

SBus Wide Intelligent Ultra™ SCSI Differential Host Adapter Guide



THE NETWORK IS THE COMPUTER™

Sun Microsystems Computer Company

A Sun Microsystems, Inc. Business
2550 Garcia Avenue
Mountain View, CA 94043 USA
415 960-1300 fax 415 969-9131

Part No.: 802-7748-10
Revision A, November 1996

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Regulatory Compliance Statements

Your Sun product is marked to indicate its compliance class:

- Federal Communications Commission (FCC) — USA
- Department of Communications (DOC) — Canada
- Voluntary Control Council for Interference (VCCI) — Japan

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 not installed and used in accordance with the instruction manual, 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 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.

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.

DOC Class A Notice - Avis DOC, Classe A

This Class A digital apparatus meets all of requirements the Canadian Interference-Causing Equipment Regulations.
Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

DOC Class B Notice - Avis DOC, Classe B

This Class B digital apparatus meets all of requirements the Canadian Interference-Causing Equipment Regulations.
Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

VCCI 基準について

第一種VCCI基準について

第一種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、第一種情報装置です。これらの製品には、下記の項目が該当します。

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Safety Agency Compliance

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 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.

SELV Compliance

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

European Ergonomics

In order to conform with the German ZH1/618 ergonomic standard, an anti-glare treatment to the CRT has been provided. For text processing applications, a positive mode display (black characters on a white background) is required.

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.

System Unit Cover

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



Einhaltung sicherheitsbehördlicher Vorschriften

Auf dieser Seite werden Sicherheitsrichtlinien beschrieben, die bei der Installation von Sun-Produkten zu beachten sind.

Sicherheitsvorkehrungen

Treffen Sie zu Ihrem eigenen Schutz die folgenden Sicherheitsvorkehrungen, wenn Sie Ihr Gerät installieren:

- Beachten Sie alle auf den Geräten angebrachten Warnhinweise und Anweisungen.
- Vergewissern Sie sich, daß Spannung und Frequenz Ihrer Stromquelle mit der Spannung und Frequenz übereinstimmen, die auf dem Etikett mit den elektrischen Nennwerten des Geräts angegeben sind.
- Stecken Sie auf keinen Fall irgendwelche Gegenstände in Öffnungen in den Geräten. Leitfähige Gegenstände könnten aufgrund der möglicherweise vorliegenden gefährlichen Spannungen 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 – Hohe Temperatur. Nicht berühren, da Verletzungsgefahr durch heiße Oberfläche besteht.



Vorsicht – Gefährliche Spannungen. Anweisungen befolgen, um Stromschläge und Verletzungen zu vermeiden.

Ein – Setzt das System unter Wechselstrom.

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



Aus – Unterbricht die Wechselstromzufuhr zum Gerät.



Wartezustand (Stand-by-Position) - Der Ein-/Wartezustand-Schalter steht auf Wartezustand. Änderungen an Sun-Geräten.

Nehmen Sie keine mechanischen oder elektrischen Änderungen an den Geräten vor. Sun Microsystems, übernimmt bei einem Sun-Produkt, das geändert wurde, keine Verantwortung für die Einhaltung behördlicher Vorschriften

Aufstellung von Sun-Geräten



Achtung – Um den zuverlässigen Betrieb Ihres Sun-Geräts zu gewährleisten und es vor Überhitzung zu schützen, dürfen die Öffnungen im Gerät nicht blockiert oder verdeckt werden. Sun-Produkte sollten niemals in der Nähe von Heizkörpern oder Heizluftklappen aufgestellt werden.

Einhaltung der SELV-Richtlinien

Die Sicherung der I/O-Verbindungen entspricht den Anforderungen der SELV-Spezifikation.

Ergonomie-Richtlinien

Um den Anforderungen der in Deutschland geltenden Ergonomie-Richtlinie ZH1/618 zu entsprechen, wurde der Bildschirm entspiegelt. Für Textverarbeitungsanwendungen wird ein positiver Anzeigemodus (schwarze Zeichen auf weißem Hintergrund) empfohlen.

Anschluß des Netzkabels



Vorsicht – Sun-Produkte sind für den Betrieb an Einphasen-Stromnetzen mit geerdetem Nulleiter vorgesehen. Um die Stromschlaggefahr zu reduzieren, schließen Sie Sun-Produkte nicht an andere Stromquellen an. Ihr Betriebsleiter oder ein qualifizierter Elektriker kann Ihnen die Daten zur Stromversorgung in Ihrem Gebäude geben.



Vorsicht – Nicht alle Netzkabel haben die gleichen Nennwerte. Herkömmliche, im Haushalt verwendete Verlängerungskabel besitzen keinen Überlastungsschutz und sind daher für Computersysteme nicht geeignet.



Vorsicht – Ihr Sun-Gerät wird mit einem dreidadrigen Netzkabel für geerdete Netzsteckdosen geliefert. Um die Gefahr eines Stromschlags zu reduzieren, schließen Sie das Kabel nur an eine fachgerecht verlegte, geerdete Steckdose an.

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



Vorsicht – Der Ein/Aus-Schalter dieses Geräts schaltet nur auf Wartezustand (Stand-By-Modus). Um die Stromzufuhr zum Gerät vollständig zu unterbrechen, müssen Sie das Netzkabel von der Steckdose abziehen. Schließen Sie den Stecker des Netzkabels an eine in der Nähe befindliche, frei zugängliche, geerdete Netzsteckdose an. Schließen Sie das Netzkabel nicht an, wenn das Netzteil aus der Systemeinheit entfernt wurde.

Gehäuseabdeckung

Sie müssen die obere Abdeckung Ihres Sun-Systems entfernen, um interne Komponenten wie Karten, Speicherchips oder Massenspeicher hinzuzufügen. Bringen Sie die obere Gehäuseabdeckung wieder an, bevor Sie Ihr System einschalten.



Achtung – Bei Betrieb des Systems ohne obere Abdeckung besteht die Gefahr von Stromschlag und Systemschäden.

Einhaltung der Richtlinien für Laser

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



Conformité aux normes de sécurité

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 protection, veuillez prendre les précautions suivantes pendant l'installation du matériel :

- Suivre tous les avertissements et toutes les instructions inscrites sur le matériel.
- Vérifier que la tension et la fréquence de la source d'alimentation électrique correspondent à la tension et à la fréquence indiquées sur l'étiquette de classification de l'appareil.

- Ne jamais introduire d'objets quels qu'ils soient dans une des ouvertures de l'appareil. Vous pourriez vous trouver en présence de hautes tensions dangereuses. Tout objet conducteur introduit de la sorte pourrait produire un court-circuit qui entraînerait des flammes, des risques d'électrocution ou des dégâts matériels.

Symboles

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



Attention : risques de blessures corporelles et de dégâts matériels. Veuillez suivre les instructions.



Attention : surface à température élevée. Evitez le contact. La température des surfaces est élevée et leur contact peut provoquer des blessures corporelles.



Danger : présence de tensions dangereuses. Pour éviter les risques d'électrocution et de danger pour la santé physique, veuillez suivre les instructions.



MARCHE – Votre système est sous tension (courant alternatif).

Un des symboles suivants sera peut-être utilisé en fonction du type d'interrupteur de votre système:



ARRET – Votre système est hors tension (courant alternatif).



VEILLEUSE – L'interrupteur Marche/Veilleuse est en position « Veilleuse ».

Modification du matériel

Ne pas apporter de modification mécanique ou électrique au matériel. Sun Microsystems n'est pas responsable de la conformité réglementaire d'un produit Sun qui a été modifié.

Positionnement d'un produit Sun



Attention : pour assurer le bon fonctionnement de votre produit Sun et pour l'empêcher de surchauffer, il convient de ne pas obstruer ni recouvrir les ouvertures prévues dans l'appareil. Un produit Sun ne doit jamais être placé à proximité d'un radiateur ou d'une source de chaleur.

Conformité SELV

Sécurité : les raccordements E/S sont conformes aux normes SELV.

Ergonomie européenne

Conformément à la norme d'ergonomie allemande ZH1/618, le CRT a été soumis à un traitement antireflets. Pour le traitement de texte, un affichage en mode positif (c'est-à-dire des caractères noirs sur fond blanc) est nécessaire.

Connexion du cordon d'alimentation



Danger : les produits Sun sont conçus pour fonctionner avec des alimentations monophasées munies d'un conducteur neutre mis à la terre. Pour écarter les risques d'électrocution, ne pas brancher de produit Sun dans un autre type d'alimentation secteur. En cas de doute quant au type d'alimentation électrique du local, veuillez vous adresser au directeur de l'exploitation ou à un électricien qualifié.



Danger : tous les cordons d'alimentation n'ont pas forcément la même puissance nominale en matière de courant. Les rallonges d'usage domestique n'offrent pas de protection contre les surcharges et ne sont pas prévues pour les systèmes d'ordinateurs. Ne pas utiliser de rallonge d'usage domestique avec votre produit Sun.



Danger : votre produit Sun a été livré équipé d'un cordon d'alimentation à trois fils (avec prise de terre). Pour écarter tout risque d'électrocution, branchez toujours ce cordon dans une prise mise à la terre.

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



Danger : le commutateur d'alimentation de ce produit fonctionne comme un dispositif de mise en veille uniquement. C'est la prise d'alimentation qui sert à mettre le produit hors tension. Veuillez donc à installer le produit à proximité d'une prise murale facilement accessible. Ne connectez pas la prise d'alimentation lorsque le châssis du système n'est plus alimenté.

Couvercle

Pour ajouter des cartes, de la mémoire, ou des unités de stockage internes, vous devrez démonter le couvercle de l'unité système Sun. Ne pas oublier de remettre ce couvercle en place avant de mettre le système sous tension.

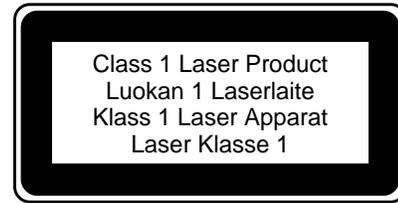


Attention : il est dangereux de faire fonctionner un produit Sun sans le couvercle en place. Si l'on néglige cette précaution, on encourt des risques de blessures corporelles et de dégâts matériels.

Conformité aux certifications Laser

Les produits Sun qui font appel aux technologies lasers sont

conformes aux normes de la classe 1 en la matière.



Normativas de seguridad

El siguiente texto incluye las medidas de seguridad que se deben seguir cuando se instale algún producto de Sun Microsystems.

Precauciones de seguridad

Para su protección observe las siguientes medidas de seguridad cuando manipule su equipo:

- Siga todas las avisos e instrucciones marcados en el equipo.
- Asegúrese de que el voltaje y la frecuencia de la red eléctrica concuerdan con las descritas en las etiquetas de especificaciones eléctricas del equipo.
- No introduzca nunca objetos de ningún tipo a través de los orificios del equipo. Pueden haber voltajes peligrosos. Los objetos extraños conductores de la electricidad pueden producir cortocircuitos que provoquen un incendio, descargas eléctricas o daños en el equipo.

Símbolos

En este libro aparecen los siguientes símbolos:



Precaución – Existe el riesgo de lesiones personales y daños al equipo. Siga las instrucciones.



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



Aviso – Voltaje peligroso presente. Para reducir el riesgo de descarga y daños para la salud siga las instrucciones.



Encendido – Aplica la alimentación de CA al sistema.

Según el tipo de interruptor de encendido que su equipo tenga, es posible que se utilice uno de los siguientes símbolos:



Apagado – Elimina la alimentación de CA del sistema.



En espera – El interruptor de Encendido/En espera se ha colocado en la posición de *En espera*.

Modificaciones en el equipo

No realice modificaciones de tipo mecánico o eléctrico en el equipo. Sun Microsystems no se hace responsable del cumplimiento de las normativas de seguridad en los equipos Sun modificados.

Ubicación de un producto Sun



Precaución – Para asegurar la fiabilidad de funcionamiento de su producto Sun y para protegerlo de sobrecalentamientos no deben obstruirse o taparse las rejillas del equipo. Los productos Sun nunca deben situarse cerca de radiadores o de fuentes de calor.

Cumplimiento de la normativa SELV

El estado de la seguridad de las conexiones de entrada/salida cumple los requisitos de la normativa SELV.

Normativa ergonómica europea

Para cumplir con el estándar de ergonomía alemán ZH1/618, se ha dotado a la pantalla con un tratamiento antireflectante. Para las aplicaciones de tratamiento de textos, se precisa un modo de visualización positivo (caracteres negros sobre fondo blanco).

Conexión del cable de alimentación eléctrica



Aviso – Los productos Sun están diseñados para trabajar en una red eléctrica monofásica con toma de tierra. Para reducir el riesgo de descarga eléctrica, no conecte los productos Sun a otro tipo de sistema de alimentación eléctrica. Póngase en contacto con el responsable de mantenimiento o con un electricista cualificado si no está seguro del sistema de alimentación eléctrica del que se dispone en su edificio.



Aviso – No todos los cables de alimentación eléctrica tienen la misma capacidad. Los cables de tipo doméstico no están provistos de protecciones contra sobrecargas y por tanto no son apropiados para su uso con computadores. No utilice alargadores de tipo doméstico para conectar sus productos Sun.



Aviso – Con el producto Sun se proporciona un cable de alimentación con toma de tierra. Para reducir el riesgo de descargas eléctricas conéctelo siempre a un enchufe con toma de tierra.

La siguiente advertencia se aplica solamente a equipos con un interruptor de encendido que tenga una posición "En espera":



Aviso – El interruptor de encendido de este producto funciona exclusivamente como un dispositivo de puesta en espera. El enchufe de la fuente de alimentación está

diseñado para ser el elemento primario de desconexión del equipo. El equipo debe instalarse cerca del enchufe de forma que este último pueda ser fácil y rápidamente accesible. No conecte el cable de alimentación cuando se ha retirado la fuente de alimentación del chasis del sistema.

Tapa de la unidad del sistema

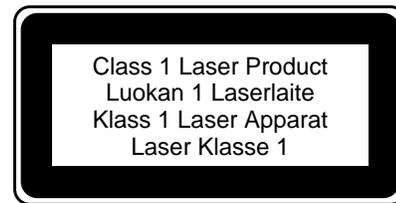
Debe quitar la tapa del sistema cuando sea necesario añadir tarjetas, memoria o dispositivos de almacenamiento internos. Asegúrese de cerrar la tapa superior antes de volver a encender el equipo.



Precaución – Es peligroso hacer funcionar los productos Sun sin la tapa superior colocada. El hecho de no tener en cuenta esta precaución puede ocasionar daños personales o perjudicar el funcionamiento del equipo.

Aviso de cumplimiento con requisitos de láser

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



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Preface

The *SBus Wide Intelligent Ultra SCSI Differential Host Adapter Guide* describes how to install the SBus Wide Intelligent Ultra™ SCSI Differential (UDWIS/S) host adapter card in your SBus-based SPARC™ system. These instructions are designed for an experienced system administrator.

UNIX Commands

This document includes some software commands and procedures. It refers you to operating system documentation or to the documentation that was shipped with your system for further explanation.

The type of information that you might need to use additional references for includes:

- Shutting down the system
- Booting the system
- Configuring devices

See one or more of the following:

- The *Solaris 2.x Handbook for SMCC Peripherals* contains Solaris™ 2.x software commands.
- On-line AnswerBook™ for the complete set of documentation supporting the Solaris 2.x software environment.

Related Documents

The following documents contain topics that relate to the information in the *SBus Wide Intelligent Ultra SCSI Differential Host Adapter Guide*.

| Application | Title | Part Number |
|-------------|---|-------------|
| System Test | <i>SunVTS 2.0 User's Guide</i> | 802-5331 |
| | <i>SunVTS 2.0 Test Reference Manual</i> | 802-5330 |
| | <i>SunVTS 1.0 User's Guide</i> | 801-7271 |
| | <i>SunVTS 1.0 Test Reference Manual</i> | 802-1448 |

Typographic Conventions

The following table describes the typographic conventions used in this book.

| Typeface or Symbol | Meaning | Example |
|--------------------|--|---|
| 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. <code>machine_name%</code> You have mail. |
| AaBbCc123 | What you type, contrasted with on-screen computer output | <code>machine_name%</code> su Password: |
| <i>AaBbCc123</i> | Command-line placeholder: replace with a real name or value | To delete a file, type <code>rm filename</code> . |
| <i>AaBbCc123</i> | Book titles, new words or terms, or 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 root to do this. |

Shell Prompts

The following table shows the default system prompt and superuser prompt for the C shell, Bourne shell, and Korn shell.

| Shell | Prompt |
|---------------------------------------|---------------|
| C shell | machine_name% |
| C shell superuser | machine_name# |
| Bourne shell and Korn shell | \$ |
| Bourne shell and Korn shell superuser | # |

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SunDocsSM is a distribution program for Sun MicrosystemsTM technical documentation. Easy, convenient ordering and quick delivery is available from SunExpressTM. You can find a full listing of available documentation on the World Wide Web: <http://www.sun.com/sunexpress/>

| Country | Telephone | Fax |
|-----------------|----------------|----------------|
| United States | 1-800-873-7869 | 1-800-944-0661 |
| United Kingdom | 0-800-89-88-88 | 0-800-89-88-87 |
| France | 05-90-61-57 | 05-90-61-58 |
| Belgium | 02-720-09-09 | 02-725-88-50 |
| Luxembourg | 32-2-720-09-09 | 32-2-725-88-50 |
| Germany | 01-30-81-61-91 | 01-30-81-61-92 |
| The Netherlands | 06-022-34-45 | 06-022-34-46 |
| Sweden | 020-79-57-26 | 020-79-57-27 |
| Switzerland | 155-19-26 | 155-19-27 |
| Japan | 0120-33-9096 | 0120-33-9097 |

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Safety Symbols



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



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

Installing the Host Adapter Card



This chapter describes the SBus Wide Intelligent Ultra SCSI Differential (UDWIS/S) host adapter card and explains how to install it into your system. Before you begin, have your system documentation available for reference. You will need to perform system administration procedures to halt and boot your system.

Overview

The UDWIS/S host adapter card is a Fast-20 SCSI device that enables you to increase the number of SCSI ports available for adding external devices.

The card is designed to be installed in SPARC systems running Solaris 2.4 (SunOS™ Version 5.4) through Solaris 2.5.1 operating systems. Before you begin the installation, you need to determine which version of SunOS you are running, as described on page 2.

The UDWIS/S host adapter card improves SBus performance and SCSI reliability because the card uses an intelligent SCSI processor chip (ISP1000U) that requires less host processor intervention. The UDWIS/S host adapter card supports up to 15 targets on the same SCSI bus.



Installing the Card

▼ To Prepare for Installation

1. **Determine which version of the operating system you are running by typing:**

```
% uname -rs  
SunOS 5.5
```

Note – The system might not recognize the new device unless you follow the proper shutdown procedure.

2. **Shut down the system in an orderly manner.**

Follow the procedures described in the *Solaris Handbook for SMCC Peripherals* that corresponds to your operating system.



Caution – Do not use a key combination such as L1(Stop)-A or Break to shut down your system. Abruptly aborting program execution may damage data files.

3. **Power down the system.**

Refer to the service documentation that came with your system.



Caution – Make sure your system is shut off, but do not disconnect the power cord from the system's power outlet or from the wall outlet. This connection provides the ground path necessary to safely remove and install the printed circuit boards and components without damaging them.

4. **Unpack the UDWIS/S host adapter card.**

You should have the following items:

- SBus Wide Intelligent Ultra SCSI Differential (UDWIS/S) host adapter card (Figure 1-1)
- Electrostatic discharge (ESD) kit

Leave the card in its protective bag until you are ready to install it.

5. **Attach the wrist strap supplied with the host adapter card.**
6. **Locate the SBus slots, and if the SBus slot needed for your host adapter card is currently being used, remove any existing SBus card.**
Follow the procedures in the service manual supplied with your system.

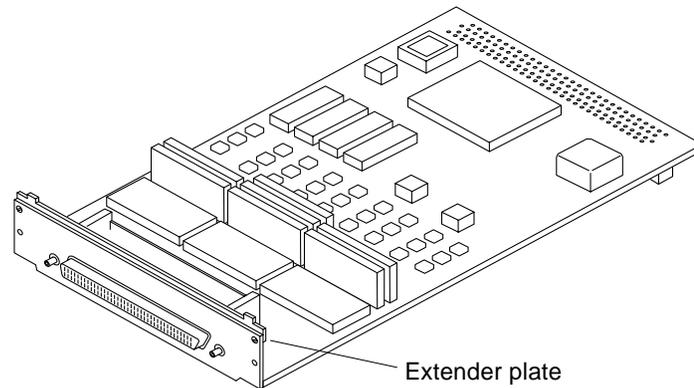


Figure 1-1 SBUS Wide Intelligent Ultra SCSI Differential (UDWIS/S)
Host Adapter Card

▼ To Insert the Host Adapter Card

Refer to the system installation guide or service manual for information about mounting details (mounting holes, standoff locking/unlocking, and use of screws to secure the card) for your system.

Note – Make sure you are wearing the antistatic wrist strap.

1. **Ensure that the system has been halted in an orderly manner as described in “To Prepare for Installation” on page 2.**
2. **Set the system on/off switch to the off position.**



Caution – Do *not* detach the power cord from the wall outlet. The power cord should be attached to the system and wall outlet for grounding to prevent damage to your system.



3. **Remove the filler panel for the desired slot from the inner surface of the back panel of the system.**

Refer to your system documentation for information about filler panels for your system.

4. **Remove the UDWIS/S host adapter card from its protective bag.**

5. **Slide the card at an angle into the back panel of your processor board as shown in Figure 1-2.**

Ensure that the mounting plate on your card hooks upward into the back panel of the processor board. For some processor boards, you may have to remove the extender plate (Figure 1-1) from the mounting plate to install the card correctly.



Caution – Using excessive force can bend or damage the pins.

6. **Slide the card against the back panel, aligning the connector with the SBus slot, and gently press the connector into the slot.**

7. **Use two screws to secure the card to the back panel.**

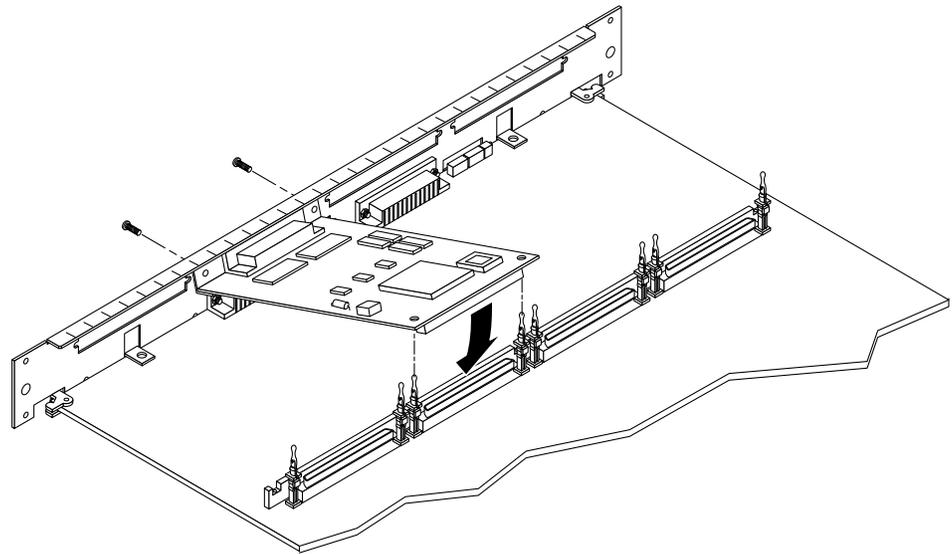


Figure 1-2 Installing the UDWIS/S Host Adapter Card on the Processor Board

▼ To Complete the Installation



Caution – Operating Sun products without closing the system is unsafe. Failure to follow this precaution may result in personnel injury and system damage.

- 1. Remove the wrist strap.**
- 2. Close the system.**
- 3. Connect the SCSI cables.**
Refer to your system documentation for cabling instructions.
- 4. Turn on the power to the system in the following order:**
 - a. Monitor**
 - b. External drive**
 - c. System**

Once you have turned on the power to your system, you can use the `boot -rv` command at the `ok` prompt to reconfigure the system and display the new configuration on screen. For more information on the `boot -rv` command, refer to the *System Administrator's Guide* for your operating system.



▼ To Test the Installation With SunVTS

SunVTS is a software program that exercises your system to verify the functionality, reliability, and configuration of your UDWIS/S host adapter card. Run the SunVTS program before attempting to use your new card for applications.

This chapter provides a brief set of instructions for running the SunVTS program. For more details, refer to the *SunVTS 2.0 User's Guide*.

1. Become superuser. Type:

```
% su <Return>  
password
```

2. Bring up the SunVTS window.

```
# /opt/SUNWvts/bin/sunvts
```

3. Select the device that you want to test (c0t0d0, c0t1d0, c0t2d0, etc.).

4. Start the test.

5. Verify that no errors have occurred by checking the SunVTS status window.

6. If no problems occur, stop SunVTS.

Your UDWIS/S host adapter card is ready for running applications.

Checking System Devices

You can determine if your host adapter board is an Ultra SCSI board—that is, if it uses the Ultra SCSI chip (ISP1000U) instead of the ISP1000—by checking the configuration.

To check the configuration, select one of the procedures that follow based on the version of OpenBoot™ prom you have running on your system.

▼ To Check Systems Running OpenBoot 3.x

1. Type:

```
ok show-devs
```

The screen displays the current configuration of the system. For example:

```
/SUNW,ffb@1e,0
/SUMW,UltraSPARC@0,0
.
.

/sbus@1f,0/QLGC,isp@1,10000
/sbus@1f,0/QLGC,isp@0,10000
.
.
.
/sbus@1f,0/QLGC,isp@1,10000/st
/sbus@1f,0/QLGC,isp@1,10000/sd
/sbus@1f,0/QLGC,isp@0,10000/st
/sbus@1f,0/QLGC,isp@0,10000/sd

.
.
.
```



2. Type:

```
dev /sbus@1f,0/QLGC,isp@1,10000 <Return>
.properties
```

or:

```
dev /sbus@1f,0/QLGC,isp@0,10000 <Return>
.properties
```

The result will show the model property as either ISP1000 or ISP1000U:

```
scsi-initiator-id      00000007
clock-frequency        03938700
differential
isp-fcode              1.24 96/07/29
device_type            scsi
intr                  00000003 00000000
interrupts             00000003
wide
fast-20
reg                   00000000 00010000 00000450
64-bit-clean
model                 QLGC,ISP1000U
name                  QLGC,isp
```

▼ To Check Systems Running OpenBoot 2.x

1. Type:

```
ok show-devs
```



The screen displays the current configuration of the system. For example:

```
/io-unit@f,e0200000
/mem-unit@f,e0100000
/cpu-unit@f,e0800000
/cpu-unit@f,e0000000
/boards
/openprom
/virtual-memory@0,0
/memory@0,0
/aliases
/options
/packages
/io-unit@f,e0200000/sbi@0,0
/io-unit@f,e0200000/sbi@0,0/QLGC,isp@3,10000
/io-unit@f,e0200000/sbi@0,0/QLGC,isp@2,10000
/io-unit@f,e0200000/sbi@0,0/QLGC,isp@1,10000
/io-unit@f,e0200000/sbi@0,0/lebuffer@0,40000
/io-unit@f,e0200000/sbi@0,0/dma@0,81000
/io-unit@f,e0200000/sbi@0,0/QLGC,isp@3,10000/st
/io-unit@f,e0200000/sbi@0,0/QLGC,isp@3,10000/sd
/io-unit@f,e0200000/sbi@0,0/QLGC,isp@2,10000/st
/io-unit@f,e0200000/sbi@0,0/QLGC,isp@2,10000/sd
/io-unit@f,e0200000/sbi@0,0/QLGC,isp@1,10000/st
/io-unit@f,e0200000/sbi@0,0/QLGC,isp@1,10000/sd
/io-unit@f,e0200000/sbi@0,0/lebuffer@0,40000/le@0,60000
/io-unit@f,e0200000/sbi@0,0/dma@0,81000/esp@0,80000
/io-unit@f,e0200000/sbi@0,0/dma@0,81000/esp@0,80000/st
/io-unit@f,e0200000/sbi@0,0/dma@0,81000/esp@0,80000/sd
/cpu-unit@f,e0800000/TI,TMS390Z55@1,1f00000
/cpu-unit@f,e0000000/bootbus
/cpu-unit@f,e0000000/TI,TMS390Z55@1,1f00000
/cpu-unit@f,e0000000/bootbus/leds@1,2e0000
/cpu-unit@f,e0000000/bootbus/sram@1,1e0000
/cpu-unit@f,e0000000/bootbus/EEPROM@1,280000
/cpu-unit@f,e0000000/bootbus/zs@1,240000
/cpu-unit@f,e0000000/bootbus/zs@1,200000
/boards/bif@0,0
/packages/obp-tftp
/packages/deblocker
/packages/disk-label
```



2. Type:

```
ok cd /io-unit@f,e0200000/sbi@0,0/QLGC,isp@1,10000 <Return>
ok .attributes
```

The result will show the model property as either ISP1000 or ISP1000U:

```
scsi-initiator-id      00000007
clock-frequency        03938700
differential
isp-fcode              1.24 96/07/29
device_type            scsi
intr                   00000003 00000000
interrupts             00000003
wide
fast-20
reg                    00000000 00010000 00000450
64-bit-clean
model                  QLGC,ISP1000U
name                   QLGC,isp
```

Host Adapter Card Replacement



Table A-1 lists the replacement unit for the host adapter card. You can order a replacement from your Sun sales representative or by calling 1-800-USA-4SUN.

Table A-1 Host Adapter Card Replacement

| Description | Part Number |
|---|--------------------|
| SBus Wide Intelligent Ultra SCSI Differential (UDWIS/S) host adapter card | 370-2443 |

Interface Signals and Cables



This appendix describes the pinouts and the signal descriptions for the SCSI and SBus connectors.

68-Pin SCSI P-Connector

Figure B-1 shows the pinouts for the differential 68-pin SCSI P-connector.

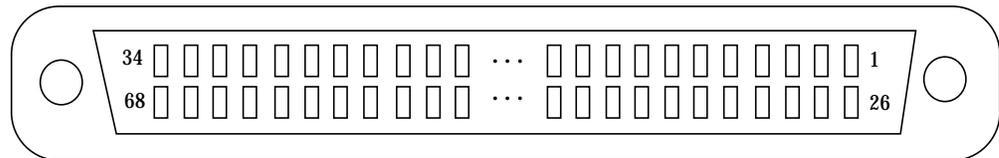


Figure B-1 Pinouts for Differential 68-Pin SCSI P-Connector.

Table B-1 lists the signal descriptions for the differential 68-pin SCSI P-connector.

Table B-1 Signal Descriptions for Differential 68-Pin SCSI P-Connector

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1 | D(12)+ | 35 | D(12)- |
| 2 | D(13)+ | 36 | D(13)- |
| 3 | D(14)+ | 37 | D(14)- |
| 4 | D(15)+ | 38 | D(15)- |
| 5 | DP(1)+ | 39 | DP(1)- |

Table B-1 Signal Descriptions for Differential 68-Pin SCSI P-Connector (Continued)

| Pin | Description | Pin | Description |
|-----|----------------------|-----|-------------|
| 6 | Ground | 40 | Ground |
| 7 | D(0)+ | 41 | D(0)- |
| 8 | D(1)+ | 42 | D(1)- |
| 9 | D(2)+ | 43 | D(2)- |
| 10 | D(3)+ | 44 | D(3)- |
| 11 | D(4)+ | 45 | D(4)- |
| 12 | D(5)+ | 46 | D(5)- |
| 13 | D(6)+ | 47 | D(6)- |
| 14 | D(7)+ | 48 | D(7)- |
| 15 | DP+ | 49 | DP- |
| 16 | DIFSENS | 50 | Ground |
| 17 | TERMPWR ¹ | 51 | TERMPWR |
| 18 | TERMPWR | 52 | TERMPWR |
| 19 | OPEN | 53 | OPEN |
| 20 | ATN+ | 54 | ATN- |
| 21 | Ground | 55 | Ground |
| 22 | BSY+ | 56 | BSY- |
| 23 | ACK+ | 57 | ACK- |
| 24 | RST+ | 58 | RST- |
| 25 | MSG+ | 59 | MSG- |
| 26 | SEL+ | 60 | SEL- |
| 27 | C/D+ | 61 | C/D- |
| 28 | REQ+ | 62 | REQ- |
| 29 | I/O+ | 63 | I/O- |
| 30 | Ground | 64 | Ground |
| 31 | D(8)+ | 65 | D(8)- |
| 32 | D(9)+ | 66 | D(9)- |
| 33 | D(10)+ | 67 | D(10)- |
| 34 | D(11)+ | 68 | D(11)- |

1. TermPwr (termination power) is supplied through a polyfuse and a Shottky diode that prevents backflow of power to the expander board (initiator) SCSI port. Any SCSI device can supply terminator power.

Note – 8-bit devices connected to the P-cable have the following signals open: D(8)-, D(9)-, D(10)-, D(11)-, D(12)-, D(13)-, D(14)-, D(15)-, DP(1)-, D(8)+, D(9)+, D(10)+, D(11)+, D(12)+, D(13)+, D(14)+, D(15)+, DP(1)+.

96-Pin SBus Connector

Figure B-2 shows the pinouts for the 96-pin SBus connector.

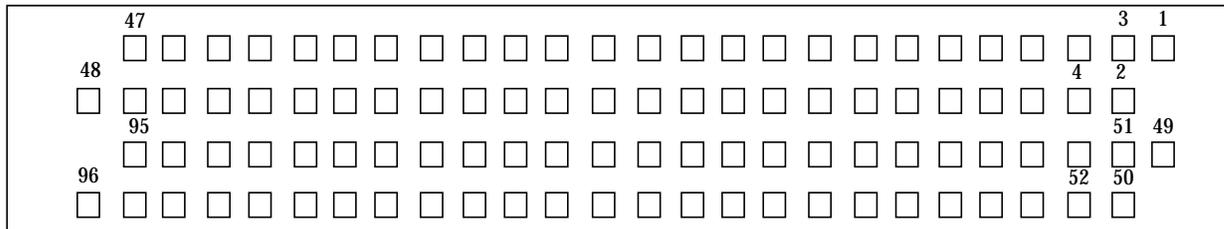


Figure B-2 Pinouts for SBus Connector

Table B-2 lists the signal descriptions for the 96-pin SBus connector.

Table B-2 Signal Descriptions for 96-Pin SBus Connector

| Pin | Description | Pin | Description | Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|-----|-------------|-----|-------------|
| 1 | Ground | 25 | sb_d(31) | 49 | sb_clk | 73 | sb_d(30) |
| 2 | sb_br* | 26 | sb_siz(0) | 50 | sb_bg* | 74 | sb_siz(1) |
| 3 | sb_sel* | 27 | sb_siz(2) | 51 | sb_as* | 75 | sb_rd |
| 4 | sb_irq1* | 28 | sb_irq7* | 52 | Ground | 76 | Ground |
| 5 | sb_d(0) | 29 | sb_pa(0) | 53 | sb_d(1) | 77 | sb_pa(1) |
| 6 | sb_d(2) | 30 | sb_pa(2) | 54 | sb_d(3) | 78 | sb_pa(3) |
| 7 | sb_d(4) | 31 | sb_pa(4) | 55 | sb_d(5) | 79 | sb_pa(5) |
| 8 | sb_irq2* | 32 | sb_merr* | 56 | +5VDC | 80 | +5VDC |
| 9 | sb_d(6) | 33 | sb_pa(6) | 57 | sb_d(7) | 81 | sb_pa(7) |
| 10 | sb_d(8) | 34 | sb_pa(8) | 58 | sb_d(9) | 82 | sb_pa(9) |
| 11 | sb_d(10) | 35 | sb_pa(10) | 59 | sb_d(11) | 83 | sb_pa(11) |
| 12 | sb_irq3* | 36 | sb_err* | 60 | Ground | 84 | Ground |
| 13 | sb_d(12) | 37 | sb_pa(12) | 61 | sb_d(13) | 85 | sb_pa(13) |
| 14 | sb_d(14) | 38 | sb_pa(14) | 62 | sb_d(15) | 86 | sb_pa(15) |
| 15 | sb_d(16) | 39 | sb_pa(16) | 63 | sb_d(17) | 87 | sb_pa(17) |
| 16 | sb_irq4* | 40 | sb_ack8* | 64 | +5VDC | 88 | +5VDC |
| 17 | sb_d(19) | 41 | sb_pa(18) | 65 | sb_d(18) | 89 | sb_pa(19) |
| 18 | sb_d(21) | 42 | sb_pa(20) | 66 | sb_d(20) | 90 | sb_pa(21) |
| 19 | sb_d(23) | 43 | sb_pa(22) | 67 | sb_d(22) | 91 | sb_pa(23) |
| 20 | sb_irq5* | 44 | sb_ack32* | 68 | Ground | 92 | Ground |
| 21 | sb_d(25) | 45 | sb_pa(24) | 69 | sb_d(24) | 93 | sb_pa(25) |

Table B-2 Signal Descriptions for 96-Pin SBus Connector (Continued)

| Pin | Description | Pin | Description | Pin | Description | Pin | Description |
|------------|--------------------|------------|--------------------|------------|--------------------|------------|--------------------|
| 22 | sb_d(27) | 46 | sb_pa(26) | 70 | sb_d(26) | 94 | sb_pa(27) |
| 23 | sb_d(29) | 47 | Ext | 71 | sb_d(28) | 95 | sb_reset* |
| 24 | sb_irq6* | 48 | -12VDC (unused) | 72 | +5VDC | 96 | +12VDC |

Specifications



Performance Specifications

Table B-1 Performance Specifications

| Feature | Specification |
|----------------------------------|---|
| SBus clock | 25 MHz max |
| SBus data burst transfer rate | 100 Mbytes/sec max |
| SBus sustained transfer rate | 80 Mbytes/sec max |
| SCSI synchronous transfer rate | 10/20/40 Mbytes/sec max |
| SCSI asynchronous transfer rate | ≤14 Mbytes/sec max |
| Transfer size | 4 Gbytes max |
| SBus data/address lines | D (31:0)/PA (21:0) |
| SBus modes | Master/Slave |
| Capacitance per SBus signal line | ≤ 20 pF |
| SCSI interface | SBus Wide Intelligent Ultra SCSI Differential (UDWIS/S) host adapter |
| SCSI parity support | Yes |
| SCSI 8-bit bus devices | Yes |
| SCSI 16-bit bus devices | Yes |
| SCSI bus parity | Yes |

Power Specifications

Table B-2 Power Specifications

| Specification | Measurement |
|----------------------|-----------------------------------|
| Power Consumption | 10.5 watts average (15 watts max) |
| Operational Current | 2.1amps average (3.0 amps max) |
| Voltage Tolerance | +/- 5% |
| Ripple | ≤ 100 mV |

Physical Dimensions

Table B-3 Physical Dimensions

| Dimension | Measurement |
|---------------------|--------------------------|
| Length | 5.776 in. (146.70 mm) |
| Width | 3.3 in. (83.82 mm) |
| Component clearance | 0.603 in. (15.31 mm) max |
| Weight | < 1 lb. (0.45 kg) |

Safety

The UDWIS/S host adapter card meets the requirements of the following safety standards.

Table B-4 Safety

| Agency | Standard |
|---------------|-----------------------|
| CSA | C 22.2, No. 950 – M89 |
| UL | 1950 |
| TUV | EN 60950 |

Environmental Specifications

Table B-5 Environmental Specifications

| Condition | Operating Specification | Storage Specification |
|----------------------------------|--|---------------------------------------|
| Temperature | 0 to 55°C (+32 to +131°F) | -40 to 75°C (-40 to +167 °F) |
| Relative Humidity | 5 to 95% non-condensing (45° C, wet bulb temperature) | 0 to 95% non-condensing 10°C /hour |
| Altitude | -1000 to +15,000 ft | -1000 to +50,000 ft |
| Shock | 10g, 1/2 sine wave, 11 msec | 60g, 1/2 sine wave, 11 msec |
| Vibration, pk to pk displacement | 0.005 in. max (5 to 32 Hz) | 0.1 in. max (5 to 17 Hz) |
| Vibration, peak acceleration | 0.25g (5 to 500 Hz) | 0.25g (5 to 500 Hz) |
| | (Sweep Rate = 1 octave/min) | (Sweep Rate = 1 octave/min) |

Electromagnetic Compatibility

The UDWIS/S host adapter card meets the requirements of the following EMC regulations.

Table B-6 Electromagnetic Compatibility

| Agency | Regulation |
|--------|---|
| FCC | 47CFR, part 15, Subpart J, Class B EN55022 Class B (CIS PR22) |
| DOC | CSA C108.8 Class B |
| VCCI | Class 2 (=CIS PR22) |

Electrical Immunity

The UDWIS/S host adapter card meets the requirements of the following immunity standards.

Table B-7 Electrical Immunity

| Agency | Specification |
|---------------|---------------------------------|
| IEC 801-2 | Electrostatic discharge |
| EC 801-3 | Radiated electromagnetic fields |
| EC 801-4 | Fast transients/burst |
| EC 801-5 | Surge |

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