Fujitsu SPARC M12-2

Installation Guide

Manual Code: C120-0022-05EN
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Contents

Preface

This document describes methods of installing and setting up the SPARC M12-2 from Oracle or Fujitsu. The document assumes that the system has already been unpacked.

Fujitsu SPARC M12 is sold as SPARC M12 by Fujitsu in Japan.
Fujitsu SPARC M12 and SPARC M12 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.)
  http://docs.oracle.com/en/
- Fujitsu documents
  Global site

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

  Japanese site

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

The following table lists documents related to SPARC M12 systems.

Documentation Related to the SPARC M12

Manual Names (*1)
Fujitsu SPARC M12 Product Notes
Fujitsu SPARC M12 Quick Guide
Fujitsu SPARC M12 Getting Started Guide (*2)
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
Software License Conditions for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10
Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Security Guide
Fujitsu SPARC Servers/SPARC Enterprise/PRIMEQUEST Common Installation Planning Manual
Fujitsu SPARC M12-1 Installation Guide
Fujitsu SPARC M12-2 Installation Guide
Fujitsu SPARC M12-2S Installation Guide
Fujitsu SPARC M12 PCI Card 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 SPARC M12 and Fujitsu M10/SPARC M10 RCIL User Guide (*3)
Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 XSCF Reference Manual
Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 XSCF MIB and Trap Lists
Fujitsu SPARC M12-1 Service Manual
Fujitsu SPARC M12-2/M12-2S 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 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 M12.

- *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 SPARC M12-2S 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
  http://www.fujitsu.com/global/contact/
- Japanese site
  http://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 M12-2 and the PCI expansion unit, broken up into the following sections.
For the overviews, configurations, and specifications of the SPARC M12-2 and PCI expansion unit, see the *Fujitsu SPARC M12 Quick Guide*.

1.1 Workflows for the SPARC M12-2

The SPARC M12-2 is a 4U-size chassis that can be configured with up to 2 CPUs (12 cores per CPU). The SPARC M12-2 is used alone since it does not support the building block method.
This section describes the flow from installation of the SPARC M12-2 and the PCI expansion unit, which is an option mounted for the SPARC M12-2, to the initial system settings.
The initial system settings are implemented before system startup, and they include the XSCF setup and CPU Activation setting. 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 1-1 Workflows for the SPARC M12-2

Step (Work Time (*1))	Work Description	Reference	
Installation work (approx. 40 minutes (*2))			
1	Check the latest information available in the *Fujitsu SPARC M12 Product Notes*.	*Fujitsu SPARC M12 Product Notes*	Required

Table 1-1 Workflows for the SPARC M12-2 *(continued)*

Step (Work Time (*1))	Work Description	Reference	
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 M12-2"	Required
		"3.2.2 Confirming the Delivered Components of the PCI Expansion Unit"	Optional
5	Install the rack.	See the manual for each rack.	Required
6	Mount the SPARC M12-2 in the rack.	"3.3.1 Mounting the SPARC M12-2 in a Rack"	Required
7	If there is a PCI expansion unit, mount it in the rack.	"3.3.2 Mounting the PCI Expansion Unit in a Rack"	Optional
8	If there are optional components, mount them in the SPARC M12-2 or PCI expansion unit.	"3.4.1 Mounting Optional Components in the SPARC M12-2"	Optional (*3)
		"3.4.2 Mounting Optional Components in the PCI Expansion Unit"	Optional
9	Connect the serial cable and LAN cables to the SPARC M12-2. Attach the core to the power cord, and connect the power cord to the power supply unit.	"4.1 Connecting Cables to the SPARC M12-2"	Required
10	If there is a PCI expansion unit, connect the link cables 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.	"4.2 Connecting Cables to the PCI Expansion Unit"	Optional (*4)
Initial diagnosis (approx. 45 minutes)			
11	Connect the system management terminal to the SPARC M12-2, and turn on the input power.	"5.1 Connecting the System Management Terminal" "5.2 Turning On the Input Power and Starting the XSCF"	Required
12	Log in to the XSCF of the SPARC M12-2. Confirm the XCP firmware version number, and set the altitude and time.	"5.3 Logging In to the XSCF" "5.4 Checking the XCP Firmware Version" "5.5 Checking the Altitude Setting" "5.6 Setting the Time"	Required

Table 1-1 Workflows for the SPARC M12-2 *(continued)*

Step (Work Time (*1))	Work Description	Reference	
13	Perform the initial diagnosis test on the hardware.	"5.7 Performing a Diagnosis Test"	Required
14	Check the status of mounted components.	"5.8 Checking the Component Status"	Required
Initial system settings (approx. 60 minutes)			
15	Set the password policy.	"6.1 Setting the Password Policy"	Required
16	Set a user account and password.	"6.2 Setting a User Account and Password"	Required
17	Configure the telnet or SSH service.	"6.3 Configuring the Telnet/SSH Service"	Required
18	Configure the HTTPS service.	"6.4 Configuring the HTTPS Service"	Required
19	Configure the XSCF network.	"6.5 Configuring the XSCF Network"	Required
20	When duplicating memory, configure memory mirroring.	"6.6 Configuring Memory Mirroring"	Optional
21	Set the configuration policy for a physical partition.	"6.7 Creating a PPAR Configuration List"	Optional (*5)
22	Confirm that the SPARC M12-2 (system board) is assigned to a physical partition (PPAR).	"6.8 Checking the Physical Partition (PPAR) Status"	Required
23	Clear the difference between the system time and physical partition (PPAR) time.	"6.9 Synchronizing the Physical Partition (PPAR) Time and XSCF Time"	Required
24	Register a CPU Activation key with the system.	"6.10 Registering a CPU Activation Key"	Required (*6)
25	Assign CPU core resources to the physical partition.	"6.11 Assigning CPU Core Resources"	Required
26	Confirm the start/stop of the physical partition and the connection of the console.	"6.12 Starting and Stopping a System (PPAR)"	Required
27	Either use the preinstalled Oracle Solaris as is or reinstall it.	"6.13 Installing Oracle Solaris"	Required

Table 1-1 Workflows for the SPARC M12-2 *(continued)*

Step (Work Time (*1))	Work Description	Reference	
28	Save XSCF setting information and logical domain configuration information.	"6.14 Saving Configuration Information"	Required (*7)

*1 Average work time
*2 The time required for mounting optional components and installing the PCI expansion unit is not included.
*3 If the optional components (CPU module, memory, internal storage (HDD/SSD), and PCIe card) are ordered together with the SPARC M12-2, they are shipped mounted to the SPARC M12-2.
*4 In Japan, the link card is mounted in the SPARC M12-2 before shipment. Outside Japan, the supplied link card is shipped with the PCI expansion unit.
*5 For the SPARC M12-2, only the configuration policy can be set. (The PPAR configuration list is already set.)
*6 One CD-ROM disk containing a CPU Activation certificate is provided with the system. The system is shipped with a registered CPU Activation key ordered together with the SPARC M12-2.
*7 If you have started Oracle Solaris and changed the configuration of a logical domain, save the logical domain configuration information.

Note - The SPARC M12-2 has Oracle Solaris preinstalled. According to the purpose, either use the preinstalled Oracle Solaris as is or reinstall it.
When reinstalling Oracle Solaris, check the latest information on the supported Oracle Solaris versions, Oracle VM Server for SPARC versions, and SRU in the *Fujitsu SPARC M12 Product Notes*.

1.2 Workflow at Expansion With the PCI Expansion Unit

The PCI expansion unit is a 2U chassis with 11 PCI slots, and it can connect to the SPARC M12-2. At expansion with the PCI expansion units, mount a link card in the SPARC M12-2.

Table 1-2 Maximum Number of SPARC M12-2 Link Cards That Can Be Mounted

Maximum Number of Link Cards That Can be Mounted (Locations Where Link Cards Can be Mounted)
1 CPU: 4 (slots #1, #3, #5, and #7) 2 CPUs: 8 (slots #0, #1, #2, #3, #4, #5, #6, and #7)

Note - The maximum number varies depending on the configuration and the firmware/OS versions. For details on the link card mounting rules, see "Chapter 2 PCI Card Mounting Rules for the SPARC M12-2" in the *Fujitsu SPARC M12 PCI Card Installation Guide*.

Note - Before expansion with the PCI expansion unit, check the logical domain configuration. If the logical domain configuration is other than the factory default, save the logical domain configuration to the XSCF and the information of the logical domain configuration to an

XML file. For details on the procedure, see "1.7.3 How to Save/Restore the Logical Domain Configuration Information and the OpenBoot PROM Environment Variables" in the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

This section describes the workflow from the installation of the PCI expansion unit to the status check of PCI expansion unit components while the system is stopped.

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 1-3 Workflow at Expansion With 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 SPARC M12 Product Notes*.	*Fujitsu SPARC M12 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.	"3.2.2 Confirming the Delivered Components of the PCI Expansion Unit"	Required
5	Install the rack.	See the manual for each rack.	Required (*3)
6	Mount the PCI expansion unit in the rack.	"3.3.2 Mounting the PCI Expansion Unit in a Rack"	Required
7	Mount the link card in the SPARC M12-2.	"12.4 Installing a PCIe Card" in the *Fujitsu SPARC M12-2/M12-2S Service Manual*	Required
8	If there are optional components, mount them on the PCI expansion unit.	"3.4.2 Mounting Optional Components in the PCI Expansion Unit" "Chapter 2 PCI Card Mounting Rules for the SPARC M12-2" in the *Fujitsu SPARC M12 PCI Card Installation Guide*	Optional (*4)
9	Connect the link cables 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.	"4.2 Connecting Cables to the PCI Expansion Unit"	Required
Initial diagnosis (approx. 45 minutes)			
10	Connect the system management terminal to the SPARC M12-2.	"5.1 Connecting the System Management Terminal"	Required

Table 1-3 Workflow at Expansion With the PCI Expansion Unit *(continued)*

Step (Work Time (*1))	Work Description	Reference	
11	Turn on the input power.	"5.2 Turning On the Input Power and Starting the XSCF"	Required
12	Log in to the XSCF of the SPARC M12-2.	"5.3 Logging In to the XSCF"	Required
13	Perform the initial diagnosis test on the hardware.	"5.7 Performing a Diagnosis Test"	Required
14	Check the status of mounted components.	"5.8 Checking the Component Status"	Required

*1 Average work time
*2 The time required for mounting PCIe cards is not included.
*3 This is not necessary if the PCI expansion unit is installed in an empty space in the installed rack.
*4 The PCIe card ordered together with the PCI expansion unit is shipped mounted in the PCI expansion unit.

Chapter 2

Planning and Preparing for System Installation

This chapter describes what should be checked when planning installation of the SPARC M12-2 and the PCI expansion unit. Before installation, you need to understand the system configuration and obtain all the prerequisite condition information for installation.

2.1 Safety Precautions

This section describes precautions regarding installation of the SPARC M12-2 and the PCI expansion unit. 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 SPARC M12-2 and PCI expansion unit.
- Do not insert any foreign object into the openings of the SPARC M12-2 and PCI expansion unit. 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 inspection of the SPARC M12-2 and the PCI expansion unit.

Safety precautions when working with electricity

- Confirm that both the voltage and frequency of input power match the voltage and frequency indicated on the electrical rating labels affixed to the SPARC M12-2 and PCI expansion unit.
- Make sure to wear a wrist strap when handling the internal storage (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 SPARC M12-2 or PCI expansion unit while it is still powered on.
- This product is also designed for an IT power system with phase-to-phase voltage of 230V. (For use in Norway)

Safety precautions regarding racks

- The rack must be secured to the floor, ceiling, or nearest frame.
- The quakeresistant options kit may be supplied with the rack. The use of the quakeresistant options kit prevents the rack from toppling over when the SPARC M12-2 or the PCI expansion unit is pulled out from the rack 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 secured to the floor with bolts, 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 rack.
  - If the rack is mounted on a raised floor, the service engineer confirms that the floor can withstand the load when the chassis is pulled out from the rack. Secure the rack to the concrete floor beneath the raised floor by using the original mounting kit that serves this purpose.
- If multiple units of the SPARC M12-2 and the PCI expansion unit are mounted in the rack, perform maintenance on one unit 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 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 sufficient airflow 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, secure 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 it may make the entire rack unstable.
  - Weight of this chassis in the maximum configuration:
    Model SP-2HNB (SPARC M12-2): 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-2HNB (SPARC M12-2): 200-240 VAC, 17.2-14.4 A, 50/60 Hz, single phase (8.6-7.2 A per input, maximum 4 inputs)
    Model SP-PCI-BOX (SPARC 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 all the equipment mounted in the rack. Pay particular attention when the power supply is not directly connected from the power distribution board (e.g., when power strips are used).

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 grounding wire before connecting the power supply. If the power strip is not directly connected to a branch circuit, a power strip with a locking plug must be used.

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

2.2 Items Requiring Confirmation Before Installation

This section describes the items that you need to confirm before installing the SPARC M12-2. 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?	
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 adequately 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 the SPARC M12-2, the PCI expansion unit, and peripherals will be mounted?	
	- Are the power supply facilities sufficient for the SPARC M12-2, the PCI expansion unit, 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?	

Table 2-1 List of Items Requiring Confirmation Before Installation *(continued)*

Check Item		Check Column
CPU Activation	- Has the amount 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 sizes and weights of the SPARC M12-2 and PCI expansion unit.

Table 2-2 Physical Specifications of the SPARC M12-2 and PCI Expansion Unit

Item	SPARC M12-2	PCI Expansion Unit
Height	175 mm (6.9 in.) (4U)	86 mm (3.4 in.) (2U)
Width	440 mm (17.3 in.)	440 mm (17.3 in.)
Depth	800 mm (31.5 in.)	750 mm (29.5 in.)
Weight	60 kg	22 kg

2.4 Confirming Rack Specifications

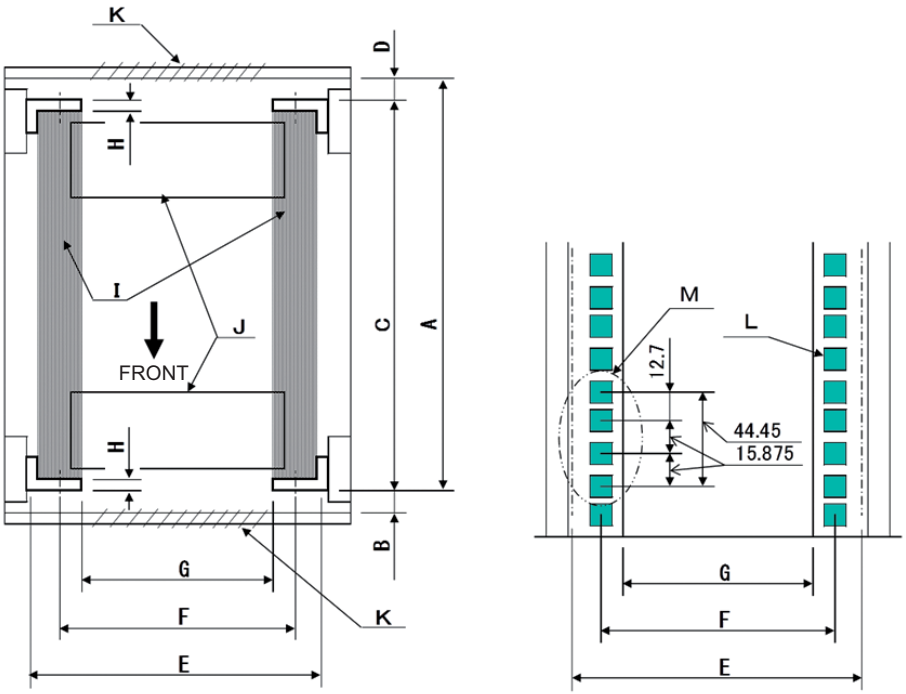
Use a rack that meets the specified conditions for using the SPARC M12-2 or the PCI expansion unit.
This section describes the items that must be confirmed to use a rack.

2.4.1 Mounting Conditions for General Racks

The SPARC M12-2 and the PCI expansion unit are designed for mounting in an equipment 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 M12-2 and PCI expansion unit. (See Figure 2-1 and Table 2-3.)

Figure 2-1 Dimensional Drawings for Third-Party Rack Checks



Rack plane 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	--

Table 2-3 Third-Party Rack Checklist *(continued)*

Description	Condition	Letter in Figure
Dimension between rear door (inside) and front column	SPARC M12-2: At least 908 mm (35.7 in.) PCI expansion unit: At least 848 mm (33.4 in.)	A
Dimension between front door (inside) and front column	SPARC M12-2: At least 32 mm (1.3 in.) PCI expansion unit: At least 24 mm (0.9 in.)	B
Dimension between front and rear columns	Within adjustment range of rack mount kit Adjustment range of mount kit for each server SPARC M12-2: 630 mm (24.8 in.) to 840 mm (33.1 in.) PCI expansion unit: 630 mm (24.8 in.) to 840 mm (33.1 in.)	C
Dimension between rear door (inside) and rear column	SPARC M12-2: At least 158 mm (6.2 in.) PCI expansion unit: 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 chassis attachment holes (common to front and rear columns)	Square hole with sides longer than 9.2 mm (0.36 in.) and equal to or 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	--

Table 2-3 Third-Party Rack Checklist *(continued)*

Description	Condition	Letter in Figure
Earthquake resistance measures	Earthquake resistance measures can be implemented for rack	--

*1 If the SPARC M12-2 and the PCI expansion unit have square 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 M12-2, the cable support at the chassis rear can move underneath the chassis during maintenance, so do not mount the SPARC M12-2 on the lowest shelf (1U) of the rack.
- **Other conditions**
  In addition to structural conditions, the following condition must be taken into consideration.
  - Install the rack while taking into consideration the cooling inside the chassis so that the temperature of the products mounted in the rack meets the temperature conditions. For details, see "2.5 Checking Environmental Conditions." Particularly, make sure that exhaust from the SPARC M12-2 does not re-enter the SPARC M12-2 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 mounting the SPARC M12-2 and the PCI expansion unit in the designated rack, see the examples of service areas in Figure 2-2 and Figure 2-3. 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 2-2 Example of Service Areas for the SPARC M12-2 (Top View)

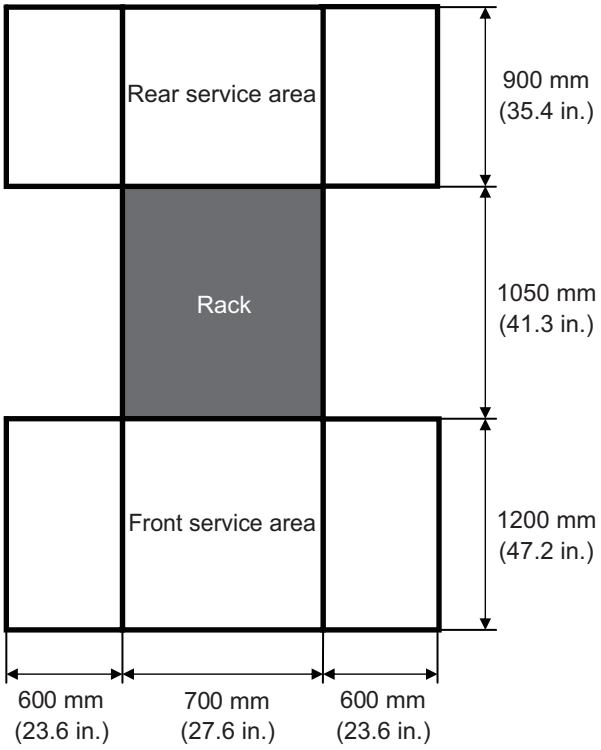
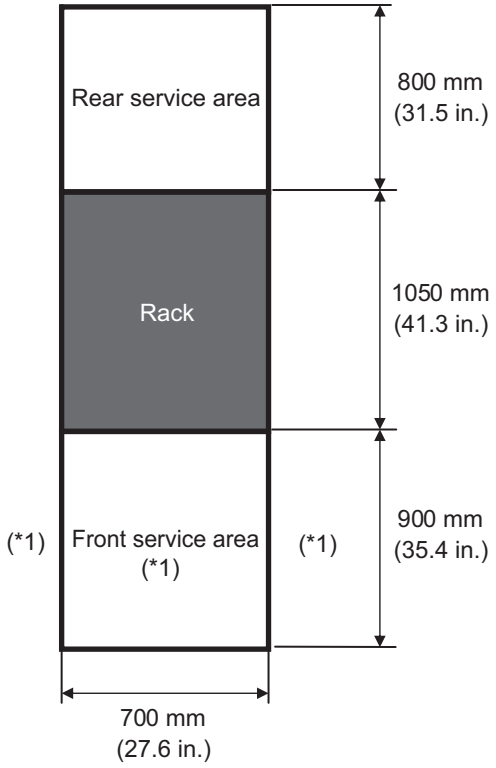


Figure 2-3 Example of Service Areas for the PCI Expansion Unit (Top View)



*1 To mount the PCI expansion unit in 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 the PCI expansion unit will be added, 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.

2.5 Checking Environmental Conditions

This section describes the environmental conditions for the SPARC M12-2 and PCI expansion unit. The server can be installed at locations that meet the environmental conditions listed in Table 2-4.

Note - When designing environmental control systems such as air conditioning facilities, confirm that the air taken in by the SPARC M12-2 and the PCI expansion unit meets the requirements specified in this section.

The environmental conditions described in Table 2-4 reflect test results from the

SPARC M12-2 and PCI expansion unit. 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 panels of the SPARC M12-2 and PCI expansion unit

Table 2-4 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.)	

Table 2-4 Environmental Conditions *(continued)*

Item	In Operation	Not in Operation	Optimal Condition
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 M12-2 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 benefits of operating in the optimum range are as follows.

- The system can be protected from corrosion issues caused by high humidity.
- Even a failure of the air conditioning facilities does not cause the system to suddenly stop.
- Failures and malfunctions caused by electrostatic discharge can be prevented.

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 2-5 lists the acceptable reference values for contaminants with regard to the SPARC M12-2.

Table 2-5 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
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 2-6 shows the acoustic noise levels of the SPARC M12-2.

The acoustic noise levels provided in Table 2-6 are measured based on the following conditions.

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

Table 2-6 Acoustic Noise Levels of the SPARC M12-2

Acoustic Noise Level	CPU Configuration	In Operation	When Idle
Sound power level	1 CPU	7.8 B	7.7 B

Table 2-6 Acoustic Noise Levels of the SPARC M12-2 *(continued)*

Acoustic Noise Level	CPU Configuration	In Operation	When Idle
	2 CPUs	8.2 B	7.7 B
Sound pressure level	1 CPU	62 dB	61 dB
	2 CPUs	64 dB	61 dB

2.7 Checking Cooling Conditions

This section describes the cooling conditions for the SPARC M12-2. 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 2-7 lists the cooling conditions for the SPARC M12-2 and PCI expansion unit.

Table 2-7 Cooling Conditions

Configuration	Input Voltage	Maximum Heat Dissipation	Maximum Exhaust Airflow
SPARC M12-2	200 to 240 VAC	10,460 kJ/hr (9,920 BTU/hr)	15.9 m^3/min
PCI expansion unit	100 to 120 VAC	1,005 kJ/hr (953 BTU/hr)	4.5 m^3/min
	200 to 240 VAC	972 kJ/hr (921 BTU/hr)	

The SPARC M12-2 is designed to function in an environment with natural convection airflow.

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

- Ensure sufficient airflow for the entire system.
  The SPARC M12-2 and the PCI expansion unit are 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 M12-2 uses internal fans whose airflow reaches the maximum exhaust airflow shown in Table 2-7 under normal operating conditions.

  Example: 15.9 m^3 (561.5 ft^3) per minute for each SPARC M12-2 unit

- Ensure that the temperature at the intake parts of the SPARC M12-2 and PCI expansion unit 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 the SPARC M12-2 and the PCI expansion unit operate 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 M12-2. 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)

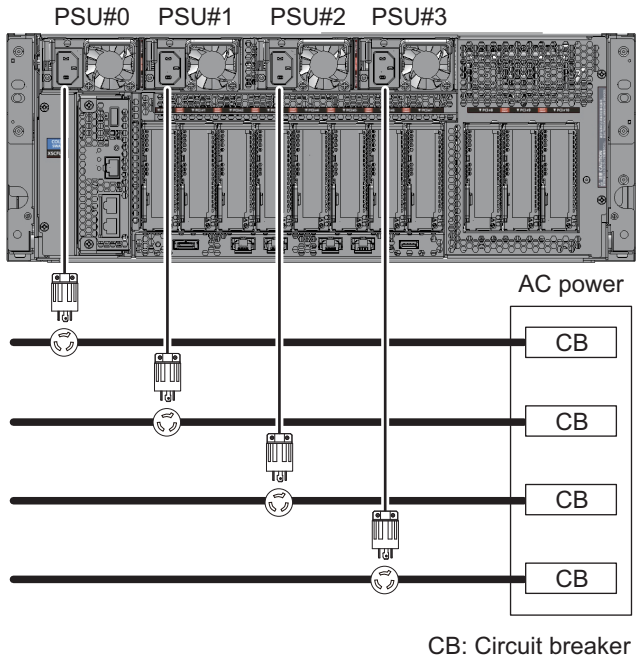
2.8.1 Redundant Configuration of Power Supply Units

The SPARC M12-2 has power supply units in a 2+2 redundant configuration as standard. If failures occur in two power supply units, the system can still continue to operate with the remaining two power supply units. However, if a failure occurs in the external power supply, the system stops.

Figure 2-4 shows a power supply system with redundant power supply connections.

When connecting the power cords to the same power supply system, make sure to connect each power cord to the circuit breaker in a one-to-one manner.

Figure 2-4 Power Supply System With Redundant Power Supply Connections



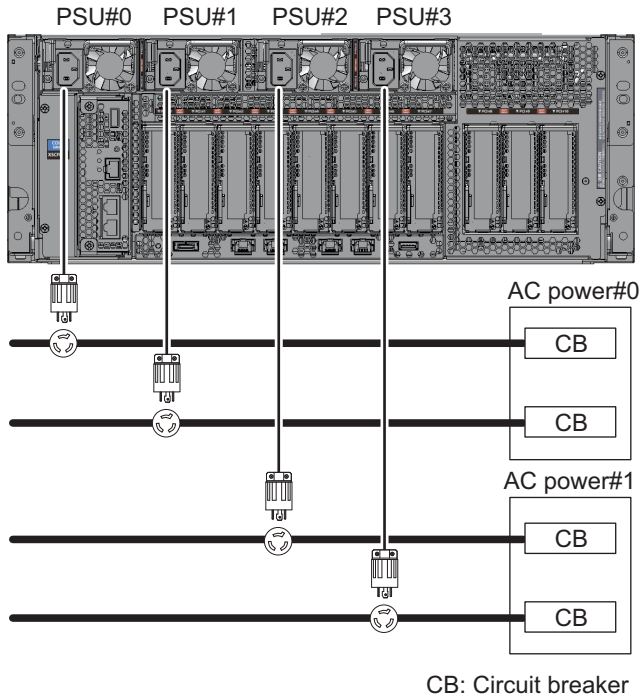
2.8.2 Dual Power Feed

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 other external power supply.

Figure 2-5 shows a power supply system with dual power feed.

For dual system connections, connect the pairs of power cords to the input power supplies on the separate systems.
One of the systems is PSU#0 and PSU#1, and the other is PSU#2 and PSU#3.

Figure 2-5 Power Supply Systems With Dual Power Feed



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 M12-2. There are two types of three-phase power feed: three-phase star connection and three-phase delta connection.

Figure 2-6 and Figure 2-7 show power supply systems with three-phase power feed.

Figure 2-6 Power Supply System With Three-Phase Power Feed (Star Connection)

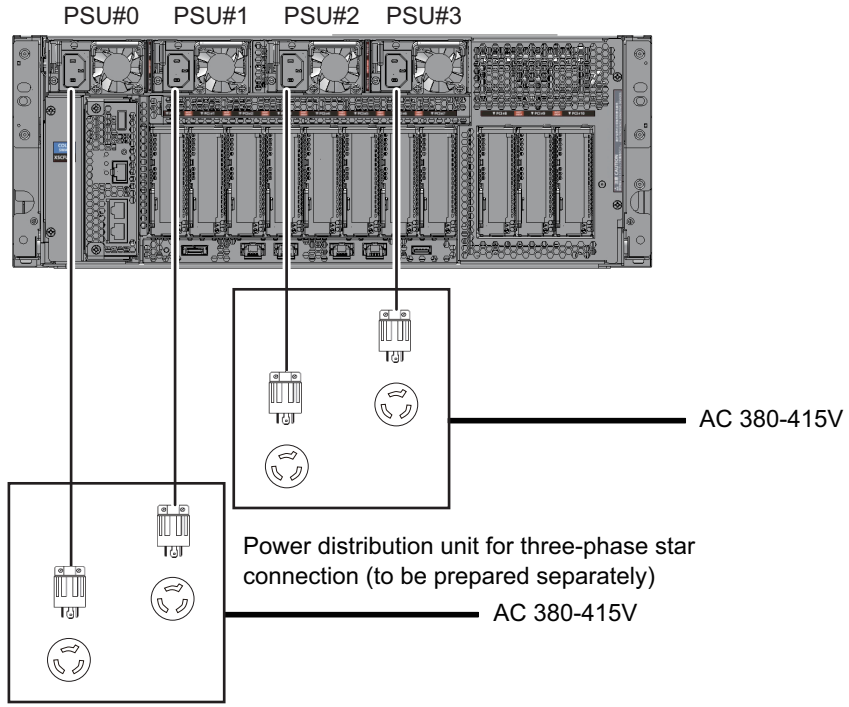
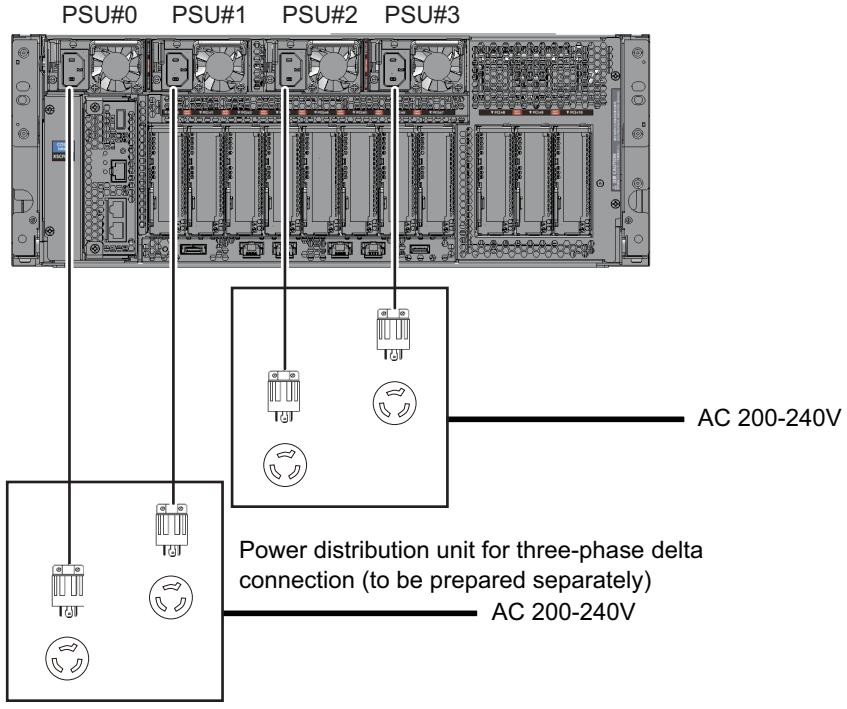


Figure 2-7 Power Supply System With Three-Phase Power Feed (Delta Connection)

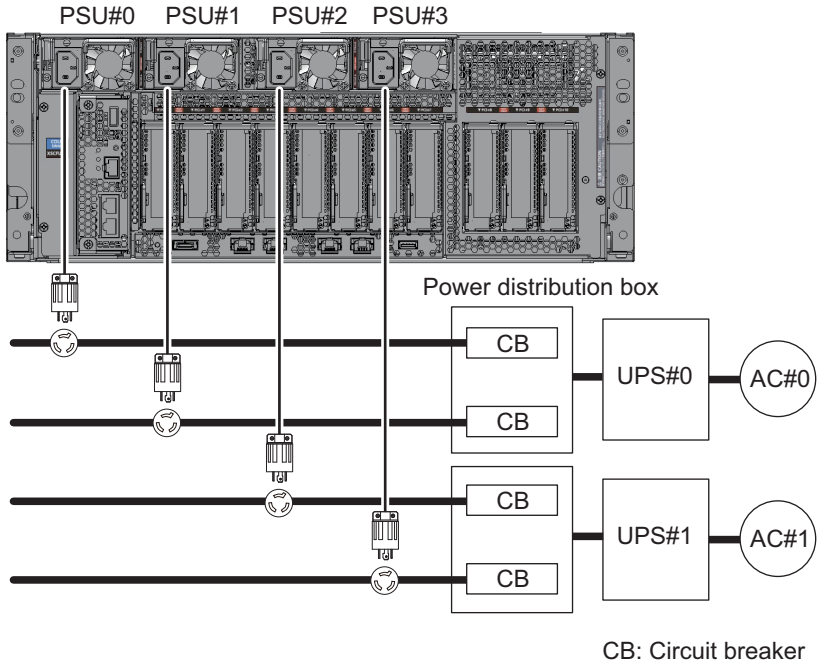


2.8.4 Uninterruptible Power Supply Connection (Optional)

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 UPS#0 and UPS#1 to the input power supplies on the separate systems. Figure 2-8 shows power supply systems with UPS connections.

Figure 2-8 Power Supply Systems With UPS Connections



2.9 Preparing Power Supply Facilities

This section describes the electrical specifications, power cord specifications, facility power requirements, and grounding requirements of the SPARC M12-2.

To minimize component failure rates, a stable power supply such as 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 an 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 2-8 and Table 2-9 list the electrical specifications of the SPARC M12-2 and PCI expansion unit.

Note - The values listed in Table 2-8 and Table 2-9 are based on values for the maximum configurations of the SPARC M12-2 and PCI expansion unit. The actual values vary depending on the system configuration.

Table 2-8 Electrical Specifications (SPARC M12-2)

Item	Specification
Input voltage	200 to 240 VAC
Number of power cords	4 (1 for each PSU)
Power cord length	Maximum length of 3.0 m (9.8 ft.)
Redundancy	2+2 redundant configuration
Frequency	50 Hz/60 Hz, single phase
Maximum input current (*1)	14.8 A
Maximum power consumption	2,906 W
Apparent power	2,965 VA
Rush current (*2)	65 A peak or less

Table 2-8 Electrical Specifications (SPARC M12-2) *(continued)*

Item	Specification
Leakage current (*2)	3.5 mA or less

*1 The current that flows through each power cord is a fraction of the value listed in Table 2-8. In a redundant configuration, it is one-fourth the value. In a non-redundant configuration, it is up to one-half the value.
*2 The value is per power cord.

Table 2-9 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
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	1.75 mA

*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.

2.9.2 Power Cord Specifications

Table 2-10 and Table 2-11 list the power cords and connector shapes for the SPARC M12-2 and PCI expansion unit.

Table 2-10 Power Cords and Connector Shapes (SPARC M12-2)

Destination	Power Cord Type	Connector Shape
Japan	NEMA L6-15P 250V 15A	IEC 60320-C13
North America	NEMA L6-15P 250V 15A	IEC 60320-C13
Europe	CEE7/7	
U.K.	BS1363A	

Table 2-10 Power Cords and Connector Shapes (SPARC M12-2) *(continued)*

Destination	Power Cord Type	Connector Shape
Italy	CEI 23-16/VII	
China	GB 2099 250V	
Taiwan	NEMA 6-20	
Korea	KSC 8305 250V	
Denmark	DEMKO 107	
Israel	SI 32	
India	IS 1293	
South Africa	SABS 164	
Argentina	IRAM2073 250V	
Australia	AS/NZS 3112	
Brazil	NBR14136 250V	
Switzerland	SEV 1011	
Other countries	IEC60309IP44 250V 10A IEC60320-C14 250V 10A	

Table 2-11 Power Cords and Connector Shapes (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	
Europe	CEE7/7	
U.K.	BS1363A	
Italy	CEI 23-16/VII	
China	GB 2099 250V	
Taiwan	NEMA 6-20	
Korea	KSC 8305 250V	
Denmark	DEMKO 107	
Israel	SI 32	
India	IS 1293	
South Africa	SABS 164	
Argentina	IRAM2073 250V	
Australia	AS/NZS 3112	
Brazil	NBR14136 250V	
Switzerland	SEV 1011	

Table 2-11 Power Cords and Connector Shapes (PCI Expansion Unit) *(continued)*

Destination	Power Cord Type	Connector Shape
Other countries	IEC60309IP44 250V 10A IEC60320-C14 250V 10A	

Note - For chassis with plugs that have a lock function, confirm that the chassis has a 15 A overcurrent protection device. If they do not have that device, provide 15 A overcurrent protection by using a circuit breaker, fuse, etc. The plugs with a lock function are NEMA 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 M12-2 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 power distribution board breakers of the computer equipment.

Table 2-12 shows the power distribution board breaker capacity of the computer equipment.

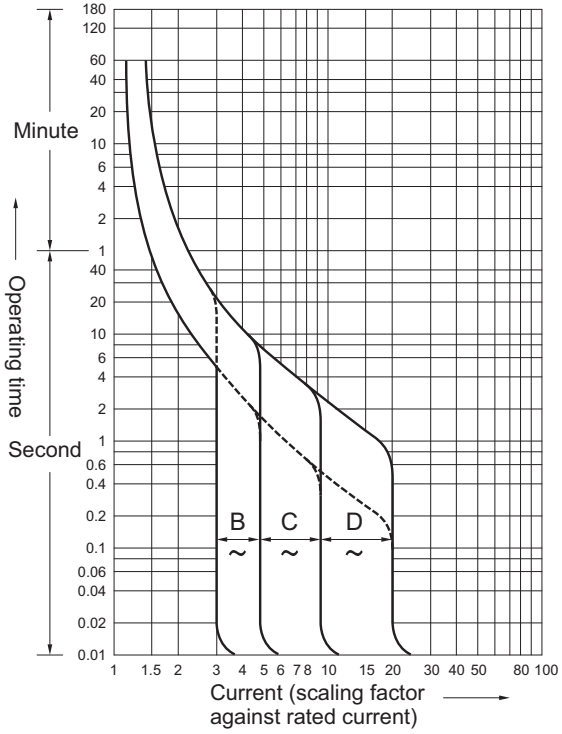
Table 2-12 Power Distribution Board Breaker Capacity of the Computer Equipment

Device Name	Power Supply Input	Power Distribution Board Capacity of Computer Equipment	
		For Japan/North America/Other Countries	For Europe
SPARC M12-2	Single-phase 200 to 240 VAC	15 A	10 A
PCI expansion unit	Single-phase 100 to 120 VAC	10 A	-
	Single-phase 200 to 240 VAC	10 A	10 A

Figure 2-9 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 2-9, or one with longer cutoff characteristics.

Figure 2-9 Power Distribution Board Characteristics of the Computer Equipment



2.9.4 Grounding Requirements

Ground the SPARC M12-2 and the PCI expansion unit appropriately according to the input power type.

- For single-phase input
  The components of the SPARC M12-2 and PCI expansion unit do not include a grounded (three-wire type) power cord. Order power cords that match the device. Always connect the power cords to grounded power outlets.

  To confirm the type of power supplied in 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 power distribution board directly to the terminal boards of the power chassis as part of local electrical work.

  Although common grounding is possible with this device, grounding methods vary depending on the building where the installation is done. When grounding devices using common grounding, make sure that grounding resistance is 10 ohms or less. 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 a power supply facility of the IT power distribution system 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 for installation and operation of the SPARC M12-2.

You can use the following external interface ports on the SPARC M12-2.

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 the SPARC M12-2 may not be preventable.
- XSCF USB port (for field engineers)
  Field engineers use this port to download information from the XSCF.

Other unit ports

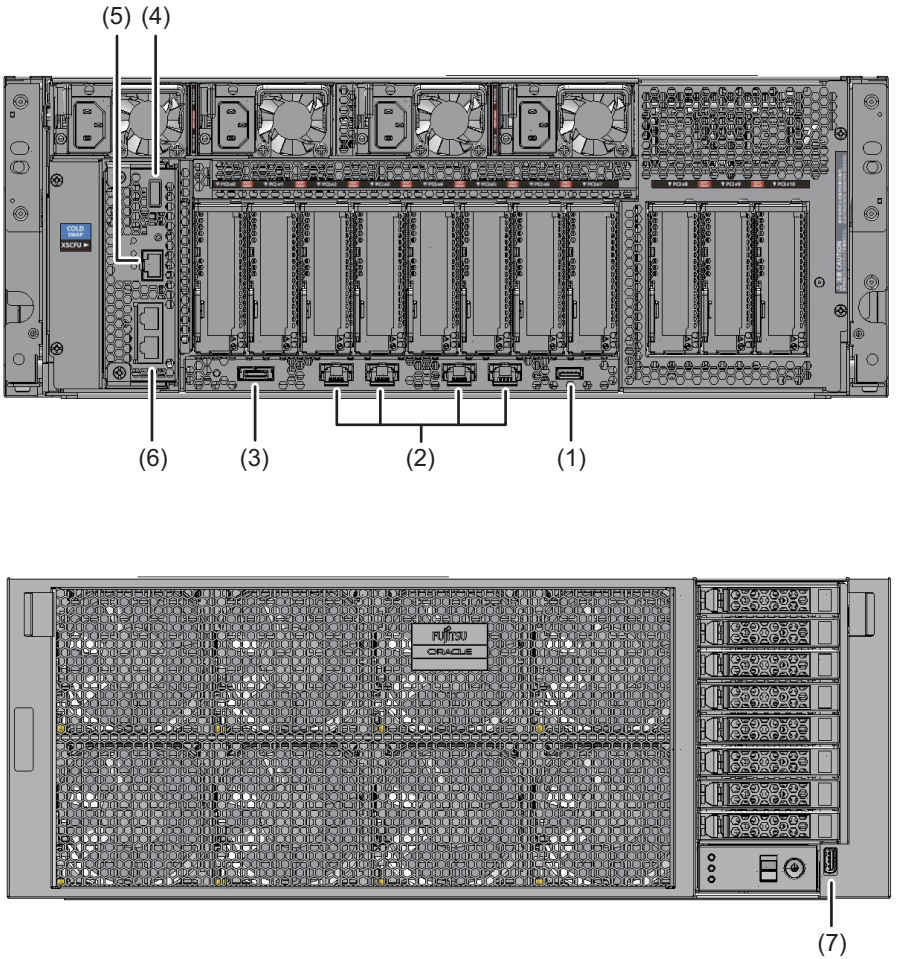
- 10 GbE LAN port
  The port is used to connect Oracle Solaris to the network. There are four ports.

  A LAN card, which is provided by the customer and mounted in a PCI Express (PCIe) slot, can also be used to connect to the network.
- 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 2-10 shows the locations of external interface ports on the SPARC M12-2.

Figure 2-10 Locations of the Ports for Network Connections

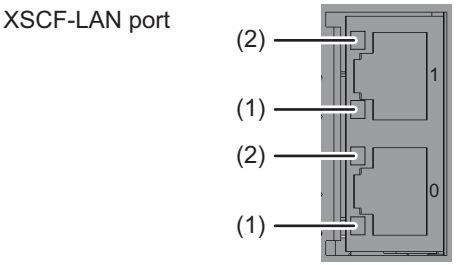


No.	Port	Number on Board
1, 7	USB port	2
2	10 GbE LAN port	4
3	SAS port	1
4	XSCF USB port (for field engineers)	1
5	Serial port	1
6	XSCF-LAN port	2

LAN port LEDs

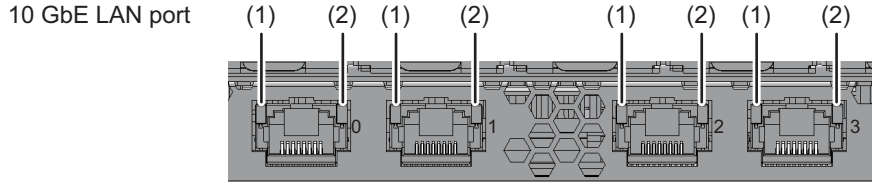
- LINK SPEED LED
  This LED indicates the communication speed of the respective XSCF-LAN ports and 10 GbE LAN ports (Figure 2-11 and Figure 2-12).
- ACT LED (green)
  This LED indicates the communication state of the respective XSCF-LAN ports and 10 GbE LAN ports (Figure 2-11 and Figure 2-12).

Figure 2-11 XSCF-LAN Port LEDs



No.	Name		Color	State	Port
1	LINK SPEED	For XSCF-LAN port	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.

Figure 2-12 10 GbE LAN Port LEDs

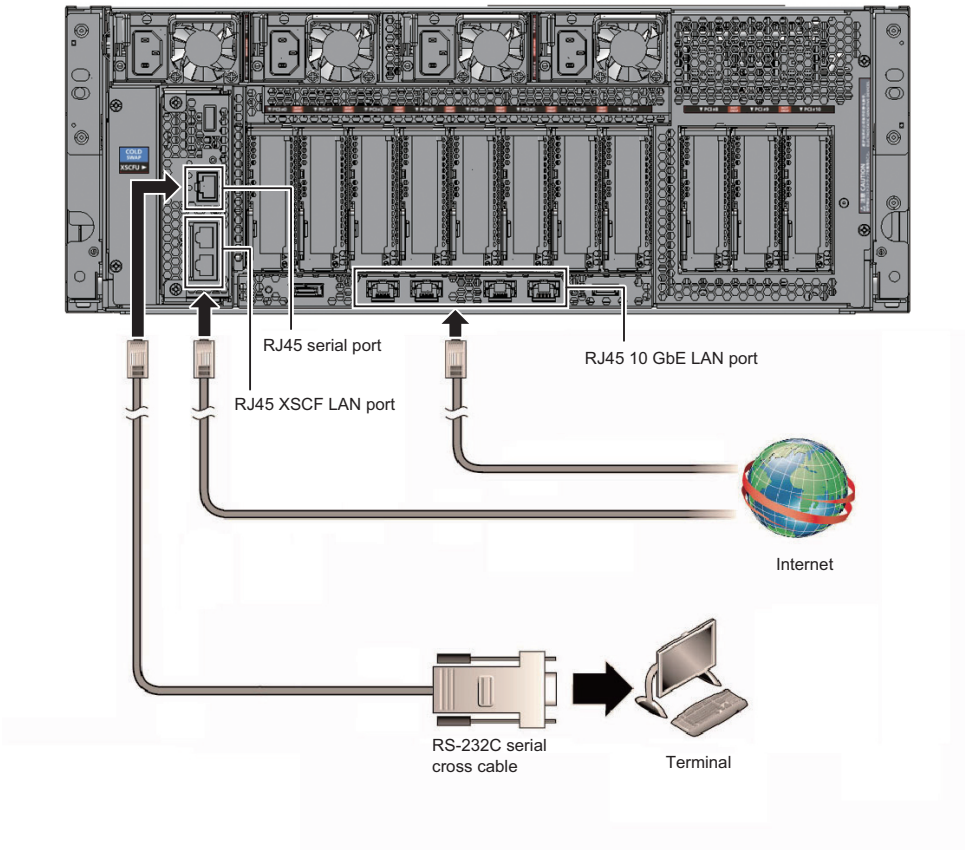


No.	Name		Color	State	Port
1	LINK SPEED	For 10 GbE-LAN port	Green	On	The communication speed is 10 Gbps.
			Amber	On	The communication speed is 1 Gbps.
				Off	The communication speed is 100 Mbps.
2	ACT		Green	Blinking	The port is sending/receiving data.
			-	Off	The port is not sending/receiving data.

2.10.1 Network Configuration Example

Figure 2-13 shows a network configuration example. 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 2-13 Network Configuration Example



2.11 Checking the Functions of the Operation Panel

This section describes the functions of the operation panel mounted on the SPARC M12-2.
You can check system operation with the system display (LEDs) and operation functions on the operation panel.

Figure 2-14 shows the SPARC M12-2 operation panel, and Table 2-13 shows the LEDs and switches on the operation panel.

For details on system operations not covered in the functional outline of Table 2-13, see "2.3 Understanding the OPNL Functions" in the *Fujitsu SPARC M12-2/M12-2S Service Manual*.

Figure 2-14 SPARC M12-2 Operation Panel

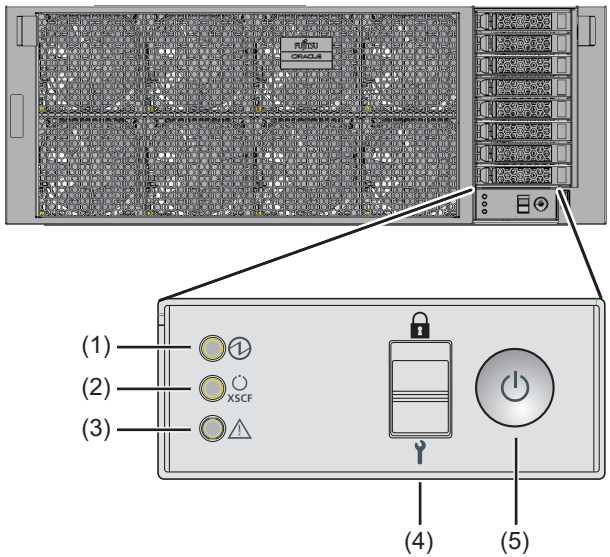


Table 2-13 LEDs and Switches on the Operation Panel

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 being stopped.
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 being started.

Table 2-13 LEDs and Switches on the Operation Panel *(continued)*

No.	LED/Switch	Functional Outline
3	CHECK LED	Indicates whether the SPARC M12-2 is in an abnormal state. Off: Normal state, or no power being supplied On: Hardware has detected an error.
4	Mode switch	Sets the system operation mode.
5	POWER switch	Starts/Stops the system.

You can perform the following operations with the switches shown at (4) and (5) in Figure 2-14.

- **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 mode is used during normal operation.

    You can turn on the power but cannot turn off the power with the POWER switch. This mechanism disables power-off in order to prevent users from turning off the power by mistake.

  - 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.

  The operation to start or stop the system depends on how the POWER switch is pressed and the setting of the system mode switch.

Chapter 3

Installing the System

This chapter describes the work of preparing for installation of the SPARC M12-2 and the PCI expansion unit, mounting a chassis in a rack, and 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 attach rails to the rack supporting columns
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 the delivered components by referring to the List of Attachments that comes with the SPARC M12-2 and the PCI expansion unit. 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 M12-2
- Confirming the Delivered Components of the PCI Expansion Unit

3.2.1 Confirming the Delivered Components of the SPARC M12-2

This section describes the confirmation of delivered components of the SPARC M12-2.

1. **Confirm the delivered components by referring to the List of Attachments that comes with the SPARC M12-2.**
   Table 3-2 below is a list of accessories for the SPARC M12-2. The accessories may change without notice.

Table 3-2 Reference: List of Accessories for the SPARC M12-2

Name	Quantity	Remarks
SPARC M12-2	1	
Fujitsu SPARC M12 Getting Started Guide	1	
Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Important Legal and Safety Information	1	
CPU Activation CD-ROM	1	(*1)
Power cord	4	For 200 VAC (*2)
Core	4	Used when attached to power cord
Serial cable	1	
Rack mount kit	1 set	
Cable support	1 set	

*1 The disk contains the CPU Activation key information.
*2 The power cord is ordered separately (required option), so it may not come with the product.

2. **Check for incomplete engagement, incomplete contact, or looseness in the mounting of internal storage (HDD/SSD). Also confirm that the PCI cassette lever is locked at the bottom.**

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 3-3 below is a list of accessories for the PCI expansion unit. The accessories may change without notice.

Table 3-3 List of Accessories for the PCI Expansion Unit

Name	Quantity	Remarks
PCI expansion unit	1	
Core	2	Used when attached to power cord
Rack mount kit	1 set	
Cable support	1 set	

Table 3-4 List of Separately Ordered Components for the PCI Expansion Unit (*1)

Name	Quantity	Remarks
Power cord	2	For 100 VAC or 200 VAC
Cable to connect PCI expansion unit (optical, 10 m)	2	Select either of two types of cable
Cable to connect PCI expansion unit (electrical, 3 m)		
Management cable	1	Component of cable to connect PCI expansion unit
Link board (PCI expansion unit connected card)	1	Component of the PCI expansion unit (*2)
Link card (PCI expansion unit connected card)	1	Component of the SPARC M12-2 (*3)

*1 The separately ordered components may not come with the PCI expansion unit.
*2 This is a PCIe card to be mounted in the PCI expansion unit.
If the SPARC M12-2 is ordered at the same time as the PCI expansion unit, the card is shipped as an accessory for the SPARC M12-2.
If the PCI expansion unit is ordered at the same time as the PCI connected card, the card is shipped mounted in the PCI expansion unit.
*3 This is a PCIe card to be mounted in the SPARC M12-2.
If the SPARC M12-2 is ordered at the same time as the PCI expansion unit, the card is shipped mounted in the SPARC M12-2.
If the PCI expansion unit is ordered at the same time as the PCI connected card, the card is shipped as an accessory for the PCI expansion unit.

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

3.3 Mounting the SPARC M12-2 and the PCI Expansion Unit in a Rack

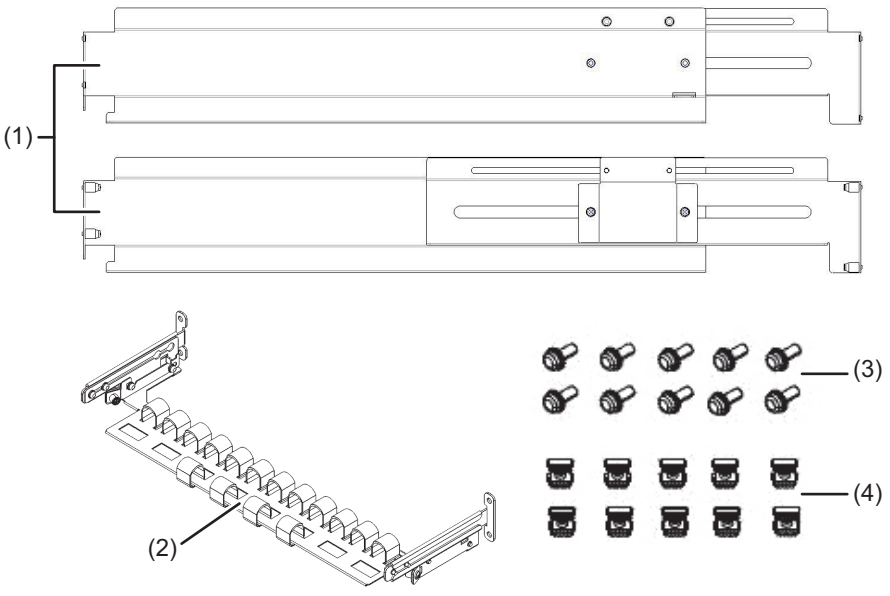
This section describes the procedures for mounting the SPARC M12-2 and the PCI expansion unit in an equipment rack.
The method of securing the rails differs depending on the rack type. As described in this section, the methods of securing them differ between the racks with supporting columns having square 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 "3.4 Mounting Optional Components."
For the rack mounting procedures of the SPARC M12-2 and PCI expansion unit, see the following sections:

- Mounting the SPARC M12-2 in a Rack
- Mounting the PCI Expansion Unit in a Rack

3.3.1 Mounting the SPARC M12-2 in a Rack

1. **Confirm that the rack mount kit supplied with the SPARC M12-2 is complete.**

Figure 3-1 Rack Mount Kit



Number in Figure	Name	Quantity	Remarks
1	Rail	2	Bilaterally symmetrical shape
2	Cable support	1	
3	M6 screw	10	
4	Cage nut	10	

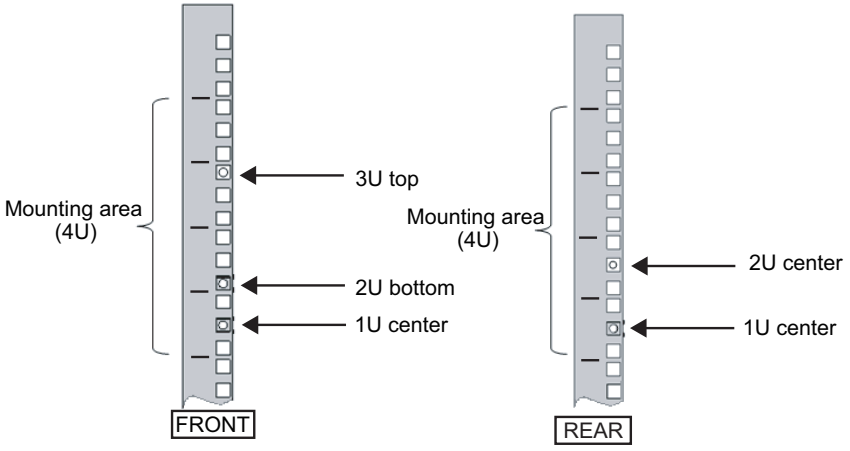
2. **Confirm that the rack is secured in place to prevent the rack from toppling over.**
3. **Confirm the SPARC M12-2 mounting location in the rack. If necessary, mark the location on the supporting columns.**
4. **Step 4 differs depending on the shape of the supporting column holes of the rack. Perform 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

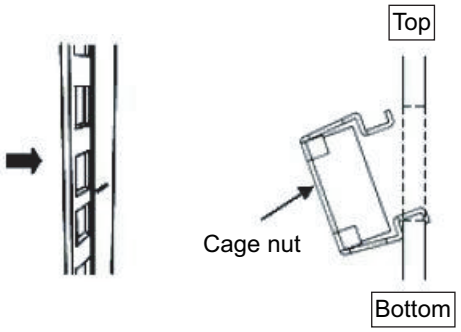
Figure 3-2 Cage Nut Attachment Locations in the Supporting Columns of the Rack



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.

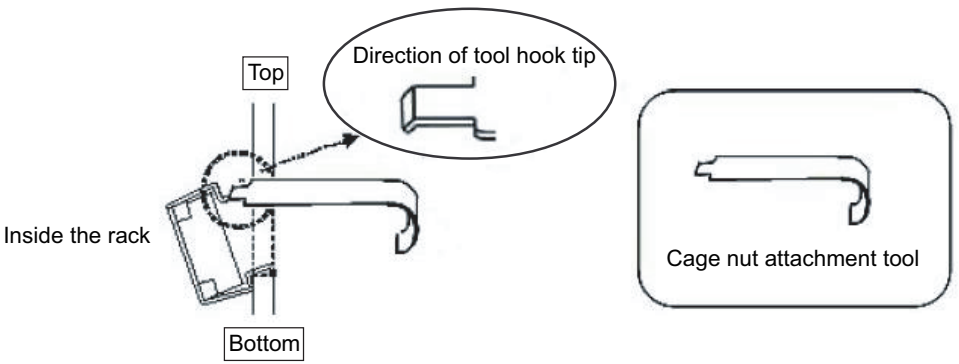
Figure 3-3 shows a cage nut hooked on the lower part of a hole.

Figure 3-3 Orientation of the Hooks of a Cage Nut



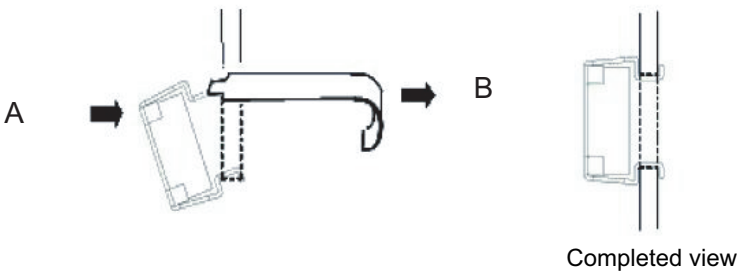
b. Insert the hook at the tip of the supplied cage nut attachment tool through a cage nut attachment hole from the front, and engage it with the hook at the other end of the cage nut.

Figure 3-4 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 3-5.

Figure 3-5 Attaching a Cage Nut



- **For supporting columns with M6 screw holes**

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

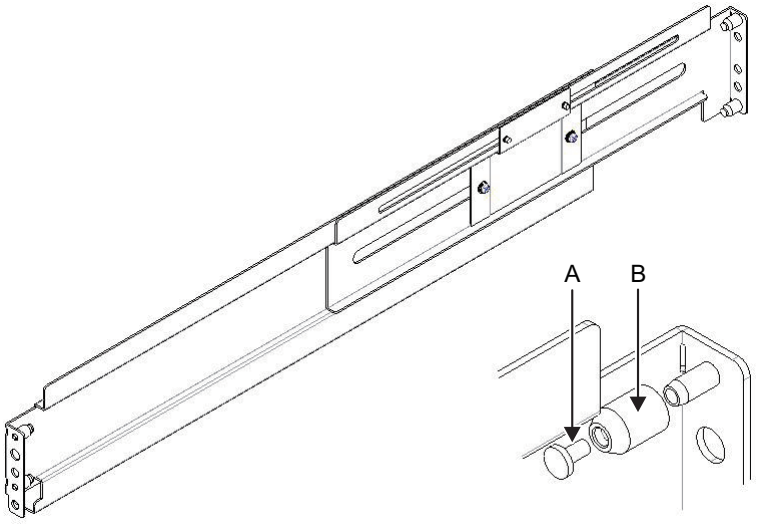
  a. Remove the screw (A in Figure 3-6) securing the rail pin.

  b. Remove the pin (B in Figure 3-6).

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

  d. Store the eight removed pins and eight removed screws for future use when the SPARC M12-2 is moved.

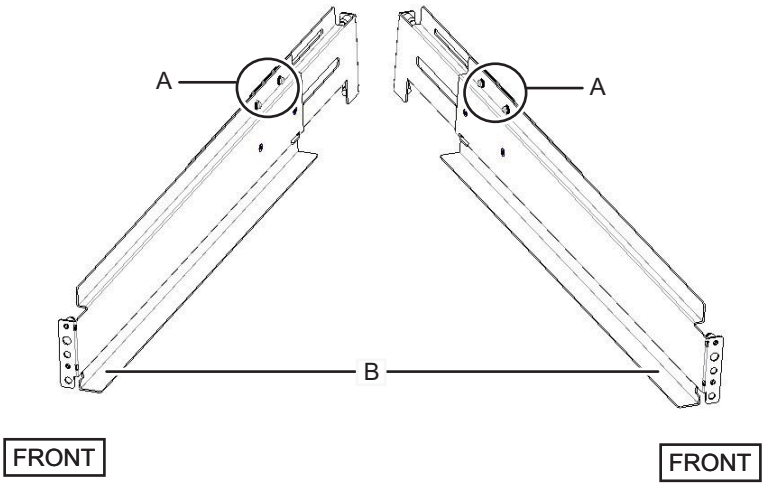
Figure 3-6 Removing a Rail Pin



5. **Loosen the two screws attached to the side of rail (A in Figure 3-7) and confirm that the brackets at the front and rear can slide.**

Note - Do not remove the screws.

Figure 3-7 Orientation for Attaching the Rails



6. **Attach the rail to the rack.**
   Arrange it so that the two loosened screws (A in Figure 3-7) are situated at the back and the shelf (B in Figure 3-7) is on 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 point is 2U bottom.
   e. Attach the other rail in the same manner.

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

Figure 3-8 Attaching the Rails: Locations of Protrusions

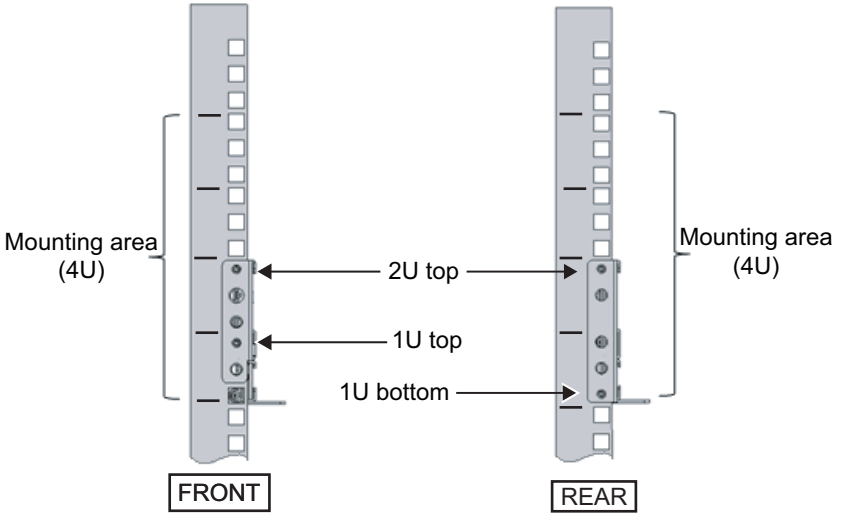
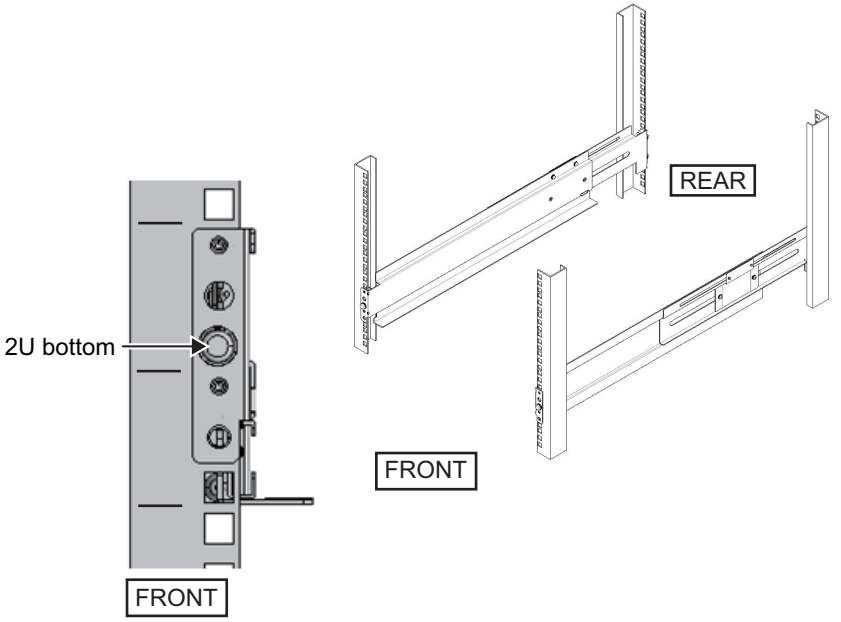
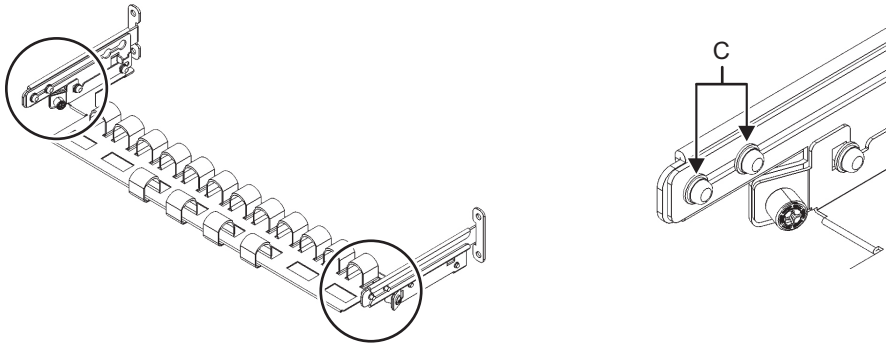


Figure 3-9 Attaching the Rails: Fixing Point of the Screw



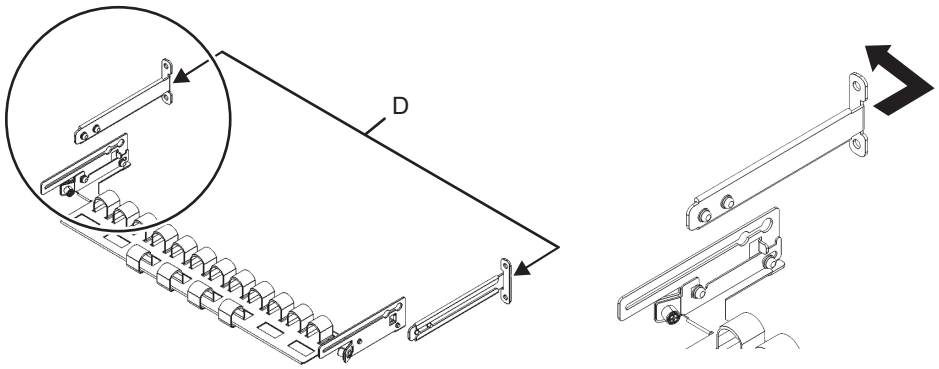
7. **Attach the cable support fixing brackets to the rear supporting columns of the rack.**
   a. Loosen the four screws (C in Figure 3-10) from the inside of the cable support.

Figure 3-10 Removing the Cable Support Fixing Brackets (1)



b. Slide the cable support fixing brackets (D in Figure 3-11) to remove them.

Figure 3-11 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 points are 1U center and 2U center.

Figure 3-12 Attaching the Cable Support Brackets

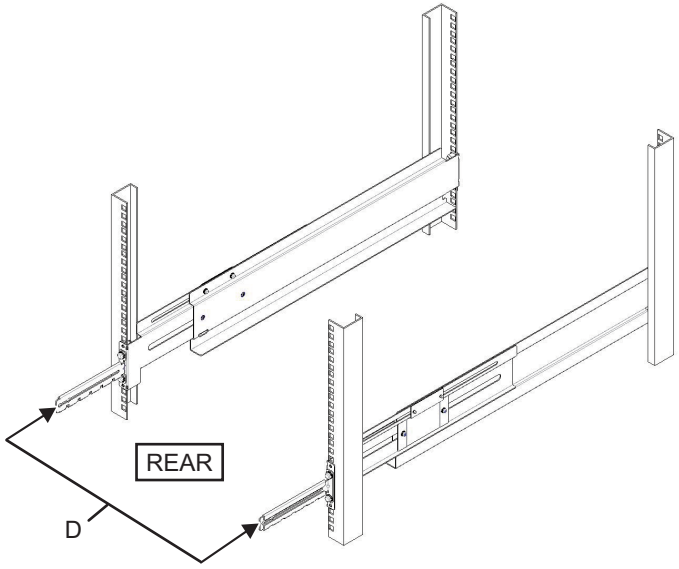
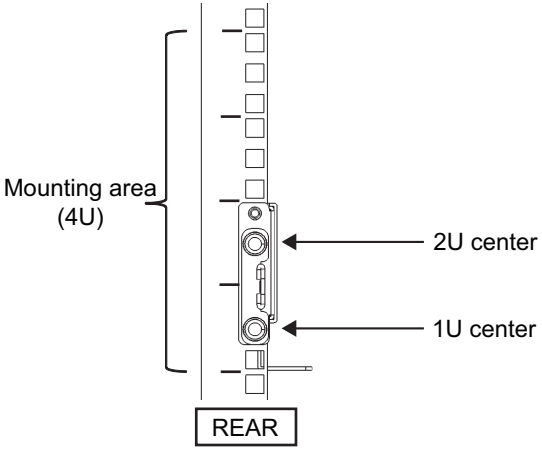


Figure 3-13 Securing a Cable Support Fixing Bracket and Rail



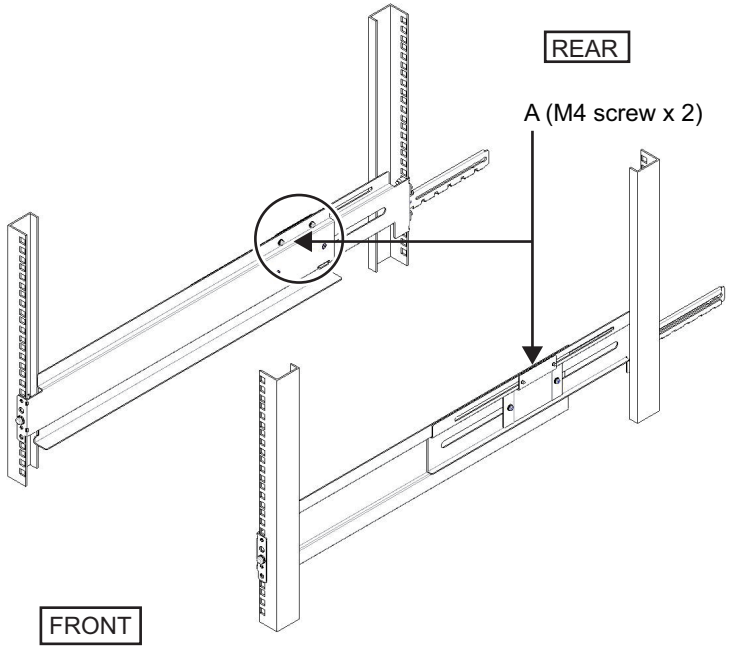
d. After attaching the cable support fixing brackets, confirm that the rack door can close.

Note - If the door cannot close because a 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 two M4 screws loosened in step 5 (A in Figure 3-14).**

Figure 3-14 Securing the Sides of Rails With Screws

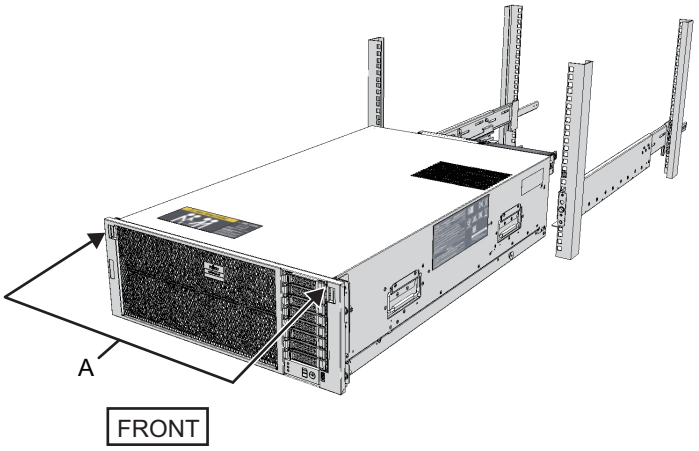


9. **Mount the SPARC M12-2 in the rack.**
   Mount the SPARC M12-2 from the front of the rack.

Note - The SPARC M12-2 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.
   e. Insert the chassis all the way to store it inside the rack.

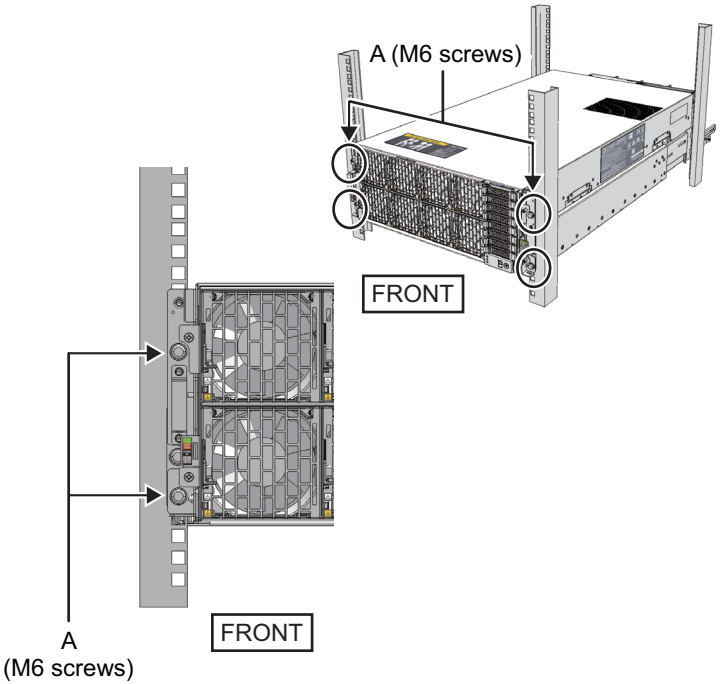
Figure 3-15 Mounting in the Rack



10. **Secure the SPARC M12-2 to the rack.**
    a. Push out the left and right slide locks on the front cover (A in Figure 3-15) 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 3-16) 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.

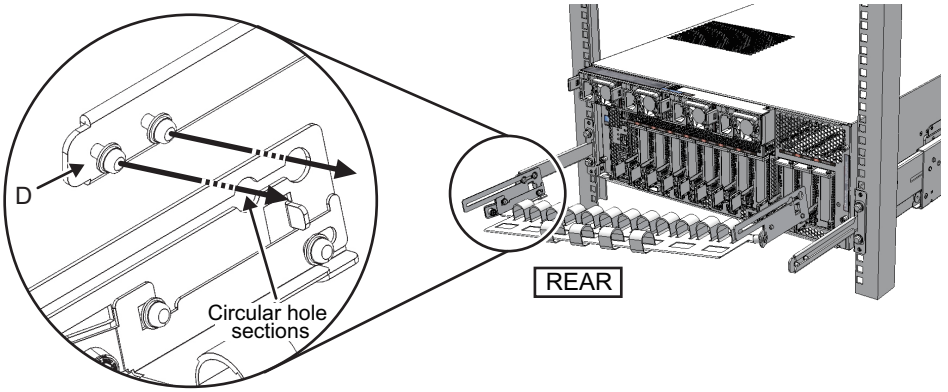
Note - A label with the serial number of the SPARC M12-2 is affixed to the front cover. Be sure to attach the front cover to the corresponding chassis.

Figure 3-16 Securing the SPARC M12-2



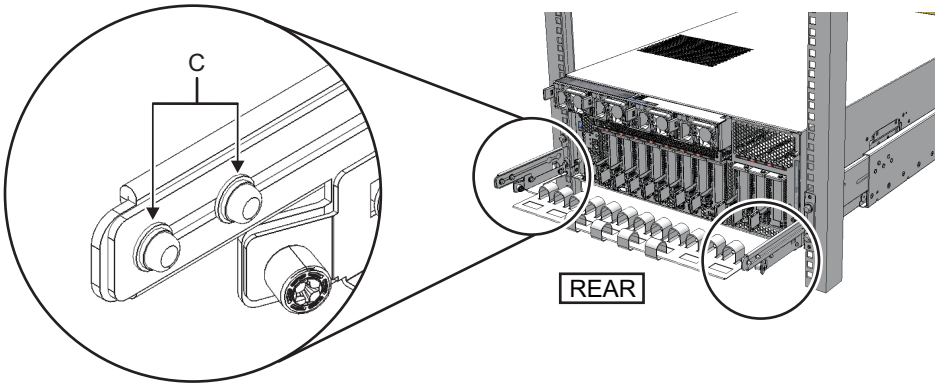
11. **Attach the cable support.**
    a. Tilt the cable support to align the circular holes at the rear of the groove with the two screws of a cable support fixing bracket (D in Figure 3-17), and attach it. Level the cable support. Then, align the circular holes on the other side with the two screws, and attach it.

Figure 3-17 Attaching the Cable Support (1)



b. Slide the cable support all the way in, and tighten the four screws (C in Figure 3-18).

Figure 3-18 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 all the way in. The fixing point varies depending on the dimension between the front and rear columns of the rack. Based on Figure 3-19, align the scale marks (E in Figure 3-19) (spacing: 10 mm) on the cable support with the screws (F in Figure 3-19) of the fixing brackets to secure the cable support.

Figure 3-19 Attaching the Cable Support (3)

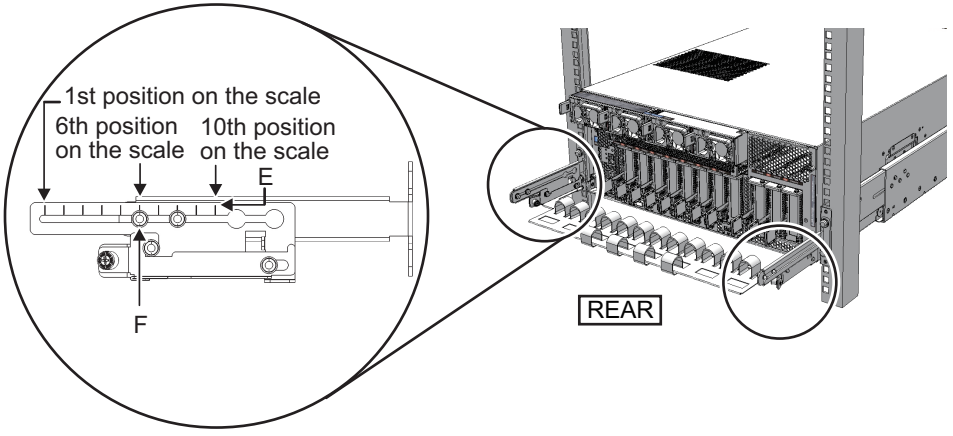


Table 3-5 Dimensions Between the Front and Rear Columns and Scale Positions

Dimension Between Front and Rear Columns (mm)	Scale Position
740	1st
730	2nd

Table 3-5 Dimensions Between the Front and Rear Columns and Scale Positions *(continued)*

Dimension Between Front and Rear Columns (mm)	Scale Position
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 the cable support forward to a fixing point that makes 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 to the rack with the two M6 screws.

Figure 3-20 SPARC M12-2 Mounting Completed (Front)

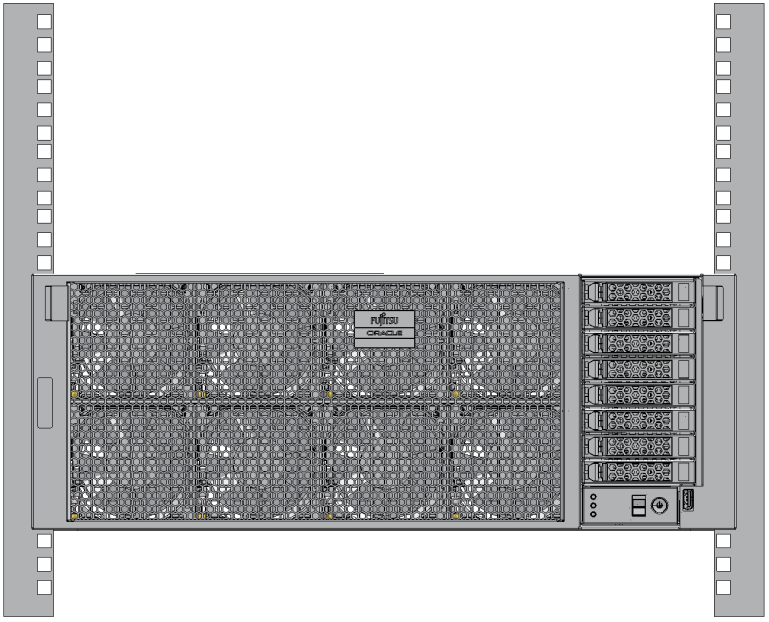
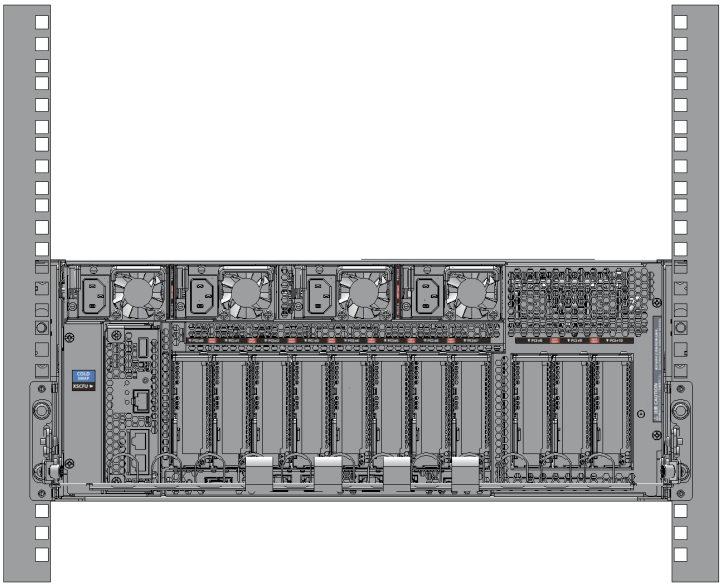


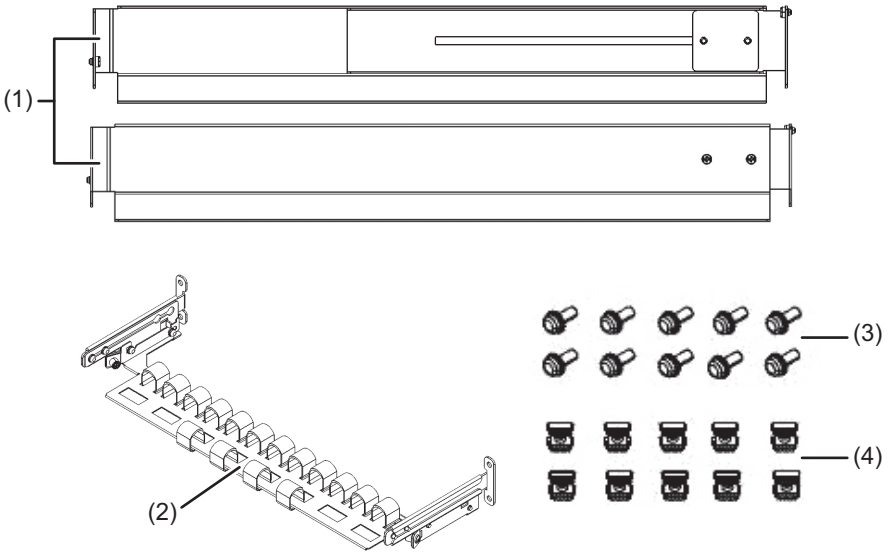
Figure 3-21 SPARC M12-2 Mounting Completed (Rear)



3.3.2 Mounting the PCI Expansion Unit in a Rack

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

Figure 3-22 Rack Mount Kit



Number in Figure	Name	Quantity	Remarks
1	Rail	2	Bilaterally symmetrical shape
2	Cable support	1	
3	M6 screw	10	
4	Cage nut	10	

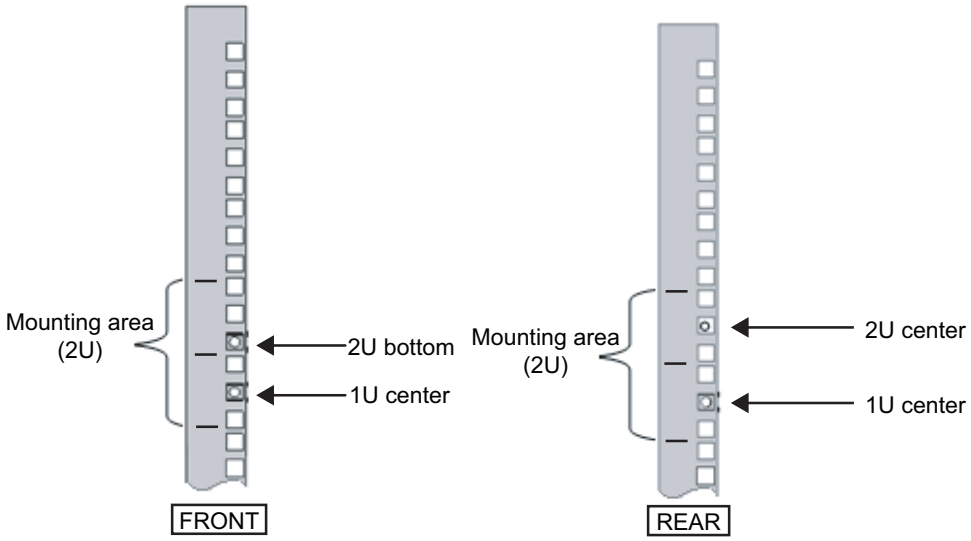
2. **Confirm that the rack is secured in place to prevent the rack from toppling over.**
3. **Step 3 differs depending on the shape of the supporting column holes of the rack. Perform the work appropriate to the shape of the supporting column holes of the rack.**

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

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

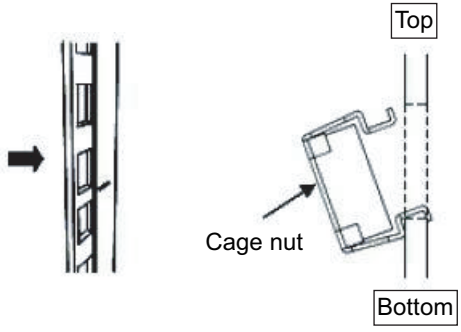
  - Attachment locations in the front supporting columns: (From the bottom) 1U center and 2U bottom
  - Attachment locations in the rear supporting columns: (From the bottom) 1U center and 2U center

Figure 3-23 Cage Nut Attachment Locations in the Supporting Columns of the Rack



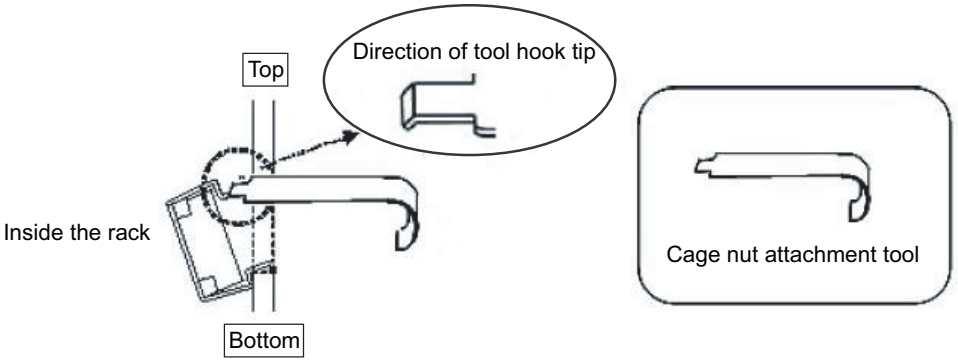
a. Attach cage nuts from the inside of the rack.
Orient the hooks of the cage nut vertically.
Hook the hook at one end of a cage nut into a cage nut attachment hole of the rack.
Figure 3-24 shows a cage nut hooked on the lower part of a hole.

Figure 3-24 Orientation of the Hooks of a Cage Nut



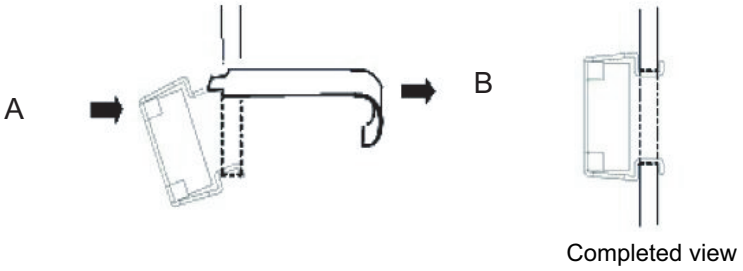
b. Insert the hook at the tip of the supplied cage nut attachment tool through a cage nut attachment hole from the front, and engage it with the hook at the other end of the cage nut.

Figure 3-25 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 3-26.

Figure 3-26 Attaching a Cage Nut



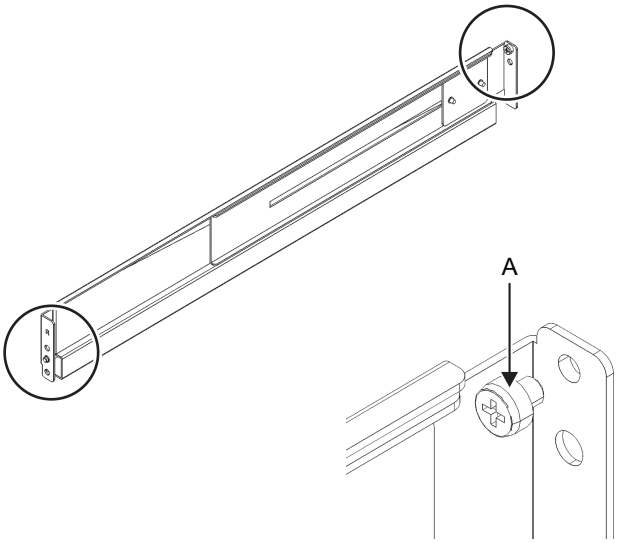
- **For supporting columns with M6 screw holes**

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

  a. Remove the pins (A in Figure 3-27) 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 PCI expansion unit is moved.

Figure 3-27 Removing a Rail Pin

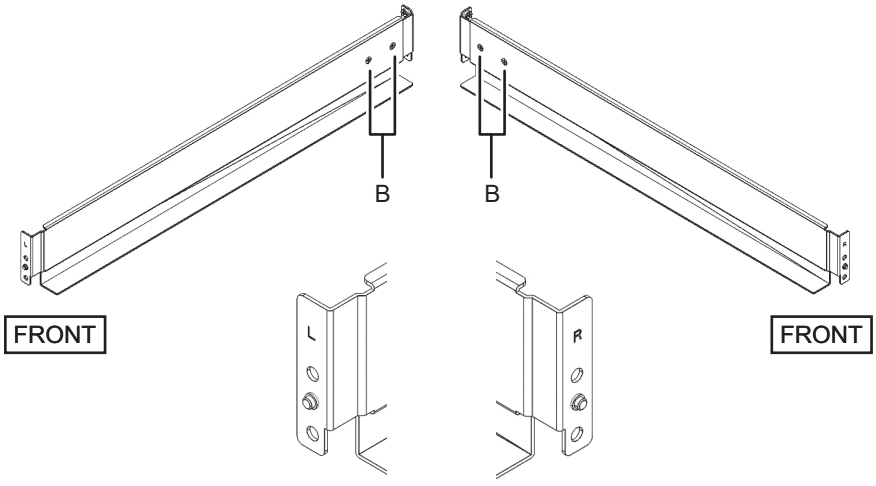


4. **Remove each screw from the side of the rail.**
   Loosen the two screws (B in Figure 3-28) from the side of the rail.

   The removed screw will be used in step 7.

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

Figure 3-28 Screws on the Sides of Rails



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.

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.

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 point is 2U bottom.

e. Attach the other rail in the same manner.

Figure 3-29 Attaching the Rails: Locations of Protrusions

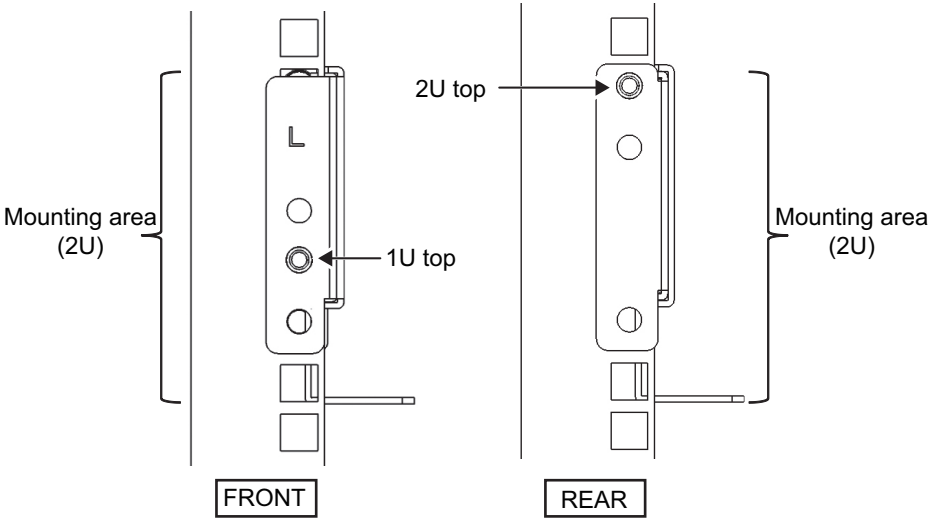
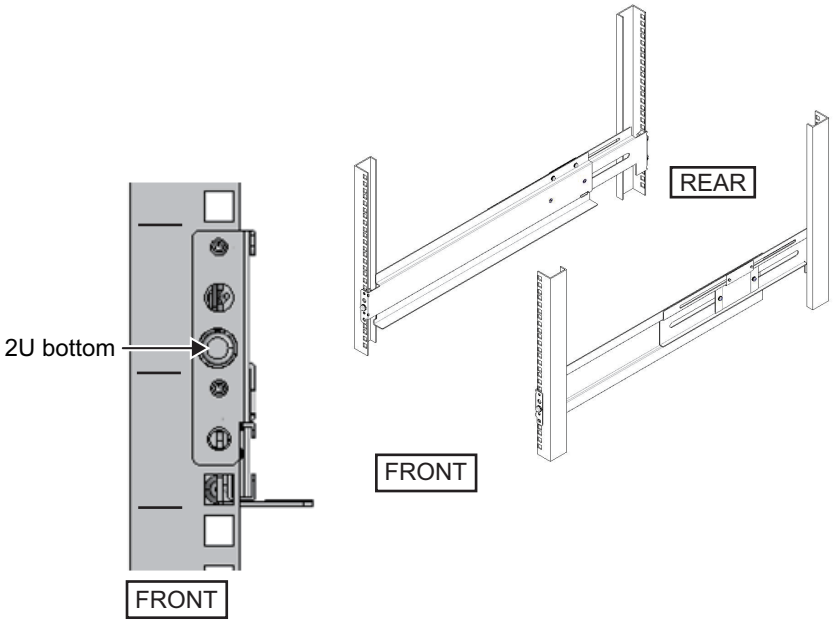
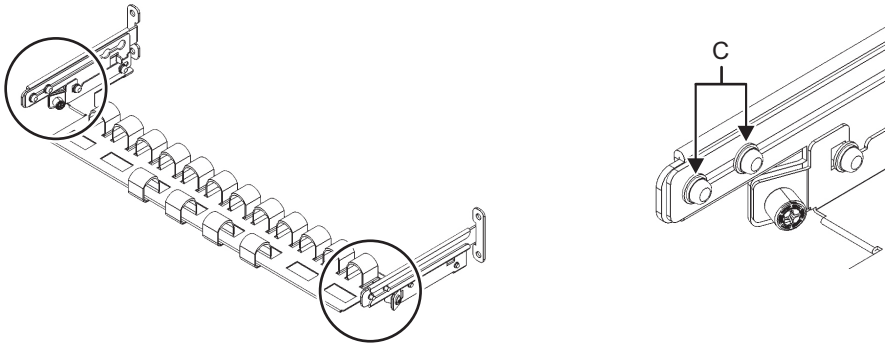


Figure 3-30 Attaching the Rails: Fixing Point of the Screw



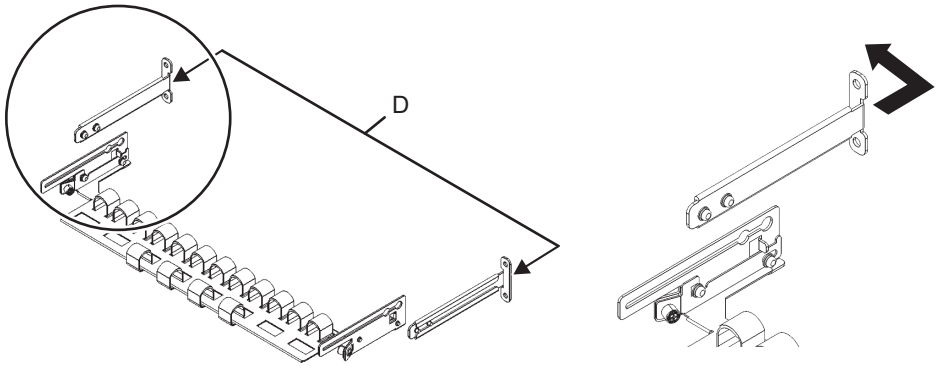
6. **Attach the cable support fixing brackets to the rear supporting columns of the rack.**
   a. Loosen the four screws (C in Figure 3-31) from the inside of the cable support.

Figure 3-31 Removing the Cable Support Fixing Brackets (1)



   b. Slide the cable support fixing brackets (D in Figure 3-32) to remove them.

Figure 3-32 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 points are 1U center and 2U center.

Figure 3-33 Attaching the Cable Support Brackets

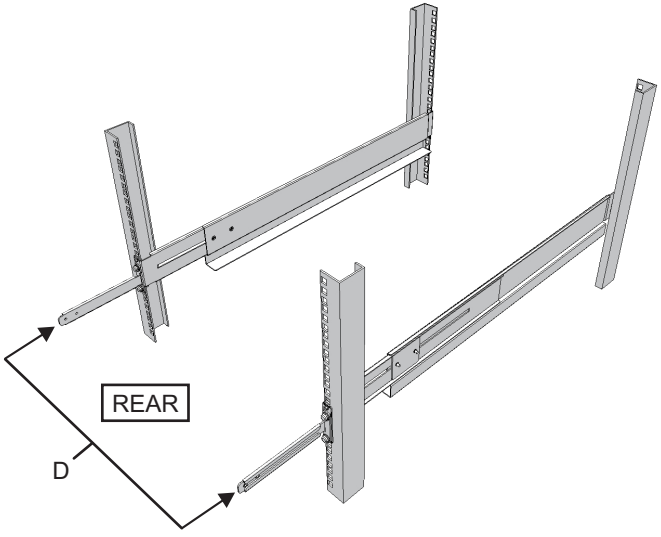
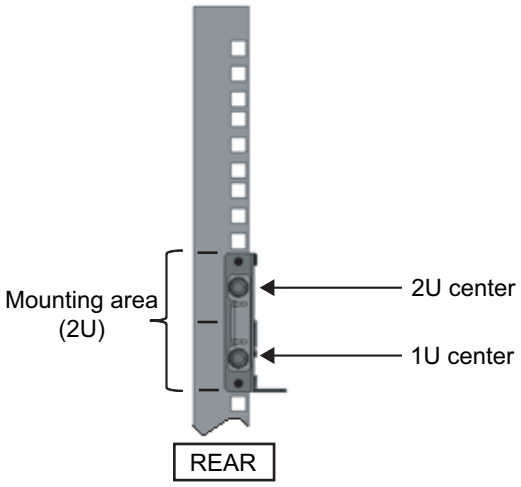


Figure 3-34 Securing a Cable Support Fixing Bracket and Rail



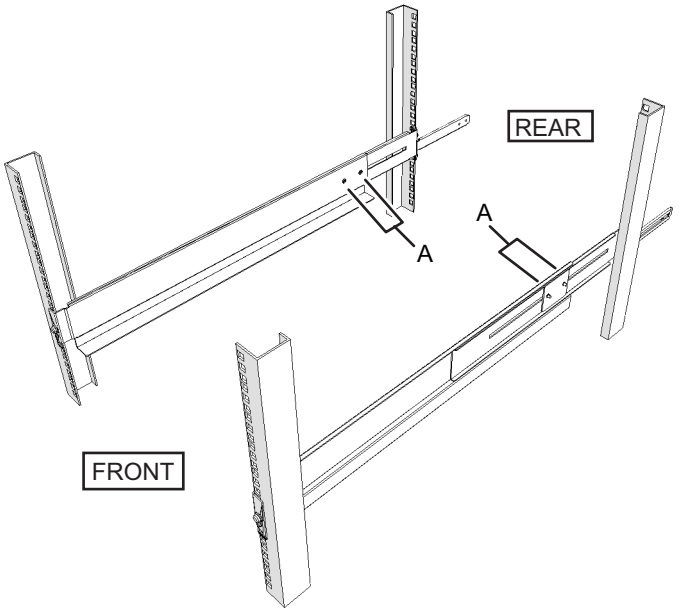
d. After attaching the cable support fixing brackets, confirm that the rack door can close.

Note - If the door cannot close because a 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 rail sides by using the screws removed in step 4. (A in Figure 3-35)**

Figure 3-35 Securing the Sides of Rails With Screws



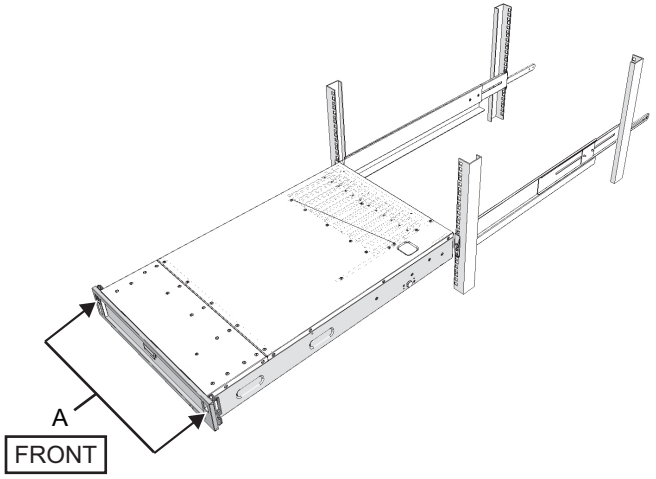
8. **Mount the PCI expansion unit in the rack.**
   Mount the PCI expansion unit from the front of the rack.

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

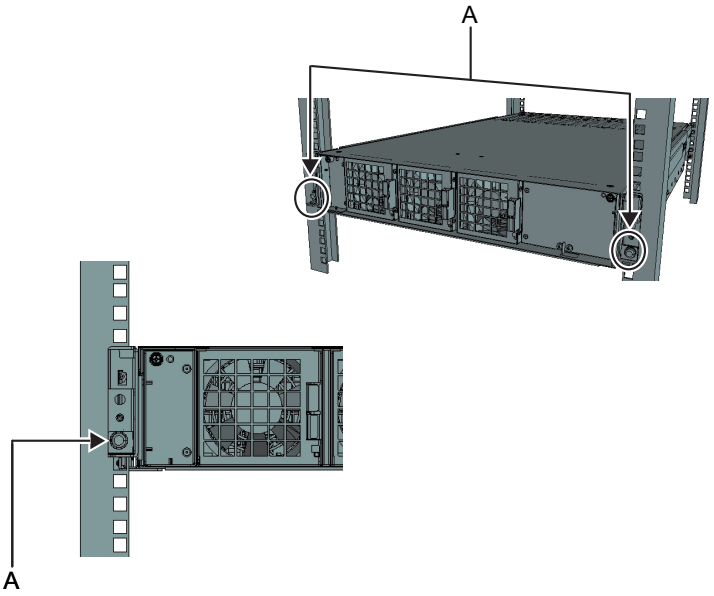
Figure 3-36 Mounting in the Rack



9. **Secure the PCI expansion unit in the rack.**
   a. Push out the left and right slide locks on the front cover (A in Figure 3-36) 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 3-37) 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.

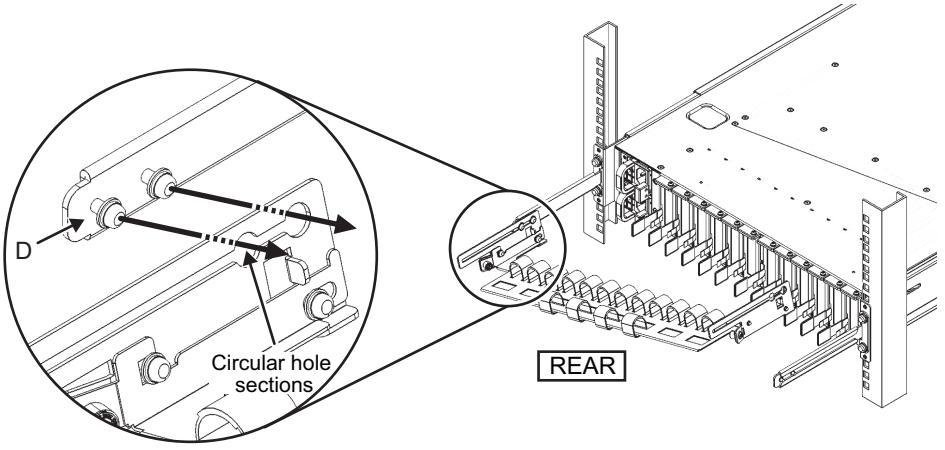
Note - A label with the serial number of the PCI expansion unit is affixed to the front cover. Be sure to attach the front cover to the corresponding PCI expansion unit.

Figure 3-37 Securing the PCI Expansion Unit



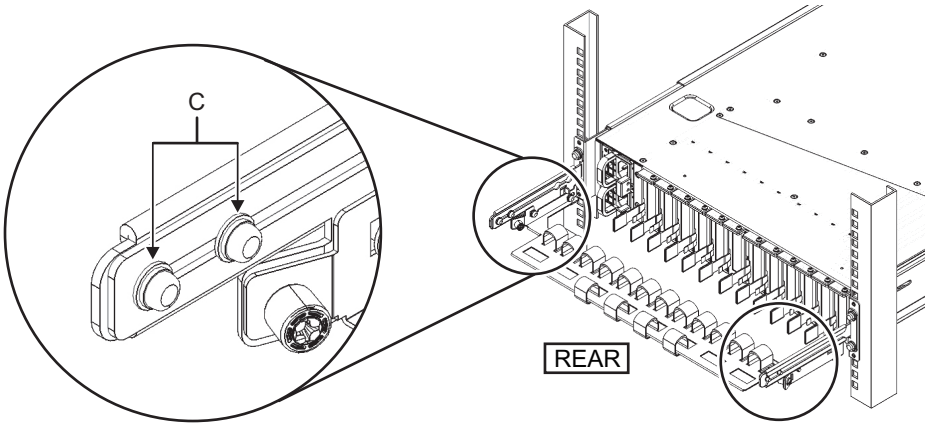
10. **Attach the cable support.**
    a. Tilt the cable support to align the circular holes at the rear of the groove with the two screws of a cable support fixing bracket (D in Figure 3-38), and attach it. Level the cable support. Then, align the circular holes on the other side with the two screws, and attach it.

Figure 3-38 Attaching the Cable Support (1)



    b. Slide the cable support all the way in, and tighten the four screws (C in Figure 3-39).

Figure 3-39 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 all the way in. The fixing point varies depending on the dimension between the front and rear columns of the rack. Based on Figure 3-40, align the scale marks (E in Figure 3-40) (spacing: 10 mm) on the cable support with the screws (F in Figure 3-40) of the fixing brackets to secure the cable support.

Figure 3-40 Attaching the Cable Support (3)

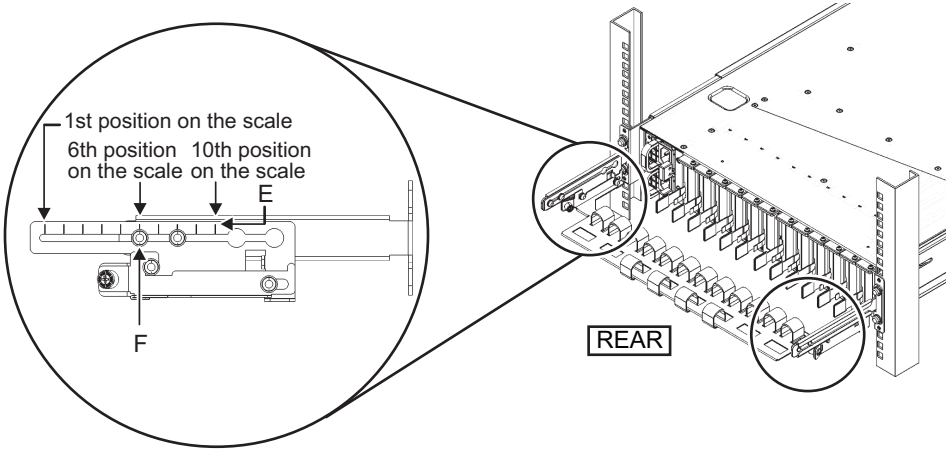


Table 3-6 Dimensions Between the Front and Rear Columns and Scale Positions

Dimension Between Front and Rear Columns (mm)	Scale Position
740	1st
730	2nd
720	3rd

Table 3-6 Dimensions Between the Front and Rear Columns and Scale Positions *(continued)*

Dimension Between Front and Rear Columns (mm)	Scale Position
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 the cable support forward to a fixing point that makes 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 3-41 Cable Support Attachment Completed

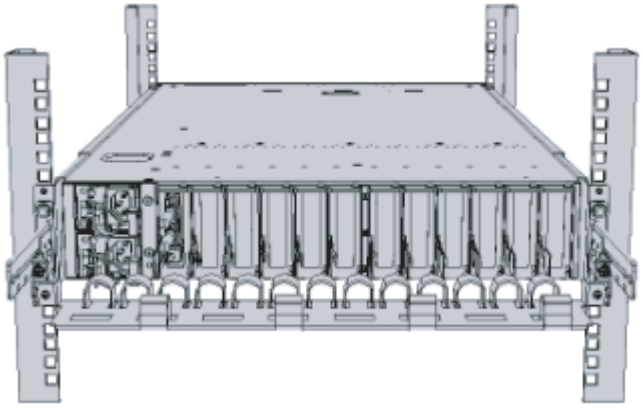
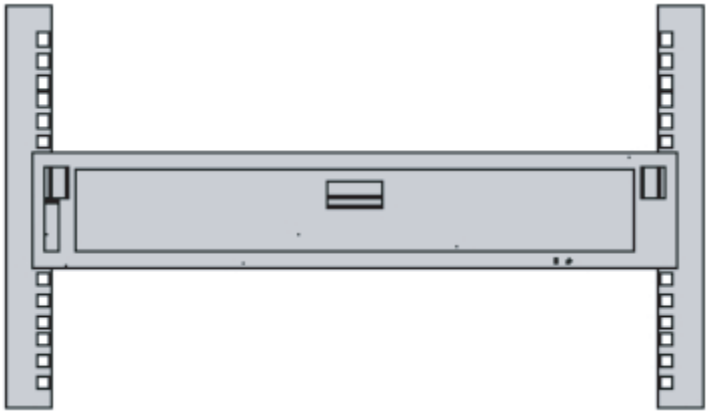


Figure 3-42 PCI Expansion Unit Mounting Completed



3.4 Mounting Optional Components

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

If optional components are ordered together with the SPARC M12-2 or the PCI expansion unit, they are shipped mounted in the SPARC M12-2 or the PCI expansion unit. If the optional components are ordered separately, they will need to be mounted on site. Mount optional components after mounting the SPARC M12-2 or the PCI expansion unit in the rack.

- Mounting Optional Components in the SPARC M12-2
- Mounting Optional Components in the PCI Expansion Unit

3.4.1 Mounting Optional Components in the SPARC M12-2

The following table lists the optional components and references for the SPARC M12-2. For detailed procedures, see the *Fujitsu SPARC M12-2/M12-2S Service Manual*, and perform work accordingly. All the references in the table can be found in the *Fujitsu SPARC M12-2/M12-2S Service Manual*.

Table 3-7 List of Optional Components and References for the SPARC M12-2

Optional Component Name	Reference
Memory	"Chapter 17 Maintaining the CPU Memory Unit and Memory"
Internal storage (HDD/SSD)	"Chapter 15 Maintaining Internal Storage"
PCIe card Link card	"Chapter 12 Maintaining PCIe Cards"

3.4.2 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 3-8 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

Connecting Cables to the SPARC M12-2 and the PCI Expansion Unit

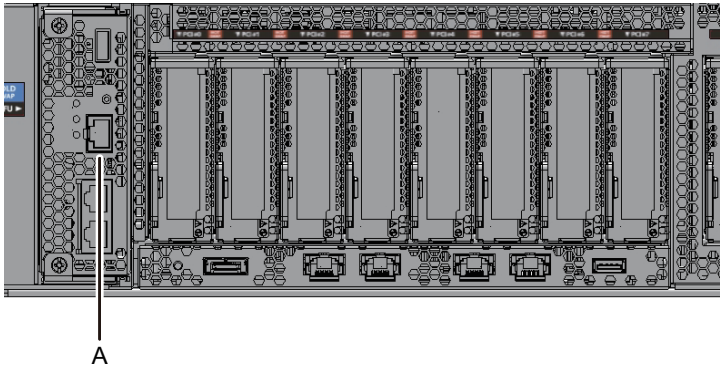
This chapter describes the procedures for connecting the power cords, serial cable, and network cables to the SPARC M12-2 and the PCI expansion unit. The ports for the connections are on the rear of the SPARC M12-2 and the PCI expansion unit. For a description of each port, see "2.10 Checking External Interface Port Specifications."

4.1 Connecting Cables to the SPARC M12-2

This section describes the procedure for connecting the serial cable, network cables, and power cords to the SPARC M12-2.

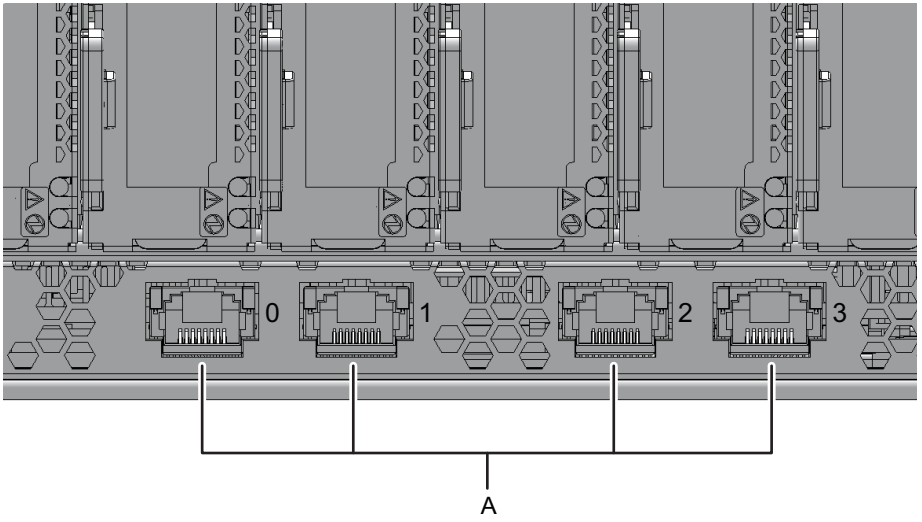
1. **Connect the serial cable supplied with the SPARC M12-2 from the serial port of the XSCF unit (A in Figure 4-1) to the system management terminal.**

Figure 4-1 Serial Port Location



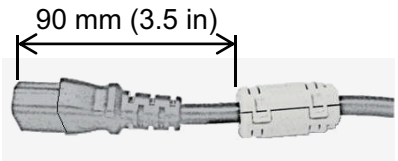
2. **Connect a LAN cable of Category 6 or higher from a 10 GbE port (A in Figure 4-2) to the network switch or hub.**
   The 10 GbE ports are used for the user network. Connect every other server, PC, UPS, etc. that is necessary for business via the network switch or hub.

Figure 4-2 10 GbE Port Locations



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 4-3.)

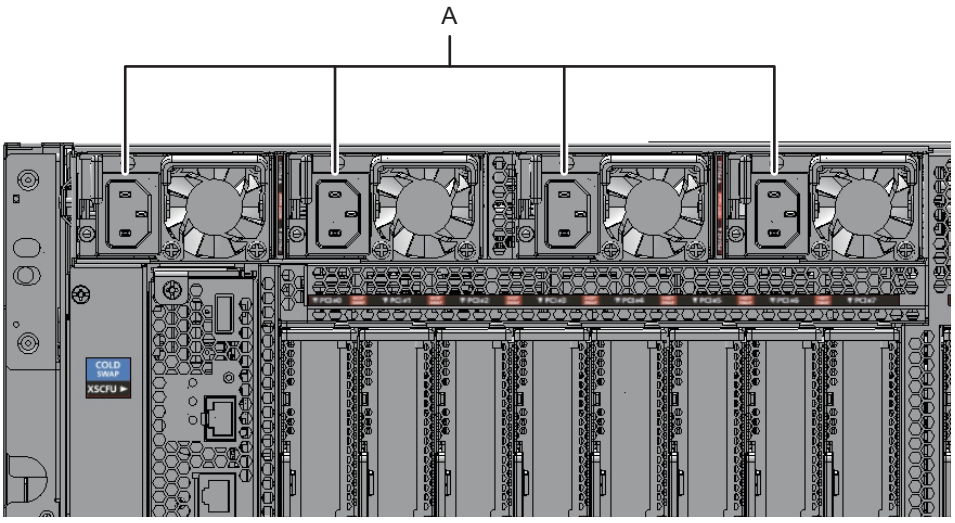
Figure 4-3 Core attachment location



   b. Insert the power cord straight into the power supply unit (A in Figure 4-4) all the way.

Secure the power cords with cable clamps.

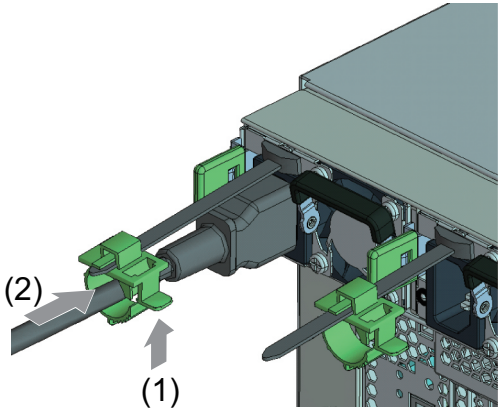
Figure 4-4 Power Supply Unit Locations



6. **Secure all the power cords with cable clamps.**
   Tighten the cable clamp until it holds the power cord tightly in place. ((1) in Figure 4-5)

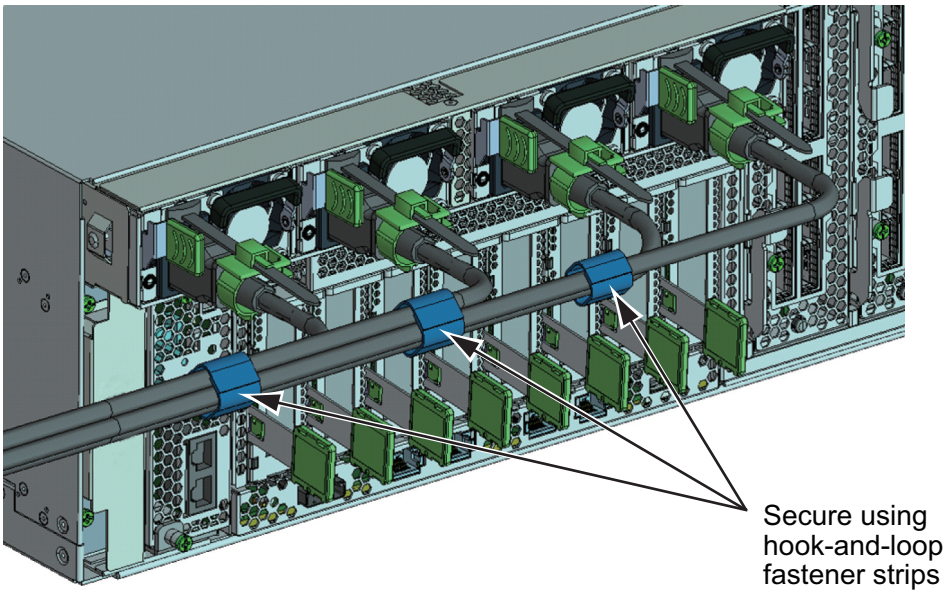
   Move the cable clamp to the base of the connector. ((2) in Figure 4-5)

Figure 4-5 Securing Power Cords



7. **While pulling the power cords toward the left side at the rear, gather them together, and bundle them with hook-and-loop fastener strips.**
   Ensure that the power cords do not hang in front of the PCIe cards under the power supply units.

Figure 4-6 Bundling Power Cords



8. **Secure a sufficient extra length from the power supply unit to the bundling point of each power cord.**
   In order to perform active maintenance on the power supply unit, the power cord must have the extra length.

Figure 4-7 Securing the Extra Length for Power Cords

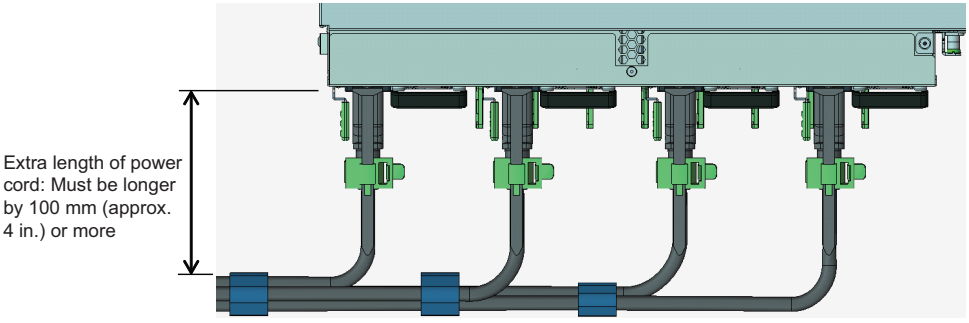
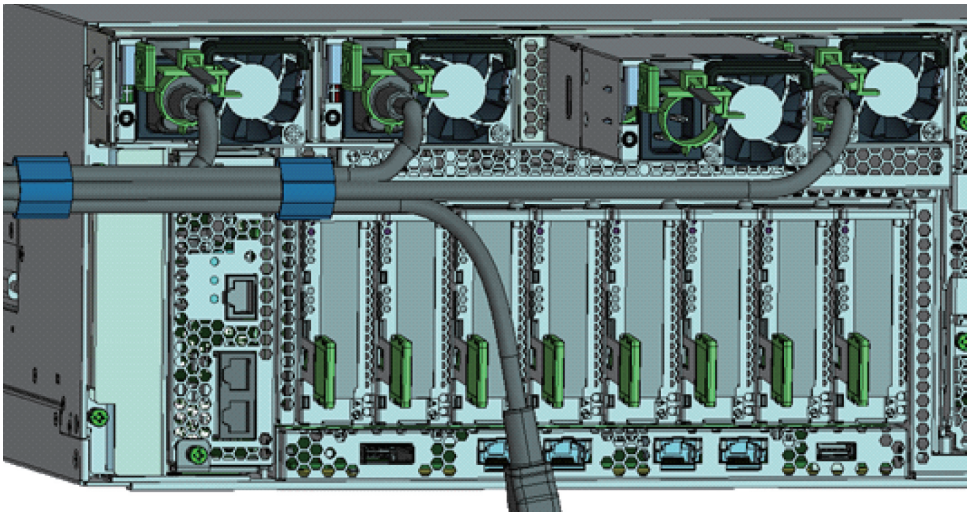


Figure 4-8 Reference: Example of Active Maintenance of a Power Supply Unit



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

4.2 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.

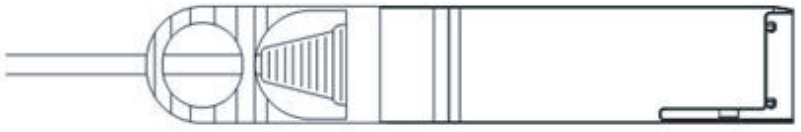
1. **Connect the management cable.**
   Connect the link board of the PCI expansion unit and the link card of the SPARC M12-2 by using the management cable. (See A in Figure 4-10 and A in Figure 4-11.)

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 locations as shown on the labels.

Figure 4-9 Link Cable (Optical) Shape



a. Connect one end of a link cable to the port (B in Figure 4-10) on the link board mounted in the PCI expansion unit.

b. Connect the other end to the port (B in Figure 4-11) on the link card of the SPARC M12-2.

c. Connect one end of the other link cable to the port (C in Figure 4-10) on the link board mounted in the PCI expansion unit.

d. Connect the other end to the port (C in Figure 4-11) on the link card of the SPARC M12-2.

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.

Figure 4-10 Link Cable and Management Cable Connections (PCI Expansion Unit Side)

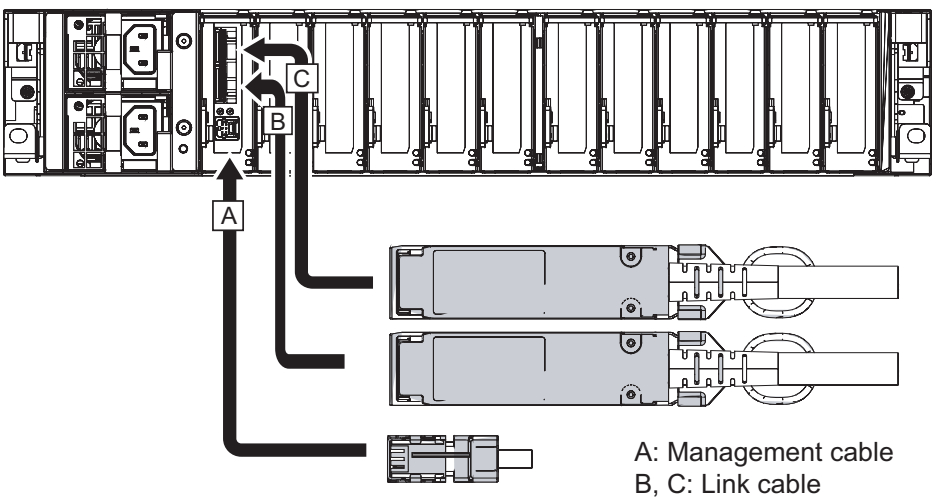
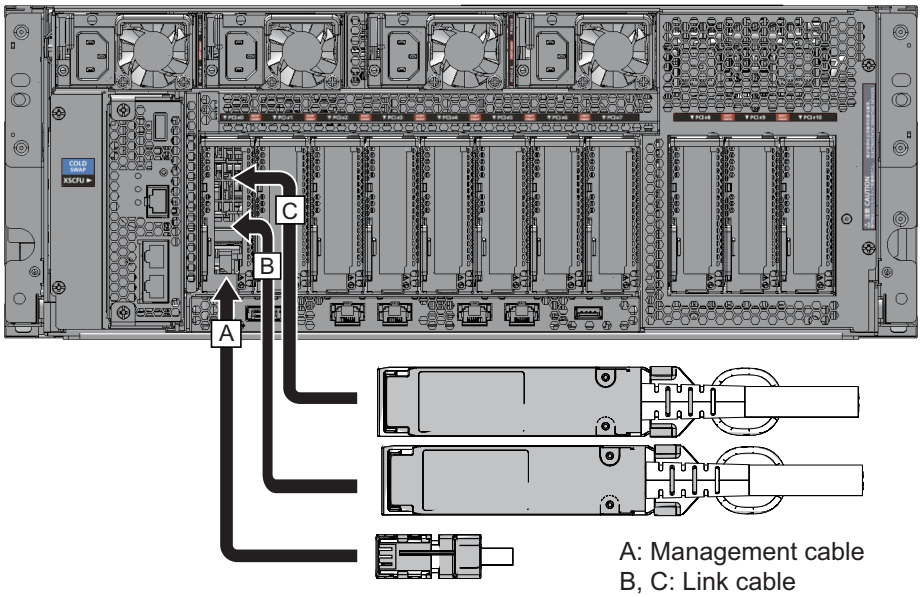
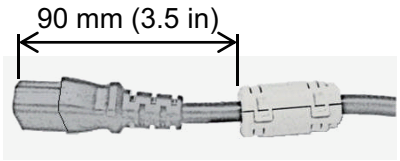


Figure 4-11 Link Cable and Management Cable Connections (SPARC M12-2 Side)



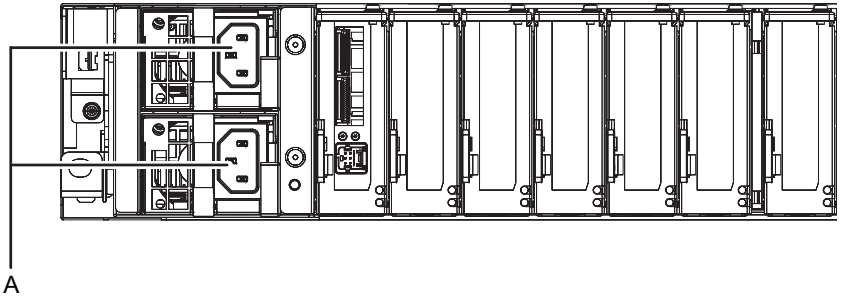
3. **If a PCIe card is mounted, connect a LAN cable and I/O cable to the respective ports on the PCIe card.**
4. **Secure the cables to the cable support.**
   While leaving extra length, secure the cables connected to the PCIe card to the cable support.
5. **Attach a core to each supplied power cord, 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 4-12.)

Figure 4-12 Core attachment location



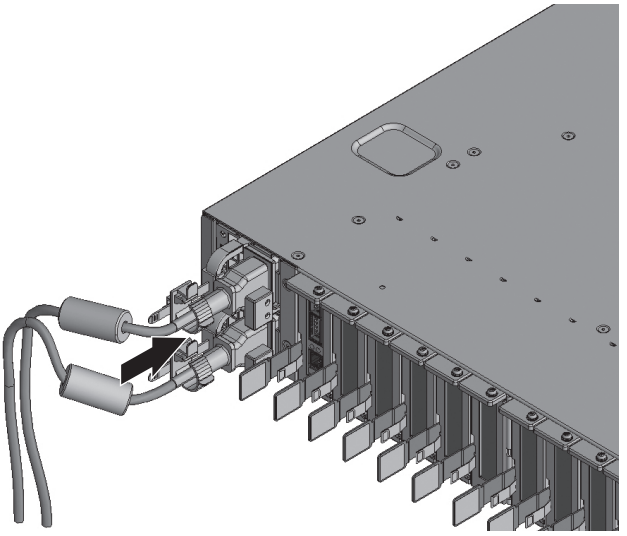
   b. Insert the power cord straight into the power supply unit (A in Figure 4-13) all the way.

Figure 4-13 Locations of the Power Supply Units of the PCI Expansion Unit



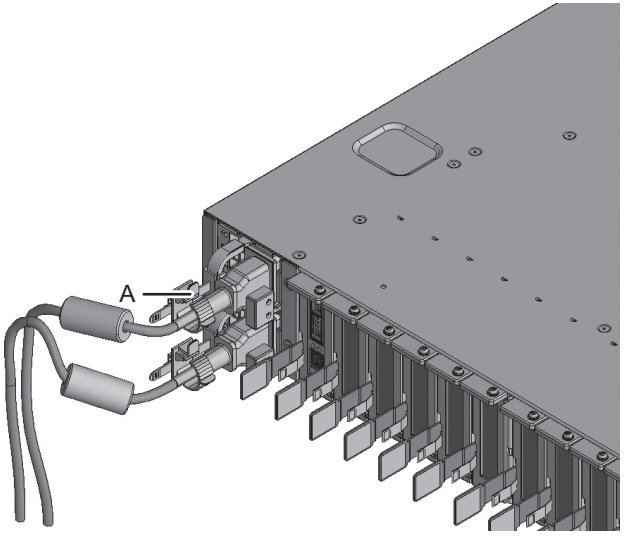
Note - Do not connect to an outlet at this point.

Figure 4-14 Attaching power cords



c. Secure the power cords with cable clamps.
After locking each clasp (A in Figure 4-15), push the cable clamp toward the front of the chassis to firmly secure the clamp.

Figure 4-15 Locking a Cable Clamp



6. **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.
7. **Bundle the power cords together with hook-and-loop fastener strips.**

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.

4.3 Storing Cables

This section describes how to store the cables connected in "4.1 Connecting Cables to the SPARC M12-2" and "4.2 Connecting Cables to the PCI Expansion Unit" in a rack.

1. **Let the power cords hang from the right side as viewed from the rear of the rack.**
2. **Store the LAN cables and I/O cables in an empty space at the right side as viewed from the rear of the rack.**

Chapter 5

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*.

5.1 Connecting the System Management Terminal

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 5-1 Terminal Software Setting Values

Setting Item	Value
Baud rate	9600
Data length	8 bits
Parity	None

Table 5-1 Terminal Software Setting Values *(continued)*

Setting Item	Value
STOP bit	1 bit
Flow control	None
Delay	Other than 0

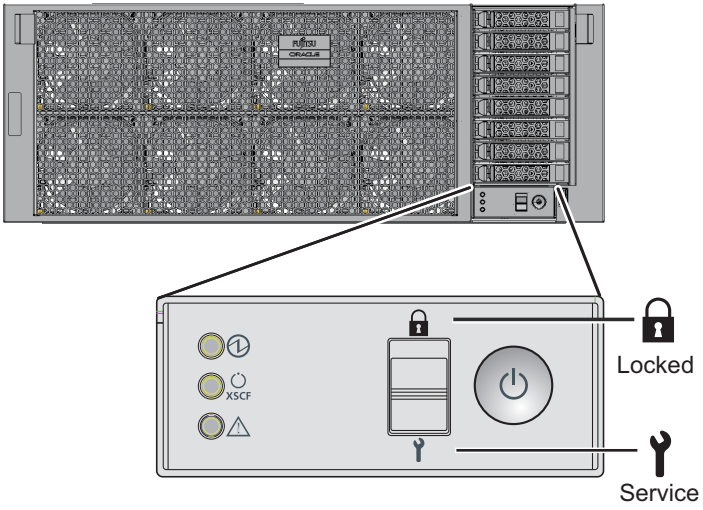
2. **Confirm that the system management terminal is connected to the serial port of the XSCF unit.**

5.2 Turning On the Input Power and Starting the XSCF

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

1. **Set the mode switch on the operation panel to the Service position.**
   The Service position is indicated by a wrench icon. The Locked position is indicated by a lock icon.

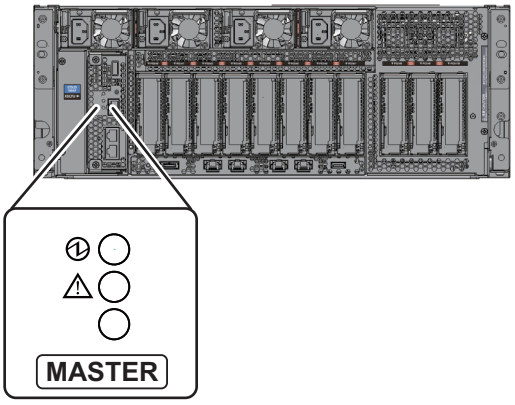
Figure 5-1 Mode Switch on the SPARC M12-2 Operation Panel



2. **Confirm that the power cord connector is connected, all the way straight in, to a power supply unit of the SPARC M12-2.**
   For details, see "4.1 Connecting Cables to the SPARC M12-2."

3. **Connect the power cord plug to an outlet, and turn on the input power.**
   If the outlet has a circuit breaker, turn on the circuit breaker switch.
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.

Figure 5-2 Rear of the SPARC M12-2



5.3 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 6-3.

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>
```

5.4 Checking the XCP Firmware Version

This section describes the procedure for checking the XCP firmware version.

1. **Execute the version command.**
   The command comprehensively displays the XCP firmware version.

```
XSCF> version -c xcp
BB#00-XSCF#0 (Master)
XCP0 (Current): xxxx
XCP1 (Reserve): xxxx
```

5.5 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 value of the system altitude setting. 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 "5.6 Setting the Time," you can skip step 3 and subsequent steps because the XSCF is rebooted.**
   Executing the rebootxscf command disconnects the XSCF session.

   The following example reboots all the XSCFs and automatically selects "y" for the confirmation message.

```
XSCF> rebootxscf -y -a
The XSCF will be reset. Continue? [y|n] :y
```

4. **Log in to the XSCF again**.
   For details, see "5.3 Logging In to the XSCF."

5.6 Setting the Time

This section describes the procedure for setting the system date and time.
The date and time in the factory default settings are set to coordinated universal time (UTC). If you want to display the time in local time (e.g., JST), first set the time zone and then check and set the time.

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 local time (e.g., JST).

   The following example displays the current time in local time.

```
XSCF> showdate
Tue Sep 20 14:53:00 JST 2016
```

5. **Execute the setdate command. Be sure to execute the command even if the time is correct.**

Setting the date and time will reboot the XSCF.

The following example sets the local time (JST) to 16:59:00 September 20, 2016.

```
XSCF> setdate -s 092016592016.00
Tue Sep 20 16:59:00 JST 2016
The XSCF will be reset. Continue? [y|n] :y
Tue Sep 20 7:59:00 UTC 2016
XSCF>
```

Note - If the reboot is canceled, the XSCF does not reflect the setting values even when the reboot is by the rebootxscf command.

6. **Log in to the XSCF again**.
   For details, see "5.3 Logging In to the XSCF."
7. **Execute the showtimezone command.**
   Confirm that it shows the set time zone.

```
XSCF> showtimezone -c tz
Asia/Tokyo
```

8. **Execute the showdate command.**
   Confirm that it shows the set time.

```
XSCF> showdate
Tue Sep 20 17:09:15 JST 2016
```

5.7 Performing a Diagnosis Test

This section describes the procedure for performing an initial diagnosis of hardware before system startup.

Remarks - In the case of the SPARC M12-2, a single SPARC M12-2 is treated as one physical system board (PSB). The physical system board (PSB) consists of physical components (CPU, memory, and I/O).

Note - The SPARC M12-2 is powered on and off during the diagnosis test.
A CPU Activation key does not need to have been registered for power-on during the diagnosis test at this point.

1. **Execute the testsb command.**
   The testsb command performs an initial diagnosis of hardware.

The command powers on and off the SPARC M12-2 during the diagnosis. By specifying options, you can check whether HDD/SSD/PCIe cards are mounted.

The following example performs an initial diagnosis and connection I/O check of the SPARC M12-2.

<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. If the PCI expansion unit is connected, the execution results of ioxadm -v list, an XSCF command, are displayed.

-s: Executes the "show-devs" command of OpenBoot PROM and displays the results while a diagnosis is being processed. If the PCI expansion unit is connected, the execution results of ioxadm -v list, an XSCF command, are displayed.

-a: Diagnoses all the mounted hardware resources

-y: Automatically responds with "y" to a query

```
XSCF> testsb -a -v -p -s
Initial diagnosis is about to start, Continue?[y|n] :y
PSB power on sequence started.
POST Sequence 01 Banner
LSB#00: POST 3.12.0 (2016/10/04 10:56)
:
<<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 17.00.00.00

Target a
  Unit 0   Disk   TOSHIBA  AL13SEB600       3702    1172123568 Blocks, 600 GB
  SASDeviceName 500003953821f75c  SASAddress 500003953821f75e  PhyNum 0
Target b
  Unit 0   Encl Serv device   FUJITSU  BBEXP            0d32
  SASAddress 500000e0e02718fd  PhyNum 14
<<Displayed execution results of "show-devs">>
/pci-performance-counters@8700
/pci-performance-counters@8600
/pci-performance-counters@8500
:
<<Displayed execution results of "ioxadm versionlist " and " ioxadm -v list ">>
-------------------------------------------------------------------------------
[PCIBOX Versions]
  PCIBOX                        Ver         Link                          Ver
      Info
  PCIBOX#2001                   5220        BB#00-PCI#01                  5220
      equal
-------------------------------------------------------------------------------
[PCIBOX Informations]
Location                    Type       FW Ver       Serial Num       Part Num
```

```
                                  State
PCIBOX#2001                  PCIBOX     -            2121212001
                                  On
PCIBOX#2001/PSU#1            PSU        -            FEJD1201000169
CA01022-0750-D/                              On
PCIBOX#2001/IOB              IOBOARD    5220         PP122300JW
CA20365-B66X 007AF                           On
PCIBOX#2001/LINKBD           BOARD      -            PP123300TR
CA20365-B60X 001AA                           On
PCIBOX#2001/FANBP            FANBP      -            PP120904SY
CA20365-B68X 004AC                           On
BB#00-PCI#01                 CARD       5220         PP13490467
CA20365-B59X 013AD/9999999                   On
------------------------------------------------------------------------------
PSB power off sequence started. [1200sec]
  0..... 30....end
PSB powered off.
PSB  Test    Fault
---- ------- --------
00-0 Passed  Normal
XSCF>
```

2. **Check the execution results of "probe-scsi-all" to confirm that all mounted internal storage (HDD/SSD) is identified.**
3. **Check the execution results of "show-devs" to confirm that all mounted PCIe cards are identified.**
4. **If a PCI expansion unit is connected, you can confirm the serial number and firmware version number of the PCI expansion unit from the execution results of "ioxadm -v list".**
5. **Confirm that "Passed" and "Normal" appear for PSB 00-0 in the results from the initial diagnosis**.
   If the results display anything other than the above, see "Appendix A Troubleshooting."

5.8 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 SPARC M12-2 and PCI expansion unit and the status of the FRUs. 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 M12-2 display example

```
XSCF> showhardconf -M
SPARC M12-2;
    + Serial:PZ51618006; Operator_Panel_Switch:Service;
    + System_Power:Off; System_Phase:Cabinet Power Off;
    BB#00 Status:Normal; Role:Master; Ver:300ah; Serial:PZ51618006;
        + FRU-Part-Number:CA20369-B17X 003AB/9999999             ;
        + Power_Supply_System: ;
        + Memory_Size:256 GB;
        CMUL Status:Normal; Ver:1101h; Serial:PP1617010W  ;
            + FRU-Part-Number:CA07855-D201 A1   /9999999             ;
            + Memory_Size:128 GB; Type: C ;
            CPU#0 Status:Normal; Ver:4241h; Serial:00000063;
                + Freq:3.900 GHz; Type:0x20;
                + Core:12; Strand:8;
 .
 .
(Omitted)
```

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 M12-2 display example

```
XSCF> showhardconf -u
SPARC M12-2; Memory_Size:256 GB;
    +-----------------------------------+------------+
    |              FRU                  |  Quantity  |
    +-----------------------------------+------------+
    | BB                                |        1   |
    |     CMUL                          |        1   |
    |         Type:C                    |    (   1)  |
    |         CPU                       |        1   |
    |             Freq:3.900 GHz;       |    (   1)  |
    |         MEM                       |        8   |
    |             Type:83; Size:16 GB;  |    (   8)  |
    |     CMUU                          |        1   |
    |         Type:C                    |    (   1)  |
    |         CPU                       |        1   |
    |             Freq:3.900 GHz;       |    (   1)  |
    |         MEM                       |        8   |
    |             Type:83; Size:16 GB;  |    (   8)  |
    |     PCICARD                       |        0   |
    |     LINKCARD                      |        0   |
    |     PCIBOX                        |        0   |
```

```
|          IOB                          |         0     |
|          LINKBOARD                    |         0     |
|          PCI                          |         0     |
|          FANBP                        |         0     |
|          PSU                          |         0     |
|          FAN                          |         0     |
|      XBU                              |         0     |
|      XSCFU                            |         1     |
|          Type:A                       |    (    1)    |
|      OPNL                             |         1     |
|          Type:A                       |    (    1)    |
|      PSUBP                            |         1     |
|          Type:C                       |    (    1)    |
|          PSU                          |         4     |
|              Type:C                   |    (    4)    |
|      FANU                             |         8     |
|      HDDBP                            |         1     |
| 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 6 Making the Initial System Settings." Otherwise, log out of the XSCF**.

Chapter 6

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*.

6.1 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 6-1 Contents Displayed by 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 The default value is 0. The value of 0 means that the account does not expire.
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 6-1 Contents Displayed by 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 6-2 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
```

6.2 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, a 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 - When a user with the useradm privileges specifies another user's account, the password can be specified regardless of the set value in the setpasswordpolicy(8) command.

The following example specifies 60 days for the expiration time and 15 days ahead as 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 6-3 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, 2016
Password Expires:     Jul 21, 2016
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.
In addition to the fieldeng user privilege, we recommend that the system administrator create accounts with the platadm, useradm, and auditadm user privileges.

6.3 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.

6.3.1 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
```

6.3.2 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+uOfmPRpe6/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
```

6.4 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 and use HTTPS. HTTPS is disabled by default in these systems. The XSCF Web console can be a secure console by enabling HTTPS.

Note - We recommend enabling HTTPS for the maintenance work of collecting an XSCF log and updating the XCP firmware.

Note - The self-signed certificate expires after 10 years. If the Web server certificate has expired or you are changing the Web server certificate, configure the HTTPS service again.

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 2016
CA key: installed in Apr 24 12:00:34 JST 2016
CA cert: installed in Apr 24 12:00:34 JST 2016
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-----
```

6.5 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 "3.7.1 Using Services Through the XSCF Network" to "3.7.5 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 6-4 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 "3.7 Configuring the XSCF Network" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 System Operation and Administration Guide*.

Table 6-4 Setting Items Related to the XSCF Network

Setting Item	Implemented As Initial Setting?	Reference	Related Command
Host name/domain name	Optional	"6.5.1 Setting an XSCF Host Name and Domain Name"	sethostname showhostname
XSCF network IP address - XSCF-LAN - Net mask	Implemented	"6.5.2 Setting an Ethernet (XSCF-LAN) IP Address"	setnetwork shownetwork

Table 6-4 Setting Items Related to the XSCF Network *(continued)*

Setting Item	Implemented As Initial Setting?	Reference	Related Command
Enabling/Disabling the network	Optional	"3.7.8 Enabling/Disabling the XSCF Network and Setting an XSCF-LAN IP Address and Net Mask" in the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 System Operation and Administration Guide*	setnetwork shownetwork
Adding/Deleting a network route - Destination IP address - Gateway - Net mask	Implemented	"6.5.3 Setting the Routing"	setroute showroute
Adding/Deleting a DNS - Name server - Search path	Optional	"3.7.13 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	"3.7.14 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	"6.5.4 Applying Network Settings"	applynetwork rebootxscf

6.5.1 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
```

2. **Execute the sethostname command to set a host name.**
   For *hostname*, specify the host name to be set for the chassis. For *xscfu*, specify the chassis of bb#00.

```
XSCF> sethostname xscfu hostname
```

The following example sets the host name scf0-hostname for BB#00.

```
XSCF> sethostname bb#00 scf0-hostname
```

The following example sets the domain name example.com for the XSCF.

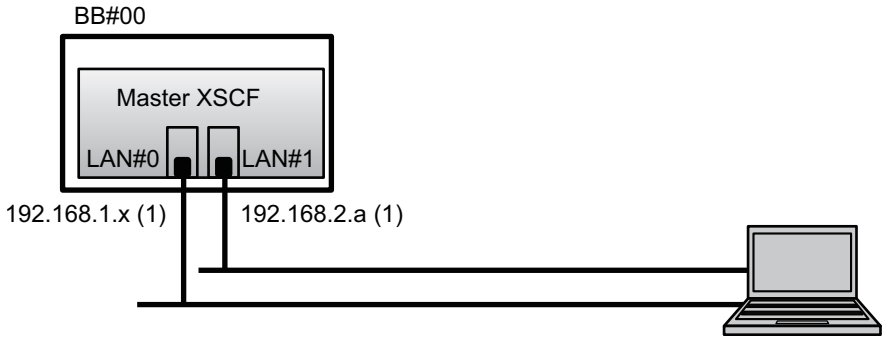
```
XSCF> sethostname -d example.com
```

6.5.2 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.

For the SPARC M12-2, set either or both of the following IP addresses:
- XSCF-LAN#0 of BB#00
- XSCF-LAN#1 of BB#00

Figure 6-1 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 6-1.)

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
```

6.5.3 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. Either bb#00-lan#0 or bb#00-lan#1 can be specified for the SPARC M12-2.

```
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
```

6.5.4 Applying Network Settings

To complete configuration of the network, settings must be reflected and the XSCF must be rebooted. The XSCF reboot disconnects the XSCF session, so log in again.

1. **Execute the applynetwork command on the XSCF shell.**
   Executing the command will display network settings. You can confirm that the settings are done.

```
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.
```

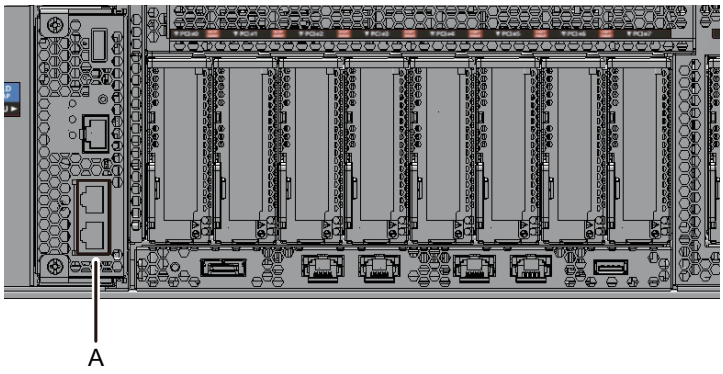
2. **Execute the rebootxscf command to reboot the XSCF and complete the settings.**

```
XSCF> rebootxscf -a
The XSCF will be reset. Continue? [y|n] :y
```

Executing the command will disconnect the XSCF.

3. **Connect a LAN cable of Category 5 or higher to an XSCF-LAN port (A in Figure 6-2) via the system control network.**

Figure 6-2 Location of XSCF-LAN Ports



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.

4. **Execute the showhostname, shownetwork, and showroute commands again to display the network settings, and confirm the new network information.**

6.6 Configuring Memory Mirroring

This section describes how to configure memory mirroring.

Note - Configuring memory mirroring is optional.

Note - To configure memory mirroring, you need to power off the SPARC M12-2.

The SPARC M12-2 supports 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 M12-2 configures 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   00-0-2    no
```

2. **Execute the setupfru command, and set memory mirror mode to configure mirroring.**

```
XSCF> setupfru [[-q] -{y|n}] -c function=mode device location
```

   To configure memory mirroring, specify -c mirror=yes.

   For "device," specify the devices making up the mirroring configuration. To configure memory mirroring for all the mounted CPUs in the SPARC M12-2, specify sb. To configure it only for the specified CPU, specify cpu.

   For "location," specify the location of the target device.

   If you specify sb for "device," specify 00-0 for "location." If you specify cpu for "device," use the format of 00-0-z. For z, specify 0 or 2.

   The following example sets all the mounted CPUs in the SPARC M12-2 to memory mirror mode.

```
XSCF> setupfru -c mirror=yes sb 00-0

Notice:
  - Logical domain config_name will be set to "factory-default".

Memory mirror mode setting will be changed, Continue? [y|n] :y
```

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   00-0-2    yes
```

6.7 Creating a PPAR Configuration List

For the SPARC M12-2, the PPAR configuration list is already set because there is only one physical partition. In the SPARC M12-2, you can set only the configuration policy (which specifies the degradation range for an error detected in an initial diagnosis of hardware).

Use the showpcl command to check the PPAR configuration list, and use the setpcl command to set the list. 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*.

In the case of the SPARC M12-2, a single SPARC M12-2 is treated as one physical partition (PPAR). In this case, the firmware treats the SPARC M12-2 as one physical system board (PSB). The PPAR is defined by assigning the number of the logical system board (LSB) corresponding to the single PSB.

1. **Execute the showpcl command to check the PPAR configuration list.**

```
XSCF> showpcl -a
PPAR-ID    LSB     PSB    Status
00                        Powered Off
           00      00-0
```

2. **Execute the setpcl command to set the configuration policy for all physical partitions as a whole.**

```
XSCF> setpcl -p ppar_id -s policy=value
```

For value, specify fru, psb, or system as the unit of degradation. The range of degradation is the same for psb and system. The default setting is fru.

The following example sets the configuration policy to "All physical partitions" for physical partition 0.

```
XSCF> setpcl -p 0 -s policy=system
```

3. **Execute the showpcl command to check the set PPAR configuration list.**

```
XSCF> showpcl -v -a
PPAR-ID   LSB   PSB   Status   No-Mem   No-IO    Cfg-policy
00                  Powered Off
                                          System
          00    00-0           False    False
```

6.8 Checking the Physical Partition (PPAR) Status

For the SPARC M12-2, a physical system board (PSB) is assigned in advance to a logical system board (LSB) of a physical partition (PPAR).

1. **Execute the showboards command.**
   Confirm that "Passed" and "Normal" appear in the execution results.

```
XSCF> showboards -a
PSB  PPAR-ID(LSB) Assignment  Pwr  Conn Conf Test    Fault
---- ------------ ---------- ---- ---- ---- ------- --------
00-0 00(00)       Assigned    n    n    n    Passed  Normal
XSCF>
```

6.9 Synchronizing the Physical Partition (PPAR) Time and XSCF Time

This section describes the procedure for clearing the difference between the XSCF time, which is the system time, and the physical partition (PPAR) time.
The XSCF keeps the time difference from the physical partition. With each change by the setdate command to the XSCF time, the difference is updated with the difference between the physical partition time and the changed XSCF time.

1. **Execute the showdate command to display the XSCF time.**
   If you have set the time zone, the command displays the local time.

   The following example displays the current time in the local time zone.

```
XSCF> showdate
Tue Sep 20 14:53:00 JST 2016
```

2. **Confirm that the set XSCF time is correct. To change the date and time, execute the setdate command.**
   For details, see "5.6 Setting the Time."

3. **Execute the showdateoffset command to check the time 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 the 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>
```

6.10 Registering a CPU Activation Key

6.10.1 CPU Activation Key Application Conditions

- The CPU Activation key can be registered to SPARC M12-2 as one core as a unit. If a CPU Activation is ordered together with the SPARC M12-2, the system is shipped with a registered CPU Activation key.

  Just registering a CPU Activation key does not make the CPU core available. After registering a CPU Activation key, you need to assign a CPU core resource. Continue by performing the work in "6.11 Assigning CPU Core Resources."

- A single CPU Activation key cannot be registered and used with multiple SPARC M12-2 systems at the same time.
- Once registered with a SPARC M12-2 system, a CPU Activation key can be deleted from that system and then registered again with another SPARC M12-2.

- The number/type of software licenses used with the registered 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 registered CPU cores.

6.10.2 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 installed.

   In this case, perform the work in "6.10.3 Registering a CPU Activation Key."

```
XSCF> showcodactivation
Index   Description Count
------- ----------- ------
```

   In the following example, a CPU Activation key has already been installed.

   To register an additional CPU Activation key, go to "6.10.3 Registering a CPU Activation Key." Otherwise, go to "6.11 Assigning CPU Core Resources."

```
XSCF> showcodactivation
Index   Description Count
------- ----------- ------
      0 PROC            1
```

6.10.3 Registering a CPU Activation Key

CPU Activation keys are provided on the CD-ROM labeled "SPARC M12-2 CPU Activation." 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 a CPU Activation key file

1. **Copy the "ACTIVATION_KEY" information from 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 a CPU Activation key.

```
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            1
      1 PROC            1
      2 PROC            1
      3 PROC            1
      4 PROC            1
```

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 a 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.

   The following example registers a CPU Activation key for one CPU core.

```
XSCF> addcodactivation "Product: SPARC M12-x
SequenceNumber:xxxx
Cpu: noExpiration 1
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            1
```

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 "6.11 Assigning CPU Core Resources" to assign them to a physical partition.

6.11 Assigning CPU Core Resources

After registering a CPU Activation key with the system, set the number of CPU Activations in a physical partition, and assign CPU core resources.

1. **Execute the setcod command interactively to set the number of CPU Activations in a physical partition and assign CPU core 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>
```

6.12 Starting and Stopping a System (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 setting of the OpenBoot PROM environment variable auto-boot?.**

```
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 system.**

```
XSCF> poweron -a
PPAR-IDs to power on:00
Continue? [y|n]:y
00: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 10 minutes to start the system.

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 system.**

```
XSCF> poweroff -a
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".
```

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>
```

6.13 Installing Oracle Solaris

The SPARC M12-2 has Oracle Solaris preinstalled. You can configure the system efficiently by using this preinstalled OS. According to the purpose, either use the preinstalled Oracle Solaris as is or reinstall it.

When using the preinstalled Oracle Solaris

1. **Execute the showpparparam command to check the set value of the OpenBoot PROM environment variable auto-boot?.**
   The set value is "false" in the following example.

```
XSCF> showpparparam -p 0 -c auto-boot
auto-boot? :false
```

2. **If the value is "false," execute the setpparparam command to change the setting of the OpenBoot PROM environment variable auto-boot? to "true."**

```
XSCF> setpparparam -p 0 -s bootscript "setenv auto-boot? true"
OpenBoot PROM variable bootscript will be changed.
Continue? [y|n] :y
```

3. **Execute the poweron command to start the system.**

```
XSCF> poweron -a
PPAR-IDs to power on:00
Continue? [y|n]:y
00:Powering on
*Note*
This command only issues the instruction to power-on.
```

```
The result of the instruction can be checked by the
"showpparprogress".
```

4. **Execute the console command to connect to the console.**

```
XSCF> console -p 0
Console contents may be logged.
Connect to PPAR-ID 0?[y|n] :y
POST Sequence Complete.
```

5. **An OS setting screen appears. Make settings interactively.**

Table 6-5 shows the Oracle Solaris parameters in the initial configuration settings. You can also change the parameter settings later.

Table 6-5 Configuration Parameters of the Oracle Solaris OS (Example for Oracle Solaris 11.3)

Parameter	Description
Language	Select a number from the displayed list of languages.
Locale	Select a number from the displayed list of locales.
Terminal Type	Select the terminal type corresponding to the terminal device used.
Network?	Select "Yes."
Multiple Network Interfaces	To configure a predetermined network interface, select the interface. If it is unknown, select the beginning of the list.
DHCP?	Select either "Yes" or "No," depending on the network environment used.
Host Name	Enter the host name of the server.
IP Address	Enter the IP address of this Ethernet interface.
Subnet?	Select either "Yes" or "No," depending on the network environment used.
Subnet Netmask	If the answer for Subnet? is "Yes," enter the net mask of the subnet in the network environment used.
IPv6?	Specify whether to use IPv6. If it is unknown, select "No" to configure the Ethernet interface for IPv4.
Security Policy	Select either the standard UNIX security (No) or Kerberos security (Yes). If it is unknown, select "No."
Confirm	Check the information on the screen, and change it as needed. Otherwise, continue.
Name Service	Select a name service according to the network environment used. A prompt appears when a name service other than "None" is selected. The prompt asks for the entry of configuration information for the added name service.
NFSv4 Domain Name	Select a type of domain name configuration according to the environment used. If it is unknown, select "Use the NFSv4 domain derived by the system."
Time Zone (Continent)	Select the relevant continent.

Table 6-5 Configuration Parameters of the Oracle Solaris OS (Example for Oracle Solaris 11.3) *(continued)*

Parameter	Description
Time Zone (Country or Region)	Select the relevant country or region.
Time Zone	Select a time zone.
Date and Time	Accept the default date and time, or change the values.
root Password	Enter the root password twice. This password is used for the super-user account of the Oracle Solaris OS on this server.

6. **Configure the logical domains.**

   The *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Domain Configuration Guide* presents a logical domain configuration example in "Chapter 3 Operations for Domain Configuration." For a detailed procedure, see the Oracle VM Server for SPARC manual for the version used. For details on the functions provided only by the SPARC M12-2, see the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 System Operation and Administration Guide*.

When reinstalling Oracle Solaris

When reinstalling Oracle Solaris, check the latest information on the supported Oracle Solaris versions and SRU in the *Fujitsu SPARC M12 Product Notes*.

1. **Ensure that there is no booting from the preinstalled Oracle Solaris.**
   a. Execute the showpparparam command to confirm that the set value of the OpenBoot PROM environment variable auto-boot? is "false."

```
XSCF> showpparparam -p 0 -c auto-boot
auto-boot? :false
```

   b. If the value is "true," execute the setpparparam command to change the setting of the OpenBoot PROM environment variable auto-boot?.

```
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 system.**

```
XSCF> poweron -a
PPAR-IDs to power on:00
Continue? [y|n]:y
00:Powering on
*Note*
This command only issues the instruction to power-on.
The result of the instruction can be checked by the
"showpparprogress".
```

3. **Execute the console command to connect to the console.**
   After POST is completed (which takes a few minutes), the ok prompt appears.

```
XSCF> console -p 0
Console contents may be logged.
Connect to PPAR-ID 0?[y|n] :y [Enter] key

{0} ok
```

4. **See the Oracle Solaris manual for the version used, and install Oracle Solaris.**
5. **Execute the setpparparam command to change the set value of the OpenBoot PROM environment variable auto-boot? to "true."**

```
XSCF> setpparparam -p 0 -s bootscript "setenv auto-boot? true"
OpenBoot PROM variable bootscript will be changed.
Continue? [y|n] :y
```

6. **Configure the logical domains.**
   The *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Domain Configuration Guide* presents a logical domain configuration example in "Chapter 3 Operations for Domain Configuration." For a detailed procedure, see the Oracle VM Server for SPARC manual for the version used. For details on the functions provided only by the SPARC M12-2, see the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 System Operation and Administration Guide*.

6.14 Saving Configuration Information

6.14.1 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 to the XSCF. In this way, the logical domain configuration is the same at the next system startup.
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.

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
```

5. **Save the logical domain configuration information to an XML file.**
   To prepare for an unexpected system failure, save the logical domain configuration information to an XML file, and save it outside the system too.

   For details on how to save the configuration information on a logical domain 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*.

6.14.2 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 Setting 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-sca-ff2-16.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 at the XSCF**

1. **Connect a USB device to a USB port on the XSCF unit panel (rear panel).**
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

Appendix A

Troubleshooting

This appendix describes the corrective actions for problems that may occur during SPARC M12-2 installation work.

- Understanding the Usual Problems and Their Corrective Actions
- Understanding Commands for Troubleshooting

A.1 Understanding the Usual Problems and Their Corrective Actions

If system 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 on the rear of the SPARC M12-2. See Figure 4-1 in "4.1 Connecting Cables to the SPARC M12-2."
	After a connection is established for the serial connection to the XSCF, the [Enter] key must be pressed.	After the serial connection is established, press the [Enter] key. See "5.3 Logging In to the XSCF."

Table A-1 List of Problem Case Examples *(continued)*

Case	Possible Cause	Corrective Action
	There are cases where the XSCF shell prompt does not appear after the console command was executed to terminate the previous established serial connection.	If the XSCF shell prompt does not appear, enter "#." to move from the console to the XSCF shell.
The sethostname command changed the host name of the XSCF, but this change was not reflected.	This is because the applynetwork command was not executed after the sethostname command was executed.	After changing the host name with the sethostname command, execute the applynetwork command, and reboot the XSCF with the rebootxscf command.

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 of 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:** Including its components on the lower layers, the unit 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 replacefru command is in operation.
- **Normal:** Normal status

Example: SPARC M12-2 display example

```
XSCF> showhardconf -M
SPARC M12-2;
    + Serial:PZ51618006; Operator_Panel_Switch:Service;
     *1 System serial number
    + System_Power:Off; System_Phase:Cabinet Power Off;
    BB#00 Status:Normal; Role:Master; Ver:300ah; Serial:PZ51618006;
                                        *1 SPARC M12-2 serial number
        + FRU-Part-Number:CA20369-B17X 003AB/9999999              ;
        + Power_Supply_System: ;
        + Memory_Size:256 GB;
        CMUL Status:Normal; Ver:1101h; Serial:PP1617010W  ;
            + FRU-Part-Number:CA07855-D201 A1   /9999999              ;
            + Memory_Size:128 GB; Type: C ;
            CPU#0 Status:Normal; Ver:4241h; Serial:00000063;
                + Freq:3.900 GHz; Type:0x20;
                + Core:12; Strand:8;
            MEM#00A Status:Normal;
                + Code:ce8002M393A2K40BB1-CRC    00-316D7204;
                + Type:83; Size:16 GB;
            MEM#01A Status:Normal;
                + Code:ce8002M393A2K40BB1-CRC    00-316D6CC7;
                + Type:83; Size:16 GB;
            MEM#02A Status:Normal;
                + Code:ce8002M393A2K40BB1-CRC    00-316D6CCB;
                + Type:83; Size:16 GB;
            MEM#03A Status:Normal;
                + Code:ce8002M393A2K40BB1-CRC    00-316D6CC5;
                + Type:83; Size:16 GB;
            MEM#04A Status:Normal;
                + Code:ce8002M393A2K40BB1-CRC    00-316D6C70;
                + Type:83; Size:16 GB;
            MEM#05A Status:Normal;
                + Code:ce8002M393A2K40BB1-CRC    00-316D6C89;
                + Type:83; Size:16 GB;
            MEM#06A Status:Normal;
                + Code:ce8002M393A2K40BB1-CRC    00-316D6CC4;
                + Type:83; Size:16 GB;
            MEM#07A Status:Normal;
                + Code:ce8002M393A2K40BB1-CRC    00-316D6CB7;
                + Type:83; Size:16 GB;
        CMUU Status:Normal; Ver:1101h; Serial:PP1617011E  ;
            + FRU-Part-Number:CA07855-D401 A1   /9999999              ;
            + Memory_Size:128 GB; Type: C ;
            CPU#0 Status:Normal; Ver:4241h; Serial:00000031;
                + Freq:3.900 GHz; Type:0x20;
```

```
        + Core:12; Strand:8;
    MEM#00A Status:Normal;
        + Code:ce8002M393A2K40BB1-CRC    00-316D5B24;
        + Type:83; Size:16 GB;
            MEM#01A Status:Normal;
        + Code:ce8002M393A2K40BB1-CRC    00-316D6724;
        + Type:83; Size:16 GB;
    MEM#02A Status:Normal;
        + Code:ce8002M393A2K40BB1-CRC    00-316D5B25;
        + Type:83; Size:16 GB;
    MEM#03A Status:Normal;
        + Code:ce8002M393A2K40BB1-CRC    00-316D66DE;
        + Type:83; Size:16 GB;
    MEM#04A Status:Normal;
        + Code:ce8002M393A2K40BB1-CRC    00-316D6559;
        + Type:83; Size:16 GB;
    MEM#05A Status:Normal;
        + Code:ce8002M393A2K40BB1-CRC    00-316D5A7A;
        + Type:83; Size:16 GB;
    MEM#06A Status:Normal;
        + Code:ce8002M393A2K40BB1-CRC    00-316D5A82;
        + Type:83; Size:16 GB;
    MEM#07A Status:Normal;
        + Code:ce8002M393A2K40BB1-CRC    00-316D5ADC;
        + Type:83; Size:16 GB;
 XSCFU Status:Normal; Ver:0101h; Serial:PP161401KP  ;
    + FRU-Part-Number:CA20369-B08X 002AB/9999999             ;
    + Type: A ;
OPNL Status:Normal; Ver:0101h; Serial:PP1615002R  ;
    + FRU-Part-Number:CA20365-B35X 005AC/7060922             ;
    + Type: A ;
PSUBP Status:Normal; Ver:1101h; Serial:PP161501EC  ;
    + FRU-Part-Number:CA20369-B17X 003AB/9999999             ;
    + Type: C ;
PSU#0 Status:Normal; Ver:303242h; Serial:HWCD1622000551;
    + FRU-Part-Number:CA01022-0850/7334651      ;
    + Power_Status:ON; AC:200 V; Type: C ;
PSU#1 Status:Normal; Ver:303242h; Serial:HWCD1622000586;
    + FRU-Part-Number:CA01022-0850/7334651      ;
    + Power_Status:ON; AC:200 V; Type: C ;
PSU#2 Status:Normal; Ver:303242h; Serial:HWCD1622000524;
    + FRU-Part-Number:CA01022-0850/7334651      ;
    + Power_Status:ON; AC:200 V; Type: C ;
PSU#3 Status:Normal; Ver:303242h; Serial:HWCD1622000496;
    + FRU-Part-Number:CA01022-0850/7334651      ;
    + Power_Status:ON; AC:200 V; Type: C ;
FANU#0 Status:Normal; Type: C ;
FANU#1 Status:Normal; Type: C ;
FANU#2 Status:Normal; Type: C ;
FANU#3 Status:Normal; Type: C ;
FANU#4 Status:Normal; Type: C ;
FANU#5 Status:Normal; Type: C ;
FANU#6 Status:Normal; Type: C ;
FANU#7 Status:Normal; Type: C ;
HDDBP Status:Normal; Type: A ;
```

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 M12-2 display example

```
XSCF> showhardconf -u
SPARC M12-2; Memory_Size:256 GB;
    +-----------------------------------+------------+
    |              FRU                  |  Quantity  |
    +-----------------------------------+------------+
    | BB                                |        1   |
    |     CMUL                          |        1   |
    |         Type:C                    |    (   1)  |
    |         CPU                       |        1   |
    |             Freq:3.900 GHz;       |    (   1)  |
    |         MEM                       |        8   |
    |             Type:83; Size:16 GB;  |    (   8)  |
    |     CMUU                          |        1   |
    |         Type:C                    |    (   1)  |
    |         CPU                       |        1   |
    |             Freq:3.900 GHz;       |    (   1)  |
    |         MEM                       |        8   |
    |             Type:83; Size:16 GB;  |    (   8)  |
    |     PCICARD                       |        0   |
    |     LINKCARD                      |        0   |
    |     PCIBOX                        |        0   |
    |         IOB                       |        0   |
    |         LINKBOARD                 |        0   |
    |         PCI                       |        0   |
    |         FANBP                     |        0   |
    |         PSU                       |        0   |
    |         FAN                       |        0   |
    |     XBU                           |        0   |
    |     XSCFU                         |        1   |
    |         Type:A                    |    (   1)  |
    |     OPNL                          |        1   |
    |         Type:A                    |    (   1)  |
    |     PSUBP                         |        1   |
    |         Type:C                    |    (   1)  |
    |         PSU                       |        4   |
    |             Type:C                |    (   4)  |
    |     FANU                          |        8   |
    |     HDDBP                         |        1   |
    | 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 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 SPARC M12-2 chassis, 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 for a power supply unit (PSU) error

```
XSCF> showlogs error
Date: Sep 20 12:45:31 JST 2016
    Code: 00112233-445566778899aabbcc-8899aabbcceeff0011223344
    Status: Alarm                 Occurred: Sep 20 12:45:31.000 JST 2016
    FRU: /BB#0/PSU#0
    Msg: PSU failed
```

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 each unit where a failure has occurred and the units on higher layers, from 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:** Including its components on the lower layers, the unit 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 replacefru 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;
```

A.2.4 Checking Diagnosis Results

Use the testsb command to perform an initial diagnosis of the system hardware.

testsb command

The testsb command diagnoses the hardware configuration and the operation of each mounted device. 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 hardware
  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:** Degradation status of the physical system board (PSB)
  Normal: The PSB is normal.

  Degraded: The physical system board (PSB) can operate but has a degraded component.

  Faulted: The physical system board (PSB) is not operating because a failure occurred or it cannot be controlled because of a communication failure.

Example: Execution example for the SPARC M12-2 (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 5.6.0 (2016/08/25 09:01)
Omitted
   <<Displayed execution results of "probe-scsi-all">>
/pci@8500/pci@4/pci@0/pci@0/scsi@0
FCode Version 1.00.56, MPT Version 2.00, Firmware Version 20.00.07.00
Target a
  Unit 0   Encl Serv device   FUJITSU  BBEXP            1303
  SASAddress 500000e0e0b0003d  PhyNum 14
/pci@8100/pci@4/pci@0/pci@0/scsi@0
FCode Version 1.00.56, MPT Version 2.00, Firmware Version 20.00.07.00
Target a
  Unit 0   Disk   TOSHIBA  AL13SEB600       3703    1172123568 Blocks, 600 GB
  SASDeviceName 50000396f8120490  SASAddress 50000396f8120492  PhyNum 0
Target b
  Unit 0   Encl Serv device   FUJITSU  BBEXP            1303
  SASAddress 500000e0e0b0003d  PhyNum 14
   <<Displayed execution results of "show-devs">>
Omitted
/pci@8700/pci@4
/pci@8700/pci@4/pci@0
/pci@8700/pci@4/pci@0/pci@10
/pci@8600/pci@4
/pci@8600/pci@4/pci@0
/pci@8600/pci@4/pci@0/pci@10
/pci@8600/pci@4/pci@0/pci@1
/pci@8500/pci@4
/pci@8500/pci@4/pci@0
/pci@8500/pci@4/pci@0/pci@1
/pci@8500/pci@4/pci@0/pci@0
/pci@8500/pci@4/pci@0/pci@0/scsi@0
/pci@8500/pci@4/pci@0/pci@0/scsi@0/disk
/pci@8500/pci@4/pci@0/pci@0/scsi@0/tape
/pci@8400/pci@4
/pci@8400/pci@4/pci@0
/pci@8400/pci@4/pci@0/pci@1
/pci@8400/pci@4/pci@0/pci@0
/pci@8400/pci@4/pci@0/pci@0/network@0,1
/pci@8400/pci@4/pci@0/pci@0/network@0
/pci@8300/pci@4
/pci@8300/pci@4/pci@0
```

```
/pci@8300/pci@4/pci@0/pci@9
/pci@8300/pci@4/pci@0/pci@8
/pci@8200/pci@4
/pci@8200/pci@4/pci@0
/pci@8200/pci@4/pci@0/pci@9
/pci@8200/pci@4/pci@0/pci@8
/pci@8100/pci@4
/pci@8100/pci@4/pci@0
/pci@8100/pci@4/pci@0/pci@11
/pci@8100/pci@4/pci@0/pci@1
/pci@8100/pci@4/pci@0/pci@0
/pci@8100/pci@4/pci@0/pci@1/usb@0
/pci@8100/pci@4/pci@0/pci@1/usb@0/hub@5
/pci@8100/pci@4/pci@0/pci@1/usb@0/hub@1
/pci@8100/pci@4/pci@0/pci@0/scsi@0
/pci@8100/pci@4/pci@0/pci@0/scsi@0/disk
/pci@8100/pci@4/pci@0/pci@0/scsi@0/tape
/pci@8000/pci@4
/pci@8000/pci@4/pci@0
/pci@8000/pci@4/pci@0/pci@11
/pci@8000/pci@4/pci@0/pci@0
/pci@8000/pci@4/pci@0/pci@0/network@0,1
/pci@8000/pci@4/pci@0/pci@0/network@0
/virtual-devices@100/console@1
/virtual-devices@100/channel-devices@200
/virtual-devices@100/flashprom@0
/virtual-devices@100/rtc@5
/virtual-devices@100/channel-devices@200/virtual-domain-service@0
/virtual-devices@100/channel-devices@200/virtual-channel@3
/virtual-devices@100/channel-devices@200/virtual-channel-client@2
/virtual-devices@100/channel-devices@200/virtual-channel-client@1
/virtual-devices@100/channel-devices@200/virtual-channel@0
PSB  Test    Fault
---- ------- --------
00-0 Passed  Normal
XSCF>
```

The following shows an example of the execution results to be output when the PCI expansion unit is connected.

```
{0} ok
------------------------------------------------------------------------------
[PCIBOX Versions]
  PCIBOX                      Ver         Link                          Ver
    Info
* PCIBOX#7001                 5220        BB#00-PCI#00                  1200
    mismatch
------------------------------------------------------------------------------
[PCIBOX Informations]
Location                    Type       FW Ver       Serial Num       Part Num
                                State
PCIBOX#7001                 PCIBOX     -            2121237001
                                On
```

```
PCIBOX#7001/PSU#0           PSU       -           FEJD1212000639   CA01022-07
50-D/                            On
PCIBOX#7001/PSU#1           PSU       -           FEJD1212000624   CA01022-07
50-D/                            On
PCIBOX#7001/IOB             IOBOARD   5220        PP123403JE       CA20365-B6
6X 008AG                         On
PCIBOX#7001/LINKBD          BOARD     -           PP1234026T       CA20365-B6
0X 001AA                         On
PCIBOX#7001/FANBP           FANBP     -           PP123403J9       CA20365-B6
8X 004AC                         On
BB#00-PCI#00                CARD      1200        PP1234025X       CA20365-B5
9X 001AA                         On
-------------------------------------------------------------------------------
PSB power off sequence started. [1200sec]
  0..... 30..... 60....end
PSB powered off.
PSB  Test    Fault
---- ------- --------
00-0 Passed  Normal
```

Appendix B

Setup Command Workflow

This appendix describes the workflow of the XSCF commands executed in installation of the SPARC M12-2.
For details, see the linked sections listed in Table B-1.

Table B-1 XSCF Setup Command Examples

XSCF Command Example	Description	Mandatory?	Linked Section
Making the initial system settings			
version -c xcp	Displays the XCP firmware version	Yes	"5.4 Checking the XCP Firmware Version"
showaltitude	Displays the system altitude setting	Yes	"5.5 Checking the Altitude Setting"
setaltitude -s altitude=100	Sets the altitude Example: The system altitude is set to 100 m.	Optional	"5.5 Checking the Altitude Setting"
rebootxscf -y -a	Reboots the XSCF	Optional (*1)	"5.5 Checking the Altitude Setting"
showtimezone -c tz	Displays the XSCF time zone	No	"5.6 Setting the Time"
settimezone -c settz -a	Lists the time zones that can be set	No	"5.6 Setting the Time"
settimezone -c settz -s Asia/Tokyo	Sets the time zone Example: "Asia/Tokyo" is set.	Yes	"5.6 Setting the Time"
showdate	Displays the XSCF clock date and time	Yes	"5.6 Setting the 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	"5.6 Setting the Time"
testsb -v -p -s -a -y	Initial diagnosis of hardware	Yes	"5.7 Performing a Diagnosis Test"
showhardconf -M	Displays information on each FRU	Yes	"5.8 Checking the Component Status"
showhardconf -u	Displays the number of mounted units by FRU	No	"5.8 Checking the Component Status"

Table B-1 XSCF Setup Command Examples *(continued)*

XSCF Command Example	Description	Mandatory?	Linked Section
showlogs error	Displays an error log	Yes	"5.8 Checking the Component Status"
showstatus	Displays information on a degraded unit	Yes	"5.8 Checking the Component Status"
Creating an XSCF user			
showpasswordpolicy	Displays the password policy settings	No	"6.1 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	"6.1 Setting the Password Policy"
adduser jsmith	Creates a user account	Yes	"6.2 Setting a User Account and Password"
password jsmith	Sets a password	Yes	"6.2 Setting a User Account and Password"
setprivileges jsmith useradm platadm	Assigns a user privilege	Yes	"6.2 Setting a User Account and Password"
showuser -l	Checks information on a created user account	No	"6.2 Setting a User Account and Password"
Configuring the Telnet/SSH/HTTPS service			
showtelnet	Displays the Telnet service status	No	"6.3.1 Configuring the Telnet Service"
settelnet -c enabled	Starts the Telnet service	Optional	"6.3.1 Configuring the Telnet Service"
showssh	Displays SSH service information	No	"6.3.2 Configuring the SSH Service"
setssh -c enabled	Starts the SSH service	Optional	"6.3.2 Configuring the SSH Service"
setssh -c genhostkey	Generates a host key	Optional	"6.3.2 Configuring the SSH Service"
showhttps	Displays the HTTPS service status	No	"6.4 Configuring the HTTPS Service"

Table B-1 XSCF Setup Command Examples *(continued)*

XSCF Command Example	Description	Mandatory?	Linked Section
sethttps -c enable	Starts the HTTPS service	Optional	"6.4 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	"6.5.1 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	"6.5.1 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	"6.5.1 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	"6.5.2 Setting an Ethernet (XSCF-LAN) IP Address"
showroute -a	Displays routing information	No	"6.5.3 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	"6.5.3 Setting the Routing"
applynetwork	Applies XSCF network information to the XSCF	Yes	"6.5.4 Applying Network Settings"
rebootxscf -a	Reboots the XSCF	Yes	"6.5.4 Applying Network Settings"
Setting memory mirror mode			
showfru -a	Displays the set information for all devices	Optional	"6.6 Configuring Memory Mirroring"
setupfru -c mirror=yes sb 00-0	Sets the memory mounted inside the chassis to mirror mode Example: All CPUs under PSB 00-0 are set to memory mirror mode.	Optional	"6.6 Configuring Memory Mirroring"
Configuring a physical partition			
showpcl -a	Displays the PPAR configuration list	Yes	"6.7 Creating a PPAR Configuration List"
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	"6.7 Creating a PPAR Configuration List"
showboards -a	Displays information on all mounted physical system boards (PSBs)	Yes	"6.8 Checking the Physical Partition (PPAR) Status"
Synchronizing the physical partition time with the XSCF time			

Table B-1 XSCF Setup Command Examples *(continued)*

XSCF Command Example	Description	Mandatory?	Linked Section
showdate	Displays the XSCF clock date and time	Yes	"6.9 Synchronizing the Physical Partition (PPAR) Time and XSCF Time"
setdate -s 102016592016.00	Sets the XSCF clock date and time Example: 16:59:00 on 2016/10/20 in local time (JST) is set.	Yes	"6.9 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	"6.9 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	"6.9 Synchronizing the Physical Partition (PPAR) Time and XSCF Time"
Configuring CPU Activation			
showcodactivation	Displays the CPU Activation key information	Yes	"6.10.2 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 register a CPU Activation key.	Yes	"6.10.3 Registering a CPU Activation Key"
setcod -p 0 -s cpu	Assigns CPU core resources to a physical partition	Yes	"6.11 Assigning CPU Core Resources"
showcod -v -s cpu	Checks the number of assigned CPU Activations	Yes	"6.11 Assigning CPU Core Resources"
Starting and stopping a physical partition			
setpparparam -p 0 -s bootscript "setenv auto-boot? false"	Changes the setting of the OpenBoot PROM environment variable auto-boot?	Yes	"6.12 Starting and Stopping a System (PPAR)"
poweron -a	Starts a physical partition	Yes	"6.12 Starting and Stopping a System (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	"6.12 Starting and Stopping a System (PPAR)"
showdomainstatus -p 0	Displays the logical domain status Example: The status of all logical domains on PPAR-ID 0 is displayed.	Yes	"6.12 Starting and Stopping a System (PPAR)"
console -p 0	Connects to the control domain console of a physical partition (PPAR)	Yes	"6.12 Starting and Stopping a System (PPAR)"
poweroff -a	Stops a physical partition	Yes	"6.12 Starting and Stopping a System (PPAR)"
showpparprogress -p 0	Displays the physical partition status	Yes	"6.12 Starting and Stopping a System (PPAR)"

Table B-1 XSCF Setup Command Examples *(continued)*

XSCF Command Example	Description	Mandatory?	Linked Section
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	"6.14.1 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	"6.14.2 Saving XSCF Setting Information"

*1 If you execute the setdate command after setting the altitude, you can skip rebootxscf because the XSCF is automatically rebooted after the command is executed.
*2 The ldm add-spconfig command is a command of Oracle VM Server for SPARC.

Appendix C

Installation Procedure Checklist

This appendix contains a checklist of the required steps from SPARC M12-2 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 user environment, and use it in combination with the workflow in Table 1-1 as appropriate for the system in use.

Table C-1 SPARC M12-2 Workflow (from Installation to Initial Diagnosis)

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 M12-2"
	[ ]		"3.2.2 Confirming the Delivered Components of the PCI Expansion Unit"
4. Install the rack.	[ ]		
5. Mount the SPARC M12-2 in the rack.	[ ]		"3.3.1 Mounting the SPARC M12-2 in a Rack"
6. If there is a PCI expansion unit, mount it in the rack.	[ ]		"3.3.2 Mounting the PCI Expansion Unit in a Rack"
7. After mounting the SPARC M12-2, confirm the complete contact (complete engagement) of the internal storage, fan unit, and PCI cassettes.	[ ]		

Table C-1 SPARC M12-2 Workflow (from Installation to Initial Diagnosis) *(continued)*

Work Description	Check	Checked By	*Installation Guide* Reference
8. If there are optional internal components, mount them in the SPARC M12-2 and the PCI expansion unit. (For details, see the service manual.)	[ ]		"3.4.1 Mounting Optional Components in the SPARC M12-2" "3.4.2 Mounting Optional Components in the PCI Expansion Unit" In the *Fujitsu SPARC M12-2/M12-2S Service Manual*: "Chapter 12 Maintaining PCIe Cards" "Chapter 15 Maintaining Internal Storage" "Chapter 17 Maintaining the CPU Memory Unit and Memory"
9. Connect the serial cable and LAN cables to the SPARC M12-2. Attach the core to the power cord, and connect the power cord to the power supply unit.	[ ]		"4.1 Connecting Cables to the SPARC M12-2"
10. Connect the link cables and management cable to the PCI expansion unit and the SPARC M12-2. Attach the core to the power cord, and connect the power cord to the PCI expansion unit.	[ ]		"4.2 Connecting Cables to the PCI Expansion Unit"
11. Connect the system management terminal to the SPARC M12-2.	[ ]		"5.1 Connecting the System Management Terminal"
12 Turn on the input power, and check the status with the LED display on the XSCF unit.	[ ]		"5.2 Turning On the Input Power and Starting the XSCF"
13. Log in to the XSCF.	[ ]		"5.3 Logging In to the XSCF"
14. Confirm the XCP firmware version number.	[ ]		"5.4 Checking the XCP Firmware Version"
15. Set the altitude.	[ ]		"5.5 Checking the Altitude Setting"
16. Set the time.	[ ]		"5.6 Setting the Time"
17. Perform the initial diagnosis test on the hardware. (*1)	[ ]		"5.7 Performing a Diagnosis Test"
18. Confirm that each component is normally recognized and that no errors occur.	[ ]		"5.8 Checking the Component Status"

*1 The probe-scsiall command and the show-devs command are displayed with command options for the diagnosis test. Confirm that the capacity and number of installed disks and the installation locations and device names of PCI Express cards are correct.