

SGI™ 1450 Server Mounting Instructions

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SGI 1450 Server Mounting Instructions

This guide provides information on mounting the SGI 1450 server in a 19-inch rack.

To obtain SGI documentation using the World Wide Web, see the SGI Technical Publications Library at <http://techpubs.sgi.com>. Enter a keyword search, or search by title to find the information or manual you need.



Warning: To avoid personal injury when unpacking the server, use only a mechanical assist unit to lift it off the shipping pallet. The minimum server configuration weighs 26 kg (57 lbs); the maximum configuration weighs 40 kg (88 lbs). Do not attempt to lift or move the server by the handles on the power supplies. Use only a hand-truck or other mechanical assist unit to move the server from one location to another.

This guide contains the following sections:

- Unpacking and Inspecting the Server
- Determining Space Requirements
- Observing Pre-Installation Safety Precautions
- Preparing the Slide Assemblies
- Preparing the Server
- Attaching EIA Rail Brackets
- Attaching the Slide Assembly to the Rack
- Placing the Chassis in the Rack
- Installing Handles
- Attaching the Front Bezel to the Chassis
- Removing the Server from the Rack

Unpacking and Inspecting the Server

Remove the server from the packaging container and check that all accessories are included. Inspect the packaging container for evidence of mishandling during transit. If the packaging container is damaged, photograph it for reference. After removing the contents, keep the damaged container and the packing materials.

Inspect the server and accessories for damage. If the contents appear damaged, file a damage claim with the carrier immediately.

Determining Space Requirements

The SGI 1450 Server is designed either to be mounted in a standard 19-inch rack (rack mode) or to stand upright (pedestal mode).

The following table specifies the space requirements for the SGI 1450 Server system in rack mode.

Table 1 SGI 1450 Server Physical Specifications

Specification	Rack Mode
Height	4u (7 inches)
Width	17.5 inches (44.5 cm)
Depth	26.5 inches (67.3 cm)
Weight	57 lbs (26 kg), minimum configuration 88 lbs (40 kg), maximum configuration
Required front clearance	3 inches (inlet air temperature <35 °C / 95 °F)
Required rear clearance	6 inches (no airflow restriction allowed)
Required side clearance	1 inch

Observing Pre-Installation Safety Precautions

Read the following warnings and cautions before proceeding with the installation.



Warning: You are responsible for installing an AC power disconnect for the entire rack unit. This main disconnect must be readily accessible, and it must be labeled as controlling power to the entire unit, not just to the server(s).



Warning: To avoid the potential for an electrical shock hazard, you must include a third wire safety grounding conductor with the rack installation. If a server power cord is plugged into an AC outlet that is part of the rack, then you must provide proper grounding for the rack itself. If server power cords are plugged into wall AC outlets, the safety grounding conductor in each power cord provides proper grounding only for the server. You must provide additional, proper grounding for the rack and other devices installed in it.



Caution: The operating temperature of the server, when installed in an equipment rack, must not go below 5 °C (41 °F) or rise above 35 °C (95 °F). Extreme fluctuations in temperature can cause various problems in your server.



Caution: The equipment rack must provide sufficient airflow to the front of the server to maintain proper cooling. It must also include ventilation sufficient to exhaust a maximum of 4,100 Btu's per hour for the server. The rack selected and the ventilation provided must be suitable to the environment in which the server will be used.

Checking the Slide Rail Kit



Warning: To avoid personal injury when unpacking the server, use only a mechanical assist unit to lift it off the shipping pallet. The minimum server configuration weighs 26 kg (57 lbs); the maximum weighs 40 kg (88 lbs). Do not attempt to lift or move the server by the handles on the power supplies. Use only a hand-truck or other mechanical assist unit to move the server from one location to another.

The slide rail kit contains two slide rail assemblies, EIA brackets, and several screws, nuts, and bolts, as explained in the following paragraphs.

As shown in Figure 1, each of the two slide rail assemblies contains three moving parts: the inner member, the intermediate member, and the outer member.

The slide rail kit contains four EIA brackets. Two brackets are labeled FL/RR. One is connected to the front left (FL) of the slide assembly; the other is connected to the rear right (RR). The remaining two brackets are labeled FR/RL. One is connected to the front right (FR) of the slide assembly; the other is connected to the rear left (RL). Figure 1 shows where the brackets are attached to the slide rail assembly.

Screws, lock nuts, and washers are provided for the assembly of each slide rail and to attach the slide rails to the server. However, you must supply the screws that secure the slide rail to the rack.

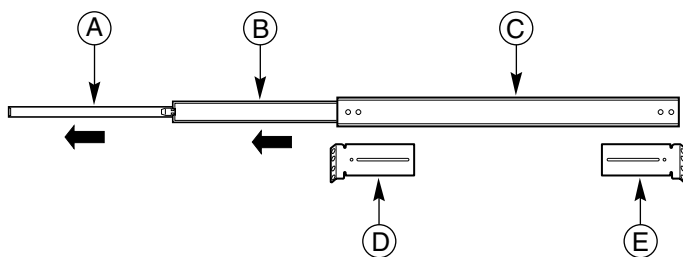


Figure 1 Slide Assembly Fully Extended

- | | |
|------------------------|---|
| A. Inner Member | The inner member is the narrowest piece of the slide assembly. |
| B. Intermediate Member | The intermediate member is the middle member of the slide assembly. |
| C. Outer Member | The outer member is the widest piece of the slide assembly. |
| D. Front Left Bracket | The front left bracket is labeled FL/RR. |
| E. Rear Left Bracket | The rear left bracket is labeled FR/RL. |

The inner member has a safety latch shown in Figure 2. Without fully extending the slide assembly, you can move the server in and out from the rack. When the slide assembly is

fully extended, this latch locks the assembly in the fully extended position. When you depress the latch, you can release the inner member from the rest of the slide assembly.

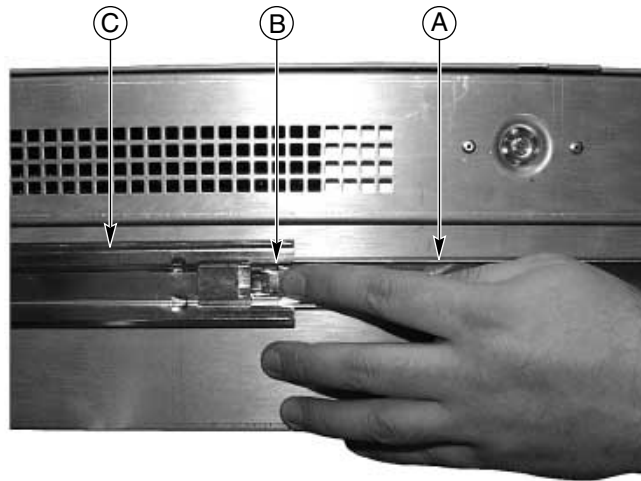


Figure 2 Safety Latch

- | | |
|------------------------|---|
| A. Inner Member | The inner member is the narrowest piece of the slide assembly. The inner member is attached to the chassis. |
| B. Safety Latch | The safety latch is located on the inner member. |
| C. Intermediate Member | The intermediate member slides into the inner member. |



Warning: You must anchor the equipment rack to an unmovable support to prevent it from falling over when the server is pulled on the slide assembly. The anchors must be able to withstand a force of up to 113 kg (250 lbs). You must also consider the weight of any other device installed in the rack.



Caution: After completing the rack mount installation, do not depress the safety latch unless you are removing the chassis from the rack. The purpose of the safety latch is to prevent the server from unexpectedly sliding out of the rack.

Preparing the Slide Assemblies

To prepare the slide assemblies, follow these steps:

1. Remove the slide assemblies from the kit.
2. Orient the slide assembly so that the inside of the inner member is facing up and the safety latch is visible.
3. Fully extend the telescoping slide assembly until the intermediate member hits the safety latch on the inner member.
4. Depress the safety latch with your thumb. Pull the inner member away from the intermediate member until the inner member separates from the rest of the slide assembly.
5. Set the intermediate and outer members of the slide assembly aside. You will need them later on.

Preparing the Server

To prepare the server, follow these steps:

1. Remove six #10-32 x 1/4 long pan-head screws from the kit.
2. Orient the first inner member so that the latch points towards the rear of the chassis.

Figure 3 shows the inner member attached to the chassis (the inner member is noted by "A"). Notice that the safety latch is pointed towards the rear of the chassis

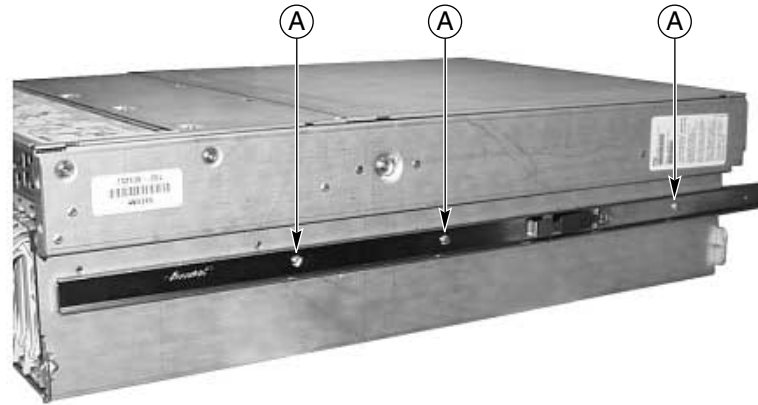


Figure 3 Inner Member Attached to Chassis

3. Align the three holes in the inner member with the three holes in the chassis.
4. Insert and tighten a screw through each hole in the bar and chassis wall.
5. Repeat steps 2 through 4 for the other inner member on the other side of the chassis.

Attaching EIA Rail Brackets

At this point, you have removed the inner member from the slide assembly. The outer and intermediate members comprise the slide assembly. Note the location of the brackets in Figure 1.

Note: Mounting holes in the vertical rails of equipment racks are commonly spaced in a 5/8 x 5/8 x 1/2-inch sequence. Perform the steps in the following sections carefully; brackets must be mounted with precision to allow room for the next server you install in a rack.

Attaching the Front Bracket

To attach the front bracket to the slide assembly, follow these steps:

1. Remove two #8-32 x 1/2 long pan-head screws, two washers, and two lock nuts from the kit.
2. Extend the intermediate member out from the outer member so that the hole at the front end of the outer member is visible through a rectangular hole in the intermediate member. Item B in Figure 5 shows the direction in which you must extend the intermediate member.

Figure 4 shows how the FL/RR bracket is oriented and how the slide rail assembly is extended.

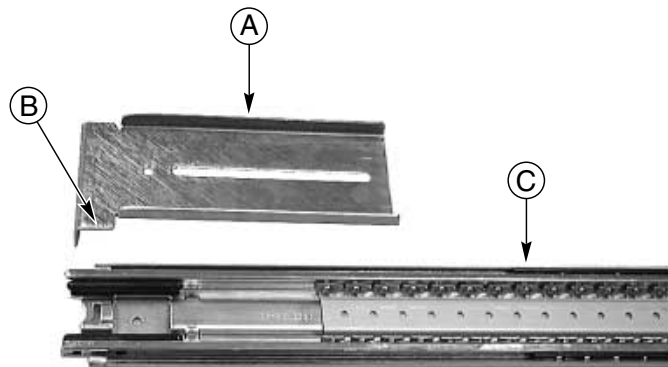


Figure 4 FL/RR Bracket Orientation

- | | |
|----------------------------|--|
| A. Front Left Bracket | The front left bracket is labeled FL/RR. |
| B. Lower Tongue | The correct orientation of the lower tongue of the bracket safety latch is shown. |
| C. Extended Slide Assembly | The intermediate member is extended so that the rectangular hole in the screw hole in the outer member is centered in the rectangular hole of the intermediate member. |

3. Place one of the brackets labeled FL/RR on the outside of the outer member. The lower tongue of the bracket must be oriented correctly. Item B in Figure 4 shows the bracket's correct orientation.
4. Place a screw in the holes from inside the intermediate member and tighten with a washer and lock nut. The correct alignment of the screw, washer, lock nut, bracket, and slide assembly is shown in Figure 5.

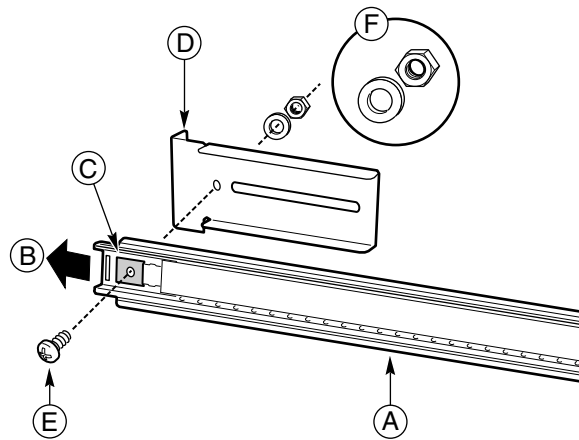


Figure 5 Correct Alignment of Screw, Washer, Nut, Bracket, and Slide Assembly (FL/RR)

- | | |
|---------------------------------|--|
| A. Extended Slide Rail Assembly | The slide rail assembly is extended so that the screw hole in the outer member is centered in the rectangular hole of the intermediate member. |
| B. Extension Direction | The intermediate member is extended in this direction. |
| C. Rectangular Hole | The screw hole is centered in the rectangular hole of the intermediate member. |
| D. Front Left Bracket | The front left bracket is labeled FL/RR. |
| E. Screw | The screw secures the bracket to the slide rail assembly. |
| F. Washer and Locknut | The correct orientation of the washer and locknut is shown. |



Caution: Before continuing, make sure that the screw connecting the front bracket is tightened securely. If it is not, the rack installation may not be able to support the weight of the server.

5. Slide the intermediate member back and forth over the screw you just tightened. If the intermediate member cannot slide over the screw, make sure the screw size is correct.
6. Repeat steps 2 through 5 for the other slide assembly.

Attaching the Rear Bracket

To attach the rear bracket to the slide assembly, follow these steps:

1. Remove four #8-32 x 1/2 long pan-head screws, four washers, and four lock nuts from the kit.
2. Extend the intermediate member out from the outer member so that you have complete access to the rear part of the outer member. Item B in Figure 7 shows the direction in which you must extend the intermediate member. On the right side of the slide assembly, notice that the three screw holes in the outer member are accessible.
3. Place one of the brackets labeled FR/RL on the outside of the outer member. The lower tongue of the bracket must be oriented correctly. Item B in Figure 6 shows the correct orientation.

Figure 6 shows how the FR/RL bracket is oriented and how the slide rail assembly is extended.

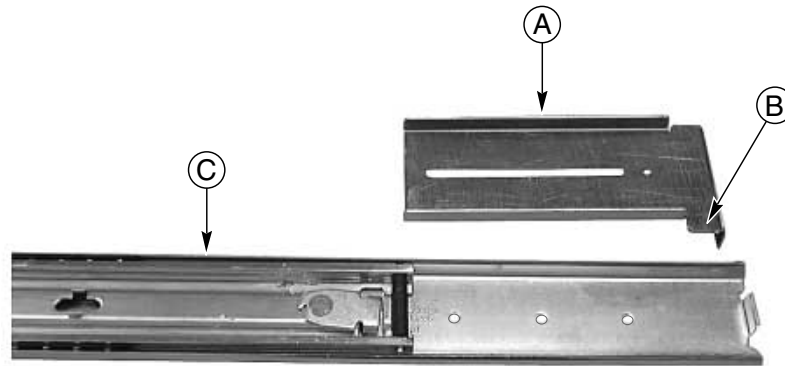


Figure 6 FR/RL Bracket Orientation

- | | |
|----------------------------|---|
| A. Rear Left Bracket | The front left bracket is labeled FR/RL. |
| B. Lower Tongue | The correct orientation of the lower tongue of the bracket safety latch is shown. |
| C. Extended Slide Assembly | The intermediate member is extended so that the three screw holes on the outer member are accessible. |
4. Align the slot in the bracket with the three holes in the outer member so that all three holes in the outer member are visible through the slot in the bracket.
 5. Place screws in the two front holes from inside the outer member and loosely tighten with a washer and lock nut. The correct alignment of the screw, washer, lock nut, bracket, and slide assembly is shown in Figure 7.

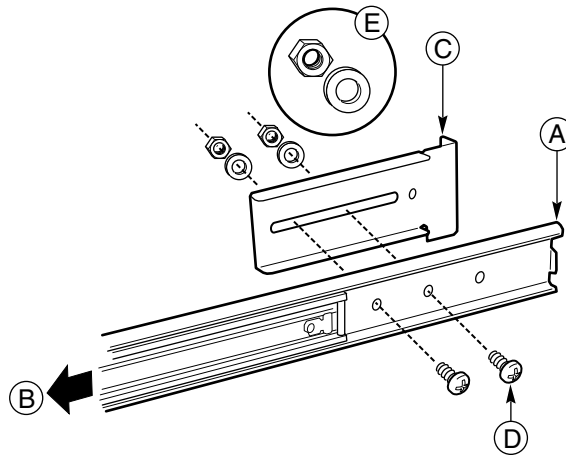


Figure 7 Correct Alignment of Screw, Washer, Nut, Bracket, and Slide Assembly (FR/RL)

- | | |
|---------------------------------|--|
| A. Extended Slide Rail Assembly | The slide rail assembly is extended so that there is complete access to the rear part of the outer member. |
| B. Extension Direction | The intermediate member is extended in this direction. |
| C. Rear Left Bracket | The rear left bracket is labeled FR/RL. |
| D. Screw | One of two screws secures the bracket to the slide rail assembly. |
| E. Washer and Locknut | The correct orientation of the washer and locknut for each screw is shown. |
6. Slide the bracket back and forth. Make sure that the screws are loose enough to allow the bracket to move freely.
 7. Repeat steps 2 through 6 for the other slide assembly.

Attaching the Slide Assembly to the Rack

To attach the slide assembly to the rack, follow these steps:

1. Obtain eight screws from your own inventory.
2. Select the holes you are going to use on the rack.
3. Align the holes on one of the front brackets with the holes you selected on the rack.

Figure 8 shows the slide assembly aligned with the holes in the rack. The holes are noted by "A."

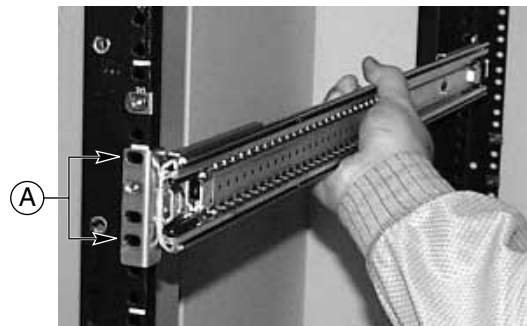


Figure 8 Slide Assembly Aligned with Holes in Rack

4. As shown in Figure 8, insert two screws in the front bracket and rack holes. Tighten the screws to secure the front of the slide assembly to the rack.
5. Adjust the rear bracket so that it meets the rear vertical rail of the rack.
6. Insert two screws in the rear bracket and rack holes. Tighten the screws to secure the rear of the slide assembly to the rack.
7. Tighten the two screws that secure the slide rail assembly to the rear bracket.
8. Repeat steps 2 through 7 for the other slide assembly.

Placing the Chassis in the Rack

Lift the chassis with a hand-truck or other mechanical assist unit so that the inner members on the server align with the slide assembly attached to the rack. Gently push the chassis into the rack. Make sure that the inner member slides smoothly into the slide assembly in the rack.

Installing Handles

The handles attach to the chassis. As an option, you can also attach the handles to the rack.

1. Make sure that you pull the chassis out of the rack until the safety latch snaps into place.
2. As shown in Figure 9, align the inside top and bottom holes of the handles with the top and bottom holes of the chassis.

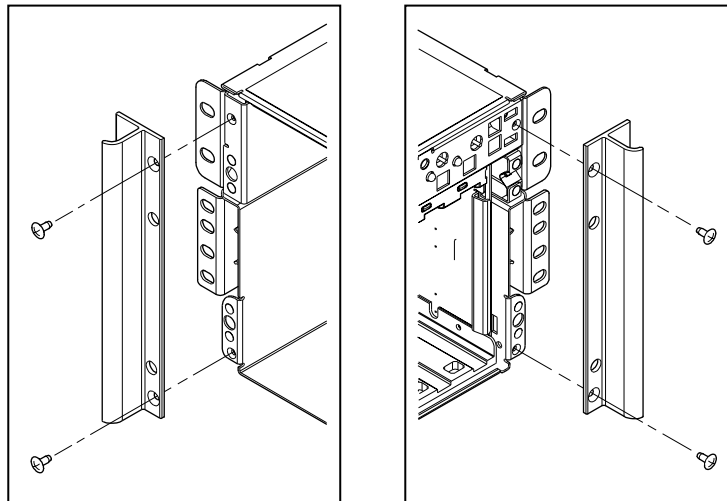


Figure 9 Handles Aligned With the Chassis

3. Place screws in the top and bottom holes on the inside edge of the handle. Tighten both screws to secure the handle to the chassis.

4. If you want to secure the handle to the rack, place screws in the top and bottom holes on the outside edge of the handle. Tighten both screws.

Attaching the Front Bezel to the Chassis

The front bezel attaches to and protects the front of the server.

1. Make sure that you pull the chassis out of the rack until the safety latch snaps into place.
2. Place the front bezel over the front of the chassis. The edge of the bezel should align with the front edges of the chassis. The ball studs on the back of the bezel fit easily into holes on the front of the server.
3. Gently push the front bezel into the chassis. The front bezel snaps into place.

Removing the Server from the Rack

To remove the server from the rack, follow these steps:

1. Pull the server out until the safety latches on each side lock into place.
2. Make sure that a hand-truck or other mechanical assist unit is placed directly under the server.
3. Depress the safety latches on both sides and simultaneously pull the chassis out of the slide assembly.
4. Pull out the hand-truck or other mechanical assist unit along with the chassis.

