XSCF> showlogs error
Date: Nov 08 11:01:37 JST 2012
    Code: 10000008-007cff0000ff0000ff-019204310000000000000000
    Status: Information              Occurred: Nov 08 11:01:32.813 JST 2012
    FRU : /BB#1/XBU#0/CBL#0R
    Msg: Cable connection test failure
Date: Nov 08 11:01:38 JST 2012
    Code: 10000008-007cff0000ff0000ff-019204310000000000000000
    Status: Information              Occurred: Nov 08 11:01:32.839 JST 2012
    FRU : /BB#1/XBU#0/CBL#0L
    Msg: Cable connection test failure
Date: Nov 08 11:01:43 JST 2012
    Code: 10000008-007cff0000ff0000ff-019204310000000000000000
    Status: Information              Occurred: Nov 08 11:01:33.411 JST 2012
    FRU : /BB#0/XBU#0/CBL#0R
    Msg: Cable connection test failure
Date: Nov 08 11:01:44 JST 2012
    Code: 10000008-007cff0000ff0000ff-019204310000000000000000
    Status: Information              Occurred: Nov 08 11:01:33.617 JST 2012
    FRU : /BB#0/XBU#0/CBL#0L
    Msg: Cable connection test failure
```

Figure A-1   Incorrect 0L and 0R cable connections (reversed cable connections)
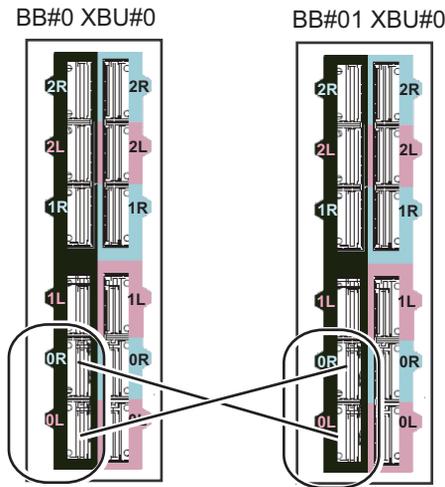
A.2.3   Checking information on a component where a failure or degradation occurred

Use the showstatus command to check information on a degraded unit among the FRUs composing the system.

showstatus command

The command displays information on the unit where a failure has occurred and on units on upper layers, among the field replaceable units composing the system. The mark indicating the status (*) appears at the beginning of the line of the displayed unit. Status displays the unit status.

- **Status:** Description
- **Faulted:** Non-operational status of the relevant component due to failure
- **Degraded:** A part of the unit has failed, but the unit continues in operation.
- **Deconfigured:** The unit including its components on the lower layers is in a normal condition, but it has been degraded due to the influence of a failure or degradation of another unit.
- **Maintenance:** Maintenance work in progress. The addfru command, replacefru command, or initbb command is in operation.

Example: Display example where a CPU and memory of the CPU memory unit (lower) of BB#00 are degraded because of a failure

```
XSCF> showstatus
    BB#00;
        CMUL Status:Normal;
*           CPU#0 Status:Faulted;
```

```
*          MEM#00A Status:Faulted;
```

Example: Display example where the memory on a motherboard unit is degraded
because of a failure

```
XSCF> showstatus
    MBU Status:Normal;
*       MEM#1B Status:Deconfigur
```

A.2.4   Checking diagnosis results

Use the testsb command to perform an initial diagnosis of the specified physical
system board (PSB).
Use the diagxbu command to diagnose the crossbar cables and crossbar units
connected to the specified SPARC M10-4S chassis.

testsb command

The testsb command diagnoses the configuration of the specified PSB and the
operation of each device mounted on the PSB. After completing the diagnosis, the
command displays the results. You can also check the diagnosis results with the
display of "Test" and "Fault" by the showboards command.

The displayed diagnosis results from testsb are as follows:

- **PSB:** PSB number

- **Test:** Initial diagnosis status of the PSB
  Unmount: The PSB cannot be recognized because it is not mounted or has failed.

  Unknown: The PSB has not been diagnosed.

  Testing: The initial diagnosis is in progress.

  Passed: The initial diagnosis ended normally.

  Failed: A failure occurred in the initial diagnosis.

- **Fault:** PSB degradation status
  Normal: The PSB is normal.

  Degraded: The PSB can operate but has a degraded component.

  Faulted: The PSB is not operating because a failure occurred or cannot be
  controlled because of a communication failure.

Example: Diagnosis example of SPARC M10-4S in 1BB configuration (normal end),
including execution of show-devs and probe-scsi-all

```
XSCF> testsb -v -p -s -a -y
Initial diagnosis is about to start, Continue?[y|n] :y
PSB power on sequence started.
POST Sequence 01 Banner
```

```
LSB#00: POST 1.9.0 (2012/09/25 16:52)
:

<<Displayed execution results of "probe-scsi-all">>
/pci@8000/pci@4/pci@0/pci@0/scsi@0

FCode Version 1.00.56, MPT Version 2.00, Firmware Version 13.00.66.00

Target a
  Unit 0   Disk   TOSHIBA  MBF2600RC        3706    1172123568 Blocks, 600 GB
  SASDeviceName 50000394281b6190  SASAddress 50000394281b6192  PhyNum 0
Target d
  Unit 0   Disk   TOSHIBA  MBF2600RC        3706    1172123568 Blocks, 600 GB
  SASDeviceName 50000394281b5a44  SASAddress 50000394281b5a46  PhyNum 1

<<Displayed execution results of "show-devs">>
/pci@8100/pci@4/pci@0/pci@1
/pci@8100/pci@4/pci@0/pci@1/QLGC,qlc@0,3
/pci@8100/pci@4/pci@0/pci@1/QLGC,qlc@0,2
/pci@8100/pci@4/pci@0/pci@1/ethernet@0,1
/pci@8100/pci@4/pci@0/pci@1/ethernet@0
/pci@8100/pci@4/pci@0/pci@1/QLGC,qlc@0,3/fp@0,0
/pci@8100/pci@4/pci@0/pci@1/QLGC,qlc@0,3/fp@0,0/disk
/pci@8100/pci@4/pci@0/pci@1/QLGC,qlc@0,2/fp@0,0
/pci@8100/pci@4/pci@0/pci@1/QLGC,qlc@0,2/fp@0,0/disk
:
PSB Test Fault
---- ------- --------
00-0 Passed  Normal

XSCF>
```

Example: Diagnosis example of SPARC M10-4S in 4BB configuration (normal end), including execution of show-devs and probe-scsi-all

```
XSCF> testsb -v -p -s -a -y
Initial diagnosis is about to start, Continue?[y|n] :y
PSB power on sequence started.
LSB#03: POST 3.9.0 (2015/01/27 14:14)
LSB#02: POST 3.9.0 (2015/01/27 14:14)
LSB#01: POST 3.9.0 (2015/01/27 14:14)
POST Sequence 01 Banner
LSB#00: POST 3.9.0 (2015/01/27 14:14)
POST Sequence 02 CPU Check
POST Sequence 03 CPU Register
POST Sequence 04 STICK Increment
POST Sequence 05 Extended Instruction
POST Sequence 06 MMU
POST Sequence 07 Memory Initialize
POST Sequence 08 Memory Address Line
POST Sequence 09 MSCAN
POST Sequence 0A Cache
POST Sequence 0B Floating Point Unit
POST Sequence 0C Encryption
```

```
POST Sequence 0D Cacheable Instruction
POST Sequence 0E Softint
POST Sequence 0F CPU Cross Call
POST Sequence 10 CMU-CH
POST Sequence 11 PCI-CH
POST Sequence 12 TOD
POST Sequence 13 MBC Check Before STICK Diag
POST Sequence 14 STICK Stop
POST Sequence 15 STICK Start
POST Sequence 16 Barrier Blade
POST Sequence 17 Single Barrier Bank
POST Sequence 18 Sector Cache
POST Sequence 19 SX
POST Sequence 1A RT
POST Sequence 1B RT/SX NC
POST Sequence 1C RT/SX Interrupt
POST Sequence 1D RT/SX Barrier
POST Sequence 1E Error CPU Check
POST Sequence 1F System Configuration
POST Sequence 20 System Status Check
POST Sequence 21 Start Hypervisor
POST Sequence Complete.
 :
Omitted
 :
SPARC M10-4S, No Keyboard
Copyright (c) 1998, 2015, Oracle and/or its affiliates. All rights reserved.
OpenBoot 4.36.1, 954.5000 GB memory available, Serial #268894481.
[ 2.11.0 ]
Ethernet address b0:99:28:a0:58:11, Host ID: 90070111.

<Execution results of probe-scsi-all command>
  LSB#03
/pci@9800/pci@4/pci@0/pci@0/scsi@0
FCode Version 1.00.56, MPT Version 2.00, Firmware Version 17.00.00.00
  600-GB disks mounted in slot#0 and slot#1
Target a
Unit 0 Disk TOSHIBA MBF2600RC 3706 1172123568 Blocks, 600 GB
SASDeviceName 50000394281b6190 SASAddress 50000394281b6192 PhyNum 0
Target b
Unit 0 Disk TOSHIBA MBF2600RC 3706 1172123568 Blocks, 600 GB
SASDeviceName 50000394281b5a44 SASAddress 50000394281b5a46 PhyNum 1
Target c
Unit 0 Encl Serv device FUJITSU NBBEXP 0d32
SASAddress 500000e0e04902fd PhyNum 14 /pci-performance-counters@8100

    LSB#02
/pci@9000/pci@4/pci@0/pci@0/scsi@0
FCode Version 1.00.56, MPT Version 2.00, Firmware Version 17.00.00.00
Target a
Unit 0 Disk TOSHIBA MBF2600RC 3706 1172123568 Blocks, 600 GB
SASDeviceName 50000394281b4d98 SASAddress 50000394281b4d9a PhyNum 0
Target b
Unit 0 Encl Serv device FUJITSU BBEXP 0d32
SASAddress 500000e0e02709bd PhyNum 14
```

```
          :
Omitted
          :
<Execution results of show-devs command>
     8 GFC card mounted in LSB#03 PCI slot#0
/pci@9900/pci@4/pci@0/pci@0/emlx@0,1
/pci@9900/pci@4/pci@0/pci@0/emlx@0
/pci@9900/pci@4/pci@0/pci@0/emlx@0,1/fp@0,0
/pci@9900/pci@4/pci@0/pci@0/emlx@0,1/fp@0,0/tape
/pci@9900/pci@4/pci@0/pci@0/emlx@0,1/fp@0,0/disk
/pci@9900/pci@4/pci@0/pci@0/emlx@0/fp@0,0
/pci@9900/pci@4/pci@0/pci@0/emlx@0/fp@0,0/tape
/pci@9900/pci@4/pci@0/pci@0/emlx@0/fp@0,0/disk
          :
     8 GFC card mounted in LSB#02 PCI slot#0
/pci@9100/pci@4/pci@0/pci@0/emlx@0,1
/pci@9100/pci@4/pci@0/pci@0/emlx@0
/pci@9100/pci@4/pci@0/pci@0/emlx@0,1/fp@0,0
/pci@9100/pci@4/pci@0/pci@0/emlx@0,1/fp@0,0/tape
/pci@9100/pci@4/pci@0/pci@0/emlx@0,1/fp@0,0/disk
/pci@9100/pci@4/pci@0/pci@0/emlx@0/fp@0,0
/pci@9100/pci@4/pci@0/pci@0/emlx@0/fp@0,0/tape
/pci@9100/pci@4/pci@0/pci@0/emlx@0/fp@0,0/disk
          :
     8 GFC card mounted in LSB#01 PCI slot#0
/pci@8900/pci@4/pci@0/pci@0/emlx@0,1
/pci@8900/pci@4/pci@0/pci@0/emlx@0
/pci@8900/pci@4/pci@0/pci@0/emlx@0,1/fp@0,0
/pci@8900/pci@4/pci@0/pci@0/emlx@0,1/fp@0,0/tape
/pci@8900/pci@4/pci@0/pci@0/emlx@0,1/fp@0,0/disk
/pci@8900/pci@4/pci@0/pci@0/emlx@0/fp@0,0
/pci@8900/pci@4/pci@0/pci@0/emlx@0/fp@0,0/tape
/pci@8900/pci@4/pci@0/pci@0/emlx@0/fp@0,0/disk
          :
     8 GFC card mounted in LSB#00 PCI slot#0
/pci@8100/pci@4/pci@0/pci@0/emlx@0,1
/pci@8100/pci@4/pci@0/pci@0/emlx@0
/pci@8100/pci@4/pci@0/pci@0/emlx@0,1/fp@0,0
/pci@8100/pci@4/pci@0/pci@0/emlx@0,1/fp@0,0/tape
/pci@8100/pci@4/pci@0/pci@0/emlx@0,1/fp@0,0/disk
/pci@8100/pci@4/pci@0/pci@0/emlx@0/fp@0,0
/pci@8100/pci@4/pci@0/pci@0/emlx@0/fp@0,0/tape
/pci@8100/pci@4/pci@0/pci@0/emlx@0/fp@0,0/disk
          :
Omitted
          :
/openprom/client-services
/packages/obp-tftp
/packages/kbd-translator
/packages/SUNW,asr
/packages/dropins
/packages/terminal-emulator
/packages/disk-label
/packages/deblocker
/packages/SUNW,probe-error-handler
```

```
/packages/SUNW,builtin-drivers
PSB Test Fault
---- ------- --------
00-0 Passed Normal
01-0 Passed Normal
02-0 Passed Normal
03-0 Passed Normal
XSCF>
```

diagxbu command

diagxbu is a command that diagnoses the crossbar cables and crossbar units connected to the specified SPARC M10-4S chassis.
A crossbar unit is mounted in a SPARC M10-4S chassis or crossbar box and connected by crossbar cables. To execute the diagxbu command, you need to specify the SPARC M10-4S chassis where the diagnosis begins, and also the SPARC M10-4S chassis connected as the communication destination.
If the diagnosis results show that a failure occurred in the crossbar cables and crossbar units, you can check it with the showlog error command. Also, if a crossbar unit is degraded, you can check it with the showstatus command.

The two ways of using diagxbu are as follows: specify the BB-ID of the cable connection destination; or specify the PPAR-ID of the cable connection destination.

- How to specify the BB-ID of the cable connection destination
  If a system board (PSB) in the chassis connected by crossbar cables has not been incorporated into a physical partition (PPAR), or if the power to the incorporating physical partition is off, specify the BB-ID of the cable connection destination.

  - bb_id: Enter the BB-ID of the chassis where the diagnosis begins.

  - target_bb: Enter the BB-ID of the chassis connected by the crossbar cables (multiple BB_IDs can be specified).

  ```
  XSCF> diagxbu -y -b bb_id -t target_bb
  ```

- How to specify the PPAR-ID of the cable connection destination
  If the system board (PSB) in the chassis connected by crossbar cables has been incorporated into a physical partition and the power to the physical partition is on, specify the PPAR_ID of the cable connection destination.

  - bb_id: Enter the BB-ID of the chassis where the diagnosis begins.

  - ppar_id: Enter the PPAR_ID of the chassis connected by crossbar cables (only one PPAR_ID can be specified).

  ```
  XSCF> diagxbu -y -b bb_id -p ppar_id
  ```

Example: Diagnosis of the crossbar cables and crossbar units between BBID 0 and BB-ID 1

```
XSCF> diagxbu -y -b 0 -t 1
XBU diagnosis is about to start, Continue?[y|n] :y
Power on sequence started. [7200sec]
0..... 30.end
XBU diagnosis started. [7200sec]
0..... 30..... 60..... 90.....120.....150.....180.....210.....240.....|
270.....300.....330.....360.....390.....420.....450.....480.....510.....|
540.....570.....600.....630.....660.....690.....720.....750...end
completed.
Power off sequence started. [1200sec]
0..... 30..... 60....end
completed.
*Note*
Please confirm the error of XBU by "showlogs error".
In addition, please confirm the degraded of XBU by "showstatus".
XSCF> showboards -a
PSB PPAR-ID(LSB) Assignment Pwr Conn Conf Test Fault
---- ------------ ----------- ---- ---- ---- ------- --------
00-0 00(00) Assigned n n n Passed Normal
01-0 01(00) Assigned n n n Passed Normal
02-0 02(00) Assigned n n n Passed Normal
03-0 03(00) Assigned n n n Passed Normal
XSCF>
```

A.3 How to Restore a BB-ID from an Incorrect Setting

If a BB has an incorrectly set BB-ID, it does not start up normally when the input power is turned on. This section describes the procedures for restoring a BB-ID.

A.3.1 BB-IDs not set (BB-ID 00)

If all BB-IDs have been left as 00 without being set when the input power is turned on, restore them according to the following procedure.

Figure A-2   BB-IDs left as 00 without being set
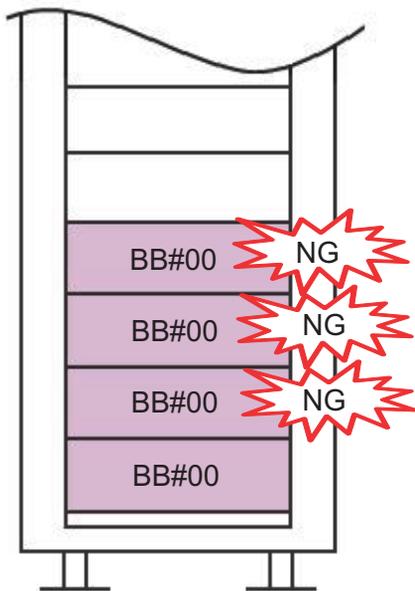
1. **Connect the system management terminal to the chassis serial port.**
2. **Log in to the XSCF by using the default user account and authentication method.**
   For details, see "6.3   Logging In to the XSCF."
3. **Execute the restoredefaults -c factory command to return the entire system to the factory default settings.**

```
XSCF> restoredefaults -c factory

WARNING:
  If this system does not have BACK UP, this command will set all the user
  settable XSCF configuration parameters to their default value as they
  were set when the system was shipped out.
  Furthermore, this command will delete all logs in the intended chassis XSCF.
  Check the man page of this command before you run it.

Continue?[yes/no](default no):yes
You must check the following points.

  1. Have the ability to power cycle the system.
  2. Have access to the serial console and hold the serial console of the
     XSCF to confirm the completion of the command.

If you answer "yes" this command will HALT the XSCF when it completes.
You will need to power cycle the system after the XSCF BOOT STOP.

Do you really want to continue?
```

```
Continue?[yes/no](default no):yes
The initialization of XSCF will be started.
  XSCF    : all data clear (exclude SYSTEM ID data)
  BACK UP : all data clear (exclude SYSTEM ID data)
XSCF will be automatically rebooted. Afterwards, XSCF will be initialized.
Continue?[yes/no](default no):yes
Disabling IDIAG prompt complete
Setting FRUID-ROM to writable complete
Clear BB-ID complete
Backup common DB complete
Syncing file systems...  complete
XSCF shutdown request was completed.
```

4. **Confirm that all LEDs on the operation panel are off.**

5. **Remove the power cords from the power supply units.**

6. **Change the BB-IDs to the correct settings.**
    For details, see "4.1   Setting the ID (BB-ID) Identifying a Chassis."

7. **Perform steps 1 to 6 for all chassis.**

8. **Connect the power cords of all chassis to the power supply units.**

9. **Connect the system management terminal to the serial port of the master XSCF.**

10. **Proceed with work by returning to "6.3   Logging In to the XSCF."**

A.3.2   Mistaken setting of a BB-ID other than BB#00 or BB#01

If the setting of a BB-ID other than BB#00 or BB#01 is incorrect when the input power is turned on, restore it according to the following procedure.

Figure A-3   Mistaken setting of a BB-ID other than BB#00 or BB#01
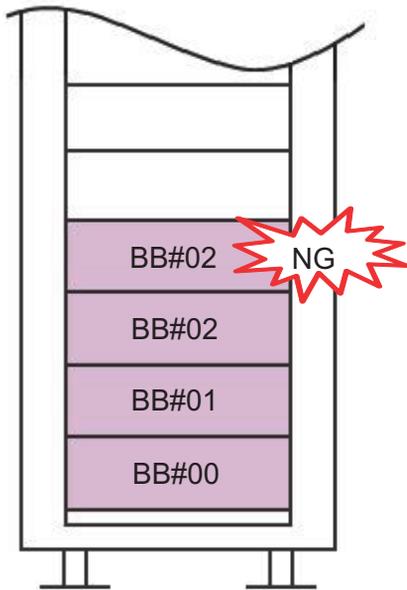
1. **Remove the power cords of all chassis from the power supply units.**
2. **Change the BB-ID to the correct setting.**
   For details, see "4.1   Setting the ID (BB-ID) Identifying a Chassis."
3. **Connect the power cords of all chassis to the power supply units.**
4. **Connect the system management terminal to the serial port of the master XSCF.**
5. **Proceed with work by returning to "6.3   Logging In to the XSCF."**

A.3.3   Mistaken settings for BB#00 and BB#01

If the settings of BB#00 and BB#01 are incorrect when the input power is turned on, restore them according to the following procedure.

Figure A-4   Mistaken settings for the BB-IDs of BB#00 and BB#01
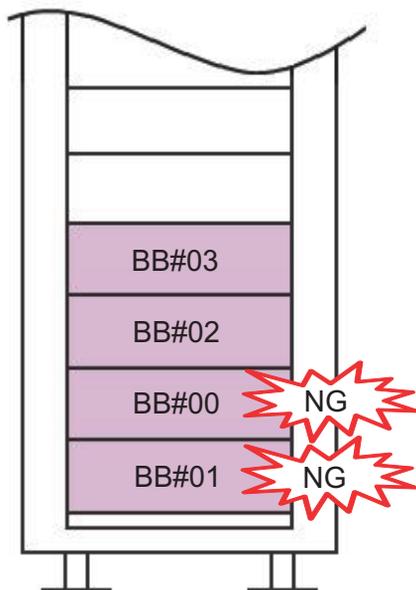
1. **Remove the power cords of all chassis from the power supply units.**
2. **Disconnect the XSCF BB control cables and XSCF DUAL control cables of BB#00 and BB#01.**
3. **Connect the system management terminal to the serial port of BB#00, and connect the power cords to the power supply units.**
4. **Log in to the XSCF by using the default user account and authentication method.**
   For details, see "6.3   Logging In to the XSCF."
5. **Execute the restoredefaults -c factory command to return the entire system to the factory default settings.**

```
XSCF> restoredefaults -c factory

WARNING:
  If this system does not have BACK UP, this command will set
all the user
  settable XSCF configuration parameters to their default value
as they
  were set when the system was shipped out.
  Furthermore, this command will delete all logs in the intended
 chassis XSCF.
  Check the man page of this command before you run it.

Continue?[yes/no](default no):yes
You must check the following points.

  1. Have the ability to power cycle the system.
```

```
   2. Have access to the serial console and hold the serial
console of the
      XSCF to confirm the completion of the command.

If you answer "yes" this command will HALT the XSCF when it completes.
You will need to power cycle the system after the XSCF BOOT STOP.

Do you really want to continue?

Continue?[yes/no](default no):yes
The initialization of XSCF will be started.
  XSCF    : all data clear (exclude SYSTEM ID data)
  BACK UP : all data clear (exclude SYSTEM ID data)
XSCF will be automatically rebooted. Afterwards, XSCF will be initialized.
Continue?[yes/no](default no):yes
Disabling IDIAG prompt complete
Setting FRUID-ROM to writable complete
Clear BB-ID complete
Backup common DB complete
Syncing file systems...  complete
XSCF shutdown request was completed.
```

6. **Confirm that all LEDs on the operation panel are off.**

7. **Remove the power cords from the power supply units.**

8. **Change the BB-IDs to the correct settings.**
   For details, see "4.1 Setting the ID (BB-ID) Identifying a Chassis."

9. **Perform steps 3 to 8 for BB#01.**

10. **Connect the XSCF BB control cables and XSCF DUAL control cables of BB#00 and BB#01.**

11. **Connect the power cords of all chassis to the power supply units.**

12. **Connect the system management terminal to the serial port of the master XSCF.**

13. **Proceed with work by returning to "6.3 Logging In to the XSCF."**

Appendix B

Cable Connection Information on Building Block Configurations

This appendix provides cable connection routing diagrams and cable configuration lists for each building block configuration.

- 2BB Configuration (Direct Connections between Chassis)
- 3BB Configuration (Direct Connections between Chassis)
- 4BB Configuration (Direct Connections between Chassis)
- 2BB Configuration to 8BB Configuration (Connections through Crossbar Boxes)
- 9BB Configuration to 16BB Configuration (Connections through Crossbar Boxes)
- Power Cord Connections in Expansion Racks

B.1 2BB Configuration (Direct Connections between Chassis)

The numbers enclosed in parentheses in Figure B-1 indicate the connection order. For details, see Table B-1.

Figure B-1   Crossbar cable (electrical) connection diagram
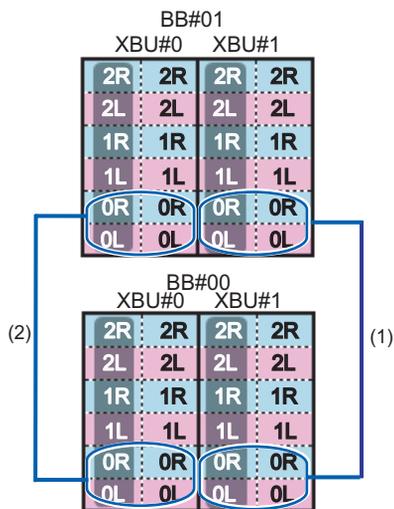
Table B-1   Crossbar cable (electrical) correspondence table

Connection order	Connector 1	Connector 2	Remarks
1	BB00-XBU1-0L (pink)	BB01-XBU1-0L (pink)	BB#00 - BB#01
	BB00-XBU1-0L (black)	BB01-XBU1-0L (black)	
	BB00-XBU1-0R (light blue)	BB01-XBU1-0R (light blue)	
	BB00-XBU1-0R (black)	BB01-XBU1-0R (black)	
2	BB00-XBU0-0L (pink)	BB01-XBU0-0L (pink)	
	BB00-XBU0-0L (black)	BB01-XBU0-0L (black)	
	BB00-XBU0-0R (light blue)	BB01-XBU0-0R (light blue)	
	BB00-XBU0-0R (black)	BB01-XBU0-0R (black)	

Figure B-2   XSCF cable connection diagram
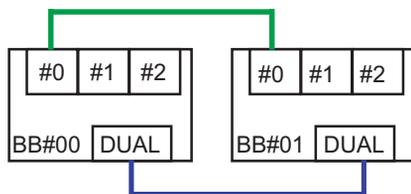
Table B-2   XSCF cable correspondence table

Connected chassis	Connector 1	Connector 2
BB#00 - BB#01	BB00-DUAL	BB01-DUAL
	BB00-XSCF0	BB01-XSCF0

B.2   3BB Configuration (Direct Connections between Chassis)

The numbers enclosed in parentheses in Figure B-3 indicate the connection order. For details, see Table B-3.

Figure B-3   Crossbar cable (electrical) connection diagram
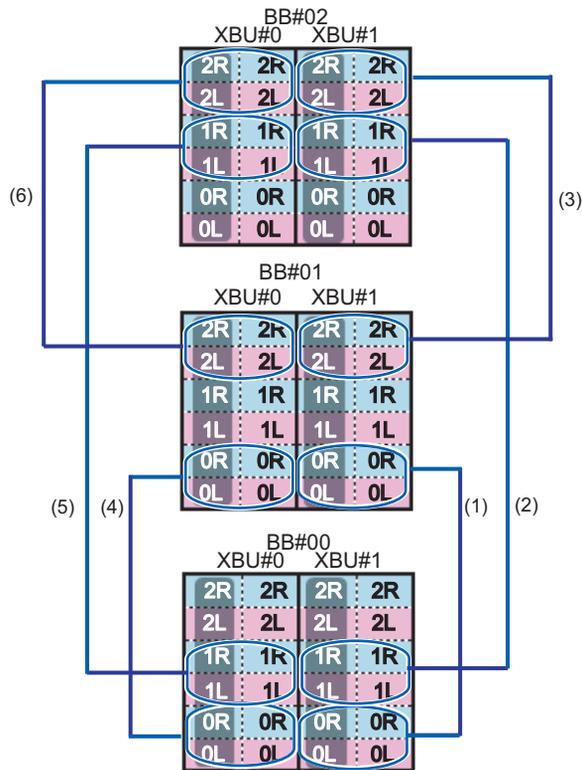
Table B-3　Crossbar cable (electrical) correspondence table

Connection order	Connector 1	Connector 2	Remarks
1	BB00-XBU1-0L (pink)	BB01-XBU1-0L (pink)	BB#00 - BB#01
	BB00-XBU1-0L (black)	BB01-XBU1-0L (black)	
	BB00-XBU1-0R (light blue)	BB01-XBU1-0R (light blue)	
	BB00-XBU1-0R (black)	BB01-XBU1-0R (black)	
2	BB00-XBU1-1L (pink)	BB02-XBU1-1L (pink)	BB#00 - BB#02
	BB00-XBU1-1L (black)	BB02-XBU1-1L (black)	
	BB00-XBU1-1R (light blue)	BB02-XBU1-1R (light blue)	
	BB00-XBU1-1R (black)	BB02-XBU1-1R (black)	
3	BB01-XBU1-2L (pink)	BB02-XBU1-2L (pink)	BB#01 - BB#02
	BB01-XBU1-2L (black)	BB02-XBU1-2L (black)	
	BB01-XBU1-2R (light blue)	BB02-XBU1-2R (light blue)	
	BB01-XBU1-2R (black)	BB02-XBU1-2R (black)	
4	BB00-XBU0-0L (pink)	BB01-XBU0-0L (pink)	BB#00 - BB#01
	BB00-XBU0-0L (black)	BB01-XBU0-0L (black)	
	BB00-XBU0-0R (light blue)	BB01-XBU0-0R (light blue)	
	BB00-XBU0-0R (black)	BB01-XBU0-0R (black)	
5	BB00-XBU0-1L (pink)	BB02-XBU0-1L (pink)	BB#00 - BB#02
	BB00-XBU0-1L (black)	BB02-XBU0-1L (black)	
	BB00-XBU0-1R (light blue)	BB02-XBU0-1R (light blue)	
	BB00-XBU0-1R (black)	BB02-XBU0-1R (black)	
6	BB01-XBU0-2L (pink)	BB02-XBU0-2L (pink)	BB#01 - BB#02
	BB01-XBU0-2L (black)	BB02-XBU0-2L (black)	
	BB01-XBU0-2R (light blue)	BB02-XBU0-2R (light blue)	
	BB01-XBU0-2R (black)	BB02-XBU0-2R (black)	

Figure B-4　XSCF cable connection diagram
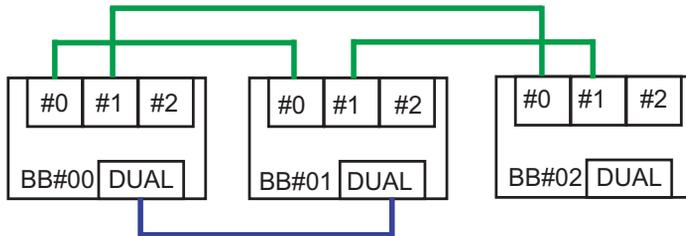
Table B-4   XSCF cable correspondence table

Connected chassis	Connector 1	Connector 2
BB#00 - BB#01	BB00-DUAL	BB01-DUAL
	BB00-XSCF0	BB01-XSCF0
BB#00 - BB#02	BB00-XSCF1	BB02-XSCF0
BB#01 - BB#02	BB01-XSCF1	BB02-XSCF1

B.3 4BB Configuration (Direct Connections between Chassis)

The numbers enclosed in parentheses in Figure B-5 indicate the connection order. For details, see Table B-5.

Figure B-5   Crossbar cable (electrical) connection diagram

Table B-5   Crossbar cable (electrical) correspondence table

Connection order	Connector 1	Connector 2	Remarks
1	BB00-XBU1-0L (pink)	BB01-XBU1-0L (pink)	BB#00 - BB#01
	BB00-XBU1-0L (black)	BB01-XBU1-0L (black)	
	BB00-XBU1-0R (light blue)	BB01-XBU1-0R (light blue)	
	BB00-XBU1-0R (black)	BB01-XBU1-0R (black)	
2	BB02-XBU1-0L (pink)	BB03-XBU1-0L (pink)	BB#02 - BB#03
	BB02-XBU1-0L (black)	BB03-XBU1-0L (black)	
	BB02-XBU1-0R (light blue)	BB03-XBU1-0R (light blue)	
	BB02-XBU1-0R (black)	BB03-XBU1-0R (black)	
3	BB00-XBU1-1L (pink)	BB02-XBU1-1L (pink)	BB#00 - BB#02
	BB00-XBU1-1L (black)	BB02-XBU1-1L (black)	
	BB00-XBU1-1R (light blue)	BB02-XBU1-1R (light blue)	
	BB00-XBU1-1R (black)	BB02-XBU1-1R (black)	
4	BB01-XBU1-1L (pink)	BB03-XBU1-1L (pink)	BB#01 - BB#03
	BB01-XBU1-1L (black)	BB03-XBU1-1L (black)	
	BB01-XBU1-1R (light blue)	BB03-XBU1-1R (light blue)	
	BB01-XBU1-1R (black)	BB03-XBU1-1R (black)	
5	BB00-XBU1-2L (pink)	BB03-XBU1-2L (pink)	BB#00 - BB#03
	BB00-XBU1-2L (black)	BB03-XBU1-2L (black)	
	BB00-XBU1-2R (light blue)	BB03-XBU1-2R (light blue)	
	BB00-XBU1-2R (black)	BB03-XBU1-2R (black)	
6	BB01-XBU1-2L (pink)	BB02-XBU1-2L (pink)	BB#01 - BB#02
	BB01-XBU1-2L (black)	BB02-XBU1-2L (black)	
	BB01-XBU1-2R (light blue)	BB02-XBU1-2R (light blue)	
	BB01-XBU1-2R (black)	BB02-XBU1-2R (black)	
7	BB00-XBU0-0L (pink)	BB01-XBU0-0L (pink)	BB#00 - BB#01
	BB00-XBU0-0L (black)	BB01-XBU0-0L (black)	
	BB00-XBU0-0R (light blue)	BB01-XBU0-0R (light blue)	
	BB00-XBU0-0R (black)	BB01-XBU0-0R (black)	
8	BB02-XBU0-0L (pink)	BB03-XBU0-0L (pink)	BB#02 - BB#03
	BB02-XBU0-0L (black)	BB03-XBU0-0L (black)	
	BB02-XBU0-0R (light blue)	BB03-XBU0-0R (light blue)	
	BB02-XBU0-0R (black)	BB03-XBU0-0R (black)	
9	BB00-XBU0-1L (pink)	BB02-XBU0-1L (pink)	BB#00 - BB#02
	BB00-XBU0-1L (black)	BB02-XBU0-1L (black)	

Table B-5   Crossbar cable (electrical) correspondence table *(continued)*

Connection order	Connector 1	Connector 2	Remarks
	BB00-XBU0-1R (light blue)	BB02-XBU0-1R (light blue)	
	BB00-XBU0-1R (black)	BB02-XBU0-1R (black)	
10	BB01-XBU0-1L (pink)	BB03-XBU0-1L (pink)	BB#01 - BB#03
	BB01-XBU0-1L (black)	BB03-XBU0-1L (black)	
	BB01-XBU0-1R (light blue)	BB03-XBU0-1R (light blue)	
	BB01-XBU0-1R (black)	BB03-XBU0-1R (black)	
11	BB00-XBU0-2L (pink)	BB03-XBU0-2L (pink)	BB#00 - BB#03
	BB00-XBU0-2L (black)	BB03-XBU0-2L (black)	
	BB00-XBU0-2R (light blue)	BB03-XBU0-2R (light blue)	
	BB00-XBU0-2R (black)	BB03-XBU0-2R (black)	
12	BB01-XBU0-2L (pink)	BB02-XBU0-2L (pink)	BB#01 - BB#02
	BB01-XBU0-2L (black)	BB02-XBU0-2L (black)	
	BB01-XBU0-2R (light blue)	BB02-XBU0-2R (light blue)	
	BB01-XBU0-2R (black)	BB02-XBU0-2R (black)	

Figure B-6   XSCF cable connection diagram
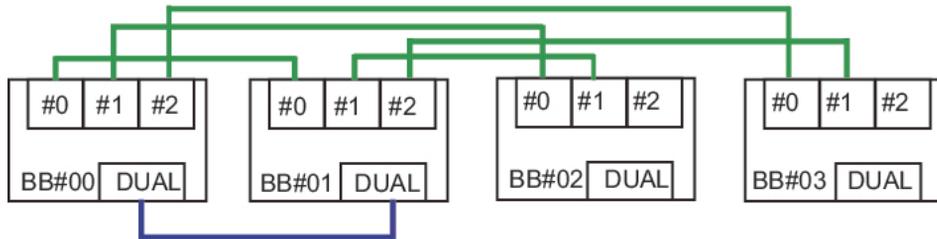
Table B-6   XSCF cable correspondence table

Connected chassis	Connector 1	Connector 2
BB#00 - BB#01	BB00-DUAL	BB01-DUAL
	BB00-XSCF0	BB01-XSCF0
BB#00 - BB#02	BB00-XSCF1	BB02-XSCF0
BB#00 - BB#03	BB00-XSCF2	BB03-XSCF0
BB#01 - BB#02	BB01-XSCF1	BB02-XSCF1
BB#01 - BB#03	BB01-XSCF2	BB03-XSCF1

B.4   2BB Configuration to 8BB Configuration (Connections through Crossbar Boxes)

Figure B-7   Crossbar cable (optical) correspondence diagram

Table B-7 Crossbar cable (optical) correspondence table (system 0)

Connected chassis	SPARC M10-4S side	Crossbar box side
BB#00 - XBBOX#80	BB00-XBU0-0L (pink)	XB80-XBU0-L0 (pink)
	BB00-XBU0-0L (black)	XB80-XBU0-L0 (black)
	BB00-XBU0-0R (light blue)	XB80-XBU0-R0 (light blue)
	BB00-XBU0-0R (black)	XB80-XBU0-R0 (black)
	BB00-XBU0-1L (pink)	XB80-XBU1-L0 (pink)
	BB00-XBU0-1L (black)	XB80-XBU1-L0 (black)
	BB00-XBU0-1R (light blue)	XB80-XBU1-R0 (light blue)
	BB00-XBU0-1R (black)	XB80-XBU1-R0 (black)
BB#01 - XBBOX#80	BB01-XBU0-0L (pink)	XB80-XBU0-L1 (pink)
	BB01-XBU0-0L (black)	XB80-XBU0-L1 (black)
	BB01-XBU0-0R (light blue)	XB80-XBU0-R1 (light blue)
	BB01-XBU0-0R (black)	XB80-XBU0-R1 (black)
	BB01-XBU0-1L (pink)	XB80-XBU1-L1 (pink)
	BB01-XBU0-1L (black)	XB80-XBU1-L1 (black)
	BB01-XBU0-1R (light blue)	XB80-XBU1-R1 (light blue)
	BB01-XBU0-1R (black)	XB80-XBU1-R1 (black)
BB#02 - XBBOX#80	BB02-XBU0-0L (pink)	XB80-XBU0-L2 (pink)
	BB02-XBU0-0L (black)	XB80-XBU0-L2 (black)
	BB02-XBU0-0R (light blue)	XB80-XBU0-R2 (light blue)
	BB02-XBU0-0R (black)	XB80-XBU0-R2 (black)
	BB02-XBU0-1L (pink)	XB80-XBU1-L2 (pink)
	BB02-XBU0-1L (black)	XB80-XBU1-L2 (black)
	BB02-XBU0-1R (light blue)	XB80-XBU1-R2 (light blue)
	BB02-XBU0-1R (black)	XB80-XBU1-R2 (black)
BB#03 - XBBOX#80	BB03-XBU0-0L (pink)	XB80-XBU0-L3 (pink)
	BB03-XBU0-0L (black)	XB80-XBU0-L3 (black)
	BB03-XBU0-0R (light blue)	XB80-XBU0-R3 (light blue)
	BB03-XBU0-0R (black)	XB80-XBU0-R3 (black)
	BB03-XBU0-1L (pink)	XB80-XBU1-L3 (pink)
	BB03-XBU0-1L (black)	XB80-XBU1-L3 (black)
	BB03-XBU0-1R (light blue)	XB80-XBU1-R3 (light blue)
	BB03-XBU0-1R (black)	XB80-XBU1-R3 (black)
BB#04 - XBBOX#80	BB04-XBU0-0L (pink)	XB80-XBU0-L4 (pink)
	BB04-XBU0-0L (black)	XB80-XBU0-L4 (black)

Connected chassis	SPARC M10-4S side	Crossbar box side
	BB04-XBU0-0R (light blue)	XB80-XBU0-R4 (light blue)
	BB04-XBU0-0R (black)	XB80-XBU0-R4 (black)
	BB04-XBU0-1L (pink)	XB80-XBU1-L4 (pink)
	BB04-XBU0-1L (black)	XB80-XBU1-L4 (black)
	BB04-XBU0-1R (light blue)	XB80-XBU1-R4 (light blue)
	BB04-XBU0-1R (black)	XB80-XBU1-R4 (black)
BB#05 - XBBOX#80	BB05-XBU0-0L (pink)	XB80-XBU0-L5 (pink)
	BB05-XBU0-0L (black)	XB80-XBU0-L5 (black)
	BB05-XBU0-0R (light blue)	XB80-XBU0-R5 (light blue)
	BB05-XBU0-0R (black)	XB80-XBU0-R5 (black)
	BB05-XBU0-1L (pink)	XB80-XBU1-L5 (pink)
	BB05-XBU0-1L (black)	XB80-XBU1-L5 (black)
	BB05-XBU0-1R (light blue)	XB80-XBU1-R5 (light blue)
	BB05-XBU0-1R (black)	XB80-XBU1-R5 (black)
BB#06 - XBBOX#80	BB06-XBU0-0L (pink)	XB80-XBU0-L6 (pink)
	BB06-XBU0-0L (black)	XB80-XBU0-L6 (black)
	BB06-XBU0-0R (light blue)	XB80-XBU0-R6 (light blue)
	BB06-XBU0-0R (black)	XB80-XBU0-R6 (black)
	BB06-XBU0-1L (pink)	XB80-XBU1-L6 (pink)
	BB06-XBU0-1L (black)	XB80-XBU1-L6 (black)
	BB06-XBU0-1R (light blue)	XB80-XBU1-R6 (light blue)
	BB06-XBU0-1R (black)	XB80-XBU1-R6 (black)
BB#07 - XBBOX#80	BB07-XBU0-0L (pink)	XB80-XBU0-L7 (pink)
	BB07-XBU0-0L (black)	XB80-XBU0-L7 (black)
	BB07-XBU0-0R (light blue)	XB80-XBU0-R7 (light blue)
	BB07-XBU0-0R (black)	XB80-XBU0-R7 (black)
	BB07-XBU0-1L (pink)	XB80-XBU1-L7 (pink)
	BB07-XBU0-1L (black)	XB80-XBU1-L7 (black)
	BB07-XBU0-1R (light blue)	XB80-XBU1-R7 (light blue)
	BB07-XBU0-1R (black)	XB80-XBU1-R7 (black)

Table B-8   Crossbar cable (optical) correspondence table (system 1)

Connected chassis	SPARC M10-4S side	Crossbar box side
BB#00 - XBBOX#81	BB00-XBU1-0L (pink)	XB81-XBU0-L0 (pink)
	BB00-XBU1-0L (black)	XB81-XBU0-L0 (black)
	BB00-XBU1-0R (light blue)	XB81-XBU0-R0 (light blue)
	BB00-XBU1-0R (black)	XB81-XBU0-R0 (black)
	BB00-XBU1-1L (pink)	XB81-XBU1-L0 (pink)
	BB00-XBU1-1L (black)	XB81-XBU1-L0 (black)
	BB00-XBU1-1R (light blue)	XB81-XBU1-R0 (light blue)
	BB00-XBU1-1R (black)	XB81-XBU1-R0 (black)
BB#01 - XBBOX#81	BB01-XBU1-0L (pink)	XB81-XBU0-L1 (pink)
	BB01-XBU1-0L (black)	XB81-XBU0-L1 (black)
	BB01-XBU1-0R (light blue)	XB81-XBU0-R1 (light blue)
	BB01-XBU1-0R (black)	XB81-XBU0-R1 (black)
	BB01-XBU1-1L (pink)	XB81-XBU1-L1 (pink)
	BB01-XBU1-1L (black)	XB81-XBU1-L1 (black)
	BB01-XBU1-1R (light blue)	XB81-XBU1-R1 (light blue)
	BB01-XBU1-1R (black)	XB81-XBU1-R1 (black)
BB#02 - XBBOX#81	BB02-XBU1-0L (pink)	XB81-XBU0-L2 (pink)
	BB02-XBU1-0L (black)	XB81-XBU0-L2 (black)
	BB02-XBU1-0R (light blue)	XB81-XBU0-R2 (light blue)
	BB02-XBU1-0R (black)	XB81-XBU0-R2 (black)
	BB02-XBU1-1L (pink)	XB81-XBU1-L2 (pink)
	BB02-XBU1-1L (black)	XB81-XBU1-L2 (black)
	BB02-XBU1-1R (light blue)	XB81-XBU1-R2 (light blue)
	BB02-XBU1-1R (black)	XB81-XBU1-R2 (black)
BB#03 - XBBOX#81	BB03-XBU1-0L (pink)	XB81-XBU0-L3 (pink)
	BB03-XBU1-0L (black)	XB81-XBU0-L3 (black)
	BB03-XBU1-0R (light blue)	XB81-XBU0-R3 (light blue)
	BB03-XBU1-0R (black)	XB81-XBU0-R3 (black)
	BB03-XBU1-1L (pink)	XB81-XBU1-L3 (pink)
	BB03-XBU1-1L (black)	XB81-XBU1-L3 (black)
	BB03-XBU1-1R (light blue)	XB81-XBU1-R3 (light blue)
	BB03-XBU1-1R (black)	XB81-XBU1-R3 (black)
BB#04 - XBBOX#81	BB04-XBU1-0L (pink)	XB81-XBU0-L4 (pink)
	BB04-XBU1-0L (black)	XB81-XBU0-L4 (black)

Table B-8	Crossbar cable (optical) correspondence table (system 1) *(continued)*	
Connected chassis	**SPARC M10-4S side**	**Crossbar box side**
	BB04-XBU1-0R (light blue)	XB81-XBU0-R4 (light blue)
	BB04-XBU1-0R (black)	XB81-XBU0-R4 (black)
	BB04-XBU1-1L (pink)	XB81-XBU1-L4 (pink)
	BB04-XBU1-1L (black)	XB81-XBU1-L4 (black)
	BB04-XBU1-1R (light blue)	XB81-XBU1-R4 (light blue)
	BB04-XBU1-1R (black)	XB81-XBU1-R4 (black)
BB#05 - XBBOX#81	BB05-XBU1-0L (pink)	XB81-XBU0-L5 (pink)
	BB05-XBU1-0L (black)	XB81-XBU0-L5 (black)
	BB05-XBU1-0R (light blue)	XB81-XBU0-R5 (light blue)
	BB05-XBU1-0R (black)	XB81-XBU0-R5 (black)
	BB05-XBU1-1L (pink)	XB81-XBU1-L5 (pink)
	BB05-XBU1-1L (black)	XB81-XBU1-L5 (black)
	BB05-XBU1-1R (light blue)	XB81-XBU1-R5 (light blue)
	BB05-XBU1-1R (black)	XB81-XBU1-R5 (black)
BB#06 - XBBOX#81	BB06-XBU1-0L (pink)	XB81-XBU0-L6 (pink)
	BB06-XBU1-0L (black)	XB81-XBU0-L6 (black)
	BB06-XBU1-0R (light blue)	XB81-XBU0-R6 (light blue)
	BB06-XBU1-0R (black)	XB81-XBU0-R6 (black)
	BB06-XBU1-1L (pink)	XB81-XBU1-L6 (pink)
	BB06-XBU1-1L (black)	XB81-XBU1-L6 (black)
	BB06-XBU1-1R (light blue)	XB81-XBU1-R6 (light blue)
	BB06-XBU1-1R (black)	XB81-XBU1-R6 (black)
BB#07 - XBBOX#81	BB07-XBU1-0L (pink)	XB81-XBU0-L7 (pink)
	BB07-XBU1-0L (black)	XB81-XBU0-L7 (black)
	BB07-XBU1-0R (light blue)	XB81-XBU0-R7 (light blue)
	BB07-XBU1-0R (black)	XB81-XBU0-R7 (black)
	BB07-XBU1-1L (pink)	XB81-XBU1-L7 (pink)
	BB07-XBU1-1L (black)	XB81-XBU1-L7 (black)
	BB07-XBU1-1R (light blue)	XB81-XBU1-R7 (light blue)
	BB07-XBU1-1R (black)	XB81-XBU1-R7 (black)

Figure B-8   XSCF cable connection diagram
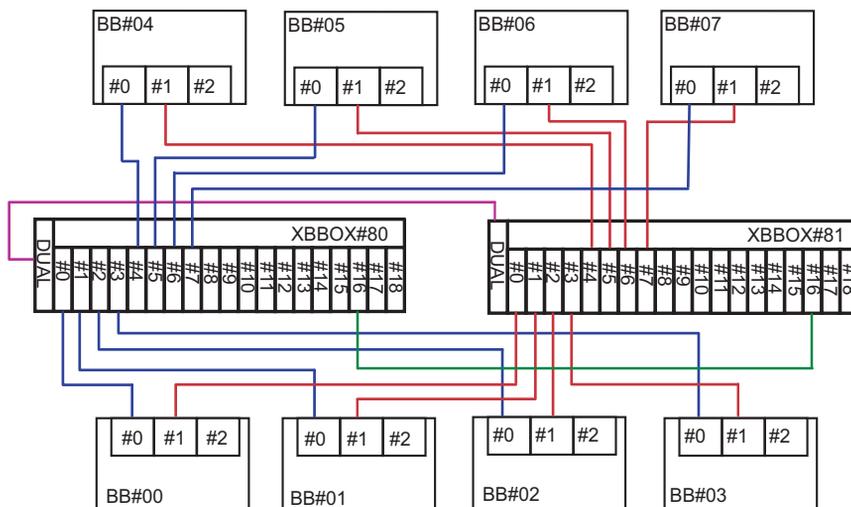
XSCF cable correspondence table

Connected chassis	Connector 1	Connector 2
XBBOX#80 - XBBOX#81	XB80-DUAL	XB81-DUAL
BB#00 - XBBOX#80	BB00-XSCF0	XB80-XSCF0
BB#01 - XBBOX#80	BB01-XSCF0	XB80-XSCF1
BB#02 - XBBOX#80	BB02-XSCF0	XB80-XSCF2
BB#03 - XBBOX#80	BB03-XSCF0	XB80-XSCF3
BB#04 - XBBOX#80	BB04-XSCF0	XB80-XSCF4
BB#05 - XBBOX#80	BB05-XSCF0	XB80-XSCF5
BB#06 - XBBOX#80	BB06-XSCF0	XB80-XSCF6
BB#07 - XBBOX#80	BB07-XSCF0	XB80-XSCF7
BB#00 - XBBOX#81	BB00-XSCF1	XB81-XSCF0
BB#01 - XBBOX#81	BB01-XSCF1	XB81-XSCF1
BB#02 - XBBOX#81	BB02-XSCF1	XB81-XSCF2
BB#03 - XBBOX#81	BB03-XSCF1	XB81-XSCF3
BB#04 - XBBOX#81	BB04-XSCF1	XB81-XSCF4
BB#05 - XBBOX#81	BB05-XSCF1	XB81-XSCF5
BB#06 - XBBOX#81	BB06-XSCF1	XB81-XSCF6
BB#07 - XBBOX#81	BB07-XSCF1	XB81-XSCF7
XBBOX#80 - XBBOX#81	XB80-XSCF16	XB81-XSCF16

B.5 9BB Configuration to 16BB Configuration (Connections through Crossbar Boxes)
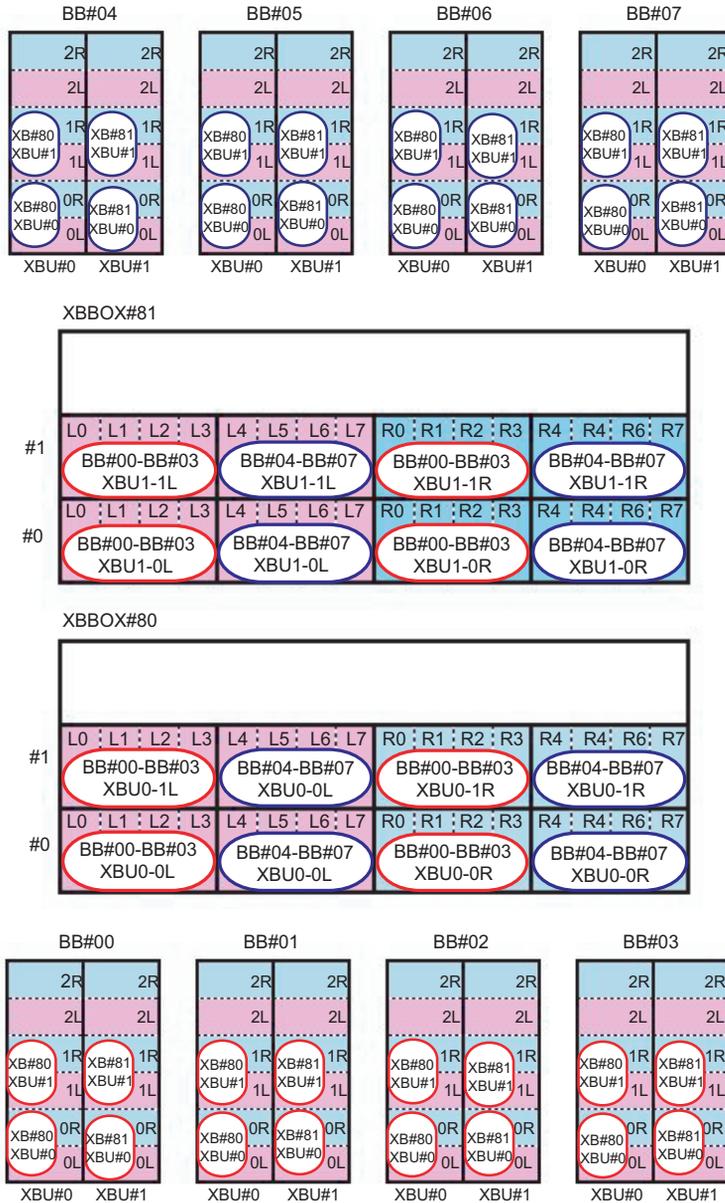
Figure B-9 Crossbar cable (optical) correspondence diagram (expansion rack 1 side)

Table B-9   Crossbar cable (optical) correspondence table (system 0 of expansion rack 1)

Connected chassis	SPARC M10-4S side	Crossbar box side
BB#00 - XBBOX#80	BB00-XBU0-0L (pink)	XB80-XBU0-L0 (pink)
	BB00-XBU0-0L (black)	XB80-XBU0-L0 (black)
	BB00-XBU0-0R (light blue)	XB80-XBU0-R0 (light blue)
	BB00-XBU0-0R (black)	XB80-XBU0-R0 (black)
	BB00-XBU0-1L (pink)	XB80-XBU1-L0 (pink)
	BB00-XBU0-1L (black)	XB80-XBU1-L0 (black)
	BB00-XBU0-1R (light blue)	XB80-XBU1-R0 (light blue)
	BB00-XBU0-1R (black)	XB80-XBU1-R0 (black)
BB#01 - XBBOX#80	BB01-XBU0-0L (pink)	XB80-XBU0-L1 (pink)
	BB01-XBU0-0L (black)	XB80-XBU0-L1 (black)
	BB01-XBU0-0R (light blue)	XB80-XBU0-R1 (light blue)
	BB01-XBU0-0R (black)	XB80-XBU0-R1 (black)
	BB01-XBU0-1L (pink)	XB80-XBU1-L1 (pink)
	BB01-XBU0-1L (black)	XB80-XBU1-L1 (black)
	BB01-XBU0-1R (light blue)	XB80-XBU1-R1 (light blue)
	BB01-XBU0-1R (black)	XB80-XBU1-R1 (black)
BB#02 - XBBOX#80	BB02-XBU0-0L (pink)	XB80-XBU0-L2 (pink)
	BB02-XBU0-0L (black)	XB80-XBU0-L2 (black)
	BB02-XBU0-0R (light blue)	XB80-XBU0-R2 (light blue)
	BB02-XBU0-0R (black)	XB80-XBU0-R2 (black)
	BB02-XBU0-1L (pink)	XB80-XBU1-L2 (pink)
	BB02-XBU0-1L (black)	XB80-XBU1-L2 (black)
	BB02-XBU0-1R (light blue)	XB80-XBU1-R2 (light blue)
	BB02-XBU0-1R (black)	XB80-XBU1-R2 (black)
BB#03 - XBBOX#80	BB03-XBU0-0L (pink)	XB80-XBU0-L3 (pink)
	BB03-XBU0-0L (black)	XB80-XBU0-L3 (black)
	BB03-XBU0-0R (light blue)	XB80-XBU0-R3 (light blue)
	BB03-XBU0-0R (black)	XB80-XBU0-R3 (black)
	BB03-XBU0-1L (pink)	XB80-XBU1-L3 (pink)
	BB03-XBU0-1L (black)	XB80-XBU1-L3 (black)
	BB03-XBU0-1R (light blue)	XB80-XBU1-R3 (light blue)

Table B-9   Crossbar cable (optical) correspondence table (system 0 of expansion rack 1) *(continued)*

Connected chassis	SPARC M10-4S side	Crossbar box side
	BB03-XBU0-1R (black)	XB80-XBU1-R3 (black)
BB#04 - XBBOX#80	BB04-XBU0-0L (pink)	XB80-XBU0-L4 (pink)
	BB04-XBU0-0L (black)	XB80-XBU0-L4 (black)
	BB04-XBU0-0R (light blue)	XB80-XBU0-R4 (light blue)
	BB04-XBU0-0R (black)	XB80-XBU0-R4 (black)
	BB04-XBU0-2L (pink)	XB80-XBU2-L0 (pink)
	BB04-XBU0-2L (black)	XB80-XBU2-L0 (black)
	BB04-XBU0-2R (light blue)	XB80-XBU2-R0 (light blue)
	BB04-XBU0-2R (black)	XB80-XBU2-R0 (black)
BB#05 - XBBOX#80	BB05-XBU0-0L (pink)	XB80-XBU0-L5 (pink)
	BB05-XBU0-0L (black)	XB80-XBU0-L5 (black)
	BB05-XBU0-0R (light blue)	XB80-XBU0-R5 (light blue)
	BB05-XBU0-0R (black)	XB80-XBU0-R5 (black)
	BB05-XBU0-2L (pink)	XB80-XBU2-L1 (pink)
	BB05-XBU0-2L (black)	XB80-XBU2-L1 (black)
	BB05-XBU0-2R (light blue)	XB80-XBU2-R1 (light blue)
	BB05-XBU0-2R (black)	XB80-XBU2-R1 (black)
BB#06 - XBBOX#80	BB06-XBU0-0L (pink)	XB80-XBU0-L6 (pink)
	BB06-XBU0-0L (black)	XB80-XBU0-L6 (black)
	BB06-XBU0-0R (light blue)	XB80-XBU0-R6 (light blue)
	BB06-XBU0-0R (black)	XB80-XBU0-R6 (black)
	BB06-XBU0-2L (pink)	XB80-XBU2-L2 (pink)
	BB06-XBU0-2L (black)	XB80-XBU2-L2 (black)
	BB06-XBU0-2R (light blue)	XB80-XBU2-R2 (light blue)
	BB06-XBU0-2R (black)	XB80-XBU2-R2 (black)
BB#07 - XBBOX#80	BB07-XBU0-0L (pink)	XB80-XBU0-L7 (pink)
	BB07-XBU0-0L (black)	XB80-XBU0-L7 (black)
	BB07-XBU0-0R (light blue)	XB80-XBU0-R7 (light blue)
	BB07-XBU0-0R (black)	XB80-XBU0-R7 (black)
	BB07-XBU0-2L (pink)	XB80-XBU2-L3 (pink)
	BB07-XBU0-2L (black)	XB80-XBU2-L3 (black)
	BB07-XBU0-2R (light blue)	XB80-XBU2-R3 (light blue)
	BB07-XBU0-2R (black)	XB80-XBU2-R3 (black)

Table B-10   Crossbar cable (optical) correspondence table (system 1 of expansion rack 1)

Connected chassis	SPARC M10-4S side	Crossbar box side
BB#00 - XBBOX#81	BB00-XBU1-0L (pink)	XB81-XBU0-L0 (pink)
	BB00-XBU1-0L (black)	XB81-XBU0-L0 (black)
	BB00-XBU1-0R (light blue)	XB81-XBU0-R0 (light blue)
	BB00-XBU1-0R (black)	XB81-XBU0-R0 (black)
	BB00-XBU1-1L (pink)	XB81-XBU1-L0 (pink)
	BB00-XBU1-1L (black)	XB81-XBU1-L0 (black)
	BB00-XBU1-1R (light blue)	XB81-XBU1-R0 (light blue)
	BB00-XBU1-1R (black)	XB81-XBU1-R0 (black)
BB#01 - XBBOX#81	BB01-XBU1-0L (pink)	XB81-XBU0-L1 (pink)
	BB01-XBU1-0L (black)	XB81-XBU0-L1 (black)
	BB01-XBU1-0R (light blue)	XB81-XBU0-R1 (light blue)
	BB01-XBU1-0R (black)	XB81-XBU0-R1 (black)
	BB01-XBU1-1L (pink)	XB81-XBU1-L1 (pink)
	BB01-XBU1-1L (black)	XB81-XBU1-L1 (black)
	BB01-XBU1-1R (light blue)	XB81-XBU1-R1 (light blue)
	BB01-XBU1-1R (black)	XB81-XBU1-R1 (black)
BB#02 - XBBOX#81	BB02-XBU1-0L (pink)	XB81-XBU0-L2 (pink)
	BB02-XBU1-0L (black)	XB81-XBU0-L2 (black)
	BB02-XBU1-0R (light blue)	XB81-XBU0-R2 (light blue)
	BB02-XBU1-0R (black)	XB81-XBU0-R2 (black)
	BB02-XBU1-1L (pink)	XB81-XBU1-L2 (pink)
	BB02-XBU1-1L (black)	XB81-XBU1-L2 (black)
	BB02-XBU1-1R (light blue)	XB81-XBU1-R2 (light blue)
	BB02-XBU1-1R (black)	XB81-XBU1-R2 (black)
BB#03 - XBBOX#81	BB03-XBU1-0L (pink)	XB81-XBU0-L3 (pink)
	BB03-XBU1-0L (black)	XB81-XBU0-L3 (black)
	BB03-XBU1-0R (light blue)	XB81-XBU0-R3 (light blue)
	BB03-XBU1-0R (black)	XB81-XBU0-R3 (black)
	BB03-XBU1-1L (pink)	XB81-XBU1-L3 (pink)
	BB03-XBU1-1L (black)	XB81-XBU1-L3 (black)
	BB03-XBU1-1R (light blue)	XB81-XBU1-R3 (light blue)
	BB03-XBU1-1R (black)	XB81-XBU1-R3 (black)
BB#04 - XBBOX#81	BB04-XBU1-0L (pink)	XB81-XBU0-L4 (pink)
	BB04-XBU1-0L (black)	XB81-XBU0-L4 (black)

Table B-10 Crossbar cable (optical) correspondence table (system 1 of expansion rack 1) *(continued)*

Connected chassis	SPARC M10-4S side	Crossbar box side
	BB04-XBU1-0R (light blue)	XB81-XBU0-R4 (light blue)
	BB04-XBU1-0R (black)	XB81-XBU0-R4 (black)
	BB04-XBU1-2L (pink)	XB81-XBU2-L0 (pink)
	BB04-XBU1-2L (black)	XB81-XBU2-L0 (black)
	BB04-XBU1-2R (light blue)	XB81-XBU2-R0 (light blue)
	BB04-XBU1-2R (black)	XB81-XBU2-R0 (black)
BB#05 - XBBOX#81	BB05-XBU1-0L (pink)	XB81-XBU0-L5 (pink)
	BB05-XBU1-0L (black)	XB81-XBU0-L5 (black)
	BB05-XBU1-0R (light blue)	XB81-XBU0-R5 (light blue)
	BB05-XBU1-0R (black)	XB81-XBU0-R5 (black)
	BB05-XBU1-2L (pink)	XB81-XBU2-L1 (pink)
	BB05-XBU1-2L (black)	XB81-XBU2-L1 (black)
	BB05-XBU1-2R (light blue)	XB81-XBU2-R1 (light blue)
	BB05-XBU1-2R (black)	XB81-XBU2-R1 (black)
BB#06 - XBBOX#81	BB06-XBU1-0L (pink)	XB81-XBU0-L6 (pink)
	BB06-XBU1-0L (black)	XB81-XBU0-L6 (black)
	BB06-XBU1-0R (light blue)	XB81-XBU0-R6 (light blue)
	BB06-XBU1-0R (black)	XB81-XBU0-R6 (black)
	BB06-XBU1-2L (pink)	XB81-XBU2-L2 (pink)
	BB06-XBU1-2L (black)	XB81-XBU2-L2 (black)
	BB06-XBU1-2R (light blue)	XB81-XBU2-R2 (light blue)
	BB06-XBU1-2R (black)	XB81-XBU2-R2 (black)
BB#07 - XBBOX#81	BB07-XBU1-0L (pink)	XB81-XBU0-L7 (pink)
	BB07-XBU1-0L (black)	XB81-XBU0-L7 (black)
	BB07-XBU1-0R (light blue)	XB81-XBU0-R7 (light blue)
	BB07-XBU1-0R (black)	XB81-XBU0-R7 (black)
	BB07-XBU1-2L (pink)	XB81-XBU2-L3 (pink)
	BB07-XBU1-2L (black)	XB81-XBU2-L3 (black)
	BB07-XBU1-2R (light blue)	XB81-XBU2-R3 (light blue)
	BB07-XBU1-2R (black)	XB81-XBU2-R3 (black)

Figure B-10   Crossbar cable (optical) correspondence diagram (expansion rack 2 side)
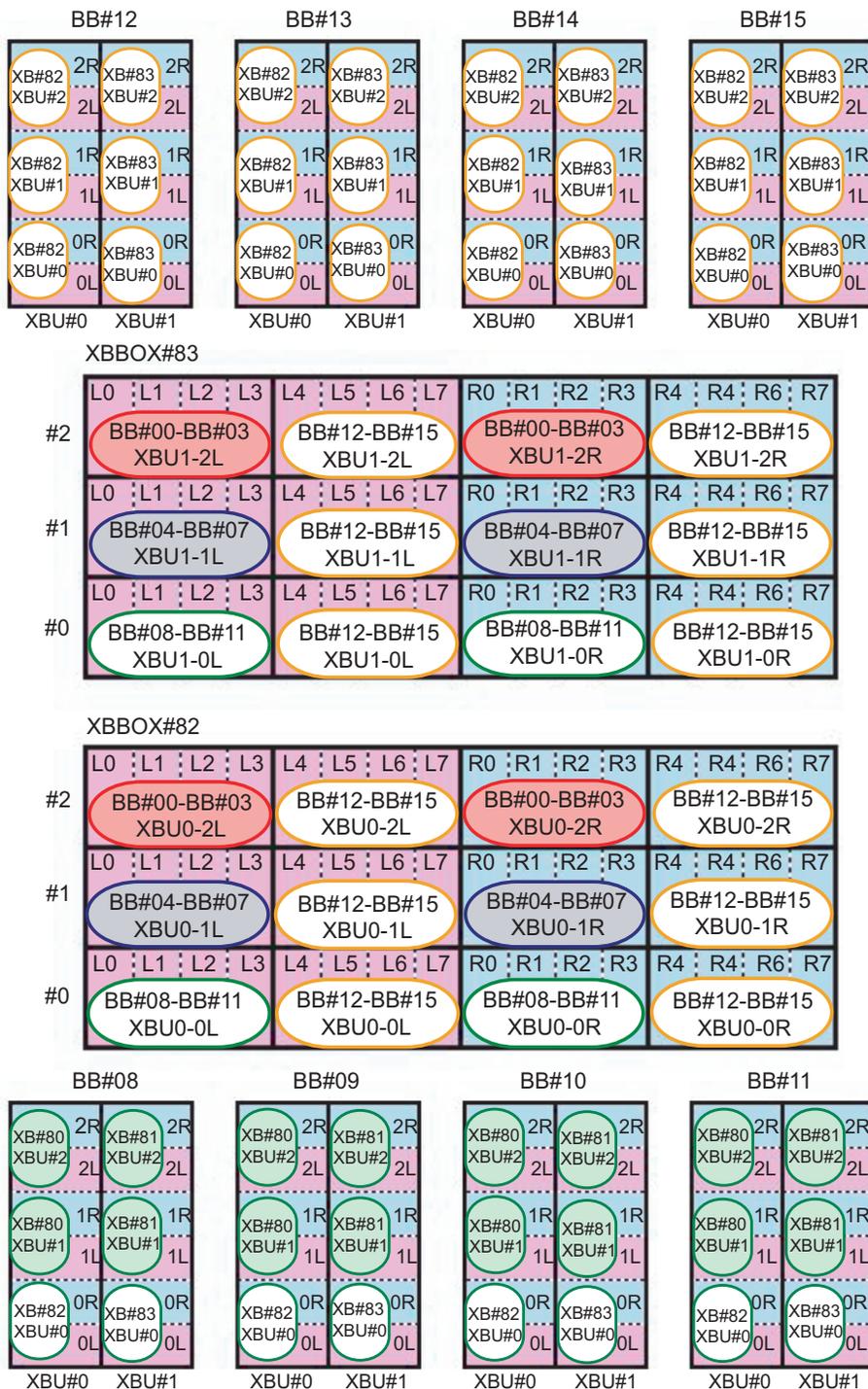
Table B-11   Crossbar cable (optical) correspondence table (system 0 of expansion rack 2)

Connected chassis	SPARC M10-4S side	Crossbar box side
BB#08 - XBBOX#82	BB08-XBU0-0L (pink)	XB82-XBU0-L0 (pink)
	BB08-XBU0-0L (black)	XB82-XBU0-L0 (black)
	BB08-XBU0-0R (light blue)	XB82-XBU0-R0 (light blue)
	BB08-XBU0-0R (black)	XB82-XBU0-R0 (black)
BB#09 - XBBOX#82	BB09-XBU0-0L (pink)	XB82-XBU0-L1 (pink)
	BB09-XBU0-0L (black)	XB82-XBU0-L1 (black)
	BB09-XBU0-0R (light blue)	XB82-XBU0-R1 (light blue)
	BB09-XBU0-0R (black)	XB82-XBU0-R1 (black)
BB#10 - XBBOX#82	BB10-XBU0-0L (pink)	XB82-XBU0-L2 (pink)
	BB10-XBU0-0L (black)	XB82-XBU0-L2 (black)
	BB10-XBU0-0R (light blue)	XB82-XBU0-R2 (light blue)
	BB10-XBU0-0R (black)	XB82-XBU0-R2 (black)
BB#11 - XBBOX#82	BB11-XBU0-0L (pink)	XB82-XBU0-L3 (pink)
	BB11-XBU0-0L (black)	XB82-XBU0-L3 (black)
	BB11-XBU0-0R (light blue)	XB82-XBU0-R3 (light blue)
	BB11-XBU0-0R (black)	XB82-XBU0-R3 (black)
BB#12 - XBBOX#82	BB12-XBU0-0L (pink)	XB82-XBU0-L4 (pink)
	BB12-XBU0-0L (black)	XB82-XBU0-L4 (black)
	BB12-XBU0-0R (light blue)	XB82-XBU0-R4 (light blue)
	BB12-XBU0-0R (black)	XB82-XBU0-R4 (black)
	BB12-XBU0-1L (pink)	XB82-XBU1-L4 (pink)
	BB12-XBU0-1L (black)	XB82-XBU1-L4 (black)
	BB12-XBU0-1R (light blue)	XB82-XBU1-R4 (light blue)
	BB12-XBU0-1R (black)	XB82-XBU1-R4 (black)
	BB12-XBU0-2L (pink)	XB82-XBU2-L4 (pink)
	BB12-XBU0-2L (black)	XB82-XBU2-L4 (black)
	BB12-XBU0-2R (light blue)	XB82-XBU2-R4 (light blue)
	BB12-XBU0-2R (black)	XB82-XBU2-R4 (black)
BB#13 - XBBOX#82	BB13-XBU0-0L (pink)	XB82-XBU0-L5 (pink)
	BB13-XBU0-0L (black)	XB82-XBU0-L5 (black)
	BB13-XBU0-0R (light blue)	XB82-XBU0-R5 (light blue)

Table B-11   Crossbar cable (optical) correspondence table (system 0 of expansion rack 2)
(continued)

| Connected chassis	SPARC M10-4S side	Crossbar box side
	BB13-XBU0-0R (black)	XB82-XBU0-R5 (black)
	BB13-XBU0-1L (pink)	XB82-XBU1-L5 (pink)
	BB13-XBU0-1L (black)	XB82-XBU1-L5 (black)
	BB13-XBU0-1R (light blue)	XB82-XBU1-R5 (light blue)
	BB13-XBU0-1R (black)	XB82-XBU1-R5 (black)
	BB13-XBU0-2L (pink)	XB82-XBU2-L5 (pink)
	BB13-XBU0-2L (black)	XB82-XBU2-L5 (black)
	BB13-XBU0-2R (light blue)	XB82-XBU2-R5 (light blue)
	BB13-XBU0-2R (black)	XB82-XBU2-R5 (black)
BB#14 - XBBOX#82	BB14-XBU0-0L (pink)	XB82-XBU0-L6 (pink)
	BB14-XBU0-0L (black)	XB82-XBU0-L6 (black)
	BB14-XBU0-0R (light blue)	XB82-XBU0-R6 (light blue)
	BB14-XBU0-0R (black)	XB82-XBU0-R6 (black)
	BB14-XBU0-1L (pink)	XB82-XBU1-L6 (pink)
	BB14-XBU0-1L (black)	XB82-XBU1-L6 (black)
	BB14-XBU0-1R (light blue)	XB82-XBU1-R6 (light blue)
	BB14-XBU0-1R (black)	XB82-XBU1-R6 (black)
	BB14-XBU0-2L (pink)	XB82-XBU2-L6 (pink)
	BB14-XBU0-2L (black)	XB82-XBU2-L6 (black)
	BB14-XBU0-2R (light blue)	XB82-XBU2-R6 (light blue)
	BB14-XBU0-2R (black)	XB82-XBU2-R6 (black)
BB#15 - XBBOX#82	BB15-XBU0-0L (pink)	XB82-XBU0-L7 (pink)
	BB15-XBU0-0L (black)	XB82-XBU0-L7 (black)
	BB15-XBU0-0R (light blue)	XB82-XBU0-R7 (light blue)
	BB15-XBU0-0R (black)	XB82-XBU0-R7 (black)
	BB15-XBU0-1L (pink)	XB82-XBU1-L7 (pink)
	BB15-XBU0-1L (black)	XB82-XBU1-L7 (black)
	BB15-XBU0-1R (light blue)	XB82-XBU1-R7 (light blue)
	BB15-XBU0-1R (black)	XB82-XBU1-R7 (black)
	BB15-XBU0-2L (pink)	XB82-XBU2-L7 (pink)
	BB15-XBU0-2L (black)	XB82-XBU2-L7 (black)
	BB15-XBU0-2R (light blue)	XB82-XBU2-R7 (light blue)
	BB15-XBU0-2R (black)	XB82-XBU2-R7 (black)

Table B-12　　Crossbar cable (optical) correspondence table (system 1 of expansion rack 2)

Connected chassis	SPARC M10-4S side	Crossbar box side
BB#08 - XBBOX#83	BB08-XBU1-0L (pink)	XB83-XBU0-L0 (pink)
	BB08-XBU1-0L (black)	XB83-XBU0-L0 (black)
	BB08-XBU1-0R (light blue)	XB83-XBU0-R0 (light blue)
	BB08-XBU1-0R (black)	XB83-XBU0-R0 (black)
BB#09 - XBBOX#83	BB09-XBU1-0L (pink)	XB83-XBU0-L1 (pink)
	BB09-XBU1-0L (black)	XB83-XBU0-L1 (black)
	BB09-XBU1-0R (light blue)	XB83-XBU0-R1 (light blue)
	BB09-XBU1-0R (black)	XB83-XBU0-R1 (black)
BB#10 - XBBOX#83	BB10-XBU1-0L (pink)	XB83-XBU0-L2 (pink)
	BB10-XBU1-0L (black)	XB83-XBU0-L2 (black)
	BB10-XBU1-0R (light blue)	XB83-XBU0-R2 (light blue)
	BB10-XBU1-0R (black)	XB83-XBU0-R2 (black)
BB#11 - XBBOX#83	BB11-XBU1-0L (pink)	XB83-XBU0-L3 (pink)
	BB11-XBU1-0L (black)	XB83-XBU0-L3 (black)
	BB11-XBU1-0R (light blue)	XB83-XBU0-R3 (light blue)
	BB11-XBU1-0R (black)	XB83-XBU0-R3 (black)
BB#12 - XBBOX#83	BB12-XBU1-0L (pink)	XB83-XBU0-L4 (pink)
	BB12-XBU1-0L (pink)	XB83-XBU0-L4 (black)
	BB12-XBU1-0R (light blue)	XB83-XBU0-R4 (light blue)
	BB12-XBU1-0R (black)	XB83-XBU0-R4 (black)
	BB12-XBU1-1L (pink)	XB83-XBU1-L4 (pink)
	BB12-XBU1-1L (black)	XB83-XBU1-L4 (black)
	BB12-XBU1-1R (light blue)	XB83-XBU1-R4 (light blue)
	BB12-XBU1-1R (black)	XB83-XBU1-R4 (black)
	BB12-XBU1-2L (pink)	XB83-XBU2-L4 (pink)
	BB12-XBU1-2L (black)	XB83-XBU2-L4 (black)
	BB12-XBU1-2R (light blue)	XB83-XBU2-R4 (light blue)
	BB12-XBU1-2R (black)	XB83-XBU2-R4 (black)
BB#13 - XBBOX#83	BB13-XBU1-0L (pink)	XB83-XBU0-L5 (pink)
	BB13-XBU1-0L (pink)	XB83-XBU0-L5 (black)
	BB13-XBU1-0R (light blue)	XB83-XBU0-R5 (light blue)
	BB13-XBU1-0R (black)	XB83-XBU0-R5 (black)
	BB13-XBU1-1L (pink)	XB83-XBU1-L5 (pink)
	BB13-XBU1-1L (black)	XB83-XBU1-L5 (black)

Table B-12   Crossbar cable (optical) correspondence table (system 1 of expansion rack 2)
(continued)

Connected chassis	SPARC M10-4S side	Crossbar box side
	BB13-XBU1-1R (light blue)	XB83-XBU1-R5 (light blue)
	BB13-XBU1-1R (black)	XB83-XBU1-R5 (black)
	BB13-XBU1-2L (pink)	XB83-XBU2-L5 (pink)
	BB13-XBU1-2L (black)	XB83-XBU2-L5 (black)
	BB13-XBU1-2R (light blue)	XB83-XBU2-R5 (light blue)
	BB13-XBU1-2R (black)	XB83-XBU2-R5 (black)
BB#14 - XBBOX#83	BB14-XBU1-0L (pink)	XB83-XBU0-L6 (pink)
	BB14-XBU1-0L (pink)	XB83-XBU0-L6 (black)
	BB14-XBU1-0R (light blue)	XB83-XBU0-R6 (light blue)
	BB14-XBU1-0R (black)	XB83-XBU0-R6 (black)
	BB14-XBU1-1L (pink)	XB83-XBU1-L6 (pink)
	BB14-XBU1-1L (black)	XB83-XBU1-L6 (black)
	BB14-XBU1-1R (light blue)	XB83-XBU1-R6 (light blue)
	BB14-XBU1-1R (black)	XB83-XBU1-R6 (black)
	BB14-XBU1-2L (pink)	XB83-XBU2-L6 (pink)
	BB14-XBU1-2L (black)	XB83-XBU2-L6 (black)
	BB14-XBU1-2R (light blue)	XB83-XBU2-R6 (light blue)
	BB14-XBU1-2R (black)	XB83-XBU2-R6 (black)
BB#15 - XBBOX#83	BB15-XBU1-0L (pink)	XB83-XBU0-L7 (pink)
	BB15-XBU1-0L (black)	XB83-XBU0-L7 (black)
	BB15-XBU1-0R (light blue)	XB83-XBU0-R7 (light blue)
	BB15-XBU1-0R (black)	XB83-XBU0-R7 (black)
	BB15-XBU1-1L (pink)	XB83-XBU1-L7 (pink)
	BB15-XBU1-1L (black)	XB83-XBU1-L7 (black)
	BB15-XBU1-1R (light blue)	XB83-XBU1-R7 (light blue)
	BB15-XBU1-1R (black)	XB83-XBU1-R7 (black)
	BB15-XBU1-2L (pink)	XB83-XBU2-L7 (pink)
	BB15-XBU1-2L (black)	XB83-XBU2-L7 (black)
	BB15-XBU1-2R (light blue)	XB83-XBU2-R7 (light blue)
	BB15-XBU1-2R (black)	XB83-XBU2-R7 (black)

Table B-13   Crossbar cable (optical) correspondence table (cables between the racks)

Connected chassis	SPARC M10-4S side	Crossbar box side
BB#00 - XBBOX#82	BB00-XBU0-2L (pink)	XB82-XBU2-L0 (pink)
	BB00-XBU0-2L (black)	XB82-XBU2-L0 (black)
	BB00-XBU0-2R (light blue)	XB82-XBU2-R0 (light blue)
	BB00-XBU0-2R (black)	XB82-XBU2-R0 (black)
BB#00 - XBBOX#83	BB00-XBU1-2L (pink)	XB83-XBU2-L0 (pink)
	BB00-XBU1-2L (black)	XB83-XBU2-L0 (black)
	BB00-XBU1-2R (light blue)	XB83-XBU2-R0 (light blue)
	BB00-XBU1-2R (black)	XB83-XBU2-R0 (black)
BB#01 - XBBOX#82	BB01-XBU0-2L (pink)	XB82-XBU2-L1 (pink)
	BB01-XBU0-2L (black)	XB82-XBU2-L1 (black)
	BB01-XBU0-2R (light blue)	XB82-XBU2-R1 (light blue)
	BB01-XBU0-2R (black)	XB82-XBU2-R1 (black)
BB#01 - XBBOX#83	BB01-XBU1-2L (pink)	XB83-XBU2-L1 (pink)
	BB01-XBU1-2L (black)	XB83-XBU2-L1 (black)
	BB01-XBU1-2R (light blue)	XB83-XBU2-R1 (light blue)
	BB01-XBU1-2R (black)	XB83-XBU2-R1 (black)
BB#02 - XBBOX#82	BB02-XBU0-2L (pink)	XB82-XBU2-L2 (pink)
	BB02-XBU0-2L (black)	XB82-XBU2-L2 (black)
	BB02-XBU0-2R (light blue)	XB82-XBU2-R2 (light blue)
	BB02-XBU0-2R (black)	XB82-XBU2-R2 (black)
BB#02 - XBBOX#83	BB02-XBU1-2L (pink)	XB83-XBU2-L2 (pink)
	BB02-XBU1-2L (black)	XB83-XBU2-L2 (black)
	BB02-XBU1-2R (light blue)	XB83-XBU2-R2 (light blue)
	BB02-XBU1-2R (black)	XB83-XBU2-R2 (black)
BB#03 - XBBOX#82	BB03-XBU0-2L (pink)	XB82-XBU2-L3 (pink)
	BB03-XBU0-2L (black)	XB82-XBU2-L3 (black)
	BB03-XBU0-2R (light blue)	XB82-XBU2-R3 (light blue)
	BB03-XBU0-2R (black)	XB82-XBU2-R3 (black)
BB#03 - XBBOX#83	BB03-XBU1-2L (pink)	XB83-XBU2-L3 (pink)
	BB03-XBU1-2L (black)	XB83-XBU2-L3 (black)
	BB03-XBU1-2R (light blue)	XB83-XBU2-R3 (light blue)
	BB03-XBU1-2R (black)	XB83-XBU2-R3 (black)
BB#04 - XBBOX#82	BB04-XBU0-1L (pink)	XB82-XBU1-L0 (pink)
	BB04-XBU0-1L (black)	XB82-XBU1-L0 (black)

Table B-13   Crossbar cable (optical) correspondence table (cables between the racks)
(continued)

Connected chassis	SPARC M10-4S side	Crossbar box side
	BB04-XBU0-1R (light blue)	XB82-XBU1-R0 (light blue)
	BB04-XBU0-1R (black)	XB82-XBU1-R0 (black)
BB#04 - XBBOX#83	BB04-XBU1-1L (pink)	XB83-XBU1-L0 (pink)
	BB04-XBU1-1L (black)	XB83-XBU1-L0 (black)
	BB04-XBU1-1R (light blue)	XB83-XBU1-R0 (light blue)
	BB04-XBU1-1R (black)	XB83-XBU1-R0 (black)
BB#05 - XBBOX#82	BB05-XBU0-1L (pink)	XB82-XBU1-L1 (pink)
	BB05-XBU0-1L (black)	XB82-XBU1-L1 (black)
	BB05-XBU0-1R (light blue)	XB82-XBU1-R1 (light blue)
	BB05-XBU0-1R (black)	XB82-XBU1-R1 (black)
BB#05 - XBBOX#83	BB05-XBU1-1L (pink)	XB83-XBU1-L1 (pink)
	BB05-XBU1-1L (black)	XB83-XBU1-L1 (black)
	BB05-XBU1-1R (light blue)	XB83-XBU1-R1 (light blue)
	BB05-XBU1-1R (black)	XB83-XBU1-R1 (black)
BB#06 - XBBOX#82	BB06-XBU0-1L (pink)	XB82-XBU1-L2 (pink)
	BB06-XBU0-1L (black)	XB82-XBU1-L2 (black)
	BB06-XBU0-1R (light blue)	XB82-XBU1-R2 (light blue)
	BB06-XBU0-1R (black)	XB82-XBU1-R2 (black)
BB#06 - XBBOX#83	BB06-XBU1-1L (pink)	XB83-XBU1-L2 (pink)
	BB06-XBU1-1L (black)	XB83-XBU1-L2 (black)
	BB06-XBU1-1R (light blue)	XB83-XBU1-R2 (light blue)
	BB06-XBU1-1R (black)	XB83-XBU1-R2 (black)
BB#07 - XBBOX#82	BB07-XBU0-1L (pink)	XB82-XBU1-L3 (pink)
	BB07-XBU0-1L (black)	XB82-XBU1-L3 (black)
	BB07-XBU0-1R (light blue)	XB82-XBU1-R3 (light blue)
	BB07-XBU0-1R (black)	XB82-XBU1-R3 (black)
BB#07 - XBBOX#83	BB07-XBU1-1L (pink)	XB83-XBU1-L3 (pink)
	BB07-XBU1-1L (black)	XB83-XBU1-L3 (black)
	BB07-XBU1-1R (light blue)	XB83-XBU1-R3 (light blue)
	BB07-XBU1-1R (black)	XB83-XBU1-R3 (black)

Table B-14   Crossbar cable (optical) correspondence table (cables between the racks)

Connected chassis	SPARC M10-4S side	Crossbar box side
BB#08 - XBBOX#80	BB08-XBU0-1L (pink)	XB80-XBU1-L4 (pink)
	BB08-XBU0-1L (black)	XB80-XBU1-L4 (black)
	BB08-XBU0-1R (light blue)	XB80-XBU1-R4 (light blue)
	BB08-XBU0-1R (black)	XB80-XBU1-R4 (black)
	BB08-XBU0-2L (pink)	XB80-XBU2-L4 (pink)
	BB08-XBU0-2L (black)	XB80-XBU2-L4 (black)
	BB08-XBU0-2R (light blue)	XB80-XBU2-R4 (light blue)
	BB08-XBU0-2R (black)	XB80-XBU2-R4 (black)
BB#08 - XBBOX#81	BB08-XBU1-1L (pink)	XB81-XBU1-L4 (pink)
	BB08-XBU1-1L (black)	XB81-XBU1-L4 (black)
	BB08-XBU1-1R (light blue)	XB81-XBU1-R4 (light blue)
	BB08-XBU1-1R (black)	XB81-XBU1-R4 (black)
	BB08-XBU1-2L (pink)	XB81-XBU2-L4 (pink)
	BB08-XBU1-2L (black)	XB81-XBU2-L4 (black)
	BB08-XBU1-2R (light blue)	XB81-XBU2-R4 (light blue)
	BB08-XBU1-2R (black)	XB81-XBU2-R4 (black)
BB#09 - XBBOX#80	BB09-XBU0-1L (pink)	XB80-XBU1-L5 (pink)
	BB09-XBU0-1L (black)	XB80-XBU1-L5 (black)
	BB09-XBU0-1R (light blue)	XB80-XBU1-R5 (light blue)
	BB09-XBU0-1R (black)	XB80-XBU1-R5 (black)
	BB09-XBU0-2L (pink)	XB80-XBU2-L5 (pink)
	BB09-XBU0-2L (black)	XB80-XBU2-L5 (black)
	BB09-XBU0-2R (light blue)	XB80-XBU2-R5 (light blue)
	BB09-XBU0-2R (black)	XB80-XBU2-R5 (black)
BB#09 - XBBOX#81	BB09-XBU1-1L (pink)	XB81-XBU1-L5 (pink)
	BB09-XBU1-1L (black)	XB81-XBU1-L5 (black)
	BB09-XBU1-1R (light blue)	XB81-XBU1-R5 (light blue)
	BB09-XBU1-1R (black)	XB81-XBU1-R5 (black)
	BB09-XBU1-2L (pink)	XB81-XBU2-L5 (pink)
	BB09-XBU1-2L (black)	XB81-XBU2-L5 (black)
	BB09-XBU1-2R (light blue)	XB81-XBU2-R5 (light blue)
	BB09-XBU1-2R (black)	XB81-XBU2-R5 (black)
BB#10 - XBBOX#80	BB10-XBU0-1L (pink)	XB80-XBU1-L6 (pink)
	BB10-XBU0-1L (black)	XB80-XBU1-L6 (black)

Table B-14   Crossbar cable (optical) correspondence table (cables between the racks) *(continued)*

Connected chassis	SPARC M10-4S side	Crossbar box side
	BB10-XBU0-1R (light blue)	XB80-XBU1-R6 (light blue)
	BB10-XBU0-1R (black)	XB80-XBU1-R6 (black)
	BB10-XBU0-2L (pink)	XB80-XBU2-L6 (pink)
	BB10-XBU0-2L (black)	XB80-XBU2-L6 (black)
	BB10-XBU0-2R (light blue)	XB80-XBU2-R6 (light blue)
	BB10-XBU0-2R (black)	XB80-XBU2-R6 (black)
BB#10 - XBBOX#81	BB10-XBU1-1L (pink)	XB81-XBU1-L6 (pink)
	BB10-XBU1-1L (black)	XB81-XBU1-L6 (black)
	BB10-XBU1-1R (light blue)	XB81-XBU1-R6 (light blue)
	BB10-XBU1-1R (black)	XB81-XBU1-R6 (black)
	BB10-XBU1-2L (pink)	XB81-XBU2-L6 (pink)
	BB10-XBU1-2L (black)	XB81-XBU2-L6 (black)
	BB10-XBU1-2R (light blue)	XB81-XBU2-R6 (light blue)
	BB10-XBU1-2R (black)	XB81-XBU2-R6 (black)
BB#11 - XBBOX#80	BB11-XBU0-1L (pink)	XB80-XBU1-L7 (pink)
	BB11-XBU0-1L (black)	XB80-XBU1-L7 (black)
	BB11-XBU0-1R (light blue)	XB80-XBU1-R7 (light blue)
	BB11-XBU0-1R (black)	XB80-XBU1-R7 (black)
	BB11-XBU0-2L (pink)	XB80-XBU2-L7 (pink)
	BB11-XBU0-2L (black)	XB80-XBU2-L7 (black)
	BB11-XBU0-2R (light blue)	XB80-XBU2-R7 (light blue)
	BB11-XBU0-2R (black)	XB80-XBU2-R7 (black)
BB#11 - XBBOX#81	BB11-XBU1-1L (pink)	XB81-XBU1-L7 (pink)
	BB11-XBU1-1L (black)	XB81-XBU1-L7 (black)
	BB11-XBU1-1R (light blue)	XB81-XBU1-R7 (light blue)
	BB11-XBU1-1R (black)	XB81-XBU1-R7 (black)
	BB11-XBU1-2L (pink)	XB81-XBU2-L7 (pink)
	BB11-XBU1-2L (black)	XB81-XBU2-L7 (black)
	BB11-XBU1-2R (light blue)	XB81-XBU2-R7 (light blue)
	BB11-XBU1-2R (black)	XB81-XBU2-R7 (black)

Figure B-11   XSCF cable connection diagram
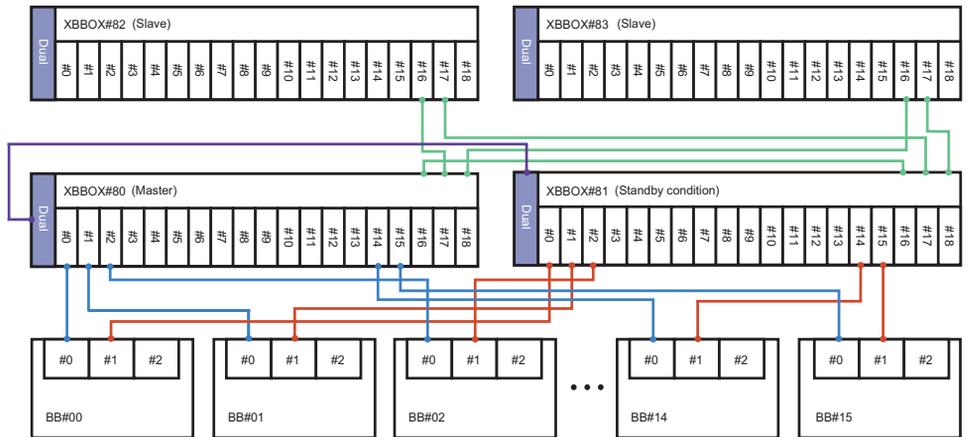
Table B-15   XSCF cable correspondence table

Connected chassis	Connector 1	Connector 2
XBBOX#80 - XBBOX#81	XB80-DUAL	XB81-DUAL
BB#00 - XBBOX#80	BB00-XSCF0	XB80-XSCF0
BB#01 - XBBOX#80	BB01-XSCF0	XB80-XSCF1
BB#02 - XBBOX#80	BB02-XSCF0	XB80-XSCF2
BB#03 - XBBOX#80	BB03-XSCF0	XB80-XSCF3
BB#04 - XBBOX#80	BB04-XSCF0	XB80-XSCF4
BB#05 - XBBOX#80	BB05-XSCF0	XB80-XSCF5
BB#06 - XBBOX#80	BB06-XSCF0	XB80-XSCF6
BB#07 - XBBOX#80	BB07-XSCF0	XB80-XSCF7
BB#08 - XBBOX#80	BB08-XSCF0	XB80-XSCF8
BB#09 - XBBOX#80	BB09-XSCF0	XB80-XSCF9
BB#10 - XBBOX#80	BB10-XSCF0	XB80-XSCF10
BB#11 - XBBOX#80	BB11-XSCF0	XB80-XSCF11
BB#12 - XBBOX#80	BB12-XSCF0	XB80-XSCF12
BB#13 - XBBOX#80	BB13-XSCF0	XB80-XSCF13
BB#14 - XBBOX#80	BB14-XSCF0	XB80-XSCF14
BB#15 - XBBOX#80	BB15-XSCF0	XB80-XSCF15
BB#00 - XBBOX#81	BB00-XSCF1	XB81-XSCF0
BB#01 - XBBOX#81	BB01-XSCF1	XB81-XSCF1
BB#02 - XBBOX#81	BB02-XSCF1	XB81-XSCF2
BB#03 - XBBOX#81	BB03-XSCF1	XB81-XSCF3

Table B-15　　XSCF cable correspondence table *(continued)*

Connected chassis	Connector 1	Connector 2
BB#04 - XBBOX#81	BB04-XSCF1	XB81-XSCF4
BB#05 - XBBOX#81	BB05-XSCF1	XB81-XSCF5
BB#06 - XBBOX#81	BB06-XSCF1	XB81-XSCF6
BB#07 - XBBOX#81	BB07-XSCF1	XB81-XSCF7
BB#08 - XBBOX#81	BB08-XSCF1	XB81-XSCF8
BB#09 - XBBOX#81	BB09-XSCF1	XB81-XSCF9
BB#10 - XBBOX#81	BB10-XSCF1	XB81-XSCF10
BB#11 - XBBOX#81	BB11-XSCF1	XB81-XSCF11
BB#12 - XBBOX#81	BB12-XSCF1	XB81-XSCF12
BB#13 - XBBOX#81	BB13-XSCF1	XB81-XSCF13
BB#14 - XBBOX#81	BB14-XSCF1	XB81-XSCF14
BB#15 - XBBOX#81	BB15-XSCF1	XB81-XSCF15
XBBOX#80 - XBBOX#81	XB80-XSCF16	XB81-XSCF16
XBBOX#80 - XBBOX#82	XB80-XSCF17	XB82-XSCF16
XBBOX#80 - XBBOX#83	XB80-XSCF18	XB83-XSCF16
XBBOX#81 - XBBOX#82	XB81-XSCF17	XB82-XSCF17
XBBOX#81 - XBBOX#83	XB81-XSCF18	XB83-XSCF17

B.6　Power Cord Connections in Expansion Racks

For a connection diagram for a single-phase power supply, see Figure 2-22.
For a connection diagram for a three-phase delta power supply/three-phase star power supply, see Figure 2-23.
For connection lists, see Table B-16 and Table B-17.

Table B-16　　Correspondence table for expansion rack 1 (BB#00 to BB#07)

Connected chassis - PDU	SPARC M10-4S side	PDU side	Remarks
BB#00 - PDU#0/PDU#1	PDU#0-P, BB00-ACIN#0	PDU#0-P, BB00-ACIN#0	PSU#0 system
	PDU#1-P, BB00-ACIN#1	PDU#1-P, BB00-ACIN#1	PSU#1 system
BB#01 - PDU#0/PDU#1	PDU#0-Q, BB01-ACIN#0	PDU#0-Q, BB01-ACIN#0	PSU#0 system
	PDU#1-Q, BB01-ACIN#1	PDU#1-Q, BB01-ACIN#1	PSU#1 system

Table B-16　　Correspondence table for expansion rack 1 (BB#00 to BB#07) *(continued)*

Connected chassis - PDU	SPARC M10-4S side	PDU side	Remarks
BB#02 - PDU#0/PDU#1	PDU#0-R, BB02-ACIN#0	PDU#0-R, BB02-ACIN#0	PSU#0 system
	PDU#1-R, BB02-ACIN#1	PDU#1-R, BB02-ACIN#1	PSU#1 system
BB#03 - PDU#0/PDU#1	PDU#0-S, BB03-ACIN#0	PDU#0-S, BB03-ACIN#0	PSU#0 system
	PDU#1-S, BB03-ACIN#1	PDU#1-S, BB03-ACIN#1	PSU#1 system
BB#04 - PDU#0/PDU#1	PDU#0-T, BB04-ACIN#0	PDU#0-T, BB04-ACIN#0	PSU#0 system
	PDU#1-T, BB04-ACIN#1	PDU#1-T, BB04-ACIN#1	PSU#1 system
BB#05 - PDU#0/PDU#1	PDU#0-U, BB05-ACIN#0	PDU#0-U, BB05-ACIN#0	PSU#0 system
	PDU#1-U, BB05-ACIN#1	PDU#1-U, BB05-ACIN#1	PSU#1 system
BB#06 - PDU#0/PDU#1	PDU#0-V, BB06-ACIN#0	PDU#0-V, BB06-ACIN#0	PSU#0 system
	PDU#1-V, BB06-ACIN#1	PDU#1-V, BB06-ACIN#1	PSU#1 system
BB#07 - PDU#0/PDU#1	PDU#0-W, BB07-ACIN#0	PDU#0-W, BB07-ACIN#0	PSU#0 system
	PDU#1-W, BB07-ACIN#1	PDU#1-W, BB07-ACIN#1	PSU#1 system

Table B-17　　Correspondence table for expansion rack 2 (BB#08 to BB#15)

Connected chassis - PDU	SPARC M10-4S side	PDU side	Remarks
BB#08 - PDU#2/PDU#3	PDU#2-P, BB08-ACIN#0	PDU#2-P, BB08-ACIN#0	PSU#0 system
	PDU#3-P, BB08-ACIN#1	PDU#3-P, BB08-ACIN#1	PSU#1 system
BB#09 - PDU#2/PDU#3	PDU#2-Q, BB09-ACIN#0	PDU#2-Q, BB09-ACIN#0	PSU#0 system
	PDU#3-Q, BB09-ACIN#1	PDU#3-Q, BB09-ACIN#1	PSU#1 system
BB#10 - PDU#2/PDU#3	PDU#2-R, BB10-ACIN#0	PDU#2-R, BB10-ACIN#0	PSU#0 system
	PDU#3-R, BB10-ACIN#1	PDU#3-R, BB10-ACIN#1	PSU#1 system
BB#11 - PDU#2/PDU#3	PDU#2-S, BB11-ACIN#0	PDU#2-S, BB11-ACIN#0	PSU#0 system
	PDU#3-S, BB11-ACIN#1	PDU#3-S, BB11-ACIN#1	PSU#1 system
BB#12 - PDU#2/PDU#3	PDU#2-T, BB12-ACIN#0	PDU#2-T, BB12-ACIN#0	PSU#0 system
	PDU#3-T, BB12-ACIN#1	PDU#3-T, BB12-ACIN#1	PSU#1 system
BB#13 - PDU#2/PDU#3	PDU#2-U, BB13-ACIN#0	PDU#2-U, BB13-ACIN#0	PSU#0 system
	PDU#3-U, BB13-ACIN#1	PDU#3-U, BB13-ACIN#1	PSU#1 system
BB#14 - PDU#2/PDU#3	PDU#2-V, BB14-ACIN#0	PDU#2-V, BB14-ACIN#0	PSU#0 system
	PDU#3-V, BB14-ACIN#1	PDU#3-V, BB14-ACIN#1	PSU#1 system
BB#15 - PDU#2/PDU#3	PDU#2-W, BB15-ACIN#0	PDU#2-W, BB15-ACIN#0	PSU#0 system
	PDU#3-W, BB15-ACIN#1	PDU#3-W, BB15-ACIN#1	PSU#1 system

Appendix C

Setup Command Workflow

This appendix describes the workflow of the XSCF commands executed in installation of the SPARC M10-4S.
For details, see the linked sections listed in Table C-1.

Table C-1   XSCF setup command examples

XSCF command example	Description	Mandatory?	Linked section
Making the initial system settings			
version -c xcp	Displays the XCP version	Yes	"6.4　Checking the XCP Version"
flashupdate -c sync	Updates the XCP version to match it on any chassis that has a different XCP version	Yes	"6.4　Checking the XCP Version"
showaltitude	Displays the system altitude	Yes	"6.5　Checking the Altitude Setting"
setaltitude -s altitude=100	Sets the altitude Example: The system altitude is set to 100 m.	Optional	"6.5　Checking the Altitude Setting"
rebootxscf -y -a	Resets the XSCF	Optional (*1)	"6.5　Checking the Altitude Setting"
showtimezone -c tz	Displays the XSCF time zone	No	"6.6　Checking the Time Setting"
settimezone -c settz -a	Lists the time zones that can be set	No	"6.6　Checking the Time Setting"
settimezone -c settz -s Asia/Tokyo	Sets the time zone Example: "Asia/Tokyo" is set.	Yes	"6.6　Checking the Time Setting"
showdate	Displays the XSCF clock date and time	Yes	"6.6　Checking the Time Setting"
setdate -s 102016592012.00	Sets the XSCF clock date and time Example: 16:59:00 on 2012/10/20 in local time (JST) is set.	Yes	"6.6　Checking the Time Setting"
testsb -v -p -s -a -y	Performs an initial diagnosis of the PSB	Yes	"6.7　Performing a Diagnosis Test"
showhardconf -M	Displays information on each FRU	Yes	"6.8　Checking the Component Status"

Table C-1   XSCF setup command examples *(continued)*

XSCF command example	Description	Mandatory?	Linked section
showhardconf -u	Displays the number of mounted units by FRU	No	"6.8 Checking the Component Status"
showlogs error	Displays an error log	Yes	"6.8 Checking the Component Status"
showstatus	Displays information on a degraded unit	Yes	"6.8 Checking the Component Status"
Creating an XSCF user			
showpasswordpolicy	Displays the password policy settings	No	"7.1 Setting the Password Policy"
setpasswordpolicy -y 3 -m 8 -d 2 -u 0 -l 0 -o 0 -M 60 -w 15 -r 3	Sets the system password policy Example: - A retry count of up to 3 - A password length of 6 characters or more when the password contains 2 numeric characters. A password length of 8 characters or more when the password does not contain numeric characters - An expiration time of 60 days - 15 days ahead as the start date for warnings before the password expires - 3 as the number of passwords to remember	Yes	"7.1 Setting the Password Policy"
adduser jsmith	Creates a user account	Yes	"7.2 Setting a User Account and Password"
password jsmith	Sets a password	Yes	"7.2 Setting a User Account and Password"
setprivileges jsmith useradm platadm	Assigns a user privilege	Yes	"7.2 Setting a User Account and Password"
showuser -l	Checks information on a created user account	No	"7.2 Setting a User Account and Password"
Configuring the Telnet/SSH/HTTPS service			
showtelnet	Displays the Telnet service status	No	"7.3.1 Configuring the Telnet service"
settelnet -c enabled	Starts the Telnet service	Optional	"7.3.1 Configuring the Telnet service"
showssh	Displays SSH service information	No	"7.3.2 Configuring the SSH service"
setssh -c enabled	Starts the SSH service	Optional	"7.3.2 Configuring the SSH service"
setssh -c genhostkey	Generates a host key	Optional	"7.3.2 Configuring the SSH service"

Table C-1   XSCF setup command examples *(continued)*

XSCF command example	Description	Mandatory?	Linked section
showhttps	Displays the HTTPS service status	No	"7.4 Configuring the HTTPS Service"
sethttps -c enable	Starts the HTTPS service	Optional	"7.4 Configuring the HTTPS Service"
Configuring the XSCF network			
showhostname -a	Displays the set host names of the master chassis and the chassis with the standby XSCF	No	"7.5.1 Setting an XSCF host name and domain name"
sethostname bb#00 scf0-hostname	Sets a host name Example: The host name "scf0-hostname" is set for BB#00.	Optional	"7.5.1 Setting an XSCF host name and domain name"
sethostname -d example.com	Sets a DNS domain name Example: The domain name "example.com" is set.	Optional	"7.5.1 Setting an XSCF host name and domain name"
setnetwork bb#00-lan#0 -m 255.255.255.0 192.168.1.10	Configures an XSCF-LAN network interface Example: The IP address 192.168.1.10 and the net mask 255.255.255.0 are set for XSCF-LAN#0 of BB#00.	Yes	"7.5.2 Setting an Ethernet (XSCF-LAN) IP address"
setnetwork lan#0 -m 255.255.255.0 192.168.1.12	Sets a takeover IP address Example: The takeover IP address 192.168.1.12 and the net mask 255.255.255.0 are set for XSCF-LAN#0.	Yes	"7.5.3 Setting a takeover IP address"
showsscp -a	Displays the SSCP link setting values	No	"7.5.4 Setting an SSCP IP address"
setsscp	Assigns an IP address to an SSCP link	Optional	"7.5.4 Setting an SSCP IP address"
showroute -a	Displays routing information	No	"7.5.5 Setting the routing"
setroute -c add -n 0.0.0.0 -g 192.168.1.1 bb#00-lan#0	Sets routing information Example: The default gateway IP address 192.168.1.1 is added to XSCF-LAN#0 of BB#00.	Yes	"7.5.5 Setting the routing"
applynetwork	Applies XSCF network information to the XSCF	Yes	"7.5.6 Applying network settings"
rebootxscf -a	Resets the XSCF	Yes	"7.5.6 Applying network settings"
Setting memory mirror mode			
showfru -a	Displays the set information for all devices	Optional	"7.6 Configuring Memory Mirroring"
setupfru -m y sb 00-0	Sets the memory mounted on a PSB to mirror mode Example: All CPUs under PSB 00-0 are set to memory mirror mode.	Optional	"7.6 Configuring Memory Mirroring"

Table C-1   XSCF setup command examples *(continued)*

XSCF command example	Description	Mandatory?	Linked section
Configuring a physical partition			
showpcl -p 0	Displays physical partition (PPAR) configuration information (PCL)	Yes	"7.7 Creating a Physical Partition Configuration List (PCL)"
setpcl -p 0 -a 0=00-0	Registers a system board in a physical partition configuration list Example: System board 00-0 is mapped to logical system board 0 of physical partition 0.	Yes	"7.7 Creating a Physical Partition Configuration List (PCL)"
setpcl -p 0 -s policy=system	Sets the configuration policy Example: The configuration policy is set to "All physical partitions" for physical partition 0.	Optional	"7.7 Creating a Physical Partition Configuration List (PCL)"
showboards -a	Displays information on all mounted PSBs	Yes	"7.8 Assigning a System Board (PSB) to a Physical Partition (PPAR)"
addboard -c assign -p 0 00-0	Assigns a system board (PSB) to a physical partition Example: System board 00-0 is added to physical partition 0.	Yes	"7.8 Assigning a System Board (PSB) to a Physical Partition (PPAR)"
showpparmode -p 0	Checks the CPU Mode of the physical partition	Optional	"7.9 Setting a CPU Operational Mode for the Physical Partition"
setpparmode -p 0 -m cpumode=compatible	Sets the CPU Mode of the physical partition to "compatible"	Optional	"7.9 Setting a CPU Operational Mode for the Physical Partition"
Synchronizing the physical partition time with the XSCF time			
showdate	Displays the XSCF clock date and time	Yes	"7.10 Synchronizing the Physical Partition (PPAR) Time and XSCF Time"
setdate -s 102016592012.00	Sets the XSCF clock date and time Example: 16:59:00 on 2012/10/20 in local time (JST) is set.	Yes	"7.10 Synchronizing the Physical Partition (PPAR) Time and XSCF Time"
showdateoffset -p 0	Displays the difference between the XSCF time and the physical partition time	Yes	"7.10 Synchronizing the Physical Partition (PPAR) Time and XSCF Time"
resetdateoffset -p 0	Resets the difference between the XSCF time and the physical partition time	Yes	"7.10 Synchronizing the Physical Partition (PPAR) Time and XSCF Time"
Configuring CPU Activation			
showcodactivation	Displays the CPU Activation key information	Yes	"7.11.2 Checking a CPU Activation key"
addcodactivation -F file:///media/usb_msd/ XXXXX_XX.TXT	Adds a CPU Activation key Example: The "XXXXX_XX.TXT" file on a USB device is specified to add a CPU Activation key.	Yes	"7.11.3 Registering a CPU Activation key"

Table C-1   XSCF setup command examples *(continued)*

XSCF command example	Description	Mandatory?	Linked section
setcod -p 0 -s cpu	Assigns CPU core resources to a physical partition	Yes	"7.12 Assigning CPU Core Resources to a Physical Partition"
showcod -v -s cpu	Checks the number of assigned CPU Activations	Yes	"7.12 Assigning CPU Core Resources to a Physical Partition"
Starting and stopping a physical partition			
setpparparam -p 0 -s bootscript "setenv auto-boot? false"	Changes the setting of auto-boot?, which is an OpenBoot PROM environment variable	Yes	"7.13 Starting and Stopping a Physical Partition (PPAR)"
poweron -a	Starts a physical partition	Yes	"7.13 Starting and Stopping a Physical Partition (PPAR)"
showpparprogress -p 0	Displays the physical partition status Example: The progress between PPAR-ID 0 power-on and the start of POST is displayed in the midst of processing.	Yes	"7.13 Starting and Stopping a Physical Partition (PPAR)"
showdomainstatus -p 0	Displays the logical domain status Example: The status of all logical domains on PPAR-ID 0 is displayed.	Yes	"7.13 Starting and Stopping a Physical Partition (PPAR)"
console -p 0	Connects to the control domain console of a physical partition (PPAR)	Yes	"7.13 Starting and Stopping a Physical Partition (PPAR)"
poweroff -a	Stops a physical partition	Yes	"7.13 Starting and Stopping a Physical Partition (PPAR)"
showpparprogress -p 0	Displays the physical partition status	Yes	"7.13 Starting and Stopping a Physical Partition (PPAR)"
Saving configuration information			
ldm add-spconfig ldm_set1 (*2)	Saves logical domain configuration information after a logical domain configuration change Example: It is saved with the file name ldm_set1.	Yes	"7.14.1 Saving logical domain configuration information"
dumpconfig file:///media/usb_msd/backup-file.txt or dumpconfig ftp///backup/backupsca-ff2-16.txt	Saves XSCF setting information to a USB device or Saves it via a network	Yes	"7.14.2 Saving XSCF setting information"

*1 If you execute the setdate command after setting the altitude, you can skip rebootxscf because the XSCF is automatically reset after the command is executed.
*2 The ldm add-spconfig command is a command of Oracle VM Server for SPARC.

Appendix D

Installation Procedure Checklist

This section contains a checklist of the required steps from SPARC M10-4S installation to initial diagnosis to ensure that the device setup is complete and the device is ready for use.

You can customize this checklist according to your use environment, and use it in combination with the workflow in Table 1-1.

- From Installation of a Standalone Configuration to Initial Diagnosis
- From Installation of a Configuration with Direct Connections between Chassis to Initial Diagnosis
- From Installation of a Crossbar Box Connection Configuration to Initial Diagnosis

D.1 From Installation of a Standalone Configuration to Initial Diagnosis

Table D-1   Work descriptions and references (standalone configuration)

Work description	Check	Checked by	*Installation Guide* reference
1. Before installing the system, check the safety precautions, system specifications, and necessary conditions for installation.	[ ]		"Chapter 2 Planning and Preparing for System Installation"
2. Prepare the necessary tools/information for installation.	[ ]		"3.1 Preparing the Necessary Tools/Information for Installation"
3. Confirm the delivered components.	[ ]		"3.2.1 Confirming the delivered components of the SPARC M10-4S"
	[ ]		"3.2.2 Confirming the delivered components of the PCI expansion unit"

Table D-1　Work descriptions and references (standalone configuration) *(continued)*

Work description	Check	Checked by	*Installation Guide* reference
4. Install the rack.	[ ]		"2.4.1　Mounting conditions for general racks" "3.3　Installing a Rack"
5. Mount the SPARC M10-4S in the rack.	[ ]		"3.4.1　Mounting the SPARC M10-4S in a rack"
6. If there is a PCI expansion unit, mount it in the rack.	[ ]		"3.4.2　Mounting the PCI expansion unit in a rack"
7. After mounting the SPARC M10-4S, confirm the complete contact (complete engagement) of the internal disk, fan unit, and PCI cassettes. At this time, confirm that the PCI cassette lever is locked.	[ ]		
8. If there are optional components, mount them on the SPARC M10-4S and the PCI expansion unit. (For details, see the service manual.)	[ ]		"3.5.1　Mounting optional components in the SPARC M10-4S" "3.5.2　Mounting optional components in the PCI expansion unit" In the *Fujitsu M10-4/Fujitsu M10-4S/SPARC M10-4/SPARC M10-4S Service Manual*: "Chapter 8　Maintaining the PCI Express Cards" "Chapter 9　Maintaining the CPU Memory Unit/Memory" "Chapter 10　Maintaining the Internal Disks"
9. Connect serial cables, LAN cables, and power cords to the SPARC M10-4S.	[ ]		"5.1　Connecting Cables to the SPARC M10-4S"
10. Connect the link cable and management cable to the PCI expansion unit and the SPARC M10-4S. Attach the core to the power cord, and connect the power cord to the PCI expansion unit.	[ ]		"5.2　Connecting Cables to the PCI Expansion Unit"
11. Store the cables connected to the SPARC M10-4S in the rack. Check the rack in use, and store them in a way that is appropriate for the rack.	[ ]		"5.4　Storing Cables" "5.4.1　Rack with a width of 700 mm (27.6 in.)" "5.4.2　Rack with a width of 600 mm (23.6 in.)"
12. Connect the system management terminal to the SPARC M10-4S.	[ ]		"6.1　Connecting the System Management Terminal to the Chassis"
13. Turn on the input power, and check the status from the LED display on the XSCF unit.	[ ]		"6.2.2　Turning on the input power and starting the XSCF"
14. Log in to the XSCF.	[ ]		"6.3　Logging In to the XSCF"
15. Check the XCP version.	[ ]		"6.4　Checking the XCP Version"

Table D-1 Work descriptions and references (standalone configuration) *(continued)*

Work description	Check	Checked by	*Installation Guide* reference
16. Set the altitude.	[ ]		"6.5 Checking the Altitude Setting" * There is no need to set the altitude if it is unknown
17. Set the time.	[ ]		"6.6 Checking the Time Setting"
18. Perform the initial diagnosis test.	[ ]		"6.7 Performing a Diagnosis Test" The probe-scsi-all command and the show-devs command are displayed as command options in the diagnosis test. Confirm that the installed disk capacity and number of units, and the installation position and device name of the PCI Express card are correct.
19. Confirm that that each component is normally recognized, and no errors occur.	[ ]		"6.8 Checking the Component Status"

D.2 From Installation of a Configuration with Direct Connections between Chassis to Initial Diagnosis

Table D-2 Work descriptions and references (direct connections between chassis)

Work description	Check	Checked by	*Installation Guide* reference
1. Before installing the system, check the safety precautions, system specifications, and necessary conditions for installation.	[ ]		"Chapter 2 Planning and Preparing for System Installation"
2. Prepare the necessary tools/ information for installation.	[ ]		"3.1 Preparing the Necessary Tools/Information for Installation"
3. Confirm the delivered components. If the BB configuration is set up at the delivered site, check the BB-ID specified on the operation panel. (*1)	[ ]		"3.2.1 Confirming the delivered components of the SPARC M10-4S"
	[ ]		"3.2.2 Confirming the delivered components of the PCI expansion unit"
4. Install the rack.	[ ]		"2.4.1 Mounting conditions for general racks" "3.3 Installing a Rack"
5. Mount the SPARC M10-4S in the rack.	[ ]		"3.4.1 Mounting the SPARC M10-4S in a rack"

Table D-2   Work descriptions and references (direct connections between chassis) *(continued)*

Work description	Check	Checked by	*Installation Guide* reference
6. If there is a PCI expansion unit, mount it in the rack.	[ ]		"3.4.2 Mounting the PCI expansion unit in a rack"
7. After mounting the SPARC M10-4S, confirm the complete contact (complete engagement) of the internal disk, fan unit, and PCI cassettes. At this time, confirm that the PCI cassette lever is locked.	[ ]		
8. If there are optional components, mount them on the SPARC M10-4S and the PCI expansion unit. (For details, see the service manual.)	[ ]		"3.5.1 Mounting optional components in the SPARC M10-4S" "3.5.2 Mounting optional components in the PCI expansion unit" In the *Fujitsu M10-4/Fujitsu M10-4S/SPARC M10-4/SPARC M10-4S Service Manual*: "Chapter 8 Maintaining the PCI Express Cards" "Chapter 9 Maintaining the CPU Memory Unit/Memory" "Chapter 10 Maintaining the Internal Disks"
9. Check the identification ID of each SPARC M10-4S.	[ ]		"Chapter 4 Configuring Building Block Connections" "4.1 Setting the ID (BB-ID) Identifying a Chassis"
10. Connect the XSCF BB control cable and the XSCF Dual control cable to each SPARC M10-4S.			"4.2.1 Connecting XSCF cables"
11. Connect the crossbar cables (electrical) to each SPARC M10-4S.			"4.2.2 Connecting crossbar cables"
12. Connect serial cables (*2), LAN cables, and power cords to the SPARC M10-4S.	[ ]		"5.1 Connecting Cables to the SPARC M10-4S"
13. Connect the link cable and management cable to the PCI expansion unit and the SPARC M10-4S. Attach the core to the power cord, and connect the power cord to the PCI expansion unit.	[ ]		"5.2 Connecting Cables to the PCI Expansion Unit"
14. Store the cables connected to the SPARC M10-4S in the rack. Check the rack in use, and store them in a way that is appropriate for the rack.	[ ]		"5.4 Storing Cables" "5.4.1 Rack with a width of 700 mm (27.6 in.)" "5.4.2 Rack with a width of 600 mm (23.6 in.)"
15. Connect the system management terminal to the SPARC M10-4S that is the master XSCF.	[ ]		"6.1 Connecting the System Management Terminal to the Chassis"
16. Check the BB-ID setting.	[ ]		"6.2.1 Checking the BB-ID setting"

Table D-2 Work descriptions and references (direct connections between chassis) *(continued)*

Work description	Check	Checked by	*Installation Guide* reference
17. Turn on the input power, and check the status from the LED display on the XSCF unit.	[ ]		"6.2.2 Turning on the input power and starting the XSCF"
18. Log in to the master XSCF.	[ ]		"6.3 Logging In to the XSCF"
19. Check the XCP version.	[ ]		"6.4 Checking the XCP Version"
20. Set the altitude.	[ ]		"6.5 Checking the Altitude Setting" * There is no need to set the altitude if it is unknown.
21. Set the time.	[ ]		"6.6 Checking the Time Setting"
22. Perform the initial diagnosis test.	[ ]		"6.7 Performing a Diagnosis Test" The probe-scsi-all command and the show-devs command are displayed as command options in the diagnosis test. Confirm that the installed disk capacity and number of units, and the installation position and device name of the PCI Express card are correct.
23. Confirm that that each component is normally recognized, and no errors occur.	[ ]		"6.8 Checking the Component Status"

*1 Be sure to check the BB-ID specified on the operation panel on the SPARC M10-4S before connecting the SPARC M10-4S with the BB configuration and powering on at the delivered site. The BB-ID will not be updated if only the BB-ID on the operation panel is changed. Be sure to connect the SPARC M10-4S with the BB-ID specified on the operation panel.
*2 Connect the serial cables to the serial ports of the SPARC M10-4S operating as the master XSCF.

D.3   From Installation of a Crossbar Box Connection Configuration to Initial Diagnosis

Table D-3 Work descriptions and references (crossbar box connection)

Work description	Check	Checked by	*Installation Guide* reference
1. Before installing the system, check the safety precautions, system specifications, and necessary conditions for installation.	[ ]		"Chapter 2 Planning and Preparing for System Installation"
2. Prepare the necessary tools/information for installation.	[ ]		"3.1 Preparing the Necessary Tools/Information for Installation"

Table D-3 Work descriptions and references (crossbar box connection) *(continued)*

Work description	Check	Checked by	*Installation Guide* reference
3. Confirm the delivered components.	[ ]		"3.2.1 Confirming the delivered components of the SPARC M10-4S"
	[ ]		"3.2.2 Confirming the delivered components of the PCI expansion unit"
	[ ]		"3.2.3 Confirming the delivered components of an expansion rack"
4. Connect the power cables of the SPARC M10-4S and crossbar boxes to a power distribution box (PDU) in an expansion rack.	[ ]		"3.3.1 Connecting the power cords to the power distribution units of an expansion rack"
5. Install an expansion rack. In a configuration with two expansion racks, connect the racks to each other.	[ ]		"3.3.2 Securing the rack" "3.3.3 Connecting racks"
6. Confirm that each unit is connected. At this time, confirm that the PCI cassette lever is locked.	[ ]		
7. If there are optional components, mount them on the SPARC M10-4S and the PCI expansion unit. (For details, see the service manual.)	[ ]		"3.5.1 Mounting optional components in the SPARC M10-4S" "3.5.2 Mounting optional components in the PCI expansion unit" In the *Fujitsu M10-4/Fujitsu M10-4S/SPARC M10-4/SPARC M10-4S Service Manual*: "Chapter 8 Maintaining the PCI Express Cards" "Chapter 9 Maintaining the CPU Memory Unit/Memory" "Chapter 10 Maintaining the Internal Disks"
8. Check the identification ID of each SPARC M10-4S.	[ ]		"Chapter 4 Configuring Building Block Connections" "4.1 Setting the ID (BB-ID) Identifying a Chassis" "2.4.3 Mounting conditions for expansion racks"
9. Confirm that the XSCF BB control cable, XSCF Dual control cable, and crossbar cables (optical) are connected between the SPARC M10-4S and the crossbar box.	[ ]		"4.3.1 Connecting XSCF cables" "4.3.2 Connecting crossbar cables"
10. In a configuration with two expansion racks connected, connect the crossbar cables (optical) and XSCF BB control cable that pass between the expansion racks.	[ ]		"4.3.1 Connecting XSCF cables" "4.3.2 Connecting crossbar cables"
11. Connect serial cables (*1) and LAN cables to each crossbar box and each SPARC M10-4S.	[ ]		"5.1 Connecting Cables to the SPARC M10-4S"

Table D-3   Work descriptions and references (crossbar box connection) *(continued)*

Work description	Check	Checked by	*Installation Guide* reference
12. Connect the link cable and management cable to the PCI expansion unit and the SPARC M10-4S. Attach the core to the power cord, and connect the power cord to the PCI expansion unit.	[ ]		"5.2 Connecting Cables to the PCI Expansion Unit"
13. In a configuration with two expansion racks connected, store the cables that span the racks.	[ ]		"5.4 Storing Cables" "5.4.1 Rack with a width of 700 mm (27.6 in.)"
14. Connect the system management terminal to the crossbar box of the master XSCF.	[ ]		"6.1 Connecting the System Management Terminal to the Chassis"
15. Check the BB-ID setting.	[ ]		"6.2.1 Checking the BB-ID setting"
16. Turn on the input power, and check the status from the LED display on the XSCF unit.	[ ]		"6.2.2 Turning on the input power and starting the XSCF"
17. Log in to the master XSCF.	[ ]		"6.3 Logging In to the XSCF"
18. Check the XCP version.	[ ]		"6.4 Checking the XCP Version"
19. Set the altitude.	[ ]		"6.5 Checking the Altitude Setting" * There is no need to set the altitude if it is unknown
20. Set the time.	[ ]		"6.6 Checking the Time Setting"
21. Perform the initial diagnosis test.	[ ]		"6.7 Performing a Diagnosis Test" The probe-scsi-all command and the show-devs command are displayed as command options in the diagnosis test. Confirm that the installed disk capacity and number of units, and the installation position and device name of the PCI Express card are correct.
22. Confirm that that each component is normally recognized, and no errors occur.	[ ]		"6.8 Checking the Component Status"

*1 Connect the serial cables to the serial ports of the SPARC M10-4S operating as the master XSCF.