

Sun™ Enterprise™ 6x00/5x00/ 4x00/3x00 Systems SBus+ and Graphics+ I/O Boards Installation Guide



THE NETWORK IS THE COMPUTER™

Sun Microsystems Computer Company

A Sun Microsystems, Inc. Business
901 San Antonio Road
Palo Alto, CA 94303-4900 USA
650 960-1300 fax 650 969-9131

Part No.: 805-2704-11
Revision A, April 1998

Send comments about this document to: smcc-docs@sun.com

Copyright 1998 Sun Microsystems, Inc., 901 San Antonio Road • Palo Alto, CA 94303 USA. All rights reserved.

This product or document is protected by copyright and distributed under licenses restricting its use, copying, distribution, and decompilation. No part of this product or document may be reproduced in any form by any means without prior written authorization of Sun and its licensors, if any. Third-party software, including font technology, is copyrighted and licensed from Sun suppliers.

Parts of the product may be derived from Berkeley BSD systems, licensed from the University of California. UNIX is a registered trademark in the U.S. and other countries, exclusively licensed through X/Open Company, Ltd.

Sun, Sun Microsystems, the Sun logo, AnswerBook, SunDocs, Sun Enterprise, StorEdge, OpenBoot, and Solaris are trademarks, registered trademarks, or service marks of Sun Microsystems, Inc. in the U.S. and other countries. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. in the U.S. and other countries. Products bearing SPARC trademarks are based upon an architecture developed by Sun Microsystems, Inc.

The OPEN LOOK and Sun™ Graphical User Interface was developed by Sun Microsystems, Inc. for its users and licensees. Sun acknowledges the pioneering efforts of Xerox in researching and developing the concept of visual or graphical user interfaces for the computer industry. Sun holds a non-exclusive license from Xerox to the Xerox Graphical User Interface, which license also covers Sun's licensees who implement OPEN LOOK GUIs and otherwise comply with Sun's written license agreements.

RESTRICTED RIGHTS: Use, duplication, or disclosure by the U.S. Government is subject to restrictions of FAR 52.227-14(g)(2)(6/87) and FAR 52.227-19(6/87), or DFAR 252.227-7015(b)(6/95) and DFAR 227.7202-3(a).

DOCUMENTATION IS PROVIDED "AS IS" AND ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, ARE DISCLAIMED, EXCEPT TO THE EXTENT THAT SUCH DISCLAIMERS ARE HELD TO BE LEGALLY INVALID.

Copyright 1998 Sun Microsystems, Inc., 901 San Antonio Road • Palo Alto, CA 94303 Etats-Unis. Tous droits réservés.

Ce produit ou document est protégé par un copyright et distribué avec des licences qui en restreignent l'utilisation, la copie, la distribution, et la décompilation. Aucune partie de ce produit ou document ne peut être reproduite sous aucune forme, par quelque moyen que ce soit, sans l'autorisation préalable et écrite de Sun et de ses bailleurs de licence, s'il y en a. Le logiciel détenu par des tiers, et qui comprend la technologie relative aux polices de caractères, est protégé par un copyright et licencié par des fournisseurs de Sun.

Des parties de ce produit pourront être dérivées des systèmes Berkeley BSD licenciés par l'Université de Californie. UNIX est une marque déposée aux Etats-Unis et dans d'autres pays et licenciée exclusivement par X/Open Company, Ltd.

Sun, Sun Microsystems, le logo Sun, AnswerBook, SunDocs, Sun Enterprise, StorEdge, OpenBoot, et Solaris sont des marques de fabrique ou des marques déposées, ou marques de service, de Sun Microsystems, Inc. aux Etats-Unis et dans d'autres pays. Toutes les marques SPARC sont utilisées sous licence et sont des marques de fabrique ou des marques déposées de SPARC International, Inc. aux Etats-Unis et dans d'autres pays. Les produits portant les marques SPARC sont basés sur une architecture développée par Sun Microsystems, Inc.

L'interface d'utilisation graphique OPEN LOOK et Sun™ a été développée par Sun Microsystems, Inc. pour ses utilisateurs et licenciés. Sun reconnaît les efforts de pionniers de Xerox pour la recherche et le développement du concept des interfaces d'utilisation visuelle ou graphique pour l'industrie de l'informatique. Sun détient une licence non exclusive de Xerox sur l'interface d'utilisation graphique Xerox, cette licence couvrant également les licenciés de Sun qui mettent en place l'interface d'utilisation graphique OPEN LOOK et qui en outre se conforment aux licences écrites de Sun.

CETTE PUBLICATION EST FOURNIE "EN L'ETAT" ET AUCUNE GARANTIE, EXPRESSE OU IMPLICITE, N'EST ACCORDEE, Y COMPRIS DES GARANTIES CONCERNANT LA VALEUR MARCHANDE, L'APTITUDE DE LA PUBLICATION A REpondre A UNE UTILISATION PARTICULIERE, OU LE FAIT QU'ELLE NE SOIT PAS CONTREFAISANTE DE PRODUIT DE TIERS. CE DENI DE GARANTIE NE S'APPLIQUERAIT PAS, DANS LA MESURE OU IL SERAIT TENU JURIDIQUEMENT NUL ET NON AVENU.



Adobe PostScript

Contents

1. Installation and Component Replacement	1
Requirements	1
Hot-Plug Feature	2
Flash PROM	2
Installing or Replacing SBus+ or Graphics+ I/O Boards	3
Removing a Board	3
Installing a Board	3
GBICs	4
Removing a GBIC	4
Installing a GBIC	5
Verifying Installation	6
Verifying Installation Using POST Output	6
Verifying Installation Using the <code>.version</code> Command	7

Installation and Component Replacement

This manual provides instructions for the installation or replacement of the Sun™ Enterprise™ SBus+ and Graphics+ I/O boards. Instructions are also provided for the replacement of GBICs mounted on the boards. Refer to your Sun Enterprise system reference manual for the installation or replacement of board mounted SBus or graphics cards.

SBus+ and Graphics+ I/O boards each provide mounting for two Gigabit Interface Converters (GBIC). GBICs support gigabit (100 Mbyte/sec) Fibre Channel storage products, such as the Sun™ StorEdge™ A5000.

The SBus+ and Graphics+ I/O boards differ from SBus and Graphics I/O boards in the interfaces to the peripheral disk arrays. For these boards, the interfaces are Fibre Channel Optical Modules (FC/OMs) that support SPARCstorage™ Arrays.

Requirements

Before installing an SBus+ or Graphics+ I/O board, make sure your system meets the following hardware and software requirements:

- Sun Enterprise 6x00/5x00/4x00/3x00 system
- An available I/O board slot
- OpenBoot™ PROM Version 3.2.10 or later
- Solaris™ 2.5.1 Hardware: 4/97 or Solaris 2.6 or later

Hot-Plug Feature

Sun Enterprise systems have extensive error detection mechanisms and an Automatic System Reconfiguration (ASR) feature that enables the system to be rebooted with failed components.

Once disabled by ASR, one of two results occurs:

- The three LEDs on the board are not lit (board has no power).
- The outer two green LEDs are not lit and the middle yellow LED is lit (board in low-power mode).

When an error is detected, you can reconfigure the system so that the board containing the failed component is placed in low-power mode and is no longer accessible. Consult your Sun service provider for support of this feature.



Caution – If the message: `NOTICE: Hot Plug not supported in this system` is displayed during boot, do NOT attempt hot-plug in this system or damage to the hardware will occur.

The hot-plug feature is the ability to insert a new board into a powered-on system, despite being supplied with electrical power. Once a replacement board is added you must reboot before the system can use the new board.

Flash PROM

Sun Enterprise 6x00/5x00/4x00/3x00 systems I/O boards use flash PROMs that can be updated to the latest firmware code. Refer to the *Sun Enterprise 6x00/5x00/4x00/3x00 Systems Flash PROM Programming Guide* for this procedure.

Note – Boards shipped with a System Flash PROM Update CD-ROM (containing new firmware code) and a *Sun Enterprise 6x00/5x00/4x00/3x00 System Flash PROM Programming Guide* may require updates to the system flash PROM before the board can function properly. Use the CD-ROM and information in the guide to reprogram the flash PROMs, if appropriate.

Installing or Replacing SBus+ or Graphics+ I/O Boards

Note – All empty board slots must have a filler panel (Enterprise 5500/4500/3500 systems) or a load board (Enterprise 6500 system) installed to ensure proper cooling. For information on filler panels or load boards, refer to the system reference manual that came with your system.

Removing a Board

1. **Ensure that the board is in low-power mode and ready for removal.**

If the board is not in low-power mode, halt the system and turn off the power before proceeding. The board is in low-power mode if one of the following is true:

- The three LEDs on the board are not lit (board has no power).
- The outer two green LEDs are not lit and the middle yellow LED is lit.



Caution – Use a grounding wrist strap to prevent static damage.

2. **With a Phillips #1 screwdriver, turn the two quarter-turn access slots to the unlocked position (■).**
3. **Pull the ends of both extraction levers outward, then pull the board out of the card cage.**

Do not let the components on the board catch on any surrounding surfaces.



Caution – The heatsinks on the board may be hot. Handle with care.

4. **Place the board on a padded ESD mat for servicing, or store the board in an antistatic bag.**

Installing a Board

1. **If you are installing a new board, refer to the Enterprise server system reference manual for rules for selecting a board slot.**

2. **Open the extraction levers by pulling the ends of both levers outward.**



Caution – Use a grounding wrist strap to prevent static damage.

3. **Insert the board partway into the card cage slot.**

- For a front slot in a 16- or 8-slot card cage, orient the board component-side down.
- For a rear slot in a 16- or 8-slot card cage, orient the board component-side up.
- For a 4- or 5-slot card cage with vertical slots, orient the board component side to the right.



Caution – When inserting a board into slot 4 or slot 10 of a 16-slot card cage, lift the board slightly to avoid damage to the centerplane connectors.

4. **Push the board into the card cage, then simultaneously press both extraction levers to seat the board on the centerplane.**



Caution – Do not press on the board front panel to seat it—doing so will damage the connector pins.

5. **With a Phillips #1 screwdriver, turn the two quarter-turn access slots to the locked position (🔒).**
6. **Reboot the system now or schedule a later time to reboot when system disruption will be minimized.**

The system cannot use the new board until the system is rebooted

GBICs

Each SBus+ and Graphics+ I/O board has two onboard connectors. Each onboard connector accommodates one GBIC.

Removing a GBIC

1. **Locate the GBIC to be removed (FIGURE 1).**

2. Remove the GBIC from the I/O board by squeezing the locking tabs located on the sides of the GBIC and pulling it straight out from the opening in the I/O board panel (FIGURE 1).

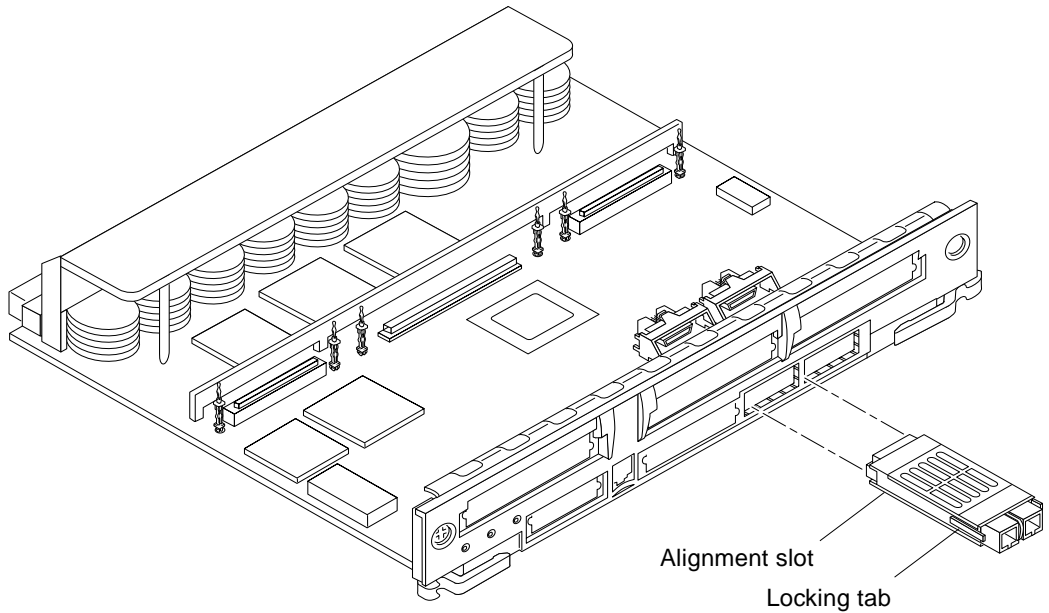


FIGURE 1 Removing or Installing a GBIC

Installing a GBIC

1. Locate the GBIC slot for installation (FIGURE 1).
2. Ensure correct orientation for insertion.
The alignment slots should be on the bottom of the GBIC (FIGURE 1).
3. Insert the GBIC into the I/O board slot and then push in firmly to seat it.
An audible click indicates the GBIC is properly seated to the onboard connector.

Verifying Installation

Once the board has been inserted into your system, you can verify the installation using POST (power-on self-test) output or the `.version` command.

Verifying Installation Using POST Output

1. Boot the system.

Refer to the *Solaris Handbook for SMCC Peripherals* manual or your Solaris documentation for detailed instructions for your system.

2. When POST is complete, you should see an output similar to the following (prior to entering OBP) specific to the device that you installed.

The following example is for a Graphics+ (I/O Type 5) board installed in slot 2, and an SBus+ (I/O Type 4) board installed in slot 4, of a Sun Enterprise 4x00.

CODE EXAMPLE 1

```
.
.
7,0>System Board Status
7,0>-----
7,0> Slot      Board Status      Board Type      Failures
7,0>-----
7,0>  0 | Not installed |                |
7,0>  1 | Normal        | IO Type 3      |
7,0>  2 | Normal        | IO Type 5      |
7,0>  3 | Normal        | Disk Board     |
7,0>  4 | Normal        | IO Type 4      |
7,0>  5 | Not installed |                |
7,0>  6 | Not installed |                |
.
.
```

3. If you do not see your new device(s) listed, check that the I/O board and any cards are properly seated and reinstall the board or cards, if necessary.

Verifying Installation Using the `.version` Command

1. Wait for the `ok` prompt and then enter:

```
ok .version
```

You should see output similar to the following which depicts a Graphics+ (I/O Type 5) board installed in slot 2, and an SBus+ (I/O Type 4) board installed in slot 4, of a Sun Enterprise 4x00.

```
.  
.br/>Slot 1 - I/O Type 3 FCODE 1.8.7 1997/05/09 11:18 iPOST 3.0.2  
1997/05/01 10:56  
Slot 2 - I/O Type 5 FCODE 1.8.2 1997/07/09 11:24 iPOST 3.4.2  
1997/01/10 13:34  
Slot 4 - I/O Type 4 FCODE 1.8.2 1997/05/13 18:45 iPOST 3.4.2  
1997/01/10 13:34  
Slot 7 - CPU/Memory OBP 3.2.9 1997/07/09 13:12 POST 3.6.1  
1997/04/17 13:37  
.br/>.
```

2. If you do not see your new device(s) listed, check that the I/O board and any cards are properly seated and reinstall the board or cards, if necessary.

