User's Manual

55xx Passive Backplane Chassis

24378A
January, 1997

Limited Warranty

(a)Texas Microsystems warrants that the chassis sold by it hereunder will be free from defects in materials or workmanship, under normal use and service, **for a period of one year from date of shipment**. Said chassis will meet the specifications in effect at the time of manufacture. Texas Microsystems' sole obligation under this warranty shall be, at its option, to repair or replace, without charge, any defective component part of such product, within a reasonable time period.

(b)Texas Microsystems shall not be liable under this warranty for (i) the goods that Buyer alleges are defective and have been repaired or altered by someone other than Texas Microsystems' designated personnel or authorized representative, unless such repair or alteration was effected pursuant to prior written approval of Texas Microsystems, or (ii) where the Buyer fails to notify Texas Microsystems of any alleged defect within the period of warranty, or (iii) where the Buyer fails to return defective item to Texas Microsystems, in Houston, Texas, freight prepaid or (iv) where equipment has been altered or damaged in any way which Texas Microsystems reasonably determines to personally affect the performance and reliability, or where the equipment has been subject to misuse, neglect or accident. The rights and remedies granted to Buyer under this paragraph constitute Buyer's sole and exclusive remedy against Texas Microsystems, its officers, agents and employees for negligence, inexcusable delay, breach of warranty, express or implied, or for any default whatsoever relating to the condition of the product or Texas Microsystems's duties to eliminate any errors.

This warranty is in lieu of any other warranty, whether expressed, implied or statutory, including, but not limited to, any warranty for fitness of purpose, merchantability, or freedom from infringement or the like, and any warranty otherwise arising out of any proposal, specifications or sample. Texas Microsystems neither assumes nor authorizes any person to assume for it any other liability.

Every effort has been made to ensure that the information provided in this manual is complete and accurate. However, technical inaccuracies or typographical errors may be inadvertently included. Texas Microsystems assumes no responsibility for any errors that may be contained in this document. Texas Microsystems makes no promise to update or keep current the information contained in this document. Information in this document, including product specifications, is subject to change without notice.

IMPORTANT!

Always use caution when handling/operating your system. ***Only qualified, experienced, authorized electronics service personnel should access the unit's interior.*** Use extreme caution when installing/removing components. If you have any questions, please contact Texas Micro's Technical Support department at 1-800-627-8700.

A LIRE IMPERATIVEMENT

Quand vous manipulez ou utilisez votre système, faites preuve en toutes circonstances de la plus grande prudence. Seuls des techniciens électroniciens qualifiés et expérimentés peuvent avoir accès à l'intérieur de votre système. Si vous désirez poser des questions complémentaires, n'hésitez pas à prendre contact avec le Département d'assistance technique de Texas Micro au (USA) 1-713-541-8200.

BITTE ZUERST LESEN

Seien Sie immer vorsichtig, wenn Sie mit Ihrem System umgehen oder es bedienen. Nur qualifiziertes, erfahrenes Personal fär Elektronik sollte am Inneren des Gerätes arbeiten. Win Sie irgenwelche Fragen haben, setzen Sie sich bitte nit der Abteilung fr technische Unterstützung von Texas Micro unter der Rufnummer (USA) 1-800-541-8200 in Verbindung.

Standards met by the 55xx Passive Backplane Chassis			
Location	**Safety**	**Emissions / Immunity: Model 5520P with P5000HX Series**	**Emissions / Immunity: Models 5518P and 5512PE**
North America	UL, C-UL Recognized. UL/CSA 1950, Rev. 3.	FCC Class B self certification, Canadian Digital Device Law, Class B	FCC Class A self certification. Canadian Digital Device Law, Class A
International	TUV-GS Licensed. EN60950, IEC 950, CB Report.	EMC Directive, 89/336/EEC EC marking, CISPR 22, Level B	EMC Directive, 89/336/ EEC EC marking. CISPR 22, Level A

FCC Notice for Model 5520P with P5000HX Series

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 instruction manual, 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 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 the 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/TV technician for help.

The user may find the following booklet prepared by the Federal Communications Commission helpful:

> "How to Identify and Resolve Radio/TV Interference Problems."

This booklet is available from the U.S. Government Printing Office, Washington,D.C. 20402, Stock No. 004-000-00345-4.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation,

> "SHIELD INTERFERENCE CABLE(S) MUST BE USED ACCORDING TO FCC 15.838D."

Caution: Changes or modifications not expressly approved by Texas Microsystems, Inc., could void your authority to operate this equipment in accordance with FCC rules and regulations.

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 the user's own expense.

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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION: Any modifications or changes to this product not expressly approved in writing by the manufacturer responsible for compliance to Federal Regulations could void the user's authority to operate this product within the Laws and Regulations of the Federal Communications Commission.

FCC Notice for Models 5518P and 5512PE

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 the user's own expense.

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, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Canadian Emissions Notice

This equipment complies with the Canadian Digital Device Law, Class A.

Canadian Emissions Notice (French)

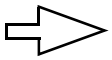
Cet appareil est conforme au reglement Canadien relatif aux appareil numeriques de classe A.

Changes or modifications not expressly approved by Texas Microsystems could void the product warranty and the user's authority to operate the equipment.

Conventions

Overview

The following symbols and text conventions are used to communicate specific levels of caution or highlight important data.

Symbol	Description
	**WARNING: Main idea of the warning.** A WARNING indicates a hazard that can cause personal injury if the hazard is not avoided.
	**CAUTION: Main idea of the caution.** A CAUTION indicates a hazard that can cause damage to hardware or software if the hazard is not avoided.
	**NOTE:** A NOTE is not a part of the instructions but provides important background information. A note can also forecast the current task's impact on future choices or activities.
<g>	The letter, number or word in **< >** represents a key on the keyboard.
<Enter>	This is the Enter key.
<Ctrl + C>	Two or more keys connected by a plus sign must be pressed at the same time. When a <+> is in a simultaneous key press, the manual uses this expression: **<+>** + **<**"the other key or keys"**>**.
<a, e, r>	These three keys must be pressed in sequence.
"Conventions"	The text in the manual refers to sections in the manual with the chapter and section number (if appropriate) and the section title. Quotes surround the chapter, section number and section title.
Password screen	The manual represents the name of a specific screen in boldface type followed with the word "screen" if the name does not include the word.
File menu	The menu name is shown in boldface type followed with the word "menu" if the name does not include the word.

Symbols and text conventions

Save option	Menu options are shown in boldface type followed with the word “option” if the name does not include the word.
Key in: `testfile`	Material to be keyed in is shown in plain Courier typeface in the “Task” column of instructions. The task instruction “Key in:” is in helvetica type face. A {_} represents a space between letters.
■ ■ ■	Three black squares at the bottom of a page indicate the end of a chapter.

WARNINGS and CAUTIONS

Overview (the following three subsection)	Please review warning and caution statements and symbols before handling the 55xx passive backplane chassis. The statements and symbols also appear with the instructions / figures.
General	• **WARNING:** Remove front bezel before lifting server. • **WARNING:** Lift the server with two or more people. • **WARNING:** Do not use an AC power cord that does not match the AC outlet. • **WARNING**: No user serviceable parts inside (power supply) • **CAUTION:** Texas Microsystems recommends that you wear cotton gloves... • **CAUTION:** Avoid damaging the display cable. • **CAUTION:** Prevent electrostatic discharge. • **CAUTION:** Avoid damaging power supply parts.
Component Installation	• **WARNING:** Only experienced, authorized electronics service personnel should access the interior of the chassis. • **WARNING:** High current • **WARNING:** Remove power. • **CAUTION:** The internal components are ESD sensitive. • **CAUTION:** Do not damage cables.
Rack installation	• **WARNING:** Extend only one component from the rack. • **WARNING:** Flanges and metal lips support the server. • **WARNING:** Do not accidently pull the server from the rails. • **CAUTION:** Avoid damaging cables.

General WARNINGS and CAUTIONS

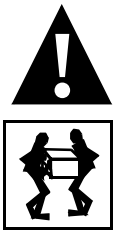
Overview

This section contains the warnings and cautions that apply whenever handling the 55xx passive backplane chassis. Other warnings and cautions from following sections may apply in any specific situation.

WARNING: Remove front bezel before lifting server.
Lifting the server by the molded plastic front bezel may cause the server to disengage from the bezel and fall. Personal injury may result.

AVERTISSEMENT: retirez la collerette du panneau avant puis soulevez le serveur.
Soulever le serveur avec la collerette en plastique moulé peut séparer celui-ci de la collerette et entraîner sa chute. Des blessures pourraient en résulter.

ACHTUNG: Vor dem Heben des Servers die Fronteinfassung entfernen.
Wenn der Server an der Kunststoff-Fronteinfassung gehoben wird, kann sich der Server von der Fronteinfassung lösen und herausfallen. Das kann zu Verletzungen führen.



WARNING: Lift the server with two or more people.
Fully configured, the server weighs over 85 pounds. Personal injury may result unless more than one person lifts the server.

AVERTISSEMENT: deux personnes minimum doivent soulever le serveur.
Complètement configuré, le serveur pèse plus de 38 kilos, et une personne le soulevant seule pourrait se blesser.

ACHTUNG: Es werden mindestens 2 Personen benötigt, um den Server hochzuheben.
Ein vollständig konfigurierter Server wiegt mehr als 38 kg. Wenn eine Person versucht, den Server alleine zu heben, besteht Verletzungsgefahr.

WARNING: Do not use an AC power cord that does not match the AC outlet.
Do not attempt to modify or use the supplied AC power cord if it is not the exact type required by the grounded AC wall outlet

AVERTISSEMENT: n'utilisez pas un cordon d'alimentation qui ne correspond pas à la prise de courant.
N'essayez pas de modifier ou d'utiliser le cordon d'alimentation fourni s'il n'est pas exactement du même type que la prise murale mise à la terre.

ACHTUNG: Kein Wechselstromkabel verwenden, das für die Wandsteckdose ungeeignet ist.
Es darf nicht versucht werden, das mitgelieferte Wechselstromkabel zu modifizieren, wenn dieses für die geerdete Wechselstromsteckdose nicht geeignet ist.

WARNING: No user serviceable parts inside. Double pole, neutral fusing.

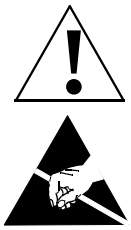
AVERTISSEMENT: Aucune pièce à l'intérieur de l'appareil ne peut être réparée par l'utilisateur. Protection fusible bipolaire neutre.

ACHTUNG: Beinhaltet keine durch den Benutzer instandhaltbaren Einzelteil. Zweipolige. Neutralleiter - Sicherung.

CAUTION: Texas Microsystems recommends that you wear cotton gloves to protect brushed metal surfaces from skin oils. Cotton gloves are not included in the shipping containers.

ATTENTION: Texas Microsystems recommande le port de gants de coton pour protéger les surfaces métalliques des peaux grasses. Ces gants ne sont pas fournis avec le serveur.

VORSICHT: Texas Microsystems empfiehlt, daß das Personal Baumwollhandschuhe trägt, um die gebürsteten Metalloberflächen vor Hautöl zu schützen. Baumwollhandschuhe sind in den Versandbehältern nicht enthalten.



CAUTION: Prevent electrostatic discharge.

Work grounded.

The person servicing the server must be discharged of static electricity while touching an ungrounded chassis containing components or must take precautions against ESD when handling ESD-sensitive electronic parts at any time.

Wear a grounding wrist strap and/or heel strap and work on the server and its internal components at a grounded workstation. Transport un-installed ESD-sensitive boards and parts in anti-static bags or containers.

Electrostatic discharge can damage electronic components and decrease their useful life.

ATTENTION: évitez les décharges d'électricité.

Travaillez toujours avec mise à la terre.

La personne réparant le serveur ne doit pas provoquer de décharge électrique lorsqu'elle touche le châssis non mis à la terre qui contient les composants, et doit toujours prendre des précautions contre les décharges électriques lorsqu'elle manipule les pièces électroniques sensibles à la décharge électrique.

Portez toujours un bracelet de mise à la terre et/ou un bracelet de cheville et travaillez toujours sur le serveur et ses composants internes à un poste mis à la terre. Transportez toujours les cartes et pièces sensibles à la décharge électrique à installer dans des poches ou des conteneurs antistatiques.

Les décharges électriques peuvent endommager les composants électroniques et diminuer leur longévité.

VORSICHT: Elektrostatische Entladungen vermeiden.

Beim Arbeiten Erdung verwenden.

Das Personal, das Servicearbeiten am Server vornimmt, muß elektrostatische Elektrizität ableiten, wenn ein nicht geerdetes Gestell mit elektronischen Bausteinen berührt wird, bzw. es muß immer Vorsichtsmaßnahmen gegen elektrostatische Entladungen treffen, wenn Elektronikteile gehandhabt werden, die auf elektrostatische Entladungen empfindlich sind.

Es ist ein Handgelenk-Erdungsriemen und/oder Fußriemen zu tragen, und Arbeiten am Server und dessen internen Komponenten sind an einer geerdeten Arbeitsstation durchzuführen. Nicht installierte, auf elektrostatische Entladungen empfindliche Teile sind in einem Antistatikbeutel bzw. -karton zu transportieren.

Elektrostatische Entladungen können elektronische Komponenten beschädigen und deren Einsatzdauer verringern.

CAUTION: Avoid damaging power supply parts.
Damage may occur to the power supply pins and thumbscrews and front bezel springs if the server is transported (shipped or moved in a vehicle) with power supplies and front bezel installed

ATTENTION: évitez d'endommager les pièces d'alimentation électrique.
Les broches d'alimentation électrique, les vis à ailettes et les ressors de la collerette du panneau avant peuvent être endommagés lors du transport (par courrier ou par camion) du serveur lorsque les pièces d'alimentation et les collerettes sont installées.

VORSICHT: Die Komponenten des Netzteils nicht beschädigen.
Wenn der Server mit installierten Netzteilen und installierter Fronteinfassung transportiert (versandt oder in einem Fahrzeug transportiert) wird, können die Stifte und Rändelschrauben sowie die Federn der Fronteinfassung beschädigt werden.

CAUTION: Avoid damaging the display cable.
Do not damage the display cable while installing the server top cover.

ATTENTION: évitez d'endommager les câbles du moniteur.
N'endommagez pas le câble du moniteur lors de l'installation du couvercle du serveur.

VORSICHT: Das Videokabel nicht beschädigen.
Die Videokabel bei der Installation der oberen Serverabdeckung nicht beschädigen.

Component Installation: WARNINGS and CAUTIONS

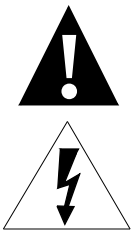
Overview

This section lists the warnings and cautions to observer when working in the front drive bays or anywhere else inside the chassis. The potentially dangerous or potentially damaging situations described below may require observence of the general warnings and cautions as well.

WARNING: Only experienced, authorized electronics service personnel should access the interior of the chassis. If you have any questions, please contact Texas Micro's Technical Support Department at 1-800-627-8700

AVERTISSEMENT: Seuls des techniciens électroniciens qualifiés et expérimentés sont habilités à avoir accés aux éléments internes. Si vous désirez poser des questions complémentaires, n'hésitez pas à prendre contact avec le Département d'assistance technique de Texas Micro au (USA) 1-713-541-8200.

WARNUNG: Nur qualifiziertes, erfahrenes Personal für Elektronik sollte am Inneren des Gertes arbeiten. Wenn Sie irgendwelche Fragen haben, wenden Sie sich bitte an die Abteilung für technische Untersttzung von Texas Micro unter der Rufnummer (USA) 1-713-541-8200.



WARNING: High current
High current inside the server can cause severe injury. Disconnect power before removing the server cover.

AVERTISSEMENT: courant à haute tension
Le courant à haute tension du serveur peut provoquer des blessures graves. Mettez le serveur hors tension avant de retirer son couvercle.

ACHTUNG: Starkstrom
Starkstrom im Server kann schwere Verletzungen verursachen. Die Stromversorgung unterbrechen, bevor die Serverabdeckung entfernt wird.

WARNING: Remove power.
Remove power from the server before replacing the fuse.

AVERTISSEMENT: mettez le serveur hors tension.
Mettez le serveur hors tension avant de remplacer le fusible.

ACHTUNG: Stromversorgung unterbrechen.
Vor dem Auswechseln der Sicherung muß die Stromversorgung des Servers unterbrochen werden.

CAUTION: The internal components of the server chassis are very sensitive to static discharge.

ATTENTION: Les éléments internes du boîtier du serveur sont hautement sensibles à la décharge statique.

VORSICHT: Die internen Komponenten des Server-Gehäuses sindgegenüber statischer Entladung sehr empfindlich.

CAUTION: Do not damage cables.
Install drive cage carefully.

ATTENTION: n'endommagez pas les câbles.
Installez la cage de l'unité avec précaution.

VORSICHT: Kabel nicht beschädigen.
Die Laufwerkshalterung vorsichtig installieren.

Rack installation: WARNINGS and CAUTIONS

Overview

This section lists the warnings and cautions that apply to installing the 55xx passive backplane chassis in a rack. The potentially dangerous or potentially damaging situations describes below may require observence of the general warnings and cautions as well.

WARNING: Extend only one component from the rack.
To increase safety, only one component at any time can be extended on slide rails from the rack. More than one extended component may tip the rack and personal injury may result.

AVERTISSEMENT: ne faites pas sortir plus d'un composant du rack à la fois.
Pour assurer votre sécurité, ne faites pas sortir plus d'un composant à la fois sur ses rails. Si plusieurs composants sont sortis en même temps, le rack peut tomber et vous blesser.

ACHTUNG: Nur jeweils eine Komponente aus dem Gestell ziehen.
Um die Sicherheit zu erhöhen, darf jeweils nur eine Komponente auf den Schienen des Gestells herausgezogen werden. Wenn mehrere Komponenten gleichzeitig herausgezogen werden, könnte das gesamte Gestell umkippen und Verletzungen verursachen.

WARNING: Flanges and metal lips support the server.
The Intermediate Section must capture all of the left and right Chassis Sections. If not, the server may fall and personal injury may result.

AVERTISSEMENT: des brides et des talons métalliques supportent le serveur.
La section intermédiaire du serveur doit contenir les sections gauche et droite du châssis, sinon il risque de tomber et de causer des blessures.

ACHTUNG: Flansche und Metalleisten tragen das Servergewicht.
Der mittlere Abschnitt muß die linken und rechten Gestellabschnitte greifen. Andernfalls kann der Server herunterfallen und Verletzungen verursachen.

WARNING: Do not accidently pull the server from the rails.
After the flat-top buttons in the Intermediate Sections are released, the Chassis and Intermediate Section contact is six (6) inches. Personal injury may result if server falls.

AVERTISSEMENT: ne tirez pas accidentellement le serveur hors de ses rails.
Une fois les boutons plats de la section intermédiaire ouverts, le châssis et la section intermédiaire sont séparés de près de 15 cm. Le serveur pourrait causer des blessures en tombant.

ACHTUNG: Den Server nicht versehentlich aus den Schienen ziehen.
Nach der Freigabe der abgeflachten Knöpfe im mittleren Abschnitt ist die Kontaktfläche zwischen Gestell und mittlerem Abschnitt nur 152 mm lang. Wenn der Server herabfällt, besteht Verletzungsgefahr.

CAUTION: Avoid damaging cables.
Avoid damaging the cables plugged into the rear panel of the server as the server slides out of the rack frame on the slide rails.

ATTENTION: évitez d'endommager les câbles.
Evitez d'endommager les câbles branchés sur le panneau arrière du serveur lorsque celui-ci glisse vers l'avant sur les rails latéraux du rack.

VORSICHT: Kabel nicht beschädigen.
Wenn der Server auf den Schienen aus dem Servergestell gezogen wird, darauf achten, daß die Kabel nicht beschädigt werden, die an der Rückwand des Servers angeschlossen sind.

■ ■ ■

Table of contents

1 *Unpacking and inspection*

This chapter describes unpacking the accessory kit, power supplies, front bezel and 55xx passive backplane chassis.

This section describes unpacking/repacking the 55xx passive backplane chassis from the two shipping boxes. The small box contains the power supplies, front bezel and boxed documentation set. The large box contains the chassis.

Look over the outside of the power supplies, front bezel, and chassis of the 55xx to identify the components ordered and inspect for damage. Remove the top cover and inspect the inside of the chassis.

1.1 Unpacking the small shipping box

Overview

Unpack the small box before unpacking the large box.

Boxes and packing material

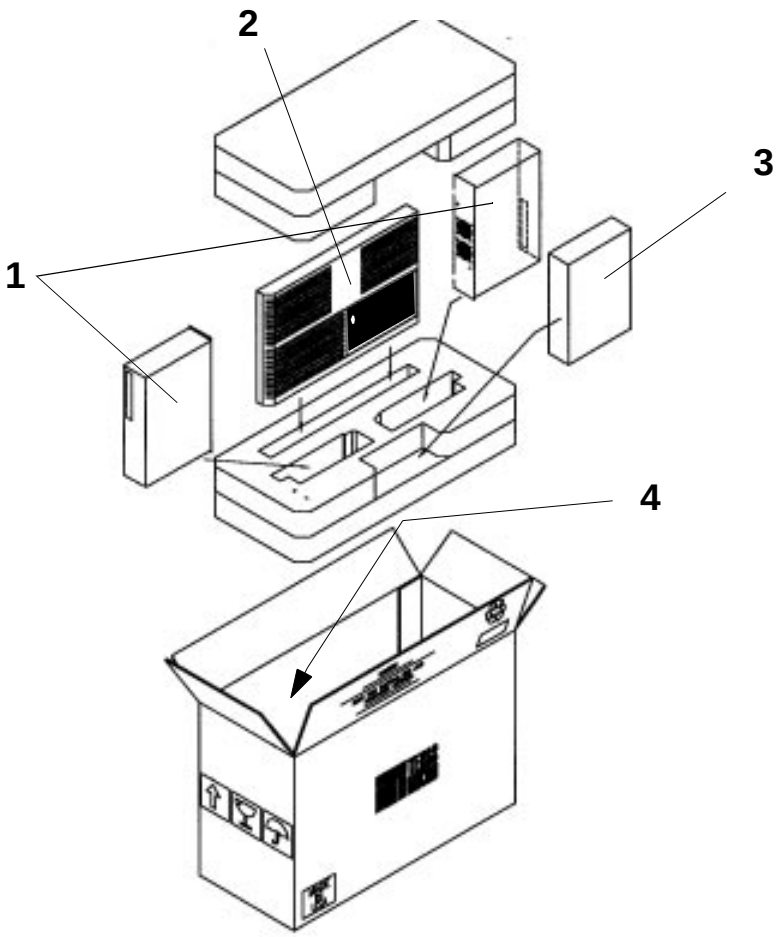
Save the packing boxes and packing material to transport the chassis and power supplies / front bezel in the two separate boxes.

Small shipping box contents

The small box contains these items:

Items in the small shipping box	
#	**Description**
1	**One or two power supplie**s -- Inspect and install the power supplies later in this chapter.
2	**Front bezel / keys to bezel door** -- Install the front bezel after the loaded 55xx is installed in the rack.
3	**Accessory kit box** -- The accessory kit box includes the following items: electrostatic discharge wrist-strap, manual(s), AC power cord, and keys to the front bezel.
4	**International fuse** -- For 55xx used outside North America, refer to “Chapter 2: Installing components” to replace the U.S. fuse with the international fuse.

FIGURE 1 Contents of the small shipping box



1.2 Inspecting the power supply

Overview

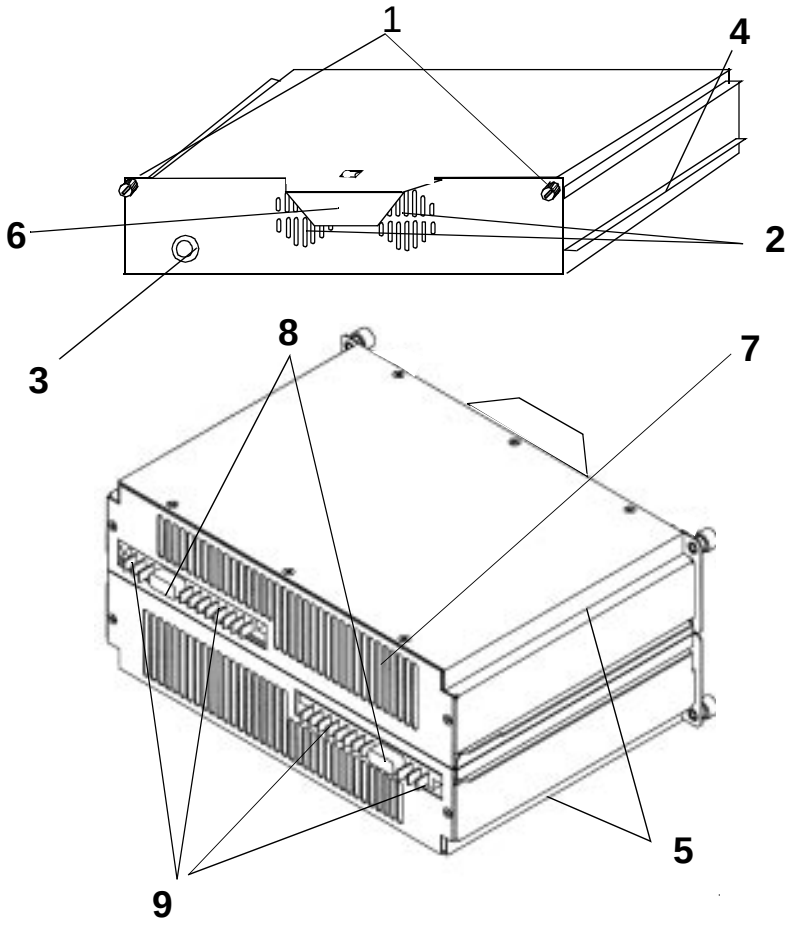
The power supplies are shipped separately from the chassis to prevent damage to the supply power pins. Inspect the power supplies for damage, then install them into the large opening in the rear panel of the chassis. Figure 2 shows all sides of a power supply.

NOTE: If two power supplies are installed, both supplies are the same type of unit. To install the supplies in the chassis, orient one power supply for the top bay with supply thumbscrews up and grounding ridges down to meet the top set of grounding grooves in the chassis. The second identical power supply is oriented with thumbscrews down and grounding ridges up to meet the bottom set of ground grooves.

Power supply features			
#	Description	#	Description
Front, side and top features of a power supply			
1	Thumbscrew	**4**	Grounding ridge
2	Fan grill	**5**	Keying groove
3	Power on LED	**6**	Handle
Rear, side and bottom of a power supply			
7	Vents	**9**	Power pins
8	Communication connector	**--**	--

FIGURE 2 Inspecting a power supply: front, top, side view. Inspecting a power supply: rear, bottom and side view

⚠	**WARNING:** No user serviceable parts inside. Double pole, neutral fusing. **AVERTISSEMENT:** Aucune pièce à l'intérieur de l'appareil ne peut être réparée par l'utilisateur. Protection fusible bipolaire neutre. **ACHTUNG:** Beinhaltet keine durch den Benutzer instandhaltbaren Einzelteil. Zweipolige. Neutralleiter - Sicherung.



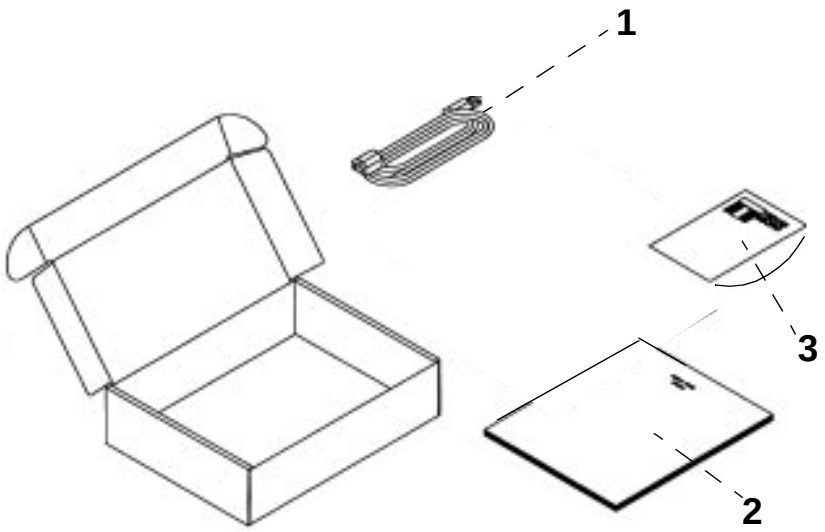
1.3 Accessory kit contents

Overview

The small box, the accessory kit, inside the small shipping box contains the items listed below.

Accessory box contents	
Call-out	**Description**
1	**Power cord** -- A U.S. power cord or a power cord for the region.
2	**User's manual** -- This document guides the person assembling, installing and operating the 55xx.
3	**Electrostatic discharge wrist strap** -- The person handling the 55xx out of its packing or ESD sensitive parts being installed in the 55xx must comply with electrostatic protection guidelines. Wear and ground this wrist strap or use available ESD equipment.

FIGURE 3 Contents of the software kit



1.4 Large shipping box contents

Overview

The large shipping box contains the 55xx chassis.

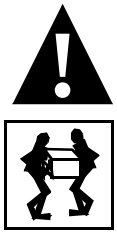
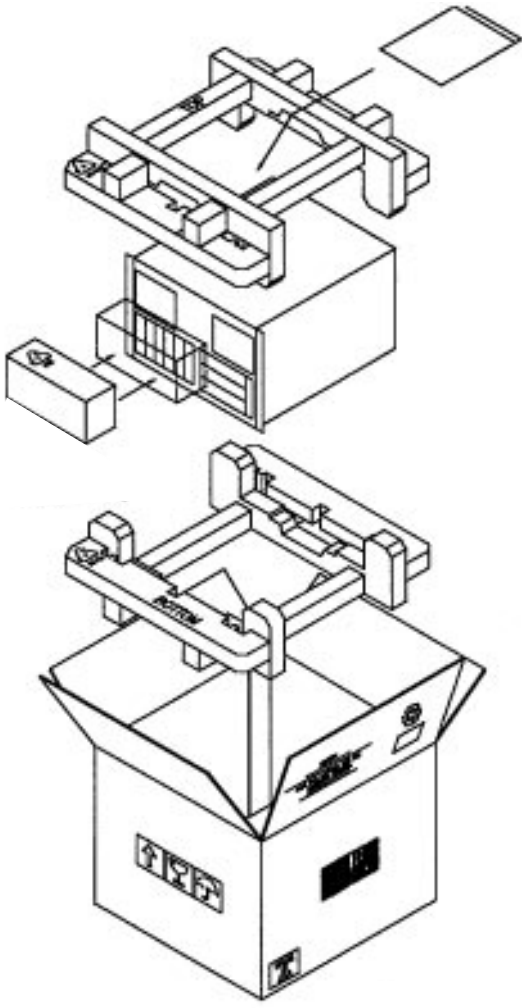
Unpacking the 55xx chassis	
Step	**Action**
	**WARNING: At least 2 people to lift the server.** Fully configured, the server weighs over 85 pounds. Personal injury may result unless more than one person lifts the server. **AVERTISSEMENT: deux personnes minimum doivent soulever le serveur.** Complètement configuré, le serveur pèse plus de 38 kilos, et une personne le soulevant seule pourrait se blesser. **ACHTUNG: Es werden mindestens 2 Personen benötigt, um den Server hochzuheben.** Ein vollständig konfigurierter Server wiegt mehr als 38 kg. Wenn eine Person versucht, den Server alleine zu heben, besteht Verletzungsgefahr.
1	Wear cotton gloves while handling the chassis. Skin oils damage and discolor the brushed metal surface.
2	Ensure that anyone handling the 55xx or its components is grounded with a wrist or head-strap and discharged of electrostatic potentials.
3	Unpack the 55xx chassis and place the chassis on a grounded work area.
4	Save the packing material and the shipping box.
Complete	

FIGURE 4 The 55xx chassis is packed in the large shipping box



1.5 Installing the power supplies

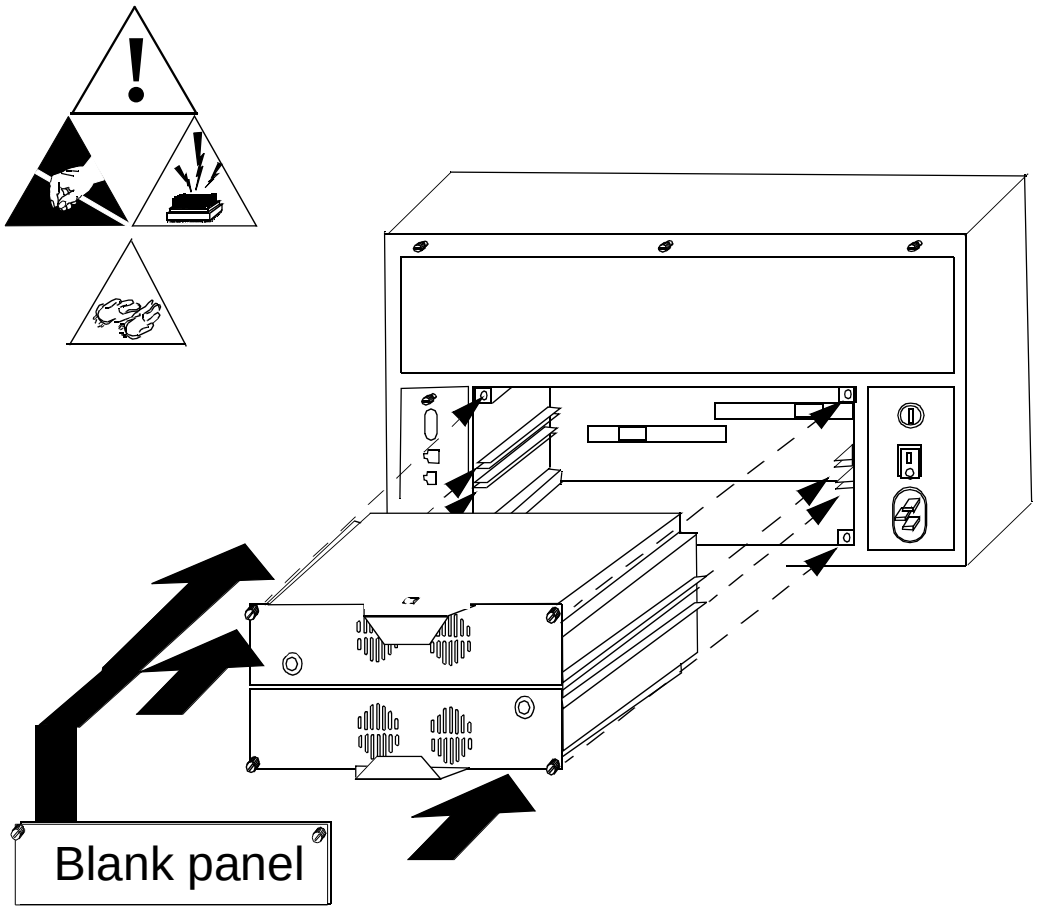
Overview

This section describes installing power supply(ies) in the chassis. These are the keying features of the supplies:

- The power supply **grounding ridge** extends out the sides of the power supply.
- The **upper grounding cut-outs** support a power supply oriented with the corner **rectangular cut-outs** facing up.
- The **lower grounding cut-outs** support a power supply oriented with the corner **rectangular cut-outs** facing down.
- The power supplies have a **rectangular cut-out** in two corners and each corner of the chassis opening in rear panel chassis has a **rectangular key**.

Instructions: Installing the power supplies	
Step	**Action**
1	Wear cotton gloves while handling the 55xx Passive Backplane Chassis. Skin oils can discolor the brushed metal surface.
2	Ensure that anyone handling the chassis platform or its components is grounded with a wrist or heel-strap and is discharged of electrostatic potentials.
3	Slide the lower power supply along the **lower grounding cut-out** into the chassis.
4	Secure the lower power supply with the two thumbscrews.
5	Slide the upper power supply along the **upper grounding cut-out** into the chassis, or secure the blank panel over the upper power supply bay.
6	If installed, secure the upper power supply with the two thumbscrews.
Power supply installation is complete.	

FIGURE 5 Installing the power supplies in the rear cavity of the chassis



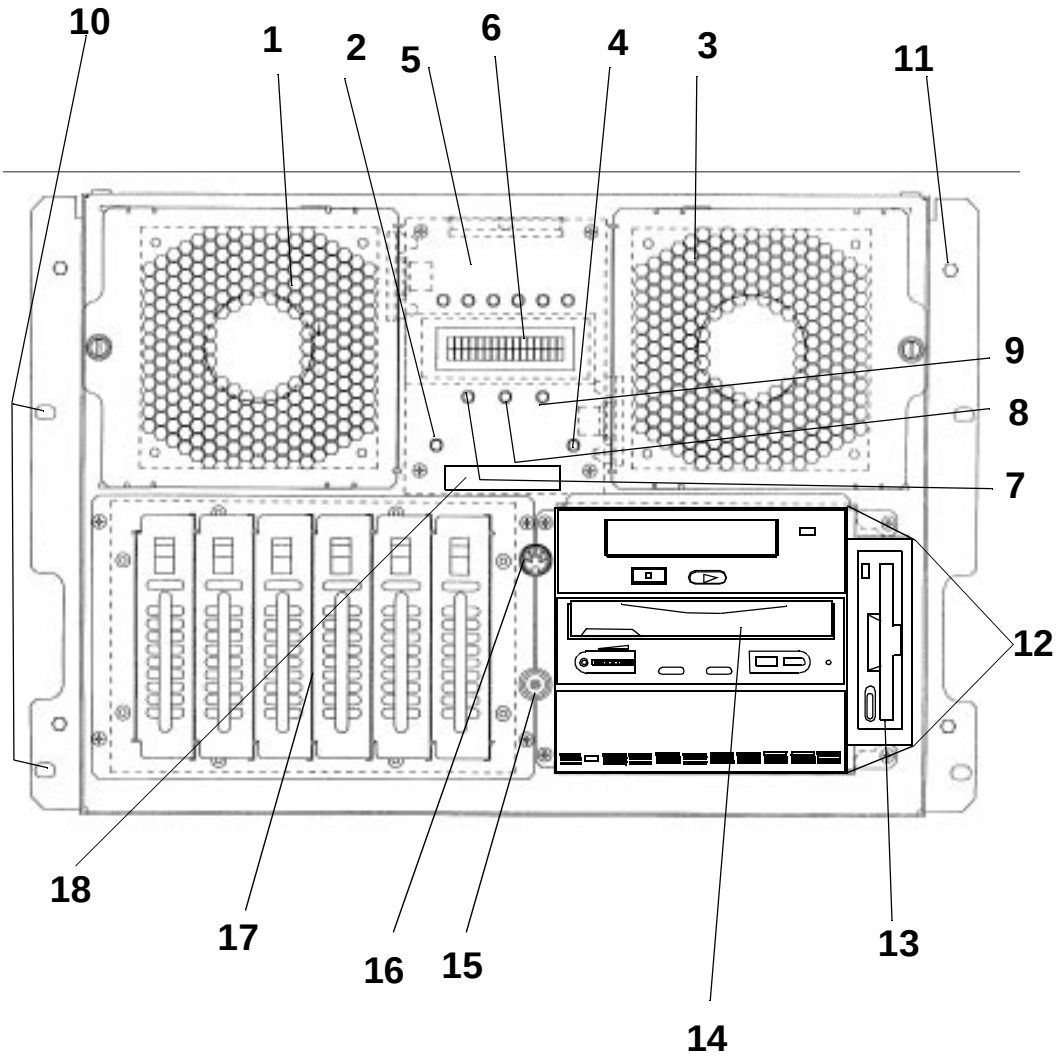
1.6 Front panel features

Overview

This section shows the front panel of 55xx chassis. See “Appendix A: Supported upgrades and equipment” for more information.

Front panel features			
#	Description	#	Description
1	Redundant dual fan assembly (left)	**10**	Faceplate mounting holes to rack
2	Left fan fault LED (red)	**11**	Ball studs to mount the front bezel
3	Redundant dual fan assembly (right)	**12**	Media drive area: three 5.25” drive bays and a 3.5” floppy drive bay
4	Right fan fault LED (red)	**13**	Floppy drive
5	6 activity LEDs (amber) for the SCA arrayed hard drives (SCSI-3 ID 0 - 5)	**14**	Three 5.25” peripheral positions. (The illustration shows only an example of drives available.)
6	Status display	**15**	Reset button (red) (a second reset button to the left for split backplane models)
7	Power on LED (green)	**16**	5-pin keyboard connector (a second connector to the left for split backplane models)
8	OverTemp(erature) LED (red)	**17**	Left drive cage: SCA SCSI-3 hard drive array with hot-pluggable carriers
9	Fault LED (red)	**18**	Pull handle

FIGURE 6 Front panel features.



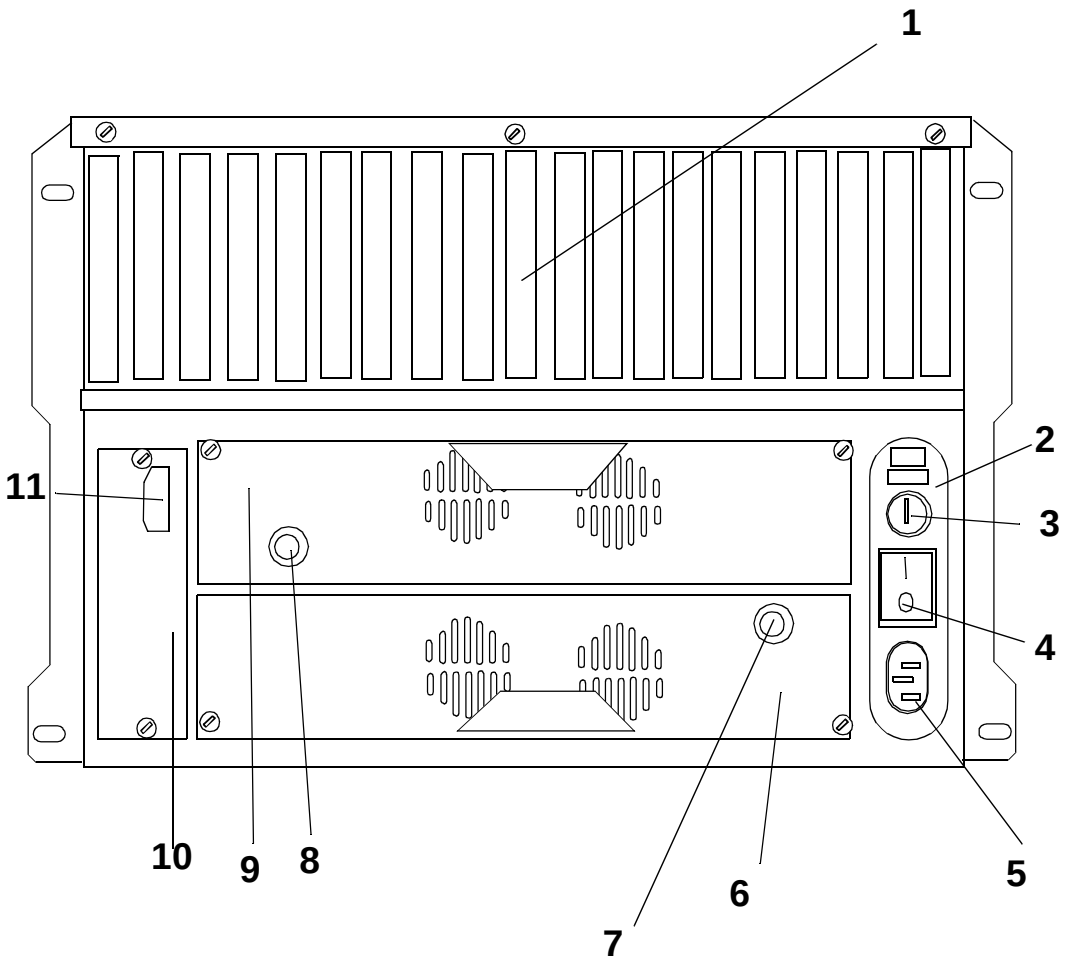
1.7 Rear panel features

Overview

The rear panel has the features listed below. See “Appendix A: Supported upgrades and equipment” for more information.

Rear panel features			
#	**Description**	**#**	**Description**
1	Expansion slot plates	**7**	Supply power LED (green = good, red = out of tolerance and unlit = no power)
2	Power entry assembly plate	**8**	AC power supply (bottom position) or blank panel
3	Fuse/fuse receptacle (U.S. fuse factory installed)	**9**	Supply power LED (green = good, red = out of tolerance and unlit = no power)
4	Power switch	**10**	Status module or blank panel
5	Power entry plug	**11**	Serial port for remote monitoring communication
6	AC power supply (Top position) or blank panel	**--**	--

FIGURE 7 Features of the 55xx rear panel



1.8 Removing the top cover of the chassis

Overview This section describes uncovering the baseboard.

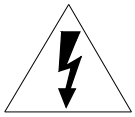
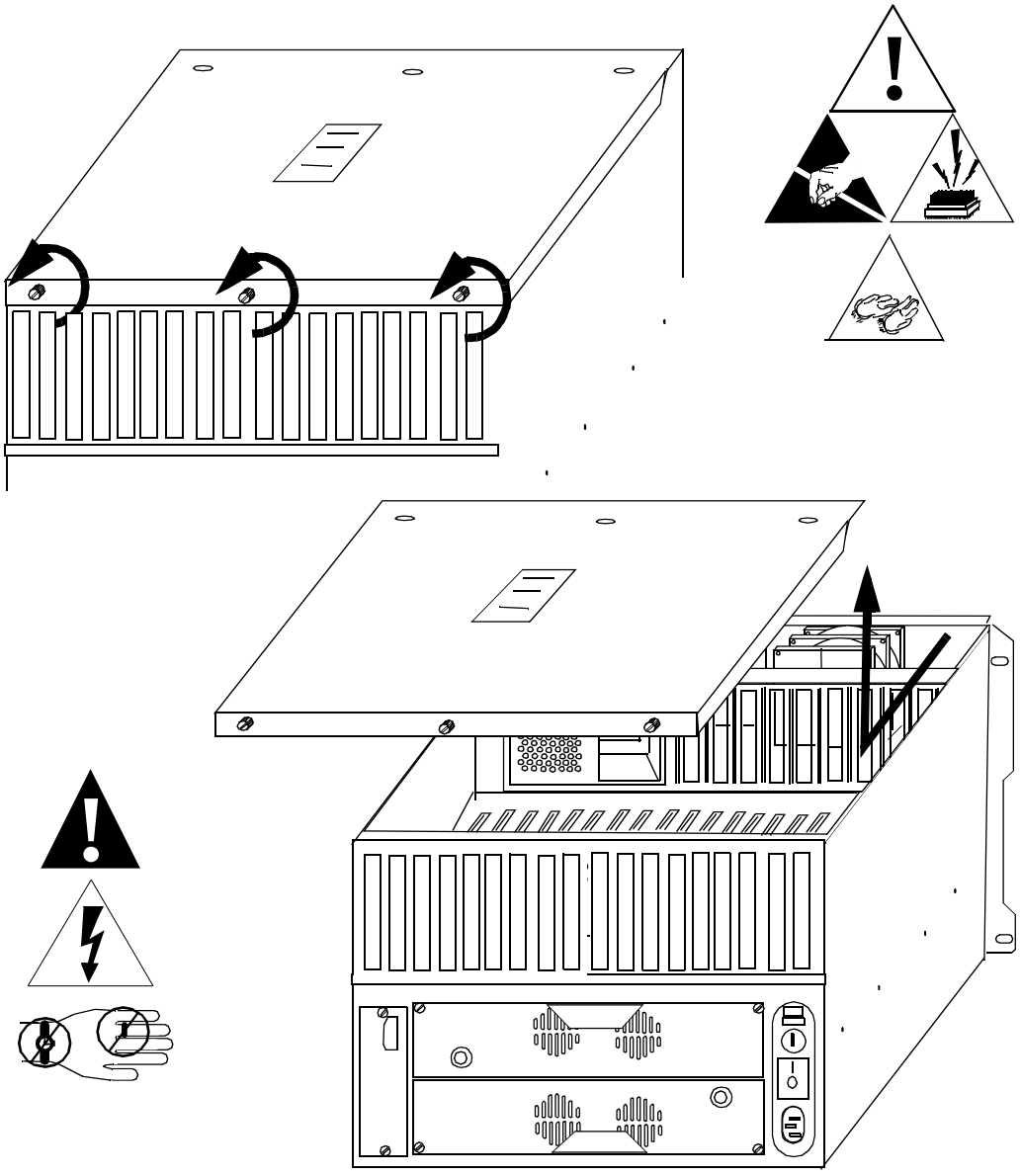
Instructions: Ensuring safety and removing the top cover	
Step	**Action**
 	**WARNING: High current** High current inside the server can cause severe injury. Disconnect power before removing the server cover. **AVERTISSEMENT: courant à haute tension** Le courant à haute tension du serveur peut provoquer des blessures graves. Mettez le serveur hors tension avant de retirer son couvercle. **ACHTUNG: Starkstrom** Starkstrom im Server kann schwere Verletzungen verursachen. Die Stromversorgung unterbrechen, bevor die Serverabdeckung entfernt wird.
 	**CAUTION:** The internal components of the server chassis are very sensitive to static discharge. **ATTENTION**: Les éléments internes du boîtier du serveur sont hautement sensibles à la décharge statique. **VORSICHT**: Die internen Komponenten des Server-Gehäuses sindgegenüber statischer Entladung sehr empfindlich.
1	Be sure the power toggle on the rear panel is switched OFF.
2	Be sure the power cord is disconnected from the three-prong AC receptacle on the rear panel and the AC outlet.
3	Completely loosen the three thumbscrews at the rear of the top cover.
4	Remove the top cover by pulling the cover to the rear, then lifting the cover off the chassis.
Complete	

FIGURE 8 Removing the top cover



1.9 Packing for shipping or vehicle transportation

Overview

If the 55xx must be transported, remove the front bezel and power supplies and transport them in the small box. In the large box, transport the chassis, which can be fully loaded with boards and drives. Be sure the foam block secures the six hard drive carriers (located on the left lower front panel of the chassis).

Transportation: in boxes and packing material

Save the packing boxes and packing material.

CAUTION: Avoid damaging power supply parts.
Damage may occur to the power supply pins and thumbscrews and front bezel springs if the server is transported (shipped or moved in a vehicle) with power supplies and front bezel installed

ATTENTION: évitez d'endommager les pièces d'alimentation électrique.
Les broches d'alimentation électrique, les vis à ailettes et les ressors de la collerette du panneau avant peuvent être endommagés lors du transport (par courrier ou par camion) du serveur lorsque les pièces d'alimentation et les collerettes sont installées.

VORSICHT: Die Komponenten des Netzteils nicht beschädigen.
Wenn der Server mit installierten Netzteilen und installierter Fronteinfassung transportiert (versandt oder in einem Fahrzeug transportiert) wird, können die Stifte und Rändelschrauben sowie die Federn der Fronteinfassung beschädigt werden.

■ ■ ■

2 *Installing components*

This chapter describes installing components into the external surface of the chassis and removing the top cover to install components onto the passive backplane. The chapter divides into several major sections. The sections cover:

- **Changing the fuse**
- **Removing the front bezel**
- **Installing components into the front drive areas** (Media bay area, the SCA SCSI hard drive bay area or the left media drive area)
- **Removing the top cover**
- **Replacing the top cover**
- **Changing the air filter**

The instructions in this chapter are intended to assist a technician with chassis mechanical details. “Appendix A: Supported upgrades and equipment.”contains specifics about the supported components that can be installed.

2.1 Warning for installations

Overview Please review this warning.

WARNING: Only experienced, authorized electronics service personnel should access the interior of the chassis. If you have any questions, please contact Texas Micro's Technical Support Department at 1-800-627-8700

AVERTISSEMENT: Seuls des techniciens électroniciens qualifiés et expérimentés sont habilités à avoir accés aux éléments internes. Si vous désirez poser des questions complémentaires, n'hésitez pas à prendre contact avec le Département d'assistance technique de Texas Micro au (USA) 1-713-541-8200.

WARNUNG: Nur qualifiziertes, erfahrenes Personal für Elektronik sollte am Inneren des Gertes arbeiten. Wenn Sie irgendwelche Fragen haben, wenden Sie sich bitte an die Abteilung für technische Untersttzung von Texas Micro unter der Rufnummer (USA) 1-713-541-8200.

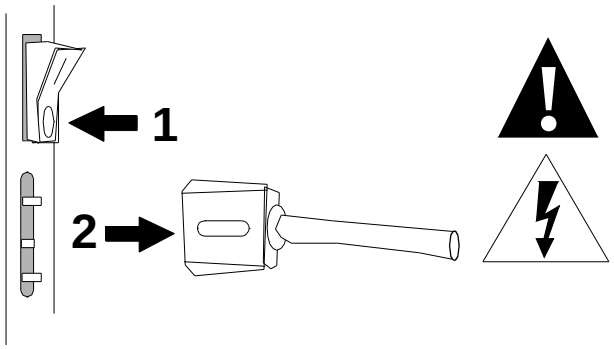
2.2 System shutdown and removing the top cover

Overview

This subsection describes shutting down the 55xx and removing power to install components.

Instructions	
Step	**Action**
1	Ensure that the system is shut down.
2	Be sure the power toggle on the rear panel is switched OFF.
3	Be sure the power cord is disconnected from the three-prong AC receptacle on the rear panel and the AC outlet. Also ensure that the chassis is grounded.
Complete	

FIGURE 9 Switch OFF power and unplug the AC power cord



2.3 Changing the fuse

Overview

The fuse is above the ON/OFF switch (rear panel). The server platform can operate under a range of electrical environments.

Replacing the fuse / fuse carrier

A North American fuse/carrier are factory installed. An International fuse and carrier are packed with the server. The table specifies replacements.

Region	Amperes / Volts	Type	Suggested manufacturer	Fuse part number	Fuse carrier part number
North America	12A / 250V	SB	Littlefuse	326.012	Schurter FEK031.1666
International	6.3A / 250V	T	Schurter	001.2512	Schurter FEK031.1663

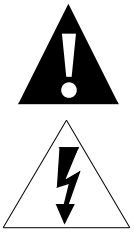
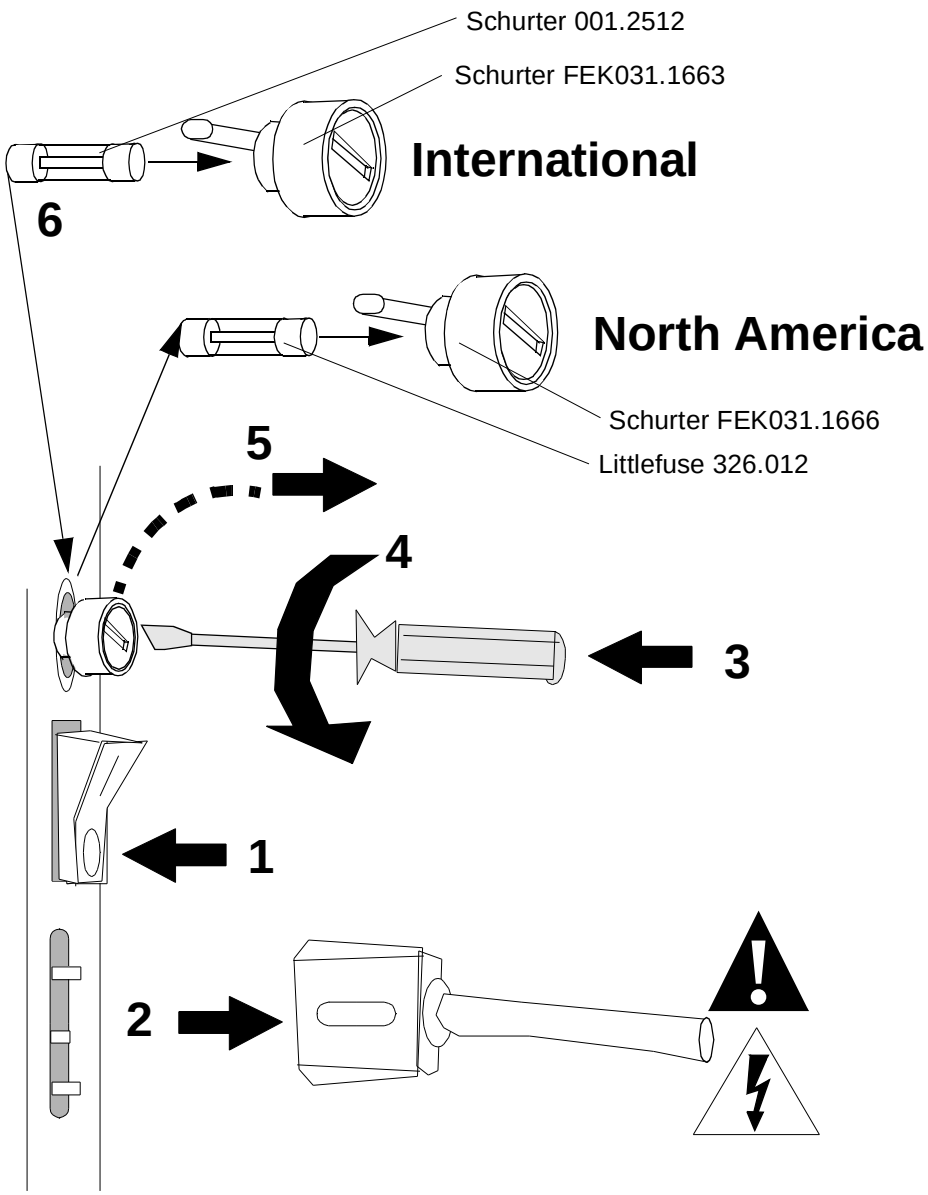
Instructions: Changing the fuse / fuse carrier	
Step	**Action**
	**WARNING: Remove power.** Remove power from the server before replacing the fuse. **AVERTISSEMENT: mettez le serveur hors tension.** Mettez le serveur hors tension avant de remplacer le fusible. **ACHTUNG: Stromversorgung unterbrechen.** Vor dem Auswechseln der Sicherung muß die Stromversorgung des Servers unterbrochen werden.
1	Replace the fuse and fuse carrier with the type for your region.
Complete	

FIGURE 10 Replacing a fuse

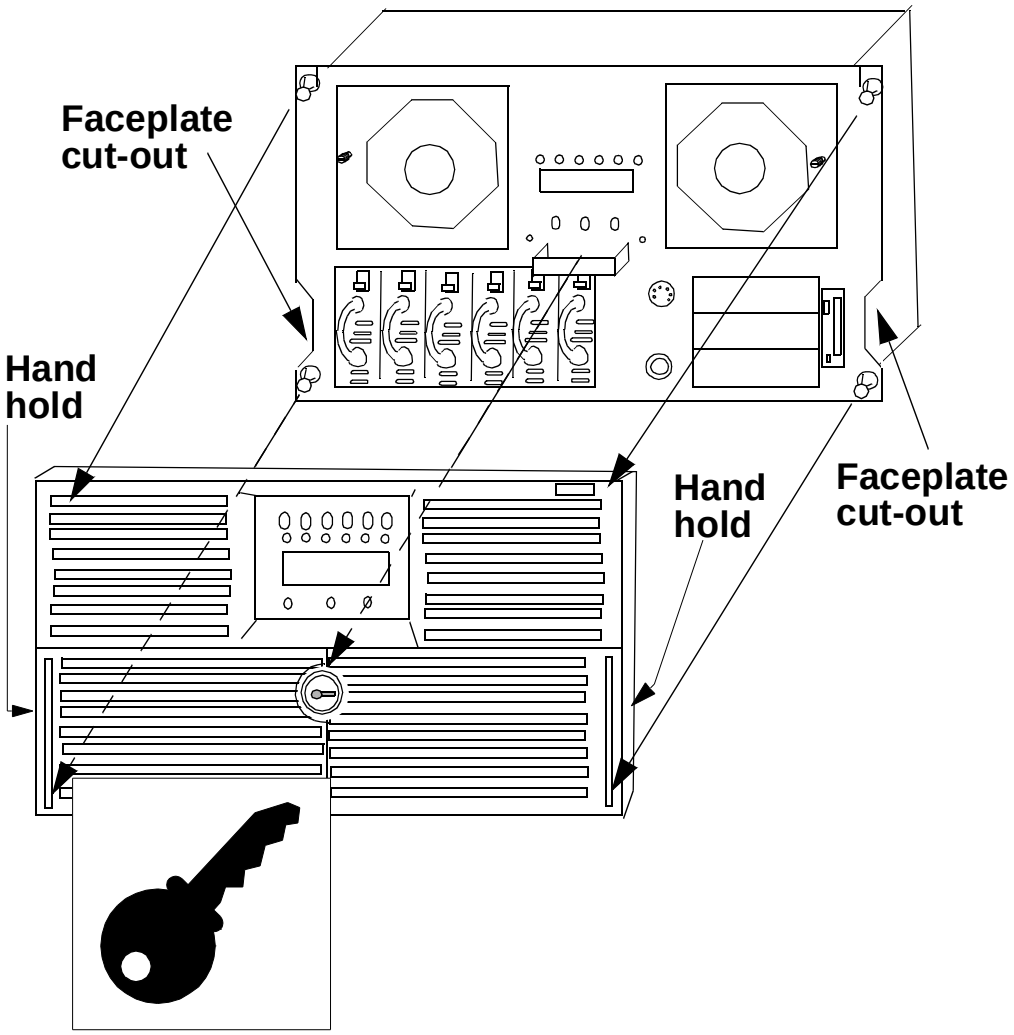


2.4 Removing (installing) the front bezel

Instructions: Removing the front bezel	
Step	**Action**
	**WARNING: Remove front bezel before lifting server.** Lifting the server by the molded plastic front bezel may cause the server to disengage from the bezel and fall. Personal injury may result. **AVERTISSEMENT: retirez la collerette du panneau avant puis soulevez le serveur.** Soulever le serveur avec la collerette en plastique moulé peut séparer celui-ci de la collerette et entraîner sa chute. Des blessures pourraient en résulter. **ACHTUNG: Vor dem Heben des Servers die Fronteinfassung entfernen.** Wenn der Server an der Kunststoff-Fronteinfassung gehoben wird, kann sich der Server von der Fronteinfassung lösen und herausfallen. Das kann zu Verletzungen führen.
1	Unlock and open the double doors of the front bezel.
Mechanism	The keylock barrel and shaft/catch secure the front bezel to the chassis.
2	Grasp the front bezel by the hand holds firmly. Pull the front bezel away from the chassis.
Hand holds	The chassis faceplate is cut out behind the front bezel at two places. The cut-outs are close to the hinges for the drive area doors.
3	Firmly pull the front bezel from the chassis.
4 ball studs	The chassis has one ball stud at each faceplate corner. The front bezel seats on the ball stud with a recessed metal spring.
Complete	

Instructions: Installing the front bezel	
1	Reverse steps 1, 2 and 3 above to install the front bezel.
Complete	

FIGURE 11 Removing the front bezel



2.5 Installing SCA SCSI hard drives

Overview

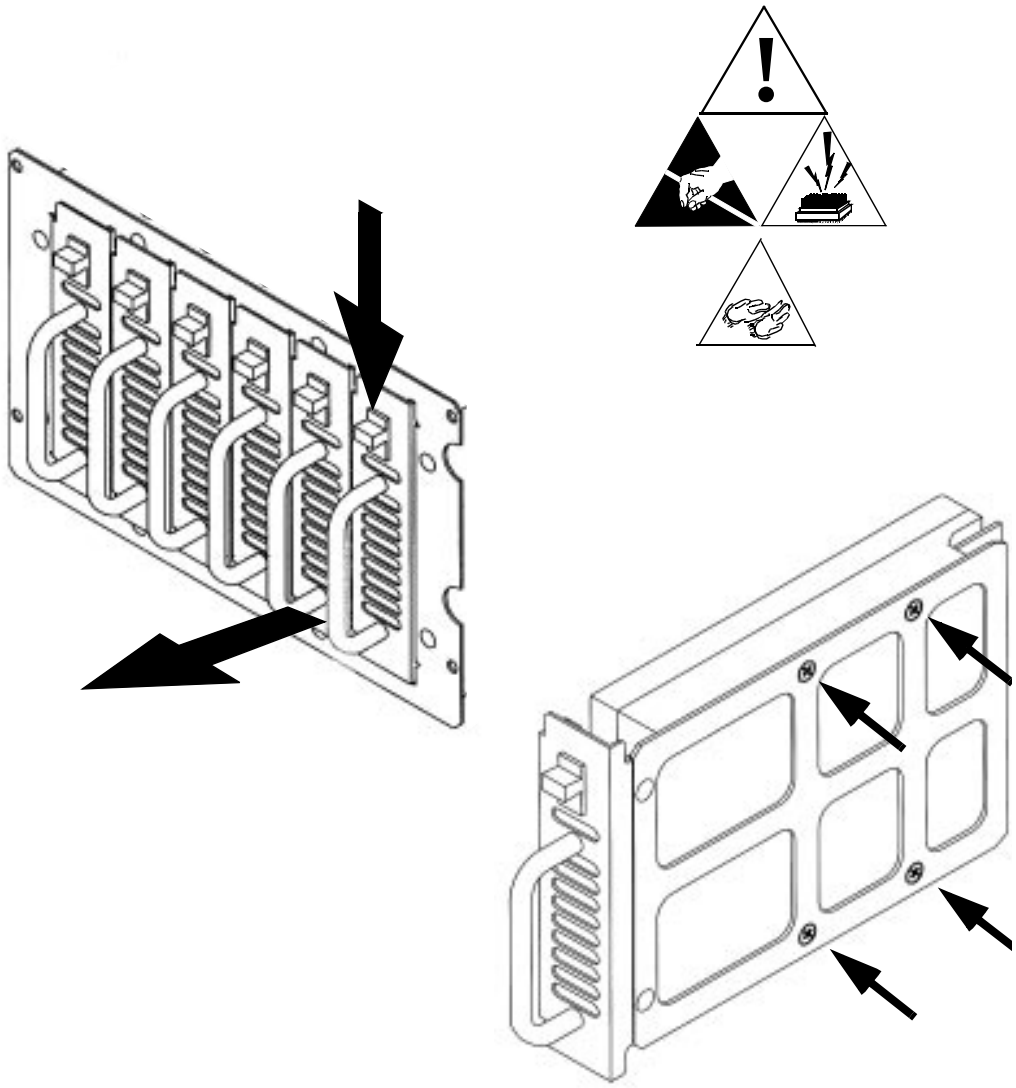
This section describes installing a SCSI-3 hard drive/carrier into an SCA drive bay.

Hard drive cage sets SCSI ID's

The SCA SCSI backplane presets the SCSI ID for each hard drive. The backplane adds a unique SCSI ID to each hard drive. Before installing the hard drive, set the SCSI ID to zero (the SCSI ID pins are unconnected) to allow the cage SCSI ID to work properly.

Instructions: Installing the hard drive hardware	
Step	**Action**
1	Press down the black plastic latch and slide out the carrier.
2	Ensure that the SCSI ID is set to zero (0), no jumper clips installed.
Jumpers	See the manual from the hard drive manufacturer for SCSI ID setting specifics.
3	Attach the hard drive to the carrier.
Screws	Use four (4) # 6-32 x 1/4 long Phillips head, undercut flat head screws.
4	Install the carrier/hard drive into the bay.
SCA	Expect resistance as the carrier and backplane connectors meet.
"Click"	The black plastic latch emits a "click" as it locks the carrier into place.
The hard drive and carrier are attached. Continue.	

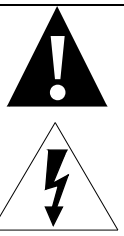
FIGURE 12 Removing a carrier, setting the SCSI ID to 0, attaching a hard drive, installing the carrier/hard drive



2.6 Preparing the media drive cage for drives

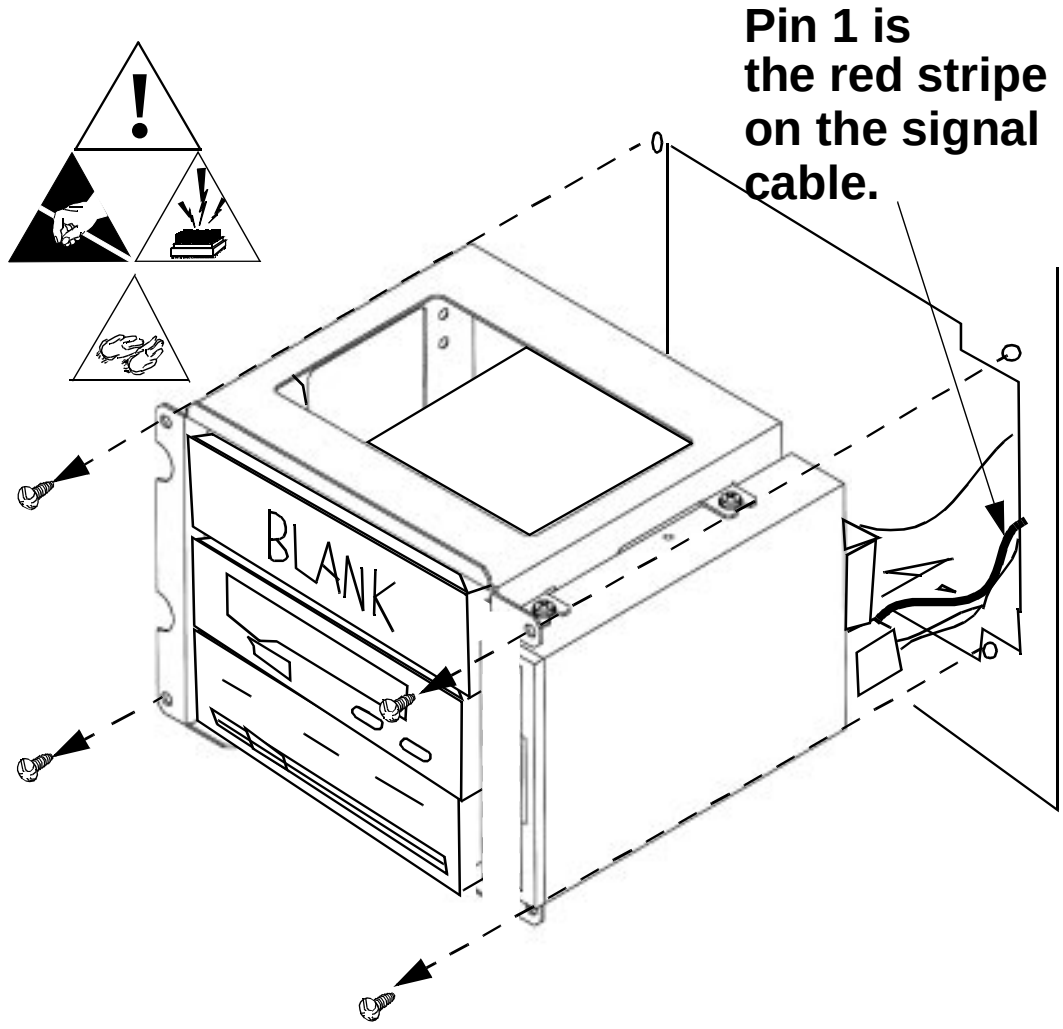
Overview

This section describes preparing the media drive cage for drives. The cage must be removed from the chassis to install a drive. Empty horizontal drive bays are covered with a blank plate.

Instructions: Removing the media drive cage	
Step	**Action**
	**WARNING: High Current** High current inside the server can cause severe injury. Disconnect power before removing the server cover. **AVERTISSEMENT: courant à haute tension** Le courant à haute tension du serveur peut provoquer des blessures graves. Mettez le serveur hors tension avant de retirer son couvercle. **ACHTUNG: Starkstrom** Starkstrom im Server kann schwere Verletzungen verursachen. Die Stromversorgung unterbrechen, bevor die Serverabdeckung entfernt wird.
1	Remove the screws securing the media drive cage to the chassis.
4 screws	Four screws secure the cage to the chassis.
	**CAUTION: Avoid damaging cables.** **ATTENTION: évitez d'endommager les câbles**. **VORSICHT: Kabel nicht beschädigen.**
2	Carefully pull the media drive cage out of the chassis.
3	Disconnect cable(s) from any drives.
Floppy signal cable - not keyed	If the floppy drive is installed, note the orientation of the floppy drive signal cable. The cable is not keyed and, if incorrectly connected to the drive, the floppy drive will not function.

Keying of connectors	SCSI-2 and the IDE signal connectors are keyed. The large four-pin power connectors are keyed.
Complete	

FIGURE 13 Removing the media drive cage



2.7 Removing blank panels (and the floppy drive)

Overview

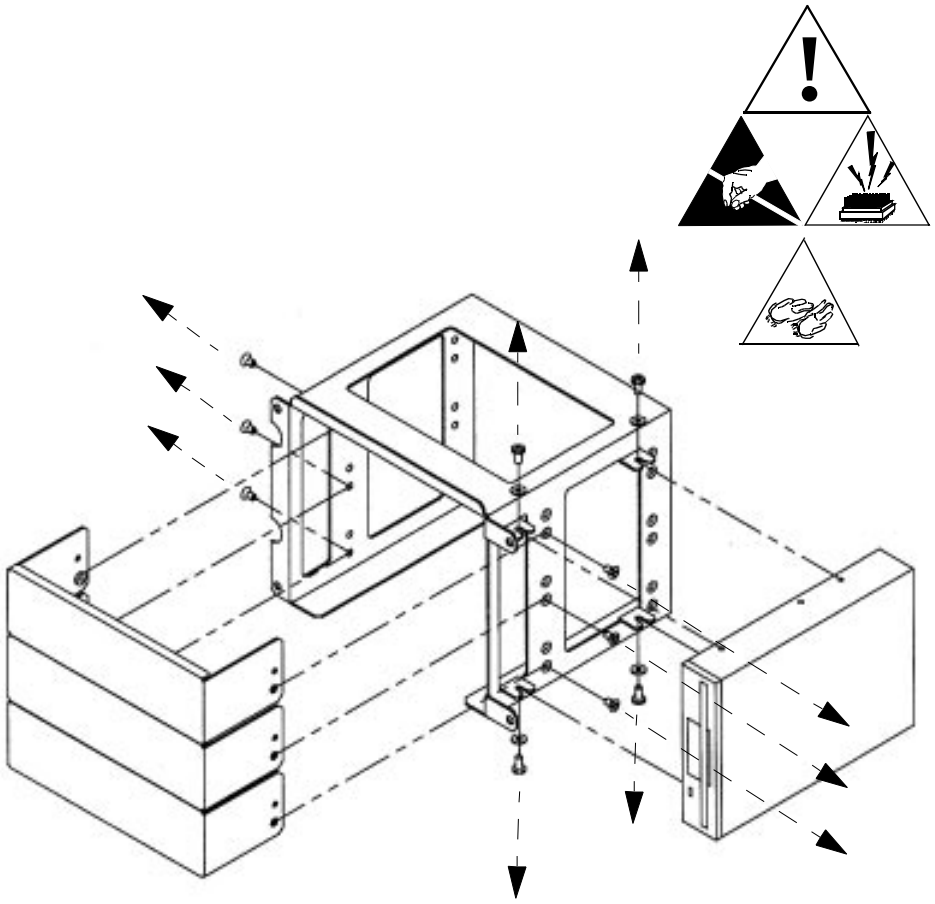
This section describes removing the blank panels to install a 1/2 height drive in the horizontal drive bays.

Remove the floppy drive first

The screws securing one leg of each blank panel lays under the floppy drive. The floppy drive must be remove before the blank panel screws can be removed. Use the instructions below to remove the appropriate blank panel.

Instructions: Removing blank panels	
Step	**Action**
1	If the floppy drive is installed, loosen the four screws securing the drive and slide the floppy drive off the metal fingers of the cage.
2	Remove the flat-head screws securing the appropriate blank panels.
3	Save the screws to install the drive(s) in the open bay(s).
Screws	The screws are flat-head Phillips-head # 6-32 x 1/4 undercut.
4	Refer to the sections that follow for instructions to install drives in the media drive cage.
Complete	

FIGURE 14 Removing the floppy, removing the screws and blank panels



2.8 Installing media drives in the horizontal bays

Overview

This section describes installing a SCSI-2 device and/or an IDE hard drive in the horizontal bays of the media drive area. These instructions describe installing media devices.

Instructions: Installing SCSI-2 devices and/or an IDE	
Step	**Action**
1	Ensure that the ID of any SCSI device to be installed does not conflict with that of any other SCSI device on Bus A (SCSI controller at 7 and the ID of another SCSI device in the media drive area). Refer to the SCSI device documentation for specifics about setting the SCSI ID.
SCSI cable	With the SCSI-3 cable provided, two SCSI-2 devices can be connected to SCSI-3 Bus A (by adapter). The connectors on the SCSI cable require that the two SCSI devices be installed in adjacent drive bays.
2	Slide the media device into the cage.
3	Align the screw holes in the drive with the recessed screw holes in the media drive cage.
4	Secure the device(s) to the cage with flat-head screws (the screws which secured the blank panel).Two additional #6-32 x 1/4 U-cut flat-head screws are required for each 5.25-inch drive added.
5	Install a blank panel or panels to cover the empty media drive bay(s).
6	After the new devices/blank panels are installed in the horizontal bays, go to the next section.
Horizontal drive(s) / blank panels are secured in the media cage.	

2.9 Completing the media drive installation

Instructions: Installing the floppy drive, cables and cage	
Step	**Action**
1 (A-E) **Installing the floppy drive**	A. The ejection button is close to the top of the cage. B. Insert four screws in the screw holes of the floppy drive. C. Leave slack for the metal fingers to slide around the screw shafts. D. Slide the floppy drive onto the metal fingers. E. Completely tighten the four screws.
2	Connect the IDE, SCSI-3 and the floppy drive cabled to the drives.
IDE cable	The 40-pin IDE cable connects to the “IDE” baseboard header and attaches to the IDE hard drive female connector (cable key is up.)
SCSI cable	The SCSI-3 (68-pins) cable connects to SCSI-3 Bus A (the front header). The SCSI-3 cable runs under the SCA cage and up to the lower of the two SCSI-2 media drives. SCSI-3 male to SCSI-2 female adapters connect the cable to the drives. Adapters are unkeyed.
Red stripe	The floppy cable is unkeyed. The red stripe is down.
3	Connect the power cables to the drives.
Power	The power pigtail has three large 4-pin and one small 4-pin connector.
	**CAUTION: Do not damage cables.** Install drive cage carefully. **ATTENTION: n'endommagez pas les câbles.** Installez la cage de l'unité avec précaution. **VORSICHT: Kabel nicht beschädigen.** Die Laufwerkshalterung vorsichtig installieren.
4	Secure the cage into the faceplate with four Phillips-head screws.
Complete	

2.10 System shutdown and removing the top cover

Overview

This subsection describes removing the top cover. It is not necessary to remove the front bezel to remove the top cover.

Instructions	
Step	**Action**
1	Ensure that the system is shut down.
2	Be sure the power toggle on the rear panel is switched OFF.
3	Be sure the power cord is disconnected from the three-prong AC receptacle on the rear panel and the AC outlet. Also ensure that the chassis is grounded.
4	Complete loosen the three thumbscrews at the rear of the top cover.
5	Remove the top cover by pulling the cover to the rear then lifting the cover off the chassis.
Complete	

FIGURE 15 Switch OFF power and unplug the AC power cord

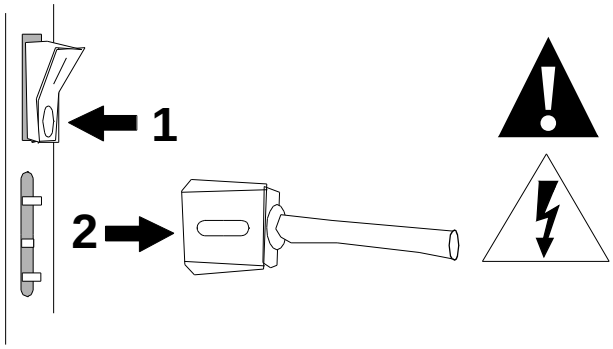
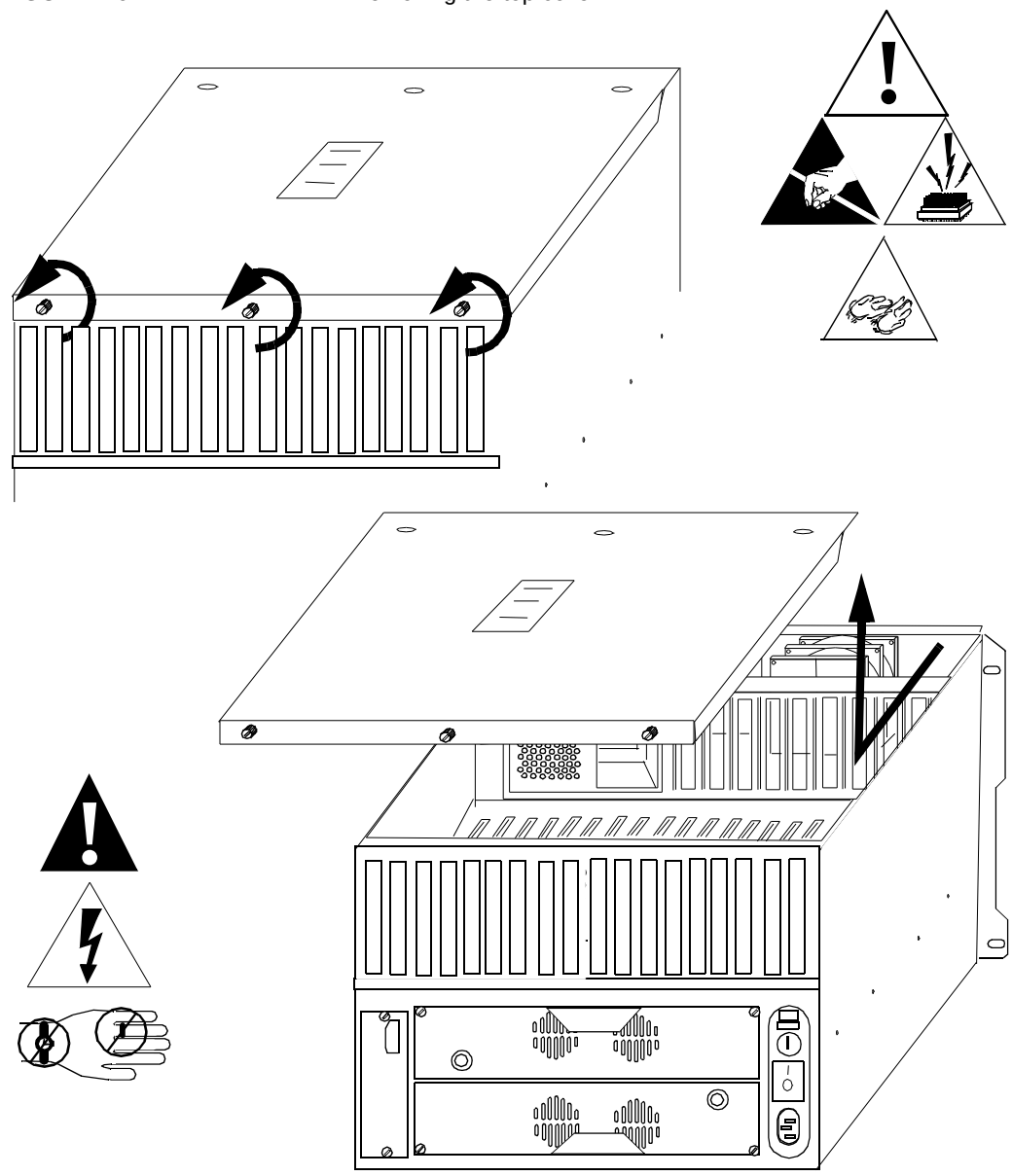


FIGURE 16 Removing the top cover



2.11 Precautions for installing boards

Overview

This section provides information to protect the equipment and preserve the useful life of the equipment.

Handling rules for extremely ESD-sensitive electronic components

Follow the rules below when handling electronic component. All electronic components are electrostatically sensitive to some degree. Many components suffer performance impairments and decreases in useful life from ESD. ECC memory modules, CPU modules and add-in boards can be extremely sensitive to ESD and always require careful handling. Use a wrist-strap and other ESD protection techniques before continuing. (See the ESD cautions at the beginning of the manual.)

- After removing a board from the protective wrapper or from the system, place it component-side up on a grounded, static-free surface (static-free bag) or conductive foam pad.
- Do not slide the board over any surface.
- Do not touch the components or gold edge connectors on the board.
- Hold a board by the top edge (edge opposite of the gold connectors) or by the board edges.

Board installation precautions

Keep in mind these points when installing a board.

- The backplane is flexible and is supported with stand-offs.
- The board slots resist connector insertion.
- A firm and steady force by hand seats the board in the slot.
- The board seats with friction and a solid stop.
- The external connector plate of an add-in board seats in the rear panel and secures there with a screw.

Installing boards

Install boards in the passive backplane slots according to the descriptions of the slots in the addendum for your particular passive backplane.

Replacing the top cover

This section describes replacing the top cover. The warnings and cautions stated in the front of this chapter still apply.

Instructions: Replacing the top cover	
Step	**Action**
1	Record the module, chip or board serial number for future reference.
	**CAUTION: Avoid damaging the display cable.** Do not damage the display cable while installing the server top cover. **ATTENTION: évitez d'endommager les câbles du moniteur.** N'endommagez pas le câble du moniteur lors de l'installation du couvercle du serveur. **VORSICHT: Das Videokabel nicht beschädigen**. Die Videokabel bei der Installation der oberen Serverabdeckung nicht beschädigen.
2	Slide the top cover up to the front panel.
Display cable	Be sure the top cover does not damage the display cable.
3	Seat the top cover onto the chassis and tighten the thumbscrews.
4	The board hardware is installed. Be sure to run the appropriate configuration utility to recognize the board. See the board manufacturer's documentation for details about device driver installation.
Complete	

2.12 Changing the air filters

Overview This section describes changing the air filter behind the front bezel.

Instructions: Replacing the front bezel air filter	
Step	**Action**
1	Unlock the front bezel key-lock.
2	Remove the front bezel from the chassis.
3	Pull filters off of the velcro strips.
4	Seat the new air filter pads in the bezel.
5	Secure the pads to the front bezel with the adhesive straps.
6	Install and lock the front bezel on the chassis.
Complete	
Instructions: Replacing the door air filters	
1	Unlock and open the front doors.
Filter secures	The air filter is trapped between the inside of the door and the wire form. The wire pivots near the key lock.
2	Pull the wire form away from the key lock to expose the filter.
3	Remove and replace the aire filter.
4	Pivot the wire form to trap the filter. Ensure that the ends of the wires are pinched inside the door.
5	Close and lock the doors.
Complete	

■ ■ ■

3 *Confidence test*

This chapter describes preparing the 55xx for the confidence test and running the confidence test. The chapter also describes determining whether the test is successful or unsuccessful.

Confidence test defined

The "confidence test" is a successful boot-up. After you switch ON the power, the system must run though POST and present a prompt for you to begin configuring the setup utilities. You do a confidence test to determine if the equipment is operating to specifications.

Call Technical Support 800-627-8700 (in U.S.) or 713-541-8200

If the 55xx still does not successfully complete the confidence test, contact Texas Microsystems Technical Support for assistance. See "Appendix D: Contacting support and service."

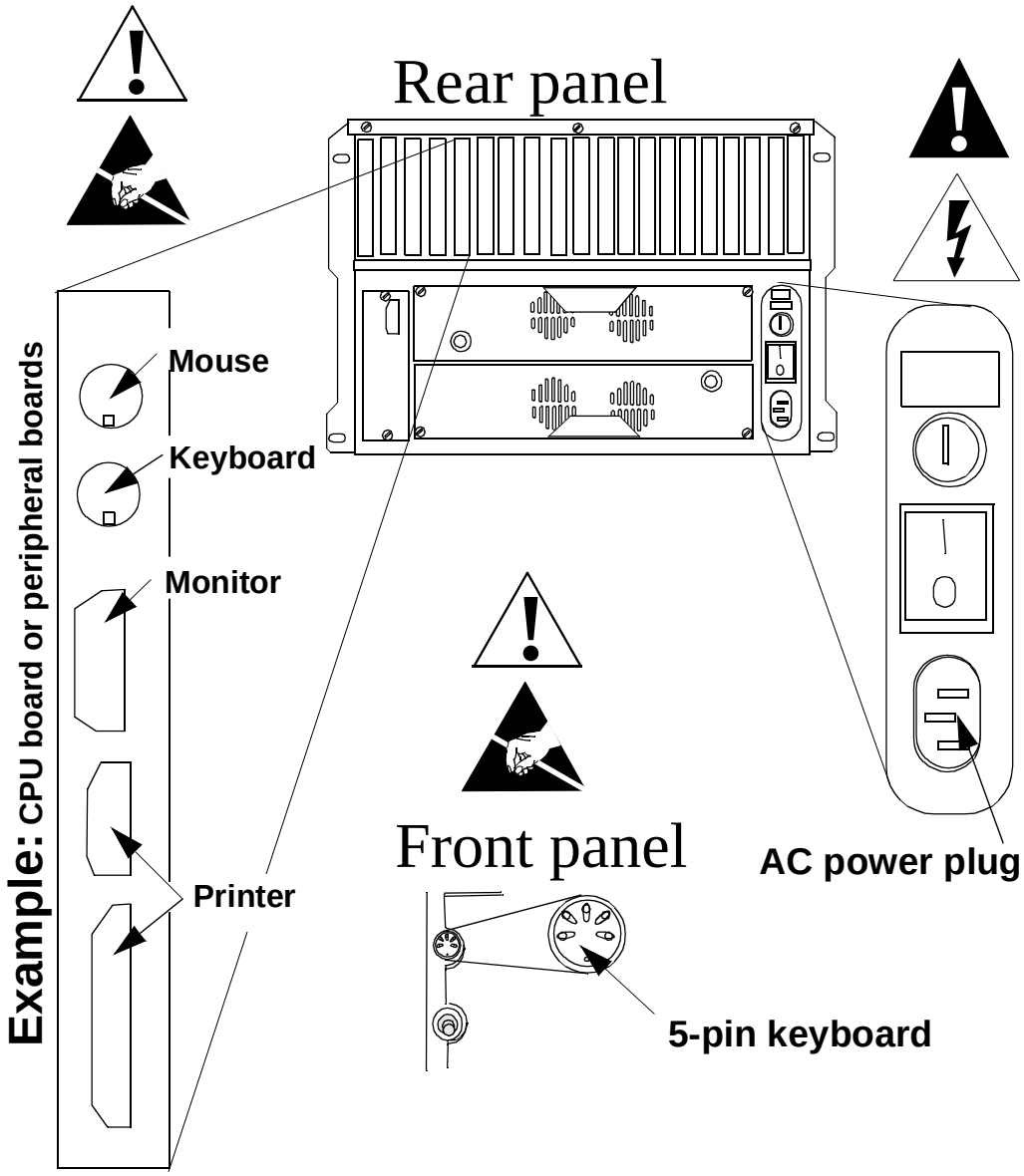
3.1 Connecting cables

Overview

Use this section to connect cables. Also, in this section and the electrical safety and power cord instructions.

Instructions: Connecting cables	
Step	**Action**
1	Connect the keyboard, monitor and mouse to the 55xx.
	**WARNING: Do not use an AC power cord that does not match the AC outlet.** Do not attempt to modify or use the supplied AC power cord if it is not the exact type required by the grounded AC wall outlet **AVERTISSEMENT: n'utilisez pas un cordon d'alimentation qui ne correspond pas à la prise de courant.** N'essayez pas de modifier ou d'utiliser le cordon d'alimentation fourni s'il n'est pas exactement du même type que la prise murale mise à la terre. **ACHTUNG: Kein Wechselstromkabel verwenden, das für die Wandsteckdose ungeeignet ist.** Es darf nicht versucht werden, das mitgelieferte Wechselstromkabel zu modifizieren, wenn dieses für die geerdete Wechselstromsteckdose nicht geeignet ist.
2	Connect the power cord to the power receptacle (server rear panel).
3	Connect the power cord to the power outlet.
Complete	

FIGURE 17 Connecting the power cable



3.2 Confidence test and indications

Overview

This section describes the confidence test and the indication of successful booting.

Instructions: Running the confidence test	
Step	**Action**
⇨	**NOTE:** Items in the “Step” column with an * (asterisk) apply only to the models with a Status board installed.
1	Switch ON the power toggle on the rear panel.
All LED test	All LEDs on the 55xx illuminate for a few seconds.
Cooling fans spin	Cooling fans on the front panel begin turning. The red (fault) LED next to each fan extinguishes.
SCA drives spin, amber LEDs test	The drives begin to power-up (spin-up). The amber hard drive activity LEDs over the front panel display as a whole extinguish and flash with drive activity.
System checks drives	The system checks the drives in the media drive cage. The system checks the floppy drive, tape, CD-ROM and hard drive. LEDs illuminate temporarily and media in the drives rotate audibly.
Power supply LEDs red to green	The LED on each power supply first illuminates red as the supply fans spin-up and the components charge. The LED lights green when the power supply is fully operational.
“POWER” “OVERTEMP” * “FAULT”	On the front panel, the “POWER”, “OVERTEMP” (and “FAULT”) LEDs illuminate for a few seconds at initial power-up. The green “POWER” LED remains lit. The “OVERTEMP” (and “FAULT”) LED(s) extinguish.
*** Front panel display**	On the front panel immediately after power-up, all elements light on the vacuum fluorescent display for a few seconds. On models equipped with an all-LED display, all LEDs in the array of status LEDs light for a few seconds.

*** Status message**	On the vacuum fluorescent display, the message "SYSTEM NORMAL" appears after the Status board checks the status signals in the 55xx and finds not problem. See "Chapter 4: Alarms and resolutions" to handle a problem message.
RAM count and POST	The system counts RAM and completes running the Power On Self Test (POST) and displays a prompt on the monitor.
2	**Successful confidence test:** 55xx systems with a **Status board and vacuum fluorescent display** show the following. If the system displays "SYSTEM NORMAL" and the 55xx equipment performs as described above, the confidence test is successful. Go to the next chapter. For units with a **Status board and a full array of LEDs**, only the green "Power On" LED and the amber drive activity LEDs (when active) are lit. The video monitor displays a prompt with a successful boot. No error messages appear. The confidence test is successful. For units **without a Status board and minimal LED display**, the video monitor displays no error messages.The confidence test is successful. **Unsuccessful confidence test and troubleshooting:** If the system failed to show any of the displays or LED lighting patterns or any audible operations, contact Texas Microsystems Technical Support. See Appendix D.
Successful confidence test is complete.	

3.3 Rack installation

Overview	This section directs you to information about rack installation.
Assembling slide rails	The slide rails for the 55xx provide instructions and a diagram for assembling the slide rails.
Rack installation warnings and cautions	Please refer to the section “Rack installation” in “Warnings and cautions,” which is located immediately before the “Table of contents,” for warnings and cautions that apply to installing the 55xx in a rack.
Space for the 55xx in the rack	Allow enough vertical space for the 55xx in the rack. • The 55xx is 12.25” high. • The top supporting screw through the front and the top supporting screw through the rear sliding rails are 7.85” from the top of the chassis.
Cables and front bezel on	After the 55xx is mounted in the rack, connect the signal cables and AC power cables to the 55xx and install the front bezel.

■ ■ ■

4 *Alarms and resolutions*

This chapter describes the alarms transmitted by the Status board.

4.1 Status board warnings and corrective actions

Overview

The status board sends status messages to the display on the front panel. The messages and the conditions they represent are listed below.

Message	Equipment Affected	Corrective Action
SYSTEM NORMAL	SP5500 operates within tolerances.	None.
POWER FAIL CPU	One of the two hot-swappable power supplies has failed in the SP5500.	Hot-swap (Replace) the power supply. The red or unlit LED on the power supply indicates failure.
FAN FAIL CPU	At least one of the two dual fan assemblies has failed in the SP5500.	Remove the front bezel. Find the fan assembly identified by a red LED. Replace the failed redundant fan assembly.
OVERTEMP CPU	SP5500 temperature is above 50^{o}C (122^{o}F)	Reduce the ambient temperature, reduce server activity or shut down the server.

■ ■ ■

5 *Hot-swapping a fan or power supply*

This chapter describes replacing a cooling fan or a power supply while the system is operating without affecting system service.

5.1 Hot-swapping a redundant power supply

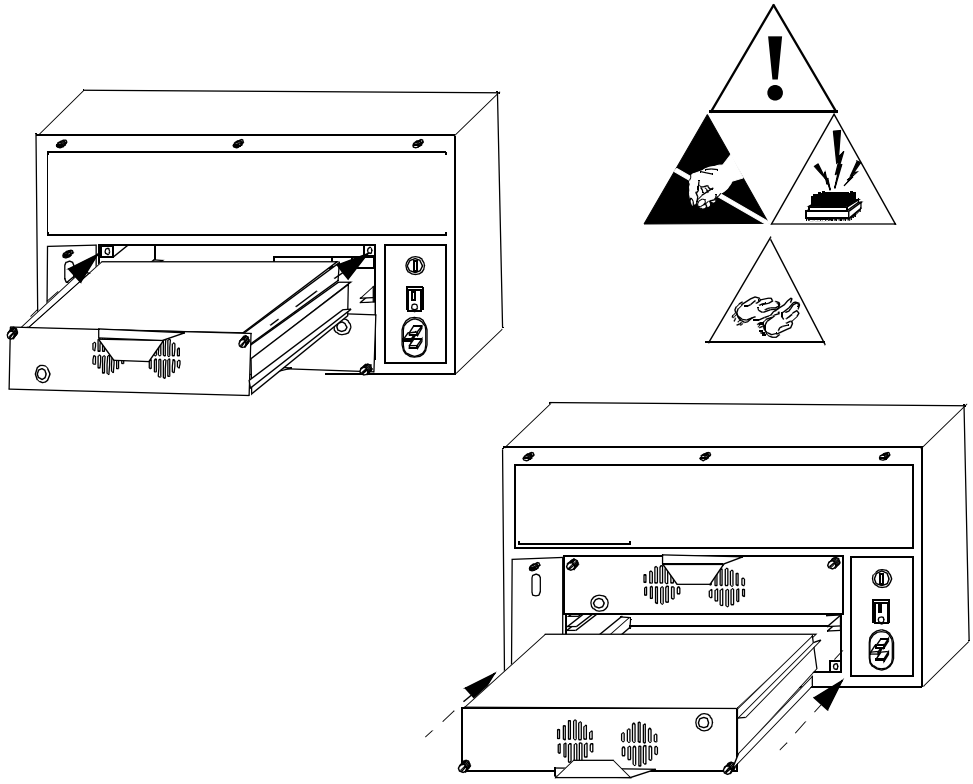
Overview

Follow these instructions to hot-swap a power supply. Single power supplies cannot be hot-swapped.

Instructions	
Step	**Action**
Conditions leading to 1	A. Red “Fault” LED is illuminated. The server detects a problem. B. Display shows “Power Failed CPU.” C. The green LED on failed hot-swappable power supply is extinguished.
1	Find the failing power supply module.
LED: green, red or unlit	If the green LED on the power supply module is unlit or red, the module has failed or failing. Power is good when the green LED illuminates.
2	Loosen the thumbscrews at the top right and left of the failed power supply module. If needed, use a flat-blade screwdriver.
Thumbscrew	The thumbscrew must rotate freely and not contact the chassis threads.
3	Pull the Power Supply Module out of the chassis with the molded horizontal handle.
4	Slide a fully functional power supply module into the bay.
Power supplies keyed	The top power supply bay is male keyed with a rectangular guide at the top left and right corners of the bay. The bottom bay is male keyed with a rectangular guide at the bottom left and right corners of the bay. The rectangular grooves on the corners of the power supply fit the guides in the bay.
1/2” pins meet holes	About half an inch from complete insertion, the power pins meet the connection on the rear of the bay.
5	Press the power supply pins into the power backplane.

Result of 5	The power supply faceplate and chassis rear panel are even.
6	Secure the power supply faceplate to the chassis with two thumbscrews at the corners of the power supply faceplate.
Result of 6	The power supply LED illuminates green.
Result of 6	The red “Fault” LED extinguishes.
Result of 6	The vacuum fluorescent display shows the “System normal” message.
The hot-swap is complete.	

FIGURE 18 Replacing a power supply

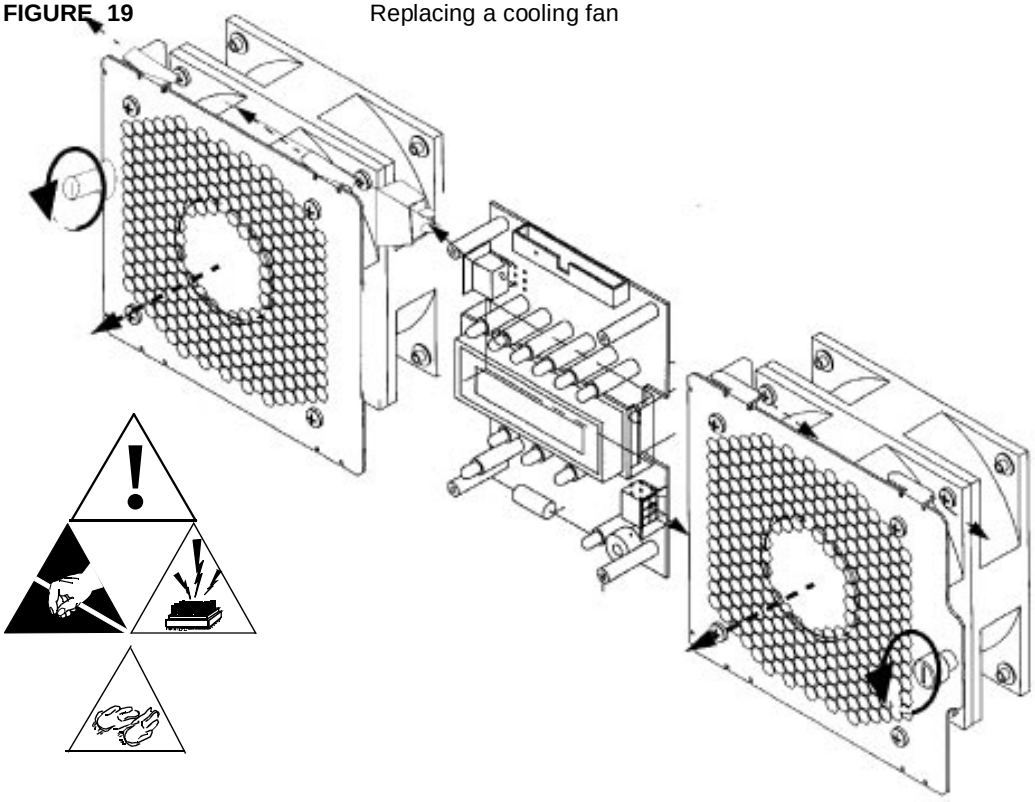


5.2 Hot-swapping a cooling fan

Instructions	
Step	**Action**
Conditions leading to 1	A. Red “Fault” LED is illuminated. The server detects a problem. B. Display shows “Fan Failed CPU.” C. The red “OverTemp” LED may be lit. D. Beneath the front bezel, the red LED on the failed cooling fan is lit.
1	Unlock and remove the front bezel.
2	Find the failing cooling fan module.
Red LED each fan	The red LED beside the cooling fan module shows that at least one of the two redundant fans in this cooling fan module has failed.
3	Loosen the thumbscrew located on the outside of the failing cooling fan module. If needed, use a flat-blade screwdriver.
Thumbscrew	The thumbscrew must rotate freely, not contacting the chassis threads.
4	Unseat the cooling fan module by sliding the module horizontally away from the display and toward the rack rail.
Result of 4	The module power connector unseats from the power connector located behind the display and LEDs.
5	Slide the failed cooling fan module out of the chassis.
6	To install the replacement fan module, align the module tabs with the four support slots on the chassis.
Orientation	Be sure the module is oriented with the thumbscrew.
7	Insert the tabs into the supporting slots in the chassis.
8	Slide the cooling fan module toward the display and into position.
Resistance	The module power connector resists fitting into the power connector.

Result of 8	The fans rotate and pull air into the chassis.
Result of 8	The red LED beside the new cooling fan module extinguishes.
Result of 8	The hot-swap is complete. Chassis cooling returns to normal.
Result of 8	The vacuum fluorescent display shows the “System normal” message.
9	Tighten the fan thumbscrew.
10	Install the front bezel and lock the latch behind the media door.
The Hot-Swap is Complete.	

FIGURE 19 Replacing a cooling fan



A

Supported upgrades and equipment

This appendix describes the equipment that the 55xx supports. The appendix is structured around two points in the spectrum of 55xx configurations:

1. the least configured model providing the greatest flexibility for original equipment manufactures (OEMs),
2. the operational base model with CPU board installed (documented and sold as a separate item), and
3. Texas Microsystems' offering of options to create a variety of fully configured models.

A.1 OEM 55xx chassis base model

Overview

This section describes the base model 55xx that Texas Microsystems could provide to an original equipment manufacturer (OEM). This model of the 55xx chassis is non-functional and gives the OEM the greatest flexibility to install components.

Non-functional base model for OEM's

Depending upon your particular equipment request, you may have more components than are listed here. The list below is the OEM base unit configuration. All 55xx passive backplane chassis have the components listed below:

- **Chassis metal.**
- **Expansion slot blanking panels.**
- **Passive backplane** (no on-board RAM or CPU boards installed).
- **The cables inside the chassis** required to connect devices in the two front drive bays, provide power inside the chassis and display status on the front panel display.
- **Display board**, which transfers signals and power to the display and routes power to the cooling fans and status signals from the fans through the display cable.
- **Power distribution backplane** (below the backplane and between the power supply bays and the drive bays).
- **Media drive bay cage** (or cages) with blanking panels installed over empty bays.
- **Accessory kit**: including power cord, and user's manual.
- **Status display on the front panel** (the information shown depends upon the type of display ordered and whether a Status board is installed).
- **Two monitored cooling fan assemblies** -- each fan in a redundant assembly.

- **One or two monitored power supplies** --One power supply can power the entire fully loaded 55xx chassis. When both supplies are installed, the supplies are redundant.
    - The standard passive backplane AC power supply has these outputs: +5 volts @ 50 amperes, +12 volts @ 8a amperes, -12 volts @ 1.0 amperes.
    - The optional passive backplane AC power supply has a 3.3 volt @ 15 amperes output in addition to the outputs of the standard power supply.
- **Blanking panel over the Status board bay** if the Status board is not installed.
- **AC power entry panel and assembly**, including AC power receptacle, AC power switch, power fuse and grounding connections to the power distribution backplane and the chassis.
- **Detachable front bezel** with locking double doors, which cover the drive bays. The doors swing apart from a central locking mechanism that secures the front bezel to the chassis. The doors are hinged on the far left and far right of the bezel.

The next section “Operational base model 55xx chassis” lists the minimum number of components required to make the 55xx operational.

See the section, “Equipment enhancements” to find a list of the supported equipment for the 55xx.

A.2 Operational base model 55xx chassis

Overview

This section describes the basic model that can operate without additional components. Your 55xx chassis may have more components than are listed below.

Base operational 55xx chassis

The operational base model 55xx chassis has these features and components in addition to the features and components sited for the non-functional OEM base model.

- One **CPU board/RAM board** with one processor.
- A **floppy driv**e, is used to install configuration utilities if configuration is not handled from the network.
- **A pair of rackmounting slide rails** (packaged separately from the two server platform boxes). The rails are required to install the chassis in a rack. Using these specific rails is option.

A.3 Enhancing features for the 55xx chassis

Overview

Depending upon the configuration of the chassis and which supported components you have installed, an individual (functional) 55xx passive backplane chassis may have any of these features.

Sliding rails

Rackmount the 55xx with sliding rails (packaged separately).

Left drive area: SCA SCSI hard drives

The 55xx supports configurations of none to six SCA SCSI-3 hard drives installed on SCA carriers in the left drive bay. The system does not require that any hard drives be installed. Six SCA hard drive carriers fill the cage. Both the power backplane and SCSI-3 bus B are connected to the SCA cage electronics. Up to six hot-pluggable SCA SCSI-3 hard drives on the carriers can occupy the cage.

Hot-pluggable v. hot-swappable

A hot-pluggable hard drive is relatively easy to install in the bay. The carrier and drive slide into the bay on grooves cut into the bay frame. This SCA (single connector architecture) hard drive firmly makes contact with only one connector for power and signals on the cage backplane.

The SCA SCSI hard drive is easily installed, hot-pluggable, without a RAID board, but not hot-swappable, installable during system operation. Operating systems regularly polls hard drives. Without a RAID controller as intermediary, the operating system discovers an “unresponsive” drive, reports a fatal error and panic

the system. The RAID controller intercepts and satisfies the poll.

Left drive area: RAID controlled SCA SCSI hard drive array

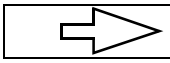
Six SCA hard drive carriers fill the cage. The power backplane is cabled to the cage. The RAID board connects to and controls the SCA SCSI-3 hard drives in the cage. Up to six hot-swappable SCA SCSI-3 hard drives on carriers can occupy the cage. Each SCA SCSI-3 hard drive in the array is hot-swappable. The drive can be

removed or installed during system operation. The RAID controller supplied through Texas Microsystems supports data striping without parity (RAID 0), disk mirroring (RAID 1), data striping with parity distributed across all disks in the array (RAID 5) and mirrored striped disks (RAID 6). Use of RAID levels 1, 5, or 6 improves system data availability and provides full data fault resistance. For transaction processing environments, RAID level 0 will improve I/O rates and overall system performance, but full fault tolerance is not supported.

Standard media drive area configuration

The media drive area has 3 half-height horizontal bays and a one-quarter height bay. The standard configuration from Texas Microsystems is as follows:

- **A SCSI-2 tape drive** in the top one-half height bay.
- **A SCSI-2 Quad-spin CD-ROM drive** in the middle one-half height bay.
- **An IDE hard drive** in the bottom one-half height bay.
- **A 3.5" one-quarter height floppy diskette drive** mounting vertically.



NOTE: One power pigtail supplies power to all four devices in the media bay.

Cooling fans

The 55xx has two cooling fan assemblies that cool the passive backplane and boards. These cooling fan assemblies consist of redundant fans (two fans mounted together). If one of the two fans in the assembly fails , the other can sustain the required air flow. A red LED close to the fan illuminates indicating a failure.

A.4 Front panel displays

Overview

Three front panel status displays are available. The three displays share the features of the base model status display.

Base status display

The base status display has these features:

- All displays have the six amber LEDs -- one for each SCA SCSI-3 hard drive in the left drive area.
- All displays have a green LED “Power ON” indicator.
- All displays have a red LED “OverTemp(erature)” indicator.

LED status display

The LED status display has these features in addition to the base model features:

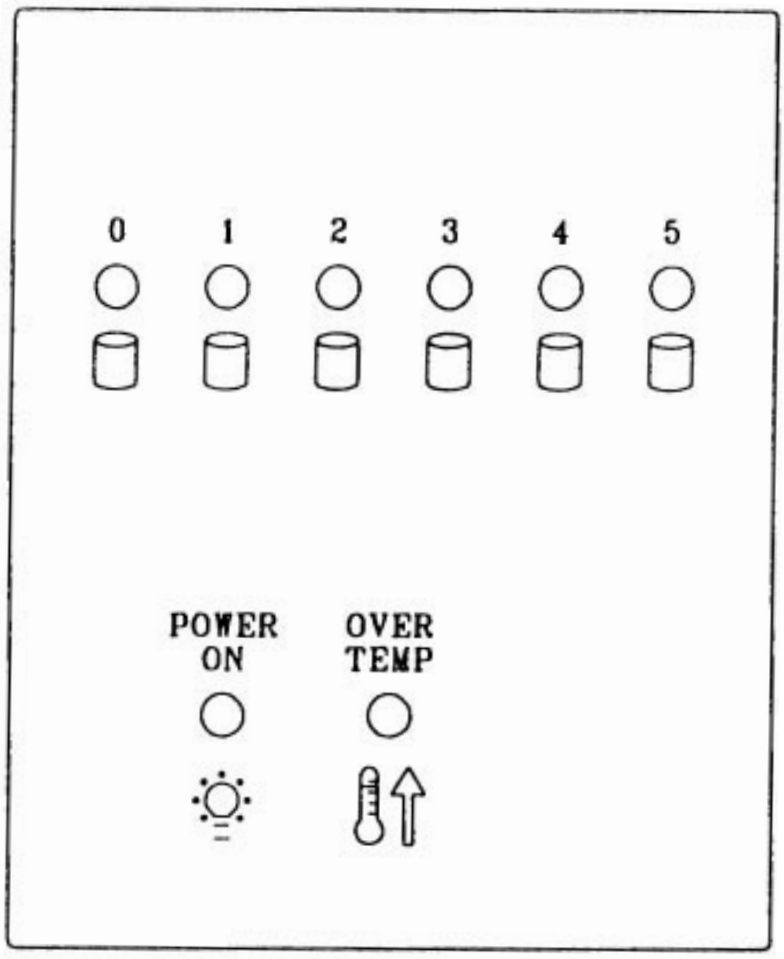
- The LED display shows messages from the Status board/CPU and requires a Status board to be fully functional.
- A red LED indicates faults inside the chassis and fault messages transmitted into the Status board from external monitored drive arrays.
- The “P/S” indicates a problem with one of the power supplies.
- The “Fan” LED indicates a problem with a cooling fans in the front panel. Each fan has a red LED beneath the front bezel.

Vacuum fluorescent status display

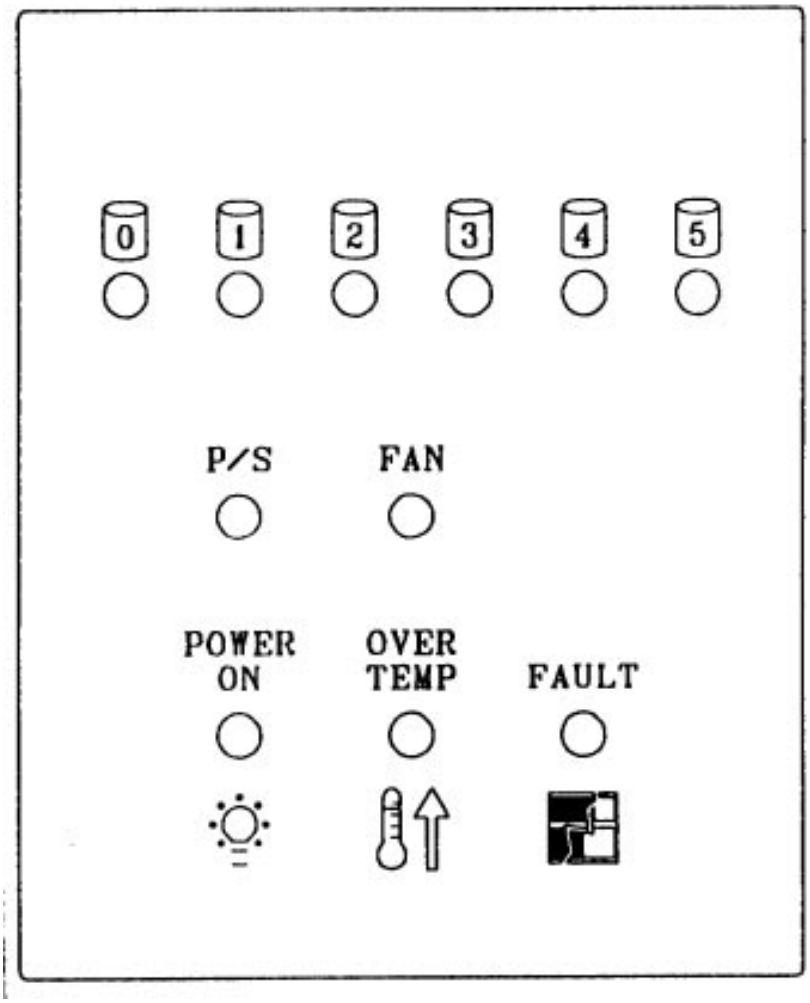
The vacuum fluorescent status display has these features in addition to the base model features:

- The vacuum fluorescent status display shows messages from the Status board/CPU on a 16 by 2 units blue on black display and requires a Status board to be fully functional.
- A red LED indicates faults inside the chassis and fault messages transmitted into the Status board from external monitored drive arrays.

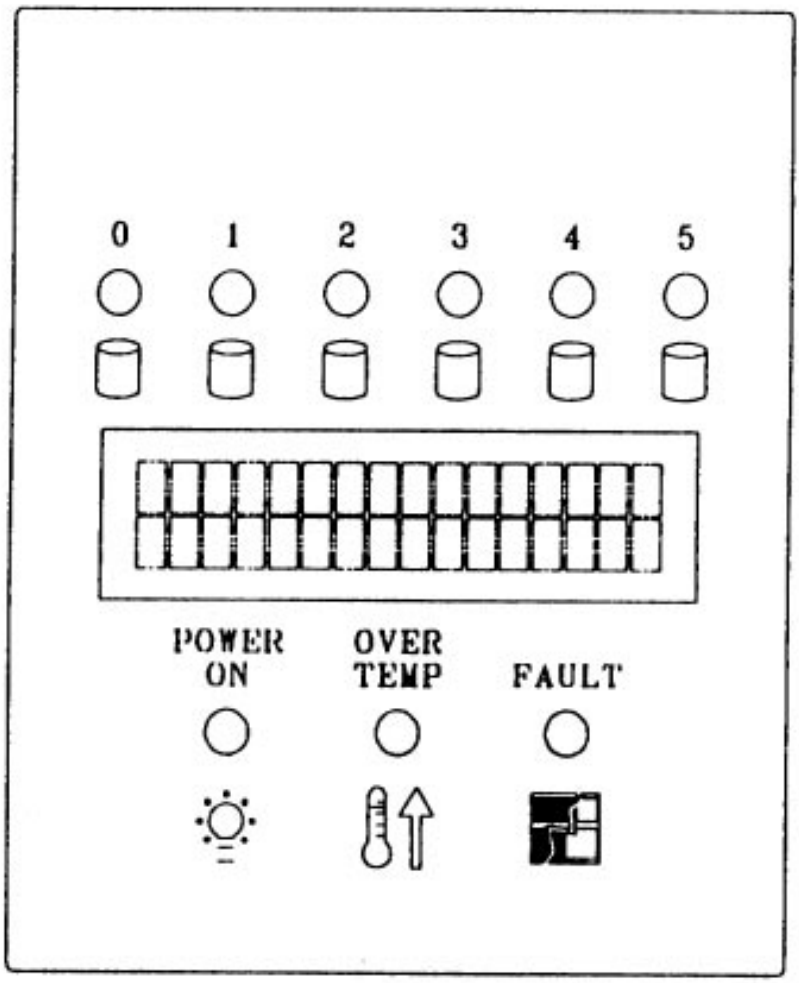
1. Base status display (No Status board)



2. LED status display



3. Vacuum fluorescent display



A.5 Left drive bay options

Overview

The 55xx passive backplane chassis can support several combinations of SCSI/RAID controller and left drive bay area options. The most externally noticeable variation occurs in the left drive bay area. The left drive bay options are:

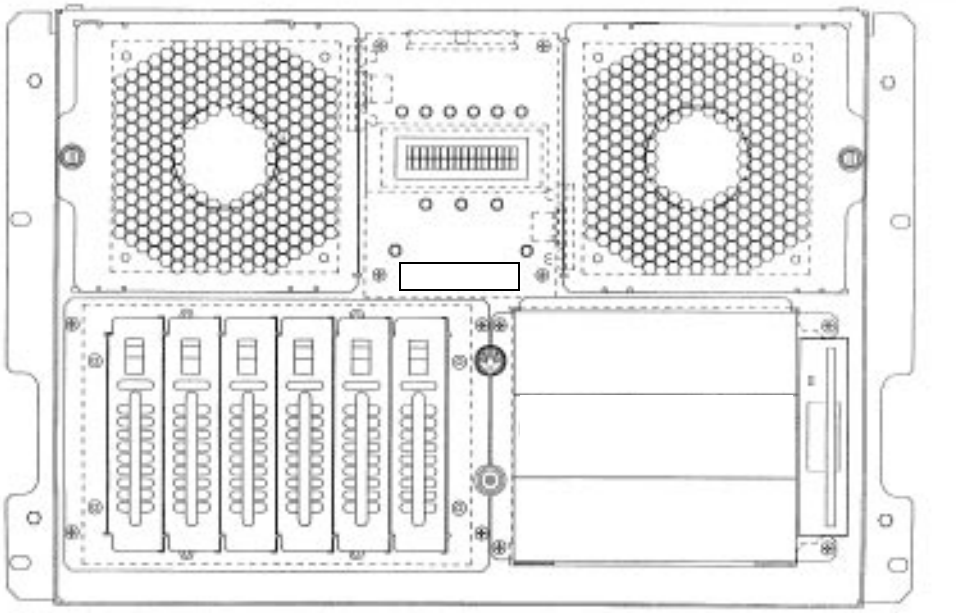
- **SCA SCSI hard drive array with RAID controller** -- A six-bay array of SCA SCSI-3 hot-swappable hard drives controlled by a RAID controller board installed in the passive backplane.
- **SCA SCSI hard drive cage** -- A six-bay array of SCA SCSI-3 hot-pluggable hard drives operated by a SCSI-3 bus from a SCSI board installed in a passive backplane.
- **Blank panel** -- A blank panel is available to cover the empty left drive cavity.

A.6 SCA SCSI hard drive area

Overview

Both the SCA SCSI-3 hard drive array with RAID controller and SCA SCSI-3 hard drives connected to a SCSI bus appear the same from the front panel. This front panel is the standard for the passive backplane chassis.

FIGURE 20 Standard SCA SCSI hard drive cage for the left drive area

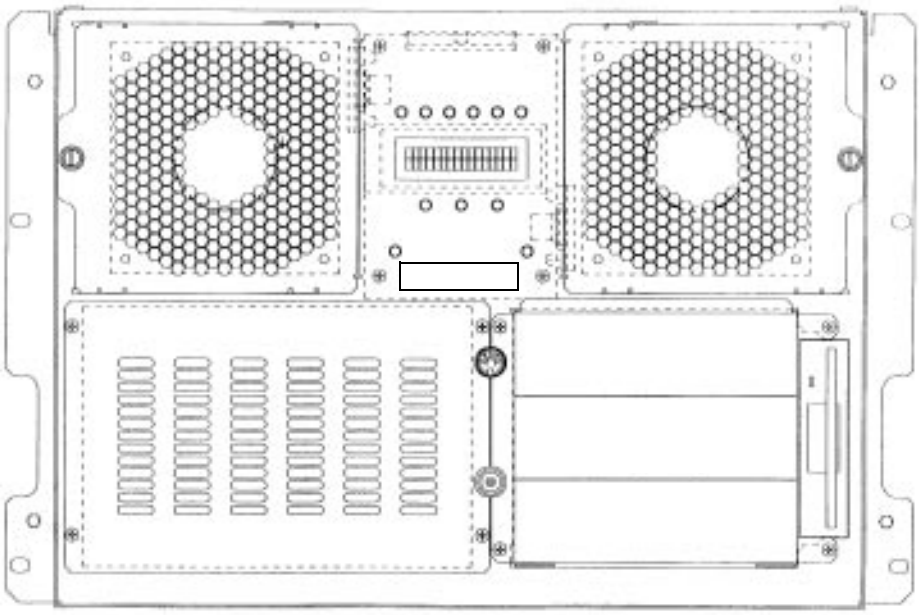


A.7 Blank panel covering the left drive area

Overview

A plank panel is available to replace the left SCA SCSI hard drive cage. The blank panel allows air flow into the chassis and duplicates the emission shielding of the SCA SCSI hard drive cage.

FIGURE 21 Blank panel replacing the SCA SCSI hard drive cage



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B

Hot-swap for RAID SCA hard drives

This appendix discusses hot-swapping the SCA SCSI hard drives.

The SCA SCSI hard drives are hot-pluggable (easily replaced with only one rugged connector).

With:

- a RAID controller,
- hot-swap device drivers, and
- operating system support,

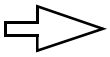
the SCA SCSI hard drives can be hot-swappible.

Without the RAID controller, hot-swap device drivers and operating system support, replacing a drive during system operation can cause a fatal error and force a system reboot.

B.1 Replacing the SCA SCSI hard drive/carrier

Overview

These instruction apply to units with a RAID controller. The following describes replacing an SCA SCSI hard drive / carrier.

Instructions: Replacing the SCA SCSI hard drive / carrier	
Step	**Action**
	**NOTE:** This note applies to actions or items with an astrisk (*). Only units equipped with a Status board can indicate a fault in a SCA SCSI hard drive hardware fault through the “FAULT” LED and status display. The operating system may report a problem with the hard drive.
Conditions leading to 1	* A. Red “Fault” LED is illuminated. The server detects a problem. B. The amber LED (controlled by the CPU(s) and baseboard, not the Status board) above the display is extinguished for the failed hot-swappable SCSI hard drive.
1	Identify the failing SCSI hard drive.
Drive location	SCSI hard drives are located on the front panel. SCSI hard drive 0 is the far left drive and 5 is the far right drive.
2	Unlock front bezel and open the left door.
3	Grasp the SCSI hard drive handle and slide the release down to disengage the hard drive from the chassis.
4	Pull the SCSI hard drive out of the chassis.
5	Be sure the SCSI ID of the new drive is set to 0 (SCSI ID jumpers removed).
6	Slide a fully functional SCSI hard drive into the bay and carefully seat the SCSI hard drive into the SCSI connection.
Resistance	The connectors fit together with slight resistance.
Result of 6	The release latch clicks as the SCSI hard drive slides into place.

Result of 6	The amber LED for this drive illuminates.
Result of 6	The red “Fault” LED extinguishes.
7	Install the front bezel and lock the stud latch behind the media door.
The hot-swap is complete.	

FIGURE 22 Viewing the status display

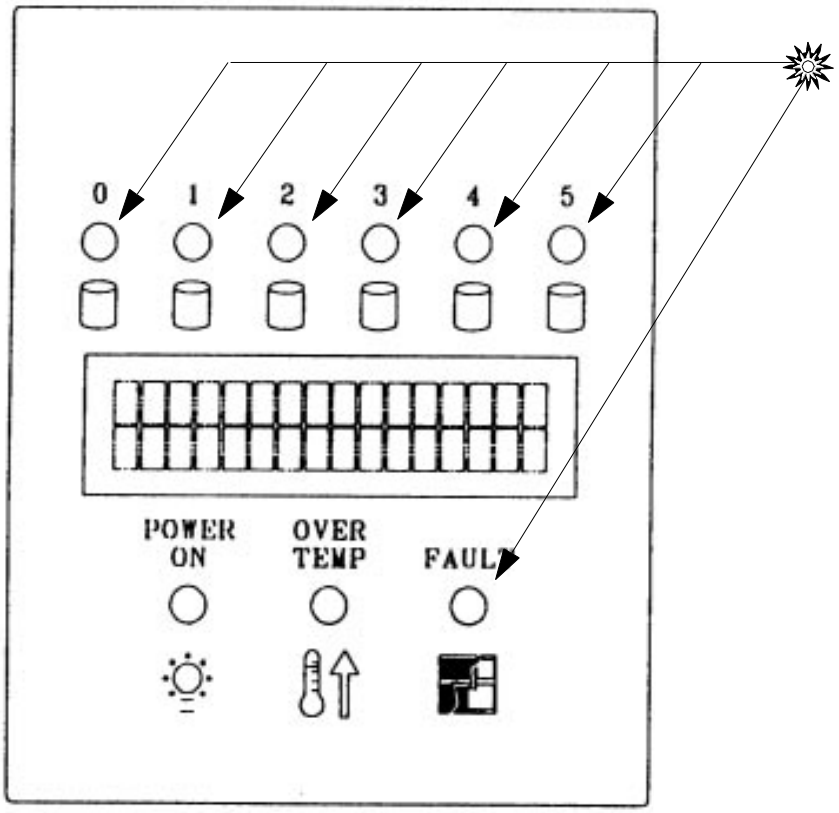
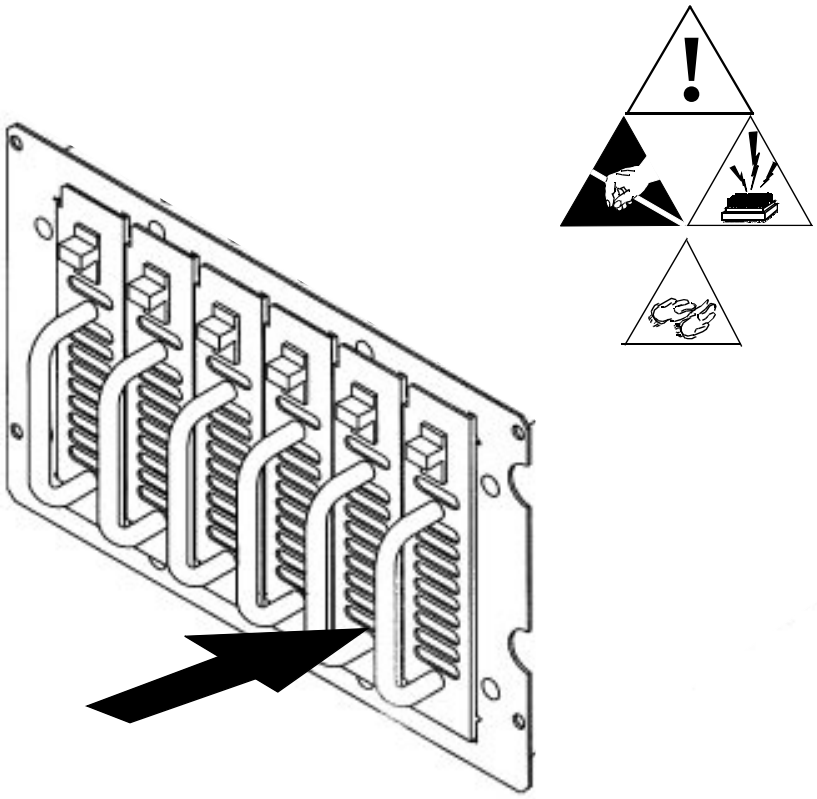


FIGURE 23 Replacing the SCA SCSI Hard Drive



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C *Specifications*

This chapter provides specifications for the chassis.

C.1 Dimensions

Overview

Chassis dimensions are provided below.

Dimension	Chassis measures
Height	12.25 inches (31 cm)
Faceplate Width (rackmount)	19 inches (48.3 cm)
Chassis Width	16.88 inches (42.88 cm)
Depth	19.5 inches (49.5 cm) server body / 21 inches (53.3 cm) including handles
Weight	85 pounds with power supplies but without peripherals.

C.2 Power characteristics

Condition	Power supply tolerances
Power Tolerance	Auto-switching over an AC power range of 100 - 120 / 200 - 240 VAC +/- 10% input (frequency tolerance of 47 - 63 Hz) Each DC power supply has a 400 watt maximum DC power output: • 50.0 A max. @ +5 V • 8.0 / 12.0 peak A max. @ +12 V • 15.0 A max. @ +3.3 V (availible only with optional supply version) • 1.0 A max. @ -12 V

Power supply agency approvals

The PS400W-AC power supplies are UL and C-UL Recognized Components. The PS400W-AC power supplies are also approved components (Bauart) by TUV Rheinland. The ratings for the supplies is 100-240 volts, 12.5 amperes, 60/50 Hz. The outputs are +5 volts @ 50 amperes, 3.3 volts @ 15 amperes, +12 volts @ 8 amperes and -12 volts @ 1.0 amperes. The testing standard is UL/CSA 1950, 3rd Ed.

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D

Contacting support and service

This appendix provides information on:

- calling Texas Microsystems Technical Support, Bulletin Board System (BBS) and InfoLine fax service,
- returning products for service,
- accessing the TMI Home Page on the Internet, and
- completing your system data sheet.

Making troubleshooting easier

Following these simple suggestions will make your task easier and speed the telephone representative's troubleshooting efforts.

- Save the configuration and driver diskettes.
- Save the manual (or manuals). Technical Support often walks you though procedures or helps you find tables of data or illustrations as you both troubleshoot.
- Call Technical Support from a phone close to the malfunctioning computer. You will want to work on the malfunctioning computer while speaking with Technical Support.

D.1 Customer Support

Overview

Texas Microsystems supports the 55xx passive backplane chassis through its Technical Support line, Bulletin Board System (BBS), InfoLine fax service, and Internet home page.

Technical Support

Texas Microsystems provides on-line technical support weekdays from 7:00 a.m. to 6:00 p.m. (Central Time) for your convenience. Our staff of trained professionals welcomes the opportunity to answer questions and assist with technical requirements.

Returning Products for Service

Whenever Texas Microsystems products require service, the factory must be contacted and a Return Goods Authorization (RGA) number must be obtained from a Technical Support Representative.

BBS

Texas Microsystems provides a BBS that enables customers with modem/communications packages to download several types of software (new BIOS versions, software drivers, etc.) for their Texas Microsystems products. The BBS is in operation 24 hours a day, 7 days a week. The BBS can support modems capable of:

- 300,
- 1200,
- 2400, and
- 9600 (V.32 modulation only) baud.

InfoLine

InfoLine is a “demand publishing” delivery tool that allows customers to use a touch-tone phone to send product description documents to any fax machine, 24 hours a day, 7 days a week.

Internet Home Page

Our home page can be found on the World Wide Web at **http://www.texmicro.com**

Calling Technical Support (7 a.m. - 6 p.m. Central Time)	
Step	**Action**
1	Dial 1-800-627-8700 inside the U.S. Outside the U.S., dial 713-541-8200 (add any appropriate long distance/international access dialing codes).
2	Have the Texas Microsystems product model and serial numbers available.
3	Upon answer by the automated system, press “3” for Technical Support.
Returning products for service	
Step	**Action**
1	Call Technical Support (see the table above), ensuring that you have the product model and serial numbers available.
2	When a Returned Goods Authorization (RGA) number is assigned, place it, on any packing materials and correspondence. The factory will be unable to accept delivery without these numbers.
Accessing the BBS (available anytime)	
Step	**Action**
1	Dial 713-541-8250 (add any appropriate long distance/international access dialing codes).
2	Set your communication program to use “ANSI” (sometimes called “ANSI-BBS”) as the terminal emulation setting.
3	Follow the directions on the screen as the BBS menu system guides you through the program.
Using the InfoLine Service (available anytime)	
Step	**Action**
1	Dial 1-800-627-8700 (add any appropriate long distance/international access dialing codes).
2	Upon answer by the automated system, press “190” (the InfoLine extension).
3	Enter information as prompted to order documents.

D.2 Data sheet for the system

Overview

Please fill out the form below about your system.

Data sheet	
1.	Model: 55_____ Passive Backplane chassis (_____ depends upon the passive backplane installed.)
2.	Serial number:
3.	CPU:
4.	BIOS Version:

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