

---

# SPARC Enterprise Servers

## Hardware Platform Guide

for Oracle Solaris 10

---





---

# Preface

Oracle Solaris is described as Solaris in this manual.

## Purpose

This manual provides information and notes for installing the software on SPARC Enterprise servers.

## Intended Readers

This manual is intended for system administrators who install Solaris OS and administrate the systems. Readers are expected to have the basic knowledge of a system administrator.

## Organization

This manual is organized as follows:

- Chapter 1 Before installing Solaris OS  
This chapter describes information to confirm before installing.
- Chapter 2 Notes when installing Solaris OS  
This chapter describes notes when installing Solaris OS.
- Chapter 3 Operation after Installation  
This chapter describes operations required after installing.
- Chapter 4 Notes on Solaris OS operation  
This chapter describes notes on Solaris OS operation.
- Chapter 5 Bug information and notes  
This chapter describes bug information and notes about Solaris OS.

## Related manuals

The documentation set for SPARC Enterprise servers is available on the following website:

Global Site

<http://www.fujitsu.com/sparcenterprise/manual/>

Japanese Site

<http://jp.fujitsu.com/platform/server/sparcenterprise/manual/>

## Text Conventions

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

Fonts/Symbols	Meaning	Example
<b>AaBbCc123</b>	Commands that users enter.	# <b>ls -l</b> <Return>

## Prompt Notations

The prompt notations used in this manual are as follows.

Shell	Prompt Notations
XSCF	XSCF>
C shell	machine-name%
C shell super user	machine-name#
Bourne shell and Korn shell	\$
Bourne shell and Korn shell super user	#
OpenBoot PROM	ok

## High Risk Activity

This Product is designed, developed and manufactured as contemplated for general use, including without limitation, general office use, personal use, household use, and ordinary industrial use, but is not designed, developed and manufactured as contemplated for use accompanying fatal risks or dangers that, unless extremely high safety is secured, could lead directly to death, personal injury, severe physical damage or other loss (hereinafter “High Safety Required Use”), including without limitation, nuclear reaction control in nuclear facility, aircraft flight control, air traffic control, mass transport control, medical life support

---

---

system, missile launch control in weapon system. You shall not use this Product without securing the sufficient safety required for the High Safety Required Use. If you wish to use this Product for High Safety Required Use, please consult with our sales representatives in charge before such use.

## Trademarks

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

All SPARC trademarks are used under license from SPARC International, Inc. and are trademarks or registered trademarks of that company in the U.S. and other countries.

March, 2007

March 2012 sixteenth Edition
------------------------------

### Notes

- |   |
|---|
| <ul style="list-style-type: none"><li>● This manual may not be copied by any means without the express written permission of FUJITSU LIMITED.</li><li>● FUJITSU LIMITED reserves the right to make changes to this manual without prior notice.</li></ul> |
|---|

All Rights Reserved, Copyright © FUJITSU LIMITED 2007 - 2012

---

---

# Contents

Chapter 1	Before installing Solaris OS .....	1
1.1	How to determine swap size .....	1
1.2	How to use DVD drive.....	1
1.3	Flow of installation .....	1
Chapter 2	Notes when installing Solaris OS .....	3
2.1	Solaris Registration Wizard .....	3
2.2	Messages of st driver.....	3
2.3	Set up for NFS V4.....	3
2.4	Oracle Solaris Auto Registration.....	4
2.5	Selection of keyboard layout.....	5
2.6	SPARC Enterprise T1000 server.....	6
2.7	Other notes .....	6
Chapter 3	Operations after Installation.....	7
3.1	Set up system with large amount of memory .....	7
3.2	Add or remove DVD Drive Unit and TAPE Drive Unit on SPARC Enterprise M8000/M9000 servers (Solaris 10 OS 11/06 only).....	8
3.3	Wrong I/O device FRU could be reported .....	8
Chapter 4	Notes on Solaris OS operation.....	11
4.1	Enter the OpenBoot environment.....	11
4.2	CD-ROM/DVD-ROM in UNIX file system (UFS) format .....	11
4.3	TTYA port of SPARC Enterprise T1000/T2000/T5120/T5140/T5220/T5240/T5440 servers .....	11
4.4	The order of instance numbers of optional cards .....	11
4.5	Changing of operation mode of on-board network interface (e1000g) on SPARC Enterprise T2000/T5120/T5220 servers .....	12
4.6	Support of JumboFrame for on-board network interface(bge) on SPARC Enterprise T1000 server (Solaris 10 OS 11/06 only).....	13
4.7	Notes on using the Standard Solaris Fibre Channel Driver .....	13
4.7.1	I/O Performance.....	13
4.7.2	Multi-host Connection .....	13
4.8	XAUI Card Disables an Onboard Network Port on SPARC Enterprise T5140/T5240 servers.....	14
4.9	XAUI Card Disables an Onboard Network Port on SPARC Enterprise T5440 server.....	14
4.10	DSCP interface on SPARC Enterprise M3000/ M4000/M5000/M8000/M9000 servers .....	14
Chapter 5	Bug information and notes .....	15



---

# Chapter 1 Before installing Solaris OS

This chapter describes what information should be confirmed before installing Solaris OS.

## 1.1 How to determine swap size

Swap space size is determined by considering the swap space size requirement of the application and the physical memory size.

If the system runs out of swap space when the application is in use, the system may terminate abnormally. Therefore, ensure that you allocate enough swap space to satisfy the demands of all the applications.

The memory image is written once in the swap space listed first in the `/etc/vfstab` file. If the system crashes, the memory image in the swap space is copied as a crash dump file under the `/var/crash/hostname` directory as the system reboots.

To ensure crash dump files are complete, follow the table to determine the swap space size.

**Table 1.1 Swap space**

System	Physical memory	Swap space size
SPARC Enterprise T1000/T2000/T5120/T5140 /T5220/T5240/T5440/M3000 /M4000/M5000/M8000/M9000 servers SPARC T3-1/T3-2/T3-4 servers	Less than 32Gbytes	Greater than 2Gbytes
	32Gbytes and less than 128Gbytes	Greater than 4Gbytes
	128Gbytes and less than 256Gbytes	Greater than 8Gbytes
	256Gbytes and greater than 256Gbytes	Greater than 6 percent of physical memory

**Note:**

A greater amount of swap space may be required for the memory image, depending on how the system has been used at the time of the system crash. If the memory image is larger than the swap size, the crash dump file cannot be taken. In this case, enlarge the swap space or the device of the crash dump file with the `dumpadm(1M)` command. For use of the `dumpadm(1M)`, see the relevant man pages.

## 1.2 How to use DVD drive

When using DVD drive on SPARC Enterprise M8000/M9000 servers, it needs to be set up with the `cfgdevice(8)` command of eXtended System Control Facility (XSCF).

For more details, refer to “SPARC Enterprise M3000/M4000/M5000/M8000/M9000 Servers XSCF Reference Manual”.

## 1.3 Flow of installation

Flow of installation is as follows:

1. Set up DVD drive if you use DVD drive on SPARC Enterprise M8000/M9000 servers to install Solaris OS. For more information, refer to “SPARC Enterprise

---

M3000/M4000/M5000/M8000/M9000 Servers XSCF Reference Manual”.

2. Install Solaris OS.
3. Add the following lines to /etc/system.

SPARC Enterprise T1000/T2000/T5120/T5140/T5220/T5240/T5440 servers

```
set autoup=60 *1
set pcie:pcie_aer_ce_mask=0x2001 *2
set pcie_expected_ce_mask = 0x2001 *6
set maxfastscan=0x2000
```

SPARC Enterprise M3000/M4000/M5000/M8000/M9000 servers

```
set autoup=60 *1
set drmach:fmem_timeout=30 *2
set heaplp_use_stlb=0 *3
set pcie:pcie_aer_ce_mask=0x2001 *2
set mc-opl:mc_max_rewrite_loop=20000 *4
set drmach:drmach_disable_mcopy = 1 *5
set pcie_expected_ce_mask = 0x2001 *6
set maxfastscan=0x2000
```

SPARC T3-1/T3-2/T3-4 servers

```
set autoup=60 *1
set maxfastscan=0x2000
```

\*1 The value depends on amount of the installed memory. For more information, refer to “3.1 Set up system with large amount of memory.”

\*2 This is no longer required in Solaris 10 OS 8/07 or later.

\*3 The following messages is displayed when the system is rebooted until 125100-04 or later is applied but this messages can be safely ignored. This is no longer required in Solaris 10 OS 10/08 or later.

```
sorry, variable 'heaplp_use_stlb' is not defined in the 'kernel'
```

\*4 This is no longer required in Solaris 10 OS 5/08 or later.

\*5 This is required only when Dynamic Reconfiguration is used.

\*6 This is no longer required in Solaris 10 OS 10/08 or later. When applying 137137-09, do not add this line.

4. Apply the latest Recommended & Security Patch Cluster for Solaris 10 OS.  
The latest Recommended & Security Patch Cluster contains important modifications such as mandatory patches for SPARC Enterprise servers.
5. If Enhanced Support Facility comes with SPARC Enterprise servers, install it.
6. Apply the PTF for Solaris 10 OS.
7. Apply the cluster for ESF contained the PTF.
8. Install Sun Explorer Data Collector 5.7 or later if you install Solaris OS on SPARC Enterprise T1000/T2000 servers. Install Sun Explorer Data Collector 5.10 or later if you install Solaris OS on SPARC Enterprise T5120/T5140/T5220/T5240/T5440 servers. Install Oracle Explorer Data Collector 6.5 or later if you install Solaris OS on SPARC T3-1/T3-2/T3-4 servers.

For SPARC Enterprise servers in sites of Japan, obtaining Recommended & Security Patches, Recommended & Security Patch Cluster, or PTF for applying them to Oracle Solaris 10 requires Fujitsu SupportDesk support contract.

For SPARC Enterprise servers in site except for Japan, please confirm conditions for obtaining patches above to Fujitsu sales representative in your region.

Please ask how to get Sun Explorer Data Collector/Oracle Explorer Data Collector to your Sales representative or Technical Support.

---

## Chapter 2 Notes when installing Solaris OS

This chapter describes notes when installing Solaris OS.

### 2.1 Solaris Registration Wizard

Although the window "Solaris Registration Wizard" may pop up when you login as super user, never register.

### 2.2 Messages of st driver

After upgrading to Solaris 10 or installing Solaris 10, if you edit /kernel/drv/st.conf file, the following message may be displayed while the system is booted afterwards.

```
<device path name> (stXX):  
<data-property-name> options value invalid bits set: 0x4000
```

"XX" shows the instance number of st driver.

This message shows that the bit value 0x4000(ST\_BUFFERED\_WRITES) of <options> in the /kernel/drv/st.conf file is invalid. However the system is not influenced even if this message is displayed, because the Solaris 10 system ignores the bit value ST\_BUFFERED\_WRITES of <options>.

If you do not want to display the message, change the <options> setting in the /kernel/drv/st.conf file so that the bit value 0x4000 is not specified. Refer to the following example.

Before changing the st.conf file

```
Tape-config-list=<vid+pid>, <pretty print>, <data-property-name>;  
<data-property-name> = 1,0x34,0,0xd639,4,0x00,0x8c,0x8c,0x8c,3;
```

After changing the st.conf file

```
Tape-config-list=<vid+pid>, <pretty print>, <data-property-name>;  
<data-property-name> = 1,0x34,0,0x9639,4,0x00,0x8c,0x8c,0x8c,3;
```

### 2.3 Set up for NFS V4

At the first system boot after installing Solaris 10 OS 11/06 or earlier, you are prompted to answer the following question about NFSv4. If you need to override NFSv4 default domain, answer "yes".

```
This system is configured with NFS version 4, which uses a domain  
name that is automatically derived from the system's name services.  
The derived domain name is sufficient for most configurations. In a  
few cases, mounts that cross different domains might cause files to  
be owned by "nobody" due to the lack of a common domain name.
```

```
Do you need to override the system's default NFS version 4 domain  
name (yes/no) ? [no] :
```

---

You are prompted to select NFSv4 domain name configuration during installation since Solaris 10 OS 8/07.

```
- NFSv4 Domain Name -----
NFS version 4 uses a domain name that is automatically derived from the
system's naming services. The derived domain name is sufficient for most
configurations. In a few cases, mounts that cross domain boundaries might
cause files to appear to be owned by "nobody" due to the lack of a common
domain name.

The current NFSv4 default domain is: ""

NFSv4 Domain Configuration
-----
[X] Use the NFSv4 domain derived by the system
[ ] Specify a different NFSv4 domain
```

## 2.4 Oracle Solaris Auto Registration

Oracle Solaris Auto Registration has been added since Solaris 10 9/10. Follow the instruction to disable to the auto registration.

1. Although the following menus are displayed and they prompt you to input some data, continue the installation without any input. Moreover, it doesn't matter whether "I would like to register using My Oracle Support information." is specified or not.

```
- Provide Solaris Auto Registration Info:-----
To improve products and services, Oracle Solaris communicates configuration
data to Oracle after rebooting.

You can register your version of Oracle Solaris to capture this data for
your use, or the data is sent anonymously.

For information about what configuration data is communicated and how to
control this facility, see the Release Notes or
www.oracle.com/goto/solarisautoreg.

> Use the arrow keys to select the option and press Return to
mark it [X].

-----
[X] I would like to register using My Oracle Support information.

-----
F2_Continue   F6_Help
```

```
- Provide Solaris AutoRegistration Info:-----
To register, complete the following fields:
- Confirm your existing My Oracle Support information.
- If using a proxy server, provide the proxy settings.
For information about what configuration data is communicated and how to
control this facility, see the Release Notes or
www.oracle.com/goto/solarisautoreg.

My Oracle Support User Name:
My Oracle Support User Password:
Proxy Server Host Name:
Proxy Server Port Number:
HTTP Proxy User Name:
HTTP Proxy Password:
-----
F2_Continue    F6_Help
```

2. Select how to reboot after the installation.
  - For a GUI installation, select “No” to “Reboot After Installation?” in the “Installer Options” menu.
  - For a text installation, select “Manual Reboot” in the “Reboot After Installation?” menu.
3. After the installation is complete but before rebooting the system, open a terminal window as follows:
  - For a GUI installation, right-click to open a terminal window.
  - For a text installation, press the exclamation point (!) to open a terminal window.
4. Remove the /a/var/tmp/autoreg\_config file.
5. Execute the reboot(1M) command.

If using Oracle Solaris Jumpstart or Oracle Solaris Live Upgrade, refer to “How to Disable Auto Registration” in the “Oracle Solaris 10 9/10 Release Notes.”

## 2.5 Selection of keyboard layout

You may be prompted to select the keyboard layout during installation since Solaris 10 OS 8/07.

If no keyboard is connected, select the default value (US-English) and continue the installation.

```
- Configure Keyboard Layout -----
Please specify the keyboard layout from the list below.

> To make a selection, use the arrow keys to highlight the option and
press Return to mark it [X].

Keyboard Layout
-----
^ [ ] Slovak
| [ ] Slovenian
| [ ] Spanish
| [ ] Swedish
| [ ] Swiss-French
| [ ] Swiss-German
| [ ] Taiwanese
| [ ] TurkishQ
| [ ] TurkishF
| [ ] UK-English
- [X] US-English
-----
F2_Continue    F6_Help
```

---

## 2.6 SPARC Enterprise T1000 server

SPARC Enterprise T1000 server is not able to connect a CD/DVD drive. Install Solaris OS with network installation.

## 2.7 Other notes

The following cases need to create an install server.

- If you install the Solaris software over the network using Dual Gigabit Ethernet card SE0X7GD1X, SE0X7GD2X or Quad Gigabit Ethernet card SE0X7GQ1X, SE0X7GQ2X
- If you boot the OS from the external file unit using Dual channel Ultra320 SCSI card SE0X7SC1X, SE0X7SC2X
- If you boot the OS from the external file unit or RAID device using SAS card SE0X7SA1

When you create an install server, please refer to the following manual.

- Install Server Build Guide I/O device driver(SPARC Enterprise)

The above manual is available in PDF format and included in the following CD-ROM attached to each card.

- FUJITSU PCI GigabitEthernet 3.0/4.0 CD-ROM
- FUJITSU ULTRA LVD SCSI Host Bus Adapter Driver 2.0/2.1 CD-ROM

---

## Chapter 3 Operations after Installation

This chapter describes operations required after installing.

### 3.1 Set up system with large amount of memory

CPU time is extensively occupied by fsflush daemon.

fsflush daemon finds modified data and metadata, which have not been written into backing store, then writes the data into backing store.

Therefore on a system with large amount of memory, fsflush takes a long time to examine the whole of the memory, which may result in occupying a certain cpu for a long time.

By changing the following kernel parameters, you can adjust the timing of launching fsflush daemon and size of memory scanned per launch.

<b>tune_t_fsflushr</b>	Specifies the interval by second at which fsflush daeamon is launched. The default is 1.
<b>autoup</b>	Specifies the time by second at which fsflush daemon scans whole memory. Increasing the value of autoup keeps the buffers around for a longer time in memory. The default is 30.

Making these parameters' values larger will be able to avoid the problem of CPU consumption.

However, if tune\_t\_fsflushr is too large, then amount of memory fsflush examines at a time will be large, too. So the default value is recommended.

In the case of a system with more than 32 Gbytes of memory, fsflush might not be able to examine all memory within 30 seconds, which is the default value of autoup. If fsflush cannot examine memory within 30 seconds, fsflush does not run periodically and it affects the system.

You may observe by the mpstat(1M) commad that the system time of a certain cpu is nearly 100%.

In such a case, you should change the value of autoup according to amount of memory of the system. The recommended values are as Table 3.1. "amount of memory" means the amount of memory installed to each domain on a system with multiple domains.

---

**Table 3.1 recommended value of autoup**

amount of memory [gigabyte]	autoup [second]
Less than 32	30
32 and less than 64	60
64 and less than 128	120
128 and less than 256	240
256 and more than 256	480

Do not make the value of autoup larger than the recommended one above.

Too large value of autoup causes the system to lose updated data when power outage occurs or the system panics.

To make the above values effective on your system, add the parameters to /etc/system and reboot the system.

**Example: specify autoup=60**

```
set autoup=60
```

## 3.2 Add or remove DVD Drive Unit and TAPE Drive Unit on SPARC Enterprise M8000/M9000 servers (Solaris 10 OS 11/06 only)

Do not add, or remove DVD Drive Unit and TAPE Drive Unit to a domain with the `cfgadm(1M)` command while Solaris OS is running.

When using DVD Drive Unit and TAPE Drive Unit, follow the procedure below to add the DVD Drive Unit and TAPE Drive Unit to a domain or remove the DVD Drive Unit and TAPE Drive Unit from a domain.

1. Use the `shutdown(1M)` command to go to the `ok` prompt.

```
# shutdown -i0 -y -g0 <Return>
```

2. Use the `cfgdevice(8)` command of XSCF for the operation.

(For more details, refer to “SPARC Enterprise M3000/M4000/M5000/M8000/M9000 Servers XSCF Reference Manual”.)

## 3.3 Wrong I/O device FRU could be reported

The following issue could be caused by a known bug of Solaris OS as CR#6536564 if I/O device hardware failure occurs on your system.

### Symptoms :

If hardware failure is caused on IOU device (includes under the IOU device) except IOU#0, the domain may report a wrong error report to XSCF. Therefore, the remote customer support system may report wrong FRU information. Also `showlogs(8)`, `showstatus(8)` and `showhardconf(8)` commands of XSCF may report wrong FRU information.

< Example : Result of `showlogs(8)` >

The `showlogs(8)` command result shows that FRU is /IOU#0 even if the hardware error occurs really on

---

---

IOU#1.

```
XSCF> showlogs error
...
Date: May 02 10:19:08 JST 2007 Code: 80000000-c1000000-12ce000000000000
Status: Warning Occurred: May 02 10:19:08.857 JST 2007
FRU: /IOU#0
Msg: PCI access error
```

**Conditions and environment :**

- SPARC Enterprise M4000/M5000/M8000/M9000 servers and,
- Solaris 10 OS 11/06 and,
- Hardware failure is caused on IOU device (includes under the IOU device) except IOU#0

**Workaround :**

To avoid this issue, rename ioboard.so file with the following instruction after applying 123839-07 or later patch.

1. Log on to the domain as root user and rename ioboard.so file.

```
# cd /usr/platform/SUNW,SPARC-Enterprise/lib/fm/topo/plugins <Return>
# mv ioboard.so ioboard.so.orig <Return>
```

2. Restart the fmd service.

```
# svcadm restart fmd <Return>
```

If the following messages are displayed after the above workaround is set, please contact your Salesrepresentative or Technical Support for additional information and software support.

```
SUNW-MSG-ID: SUNOS-8000-1L, TYPE: Defect, VER: 1, SEVERITY: Minor
EVENT-TIME: Sun May 6 18:22:24 PDT 2007
PLATFORM: SUNW,SPARC-Enterprise, CSN: BE80601007, HOSTNAME:
col2-ff-em7-d0
SOURCE: eft, REV: 1.16
EVENT-ID: cbfc5646-ce37-e504-f4d4-ff3a41bd415b
DESC: The EFT Diagnosis Engine encountered telemetry for which it is unable
to produce a diagnosis. This may indicate an incomplete EFT file provided
or a defect in the diagnosis algorithm. Refer to
http://sun.com/msg/SUNOS-8000-1L for more information.
AUTO-RESPONSE: Error reports from the component will be logged for
examination by Sun.
IMPACT: Automated diagnosis and response for these events will not occur.
REC-ACTION: Run pkgchk -n SUNWfmd to ensure that fault management software
is installed properly. Contact Sun for support.
```

**Notes :**

- No necessary the workaround if 125369-05 and later patch is installed. Do not set the workaround if the patch is installed.
- If I/O hardware error occurs without the workaround, Contact your Sales representative or Technical Support for additional information and software support.



---

## Chapter 4 Notes on Solaris OS operation

This chapter describes notes on Solaris OS operation.

### 4.1 Enter the OpenBoot environment

If a running system is moved to Open Boot Environment forcibly, data of the system might be damaged. To suppress an accidental break signal, do the following.

#### **SPARC Enterprise T1000/T2000/T5120/T5140/T5220/T5240/T5440 servers and SPARC T3-1/T3-2/T3-4 servers**

1. Edit the /etc/default/kbd as follows:

```
KEYBOARD_ABORT=disable
```

2. Set keyboard defaults from the /etc/default/kbd file.

```
# kbd -i <Return>
```

#### **SPARC Enterprise M3000/M4000/M5000/M8000/M9000 servers**

Set the mode switch on the operator panel to Locked and enable Secure Mode on each domain. For how to enable Secure Mode, refer to setdomainmode(8) in the “SPARC Enterprise M3000/M4000/M5000/M8000/M9000 servers XSCF Reference Manual”.

### 4.2 CD-ROM/DVD-ROM in UNIX file system (UFS) format

Do not use any CD-ROM/DVD-ROM in UNIX file system (UFS) format that is not produced for the Solaris OS.

Even if the file system in such a CD-ROM/DVD-ROM is in UFS format, its file construction may differ from that of a Solaris system. If such a CD-ROM/DVD-ROM is used, serious problems, including a system crash may occur.

### 4.3 TTYA port of SPARC Enterprise T1000/T2000/T5120/T5140/T5220/T5240/T5440 servers

TTYA port is used only for standard serial device. Console of the Solaris OS is not supported via TTYA. Do not set “ttya” as the value of OpenBoot PROM environment variables, “input-device” and “output-device”.

For more information, refer to “SPARC Enterprise T1000 Server Administration Guide”, “SPARC Enterprise T2000 Server Administration Guide”, “SPARC Enterprise T5120 and T5220 servers Administration Guide”, “SPARC Enterprise T5140 and T5240 servers Administration Guide” or “SPARC Enterprise T5440 Server Administration Guide.”

### 4.4 The order of instance numbers of optional cards

If an additional option card is installed, the instance number on the card might be assigned out of order.

---

Additional installation by Dynamic Reconfiguration or PCI Hot-plug is also applicable but replacement by Dynamic Reconfiguration or PCI Hot plug is not applicable.

If you need to assign the instance numbers orderly, follow these steps below.

1. Set the following in /etc/system.

```
set mtc_off=1
```

2. Reboot the system.
3. Insert the optional card.

After the above setting, it may take longer time to reboot the system. If that affects the system, delete the line and reboot the system.

## 4.5 Changing of operation mode of on-board network interface (e1000g) on SPARC Enterprise T2000/T5120/T5220 servers

This section explains the steps that are required when changing mode of operation of e1000g, the on-board network interface on SPARC Enterprise T2000/T5120/T5220 servers. The default operation mode of e1000g is auto-negotiation enabled, 1Gbps, and full-duplex. Normally you need not change the operation mode of e1000g, since the operation mode is set automatically with the link partner (e.g. switching HUB) that sets the auto-negotiation enable function. If you need to change the operation mode of e1000g by the `ndd (1M)` command, refer to the following.

Please note that the procedure of disabling auto-negotiation and mode of operation of e1000g driver by `ndd(1M)` is incompatible with other drivers.

Set up procedure is as follows:

```
# ndd -set /dev/e1000g<instance-number> adv_autoneg_cap 0 <Return>

# ndd -set /dev/e1000g<instance-number> force_speed_duplex value
<Return>
```

Specify the following values to set the mode of operation.

Value	mode of operation
1	10Mbps, half-duplex
2	10Mbps, full-duplex
3	100Mbps, half-duplex
4	100Mbps, full-duplex

For more information, refer to the man page of e1000g(7D).

Example:

Set auto-negotiation, 100Mbps, and half-duplex on e1000g0.

```
Disable auto-negotiation of e1000g0
# ndd -set /dev/e1000g0 adv_autoneg_cap 0 <Return>

Set operation mode of e1000g0 interface to 100Mbps, half-duplex.
# ndd -set /dev/e1000g0 force_speed_duplex 3 <Return>
```

Notes

- 
- If you change the mode of operation by `ndd(1M)` command, change the mode of operation of the link partner to operate them with the same mode.
  - For 1000Mbps, disabling auto-negotiation is not supported.

## 4.6 Support of JumboFrame for on-board network interface(bge) on SPARC Enterprise T1000 server (Solaris 10 OS 11/06 only)

The configuration of Jumbo frames is not supported for port 0 and port 1 (bge0 and bge1) that are on-board network interfaces on SPARC Enterprise T1000 server.

However, the configuration of Jumbo frames is supported for port 2 and port 3 (bge2 and bge3).

## 4.7 Notes on using the Standard Solaris Fibre Channel Driver

Several notes on using the standard Solaris fibre channel driver are described in this section.

- Target Host Bus Adaptor
  - XSEFC401AF
  - XSEFC402AF
  - XSEFC401AU
  - XSEFC402AU

### 4.7.1 I/O Performance

Due to Solaris specification, sufficient read performance may not be achieved when 4Gbps supported disk array unit is connected.

Reference values \*

Write performance: Approximately 365Mbyte/sec

Read performance: Approximately 180Mbyte/sec

\* These are actual values measured by Fujitsu. Note that the values may differ depending on the system configuration.

### 4.7.2 Multi-host Connection

When two or more hosts are connected to a single disk array (fibre channel switch connection), following caution must be observed.

- Connection of two or more hosts in the same zone is not supported. Zone must be divided using the Port Zoning feature of the fibre channel switch.

---

## 4.8 XAUI Card Disables an Onboard Network Port on SPARC Enterprise T5140/T5240 servers

Installing a 10GbE XFP XAUI Adapter Card (XAUI card) in slot 0 disables onboard network port 1 (NET1).

Installing a XAUI card in slot 1 disables on-board network port 0 (NET0).

For more information, refer to "SPARC Enterprise T5140 and T5240 Servers Product Notes".

## 4.9 XAUI Card Disables an Onboard Network Port on SPARC Enterprise T5440 server

Installing a 10GbE XFP XAUI Adapter Card (XAUI card) in slot 4 disables onboard network port 1 (NET1).

Installing a XAUI card in slot 5 disables on-board network port 0 (NET0).

For more information, refer to "SPARC Enterprise T5440 Servers Product Notes".

## 4.10 DSCP interface on SPARC Enterprise M3000/M4000/M5000/M8000/M9000 servers

Please ignore the "netmask" value of DSCP interface (sppp0) displayed by ifconfig(1M) command on SPARC Enterprise M3000/M4000/M5000/M8000/M9000 servers.

Under some conditions, the netmask of sppp0 might be different from the value set by setdscp(8) command from XSCF.

The cause is from the two reasons below.

- DSCP is based on PPP, which doesn't deliver a netmask value to the domain.
- ifconfig(1M) command shows a netmask value of the class of IP address of sppp0.

Please use different subnet on other LANs from sppp0 so that it can prevent confusion.

## Chapter 5 Bug information and notes

This chapter describes bug information and notes about Solaris OS.

First, refer to the following manual for bug information.

- “SPARC Enterprise T1000 Server Product Notes”
- “SPARC Enterprise T2000 Server Product Notes”
- “SPARC Enterprise T5120 and T5220 Servers Product Notes”
- “SPARC Enterprise T5140 and T5240 Servers Product Notes”
- “SPARC Enterprise T5440 Server Product Notes”
- “SPARC Enterprise M3000/M4000/M5000 M8000/M9000 Servers Product Notes”
- “Notes on Using SPARC T3-1 Server”
- “Notes on Using SPARC T3-2 Server”
- “Notes on Using SPARC T3-4 Server”
- “Solaris 10 Release Notes”

Contact your sales representative or access Fujitsu customers’ website “SupportDesk-web” for “Notes on Using SPARC T3-1 Server”, “Notes on Using SPARC T3-2 Server” and “Notes on Using SPARC T3-4 Server.”

The following table describes Bug information which is not described in the above manual.

No.	CR ID	Description
		Workaround
1	6303418	A SPARC Enterprise M9000 server with a single domain and 11 or more fully populated system boards may hang under heavy stress.
		<p>Do not exceed 170 CPU threads. Limit the number of CPU threads to one per CPU core by using the Solaris psradm command to disable the excess CPU threads. For example, disable all oddnumbered CPU threads.</p> <p>This problem has been resolved by the following patch. After applying it, the workaround is no longer needed. 120011-14 or later SunOS 5.10: kernel patch</p>
2	6416224	System performance can degrade using a single NIC card with more than 5,000 connections.
		<p>Use multiple NIC cards to split network connections.</p> <p>This problem has been resolved by the following patch. After applying it, the workaround is no longer needed. 120011-14 or later SunOS 5.10: kernel patch</p>
3	6441349	The system may hang if there is an I/O error in the system.
		<p>Apply the following patch. 120011-14 or later SunOS 5.10: kernel patch</p>

No.	CR ID	Description
		Workaround
4	6449315	The Solaris <code>cfgadm(1M)</code> command does not unconfigure a DVD drive from a domain on a SPARC Enterprise M8000/M9000 servers.
		<p>Disable the Volume Management Daemon (<code>vold</code>) before unconfiguring a DVD drive with the <code>cfgadm(1M)</code> command.</p> <p>To disable <code>vold</code>, stop the daemon by issuing the command <code>/etc/init.d/volmgt stop</code>.</p> <p>After the device has been removed or inserted, restart the daemon by issuing the command <code>/etc/init.d/volmgt start</code>.</p>
5	6459540	The DAT72 internal tape drive on SPARC Enterprise M4000/M5000/M8000/M9000 servers may time out during tape operations.
		<p>Update the Solaris <code>/kernel/drv/st.conf</code> file with the following lines:</p> <pre>tape-config-list = tape-config-list = "SEAGATE DAT    DAT72-000", "SEAGATE_DAT___DAT72-000", "SEAGATE_DAT___DAT72-000"; SEAGATE_DAT___DAT72-000= 1,0x34,0,0x9639,4,0x00,0x8c,0x8c,0x8c,3;</pre> <p>There are four spaces between SEAGATE DAT and DAT72-000.</p>
6	6461283	The "cache-line-size" property may be different when a PCI card is cold booted compared to when the same PCI card is hot plugged
		<p>Apply the following patch.</p> <p>125100-03 or later SunOS 5.10: Kernel Update patch</p>
7	6466617	Performing a hot plug operation with the PCIE slot too quickly interrupts a PCI leaf reset and fails, creating a <code>cfgadm(1M)</code> : Component system is busy error.
		<p>Pause a few seconds between the issue of each <code>cfgadm -c</code> command.</p>
8	6472072	When the panic dump is taken by 'Break-D' of ALOM, the panic message becomes 'Unrecoverable hardware error'.
		<p>Apply the following patch.</p> <p>127127-11 or later SunOS 5.10: kernel patch</p>
9	6472153	If you create a Solaris Flash archive on a sun4u server except for SPARC Enterprise Mx000 server and install it on a SPARC Enterprise Mx000 sun4u server, the console's TTY flags will not be set correctly. This can cause the console to lose characters during stress.
		<p>Telnet into the SPARC Enterprise Mx000 server to reset the console's TTY flags as follows:</p> <pre># sttydefs -r console # sttydefs -a console -i "9600 hupcl opost onlcr crtscts" -f "9600"</pre> <p>This procedure is required only once.</p> <p>This problem has been resolved by the following patch. After applying it, the workaround is no longer needed.</p> <p>137046-01 or later SunOS 5.10: Flash Archive patch</p>
10	6481002	Installing the Solaris OS from the network using certain PCI-Express cards may cause a panic.
		<p>If you are using a Sun PCI-E Dual Gigabit Ethernet Adapter MMF card or a Sun PCI-E Dual Gigabit Ethernet Adapter UTP card, do not install the Solaris OS using either of these cards. Instead, use other network devices, such as the onboard Gigabit Ethernet or another network device.</p>

No.	CR ID	Description
		Workaround
11	6489365	<p>When the serial management port of SPARC Enterprise T1000 or T2000 server is used as Solaris OS console and a large amount of console messages are displayed, the system might panic.</p> <p>Apply the following patch. 125382-01 or later SunOS 5.10: qcn driver patch</p>
12	6496337	<p>The "cpumem-diagnosis" module may fail to load after uncorrectable error(UE) panic. Systems will function correctly but events normally automatically diagnosed by FMA using this module will require manual diagnosis.</p> <p>Example: SUNW-MSG-ID: FMD-8000-2K, TYPE: Defect, VER: 1, SEVERITY: Minor EVENT-TIME: Thu Feb 15 15:46:57 JST 2007 PLATFORM: SUNW,SPARC-Enterprise, CSN: BE80601007, HOSTNAME: col2-ffem7-d0</p> <p>Remove the following file. # rm /var/fm/fmd/ckpt/cpumem-diagnosis/cpumem-diagnosis Restart fmd service. # svcadm restart fmd</p> <p>To avoid this problem in advance, please add "rm -f /var/fm/fmd/ckpt/cpumem-diagnosis/cpumem-diagnosis" in /lib/svc/method/svc-dumpadm file as below. # # We haven't run savecore on a dump device yet # savedev=none rm -f /var/fm/fmd/ckpt/cpumem-diagnosis/cpumem-diagnosis #</p> <p>This problem has been resolved by the following patch. After applying it, the workaround is no longer needed. 125369-10 or later SunOS 5.10: Fault Manager patch</p>
13	6499304	<p>CPU isn't offlined and unexpected message is displayed on console when many correctable error(CE) occurs.</p> <p>Example: SUNW-MSG-ID: FMD-8000-11, TYPE: Defect, VER: 1, SEVERITY: Minor EVENT-TIME: Fri Feb 2 18:31:07 JST 2007 PLATFORM: SPARC-Enterprise, CSN: BE80601035, HOSTNAME: FF2-35-0</p> <p>Apply the following patch. 125369-10 or later SunOS 5.10: Fault Manager patch</p>
14	6502204	<p>Unexpected error messages may be displayed on console on booting after CPU UE panic.</p> <p>Example: SUNW-MSG-ID: FMD-8000-11, TYPE: Defect, VER: 1, SEVERITY: Minor EVENT-TIME: Tue Jan 9 20:45:08 JST 2007 PLATFORM: SUNW,SPARC-Enterprise, CSN: 2030636002, HOSTNAME: P2-DC1-16-d0</p> <p>Apply the following patch. 125369-10 or later SunOS 5.10: Fault Manager patch</p>

No.	CR ID	Description
		Workaround
15	6502750	Notification message for inserted or removed card by PCI hotplug may not output. Apply the following patch. 120011-14 or later SunOS 5.10: kernel patch
16	6505921	A lot of SUNOS-8000-1L messages are displayed on console when a lot of I/O correctable errors occur. Apply the following patch. 120011-14 or later SunOS 5.10: kernel patch 125369-05 or later SunOS 5.10: Fault Manager patch
17	6508432	Many correctable errors (CE) may occur, and despite these are the correctable errors, system may panic. Please set the following to /etc/system and then reboot the system: set pcie:pcie_aer_ce_mask = 0x2001  This problem has been resolved by the following patch. After applying it, the workaround is no longer needed. 120011-14 or later SunOS 5.10: kernel patch
18	6508434	The domain may panic when an additional PCI-X card is installed by using PCI hot plug. Apply the following patch. 120011-14 or later SunOS 5.10: kernel patch
19	6509337	s10s_u3 wanboot fails - The server returned 416: Requested Range Not Satisfiable. None available for Solaris 10 OS 11/06. This problem has been fixed by Solaris 10 OS 8/07 or later.
20	6510861	When Dual-Channel Ultra320 SCSI Card (SE0X7SC2F,SE0X7SC2X) is mounted, correctable errors(CE) occur and system may panic. If you install the Dual-Channel Ultra320 SCSI Card (SE0X7SC2F,SE0X7SC2X), change the value of pcie:pcie_aer_ce_mask to 0x31c1, since 0x2001 has been set to pcie:pcie_aer_ce_mask as a workaround against CR 6508432.  To mask these errors with Dual-Channel Ultra320 SCSI Card (SE0X7SC2F,SE0X7SC2X), add the following entry to the /etc/system file and then reboot the system: set pcie:pcie_aer_ce_mask = 0x31c1  This problem has been resolved by the following patch. After applying it, the workaround is no longer needed. 125100-07 or later SunOS 5.10: Kernel Update patch
21	6511374	Unexpected error messages may be displayed on console after changing the system configuration. Example: WARNING: Translation error source /LSB0/B0/0, PA 3c00000000, target /LSB0/B0/20000000 This message can be safely ignored. This problem has been resolved by the following patch. 137137-09 or later SunOS 5.10: kernel patch

No.	CR ID	Description
		Workaround
22	6520990	Domain may cause a panic when deleteboard for kernel board by using Dynamic Reconfiguration (DR).
		To mask this error, add the following entry to the /etc/system file. set drmach:fmem_timeout = 30
		This problem has been resolved by the following patch. After applying it, the workaround is no longer needed. 120011-14 or later SunOS 5.10: kernel patch
23	6522433	Due to problems in the CPU fault management software, incorrect information is written to the fault report.
		Check system status on XSCF. This problem has been fixed by the following patch. 127127-11 or later SunOS 5.10: kernel patch
24	6527811	showhardconf(8) on XSCF can not display PCI card information that is installed in External I/O Expansion Unit, if the External I/O Expansion Unit is configured using PCI hotplug. Also the PCI card information is not displayed by Hardware Configuration Display of Machine Administrator Software.
		Apply the following patch. 128346-01 or later SunOS 5.10: pcihp patch.
25	6530288	Ap_Id format may not be shown correctly by cfgadm(1M).
		Apply the following patch. 120011-14 or later SunOS 5.10: kernel patch
26	6532215	volfs or dscp service may fail when domain is booted.  svc:/platform/sun4u/dscp:default:Method "/lib/svc/method/svc-dscp start" failed with exit status 95. svc:/system/filesystem/volfs:default: Method or service exit timed out. Killing contract 59.
		Restart the service if the failure is observed. To avoid the problem, issue the following commands. # svccfg -s dscp setprop start/timeout_seconds=count: 300 # svccfg -s volfs setprop start/timeout_seconds=count: 300 # svcadm refresh dscp # svcadm refresh volfs
27	6534471 6718173	Domain may panic.
		Add the following line to /etc/system and reboot the domain. set heaplp_use_stlb=0  Though CR:6534471 has been resolved by the patch 125100-06 or later, CR: 6718173 hasn't been resolved yet. Therefore, the above workaround is still required.

No.	CR ID	Description
		Workaround
28	6473457	<p>There is a note on using the standard Solaris fibre channel driver with the following host bus adaptors.</p> <ul style="list-style-type: none"> <li>● Target Host Bus Adaptors <ul style="list-style-type: none"> <li>- XSEFC401AF</li> <li>- XSEFC402AF</li> <li>- XSEFC401AU</li> <li>- XSEFC402AU</li> </ul> </li> </ul> <p>The <code>cfgadm</code> command fails with error messages when attempted to disconnect disk array device from fibre channel switch connection.</p> <p>Also, when a single path is disabled in multi-path (MPxIO) configuration, both paths might fail.</p>
		<p>Apply the following patch.</p> <p>125100-04 or later SunOS 5.10: Kernel Update patch</p>
29	6518348	<p>There is a note on using the standard Solaris fibre channel driver with the following host bus adaptors.</p> <ul style="list-style-type: none"> <li>● Target Host Bus Adaptors <ul style="list-style-type: none"> <li>- XSEFC401AF</li> <li>- XSEFC402AF</li> <li>- XSEFC401AU</li> <li>- XSEFC402AU</li> </ul> </li> </ul> <p>Panic may occur due to a path failure in a disk array device with fibre channel connection.</p>
		<p>Apply the following patch.</p> <p>125184-02 or later SunOS 5.10: Sun Fibre Channel Device Drivers</p>
30	6536564	<p><code>showlogs(8)</code> and <code>showstatus(8)</code> command on XSCF might report wrong I/O component due to wrong diagnosis by Solaris Fault management Architecture when faults in I/O devices occur.</p>
		<p>Refer to "3.3Wrong I/O device FRU could be reported"</p> <p>This problem has been resolved by the following patch. After applying it, the workaround is no longer needed.</p> <p>125369-05 or later SunOS 5.10: Fault Manager patch</p>
31	6539243	<p>The following unexpected error message may be notified on SPARC Enterprise T1000/T2000 servers with Solaris OS 8/07 installed.</p> <p style="padding-left: 40px;">Sep 19 12:14:57 xxxx ldc: [ID xxxxxx kern.warning] WARNING: ldc: cannot negotiate hypervisor LDC services group: 0x101 major: 1 minor: 0 errno: 22</p>
		<p>This message is harmless and can be safely ignored.</p> <p>This problem has been fixed by the following patch.</p> <p>127127-11 or later SunOS 5.10: kernel patch</p>
32	6620322	<p>On SPARC Enterprise T5120/T5220 servers, if the system is using mirroring feature of PRIMECLUSTER GDS, the system may panic while booting.</p>
		<p>Apply the following patch.</p> <p>127111-09 or later SunOS 5.10: kernel patch</p>



**FUJITSU**