



Sun StorEdge™ SBus Dual Fibre Channel Host Adapter Installation Guide

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Part No. 816-2489-12
October 2002, [Revision A](#)

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Declaration of Conformity

Compliance Model Number: IVORY
Product Family Name: Sun StorEdge SBUS Dual Fiber Channel Host Adapter.

EMC

European Union

This equipment complies with the following requirements of the EMC Directive 89/336/EEC:

EN55022:1998 / CISPR22:1997	Class A
EN55024:1998	Required Limits (as applicable):
EN61000-4-2	4 kV (Direct), 8 kV (Air)
EN61000-4-3	3 V/m
EN61000-4-4	1 kV AC Power Lines, 0.5 kV Signal and DC Power Lines
EN61000-4-5	1 kV AC Line-Line and Outdoor Signal Lines
	2 kV AC Line-Gnd, 0.5 kV DC Power Lines
EN61000-4-6	3 V
EN61000-4-8	1 A/m
EN61000-4-11	Pass
EN61000-3-2:1995 + A1, A2, A14	Pass
EN61000-3-3:1995	Pass

Safety

This equipment complies with the following requirements of Low Voltage Directive 73/23/EEC:

EC Type Examination Certificates:

EN60950:1992, 2nd Edition, Amendments 1, 2, 3, 4, 11

Supplementary Information:

This product was tested and complies with all the requirements for the CE Mark.

/S/ _____
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Regulatory Compliance Statements

Your Sun product is marked to indicate its compliance class:

- Federal Communications Commission (FCC) — USA
- Industry Canada Equipment Standard for Digital Equipment (ICES-003) — Canada
- Voluntary Control Council for Interference (VCCI) — Japan
- Bureau of Standards Metrology and Inspection (BSMI) — Taiwan

Please read the appropriate section that corresponds to the marking on your Sun product before attempting to install the product.

FCC Class A Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Shielded Cables: Connections between the workstation and peripherals must be made using shielded cables to comply with FCC radio frequency emission limits. Networking connections can be made using unshielded twisted-pair (UTP) cables.

Modifications: Any modifications made to this device that are not approved by Sun Microsystems, Inc. may void the authority granted to the user by the FCC to operate this equipment.

FCC Class B Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

Shielded Cables: Connections between the workstation and peripherals must be made using shielded cables in order to maintain compliance with FCC radio frequency emission limits. Networking connections can be made using unshielded twisted pair (UTP) cables.

Modifications: Any modifications made to this device that are not approved by Sun Microsystems, Inc. may void the authority granted to the user by the FCC to operate this equipment.

ICES-003 Class A Notice - Avis NMB-003, Classe A

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

ICES-003 Class B Notice - Avis NMB-003, Classe B

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.


VCCI 基準について

クラス A VCCI 基準について

クラス A VCCI の表示があるワークステーションおよびオプション製品は、クラス A 情報技術装置です。これらの製品には、下記の項目が該当します。

この装置は、情報処理装置等電波障害自主規制協議会 (VCCI) の基準に基づくクラス A 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

クラス B VCCI 基準について

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BSMI Class A Notice

The following statement is applicable to products shipped to Taiwan and marked as Class A on the product compliance label.

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Safety Agency Compliance Statements

Read this section before beginning any procedure. The following text provides safety precautions to follow when installing a Sun Microsystems product.

Safety Precautions

For your protection, observe the following safety precautions when setting up your equipment:

- Follow all cautions and instructions marked on the equipment.
- Ensure that the voltage and frequency of your power source match the voltage and frequency inscribed on the equipment's electrical rating label.
- Never push objects of any kind through openings in the equipment. Dangerous voltages may be present. Conductive foreign objects could produce a short circuit that could cause fire, electric shock, or damage to your equipment.

Symbols

The following symbols may appear in this book:



Caution – There is a risk of personal injury and equipment damage. Follow the instructions.



Caution – Hot surface. Avoid contact. Surfaces are hot and may cause personal injury if touched.



Caution – Hazardous voltages are present. To reduce the risk of electric shock and danger to personal health, follow the instructions.



On – Applies AC power to the system.

Depending on the type of power switch your device has, one of the following symbols may be used:



Off – Removes AC power from the system.



Standby – The On/Standby switch is in the standby position.

Modifications to Equipment

Do not make mechanical or electrical modifications to the equipment. Sun Microsystems is not responsible for regulatory compliance of a modified Sun product.

Placement of a Sun Product



Caution – Do not block or cover the openings of your Sun product. Never place a Sun product near a radiator or heat register. Failure to follow these guidelines can cause overheating and affect the reliability of your Sun product.



Caution – The workplace-dependent noise level defined in DIN 45 635 Part 1000 must be 70Db(A) or less.

SELV Compliance

Safety status of I/O connections comply to SELV requirements.

Power Cord Connection



Caution – Sun products are designed to work with single-phase power systems having a grounded neutral conductor. To reduce the risk of electric shock, do not plug Sun products into any other type of power system. Contact your facilities manager or a qualified electrician if you are not sure what type of power is supplied to your building.



Caution – Not all power cords have the same current ratings. Household extension cords do not have overload protection and are not meant for use with computer systems. Do not use household extension cords with your Sun product.



Caution – Your Sun product is shipped with a grounding type (three-wire) power cord. To reduce the risk of electric shock, always plug the cord into a grounded power outlet.

The following caution applies only to devices with a Standby power switch:



Caution – The power switch of this product functions as a standby type device only. The power cord serves as the primary disconnect device for the system. Be sure to plug the power cord into a grounded power outlet that is nearby the system and is readily accessible. Do not connect the power cord when the power supply has been removed from the system chassis.

Lithium Battery



Caution – On Sun CPU boards, there is a lithium battery molded into the real-time clock, SGS No. MK48T59Y, MK48TXXB-XX, MK48T18-XXXPCZ, M48T59W-XXXPCZ, or MK48T08. Batteries are not customer replaceable parts. They may explode if mishandled. Do not dispose of the battery in fire. Do not disassemble it or attempt to recharge it.

Battery Pack



Caution – There is a sealed lead acid battery in Sun StorEdge SBus Dual Fibre Channel Host Adapter units. Portable Energy Products No. TLC02V50. There is danger of explosion if the battery pack is mishandled or incorrectly replaced. Replace only with the same type of Sun Microsystems battery pack. Do not disassemble it or attempt to recharge it outside the system. Do not dispose of the battery in fire. Dispose of the battery properly in accordance with local regulations.

System Unit Cover

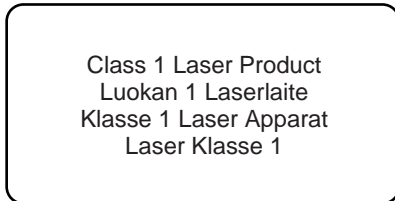
You must remove the cover of your Sun computer system unit to add cards, memory, or internal storage devices. Be sure to replace the top cover before powering on your computer system.



Caution – Do not operate Sun products without the top cover in place. Failure to take this precaution may result in personal injury and system damage.

Laser Compliance Notice

Sun products that use laser technology comply with Class 1 laser requirements.



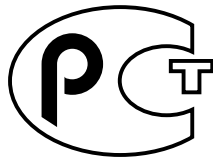
Graphic showing the Class 1 Laser Product statement

CD-ROM



Caution – Use of controls, adjustments, or the performance of procedures other than those specified herein may result in hazardous radiation exposure.

GOST-R Certification Mark



Graphic showing the GOST-R Certification Mark

Conformité aux normes de sécurité

Lisez attentivement la section suivante avant de commencer la procédure. Le document ci-dessous présente les consignes de sécurité à respecter au cours de l'installation d'un produit Sun Microsystems.

Mesures de sécurité

Pour votre protection, observez les mesures de sécurité suivantes lors de l'installation de l'équipement:

- Observez tous les avertissements et consignes indiqués sur l'équipement.
- Assurez-vous que la tension et la fréquence de votre source d'alimentation électrique correspondent à la tension et à la fréquence indiquées sur l'étiquette de la tension électrique nominale du matériel.

- N'insérez en aucun cas un objet quelconque dans les orifices de l'équipement. Des tensions potentiellement dangereuses risquent d'être présentes dans l'équipement. Tout objet étranger conducteur risque de produire un court-circuit pouvant présenter un risque d'incendie ou de décharge électrique, ou susceptible d'endommager le matériel.

Symboles

Les symboles suivants peuvent figurer dans cet ouvrage :



Attention – Vous risquez d'endommager le matériel ou de vous blesser. Observez les consignes indiquées.



Attention – Surface brûlante. Evitez tout contact. Ces surfaces sont brûlantes. Vous risquez de vous blesser si vous les touchez.



Attention – Tensions dangereuses. Pour réduire les risques de décharge électrique et de danger physique, observez les consignes indiquées.



MARCHE – Met le système sous tension alternative.

Selon le type d'interrupteur marche/arrêt dont votre appareil est équipé, l'un des symboles suivants sera utilisé :



ARRET – Met le système hors tension alternative.



VEILLEUSE – L'interrupteur Marche/Veille est sur la position de veille.

Modifications de l'équipement

N'apportez aucune modification mécanique ou électrique à l'équipement. Sun Microsystems décline toute responsabilité quant à la non-conformité éventuelle d'un produit Sun modifié.

Positionnement d'un produit Sun



Attention – N'obstruez ni ne recouvrez les orifices de votre produit Sun. N'installez jamais un produit Sun près d'un radiateur ou d'une source de chaleur. Si vous ne respectez pas ces consignes, votre produit Sun risque de surchauffer et son fonctionnement en sera altéré.



Attention – Le niveau de bruit inhérent à l'environnement de travail, tel qu'il est défini par la norme DIN 45 635 - section 1000, doit être inférieur ou égal à 70Db(A).

Conformité aux normes SELV

Le niveau de sécurité des connexions E/S est conforme aux normes SELV.

Raccordement à la source d'alimentation électrique



Attention – Les produits Sun sont conçus pour fonctionner avec des systèmes d'alimentation électrique monophasés avec prise de terre. Pour réduire les risques de décharge électrique, ne branchez jamais les produits Sun sur une source d'alimentation d'un autre type. Contactez le gérant de votre bâtiment ou un électricien agréé si vous avez le moindre doute quant au type d'alimentation fourni dans votre bâtiment.



Attention – Tous les cordons d'alimentation n'ont pas la même intensité nominale. Les cordons d'alimentation à usage domestique ne sont pas protégés contre les surtensions et ne sont pas conçus pour être utilisés avec des ordinateurs. N'utilisez jamais de cordon d'alimentation à usage domestique avec les produits Sun.



Attention – Votre produit Sun est livré avec un cordon d'alimentation avec raccord à la terre (triphasé). Pour réduire les risques de décharge électrique, branchez toujours ce cordon sur une source d'alimentation mise à la terre.

L'avertissement suivant s'applique uniquement aux systèmes équipés d'un interrupteur Veille :



Attention – L'interrupteur d'alimentation de ce produit fonctionne uniquement comme un dispositif de mise en veille. Le cordon d'alimentation constitue le moyen principal de déconnexion de l'alimentation pour le système. Assurez-vous de le brancher dans une prise d'alimentation mise à la terre près du système et facile d'accès. Ne le branchez pas lorsque l'alimentation électrique ne se trouve pas dans le châssis du système.

Pile au lithium



Attention – Sur les cartes UC Sun, une batterie au lithium a été moulée dans l'horloge temps réel, de type SGS n° MK48T59Y, MK48TXXB-XX, MK48T18-XXXPCZ, M48T59W-XXXPCZ ou MK48T08. Cette batterie ne doit pas être remplacée par le client. Elle risque d'exploser en cas de mauvaise manipulation. Ne la jetez pas au feu. Ne la démontez pas et ne tentez pas de la recharger.

Bloc-batterie



Attention – Les unités Sun StorEdge SBus Dual Fibre Channel Host Adapter contiennent une batterie étanche au plomb. Produits énergétiques portatifs n° TLC02V50. Il existe un risque d'explosion si ce bloc batterie est manipulé ou installé de façon incorrecte. Ne le remplacez que par un bloc batterie Sun Microsystems du même type. Ne le démontez pas et n'essayez pas de le recharger hors du système. Ne le jetez pas au feu. Mettez-le au rebut conformément aux réglementations locales en vigueur.

Couvercle du système

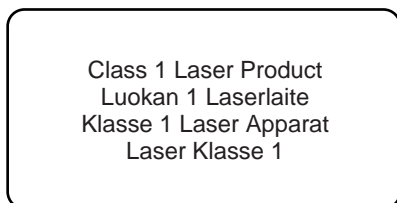
Pour ajouter des cartes, de la mémoire ou des unités de stockage internes, vous devez démonter le couvercle de votre système Sun. N'oubliez pas de le remettre en place avant de mettre le système sous tension.



Attention – Ne travaillez jamais avec un produit Sun dont le couvercle n'est pas installé. Si vous ne respectez pas cette consigne, vous risquez de vous blesser ou d'endommager le système.

Avis de conformité des appareils laser

Les produits Sun faisant appel à la technologie laser sont conformes aux normes de sécurité des appareils laser de classe 1.



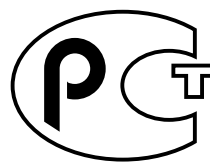
Graphique illustrant l'avis de conformité des appareils laser de classe 1

CD-ROM



Attention – L'utilisation de contrôles et de réglages ou l'application de procédures autres que ceux spécifiés dans le présent document peuvent entraîner une exposition à des radiations dangereuses.

Notice de qualité GOST-R



Graphique illustrant la notice de qualité GOST-R

Einhaltung sicherheitsbehördlicher Vorschriften

Lesen Sie diesen Abschnitt sorgfältig durch, bevor Sie mit dem Arbeitsablauf beginnen. Der folgende Text beschreibt Sicherheitsmaßnahmen, die bei der Installation von Sun-Produkten zu beachten sind.

Sicherheitsmaßnahmen

Zu Ihrem eigenen Schutz sollten Sie die folgenden Sicherheitsmaßnahmen bei der Installation befolgen :

- Befolgen Sie alle auf die Geräte aufgedruckten Anweisungen und Warnhinweise.
- Beachten Sie die Geräteaufschrift, um sicherzustellen, daß Netzspannung und -frequenz mit der Gerätespannung und -frequenz übereinstimmen.
- Führen Sie niemals Gegenstände in die Geräteöffnungen ein. Es könnten elektrische Spannungsfelder vorhanden sein. Leitende Fremdkörper können Kurzschlüsse, Feuer und elektrische Schläge verursachen oder Ihr Gerät beschädigen.

Symbole

Die folgenden Symbole werden in diesem Handbuch verwendet:



Achtung – Es besteht die Gefahr der Verletzung und der Beschädigung des Geräts. Befolgen Sie die Anweisungen.



Achtung – Heiße Oberfläche. Vermeiden Sie jede Berührung. Diese Oberflächen sind sehr heiß und können Verbrennungen verursachen.



Achtung – Elektrisches Spannungsfeld vorhanden. Befolgen Sie die Anweisungen, um elektrische Schläge und Verletzungen zu vermeiden.



Ein – Das System wird mit Wechselstrom versorgt.

Abhängig von der Art des Stromschalters Ihres Gerätes wird eventuell eines der folgenden Symbole verwendet:



Aus – Das System wird nicht mehr mit Wechselstrom versorgt.



Wartezustand – (Der Ein-/Standby-Schalter befindet sich in der Standby-Position).

Modifikationen des Geräts

Nehmen Sie keine elektrischen oder mechanischen Gerätemodifikationen vor. Sun Microsystems ist für die Einhaltung der Sicherheitsvorschriften von modifizierten Sun-Produkten nicht haftbar.

Aufstellung von Sun-Geräten



Achtung – Geräteöffnungen Ihres Sun-Produkts dürfen nicht blockiert oder abgedeckt werden. Sun-Geräte sollten niemals in der Nähe von Heizkörpern oder Heißluftklappen aufgestellt werden. Nichtbeachtung dieser Richtlinien können Überhitzung verursachen und die Zuverlässigkeit Ihres Sun-Geräts beeinträchtigen.



Achtung – Der Geräuschpegel, definiert nach DIN 45 635 Part 1000, darf am Arbeitsplatz 70dB(A) nicht überschreiten.

SELV-Richtlinien

Alle Ein-/Ausgänge erfüllen die SELV-Anforderungen.

Netzanschlußkabel



Achtung – Sun-Geräte benötigen ein einphasiges Stromversorgungssystem mit eingebautem Erdleiter. Schließen Sie Sun-Geräte nie an ein anderes Stromversorgungssystem an, um elektrische Schläge zu vermeiden. Falls Sie die Spezifikationen der Gebäudestromversorgung nicht kennen, sollten Sie den Gebäudeverwalter oder einen qualifizierten Elektriker konsultieren.



Achtung – Nicht alle Netzanschlußkabel besitzen die gleiche Stromleitung. Normale Verlängerungskabel besitzen keinen Überspannungsschutz und sind nicht für den Gebrauch mit Computersystemen geeignet. Benutzen Sie keine Haushaltverlängerungskabel für Sun-Geräte.



Achtung – Ihr Sun-Gerät wurde mit einem geerdeten (dreiadrigen) Netzanschlußkabel geliefert. Stecken Sie dieses Kabel immer nur in eine geerdete Netzsteckdose, um Kurzschlüsse zu vermeiden.

Der folgende Hinweis bezieht sich nur auf Geräte mit Standby-Stromschalter:



Achtung – Der Stromschalter dieses Produkts funktioniert nur als Standby-Gerät. Das Netzanschlußkabel dient als Hauptabschaltgerät für das System. Stellen Sie sicher, daß Sie das Netzanschlußkabel in den geerdeten Stromausgang in der Nähe des Systems einstecken. Schließen Sie das Netzanschlußkabel nicht an, wenn die Stromzufuhr vom Systemgehäuse entfernt wurde.

Lithium-Batterie



Achtung – CPU-Karten von Sun verfügen über eine Echtzeituhr mit integrierter Lithiumbatterie, Teile-Nr. MK48T59Y, MK48TXXB-XX, MK48T18-XXXPCZ, M48T59W-XXXPCZ oder MK48T08. Batterien sollten nicht vom Kunden ausgetauscht werden. Sie können bei falscher Handhabung explodieren. Entsorgen Sie die Batterien nicht im Feuer. Entfernen Sie sie nicht und versuchen Sie auch nicht, sie wiederaufzuladen.

Batterien



Achtung – Die Geräte Sun StorEdge SBus Dual Fibre Channel Host Adapter enthalten auslaufsichere Bleiakkumulatoren, Produkt-Nr. TLC02V50 für portable Stromversorgung. Wenn die Batterien nicht richtig gehandhabt oder ausgetauscht werden, besteht Explosionsgefahr. Tauschen Sie Batterien nur gegen Batterien gleichen Typs von Sun Microsystems aus. Versuchen Sie nicht, die Batterien zu entfernen oder außerhalb des Geräts wiederaufzuladen. Entsorgen Sie die Batterien nicht im Feuer. Entsorgen Sie die Batterien ordnungsgemäß entsprechend den vor Ort geltenden Vorschriften.

Abdeckung des Systems

Sie müssen die Abdeckung des Sun-Computersystems entfernen, um Karten, Speicher oder interne Speichergeräte hinzuzufügen. Stellen Sie sicher, daß Sie die Abdeckung wieder einsetzen, bevor Sie den Computer einschalten.



Achtung – Sun-Geräte dürfen nicht ohne Abdeckung in Gebrauch genommen werden. Nichtbeachtung dieses Warnhinweises kann Verletzungen oder Systembeschädigungen zur Folge haben.

Laserrichtlinien

Alle Sun-Produkte, die Lasertechnologie nutzen, erfüllen die Laserrichtlinien der Klasse 1.

Class 1 Laser Product
Luokan 1 Laserlaite
Klasse 1 Laser Apparat
Laser Klasse 1

Abbildung der Erklärung zu Laserprodukten der Klasse 1

CD-ROM



Achtung – Die Verwendung von anderen Steuerungen und Einstellungen oder die Durchführung von Arbeitsabläufen, die von den hier beschriebenen abweichen, können gefährliche Strahlungen zur Folge haben.

Verbandsmarke GOST-R

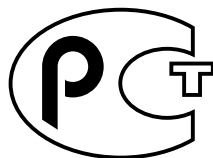


Abbildung der GOST-R-Zertifizierungsmarke

Normativas de seguridad

Lea esta sección antes de llevar a cabo cualquier procedimiento. El texto que aparece a continuación explica las medidas de seguridad que deben tomarse durante la instalación de un producto Sun Microsystems.

Medidas de seguridad

Por su propia seguridad, tome las medidas de seguridad siguientes al instalar el equipo:

- Siga todas las avisos y las instrucciones que aparecen impresas en el equipo.
- Cerciórese de que el voltaje y la frecuencia de la fuente de alimentación coinciden con el voltaje y frecuencia indicados en la etiqueta de clasificación eléctrica del equipo.
- No introduzca objetos de ningún tipo a través de las aberturas del equipo. Dentro pueden darse voltajes peligrosos. Los objetos conductores extraños podrían producir un cortocircuito y, en consecuencia, fuego, descargas eléctricas o daños en el equipo.

Símbolos

Los símbolos siguientes pueden aparecer en este manual:



Precaución – Existe el riesgo de que se produzcan lesiones personales y daños en el equipo. Siga las instrucciones.



Precaución – Superficie caliente. Evite todo contacto. Las superficies están calientes y pueden causar lesiones personales si se tocan.



Precaución – Riesgo de voltajes peligrosos. Para reducir el riesgo de descargas eléctricas y de daños en la salud de las personas, siga las instrucciones.



Encendido – Proporciona alimentación de CA al sistema.

Según el tipo de interruptor de alimentación del que disponga el dispositivo, se utilizará uno de los símbolos siguientes:



Apagado – Corta la alimentación de CA del sistema.



Espera – El interruptor de encendido/espera está en la posición de espera.

Modificaciones en el equipo

No realice modificaciones mecánicas ni eléctricas en el equipo. Sun Microsystems no se hará responsable del cumplimiento de las normas en el caso de un producto Sun que ha sido modificado.

Lugar y colocación de un producto Sun



Precaución – No obstruya ni tape las rejillas del producto Sun. Nunca coloque un producto Sun cerca de radiadores o fuentes de calor. El incumplimiento de estas directrices puede causar un recalentamiento y repercutir en la fiabilidad del producto Sun.



Precaución – El nivel de ruido en el lugar de trabajo, definido en el apartado 1000 de DIN 45 635, debe ser 70 Db (A) o inferior.

Cumplimiento de las normas SELV

Las condiciones de seguridad de las conexiones de E/S cumplen las normas SELV.

Conexión del cable de alimentación



Precaución – Los productos Sun han sido diseñados para funcionar con sistemas de alimentación monofásicos que tengan un conductor neutral a tierra. Para reducir el riesgo de descargas eléctricas, no enchufe ningún producto Sun a otro tipo de sistema de alimentación. Si no está seguro del tipo de alimentación del que se dispone en el edificio, póngase en contacto con el encargado de las instalaciones o con un electricista cualificado.



Precaución – No todos los cables de alimentación tienen la misma clasificación de corriente. Los cables de prolongación domésticos no ofrecen protección frente a sobrecargas y no están diseñados para ser utilizados con sistemas informáticos. No utilice cables de prolongación domésticos con el producto Sun.



Precaución – El producto Sun se suministra con un cable de alimentación (de tres hilos) con conexión a tierra. Para reducir el riesgo de descargas eléctricas, enchufe siempre el cable a una toma de corriente con conexión a tierra.

La precaución siguiente sólo se aplica a aquellos dispositivos que posean un interruptor de alimentación de espera:



Precaución – El interruptor de alimentación del producto funciona como dispositivo de espera solamente. El cable de alimentación actúa como el dispositivo de desconexión primario del sistema. Cerciórese de enchufar el cable de alimentación a una toma de corriente con conexión a tierra situada cerca del sistema y a la que se pueda acceder con facilidad. No conecte el cable de alimentación cuando se haya quitado la fuente de alimentación del bastidor del sistema.

Batería de litio



Precaución – En la placa CPU de los productos Sun, hay una batería de litio incorporada en el reloj en tiempo real, SGS núm. MK48T59Y, MK48TXXB-XX, MK48T18-XXXPCZ, M48T59W-XXXPCZ o MK48T08. Los usuarios no deben cambiar las baterías. Podrían estallar si no se utilizan adecuadamente. No arroje la batería al fuego. No la desmonte ni intente recargarla.

Paquete de baterías



Precaución – Las unidades Sun StorEdge SBus Dual Fibre Channel Host Adapter contienen una batería de plomo sellada, Productos eléctricos portátiles núm. TLC02V50. Existe el riesgo de explosión si el paquete de baterías no se utiliza correctamente o se sustituye de forma incorrecta. Sustitúyalo sólo por el mismo tipo de paquete de baterías de Sun Microsystems. No lo desmote o intente recargarlo fuera del sistema. No arroje la batería al fuego. Deshágase de las baterías correctamente siguiendo las normas locales vigentes.

Cubierta de la unidad del sistema

Debe retirar la cubierta de la unidad del sistema informático Sun para añadir tarjetas, memoria o dispositivos de almacenamiento internos. Asegúrese de volver a colocar la cubierta superior antes de encender el equipo.



Precaución – No ponga en funcionamiento los productos Sun sin que la cubierta superior se encuentre instalada. De lo contrario, podrían producirse lesiones personales o daños en el sistema.

Aviso de cumplimiento de las normas para láser

Los productos Sun que utilizan tecnología láser cumplen los requisitos para láser de Clase 1.

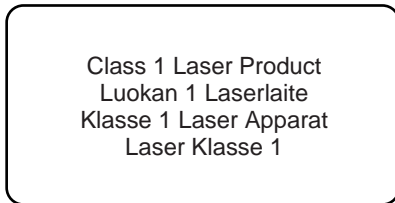


Gráfico que muestra la declaración sobre productos láser de clase 1

CD-ROM



Precaución – La utilización de controles, ajustes o la realización de los procedimientos distintos a los especificados en el presente documento podrían provocar la exposición a radiaciones peligrosas.

Certificación GOST-R

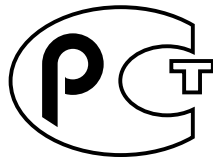


Gráfico que muestra el símbolo del certificado GOST-R

Nordic Lithium Battery Cautions

Norge



ADVARSEL – Litiumbatteri –
Eksplosjonsfare. Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten. Brukt batteri returneres apparatleverandøren.

Sverige



VARNING – Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

Danmark



ADVARSEL! – Litiumbatteri –
Eksplosionsfare ved fejlagtig håndtering. Udsiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

Suomi



VAROITUS – Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

Figures

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Preface

This *Sun StorEdge SBus Dual Fibre Channel Host Adapter Installation Guide* describes how to install and use the dual Fibre Channel (FC) adapter.

The procedures in this manual are for system or network administrators who have experience installing hardware in a Solaris™ operating environment.

How This Book Is Organized

The document is organized as follows:

Chapter 1 describes the software for the adapter and gives procedures for downloading it.

Chapter 2 describes hardware preparation for the adapter and contains procedures for installing it.

Chapter 3 explains how to install the required software from a CD.

Chapter 4 contains procedures for testing the installation.

Appendix A provides the specification details for the adapter.

How to Use This Book

If you will install the driver software from the CD provided:

- Begin with Chapter 2 and proceed through the rest of the book.

If you will install the software without the CD provided:

- Begin with Chapter 1, but skip Chapter 3.

Using UNIX Commands

This document may not contain information on basic UNIX® commands and procedures such as shutting down the system, booting the system, and configuring devices.

See one or more of the following for this information:

- *Solaris Handbook for Sun Peripherals*
- AnswerBook2™ online documentation for the Solaris operating environment
- Other software documentation that you received with your system

Typographic Conventions

Typeface	Meaning	Examples
AaBbCc123	The names of commands, files, and directories; on-screen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. % You have mail.
AaBbCc123	What you type, when contrasted with on-screen computer output	% su Password:
AaBbCc123	Book titles, new words or terms, words to be emphasized	Read Chapter 6 in the <i>User's Guide</i> . These are called <i>class</i> options. You <i>must</i> be superuser to do this.
	Command-line variable; replace with a real name or value	To delete a file, type <code>rm filename</code> .

Shell Prompts

Shell	Prompt
C shell	<i>machine_name%</i>
C shell superuser	<i>machine_name#</i>
Bourne shell and Korn shell	\$
Bourne shell and Korn shell superuser	#

Related Documentation

Application	Title	Part Number
Installation	<i>Solaris 8 10/00 Sun Hardware Platform Guide</i>	806-5048
Diagnostic testing	<i>SunVTS 4.3 User's Guide</i>	806-7705
Diagnostic testing	<i>SunVTS 4.3 Test Reference Manual</i>	806-7704
Latest Updates	<i>Sun StorEdge SBus Dual Fibre Channel Host Adapter Product Notes</i>	816-2490

Accessing Sun Documentation Online

The `www.sun.com` web site enables you to access Sun™ technical documentation on the Web. To access the Sun StorEdge SBus Dual Fibre Channel Host Adapter product documentation, go to the following Sun web site:

```
http://www.sun.com/products-n-  
solutions/hardware/docs/Network_Storage_Solutions/Adapters/index  
.html
```


Installing the Software Components

Before you can use the Sun StorEdge™ SBus dual Fibre Channel host adapter, you must first install the patches and packages for this product. You can download from the web or get them from the CD provided with the adapter. The instructions in this chapter cover downloading the patches and packages from the web. This chapter contains the following topics:

- “Required Software” on page 1
- “Device Tree Entries” on page 2
- “Patch and Package Download Sites” on page 3

Note – If you will be installing packages and patches from the CD provided with the Sun StorEdge™ SBus dual Fibre Channel host adapter, skip to Chapter 2 and continue through the rest of the book.

Required Software

The minimum Solaris™ operating environment release to support the adapter device drivers is Solaris 8 4/01.

Refer to the *Sun StorEdge SBus Dual Fibre Channel Host Adapter Product Notes* for package and patch information for the following software components:

- Sun StorEdge Network Foundation

This software is included with the Solaris upgrades for the Sun StorEdge SAN 4.0 Release. It includes the drivers to support switches, management tools, and storage devices.

- Sun StorEdge Traffic Manager

Install this patch on the latest revision of the Sun StorEdge Network Foundation Software.

- `cfgadm` plug-in

This component is delivered with the Solaris upgrades for the Sun StorEdge SAN 4.0 Release. It discovers SAN-attached devices in addition to creating and deleting Fabric devices. The `cfgadm` framework implements these features. See the `cfgadm_fp(1M)` man page for additional information.

- `luxadm` and `libg_fc/liba5k`

These components are enhanced to support the SAN-attached devices. They probe SAN-attached devices that are available on a host and provide information about various devices.

- OpenBoot™ PROM

Device Tree Entries

- The installed Sun StorEdge SBus dual Fibre Channel host adapter boards will have device paths similar to the following:

```
/devices/sbus@3,0/SUNW,q1c@0,30000  
/devices/sbus@3,0/SUNW,q1c@0,30400
```

- Under these nodes one instance of the `fp` driver will have a device node similar to the following:

```
/devices/sbus@3,0/SUNW,q1c@0,30000/fp@0,0
```

- The `fp` driver also has a `devctl` node for administrative use with a name similar to the following:

```
/devices/sbus@3,0/SUNW,q1c@0,30000/fp@0,0:devctl
```

Patch and Package Download Sites

You can download the required software components from the web sites listed in TABLE 1-1.

TABLE 1-1 Patch and Package Download Sites

Software	Downloading Web Site
Packages	http://www.sun.com/storage/san/
Patches	http://sunsolve.sun.com

Installing the Hardware

The minimum hardware requirement for the Sun StorEdge SBus Dual Fibre Channel Host Adapter is an SBus-based system. This chapter describes how to install the adapter in a system and contains the following topics:

- “Tools and Equipment Needed” on page 5
- “Installing the Host Adapter” on page 5

Tools and Equipment Needed

You need the following items to install the adapter:

- A No. 2 Phillips screwdriver
- An antistatic wrist strap
- A padded antistatic mat

You might also need fiber optic cables. You can order them in the following lengths:

- 2-meter, part number X973A
- 15-meter, part number X978A

Installing the Host Adapter

This section contains procedures to install the adapter in Sun Enterprise E3x00 - E6x00 servers. To install the adapter in a Sun Enterprise 10000 server, contact your Sun Enterprise Service representative or qualified service provider. This section contains the following topics:

- “To Prepare For the Installation” on page 6

▼ To Prepare For the Installation

1. Exit the operating environment.

To inform any mounted users that the system will be going down, use the `shutdown` command. Otherwise, use the `init 0` command. See the man pages for these commands or the Solaris AnswerBook2 online documentation.

2. Power off the system.

Refer to the service documentation that came with your system.



Caution – Do not disconnect the power cord at this time. This connection provides the ground path necessary to remove and install printed circuit boards and components without damage.

3. Choose a slot in which to install the host adapter.

Follow the procedures in the documentation supplied with your system.

For systems that have more than one system board, you must also select and remove a system board that has an available SBus slot. Refer to your system documentation for specific instructions.

4. Attach the antistatic wrist strap to your wrist and to a metal component on the system chassis.

The wrist strap between you and the chassis provides the ground path necessary to safely remove and install the printed circuit boards and components without damaging them.

▼ To Install the Adapter

1. Open the system.

Refer to your system documentation for specific instructions.



Caution – If you need to remove a system board for installation, place the board on a padded antistatic mat to prevent damage.

2. **If necessary, remove the adapter plate by removing the two Phillips screws.**
Refer to the documentation for your system to see if you need to remove this part.

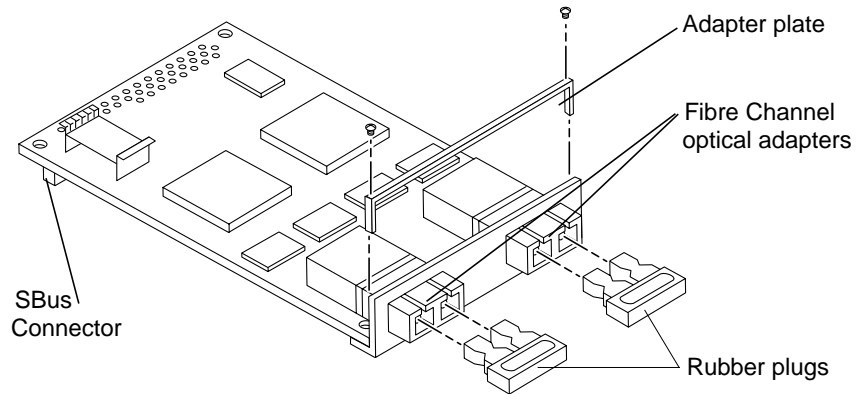


FIGURE 2-1 Removing the Adapter Plate

3. **Install the host adapter in one of the SBus slots in the I/O board.**
Mounting details vary for each system. Refer to your system documentation for specific instructions.
 - a. **Insert the front end of the card into the board.**

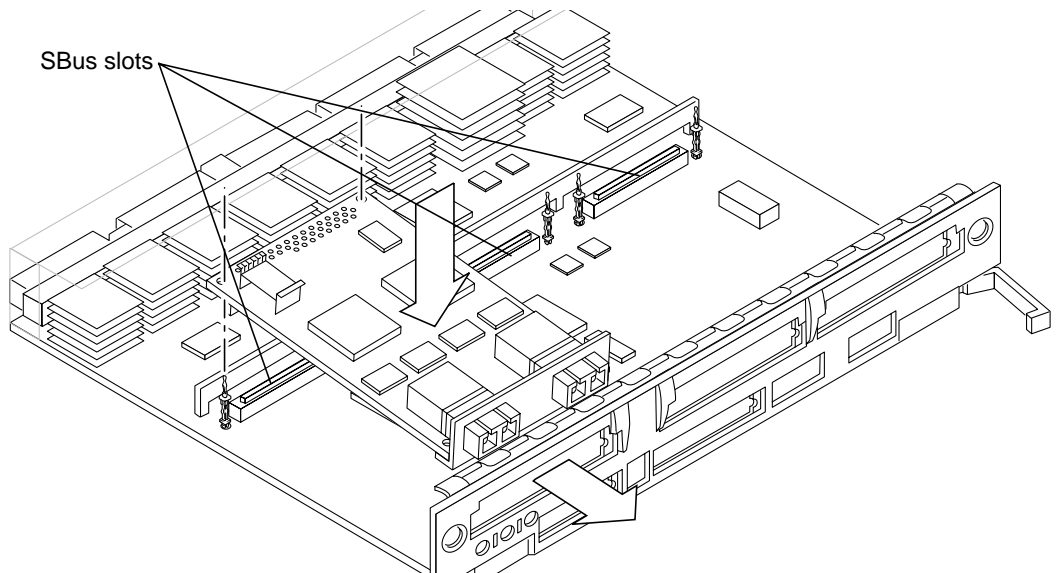


FIGURE 2-2 Inserting the Host Adapter in an I/O Board

b. Make sure the SBus connector is fully seated.

See FIGURE 2-1 and FIGURE 2-2.

c. Secure the adapter by locking the pins at the back of the adapter.

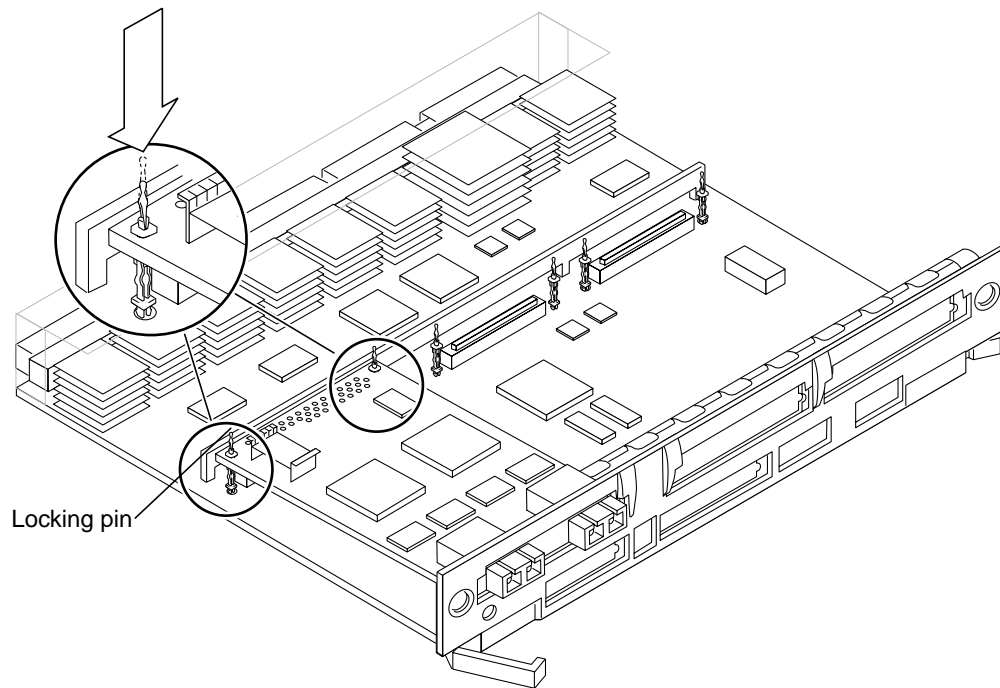


FIGURE 2-3 Securing the Adapter With the I/O Board Locking Pins

4. Reassemble the system.

Refer to your system documentation for specific instructions.

5. Disconnect the wrist strap.

6. Remove the rubber plugs from the two Fibre Channel optical adapters on the host adapter card.

See FIGURE 2-1.

7. Push the fiber optic cable connector into either of the ports on the metal panel of the SBus adapter.

Fiber optic cables have keyed connectors; they can only be inserted one way.

8. Connect the other end of the fiber optic cable to a device such as a disk array, hub, or switch.

Refer to the documentation that came with the device for specific instructions.

▼ To Confirm the Installation

1. Power on your peripherals and then your system.

Note – If your system starts to reboot, interrupt the reboot process by pressing the Stop-A keys.

The system should now be at the ok prompt.

2. Detect devices from the OpenBoot PROM.

CODE EXAMPLE 2-1 Detecting OpenBoot PROM Level Devices

```
ok probe-fcal-all
/pci@13,2000/pci@2/SUNW,qlc@5

/pci@13,2000/pci@2/SUNW,qlc@4

/pci@12,2000/pci@2/SUNW,qlc@5

/pci@12,2000/pci@2/SUNW,qlc@4
LiD HA LUN --- Port WWN --- ----- Disk description -----
 1  1  0  50020f23000069d8 SUN      T300          0117
 1  1  1  50020f23000069d8 SUN      T300          0117

/sbus@3,0/SUNW,qlc@0,30400

/sbus@3,0/SUNW,qlc@0,30000

/sbus@2,0/SUNW,qlc@2,30400

/sbus@2,0/SUNW,qlc@2,30000
LiD HA LUN --- Port WWN --- ----- Disk description -----
 2  2  0  50020f230000652c SUN      T300          0117
 2  2  1  50020f230000652c SUN      T300          0117

/sbus@2,0/SUNW,qlc@1,30400

/sbus@2,0/SUNW,qlc@1,30000

/sbus@2,0/SUNW,socal@d,10000/sf@1,0
loop 1 is OFFLINE
loop 1 is OFFLINE
```

CODE EXAMPLE 2-1 Detecting OpenBoot PROM Level Devices (Continued)

```
/sbus@2,0/SUNW,socal@d,10000/sf@0,0
WWN 200508002079b43e Loopid 1
WWN 21000020374b7ef9 Loopid e2
LUN 0 Disk SEAGATE ST318203FSUN18G 114A9949782453
WWN 21000020370bd86f Loopid e4
Disk SEAGATE ST19171FCSUN9.0G7F7E9745M96996
WWN 21000020370d068f Loopid e8
Disk SEAGATE ST19171FCSUN9.0G7F7E9807S04012
WWN 21000020370de812 Loopid ef
Disk SEAGATE ST19171FCSUN9.0G117E9818U15633
```

3. Verify that the system recognizes the host adapter.

- a. Use the `show-devs` command to display the port path of the adapter.**

CODE EXAMPLE 2-2 Displaying the Entire Device Tree

```
ok show-devs
/counter-timer@3,3c00
/sbus@3,0
/counter-timer@2,3c00
/fhc@2,f8800000
/sbus@2,0
/SUNW,UltraSPARC-II@7,0
/SUNW,UltraSPARC-II@6,0
/fhc@6,f8800000
/central@1f,0
/virtual-memory
/memory@0,0
/aliases
/options
/openprom
/chosen
/packages
/sbus@3,0/SUNW,qlc@0,30400
/sbus@3,0/SUNW,qlc@0,30000
/sbus@3,0/SUNW,fas@3,88000000
/sbus@3,0/SUNW,hme@3,8c000000
/sbus@3,0/SUNW,qlc@0,30400/fp@0,0
/sbus@3,0/SUNW,qlc@0,30400/fp@0,0/disk
/sbus@3,0/SUNW,qlc@0,30000/fp@0,0
/sbus@3,0/SUNW,qlc@0,30000/fp@0,0/disk
/sbus@3,0/SUNW,fas@3,88000000/st
/sbus@3,0/SUNW,fas@3,88000000/sd
```


CODE EXAMPLE 2-2 Displaying the Entire Device Tree (Continued)

```
/fhc@2,f8800000/sbus-speed@0,500000
/fhc@2,f8800000/eprom@0,300000
/fhc@2,f8800000/flashprom@0,0
/fhc@2,f8800000/environment@0,400000
/fhc@2,f8800000/ac@0,1000000
/sbus@2,0/SUNW,socal@d,10000
/sbus@2,0/SUNW,socal@d,10000/sf@1,0
/sbus@2,0/SUNW,socal@d,10000/sf@0,0
/sbus@2,0/SUNW,socal@d,10000/sf@1,0/ssd
/sbus@2,0/SUNW,socal@d,10000/sf@0,0/ssd
/fhc@6,f8800000/flashprom@0,0
/fhc@6,f8800000/sram@0,200000
/fhc@6,f8800000/environment@0,400000
/fhc@6,f8800000/simm-status@0,600000
/fhc@6,f8800000/ac@0,1000000
/central@1f,0/fhc@0,f8800000
/central@1f,0/fhc@0,f8800000/clock-board@0,900000
/central@1f,0/fhc@0,f8800000/zs@0,904000
/central@1f,0/fhc@0,f8800000/zs@0,902000
/central@1f,0/fhc@0,f8800000/eprom@0,908000
/openprom/client-services
/packages/ufs-file-system
/packages/disk-label
/packages/obp-tftp
/packages/deblocker
/packages/terminal-emulator
```

- b. Use the `apply show-children` command with the port path of the adapter to display the devices attached to the port.**

CODE EXAMPLE 2-3 Displaying Devices Attached to Port

```
/sbus@3,0/SUNW,qlc@0,30000
```

```
ok apply show-children /sbus@3,0/SUNW,qlc@0,30000
LiD HA LUN --- Port WWN --- ----- Disk description -----
 4  4  0  2100002037e60072 SEAGATE ST336605FSUN36G 0438
 5  5  0  2100002037e60265 SEAGATE ST336605FSUN36G 0438
 6  6  0  2100002037e601df SEAGATE ST336605FSUN36G 0438
 d  d  0  5080020000023d09 SUN SENA 1.09
 0  0  0  2100002037e601f6 SEAGATE ST336605FSUN36G 0438
 1  1  0  2100002037e6026e SEAGATE ST336605FSUN36G 0438
 2  2  0  2100002037e60204 SEAGATE ST336605FSUN36G 0438
 3  3  0  2100425400000009 SEAGATE ST336605FSUN36G 0438
```

In CODE EXAMPLE 2-3, `/sbus@3,0/SUNW,qlc@0,30000` is port 1 on the Sun StorEdge SBus dual Fibre Channel host adapter and the disks are in a Sun StorEdge A5x00 array (SENA).

Note – The `probe-fcal-all` command does not function identically on all platforms, and it does not always probe for Fibre Channel devices.

4. Use the `reset-all` command if you made changes to your system configuration.
5. Reboot the system using the `boot -r` command.

Installing Solaris OE From the Installation CD

Note – If you installed the software as directed in Chapter 1 and the *Sun StorEdge SBus Dual Fibre Channel Host Adapter Product Notes*, skip this chapter and continue with Chapter 4. For the latest patch and package information, see the product notes. For bootability without a CD 0, see Appendix B.

This document provides the following information:

- “Who Should Use This Software” on page 13
- “About the CD 0s That Shipped With Your System” on page 14
- “When to Use the CD 0” on page 14
- “Installing the Solaris OE With the CD 0s” on page 15
- “Installing the Solaris 8 4/01, Solaris 8 7/01, or Solaris 8 10/01 Release With the Accompanying CD 0” on page 15
- “Patching a Network Installation Image for the Solaris 8 4/01, Solaris 8 7/01, or Solaris 8 10/01 Release” on page 19

Who Should Use This Software

The installation CDs for the Solaris 8 4/01, Solaris 8 7/01, or Solaris 8 10/01 OEs should be used only by highly skilled system administrators or engineers who are trained to perform installations.

About the CD 0s That Shipped With Your System

The following CDs accompany this product:

- Operating environment installation CD 0 used to initiate the installation of the Solaris 8 4/01, Solaris 8 7/01 or Solaris 8 10/01 release
- These CDs will hereafter be referred to as CD 0 in this document

These CDs are for systems with the Sun StorEdge™ SBus Dual Fibre Channel host adapter.

Caution – Do not use these CDs on any other platforms.

Note – The Solaris 8 4/01, Solaris 8 7/01 or Solaris 8 10/01 Media Kit must be used with the appropriate CD 0. Other Solaris versions, either earlier or later, will not work.

Note – The procedures described in this document should only be used with the appropriate Solaris 8 operating environment. Do not use any other release of the Solaris operating environment.

Note – The Solaris 2 of 2 CD is not required for every type of installation. For more specific details about installing Solaris software over the network refer to the Installation Guide and the Advanced Installation Guide that shipped in your Solaris media kit.

When to Use the CD 0

The CD 0s must be used to initiate installation of systems with the Sun StorEdge SBus Dual Fibre Channel adapter.

Do not use the Solaris 8 Installation CD that shipped with the Solaris 8 4/01, Solaris 7/01, or Solaris 10/01 release. Also, do not attempt to install directly from a Solaris 8 Software 1 of 2 CD for any of these releases.

By initiating installation with CD 0, the Solaris operating environment is installed along with the required adapter patches.

Installing the Solaris OE With the CD 0s

There are two ways to install the Solaris software:

- Install the Solaris OE directly on the system from the appropriate CD 0.
- Install an image from the Media Kit of the Solaris OE on an installation server, patch the image using the binary images from the CD 0, and then use the patched image to install the Solaris OE on the systems.

This Solaris release can be installed, by either of the above methods, on systems that do not have a frame buffer and monitor. This installation CD 0 also provides a direct installation method via a command-line interface that can operate through a TIP line connected to the “headless” system.

Note – To set up a TIP connection, see the detailed instructions in the documentation for your system. General information about TIP operations is in the *OpenBoot Command Reference Manuals*. The TIP connection must be established before you can use the installation CD 0.

Installing the Solaris 8 4/01, Solaris 8 7/01, or Solaris 8 10/01 Release With the Accompanying CD 0

Topics in this section include:

- “To Install the Solaris Operating Environment With the CD 0” on page 16
- “To Use the Solaris Web Start Interface” on page 18

Make sure you have the following before you start this procedure:

- The Solaris Media Kit for Solaris the 8 4/01, Solaris 8 7/01, or Solaris 8 10/01 OE
- This installation CD 0

Caution – This procedure overwrites existing contents on the hard drives. Before beginning the Solaris installation, back up all vital data and software.

▼ To Install the Solaris Operating Environment With the CD 0

1. Place the installation CD 0 in the CD-ROM drive.
2. Halt the system in one of the following ways:
 - For a new installation:
 - Power on and wait for the Open Boot PROM ok prompt and then go to Step 4.
 - For systems that are already running the Solaris OE:
 - If upgrading Solaris the system should be halted gracefully in order to leave existing file systems in a consistent state. An orderly shutdown may be performed by becoming the super-user (also known as root) and executing the `halt`, `init 0` or `shutdown` command. See the `halt(1M)`, `init(1M)` and `shutdown(1M)` man pages for details.
 - via USB keyboard, press Stop-A or Cntl- Break
 - via TIP connection, press ~ followed by #
 - via terminal server using the telnet command, press the break key or type:
 - send brk

The Open Boot PROM ok prompt is displayed.

3. At the ok prompt, enter this command:

```
ok boot cdrom
```

4. In a few minutes, you will be asked to select the language you want to use while running the installer.

Type the appropriate number for your choice of language.

Note – For a command line installation, the installation process is in English only.

5. Answer the installation questions when prompted.

The installation CD 0 loads installation mini-os software (mini-root) temporarily on one of the disk partitions (usually the swap partition). In the first part of the installation process, specify how the mini-root is loaded by answering the following questions through a series of menus:

- a. **Specify whether this is an initial installation or an upgrade.**
- b. **Select the disk where the mini-root software will be loaded.**

The length of time that it takes for the mini-root to load depends on what you specified in the menus and on the speed of your system. When the mini-root installation is complete, the system automatically boots from the mini-root and displays the first installation panel, entitled *Welcome*.

6. Type the information about the system in response to questions in the Installation panels.

System information you might be asked to supply includes the following:

- Network connectivity (standalone)
- DHCP
- Host name
- IP address
- Net mask (255.255.255.0 is the default)
- IPv6
- Name service (NIS+, NIS, DNS, LDAP or None)
- Domain name
- Name server
- Time zone
- Date and time
- Root password
- Proxy server configuration
- Power management

Note – Refer to the Solaris 8 4/01, Solaris 8 7/01 or Solaris 8 10/01 installation documentation for more information about making these System Identification choices.

7. Review the Confirm Information panel to ensure that all the installation information is correct.

- If you are using the graphical user interface (GUI), use the Back and Next buttons to correct information. When all the information is correct, click Confirm.
- If you are using the a terminal interface, use the arrow keys to select your choices. Press Return to mark your chosen fields and press F2 to confirm your choices.

The Solaris Web Start installation interface will begin.

▼ To Use the Solaris Web Start Interface

1. In the Solaris Web Start Welcome panel, click Next.

The installation CD 0 is ejected from the CD-ROM drive.

2. When prompted, insert the Solaris 8 Software 1 of 2 CD into your drive, and click OK.

This CD is in the standard Solaris 8 4/01, Solaris 8 7/01, Solaris 8 10/01 Media Kit.

3. Respond to questions presented by the Solaris installation process.

The questions might cover the following areas:

- Default or custom installation
- Language and locale of the software to be installed (this can be different from the language choice you might have made earlier in Step 4.)
- Choose to install additional CDs from the media kit (click Products panel)
- Choose to install additional software from another product CD, a Kiosk download, or over the Internet (Additional Products panel)

Note – When you install the Solaris operating environment from an English-only media kit, you cannot use this method to install any additional software (such as Solaris documentation or the Computer Systems Supplement CD) from the Select Products panel. Instead, you can install additional software after the system is booted. For installation instructions, refer to the *Solaris 8 4/01*, *Solaris 8 7/01*, or *Solaris 8 10/01 Sun Hardware Platform Guide* that shipped in your media kit. This restriction does not apply to multilingual versions of the Solaris media kits.

- 64-bit selection (Only the Solaris 64-bit kernel is supported on Netra AX1105-500, that is, you may not choose to only install the 32-bit kernel.)
- Solaris cluster configuration information
- Disk selection

Note – The procedures described in this document should only be used with Solaris 8 4/01, Solaris 8 7/01, or Solaris 8 10/01 operating environment. Do not use any other release of the Solaris operating environment.

4. Verify that the information listed in the Ready to Install panel is correct, and click Install Now.

5. Wait for the installation to complete.

This could take an hour or more, depending on the software you are installing and the speed of your system

6. When the installation is complete, click Next in the Installation Summary panel.

- The system reboots and then the CD is ejected. Web Start is displayed.

7. Load any additional Solaris software from the CDs as required.

Refer to the Solaris 8 4/01, Solaris 8 7/01, or Solaris 8 10/01 documentation for further information on optional software.

8. When the last CD is installed, click Reboot Now.

The system boots using the Solaris release that you installed.

Patching a Network Installation Image for the Solaris 8 4/01, Solaris 8 7/01, or Solaris 8 10/01 Release

Note – If the installation server is already set up with an image of the Solaris 8 4/01, Solaris 8 7/01, or Solaris 8 10/01 release, skip to Step 7.

▼ To Patch a Network Installation Image

1. **Become superuser.**
2. **Insert the Solaris 8 Software 1 of 2 CD in a CD-ROM drive used by the installation server.**
3. **Change to the `Tools` directory:**

```
# cd /cdrom/cdrom0/s0/Solaris_8/Tools
```

4. **Create the install image:**

```
# ./setup_install_server image-directory
```

5. **Return to the home directory:**

```
# cd /
```

6. Eject the Solaris CD.

a. Insert the Solaris 8 Software 2 of 2 CD in the CD-ROM drive used by the installation server.

b. Change to the `Tools` directory:

```
# cd /cdrom/cdrom0/Solaris_8/Tools
```

c. Continue building the installation server:

```
# /add_to_install_server image_directory
```

d. Move to a directory other than one on the CD as follows:

```
# cd /
```

e. Eject the Solaris OE CD:

```
# eject
```

7. Insert the appropriate CD 0 that came with these instructions.

8. Change to the CD directory:

```
# cd /cdrom/cdrom0/s0
```

9. Patch the install image:

```
# /modify_install_server.nws -d image_directory
```

Now you can continue to perform the standard network installation procedure for this release. For more information, see the “Preparing to Install Solaris Software Over the Network” chapter in the *Solaris Advanced Installation Guide* that is in your media kit.

Testing the Installation

This chapter describes how to test the Sun StorEdge™ SBus dual Fibre Channel host adapter in a system.

Testing the Installation Using the SunVTS Software

The SunVTS™ diagnostic program exercises your system to verify the functionality, reliability, and configuration of your host adapter. You will need to install both the 32- and 64-bit versions of the SunVTS software. The *SunVTS 4.3 User's Guide* contains instructions on installing SunVTS. The Solaris 8 4/01 release requires the SunVTS 4.3 software or later. See “Related Documentation” on page xvii for more information on the Sun VTS software.

▼ To Test the Installation

1. On a system running the common desktop environment (CDE), type the following commands to invoke SunVTS:

```
# cd /opt/SUNWvts/bin
# ./sunvts
```

2. From the SunVTS menus, select the following:
 - a. Select devices **None** and select **intervention**.

- b. Select mode Functional test.**
- c. Select HostAdapters qlcx, where x is the qlc # of the qlc port you want to run this test against.**
- d. If you want to run the external loopback test, place a loopback plug into the qlc port that you want to test.**
If you do not have an external loopback plug, you can make one by taking apart a fibre cable and plugging the same cable into the transmitter and receiver of the qlc port.
- e. Right click on the qlc test and select Test Parameter Options.**
- f. Enable the External Loopback Test.**

Note – If you do not use a loopback plug, you can connect the qlc port to storage devices. In such a case, you will be testing both the qlc and the entire Fibre Channel loop.

- g. Select Start to start the test.**

Note – If you select only the external loopback test, the different version diagnostic tests will not be run and the delay time between tests will be set to zero. This is a good way to test your Fibre Channel loop if you leave the qlc port attached to storage devices.

Specifications

A.1 Fibre Channel Interface Specifications

TABLE A-1 Fibre Channel Interface Specifications

Specification	Value
ANSI standards	Fibre Channel FC-PH X3.230-1995
	SCSI Fibre Channel Protocol X3.269-1996
Optical transceiver	100 Mbytes/sec. (1 Gbits/sec.) full duplex
	Shortwave laser, Module Definition 5
Fibre cable type	50 micrometer multimode
Maximum cable length	500 meters

A.2 Performance Specifications

TABLE A-2 Fibre Channel Performance Specifications

Feature	Specification
SBus clock frequency	25 MHz
SBus transfer rate	32-bit: 80 Mbytes/second burst rate 64-bit: 160 Mbytes/second burst rate
Fibre Channel transfer rate	100 Mbytes/second per port

A.3 Power Specifications

The following specifications must be verified.

TABLE A-3 Power Specifications

Specification	Value
Power dissipation	15.0W Max.
Current requirement	A Max. @ 5V
Input voltage requirement	V +/- 5%
Power supply voltage ripple requirement	< 100mv p-p

A.4 Physical Dimensions

TABLE A-4 Physical Dimensions

Dimension	Measurement
Length	5.776 inches (146.7 mm) max.
Width	3.300 inches (83.82 mm) max.
Component height (not including PCB):	
- on primary component side	0.157 inches (4.00 mm)
- on back side	0.105 inches (2.67 mm)
Weight (max.)	6.0 oz.

A.5 Regulatory Compliance

TABLE A-5 Regulatory Compliance Requirements Met or Exceeded by the Adapter

Category	Rating
Safety	UL 1950
	CSA 950
	TUV EN 60950
	Class 1 laser requirements per CFR 21, Part 1040 and IEC 825
RFI/EMI	FCC Class A
	DOC Class A
	VCCI Class A
	EMC Directive (89/336/EEC), EN55022
Immunity	EMC Directive (89/336/EEC), EN55082-1

A.6 SBus Connector Pin Definitions

The SBus slot uses a high density 96-pin SBus connector. The Sun StorEdge SBus

Dual Fibre Channel Host Adapter cards use a male SBus card connector mounted on the solder side of the board.

TABLE A-6 SBus Connector Pin Definitions

Pin	Description	Pin	Description	Pin	Description	Pin	Description
1	GND	25	D[31]	49	CLK	73	D[30]
2	BR*	26	SIZ[0]	50	BG*	74	SIZ[1]
3	SEL*	27	SIZ[2]	51	AS*	75	PPRD
4	INT[1]*	28	INT[7]*	52	GND	76	GND
5	D[00]	29	PA[00]	53	D[01]	77	PA[01]
6	D[02]	30	PA[02]	54	D[03]	78	PA[03]
7	D[04]	31	PA[04]	55	D[05]	79	PA[05]
8	INT[2]*	32	EER*	56	+5 V	80	+5 V
9	D[06]	33	PA[06]	57	D[07]	81	PA[07]
10	D[08]	34	PA[08]	58	D[09]	82	PA[09]
11	D[10]	35	PA[10]	59	D[11]	83	PA[11]
12	INT[3]*	36	ACK[0]*	60	GND	84	GND
13	D[12]	37	PA[12]	61	D[13]	85	PA[13]
14	D[14]	38	PA[14]	62	D[15]	86	PA[15]
15	D[16]	39	PA[16]	63	D[17]	87	PA[17]
16	INT[4]*	40	ACK[1]*	64	+5 V	88	+5 V
17	D[19]	41	PA[18]	65	D[18]	89	PA[19]
18	D[21]	42	PA[20]	66	D[20]	90	PA[21]
19	D[23]	43	PA[22]	67	D[22]	91	PA[23]
20	INT[5]*	44	ACK[2]*	68	GND	92	GND
21	D[25]	45	PA[24]	69	D[24]	93	PA[25]
22	D[27]	46	PA[26]	70	D[26]	94	PA[27]
23	D[29]	47	DP	71	D[28]	95	RST*
24	INT[6]*	48	-12 V	72	+5 V	96	+12 V

Booting From the Network Adapter

Note – Use the procedures in this appendix if you are not using a CD 0.

This appendix contains two procedures for booting from the network adapter to enable detection of the installation devices. You must boot from the adapter under these conditions:

- The network adapter card driver is not bundled with the Solaris OE on the boot server network.
- The host is a system that does not have disks connected directly to it, such as an enterprise-level system. In this case, booting from the network adapter is optional, but it is preferable because of the 1-Gbit connection.

Only an experienced UNIX system administrator should perform these procedures.

Note – These procedures are necessary if the network adapter card driver is not bundled with the Solaris operating environment on the boot server on the network. Check your Solaris operating environment to determine whether the driver is bundled with it.

Booting through a network adapter is mandatory when the host is an enterprise-level system or other system that does not have its own directly-connected disks. It is optional and preferable when a host has a directly-connected disk, you might prefer to boot through the adapter because of the 1-Gbit connection.

This chapter is organized as follows:

- “Determining Which Boot Method to Use” on page B-2
- “The Net Install Method” on page B-2
- “The Dump and Restore Method” on page B-8

B.1 Determining Which Boot Method to Use

You can boot from the small kernel image on the adapter in two ways:

- Using a boot or installation server, or the “Net Install Method”
- Using a temporarily connected boot disk, or the “Dump and Restore Method”

The Dump and Restore method is more difficult than the Net Install Patching method. However, the method is available to anyone with existing systems, whether small or large configurations, and it provides a disk image when you have completed the process.

The Net Install Patching method requires a jump-start server and network connectivity, and it is more suitable for large system configurations than for small ones. This method is easier than the Dump and Restore method.

B.2 The Net Install Method

The procedures in this section explain how to install the Solaris OE from a boot or install server onto the host with the host adapter. Any other host on the same subnet can be set up as a boot or install server.

Note – The procedure is identical whether you are using a boot server or an install server.¹ Therefore, the convention used in this chapter is to refer to either type of server as the “boot or install server.”

The topics in this section include:

- “Overview Of the Net Install Method” on page B-2
- “To Set Up the Boot or Install Server” on page B-4
- “To Modify the Boot Image” on page B-5
- “To Set Up the Client” on page B-6

B.2.1 Overview Of the Net Install Method

Installing a client from a boot or install server uses two images of the Solaris OE:

1. For the distinction between these two types of server, see the Solaris system administration documentation.

- A boot mini-root (which is referred to from here on as the *boot image*)
- A separate *install image* that gets copied onto the boot disk

This procedure assumes you know how to install Solaris software over the network as described in the Solaris installation manuals. For more information, see the `man(1)` pages for the commands that are used in this procedure.

Note – While you are setting up the boot or install server, you must either have the contents of the Solaris installation CD-ROM copied to a disk that is connected to the boot or install server, or have the Solaris installation CD inserted and mounted from an attached CD-ROM device.

You must enable bootability using a boot or install server to make both images aware of the host adapter. At the start of the procedure, download the driver and all required patches to an exported directory on the boot or install server.

The following steps provide an overview the process. For actual instructions, begin with “To Set Up the Boot or Install Server” on page B-4.

1. Copy the *boot image* is copied from a Solaris CD-ROM or from another location onto a disk that is attached to a boot or install server.
2. Add the driver package to the boot image.
You add the driver package to the boot image so that the boot or install server can then send and receive data through the host adapter on the boot client.
3. The client boots from the boot or install server, the interactive `suninstall(1M)` application starts, and you provide configuration information as requested by the prompts.
4. Supply all the configuration information requested by the installation program. The Solaris OE installation begins.
5. The install image is copied to the client.
6. Before rebooting, while the client is still booted from the boot image, copy the driver and any needed patches from the boot or install server and install them in the *install image*.
You install the driver package and patch the install image so that the host will be able to see the host adapter after a reboot.

Note – You cannot use Jump Start until you modify the install image.

7. The host boots from the boot disk through the network adapter.

▼ To Set Up the Boot or Install Server

1. Become superuser on the host to be used as the boot or install server.

```
% su
Password:
#
```

2. Use the `setup_install_server(1M)` command from the `Tools` directory in the location where the Solaris software resides.

As shown in the following screen example, the `setup_install_server` command copies the boot image to a directory on the boot or install server. (The boot directory is named `/original_OS_dir/Boot` in the example.) The example shows the command being run from the `Tools` directory on a mounted Solaris 8 installation CD.

Note – This step might take 20 minutes or more to complete.

```
# cd /cdrom/cdrom0/s0/Solaris_8/Tools
# ./setup_install_server -t /original_OS_dir/Boot /new_OS_copy_dir
```

3. Download the driver packages and the accompanying `README` file from Sun's download center into the `/export_public` directory on the boot or install server.
 - a. Go to the download center URL specified in the instructions about how to download the network adapter driver in the product notes.
 - b. Download the `README` file.
 - c. Remove any previously installed packages for this network adapter as instructed in the `README`.
 - d. Download the packages as described in the instructions in the release notes.
 - e. Use the `uncompress(1M)` and `tar(1M)` commands to uncompress and expand the packages in the `tar` file, as instructed in the `README`.



Caution – Do not use the `pkgadd(1M)` command line that is given in the `README` to install the packages. See “To Modify the Boot Image” on page B-5 to install relocatable versions of the packages.

4. Download the required patch(es) and the accompanying `README` file(s) from `sunsolve.sun.com` into the `/export_public` directory on the boot or install server.

- a. See the release notes for a list of required patches.
- b. Go to the URL specified in the instructions on how to download the network adapter driver in the product notes.
- c. Download the `README` file.
- d. Remove any previously installed related patches that are specified in the `README`.
- e. Download the patch(es) as described in the instructions in the release notes.
- f. Use the `uncompress (1M)` and `tar (1M)` commands to uncompress and expand the patch(es) in the `tar` file, as instructed in the `README`.



Caution – Do not use the `patchadd(1M)` command line that is given in the `README` to install the patch(es). See “To Modify the Boot Image” on page B-5 to install relocatable versions of the patch(es).

▼ To Modify the Boot Image

1. Install the driver packages into the boot image.

The following example installs all packages previously downloaded into the `/export_public` directory.

Note – Refer to the Recommended Software Installation Sequence in the *Sun StorEdge SBus Dual Fibre Channel Network Adapter Product Notes* for the proper order in which to install the packages. You must follow this order for a successful installation so the driver will run.

```
# cd /export_public
# pkgadd -R /new_OS_copy_dir/Boot -d . package_name
```

2. Install any needed patches into the boot image.

The following example installs any patch(es) that were previously downloaded into the `/export_public` directory. Repeat the `patchadd` command for all the patches you need to add.

```
# cd /export_public
# patchadd -C /new_OS_copy_dir/Boot -M /export_public patch_ID
```

3. Ensure that the host name, its IP address, and its Ethernet address have been added to the name service (/etc files, NIS, or NIS+).
4. Run the `add_install_client(1M)` command to add the host with the host adapter as a boot or install client.

```
# add_install_client host_name platform_name
```

Note – You can find the platform name by running the `uname` command with the `-m` option on the host that has the host adapter.

5. Log out of the boot or install server.

▼ To Set Up the Client

1. Bring the client host (with the host adapter) down to the `ok` prompt at run level 0. See the Solaris system administration documentation for the commands that can be used with different configurations. The following example uses the `shutdown(1M)` command.

```
# shutdown
...
ok
```



Caution – Do not reboot the boot or install server.

2. Boot the host from the net.

```
ok boot net
```

The Solaris interactive installation program runs from the boot or install server.

3. Respond to the prompts according to your configuration as instructed in the Solaris installation guide. Ensure that to specify the new boot disk as the destination for the operating environment installation.

4. When prompted to choose between automatic reboot or manual reboot, click the **Manual Reboot** button, complete the remaining question, and then start the installation.

This question offering a choice between automatic and manual reboot is the last question before the installation starts. If you are using the `suninstall` program, choose `boot manual`.

5. Mount the `/export_public` directory, which contains the driver packages and any needed patches, onto the `/mnt` directory mount point.

The following example uses `boot_install_server` as the name of the boot or install server.

```
# mount boot_install_server:/export_public /a/mnt
```

6. Install the driver packages into the install image.

The following example installs all packages previously downloaded into the `/export_public` directory. When prompted, install the packages in this order: `SUNWsan`, `SUNWcfpl`, `SUNWcfplx`.

```
# cd /a/mnt
# pkgadd -R /a -d . package_name
```

7. Install any needed patches into the boot image.

The following example installs all patches that were previously downloaded into the `/export_public` directory.

Note – Install the patches in their sequential numeric order to ensure the installation is successful.

```
# cd /a/mnt
# patchadd -R /a patch_ID
```

8. Bring the system down to the `ok` prompt at run level 0.

```
# halt
```

9. Reboot the host from the newly installed operating environment.

```
ok boot -r
```

B.3 The Dump and Restore Method

The topics in this section include:

- “Overview Of the Dump and Restore Method” on page B-8
- “Partitioning the New Boot Disk the Same As the Temporary Boot Disk” on page B-9
- “To Create File Systems on the New Boot Disk” on page B-19
- “Creating the New Boot Files” on page B-19

B.3.1 Overview Of the Dump and Restore Method

To enable bootability using a temporary boot disk, a boot disk must be directly connected, at least temporarily, to the host. The boot disk must have the following installed:

- The Solaris OE.
- The network adapter driver packages and any needed patches
See the release notes for how to download and install the driver packages and any needed patches.

Note – You can remove the initial boot disk if it is not needed after the boot disk is enabled.

Note – The examples in this section show disk 0 as the directly connected boot disk, and disk 2 as the designated new boot disk that is connected through the host adapter.

B.3.2 Partitioning the New Boot Disk the Same As the Temporary Boot Disk

This section contains several subprocedures you must perform to complete the first phase of enabling bootability from a temporarily connected boot disk. These subprocedures include:

- “To Prepare To Partition the New Disk” on page B-9
- “To Record the Partition Layout” on page B-9
- “To Change to the New Boot Disk” on page B-12
- “To Specify Slices on the New Boot Disk” on page B-14
- “To Label the New Boot Disk” on page B-18

▼ To Prepare To Partition the New Disk

1. **Become superuser on the host with the host adapter.**

```
% su
Password:
#
```

2. **If the driver and any needed patches are not already installed, download the driver package from Sun’s download center and install it on the host, following the instructions in the README file that comes with the driver.**

To download the driver, follow the instructions in the release notes.

3. **Reboot using the `reboot(1M)` command with the `-r` option.**

```
# reboot -- -r
```

4. **Log in to the host as root.**

▼ To Record the Partition Layout

After you log back into the host, you can record the layout of the partitions, or slices, on the system boot disk.

1. Enter the `format(1M)` command so that the operating environment recognizes the devices attached to the card.

If needed, see the `format` man page and the instructions about adding a disk and using the `format` command in the Solaris administration documentation.

Note – These examples use disk 0 as the temporary disk (`c0t1d0`) and disk 2 (`c7t16d0`) as the new boot disk.

```
# format
Searching for disks...done

AVAILABLE DISK SELECTIONS:
  0. c0t1d0 <SUN18G cyl 7506 alt 2 hd 19 sec 248>
     /pci@8,600000/SUNW,qlc@4/fp@0,0/ssd@w2100002037e43542,0
  1. c0t2d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
     /pci@8,600000/SUNW,qlc@4/fp@0,0/ssd@w21000020374205a1,0
  2. c7t16d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
     /pci@8,600000/SUNW,qlc@1/fp@0,0/ssd@w500000e01002b7c1,0
  3. c7t17d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
     /pci@8,600000/SUNW,qlc@1/fp@0,0/ssd@w500000e0100357c1,0
  4. c7t18d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
     /pci@8,600000/SUNW,qlc@1/fp@0,0/ssd@w500000e010032331,0
  5. c7t19d0 <drive not available: formatting>
     /pci@8,600000/SUNW,qlc@1/fp@0,0/ssd@w500000e010032661,0
  6. c7t20d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
     /pci@8,600000/SUNW,qlc@1/fp@0,0/ssd@w500000e0100369e1,0
Specify disk (enter its number):
```

2. Make a note of the device path name of the new boot disk.

For example, for disk 2, the new boot disk in this example, the device path name shown is: `/pci@8,600000/SUNW,qlc@1/fp@0,0`. You use this information later in Step 4 in “To Specify the New Boot Disk as the Boot Device” on page B-23.

Note – The `qlc` number changes, depending on the type of host and slot in use.

3. Specify the disk where the operating system is installed on the temporary boot disk.

The following screen example specifies disk 0.

```
Specify disk (enter its number): 0
```

4. Use the partition command to display the PARTITION MENU.

```
format> partition
PARTITION MENU:
  0      - change '0' partition
  1      - change '1' partition
  2      - change '2' partition
  3      - change '3' partition
  4      - change '4' partition
  5      - change '5' partition
  6      - change '6' partition
  7      - change '7' partition
select  - select a predefined table
modify  - modify a predefined partition table
name    - name the current table
print   - display the current table
label   - write partition map and label to the disk
!<cmd> - execute <cmd>, then return
quit
partition>
```

5. Use the print command to display the partition table for the specified disk.

```
partition> print
Current partition table (original):
Total disk cylinders available: 3880 + 2 (reserved cylinders)

Part      Tag      Flag      Cylinders      Size      (Cyls/B/H)  Blocks
  0      root      wm         0 - 1937      2.00GB    (1938/0/0)  4186080
  1      swap      wu        1938 - 2908    1.00GB    (971/0/0)   2097360
  2      backup    wm         0 - 3879      4.00GB    (3880/0/0)  8380800
  3  unassigned  wm          0              0          (0/0/0)      0
  4  unassigned  wm          0              0          (0/0/0)      0
  5  unassigned  wm          0              0          (0/0/0)      0
  6  unassigned  wm          0              0          (0/0/0)      0
  7      home      wm        2909 - 3879    1.00GB    (971/0/0)   2097360
```

As shown in the example, the temporary boot disk has three slices defined: 0 (root), 1 (swap), and 7 (home) with sizes, 2.00 GB, 1.00 GB, and 1.00 GB.

6. Record the layout (sizes and numbers) assigned to the slices on the temporary boot disk, and then type `quit`.

```
partition> quit
FORMAT MENU:
  disk          - select a disk
  type          - select (define) a disk type
  partition     - select (define) a partition table
  current       - describe the current disk
  format        - format and analyze the disk
  repair        - repair a defective sector
  label         - write label to the disk
  analyze       - surface analysis
  defect        - defect list management
  backup        - search for backup labels
  verify        - read and display labels
  save          - save new disk/partition definitions
  inquiry       - show vendor, product and revision
  volname       - set 8-character volume name
  !<cmd>        - execute <cmd>, then return
  quit
format>
```

The `FORMAT MENU` is displayed.

▼ To Change to the New Boot Disk

After you record the partition layout, change to the new boot disk.

1. At the `format>` prompt, type **disk** to change the current disk to the new boot disk:

```
# format
Searching for disks...done

AVAILABLE DISK SELECTIONS:
 0. c0t1d0 <SUN18G cyl 7506 alt 2 hd 19 sec 248>
    /pci@8,600000/SUNW,qlc@4/fp@0,0/ssd@w2100002037e43542,0
 1. c0t2d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
    /pci@8,600000/SUNW,qlc@4/fp@0,0/ssd@w21000020374205a1,0
 2. c7t16d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
    /pci@8,600000/SUNW,qlc@1/fp@0,0/ssd@w500000e01002b7c1,0
 3. c7t17d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
    /pci@8,600000/SUNW,qlc@1/fp@0,0/ssd@w500000e0100357c1,0
 4. c7t18d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
    /pci@8,600000/SUNW,qlc@1/fp@0,0/ssd@w500000e010032331,0
 5. c7t19d0 <drive not available: formatting>
    /pci@8,600000/SUNW,qlc@1/fp@0,0/ssd@w500000e010032661,0
 6. c7t20d0 <SUN36G cyl 24620 alt 2 hd 27 sec 107>
    /pci@8,600000/SUNW,qlc@1/fp@0,0/ssd@w500000e0100369e1,0
Specify disk (enter its number):
```

2. Type the number of the disk to be formatted to display the FORMAT menu.

The following screen example uses disk 2.

```
Specify disk (enter its number): 2
selecting c7t16d0:
[disk formatted]

FORMAT MENU:
  disk      - select a disk
  type      - select (define) a disk type
  partition - select (define) a partition table
  current   - describe the current disk
  format    - format and analyze the disk
  repair    - repair a defective sector
  label     - write label to the disk
  analyze   - surface analysis
  defect    - defect list management
  backup    - search for backup labels
  verify    - read and display labels
  save      - save new disk/partition definitions
  inquiry   - show vendor, product and revision
  volname   - set 8-character volume name
  !<cmd>    - execute <cmd>, then return
  quit

format>
```

3. Make a note of the device name of the disk.

The device name of the disk in the previous screen example is c7t16d0.

▼ To Specify Slices on the New Boot Disk

After you change to the new boot disk, specify one slice on the new boot disk for every slice on the temporary boot disk. The following examples specify the root slice 0 on the new boot disk to match slice 0 on the temporary boot disk.

1. Use the partition command to display the PARTITION MENU.

```
format> p
PARTITION MENU:
  0      - change '0' partition
  1      - change '1' partition
  2      - change '2' partition
  3      - change '3' partition
  4      - change '4' partition
  5      - change '5' partition
  6      - change '6' partition
  7      - change '7' partition
select  - select a predefined table
modify  - modify a predefined partition table
name    - name the current table
print   - display the current table
label   - write partition map and label to the disk
!<cmd> - execute <cmd>, then return
quit
partition>
```

2. Type the number of the slice to be defined.

Slice 0 is specified in the following example. As shown, the partition table for the new boot disk is displayed.

```
partition> 0
Current partition table (original):
Total disk cylinders available: 24620 + 2 (reserved cylinders)

Part      Tag      Flag      Cylinders      Size      Blocks
  0      root      wm        0 - 90      128.37MB  (91/0/0)    262899
  1      swap      wu        91 - 181    128.37MB  (91/0/0)    262899
  2      backup    wu        0 - 24619   33.92GB   (24620/0/0) 71127180
  3 unassigned  wm         0           0          (0/0/0)     0
  4 unassigned  wm         0           0          (0/0/0)     0
  5 unassigned  wm         0           0          (0/0/0)     0
  6      usr      wm       182 - 24619  33.67GB   (24438/0/0) 70601382
  7 unassigned  wm         0           0          (0/0/0)     0
Enter partition id tag[root]:
```

3. Enter the partition ID tag.

The following example shows a question mark (?) entered after the prompt. The list of accepted partition ID tags is displayed. You can accept the default partition ID tag of root by pressing the Return key.

```
Enter partition id tag[root]: ?
Expecting one of the following: (abbreviations ok):
      unassigned    boot        root        swap
      usr           backup      stand       var
Enter partition id tag[root]:
Enter partition permission flags[wm]:
```

4. Type the partition permission flags.

You can accept the default permission flags wm by pressing the Return key.

```
Enter partition permission flags[wm]:
Enter new starting cyl[0]:
```

5. Type the new starting cylinder.

You can accept the default new starting cylinder of 0 accepted by pressing the Return key.

```
Enter new starting cyl[0]:
Enter partition size[262899b, 91c, 128.37mb, 0.13gb]:
```

6. Type the partition size.

The following example shows the partition size of 2.00gb entered.

```
Enter partition size[262899b, 91c, 128.37mb, 0.13gb]: 2.00gb
partition>
```

7. Use the `print` command to display the updated partition table.

The following example shows that the `root` tag, the `wm` permissions flag, and the partition size of 2.00GB are assigned to slice 0.

```
partition> print
Current partition table (unnamed):
Total disk cylinders available: 24620 + 2 (reserved cylinders)

Part      Tag      Flag      Cylinders      Size      Blocks
 0      root     wm        0 - 1451      2.00GB   (1452/0/0)  4194828
 1      swap     wu        91 - 181      128.37MB (91/0/0)   262899
 2      backup   wu        0 - 24619     33.92GB  (24620/0/0)
71127180
 3 unassigned  wm         0              0        (0/0/0)      0
 4 unassigned  wm         0              0        (0/0/0)      0
```

8. Repeat Step 2 through Step 7 as needed until all slices are defined as they are in the temporary boot disk.

9. Type `quit` to return to the `FORMAT` MENU.

```
partition> quit

FORMAT MENU:
  disk      - select a disk
  type      - select (define) a disk type
  partition - select (define) a partition table
  current   - describe the current disk
  format    - format and analyze the disk
  repair    - repair a defective sector
  label     - write label to the disk
  analyze   - surface analysis
  defect    - defect list management
  backup    - search for backup labels
  verify    - read and display labels
  save      - save new disk/partition definitions
  inquiry   - show vendor, product and revision
  volname   - set 8-character volume name
  !<cmd>    - execute <cmd>, then return
  quit

format>
```

▼ To Label the New Boot Disk

After you specify the slices on the new boot disk, label the new boot disk with the new partition table.

1. **Begin the labeling process.**

```
format> label
```

2. **Type y to continue labeling the disk.**

```
Ready to label disk, continue? y
```

3. **When the labeling is complete, type q to quit the `format` program.**

```
format> q  
#
```

▼ To Create File Systems on the New Boot Disk

Use this procedure to create a file system on the new boot disk for every slice on the temporary boot disk. When you are finished, go to “To Copy the Contents of Non-Root File Systems Onto the New Boot Disk” on page B-22.

Do this step to create a file system on the new boot disk for the `/root` and `/home` directory slices. You should also do this step for any other directories you created, aside from the `/backup` and `/swap` directories.

- **Create a file system on each slice, other than S2, on the disk using the `newfs(1M)` command.**

Note – Do not create a file system on slice 2 or else it will erase data on all the other slices.

Enter the `newfs` command followed by the device name of the slice. In this example, the device name for slice 0 of disk `c7t16d0` is `/dev/rdisk/c7t16d0s0`.

```
# newfs /dev/rdisk/c7t16d0s0
newfs: construct a new file system /dev/rdisk/c7t16d0s0: (y/n)? y
/dev/rdisk/c7t16d0s0:      4194828 sectors in 1452 cylinders of 27 tracks, 107
sectors
      2048.3MB in 46 cyl groups (32 c/g, 45.14MB/g, 7488 i/g)
super-block backups (for fsck -F ufs -o b=#) at:
 32, 92592, 185152, 277712, 370272, 462832, 555392, 647952, 740512, 833072,
925632, 1018192, 1110752, 1203312, 1295872, 1388432, 1480992, 1573552,
1666112, 1758672, 1851232, 1943792, 2036352, 2128912, 2221472, 2314032,
2406592, 2499152, 2591712, 2684272, 2776832, 2869392, 2958368, 3050928,
3143488, 3236048, 3328608, 3421168, 3513728, 3606288, 3698848, 3791408,
3883968, 3976528, 4069088, 4161648,
```

For more information, see the section on how to create file systems in the Solaris system administration documentation.

B.3.3 Creating the New Boot Files

This section contains several subprocedures, including:

- “To Copy the Boot Block and Root File System Contents to the New Boot Disk” on page B-20
- “To Update the `vfstab` File” on page B-21
- “To Copy the Contents of Non-Root File Systems Onto the New Boot Disk” on page B-22

- “To Specify the New Boot Disk as the Boot Device” on page B-23

▼ To Copy the Boot Block and Root File System Contents to the New Boot Disk

1. Install the boot block on the root (/) file system of the new disk.

The following example uses the `installboot(1M)` command to install the boot block. The boot block resides in the `/usr/platform/platform_name/lib/fs/ufs/bootblk` directory. The example shows invoking the `uname` command with the `-i` option between left single quotes on the command line to specify the platform name.

```
# /usr/sbin/installboot /usr/platform/`uname -m`/lib/fs/ufs/bootblk \  
/dev/rdisk/c7t16d0s0
```

For more information, see the instructions on how to install a boot block in the Solaris system administration documentation.

2. Mount the root file system from slice 0 of the new boot disk onto the `/mnt` mount point.

```
# mount /dev/dsk/c7t16d0s0 /mnt
```

3. Use the `ufsdump (1M)` and `ufsrestore (1M)` commands to copy the contents of the root file system from the temporary boot disk to the root slice of the new boot disk (on the `/mnt` mount point).

Make sure you use the original root slice in the command. In the following example, the root slice is `/dev/rdisk/c0t1d0s0`.

```

# ufsdump 0f - /dev/rdisk/c0t1d0s0 | ( cd /mnt; ufsrestore rf -)
DUMP: Writing 32 Kilobyte records
DUMP: Date of this level 0 dump: Tue 19 Feb 2002 02:44:35 PM PST
DUMP: Date of last level 0 dump: the epoch
DUMP: Dumping /dev/rdisk/c7t16d0s0 (hba2-81:/) to standard
output.
DUMP: Mapping (Pass I) [regular files]
DUMP: Mapping (Pass II) [directories]
DUMP: Estimated 1818082 blocks (887.74MB).
DUMP: Dumping (Pass III) [directories]
DUMP: Dumping (Pass IV) [regular files]
Warning: ./lost+found: File exists
DUMP: 88.77% done, finished in 0:01
DUMP: 1818046 blocks (887.72MB) on 1 volume at 1363 KB/sec
DUMP: DUMP IS DONE
#

```

▼ To Update the `vfstab` File

After you copy the boot block and root files, update the `vfstab` file.

1. Change directories to `/mnt/etc` and open the `vfstab(4)` file for editing.

The following example shows the file systems defined.

```

# cd /mnt/etc
# vi vfstab
...
/dev/dsk/c0t1d0s1      -      -      swap      -      no      -
/dev/dsk/c0t1d0s0    /dev/rdisk/c0t1d0s0  /      ufs      1      no -
/dev/dsk/c0t1d0s7    /dev/rdisk/c0t1d0s7  /home  ufs      2      yes -

```

2. Replace the name of the temporary boot disk with the name of the new boot disk, and then save and quit the file.

The following example shows the disk name `c0t0` changed to `c7t1` in the mount table entries for slices 0, 1, and 7.

```
/dev/dsk/c7t16d0s1      -      -      swap      -      no      -  
/dev/dsk/c7t16d0s0      /dev/rdisk/c7t16d0s0      /      ufs      1 no      -  
/dev/dsk/c7t16d0s7      /dev/rdisk/c7t16d0s7      /home      ufs      2 yes -  
:wq  
#
```

3. Change to the root directory and unmount the mount point:

```
# cd /  
# umount /mnt
```

4. Unmount the root file system on slice 0 from the `/mnt` mount point.

```
# umount /mnt
```

▼ To Copy the Contents of Non-Root File Systems Onto the New Boot Disk

Use this procedure for the `/home` directory and any other directories you created, aside from the `/backup` and `/swap` directories.

1. Mount the file system onto the `/mnt` mount point.

This example shows the copying of the `/home` file system from slice 7 to the new boot disk.

```
# mount /dev/dsk/c7t16d0s7 /mnt
```


2. Use the `ufsdump(1M)` and `ufsrestore(1M)` commands to copy the contents of the file system from the temporary boot disk to the new boot disk.

```
# ufsdump 0f - /dev/rdisk/c0t1d0s7 | ( cd /mnt; ufsrestore rf -)
DUMP: Writing 32 Kilobyte records
DUMP: Date of this level 0 dump: Tue 19 Feb 2002 02:44:35 PM PST
DUMP: Date of last level 0 dump: the epoch
DUMP: Dumping /dev/rdisk/c7t16d0s0 (hba2-81:/) to standard
output.
DUMP: Mapping (Pass I) [regular files]
DUMP: Mapping (Pass II) [directories]
DUMP: Estimated 1818082 blocks (887.74MB).
DUMP: Dumping (Pass III) [directories]
DUMP: Dumping (Pass IV) [regular files]
Warning: ./lost+found: File exists
DUMP: 88.77% done, finished in 0:01
DUMP: 1818046 blocks (887.72MB) on 1 volume at 1363 KB/sec
DUMP: DUMP IS DONE
#
```

3. Unmount the file system from the `/mnt` mount point.

```
# umount /mnt
```

4. Repeat Step 1 through Step 3 as needed until you have copied the contents of all the file systems other than `/home`, `/backup` and `/swap` to the new boot disk.

▼ To Specify the New Boot Disk as the Boot Device

1. Bring the host with the host adapter down to the `ok` prompt at run level 0.

See the information about shutting down a host in the Solaris system administration documentation for a list of the commands that can be used with different configurations. The following screen example uses the `shutdown(1M)` command.

```
# shutdown
...
ok
```

2. Use the `nvalias` command to create an alias for the device name of the disk to a short name for the disk.

The following example uses

`/pci@8,600000/SUNW,qlc@1/fp@0,0/disk@w500000e01002b7c1,0`, which was the device path name for disk 2 in “To Record the Partition Layout” on page B-9.

If you are using a Fibre Channel device and the path has `ssd` in it, replace `ssd` with `disk@`. In the following example, the final portion of the path is `/disk@10,0`.

```
ok nvalias disk2
/pci@8,600000/SUNW,qlc@1/fp@0,0/disk@w500000e01002b7c1,0
```

3. Use the `nvstore` command to store the new alias, followed by the `reset all` command.

```
ok nvstore
ok reset-all
```

4. Define the new boot disk as the default `boot-device`.

Use the data gathered in Step 2 on page 10.

- a. Type the `setenv` command followed by the `boot-device` parameter followed by the name of the new disk.

```
ok setenv boot-device disk2
```

- b. Type the `reset` command.

```
ok reset
```

5. Reboot the system using the `boot` command with the `-r` option so that the Solaris operating environment can recognize the adapter.

```
ok boot -r
```