Sun™ StorEdge™ A1000 and D1000 Installation, Operations, and Service Manual

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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 requirements of 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 requirements of 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。

> この装置は、第一種情報装置(商工業地域において使用されるべき情報装置)で商工業地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会(VCCI)基準に適合しております。したがって、本製品を、住宅地域または住宅地域に隣接した地域でご使用になりますと、ラジオ、テレビジョン受信機等に受信障害を与えることがあります。
>
> 取り扱い説明書に従って正しくお取り扱いください。

第二種VCCI基準について

第二種VCCIの表示 [VCI] があるワークステーションおよびオプション製品は、第二種情報装置です。これらの製品には、下記の項目が該当します。

> この装置は、第二種情報装置(住宅地域または住宅地域に隣接した地域において使用されるべき情報装置)で住宅地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会(VCCI)基準に適合しております。しかし、本製品を、ラジオ、テレビジョン受信機に近接してご使用になりますと、受信障害の原因となることがあります。
>
> 取り扱い説明書に従って正しくお取り扱いください。

Declaration of Conformity

Compliance ID:	1630
Product Name:	Sun StorEdge A1000,Tabletop; Sun StorEdge D1000,Tabletop

This product has been tested and complies with:

EMC

USA - FCC Class B

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.

European Union

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

EN55022 / CISPR22	(1985)	Class B
EN50082-1		IEC801-2 (1991) 4 kV (Direct), 8 kV (Air)
		IEC801-3 (1984) 3 V/m
		IEC801-4 (1988) 1.0 kV Power Lines, 0.5 kV Signal Lines
EN61000-3-2/IEC1000-3-2(1994)		Pass

Safety

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

EC Type Examination Certificates:

EN60950/IEC950

EN60950 w/ Nordic Deviations

Supplementary Information:

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

/ S /

Dennis P. Symanski   DATE

Manager, Product Compliance

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/ S /

John Shades   DATE

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West Lothian, EH49 7LR

Scotland, United Kingdom

Tel: 0506 670000

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 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.

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.

Battery Pack

⚠ Caution - There is a sealed lead acid battery in Sun StorEdge A1000 units. Portable Energy Products No. TLC02V50. There is danger of explosion if the battery pack is mishandled or incorrectly replaced. Replace only with the same type of Sun Microsystems battery pack. Do not disassemble it or attempt to recharge it outside the system.Do not dispose of the battery in fire. Dispose of thebattery properly in accordance with local regulations.

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.

CEinhaltung 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.

⚠ **Achtung** – 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.

Anschluß des Netzkabels

⚠ **Achtung** – 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.

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

Achtung – Ihr Sun-Gerät wird mit einem dreiadrigen 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:

Achtung – 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.

Batterien

Vorsicht - Die Geräte StorEdge A1000 von Sun enthalten auslaufsichere Bleiakkumulatoren. Produkt-Nr. TLC02V50 für portable Stromversorgung. Werden bei der Behandlung oder beim Austausch der Batterie Fehler gemacht, besteht Explosionsgefahr. Batterie nur gegen Batterien gleichen Typs von Sun Microsystems austauschen. Nicht demontieren und nicht versuchen, die Batterie außerhalb des Geräts zu laden. Batterie nicht ins Feuer werfen. Ordnungsgemäß entsprechend den vor Ort geltenden Vorschriften entsorgen.

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.

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.

Attention : 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.

Connexion du cordon d'alimentation

⚠ **Attention :** 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.

⚠ **Attention :** 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.

⚠ **Attention :** 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:

⚠ **Attention :** 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. Veillez 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.

Bloc-batterie

⚠ Attention -Les unités Sun StorEdge A1000 contiennent une batterie étanche au plomb (produits énergétiques portatifs n°TLC02V50). Il existe un risque d'explosion si ce bloc-batterie est manipulé de façon erronée ou mal mis en place. Ne remplacez ce bloc que par un bloc-batterie Sun Microsystems du même type. Ne le démontez pas et n'essayez pas de le recharger hors du système. Ne faites pas brûler la batterie mais mettez-la au rebut conformément aux réglementations locales en vigueur.

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.

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 los 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.

Precaución – 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 sobrecalentamien-tos 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.

Conexión del cable de alimentación eléctrica

Precaución – 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.

Precaución – 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.

Precaución – 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":

Precaución – 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.

Paquete de pilas

Precaución: las unidades Sun StorEdge A1000 contienen una pila de plomo sellada, Productos de energía portátil nº TLC02V50. Existe riesgo de estallido si el paquete de pilas se maneja sin cuidado o se sustituye de manera indebida. Las pilas sólo deben sustituirse por el mismo tipo de paquete de pilas de Sun Microsystems. No las desmonte ni intente recargarlas fuera del sistema. No arroje las pilas al fuego. Deséchelas siguiendo el método indicado por las disposiciones vigentes.

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.

GOST-R Certification Mark

Z001

Contents

Preface

The *Sun™ StorEdge™ A1000 and D1000 Installation, Operations, and Service Manual* provides installation and configuration information and service procedures to customers and service personnel for the Sun StorEdge A1000 and D1000 systems. These instructions are designed for an experienced system administrator.

Using UNIX Commands

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

See one or more of the following for this information:

- *Solaris 2.x Handbook for SMCC Peripherals*
- AnswerBook™ online documentation for the Solaris™ 2.x software environment
- Other software documentation that you received with your system

Typographic Conventions

TABLE P-1   Typographic Conventions

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

Shell Prompts

TABLE P-2   Shell Prompts

Shell	Prompt
C shell	*machine_name*`%`
C shell superuser	*machine_name*`#`
Bourne shell and Korn shell	`$`
Bourne shell and Korn shell superuser	`#`

Related Documentation

TABLE P-3   Related Documentation

Application	Title	Part Number
RAID Installation	*RAID Manager 6.1.1 Installation and Support Guide for Solaris*	805-4058-10
RAID User Guide	*RAID Manager 6.1.1 User's Guide*	805-4057-10
RAID Release Notes	*Sun StorEdge A1000 Product Release Notes*	805-3656-10
Hot-plug Instructions	*Sun StorEdge D1000 Storage Guide*	805-4013-10

Ordering Sun Documents

SunDocs^{SM} is a distribution program for Sun Microsystems technical documentation. Contact SunExpress for easy ordering and quick delivery. You can find a listing of available Sun documentation on the World Wide Web.

TABLE P-4   SunExpress Contact Information

Country	Telephone	Fax
Belgium	02-720-09-09	02-725-88-50
Canada	1-800-873-7869	1-800-944-0661
France	0800-90-61-57	0800-90-61-58
Germany	01-30-81-61-91	01-30-81-61-92
Holland	06-022-34-45	06-022-34-46
Japan	0120-33-9096	0120-33-9097
Luxembourg	32-2-720-09-09	32-2-725-88-50
Sweden	020-79-57-26	020-79-57-27
Switzerland	0800-55-19-26	0800-55-19-27

TABLE P-4   SunExpress Contact Information

United Kingdom	0800-89-88-88	0800-89-88-87
United States	1-800-873-7869	1-800-944-0661

World Wide Web: `http://www.sun.com/sunexpress/`

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You can email or fax your comments to us. Please include the part number of your document in the subject line of your email or fax message.

- Email: `smcc-docs@sun.com`

Getting Started

The Sun StorEdge A1000 and D1000 systems are made up of a chassis, dual power supplies, dual cooling canisters, the controller module and from 4 to 12 hot-pluggable, UltraSCSI hard disk drives. Both the A1000 and D1000 units may be used on the desktop.

This chapter provides instructions on how to prepare the area, connect the cables and power on the system.

SCSI Host Adapters

You must use one of two host adapter boards available from Sun, depending on your host system's requirements:

- For SBus based hosts — SBus to differential UltraSCSI adapter, UDWIS/S Model X1065A
- For PCI based hosts — PCI to dual differential UltraSCSI adapter, Model X6541A

Before You Begin

Make sure you do the following before you install the system:

1. **Read the Product Notes, if any, for updated product information.**

Information contained in the Product Notes may affect your installation.

2. **Prepare the site for the installation, including determining site power and sizing requirements.**

   Refer to Appendix A for power, size, and weight statistics.

3. **Halt operations and power off your host system.**

   Refer to your host system documentation for instructions on powering off the system.

4. **Install either an SBus wide intelligent UltraSCSI differential (UDWIS/S) or a PCI adapter card into your host system.**

   Refer to the documentation that shipped with the adapter card for installation instructions.

5. **Have other documents available during the installation.**

   ■ Software documents (available on the system CD)

6. **Decide which configuration to use.**

Sun StorEdge A1000 Configurations

You can use the Sun StorEdge A1000 Hardware RAID controller as a single unit connected to one or more hosts, or connect up to ten units together in a chain. For optimal performance, chain only three Sun StorEdge A1000 units together.

See FIGURE 1-1 and FIGURE 1-2.
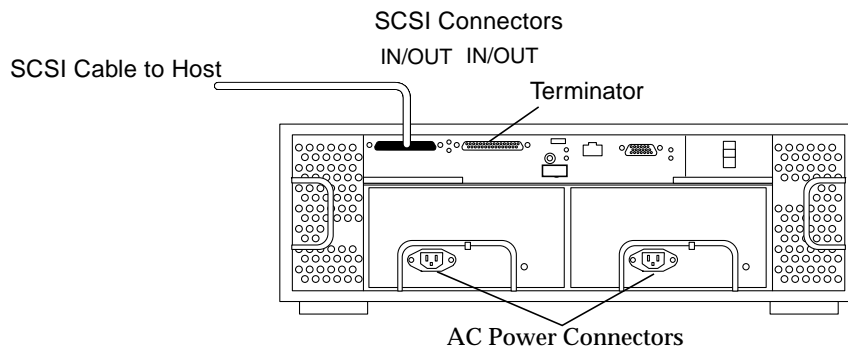
FIGURE 1-1   Single Sun StorEdge A1000 Connected to a Single Host
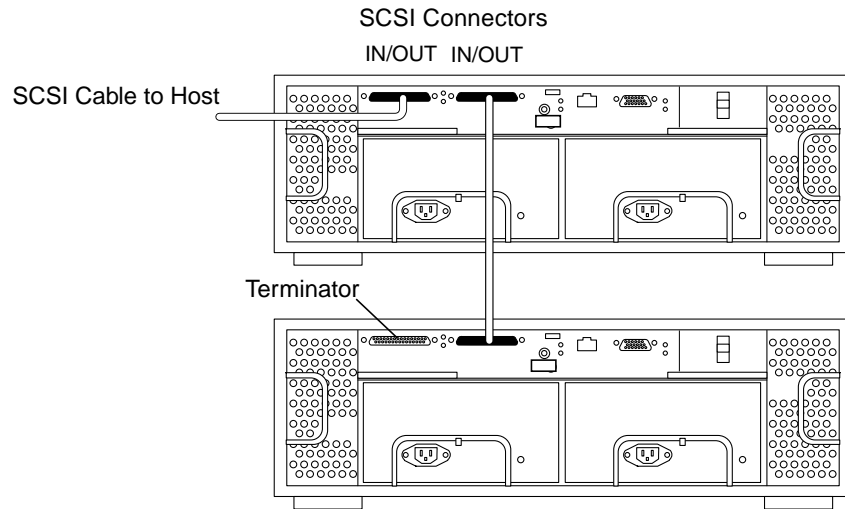
FIGURE 1-2　A Sun StorEdge A1000 in a Chained Configuration

Sun StorEdge D1000 Configurations

You can use the Sun StorEdge D1000 unit in several different configurations.

- As a single box of disks attached to a single host (FIGURE 1-3)
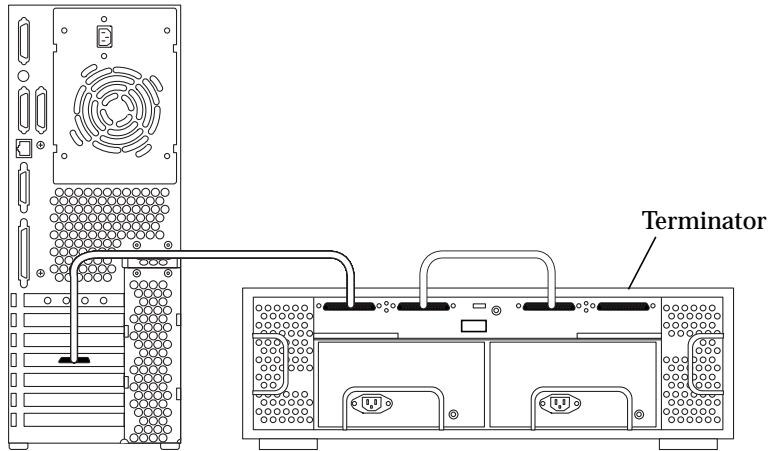
FIGURE 1-3   A Single Sun StorEdge D1000 Connected to a Single Host
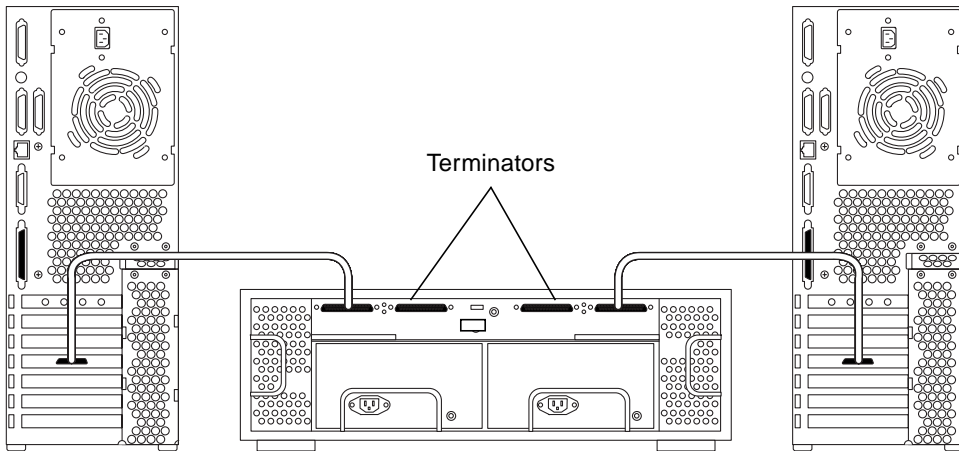
FIGURE 1-4   A Single Sun StorEdge D1000 Split Between Two Hosts

- A single unit split between two hosts, where each host has access to half the disks (FIGURE 1-4).

Preparing and Installing the System

You must perform the following tasks to prepare and install your Sun StorEdge A1000 or D1000 system.

1. **Set up your Sun StorEdge A1000 or D1000 with the mounting hardware, if any, that came with your system.**

2. **Determine which SCSI target addresses are available on your host system.**

   Refer to the *Solaris Handbook for SMCC Peripherals* available on the *Solaris AnswerBook* on-line documentation for information on how to determine which SCSI target IDs are already in use.

Installing the System

1. **Set the target addresses for your system (A1000 hardware RAID controller).**
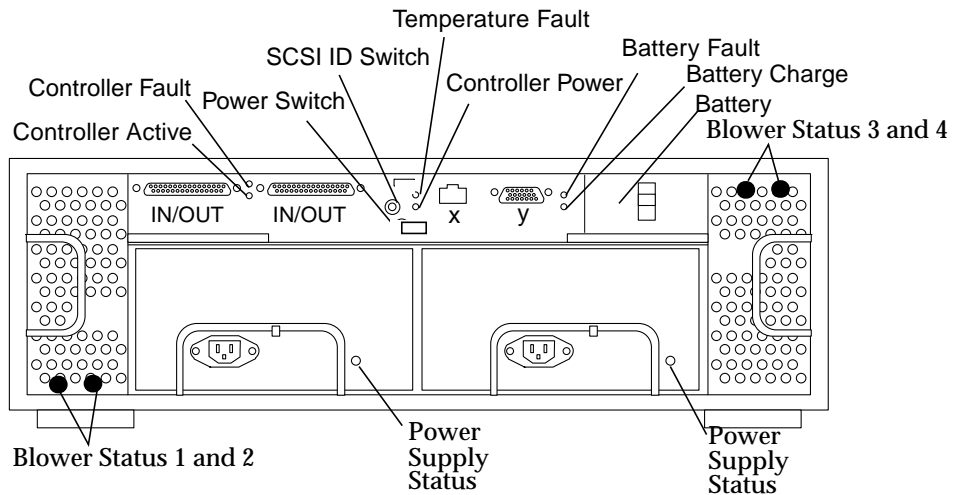
Note: x = 10Base-T Ethernet (reserved for factory or future use)
      y = RS232C port (reserved for factory or future use)

FIGURE 1-5   Sun StorEdge A1000 Rear View

2. **Set the option switch (D1000).**

   See FIGURE 2-7 or FIGURE 2-8 for split box configurations.

Temperature Fault
Controller Power
Option Switch
Power Switch
Module ID Blower Status 3and 4

IN/OUT-1   IN/OUT-1   IN/OUT -2   IN/OUT -2

Blower Status 1 and 2

Power
Supply
Status

Power
Supply
Status
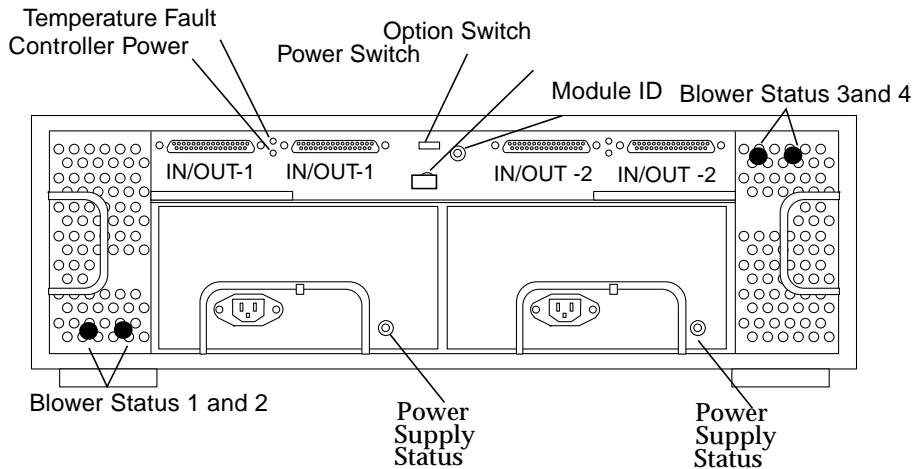
FIGURE 1-6   Sun StorEdge D1000 Rear View

3. Connect the cables and power cords.

Use only UltraSCSI cables.

4. Install one or more terminators, depending on the configuration you have chosen.

5. Turn on the power to the Sun StorEdge A1000 or D1000 system and the host system.

6. Install any additional software.

Note – For the Sun StorEdge A1000 you must use RAID Manager 6.1.1, which comes with your unit.

Product Overview

This chapter describes the controller module and other system components, except the hard drives. For information on the drives, refer to the documents that you received with them.

System Hardware

The system comes in two basic configurations:

- A1000 unit — Hardware RAID controller based configuration
- D1000 unit — "Just a Bunch of Disks" (JBOD) configuration

Sun StorEdge A1000 Hardware RAID System

The system chassis houses several removable devices, including:

- Sun StorEdge A1000 Hardware RAID Controller Module
- Two power supplies
- Battery
- Dual cooling canisters
- Disk drives

Components at the Front of the Unit
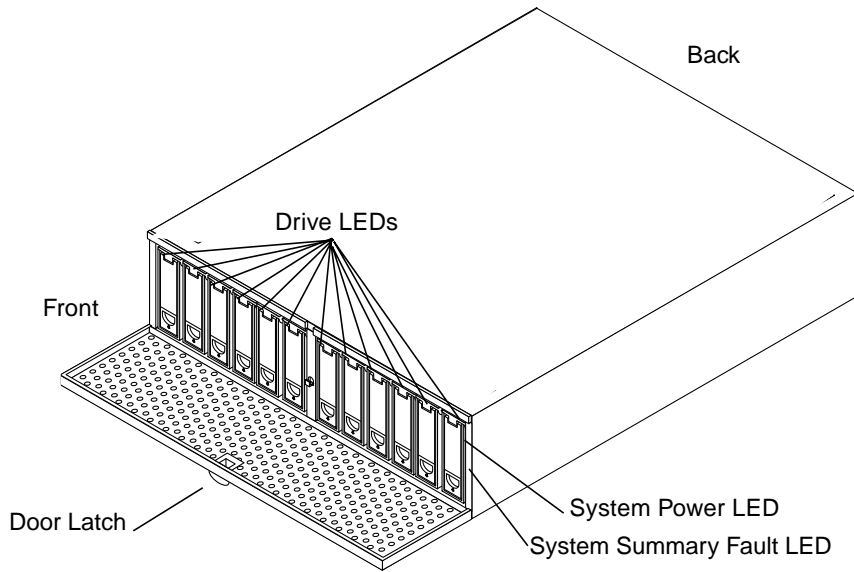
FIGURE 2-1   Sun StorEdge A1000 Front — An Example of a Twelve 1-inch Drive System

Front Door

The lockable front door opens to allow access to the hard disk drives. The door keys are in the ship kit pouch.

The system backplane for the hard disk drives can accept up to eight 1.6-inch drives or twelve 1-inch drives.

LEDs on the Front (FIGURE 2-1)

- System Power LED: lights green when the system is powered on.
- System Summary Fault LED: lights amber when a system component, such as a disk, cooling canister or a power supply, needs service.
- Each slot for a hard disk drive has a two-color LED above the disk drive. The LED:
  - Remains unlit when no drive is in the slot
  - Lights green when the drive is present but not active

- Flashes green when the drive in the slot is active
- Lights amber when the drive has been marked as failed by the A1000 controller

Components at the Back of the Unit

At the rear of the A1000 system are two power supplies, two cooling canisters with two blowers each, a battery, two 68-pin connectors for the host SCSI bus, a SCSI ID switch and a locking power switch.

Power Switch

The Sun StorEdge A1000 system has one rocker power switch to control both power supplies (FIGURE 2-3).

- Right — Momentary ON position |, either or both power supplies provide power to the system
- Center — Neutral position, when the switch is released from the ON position, the switch settles into the Neutral position and the power supplies remain on.
- Left — Standby Position, neither power supply provides power.

Caution – Turning the power switch to the Standby position does not completely cut off power to the system. AC input to each power supply is still connected to the electrical outlet until the power cord is unplugged.

Standby   Neutral   Momentary On
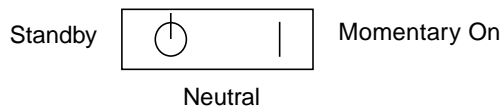
FIGURE 2-2 Power Switch

SCSI ID Switch

The A1000 configuration has one SCSI ID switch for selecting the controller SCSI target address, from 0 to 15.

Battery

The Sun StorEdge A1000 system has a data cache hold-up battery in the hardware RAID controller board. During a power outage, a properly charged battery will maintain electrical power to the controller's data cache memory for up to three days. Thus, all data stored in data cache memory will be preserved as long as the battery can sustain power to the data cache memory. The battery is self recharging with the power on and is replaceable, after a two-year life, without removing any other modules.

- The "Caution" label contains weight and length information for safe removal and and installation purposes.
- The "Battery Support Information" label contains three dates for maintenance purposes.

Note: x = 10Base-T Ethernet (reserved for factory or future use)
y = RS232C port (reserved for factory or future use)

FIGURE 2-3   Sun StorEdge A1000 Rear View

LEDs on the Back

- Power Supply Status, one two-color LED on each power module:
  - Lights green when the power supply is operating properly
  - Lights amber when the power supply has failed but the other power supply is operating normally, or if the power cord is unplugged
  - Off if both power supplies are not plugged in or have failed

- Cooling Canister Status, 2 two-color LEDs on each cooling canister (one for each blower):
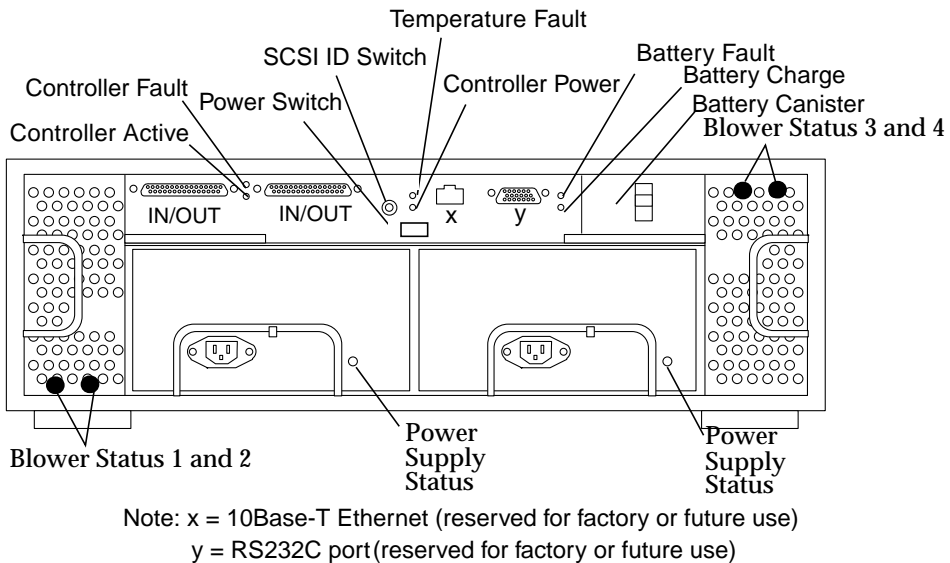 - lights green when the individual blower is operating properly
  - lights amber when the individual blower has failed
  - Off when the cooling canister is not inserted

The A1000 controller has 6 single-color LEDS:

- Controller Fault
  - Lights amber when a controller fault is detected
  - Off when the controller functions normally
- Controller Activity :
  - Lights green when the controller is active
  - Off when the controller is inactive
- Temperature Fault
  - Lights amber when the controller board is over normal operating temperature
  - Off when the controller temperature is normal
- Controller Power
  - Lights green when the controller board is powered on
  - Off when it receives no power
- Battery Fault
  - Lights amber when there is no battery or there is a battery fault
  - Off when the battery is fully charged
- Battery Charge:
  - Lights solid green when the battery is fast charging
  - Flashes green when the battery is in the pre-charging phase
  - Off when the battery is not charging

Power Modules

The Sun StorEdge A1000 system has two hot-pluggable and interchangeable power supplies. The two power supplies provide power to the internal components, converting incoming AC voltage to DC voltages. These are redundant power supplies—one power supply will maintain electrical power to the system if the other power supply fails. Both power supplies are removable canisters that slide into one of two slots on the back of the system. Each canister has a locking handle, a power status LED, and an AC power cord connector.

Cooling System

The Sun StorEdge A1000 system has two cooling canisters. Each contains two blowers. The cooling canisters are hot-pluggable and interchangeable.

The Sun StorEdge A1000 system can operate fully cooled with three of the four blowers functioning. If two blowers fail, the remaining two can maintain the system in a 30C environment, but the reliability of the components may be affected.

The blower speeds are variable and increase their speed to counteract unusual cooling conditions, such as one failed blower or increased internal temperature.

Caution – Do not operate the system for extended periods with one or more redundant modules not installed. The cooling system will become inefficient.

Disk Drives

For specific information about the drives installed in your system, see the separate drive documentation that comes with your system.

Disk Drive Address ID Assignments

Each drive bay is assigned an address ID. T

Sun StorEdge A1000

In a Sun StorEdge A1000, the RAID Manager software identifies the drives as follows:

- 8-drive system
  [2,0] [2,1] [2,2] [2,3] and [1,0] [1,1] [1,2] [1,3]
- 12-drive system (default)
  [2,0] [2,1] [2,2] [2,3] [2,4] [2,5] and [1,0] [1,1] [1,2] [1,3] [1,4] [1,5]

Dummy Drives

If you ordered a system with less than the maximum number of disk drives, dummy drives fill the holes for the emply slots. The dummy drives are air baffles; they allow the system to maintain maximum cooling. If any slot does not contain a disk drive, you must fill the slot with a dummy drive so the unit will cool properly.

Sun StorEdge A1000 Hardware RAID Controller Module

The Sun StorEdge A1000 hardware RAID controller module is a compact unit designed to provide high-performance disk array management services. The controller module supports dual SCSI hosts on a 16-bit SCSI-2 bus. There are 2 SCSI controllers inside the controller module that manage data distribution and storage for up to 12 disk drives. The controllers perform system status and fault detection functions as well. RAID 6.1.1 allows the user to reset the disk array in different RAID configurations.

The Sun StorEdge A1000 controller module comes with two 4MB Single Inline Memory Modules (SIMMs) for program memory and two 8MB SIMMs for data cache memory installed and two UltraSCSI connectors (68-pin) for the host connection. *Data cache memory* is a memory buffer on the controller used to support the Write Cache feature of RAID Manager, the disk array management software.

The standard configuration contains 24 MB of DRAM, upgradable to 80 MB DRAM. See "SIMM Upgrade Procedure (A1000 only)" on page 30.

Sun StorEdge A1000 Software

The firmware for your Sun StorEdge A1000 Hardware RAID Controller is installed at the factory. The RAID Manager 6.1.1 software is shipped with your system and runs on the host system. It allows you to configure the system for RAID functionality.

The Sun StorEdge D1000 Unit

The system chassis houses several removable devices, including:

- D1000 controller interface board, providing two independent USCSI bus connections
- Dual power supplies
- Dual cooling canisters
- Disk drives

Components at the Front of the Unit
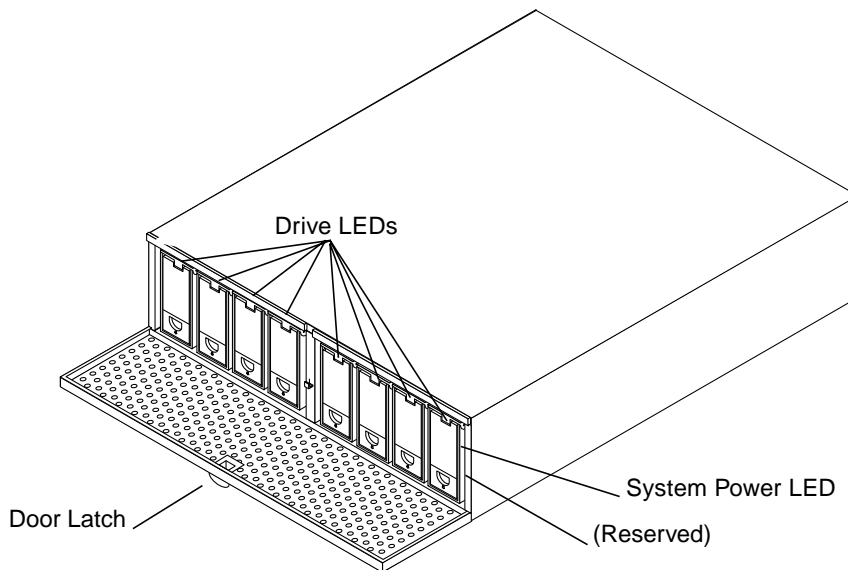
FIGURE 2-4   Sun StorEdge D1000 Front — An Example of a Eight 1.6-inch Drive System

Front Door

The lockable front door opens to allow access to the hard disk drives. The door keys are in the ship kit pouch.

The system backplane for the hard disk drives can accept up to eight 1.6-inch drives or twelve 1-inch drives.

LEDs on the Front

- System Power LED: lights green when the system is powered on.
- Each slot for a hard disk drive has a two-color LED above the disk drive. The LED:
  - Remains unlit when no drive is in the slot
  - Lights green when the drive is present but not active
  - Flashes green when the drive in the slot is active

Components at the Back of the Unit
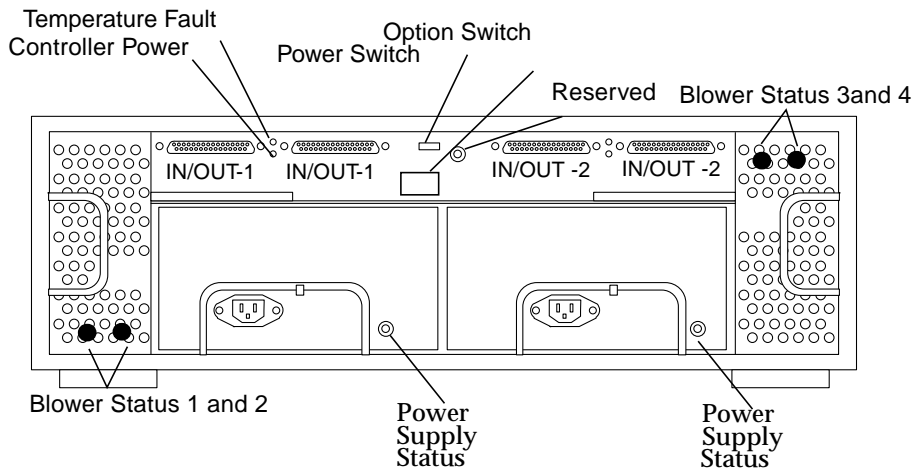
FIGURE 2-5 Sun StorEdge D1000 Rear View

At the rear of the D1000 system are two power supplies, two cooling canisters with two blowers each, four 68-pin connectors for the host SCSI buses, and a rocker power switch.

Power Switch

The Sun StorEdge D1000 system has one rocker power switch to control both power supplies (FIGURE 2-3).

- Right — Momentary ON position |, either or both power supplies provide power to the system
- Center — Neutral position, when the switch is released from the ON position, the switch settles into the Neutral position and the power supplies remain on.
- Left — Standby Position, neither power supply provides power.

⚠ **Caution –** Turning the power switch to the Standby position does not completely cut off power to the system. AC input to each power supply is still connected to the electrical outlet until the power cord is unplugged.

Standby | ⏻ | | Momentary On

Neutral
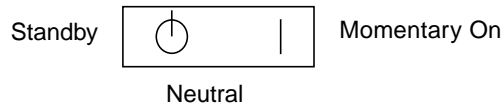
FIGURE 2-6 Power Switch

Option Switch

1. Disk Array 1 ID (FIGURE 2-7 for the 12-slot and FIGURE 2-8 for the 8-slot)
   - Up: 8–11 or 8–13 (factory default)
   - Down: 0–3 or 0–5

2. Disk Array 2 ID (FIGURE 2-7 for the 12-slot and FIGURE 2-8 for the 8-slot)
   - Up: 8–11 or 8–13
   - Down: 0–3 or 0–5 (factory default)

3. Drives Remote Start
   - Up: wait for SCSI command (factory default)
   - Down: check switch 4

4. Drives Delayed Start
   - Up: start with (12 x SCSI device ID number) seconds delay (factory default)
   - Down: start at power-on

5. Reserved (No function)
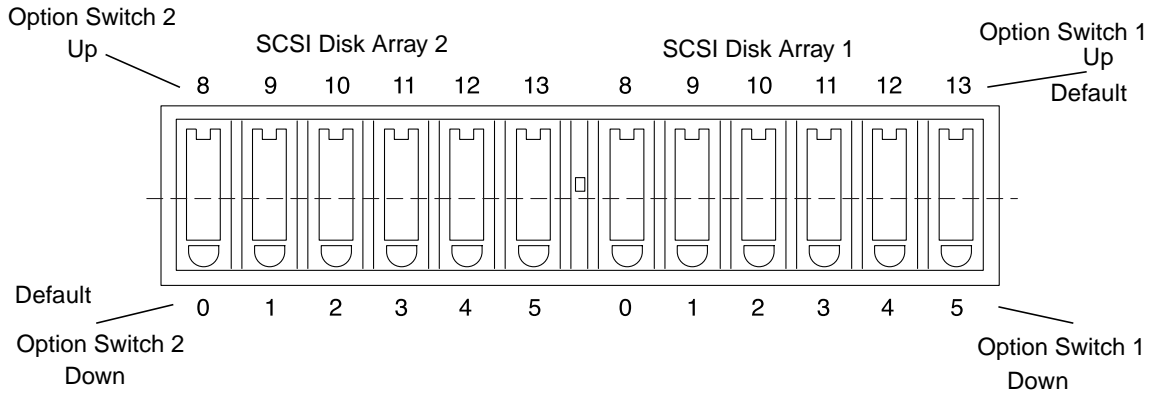
FIGURE 2-7 Sun StorEdge D1000 SCSI Disk ID Address Assignment —12-drive system
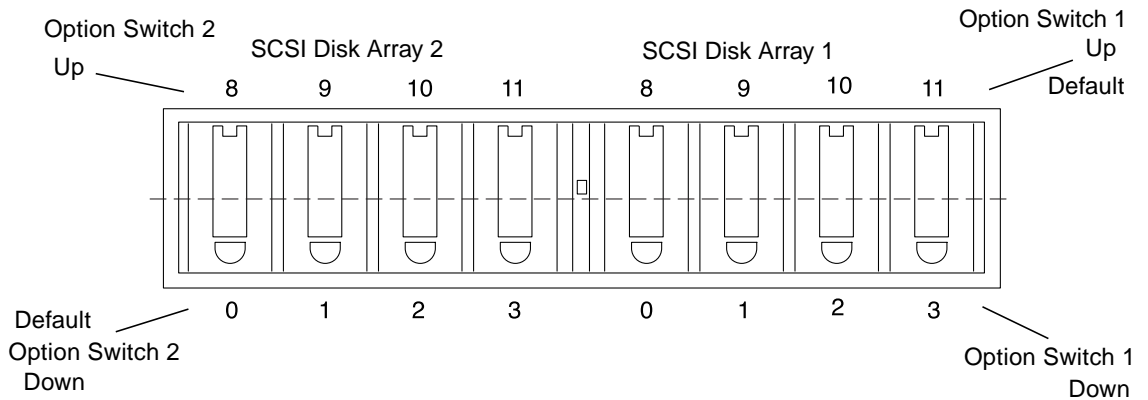
FIGURE 2-8 Sun StorEdge D1000 SCSI Disk ID Address Assignment —8-drive system

LEDs on the Back

- Power Supply Status, one two-color LED on each power module:
  - Lights green when the power supply is operating properly
  - Lights amber when the power supply has failed but the other power supply is operating normally, or when the power cord is unplugged
  - Off if both power supplies are not plugged in or have failed
- Cooling Status, 2 two-color LEDs on each cooling canister (one for each blower):
  - lights green when the individual blower is operating properly
  - lights amber when the individual blower has failed
  - Off when the cooling canister is not inserted

The D1000 controller interface board has 2 single-color LEDS.

- The Temperature Fault LED
  - Lights amber when the board has detected a thermal fault
  - Off when the temperature is normal
- The Controller Interface BoardPower LED
  - Lights green when the controller interface board is powered on
  - Off when the controller interface board is receiving no power

Power Modules

The Sun StorEdge D1000 system has two hot-pluggable and interchangeable power supplies. Two DC power supplies in the chassis provide power to the internal components, converting incoming AC voltage to DC voltages. These are redundant power supplies—one power supply will maintain electrical power to the system if the other power supply fails. Both power supplies are removable canisters that slide into one of two slots on the back of the system. Each canister has a locking handle, a power status LED, and an AC power cord connector.

Cooling System

The Sun StorEdge D1000 system has two cooling canisters. Each contains two blowers. The cooling canisters are hot-pluggable and interchangeable.

The D1000 system can operate fully cooled with three of the four blowers functioning. If two blowers fail, the remaining two can maintain the system in a 30C environment, but the reliability of the components may be affected.

The blower speeds are variable and increase their speed to counteract unusual cooling conditions, such as one failed blower or increased internal temperature.

⚠

Caution – Do not operate the system for extended periods with one or more redundant modules not installed. The cooling system will become inefficient.

Disk Drives

See the documentation that comes with your system for information about the drives installed in your system.

Sun StorEdge D1000

In a Sun StorEdge D1000, the Unix File System software identifies the drives as follows:

- 8-drive system (default switch setting)
  (where `t` is the drive number)
  `cxt0dxsx, cxt1dxsx, cxt2dxsx, cxt3cxsx` and
  `cxt8dxsx, cxt9dxsx, cxt10dxsx, cxt11dxsx`

- 12-drive system (default switch setting)
  (where `t` is the drive number)
  `cxt0dxsx, cxt1dxsx, cxt2dxsx, cxt3cxsx, cxt4cxsx, cxt5cxsx` and
  `cxt8dxsx, cxt9dxsx, cxt10dxsx, cxt11dxsx, cxt12cxsx,`
  `cxt13cxsx`

Dummy Drives

If you ordered a system with less than the maximum number of disk drives, dummy drives fill the holes for the emply slots. The dummy drives are air baffles; they allow the system to maintain maximum cooling. If any slot does not contain a disk drive, you must fill the slot with a dummy drive so the unit will cool properly.

Sun StorEdge D1000 Software Considerations

The Sun StorEdge D1000 may be used as simply additional disk storage for an existing host system; it may be used in conjunction with Veritas™ VxVm in a RAID based system. See the Veritas software user's guide on your system CD. A Veritas VxVm license can be obtained from Sun.

Removing and Replacing Components

The Sun StorEdge A1000 and D1000 systems contain easy access components, some of which are hot-pluggable and some of which must be replaced with the power off.

Hot-pluggable Parts

- Hard Disk Drives
- Cooling Canisters
- Power Supplies

Replaceable with Power Off

- Sun StorEdge D1000 controller board
- Sun StorEdge A1000 controller board
- Sun StorEdge A1000 Battery
- Sun StorEdge A1000 SIMMs

Replacing Hot-Pluggable Parts

Hard Disk Drives

The Sun StorEdge A1000 or D1000 system you ordered comes configured with either 1.6-inch drives or one-inch drives. The procedure for removing and replacing the drives differs only in the software you use to control the disks. In all cases the hard disks are hot-pluggable.

▼ To Remove a Disk Drive

1. **Be sure there is no activity to the drives and prepare the software environment.**

   See the documentation that came with your software.

   - Instructions for hot plugging or unplugging a disk in the Sun StorEdge A1000 system are in RAID Manager 6.1.1 documentation.
   - Instructions for hot plugging or unplugging a disk in the Sun StorEdge D1000 system are in Sun StorEdge D1000 Storage Guide.

Arrow
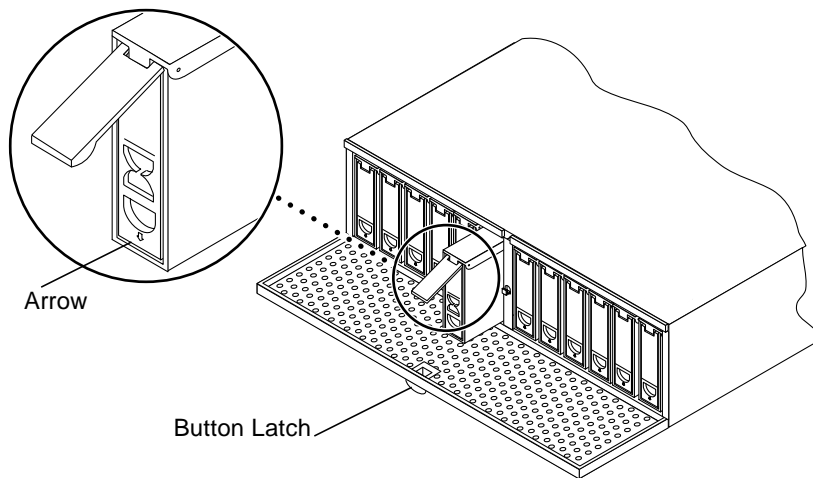
Button Latch

FIGURE 3-1 Removing and Replacing a Disk Drive

2. **Unlock and open the door at the front of the chassis.**

   Push down the button latch at the center of the door (FIGURE 3-1).

3. **Unlatch the drive bracket handle to release it (**<small>FIGURE</small> 3-1**).**

   Push down in the direction of the arrow to release the latch.

4. **Pull the bracket handle out and swing it open.**

5. **Continue to pivot the disk drive bracket handle against the chassis, applying mild pressure until the drive disconnects.**

6. **Slide the drive out**

▼ To Replace a Disk Drive

1. **Hold the locking handle on the disk drive open (**<small>FIGURE</small> 3-1**).**

2. **Slide the replacement disk drive into the vacant slot.**

3. **Gently push the drive until the locking handle engages.**

4. **Close the locking handle handle completely, using gentle downward pressure.**

Cooling Canisters

The Sun StorEdge A1000 or D1000 comes with two cooling canisters, each of which contains two blowers. If any of the blowers fails, the LED on the back of the system lights amber, indicating which blower has failed. To replace a blower, replace the entire canister.

Cooling Canister Locking Handles   Cooling Canister Locking Handles

Power Supply Locking Handles
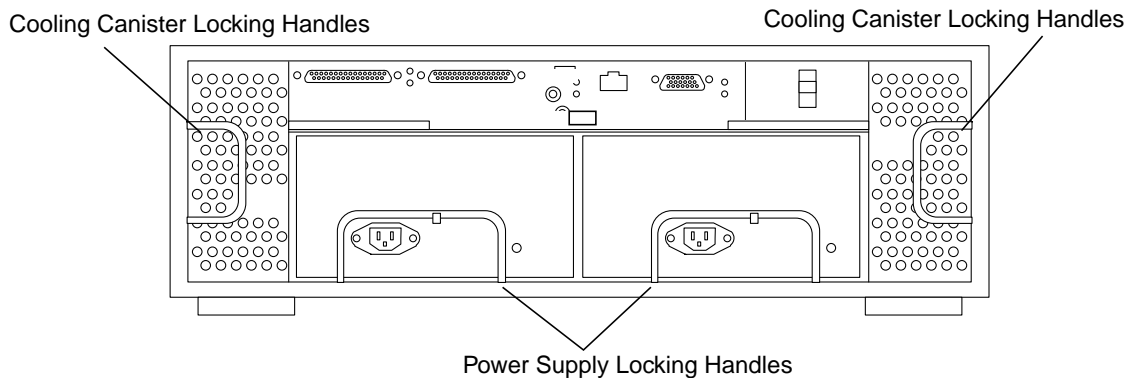
FIGURE 3-2   Rear of Sun StorEdge A1000 System

▼ To Remove and Replace a Cooling Canister

1. Release the locking handle and pull the cooling canister out (FIGURE 3-2 **and** FIGURE 3-3**).**
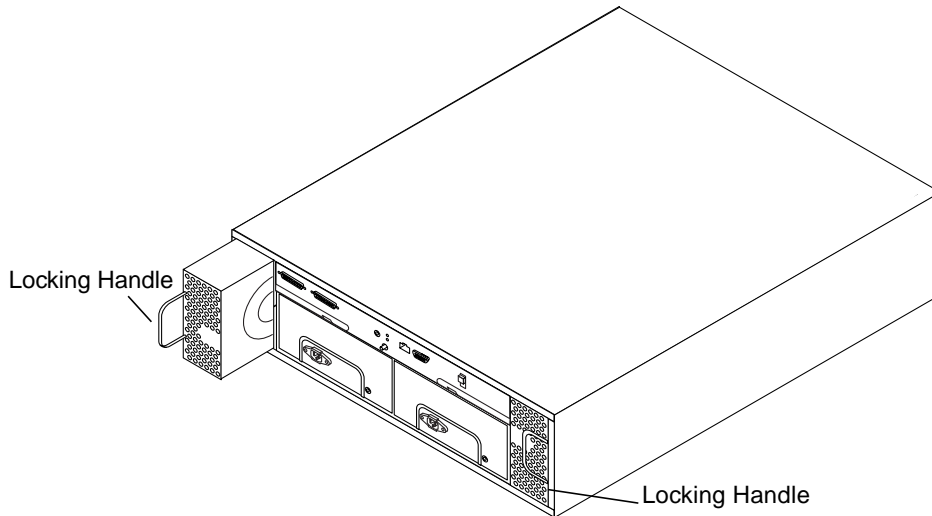
FIGURE 3-3 Removing and Replacing a Cooling Canister

2. Orient the new cooling canister so that the round intake holes face inward and the locking handle is on the outside edge of the canister on each side.

The locking handle should face inward when it is closed.

3. Slide the new cooling canister into the slot and push it until it engages.

The LEDs for the cooling canister light green when the connector is properly engaged.

4. Close the locking handle.

Power Supplies

The Sun StorEdge A1000 or D1000 enclosure comes with two power supplies. The LED on the power supply lights amber when the power supply fails. Although the system can run well with only one power supply, the faulty one should be replaced in case the good one goes bad. You can replace a failed or failing power supply without turning the system off.

▼ To Replace a Power Supply

1. **Disconnect the power cord from the power supply you intend to replace.**

   You cannot remove the power supply without first disconnecting the power cord. See FIGURE 3-2. and FIGURE 3-3 for the positions of the power connector and locking handle.
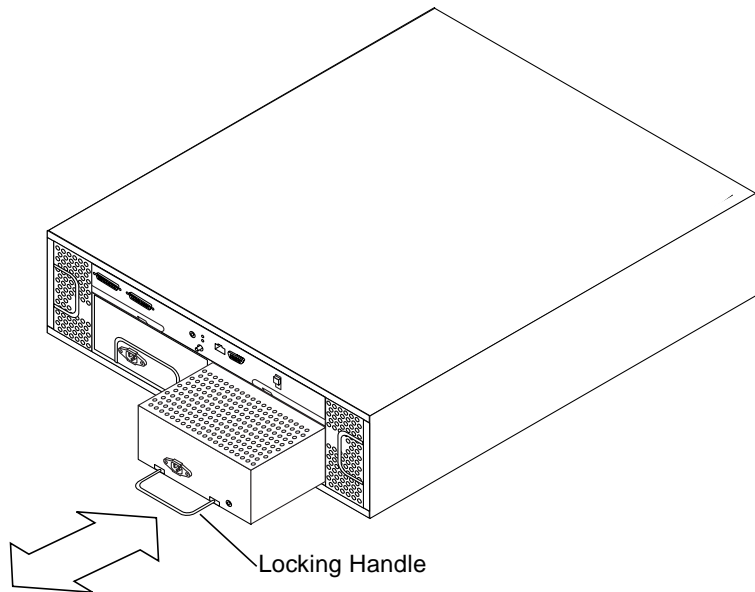

Locking Handle

FIGURE 3-4   Removing and Replacing a Power Supply

2. **Pull the locking handle down and slide the power supply out of the bay** (FIGURE 3-4**).**

3. **Slide the new power supply into the bay.**

   Small rails on the power supply base fit into cut-outs in the chassis.

4. **Push firmly until the power supply connector engages.**

5. **With the locking handle in the closed (up) position, connect the power cord.**

   The LED for the power supply should light green.

Replacing Parts with the Power Off

Controller Board

You must turn off the power to replace the controller board in either the Sun StorEdge A1000 and D1000 versions of the system.

▼ To Remove the Controller Board

1. **Stop the software communication with the Sun StorEdge A1000 or D1000 system.**

   See the documentation that came with your software.

2. **Turn off the power to the system.**

   Push the power switch to the standby position. Press the left side of the switch.

3. **Remove the SCSI cables and terminators on the controller board.**

4. **Attach an antistatic wrist strap to the exposed metal part of the chassis at the center post between the power supply bays.**
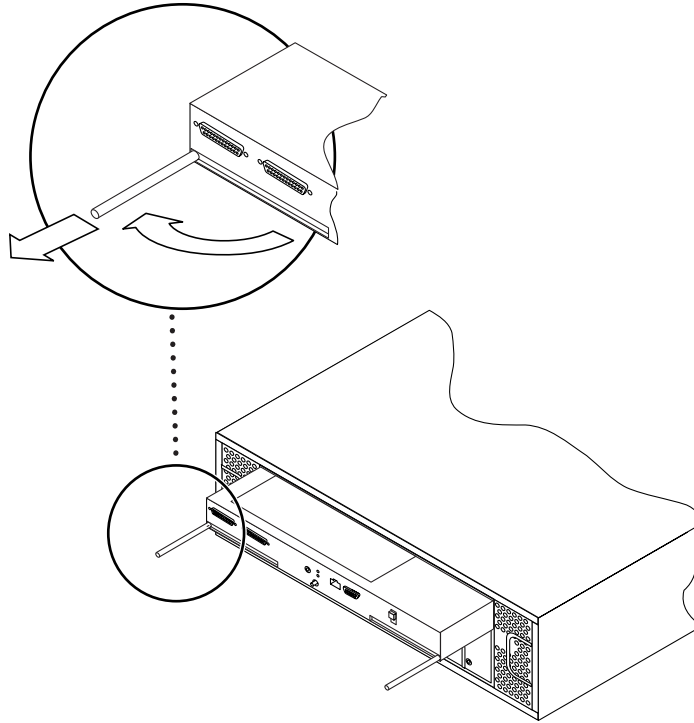
FIGURE 3-5 Controller Board Levers

5. Slide the controller board canister out and set it on an antistatic mat.

    a. Use the levers at each side to release the controller board.

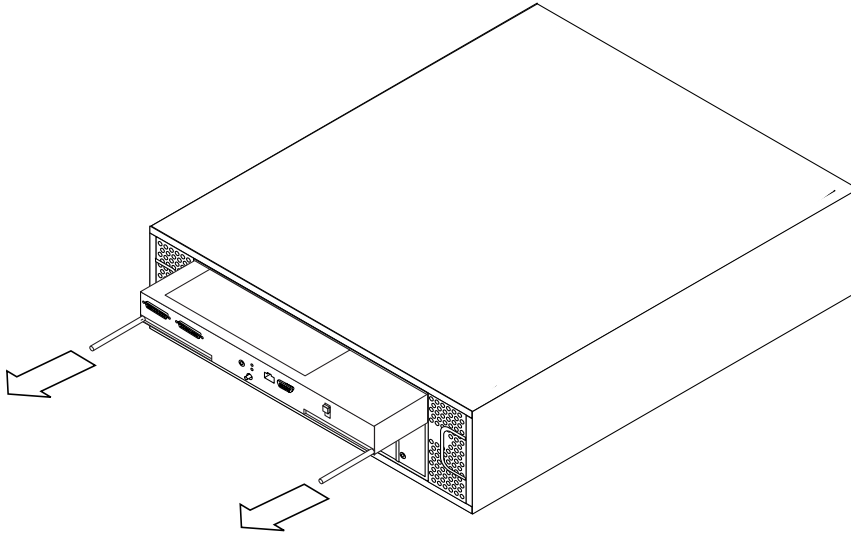   **b. Hold the levers to slide the canister out.**

FIGURE 3-6   Removing the Controller Board

▼ To Replace the Controller Board

1. **Slide the replacement controller board in its canister into the slot in the chassis.**

   The top of the canister has rails that fit into guide hooks in the chassis.

2. **Push firmly until the controller board connector engages.**

3. **Push both handles inward until they are flush with the canister.**

4. **Connect the cables and remove the antistatic strap.**

5. **Turn the power on.**

   Push the power switch to the momentary on position (right side) and then release it.

Battery (A1000 Only)

You must turn off the power to replace the battery. Note all the cautions and warnings in this chapter and the safety information at the front of the book.

▼ To Replace the Battery

Replace the battery only with the same type of Sun Microsystems battery.

1. **Locate the battery on the back of the unit. See** FIGURE 3-2.
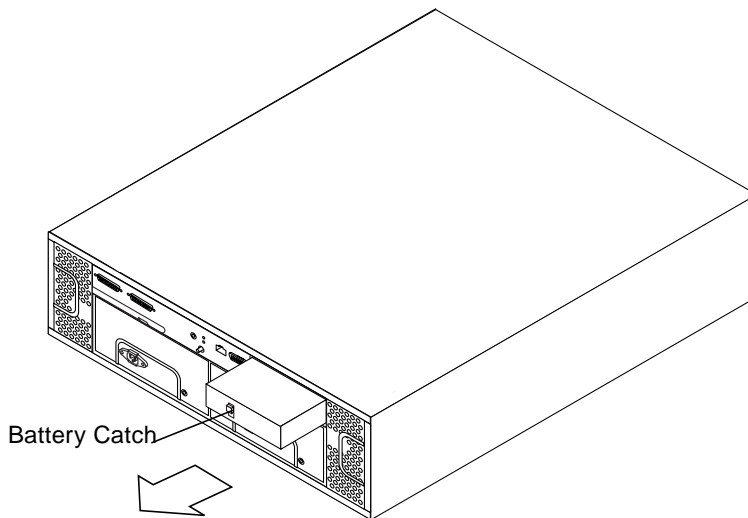
FIGURE 3-7   Removing the Battery

2. **Push down the catch on the outside of the battery.**

3. **Pull the battery out.**

> **Caution –** There is a sealed lead acid battery in Sun StorEdge A1000 units. There is danger of explosion if the battery pack is mishandled or incorrectly replaced.
> Replace only with the same type of Sun Microsystems battery pack.
> Dispose of the battery properly in accordance with local regulations. Do not mishandle it, disassemble it, or attempt to recharge it outside the system. Do not dispose of the battery in fire.
> If the used battery is physically damaged and is leaking electrolyte gel, do not process it for recycling. Manage damaged batteries according to your local regulations, which may include management as a hazardous waste.

4. **After properly disposing of the spent battery, slide the new one into the battery port in the controller board.**

   Be sure the battery is firmly seated.

SIMM Upgrade Procedure (A1000 only)

The following procedure provides instructions for upgrading the A1000 controller board from the factory configured 24 Mbytes to an 80 Mbyte system.

Caution – Be sure to have an antistatic wrist strap and mat ready for the SIMMs and the controller board.

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1. **Follow the procedure for removing the controller board from the system. See "To Remove the Controller Board."**
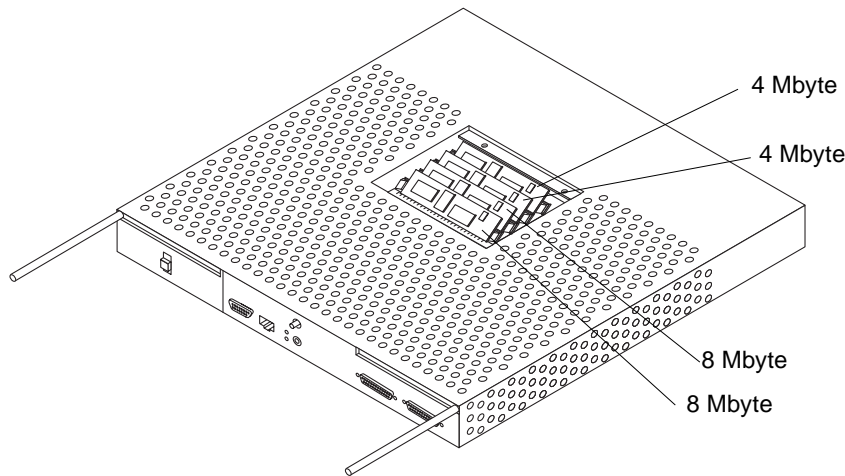
FIGURE 3-8   A1000 Controller—Fully populated with 8 Mbyte and 4 Mbyte SIMMs (factory configuration)

2. **Flip the controller canister over so you can see the SIMM cover.**

   See the orientation of the SCSI ports.

3. **Remove the two screws that hold the SIMM cover to the center of the controller canister and remove the cover.**

   This exposes the SIMMs (FIGURE 3-8).

4. **Attach the antistatic wrist strap to your wrist and an unpainted metal part of the chassis.**
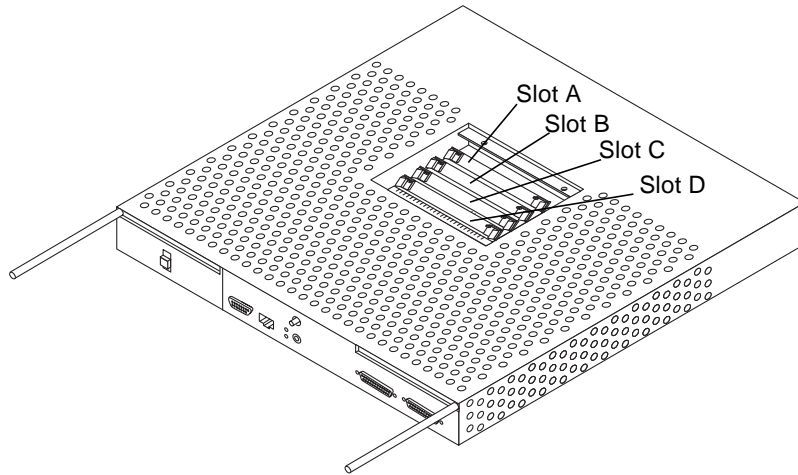
FIGURE 3-9   A1000 Controller—Empty SIMM slots

5. **Remove the SIMMs and set them on an antistatic mat.**

   Remove the SIMMs from front to back. Press the small latch on each side of the SIMM that releases it from the slot (FIGURE 3-10).

   a. **Remove first two SIMMs from slot D and slot C (**FIGURE 3-10**) and set them aside.**

      These are **8** Mbyte SIMMs. You will use these SIMMs later.

   b. **Remove the SIMMs from slot B and slot A (**FIGURE 3-9**).**

      These are the 4 Mbyte SIMMs which you can save for use in other hardware.

4 Mbyte SIMM (ICs on front side only)
8 Mbyte SIMM (ICs on both sides)

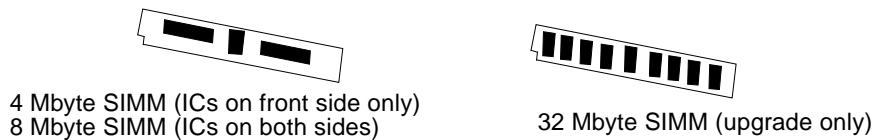32 Mbyte SIMM (upgrade only)

FIGURE 3-10   SIMMs

6. **Replace the 8 Mbyte SIMMs into slot A and slot B (**FIGURE 3-9**).**

   The SIMM is keyed and will fit only one way (notch in lower left corner) (FIGURE 3-10).

7. **Remove the two 32 Mbyte SIMMs from the antistatic packaging. Install them into slot C and slot D (**FIGURE 3-9**).**
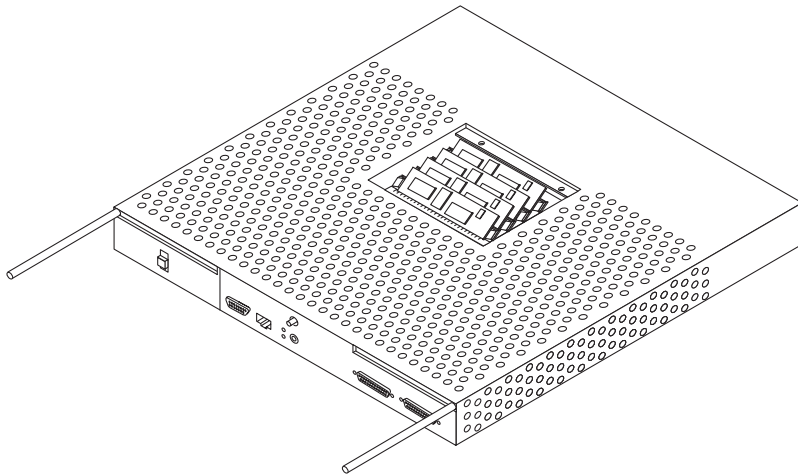
8. **Place the part number label supplied with the upgrade kit over the barcode label near the SIMM access door.**

   The new part number label correctly identifies your controller upgrade.

9. **Remove the antistatic strap and replace the lid to the canister.**

   Secure the screws.

10. **Replace the canister into the Sun StorEdge A1000 unit. See "To Replace the Controller Board."**

FIGURE 3-11 Sun StorEdge A1000—SIMM Upgrade

System Specifications

Physical Specifications

The outside measurements of the chassis are as follows:

- Width: 53.34 cm   (21.0 in)
- Depth: 44.7 cm   (17.6 in)
- Height: 17.78 cm   (7.0 in)
- Weight: A1000   without disk drives: 19.3 kg   (42.5 lbs)
                 fully loaded: 28.4 kg   (62.5 lbs)
           D1000   without disk drives: 18.6 kg   (41.0 lbs)
                 fully loaded: 27.4 kg   (60.5 lbs)

The unit's total weight depends on the number of components installed in the chassis.

Electrical Specifications

TABLE A-1   AC Power Requirements

Electrical Element	Requirement
Voltage	100 VAC to 240 VAC
Frequency	47 - 63 Hz
Idle	2.14 amps

TABLE A-1   AC Power Requirements

Electrical Element	Requirement
Max. Operating	2.6 amps
Max. Surge	22 amp peaks

[1]   Typical current ratings at 240 volts AC, 60 Hz. Assumes a
      0.70 power efficiency, 0.99 power factor.

Environmental Specifications

Table A-2   Environmental Requirements

Climate Control	Location	Minimum to Maximum Range
Temperature (dry bulb)	Operating	5˚C to 40˚C
	Storage	-20˚C to 60˚C
	Transit	-20˚C to 60˚C
Temperature Derating (max.)[1]	Operating	3.3˚C per 1000m (1.7˚F per 1000 ft) above sea level
Relative Humidity (non-condensing)	Operating	20% to 80%
	Storage	10% to 93%
	Transit	5% to 95%
Altitude (based on drives)	Operating	3 Km (100 ft) below to 3,048m (10,000 ft) above sea level
	Storage	30.5m (100 ft) below to 3,048m (10,000 ft) above sea level
	Transit	30.5m (100 ft) below to 12,000m (40,000 ft) above sea level
Heat Dissipation (maximum)	Operating	260 Watts, 1092 BTU per hour
Sound Power and Pressure	Operating	6.6 bels (power), 63.7 dBA (pressure)

1. If you plan to operate the controller module at altitudes between 1000m and 3000m (3280 ft and 9850 ft), you must lower the environmental temperature 3.3˚ C (1.7˚ F) for every 1000m (3280 ft) above sea level.