

Sun™ RSM Array™ 2000 Controller Module Installation Guide



THE NETWORK IS THE COMPUTER™

Sun Microsystems Computer Company

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

Part No.: 802-7602-11
Revision A, October 1997

Copyright 1997 Sun Microsystems, Inc., 901 San Antonio Road • Palo Alto, CA 94303 USA. All rights reserved.
Portions copyright 1997 Symbios Logic, Inc. All rights reserved.

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

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

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

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

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

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

Copyright 1997 Sun Microsystems, Inc., 901 San Antonio Road • Palo Alto, CA 94303 Etats-Unis. Tous droits réservés.
Des portions de ce produit sont protégées par un copyright (1997) de Symbios Logic, Inc. Tous droits réservés.

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

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

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

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

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



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  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。

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.

Lithium Battery



Caution – On the controller board, there is a lithium battery, SGS No. M48T18-100MHZ or M4T28-BR12SH1.. Batteries are not customer replaceable parts. They may explode if mishandled. Do not dispose of the battery in fire. Do not disassemble it or attempt to recharge it.

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.

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.



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.

Lithiumbatterie



Achtung – Auf der Controller-Karte befindet sich eine Lithiumbatterie (Teile-Nr. M48T18-100MHZ oder M4T28-BR12SH1). Diese Batterie darf nur von einem qualifizierten Servicetechniker ausgewechselt werden, da sie bei falscher Handhabung explodieren kann. Werfen Sie die Batterie nicht ins Feuer. Versuchen Sie auf keinen Fall, die Batterie auszubauen oder wiederaufzuladen.

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. Évitez 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. 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.

Batterie au lithium



Attention : la carte contrôleur contient une batterie au lithium SGS (référence M48T18-100MHZ ou M4T28-BR12SH.). a été moulée dans l'horloge temps réel SGS. Les batteries ne sont pas des pièces remplaçables par le client. Elles risquent d'exploser en cas de mauvais traitement. Ne pas jeter la batterie au feu. Ne pas la démonter ni tenter de la recharger.

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 sobrecalentamiento 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.

Batería de litio



Precaución – En la placa del controlador hay una batería de litio, tipo SGS Núm. M48T18-100MHZ o M4T28-BR12SH1. Las baterías no son elementos reemplazables por el propio cliente. Pueden explotar si se manipulan de forma errónea. No arroje las baterías al fuego. No las abra o intente recargarlas.

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



Nordic Lithium Battery Cautions

Norge



A D V A R S E L – Litiumbatteri — Eksplosjonsfare. Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten. Brukt batteri returneres apparatleverandøren.

Sverige



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

Danmark



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

Suomi



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

Contents

Installation 1

Before You Begin 1

 Installation Worksheet 2

Preparing the Expansion Cabinet and Drive Trays 4

▼ To Prepare the Expansion Cabinet 4

▼ To Set the Drive Tray and SEN Card SCSI IDs 4

Installing the Power Cords and Support Rails 6

▼ To Route the Power Cords 7

▼ To Install the Support Rails 8

Preparing the Controller Module 11

▼ To Remove the Canisters 11

▼ To Verify the Host SCSI IDs 16

Installing the Controller Module 18

▼ To Install the Controller Module 18

▼ To Connect the Cables 20

Completing the Installation 24

▼ To Power On the System 24

▼ To Configure the System 26

Index 27

Installation

This book provides instructions for installing the Sun™ RSM Array™ 2000 controller module into a 56-inch expansion cabinet. These step-by-step procedures will guide you through the entire installation process, beginning with cabinet preparation and ending with system record-keeping information.

- Before You Begin — page 1
- Preparing the Expansion Cabinet and Drive Trays — page 4
- Installing the Power Cords and Support Rails — page 6
- Preparing the Controller Module — page 11
- Installing the Controller Module — page 18
- Completing the Installation — page 24

Before You Begin

Before you begin the installation, make sure that:

- You are installing the controller module in a 56-inch expansion cabinet containing five drive trays. The cabinet, drive tray mounting hardware, drive trays, and other hardware are already installed, set up, and sitting near their permanent operating location.
- You have SCSI cables to connect each drive tray to the controller module. These cables should have been shipped with the drive trays. Have the SCSI bus cabling attached and ready for final connection to the controller module.
- The cabinet and installation site meet all area, environmental, power, and site requirements for the controller module. Refer to the *Sun RSM Array 2000 System Manual* for more information.
- The host is installed and contains two SBus Wide Intelligent Ultra™ SCSI (UDWIS/S) host adapters. You can use a DWIS/S host adapter in place of the UDWIS/S host adapter, but use the UDWIS/S host adapter to achieve optimum SCSI performance.

- The cabinet containing the controller module will be the only device on the SCSI bus connected to the host.

To prepare the cabinet, drive trays, and host system, refer to the documentation that came with the equipment.

Installation Worksheet

The Installation Worksheet (FIGURE 1-1) contains two sections:

- **Installation Tasks**—lists the primary steps in the installation process. Use this section as a quick reference for each step and checklist for completing each task.
- **Controller Module Setup**—provides space for recording information about the new equipment (such as dates, serial numbers, SCSI ID settings, and so forth). Use this section to record information about the newly installed controller module and about changes you make to other devices in the cabinet during the installation.

Installation Worksheet

INSTALLATION TASKS	
<ul style="list-style-type: none"> ○ Prepare Cabinet <ul style="list-style-type: none"> <input type="checkbox"/> Remove front, back, and side panels <input type="checkbox"/> Turn off main circuit breakers <input type="checkbox"/> Set SCSI IDs on drive trays <input type="checkbox"/> Connect controller module power cords to cabinet ○ Prepare Rails <ul style="list-style-type: none"> <input type="checkbox"/> Unpack rackmounting hardware <input type="checkbox"/> Install the rail supports ○ Prepare Controller Module <ul style="list-style-type: none"> <input type="checkbox"/> Remove canisters from controller module <input type="checkbox"/> Set host SCSI IDs on controller module <input type="checkbox"/> Fill out the Battery Support Information label 	<ul style="list-style-type: none"> ○ Install Controller Module <ul style="list-style-type: none"> <input type="checkbox"/> Slide controller module onto rail support <input type="checkbox"/> Install the mounting screws <input type="checkbox"/> Tighten the mounting clamp <input type="checkbox"/> Replace canisters <input type="checkbox"/> Install SCSI terminators <input type="checkbox"/> Connect drive tray SCSI cables to controller module <input type="checkbox"/> Connect host SCSI cables to controller module <input type="checkbox"/> Connect power cords to controller module ○ Complete Installation <ul style="list-style-type: none"> <input type="checkbox"/> Turn on both main circuit breakers <input type="checkbox"/> Check for Fault LEDs <input type="checkbox"/> Replace panels on cabinet <input type="checkbox"/> Install necessary software and configure system <input type="checkbox"/> Test SCSI bus and devices
CONTROLLER MODULE SETUP	
<p>Controller Module Information</p> <p>Model # _____</p> <p>Serial # _____</p> <p>Date Installed _____</p> <p>Installer's Name _____</p> <p>Installation Location _____</p> <p>Controller SCSI ID Settings #1 _____ #2 _____</p> <p>Date on Battery Module _____</p>	<p>System Information</p> <p>Cabinet ID (name or number) _____</p> <p>No. of devices installed (tape/drive trays, etc.) _____</p> <p>Drive Tray SCSI ID Settings _____</p> <p>NOTES</p> <p>_____</p> <p>_____</p> <p>_____</p>

FIGURE 1-1 Installation Worksheet

Preparing the Expansion Cabinet and Drive Trays

This section describes the tasks for preparing the expansion cabinet and disk drive trays for the controller module installation.

▼ To Prepare the Expansion Cabinet

Refer to the documentation that came with your expansion cabinet for information on how to perform the following tasks:

1. **Remove the external covers from the cabinet—front, back, sides, and kick panel.**
2. **Power off the expansion cabinet.**

▼ To Set the Drive Tray and SEN Card SCSI IDs

- **Tools:** None
- **Equipment:** Jumpers (supplied on I/O board), antistatic wrist strap

Each drive tray contains an I/O board that determines the SCSI target addresses for the drives. The controller module requires drive SCSI ID settings of 8 through 14. New drive trays are shipped from the factory with the 8 through 14 SCSI IDs preset. If you are connecting existing drive trays to the controller module, you must verify that the drive tray SCSI ID settings are correct. If not, you must change them.



Caution – Electrostatic charges can damage sensitive components. Use a grounding wrist strap or other antistatic precautions before removing or handling the I/O boards.

1. **Put on an antistatic wrist strap.**
2. **Beginning with the top or bottom drive tray, loosen the two thumbscrews on the back left side (connector side) of the tray (FIGURE 1-2).**
3. **Pull the I/O board out of the drive tray with your left hand (FIGURE 1-2).**

If necessary, use the thumbscrews to pull the I/O board out far enough so that you can grip the outer casing with your left hand. Remove the I/O board from the drive tray.

4. Move the jumpers to the first and third sets of pins (FIGURE 1-2).

Holding the I/O board in your left hand, look in the upper right corner. There are eight pins (four pairs aligned vertically) below the J2 circuit and above three black chips. There should be two jumpers attached to two or more pins. Move these jumpers to match the placement shown in FIGURE 1-2.

5. Replace the I/O board and tighten the screws (reverse Step 2 and Step 3).

6. Set the SEN card SCSI ID switch to F (FIGURE 1-2).

7. Repeat Step 1 through Step 6 to change the SCSI IDs for all the remaining drive trays and SEN cards.

Make sure that the I/O boards in all the drive trays have the same SCSI ID jumper settings.

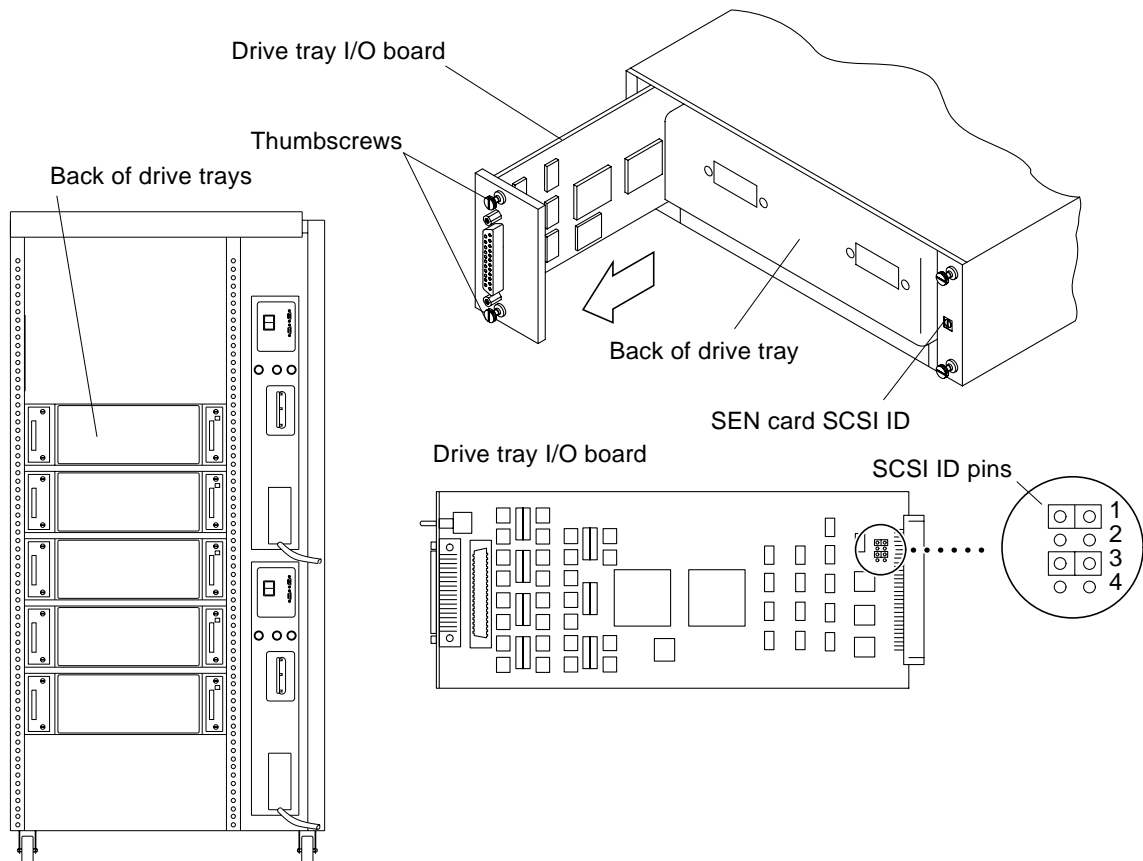


FIGURE 1-2 Removing the Drive Tray I/O Board and Setting SCSI ID Jumpers

Installing the Power Cords and Support Rails

Because of the confined space inside the cabinet, it is easier to connect the power cords to the power sequencers *before* you install the support rails. It also helps to remove the side panels (if you haven't already) to gain access to the connector side of the power sequencers.

The controller module is shipped with three power cords: two identical power cords (240 volt) with vertical-prong plugs on each end and one Y-shaped power cord (230/240 volt) with a three-prong plug on one end and two vertical-prong plugs on the other (FIGURE 1-4). The cords you use depend on the type of cabinet in which you are installing the controller module:

- If your expansion cabinet has two power sequencers on the left side (as you face the back of the cabinet), use the two vertical-prong power cords.
- If your cabinet has one AC power sequencer on the right, use the Y-shaped power cord.

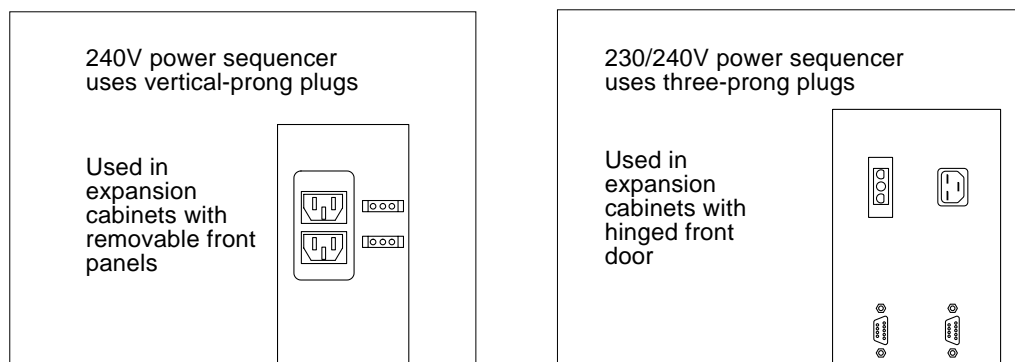


FIGURE 1-3 Plug Pattern on AC Power Sequencers

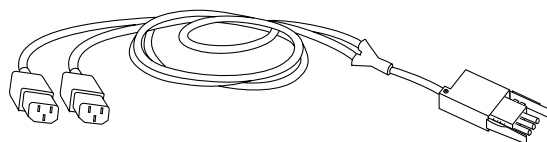


FIGURE 1-4 Y-Shaped Power Cord

▼ To Route the Power Cords

- **Tools:** None
- **Equipment:** AC power cords (shipped with controller module)

1. Retrieve the power cords from the controller module shipping container.
2. Facing the back of the cabinet, plug the power cords into AC power sequencer outlets in the cabinet as follows:
 - a. If your cabinet has two AC power sequencers, plug in one power cord into each power sequencer.

Use the two power cords with vertical prongs on each end. These cords are identical, so you can plug either one into each power sequencer.

Note – The cords must be plugged into one or more of the four bottom outlets to ensure that the controller module is powered on *after* the disk drive trays.

- b. If your cabinet has one AC power sequencer, plug the Y-shaped power cord into the power sequencer.

Plug the single end (three-prong) into one of the four bottom outlets on the power sequencer. The double-plug ends will be plugged into the controller module later (FIGURE 1-5).

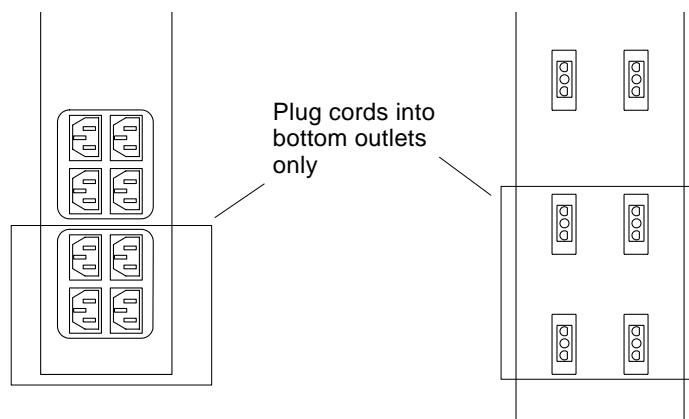


FIGURE 1-5 Outlets on AC Power Sequencers

3. Route the other end of the power cords through the cable access hole in the support structure (FIGURE 1-6).

Leave the power cords draping out of the access hole; they will be plugged into the controller module later.

Power sequencers are located on either the left or right side, depending on the type of cabinet you have.

Power cords connect to power sequencers, then route through the bottom cable access hole.

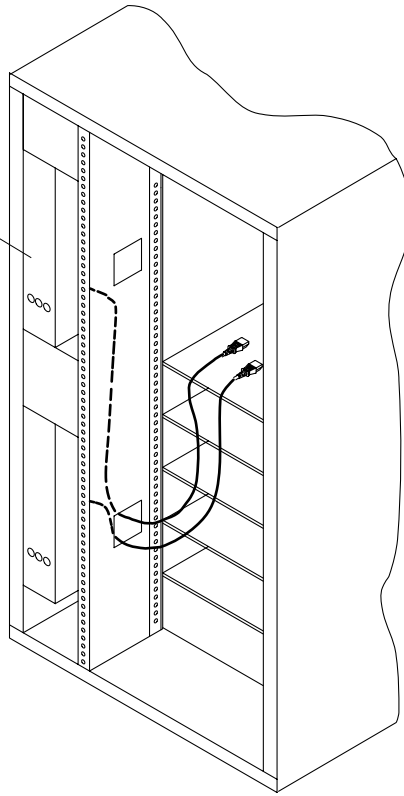


FIGURE 1-6 Routing the Power Cords

▼ To Install the Support Rails

- **Tools:** #2 Phillips screwdriver
- **Equipment:**
 - Support rails (2 each)
 - #10 Phillips-head screws
 - #8 Phillips-head screws

1. Unpack the rackmounting hardware.

You should have 2 support rails and at least 12 screws in two sizes (#8 and #10).

2. Identify the left support rail from the right one.

There is a *left* support rail and a *right* support rail. They are not interchangeable and must be installed in the correct orientation inside the cabinet. To determine which rail is which:

- a. Hold one of the rails by its bracketed end (the end with all the screws) in your right hand.
- b. Aim the right-angled edges so that the long edge (solid) is down, the short edge (with many holes) is up, and the screws are facing left or right.
 - If the screw heads are on the right, then you are holding the right support rail.
 - If the screw heads are on the left, then you are holding the left support rail.

3. Facing the back of the cabinet, attach the left and right support rails.

- a. Align the foot of the bracket (on the support rail) against the cabinet rail at the 1/2-inch mark near hole 55 (FIGURE 1-7).
- b. Insert three #10 screws through the cabinet rail (holes 56, 58, and 59) and into the support rail bracket (holes 2, 3, and 5, middle row) (FIGURE 1-7).

The screw heads should be facing toward the outside of the cabinet. Do not tighten the screws.

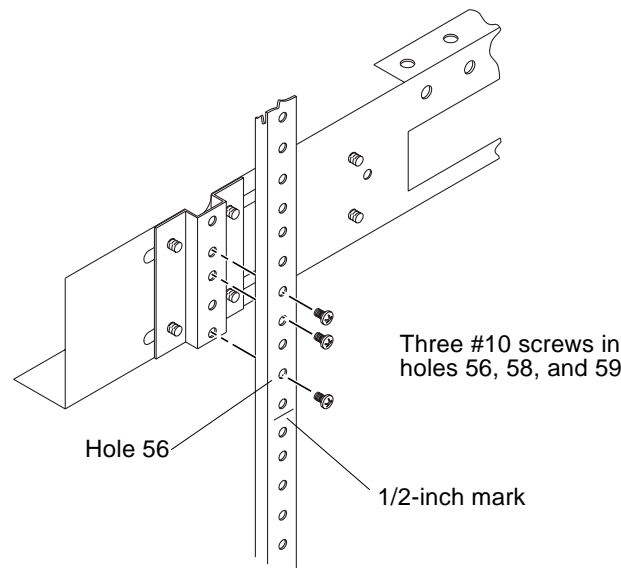


FIGURE 1-7 Attaching the Support Rails to the Back of the Cabinet

- c. **Move to the front of the cabinet and align the support rails horizontally behind the vertical rails of the cabinet.**

The foot of the support rail should align with the mark on the front vertical rail near hole 55 (FIGURE 1-8).

- d. **Attach the front of the support rails to the cabinet rails with three #8 screws.**

4. **Tighten all mounting screws (front and back) in both support rails.**

Do not tighten the screws on the mounting clamps (FIGURE 1-16 on page 20).

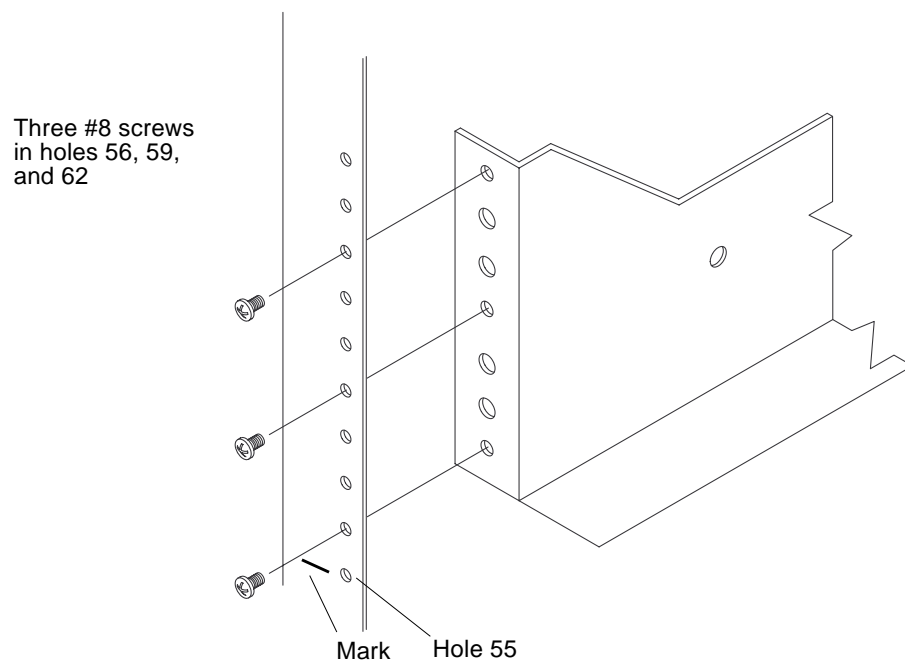


FIGURE 1-8 Attaching the Support Rail to the Front of Cabinet

Preparing the Controller Module

This procedure explains how to reduce the weight of the controller module (for lifting purposes), how to verify its host SCSI ID settings, and how to check the controller module before installation.

It is easier to lift the controller module and set it onto the support rails if you first remove all the canisters. A fully loaded controller module weighs approximately 82 lbs. You can reduce the weight by approximately 40 lbs by removing the controllers, battery, power supplies, and fans.

▼ To Remove the Canisters

- **Tools:** #2 Phillips screwdriver, 1/4-inch flat-blade screwdriver
- **Equipment:** Antistatic wrist strap

1. Remove the front panel (FIGURE 1-9).

- Grab the left and right edges of the front panel, near the bottom, and pull until you feel the front panel pins snap out of the mounting holes (on the front of the battery faceplate).**
- With the bottom of the front panel tilted out, slide the front panel down until the top clears the upper lip of the chassis.**

Remove the front panel and set it aside.

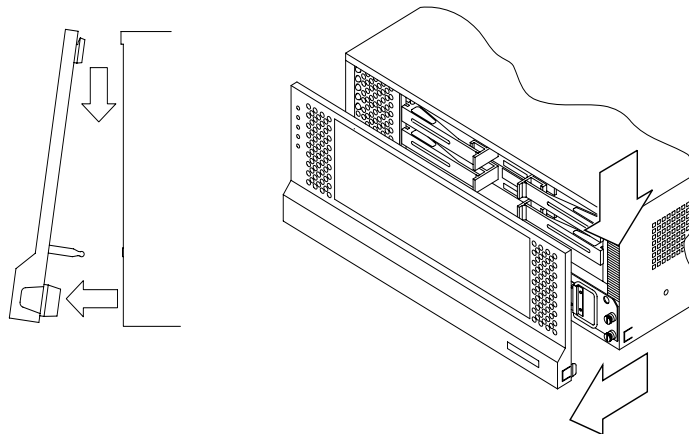


FIGURE 1-9 Removing the Front Panel



Caution – Electrostatic charges can damage sensitive components. Use a grounding strap or other antistatic precautions before removing or handling the controllers or other components in the controller module.

2. Attach an antistatic wrist strap to yourself and to the cabinet.

3. Remove the canisters (FIGURE 1-10, FIGURE 1-11, and FIGURE 1-12).

Be sure to keep track of which controller you remove from which location. You *must* replace the controller in the exact slot from which you removed it.

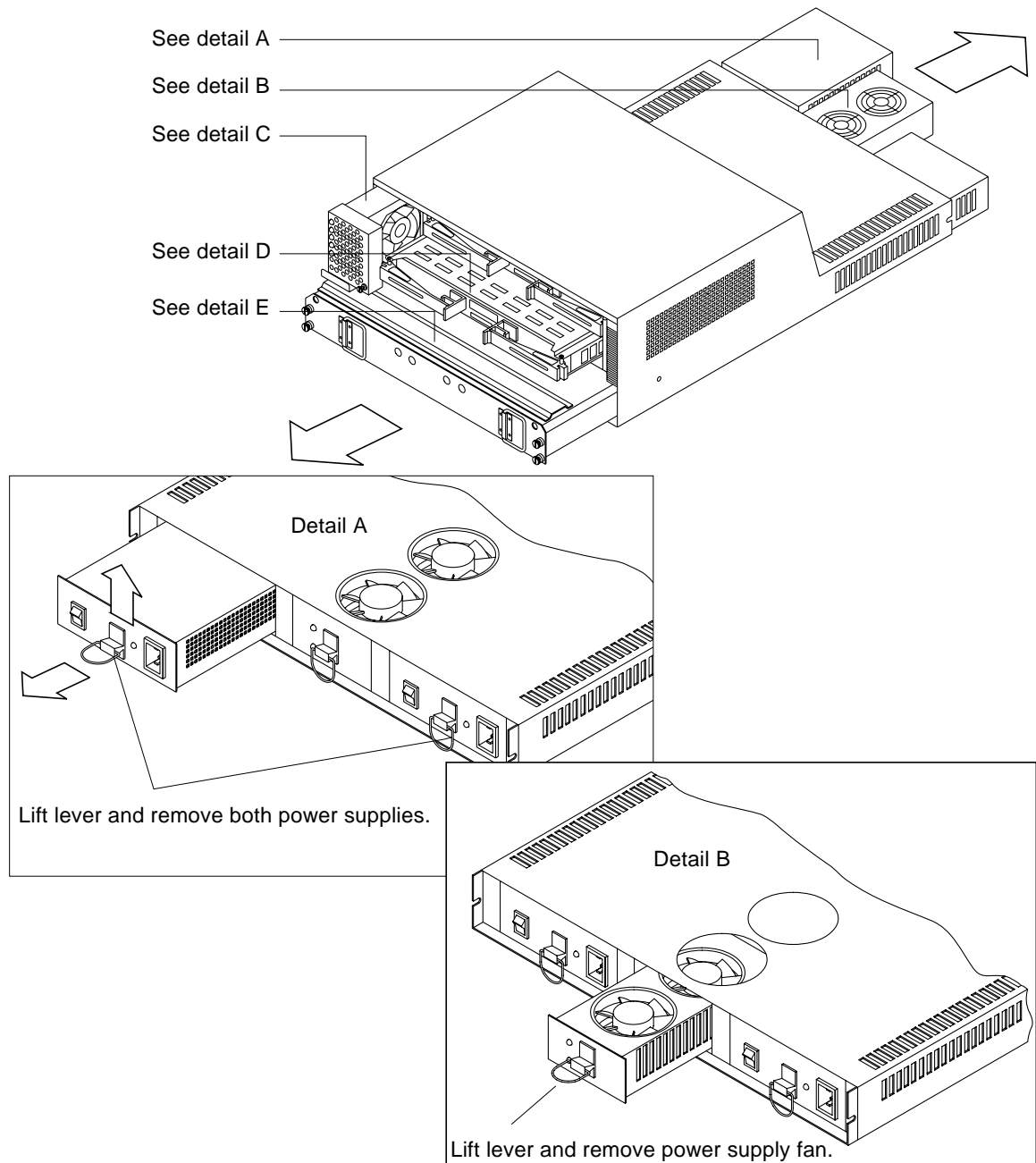


FIGURE 1-10 Removing the Canisters—Power Supplies and Power Supply Fan

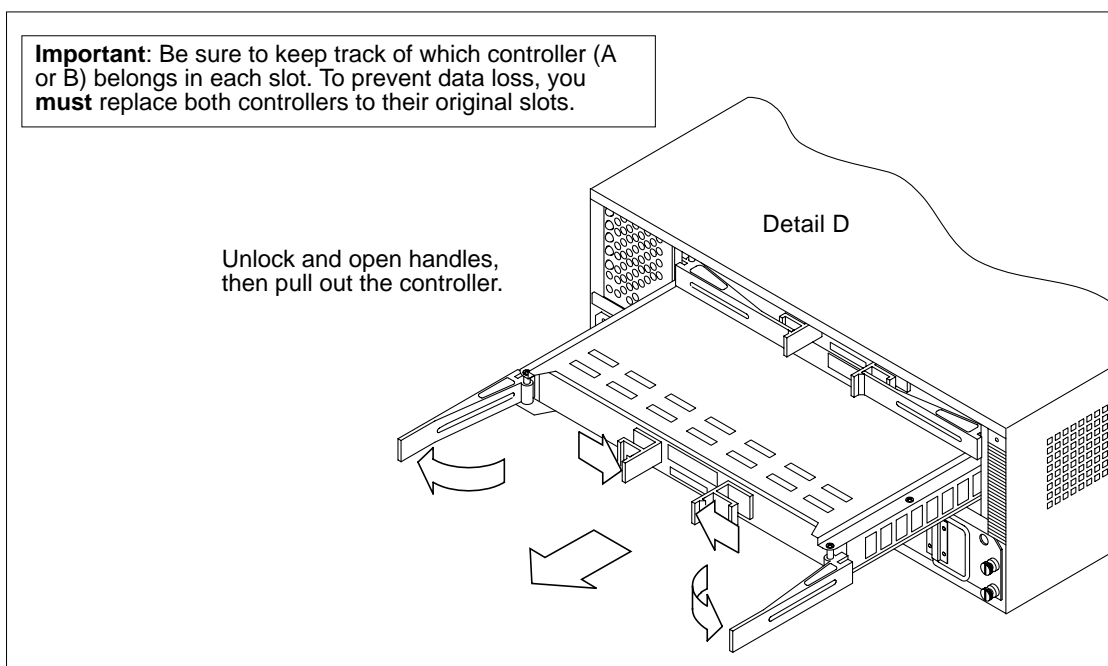
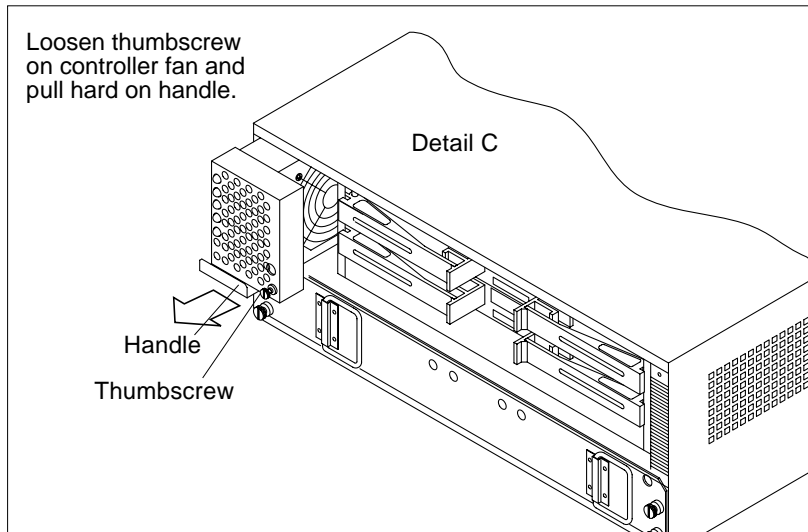


FIGURE 1-11 Removing the Canisters—Controller Fan and Controllers



Caution – The battery unit weighs approximately 24 lbs. Be prepared to support its weight when you pull it out of the chassis.

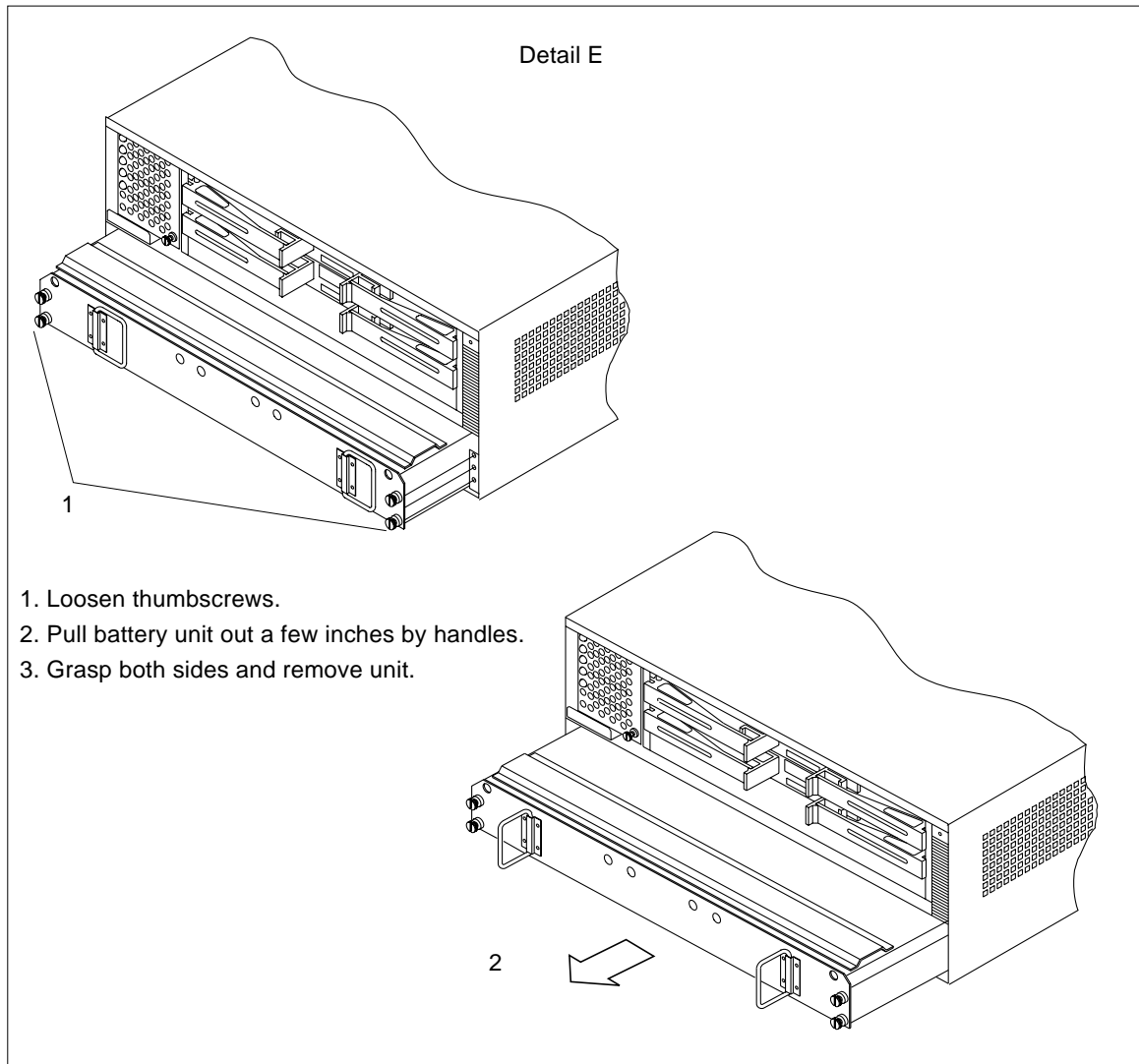


FIGURE 1-12 Removing the Canisters—Battery

4. Verify that the controller module battery unit has not exceeded its shelf life by checking the date-of-manufacture label (FIGURE 1-13).
 - If the date of manufacture listed is less than six months previous to the date you received the system, the battery has not expired. Replace it two years after the installation date.
 - If the date of manufacture listed is more than six months previous to the date you received the system, replace the battery. Refer to the *Sun RSM Array 2000 System Manual* for information on replacing a battery.
5. Write in the current date on the battery label for “Date of installation” and the date two years from now for “Replacement date.”

Replacement date is the date you need to change the battery.

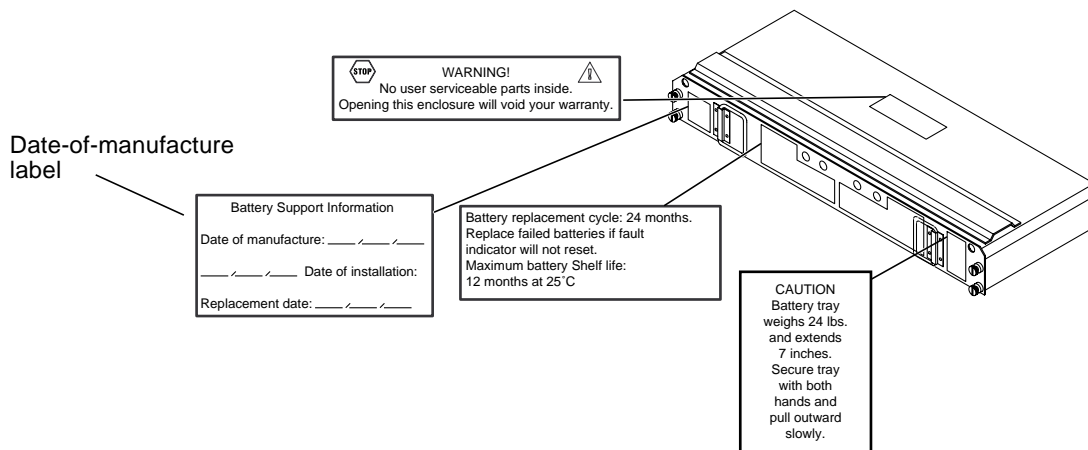


FIGURE 1-13 Battery Unit

▼ To Verify the Host SCSI IDs

- **Tools:** Needlenose pliers
- **Equipment:** Jumpers (supplied with unit), antistatic wrist strap

Every device attached to a SCSI bus must have a unique ID number to communicate. For this installation, verify that the SCSI IDs for controller A and B are set to ID 5 and ID 4, respectively.

1. Locate the 16 pins on the back side of the controller module (FIGURE 1-14).

The eight pins on the left determine the *host SCSI ID*, or device identification number, for controller A; those on the right determine the SCSI ID for controller B.

2. Wearing the antistatic wrist strap, install jumpers on the pins as shown in FIGURE 1-14.

Use needlenose pliers to remove the jumpers, if necessary.

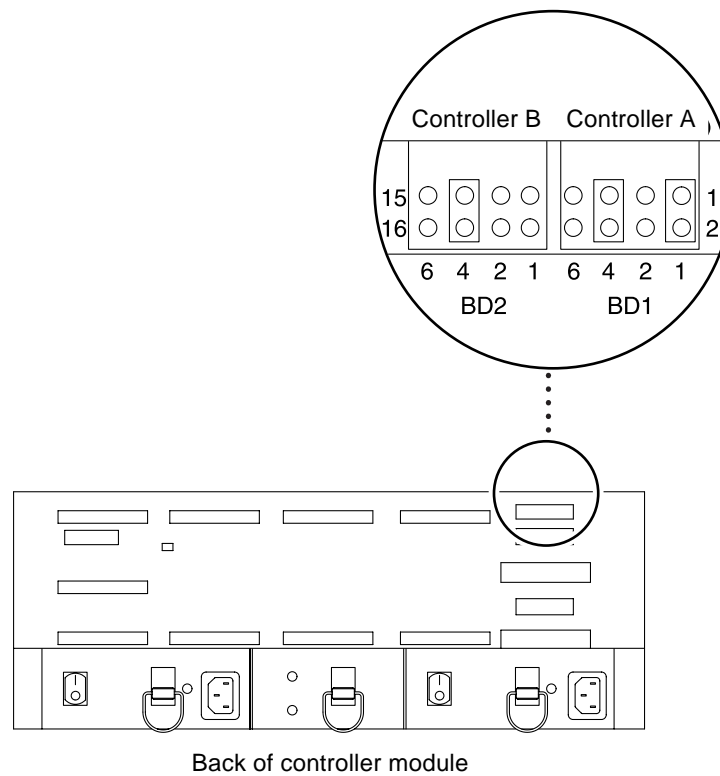


FIGURE 1-14 Setting the Host SCSI ID for the Controllers

Installing the Controller Module

This procedure explains how to install the controller module chassis into the cabinet and connect the cables.

When you set the chassis in the cabinet, make sure that:

- The slots on the back of the controller module slide beneath the mounting clamps (in the rail supports).
- You insert all of the canisters properly and lock them in place.
- The air vents above the power supplies and fans are free of obstructions. This includes interface cabling that exits the back of the controller module. Once you connect the cables to the controller module, secure them to the inside of the cabinet framework with tie wraps. Be careful not to route the cables across any sharp edges.

▼ To Install the Controller Module

- **Tools:** #2 Phillips screwdriver
- **Equipment:** None

1. **Facing the front of the cabinet, set the controller chassis on the support rail and slide it into the cabinet** (FIGURE 1-15).

Make sure the slots on the back of the chassis slide beneath the mounting clamps.

2. **Install two #10 screws in each side of the support rail and chassis** (FIGURE 1-15).

There are two holes on each side of the controller module chassis that align with holes in the support rails.

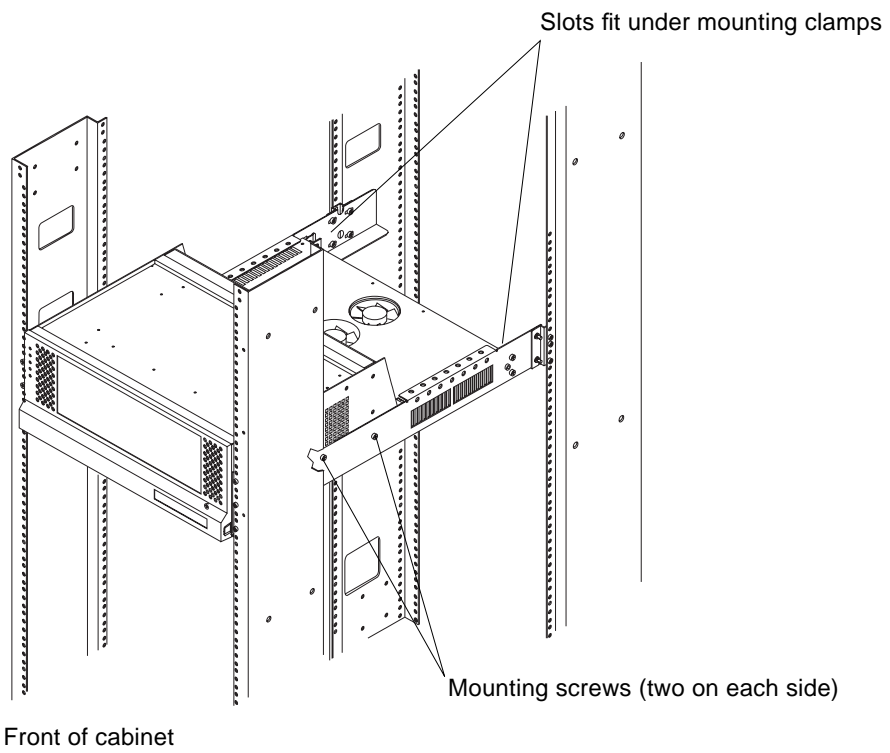


FIGURE 1-15 Installing the Controller Module Chassis

3. **Tighten the two screws in each mounting clamp, one on each side of the chassis (FIGURE 1-16).**

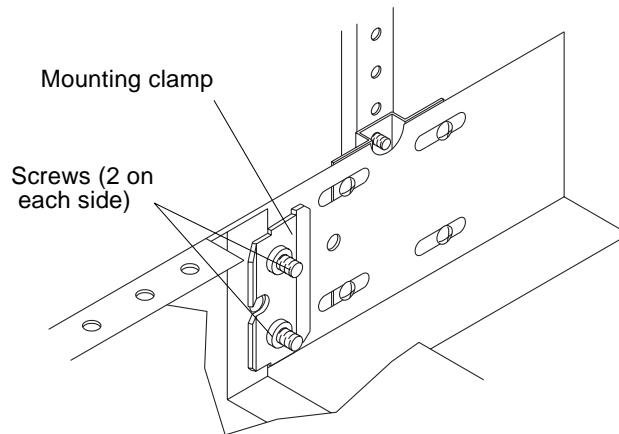


FIGURE 1-16 Tightening the Mounting Clamp

4. Replace all of the canisters that you removed earlier.

Re-install the controllers, controller fan, battery, power supplies, and power supply fan into the chassis by reversing Step 3 on page 12. Make sure that you:

- a. **Install the controllers in their correct slots (1[B] or 2[A]).**
- b. **Lock all canisters securely into place.**
- c. **Leave the front panel off. You will need to be able to view the controller LEDs later in this installation process.**

Note – The power supplies are interchangeable, so you can insert them in either slot.

▼ To Connect the Cables

- **Tools:** None
- **Equipment:** SCSI bus cables, SCSI drive cables, terminators, and tie wraps

1. **Install 16-bit, differential terminators to both host SCSI OUT connectors on the back of the controller module (FIGURE 1-18).**

2. Connect both host SCSI bus cables to the HOST IN connectors (BD1 and BD2) on the back of the controller module.

Route both host SCSI bus cables from the bottom of the cabinet (FIGURE 1-17) and attach them to the HOST IN connectors on the back panel (FIGURE 1-18).

3. Connect a drive SCSI cable from the controller module to each drive tray.

Connect SCSI cables from the drive tray connectors to the corresponding back panel connector shown in FIGURE 1-18. Make sure that you tighten the cable connector screws securely.

4. Secure the cables to the inside of the cabinet, opposite the side of the power supplies, with tie wraps.

This will keep them from blocking the air flow to the back of the controller module.

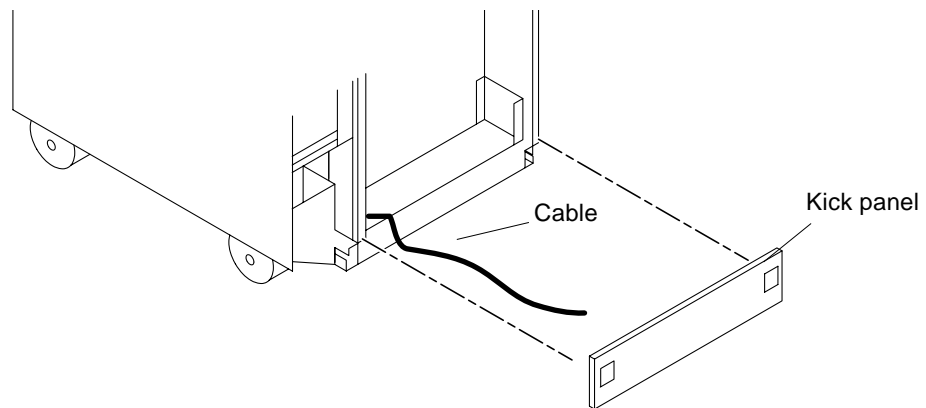


FIGURE 1-17 Routing the Host SCSI Cable Behind the Kick Panel

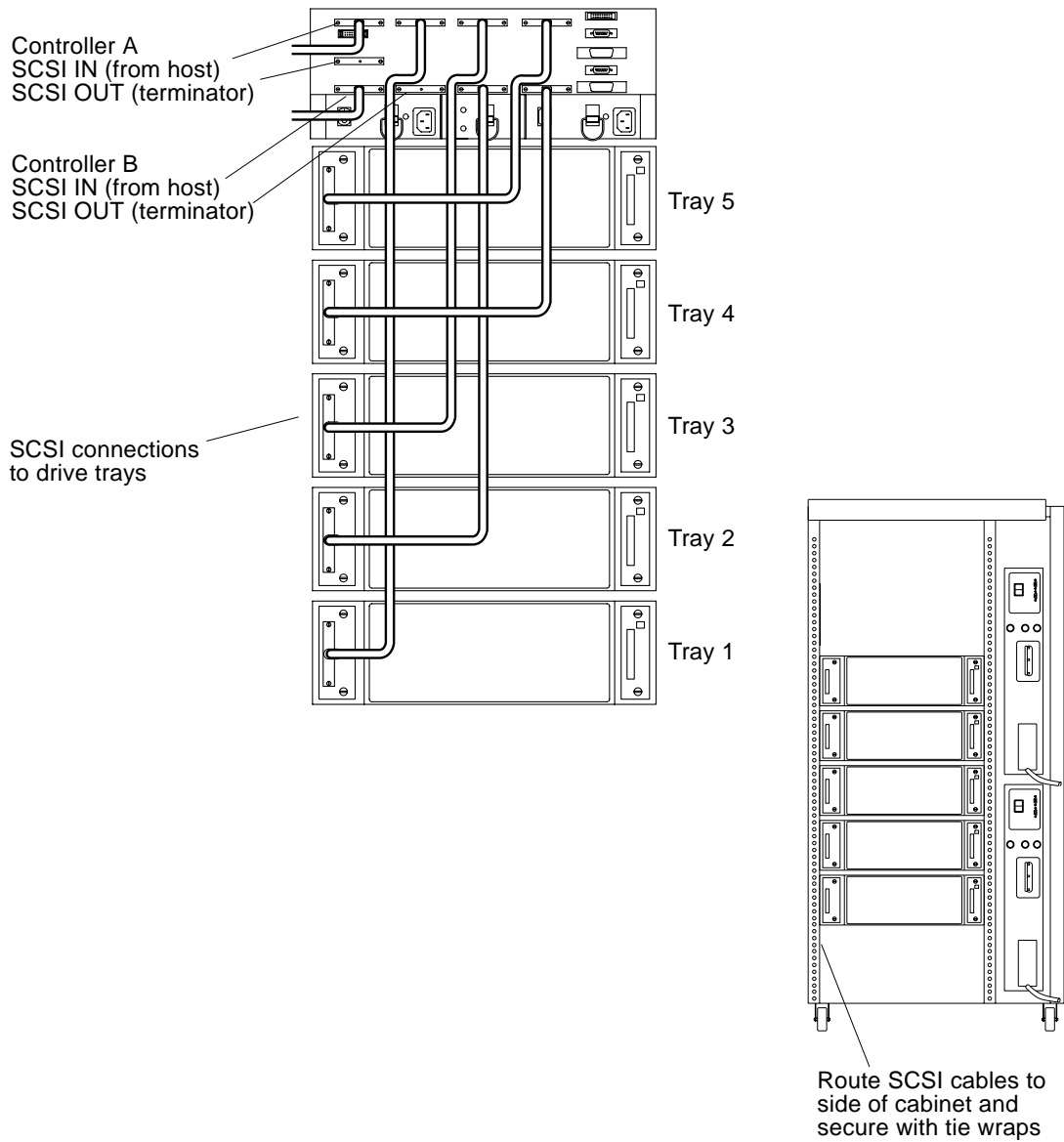


FIGURE 1-18 Connecting SCSI Cables to the Controllers and Drive Trays

5. Turn off both power switches and connect the power cords (FIGURE 1-19).

Make sure both power switches on the back of the controller module are turned off (0). Connect both power cords (that you routed from the power sequencers on page 7) to the power connectors on the controller module.

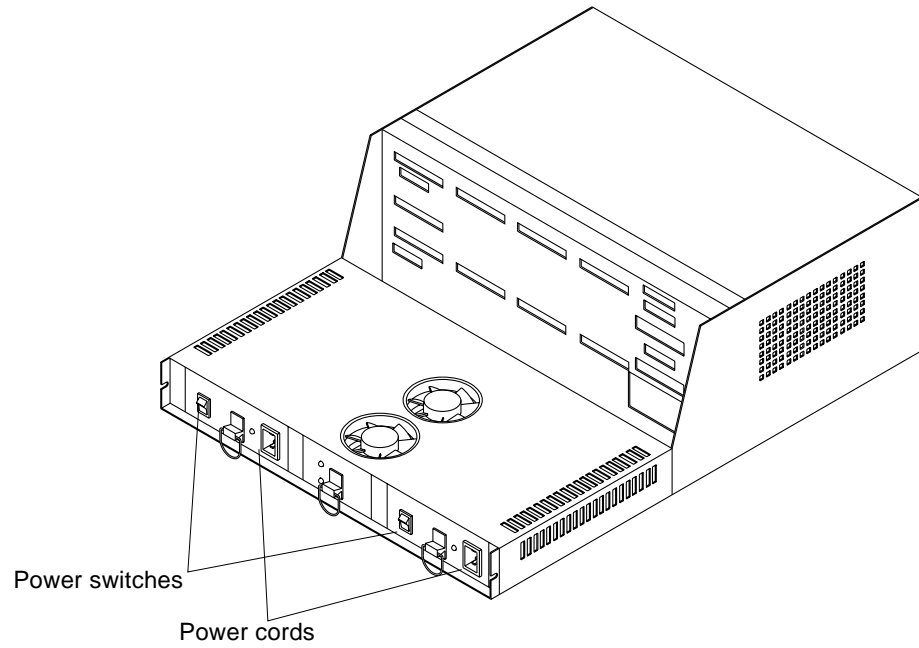


FIGURE 1-19 Power Switch and Power Cord Locations

Completing the Installation

This procedure explains how to turn on the power and check the unit, and provides a brief overview of configuration tasks you may need to perform.

The controller module has LEDs that indicate the status of both the overall controller module and the individual components within the controller module. Check all the LEDs on the controller module (front and back) when you turn on the power to make sure there are no problems. The procedure beginning on this page explains how to check the LEDs.

Once you have finished installing the controller module hardware, make sure that the physical drives are ready to store data. To do this, you might need to configure or re-define the overall organization of the physical and logical space on the drives using RAID Manager. Whether you configure the system depends on several factors, such as:

- How many drive trays and drives are connected to the controller module
- How and where the controller module is connected to the SCSI bus
- Whether you want to use the factory default configuration settings (number of logical units, RAID level, hot spare drives, and so on)

See “To Configure the System” on page 26 for more information regarding system configuration considerations.

▼ To Power On the System

- **Tools:** None
- **Equipment:** None

- 1. Turn both power switches on the back of the controller module to the On position (FIGURE 1-19).**
- 2. Make sure the power switches on the drive trays are in the On position.**
- 3. Power on the expansion cabinet.**
Refer to your expansion cabinet documentation for instructions.
- 4. Check the LEDs on the front and back of the controller module and the drive trays for faults (FIGURE 1-20 and FIGURE 1-21).**

Under normal startup conditions, the green Power LEDs will be lit and the amber Fault LEDs will be off. If an amber Fault LED comes on, refer to the troubleshooting section of the *Sun RSM Array 2000 System Manual* for instructions.

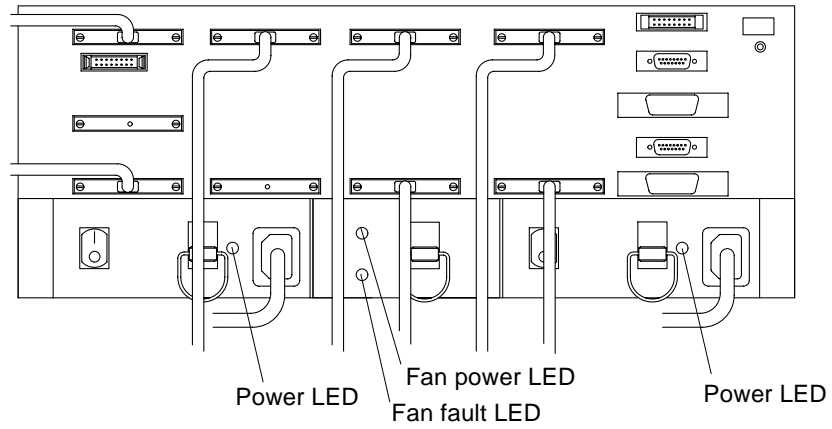


FIGURE 1-20 LEDs on the Back of the Controller Module

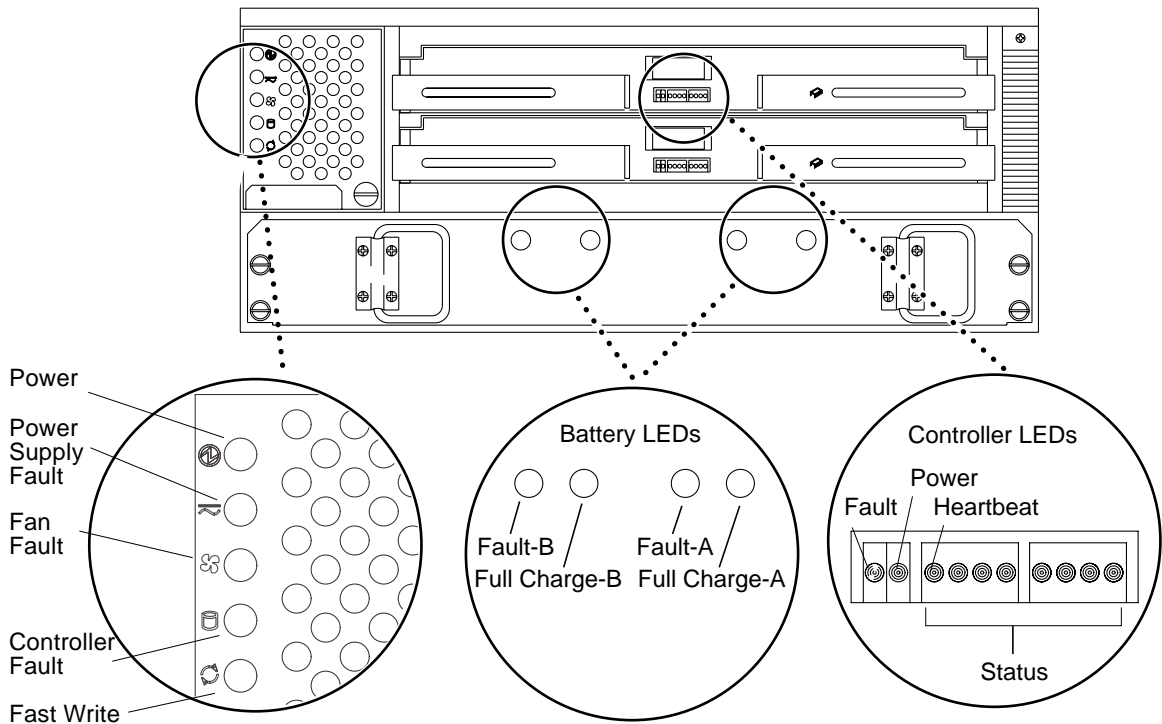


FIGURE 1-21 LEDs on Front of Controller Module

5. **Replace the controller module front panel (reverse Step 1 on page 11).**

6. **Replace the front, side, rear, and kick panels on the cabinet.**

Refer to your expansion cabinet documentation for instructions.

▼ To Configure the System

- **Tools:** None
- **Equipment:** RAID Manager software

● **Install and configure the RAID Manager software.**

Refer to the *RAID Manager Installation and Support Guide* and the *RAID Manager User's Guide* for instructions on installing and using RAID Manager software.

Some default software parameters (such as RAID level, drive groups, and caching) are set at the factory prior to shipment. Before you attempt to store data on your system, you should use RAID Manager to determine the current status and configuration of your system and reconfigure as required. Refer to your software documentation for further instructions.

For information about operating and servicing the controller module, refer to the *Sun RSM Array 2000 System Manual*.

Index

NUMERICS

- 230/240V power sequencer, 6
- 240V power sequencer, 6

B

- battery
 - removing, 15
- before you begin, 1

C

- checking the LEDs, 24
- configuring the system, *See RAID Manager Installation Guide*
- connecting
 - SCSI cables, 20
- controller fan
 - removing, 14
 - replacing, 14
- controller module
 - installing into cabinet, 18 to 23
 - LEDs, 25
 - power switch location, 23
 - powering on, 24
 - preparing for installation, 11 to 17
 - SCSI ID location, 17
- controller module canisters, illustrated, 12
- controllers
 - removing, 14
 - replacing, 14

D

- drive trays
 - SCSI IDs, 4
 - SEN card, 5

E

- electrostatic discharge caution, 4
- expansion cabinet
 - preparing, 4

F

- front panel, removing, 11

H

- host SCSI IDs
 - location on the controller module, 17
 - verifying, 16

I

- installation overview, 2
- installation worksheet, 2
- installing
 - controller module, 18 to 23
 - power cords, 6
 - support rails in cabinet, 8

L

LEDs

- checking for faults, 24
- on back panel, 25
- on front of controller module, 25

M

- mounting clamp on support rail, 20
- mounting rails, 8

P

- power cords, 6
 - routing, 7
- power sequencer
 - 230/240V, 6
 - 240V, 6
- power supplies
 - removing, 13
 - replacing, 13
- power supply fan, 13
 - removing, 13
 - replacing, 13
- power switch location on the controller module, 23
- powering on, 24
- pre-installation tasks, 1
- preparing the controller module for installation, 11 to 17
- preparing the expansion cabinet, 4

Q

- quick-reference list for installation, 2

R

- removing, 13
 - battery, 15
 - controller fan, 14
 - controller module front panel, 11
 - controllers, 14
 - power supplies, 13

replacing

- battery, 15
 - controller fan, 14
 - controllers, 14
 - power supplies, 13
 - power supply fan, 13
- routing the power cords, 7
- RSM Array 2000 controller module, *See* controller module

S

- SCSI cables, connecting, 20
- SCSI cabling, illustrated, 22
- SCSI environmental card, *See* SEN card
- SCSI IDs
 - controller module, 17
 - drive trays, 4
 - verifying the host IDs, 16
- SEN card
 - in drive trays, 5
 - SCSI ID, 5
- setting the SCSI IDs
 - drive trays, 4
- support rails, 8

V

- verifying the host SCSI IDs, 16

Y

- Y-shaped power cord, illustrated, 6

Ordering Sun Documents

SunDocsSM is a distribution program for technical documentation and is available from SunExpress. To order or for more information:

Country	Phone	Fax	Country	Phone	Fax
Belgium	02-720-09-09	02-725-88-50	Luxembourg	32-2-720-09-09	32-2-725-88-50
Canada	1-800-873-7869	1-800-944-0661	Sweden	020-79-57-26	020-79-57-27
France	0800-90-61-57	0800-90-61-58	Switzerland	0800-55-19-26	0800-55-19-27
Germany	01-30-81-61-91	01-30-81-61-92	United Kingdom	0800-89-88-88	0800-89-88-87
Holland	06-022-34-45	06-022-34-46	United States	1-800-873-7869	1-800-944-0661
Japan	0120-33-9096	0120-33-9097			

World Wide Web: <http://www.sun.com/sunexpress/>

Sun Welcomes Your Comments

We are interested in improving our documentation and welcome your comments. Use the reader comment card or send comments via email to: smcc-docs@sun.com.

You can also send a fax to SMCC Doc Feedback at 1-650-786-6443.

Please include the part number of your document in the subject line of your email or fax message.

Reader Comment Card

For the Sun RSM Array 2000 Controller Module Installation Guide, part number 802-7602-11.

1. Were the procedures documented thoroughly? _____

2. Were the illustrations helpful? _____

3. Was the information accurate and easy to follow? _____

4. Did you refer to this manual online? _____

5. Additional comments. _____

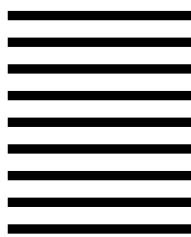
Your Name: _____
Title: _____
Company Name: _____
Address: _____
City: _____ State/Province: _____
Zip/Postal Code: _____ Country: _____
Email Address: _____
Telephone: _____

**AIR MAIL
PAR AVION**

IBRS/CCRI No. 808



NE PAS AFFRANCHIR
NO POSTAGE
NECESSARY
IF MAILED
TO THE
UNITED STATES



INTERNATIONAL BUSINESS REPLY MAIL/RESPONSE PAYEE
PERMIT NO. 808 MOUNTAIN VIEW CA

POSTAGE WILL BE PAID BY ADDRESSEE

INFORMATION PRODUCTS
M/S MPK14-108
SUN MICROSYSTEMS INC
2550 GARCIA AVE
MOUNTAIN VIEW CA 94043-9551
UNITED STATES OF AMERICA

