



Sun StorageTek™ Dual 4 Gb FC Dual GbE HBA, Emulex Installation Guide

For HBA Model SG-XPCIE2FCGBE-E-Z

Sun Microsystems, Inc.
www.sun.com

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Declaration of Conformity

Compliance Model Number: **371-4108**
Product Family Name: **Sun StorageTek™ 4Gb FC Dual GbE HBA, Emulex (SG-PCIE2FCGBE-E-Z)**

EMC

USA—FCC Class A

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

1. This equipment may not cause harmful interference.
2. This equipment must accept any interference that may cause undesired operation.

Canada

This Class A digital apparatus complies with Canadian ICES-003

European Union

This equipment complies with the following requirements of the EMC Directive 2004/108/EC:

As Information Technology Equipment (ITE) Class A per (as applicable):

EN 55022:2006	Class A
EN 61000-3-2:2000 +A2:2005	Pass
EN 61000-3-3:1995 +A1:2001	Pass
EN 55024:1998 +A1:2001 +A2:2003	Required Limits:
IEC 61000-4-2	4 kV (Direct), 8 kV (Air)
IEC 61000-4-3	3 V/m
IEC 61000-4-4	1 kV AC Power Lines, 0.5 kV Signal and DC Power Lines
IEC 61000-4-5	1 kV AC Line-Line and Outdoor Signal Lines, 2 kV AC Line-Gnd, 0.5 kV DC Power Lines
IEC 61000-4-6	3 V
IEC 61000-4-8	1 A/m
IEC 61000-4-11	Pass

Safety: This equipment complies with the following requirements of the Low Voltage Directive 2006/95/EC:

EC Type Examination Certificates:

EN 60950-1:2001, 1st Edition	
IEC 60950-1:2001, 1st Edition	CB Scheme Certificate No. US-TUVR-3410-A1
Evaluated to all CB Countries	
UL 60950-1:2003, CSA C22.2 No. 60950-03	File: E157779-A12-UL-1

Supplementary Information: This product was tested and complies with all the requirements for the CE Mark. This equipment complies with the Restriction of Hazardous Substances (RoHS) directive 2002/95/EC.

/S/

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DATE

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.

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



On – Applies AC power to the system.



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.

- **Product:** Sun StorageTek Dual 4 Gb FC Dual GbE HBA, Emulex

In compliance with the requirements defined in ISO 7779, the workplace-dependent noise level of this product is less than 70 db (A).

In compliance with the requirements defined in ISO 7779, the workplace-dependent noise level of this product is XX db(A).

SELV Compliance

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

Power Cord Connection



Caution – Sun products are designed to work with power systems having a grounded neutral (grounded return for DC-powered

products). 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. Do not use the power cord provided with your equipment for any other products or use. 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.



注意 - 添付の電源コードを他の装置や用途に使用しない
添付の電源コードは本装置に接続し、使用することを目的として設計され、その安全性が確認されているものです。決して他の装置や用途に使用しないでください。火災や感電の原因となる恐れがあります。

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.

The following caution applies only to devices with multiple power cords:



Caution – For products with multiple power cords, all power cords must be disconnected to completely remove power from the system.

Battery Warning



Caution – There is danger of explosion if batteries are mishandled or incorrectly replaced. On systems with replaceable batteries, replace only with the same manufacturer and type or equivalent type recommended by the manufacturer per the instructions provided in the product service manual. Do not disassemble batteries or attempt to recharge them outside the system. Do not dispose of batteries in fire. Dispose of batteries properly in accordance with the manufacturer's instructions and local regulations. Note that on Sun CPU boards, there is a lithium battery molded into the real-time clock. These batteries are not customer replaceable parts.

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 cover before powering on your computer system.



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

Rack System Warning

The following warnings apply to Racks and Rack Mounted systems.



Caution – For safety, equipment should always be loaded from the bottom up. That is, install the equipment that will be mounted in the lowest part of the rack first, then the next higher systems, etc.



Caution – To prevent the rack from tipping during equipment installation, the anti-tilt bar on the rack must be deployed.



Caution – To prevent extreme operating temperature within the rack insure that the maximum temperature does not exceed the product's ambient rated temperatures.



Caution – To prevent extreme operating temperatures due to reduced airflow consideration should be made to the amount of air flow that is required for a safe operation of the equipment.

Laser Compliance Notice

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

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

CD and DVD Devices

The following caution applies to CD, DVD, and other optical devices.



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

Conformité aux normes de sécurité

Veillez lire attentivement cette section avant de commencer. Ce texte traite des mesures de sécurité qu'il convient de prendre pour l'installation d'un produit Sun Microsystems.

Mesures de sécurité

Pour votre sécurité, nous vous recommandons de suivre scrupuleusement les mesures de sécurité ci-dessous lorsque vous installez votre matériel:

- Suivez tous les avertissements et toutes les instructions inscrites sur le matériel.
- Assurez-vous que la tension et la fréquence de votre source d'alimentation correspondent à la tension et à la fréquence indiquées sur l'étiquette de la tension électrique nominale du matériel
- N'introduisez jamais d'objets quels qu'ils soient dans les ouvertures de l'équipement. Vous pourriez vous trouver en présence de hautes tensions dangereuses. 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

Vous trouverez ci-dessous la signification des différents symboles utilisés:



Attention – Vous risquez d'endommager le matériel ou de vous blesser. Veuillez suivre les instructions.



Attention – Surfaces brûlantes. Evitez tout contact. Les 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.

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



Marche – Met le système sous tension alternative.



Arrêt – Met le système hors tension alternative.



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

Modification du matériel

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

Positionnement d'un produit Sun



Attention – Evitez d'obstruer ou de recouvrir 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.

Niveau de pression acoustique

Produit : Sun StorageTek Dual 4 Gb FC Dual GbE HBA, Emulex

Conformément à la norme ISO 7779, le niveau sonore de ce produit sur le lieu de travail est inférieur à 70 db(A).

Conformément à la norme ISO 7779, le niveau sonore de ce produit sur le lieu de travail est de XX db(A).

Conformité SELV

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

Connexion du cordon d'alimentation



Attention – Les produits Sun sont conçus pour fonctionner avec des systèmes d'alimentation équipés d'un conducteur neutre relié à la terre (conducteur neutre pour produits alimentés en CC). 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 ne présentent pas les mêmes caractéristiques électriques. 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.

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.

L'avertissement suivant s'applique uniquement aux systèmes équipés de plusieurs cordons d'alimentation:



Attention – Pour mettre un système équipé de plusieurs cordons d'alimentation hors tension, il est nécessaire de débrancher tous les cordons d'alimentation.

Mise en garde relative aux batteries



Attention – Les batteries risquent d'exploser en cas de manipulation maladroite ou de remplacement incorrect. Pour les systèmes dont les batteries sont remplaçables, effectuez les remplacements uniquement selon le modèle du fabricant ou un modèle équivalent recommandé par le fabricant, conformément aux instructions fournies dans le manuel de service du système. N'essayez en aucun cas de démonter les batteries, ni de les recharger hors du système. Ne les jetez pas au feu. Mettez-les au rebut selon les instructions du fabricant et conformément à la législation locale en vigueur. Notez que sur les cartes processeur de Sun, une batterie au lithium a été moulée dans l'horloge temps réel. Les batteries ne sont pas des pièces remplaçables par le client.

Couvercle de l'unité

Pour ajouter des cartes, de la mémoire ou des périphériques de stockage internes, vous devez retirer le couvercle de votre système Sun. Remettez le couvercle supérieur en place avant de mettre votre système sous tension.



Attention – Ne mettez jamais des produits Sun sous tension si leur couvercle supérieur n'est pas mis en place. Si vous ne prenez pas ces précautions, vous risquez de vous blesser ou d'endommager le système.

Mise en garde relative au système en rack

La mise en garde suivante s'applique aux racks et aux systèmes montés en rack.



Attention – Pour des raisons de sécurité, le matériel doit toujours être chargé du bas vers le haut. En d'autres termes, vous devez installer, en premier, le matériel qui doit se trouver dans la partie la plus inférieure du rack, puis installer le matériel sur le niveau suivant, etc.



Attention – Afin d'éviter que le rack ne penche pendant l'installation du matériel, tirez la barre anti-basculement du rack.



Attention – Pour éviter des températures de fonctionnement extrêmes dans le rack, assurez-vous que la température maximale ne dépasse pas la fourchette de températures ambiantes du produit déterminée par le fabricant.



Attention – Afin d'empêcher des températures de fonctionnement extrêmes provoquées par une aération insuffisante, assurez-vous de fournir une aération appropriée pour un fonctionnement du matériel en toute sécurité

Avis de conformité des appareils laser

Les produits Sun qui font appel aux technologies lasers sont conformes aux normes de la classe 1 en la matière.

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

Périphériques CD et DVD

L'avertissement suivant s'applique aux périphériques CD, DVD et autres périphériques optiques:



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.

Einhaltung sicherheitsbehördlicher Vorschriften

Lesen Sie vor dem Ausführen von Arbeiten diesen Abschnitt. Im folgenden Text werden Sicherheitsvorkehrungen beschrieben, die Sie bei der Installation eines Sun Microsystems-Produkts beachten müssen.

Sicherheitsvorkehrungen

Treffen Sie zu Ihrem eigenen Schutz bei der Installation des Geräts die folgenden Sicherheitsvorkehrungen:

- Beachten Sie alle auf den Geräten angebrachten Warnhinweise und Anweisungen.
- Stellen Sie sicher, dass Spannung und Frequenz der Stromversorgung den Nennleistungen auf dem am Gerät angebrachten Etikett entsprechen.
- Führen Sie niemals Fremdoobjekte in die Öffnungen am Gerät ein. Es können gefährliche Spannungen anliegen. Leitfähige Fremdoobjekte können einen Kurzschluss verursachen, der einen Brand, Stromschlag oder Geräteschaden herbeiführen kann.

Symbole

Die Symbole in diesem Handbuch haben folgende Bedeutung:



Achtung – Gefahr von Verletzung und Geräteschaden. Befolgen Sie die Anweisungen.



Achtung – Heiße Oberfläche. Nicht berühren, da Verletzungsgefahr durch heiße Oberfläche besteht.



Achtung – Gefährliche Spannungen. Befolgen Sie die Anweisungen, um Stromschläge und Verletzungen zu vermeiden.

Je nach Netzschaltertyp an Ihrem Gerät kann eines der folgenden Symbole verwendet werden:



Ein – Versorgt das System mit Wechselstrom.



Aus – Unterbricht die Wechselstromzufuhr zum Gerät.



Wartezustand – Der Ein-/Standby-Netzschalter 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. Die Nichtbeach-

tung dieser Richtlinien kann Überhitzung verursachen und die Zuverlässigkeit Ihres Sun-Geräts beeinträchtigen.

Lautstärke

Produkt: Sun StorageTek Dual 4 Gb FC Dual GbE HBA, Emulex

Gemäß den Vorgaben in der Norm ISO 7779 beträgt der Geräuschpegel dieses Geräts in Abhängigkeit vom Arbeitsplatz unter 70 db(A).

Gemäß den Vorgaben in der Norm ISO 7779 beträgt der Geräuschpegel dieses Geräts in Abhängigkeit vom Arbeitsplatz XX db(A).

SELV-Konformität

Der Sicherheitsstatus der E/A-Verbindungen entspricht den SELV-Anforderungen.

Anschluss des Netzkabels



Achtung – Sun-Geräte sind für Stromversorgungssysteme mit einem geerdeten neutralen Leiter (geerdeter Rückleiter bei gleichstrombetriebenen Geräten) ausgelegt. Um die Gefahr von Stromschlägen zu vermeiden, schließen Sie das Gerät niemals an andere Stromversorgungssysteme an. Wenden Sie sich an den zuständigen Gebäudeverwalter oder an einen qualifizierten Elektriker, wenn Sie nicht sicher wissen, an welche Art von Stromversorgungssystem Ihr Gebäude angeschlossen ist.



Achtung – Nicht alle Netzkabel verfügen über die gleichen Nennwerte. Herkömmliche, im Haushalt verwendete Verlängerungskabel besitzen keinen Überlastschutz und sind daher für Computersysteme nicht geeignet. Verwenden Sie bei Ihrem Sun-Produkt keine Haushalts-Verlängerungskabel.

Die folgende Warnung gilt nur für Geräte mit Standby-Netzschalter:



Achtung – Beim Netzschalter dieses Geräts handelt es sich nur um einen Ein/Standby-Schalter. Zum völligen Abtrennen des Systems von der Stromversorgung dient hauptsächlich das Netzkabel. Stellen Sie sicher, dass das Netzkabel an eine frei zugängliche geerdete Steckdose in der Nähe des Systems angeschlossen ist. Schließen Sie das Stromkabel nicht an, wenn die Stromversorgung vom Systemchassis entfernt wurde.

Die folgende Warnung gilt nur für Geräte mit mehreren Netzkabeln:



Achtung – Bei Produkten mit mehreren Netzkabeln müssen alle Netzkabel abgetrennt werden, um das System völlig von der Stromversorgung zu trennen.

Warnung bezüglich Batterien



Achtung – Bei unsachgemäßer Handhabung oder nicht fachgerechtem Austausch der Batterien besteht Explosionsgefahr. Verwenden Sie bei Systemen mit austauschbaren Batterien ausschließlich Ersatzbatterien desselben Typs und Herstellers bzw. einen entsprechenden, vom Hersteller gemäß den Anweisungen im Service-Handbuch des Produkts empfohlenen Batterietyp. Versuchen Sie nicht, die Batterien auszubauen oder außerhalb des Systems wiederaufzuladen. Werfen Sie die Batterien nicht ins Feuer. Entsorgen Sie die Batterien entsprechend den Anweisungen des Herstellers und den vor Ort geltenden Vorschriften. CPU-Karten von Sun verfügen über eine Echtzeituhr mit integrierter Lithiumbatterie. Diese Batterie darf nur von einem qualifizierten Servicetechniker ausgetauscht werden.

Gehäuseabdeckung

Sie müssen die Abdeckung Ihres Sun-Computersystems entfernen, um Karten, Speicher oder interne Speichergeräte hinzuzufügen. Bringen Sie vor dem Einschalten des Systems die Gehäuseabdeckung wieder an.



Achtung – Nehmen Sie Sun-Geräte nicht ohne Abdeckung in Betrieb. Die Nichtbeachtung dieses Warnhinweises kann Verletzungen oder Geräteschaden zur Folge haben.

Warnungen bezüglich in Racks eingebauter Systeme

Die folgenden Warnungen gelten für Racks und in Racks eingebaute Systeme:



Achtung – Aus Sicherheitsgründen sollten sämtliche Geräte von unten nach oben in Racks eingebaut werden. Installieren Sie also zuerst die Geräte, die an der untersten Position im Rack eingebaut werden, gefolgt von den Systemen, die an nächsthöherer Stelle eingebaut werden, usw.



Achtung – Verwenden Sie beim Einbau den Kippschutz am Rack, um ein Umkippen zu vermeiden.



Achtung – Um extreme Betriebstemperaturen im Rack zu vermeiden, stellen Sie sicher, dass die Maximaltemperatur die Nennleistung der Umgebungstemperatur für das Produkt nicht überschreitet



Achtung – Um extreme Betriebstemperaturen durch verringerte Luftzirkulation zu vermeiden, sollte die für den sicheren Betrieb des Geräts erforderliche Luftzirkulation eingesetzt werden.

Hinweis zur Laser-Konformität

Sun-Produkte, die die Laser-Technologie verwenden, entsprechen den Laser-Anforderungen der Klasse 1.

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

CD- und DVD-Geräte

Die folgende Warnung gilt für CD-, DVD- und andere optische Geräte:



Achtung – Die hier nicht aufgeführte Verwendung von Steuerelementen, Anpassungen oder Ausführung von Vorgängen kann eine gefährliche Strahlenbelastung verursachen.

Normativas de seguridad

Lea esta sección antes de realizar cualquier operación. En ella se explican las medidas de seguridad que debe tomar al instalar un producto de Sun Microsystems.

Medidas de seguridad

Para su protección, tome las medidas de seguridad siguientes durante la instalación del equipo:

- Siga todos los avisos e instrucciones indicados en el equipo.
- Asegúrese de que el voltaje y frecuencia de la fuente de alimentación coincidan con el voltaje y frecuencia indicados en la etiqueta de clasificación eléctrica del equipo.
- No introduzca objetos de ningún tipo por las rejillas del equipo, ya que puede quedar expuesto a voltajes peligrosos. Los objetos conductores extraños pueden producir cortocircuitos y, en consecuencia, incendios, descargas eléctricas o daños en el equipo.

Símbolos

En este documento aparecen los siguientes símbolos:



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 – Voltaje peligroso. Para reducir el riesgo de descargas eléctricas y lesiones personales, siga las instrucciones.

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



Encendido – Suministra alimentación de CA al sistema.



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 de tipo mecánico ni eléctrico en el equipo. Sun Microsystems no se hace responsable del cumplimiento de normativas en caso de que un producto Sun se haya modificado.

Colocación de un producto Sun



Precaución – No obstruya ni tape las rejillas del producto Sun. Nunca coloque un producto Sun cerca de radiadores ni fuentes de calor. Si no sigue estas indicaciones, el producto Sun podría sobrecalentarse y la fiabilidad de su funcionamiento se vería afectada.

Nivel de ruido

Producto: Sun StorageTek Dual 4 Gb FC Dual GbE HBA, Emulex

En conformidad con la norma ISO 7779, el nivel de emisión de ruido de este producto en el puesto de trabajo es inferior a los 70 db(A).

En conformidad con la norma ISO 7779, el nivel de emisión de ruido de este producto en el puesto de trabajo es de XX db(A).

Cumplimiento de la normativa para instalaciones SELV

Las condiciones de seguridad de las conexiones de entrada y salida cumplen los requisitos para instalaciones SELV (del inglés *Safe Extra Low Voltage*, voltaje bajo y seguro).

Conexión del cable de alimentación



Precaución – Los productos Sun se han diseñado para funcionar con sistemas de alimentación que cuenten con un conductor neutro a tierra (con conexión a tierra de regreso para los productos con alimentación de CC). Para reducir el riesgo de descargas eléctricas, no conecte ningún producto Sun a otro tipo de sistema de alimentación. Póngase en contacto con el encargado de las instalaciones de su empresa o con un electricista cualificado en caso de que no esté seguro del tipo de alimentación del que se dispone en el edificio.



Precaución – No todos los cables de alimentación tienen la misma clasificación eléctrica. Los alargadores de uso doméstico no cuentan con protección frente a sobrecargas y no están diseñados para su utilización con sistemas informáticos. No utilice alargadores de uso doméstico con el producto Sun.

La siguiente medida solamente se aplica a aquellos dispositivos que dispongan de un interruptor de alimentación de espera:



Precaución – El interruptor de alimentación de este producto funciona solamente como un dispositivo de espera. El cable de alimentación hace las veces de dispositivo de desconexión principal del sistema. Asegúrese de que conecta el cable de alimentación a una toma

de tierra situada cerca del sistema y de fácil acceso. No conecte el cable de alimentación si la unidad de alimentación no se encuentra en el bastidor del sistema.

La siguiente medida solamente se aplica a aquellos dispositivos que dispongan de varios cables de alimentación:



Precaución – En los productos que cuentan con varios cables de alimentación, debe desconectar todos los cables de alimentación para cortar por completo la alimentación eléctrica del sistema.

Advertencia sobre las baterías



Precaución – Si las baterías no se manipulan o reemplazan correctamente, se corre el riesgo de que estallen. En los sistemas que cuentan con baterías reemplazables, reemplácelas sólo con baterías del mismo fabricante y el mismo tipo, o un tipo equivalente recomendado por el fabricante, de acuerdo con las instrucciones descritas en el manual de servicio del producto. No desmonte las baterías ni intente recargarlas fuera del sistema. No intente deshacerse de las baterías echándolas al fuego. Deshágase de las baterías correctamente de acuerdo con las instrucciones del fabricante y las normas locales. Tenga en cuenta que en las placas CPU de Sun, hay una batería de litio incorporada en el reloj en tiempo real. Los usuarios no deben reemplazar este tipo de baterías.

Cubierta de la unidad del sistema

Debe extraer la cubierta de la unidad del sistema informático Sun para instalar tarjetas, memoria o dispositivos de almacenamiento internos. Vuelva a colocar la cubierta antes de encender el sistema informático.



Precaución – No ponga en funcionamiento los productos Sun que no tengan colocada la cubierta. De lo contrario, puede sufrir lesiones personales y ocasionar daños en el sistema.

Advertencia sobre el sistema en bastidor

Las advertencias siguientes se aplican a los sistemas montados en bastidor y a los propios bastidores.



Precaución – Por seguridad, siempre deben montarse los equipos de abajo arriba. A saber, primero debe instalarse el equipo que se situará en el bastidor inferior; a continuación, el que se situará en el siguiente nivel, etc.



Precaución – Para evitar que el bastidor se vuelque durante la instalación del equipo, debe extenderse la barra antivolcado del bastidor.



Precaución – Para evitar que se alcance una temperatura de funcionamiento extrema en el bastidor, asegúrese de que la temperatura máxima no sea superior a la temperatura ambiente establecida como adecuada para el producto.



Precaución – Para evitar que se alcance una temperatura de funcionamiento extrema debido a una circulación de aire reducida, debe considerarse la magnitud de la circulación de aire requerida para que el equipo funcione de forma segura.

Aviso de cumplimiento de la normativa para la utilización de láser

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

Class 1 Laser Product
Luokan 1 Laserlaitte
Klasse 1 Laser Apparat
Laser Klasse 1

Dispositivos de CD y DVD

La siguiente medida se aplica a los dispositivos de CD y DVD, así como a otros dispositivos ópticos:



Precaución – La utilización de controles, ajustes o procedimientos distintos a los aquí especificados puede dar lugar a niveles de radiación peligrosos.

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. Udskiftning 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.

Nordic Power Distribution Cautions

English



Caution – This product is also designed for an IT power distribution system with phase-to-phase voltage of 230V.

Danmark



Advarsel! – Dette produkt er også beregnet til et IT-strømfordelingssystem med en fase-til-fase spænding på 230 V.

Nordic Grounded Socket Cautions

English



Caution – The appliance must be connected to a grounded socket.

Norge



Advarsel – Apparatet må tilkoples jordet stikkontakt.

Sverige



Varning – Apparaten skall anslutas till jordat uttag.

Suomi



Varoitus – Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan.

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.

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.

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。

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。



CCC Class A Notice

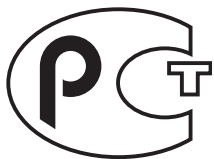
The following statement is applicable to products shipped to China and marked with "Class A" on the product's compliance label.

以下声明适用于运往中国且其认证标志上注有 "Class A" 字样的产品。

声明
此为A级产品，在生活环境中，该产品可能会造成无线电干扰。
在这种情况下，可能需要用户 对其干扰采取切实可行的措施。



GOST-R Certification Mark



Preface

This installation guide describes how to install and remove the Sun StorageTek™ Dual 4 Gigabit (Gb) Fibre Channel (FC) Dual Gigabit Ethernet (GbE) host bus adapter (HBA), Emulex. It also explains how to verify the driver version and install any necessary patches. The document is written for technicians, system administrators, application service providers (ASPs), and users who have advanced experience troubleshooting and replacing hardware.

Before You Read This Book

Before you install and use the HBA as described in this document, read and understand the following documents.

- *SunVTS 6.X Users Guide*
- *SunVTS 6.X Reference Manual*

You can find these documents by performing a search at <http://docs.sun.com>.

How This Document Is Organized

Chapter 1 provides an overview of the product and lists the various operating systems, host platforms, switches, and storage systems, that support the HBA.

Chapter 2 describes how to install and remove the HBA.

Chapter 3 describes how to install any software and utilities that are required by the HBA.

Chapter 4 contains known issues with this release of the HBA.

Using UNIX Commands

This document might not contain information on basic UNIX® commands and procedures such as shutting down the system, booting the system, and configuring devices. Refer to the following for this information:

- Software documentation that you received with your system
- Solaris™ Operating System documentation, which is at

<http://docs.sun.com>

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	#

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:
<i>AaBbCc123</i>	Book titles, new words or terms, words to be emphasized. Replace command-line variables with real names or values.	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. To delete a file, type <code>rm filename</code> .

Note – Characters display differently depending on browser settings. If characters do not display correctly, change the character encoding in your browser to Unicode UTF-8.

Documentation, Support, and Training

Sun Function	URL
Documentation	http://www.sun.com/documentation/
Support	http://www.sun.com/support/
Training	http://www.sun.com/training/

Third-Party Web Sites

Sun is not responsible for the availability of third-party web sites mentioned in this document. Sun does not endorse and is not responsible or liable for any content, advertising, products, or other materials that are available on or through such sites or resources. Sun will not be responsible or liable for any actual or alleged damage or loss caused by or in connection with the use of or reliance on any such content, goods, or services that are available on or through such sites or resources.

Sun Welcomes Your Comments

Sun is interested in improving its documentation and welcomes your comments and suggestions. You can submit your comments by going to:

<http://www.sun.com/hwdocs/feedback>

Please include the title and part number of your document with your feedback:

Sun StorageTek™ Dual 4 Gb FC Dual GbE HBA, Emulex Installation Guide, part number 820-3784-10

HBA Overview

This chapter provides a basic overview of the Sun StorageTek Dual 4 Gb FC Dual GbE HBA, Emulex (referred to as Sun StorageTek Dual 4 Gb FC Dual GbE HBA in this document), which uses Emulex technology. This chapter also describes the various operating systems, host platforms, storage, and infrastructure configurations that support the HBA. This chapter contains the following topics:

- [“Kit Contents” on page 1](#)
- [“HBA Features and Specifications” on page 1](#)
- [“System Interoperability” on page 4](#)
- [“Operating System and Technology Requirements” on page 3](#)
- [“Environmental Requirements” on page 7](#)

Kit Contents

- Sun StorageTek Dual 4 Gb FC Dual GbE HBA
- *Accessing Documentation* document (part number: 820-2299-xx)

HBA Features and Specifications

The Sun StorageTek Dual 4 Gb FC Dual GbE HBA (SG-XPCIE2FC-GBE-E-Z) consists of a single-wide, ExpressModule™ bus expansion board. The board interfaces an eight-lane PCI-Express bus, with four lanes supporting two Fibre Channel (FC) optical media ports and four lanes supporting two UTP (copper) Gigabit Ethernet ports. The two independent FC ports operate at 4 Gbit/sec and features 4/2/1

autonegotiation. The HBA is also backwards compatible with FC ports that operate at 2-Gbit/s and 1-Gbit/s. The Gigabit Ethernet ports can be configured to operate in 10, 100, or 1000 Mbit/sec Ethernet networks.

See [TABLE 1-1](#) for a list of the HBA features.

TABLE 1-1 HBA Features and Specifications

Feature	Description
PCI connector	x8
PCI signaling environment	PCI Express x8 (8 active lanes)
PCI lane usage	FC x4 lanes GbE x4 lanes
PCI transfer rate (maximum)	PCI Express Generation One (2.5 Gbps) x8
Number of FC ports	Two
Number of devices supported	126 devices per FC loop; 510 devices in Fabric mode
FC bus type (external)	Fiber-optic media, short-wave, multi-mode fiber (400-M5- SN-S)
FC transfer rate	400 MBps per port maximum, half-duplex 800 MBps per port maximum, full-duplex
FC topologies	Switched fabric (N-Port), arbitrated loop (NL-Port) and point-to-point (N-Port)
Number of GbE ports	Two
GbE interface type (external)	IEEE 802.3 compliant, copper, UTP RJ-45s
GbE transfer rate	10/100/1000 MBps per port, autosensing, full-duplex or half-duplex
RAM	1.5 MB, parity protected, per port
BIOS ROM (FC)	One 4-MB flash ROM, field-programmable
BIOS ROM (GbE)	One 1-MB flash ROM
NVRAM	One 2-KB EEPROM
NVRAM (GbE)	One 128-KB EEPROM
External connectors	Two Small-Form Factor (SFF) multimode optic with LC-style connectors and two RJ-45 GbEs connectors

TABLE 1-1 HBA Features and Specifications

Feature (Continued)	Description (Continued)
Maximum FC cable length	1 Gbps: 1000 meters using 50/125 μm core OM3 fiber 500 meters using 50/125 μm core OM2 fiber 300 meters using 50/125 μm core OM1 fiber 300 meters using 62.5/125 μm core fiber 2 Gbps: 500 meters using 50/125 μm core OM3 fiber 300 meters using 50/125 μm core OM2 fiber 150 meters using 50/125 μm core OM1 fiber 150 meters using 62.5/125 μm core fiber 4 Gbps: 380 meters using 50/125 μm core OM3 fiber 150 meters using 50/125 μm core OM2 fiber 70 meters using 50/125 μm core OM1 fiber 70 meters using 62.5/125 μm core fiber
LED indicators	Two LEDs per channel (yellow and green) on the front panel as status indicators Power LED, Attention LED, and a button on the front panel to support hot-swap functionality
Power dissipation	17.3 watts maximum
Form Factor	PCI-Express ExpressModule, single-wide (198 mm x 112 mm x 21 mm)

Operating System and Technology Requirements

The HBA requires the OS and technology levels listed in [TABLE 1-2](#).

TABLE 1-2 Supported Operating System/Technology Versions

Operating System/Technology	Supported Versions
Solaris 10 OS for the x64 and x86 (32-bit and 64-bit) platforms	<ul style="list-style-type: none"> • Solaris 10 8/07 (s10u4) • Solaris 10 5/08 (s10u5)
Solaris 10 OS for the SPARC (64-bit) platform	<ul style="list-style-type: none"> • Solaris 10 8/07 (s10u4) • Solaris 10 5/08 (s10u5)

TABLE 1-2 Supported Operating System/Technology Versions *(Continued)*

Operating System/Technology	Supported Versions
Linux® OS	<ul style="list-style-type: none">• Red Hat Enterprise Linux 4 (32-bit and 64-bit), U5• Red Hat Enterprise Linux 5 (32-bit and 64-bit), U1• SUSE Linux Enterprise Server 9 (32-bit and 64-bit), SP4• SUSE Linux Enterprise Server 10 (32-bit and 64-bit), SP1
Microsoft Windows® OS Enterprise and Standard Editions	<ul style="list-style-type: none">• Windows Server 2003 SP1 32-bit, x64• Windows Server 2003 SP2 32-bit, x64• Windows Server 2003 SP1/R2 32-bit, x64• Windows Server 2003 SP2/R2 32-bit, x64
VMware® Technology	<ul style="list-style-type: none">• ESX Server 3.0.2• ESX Server 3.5

System Interoperability

This section provides information about selected platforms and storage that are compatible with the heterogeneous FC network design of the HBA. This section contains the following topics:

- [“Host Platform Support” on page 5](#)
- [“Storage Support” on page 5](#)
- [“Switch Support” on page 6](#)
- [“Software Support” on page 7](#)

Host Platform Support

The HBA is supported by the platforms and operating systems listed in [TABLE 1-3](#).

TABLE 1-3 Platform and Operating System Support

Platform	Supported OS/Technology
SPARC Servers	
Sun Blade T6300	Solaris*
Sun Blade T6320	Solaris
Sun Blade T6340	Solaris
Sun x64 Servers	
Sun Blade X6440	Solaris, Linux, VMware, and Windows
Sun Blade X6220	Solaris, Linux, VMware, and Windows
Sun Blade X6250	Solaris, Linux, VMware, and Windows
Sun Blade X8440	Solaris, Linux, VMware, and Windows
Sun Blade X8450	Windows, Linux, VMware, Solaris

* See [TABLE 1-2](#) for specific OS and technology versions..

The system must have an available ExpressModule slot in which you can install the HBA.

Storage Support

This section lists the arrays and tape storage supported by the HBA. This section contains the following topics:

- [“Array Support” on page 5](#)
- [“Tape Storage Support” on page 6](#)

Array Support

The HBA is supported by the following arrays:

- Sun StorageTek 2540
- Sun StorageTek 3510
- Sun StorageTek 6140
- Sun StorageTek 6540

Tape Storage Support

The HBA is supported by the following tape storage:

- Sun StorageTek SL48 tape library
- Sun StorageTek SL24 tape autoloader
- Sun StorageTek L8500 modular library
- Sun StorageTek L1500 modular library
- Sun StorageTek L1400 tape library
- Sun StorageTek virtual tape library (VTL): VTL Value and VTL Plus
- Sun StorageTek T10000A tape drive
- Sun StorageTek T9840A, T9840B, T9830C, and T9840D tape drives
- Sun StorageTek T9940B tape drive
- Sun StorageTek LTO-2, LTO-3, and LTO-4 tape drives
- Sun StorageTek SDLT600 tape drive
- Sun StorageTek DLT-S4 tape drive

Switch Support

The HBA is supported with the following Fibre Channel switches:

- Brocade® DCX backbone switch
- Brocade 48000 director
- Brocade Mi10K director
- Brocade M6140 director
- Brocade 200E switch
- Brocade 300 switch
- Brocade 4900 switch
- Brocade 5000 switch
- Brocade 5100 switch
- Brocade 5300 switch
- Cisco® MDS 9124 24-port multilayer fabric switch
- Cisco MDS 9134 multilayer fabric switch
- Cisco MDS 9140 fabric switch
- Cisco MDS 9216A multilayer fabric switch
- Cisco MDS 9216i multilayer fabric switch
- Cisco MDS 9222i multiservice modular switch

- Cisco MDS 9509 multilayer director
- Cisco MDS 9513 multilayer director
- QLogic® SANbox 9000 stackable chassis FC switch series
- QLogic SANbox 5600 switch
- QLogic SANbox 5602 switch

The HBA is supported by all 1-Gb Ethernet switches.

Software Support

The HBA is supported by the software applications listed in [TABLE 1-4](#).

TABLE 1-4 Software Support

Software (minimum version)	Supported OS
Sun Cluster 3.x	Solaris
Sun StorEdge™ Enterprise Backup Storage 7.2	Solaris, Linux, VMware, and Windows
VERITAS NetBackup 6.0	Solaris
VERITAS Software Foundation (VxSF) 4.1	Solari
Sun StorageTek™ Availability Suite 3.0	Solaris
Sun StorageTek Utilization Suite 3.0	Solaris
Sun StorageTek Performance Suite 3.0	Solaris
x86 BootBIOS, version 2.00a1	Solaris, Linux, VMware, and Windows

Environmental Requirements

The HBA environmental requirements are listed in [TABLE 1-5](#).

TABLE 1-5 HBA Environmental Requirements

Specification	Operating	Non-Operating
Temperature	0° to 43°C, noncondensing, 16 hour dwells at extremes	-43°C to 73°C, noncondensing, 16 hour dwells at extremes
Humidity	7% to 93% RH, noncondensing, 40°C, 16 hour dwells at extreme	93% RH, noncondensing, 40°C max, 120 hours
Altitude	3200m at 40°C, 4 hour dwell	12,200m at 0°, 4 hour dwell
Vibration	0.25G in all axes swept for 5-500-5 Hz, 5 sweeps in all at 1 octave/min	1.2G in all axes swept for 5-500-5 Hz, 5 sweeps in all at 1 octave/min
Shock	5.5G, 11 ms half-sine, 10 shocks in x-, y-, and z-axes	33G, 11 ms half-sine, 3 shocks in x-, y-, and z-axes

Hardware Installation and Removal

This chapter describes the tasks required to install and remove the HBA. Refer to your system installation or service manual for detailed instructions.

This chapter contains the following topics:

- “Observing ESD and Handling Precautions” on page 9
- “Installing the Hardware” on page 10
- “Configuring the HBA for Hot-Plug Operation” on page 18
- “Removing the Hardware” on page 19

Observing ESD and Handling Precautions



Caution – Damage to the HBA can occur as the result of careless handling or electrostatic discharge (ESD). Always handle the HBA with care to avoid damage to electrostatic sensitive components.

To minimize the possibility of ESD-related damage, use both a workstation antistatic mat and an ESD wrist strap. You can get an ESD wrist strap from any reputable electronics store or from Sun as part number #250-1007. Observe the following precautions to avoid ESD-related problems:

- Leave the HBA in its antistatic bag until you are ready to install it in the system.
- Always use a properly fitted and grounded wrist strap or other suitable ESD protection when handling the HBA, and observe proper ESD grounding techniques.
- Hold the HBA by the edge of the PCB, not by the connectors.

- Place the HBA on a properly grounded antistatic work surface pad when it is out of its protective antistatic bag.

Installing the Hardware

The hardware installation process involves the following general steps, described in this section:

- [“To Install the HBA” on page 10](#)
- [“To Connect the Optical Cable” on page 12](#)
- [“To Connect the Ethernet Cable” on page 14](#)
- [“To Apply Power” on page 14](#)
- [“To Verify Proper Installation \(for the Solaris OS\)” on page 17](#)
- [“To Verify Attached Storage \(for the Solaris OS\)” on page 17](#)

▼ To Install the HBA

1. **Attach an antistatic strap (refer to [“Observing ESD and Handling Precautions” on page 9](#)).**
2. **Refer to your system installation or service manual to determine an appropriate ExpressModule slot in which to install the HBA.**
3. **Press down on the plastic tab to release the ExpressModule latch and pull the lever out until it is nearly perpendicular to the ExpressModule front panel.**

FIGURE 2-1 Pulling Out the HBA Lever



4. Insert the HBA into its slot, being careful that the tooth on the bottom of the lever does not come into contact with the chassis sheet metal during insertion.
5. When the HBA is inserted nearly all the way into its slot, push the lever back into its fully closed position, allowing the lever tooth to insert the HBA fully into place.

▼ To Connect the Optical Cable

Note – The HBA does not allow normal data transmission on an optical link unless it is connected to another similar or compatible Fibre Channel (FC) product (that is, multimode to multimode).

Use multimode fiber-optic cable, which is intended for short-wave lasers, that adheres to the specifications in [TABLE 2-1](#).

TABLE 2-1 Optical Cable Specifications

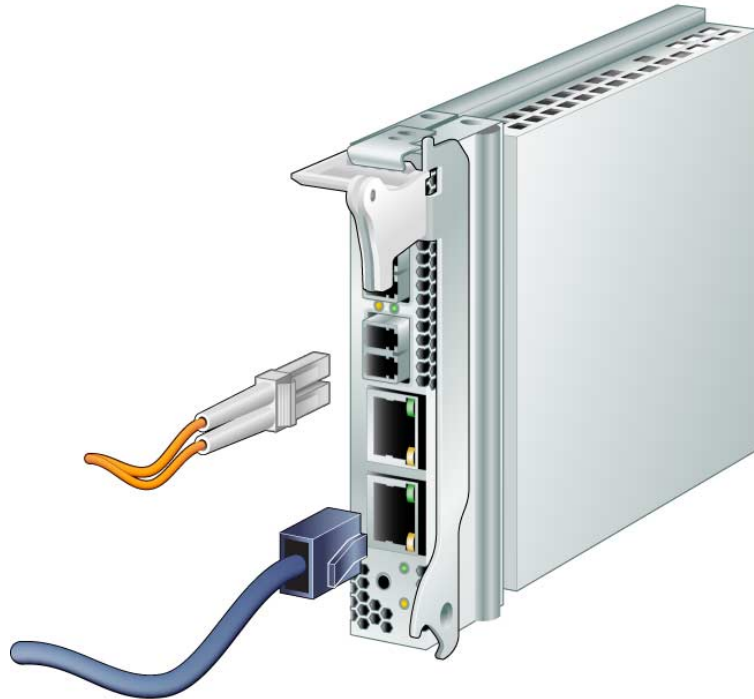
Fiber-Optic Cable	Maximum Length	Minimum Length	Connector
62.5/125 μm (multimode)	300 meters at 1.0625 Gbps	2 meters	LC
	150 meters at 2.125 Gbps		
	70 meters at 4.25 Gbps		
50/125 μm (multimode)	500 meters at 1.0625 Gbps	2 meters	LC
	300 meters at 2.125 Gbps		
	150 meters at 4.25 Gbps		

- 1. Connect the fiber-optic cable to an LC connector on the HBA.**

FIGURE 2-2 Connecting the Cables

TABLE 2-2 Cables Shown in [FIGURE 2-2](#)

Cable	Description
Orange	Fiber-optic (FC) cable
Blue	Ethernet (GbE) cable



2. Connect the other end of the cable to the FC device.

After the optical cable is connected to the HBA, you are ready to connect the Ethernet cable(s).

▼ To Connect the Ethernet Cable

Use high-quality Ethernet cable, category 5e or category 6, that adheres to the specifications in [TABLE 2-3](#).

TABLE 2-3 Ethernet Cable Specifications

Ethernet Cable	Maximum Length	Connector
Cat5e UTP	100 meters	8P8C
Cat6 UTP	100 meters	8P8C

1. Connect the ethernet cable to RJ-45 connectors on the HBA (see [FIGURE 2-2](#)).
2. Connect the other end of the cable to the Ethernet device.

After the ethernet cable is connected to the HBA, you are ready to apply power to the system. If power is already applied to the system, proceed to [“Configuring the HBA for Hot-Plug Operation” on page 18](#).

▼ To Apply Power

1. Verify that the HBA is securely installed in the system.
2. Verify that the correct fiber-optic cable is attached.
3. Verify that the correct ethernet cable is attached.
4. Refer to your system installation or service manual to determine how to power on the system blade.
5. Observe the light-emitting diode (LED) status for the power-on self test (POST) results as shown in [TABLE 2-4](#).

[TABLE 2-4](#) summarizes LED indicator combinations. Refer to [FIGURE 2-3](#) to determine the location of the LEDs. Each FC port has a corresponding set of LEDs that provide a visual indication of the operating state.

TABLE 2-4 Fibre channel LED Indicator Status Definitions

Green LED	Yellow LED	State
On	1 fast blink	1-Gb link rate - Normal operating state, link up
On	2 fast blinks	2-Gb link rate - Normal operating state, link up
On	3 fast blinks	4-Gb link rate - Normal operating state, link up
Off	Off	Wake-up failure (failed board)

TABLE 2-4 Fibre channel LED Indicator Status Definitions *(Continued)*

Green LED	Yellow LED	State
Off	On	POST failure (failed board)
Off	Slow blink	Wake-up failure monitor
Off	Fast blink	Failure in POST
Off	Flashing	POST processing in progress
On	Off	Failure while functioning
On	On	Failure while functioning
Slow blink	Off	Normal - link down
Slow blink	On	Not defined
Slow blink	Slow blink	Offline for download
Slow blink	Fast blink	Restricted offline mode (waiting for restart)
Slow blink	Flashing	Restricted offline mode, test active

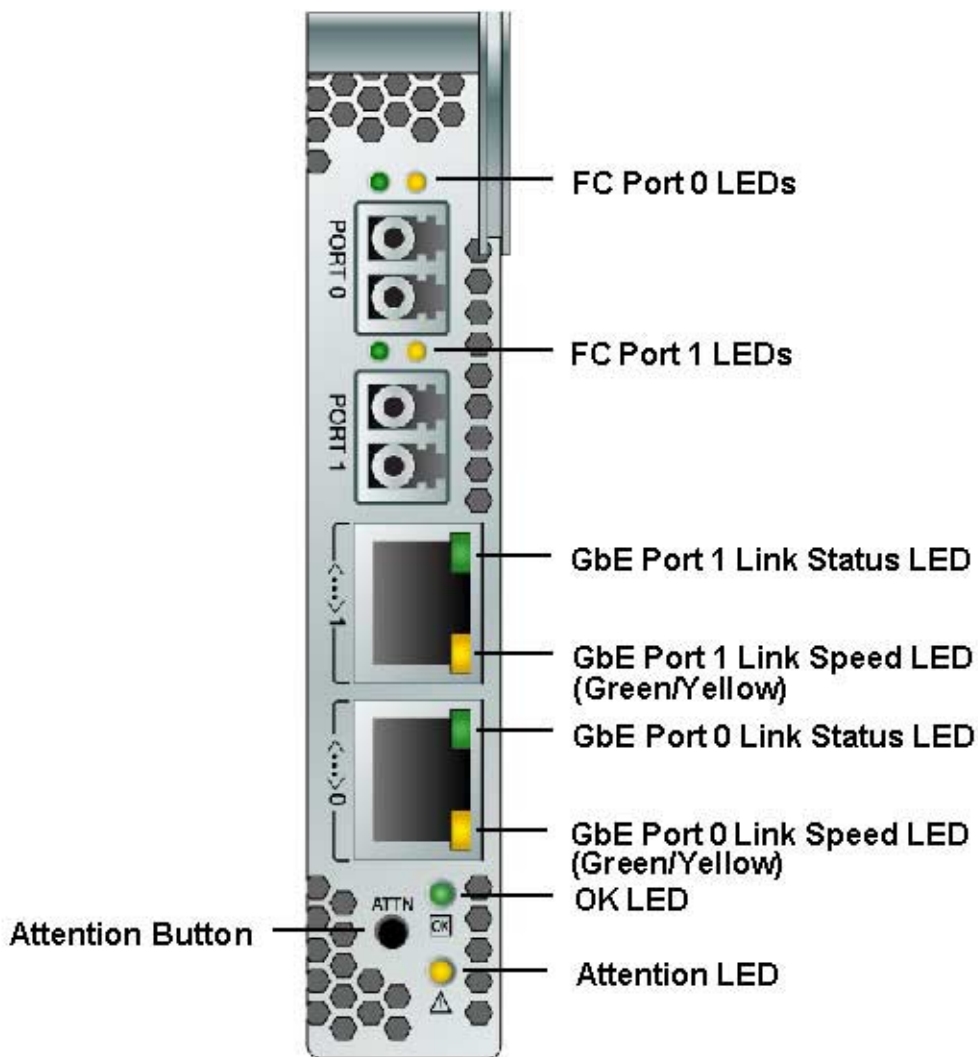
6. Observe the LEDs status for the Ethernet connection as shown in [TABLE 2-5](#).

[TABLE 2-5](#) summarizes LED indicator combinations. Refer to [FIGURE 2-3](#) to determine the location of the LEDs. Each Ethernet port has a corresponding set of LEDs that provide a visual indication of the operating state.

TABLE 2-5 Ethernet LED Indicator Status Definitions

Green LED	Green/Yellow LED	State
Blinks	Off	10-Mb link rate - Normal operating state, link up
Blinks	Green	100-Mb link rate - Normal operating state, link up
Blinks	Yellow	1-Gb link rate - Normal operating state, link up

FIGURE 2-3 LEDs and Attention Button



Testing the Installation

This section contains the following topics:

- [“To Verify Proper Installation \(for the Solaris OS\)” on page 17](#)
- [“To Verify Attached Storage \(for the Solaris OS\)” on page 17](#)

▼ To Verify Proper Installation (for the Solaris OS)

1. Use the `cfgadm` command to verify proper HBA installation.

```
cfgadm
```

If the HBA is properly installed and connected, you will see output similar to the following:

Ap_Id	Type	Receptacle	Occupant	Condition
c3	fc	connected	configured	ok
c4	fc	connected	configured	ok
pcie5	fibre/hp	connected	configured	ok

2. If an HBA is shown as unconfigured or disconnected, use the `cfgadm -c configure` command to configure the HBA.

▼ To Verify Attached Storage (for the Solaris OS)

1. Use the `cfgadm -al` command to verify attached storage.

```
cfgadm -al
```

If the HBA is properly installed and storage is connected properly, you will see output similar to the following example. In this example, one port of an HBA is connected through a fabric switch to two ports of a disk array.

Ap_Id	Type	Receptacle	Occupant	Condition
c3	fc-fabric	connected	configured	unknown
c3::200600a0b816005e	disk	connected	configured	unknown
c3::200700a0b816005e	disk	connected	configured	unknown
c4	fc	connected	unconfigured	unknown
pcie5	fibre/hp	connected	configured	ok

2. If an HBA is shown as unconfigured, use the `cfgadm -c configure` command to configure it.

Configuring the HBA for Hot-Plug Operation

1. Locate the green Power LED indicator near the bottom of the HBA front panel (see [FIGURE 2-3](#) for LED location).

Power LED indicator status is shown in [TABLE 2-6](#).

TABLE 2-6 Power LED Status Definitions

LED State	Meaning	Removal Status
Off	No power to the HBA	Removal is permitted, or the HBA must be configured
Flashing	Hot-plug in process	Removal of the HBA is not permitted
Solid green	HBA is properly configured	Removal is not permitted

2. If the green Power indicator is not illuminated, briefly press the Attention button near the bottom of the HBA front panel (see [FIGURE 2-3](#) for Attention button location).

The green power LED will blink for approximately five seconds and then remain on, indicating that the HBA is properly configured.

3. To cancel the operation, press the Attention button again before it stops blinking.

Removing the Hardware

The following procedures describe how to remove the HBA. Refer to your system installation or service manual for detailed HBA removal instructions.

The hardware removal process involves the following general steps:

1. **Either halting the operating system and removing power from the server blade, or preparing the HBA for hot-plug removal with one of the following:**
 - The HBA Attention button
 - The Solaris OS
2. **Removing the HBA hardware.**

▼ To Prepare the HBA for Removal Using the HBA Attention Button

1. **Attach an antistatic strap (refer to “[Observing ESD and Handling Precautions](#)” on page 9).**
2. **Press and release the Attention button near the bottom of the HBA front panel (see [FIGURE 2-3](#)).**

The green Attention LED near the button will blink for approximately five seconds, indicating that the HBA is being prepared for removal.

If you want to cancel the operation, press the Attention button again before the LED stops blinking.

3. **After the Attention LED goes dark, remove the HBA.**

▼ To Prepare the HBA for Hot-Plug Removal (for the Solaris OS)

If you want to remove the HBA without first halting the operating system and removing power from the associated server blade, prepare it for removal as follows:

1. Use the `cfgadm` command to identify the HBA to be removed.

cfgadm				
Ap_Id	Type	Receptacle	Occupant	Condition
pcie5	fibre/hp	connected	configured	ok
pcie6	fibre/hp	connected	configured	ok

2. Use the `cfgadm -c unconfigure` command to unconfigure the attachment point ID (Ap_Id) for the HBA.
3. Use the `cfgadm -c disconnect` command to prepare the HBA for removal.

A flashing Power indicator LED indicates that the HBA is being prepared for removal. A dark Power indicator LED indicates that the HBA is ready to be removed.

▼ To Remove the HBA Hardware

1. Disconnect all cables.
2. Press the HBA latch to disengage the HBA, and then pull forward and down to eject it.

You can now remove the HBA.

HBA Software Installation

After you have completed the hardware installation and powered on the computer, follow the instructions listed in this chapter for your operating system to install the HBA driver and any other utilities required for the installation.

This chapter contains the following topics:

- “Driver Software for the Solaris OS” on page 21
- “Installing Software for the Red Hat and SUSE Linux OSes” on page 22
- “Installing Software for Windows Server 2003 OS” on page 23
- “Configuration and Diagnostic Utilities” on page 24

Driver Software for the Solaris OS

The HBA driver for the Solaris OS is included with the Solaris 10 1/06 (s10u1) OS release. No additional patches or packages are required to support the HBA on minimum supported versions of the Solaris 10 OS for x64/x86 systems.

Solaris Diagnostic Support

Diagnostic support for the HBA is included in the SunVTS™ software beginning with version 6.3. The SunVTS software is included with the Solaris 10 11/06 (s10u3) OS release, and is also available for download at:

<http://www.sun.com/oem/products/vts>

The emlxtest utility supports the following functions:

- Connectivity verification
- Firmware version and checksum test

- Self-test
 - Loopback tests
 - External
 - Internal, single-bit
 - Internal, 10-bit
 - Mailbox
-

Installing Software for the Red Hat and SUSE Linux OSes

No updates are required to support the HBA on minimum supported versions of Linux.

For diagnostic support, you might need to rebuild the Linux driver. Before rebuilding the drivers for Linux, you must have the required Linux OS installed on the hard disk. The driver and utilities are available for download at the Emulex support site for Sun Microsystems.

▼ To Install the HBA Software for the Linux OS

The driver and management utilities are available for download at the Emulex support site for Sun Microsystems.

1. **Go to the Emulex support site for Sun Microsystems at:**
<http://www.emulex.com/sun/support/em-e11000.jsp>
2. **Locate the Sun StorageTek section, and click the model number (SG-PCIE2FCGBE-E-Z) for the HBA you want to install.**
3. **Locate the Linux Driver section, and click Download to copy the driver files to a local file system.**
4. **Click Download to copy the management utilities to a local file system.**
5. **Click Manual to copy the PDF manual, and then follow the installation and configuration procedures.**
6. **Click PDF Manual to download installation, configuration, and troubleshooting information.**

7. Install the driver for Linux as described in the Emulex driver and utilities user guide.
8. Install the management utilities as described in the Emulex driver and utilities user guide.

▼ To Install the HBA Software for the VMware Technology

The management utilities are available for download at the Emulex support site for Sun Microsystems. You must obtain the drivers from VMware.

1. Go to the Emulex support site for Sun Microsystems at:
<http://www.emulex.com/sun/support/em-e11000.jsp>
2. Locate the VMware section, and click the model number (SG-PCIE2FCGBE-E-Z) for the HBA you want to install.
3. Click Download to copy the management utilities to a local file system.
4. Click Manual to copy the PDF manual, and then follow the installation and configuration procedures.
5. Click PDF Manual to download installation, configuration, and troubleshooting information.
6. Obtain the driver from VMware and install the driver as described in the VMware documentation.
7. Install the management utilities as described in the Emulex driver and utilities user guide

Installing Software for Windows Server 2003 OS

The HBA driver and applications kits for Windows Server 2003 OS is available for download at the Emulex support site for Sun Microsystems.

▼ To Install the Software for the Windows Server 2003 OS

1. Go to the Emulex support site for Sun Microsystems at:
<http://www.emulex.com/sun/support/em-e11000.jsp>
2. Locate the driver section for Windows.
3. Download the Driver Kit by clicking Download.
4. Click PDF Manual to download the installation guide for the Windows OS.
5. Install the driver and management utilities for the Windows OS as described in the installation guide.

Configuration and Diagnostic Utilities

Use the `HBAnywhere` utility or the `lputil` command-line interface (CLI) utility to configure the HBA. These utilities are available for Linux and Windows OSes and provide support for the following functions:

- Discover local and remote hosts, HBAs, targets, and LUNs
- Reset HBAs
- Set HBA driver parameters
- Update firmware
- Enable or disable the system BIOS
- Run diagnostic tests on HBAs
- Manage out-of-band HBAs
- Manage local and in-band remote HBAs

See the Linux or Windows OS Emulex user manual for more information about using the `HBAnywhere` and `lputil` utilities.

Known Issues

This chapter contains the latest supplementary information for the preceding chapters in this guide. There are no known issues with this release.

This chapter contains the following topics:

- [“Cannot Detect the HBA on the Sun Blade T6300 System \(6680542\)”](#) on page 25
- [“The PEM Might Not Come Online on a Sun Blade T6300 or T6320 System \(6683536\)”](#) on page 26
- [“Cannot Detect the HBA Through the BIOS on the Sun Blade X8450 System \(6704510\)”](#) on page 26
- [“Cannot Verify the FCode Version of the HBA on the Sun Blade T6300 and T6320 Systems \(6686545\)”](#) on page 26

Cannot Detect the HBA on the Sun Blade T6300 System (6680542)

After swapping between different types of HBAs on a Sun Blade T6300 system, the system might not be able to detect the Sun StorageTek Dual 4 Gb FC Dual GbE HBA.

Workaround - Reboot the system.

The PEM Might Not Come Online on a Sun Blade T6300 or T6320 System (6683536)

In rare circumstances, after a Sun Blade T6300 or T6320 system has gone through several reboots, the Pluggable Express Module (PEM) on the system might not come online. With this PEM offline, the system cannot detect all devices that are connected to the system.

Workaround - Reboot the system again, which enables the PEM service to come back online.

Cannot Detect the HBA Through the BIOS on the Sun Blade X8450 System (6704510)

If the Sun Blade X8450 system has an ILOM version prior to 2.0.1.10, the BIOS might not be able to detect the HBA.

Workaround - Upgrade to the ILOM version 2.0.1.10 or later.

Cannot Verify the FCode Version of the HBA on the Sun Blade T6300 and T6320 Systems (6686545)

The FCode version is not displayed when you use the `luxadm fcode -p` command.

Workaround - You can verify the FCode version at the `ok` prompt.