Fujitsu M10/SPARC M10 Systems

PCI Card Installation Guide

FUJITSU

ORACLE

Contents

Preface

This document describes the mounting rules for PCI cards mounted in the SPARC M10 systems from Oracle or Fujitsu.

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

In this document, Oracle Solaris is also referred to as Solaris.

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 M10 Systems.

Documentation Related to the SPARC M10

Manual Names (*1)

Fujitsu M10/SPARC M10 Systems Product Notes

Fujitsu M10/SPARC M10 Systems Getting Started Guide (*2)

Fujitsu M10/SPARC M10 Systems Quick Guide

Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Important Legal and Safety Information (*2)

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

Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Security Guide

Software License Conditions for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10

Fujitsu SPARC Servers/SPARC Enterprise/PRIMEQUEST Common Installation Planning Manual

Fujitsu M10-1/SPARC M10-1 Installation Guide

Fujitsu M10-4/SPARC M10-4 Installation Guide

Fujitsu M10-4S/SPARC M10-4S Installation Guide

Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 System Operation and Administration Guide

Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Domain Configuration Guide

Fujitsu M10-1/SPARC M10-1 Service Manual

Fujitsu M10-4/Fujitsu M10-4S/SPARC M10-4/SPARC M10-4S Service Manual

Crossbar Box for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual

PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual

Fujitsu M10/SPARC M10 Systems PCI Card Installation Guide

Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 XSCF Reference Manual

Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 RCIL User Guide (*3)

Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 XSCF MIB and Trap Lists

Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Glossary

External USB-DVD Drive user guide

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

Notes on Safety

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

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

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

Text Conventions

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

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

Command Syntax in the Text

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

Syntax of the Command-Line Interface (CLI)

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

Document Feedback

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

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

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

Chapter 1

PCI Card Mounting Rules for the SPARC M10-1

This chapter describes the maximum number of each type of mounted PCI card and the rules for mounting PCI cards in PCI slots when mounting PCI cards in the SPARC M10-1.
Be sure to observe these mounting rules when designing the system and when installing a PCI card or changing the mounting location of a PCI card.

- Prerequisites
- Maximum Number of Each Type of Mounted PCI Card and Available PCI Slots
- Hardware Configuration Diagram

1.1 Prerequisites

- Domain OS
- System Firmware XCP Version

1.1.1 Domain OS

The maximum number of each type of mounted PCI card and the available PCI slots may vary depending on the version of the Oracle Solaris that is installed on the domain.
Mounting rules vary depending on whether all OS versions of the control domain, root domain, and I/O domain are Oracle Solaris 11 only, Oracle Solaris 10 only, or a mixture of the two.
If an Oracle Solaris 10 environment is used in the following configurations, apply the rules for Oracle Solaris 11.

- A guest domain of an Oracle Solaris 10 environment is configured using the virtual I/O services of a control domain or the root domain of Oracle Solaris 11.
- An Oracle Solaris 10 zone is configured on an Oracle Solaris 11 domain.

If there are plans to add a root domain or I/O domain of Oracle Solaris 10 after the

start of system operation, apply the rules for Oracle Solaris 10.

Note - For details on the design of control domain, root domain, and I/O domain configurations, see the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Domain Configuration Guide*.

1.1.2 System Firmware XCP Version

The maximum number of each type of mounted PCI card and the slots available for mounting may vary depending on the system firmware version. For XCP 2050 or later, see the tables in "1.2.1   If XCP 2050 or Later is Used and Oracle Solaris 11 is Installed on All the Domains" and "1.2.2   If XCP 2050 or Later is Used and Oracle Solaris 10 is Installed on All the Domains or if XCP 2050 or Later is Used and Oracle Solaris 11 and Oracle Solaris 10 are Mixed" according to the Oracle Solaris version. For XCP 2044 or earlier, see "1.2.3   XCP 2044 or Earlier" regardless of the Oracle Solaris version.

1.2 Maximum Number of Each Type of Mounted PCI Card and Available PCI Slots

For the maximum number of each type of mounted PCI card and the available PCI slots, see Table 1-1 to Table 1-6 according to the domain OS version.

- "Maximum number mounted" in the tables means the maximum number of PCI cards that can be mounted in the SPARC M10-1 or PCI expansion unit. The numbers in ( ) indicate the slot numbers where cards can be mounted, among the PCI slots of the SPARC M10-1. If there are no ( ), all of the slots are available for mounting. In any PCI expansion unit where cards can be mounted, all of the slots are available for mounting.

- The SPARC M10 has an I/O bandwidth of 8 GB/s (simplex) per root complex. The bandwidth between the PCI expansion unit and the SPARC M10 is also 8 GB/s. Therefore, if multiple PCI cards operating at the same time share that bandwidth, each PCI card may not demonstrate the maximum performance. If a high-speed communication card requires a certain level of performance, take the following measures to secure the bandwidth.
  - Mount the card in a PCI slot in the SPARC M10-1 instead of in an PCI expansion unit.
  - Avoid mounting another PCI card in a PCI slot of the same root complex.

1.2.1　If XCP 2050 or Later is Used and Oracle Solaris 11 is Installed on All the Domains

Table 1-1　Maximum Number of Each Type of Mounted PCI Card: SPARC M10-1 With Oracle Solaris 11 (Fujitsu Product ID)

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
Link	PCI expansion unit connection card	SPME8LK1F	-	2 (#0,#1)
LAN	Dual Gigabit Ethernet card (MMF)	SP1X7GD2F	3	23
	Dual Gigabit Ethernet card (MMF)	SP1X7GD1F	3	23
	Quad Gigabit Ethernet card (UTP)	SP1X7GQ2F	3	23
	Quad Gigabit Ethernet card (UTP)	SP1X7GQ1F	3	23
	Dual 10Gigabit Ethernet card (10GBase-T)	SP1X7HF1F	3	23
	Dual 10Gigabit Ethernet card	SE1X7HE3G	3	23
	Quad 10 Gigabit Ethernet card (*1)	SP1X7HH1F	2	11 (*2)
	Dual 25 Gigabit Ethernet card (*3)	SP1X7JD1F	3	2 PCI expansion unit mounting not possible
	Dual 40 Gigabit Ethernet card (*4)	SP1X7HG1F	3	23
FCoE	Dual 10Gbps FCoE card (for optical cable)	SE0X7EF12F	3	23
	Dual 10Gbps FCoE card (for Copper Twinax cable)	SE0X7EC12F	3	23
	Dual-channel 10Gbps FCoE card (for optical cable) (QLogic)	SP1X7FAR2F	3	23
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable) (QLogic)	SP1X7FAS2F	3	23
	Dual-channel 10Gbps FCoE card (for optical cable) (Emulex)	SP1X7FBR2F	3	23
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable) (Emulex)	SP1X7FBS2F	3	23
FC	Dual-channel 32Gbps Fibre Channel card (*5)	SP1X7FAC2F	3	23

Table 1-1   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-1 With Oracle Solaris 11
          (Fujitsu Product ID) *(continued)*

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	**With PCI Expansion Unit**
	Dual-channel 32Gbps Fibre Channel card (*6)	SP1X7FBC2F	3	23
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FAA2F	3	23
	Dual-channel 16Gbps Fibre Channel card (LR SFP+)	SP1X7FAB2F	3	23
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FBA2F	3	23
	Quad-channel 16Gbps Fibre Channel card (SR) (*7)	SP0X7FAA4F	3	23
	Dual-channel 8Gbps Fibre Channel card (QLogic)	SE0X7F22F	3	23
	Single-channel 8Gbps Fibre Channel card (QLogic)	SE0X7F21F	3	23
	Dual-channel 8Gbps Fibre Channel card (Emulex)	SE0X7F32F	3	23
	Single-channel 8Gbps Fibre Channel card (Emulex)	SE0X7F31F	3	23
SAS	12Gbps SAS card (*8)	SP1X7SA3F	3	23
	6Gbps SAS card	SE0X7SA2F	3	23
	SAS card	SE0X7SA1F	3	23
FLASH	3.2 TB Flash Accelerator Card (*9)	SP0X7Y42F	3	23
	Flash Accelerator F320 card (*10)	SP1X7Y41F	3	23
	Flash Accelerator F160 card (*11)	SP1X7Y31F	3	23
	Flash Accelerator F80 card	SP1X7Y21F	3	23
	Flash Accelerator F40 card	SP1X7Y11F	3	23
IB	Dual Port InfiniBand 4x QDR card	SP1X7BA12F	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
	Dual Port InfiniBand 4x QDR card	SE1X7BA12F	3	23

Table 1-1 Maximum Number of Each Type of Mounted PCI Card: SPARC M10-1 With Oracle Solaris 11 (Fujitsu Product ID) *(continued)*

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
Graphic	Graphics card (*12)	SP0X7GR1F	1 (#2,#0) (*13)	1 (#2,#0) (*13) PCI expansion unit mounting not possible

-: Not applicable

*1 To use the Quad 10 Gigabit Ethernet card, the following SRU and XCP must be applied:

SRU 11.3.22.3.0 or later, XCP 2320 or later

To mount the Quad 10 Gigabit Ethernet card in the PCI expansion unit, PCI expansion unit firmware version 1310 or later must be applied in addition to the above.

For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu M10/SPARC M10 Systems Service Manual*.

*2 Up to five Quad 10 Gigabit Ethernet cards can be mounted per PCI expansion unit.

*3 To use the Dual 25 Gigabit Ethernet card, the following SRU must be applied:

SRU 11.4.6.4.0 or later

*4 To use the 40 Gb Ethernet card, the following SRU and XCP must be applied:

SRU 11.3.8.7.0 or later, XCP 2320 or later

To mount the 40Gb Ethernet card in the PCI expansion unit, PCI expansion unit firmware version 1310 or later must be applied in addition to the above. For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

*5 To use the dual-channel 32Gbps Fibre Channel card, the following SRU must be applied:

SRU 11.3.29.5.0 or later

*6 To use the dual-channel 32Gbps Fibre Channel card, the following SRU must be applied:

SRU 11.3.23.5.0 or later

*7 To use the quad-channel 16Gbps Fibre Channel card, the following SRU must be applied:

SRU 11.3.29.5.0 or later

*8 To use the 12Gbps SAS card, the following SRU must be applied:

SRU 11.2.8.4.0 or later

*9 To use the 3.2 TB Flash Accelerator Card, the following SRU and XCP must be applied:

SRU 11.3.28.4.0 or later, XCP 2320 or later

*10 To use the F320 card, the following SRU and XCP must be applied:

SRU 11.3.10.7.0 or later, XCP 2320 or later

*11 To use the F160 card, the following SRU and XCP must be applied:

SRU 11.2.11.5.0 or later, XCP 2260 or later

To mount the F160 card in the PCI expansion unit, PCI expansion unit firmware version 1210 or later must be applied in addition to the above.

For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

*12 Oracle Solaris 11.4 and later are not supported. Use the product in an environment with Oracle Solaris 11.3 or earlier.

*13 If this card is mounted in Slot#0, the cable management arm cannot be used. Therefore, you need to disconnect all the cables on the rear side when you maintain the server.

Table 1-2   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-1 With Oracle Solaris 11 (Oracle Product ID)

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
Link	Link card kit	7105513 (7105576)	-	2 (#0,#1)
LAN	Sun Dual Port GbE PCIe 2.0 Low Profile Adapter, MMF	7100482 (7100481)	3	23
	Sun Quad Port GbE PCIe 2.0 Low Profile Adapter, UTP	7100479 (7100477)	3	23
	Sun Dual Port 10GBase-T Adapter	7100563 (7100488)	3	23
	Sun Dual 10 GbE SFP+ PCIe 2.0 Low Profile Adapter	1109A-Z (X1109A-Z)	3	23
	Oracle Quad Port 10GBase-T Adapter (*1)	7111182 (7111181)	2	11 (*2)
	Oracle Dual Port 25 Gb Ethernet Adapter (*3)	7118015 (7118016)	3	2 PCI expansion unit mounting not possible
	Oracle Quad 10 Gb or Dual 40 Gb Ethernet Adapter (*4)	7114148 (7114134)	3	23
	PCIe Quad port GigE (copper) x8 lane card	4447A-Z-N (X4447A-Z-N)	3	23
	PCI-E Low-Profile Dual GigE MMF	7281A-2-N (X7281A-2-N)	3	23
FC/FCoE	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic (*5)	7115460 (7115462)	3	23
	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, Emulex (*6)	7115459 (7115461)	3	23
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and SR optics	SG-PCIEFCOE2-Q-SR (7105381, SG-XPCIEFCOE2-Q-SR)	3	23
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and Twin-AX	SG-PCIEFCOE2-Q-TA (7105382, SG-XPCIEFCOE2-Q-TA)	3	23

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Qlogic	7101673 (7101674)	-	-
	with the 16 Gb FC short wave optics	with 7101675 (7101676)	3	23
	with the 16 Gb FC long wave optics	with 7101679 (7101680)	3	23
	with the 10 Gb FCoE short reach optics or TwinAx cables	with 7101677 (7101678) or TwinAx cables	3	23
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Emulex	7101683 (7101684)	-	-
	with the 16 Gb FC short wave optics	with 7101685 (7101686)	3	23
	with the 10 Gb FCoE short reach optics or TwinAx cables	with 7101687 (7101688)	3	23
	8 Gb FC PCIe, QLogic, Dual Port	SG-PCIE2FC-QF8-Z (SG-XPCIE2FC-QF8-N)	3	23
	8 Gb FC PCIe, QLogic, Single Port	SG-PCIE1FC-QF8-Z (SG-XPCIE1FC-QF8-N)	3	23
	8 Gb FC PCIe, Emulex, Dual Port	SG-PCIE2FC-EM8-Z (SG-XPCIE2FC-EM8-N)	3	23
	8 Gb FC PCIe, Emulex, Single Port	SG-PCIE1FC-EM8-Z (SG-XPCIE1FC-EM8-N)	3	23
SAS	Oracle Storage 12 Gb SAS PCIe HBA, external: 8 port (*7)	7110118 (7110119)	3	23
	Sun Storage 6 Gb SAS PCIe HBA: 8 ports, external	SG-SAS6-EXT-Z (7105387, SGX-SAS6-EXT-Z)	3	23
	Sun StorageTek 8-port External SAS PCI-Express Host Bus Adapter	SG-PCIE8SAS-E-Z-N (SG-XPCIE8SAS-E-Z-N)	3	23

Table 1-2 Maximum Number of Each Type of Mounted PCI Card: SPARC M10-1 With Oracle Solaris 11 (Oracle Product ID) *(continued)*

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
FLASH	Fujitsu 3.2 TB Flash Accelerator Card (*8)	7119601 (7119603)	3	23
	Oracle Flash Accelerator F320 PCIe Card (*9)	7113825 (7113826)	3	23
	Flash Accelerator F160 PCIe Card (*10)	7110864 (7110865)	3	23
	Flash Accelerator F80 PCIe Card: 800GB, eMLC	7107091 (7107092)	3	23
	Flash Accelerator F40 card	7104480 (7104482)	3	23
IB	Oracle Dual port QDR InfiniBand Adapter M3	7104073 (7104074)	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
	Sun InfiniBand QDR Host Channel Adapter PCIe: low profile	4242A (X4242A)	3	23

Table 1-2 Maximum Number of Each Type of Mounted PCI Card: SPARC M10-1 With Oracle Solaris 11 (Oracle Product ID) *(continued)*

Type	Product Name	Factory-Mounted Product ID When Shipped	Maximum Number Mounted	
		(Expanded-on-Site Product ID)	Without PCI Expansion Unit	With PCI Expansion Unit
Graphic	Raptor GFX 550e (*11)(*12)	-	1 (#2,#0) (*13)	1 (#2,#0) (*13) PCI expansion unit mounting not possible

-: Not applicable

*1 To use the Oracle Quad Port 10GBase-T Adapter, the following SRU and XCP must be applied:

SRU 11.3.22.3.0 or later, XCP 2320 or later

To mount the Oracle Quad Port 10GBase-T Adapter in the PCI expansion unit, PCI expansion unit firmware version 1310 or later must be applied in addition to the above.

For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu M10/SPARC M10 Systems Service Manual*.

*2 Up to five Oracle Quad Port 10GBase-T Adapters can be mounted per PCI expansion unit.

*3 To use the Oracle Dual Port 25 Gb Ethernet Adapter, the following SRU must be applied:

SRU 11.4.6.4.0 or later

*4 To use the 40 Gb Ethernet card, the following SRU and XCP must be applied:

SRU 11.3.8.7.0 or later, XCP 2320 or later

To mount the 40Gb Ethernet card in the PCI expansion unit, PCI expansion unit firmware version 1310 or later must be applied in addition to the above. For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

*5 To use the Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic, the following SRU must be applied:

SRU 11.3.29.5.0 or later

*6 To use the Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, Emulex, the following SRU must be applied:

SRU 11.3.23.5.0 or later

*7 To use the 12Gbps SAS card, the following SRU and card FW must be applied:

SRU 11.2.8.4.0 or later, card FW: 06.00.00.00 or later

*8 To use the Fujitsu 3.2 TB Flash Accelerator Card, the following SRU and XCP must be applied:

SRU 11.3.28.4.0 or later, XCP 2320 or later

*9 To use the F320 card, the following SRU and XCP must be applied:

SRU 11.3.10.7.0 or later, XCP 2320 or later

*10 To use the F160 card, the following SRU and XCP must be applied:

SRU 11.2.14.4.0 or later, XCP 2260 or later

To mount the F160 card in the PCI expansion unit, PCI expansion unit firmware version 1210 or later must be applied in addition to the above.

For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

*11 Oracle Solaris 11.4 and later are not supported. Use the product in an environment with Oracle Solaris 11.3 or earlier.

*12 Sales Contact

EIZO Rugged Solutions, Inc.: ers-info@eizo.com

Shoshin Corporation: is@shoshin.co.jp

The latest driver is available for download from the EIZO Rugged Solutions, Inc. website:

http://www.eizorugged.com/support/drivers/index.html

GFX550e_1.5.tar.Z includes the drivers for Oracle Solaris 11 and Oracle Solaris 10.

*13 If this card is mounted in Slot#0, the cable management arm cannot be used. Therefore, you need to disconnect all the cables on the rear side when you maintain the server.

1.2.2 If XCP 2050 or Later is Used and Oracle Solaris 10 is Installed on All the Domains or if XCP 2050 or Later is Used and Oracle Solaris 11 and Oracle Solaris 10 are Mixed

Table 1-3   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-1 With Either Oracle Solaris 10 or the Mixture of Oracle Solaris 10 and 11 (Fujitsu Product ID)

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
Link	PCI expansion unit connection card	SPME8LK1F	-	2 (#0,#1)
LAN	Dual Gigabit Ethernet card (MMF)	SP1X7GD2F	3	23
	Dual Gigabit Ethernet card (MMF)	SP1X7GD1F	3	23
	Quad Gigabit Ethernet card (UTP)	SP1X7GQ2F	3	23
	Quad Gigabit Ethernet card (UTP)	SP1X7GQ1F	3	23
	Dual 10Gigabit Ethernet card (10GBase-T)	SP1X7HF1F	3	1 (#0,#1) PCI expansion unit mounting not possible
	Dual 10 Gigabit Ethernet card	SE1X7HE3G	3	1 (#0,#1) PCI expansion unit mounting not possible
	Quad 10 Gigabit Ethernet card (*1)	SP1X7HH1F	2	11 (*2)
	Dual 25 Gigabit Ethernet card (*3)	SP1X7JD1F	3	2 PCI expansion unit mounting not possible
	Dual 40 Gigabit Ethernet card (*4)	SP1X7HG1F	3	23
FCoE	Dual 10Gbps FCoE card (for optical cable)	SE0X7EF12F	3	1 (#0,#1) PCI expansion unit mounting not possible

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
	Dual 10Gbps FCoE card (for Copper Twinax cable)	SE0X7EC12F	3	1 (#0,#1) PCI expansion unit mounting not possible
	Dual-channel 10Gbps FCoE card (for optical cable) (QLogic)	SP1X7FAR2F	3	1 (#0,#1) PCI expansion unit mounting not possible
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable) (QLogic)	SP1X7FAS2F	3	1 (#0,#1) PCI expansion unit mounting not possible
	Dual-channel 10Gbps FCoE card (for optical cable) (Emulex)	SP1X7FBR2F	3	1 (#0,#1) PCI expansion unit mounting not possible
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable) (Emulex)	SP1X7FBS2F	3	1 (#0,#1) PCI expansion unit mounting not possible
FC	Dual-channel 32Gbps Fibre Channel card (*5)	SP1X7FAC2F	3	23
	Dual-channel 32Gbps Fibre Channel card (*6)	SP1X7FBC2F	3	23
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FAA2F	3	23
	Dual-channel 16Gbps Fibre Channel card (LR SFP+)	SP1X7FAB2F	3	23

Table 1-3   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-1 With Either Oracle Solaris 10 or the Mixture of Oracle Solaris 10 and 11 (Fujitsu Product ID) *(continued)*

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	**With PCI Expansion Unit**
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FBA2F	3	1 (#0,#1) PCI expansion unit mounting not possible
	Quad-channel 16Gbps Fibre Channel card (SR) (*7)	SP0X7FAA4F	3	23
	Dual-channel 8Gbps Fibre Channel card (QLogic)	SE0X7F22F	3	23
	Single-channel 8Gbps Fibre Channel card (QLogic)	SE0X7F21F	3	23
	Dual-channel 8Gbps Fibre Channel card (Emulex)	SE0X7F32F	3	1 (#0,#1) PCI expansion unit mounting not possible
	Single-channel 8Gbps Fibre Channel card (Emulex)	SE0X7F31F	3	1 (#0,#1) PCI expansion unit mounting not possible
SAS	12Gbps SAS card (*8)	SP1X7SA3F	3	23
	6Gbps SAS card	SE0X7SA2F	3	23
	SAS card	SE0X7SA1F	3	23
FLASH	3.2 TB Flash Accelerator Card (*9)	SP0X7Y42F	3	23
	Flash Accelerator F320 card (*10)	SP1X7Y41F	3	23
	Flash Accelerator F160 card (*11)	SP1X7Y31F	3	23
	Flash Accelerator F80 card	SP1X7Y21F	3	23
	Flash Accelerator F40 card	SP1X7Y11F	3	23
IB	Dual Port InfiniBand 4x QDR card	SP1X7BA12F	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
	Dual Port InfiniBand 4x QDR card	SE1X7BA12F	3	23

Table 1-3 Maximum Number of Each Type of Mounted PCI Card: SPARC M10-1 With Either Oracle Solaris 10 or the Mixture of Oracle Solaris 10 and 11 (Fujitsu Product ID) *(continued)*

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	**With PCI Expansion Unit**
Graphic	Graphics card (*12)	SP0X7GR1F	1 (#2,#0) (*13)	1 (#2,#0) (*13) PCI expansion unit mounting not possible

-: Not applicable

*1 To use the Quad 10 Gigabit Ethernet card, the following SRU and XCP must be applied:

SRU 11.3.22.3.0 or later, XCP 2320 or later

To mount the Quad 10 Gigabit Ethernet card in the PCI expansion unit, PCI expansion unit firmware version 1310 or later must be applied in addition to the above.

For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu M10/SPARC M10 Systems Service Manual*.

*2 Up to five Quad 10 Gigabit Ethernet cards can be mounted per PCI expansion unit.

*3 To use the Dual 25 Gigabit Ethernet card, the following SRU must be applied:

SRU 11.4.6.4.0 or later

*4 To use the 40 Gb Ethernet card, the following SRU and XCP must be applied:

SRU 11.3.8.7.0 or later, XCP 2320 or later

To mount the 40Gb Ethernet card in the PCI expansion unit, PCI expansion unit firmware version 1310 or later must be applied in addition to the above. For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

*5 To use the dual-channel 32Gbps Fibre Channel card, the following SRU must be applied:

SRU 11.3.29.5.0 or later

*6 To use the dual-channel 32Gbps Fibre Channel card, the following SRU must be applied:

SRU 11.3.23.5.0 or later

*7 To use the quad-channel 16Gbps Fibre Channel card, the following SRU must be applied:

SRU 11.3.29.5.0 or later

*8 To use the 12Gbps SAS card, the following SRU must be applied:

SRU 11.2.8.4.0 or later

*9 To use the 3.2 TB Flash Accelerator Card, the following SRU and XCP must be applied:

SRU 11.3.28.4.0 or later, XCP 2320 or later

*10 To use the F320 card, the following SRU and XCP must be applied:

SRU 11.3.10.7.0 or later, XCP 2320 or later

*11 To use the F160 card, the following SRU and XCP must be applied:

SRU 11.2.11.5.0 or later, XCP 2260 or later

To mount the F160 card in the PCI expansion unit, PCI expansion unit firmware version 1210 or later must be applied in addition to the above.

For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

*12 Oracle Solaris 11.4 and later are not supported. Use the product in an environment with Oracle Solaris 11.3 or earlier.

*13 If this card is mounted in Slot#0, the cable management arm cannot be used. Therefore, you need to unplug all the cables on the rear side when you maintain the server.

Table 1-4   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-1 With Either Oracle Solaris
            10 or the Mixture of Oracle Solaris 10 and 11 (Oracle Product ID)

Type	Product Name	Factory-Mounted Product ID When Shipped	Maximum Number Mounted	
		(Expanded-on-Site Product ID)	Without PCI Expansion Unit	With PCI Expansion Unit
Link	Link card kit	7105513 (7105576)	-	2 (#0,#1)
LAN	Sun Dual Port GbE PCIe 2.0 Low Profile Adapter, MMF	7100482 (7100481)	3	23
	Sun Quad Port GbE PCIe 2.0 Low Profile Adapter, UTP	7100479 (7100477)	3	23
	Sun Dual Port 10GBase-T Adapter	7100563 (7100488)	3	1 (#0,#1) PCI expansion unit mounting not possible
	Sun Dual 10 GbE SFP+ PCIe 2.0 Low Profile Adapter	1109A-Z (X1109A-Z)	3	1 (#0,#1) PCI expansion unit mounting not possible
	Oracle Quad Port 10GBase-T Adapter (*1)	7111182 (7111181)	2	11 (*2)
	Oracle Dual Port 25 Gb Ethernet Adapter (*3)	7118015 (7118016)	3	2 PCI expansion unit mounting not possible
	Oracle Quad 10 Gb or Dual 40 Gb Ethernet Adapter (*4)	7114148 (7114134)	3	23
	PCIe Quad port GigE (copper) x8 lane card	4447A-Z-N (X4447A-Z-N)	3	1 (#0,#1) PCI expansion unit mounting not possible
	PCI-E Low-Profile Dual GigE MMF	7281A-2-N (X7281A-2-N)	3	1 (#0,#1) PCI expansion unit mounting not possible

Table 1-4 Maximum Number of Each Type of Mounted PCI Card: SPARC M10-1 With Either Oracle Solaris 10 or the Mixture of Oracle Solaris 10 and 11 (Oracle Product ID) *(continued)*

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
FC/FCoE	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic (*5)	7115460 (7115462)	3	23
	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, Emulex (*6)	7115459 (7115461)	3	23
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and SR optics	SG-PCIEFCOE2-Q-SR (7105381, SG-XPCIEFCOE2-Q-SR)	3	1 (#0,#1) PCI expansion unit mounting not possible
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and Twin-AX	SG-PCIEFCOE2-Q-TA (7105382, SG-XPCIEFCOE2-Q-TA)	3	1 (#0,#1) PCI expansion unit mounting not possible
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Qlogic	7101673 (7101674)	-	-
	with the 16 Gb FC short wave optics	with 7101675 (7101676)	3	23
	with the 16 Gb FC long wave optics	with 7101679 (7101680)	3	23
	with the 10 Gb FCoE short reach optics or TwinAx cables	with 7101677 (7101678) or TwinAx cables	3	1 (#0,#1) PCI expansion unit mounting not possible
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Emulex	7101683 (7101684)	-	-
	with the 16 Gb FC short wave optics	with 7101685 (7101686)	3	1 (#0,#1) PCI expansion unit mounting not possible

Table 1-4   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-1 With Either Oracle Solaris
              10 or the Mixture of Oracle Solaris 10 and 11 (Oracle Product ID) *(continued)*

Type	Product Name	Factory-Mounted Product ID When Shipped	Maximum Number Mounted	
		(Expanded-on-Site Product ID)	Without PCI Expansion Unit	With PCI Expansion Unit
	with the 10 Gb FCoE short reach optics or TwinAx cables	with 7101687 (7101688)	3	1 (#0,#1) PCI expansion unit mounting not possible
	8 Gb FC PCIe, QLogic, Dual Port	SG-PCIE2FC-QF8-Z (SG-XPCIE2FC-QF8-N)	3	23
	8 Gb FC PCIe, QLogic, Single Port	SG-PCIE1FC-QF8-Z (SG-XPCIE1FC-QF8-N)	3	23
	8 Gb FC PCIe, Emulex, Dual Port	SG-PCIE2FC-EM8-Z (SG-XPCIE2FC-EM8-N)	3	1 (#0,#1) PCI expansion unit mounting not possible
	8 Gb FC PCIe, Emulex, Single Port	SG-PCIE1FC-EM8-Z (SG-XPCIE1FC-EM8-N)	3	1 (#0,#1) PCI expansion unit mounting not possible
SAS	Oracle Storage 12 Gb SAS PCIe HBA, external: 8 port (*7)	7110118 (7110119)	3	23
	Sun Storage 6 Gb SAS PCIe HBA: 8 ports, external	SG-SAS6-EXT-Z (7105387, SGX-SAS6-EXT-Z)	3	23
	Sun StorageTek 8-port External SAS PCI-Express Host Bus Adapter	SG-PCIE8SAS-E-Z-N (SG-XPCIE8SAS-E-Z-N)	3	23

Table 1-4   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-1 With Either Oracle Solaris 10 or the Mixture of Oracle Solaris 10 and 11 (Oracle Product ID) *(continued)*

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
FLASH	Fujitsu 3.2 TB Flash Accelerator Card (*8)	7119601 (7119603)	3	23
	Oracle Flash Accelerator F320 PCIe Card (*9)	7113825 (7113826)	3	23
	Flash Accelerator F160 PCIe Card (*10)	7110864 (7110865)	3	23
	Flash Accelerator F80 PCIe Card: 800GB, eMLC	7107091 (7107092)	3	23
	Flash Accelerator F40 card	7104480 (7104482)	3	23
IB	Oracle Dual port QDR InfiniBand Adapter M3	7104073 (7104074)	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
	Sun InfiniBand QDR Host Channel Adapter PCIe: low profile	4242A (X4242A)	3	23

Table 1-4   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-1 With Either Oracle Solaris 10 or the Mixture of Oracle Solaris 10 and 11 (Oracle Product ID) *(continued)*

Type	Product Name	Factory-Mounted Product ID When Shipped	Maximum Number Mounted	
		(Expanded-on-Site Product ID)	Without PCI Expansion Unit	With PCI Expansion Unit
Graphic	Raptor GFX 550e (*11)(*12)	-	1 (#2,#0) (*13)	1 (#2,#0) (*13) PCI expansion unit mounting not possible

-: Not applicable

*1 To use the Oracle Quad Port 10GBase-T Adapter, the following SRU and XCP must be applied:

SRU 11.3.22.3.0 or later, XCP 2320 or later

To mount the Oracle Quad Port 10GBase-T Adapter in the PCI expansion unit, PCI expansion unit firmware version 1310 or later must be applied in addition to the above.

For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu M10/SPARC M10 Systems Service Manual*.

*2 Up to five Oracle Quad Port 10GBase-T Adapters can be mounted per PCI expansion unit.

*3 To use the Oracle Dual Port 25 Gb Ethernet Adapter, the following SRU must be applied:

SRU 11.4.6.4.0 or later

*4 To use the 40 Gb Ethernet card, the following SRU and XCP must be applied:

SRU 11.3.8.7.0 or later, XCP 2320 or later

To mount the 40Gb Ethernet card in the PCI expansion unit, PCI expansion unit firmware version 1310 or later must be applied in addition to the above. For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual.*

*5 To use the Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic, the following SRU must be applied:

SRU 11.3.29.5.0 or later

*6 To use the Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, Emulex, the following SRU must be applied:

SRU 11.3.23.5.0 or later

*7 To use the 12Gbps SAS card, the following SRU and card FW must be applied:

SRU 11.2.8.4.0 or later, card FW: 06.00.00.00 or later

*8 To use the Fujitsu 3.2 TB Flash Accelerator Card, the following SRU and XCP must be applied:

SRU 11.3.28.4.0 or later, XCP 2320 or later

*9 To use the F320 card, the following SRU and XCP must be applied:

SRU 11.3.10.7.0 or later, XCP 2320 or later

*10 To use the F160 card, the following SRU and XCP must be applied:

SRU 11.2.14.4.0 or later, XCP 2260 or later

To mount the F160 card in the PCI expansion unit, PCI expansion unit firmware version 1210 or later must be applied in addition to the above.

For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

*11 Oracle Solaris 11.4 and later are not supported. Use the product in an environment with Oracle Solaris 11.3 or earlier.

*12 Sales Contact

EIZO Rugged Solutions, Inc. (formerly Tech Source, Inc.): ers-info@eizo.com

Shoshin Corporation: is@shoshin.co.jp

The latest driver is available at the EIZO Rugged Solutions, Inc. web site below:

http://www.eizorugged.com/support/drivers/index.html

GFX550e_1.5.tar.Z includes the drivers for Oracle Solaris 11 and Oracle Solaris 10.

*13 If this card is mounted in Slot#0, the cable management arm cannot be used. Therefore, you need to disconnect all the cables on the rear side when you maintain the server.

1.2.3 XCP 2044 or Earlier

Table 1-5   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-1 With XCP 2044 or Earlier
(Fujitsu Product ID)

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
Link	PCI expansion unit connection card	SPME8LK1F	-	2 (#0,#1)
LAN	Dual Gigabit Ethernet card (MMF)	SP1X7GD2F	3	23
	Dual Gigabit Ethernet card (MMF)	SP1X7GD1F	3	23
	Quad Gigabit Ethernet card (UTP)	SP1X7GQ2F	3	23
	Quad Gigabit Ethernet card (UTP)	SP1X7GQ1F	3	23
	Dual 10Gigabit Ethernet card (10GBase-T)	SP1X7HF1F	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
	Dual 10 Gigabit Ethernet card	SE1X7HE3G	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
	Quad 10 Gigabit Ethernet card	SP1X7HH1F	-	-
	Dual 25 Gigabit Ethernet card	SP1X7JD1F	-	-
	Dual 40 Gigabit Ethernet card	SP1X7HG1F	-	-
FCoE	Dual 10Gbps FCoE card (for optical cable)	SE0X7EF12F	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
	Dual 10Gbps FCoE card (for Copper Twinax cable)	SE0X7EC12F	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible

Table 1-5   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-1 With XCP 2044 or Earlier
(Fujitsu Product ID) *(continued)*

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
	Dual-channel 10Gbps FCoE card (for optical cable) (QLogic)	SP1X7FAR2F	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable) (QLogic)	SP1X7FAS2F	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
	Dual-channel 10Gbps FCoE card (for optical cable) (Emulex)	SP1X7FBR2F	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable) (Emulex)	SP1X7FBS2F	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
FC	Dual-channel 32 Gbps Fibre Channel card	SP1X7FAC2F	-	-
	Dual-channel 32 Gbps Fibre Channel card	SP1X7FBC2F	-	-
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FAA2F	3	23
	Dual-channel 16Gbps Fibre Channel card (LR SFP+)	SP1X7FAB2F	3	23
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FBA2F	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
	Quad-channel 16Gbps Fibre Channel card (SR)	SP0X7FAA4F	-	-

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
	Dual-channel 8Gbps Fibre Channel card (QLogic)	SE0X7F22F	3	23
	Single-channel 8Gbps Fibre Channel card (QLogic)	SE0X7F21F	3	23
	Dual-channel 8Gbps Fibre Channel card (Emulex)	SE0X7F32F	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
	Single-channel 8Gbps Fibre Channel card (Emulex)	SE0X7F31F	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
SAS	12Gbps SAS card (*1)	SP1X7SA3F	3	23
	6Gbps SAS card	SE0X7SA2F	3	23
	SAS card	SE0X7SA1F	3	23
FLASH	3.2 TB Flash Accelerator Card	SP0X7Y42F	-	-
	Flash Accelerator F320 card	SP1X7Y41F	-	-
	Flash Accelerator F160 card	SP1X7Y31F	-	-
	Flash Accelerator F80 card	SP1X7Y21F	3	23
	Flash Accelerator F40 card	SP1X7Y11F	3	23
IB	Dual Port InfiniBand 4x QDR card	SP1X7BA12F	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
	Dual Port InfiniBand 4x QDR card	SE1X7BA12F	3	23

Table 1-5   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-1 With XCP 2044 or Earlier (Fujitsu Product ID) *(continued)*

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
Graphic	Graphics card	SP0X7GR1F	1 (#2,#0) (*2)	1 (#2,#0) (*2) PCI expansion unit mounting not possible

-: Not applicable
*1 To use the 12Gbps SAS card, the following SRU must be applied:
SRU 11.2.8.4.0 or later
*2 If this card is mounted in Slot#0, the cable management arm cannot be used. Therefore, you need to unplug all the cables on the rear side when you maintain the server.

Table 1-6   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-1 With XCP 2044 or Earlier (Oracle Product ID)

Type	Product Name	Factory-Mounted Product ID When Shipped	Maximum Number Mounted	
		(Expanded-on-Site Product ID)	Without PCI Expansion Unit	With PCI Expansion Unit
Link	Link card kit	7105513 (7105576)	-	2 (#0,#1)
LAN	Sun Dual Port GbE PCIe 2.0 Low Profile Adapter, MMF	7100482 (7100481)	3	23
	Sun Quad Port GbE PCIe 2.0 Low Profile Adapter, UTP	7100479 (7100477)	3	23
	Sun Dual Port 10GBase-T Adapter	7100563 (7100488)	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
	Sun Dual 10 GbE SFP+ PCIe 2.0 Low Profile Adapter	1109A-Z (X1109A-Z)	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
	Oracle Quad Port 10GBase-T Adapter	7111182 (7111181)	-	-
	Oracle Dual Port 25 Gb Ethernet Adapter	7118015 (7118016)	-	-
	Oracle Quad 10 Gb or Dual 40 Gb Ethernet Adapter	7114148 (7114134)	-	-

Table 1-6   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-1 With XCP 2044 or Earlier (Oracle Product ID) *(continued)*

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
	PCIe Quad port GigE (copper) x8 lane card	4447A-Z-N (X4447A-Z-N)	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
	PCI-E Low-Profile Dual GigE MMF	7281A-2-N (X7281A-2-N)	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
FC/FCoE	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic	7115460 (7115462)	-	-
	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, Emulex	7115459 (7115461)	-	-
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and SR optics	SG-PCIEFCOE2-Q-SR (7105381, SG-XPCIEFCOE2-Q-SR)	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and Twin-AX	SG-PCIEFCOE2-Q-TA (7105382, SG-XPCIEFCOE2-Q-TA)	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Qlogic	7101673 (7101674)	-	-
	with the 16 Gb FC short wave optics	with 7101675 (7101676)	3	23
	with the 16 Gb FC long wave optics	with 7101679 (7101680)	3	23

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
	with the 10 Gb FCoE short reach optics or TwinAx cables	with 7101677 (7101678) or TwinAx cables	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Emulex	7101683 (7101684)	-	-
	with the 16 Gb FC short wave optics	with 7101685 (7101686)	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
	with the 10 Gb FCoE short reach optics or TwinAx cables	with 7101687 (7101688)	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
	8 Gb FC PCIe, QLogic, Dual Port	SG-PCIE2FC-QF8-Z (SG-XPCIE2FC-QF8-N)	3	23
	8 Gb FC PCIe, QLogic, Single Port	SG-PCIE1FC-QF8-Z (SG-XPCIE1FC-QF8-N)	3	23
	8 Gb FC PCIe, Emulex, Dual Port	SG-PCIE2FC-EM8-Z (SG-XPCIE2FC-EM8-N)	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
	8 Gb FC PCIe, Emulex, Single Port	SG-PCIE1FC-EM8-Z (SG-XPCIE1FC-EM8-N)	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
SAS	Oracle Storage 12 Gb SAS PCIe HBA, external: 8 port (*1)	7110118 (7110119)	3	23

Table 1-6 Maximum Number of Each Type of Mounted PCI Card: SPARC M10-1 With XCP 2044 or Earlier (Oracle Product ID) *(continued)*

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
	Sun Storage 6 Gb SAS PCIe HBA: 8 ports, external	SG-SAS6-EXT-Z (7105387, SGX-SAS6-EXT-Z)	3	23
	Sun StorageTek 8-port External SAS PCI-Express Host Bus Adapter	SG-PCIE8SAS-E-Z-N (SG-XPCIE8SAS-E-Z-N)	3	23
FLASH	Fujitsu 3.2 TB Flash Accelerator Card	7119601 (7119603)	-	-
	Oracle Flash Accelerator F320 PCIe Card	7113825 (7113826)	-	-
	Flash Accelerator F160 PCIe Card	7110864 (7110865)	-	-
	Flash Accelerator F80 PCIe Card: 800GB, eMLC	7107091 (7107092)	3	23
	Flash Accelerator F40 card	7104480 (7104482)	3	23
IB	Oracle Dual port QDR InfiniBand Adapter M3	7104073 (7104074)	2 (#0,#1)	1 (#0,#1) PCI expansion unit mounting not possible
	Sun InfiniBand QDR Host Channel Adapter PCIe: low profile	4242A (X4242A)	3	23
Graphic	Raptor GFX 550e (*2)	-	1 (#2,#0) (*3)	1 (#2,#0) (*3) PCI expansion unit mounting not possible

-: Not applicable
*1 To use the 12Gbps SAS card, the following SRU and card FW must be applied:
SRU 11.2.8.4.0 or later, card FW: 06.00.00.00 or later
*2 Sales Contact
EIZO Rugged Solutions, Inc. (formerly Tech Source, Inc.): ers-info@eizo.com
Shoshin Corporation: is@shoshin.co.jp
The latest driver is available at the EIZO Rugged Solutions, Inc. web site below:
http://www.eizorugged.com/support/drivers/index.html
GFX550e_1.5.tar.Z includes the drivers for Oracle Solaris 11 and Oracle Solaris 10.
*3 If this card is mounted in Slot#0, the cable management arm cannot be used. Therefore, you need to disconnect all the cables on the rear side when you maintain the server.

1.3   Hardware Configuration Diagram

is a hardware configuration diagram of the SPARC M10-1.

Figure 1-1   Hardware Configuration Diagram of the SPARC M10-1
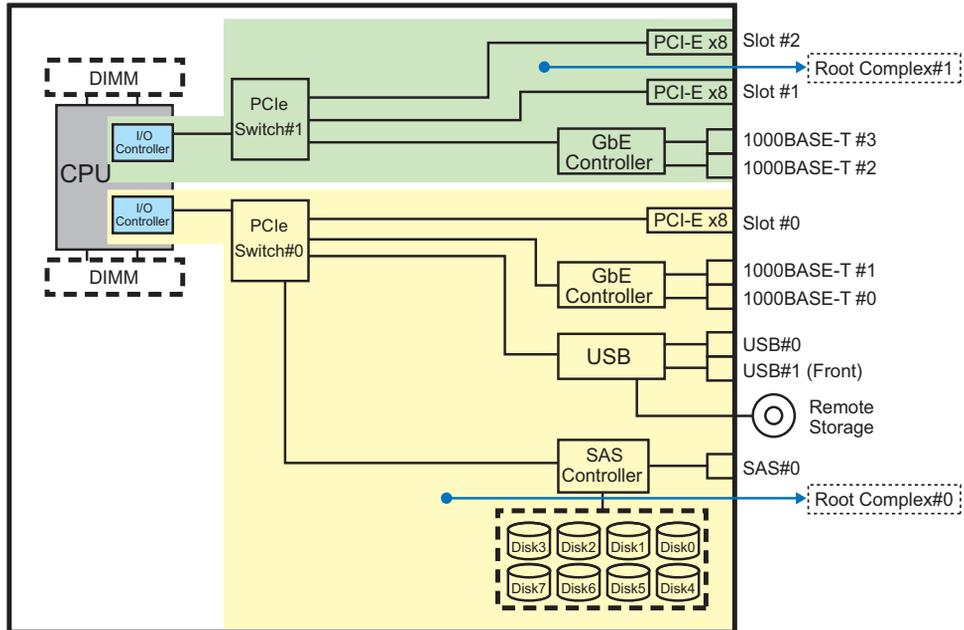
Chapter 2

PCI Card Mounting Rules for the SPARC M10-4

This chapter describes the maximum number of each type of mounted PCI card and the rules for mounting PCI cards in PCI slots when mounting PCI cards in the SPARC M10-4.
Be sure to observe these mounting rules when designing the system and when installing a PCI card or changing the mounting location of a PCI card.

- Prerequisites
- Maximum Number of Each Type of Mounted PCI Card and Available PCI Slots
- Relationship Between the CPU Configuration and the Number of Root Complexes

2.1 Prerequisites

- Domain OS
- System Firmware XCP Version
- Number of CPUs and Number of Root Complexes

2.1.1 Domain OS

The maximum number of each type of mounted PCI card and the available PCI slots may vary depending on the version of the Oracle Solaris that is installed on the domain.
Mounting rules vary depending on whether all OS versions of the control domain, root domain, and I/O domain are Oracle Solaris 11 only, Oracle Solaris 10 only, or a mixture of the two.
If an Oracle Solaris 10 environment is used in the following configurations, apply the rules for Oracle Solaris 11.

- A guest domain of an Oracle Solaris 10 environment is configured using the virtual I/O services of a control domain or the root domain of Oracle Solaris 11.

- An Oracle Solaris 10 zone is configured on an Oracle Solaris 11 domain.

If there are plans to add a root domain or I/O domain of Oracle Solaris 10 after the start of system operation, apply the rules for Oracle Solaris 10.

> **Note -** For details on the design of control domain, root domain, and I/O domain configurations, see the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Domain Configuration Guide*.

2.1.2 System Firmware XCP Version

The maximum number of each type of mounted PCI card and the slots available for mounting may vary depending on the system firmware version. For XCP 2050 or later, see the tables in "2.2.1   If XCP 2050 or Later is Used and Oracle Solaris 11 is Installed on All the Domains" and "2.2.2   If XCP 2050 or Later is Used and Oracle Solaris 10 is Installed on All the Domains or if XCP 2050 or Later is Used and Oracle Solaris 11 and Oracle Solaris 10 are Mixed" according to the Oracle Solaris version. For XCP 2044 or earlier, see "2.2.3   XCP 2044 or Earlier" regardless of the Oracle Solaris version.

2.1.3 Number of CPUs and Number of Root Complexes

A root complex consists of an I/O controller mounted on a processor and the PCI switches, PCI devices, etc. under the I/O controller.
For details, see "2.3   Relationship Between the CPU Configuration and the Number of Root Complexes."

The maximum number of each type of mounted PCI card and the available PCI slots vary depending on the number of root complexes. The number of root complexes of the SPARC M10-4 is as follows according to the CPU configuration.

- For a 2-CPU configuration, four root complexes
- For a 4-CPU configuration, four or eight root complexes

> **Note -** For cases where a CPU module is installed after the installation of the equipment with a change from the 2-CPU configuration to the 4-CPU configuration, the recommended configuration is the one with four root complexes. This configuration inherits the I/O bus configuration and mounting rules of the 2-CPU configuration. Changing the configuration into one with eight root complexes increases the maximum number of mounted PCI cards. However, system reconfiguration is required because the I/O bus is reconfigured.

2.2 Maximum Number of Each Type of Mounted PCI Card and Available PCI Slots

For the maximum number of each type of mounted PCI card and the available PCI slots, see Table 2-1 to Table 2-6 according to the domain OS version.

- "Maximum number mounted" means the maximum number of PCI cards that can be mounted in the SPARC M10-4 or PCI expansion unit. The numbers in ( ) indicate the slot numbers where cards can be mounted, among the PCI slots of the SPARC M10-4. If there are no ( ), all of the slots are available for mounting. In any PCI expansion unit where cards can be mounted, all of the slots are available for mounting.

- "2CPU" and "4CPU" under "Maximum number mounted" in the tables refer to the following cases.
  - 2CPU: Configuration with 4 root complexes
    In one case, a CPU memory unit has not been installed.
    In another case, a CPU memory unit has been installed on site, and the I/O bus has not been reconfigured.

  - 4CPU: Configuration with 8 root complexes
    In one case, a CPU memory unit has been ordered together with the server (installed at the factory).
    In another case, a CPU memory unit has been installed on site and the I/O bus has been reconfigured.

- The SPARC M10 has an I/O bandwidth of 8 GB/s (simplex) per root complex. The bandwidth between the PCI expansion unit and the SPARC M10 is also 8 GB/s. Therefore, if multiple PCI cards operating at the same time share that bandwidth, each PCI card may not demonstrate the maximum performance. If a high-speed communication card requires a certain level of performance, take the following measures to secure the bandwidth.
  - Mount the card in a PCI slot in the SPARC M10-4 instead of in an PCI expansion unit.

  - Avoid mounting another PCI card in a PCI slot of the same root complex.

2.2.1 If XCP 2050 or Later is Used and Oracle Solaris 11 is Installed on All the Domains

Table 2-1   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4 With Oracle Solaris 11 (Fujitsu Product ID)

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
Link	PCI expansion unit connection card	SPME8LK1F	-	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)
LAN	Dual Gigabit Ethernet card (MMF)	SP1X7GD2F	11	2CPU:41 4CPU:71
	Dual Gigabit Ethernet card (MMF)	SP1X7GD1F	11	2CPU:41 4CPU:71
	Quad Gigabit Ethernet card (UTP)	SP1X7GQ2F	11	2CPU:41 4CPU:71
	Quad Gigabit Ethernet card (UTP)	SP1X7GQ1F	11	2CPU:41 4CPU:71
	Dual 10Gigabit Ethernet card (10GBase-T)	SP1X7HF1F	11	2CPU:41 4CPU:71
	Dual 10Gigabit Ethernet card	SE1X7HE3G	11	2CPU:41 4CPU:71
	Quad 10 Gigabit Ethernet card (*1)	SP1X7HH1F	5	2CPU:20 (*2) 4CPU:35 (*2)
	Dual 40 Gigabit Ethernet card (*3)	SP1X7HG1F	11	2CPU:41 4CPU:71
FCoE	Dual 10Gbps FCoE card (for optical cable)	SE0X7EF12F	11	2CPU:41 4CPU:71
	Dual 10Gbps FCoE card (for Copper Twinax cable)	SE0X7EC12F	11	2CPU:41 4CPU:71
	Dual-channel 10Gbps FCoE card (for optical cable) (QLogic)	SP1X7FAR2F	11	2CPU:41 4CPU:71
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable) (QLogic)	SP1X7FAS2F	11	2CPU:41 4CPU:71
	Dual-channel 10Gbps FCoE card (for optical cable) (Emulex)	SP1X7FBR2F	11	2CPU:41 4CPU:71
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable) (Emulex)	SP1X7FBS2F	11	2CPU:41 4CPU:71

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	**With PCI Expansion Unit**
FC	Dual-channel 32Gbps Fibre Channel card (*4)	SP1X7FAC2F	11	2CPU:41 4CPU:71
	Dual-channel 32Gbps Fibre Channel card (*5)	SP1X7FBC2F	11	2CPU:41 4CPU:71
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FAA2F	11	2CPU:41 4CPU:71
	Dual-channel 16Gbps Fibre Channel card (LR SFP+)	SP1X7FAB2F	11	2CPU:41 4CPU:71
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FBA2F	11	2CPU:41 4CPU:71
	Quad-channel 16Gbps Fibre Channel card (SR) (*6)	SP0X7FAA4F	11	2CPU:41 4CPU:71
	Dual-channel 8Gbps Fibre Channel card (QLogic)	SE0X7F22F	11	2CPU:41 4CPU:71
	Single-channel 8Gbps Fibre Channel card (QLogic)	SE0X7F21F	11	2CPU:41 4CPU:71
	Dual-channel 8Gbps Fibre Channel card (Emulex)	SE0X7F32F	11	2CPU:41 4CPU:71
	Single-channel 8Gbps Fibre Channel card (Emulex)	SE0X7F31F	11	2CPU:41 4CPU:71
SAS	12Gbps SAS card (*7)	SP1X7SA3F	11	2CPU:41 4CPU:71
	6Gbps SAS card	SE0X7SA2F	11	2CPU:41 4CPU:71
	SAS card	SE0X7SA1F	11	2CPU:41 4CPU:71

Table 2-1 Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4 With Oracle Solaris 11 (Fujitsu Product ID) *(continued)*

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
FLASH	3.2 TB Flash Accelerator Card (*8)	SP0X7Y42F	11	2CPU:41 4CPU:71
	Flash Accelerator F320 card (*9)	SP1X7Y41F	11	2CPU:41 4CPU:71
	Flash Accelerator F160 card (*10)	SP1X7Y31F	11	2CPU:41 4CPU:71
	Flash Accelerator F80 card	SP1X7Y21F	11	2CPU:41 4CPU:71
	Flash Accelerator F40 card	SP1X7Y11F	11	2CPU:41 4CPU:71
IB	Dual Port InfiniBand 4x QDR card	SP1X7BA12F	2CPU:3 (#0,#3,#7) (*11) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) (*11) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Dual Port InfiniBand 4x QDR card	SE1X7BA12F	11	2CPU:41 4CPU:71

Table 2-1 Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4 With Oracle Solaris 11 (Fujitsu Product ID) *(continued)*

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
Graphic	Graphics card (*12)	SP0X7GR1F	1 (#1,#2)	1 (#1,#2) PCI expansion unit mounting not possible

-: Not applicable

*1 To use the Quad 10 Gigabit Ethernet card, the following SRU and XCP must be applied:

SRU 11.3.22.3.0 or later, XCP 2320 or later

To mount the Quad 10 Gigabit Ethernet card in the PCI expansion unit, PCI expansion unit firmware version 1310 or later must be applied in addition to the above.

For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu M10/SPARC M10 Systems Service Manual*.

*2 Up to five Quad 10 Gigabit Ethernet cards can be mounted per PCI expansion unit.

*3 To use the 40 Gb Ethernet card, the following SRU and XCP must be applied:

SRU 11.3.8.7.0 or later, XCP 2320 or later

To mount the 40Gb Ethernet card in the PCI expansion unit, PCI expansion unit firmware version 1310 or later must be applied in addition to the above. For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

*4 To use the dual-channel 32Gbps Fibre Channel card, the following SRU must be applied:

SRU 11.3.29.5.0 or later

*5 To use the dual-channel 32Gbps Fibre Channel card, the following SRU must be applied:

SRU 11.3.23.5.0 or later

*6 To use the quad-channel 16Gbps Fibre Channel card, the following SRU must be applied:

SRU 11.3.29.5.0 or later

*7 To use the 12Gbps SAS card, the following SRU must be applied:

SRU 11.2.8.4.0 or later

*8 To use the 3.2 TB Flash Accelerator Card, the following SRU and XCP must be applied:

SRU 11.3.28.4.0 or later, XCP 2320 or later

*9 To use the F320 card, the following SRU and XCP must be applied:

SRU 11.3.10.7.0 or later, XCP 2320 or later

*10 To use the F160 card, the following SRU and XCP must be applied:

SRU 11.2.11.5.0 or later, XCP 2260 or later

To mount the F160 card in the PCI expansion unit, PCI expansion unit firmware version 1210 or later must be applied in addition to the above.

For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

In addition, when the PCI expansion unit is to be assigned to a Guest domain while Direct I/O for the PCI expansion unit is unused, perform static allocation and set nvramrc.

{0} ok nvedit

    0: d# 10000 ms

{0} ok nvstore

{0} ok setenv use-nvramrc? true

This setting is unnecessary when XCP 2290 or later is to be applied.

*11 If this card is mounted in Slot#0 in a 2-CPU configuration, Slot#2 cannot be used. If this card is mounted in Slot#3, Slot#5 and #6 cannot be used. If this card is mounted in Slot#7, Slot#9 and #10 cannot be used.

*12 Oracle Solaris 11.4 and later are not supported. Use the product in an environment with Oracle Solaris 11.3 or earlier.

Table 2-2   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4 With Oracle Solaris 11 (Oracle Product ID)

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
Link	Link card kit	7105513 (7105576)	-	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)
LAN	Sun Dual Port GbE PCIe 2.0 Low Profile Adapter, MMF	7100482 (7100481)	11	2CPU:41 4CPU:71
	Sun Quad Port GbE PCIe 2.0 Low Profile Adapter, UTP	7100479 (7100477)	11	2CPU:41 4CPU:71
	Sun Dual Port 10GBase-T Adapter	7100563 (7100488)	11	2CPU:41 4CPU:71
	Sun Dual 10 GbE SFP+ PCIe 2.0 Low Profile Adapter	1109A-Z (X1109A-Z)	11	2CPU:41 4CPU:71
	Oracle Quad Port 10GBase-T Adapter (*1)	7111182 (7111181)	5	2CPU:20 (*2) 4CPU:35 (*2)
	Oracle Quad 10 Gb or Dual 40 Gb Ethernet Adapter (*3)	7114148 (7114134)	11	2CPU:41 4CPU:71
	PCIe Quad port GigE (copper) x8 lane card	4447A-Z-N (X4447A-Z-N)	11	2CPU:41 4CPU:71
	PCI-E Low-Profile Dual GigE MMF	7281A-2-N (X7281A-2-N)	11	2CPU:41 4CPU:71
FC/FCoE	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic (*4)	7115460 (7115462)	11	2CPU:41 4CPU:71
	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, Emulex (*5)	7115459 (7115461)	11	2CPU:41 4CPU:71
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and SR optics	SG-PCIEFCOE2-Q-SR (7105381, SG-XPCIEFCOE2-Q-SR)	11	2CPU:41 4CPU:71
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and Twin-AX	SG-PCIEFCOE2-Q-TA (7105382, SG-XPCIEFCOE2-Q-TA)	11	2CPU:41 4CPU:71
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Qlogic	7101673 (7101674)	-	-

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
	with the 16 Gb FC short wave optics	with 7101675 (7101676)	11	2CPU:41 4CPU:71
	with the 16 Gb FC long wave optics	with 7101679 (7101680)	11	2CPU:41 4CPU:71
	with the 10 Gb FCoE short reach optics or TwinAx cables	with 7101677 (7101678) or TwinAx cables	11	2CPU:41 4CPU:71
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Emulex	7101683 (7101684)	-	-
	with the 16 Gb FC short wave optics	with 7101685 (7101686)	11	2CPU:41 4CPU:71
	with the 10 Gb FCoE short reach optics or TwinAx cables	with 7101687 (7101688)	11	2CPU:41 4CPU:71
	8 Gb FC PCIe, QLogic, Dual Port	SG-PCIE2FC-QF8-Z (SG-XPCIE2FC-QF8-N)	11	2CPU:41 4CPU:71
	8 Gb FC PCIe, QLogic, Single Port	SG-PCIE1FC-QF8-Z (SG-XPCIE1FC-QF8-N)	11	2CPU:41 4CPU:71
	8 Gb FC PCIe, Emulex, Dual Port	SG-PCIE2FC-EM8-Z (SG-XPCIE2FC-EM8-N)	11	2CPU:41 4CPU:71
	8 Gb FC PCIe, Emulex, Single Port	SG-PCIE1FC-EM8-Z (SG-XPCIE1FC-EM8-N)	11	2CPU:41 4CPU:71
SAS	Oracle Storage 12 Gb SAS PCIe HBA, external: 8 port (*6)	7110118 (7110119)	11	2CPU:41 4CPU:71
	Sun Storage 6 Gb SAS PCIe HBA: 8 ports, external	SG-SAS6-EXT-Z (7105387, SGX-SAS6-EXT-Z)	11	2CPU:41 4CPU:71
	Sun StorageTek 8-port External SAS PCI-Express Host Bus Adapter	SG-PCIE8SAS-E-Z-N (SG-XPCIE8SAS-E-Z-N)	11	2CPU:41 4CPU:71

Table 2-2   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4 With Oracle Solaris 11
             (Oracle Product ID) *(continued)*

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
FLASH	Fujitsu 3.2 TB Flash Accelerator Card (*7)	7119601 (7119603)	11	2CPU:41 4CPU:71
	Oracle Flash Accelerator F320 PCIe Card (*8)	7113825 (7113826)	11	2CPU:41 4CPU:71
	Flash Accelerator F160 PCIe Card (*9)	7110864 (7110865)	11	2CPU:41 4CPU:71
	Flash Accelerator F80 PCIe Card: 800GB, eMLC	7107091 (7107092)	11	2CPU:41 4CPU:71
	Flash Accelerator F40 card	7104480 (7104482)	11	2CPU:41 4CPU:71
IB	Oracle Dual port QDR InfiniBand Adapter M3	7104073 (7104074)	2CPU:3 (#0,#3,#7) (*10) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) (*10) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Sun InfiniBand QDR Host Channel Adapter PCIe: low profile	4242A (X4242A)	11	2CPU:41 4CPU:71

Table 2-2 Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4 With Oracle Solaris 11 (Oracle Product ID) *(continued)*

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
Graphic	Raptor GFX 550e (*11)(*12)	-	1 (#1,#2)	1 (#1,#2) PCI expansion unit mounting not possible

-: Not applicable

*1 To use the Oracle Quad Port 10GBase-T Adapter, the following SRU and XCP must be applied:

SRU 11.3.22.3.0 or later, XCP 2320 or later

To mount the Oracle Quad Port 10GBase-T Adapter in the PCI expansion unit, PCI expansion unit firmware version 1310 or later must be applied in addition to the above.

For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu M10/SPARC M10 Systems Service Manual*.

*2 Up to five Oracle Quad Port 10GBase-T Adapters can be mounted per PCI expansion unit.

*3 To use the 40 Gb Ethernet card, the following SRU and XCP must be applied:

SRU 11.3.8.7.0 or later, XCP 2320 or later

To mount the 40Gb Ethernet card in the PCI expansion unit, PCI expansion unit firmware version 1310 or later must be applied in addition to the above. For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

*4 To use the Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic, the following SRU must be applied:

SRU 11.3.29.5.0 or later

*5 To use the Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, Emulex, the following SRU must be applied:

SRU 11.3.23.5.0 or later

*6 To use the 12Gbps SAS card, the following SRU and card FW must be applied:

SRU 11.2.8.4.0 or later, card FW: 06.00.00.00 or later

*7 To use the Fujitsu 3.2 TB Flash Accelerator Card, the following SRU and XCP must be applied:

SRU 11.3.28.4.0 or later, XCP 2320 or later

*8 To use the F320 card, the following SRU and XCP must be applied:

SRU 11.3.10.7.0 or later, XCP 2320 or later

*9 To use the F160 card, the following SRU and XCP must be applied:

SRU 11.2.14.4.0 or later, XCP 2260 or later

To mount the F160 card in the PCI expansion unit, PCI expansion unit firmware version 1210 or later must be applied in addition to the above.

For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

In addition, when the PCI expansion unit is to be assigned to a Guest domain while Direct I/O for the PCI expansion unit is unused, perform static allocation and set nvramrc.

{0} ok nvedit

   0: d# 10000 ms

{0} ok nvstore

{0} ok setenv use-nvramrc? true

This setting is unnecessary when XCP 2290 or later is to be applied.

*10 If this card is mounted in Slot#0 in a 2-CPU configuration, Slot#2 cannot be used. If this card is mounted in Slot#3, Slot#5 and #6 cannot be used.

If this card is mounted in Slot#7, Slot#9 and #10 cannot be used.

*11 Oracle Solaris 11.4 and later are not supported. Use the product in an environment with Oracle Solaris 11.3 or earlier.

*12 Sales Contact

EIZO Rugged Solutions, Inc.: ers-info@eizo.com

Shoshin Corporation: is@shoshin.co.jp

The latest driver is available for download from the EIZO Rugged Solutions, Inc. website:

http://www.eizorugged.com/support/drivers/index.html

GFX550e_1.5.tar.Z includes the drivers for Oracle Solaris 11 and Oracle Solaris 10.

2.2.2 If XCP 2050 or Later is Used and Oracle Solaris 10 is Installed on All the Domains or if XCP 2050 or Later is Used and Oracle Solaris 11 and Oracle Solaris 10 are Mixed

Table 2-3　Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4 With Either Oracle Solaris 10 or the Mixture of Oracle Solaris 10 and 11 (Fujitsu Product ID)

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
Link	PCI expansion unit connection card	SPME8LK1F	-	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)
LAN	Dual Gigabit Ethernet card (MMF)	SP1X7GD2F	11	2CPU:41 4CPU:71
	Dual Gigabit Ethernet card (MMF)	SP1X7GD1F	11	2CPU:41 4CPU:71
	Quad Gigabit Ethernet card (UTP)	SP1X7GQ2F	11	2CPU:41 4CPU:71
	Quad Gigabit Ethernet card (UTP)	SP1X7GQ1F	11	2CPU:41 4CPU:71
	Dual 10Gigabit Ethernet card (10GBase-T)	SP1X7HF1F	11 (*1)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Dual 10 Gigabit Ethernet card	SE1X7HE3G	11 (*1)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	**With PCI Expansion Unit**
	Quad 10 Gigabit Ethernet card (*2)	SP1X7HH1F	5	2CPU:20 (*3) 4CPU:35 (*3)
	Dual 40 Gigabit Ethernet card (*4)	SP1X7HG1F	11	2CPU:41 4CPU:71
FCoE	Dual 10Gbps FCoE card (for optical cable)	SE0X7EF12F	11 (*1)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Dual 10Gbps FCoE card (for Copper Twinax cable)	SE0X7EC12F	11 (*1)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Dual-channel 10Gbps FCoE card (for optical cable) (QLogic)	SP1X7FAR2F	11 (*1)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable) (QLogic)	SP1X7FAS2F	11 (*1)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible

Table 2-3   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4 With Either Oracle Solaris
             10 or the Mixture of Oracle Solaris 10 and 11 (Fujitsu Product ID) *(continued)*

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	**With PCI Expansion Unit**
	Dual-channel 10Gbps FCoE card (for optical cable) (Emulex)	SP1X7FBR2F	2CPU:3 (#0,#3,#7) (*5) 4CPU:11	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable) (Emulex)	SP1X7FBS2F	2CPU:3 (#0,#3,#7) (*5) 4CPU:11	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
FC	Dual-channel 32Gbps Fibre Channel card (*6)	SP1X7FAC2F	11	2CPU:41 4CPU:71
	Dual-channel 32Gbps Fibre Channel card (*7)	SP1X7FBC2F	11	2CPU:41 4CPU:71
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FAA2F	11	2CPU:41 4CPU:71
	Dual-channel 16Gbps Fibre Channel card (LR SFP+)	SP1X7FAB2F	11	2CPU:41 4CPU:71
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FBA2F	11	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Quad-channel 16Gbps Fibre Channel card (SR) (*8)	SP0X7FAA4F	11	2CPU:41 4CPU:71
	Dual-channel 8Gbps Fibre Channel card (QLogic)	SE0X7F22F	11	2CPU:41 4CPU:71

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
	Single-channel 8Gbps Fibre Channel card (QLogic)	SE0X7F21F	11	2CPU:41 4CPU:71
	Dual-channel 8Gbps Fibre Channel card (Emulex)	SE0X7F32F	11	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Single-channel 8Gbps Fibre Channel card (Emulex)	SE0X7F31F	11	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
SAS	12Gbps SAS card (*9)	SP1X7SA3F	11	2CPU:41 4CPU:71
	6Gbps SAS card	SE0X7SA2F	11	2CPU:41 4CPU:71
	SAS card	SE0X7SA1F	11	2CPU:41 4CPU:71

Table 2-3   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4 With Either Oracle Solaris 10 or the Mixture of Oracle Solaris 10 and 11 (Fujitsu Product ID) *(continued)*

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
FLASH	3.2 TB Flash Accelerator Card (*10)	SP0X7Y42F	11	2CPU:41 4CPU:71
	Flash Accelerator F320 card (*11)	SP1X7Y41F	11	2CPU:41 4CPU:71
	Flash Accelerator F160 card (*12)	SP1X7Y31F	11	2CPU:41 4CPU:71
	Flash Accelerator F80 card	SP1X7Y21F	11	2CPU:41 4CPU:71
	Flash Accelerator F40 card	SP1X7Y11F	11	2CPU:41 4CPU:71
IB	Dual Port InfiniBand 4x QDR card	SP1X7BA12F	2CPU:3 (#0,#3,#7) (*13) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) (*13) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Dual Port InfiniBand 4x QDR card	SE1X7BA12F	11	2CPU:41 4CPU:71

Table 2-3   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4 With Either Oracle Solaris
            10 or the Mixture of Oracle Solaris 10 and 11 (Fujitsu Product ID) *(continued)*

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	**With PCI Expansion Unit**
Graphic	Graphics card (*14)	SP0X7GR1F	1 (#1,#2)	1 (#1,#2) PCI expansion unit mounting not possible

-: Not applicable

*1 If JumboFrame is used in a 2-CPU configuration, the maximum number of mounted PCI cards is 7 and the available PCI slots are Slot#0, #1, #2, #3, #4, #7, and #8.

*2 To use the Quad 10 Gigabit Ethernet card, the following SRU and XCP must be applied:
SRU 11.3.22.3.0 or later, XCP 2320 or later
To mount the Quad 10 Gigabit Ethernet card in the PCI expansion unit, PCI expansion unit firmware version 1310 or later must be applied in addition to the above.
For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu M10/SPARC M10 Systems Service Manual*.

*3 Up to five Quad 10 Gigabit Ethernet cards can be mounted per PCI expansion unit.

*4 To use the 40 Gb Ethernet card, the following SRU and XCP must be applied:
SRU 11.3.8.7.0 or later, XCP 2320 or later
To mount the 40Gb Ethernet card in the PCI expansion unit, PCI expansion unit firmware version 1310 or later must be applied in addition to the above. For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

*5 If JumboFrame is used in a 2-CPU configuration, this card cannot be mounted.

*6 To use the dual-channel 32Gbps Fibre Channel card, the following SRU must be applied:
SRU 11.3.29.5.0 or later

*7 To use the dual-channel 32Gbps Fibre Channel card, the following SRU must be applied:
SRU 11.3.23.5.0 or later

*8 To use the quad-channel 16Gbps Fibre Channel card, the following SRU must be applied:
SRU 11.3.29.5.0 or later

*9 To use the 12Gbps SAS card, the following SRU must be applied:
SRU 11.2.8.4.0 or later

*10 To use the 3.2 TB Flash Accelerator Card, the following SRU and XCP must be applied:
SRU 11.3.28.4.0 or later, XCP 2320 or later

*11 To use the F320 card, the following SRU and XCP must be applied:
SRU 11.3.10.7.0 or later, XCP 2320 or later

*12 To use the F160 card, the following SRU and XCP must be applied:
SRU 11.2.11.5.0 or later, XCP 2260 or later
To mount the F160 card in the PCI expansion unit, PCI expansion unit firmware version 1210 or later must be applied in addition to the above.
For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.
In addition, when the PCI expansion unit is to be assigned to a Guest domain while Direct I/O for the PCI expansion unit is unused, perform static allocation and set nvramrc.
{0} ok nvedit
    0: d# 10000 ms
{0} ok nvstore
{0} ok setenv use-nvramrc? true
This setting is unnecessary when XCP 2290 or later is to be applied.

*13 If this card is mounted in Slot#0 in a 2-CPU configuration, Slot#2 cannot be used. If this card is mounted in Slot#3, Slot#5 and #6 cannot be used.
If this card is mounted in Slot#7, Slot#9 and #10 cannot be used.

*14 Oracle Solaris 11.4 and later are not supported. Use the product in an environment with Oracle Solaris 11.3 or earlier.

Table 2-4   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4 With Either Oracle Solaris 10 or the Mixture of Oracle Solaris 10 and 11 (Oracle Product ID)

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
Link	Link card kit	7105513 (7105576)	-	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)
LAN	Sun Dual Port GbE PCIe 2.0 Low Profile Adapter, MMF	7100482 (7100481)	11	2CPU:41 4CPU:71
	Sun Quad Port GbE PCIe 2.0 Low Profile Adapter, UTP	7100479 (7100477)	11	2CPU:41 4CPU:71
	Sun Dual Port 10GBase-T Adapter	7100563 (7100488)	11 (*1)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Sun Dual 10 GbE SFP+ PCIe 2.0 Low Profile Adapter	1109A-Z (X1109A-Z)	11 (*1)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Oracle Quad Port 10GBase-T Adapter (*2)	7111182 (7111181)	5	2CPU:20 (*3) 4CPU:35 (*3)
	Oracle Quad 10 Gb or Dual 40 Gb Ethernet Adapter (*4)	7114148 (7114134)	11	2CPU:41 4CPU:71

Type	Product Name	Factory-Mounted Product ID When Shipped	Maximum Number Mounted	
		(Expanded-on-Site Product ID)	Without PCI Expansion Unit	With PCI Expansion Unit
	PCIe Quad port GigE (copper) x8 lane card	4447A-Z-N (X4447A-Z-N)	11 (*1)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	PCI-E Low-Profile Dual GigE MMF	7281A-2-N (X7281A-2-N)	11 (*1)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
FC/FCoE	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic (*5)	7115460 (7115462)	11	2CPU:41 4CPU:71
	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, Emulex (*6)	7115459 (7115461)	11	2CPU:41 4CPU:71
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and SR optics	SG-PCIEFCOE2-Q-SR (7105381, SG-XPCIEFCOE2-Q-SR)	11 (*1)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible

Type	Product Name	Factory-Mounted Product ID When Shipped	Maximum Number Mounted	
		(Expanded-on-Site Product ID)	Without PCI Expansion Unit	With PCI Expansion Unit
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and Twin-AX	SG-PCIEFCOE2-Q-TA (7105382, SG-XPCIEFCOE2-Q-TA)	11 (*1)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Qlogic	7101673 (7101674)	-	-
	with the 16 Gb FC short wave optics	with 7101675 (7101676)	11	2CPU:41 4CPU:71
	with the 16 Gb FC long wave optics	with 7101679 (7101680)	11	2CPU:41 4CPU:71
	with the 10 Gb FCoE short reach optics or TwinAx cables	with 7101677 (7101678) or TwinAx cables	11 (*1)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Emulex	7101683 (7101684)	-	-
	with the 16 Gb FC short wave optics	with 7101685 (7101686)	11	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
	with the 10 Gb FCoE short reach optics or TwinAx cables	with 7101687 (7101688)	2CPU:3 (#0,#3,#7) (*7) 4CPU:11	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	8 Gb FC PCIe, QLogic, Dual Port	SG-PCIE2FC-QF8-Z (SG-XPCIE2FC-QF8-N)	11	2CPU:41 4CPU:71
	8 Gb FC PCIe, QLogic, Single Port	SG-PCIE1FC-QF8-Z (SG-XPCIE1FC-QF8-N)	11	2CPU:41 4CPU:71
	8 Gb FC PCIe, Emulex, Dual Port	SG-PCIE2FC-EM8-Z (SG-XPCIE2FC-EM8-N)	11	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	8 Gb FC PCIe, Emulex, Single Port	SG-PCIE1FC-EM8-Z (SG-XPCIE1FC-EM8-N)	11	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
SAS	Oracle Storage 12 Gb SAS PCIe HBA, external: 8 port (*8)	7110118 (7110119)	11	2CPU:41 4CPU:71
	Sun Storage 6 Gb SAS PCIe HBA: 8 ports, external	SG-SAS6-EXT-Z (7105387, SGX-SAS6-EXT-Z)	11	2CPU:41 4CPU:71

Table 2-4   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4 With Either Oracle Solaris
             10 or the Mixture of Oracle Solaris 10 and 11 (Oracle Product ID) *(continued)*

Type	Product Name	Factory-Mounted Product ID When Shipped	Maximum Number Mounted	
		(Expanded-on-Site Product ID)	Without PCI Expansion Unit	With PCI Expansion Unit
	Sun StorageTek 8-port External SAS PCI-Express Host Bus Adapter	SG-PCIE8SAS-E-Z-N (SG-XPCIE8SAS-E-Z-N)	11	2CPU:41 4CPU:71
FLASH	Fujitsu 3.2 TB Flash Accelerator Card (*9)	7119601 (7119603)	11	2CPU:41 4CPU:71
	Oracle Flash Accelerator F320 PCIe Card (*10)	7113825 (7113826)	11	2CPU:41 4CPU:71
	Flash Accelerator F160 PCIe Card (*11)	7110864 (7110865)	11	2CPU:41 4CPU:71
	Flash Accelerator F80 PCIe Card: 800GB, eMLC	7107091 (7107092)	11	2CPU:41 4CPU:71
	Flash Accelerator F40 card	7104480 (7104482)	11	2CPU:41 4CPU:71
IB	Oracle Dual port QDR InfiniBand Adapter M3	7104073 (7104074)	2CPU:3 (#0,#3,#7) (*12) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) (*12) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Sun InfiniBand QDR Host Channel Adapter PCIe: low profile	4242A (X4242A)	11	2CPU:41 4CPU:71
Graphic	Raptor GFX 550e (*13)(*14)	-	1 (#1,#2)	1 (#1,#2) PCI expansion unit mounting not possible

-: Not applicable
*1 If JumboFrame is used in a 2-CPU configuration, the maximum number of mounted PCI cards is 7 and the available PCI slots are Slot#0, #1, #2, #3, #4, #7, and #8.
*2 To use the Oracle Quad Port 10GBase-T Adapter, the following SRU and XCP must be applied:
SRU 11.3.22.3.0 or later, XCP 2320 or later
To mount the Oracle Quad Port 10GBase-T Adapter in the PCI expansion unit, PCI expansion unit firmware version 1310 or later must be applied in addition to the above.
For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu M10/SPARC M10 Systems Service Manual*.
*3 Up to five Oracle Quad Port 10GBase-T Adapters can be mounted per PCI expansion unit.

Type	Product Name	Factory-Mounted Product ID When Shipped	Maximum Number Mounted	
		(Expanded-on-Site Product ID)	Without PCI Expansion Unit	With PCI Expansion Unit

*4 To use the 40 Gb Ethernet card, the following SRU and XCP must be applied:

SRU 11.3.8.7.0 or later, XCP 2320 or later

To mount the 40Gb Ethernet card in the PCI expansion unit, PCI expansion unit firmware version 1310 or later must be applied in addition to the above. For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

*5 To use the Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic, the following SRU must be applied:

SRU 11.3.29.5.0 or later

*6 To use the Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, Emulex, the following SRU must be applied:

SRU 11.3.23.5.0 or later

*7 If JumboFrame is used in a 2-CPU configuration, this card cannot be mounted.

*8 To use the 12Gbps SAS card, the following SRU and card FW must be applied:

SRU 11.2.8.4.0 or later, card FW: 06.00.00.00 or later

*9 To use the Fujitsu 3.2 TB Flash Accelerator Card, the following SRU and XCP must be applied:

SRU 11.3.28.4.0 or later, XCP 2320 or later

*10 To use the F320 card, the following SRU and XCP must be applied:

SRU 11.3.10.7.0 or later, XCP 2320 or later

*11 To use the F160 card, the following SRU and XCP must be applied:

SRU 11.2.14.4.0 or later, XCP 2260 or later

To mount the F160 card in the PCI expansion unit, PCI expansion unit firmware version 1210 or later must be applied in addition to the above.

For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

In addition, when the PCI expansion unit is to be assigned to a Guest domain while Direct I/O for the PCI expansion unit is unused, perform static allocation and set nvramrc.

{0} ok nvedit

  0: d# 10000 ms

{0} ok nvstore

{0} ok setenv use-nvramrc? true

This setting is unnecessary when XCP 2290 or later is to be applied.

*12 If this card is mounted in Slot#0 in a 2-CPU configuration, Slot#2 cannot be used. If this card is mounted in Slot#3, Slot#5 and #6 cannot be used.

If this card is mounted in Slot#7, Slot#9 and #10 cannot be used.

*13 Oracle Solaris 11.4 and later are not supported. Use the product in an environment with Oracle Solaris 11.3 or earlier.

*14 Sales Contact

EIZO Rugged Solutions, Inc.: ers-info@eizo.com

Shoshin Corporation: is@shoshin.co.jp

The latest driver is available for download from the EIZO Rugged Solutions, Inc. website:

http://www.eizorugged.com/support/drivers/index.html

GFX550e_1.5.tar.Z includes the drivers for Oracle Solaris 11 and Oracle Solaris 10.

2.2.3 XCP 2044 or Earlier

Table 2-5   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4 With XCP 2044 or Earlier
(Fujitsu Product ID)

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
Link	PCI expansion unit connection card	SPME8LK1F	-	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)
LAN	Dual Gigabit Ethernet card (MMF)	SP1X7GD2F	11	2CPU:41 4CPU:71
	Dual Gigabit Ethernet card (MMF)	SP1X7GD1F	11	2CPU:41 4CPU:71
	Quad Gigabit Ethernet card (UTP)	SP1X7GQ2F	11	2CPU:41 4CPU:71
	Quad Gigabit Ethernet card (UTP)	SP1X7GQ1F	11	2CPU:41 4CPU:71
	Dual 10Gigabit Ethernet card (10GBase-T)	SP1X7HF1F	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Dual 10 Gigabit Ethernet card	SE1X7HE3G	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Quad 10 Gigabit Ethernet card	SP1X7HH1F	-	-
	Dual 40 Gigabit Ethernet card	SP1X7HG1F	-	-

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	**With PCI Expansion Unit**
FCoE	Dual 10Gbps FCoE card (for optical cable)	SE0X7EF12F	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Dual 10Gbps FCoE card (for Copper Twinax cable)	SE0X7EC12F	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Dual-channel 10Gbps FCoE card (for optical cable) (QLogic)	SP1X7FAR2F	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable) (QLogic)	SP1X7FAS2F	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
	Dual-channel 10Gbps FCoE card (for optical cable) (Emulex)	SP1X7FBR2F	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable) (Emulex)	SP1X7FBS2F	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
FC	Dual-channel 32 Gbps Fibre Channel card	SP1X7FAC2F	-	-
	Dual-channel 32 Gbps Fibre Channel card	SP1X7FBC2F	-	-
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FAA2F	11	2CPU:41 4CPU:71
	Dual-channel 16Gbps Fibre Channel card (LR SFP+)	SP1X7FAB2F	11	2CPU:41 4CPU:71
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FBA2F	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Quad-channel 16Gbps Fibre Channel card (SR)	SP0X7FAA4F	-	-
	Dual-channel 8Gbps Fibre Channel card (QLogic)	SE0X7F22F	11	2CPU:41 4CPU:71

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	**With PCI Expansion Unit**
	Single-channel 8Gbps Fibre Channel card (QLogic)	SE0X7F21F	11	2CPU:41 4CPU:71
	Dual-channel 8Gbps Fibre Channel card (Emulex)	SE0X7F32F	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Single-channel 8Gbps Fibre Channel card (Emulex)	SE0X7F31F	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
SAS	12Gbps SAS card (*1)	SP1X7SA3F	11	2CPU:41 4CPU:71
	6Gbps SAS card	SE0X7SA2F	11	2CPU:41 4CPU:71
	SAS card	SE0X7SA1F	11	2CPU:41 4CPU:71
FLASH	3.2 TB Flash Accelerator Card	SP0X7Y42F	-	-
	Flash Accelerator F320 card	SP1X7Y41F	-	-
	Flash Accelerator F160 card	SP1X7Y31F	-	-
	Flash Accelerator F80 card	SP1X7Y21F	11	2CPU:41 4CPU:71
	Flash Accelerator F40 card	SP1X7Y11F	11	2CPU:41 4CPU:71

Table 2-5   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4 With XCP 2044 or Earlier (Fujitsu Product ID) *(continued)*

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
IB	Dual Port InfiniBand 4x QDR card	SP1X7BA12F	2CPU:3 (#0,#3,#7) (*2) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) (*2) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Dual Port InfiniBand 4x QDR card	SE1X7BA12F	11	2CPU:41 4CPU:71
Graphic	Graphics card	SP0X7GR1F	1 (#1,#2)	1 (#1,#2) PCI expansion unit mounting not possible

-: Not applicable
*1 To use the 12Gbps SAS card, the following SRU must be applied:
SRU 11.2.8.4.0 or later
*2 If this card is mounted in Slot#0 in a 2-CPU configuration, Slot#2 cannot be used. If this card is mounted in Slot#3, Slot#5 and #6 cannot be used.
If this card is mounted in Slot#7, Slot#9 and #10 cannot be used.

Table 2-6   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4 With XCP 2044 or Earlier (Oracle Product ID)

Type	Product Name	Factory-Mounted Product ID When Shipped	Maximum Number Mounted	
		(Expanded-on-Site Product ID)	Without PCI Expansion Unit	With PCI Expansion Unit
Link	Link card kit	7105513 (7105576)	-	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)
LAN	Sun Dual Port GbE PCIe 2.0 Low Profile Adapter, MMF	7100482 (7100481)	11	2CPU:41 4CPU:71
	Sun Quad Port GbE PCIe 2.0 Low Profile Adapter, UTP	7100479 (7100477)	11	2CPU:41 4CPU:71

Type	Product Name	Factory-Mounted Product ID When Shipped	Maximum Number Mounted	
		(Expanded-on-Site Product ID)	Without PCI Expansion Unit	With PCI Expansion Unit
	Sun Dual Port 10GBase-T Adapter	7100563 (7100488)	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Sun Dual 10 GbE SFP+ PCIe 2.0 Low Profile Adapter	1109A-Z (X1109A-Z)	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Oracle Quad Port 10GBase-T Adapter	7111182 (7111181)	-	-
	Oracle Quad 10 Gb or Dual 40 Gb Ethernet Adapter	7114148 (7114134)	-	-
	PCIe Quad port GigE (copper) x8 lane card	4447A-Z-N (X4447A-Z-N)	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible

Table 2-6 Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4 With XCP 2044 or Earlier (Oracle Product ID) *(continued)*

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
	PCI-E Low-Profile Dual GigE MMF	7281A-2-N (X7281A-2-N)	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
FC/FCoE	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic	7115460 (7115462)	-	-
	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, Emulex	7115459 (7115461)	-	-
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and SR optics	SG-PCIEFCOE2-Q-SR (7105381, SG-XPCIEFCOE2-Q-SR)	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and Twin-AX	SG-PCIEFCOE2-Q-TA (7105382, SG-XPCIEFCOE2-Q-TA)	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Qlogic	7101673 (7101674)	-	-
	with the 16 Gb FC short wave optics	with 7101675 (7101676)	11	2CPU:41 4CPU:71

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
	with the 16 Gb FC long wave optics	with 7101679 (7101680)	11	2CPU:41 4CPU:71
	with the 10 Gb FCoE short reach optics or TwinAx cables	with 7101677 (7101678) or TwinAx cables	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Emulex	7101683 (7101684)	-	-
	with the 16 Gb FC short wave optics	with 7101685 (7101686)	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	with the 10 Gb FCoE short reach optics or TwinAx cables	with 7101687 (7101688)	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	8 Gb FC PCIe, QLogic, Dual Port	SG-PCIE2FC-QF8-Z (SG-XPCIE2FC-QF8-N)	11	2CPU:41 4CPU:71
	8 Gb FC PCIe, QLogic, Single Port	SG-PCIE1FC-QF8-Z (SG-XPCIE1FC-QF8-N)	11	2CPU:41 4CPU:71

Table 2-6 Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4 With XCP 2044 or Earlier (Oracle Product ID) *(continued)*

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
	8 Gb FC PCIe, Emulex, Dual Port	SG-PCIE2FC-EM8-Z (SG-XPCIE2FC-EM8-N)	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	8 Gb FC PCIe, Emulex, Single Port	SG-PCIE1FC-EM8-Z (SG-XPCIE1FC-EM8-N)	2CPU:3 (#0,#3,#7) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
SAS	Oracle Storage 12 Gb SAS PCIe HBA, external: 8 port (*1)	7110118 (7110119)	11	2CPU:41 4CPU:71
	Sun Storage 6 Gb SAS PCIe HBA: 8 ports, external	SG-SAS6-EXT-Z (7105387, SGX-SAS6-EXT-Z)	11	2CPU:41 4CPU:71
	Sun StorageTek 8-port External SAS PCI-Express Host Bus Adapter	SG-PCIE8SAS-E-Z-N (SG-XPCIE8SAS-E-Z-N)	11	2CPU:41 4CPU:71
FLASH	Fujitsu 3.2 TB Flash Accelerator Card	7119601 (7119603)	-	-
	Oracle Flash Accelerator F320 PCIe Card	7113825 (7113826)	-	-
	Flash Accelerator F160 PCIe Card	7110864 (7110865)	-	-
	Flash Accelerator F80 PCIe Card: 800GB, eMLC	7107091 (7107092)	11	2CPU:41 4CPU:71
	Flash Accelerator F40 card	7104480 (7104482)	11	2CPU:41 4CPU:71

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
IB	Oracle Dual port QDR InfiniBand Adapter M3	7104073 (7104074)	2CPU:3 (#0,#3,#7) (*2) 4CPU:6 (#0,#1,#3,#5, #7,#9)	2CPU:2 (#0,#3,#7) (*2) 4CPU:5 (#0,#1,#3,#5, #7,#9) PCI expansion unit mounting not possible
	Sun InfiniBand QDR Host Channel Adapter PCIe: low profile	4242A (X4242A)	11	2CPU:41 4CPU:71
Graphic	Raptor GFX 550e (*3)	-	1 (#1,#2)	1 (#1,#2) PCI expansion unit mounting not possible

-: Not applicable
*1 To use the 12Gbps SAS card, the following SRU and card FW must be applied:
SRU 11.2.8.4.0 or later, card FW: 06.00.00.00 or later
*2 If this card is mounted in Slot#0 in a 2-CPU configuration, Slot#2 cannot be used. If this card is mounted in Slot#3, Slot#5 and #6 cannot be used.
If this card is mounted in Slot#7, Slot#9 and #10 cannot be used.
*3 Sales Contact
EIZO Rugged Solutions, Inc.: ers-info@eizo.com
Shoshin Corporation: is@shoshin.co.jp
The latest driver is available for download from the EIZO Rugged Solutions, Inc. website:
http://www.eizorugged.com/support/drivers/index.html
GFX550e_1.5.tar.Z includes the drivers for Oracle Solaris 11 and Oracle Solaris 10.

2.3   Relationship Between the CPU Configuration and the Number of Root Complexes

The 2-CPU configuration of the SPARC M10-4 consists of four root complexes, and the 4-CPU configuration consists of four or eight root complexes. A root complex consists of an I/O controller mounted on a processor and the PCI switches, PCI devices, etc. under the I/O controller.

The number of root complexes when a CPU memory unit is installed on site is kept at the default value of 4, by default. In this case, the system configuration can be kept as is since the I/O bus is not reconfigured, but the PCI card mounting rules are also kept, so they are the same as those for the 2-CPU configuration.

To change the number of root complexes to eight, the system administrator needs to change the XSCF settings to reconfigure the I/O bus reconfiguration. For details on the setting method, see the man page for the setpparmode(8) command or the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 XSCF Reference Manual*. Changing the number of root complexes to eight increases the maximum number of mounted PCI cards. However, because device path names change with the reconfiguration of the I/O bus, system reconfiguration such as to set a device path name again may be required for any device path names used by applications.

Table 2-7   Relationship Between the CPU Configuration and the Number of Root Complexes

	Order for M10-4 Only	Order for CPU Memory Unit		
		Ordered Together With M10-4 (Installed at Factory)	Ordered Separately From M10-4 (Installed on Site)	
			Without I/O Bus Reconfiguration	With I/O Bus Reconfiguration
Number of CPUs	2	4	4	4
Number of root complexes	4	8	4	8

Figure 2-1 is a hardware configuration diagram of the SPARC M10-4 with two CPUs. Figure 2-2 is a hardware configuration diagram of the SPARC M10-4 with four CPUs (four root complexes). Figure 2-3 is a hardware configuration diagram of the SPARC M10-4 with four CPUs (eight root complexes).

Figure 2-1   Hardware Configuration Diagram of the SPARC M10-4 With 2 CPUs
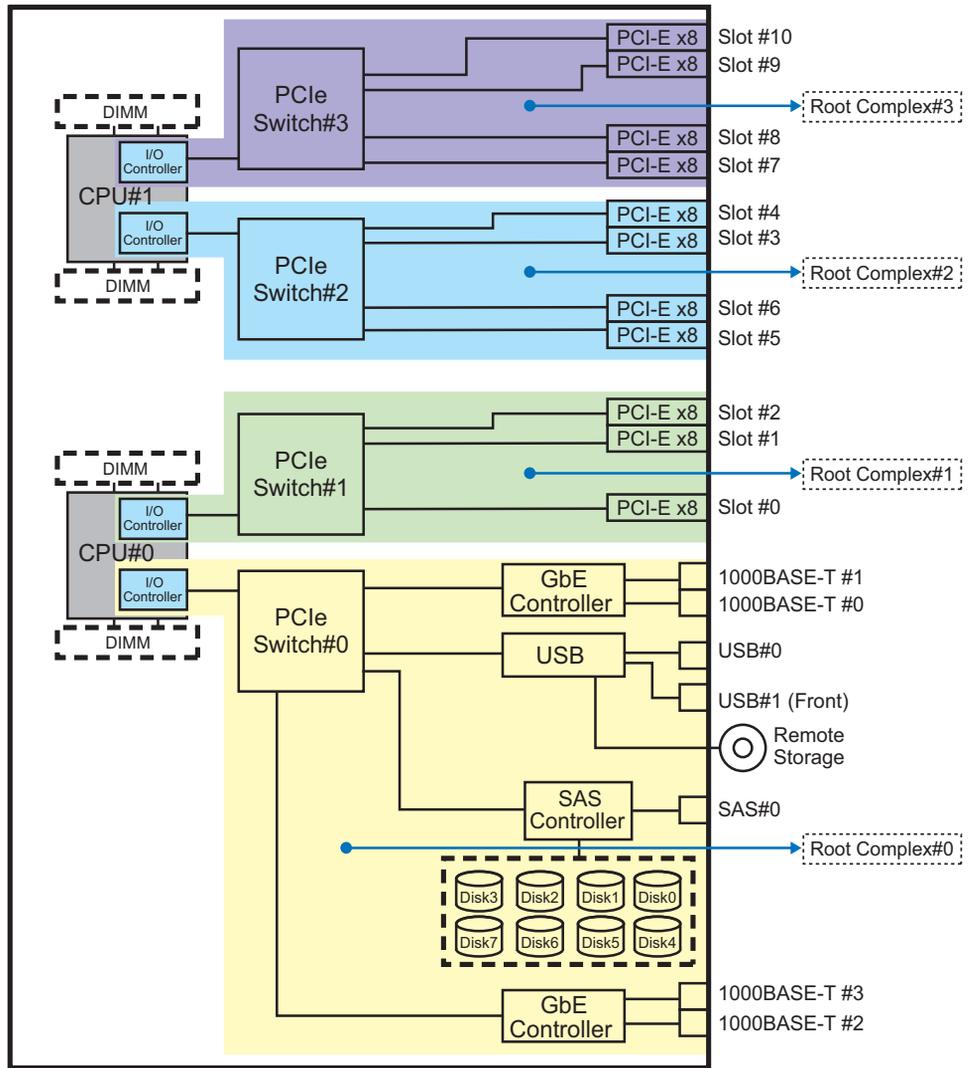
Figure 2-2   Hardware Configuration Diagram of the SPARC M10-4 With 4 CPUs
(4 Root Complexes)
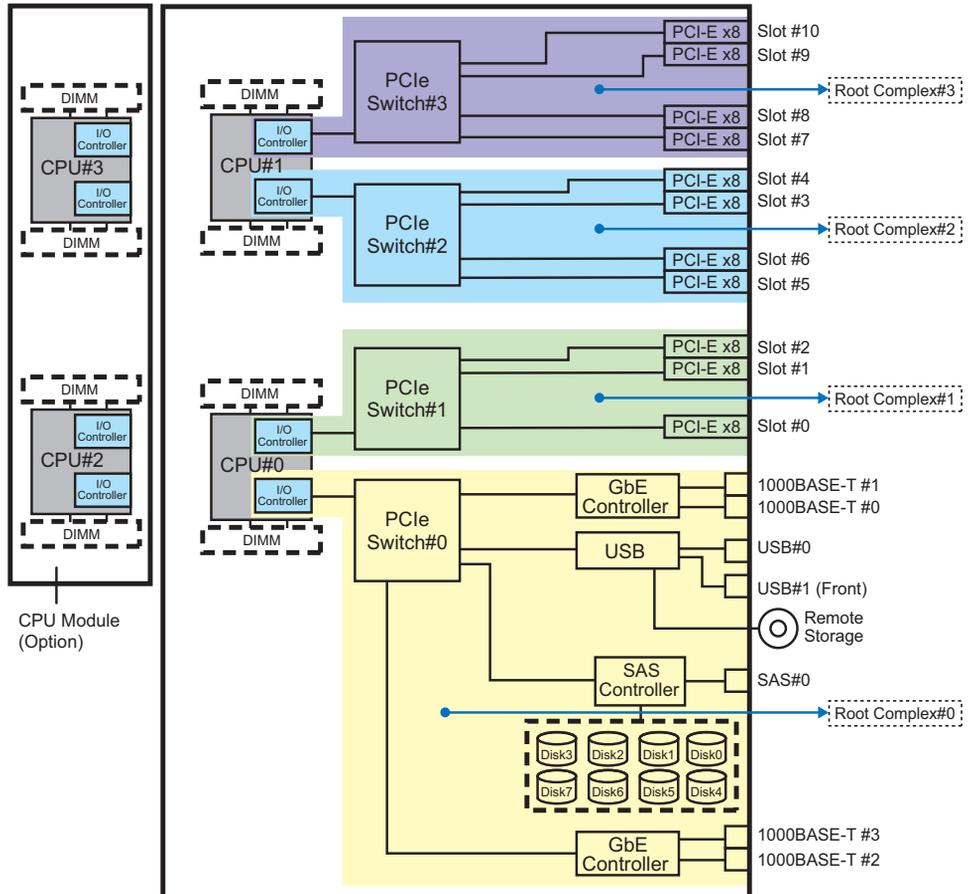
Figure 2-3   Hardware Configuration Diagram of the SPARC M10-4 With 4 CPUs
(8 Root Complexes)
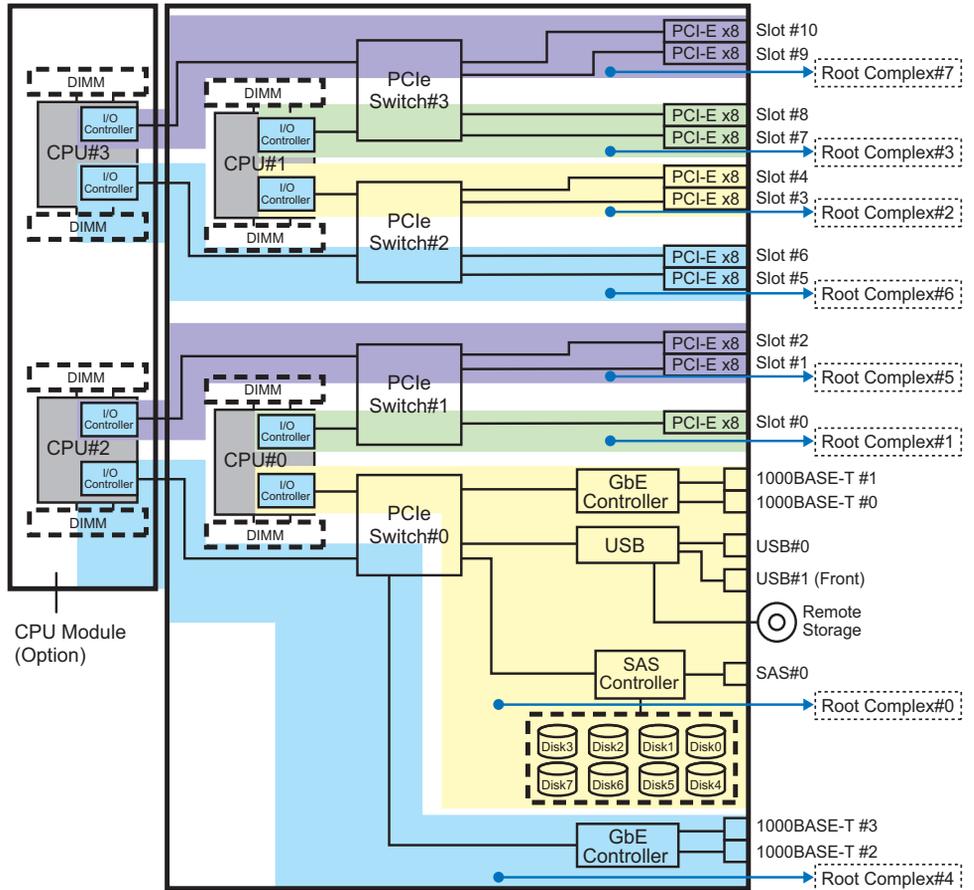
Chapter 3

PCI Card Mounting Rules for the SPARC M10-4S

This chapter describes the maximum number of each type of mounted PCI card and the rules for mounting PCI cards in PCI slots when mounting PCI cards in the SPARC M10-4S.
Be sure to observe these mounting rules when designing the system and when installing a PCI card or changing the mounting location of a PCI card.

- Prerequisites
- Maximum Number of Each Type of Mounted PCI Card and Available PCI Slots
- Relationship Between the CPU Configuration and the Number of Root Complexes

3.1 Prerequisites

- Domain OS
- System Firmware XCP Version
- Number of CPUs and Number of Root Complexes

3.1.1 Domain OS

The maximum number of each type of mounted PCI card and the available PCI slots may vary depending on the version of the Oracle Solaris that is installed on the domain.
Mounting rules vary depending on whether all OS versions of the control domain, root domain, and I/O domain are Oracle Solaris 11 only, Oracle Solaris 10 only, or a mixture of the two.
If an Oracle Solaris 10 environment is used in the following configurations, apply the rules for Oracle Solaris 11.

- A guest domain of an Oracle Solaris 10 environment is configured using the virtual I/O services of a control domain or the root domain of Oracle Solaris 11.

- An Oracle Solaris 10 zone is configured on an Oracle Solaris 11 domain.

If there are plans to add a root domain or I/O domain of Oracle Solaris 10 after the start of system operation, apply the rules for Oracle Solaris 10.

Note - For details on the design of control domain, root domain, and I/O domain configurations, see the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Domain Configuration Guide*.

3.1.2 System Firmware XCP Version

The maximum number of each type of mounted PCI card and the slots available for mounting may vary depending on the system firmware version. For XCP 2050 or later, see the tables in "3.2.1 If XCP 2050 or Later is Used and Oracle Solaris 11 is Installed on All the Domains" and "3.2.2 If XCP 2050 or Later is Used and Oracle Solaris 10 is Installed on All the Domains or if XCP 2050 or Later is Used and Oracle Solaris 11 and Oracle Solaris 10 are Mixed" according to the Oracle Solaris version. For XCP 2044 or earlier, see "3.2.3 XCP 2044 or Earlier" regardless of the Oracle Solaris version.

3.1.3 Number of CPUs and Number of Root Complexes

A root complex consists of an I/O controller mounted on a processor and the PCI switches, PCI devices, etc. under the I/O controller.
For details, see "3.3 Relationship Between the CPU Configuration and the Number of Root Complexes."

The maximum number of each type of mounted PCI card and the available PCI slots vary depending on the number of root complexes. The number of root complexes of the SPARC M10-4S is as follows according to the CPU configuration.

- For a 2-CPU configuration, four root complexes
- For a 4-CPU configuration, four or seven root complexes

Note - For cases where a CPU module is installed after the installation of the equipment with a change from the 2-CPU configuration to the 4-CPU configuration, the recommended configuration is the one with four root complexes. This configuration inherits the I/O bus configuration and mounting rules of the 2-CPU configuration. Changing the configuration into one with seven root complexes increases the maximum number of mounted PCI cards. However, system reconfiguration is required because the I/O bus is reconfigured.

3.2 Maximum Number of Each Type of Mounted PCI Card and Available PCI Slots

For the maximum number of each type of mounted PCI card and the available PCI slots, see Table 3-1 to Table 3-6 according to the domain OS version.

■ "Maximum number mounted" means the maximum number of PCI cards that can be mounted in the SPARC M10-4S or PCI expansion unit. The numbers in ( ) indicate the slot numbers where cards can be mounted, among the PCI slots of the SPARC M10-4S. If there are no ( ), all of the slots are available for mounting. In any PCI expansion unit where cards can be mounted, all of the slots are available for mounting.

■ "2CPU" and "4CPU" under "Maximum number mounted" in the tables refer to the following cases.
  - 2CPU: Configuration with 4 root complexes
    In one case, a CPU memory unit has not been installed.
    In another case, a CPU memory unit has been installed on site, and the I/O bus has not been reconfigured.

  - 4CPU: Configuration with 7 root complexes
    In one case, a CPU memory unit has been ordered together with the server (installed at the factory).
    In another case, a CPU memory unit has been installed on site and the I/O bus has been reconfigured.

■ The SPARC M10 has an I/O bandwidth of 8 GB/s (simplex) per root complex. The bandwidth between the PCI expansion unit and the SPARC M10 is also 8 GB/s. Therefore, if multiple PCI cards operating at the same time share that bandwidth, each PCI card may not demonstrate the maximum performance. If a high-speed communication card requires a certain level of performance, take the following measures to secure the bandwidth.
  - Mount the card in a PCI slot in the SPARC M10-4S instead of in an PCI expansion unit.

  - Avoid mounting another PCI card in a PCI slot of the same root complex.

3.2.1　If XCP 2050 or Later is Used and Oracle Solaris 11 is Installed on All the Domains

Table 3-1　Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4S With Oracle Solaris 11 (Fujitsu Product ID)

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
Link	PCI expansion unit connection card	SPME8LK1F	-	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)
LAN	Dual Gigabit Ethernet card (MMF)	SP1X7GD2F	8	2CPU:38 4CPU:58
	Dual Gigabit Ethernet card (MMF)	SP1X7GD1F	8	2CPU:38 4CPU:58
	Quad Gigabit Ethernet card (UTP)	SP1X7GQ2F	8	2CPU:38 4CPU:58
	Quad Gigabit Ethernet card (UTP)	SP1X7GQ1F	8	2CPU:38 4CPU:58
	Dual 10Gigabit Ethernet card (10GBase-T)	SP1X7HF1F	8	2CPU:38 4CPU:58
	Dual 10Gigabit Ethernet card	SE1X7HE3G	8	2CPU:38 4CPU:58
	Quad 10 Gigabit Ethernet card (*1)	SP1X7HH1F	4	2CPU:19 (*2) 4CPU:28 (*2)
	Dual 40 Gigabit Ethernet card (*3)	SP1X7HG1F	8	2CPU:38 4CPU:58
FCoE	Dual 10Gbps FCoE card (for optical cable)	SE0X7EF12F	8	2CPU:38 4CPU:58
	Dual 10Gbps FCoE card (for Copper Twinax cable)	SE0X7EC12F	8	2CPU:38 4CPU:58
	Dual-channel 10Gbps FCoE card (for optical cable) (QLogic)	SP1X7FAR2F	8	2CPU:38 4CPU:58
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable) (QLogic)	SP1X7FAS2F	8	2CPU:38 4CPU:58
	Dual-channel 10Gbps FCoE card (for optical cable) (Emulex)	SP1X7FBR2F	8	2CPU:38 4CPU:58
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable) (Emulex)	SP1X7FBS2F	8	2CPU:38 4CPU:58

Table 3-1   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4S With Oracle Solaris 11
             (Fujitsu Product ID) *(continued)*

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	**With PCI Expansion Unit**
FC	Dual-channel 32Gbps Fibre Channel card (*4)	SP1X7FAC2F	8	2CPU:38 4CPU:58
	Dual-channel 32Gbps Fibre Channel card (*5)	SP1X7FBC2F	8	2CPU:38 4CPU:58
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FAA2F	8	2CPU:38 4CPU:58
	Dual-channel 16Gbps Fibre Channel card (LR SFP+)	SP1X7FAB2F	8	2CPU:38 4CPU:58
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FBA2F	8	2CPU:38 4CPU:58
	Quad-channel 16Gbps Fibre Channel card (SR) (*6)	SP0X7FAA4F	8	2CPU:38 4CPU:58
	Dual-channel 8Gbps Fibre Channel card (QLogic)	SE0X7F22F	8	2CPU:38 4CPU:58
	Single-channel 8Gbps Fibre Channel card (QLogic)	SE0X7F21F	8	2CPU:38 4CPU:58
	Dual-channel 8Gbps Fibre Channel card (Emulex)	SE0X7F32F	8	2CPU:38 4CPU:58
	Single-channel 8Gbps Fibre Channel card (Emulex)	SE0X7F31F	8	2CPU:38 4CPU:58
SAS	12Gbps SAS card (*7)	SP1X7SA3F	8	2CPU:38 4CPU:58
	6Gbps SAS card	SE0X7SA2F	8	2CPU:38 4CPU:58
	SAS card	SE0X7SA1F	8	2CPU:38 4CPU:58

Table 3-1   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4S With Oracle Solaris 11
(Fujitsu Product ID) *(continued)*

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
FLASH	3.2 TB Flash Accelerator Card (*8)	SP0X7Y42F	8	2CPU:38 4CPU:58
	Flash Accelerator F320 card (*9)	SP1X7Y41F	8	2CPU:38 4CPU:58
	Flash Accelerator F160 card (*10)	SP1X7Y31F	8	2CPU:38 4CPU:58
	Flash Accelerator F80 card	SP1X7Y21F	8	2CPU:38 4CPU:58
	Flash Accelerator F40 card	SP1X7Y11F	8	2CPU:38 4CPU:58
IB	Dual Port InfiniBand 4x QDR card	SP1X7BA12F	2CPU:3 (#0,#3,#7) (*11) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) (*11) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Dual Port InfiniBand 4x QDR card	SE1X7BA12F	8	2CPU:38 4CPU:58

Table 3-1 Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4S With Oracle Solaris 11 (Fujitsu Product ID) *(continued)*

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	**With PCI Expansion Unit**
Graphic	Graphics card (*12)	SP0X7GR1F	1 (#1,#2)	1 (#1,#2) PCI expansion unit mounting not possible

-: Not applicable

*1 To use the Quad 10 Gigabit Ethernet card, the following SRU and XCP must be applied:

SRU 11.3.22.3.0 or later, XCP 2320 or later

To mount the Quad 10 Gigabit Ethernet card in the PCI expansion unit, PCI expansion unit firmware version 1310 or later must be applied in addition to the above.

For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu M10/SPARC M10 Systems Service Manual*.

*2 Up to five Quad 10 Gigabit Ethernet cards can be mounted per PCI expansion unit.

*3 To use the 40 Gb Ethernet card, the following SRU and XCP must be applied:

SRU 11.3.8.7.0 or later, XCP 2320 or later

To mount the 40Gb Ethernet card in the PCI expansion unit, PCI expansion unit firmware version 1310 or later must be applied in addition to the above. For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

*4 To use the dual-channel 32Gbps Fibre Channel card, the following SRU must be applied:

SRU 11.3.29.5.0 or later

*5 To use the dual-channel 32Gbps Fibre Channel card, the following SRU must be applied:

SRU 11.3.23.5.0 or later

*6 To use the quad-channel 16Gbps Fibre Channel card, the following SRU must be applied:

SRU 11.3.29.5.0 or later

*7 To use the 12Gbps SAS card, the following SRU must be applied:

SRU 11.2.8.4.0 or later

*8 To use the 3.2 TB Flash Accelerator Card, the following SRU and XCP must be applied:

SRU 11.3.28.4.0 or later, XCP 2320 or later

*9 To use the F320 card, the following SRU and XCP must be applied:

SRU 11.3.10.7.0 or later, XCP 2320 or later

*10 To use the F160 card, the following SRU and XCP must be applied:

SRU 11.2.11.5.0 or later, XCP 2260 or later

To mount the F160 card in the PCI expansion unit, PCI expansion unit firmware version 1210 or later must be applied in addition to the above.

For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

In addition, when the PCI expansion unit is to be assigned to a Guest domain while Direct I/O for the PCI expansion unit is unused, perform static allocation and set nvramrc.

{0} ok nvedit
    0: d# 10000 ms
{0} ok nvstore
{0} ok setenv use-nvramrc? true

This setting is unnecessary when XCP 2290 or later is to be applied.

*11 If this card is mounted in Slot#0 in a 2-CPU configuration, Slot#2 cannot be used. If this card is mounted in Slot#3, Slot#5 and #6 cannot be used.

*12 Oracle Solaris 11.4 and later are not supported. Use the product in an environment with Oracle Solaris 11.3 or earlier.

Table 3-2   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4S With Oracle Solaris 11
             (Oracle Product ID)

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
Link	Link card kit	7105513 (7105576)	-	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)
LAN	Sun Dual Port GbE PCIe 2.0 Low Profile Adapter, MMF	7100482 (7100481)	8	2CPU:38 4CPU:58
	Sun Quad Port GbE PCIe 2.0 Low Profile Adapter, UTP	7100479 (7100477)	8	2CPU:38 4CPU:58
	Sun Dual Port 10GBase-T Adapter	7100563 (7100488)	8	2CPU:38 4CPU:58
	Sun Dual 10 GbE SFP+ PCIe 2.0 Low Profile Adapter	1109A-Z (X1109A-Z)	8	2CPU:38 4CPU:58
	Oracle Quad Port 10GBase-T Adapter (*1)	7111182 (7111181)	4	2CPU:19 (*2) 4CPU:28 (*2)
	Oracle Quad 10 Gb or Dual 40 Gb Ethernet Adapter (*3)	7114148 (7114134)	8	2CPU:38 4CPU:58
	PCIe Quad port GigE (copper) x8 lane card	4447A-Z-N (X4447A-Z-N)	8	2CPU:38 4CPU:58
	PCI-E Low-Profile Dual GigE MMF	7281A-2-N (X7281A-2-N)	8	2CPU:38 4CPU:58
FC/FCoE	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic (*4)	7115460 (7115462)	8	2CPU:38 4CPU:58
	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, Emulex (*5)	7115459 (7115461)	8	2CPU:38 4CPU:58
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and SR optics	SG-PCIEFCOE2-Q-SR (7105381, SG-XPCIEFCOE2-Q-SR)	8	2CPU:38 4CPU:58
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and Twin-AX	SG-PCIEFCOE2-Q-TA (7105382, SG-XPCIEFCOE2-Q-TA)	8	2CPU:38 4CPU:58
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Qlogic	7101673 (7101674)	-	-

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
	with the 16 Gb FC short wave optics	with 7101675 (7101676)	8	2CPU:38 4CPU:58
	with the 16 Gb FC long wave optics	with 7101679 (7101680)	8	2CPU:38 4CPU:58
	with the 10 Gb FCoE short reach optics or TwinAx cables	with 7101677 (7101678) or TwinAx cables	8	2CPU:38 4CPU:58
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Emulex	7101683 (7101684)	-	-
	with the 16 Gb FC short wave optics	with 7101685 (7101686)	8	2CPU:38 4CPU:58
	with the 10 Gb FCoE short reach optics or TwinAx cables	with 7101687 (7101688)	8	2CPU:38 4CPU:58
	8 Gb FC PCIe, QLogic, Dual Port	SG-PCIE2FC-QF8-Z (SG-XPCIE2FC-QF8-N)	8	2CPU:38 4CPU:58
	8 Gb FC PCIe, QLogic, Single Port	SG-PCIE1FC-QF8-Z (SG-XPCIE1FC-QF8-N)	8	2CPU:38 4CPU:58
	8 Gb FC PCIe, Emulex, Dual Port	SG-PCIE2FC-EM8-Z (SG-XPCIE2FC-EM8-N)	8	2CPU:38 4CPU:58
	8 Gb FC PCIe, Emulex, Single Port	SG-PCIE1FC-EM8-Z (SG-XPCIE1FC-EM8-N)	8	2CPU:38 4CPU:58
SAS	Oracle Storage 12 Gb SAS PCIe HBA, external: 8 port (*6)	7110118 (7110119)	8	2CPU:38 4CPU:58
	Sun Storage 6 Gb SAS PCIe HBA: 8 ports, external	SG-SAS6-EXT-Z (7105387, SGX-SAS6-EXT-Z)	8	2CPU:38 4CPU:58
	Sun StorageTek 8-port External SAS PCI-Express Host Bus Adapter	SG-PCIE8SAS-E-Z-N (SG-XPCIE8SAS-E-Z-N)	8	2CPU:38 4CPU:58

Table 3-2   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4S With Oracle Solaris 11 (Oracle Product ID) *(continued)*

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
FLASH	Fujitsu 3.2 TB Flash Accelerator Card (*7)	7119601 (7119603)	8	2CPU:38 4CPU:58
	Oracle Flash Accelerator F320 PCIe Card (*8)	7113825 (7113826)	8	2CPU:38 4CPU:58
	Flash Accelerator F160 PCIe Card (*9)	7110864 (7110865)	8	2CPU:38 4CPU:58
	Flash Accelerator F80 PCIe Card: 800GB, eMLC	7107091 (7107092)	8	2CPU:38 4CPU:58
	Flash Accelerator F40 card	7104480 (7104482)	8	2CPU:38 4CPU:58
IB	Oracle Dual port QDR InfiniBand Adapter M3	7104073 (7104074)	2CPU:3 (#0,#3,#7) (*10) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) (*10) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Sun InfiniBand QDR Host Channel Adapter PCIe: low profile	4242A (X4242A)	8	2CPU:38 4CPU:58

Type	Product Name	Factory-Mounted Product ID When Shipped	Maximum Number Mounted	
		(Expanded-on-Site Product ID)	Without PCI Expansion Unit	With PCI Expansion Unit
Graphic	Raptor GFX 550e (*11)(*12)	-	1 (#1,#2)	1 (#1,#2) PCI expansion unit mounting not possible

-: Not applicable

*1 To use the Oracle Quad Port 10GBase-T Adapter, the following SRU and XCP must be applied:

SRU 11.3.22.3.0 or later, XCP 2320 or later

To mount the Oracle Quad Port 10GBase-T Adapter in the PCI expansion unit, PCI expansion unit firmware version 1310 or later must be applied in addition to the above.

For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu M10/SPARC M10 Systems Service Manual*.

*2 Up to five Oracle Quad Port 10GBase-T Adapters can be mounted per PCI expansion unit.

*3 To use the 40 Gb Ethernet card, the following SRU and XCP must be applied:

SRU 11.3.8.7.0 or later, XCP 2320 or later

To mount the 40Gb Ethernet card in the PCI expansion unit, PCI expansion unit firmware version 1310 or later must be applied in addition to the above. For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

*4 To use the Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic, the following SRU must be applied:

SRU 11.3.29.5.0 or later

*5 To use the Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, Emulex, the following SRU must be applied:

SRU 11.3.23.5.0 or later

*6 To use the 12Gbps SAS card, the following SRU and card FW must be applied:

SRU 11.2.8.4.0 or later, card FW: 06.00.00.00 or later

*7 To use the Fujitsu 3.2 TB Flash Accelerator Card, the following SRU and XCP must be applied:

SRU 11.3.28.4.0 or later, XCP 2320 or later

*8 To use the F320 card, the following SRU and XCP must be applied:

SRU 11.3.10.7.0 or later, XCP 2320 or later

*9 To use the F160 card, the following SRU and XCP must be applied:

SRU 11.2.14.4.0 or later, XCP 2260 or later

To mount the F160 card in the PCI expansion unit, PCI expansion unit firmware version 1210 or later must be applied in addition to the above.

For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

In addition, when the PCI expansion unit is to be assigned to a Guest domain while Direct I/O for the PCI expansion unit is unused, perform static allocation and set nvramrc.

{0} ok nvedit

    0: d# 10000 ms

{0} ok nvstore

{0} ok setenv use-nvramrc? true

This setting is unnecessary when XCP 2290 or later is to be applied.

*10 If this card is mounted in Slot#0 in a 2-CPU configuration, Slot#2 cannot be used. If this card is mounted in Slot#3, Slot#5 and #6 cannot be used.

*11 Oracle Solaris 11.4 and later are not supported. Use the product in an environment with Oracle Solaris 11.3 or earlier.

*12 Sales Contact

EIZO Rugged Solutions, Inc.: ers-info@eizo.com

Shoshin Corporation: is@shoshin.co.jp

The latest driver is available for download from the EIZO Rugged Solutions, Inc. website:

http://www.eizorugged.com/support/drivers/index.html

GFX550e_1.5.tar.Z includes the drivers for Oracle Solaris 11 and Oracle Solaris 10.

3.2.2　If XCP 2050 or Later is Used and Oracle Solaris 10 is Installed on All the Domains or if XCP 2050 or Later is Used and Oracle Solaris 11 and Oracle Solaris 10 are Mixed

Table 3-3　Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4S With Either Oracle Solaris 10 or the Mixture of Oracle Solaris 10 and 11 (Fujitsu Product ID)

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
Link	PCI expansion unit connection card	SPME8LK1F	-	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)
LAN	Dual Gigabit Ethernet card (MMF)	SP1X7GD2F	8	2CPU:38 4CPU:58
	Dual Gigabit Ethernet card (MMF)	SP1X7GD1F	8	2CPU:38 4CPU:58
	Quad Gigabit Ethernet card (UTP)	SP1X7GQ2F	8	2CPU:38 4CPU:58
	Quad Gigabit Ethernet card (UTP)	SP1X7GQ1F	8	2CPU:38 4CPU:58
	Dual 10Gigabit Ethernet card (10GBase-T)	SP1X7HF1F	8 (*1)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Dual 10 Gigabit Ethernet card	SE1X7HE3G	8 (*1)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Quad 10 Gigabit Ethernet card (*2)	SP1X7HH1F	4	2CPU:19 (*3) 4CPU:28 (*3)

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
	Dual 40 Gigabit Ethernet card (*4)	SP1X7HG1F	8	2CPU:38 4CPU:58
FCoE	Dual 10Gbps FCoE card (for optical cable)	SE0X7EF12F	8 (*1)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Dual 10Gbps FCoE card (for Copper Twinax cable)	SE0X7EC12F	8 (*1)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Dual-channel 10Gbps FCoE card (for optical cable) (QLogic)	SP1X7FAR2F	8 (*1)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable) (QLogic)	SP1X7FAS2F	8 (*1)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible

Table 3-3   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4S With Either Oracle Solaris
10 or the Mixture of Oracle Solaris 10 and 11 (Fujitsu Product ID) *(continued)*

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	**With PCI Expansion Unit**
	Dual-channel 10Gbps FCoE card (for optical cable) (Emulex)	SP1X7FBR2F	2CPU:3 (#0,#3,#7) (*5) 4CPU:8	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable) (Emulex)	SP1X7FBS2F	2CPU:3 (#0,#3,#7) (*5) 4CPU:8	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
FC	Dual-channel 32Gbps Fibre Channel card (*6)	SP1X7FAC2F	8	2CPU:38 4CPU:58
	Dual-channel 32Gbps Fibre Channel card (*7)	SP1X7FBC2F	8	2CPU:38 4CPU:58
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FAA2F	8	2CPU:38 4CPU:58
	Dual-channel 16Gbps Fibre Channel card (LR SFP+)	SP1X7FAB2F	8	2CPU:38 4CPU:58
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FBA2F	8	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Quad-channel 16Gbps Fibre Channel card (SR) (*8)	SP0X7FAA4F	8	2CPU:38 4CPU:58
	Dual-channel 8Gbps Fibre Channel card (QLogic)	SE0X7F22F	8	2CPU:38 4CPU:58
	Single-channel 8Gbps Fibre Channel card (QLogic)	SE0X7F21F	8	2CPU:38 4CPU:58

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
	Dual-channel 8Gbps Fibre Channel card (Emulex)	SE0X7F32F	8	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Single-channel 8Gbps Fibre Channel card (Emulex)	SE0X7F31F	8	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
SAS	12Gbps SAS card (*9)	SP1X7SA3F	8	2CPU:38 4CPU:58
	6Gbps SAS card	SE0X7SA2F	8	2CPU:38 4CPU:58
	SAS card	SE0X7SA1F	8	2CPU:38 4CPU:58

Table 3-3   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4S With Either Oracle Solaris
            10 or the Mixture of Oracle Solaris 10 and 11 (Fujitsu Product ID) *(continued)*

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	**With PCI Expansion Unit**
FLASH	3.2 TB Flash Accelerator Card (*10)	SP0X7Y42F	8	2CPU:38 4CPU:58
	Flash Accelerator F320 card (*11)	SP1X7Y41F	8	2CPU:38 4CPU:58
	Flash Accelerator F160 card (*12)	SP1X7Y31F	8	2CPU:38 4CPU:58
	Flash Accelerator F80 card	SP1X7Y21F	8	2CPU:38 4CPU:58
	Flash Accelerator F40 card	SP1X7Y11F	8	2CPU:38 4CPU:58
IB	Dual Port InfiniBand 4x QDR card	SP1X7BA12F	2CPU:3 (#0,#3,#7) (*13) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) (*13) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Dual Port InfiniBand 4x QDR card	SE1X7BA12F	8	2CPU:38 4CPU:58

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	**With PCI Expansion Unit**
Graphic	Graphics card (*14)	SP0X7GR1F	1 (#1,#2)	1 (#1,#2) PCI expansion unit mounting not possible

-: Not applicable

*1 If JumboFrame is used in a 2-CPU configuration, the maximum number of mounted PCI cards is 6 and the available PCI slots are Slot#0, #1, #2, #3, #4, and #7.

*2 To use the Quad 10 Gigabit Ethernet card, the following SRU and XCP must be applied:
SRU 11.3.22.3.0 or later, XCP 2320 or later
To mount the Quad 10 Gigabit Ethernet card in the PCI expansion unit, PCI expansion unit firmware version 1310 or later must be applied in addition to the above.
For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu M10/SPARC M10 Systems Service Manual*.

*3 Up to five Quad 10 Gigabit Ethernet cards can be mounted per PCI expansion unit.

*4 To use the 40 Gb Ethernet card, the following SRU and XCP must be applied:
SRU 11.3.8.7.0 or later, XCP 2320 or later
To mount the 40Gb Ethernet card in the PCI expansion unit, PCI expansion unit firmware version 1310 or later must be applied in addition to the above. For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

*5 If JumboFrame is used in a 2-CPU configuration, this card cannot be mounted.

*6 To use the dual-channel 32Gbps Fibre Channel card, the following SRU must be applied:
SRU 11.3.29.5.0 or later

*7 To use the dual-channel 32Gbps Fibre Channel card, the following SRU must be applied:
SRU 11.3.23.5.0 or later

*8 To use the quad-channel 16Gbps Fibre Channel card, the following SRU must be applied:
SRU 11.3.29.5.0 or later

*9 To use the 12Gbps SAS card, the following SRU must be applied:
SRU 11.2.8.4.0 or later

*10 To use the 3.2 TB Flash Accelerator Card, the following SRU and XCP must be applied:
SRU 11.3.28.4.0 or later, XCP 2320 or later

*11 To use the F320 card, the following SRU and XCP must be applied:
SRU 11.3.10.7.0 or later, XCP 2320 or later

*12 To use the F160 card, the following SRU and XCP must be applied:
SRU 11.2.11.5.0 or later, XCP 2260 or later
To mount the F160 card in the PCI expansion unit, PCI expansion unit firmware version 1210 or later must be applied in addition to the above.
For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.
In addition, when the PCI expansion unit is to be assigned to a Guest domain while Direct I/O for the PCI expansion unit is unused, perform static allocation and set nvramrc.
{0} ok nvedit
    0: d# 10000 ms
{0} ok nvstore
{0} ok setenv use-nvramrc? true
This setting is unnecessary when XCP 2290 or later is to be applied.

*13 If this card is mounted in Slot#0 in a 2-CPU configuration, Slot#2 cannot be used. If this card is mounted in Slot#3, Slot#5 and #6 cannot be used.

*14 Oracle Solaris 11.4 and later are not supported. Use the product in an environment with Oracle Solaris 11.3 or earlier.

Table 3-4   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4S With Either Oracle Solaris
10 or the Mixture of Oracle Solaris 10 and 11 (Oracle Product ID)

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
Link	Link card kit	7105513 (7105576)	-	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)
LAN	Sun Dual Port GbE PCIe 2.0 Low Profile Adapter, MMF	7100482 (7100481)	8	2CPU:38 4CPU:58
	Sun Quad Port GbE PCIe 2.0 Low Profile Adapter, UTP	7100479 (7100477)	8	2CPU:38 4CPU:58
	Sun Dual Port 10GBase-T Adapter	7100563 (7100488)	8 (*1)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Sun Dual 10 GbE SFP+ PCIe 2.0 Low Profile Adapter	1109A-Z (X1109A-Z)	8 (*1)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Oracle Quad Port 10GBase-T Adapter (*2)	7111182 (7111181)	4	2CPU:19 (*3) 4CPU:28 (*3)
	Oracle Quad 10 Gb or Dual 40 Gb Ethernet Adapter (*4)	7114148 (7114134)	8	2CPU:38 4CPU:58
	PCIe Quad port GigE (copper) x8 lane card	4447A-Z-N (X4447A-Z-N)	8 (*1)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
	PCI-E Low-Profile Dual GigE MMF	7281A-2-N (X7281A-2-N)	8 (*1)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
FC/FCoE	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic (*5)	7115460 (7115462)	8	2CPU:38 4CPU:58
	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, Emulex (*6)	7115459 (7115461)	8	2CPU:38 4CPU:58
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and SR optics	SG-PCIEFCOE2-Q-SR (7105381, SG-XPCIEFCOE2-Q-SR)	8 (*1)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and Twin-AX	SG-PCIEFCOE2-Q-TA (7105382, SG-XPCIEFCOE2-Q-TA)	8 (*1)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Qlogic	7101673 (7101674)	-	-
	with the 16 Gb FC short wave optics	with 7101675 (7101676)	8	2CPU:38 4CPU:58
	with the 16 Gb FC long wave optics	with 7101679 (7101680)	8	2CPU:38 4CPU:58

Type	Product Name	Factory-Mounted Product ID When Shipped	Maximum Number Mounted	
		(Expanded-on-Site Product ID)	Without PCI Expansion Unit	With PCI Expansion Unit
	with the 10 Gb FCoE short reach optics or TwinAx cables	with 7101677 (7101678) or TwinAx cables	8 (*1)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Emulex	7101683 (7101684)	-	-
	with the 16 Gb FC short wave optics	with 7101685 (7101686)	8	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	with the 10 Gb FCoE short reach optics or TwinAx cables	with 7101687 (7101688)	2CPU:3 (#0,#3,#7) (*7) 4CPU:8	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	8 Gb FC PCIe, QLogic, Dual Port	SG-PCIE2FC-QF8-Z (SG-XPCIE2FC-QF8-N)	8	2CPU:38 4CPU:58
	8 Gb FC PCIe, QLogic, Single Port	SG-PCIE1FC-QF8-Z (SG-XPCIE1FC-QF8-N)	8	2CPU:38 4CPU:58

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
	8 Gb FC PCIe, Emulex, Dual Port	SG-PCIE2FC-EM8-Z (SG-XPCIE2FC-EM8-N)	8	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	8 Gb FC PCIe, Emulex, Single Port	SG-PCIE1FC-EM8-Z (SG-XPCIE1FC-EM8-N)	8	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
SAS	Oracle Storage 12 Gb SAS PCIe HBA, external: 8 port (*8)	7110118 (7110119)	8	2CPU:38 4CPU:58
	Sun Storage 6 Gb SAS PCIe HBA: 8 ports, external	SG-SAS6-EXT-Z (7105387, SGX-SAS6-EXT-Z)	8	2CPU:38 4CPU:58
	Sun StorageTek 8-port External SAS PCI-Express Host Bus Adapter	SG-PCIE8SAS-E-Z-N (SG-XPCIE8SAS-E-Z-N)	8	2CPU:38 4CPU:58

Table 3-4   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4S With Either Oracle Solaris
              10 or the Mixture of Oracle Solaris 10 and 11 (Oracle Product ID) *(continued)*

Type	Product Name	Factory-Mounted Product ID When Shipped	Maximum Number Mounted	
		(Expanded-on-Site Product ID)	Without PCI Expansion Unit	With PCI Expansion Unit
FLASH	Fujitsu 3.2 TB Flash Accelerator Card (*9)	7119601 (7119603)	8	2CPU:38 4CPU:58
	Oracle Flash Accelerator F320 PCIe Card (*10)	7113825 (7113826)	8	2CPU:38 4CPU:58
	Flash Accelerator F160 PCIe Card (*11)	7110864 (7110865)	8	2CPU:38 4CPU:58
	Flash Accelerator F80 PCIe Card: 800GB, eMLC	7107091 (7107092)	8	2CPU:38 4CPU:58
	Flash Accelerator F40 card	7104480 (7104482)	8	2CPU:38 4CPU:58
IB	Oracle Dual port QDR InfiniBand Adapter M3	7104073 (7104074)	2CPU:3 (#0,#3,#7) (*12) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) (*12) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Sun InfiniBand QDR Host Channel Adapter PCIe: low profile	4242A (X4242A)	8	2CPU:38 4CPU:58

Type	Product Name	Factory-Mounted Product ID When Shipped	Maximum Number Mounted	
		(Expanded-on-Site Product ID)	Without PCI Expansion Unit	With PCI Expansion Unit
Graphic	Raptor GFX 550e (*13)(*14)	-	1 (#1,#2)	1 (#1,#2) PCI expansion unit mounting not possible

-: Not applicable

*1 If JumboFrame is used in a 2-CPU configuration, the maximum number of mounted PCI cards is 6 and the available PCI slots are Slot#0, #1, #2, #3, #4, and #7.

*2 To use the Oracle Quad Port 10GBase-T Adapter, the following SRU and XCP must be applied:
SRU 11.3.22.3.0 or later, XCP 2320 or later
To mount the Oracle Quad Port 10GBase-T Adapter in the PCI expansion unit, PCI expansion unit firmware version 1310 or later must be applied in addition to the above.
For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu M10/SPARC M10 Systems Service Manual*.

*3 Up to five Oracle Quad Port 10GBase-T Adapters can be mounted per PCI expansion unit.

*4 To use the 40 Gb Ethernet card, the following SRU and XCP must be applied:
SRU 11.3.8.7.0 or later, XCP 2320 or later
To mount the 40Gb Ethernet card in the PCI expansion unit, PCI expansion unit firmware version 1310 or later must be applied in addition to the above. For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.

*5 To use the Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic, the following SRU must be applied:
SRU 11.3.29.5.0 or later

*6 To use the Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, Emulex, the following SRU must be applied:
SRU 11.3.23.5.0 or later

*7 If JumboFrame is used in a 2-CPU configuration, this card cannot be mounted.

*8 To use the 12Gbps SAS card, the following SRU and card FW must be applied:
SRU 11.2.8.4.0 or later, card FW: 06.00.00.00 or later

*9 To use the Fujitsu 3.2 TB Flash Accelerator Card, the following SRU and XCP must be applied:
SRU 11.3.28.4.0 or later, XCP 2320 or later

*10 To use the F320 card, the following SRU and XCP must be applied:
SRU 11.3.10.7.0 or later, XCP 2320 or later

*11 To use the F160 card, the following SRU and XCP must be applied:
SRU 11.2.14.4.0 or later, XCP 2260 or later
To mount the F160 card in the PCI expansion unit, PCI expansion unit firmware version 1210 or later must be applied in addition to the above.
For details on the application of the PCI expansion unit firmware, see the *PCI Expansion Unit for Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 Service Manual*.
In addition, when the PCI expansion unit is to be assigned to a Guest domain while Direct I/O for the PCI expansion unit is unused, perform static allocation and set nvramrc.
{0} ok nvedit
    0: d# 10000 ms
{0} ok nvstore
{0} ok setenv use-nvramrc? true
This setting is unnecessary when XCP 2290 or later is to be applied.

*12 If this card is mounted in Slot#0 in a 2-CPU configuration, Slot#2 cannot be used. If this card is mounted in Slot#3, Slot#5 and #6 cannot be used.

*13 Oracle Solaris 11.4 and later are not supported. Use the product in an environment with Oracle Solaris 11.3 or earlier.

*14 Sales Contact
EIZO Rugged Solutions, Inc.: ers-info@eizo.com
Shoshin Corporation: is@shoshin.co.jp
The latest driver is available for download from the EIZO Rugged Solutions, Inc. website:
http://www.eizorugged.com/support/drivers/index.html
GFX550e_1.5.tar.Z includes the drivers for Oracle Solaris 11 and Oracle Solaris 10.

3.2.3   XCP 2044 or Earlier

Table 3-5   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4S With XCP 2044 or Earlier
(Fujitsu Product ID)

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
Link	PCI expansion unit connection card	SPME8LK1F	-	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)
LAN	Dual Gigabit Ethernet card (MMF)	SP1X7GD2F	8	2CPU:38 4CPU:58
	Dual Gigabit Ethernet card (MMF)	SP1X7GD1F	8	2CPU:38 4CPU:58
	Quad Gigabit Ethernet card (UTP)	SP1X7GQ2F	8	2CPU:38 4CPU:58
	Quad Gigabit Ethernet card (UTP)	SP1X7GQ1F	8	2CPU:38 4CPU:58
	Dual 10Gigabit Ethernet card (10GBase-T)	SP1X7HF1F	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Dual 10 Gigabit Ethernet card	SE1X7HE3G	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Quad 10 Gigabit Ethernet card	SP1X7HH1F	-	-
	Dual 40 Gigabit Ethernet card	SP1X7HG1F	-	-

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	**With PCI Expansion Unit**
FCoE	Dual 10Gbps FCoE card (for optical cable)	SE0X7EF12F	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Dual 10Gbps FCoE card (for Copper Twinax cable)	SE0X7EC12F	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Dual-channel 10Gbps FCoE card (for optical cable) (QLogic)	SP1X7FAR2F	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable) (QLogic)	SP1X7FAS2F	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible

Table 3-5   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4S With XCP 2044 or Earlier
(Fujitsu Product ID) *(continued)*

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	**With PCI Expansion Unit**
	Dual-channel 10Gbps FCoE card (for optical cable) (Emulex)	SP1X7FBR2F	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable) (Emulex)	SP1X7FBS2F	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
FC	Dual-channel 32 Gbps Fibre Channel card	SP1X7FAC2F	-	-
	Dual-channel 32 Gbps Fibre Channel card	SP1X7FBC2F	-	-
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FAA2F	8	2CPU:38 4CPU:58
	Dual-channel 16Gbps Fibre Channel card (LR SFP+)	SP1X7FAB2F	8	2CPU:38 4CPU:58
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FBA2F	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Quad-channel 16Gbps Fibre Channel card (SR)	SP0X7FAA4F	-	-
	Dual-channel 8Gbps Fibre Channel card (QLogic)	SE0X7F22F	8	2CPU:38 4CPU:58
	Single-channel 8Gbps Fibre Channel card (QLogic)	SE0X7F21F	8	2CPU:38 4CPU:58

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	**With PCI Expansion Unit**
	Dual-channel 8Gbps Fibre Channel card (Emulex)	SE0X7F32F	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Single-channel 8Gbps Fibre Channel card (Emulex)	SE0X7F31F	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
SAS	12Gbps SAS card (*1)	SP1X7SA3F	8	2CPU:38 4CPU:58
	6Gbps SAS card	SE0X7SA2F	8	2CPU:38 4CPU:58
	SAS card	SE0X7SA1F	8	2CPU:38 4CPU:58
FLASH	3.2 TB Flash Accelerator Card	SP0X7Y42F	-	-
	Flash Accelerator F320 card	SP1X7Y41F	-	-
	Flash Accelerator F160 card	SP1X7Y31F	-	-
	Flash Accelerator F80 card	SP1X7Y21F	8	2CPU:38 4CPU:58
	Flash Accelerator F40 card	SP1X7Y11F	8	2CPU:38 4CPU:58
IB	Dual Port InfiniBand 4x QDR card	SP1X7BA12F	2CPU:3 (#0,#3,#7) (*2) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) (*2) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible

Table 3-5   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4S With XCP 2044 or Earlier
(Fujitsu Product ID) *(continued)*

Type	Product Name	Product ID	Maximum Number Mounted	
			Without PCI Expansion Unit	**With PCI Expansion Unit**
	Dual Port InfiniBand 4x QDR card	SE1X7BA12F	8	2CPU:38 4CPU:58
Graphic	Graphics card	SP0X7GR1F	1 (#1,#2)	1 (#1,#2) PCI expansion unit mounting not possible

-: Not applicable
*1 To use the 12Gbps SAS card, the following SRU must be applied:
SRU 11.2.8.4.0 or later
*2 If this card is mounted in Slot#0 in a 2-CPU configuration, Slot#2 cannot be used. If this card is mounted in Slot#3, Slot#5 and #6 cannot be used.

Table 3-6   Maximum Number of Each Type of Mounted PCI Card: SPARC M10-4S With XCP 2044 or Earlier
(Oracle Product ID)

Type	Product Name	Factory-Mounted Product ID When Shipped	Maximum Number Mounted	
		(Expanded-on-Site Product ID)	**Without PCI Expansion Unit**	**With PCI Expansion Unit**
Link	Link card kit	7105513 (7105576)	-	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)
LAN	Sun Dual Port GbE PCIe 2.0 Low Profile Adapter, MMF	7100482 (7100481)	8	2CPU:38 4CPU:58
	Sun Quad Port GbE PCIe 2.0 Low Profile Adapter, UTP	7100479 (7100477)	8	2CPU:38 4CPU:58
	Sun Dual Port 10GBase-T Adapter	7100563 (7100488)	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
	Sun Dual 10 GbE SFP+ PCIe 2.0 Low Profile Adapter	1109A-Z (X1109A-Z)	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Oracle Quad Port 10GBase-T Adapter	7111182 (7111181)	-	-
	Oracle Quad 10 Gb or Dual 40 Gb Ethernet Adapter	7114148 (7114134)	-	-
	PCIe Quad port GigE (copper) x8 lane card	4447A-Z-N (X4447A-Z-N)	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	PCI-E Low-Profile Dual GigE MMF	7281A-2-N (X7281A-2-N)	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
FC/FCoE	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic	7115460 (7115462)	-	-
	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, Emulex	7115459 (7115461)	-	-

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and SR optics	SG-PCIEFCOE2-Q-SR (7105381, SG-XPCIEFCOE2-Q-SR)	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and Twin-AX	SG-PCIEFCOE2-Q-TA (7105382, SG-XPCIEFCOE2-Q-TA)	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Qlogic	7101673 (7101674)	-	-
	with the 16 Gb FC short wave optics	with 7101675 (7101676)	8	2CPU:38 4CPU:58
	with the 16 Gb FC long wave optics	with 7101679 (7101680)	8	2CPU:38 4CPU:58
	with the 10 Gb FCoE short reach optics or TwinAx cables	with 7101677 (7101678) or TwinAx cables	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Emulex	7101683 (7101684)	-	-

Type	Product Name	Factory-Mounted Product ID When Shipped	Maximum Number Mounted	
		(Expanded-on-Site Product ID)	Without PCI Expansion Unit	With PCI Expansion Unit
	with the 16 Gb FC short wave optics	with 7101685 (7101686)	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	with the 10 Gb FCoE short reach optics or TwinAx cables	with 7101687 (7101688)	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	8 Gb FC PCIe, QLogic, Dual Port	SG-PCIE2FC-QF8-Z (SG-XPCIE2FC-QF8-N)	8	2CPU:38 4CPU:58
	8 Gb FC PCIe, QLogic, Single Port	SG-PCIE1FC-QF8-Z (SG-XPCIE1FC-QF8-N)	8	2CPU:38 4CPU:58
	8 Gb FC PCIe, Emulex, Dual Port	SG-PCIE2FC-EM8-Z (SG-XPCIE2FC-EM8-N)	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	8 Gb FC PCIe, Emulex, Single Port	SG-PCIE1FC-EM8-Z (SG-XPCIE1FC-EM8-N)	2CPU:3 (#0,#3,#7) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible

Type	Product Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Maximum Number Mounted	
			Without PCI Expansion Unit	With PCI Expansion Unit
SAS	Oracle Storage 12 Gb SAS PCIe HBA, external: 8 port (*1)	7110118 (7110119)	8	2CPU:38 4CPU:58
	Sun Storage 6 Gb SAS PCIe HBA: 8 ports, external	SG-SAS6-EXT-Z (7105387, SGX-SAS6-EXT-Z)	8	2CPU:38 4CPU:58
	Sun StorageTek 8-port External SAS PCI-Express Host Bus Adapter	SG-PCIE8SAS-E-Z-N (SG-XPCIE8SAS-E-Z-N)	8	2CPU:38 4CPU:58
FLASH	Fujitsu 3.2 TB Flash Accelerator Card	7119601 (7119603)	-	-
	Oracle Flash Accelerator F320 PCIe Card	7113825 (7113826)	-	-
	Flash Accelerator F160 PCIe Card	7110864 (7110865)	-	-
	Flash Accelerator F80 PCIe Card: 800GB, eMLC	7107091 (7107092)	8	2CPU:38 4CPU:58
	Flash Accelerator F40 card	7104480 (7104482)	8	2CPU:38 4CPU:58
IB	Oracle Dual port QDR InfiniBand Adapter M3	7104073 (7104074)	2CPU:3 (#0,#3,#7) (*2) 4CPU:5 (#0,#1,#3,#5,#7)	2CPU:2 (#0,#3,#7) (*2) 4CPU:4 (#0,#1,#3,#5,#7) PCI expansion unit mounting not possible
	Sun InfiniBand QDR Host Channel Adapter PCIe: low profile	4242A (X4242A)	8	2CPU:38 4CPU:58

Type	Product Name	Factory-Mounted Product ID When Shipped	Maximum Number Mounted	
		(Expanded-on-Site Product ID)	Without PCI Expansion Unit	With PCI Expansion Unit
Graphic	Raptor GFX 550e (*3)	-	1 (#1,#2)	1 (#1,#2) PCI expansion unit mounting not possible

-: Not applicable
*1 To use the 12Gbps SAS card, the following SRU and card FW must be applied:
SRU 11.2.8.4.0 or later, card FW: 06.00.00.00 or later
*2 If this card is mounted in Slot#0 in a 2-CPU configuration, Slot#2 cannot be used. If this card is mounted in Slot#3, Slot#5 and #6 cannot be used.
*3 Sales Contact
EIZO Rugged Solutions, Inc.: ers-info@eizo.com
Shoshin Corporation: is@shoshin.co.jp
The latest driver is available for download from the EIZO Rugged Solutions, Inc. website:
http://www.eizorugged.com/support/drivers/index.html
GFX550e_1.5.tar.Z includes the drivers for Oracle Solaris 11 and Oracle Solaris 10.

3.3   Relationship Between the CPU Configuration and the Number of Root Complexes

The 2-CPU configuration of the SPARC M10-4S consists of four root complexes, and the 4-CPU configuration consists of four or seven root complexes. A root complex consists of an I/O controller mounted on a processor and the PCI switches, PCI devices, etc. under the I/O controller.

The number of root complexes when a CPU memory unit is installed on site is kept at the default value of 4, by default. In this case, the system configuration can be kept as is since the I/O bus is not reconfigured, but the PCI card mounting rules are also kept, so they are the same as those for the 2-CPU configuration.

To change to the number of root complexes to seven, the system administrator needs to change the XSCF settings to reconfigure the I/O bus. For details on the setting method, see the man page for the setpparmode(8) command or the *Fujitsu SPARC M12 and Fujitsu M10/SPARC M10 XSCF Reference Manual*. Changing the number of root complexes to seven increases the maximum number of mounted PCI cards. However, because device path names change with the reconfiguration of the I/O bus, system reconfiguration such as to set a device path name again may be required for any device path names used by applications.

Table 3-7   Relationship Between the CPU Configuration and the Number of Root Complexes

	Order for M10-4S Only	Ordered Together With M10-4S (Installed at Factory)	Order for CPU Memory Unit	
			Ordered Separately From M10-4S (Installed on Site)	
			Without I/O Bus Reconfiguration	With I/O Bus Reconfiguration
Number of CPUs	2	4	4	4
Number of root complexes	4	7	4	7

Figure 3-1 is a hardware configuration diagram of the SPARC M10-4S with two CPUs. Figure 3-2 is a hardware configuration diagram of the SPARC M10-4S with four CPUs (four root complexes). Figure 3-3 is a hardware configuration diagram of the SPARC M10-4S with four CPUs (seven root complexes).

Figure 3-1   Hardware Configuration Diagram of the SPARC M10-4S With 2 CPUs
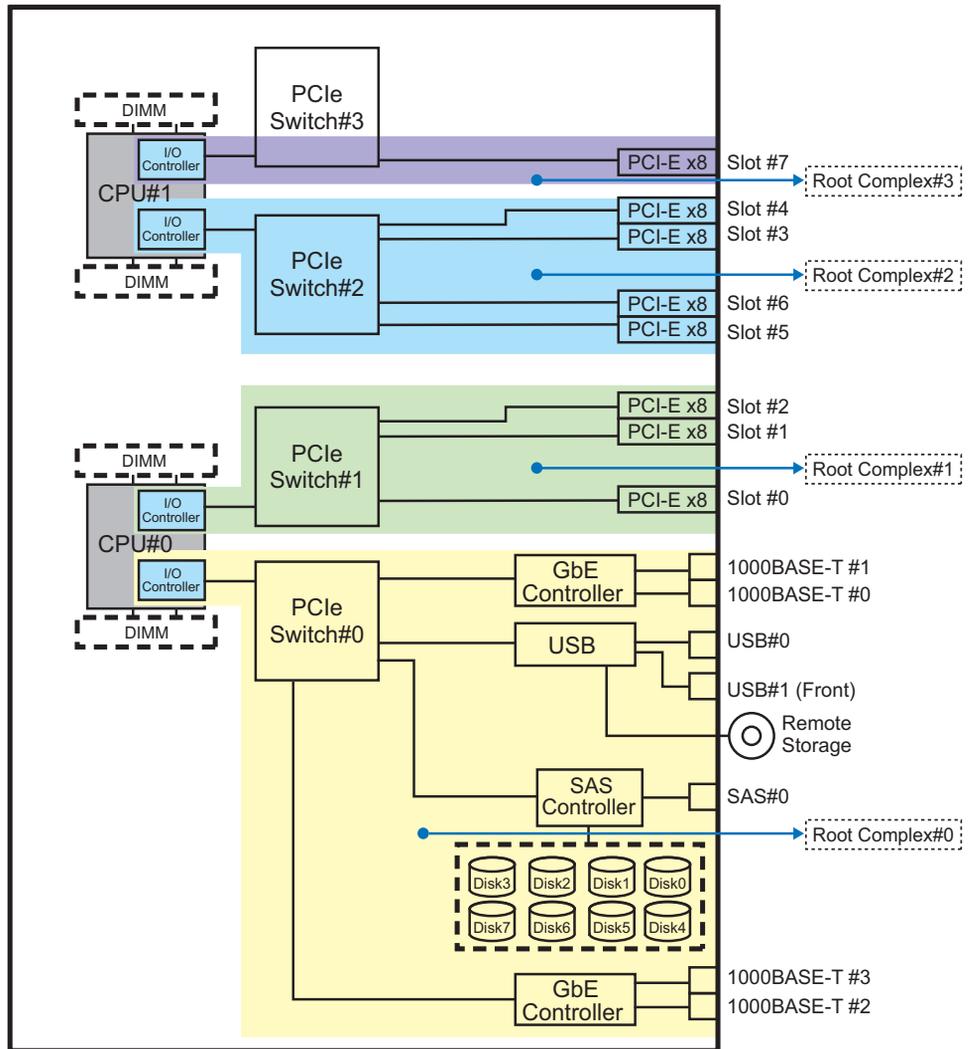
Figure 3-2   Hardware Configuration Diagram of the SPARC M10-4S With 4 CPUs
(4 Root Complexes)
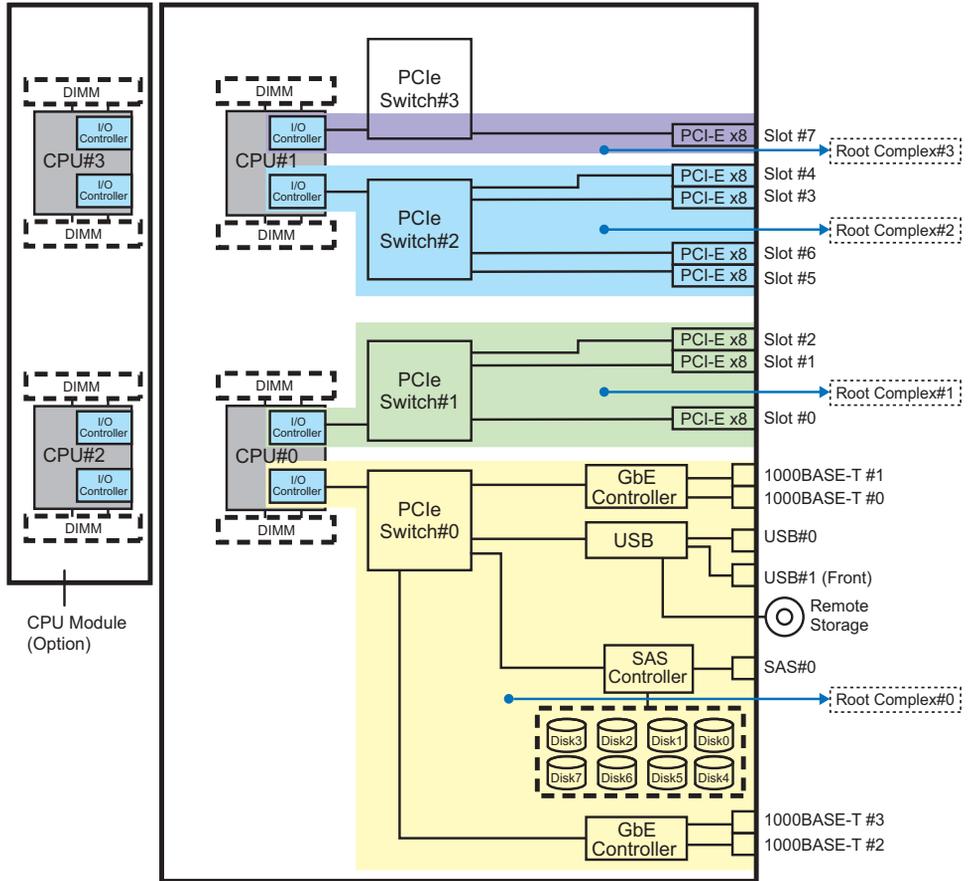
Figure 3-3   Hardware Configuration Diagram of the SPARC M10-4S With 4 CPUs
(7 Root Complexes)
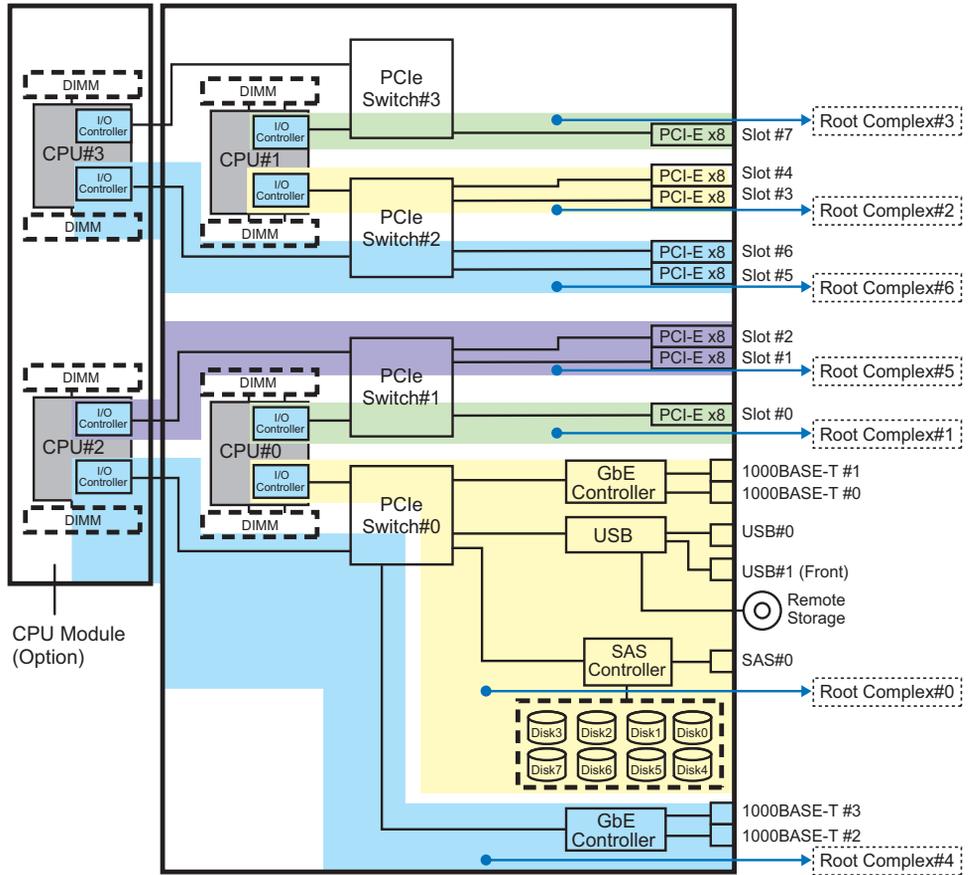
Chapter 4

Factory-Default Mounting Order of PCI Cards

This chapter describes the factory-default mounting order of PCI cards.
PCI cards ordered together with a SPARC M10 system or PCI expansion unit are mounted in each chassis according to the rules described in this chapter and shipped from the factory.
PCI cards are classified into groups A, B, C, and D, and mounted in the order of mounting priority (from highest to lowest) shown in Table 4-1 or Table 4-2.
In the PCI slots of the SPARC M10-1, the PCI cards of each group are mounted in the PCI slot order shown in the corresponding column of Table 4-3.
In the PCI slots of the SPARC M10-4, the PCI cards of each group are mounted in the PCI slot order shown in the corresponding column of Table 4-4.
In the PCI slots of the SPARC M10-4S, the PCI cards of each group are mounted in the PCI slot order shown in the corresponding column of Table 4-5.
In the PCI slots in the PCI expansion unit, the PCI cards are mounted in the order shown in Table 4-6.

Note that PCI card mounting location is not necessarily according to the mounting rules described in this chapter. Observe the PCI card mounting rules from Chapter 1 to Chapter 3 and determine the mounting location.

Table 4-1   Mounting Priority Order of PCI Cards (Fujitsu Product ID)

Group	Product Name	Product ID	Mounting Priority Order
A	PCI expansion unit connection card	SPME8LK1F	High
C	Graphics card	SP0X7GR1F	|
A	Dual Port InfiniBand 4x QDR card	SP1X7BA12F	|
D	Dual 25 Gigabit Ethernet card	SP1X7JD1F	|
A	Dual-channel 10Gbps FCoE card (for optical cable)	SP1X7FBR2F	|
A	Dual-channel 10Gbps FCoE card (for Copper Twinax cable)	SP1X7FBS2F	|
A	Dual-channel 10Gbps FCoE card (for optical cable)	SP1X7FAR2F	|

Table 4-1   Mounting Priority Order of PCI Cards (Fujitsu Product ID) *(continued)*

Group	Product Name	Product ID	Mounting Priority Order
A	Dual-channel 10Gbps FCoE card (for Copper Twinax cable)	SP1X7FAS2F	|
A	Dual 10Gbps FCoE card (for optical cable)	SE0X7EF12F	|
A	Dual 10Gbps FCoE card (for Copper Twinax cable)	SE0X7EC12F	|
A	Dual 10Gigabit Ethernet card	SE1X7HE3G	|
A	Dual 10Gigabit Ethernet card (10GBase-T)	SP1X7HF1F	|
A	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FBA2F	|
A	Dual-channel 8Gbps Fibre Channel card	SE0X7F32F	|
A	Single-channel 8Gbps Fibre Channel card	SE0X7F31F	|
A	Quad 10 Gigabit Ethernet card	SP1X7HH1F	Low
B	Dual 40 Gigabit Ethernet card	SP1X7HG1F	High
B	Dual Port InfiniBand 4x QDR card	SE1X7BA12F	|
B	Dual-channel 32 Gbps Fibre Channel card	SP1X7FAC2F	|
B	Dual-channel 32 Gbps Fibre Channel card	SP1X7FBC2F	|
B	Quad-channel 16Gbps Fibre Channel card (SR)	SP0X7FAA4F	|
B	3.2 TB Flash Accelerator Card	SP0X7Y42F	|
B	Flash Accelerator F320 card	SP1X7Y41F	|
B	Flash Accelerator F160 card	SP1X7Y31F	|
B	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FAA2F	|
B	Dual-channel 16Gbps Fibre Channel card (LR SFP+)	SP1X7FAB2F	|
B	Flash Accelerator F80 card	SP1X7Y21F	|
B	Flash Accelerator F40 card	SP1X7Y11F	|
B	12Gbps SAS card	SP1X7SA3F	|
B	Dual-channel 8Gbps Fibre Channel card	SE0X7F22F	|
B	6Gbps SAS card	SE0X7SA2F	|
B	Single-channel 8Gbps Fibre Channel card	SE0X7F21F	|
B	SAS card	SE0X7SA1F	|
B	Quad Gigabit Ethernet card (UTP)	SP1X7GQ2F	|
B	Quad Gigabit Ethernet card (UTP)	SP1X7GQ1F	|
B	Dual Gigabit Ethernet card (MMF)	SP1X7GD2F	|

Table 4-1   Mounting Priority Order of PCI Cards (Fujitsu Product ID) *(continued)*

Group	Product Name	Product ID	Mounting Priority Order
B	Dual Gigabit Ethernet card (MMF)	SP1X7GD1F	Low

Table 4-2   Mounting Priority Order of PCI Cards (Oracle Product ID)

Group	Product Name	ATO Product ID	Mounting Priority Order
A	Link card kit	7105513	High
A	Oracle Dual Port QDR InfiniBand Adapter M3	7104073	|
D	Oracle Dual Port 25 Gb Ethernet Adapter	7118015	|
A	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Emulex (with FCoE transceivers or TwinAx cables)	7101683 (with FCoE transceivers or no transceiver)	|
A	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, QLogic (with FCoE transceivers or TwinAx cables)	7101673 (with FCoE transceivers or no transceiver)	|
A	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and SR optics	SG-PCIEFCOE2-Q-SR	|
A	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and Twin-AX	SG-PCIEFCOE2-Q-TA	|
A	Sun Dual 10 GbE SFP+ PCIe 2.0 Low Profile Adapter	1109A-Z	|
A	Sun Dual Port 10GBase-T Adapter	7100563	|
A	PCIe Quad port GigE (copper) x8 lane card	4447A-Z-N	|
A	PCI-E Low-Profile Dual GigE MMF, low profile bracket on board, stand bracket included	7281A-2-N	|
A	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Emulex (with 16 Gb FC transceivers)	7101683 (with 16 Gb FC transceivers)	|
A	8 Gb FC PCIe, Emulex, Dual Port	SG-PCIE2FC-EM8-Z	|
A	8 Gb FC PCIe, Emulex, Single Port	SG-PCIE1FC-EM8-Z	|
A	Oracle Quad Port 10GBase-T Adapter	7111182	Low
B	Oracle Quad 10 Gb or Dual 40 Gb Ethernet Adapter	7114148	High
B	Sun InfiniBand QDR Host Channel Adapter PCIe	4242A	|

Table 4-2   Mounting Priority Order of PCI Cards (Oracle Product ID) *(continued)*

Group	Product Name	ATO Product ID	Mounting Priority Order
B	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic	7115460	|
B	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, Emulex	7115459	|
B	Fujitsu 3.2 TB Flash Accelerator Card	7119601	|
B	Oracle Flash Accelerator F320 PCIe Card	7113825	|
B	Flash Accelerator F160 PCIe Card	7110864	|
B	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, QLogic (with 16 Gb FC transceivers)	7101673 (with 16 Gb FC transceivers)	|
B	Flash Accelerator F80 PCIe Card: 800GB, eMLC	7107091	|
B	Flash Accelerator F40 PCIe Card: 400GB, eMLC	7104480	|
B	Oracle Storage 12 Gb SAS PCIe HBA, external: 8 port	7110118	|
B	8 Gb FC PCIe, QLogic, Dual Port	SG-PCIE2FC-QF8-Z	|
B	Sun Storage 6 Gb SAS PCIe HBA: 8 ports, external	SG-SAS6-EXT-Z	|
B	8 Gb FC PCIe, QLogic, Single Port	SG-PCIE1FC-QF8-Z	|
B	Sun StorageTek 8-port External SAS PCI-Express Host Bus Adapter	SG-PCIE8SAS-E-Z-N	|
B	Sun Quad Port GbE PCIe 2.0 Low Profile Adapter, UTP	7100479	|
B	Sun Dual Port GbE PCIe 2.0 Low Profile Adapter, MMF	7100482	Low

Table 4-3   Mounting Order of PCI Slots of the SPARC M10-1

PCI Slot Number	Mounting Order of PCI Slots (*)						
	For Oracle Solaris 11 or for Oracle Solaris 10 Without PCI Expansion Unit Connection Cards Ordered Together				For Oracle Solaris 10 With PCI Expansion Unit Connection Cards Ordered Together		
	Group A	Group B	Group C	Group D	Group A	Group B	Group C
Slot#0	2nd	2nd	2nd	2nd	2nd	2nd	-
Slot#1	1st	3rd	-	1st	1st	3rd	-
Slot#2	3rd	1st	1st	3rd	-	1st	1st

-: Cannot be mounted
*1 The version of Oracle Solaris must comply with the version of the preinstalled OS.

Table 4-4   Mounting Order of PCI Slots of the SPARC M10-4

| PCI Slot Number | Mounting Order of PCI Slots (*1) (*2) | | | | | | |
| | For Oracle Solaris 11 or for Oracle Solaris 10 Without PCI Expansion Unit Connection Cards Ordered Together (*3) | | | For Oracle Solaris 10 With PCI Expansion Unit Connection Cards Ordered Together | | | |
	Group A	Group B	Group C	Group A: 2CPU	Group A: 4CPU	Group B	Group C
Slot#0	1st	11th	-	1st	1st	11th	-
Slot#1	4th	8th	1st	-	4th	8th	1st
Slot#2	9th	3rd	2nd	-	-	3rd	2nd
Slot#3	2nd	10th	-	2nd	2nd	10th	-
Slot#4	7th	5th	-	-	-	5th	-
Slot#5	5th	7th	-	-	5th	7th	-
Slot#6	10th	2nd	-	-	-	2nd	-
Slot#7	3rd	9th	-	3rd	3rd	9th	-
Slot#8	8th	4th	-	-	-	4th	-
Slot#9	6th	6th	-	-	6th	6th	-
Slot#10	11th	1st	-	-	-	1st	-

-: Cannot be mounted
*1 The version of Oracle Solaris must comply with the version of the preinstalled OS.
*2 In a 2-CPU configuration with the Dual Port InfiniBand 4x QDR card (SP1X7BA12F) or InfiniBand Adapter M3 (7104073) mounted in Slot#0, Slot#2 cannot be used. If this card is mounted in Slot#3, Slot#5 and #6 cannot be used. If this card is mounted in Slot#7, Slot#9 and #10 cannot be used.
*3 The cards below may be shipped mounted in slots that are no longer available for mounting when a jumbo frame is used. In that case, move the cards to available slots.

    [LAN] SP1X7HF1F, SE1X7HE3G
          7100563, 1109A-Z, 4447A-Z-N, 7281A-2-N
    [FCoE] SE0X7EF12F, SE0X7EC12F, SP1X7FAR2F, SP1X7FAS2F
           SG-PCIEFCOE2-Q-SR, SG-PCIEFCOE2-Q-TA
           7101673 (with FCoE transceiver or no transceiver)
           7101683 (with FCoE transceiver or no transceiver)

Table 4-5   Mounting Order of PCI Slots of the SPARC M10-4S

| PCI Slot Number | Mounting Order of PCI Slots (*1) (*2) | | | | | | |
| | For Oracle Solaris 11 or for Oracle Solaris 10 Without PCI Expansion Unit Connection Cards Ordered Together (*3) | | | For Oracle Solaris 10 With PCI Expansion Unit Connection Cards Ordered Together | | | |
	Group A	Group B	Group C	Group A: 2CPU	Group A: 4CPU	Group B	Group C
Slot#0	1st	8th	-	1st	1st	8th	-
Slot#1	4th	5th	1st	-	4th	5th	1st
Slot#2	7th	2nd	2nd	-	-	2nd	2nd
Slot#3	2nd	7th	-	2nd	2nd	7th	-
Slot#4	6th	3rd	-	-	-	3rd	-

Table 4-5   Mounting Order of PCI Slots of the SPARC M10-4S *(continued)*

| | Mounting Order of PCI Slots (*1) (*2) | | | | | | |
| | For Oracle Solaris 11 or for Oracle Solaris 10 Without PCI Expansion Unit Connection Cards Ordered Together (*3) | | | For Oracle Solaris 10 With PCI Expansion Unit Connection Cards Ordered Together | | | |
PCI Slot Number	**Group A**	**Group B**	**Group C**	**Group A: 2CPU**	**Group A: 4CPU**	**Group B**	**Group C**
Slot#5	5th	4th	-	-	5th	4th	-
Slot#6	8th	1st	-	-	-	1st	-
Slot#7	3rd	6th	-	3rd	3rd	6th	-

-: Cannot be mounted
*1 The version of Oracle Solaris must comply with the version of the preinstalled OS.
*2 In a 2-CPU configuration with the Dual Port InfiniBand 4x QDR card (SP1X7BA12F) or InfiniBand Adapter M3 (7104073) mounted in Slot#0, Slot#2 cannot be used. If this card is mounted in Slot#3, Slot#5 and #6 cannot be used.
*3 The cards below may be shipped mounted in slots that are no longer available for mounting when a jumbo frame is used. In that case, move the cards to available slots.
    [LAN] SP1X7HF1F, SE1X7HE3G
          7100563, 1109A-Z, 4447A-Z-N, 7281A-2-N
   [FCoE] SE0X7EF12F, SE0X7EC12F, SP1X7FAR2F, SP1X7FAS2F
      SG-PCIEFCOE2-Q-SR, SG-PCIEFCOE2-Q-TA
     7101673 (with FCoE transceiver or no transceiver)
    7101683 (with FCoE transceiver or no transceiver)

Table 4-6   Mounting Order of PCI Slots of the PCI Expansion Unit

| **PCI Slot Number** | **Mounting Order of PCI Slots** |
	Common to Group A/B
Slot#1	1st
Slot#2	6th
Slot#3	7th
Slot#4	2nd
Slot#5	5th
Slot#6	8th
Slot#7	11th
Slot#8	3rd
Slot#9	4th
Slot#10	9th
Slot#11	10th

Appendix A

Cards That Support PCI Hot Plug and Dynamic Reconfiguration

This appendix describes cards that support PCI Hot Plug and Dynamic Reconfiguration. The SPARC M10-4/M10-4S on-board PCI slot and PCI expansion unit support active replacement and active addition of PCI cards using PCI Hot Plug (PHP). The SPARC M10-1 on-board PCI slot does not support this function.
The SPARC M10-4S supports the dynamic reconfiguration (DR) function for a physical partition. The SPARC M10-4/M10-1 do not support this function. If a card that does not support the dynamic reconfiguration function is mounted in a physical partition, dynamic reconfiguration (DR) for the physical partition cannot be performed. In that case, perform replacement or maintenance in the inactive state. Table A-1 lists the PHP/DR supporting cards that have Fujitsu product IDs. Table A-2 lists the PHP/DR supporting cards that have Oracle product IDs.

Table A-1   Cards That Support PHP/DR (Fujitsu Product ID)

Category	Name	Product ID	Driver Name Software Product Name	PHP: PCI Hot Plug		DR: Dynamic Reconfiguration			Path Redundancy Software
				Active Replacement	Active Addition	Active Replacement	Active Addition	Suspend/ Resume Processing Time (*1)	
Link	PCI expansion unit connection card	SPME8L K1F	None	Supported	Supported (*2)	Supported	Supported	0.1 sec. (*3)	None
LAN	Dual Gigabit Ethernet card (MMF)	SP1X7G D2F	igb	Supported	Supported	To be supported			Oracle Solaris standard multi-path function (IPMP), or PRIMECLU STER GLS 4.3A20 or later
	Dual Gigabit Ethernet card (MMF)	SP1X7G D1F	igb	Supported	Supported	To be supported			
	Quad Gigabit Ethernet card (UTP)	SP1X7G Q2F	igb	Supported	Supported	Supported	Supported	0.8 sec.	

Category	Name	Product ID	Driver Name Software Product Name	PHP: PCI Hot Plug		DR: Dynamic Reconfiguration			Path Redundancy Software
				Active Replacement	Active Addition	Active Replacement	Active Addition	Suspend/ Resume Processing Time (*1)	
	Quad Gigabit Ethernet card (UTP)	SP1X7GQ1F	igb	Supported	Supported	Supported	Supported	0.8 sec.	
	Dual 10 Gigabit Ethernet card	SE1X7HE3G	ixgbe	Supported	Supported	Supported (*4)	Supported (*4)	0.4 sec.	
	Dual 10Gigabit Ethernet card (10GBase-T)	SP1X7HF1F	ixgbe	Supported	Supported	Supported (*4)	Supported (*4)	0.4 sec.	
	Quad 10 Gigabit Ethernet card	SP1X7HH1F	i40e	Supported	Not supported	Supported (*4)	Supported (*4)	1.0 sec.	
	Dual 25 Gigabit Ethernet card	SP17XJD1F	bnxt	Not supported	Not supported	-	-	-	
	Dual 40 Gigabit Ethernet card	SP1X7HG1F	i40e	Supported (*5)	Not supported	Supported (*5)	Supported (*5)	1.5 sec.	
FCoE	Dual-channel 10Gbps FCoE card (for optical cable)	SP1X7FAR2F	qlc, qlcnic	Not supported	Not supported	Supported (*6)	Supported (*6)	20 sec. (*7)	Network redundancy: Oracle Solaris standard multi-path function (IPMP) FC redundancy: Oracle Solaris standard multi-path function (mpxio) or ETERNUS multi-path driver 3.1.0 or later
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable)	SP1X7FAS2F	qlc, qlcnic	Not supported	Not supported	Supported (*6)	Supported (*6)	20 sec. (*7)	
	Dual-channel 10Gbps FCoE card (for optical cable)	SP1X7FBR2F	emlxs, oce	Not supported	Not supported	Supported (*8)	Supported (*8)		
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable)	SP1X7FBS2F	emlxs, oce	Not supported	Not supported	Supported (*8)	Supported (*8)		
	Dual 10Gbps FCoE card (for optical cable)	SE0X7EF12F	qlc, qlge	Supported	Supported (*9)	Supported (*10)	Supported (*10)		

Table A-1   Cards That Support PHP/DR (Fujitsu Product ID) *(continued)*

Category	Name	Product ID	Driver Name Software Product Name	PHP: PCI Hot Plug		DR: Dynamic Reconfiguration			Path Redundancy Software
				Active Replacement	Active Addition	Active Replacement	Active Addition	Suspend/ Resume Processing Time (*1)	
	Dual 10Gbps FCoE card (for Copper Twinax cable)	SE0X7EC12F	qlc, qlge	Supported	Supported (*9)	Supported (*10)	Supported (*10)		
FC	Single-channel 8Gbps Fibre Channel card	SE0X7F21F	qlc	Supported	Supported (*11)	Supported	Supported	10 sec. (*7)	Oracle Solaris standard multi-path function (mpxio) or ETERNUS multi-path driver 3.1.0 or later
	Dual-channel 8Gbps Fibre Channel card	SE0X7F22F	qlc	Supported	Supported (*11)	Supported	Supported	20 sec. (*7)	
	Single-channel 8Gbps Fibre Channel card	SE0X7F31F	emlxs	Supported	Supported	Supported	Supported	18.5 sec.	
	Dual-channel 8Gbps Fibre Channel card	SE0X7F32F	emlxs	Supported	Supported	Supported	Supported	37 sec.	
	Dual-channel 32 Gbps Fibre Channel card	SP1X7FAC2F	qlc	Supported	Supported	Not supported	Not supported	-	
	Dual-channel 32 Gbps Fibre Channel card	SP1X7FBC2F	emlxs	Supported	Supported	Supported	Supported	37 sec.	
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FAA2F	qlc	Supported	Supported (*9)	Supported	Supported	20 sec. (*7)	
	Dual-channel 16Gbps Fibre Channel card (LR SFP+)	SP1X7FAB2F	qlc	Supported	Supported (*9)	Supported	Supported	20 sec. (*7)	
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FBA2F	emlxs	Supported	Supported	Supported	Supported	37 sec. (*12)	
	Quad-channel 16Gbps Fibre Channel card (SR)	SP0X7FAA4F	qlc	Supported	Supported	Not supported	Not supported	-	

Table A-1   Cards That Support PHP/DR (Fujitsu Product ID) *(continued)*

Category	Name	Product ID	Driver Name Software Product Name	PHP: PCI Hot Plug		DR: Dynamic Reconfiguration			Path Redundancy Software
				Active Replacement	Active Addition	Active Replacement	Active Addition	Suspend/ Resume Processing Time (*1)	
SAS	12Gbps SAS card	SP1X7SA3F	lsc	Supported (*13)	Supported (*13)	Supported (*14)	Supported (*14)	2 sec.	Oracle Solaris standard multi-path function (mpxio)
	SAS card	SE0X7SA1F	FUJITSU ULTRA LVD SCSI Host Bus Adapter Driver 2.1 Update1 or later	Supported	Supported (*9)	Supported	Supported	0.2 sec.	For ETERNUS connection, ETERNUS multi-path driver 3.0 or later
	6Gbps SAS card	SE0X7SA2F	mpt_sas	Supported (*15)	Supported (*15)	Supported (*16)	Supported (*16)	0.2 sec.	Oracle Solaris standard multi-path function (mpxio)
FLASH	3.2 TB Flash Accelerator Card	7119601 (7119603)	nvme	Not supported	Not supported	Not supported	Not supported	-	
	Flash Accelerator F320 card	SP1X7Y41F	nvme	Not supported	Not supported	Not supported	Not supported	-	
	Flash Accelerator F160 card	SP1X7Y31F	nvme	Supported	Supported	Supported (*17)	Supported (*17)	6 sec.	None (*18)
	Flash Accelerator F80 card	SP1X7Y21F	mpt_sas	Supported	Supported	Supported	Supported	0.2 sec.	None (*19)
	Flash Accelerator F40 card	SP1X7Y11F	mpt_sas	Supported	Supported	Supported	Supported	0.2 sec.	

Table A-1   Cards That Support PHP/DR (Fujitsu Product ID) *(continued)*

Category	Name	Product ID	Driver Name Software Product Name	PHP: PCI Hot Plug		DR: Dynamic Reconfiguration			Path Redundancy Software
				Active Replacement	Active Addition	Active Replacement	Active Addition	Suspend/ Resume Processing Time (*1)	
Infini Band	Dual Port InfiniBand 4x QDR card	SP1X7B A12F	hermon	Not supported	Not supported	Not supported	Not supported	-	Oracle Solaris standard multi-path function (IPMP)
	Dual Port InfiniBand 4x QDR card	SE1X7B A12F	hermon	Not supported	Not supported	Not supported	Not supported	-	
Graphic	Graphics card	SP0X7G R1F	mko (TSI)	Not supported	Not supported	Not supported	Not supported	-	None

-: Not applicable

*1 The suspend/resume processing time means the time required for the suspend/resume processing per PCI card. Calculate the total suspend/resume processing time for the PCI cards to be used.

*2 To be supported on Oracle Solaris 11.2 SRU 11.2.2.8.0 and later and Oracle Solaris 10 1/13 150400-18 and later.

*3 Add up the suspend/resume processing time for all the PCI cards mounted in the PCI expansion unit.

*4 In a configuration that uses this card to assign SR-IOV (VF), DR is restricted.

*5 In 2x40 mode or 2x2x10 mode, the root domain must be restarted because the QCU tool is used to switch modes.

*6 To use the Ethernet function (qlcnic driver) in Oracle Solaris 10, apply 149167-07 or later.

*7 When the suspend/resume processing occurs as the port is being linked up, it takes about 3 seconds with a 1-port card and about 5 seconds with a 2-port card.

*8 To be supported on Oracle Solaris 11.2 SRU 11.2.2.8.0 and later and Oracle Solaris 10 1/13 and later.

*9 Active addition of this card to a PCI Expansion Unit by PHP is not available right after the active addition of the PCI Expansion Unit.

*10 To be supported Oracle Solaris 11.2 SRU 11.2.2.8.0 and later. Oracle Solaris 10 is not supported.

*11 For active addition of this card to a PCI expansion unit by PHP right after active addition of the PCI expansion unit, it is necessary to perform the following setting and restart the I/O domains beforehand.

   Add # in front of the following description in /kernel/drv/qlc.conf, and reboot the I/O domains.
      pci-max-read-request=2048;

*12 The processing time for each card is 10 seconds in Oracle Solaris 11.3 or later and Oracle Solaris 10 1/13 149173-06 or later.

*13 Active addition and active replacement for a PCI Expansion Unit are not available.

*14 Supported by Oracle Solaris 11.3 and later

*15 PHP disconnection processing may fail. If disconnection processing fails, perform inactive replacement.

*16 Disconnection processing may return the busy status and fail in a configuration in which an expansion file unit is connected. Perform the disconnection processing after suspending the fmd service.

   Example: Suspension/resumption of the fmd service
      (Suspension) # svcadm disable svc:/system/fmd:default
      (Resumption) # svcadm enable svc:/system/fmd:default

*17 In an environment where active maintenance with DR is performed, the function to use this card as the system volume is supported on Oracle Solaris 11.3 SRU 11.3.5.6.0 and later.

*18 When data must be inherited after card replacement with PHP, configure the disk, etc. that is the card connection destination in a redundant configuration beforehand by mirroring the disk, etc. with ZFS, etc.

*19 When data must be inherited after card replacement with PHP, configure the disk, etc. that is the card connection destination in a redundant configuration beforehand by mirroring the disk, etc. with ZFS, GD, etc.

Table A-2   Cards That Support PHP/DR (Oracle Product ID)

Category	Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Driver Name Software Product Name	PHP: PCI Hot Plug		DR: Dynamic Reconfiguration			Path Redundancy Software
				Active Replacement	Active Addition	Active Replacement	Active Addition	Suspend/Resume Processing Time (*1)	
Link	Link card kit	7105513 (7105576)	None	Supported	Supported (*2)	Supported	Supported	0.1 sec. (*3)	None
LAN	Sun Dual Port GbE PCIe 2.0 Low Profile Adapter, MMF	7100482 (7100481)	igb	Supported	Supported	To be supported			Oracle Solaris standard multi-path function (IPMP)
	Sun Quad Port GbE PCIe 2.0 Low Profile Adapter, UTP	7100479 (7100477)	igb	Supported	Supported	Supported	Supported	0.8 sec.	
	Sun Dual Port 10GBase-T Adapter	7100563 (7100488)	ixgbe	Supported	Supported	Supported (*4)	Supported (*4)	0.4 sec.	
	Sun Dual 10 GbE SFP+ PCIe 2.0 Low Profile Adapter	1109A-Z (X1109A-Z)	ixgbe	Supported	Supported	Supported (*4)	Supported (*4)	0.4 sec.	
	PCIe Quad port GigE (copper) x8 lane card	4447A-Z-N (X4447A-Z-N)	nxge	Supported	Supported	Supported	Supported	0.8 sec.	
	PCI-E Low-Profile Dual GigE MMF	7281A-2-N (X7281A-2-N)	e1000g	Supported	Supported	Supported	Supported	0.4 sec.	
	Oracle Quad Port 10GBase-T Adapter	7111182 (7111181)	i40e	Supported	Not supported	Supported (*4)	Supported (*4)	1.0 sec.	
	Oracle Dual Port 25 Gb Ethernet Adapter	7118015 (7118016)	bnxt	Not supported	Not supported	-	-	-	
	Oracle Quad 10 Gb or Dual 40 Gb Ethernet Adapter	7114148 (7114134)	i40e	Supported (*5)	Not supported	Supported (*5)	Supported (*5)	1.5 sec.	

Table A-2   Cards That Support PHP/DR (Oracle Product ID) *(continued)*

Category	Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Driver Name Software Product Name	PHP: PCI Hot Plug		DR: Dynamic Reconfiguration			Path Redundancy Software
				Active Replacement	Active Addition	Active Replacement	Active Addition	Suspend/Resume Processing Time (*1)	
FCoE/FC	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic	7115460 (7115462)	qlc	Supported	Supported	Not supported	Not supported	-	
	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, Emulex	7115459 (7115461)	emlxs	Supported	Supported	Supported	Supported	37 sec. (*9)	
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and SR optics	SG-PCIEFCOE2-Q-SR (7105381,SG-XPCIEFCOE2-Q-SR)	qlc,qlge	Supported	Supported (*6)	Supported (*7)	Supported (*7)		Oracle Solaris standard multi-path function (IPMP), and Oracle Solaris standard multi-path function (mpxio)
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and Twin-AX	SG-PCIEFCOE2-Q-TA (7105382,SG-XPCIEFCOE2-Q-TA)	qlc,qlge	Supported	Supported (*6)	Supported (*7)	Supported (*7)		
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Qlogic	7101673 (7101674)	-	-	-	-	-	-	
	with the 16 Gb FC short wave optics	with 7101675 (7101676)	qlc	Supported	Supported (*6)	Supported	Supported	20 sec. (*8)	
	with the 16 Gb FC long wave optics	with 7101679 (7101680)	qlc	Supported	Supported (*6)	Supported	Supported	20 sec. (*8)	

Category	Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Driver Name Software Product Name	PHP: PCI Hot Plug		DR: Dynamic Reconfiguration			Path Redundancy Software
				Active Replacement	Active Addition	Active Replacement	Active Addition	Suspend/Resume Processing Time (*1)	
	with the 10 Gb FCoE short reach optics or TwinAx cables	with 7101677 (7101678) or TwinAx cables	qlc, qlcnic	Supported	Supported (*6)	Supported (*9)	Supported (*9)	20 sec. (*8)	
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Emulex	7101683 (7101684)	-	-	-	-	-	-	
	with the 16 Gb FC short wave optics	with 7101685 (7101686)	emlxs	Supported	Supported	Supported	Supported	37 sec. (*10)	
	with the 10 Gb FCoE short reach optics or TwinAx cables	with 7101687 (7101688)	emlxs, oce	Supported	Supported (*6)	Supported (*11)	Supported (*11)		
	8 Gb FC PCIe, QLogic, Dual Port	SG-PCIE2FC-QF8-Z (SG-XPCIE2FC-QF8-N)	qlc	Supported	Supported (*12)	Supported	Supported	20 sec. (*8)	
	8 Gb FC PCIe, QLogic, Single Port	SG-PCIE1FC-QF8-Z (SG-XPCIE1FC-QF8-N)	qlc	Supported	Supported (*12)	Supported	Supported	10 sec. (*8)	

Category	Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Driver Name Software Product Name	PHP: PCI Hot Plug		DR: Dynamic Reconfiguration			Path Redundancy Software
				Active Replacement	Active Addition	Active Replacement	Active Addition	Suspend/Resume Processing Time (*1)	
	8 Gb FC PCIe, Emulex, Dual Port	SG-PCIE2FC-EM8-Z (SG-XPCIE2FC-EM8-N)	emlxs	Supported	Supported	Supported	Supported	37 sec.	
	8 Gb FC PCIe, Emulex, Single Port	SG-PCIE1FC-EM8-Z (SG-XPCIE1FC-EM8-N)	emlxs	Supported	Supported	Supported	Supported	18.5 sec.	
SAS	Oracle Storage 12Gb SAS PCIe HBA,external: 8port	7110118 (7110119)	lsc	Supported (*13)	Supported (*13)	Supported (*14)	Supported (*14)	2 sec.	Oracle Solaris standard multi-path function (mpxio)
	Sun Storage 6 Gb SAS PCIe HBA: 8 ports, external	SG-SAS6-EXT-Z (7105387,SGX-SAS6-EXT-Z)	mpt_sas	Supported	Supported	Supported	Supported	0.2 sec.	Oracle Solaris standard multi-path function (mpxio)
	Sun StorageTek 8-port External SAS PCI-Express Host Bus Adapter	SG-PCIE8SAS-E-Z-N (SG-XPCIE8SAS-E-Z-N)	mpt_sas	Supported	Supported	Supported	Supported	0.2 sec.	
FLASH	Fujitsu 3.2 TB Flash Accelerator Card	7119601 (7119603)	nvme	Not supported	Not supported	Not supported	Not supported	-	

Table A-2   Cards That Support PHP/DR (Oracle Product ID) *(continued)*

Category	Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Driver Name Software Product Name	PHP: PCI Hot Plug		DR: Dynamic Reconfiguration			Path Redundancy Software
				Active Replacement	Active Addition	Active Replacement	Active Addition	Suspend/Resume Processing Time (*1)	
	Oracle Flash Accelerator F320 PCIe Card	7113825 (7113826)	nvme	Not supported	Not supported	Not supported	Not supported	–	
	Flash Accelerator F160 Card	7110864 (7110865)	nvme	Supported	Supported	Supported (*15)	Supported (*15)	6 sec.	None (*16)
	Flash Accelerator F80 PCIe Card: 800GB, eMLC	7107091 (7107092)	mpt_sas	Supported	Supported	Supported	Supported	0.2 sec.	None (*16)
	Flash Accelerator F40 card	7104480 (7104482)	mpt_sas	Supported	Supported	Supported	Supported	0.2 sec.	

Category	Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Driver Name Software Product Name	PHP: PCI Hot Plug		DR: Dynamic Reconfiguration			Path Redundancy Software
				Active Replacement	Active Addition	Active Replacement	Active Addition	Suspend/Resume Processing Time (*1)	
IB	Oracle Dual port QDR InfiniBand Adapter M3	7104073 (7104074)	hermon	Not supported	Not supported	Not supported	Not supported	-	Oracle Solaris standard multi-path function (IPMP), and Oracle Solaris standard multi-path function (mpxio)
	Sun InfiniBand QDR Host Channel Adapter PCIe: low profile	4242A (X4242A)	hermon	Supported	Supported	Not supported	Not supported	-	

-: Not applicable

*1 Apply the total suspend/resume processing time for the PCI cards to be used.

*2 To be supported on Oracle Solaris 11.2 SRU 11.2.2.8.0 and later and Oracle Solaris 10 1/13 150400-18 and later.

*3 Add the suspend/resume processing time for all the PCI cards mounted in the PCI expansion unit to the suspend/resume processing time for the link card.

*4 In a configuration that uses this card to assign SR-IOV (VF), DR is restricted.

*5 In 2x40 mode or 2x2x10 mode, the root domain must be restarted because the QCU tool is used to switch modes.

*6 Active addition of this card to a PCI Expansion Unit by PHP is not available right after the active addition of the PCI Expansion Unit.

*7 To be supported Oracle Solaris 11.2 SRU 11.2.2.8.0 and later. Oracle Solaris 10 is not supported.

*8 When the suspend/resume processing occurs as the port is being linked up, it takes about 3 seconds with a 1-port card and about 5 seconds with a 2-port card.

*9 To use the Ethernet function (qlcnic driver) in Oracle Solaris 10, apply 149167-07 or later.

*10 The processing time for each card is 10 seconds in Oracle Solaris 11.3 or later and Oracle Solaris 10 1/13 149173-06 or later.

*11 To be supported on Oracle Solaris 11.2 SRU 11.2.2.8.0 and later and Oracle Solaris 10 1/13 and later.

*12 For active addition of this card to a PCI expansion unit by PHP right after active addition of the PCI expansion unit, it is necessary to perform the following setting and restart the I/O domains beforehand.

    Add # in front of the following description in /kernel/drv/qlc.conf, and reboot the I/O domains.

        pci-max-read-request=2048;

*13 Active addition and active replacement for a PCI Expansion Unit are not available.

*14 Supported by Oracle Solaris 11.3 and later

*15 In an environment where active maintenance with DR is performed, the function to use this card as the system volume is supported on Oracle Solaris 11.3 SRU 11.3.5.6.0 and later.

*16 When data must be inherited after card replacement with PHP, configure the disk, etc. that is the card connection destination in a redundant configuration beforehand by mirroring the disk, etc. with ZFS, etc.

Appendix B

Cards That Support SR-IOV

This appendix describes the cards that support SR-IOV.
The SPARC M10 system with the following XCP firmware version and Oracle VM Server for SPARC version supports the SR-IOV function.
- XCP firmware version: XCP 2210 or later
- Oracle VM Server for SPARC version: 3.0 or later

For a list of the SR-IOV supporting cards that have Fujitsu product IDs, see Table B-1. Table B-2 lists the SR-IOV supporting cards that have Oracle product IDs.

Note - When using the SR-IOV function, the following restrictions are added to the logical domains of Oracle Solaris 10 for Oracle VM Server for SPARC 3.2 and later.
- The root domain does not support the SR-IOV function.
- The use of the SR-IOV function with the I/O domain is not recommended.
   The SR-IOV function is scheduled to be made unavailable with versions later than Oracle VM Server for SPARC 3.2.
Therefore, use Oracle Solaris 11.1 or later with all logical domains to use the SR-IOV function. For details, see the *Oracle VM Server for SPARC 3.2 Administration Guide*.

Table B-1   Cards That Support SR-IOV (Fujitsu Product ID)

Category	Name	Product ID	Driver Name Software Product Name	I/O Domain Resiliency
LAN	Dual Gigabit Ethernet card (MMF)	SP1X7GD2F	Oracle Solaris (igb)	Supported (*3)
	Quad Gigabit Ethernet card (UTP)	SP1X7GQ2F	Oracle Solaris (igb)	Supported (*3)
	Dual 10 Gigabit Ethernet card	SE1X7HE3G	Oracle Solaris (ixgbe)	Supported (*3)
	Dual 10Gigabit Ethernet card (10GBase-T)	SP1X7HF1F	Oracle Solaris (ixgbe)	Supported (*3)
	Quad 10 Gigabit Ethernet card	SP1X7HH1F	Oracle Solaris (i40e)	Supported (*4)
	Dual 25 Gigabit Ethernet card	SP1X7JD1F	Oracle Solaris (bnxt)	Supported
	Dual 40 Gigabit Ethernet card	SP1X7HG1F	Oracle Solaris (i40e)	Supported

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Table B-1   Cards That Support SR-IOV (Fujitsu Product ID) *(continued)*

Category	Name	Product ID	Driver Name / Software Product Name	I/O Domain Resiliency
InfiniBand (*1)	Dual Port InfiniBand 4x QDR card	SE1X7BA12F	Oracle Solaris (hermon)	Not supported
	Dual Port InfiniBand 4x QDR card	SP1X7BA12F	Oracle Solaris (hermon)	Not supported
FC (*2)	Dual-channel 32 Gbps Fibre Channel card	SP1X7FAC2F	Oracle Solaris (qlc) (*5)	Not supported (*6)
	Dual-channel 32 Gbps Fibre Channel card	SP1X7FBC2F	Oracle Solaris (emlxs)	Not supported (*6)
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FAA2F	Oracle Solaris (qlc)	Supported (*3)
	Dual-channel 16Gbps Fibre Channel card (LR SFP+)	SP1X7FAB2F	Oracle Solaris (qlc)	Supported (*3)
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FBA2F	Oracle Solaris (emlxs)	Supported (*7)
	Quad-channel 16Gbps Fibre Channel card (SR)	SP0X7FAA4F	Oracle Solaris (qlc) (*5)	Not supported (*6)

*1 An InfiniBand switch that supports SR-IOV is required. For details, see the *Oracle VM Server for SPARC 3.2 Administration Guide.*
*2 For details on the Fibre Channel SR-IOV, see the *Oracle VM Server for SPARC 3.2 Administration Guide.*
*3 Oracle Solaris 11.2 SRU 11.2.8.4.0 or later supports the card.
*4 The following conditions must be met in order to use the Quad 10Gigabit Ethernet card in an SR-IOV environment.
     - The ID of the applied PCIe card firmware patch is 27397966.
     - The OS version on the root domain that has the Physical Function (PF) is Solaris 11.3.22.3.0 or later.
     - The OS version on the I/O domain that has the Virtual Function (VF) is Solaris 11.3.27.4.0 or later.
*5 Oracle Solaris 11.4 SRU 11.4.1.4.0 or later supports the card.
*6 A configuration with I/O root domain redundancy cannot be built using the multi-path function for I/O domains.
*7 Oracle Solaris 11.2 SRU 11.2.11.5.0 or later supports the card.

Table B-2   Cards That Support SR-IOV (Oracle Product ID)

Category	Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Software Product Name (Driver Name)	I/O Domain Resiliency
LAN	Sun Dual Port GbE PCIe 2.0 Low Profile Adapter, MMF	7100482 (7100481)	Oracle Solaris (igb)	Supported (*3)
	Sun Quad Port GbE PCIe 2.0 Low Profile Adapter, UTP	7100479 (7100477)	Oracle Solaris (igb)	Supported (*3)
	Sun Dual Port 10GBase-T Adapter	7100563 (7100488)	Oracle Solaris (ixgbe)	Supported (*3)
	Sun Dual 10 GbE SFP+ PCIe 2.0 Low Profile Adapter	1109A-Z (X1109A-Z)	Oracle Solaris (ixgbe)	Supported (*3)

Table B-2   Cards That Support SR-IOV (Oracle Product ID) *(continued)*

Category	Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Software Product Name (Driver Name)	I/O Domain Resiliency
	Oracle Quad Port 10GBase-T Adapter	7111182 (7111181)	Oracle Solaris (i40e)	Supported (*4)
	Oracle Dual Port 25 Gb Ethernet Adapter	7118015 (7118016)	Oracle Solaris (bnxt)	Supported
	Oracle Quad 10 Gb or Dual 40 Gb Ethernet Adapter	7114148 (7114134)	Oracle Solaris (i40e)	Supported
InfiniBand (*1)	Sun InfiniBand QDR Host Channel Adapter PCIe: low profile	4242A (X4242A)	Oracle Solaris (hermon)	Not supported
	Oracle Dual Port QDR InfiniBand Adapter M3	7104073 (7104074)	Oracle Solaris (hermon)	Not supported
FC (*2)	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic	7115462 (7115460)	Oracle Solaris (qlc) (*5)	Not supported (*6)
	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, Emulex	7115459 (7115461)	Oracle Solaris (emlxs)	Not supported (*6)
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Emulex with the 16 Gb FC short wave optics with emlxs	7101683 (7101684) +7101685 (7101686)	Oracle Solaris (emlxs)	Supported (*7)
	Sun Storage 16Gb Fibre Channel PCIe Universal Host Bus Adapter, Qlogic with the 16Gb FC short wave optics	7101673 (7101674) + 7101675 (7101676)	Oracle Solaris (qlc)	Supported (*3)
	Sun Storage 16Gb Fibre Channel PCIe Universal Host Bus Adapter, Qlogic with the 16Gb FC longwave optics	7101673 (7101674) + +7101679 (7101680)	Oracle Solaris (qlc)	Supported (*3)

*1 An InfiniBand switch that supports SR-IOV is required. For details, see the *Oracle VM Server for SPARC 3.2 Administration Guide*.
*2 For details on the Fibre Channel SR-IOV, see the *Oracle VM Server for SPARC 3.2 Administration Guide*.
*3 Oracle Solaris 11.2 SRU 11.2.8.4.0 or later supports the card.
*4 The following conditions must be met in order to use the Oracle Quad Port 10GBase-T Adapter in an SR-IOV environment.
    - The ID of the applied PCIe card firmware patch is 27397966.
    - The OS version on the root domain that has the Physical Function (PF) is Solaris 11.3.22.3.0 or later.
    - The OS version on the I/O domain that has the Virtual Function (VF) is Solaris 11.3.27.4.0 or later.
*5 Oracle Solaris 11.4 SRU 11.4.1.4.0 or later supports the card.
*6 A configuration with I/O root domain redundancy cannot be built using the multi-path function for I/O domains.
*7 Oracle Solaris 11.2 SRU 11.2.11.5.0 or later supports the card.

SR-IOV supporting cards that have Fujitsu product IDs. Table B-4 lists the numbers of PFs/VFs on the SR-IOV supporting cards that have Oracle product IDs.

Table B-3   Numbers of PFs/VFs on the SR-IOV Supporting Cards (Fujitsu Product ID)

Category	Name	Product ID	Number of PFs/Card (*1)	Number of VFs/PF (*2)	Number of VFs/Domain (*3)
LAN	Dual Gigabit Ethernet card (MMF)	SP1X7G D2F	2	7	7 (Solaris 11) 6 (Solaris 10)
	Quad Gigabit Ethernet card (UTP)	SP1X7G Q2F	4	7	7 (Solaris 11) 3 (Solaris 10)
	Dual 10 Gigabit Ethernet card	SE1X7H E3G	2	63	63 (Solaris 11) 1 (Solaris 10)
	Dual 10Gigabit Ethernet card (10GBase-T)	SP1X7H F1F	2	63	63 (Solaris 11) 1 (Solaris 10)
	Quad 10 Gigabit Ethernet card	SP1X7H H1F	2	63	63 (Solaris 11)
	Dual 25 Gigabit Ethernet card	SP1X7JD1F	2	8	8 (Solaris 11)
	Dual 40 Gigabit Ethernet card	SP1X7H G1F	2 (2 x 40 Gbps) 4 (4 x 10 Gbps, 2 x 2 x 10 Gbps)	63 (2 x 40G) 31 (4 x 10G, 2 x 2 x 10G)	63 (Solaris 11)
InfiniBand	Dual Port InfiniBand 4x QDR card	SE1X7B A12F	1	63	63 (Solaris 11) 12 (Solaris 10)
	Dual Port InfiniBand 4x QDR card	SP1X7B A12F	1	63	63 (Solaris 11) 12 (Solaris 10)
FC	Dual-channel 32 Gbps Fibre Channel card	SP1X7F AC2F	2	16	16 (Solaris 11)
	Dual-channel 32 Gbps Fibre Channel card	SP1X7F BC2F	2	16	16 (Solaris 11)
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7F AA2F	2	16	16 (Solaris 11) 8 (Solaris 10)
	Dual-channel 16Gbps Fibre Channel card (LR SFP+)	SP1X7F AB2F	2	16	16 (Solaris 11) 8 (Solaris 10)
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7F BA2F	2	8	8 (Solaris 11) 4 (Solaris 10)
	Quad-channel 16Gbps Fibre Channel card (SR)	SP0X7F AA4F	4	16	16 (Solaris 11)

*1 The number of PFs created for each card
*2 The number of VFs created for each PF
*3 The number of VFs assigned from each PF/card for a domain of Oracle Solaris 10 or Oracle Solaris 11 Note that support for the SR-IOV I/O domain in Oracle Solaris 10 is scheduled to be eliminated in versions later than Oracle VM Server for SPARC 3.2. Therefore, use Oracle Solaris 11.1 or later with all logical domains to use the SR-IOV function.

Table B-4   Numbers of PFs/VFs on the SR-IOV Supporting Cards (Oracle Product ID)

Category	Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Number of PFs/Card (*1)	Number of VFs/PF (*2)	Number of VFs/Domain (*3)
LAN	Sun Dual Port GbE PCIe 2.0 Low Profile Adapter, MMF	7100482 (7100481)	2	7	7 (Solaris 11) 6 (Solaris 10)
	Sun Quad Port GbE PCIe 2.0 Low Profile Adapter, UTP	7100479 (7100477)	4	7	7 (Solaris 11) 3 (Solaris 10)
	Sun Dual Port 10GBase-T Adapter	7100563 (7100488)	2	63	63 (Solaris 11) 1 (Solaris 10)
	Sun Dual 10 GbE SFP+ PCIe 2.0 Low Profile Adapter	1109A-Z (X1109A-Z)	2	63	63 (Solaris 11) 1 (Solaris 10)
	Oracle Quad Port 10GBase-T Adapter	7111182 (7111181)	2	63	63 (Solaris 11)
	Oracle Dual Port 25 Gb Ethernet Adapter	7118015 (7118016)	2	8	8 (Solaris 11)
	Oracle Quad 10 Gb or Dual 40 Gb Ethernet Adapter	7114148 (7114134)	2 (2 x 40 Gbps) 4 (4 x 10 Gbps, 2 x 2 x 10 Gbps)	63 (2 x 40G) 31 (4 x 10G, 2 x 2 x 10G)	63 (Solaris 11)
InfiniBand	Sun InfiniBand QDR Host Channel Adapter PCIe: low profile	4242A (X4242A)	1	63	63 (Solaris 11) 12 (Solaris 10)
	Oracle Dual Port QDR InfiniBand Adapter M3	7104073 (7104074)	1	63	63 (Solaris 11) 12 (Solaris 10)
FC	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic	7115462 (7115460)	2	16	16 (Solaris 11)
	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, Emulex	7115459 (7115461)	2	16	16 (Solaris 11)
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Qlogic with the 16 Gb FC short wave optics	7101673 (7101674) + 7101675 (7101676)	2	16	16 (Solaris 11) 8 (Solaris 10)
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Qlogic with the 16 Gb FC long wave optics	7101673 (7101674) + 7101679 (7101680)	2	16	16 (Solaris 11) 8 (Solaris 10)

Table B-4   Numbers of PFs/VFs on the SR-IOV Supporting Cards (Oracle Product ID) *(continued)*

Category	Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Number of PFs/Card (*1)	Number of VFs/PF (*2)	Number of VFs/Domain (*3)
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Emulex with the 16 Gb FC short wave optics with emlxs	7101683 (7101684) + 7101685 (7101686)	2	8	8 (Solaris 11) 4 (Solaris 10)

*1 The number of PFs created for each card
*2 The number of VFs created for each PF
*3 The number of VFs assigned from each PF/card for a domain of Oracle Solaris 10 or Oracle Solaris 11 Note that support for the SR-IOV I/O domain in Oracle Solaris 10 is scheduled to be eliminated in versions later than Oracle VM Server for SPARC 3.2. Therefore, use Oracle Solaris 11.1 or later with all logical domains to use the SR-IOV function.

Appendix C

Cards That Support Direct I/O

This appendix describes the cards that support the direct I/O (DIO) function on the SPARC M10. For details on the direct I/O (DIO) function, see the *Oracle VM Server for SPARC 3.1 Release Notes*.
Table C-1 lists the direct I/O supporting cards that have Fujitsu product IDs. Table C-2 lists the direct I/O supporting cards that have Oracle product IDs.

Table C-1   Cards That Support Direct I/O (Fujitsu Product ID)

Category	Name	Product ID	OVM 3.1 or later	OVM 3.0
Link	PCI expansion unit connection card	SPME8LK1F	Not supported	Not supported
LAN	Dual Gigabit Ethernet card (MMF)	SP1X7GD2F	Supported	Supported
	Dual Gigabit Ethernet card (MMF)	SP1X7GD1F	Supported	Supported
	Quad Gigabit Ethernet card (UTP)	SP1X7GQ2F	Supported	Supported
	Quad Gigabit Ethernet card (UTP)	SP1X7GQ1F	Supported	Supported
	Dual 10 Gigabit Ethernet card	SE1X7HE3G	Supported	Supported
	Dual 10 Gigabit Ethernet card (10GBase-T)	SP1X7HF1F	Supported	Supported
	Quad 10 Gigabit Ethernet card	SP1X7HH1F	Not supported	Not supported
	Dual 25 Gigabit Ethernet card	SP1X7JD1F	Not supported	Not supported
	Dual 40 Gigabit Ethernet card	SP1X7HG1F	Not supported	Not supported
FCoE	Dual-channel 10Gbps FCoE card (for optical cable)	SP1X7FAR2F	Supported	Not supported
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable)	SP1X7FAS2F	Supported	Not supported
	Dual-channel 10Gbps FCoE card (for optical cable)	SP1X7FBR2F	Supported	Not supported

Table C-1   Cards That Support Direct I/O (Fujitsu Product ID) *(continued)*

Category	Name	Product ID	OVM 3.1 or later	OVM 3.0
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable)	SP1X7FBS2F	Supported	Not supported
	Dual 10Gbps FCoE card (for optical cable)	SE0X7EF12F	Not supported	Not supported
	Dual 10Gbps FCoE card (for Copper Twinax cable)	SE0X7EC12F	Not supported	Not supported
FC	Single-channel 8Gbps Fibre Channel card	SE0X7F21F	Supported	Supported
	Dual-channel 8Gbps Fibre Channel card	SE0X7F22F	Supported	Supported
	Single-channel 8Gbps Fibre Channel card	SE0X7F31F	Supported	Supported
	Dual-channel 8Gbps Fibre Channel card	SE0X7F32F	Supported	Supported
	Dual-channel 32 Gbps Fibre Channel card	SP1X7FAC2F	Not supported	Not supported
	Dual-channel 32 Gbps Fibre Channel card	SP1X7FBC2F	Not supported	Not supported
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FAA2F	Supported	Not supported
	Dual-channel 16Gbps Fibre Channel card (LR SFP+)	SP1X7FAB2F	Supported	Not supported
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FBA2F	Supported	Not supported
	Quad-channel 16Gbps Fibre Channel card (SR)	SP0X7FAA4F	Not supported	Not supported
SAS	12Gbps SAS card	SP1X7SA3F	Not supported	Not supported
	6Gbps SAS card	SE0X7SA2F	Supported	Supported
	SAS card	SE0X7SA1F	Not supported	Not supported
FLASH	3.2 TB Flash Accelerator Card	SP0X7Y42F	Not supported	Not supported
	Flash Accelerator F320 card	SP1X7Y41F	Not supported	Not supported
	Flash Accelerator F160 card	SP1X7Y31F	Not supported	Not supported
	Flash Accelerator F80 card	SP1X7Y21F	Not supported	Not supported
	Flash Accelerator F40 card	SP1X7Y11F	Supported	Supported
InfiniBand	Dual Port InfiniBand 4x QDR card	SP1X7BA12F	Not supported	Not supported

Table C-1 Cards That Support Direct I/O (Fujitsu Product ID) *(continued)*

Category	Name	Product ID	OVM 3.1 or later	OVM 3.0
	Dual Port InfiniBand 4x QDR card	SE1X7BA12F	Not supported	Not supported

Table C-2 Cards That Support Direct I/O (Oracle Product ID)

Category	Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	OVM 3.1 or later	OVM 3.0
Link	Link card kit	7105513 (7105576)	Not supported	Not supported
LAN	Sun Dual Port GbE PCIe 2.0 Low Profile Adapter, MMF	7100482 (7100481)	Supported	Supported
	Sun Quad Port GbE PCIe 2.0 Low Profile Adapter,UTP	7100479 (7100477)	Supported	Supported
	Sun Dual Port 10GBase-T Adapter	7100563 (7100488)	Supported	Supported
	Sun Dual 10 GbE SFP+ PCIe 2.0 Low Profile Adapter	1109A-Z (X1109A-Z)	Supported	Supported
	PCIe Quad port GigE (copper) x8 lane card	4447AZ-N (X4447A-Z-N)	Not supported	Not supported
	PCI-E Low-Profile Dual GigE MMF	7281A-2-N (X7281A-2-N)	Not supported	Not supported
	Oracle Quad Port 10GBase-T Adapter	7111182 (7111181)	Not supported	Not supported
	Oracle Dual Port 25 Gb Adapter	7118015 (7118016)	Not supported	Not supported
	Oracle Quad 10 Gb or Dual 40 Gb Ethernet Adapter	7114148 (7114134)	Not supported	Not supported
FCoE/FC	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic	7115460 (7115462)	Not supported	Not supported
	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, Emulex	7115459 (7115461)	Not supported	Not supported
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and SR optics	SG-PCIEFCOE2-Q-SR (7105381, SG-XPCIEFCOE2-QSR)	Not supported	Not supported
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and Twin-AX	SG-PCIEFCOE2-Q-TA (7105382, SG-XPCIEFCOE2-QTA)	Not supported	Not supported
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter Qlogic	7101673 (7101674)	-	-
	with the 16 Gb FC short wave optics	with 7101675 (7101676)	Supported	Not supported

Table C-2   Cards That Support Direct I/O (Oracle Product ID) *(continued)*

Category	Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	OVM 3.1 or later	OVM 3.0
	with the 16 Gb FC long wave optics	with 7101679 (7101680)	Supported	Not supported
	with the 10 Gb FCoE short reach optics or TwinAx cables	with 7101677 (7101678) or TwinAx cables	Supported	Not supported
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Emulex	7101683 (7101684)	-	-
	with the 16 Gb FC short wave optics	with 7101685 (7101686)	Supported	Not supported
	with the 10 Gb FCoE short reach optics or TwinAx cables	with 7101687 (7101688)	Supported	Not supported
	8 Gb FC PCIe, QLogic, Dual Port	SG-PCIE2FC-QF8-Z (SG-XPCIE2FC-QF8-N)	Supported	Supported
	8 Gb FC PCIe,QLogic, Single Port	SG-PCIE1FC-QF8-Z (SG-XPCIE1FC-QF8-N)	Supported	Supported
	8 Gb FC PCIe, Emulex, Dual Port	SG-PCIE2FC-EM8-Z (SG-XPCIE2FC-EM8-N)	Supported	Supported
	8 Gb FC PCIe, Emulex, Single Port	SG-PCIE1FC-EM8-Z (SG-XPCIE1FC-EM8-N)	Supported	Supported
SAS	Oracle Storage 12 Gb SAS PCIe HBA, external: 8 port	7110118 (7110119)	Not supported	Not supported
	Sun Storage 6 Gb SAS PCIe HBA: 8port, External	SG-SAS6-EXT-Z (7105387, SGX-SAS6-EXT-Z)	Supported	Supported
	Sun StorageTek 8-port External SAS PCI-Express Host Bus Adapter	SG-PCIE8SAS-E-Z-N (SG-XPCIE8SAS-E-ZN)	Supported	Supported
FLASH	Fujitsu 3.2 TB Flash Accelerator Card	7119601 (7119603)	Not supported	Not supported
	Oracle Flash Accelerator F320 PCIe Card	7113825 (7113826)	Not supported	Not supported
	Flash Accelerator F160 card	7110864 (7110865)	Not supported	Not supported
	Flash Accelerator F80 PCIe Card:800GB, eMLC	7107091 (7107092)	Not supported	Not supported
	Flash Accelerator F40 card	7104480 (7104482)	Supported	Supported

Table C-2 Cards That Support Direct I/O (Oracle Product ID) *(continued)*

Category	Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	OVM 3.1 or later	OVM 3.0
InfiniBand	Oracle Dual port QDR InfiniBand Adapter M3	7104073 (7104074)	Not supported	Not supported
	Sun InfiniBand QDR Host Channel Adapter PCIe: low profile	4242A (X4242A)	Not supported	Not supported

-: Not applicable

Appendix D

Cards That Support the Dynamic Reassignment Function for the PCIe End Point Device (PCIe Card)

This appendix describes the cards that support the dynamic reassignment function for the PCIe end point device (PCIe card) on the SPARC M10. For details on this function, see the *Oracle VM Server for SPARC 3.1 Release Notes*.
Table D-1 lists the supporting cards that have Fujitsu product IDs. Table D-2 lists the supporting cards that have Oracle product IDs.

Table D-1   Cards That Support the Dynamic Reassignment Function for the PCIe End Point Device (PCIe Card) (Fujitsu Product ID)

Category	Name	Product ID	OVM 3.1.1.1 or later
Link	PCI expansion unit connection card	SPME8LK1F	-
LAN	Dual Gigabit Ethernet card (MMF)	SP1X7GD2F	Supported
	Dual Gigabit Ethernet card (MMF)	SP1X7GD1F	Supported
	Quad Gigabit Ethernet card (UTP)	SP1X7GQ2F	Supported
	Quad Gigabit Ethernet card (UTP)	SP1X7GQ1F	Supported
	Dual 10 Gigabit Ethernet card	SE1X7HE3G	Supported
	Dual 10 Gigabit Ethernet card (10GBase-T)	SP1X7HF1F	Supported
	Quad 10 Gigabit Ethernet card	SP1X7HH1F	-
	Dual 25 Gigabit Ethernet card	SP1X7JD1F	-
	Dual 40 Gigabit Ethernet card	SP1X7HG1F	-
FCoE	Dual-channel 10Gbps FCoE card (for optical cable)	SP1X7FAR2F	-
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable)	SP1X7FAS2F	-
	Dual-channel 10Gbps FCoE card (for optical cable)	SP1X7FBR2F	-
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable)	SP1X7FBS2F	-
	Dual 10Gbps FCoE card (for optical cable)	SE0X7EF12F	-

Table D-1   Cards That Support the Dynamic Reassignment Function for the PCIe End Point Device (PCIe
             Card) (Fujitsu Product ID) *(continued)*

Category	Name	Product ID	OVM 3.1.1.1 or later
	Dual 10Gbps FCoE card (for Copper Twinax cable)	SE0X7EC12F	-
FC	Single-channel 8Gbps Fibre Channel card	SE0X7F21F	Supported
	Dual-channel 8Gbps Fibre Channel card	SE0X7F22F	Supported
	Single-channel 8Gbps Fibre Channel card	SE0X7F31F	Supported
	Dual-channel 8Gbps Fibre Channel card	SE0X7F32F	Supported
	Dual-channel 32 Gbps Fibre Channel card	SP1X7FAC2F	-
	Dual-channel 32 Gbps Fibre Channel card	SP1X7FBC2F	-
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FAA2F	Supported
	Dual-channel 16Gbps Fibre Channel card (LR SFP+)	SP1X7FAB2F	Supported
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FBA2F	Supported
	Quad-channel 16Gbps Fibre Channel card (SR)	SP0X7FAA4F	-
SAS	12Gbps SAS card	SP1X7SA3F	-
	6Gbps SAS card	SE0X7SA2F	Supported
	SAS card	SE0X7SA1F	-
FLASH	3.2 TB Flash Accelerator Card	SP0X7Y42F	-
	Flash Accelerator F320 card	SP1X7Y41F	-
	Flash Accelerator F160 card	SP1X7Y31F	-
	Flash Accelerator F80 card	SP1X7Y21F	-
	Flash Accelerator F40 card	SP1X7Y11F	-
InfiniBand	Dual Port InfiniBand 4x QDR card	SP1X7BA12F	-
	Dual Port InfiniBand 4x QDR card	SE1X7BA12F	-

-: Not applicable

Table D-2   Cards That Support the Dynamic Reassignment Function for the PCIe End Point Device (PCIe
             Card) (Oracle Product ID)

Category	Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	OVM 3.1.1.1 or later
Link	Link card kit	7105513 (7105576)	-
LAN	Sun Dual Port GbE PCIe 2.0 Low Profile Adapter, MMF	7100482 (7100481)	Supported

Category	Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	OVM 3.1.1.1 or later
	Sun Quad Port GbE PCIe 2.0 Low Profile Adapter,UTP	7100479 (7100477)	Supported
	Sun Dual Port 10GBase-T Adapter	7100563 (7100488)	Supported
	Sun Dual 10 GbE SFP+ PCIe 2.0 Low Profile Adapter	1109A-Z (X1109A-Z)	Supported
	PCIe Quad port GigE (copper) x8 lane card	4447AZ-N (X4447A-Z-N)	-
	PCI-E Low-Profile Dual GigE MMF	7281A-2-N (X7281A-2-N)	-
	Oracle Quad Port 10GBase-T Adapter	7111182 (7111181)	-
	Oracle Dual Port 25 Gb Ethernet Adapter	7118015 (7118016)	-
	Oracle Quad 10 Gb or Dual 40 Gb Ethernet Adapter	7114148 (7114134)	-
FCoE/FC	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic	7115460 (7115462)	-
	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, Emulex	7115459 (7115461)	-
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and SR optics	SG-PCIEFCOE2-Q-SR (7105381, SG-XPCIEFCOE2-QSR)	-
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and Twin-AX	SG-PCIEFCOE2-Q-TA (7105382, SG-XPCIEFCOE2-QTA)	-
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter Qlogic	7101673 (7101674)	-
	with the 16 Gb FC short wave optics	with 7101675 (7101676)	Supported
	with the 16 Gb FC long wave optics	with 7101679 (7101680)	Supported
	with the 10 Gb FCoE short reach optics or TwinAx cables	with 7101677 (7101678) or TwinAx cables	-
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Emulex	7101683 (7101684)	-
	with the 16 Gb FC short wave optics	with 7101685 (7101686)	Supported
	with the 10 Gb FCoE short reach optics or TwinAx cables	with 7101687 (7101688)	-
	8 Gb FC PCIe, QLogic, Dual Port	SG-PCIE2FC-QF8-Z (SG-XPCIE2FC-QF8-N)	Supported
	8 Gb FC PCIe, QLogic, Single Port	SG-PCIE1FC-QF8-Z (SG-XPCIE1FC-QF8-N)	Supported

Category	Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	OVM 3.1.1.1 or later
	8 Gb FC PCIe, Emulex, Dual Port	SG-PCIE2FC-EM8-Z (SG-XPCIE2FC-EM8-N)	Supported
	8 Gb FC PCIe, Emulex, Single Port	SG-PCIE1FC-EM8-Z (SG-XPCIE1FC-EM8-N)	Supported
SAS	Oracle Storage 12 Gb SAS PCIe HBA, external: 8 port	7110118 (7110119)	-
	Sun Storage 6 Gb SAS PCIe HBA: 8port, External	SG-SAS6-EXT-Z (7105387, SGX-SAS6-EXT-Z)	Supported
	Sun StorageTek 8-port External SAS PCI-Express Host Bus Adapter	SG-PCIE8SAS-E-Z-N (SG-XPCIE8SAS-E-ZN)	Supported
FLASH	Fujitsu 3.2 TB Flash Accelerator Card	7119601 (7119603)	-
	Oracle Flash Accelerator F320 PCIe Card	7113825 (7113826)	-
	Flash Accelerator F160 Card	7110864 (7110865)	-
	Flash Accelerator F80 PCIe Card:800GB, eMLC	7107091 (7107092)	-
	Flash Accelerator F40 card	7104480 (7104482)	-
InfiniBand	Oracle Dual port QDR InfiniBand Adapter M3	7104073 (7104074)	-
	Sun InfiniBand QDR Host Channel Adapter PCIe: low profile	4242A (X4242A)	-

-: Not applicable

Appendix E

Cards That Support EFI (GPT) Labeled Disks

This appendix describes the cards that support EFI (GPT) labeled disks.
The following tables show the PCIe cards that support the activation of Oracle Solaris from an EFI (GPT) labeled disk, as well as the size of the disk.
Table E-1 lists the cards that support EFI (GPT) labeled disks and have Fujitsu product IDs. Table E-2 lists the cards that support EFI (GPT) labeled disks and have Oracle product IDs.

Table E-1   Cards That Support EFI (GPT) Labeled Disks (Fujitsu Product ID)

Category	Name	Product ID	Disk Size	
			Under 2 TiB	2 TiB or More
FCoE	Dual-channel 10Gbps FCoE card (for optical cable)	SP1X7FAR2F	Supported	Not supported
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable)	SP1X7FAS2F	Supported	Not supported
	Dual-channel 10Gbps FCoE card (for optical cable)	SP1X7FBR2F	Supported	Not supported
	Dual-channel 10Gbps FCoE card (for Copper Twinax cable)	SP1X7FBS2F	Supported	Not supported
	Dual 10Gbps FCoE card (for optical cable)	SE0X7EF12F	Supported	Not supported
	Dual 10Gbps FCoE card (for Copper Twinax cable)	SE0X7EC12F	Supported	Not supported
FC	Single-channel 8Gbps Fibre Channel card	SE0X7F21F	Supported	Not supported
	Dual-channel 8Gbps Fibre Channel card	SE0X7F22F	Supported	Not supported
	Single-channel 8Gbps Fibre Channel card	SE0X7F31F	Supported	Not supported
	Dual-channel 8Gbps Fibre Channel card	SE0X7F32F	Supported	Not supported

Table E-1   Cards That Support EFI (GPT) Labeled Disks (Fujitsu Product ID) *(continued)*

Category	Name	Product ID	Disk Size	
			Under 2 TiB	2 TiB or More
	Dual-channel 32 Gbps Fibre Channel card	SP1X7FAC2F	Supported	Not supported
	Dual-channel 32 Gbps Fibre Channel card	SP1X7FBC2F	Supported	Not supported
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FAA2F	Supported	Not supported
	Dual-channel 16Gbps Fibre Channel card (LR SFP+)	SP1X7FAB2F	Supported	Not supported
	Dual-channel 16Gbps Fibre Channel card (SR SFP+)	SP1X7FBA2F	Supported	Not supported
	Quad-channel 16Gbps Fibre Channel card (SR)	SP0X7FAA4F	Supported	Not supported
SAS	12Gbps SAS card	SP1X7SA3F	Supported	Supported
	6Gbps SAS card	SE0X7SA2F	Supported	Supported
	3Gbps SAS card	SE0X7SA1F	Supported	Not supported
FLASH	3.2 TB Flash Accelerator Card	SP0X7Y42F	Supported	Supported
	Flash Accelerator F320 card	SP1X7Y41F	Supported	Supported
	Flash Accelerator F160 card	SP1X7Y31F	Supported	Not supported

Table E-2   Cards That Support EFI (GPT) Labeled Disks (Oracle Product ID)

Category	Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Disk Size	
			Under 2 TiB	2 TiB or More
FCoE	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, QLogic	7115460 (7115462)	Supported	Not supported
	Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile HBA, Emulex	7115459 (7115461)	Supported	Not supported
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Qlogic with the 10 Gb FCoE short reach optics	7101673 with 7101677	Supported	Not supported
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Qlogic with TwinAx cables	7101673 with TwinAx cables	Supported	Not supported
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Emulex with the 10 Gb FCoE short reach optics	7101683 with 7101687	Supported	Not supported

Category	Name	Factory-Mounted Product ID When Shipped (Expanded-on-Site Product ID)	Disk Size	
			Under 2 TiB	2 TiB or More
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Emulex with TwinAx cables	7101683 with TwinAx cables	Supported	Not supported
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and SR optics	SG-PCIEFCOE2-QSR	Supported	Not supported
	Sun Storage 10 GbE PCIe FCoE Converged Network Adapter: QLogic low profile, dual port and Twin-AX	SG-PCIEFCOE2-Q-TA	Supported	Not supported
FC	8 Gb FC PCIe, QLogic, Dual Port	SG-PCIE2FC-QF8-Z	Supported	Not supported
	8 Gb FC PCIe, QLogic, Single Port	SG-PCIE1FC-QF8-Z	Supported	Not supported
	8 Gb FC PCIe, Emulex, Dual Port	SG-PCIE2FC-EM8-Z	Supported	Not supported
	8 Gb FC PCIe, Emulex, Single Port	SG-PCIE1FC-EM8-Z	Supported	Not supported
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Qlogic with the 16 Gb FC short wave optics	7101673 with 7101675	Supported	Not supported
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Qlogic with the 16 Gb FC long wave optics	7101673 with 7101679	Supported	Not supported
	Sun Storage 16 Gb Fibre Channel PCIe Universal Host Bus Adapter, Emulex with the 16 Gb FC short wave optics	7101683 with 7101685	Supported	Not supported
SAS	Oracle Storage 12 Gb SAS PCIe HBA, external: 8 port	7110118 (7110119)	Supported	Supported
	Sun Storage 6 Gb SAS PCIe HBA: 8 ports, external	SG-SAS6-EXT-Z	Supported	Supported
	Sun StorageTek 8-port External SAS PCI-Express Host Bus Adapter	SG-PCIE8SAS-E-ZN	Supported	Not supported
FLASH	Fujitsu 3.2 TB Flash Accelerator Card	7119601 (7119603)	Supported	Supported
	Oracle Flash Accelerator F320 PCIe Card	7113825 (7113826)	Supported	Supported
	Flash Accelerator F160 Card	7110864 (7110865)	Supported	Not supported