440 MHz UltraSPARC™-IIi CPU Module Upgrade

For Sun™ Ultra™ 5 and Ultra 10 Systems

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Regulatory Compliance Statements and Declaration of Conformity

Your Sun product is marked to indicate its compliance class:

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

Please read the sections that correspond to the marking on your Sun product before attempting to install the product.

FCC Class A Notice

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

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

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

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

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

FCC Class B Notice

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

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

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

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

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

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

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

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

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

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

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

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

VCCI 基準について

クラス A VCCI 基準について

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

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

クラス B VCCI 基準について

クラス B 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、クラス B 情報技術装置です。これらの製品には、下記の項目が該当します。

> この装置は、情報処理装置等電波障害自主規制協議会 (VCCI) の基準に基づくクラス B 情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。取扱説明書に従って正しい取り扱いをしてください。

BSMI Class A Notice

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

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

Agency Compliance

The system complies with international and domestic regulatory requirements for safety, ergonomics, and electromagnetic compatibility. When installed and operated in accordance with this service manual, the EMC class marked on your system label remains the same.

German Acoustic Compliance

ACHTUNG: Der arbeitsplatzbezogenr Schalldruckpegel nach DIN 45 635.

Teil 1000 beträgt 70 Db(A) order weniger.

Declaration of Conformity

The declarations of conformity for the Sun Ultra 5 and Ultra 10 products are on the following pages.

Declaration of Conformity

Compliance ID: 200

Product Name: Sun Ultra 5 Family

This product has been tested and complies with:

EMC

USA —FCC Class B

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.

European Union—EC

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 the Low Voltage Directive 73/23/EEC:

EC Type Examination Certificates:

   EN60950/IEC950 (1993)

   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

Sun Microsystems, Inc.

901 San Antonio Road, M/S UMPK15-102

Palo Alto, CA 94303, USA

Tel: 650-786-3255

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/ S /

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Quality Assurance Manager

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Scotland, United Kingdom

Tel: 0506 670000

Fax: 0506 760011

Declaration of Conformity

Compliance ID: 201

Product Name: Sun Ultra 10 Family

This product has been tested and complies with:

EMC

USA —FCC Class B

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.

European Union—EC

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)
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EN61000-3-2/IEC1000-3-2(1994)		Pass

Safety

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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.

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

SELV Compliance

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

Power Cord Connection

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

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

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

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

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

Lithium Battery

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

System Unit Cover

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

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

Laser Compliance Notice

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

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

CD-ROM

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

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.

Achtung – Der arbeitsplatzbezogene Schalldruckpegel nach DIN 45 635 Teil 1000 beträgt 70Db(A) oder weniger.

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 – CPU-Karten von Sun verfügen über eine Echtzeituhr mit integrierter Lithiumbatterie (Teile-Nr. MK48T59Y, MK48TXXB-XX, MK48T18-XXXPCZ, M48T59W-XXXPCZ, oder MK48T08). 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.

Einhaltung der Richtlinien für Laser

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

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

CD-ROM

Warnung – Die Verwendung von anderen Steuerungen und Einstellungen oder die Durchfhrung von Prozeduren, die von den hier beschriebenen abweichen, knnen gefhrliche Strahlungen zur Folge haben.

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 – Vot re 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.

Attention: – Le niveau de pression acoustique au poste de travail s'élève selon la norme DIN 45 635 section 1000, à 70 dB (A) ou moins.

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.

Batterie au lithium

⚠ **Attention:** – sur les cartes CPU Sun, une batterie au lithium (référence MK48T59Y, MK48TXXB-XX, MK48T18-XXXPCZ, M48T59W-XXXPCZ, ou MK48T08.) 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.

Conformité aux certifications Laser

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

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

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⚠ **Attention:** – L'utilisation de contrôles, de réglages ou de performances de procédures autre que celle spécifiée dans le présent document peut provoquer une exposition à des radiations dangereuses.

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.

Precaución – De acuerdo con la norma DIN 45 635, Parte 1000, se admite un nivel de presión acústica para puestos de trabajo máximo de 70Db(A).

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 solamenta 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 las placas de CPU Sun hay una batería de litio insertada en el reloj de tiempo real, tipo SGS Núm. MK48T59Y, MK48TXXB-XX, MK48T18-XXXPCZ, M48T59W-XXXPCZ, o MK48T08. 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.

Aviso de cumplimiento con requisitos de láser

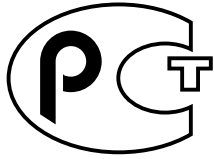Los productos Sun que utilizan la tecnología de láser cumplen con los requisitos de láser de Clase 1.

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

CD-ROM

Precaución – El manejo de los controles, los ajustes o la ejecución de procedimientos distintos a los aquí especificados pueden exponer al usuario a radiaciones peligrosas.

GOST-R Certification Mark

Nordic Lithium Battery Cautions

Norge

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

Sverige

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

Danmark

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

Suomi

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

Contents

Figures

Preface

This book contains procedures for installing a 440 MHz UltraSPARC™-IIi CPU module into Sun™ Ultra™ 5 and Ultra 10 systems.

440 MHz CPU Upgrade Procedure

The 440 MHz CPU upgrade procedure consists of three general steps:

1. **Update the system flash PROM.**

2. **Update the operating system, if you will be using Solaris 2.5.1 or Solaris 2.6.**

3. **Replace the existing CPU module with a new 440 MHz CPU module.**

440 MHz CPU Upgrade Kit

Each 440 MHz CPU module upgrade kit for the Ultra 5 and Ultra 10 systems contain:

- *440 MHz CPU Upgrade for Sun Ultra 5 and Ultra 10*, 806-3163-10
- 440 MHz UltraSPARC™-II module (501-5149-06)
- *Installing Solaris™ 2.5.1 or Solaris 2.6 Software on 419+ MHz Systems*, 806-2156
- Solaris 2.5.1/2.6 on 419+ MHz systems update CD
- *Sun Flash PROM Guide for Workstations and Workgroup Servers—Standalone Version*, part number 802-3233
- Flash PROM Update CD 2.1, containing flash PROM patch 106121-09
- ESD kit

Using UNIX Commands

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

See one or more of the following for this information:

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

Typographic Conventions

TABLE P-1   Typographic Conventions

Typeface	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	Read Chapter 6 in the *User's Guide*. These are called *class* options. You *must* be superuser to do this.
	Command-line variable; replace with a real name or value	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	PartNumber
FlashPROM Update	*Sun Flash PROM Guide for Workstations and Workgroup Servers - Standalone Version*	802-3233
Solaris 2.5.1/2..6 Update	*Installing Solaris™ 2.5.1 or Solaris 2.6 Software on 419+ MHz Systems*	*806-2156*

Accessing Sun Documentation Online

The `docs.sun.com`^{sm} web site enables you to access Sun technical documentation on the Web. You can browse the `docs.sun.com` archive or search for a specific book title or subject at:

```
http://docs.sun.com
```

Sun Welcomes Your Comments

We are interested in improving our documentation and welcome your comments and suggestions. You can email your comments to us at:

```
docfeedback@sun.com
```

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

Upgrading the Ultra 5 CPU

This chapter describes how to upgrade the Ultra 5 CPU module.

This chapter contains the following topics:

1.1   Tools Required

The following tools are required to upgrade Ultra 5 CPU module upgrade.

- No. 2 Phillips screwdriver (magnetized tip suggested)
- Needle-nose pliers
- Grounding wrist strap
- Antistatic mat

Place ESD-sensitive components such as the CPU module on an antistatic mat. The following items can be used as an antistatic mat:

- Bag used to wrap a Sun replacement part
- Shipping container used to package a Sun replacement part
- Inner side (metal part) of the system cover
- Sun ESD mat, part number 250-1088 (available through your Sun sales representative)
- Disposable ESD mat shipped with replacement parts or optional system features

1.2 Updating the Ultra 5 Flash PROM

Refer to *Sun Flash PROM Guide for Workstations and Workgroup Servers—Standalone Version*, part number 802-3233, for instructions on updating the Ultra 5 system flash PROM so that the system will accept the 440 MHz CPU module.

That manual, and accompanying *Sun4u Flash PROM Update 2.1* CD, is included in the 440 MHz CPU upgrade kit.

Note – Be sure to restore the flash PROM jumper setting after the flash update is completed.

1.3 Updating Solaris 2.5.1 or Solaris 2.6

If you intend to run the Ultra 5 system under Solaris 2.5.1 or Solaris 2.6, you need to update the operating system software to operate with the 440 MHz CPU module.

Refer to *Installing Solaris™ 2.5.1 or Solaris 2.6 Software on 419+ MHz Systems*, part number 806-2156, for instructions on updating Solaris 2.5.1 or Solaris 2.6 for the system to be upgraded.

That manual, and accompanying CD is included in the 440 MHz CPU upgrade kit.

1.4 Preparing the System

Before you can upgrade the Ultra 5 CPU module, you have to prepare the system for replacing the CPU module.

1.4.1 Powering Off the System

To power off the system:

1. **Back up system files as necessary.**

   See *Solaris Handbook for SMCC Peripherals,* part number 802-7675.

Caution – Exit from all running applications before turning off system power. Failure to do so may result in data loss.

2. **Press the system standby switch (**FIGURE 1-1**), or press the Sun Type-5 keyboard Standby key (**FIGURE 1-2**) or the Sun I/O Type-6 keyboard Power key (**FIGURE 1-3**).**

Note – For the system to gracefully shut down by the standby switch or the Sun Type-5/6 keyboard Standby/Power key, UNIX must be operating. If the system is in POST, the standby switch and the Standby/Power key are inoperative.

Caution – Pressing the standby switch or pressing the Sun Type-5/6 keyboard Standby/Power key does not remove all power from the system; a trickle voltage remains in the power supply. To remove all power from the system, set the power switch on the back panel to the off position.
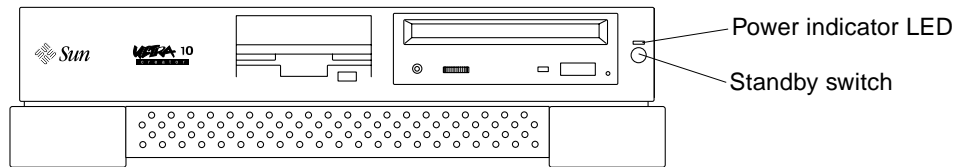
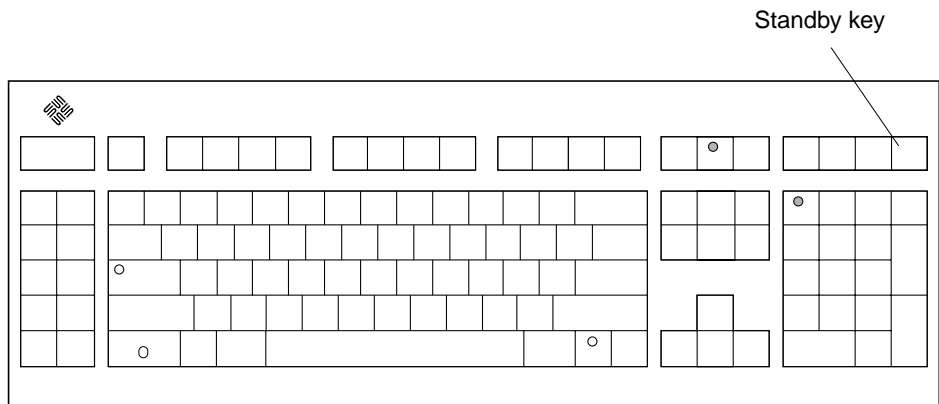**FIGURE 1-1** Ultra 5 System Standby Switch
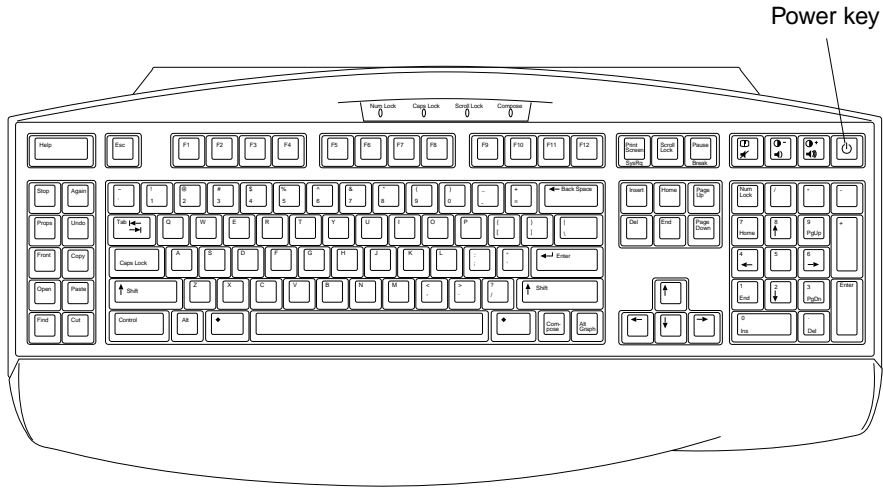
FIGURE 1-2 Sun Type-5 Keyboard

Power key

FIGURE 1-3   Sun I/O Type-6 Keyboard

3. Set the system power switch to the off position (FIGURE 1-4**).**

Note – For a typical system shutdown or restart, it is not necessary to set the power switch to the off position.

Power switch   Voltage selector switch
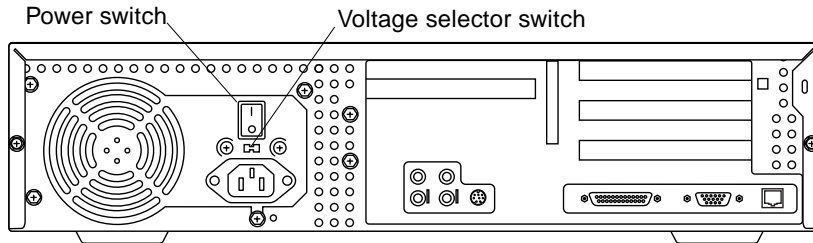

FIGURE 1-4   Ultra 5 System Power Switch

4. Verify the following:

    a. The front panel power indicator LED is off.

    b. The system fans are not spinning.

5. Turn off the power to the monitor and any peripheral equipment.

6. Disconnect cables to any peripheral equipment.

1.4.2   Removing the System Cover

Remove the system cover as follows (FIGURE 1-5):

1. **Using a No. 2 Phillips screwdriver, remove the two screws securing the system cover to the chassis.**

2. **Grasp the center front edge of the system cover. Slide the system cover toward the rear of the system until the cover tabs release.**

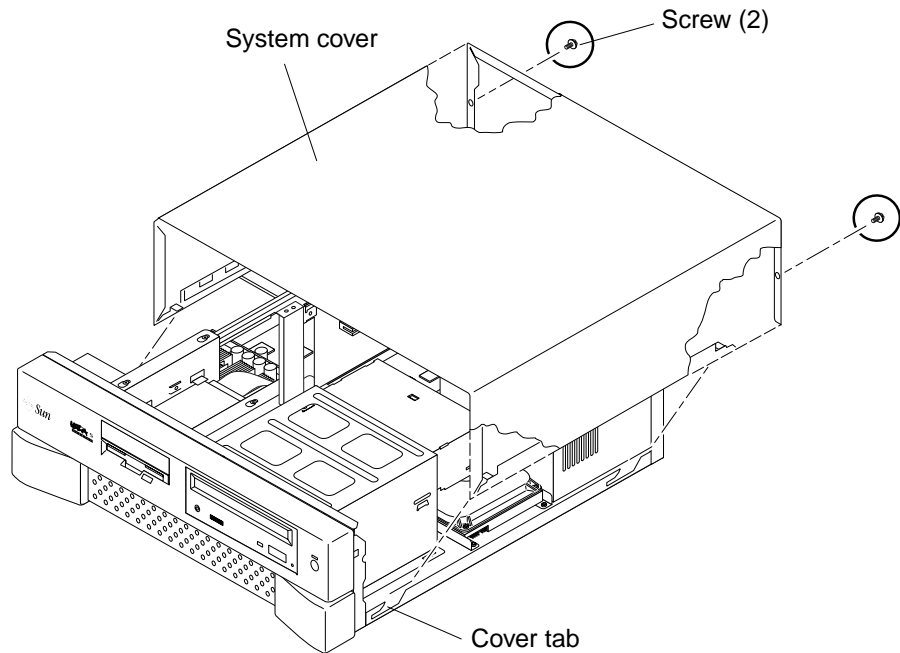3. **Lift the system cover straight up. Set it aside in a safe place.**

FIGURE 1-5   Removing the Ultra 5 System Cover

1.4.3   Attaching the Wrist Strap

Caution – Wear an antistatic wrist strap and use an ESD-protected mat when handling components. When servicing or removing system components, attach an ESD strap to your wrist, then to a metal area on the chassis. Then disconnect the power cord from the system and the wall receptacle. Following this caution equalizes all electrical potentials with the system.

1. **Unwrap the first two folds of the wrist strap; wrap the adhesive side firmly against your wrist.**

2. **Peel the liner from the copper foil at the opposite end of the wrist strap.**

3. **Attach the copper end of the wrist strap to the chassis (**FIGURE 1-6**).**

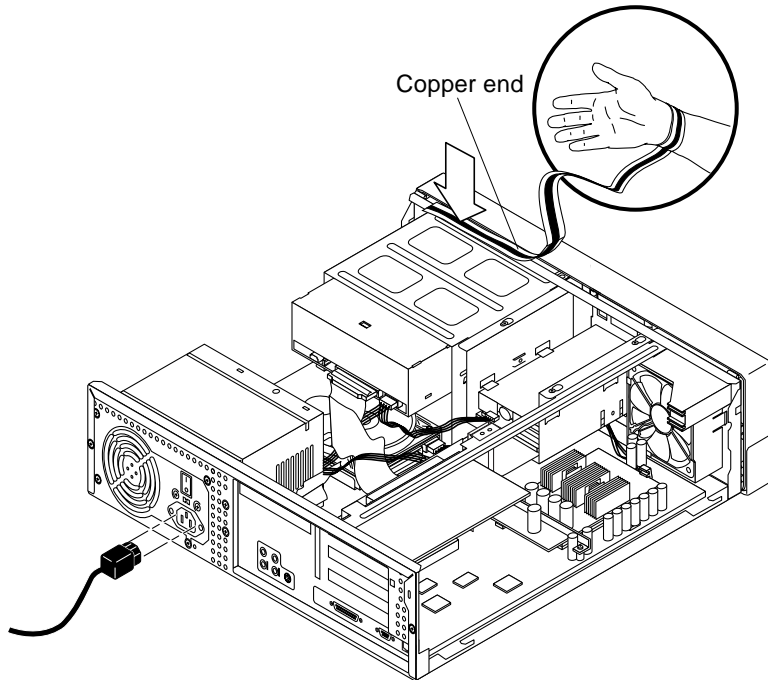4. **Disconnect the power cord from the system.**

Copper end

FIGURE 1-6 Attaching the Wrist Strap to the Ultra 5 Chassis

1.5 Replacing the CPU Module

To remove and replace the CPU module, proceed as follows.

Note – An Ultra 5 system whose CPU is upgraded to 440MHz, and whose serial number on the EZ label affixed to the outside of the system case does not include the words "Series 3," will change to Class A compliance after the upgrade. Refer to the Class A notices in the Regulatory Compliance Statement preface.

1.5.1 Removing the CPU Module

⚠ **Caution –** The static random access memory (SRAM) heatsinks are extremely fragile. Do not touch the SRAM heatsinks.

1. **If necessary, remove any PCI cards from PCI slots 1 and 3 to provide clearance.**

2. **Remove the CPU module as follows (**FIGURE 1-7**):**

   a. **Using a No. 2 Phillips screwdriver, remove the screw securing the hold-down brace to the riser. Remove the hold-down brace.**

   b. **Using your fingers, press the CPU module hold-down clip to the side until it slips off the CPU module.**

   c. **Using your fingers, gently lift the CPU module** *evenly* **to loosen it from the motherboard CPU connectors MJ1 and MJ2.**

   d. **Lift the CPU module upward from the motherboard CPU connectors until it clears the system chassis.**
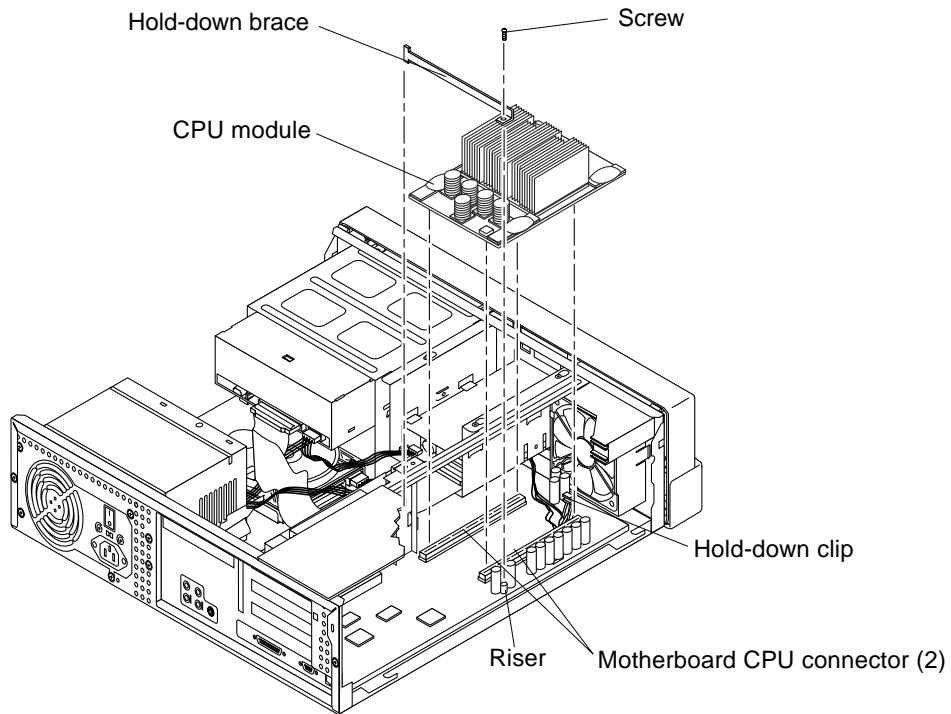
   e. **Place the CPU module on an antistatic mat.**

FIGURE 1-7 Removing and Replacing the Ultra 5 CPU Module

1.5.2   Replacing the CPU Module

1. **Replace the CPU module as follows (**FIGURE 1-7**):**

   a. **Position the new CPU module onto the motherboard CPU connectors MJ1 and MJ2.**

   b. **Grasping the CPU module, gently press on the CPU module rear edges and then the front edges until the CPU module begins to seat.**

   c. **Using both hands, press downward evenly on its edges until the CPU module is properly seated in the motherboard CPU connectors and the CPU module hold-down clip clicks in place over the edge of the CPU module.**

   d. **Replace the hold-down brace. Using a No. 2 Phillips screwdriver, replace the screw securing the hold-down brace to the riser.**

2. **Replace any PCI card(s) removed from slots 1 and 3.**

Note – If you upgrade with a replacement CPU module that is faster than 420 MHz, *and* the system is using either the Solaris 2.5.1 or 2.6 operating environments, software patches are required for those Solaris releases to run at the faster CPU speed. You can order the software patch CDs using part number 704-6657 (for Solaris 2.5.1) or 704-6658 (for Solaris 2.6). Refer to the patch installation instructions in the CD-insert document included with the CDs.

1.6 Replacing the System Cover

1. **Remove the wrist strap from the system chassis and from your wrist.**

2. **Replace the Ultra 5 system cover as follows (**FIGURE 1-8**):**

   a. **Position the system cover onto the system chassis. Slide the system cover toward the front of the system until the cover tabs lock.**

   b. **Using a No. 2 Phillips-head screwdriver, replace the two screws securing the system cover to the chassis.**
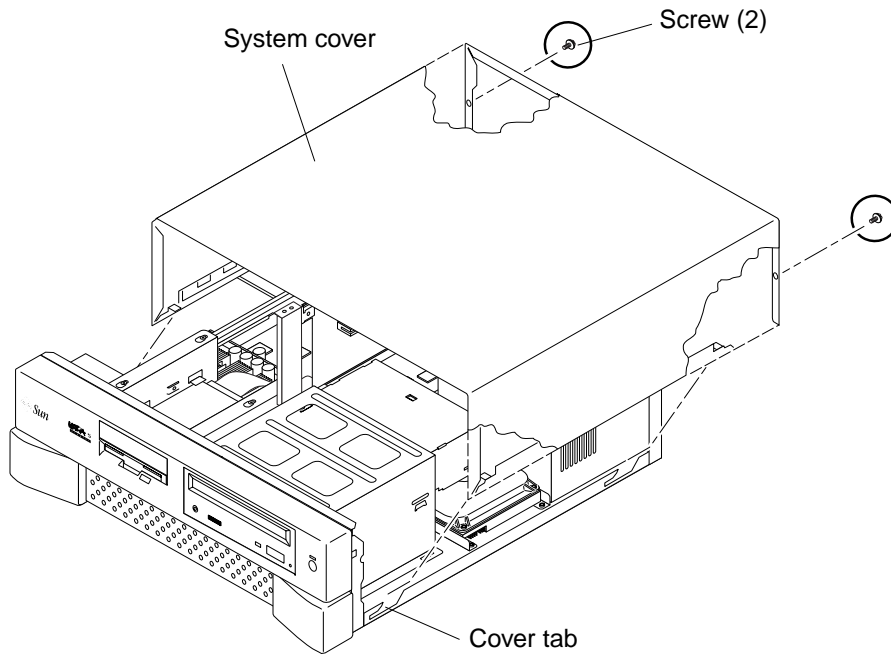
FIGURE 1-8   Replacing the Ultra 5 System Cover

1.7   Powering On the System

To power on the system:

Caution – Plugging a 115V power cord into a 230V connector will severely damage the system.

1. **Verify the voltage selector switch is set to the correct setting: 115V or 230V.**

2. **Connect the system power cord to the system and to an AC power outlet.**

3. **Reconnect and turn on power to any peripherals (so that the system can recognize the peripherals when it is powered on).**
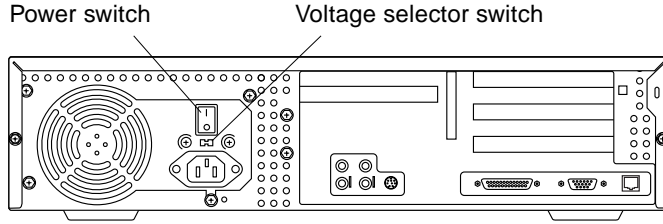
4. **Set the power switch to the on position (**FIGURE 1-9**).**

Power switch   Voltage selector switch

FIGURE 1-9   Ultra 5 System Power Switch

5. If the system does not begin to power up, press the Standby switch (FIGURE 1-10**), or press the Sun Type-5 keyboard Standby key (**FIGURE 1-11**) or the Sun I/O Type-6 keyboard Power key (**FIGURE 1-11**).**
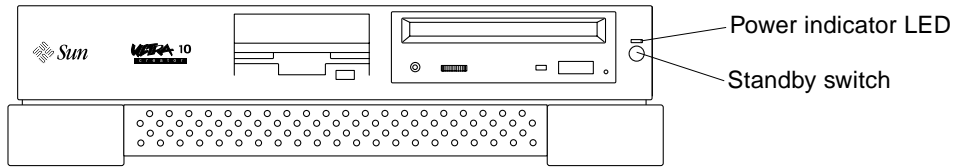

Power indicator LED

Standby switch

FIGURE 1-10   Ultra 5 System Standby Switch

Standby key
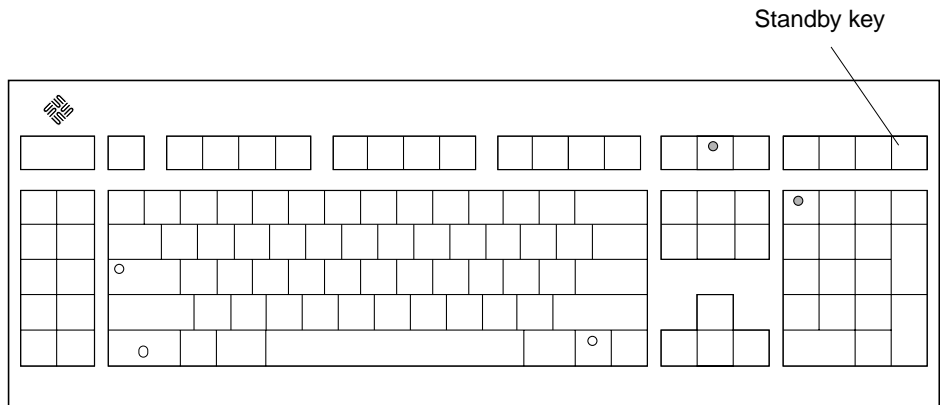

FIGURE 1-11   Sun Type-5 Keyboard
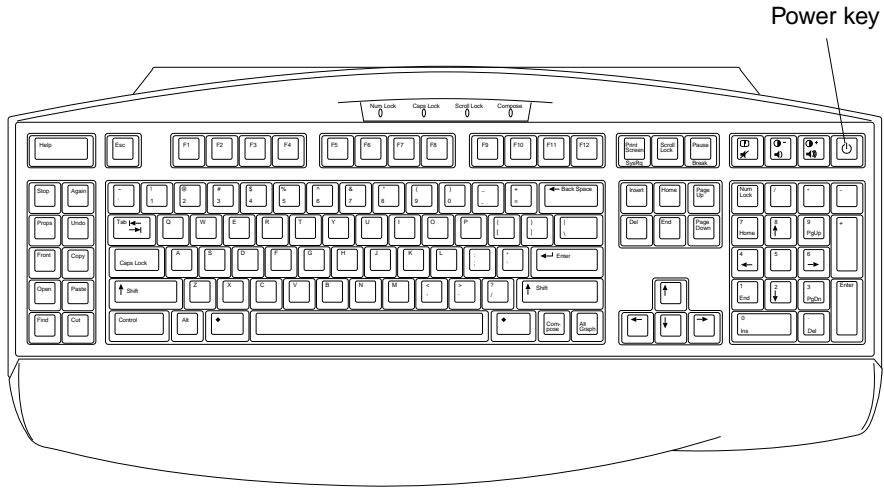
Power key

FIGURE 1-12 Sun I/O Type-6 Keyboard

6. **Verify the following:**

   a. **The front panel power indicator LED is on.**

   b. **The system fans are spinning.**

Upgrading the Ultra 10 CPU

This chapter describes how to upgrade the Ultra 10 CPU module.

This chapter contains the following topics:

2.1 Tools Required

The following tools are required to upgrade Ultra 10 CPU module.

- No. 2 Phillips screwdriver (magnetized tip suggested)
- Needle-nose pliers
- Grounding wrist strap
- Antistatic mat

Place ESD-sensitive components such as the CPU module on an antistatic mat. The following items can be used as an antistatic mat:

- Bag used to wrap a Sun replacement part
- Shipping container used to package a Sun replacement part
- Inner side (metal part) of the system cover
- Sun ESD mat, part number 250-1088 (available through your Sun sales representative)
- Disposable ESD mat shipped with replacement parts or optional system features

2.2 Updating the Ultra 10 Flash PROM

Refer to *Sun Flash PROM Guide for Workstations and Workgroup Servers—Standalone Version*, part number 802-3233, for instructions on updating the Ultra 10 system flash PROM so that the system will accept the 440 MHz CPU module.

That manual, and accompanying *Sun4u flash PROM Update 2.1* CD, is included in the 440 MHz CPU upgrade kit.

Note – Be sure to restore the flash PROM jumper setting after the flash update is completed.

2.3 Updating Solaris 2.5.1 or Solaris 2.6

If you intend to run the Ultra 10 system under Solaris 2.5.1 or Solaris 2.6, you need to update the operating system software to operate with the 440 MHz CPU module.

Refer to *Installing Solaris™ 2.5.1 or Solaris 2.6 Software on 419+ MHz Systems*, part number 806-2156, for instructions on updating Solaris 2.5.1 or Solaris 2.6 installed on the system to be upgraded.

That manual, and accompanying CD is included in the 440 MHz CPU upgrade kit.

2.4 Preparing the System

Before you can upgrade the Ultra 10 CPU module, you have to prepare the system for replacing the existing CPU module.

2.4.1 Powering Off the System

To power off the system:

1. **Back up system files as necessary.**

See *Solaris Handbook for SMCC Peripherals,* part number 802-7675.

Caution – Exit from the operating system before turning off system power. Failure to do so may result in data loss.

2. **Press the system standby switch (**FIGURE 2-1**) or press the Sun Type-5 keyboard Standby key (**FIGURE 2-2**) or the Sun I/O Type-6 keyboard Power key (**FIGURE 2-3**).**

Note – For the system to gracefully shut down by the standby switch or the Sun Type-5/6 keyboard Standby/Power key, UNIX must be operating. If the system is in POST, the standby switch and the Standby key are inoperative.

Caution – Pressing the standby switch or pressing the Sun Type-5/6 keyboard Standby/Power key does not remove all power from the system; a trickle voltage remains in the power supply. To remove all power from the system, set the power switch to the off position.
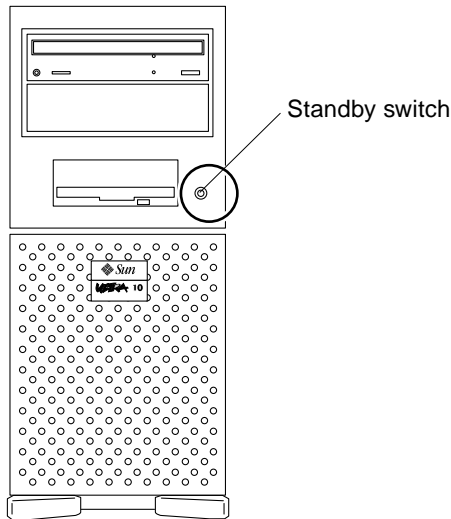

Standby switch

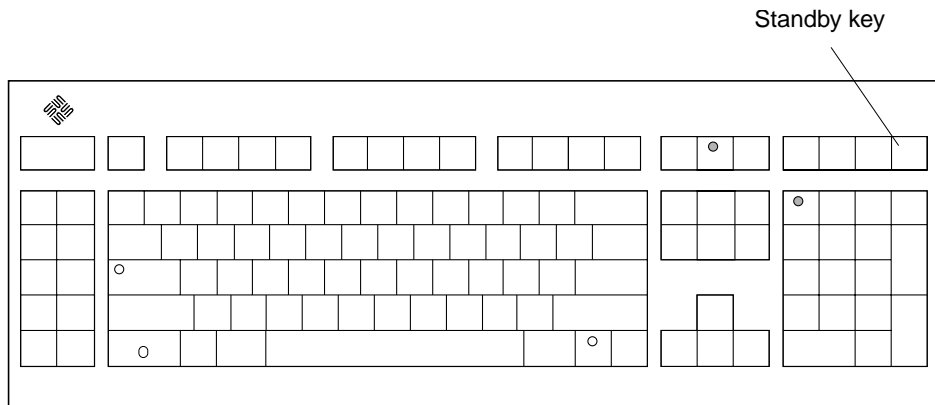**FIGURE 2-1**   Ultra 10 System Standby Switch

Standby key

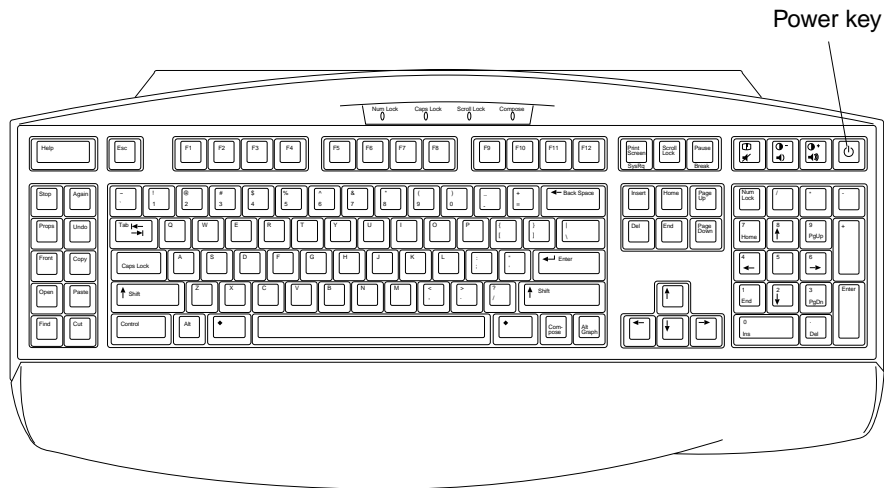**FIGURE 2-2**   Sun Type-5 Keyboard

Power key

FIGURE 2-3   Sun I/O Type-6 Keyboard

3. Set the system power switch to the off position (FIGURE 2-4**).**

Note – For a typical system shutdown or restart, it is not necessary to set the power switch to the off position.
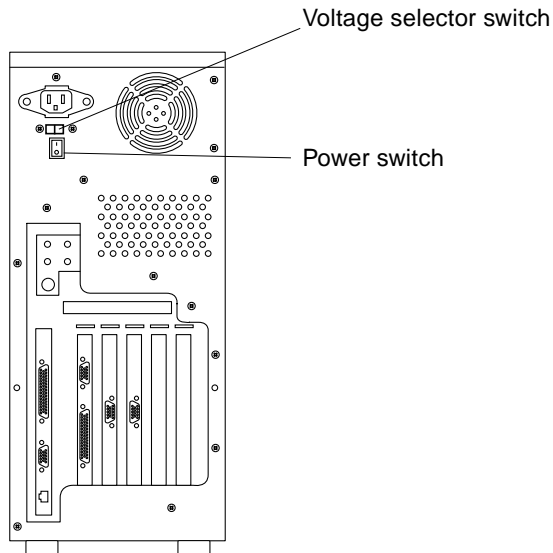
Voltage selector switch

Power switch

FIGURE 2-4   Ultra 10 System Power Switch

4. **Verify the following:**

   a. **The front panel power indicator LED is off.**

   b. **The system fans are not spinning.**

5. **Turn off the power to the monitor and any peripheral equipment.**

6. **Disconnect cables to any peripheral equipment.**

2.4.2   Removing the System Cover

Remove the system cover as follows (FIGURE 2-5):

1. **Position the system upside-down on its top.**

2. **Using a No. 2 Phillips screwdriver, remove the four screws securing the system cover to the chassis.**

3. **Disengage the system cover from the cover tabs.**

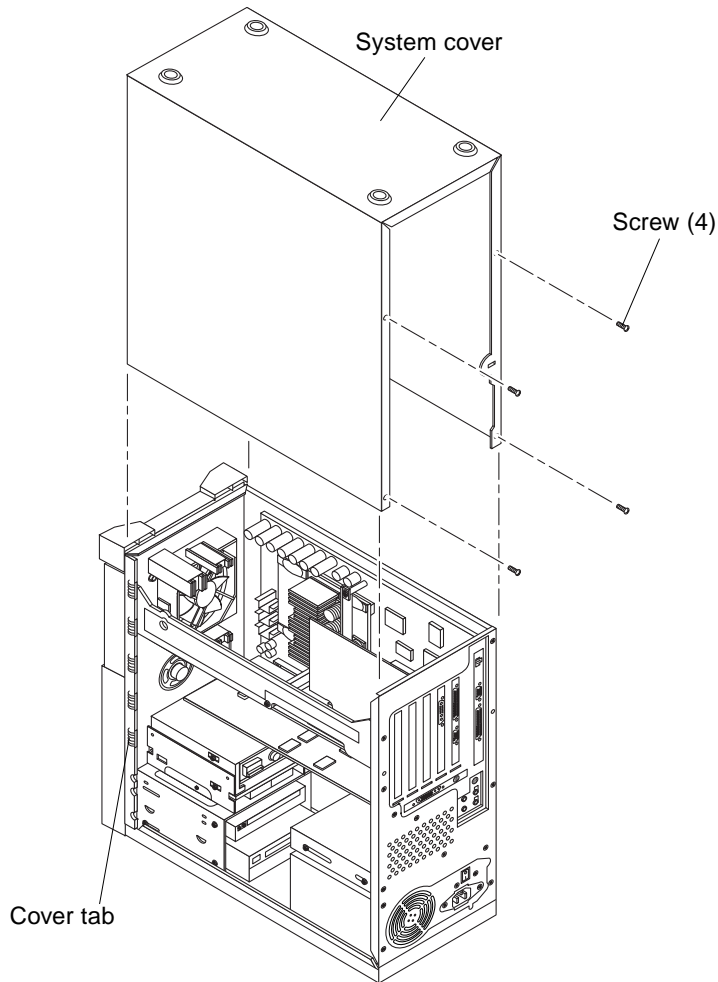4. **Lift the system cover straight up. Set it aside in a safe place.**

FIGURE 2-5 Removing the Ultra 10 System Cover

2.4.3   Attaching the Wrist Strap

> **Caution –** Wear an antistatic wrist strap and use an ESD-protected mat when handling components. When servicing or removing system components, attach an ESD strap to your wrist, then to a metal area on the chassis. Then disconnect the power cord from the system and the wall receptacle. Following this caution equalizes all electrical potentials with the system.

1. **Unwrap the first two folds of the wrist strap; wrap the adhesive side firmly against your wrist.**

2. **Peel the liner from the copper foil at the opposite end of the wrist strap.**

3. **Attach the copper end of the wrist strap to the chassis (**FIGURE 2-6**).**

4. **Disconnect the AC power cord from the system.**

Caution – Disconnect the power cord prior to servicing system components.
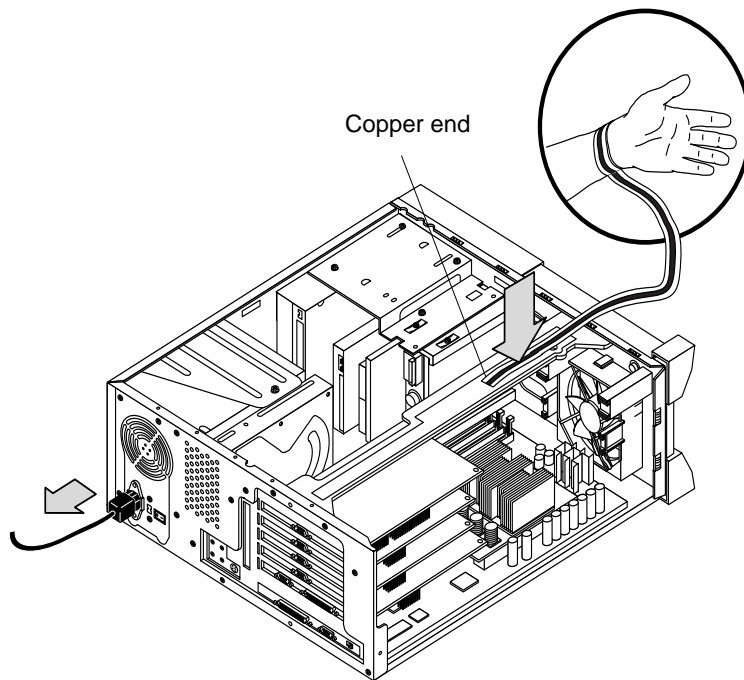

Copper end

FIGURE 2-6   Attaching the Wrist Strap to the Ultra 10 Chassis

2.5 Replacing the CPU Module

To remove and replace the CPU module, proceed as follows.

2.5.1 Removing the CPU Module

Caution – The static random access memory (SRAM) heatsinks are extremely fragile. Do not touch the SRAM heatsinks.

1. **If necessary, remove any PCI cards installed to provide clearance.**

2. **Remove the CPU module as follows (**FIGURE 2-7**):**

   a. **Using a No. 2 Phillips screwdriver, remove the screw securing the hold-down brace to the riser. Remove the hold-down brace.**

   b. **Using your fingers, push the CPU module hold-down clip off the edge of the CPU module.**

   c. **Using your fingers, gently and evenly lift the edges of the CPU module to loosen it from the motherboard CPU connectors MJ1 and MJ2.**

   d. **Lift the CPU module upward from the motherboard CPU connectors until it clears the system chassis.**
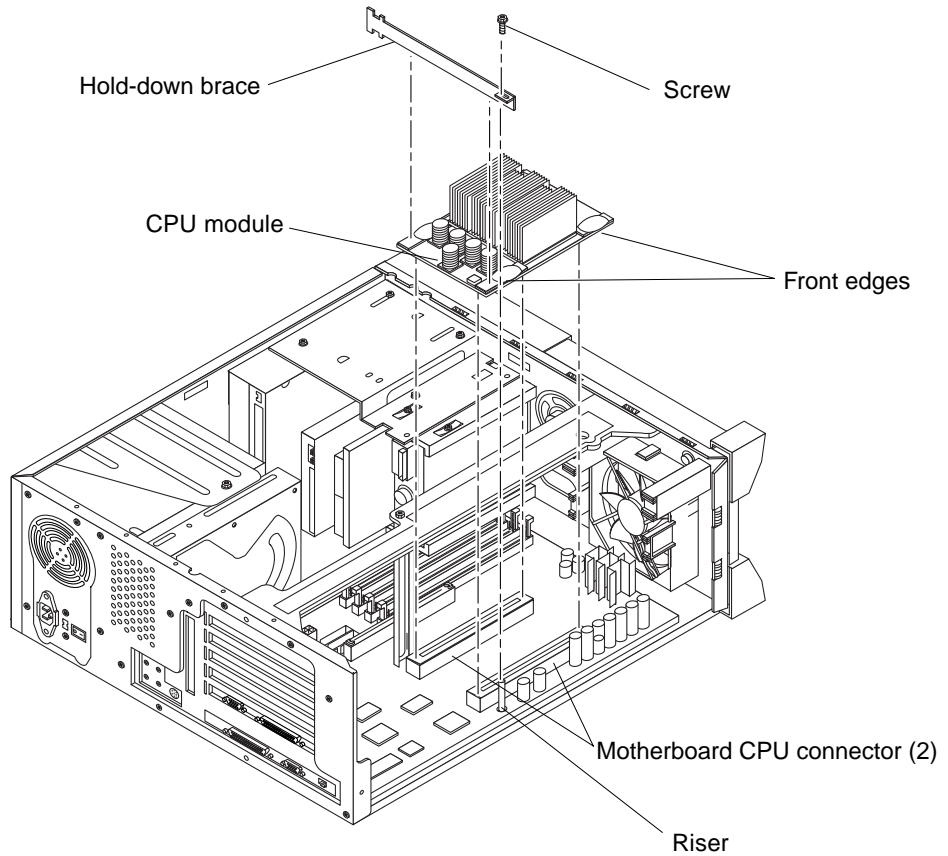
   e. **Place the CPU module on an antistatic mat.**

FIGURE 2-7 Removing and Replacing the Ultra 10 CPU Module

2.5.2 Replacing the CPU Module

1. **Replace the CPU module as follows (**FIGURE 2-7**):**

   a. **Position the CPU module onto the motherboard CPU connectors MJ1 and MJ2.**

   b. **Grasping the CPU module, gently and evenly press on the CPU module edges until the CPU module begins to seat.**

   c. **Using both hands, press the CPU module downward evenly until it is properly seated in the motherboard CPU connectors and the CPU module hold-down clip clicks in place over the edge of the CPU module.**

d. **Replace the hold-down clip. Using a No. 2 Phillips screwdriver, replace the screw securing the CPU module hold-down clip to the motherboard.**

   e. **Replace the hold-down brace. Using a No. 2 Phillips screwdriver, replace the screw securing the hold-down brace to the riser.**

2. **Replace any PCI card(s) removed.**

Note – If you upgrade with a replacement CPU module that is faster than 420 MHz, *and* the system is using either the Solaris 2.5.1 or 2.6 operating environments, software patches are required for those Solaris releases to run at the faster CPU speed. You can order the software patch CDs using part number 704-6657 (for Solaris 2.5.1) or 704-6658 (for Solaris 2.6). Refer to the instructions included with the CD in the *Solaris 2.5.1 and 2.6 for 420+ MHz Systems Installation Guide.*

2.6   Replacing the System Cover

1. **Remove the wrist strap from the system chassis and from your wrist.**

2. **Replace the system cover as follows:** (FIGURE 2-8)**:**

   a. **Position the system upside-down on its top.**

   b. **Position the system cover onto the system chassis. Press the system cover onto the chassis until the cover tabs lock.**

   c. **Using a No. 2 Phillips screwdriver, replace the four screws securing the system cover to the chassis.**
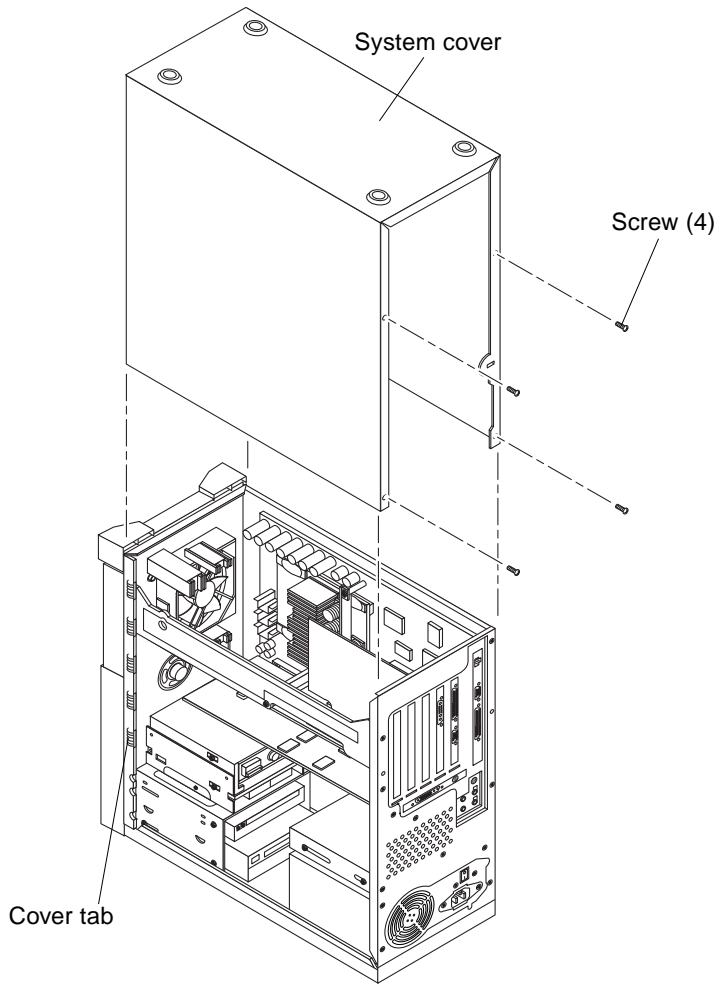
   d. **Position the system upright.**

FIGURE 2-8   Replacing the Ultra 10 System Cover

2.7   Powering On the System

To power on the system:

⚠️

Caution – Plugging a 115V power cord into a 230V connector will severely damage the system.

---

1. **Verify the voltage selector switch is set to the correct setting: 115V or 230V.**

2. **Connect the system power cord to the system and to an AC power outlet.**

3. **Reconnect and turn on power to any peripherals (so that the system can recognize the peripherals when it is powered on).**

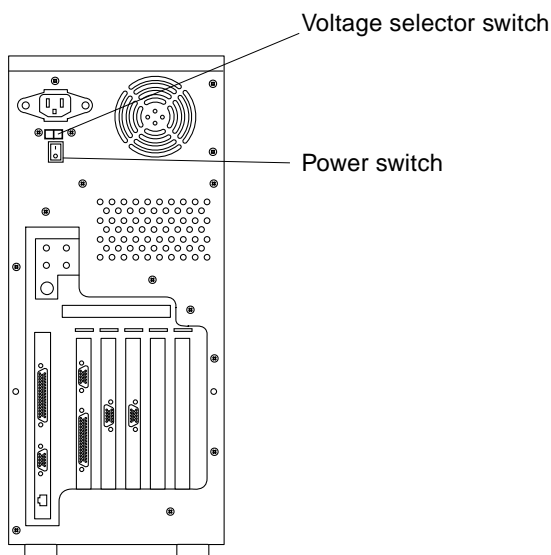4. **Set the power switch to the on position (**FIGURE 2-9**).**

FIGURE 2-9   Ultra 10 System Power Switch

5. **If the system does not begin to power up, press the standby switch (**FIGURE 2-1**), or press the Sun Type-5 keyboard Standby key (**FIGURE 2-2**) or the Sun I/O Type-6 keyboard Power key (**FIGURE 2-3**).**
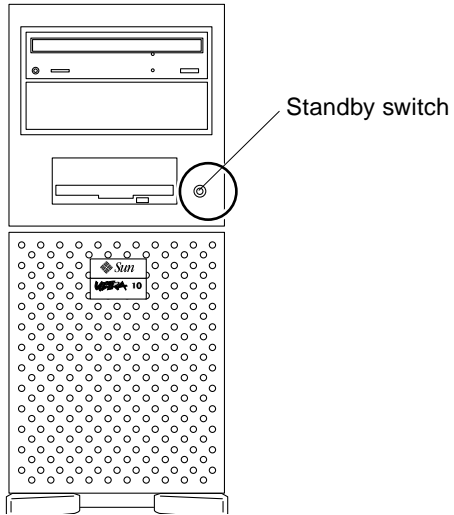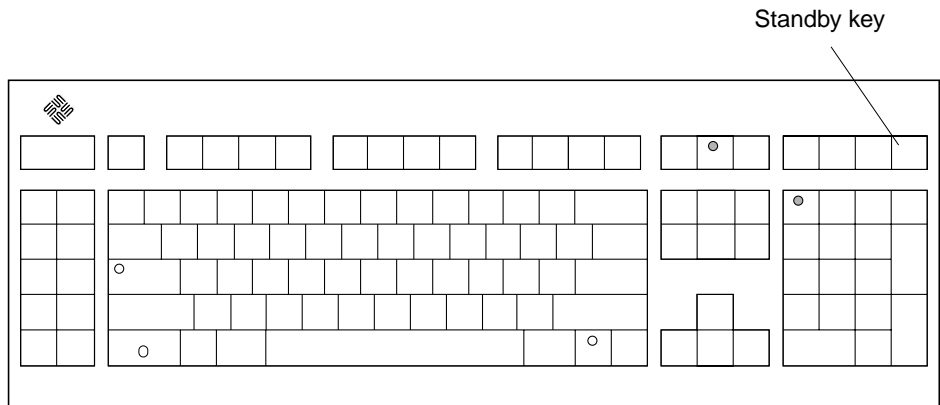
FIGURE 2-10 Ultra 10 System Standby Switch

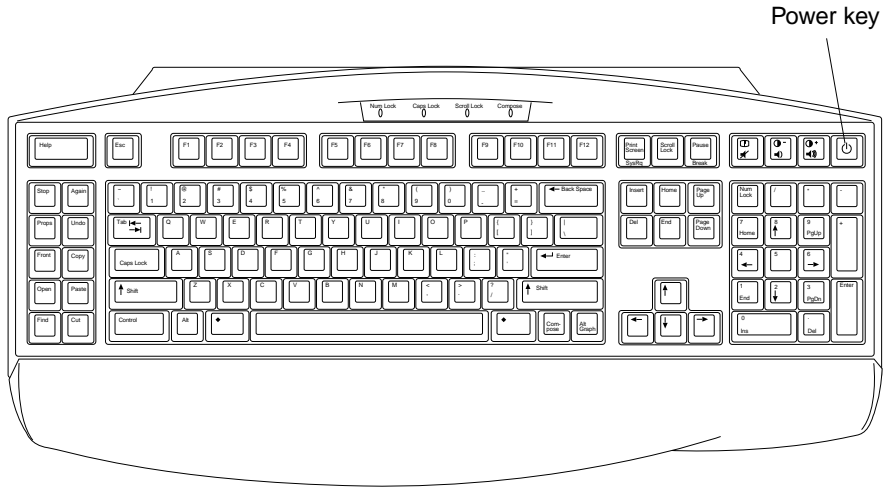**FIGURE 2-11** Sun Type-5 Keyboard

Power key

FIGURE 2-12 Sun I/O Type-6 Keyboard

6. **Verify the following:**

   a. **The front panel power-indicator LED is on.**

   b. **The system fans are spinning.**