
Chapter 3. Installing Options

This chapter provides instructions on installing options in your system unit. Use the following considerations when installing options.

Install all of the options at one time to prevent having to repeatedly install and remove the system-unit cover.

Install the SBC options first. Installing these options first will prevent you from having to remove other options to access the SBC.

Before performing any installation procedures, read the information in "Safety Information" on page E-8 and in "Handling Electrostatic-Discharge-Sensitive Devices" on page E-13.

CAUTION:

- **Always remove the source of power to the system unit before starting any removal or replacement procedures. The electrical power and any backup-power source should be unplugged from the wall outlet or disconnected from its source. To make sure power is removed properly, start each removal or replacement procedure with "Turning Off the Power and Disconnecting Cables."**
- **Depending on the options installed, the system unit could weigh more than one person can lift comfortably. Do not attempt to lift the system unit by yourself. Get another person to help you.**

Attention

Whenever handling electronic components, use precautions to prevent damage from electrostatic discharge. Refer to "Handling Electrostatic-Discharge-Sensitive Devices" on page E-13 for a list of those precautions.

Turning Off the Power and Disconnecting Cables

Use the following procedure to power-down the system unit and disconnect all cables before beginning any removal or replacement procedure. If you need to remove the system unit from its mounting place, use this procedure before removing the system unit.

1. Remove any removable media, such as diskettes, optical discs, or tapes, from the system unit.
2. Turn off the computer and any attached devices.
3. Tag all cables connected to the system unit, or record their respective connectors, to prevent confusing them when they are unplugged.
4. If you have an internal modem, disconnect the telephone line from the wall outlet and then from the system unit (the line can cause an electrical shock if its number is called).
5. Unplug or disconnect all electrical power cords and any backup-power source. Where applicable, unplug all cables at the outlet first, then at the device.
6. Disconnect all other cables from the system unit.

When reassembling the system unit, reverse these steps.

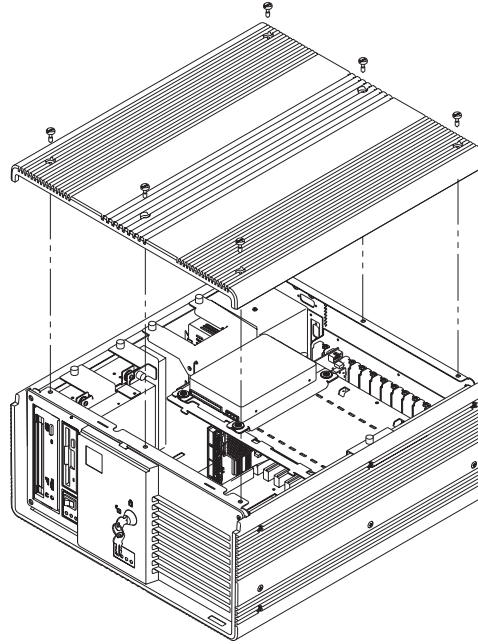
Removing the Cover

In most cases, you do not need to remove the system unit from its mounting to service it. However, if you must, do so before removing the covers.

CAUTION:

The system unit weighs over 40 pounds (19 kilograms). Do not try to hold the system unit while removing the screws; have another person hold it as you remove the screws.

To remove the cover, loosen the six cover screws and lift off the cover, as shown.



Installing Memory

The SBC has two connectors (bank 0 and bank 1). Each connector supports 32-MB, 64-MB, 128-MB, and 256-MB non-parity DIMMs.

DIMM Considerations

Use only IBM-approved memory. Contact your IBM representative for memory upgrades.

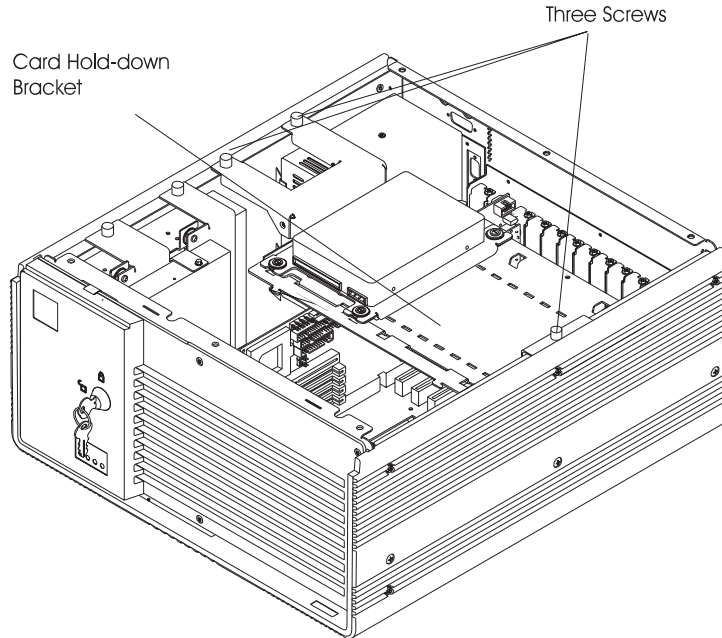
The DIMM in bank 0 has a height restriction of 1.5 inches (38.1 millimeters).

The DIMM in bank 1 is limited by the adapter in expansion slot 5 (slot 4 either must be empty or have only a small adapter installed, or have the USB removed). The height restriction for bank 1 is 1.375 inches (34.9 millimeters). The dimension is affected by the adapter in slot 5.

Before installing memory, use the following procedures to remove the SBC.

1. Remove the cover (refer to page 3-2).
2. Disconnect the signal and power cables from all hard drives (the hard drives do not need to be removed from the card hold-down bracket).

3. Loosen the three thumbscrews; then remove the card hold-down bracket and hard drives.

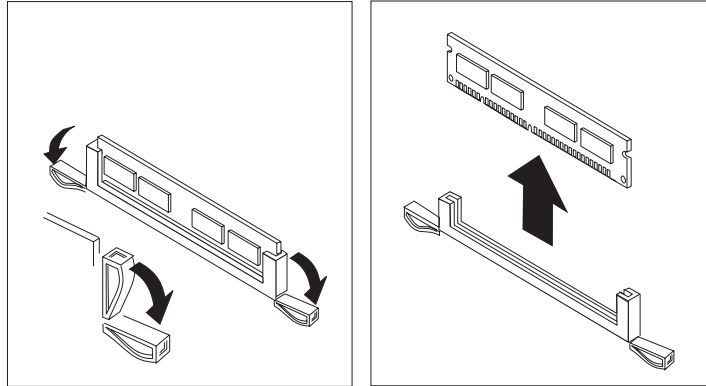


4. Record the position of any adapters that interfere with disconnecting cables from the SBC and remove those adapters (see "Removing and Replacing Adapters" on page 7-36).
5. Remove the screw that secures the retaining bracket for the SBC to the chassis.
6. Disconnect all cables from the SBC.
7. Pull the cables away from the SBC and carefully lift the SBC out of the system unit. (You might have to rock the SBC slightly from front to rear to loosen it from the connector.)
8. Place the SBC on a flat, clean, static-free surface, with the component-side facing up and the backplane connector toward you.
9. If you are replacing the DIMM in bank 0, continue with "Installing Memory in Bank 0" on page 3-4. If you are installing memory in bank 1, go to "Installing Memory in Bank 1" on page 3-5.

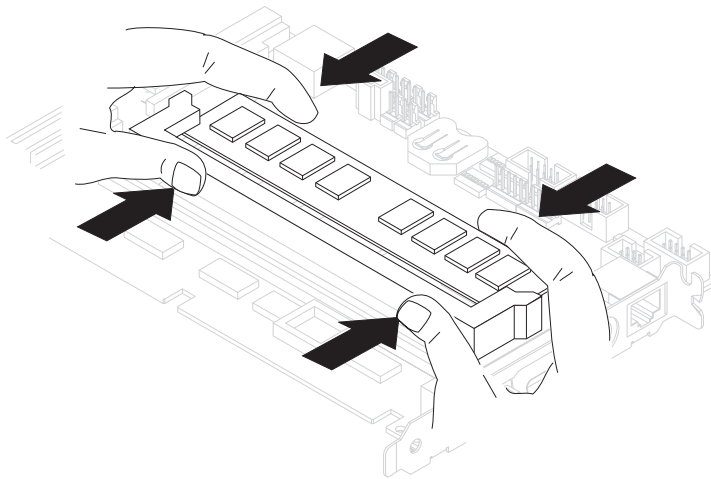
Installing Memory in Bank 0

Use the following procedures to install memory in bank 0.

1. Push outward against the release levers at both ends of the DIMM connector. The DIMM will rise about 0.25 inch.



2. Lift the DIMM out of the connector.
3. Align the centering notches on the new DIMM with the keys in the connector (the keys are in the center slot of the connector). Then insert the DIMM into the connector and squeeze the DIMM into the connector as shown. The release levers will move to the closed position when the DIMM is fully seated in the connector.

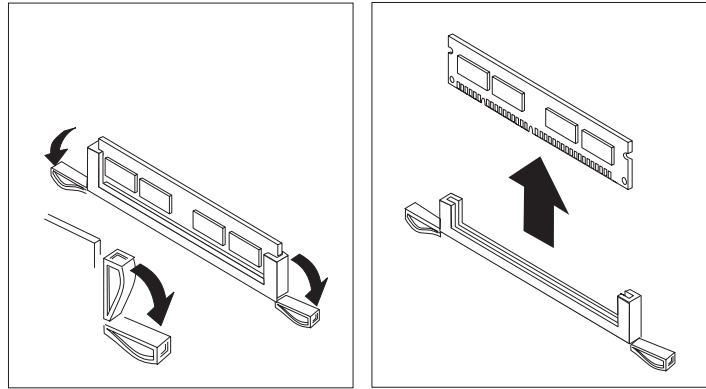


4. Record the configuration changes in Appendix A, "System Records."
5. If you are also installing memory in bank 1, continue with "Installing Memory in Bank 1." Otherwise, reinstall the SBC and reconnect all internal cables.
6. Reinstall any adapters into the same slots from which they were removed.

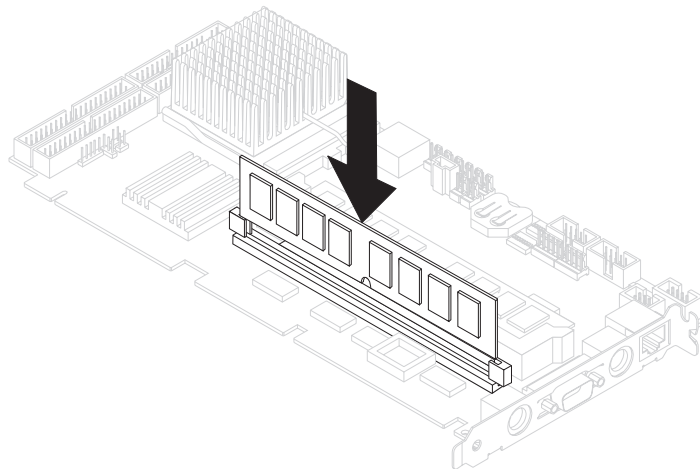
Installing Memory in Bank 1

Use the following procedures to install memory in bank 1.

1. If you are replacing the DIMM in bank 1, continue with the next step. Otherwise, go to step 4.
2. Push outward against the release levers at both ends of the DIMM connector. The DIMM will rise about 0.25 inch.



3. Lift the DIMM out of the connector.
4. Align the centering notches on the new DIMM with the keys in the connector (the keys are in the center slot of the connector). Then insert the DIMM into the connector and press the DIMM into the connector as shown. The release levers will move to the closed position when the DIMM is fully seated in the connector.



5. Record the configuration changes in Appendix A, "System Records."
6. Reinstall the SBC and reconnect all internal cables.
7. Reinstall any adapters into the same slots from which they were removed.

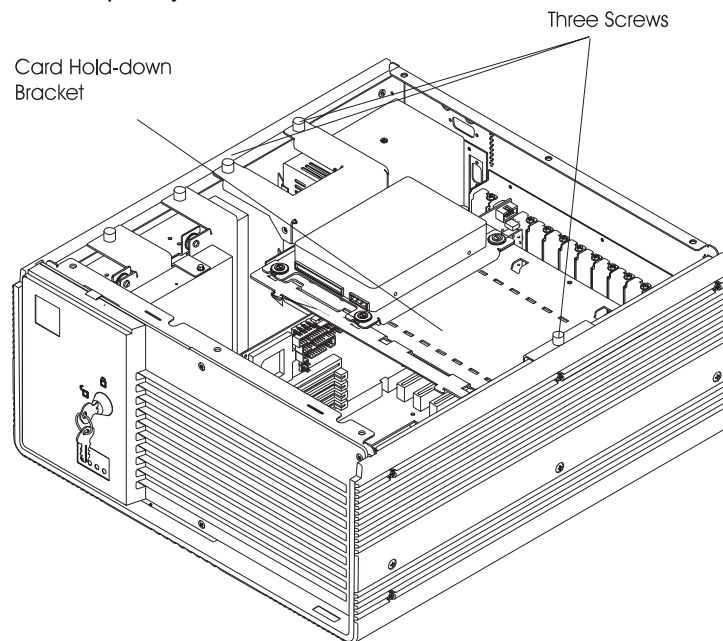
Installing Adapters

The 7588 Computer has a card hold-down bracket to keep the adapters in their slots in case of shock or vibration. The bracket, together with the hold-down spacers, is designed to hold standard sizes of cards in the connectors.

Plastic spacers and rubber pads are included in the ship group and should be installed as indicated in Figure 3-1 on page 3-7. Holes in the card hold-down bracket correspond to each expansion slot in the system unit. The holes are numbered according to the expansion slot; the holes for the PCI adapters are identified with an "A" next to the number.

To install an adapter:

1. Remove the cover (refer to page 3-2).
2. Disconnect the power and signal cables from the hard disk drives.
3. Loosen the three screws completely; then remove the hard disk drives and hold-down bracket.



4. Refer to the instructions that came with the adapter for instructions specific to your adapter.
5. Record the location of any adapters that are in the way; then remove them.
6. Touch the static-protective bag in which the adapter is packaged to any unpainted metal surface on the system unit; then remove the adapter from the bag.
7. Refer to the instructions that came with the adapter to determine switch settings, jumper positions, or other special setup and handling.
8. Install the adapter in the system unit:
 - a. Grasp the adapter at the front and rear.
 - b. Align the adapter with the front and rear adapter guides and slide it into the guides (some adapters do not extend to the front adapter guide).
 - c. Press the adapter firmly to seat it completely in the connector. Full-length adapters slide into the groove on the front adapter guide.
 - d. Install and tighten the screw on the adapter-retaining bracket.
9. Record the adapter information and location in Appendix A, "System Records."

10. Refer to Figure 3-1 and determine the number of pads to use for each card size and whether the card requires hold-down spacers.

Note: Do not install spacers and pads for card heights of less than 3.7 inches. These adapters are too short for the bracket to work effectively; however, the adapters generally have less mass and are less likely to be affected by vibration and shock.

Card Height (inches/millimeters)	Spacer Required	Number of Additional Pads Needed	
4.8/121.8	No	0	standard <i>tall</i> card
4.7/119.3	No	1	
4.6/116.8	No	2	
4.5/114.2	No	3	
4.4/111.7	No	4	
4.3/109.1	No	5	standard <i>short</i> card
4.2/106.6	Yes	0	
4.1/104.1	Yes	1	
4.0/101.5	Yes	2	
3.9/98.9	Yes	3	
3.8/96.4	Yes	4	
3.7/93.9	Yes	5	

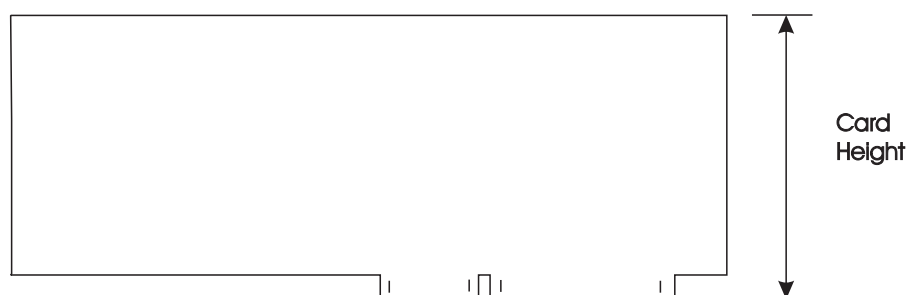
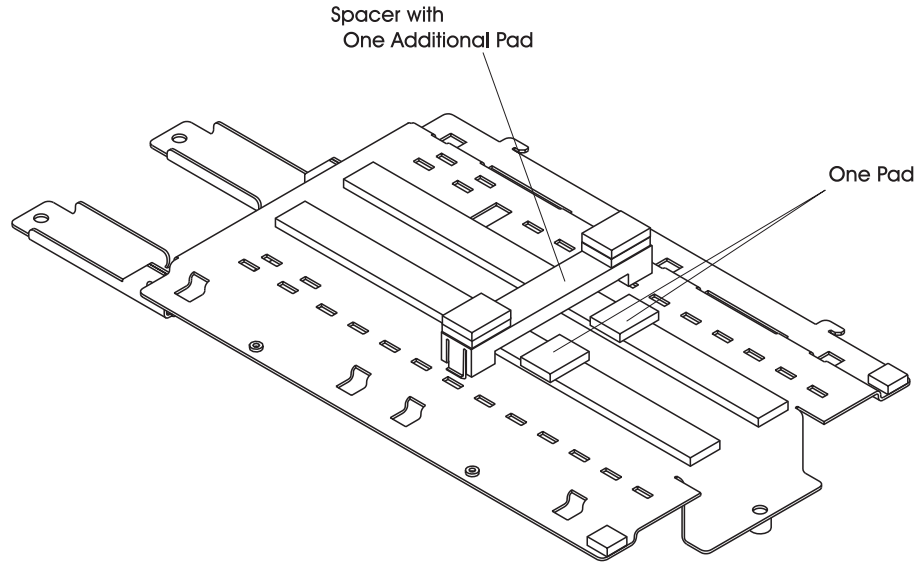


Figure 3-1. Requirements for Adapter Hold-Down Spacers

If spacers are required, continue with step 11 on page 3-8; otherwise, go to step 12.

11. Install the spacer and pads as shown in the following figure.



12. Reinstall any adapters you removed (make sure to install them in the original locations).

13. Reinstall the card hold-down bracket and hard drive.

Installing an Internal Hard Drive

Important

Not all hard drives meet the rigorous requirements for industrial-usage rating that make up the working environment of the 7588 Computer. Before installing any drive that is not purchased specifically for use in a 7588 Computer, be sure the drive meets all environmental conditions to which it might be subjected.

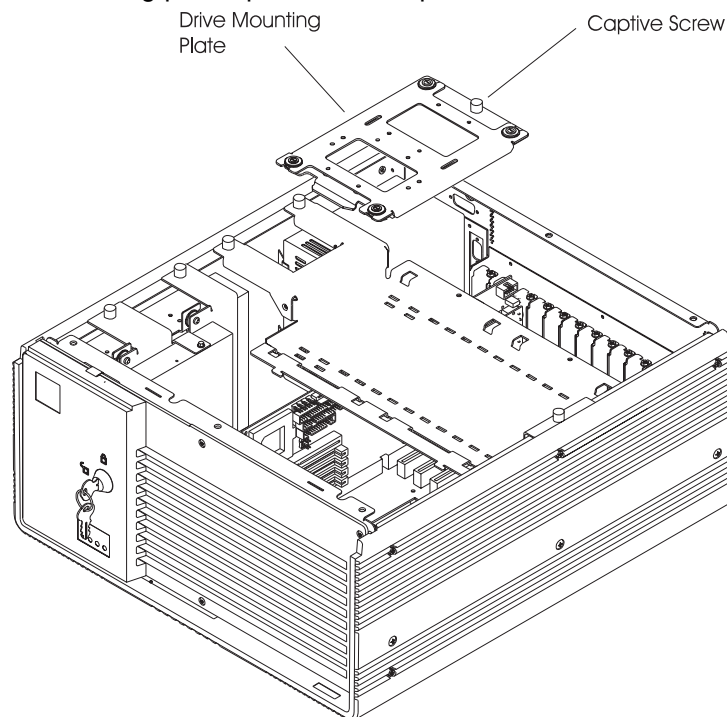
To install an internal hard drive:

1. Turn off the computer and remove the system-unit cover (refer to page 3-2).
2. Read the instructions that came with the drive to determine any special instructions for:
 - Adding or changing drive mounting hardware
 - Installing or changing drive installation hardware
 - Setting jumpers or switches
 - Removing or installing a terminator (SCSI drives only)
 - Setting a unique drive ID (SCSI drives only)

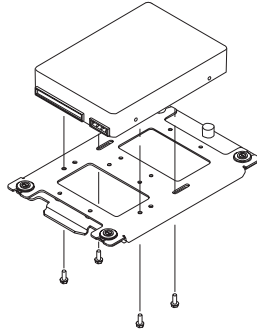
Note: When you update your configuration, ensure that the hard drive you installed is included as a startup device under **Start Options** in the Configuration/Setup Utility screen; otherwise, you will not be able to boot your system unit from your hard disk.

In addition, if you find your hard drive is not capable of running in High Performance mode (the default mode selection for the primary and secondary IDE controllers), use the same screen to switch to Compatible mode.

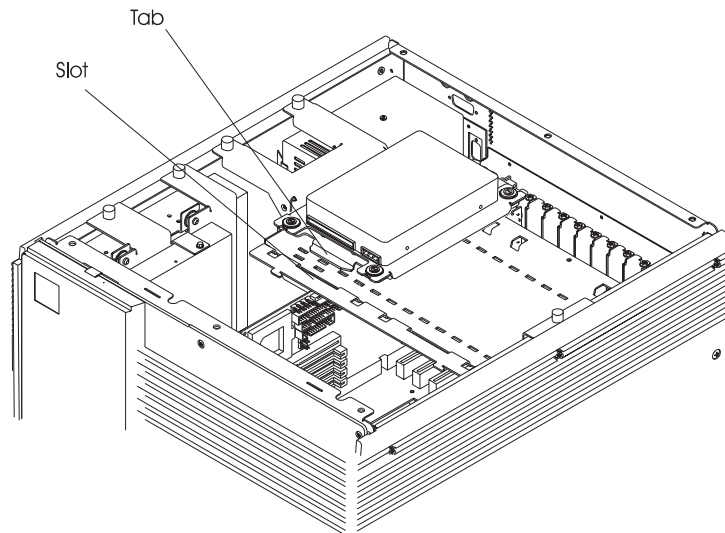
3. Loosen the captive screw on an empty drive-mounting plate.
4. Tilt the rear of the drive-mounting plate up; then lift the plate to the rear and out of the system unit.



5. Use the screws supplied with the drive to mount the hard drive to the drive-mounting plate. The connectors on the drive face the front of the system unit.



6. Connect the power and signal cables to the new drive (the cable connectors are keyed and connect only one way).
7. Insert the tab on the drive-mounting plate into the slot in the card hold-down bracket, then tilt the plate into place.



8. Tighten the captive screw.
9. Record the drive information in Appendix A, "System Records."
10. Reinstall the covers.

Installing the Mounting Options

CAUTION:

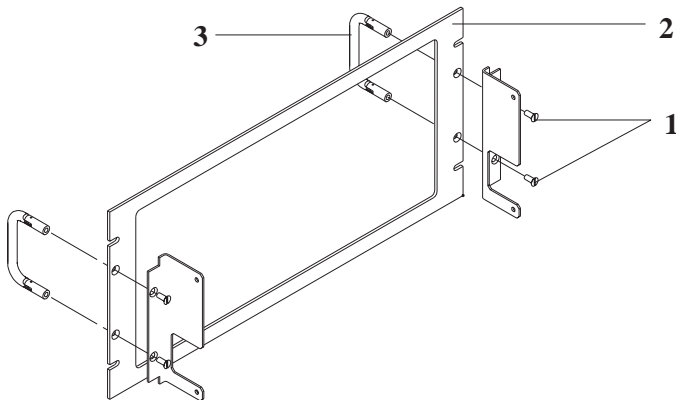
The 7588 Computer weighs more than 40 pounds (19 kilograms). Have another person help you lift the system unit.

If you are not installing the system unit in any type of mounting, go to Chapter 4, "Operating and Configuring Your System Unit." Otherwise, go to the instructions for the type of hardware to install (refer to the following list).

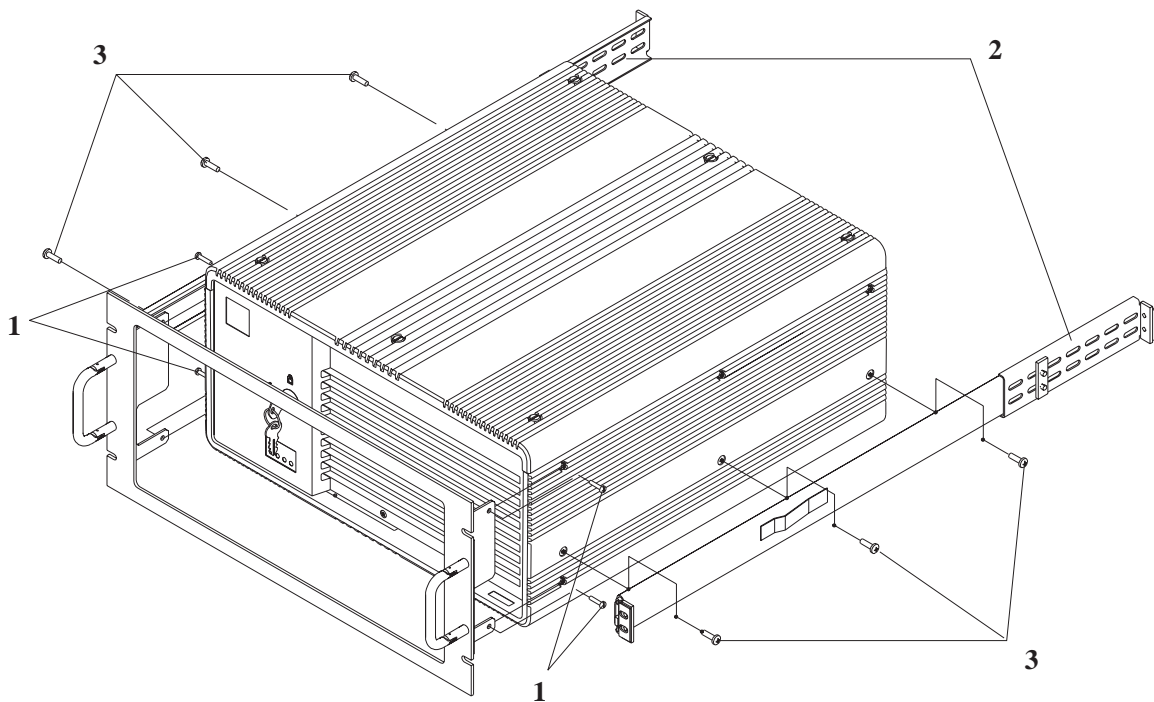
- For the rack-mount option, go to "Installing the Rack-Mount Option" on page 3-11.
- For the floor-stand option, go to "Installing the Floor-Stand Option" on page 3-12.
- For the panel-mount option, go to "Installing the Panel-Mount Option" on page 3-13.

Installing the Rack-Mount Option

1. Assemble the front-plate assembly by pushing the flat-head screws (1) through the plate (2) and into the handles (3) as shown.



2. Assemble the front-plate assembly onto the system unit with the notches in the mounting bracket toward the bottom.
3. Secure the front-plate assembly to the system unit using the four pan-head screws (1) supplied with the rack-mount kit.

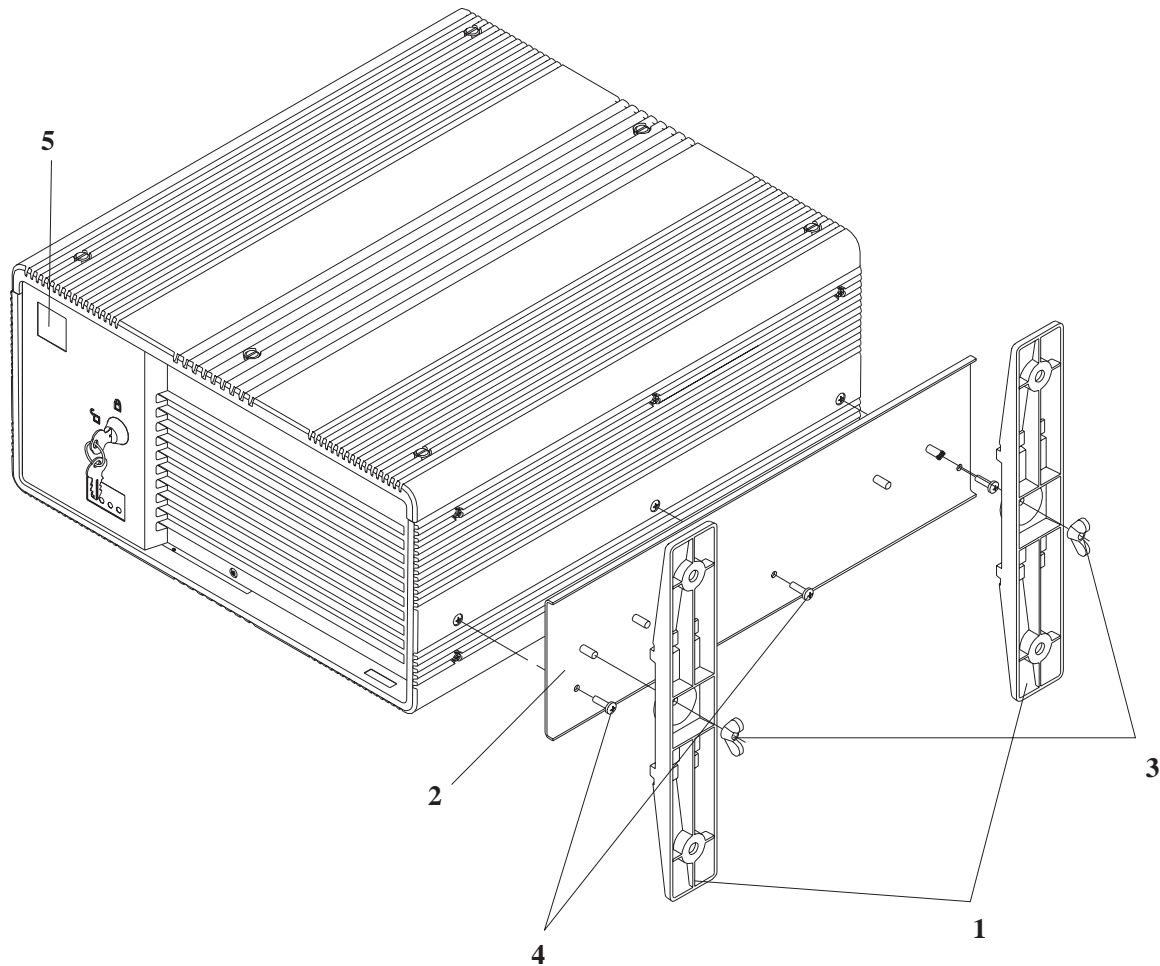


4. Using the instructions provided with the rail kit, remove the six screws; then install the rack-mount rails (2) onto the system unit using the screws supplied with the kit (3).

Installing the Floor-Stand Option

1. Assemble the floor-stand assembly by placing the feet (1) onto the plate (2) using the wing nuts (3). Install the feet on the studs closest to the end to provide more stability.

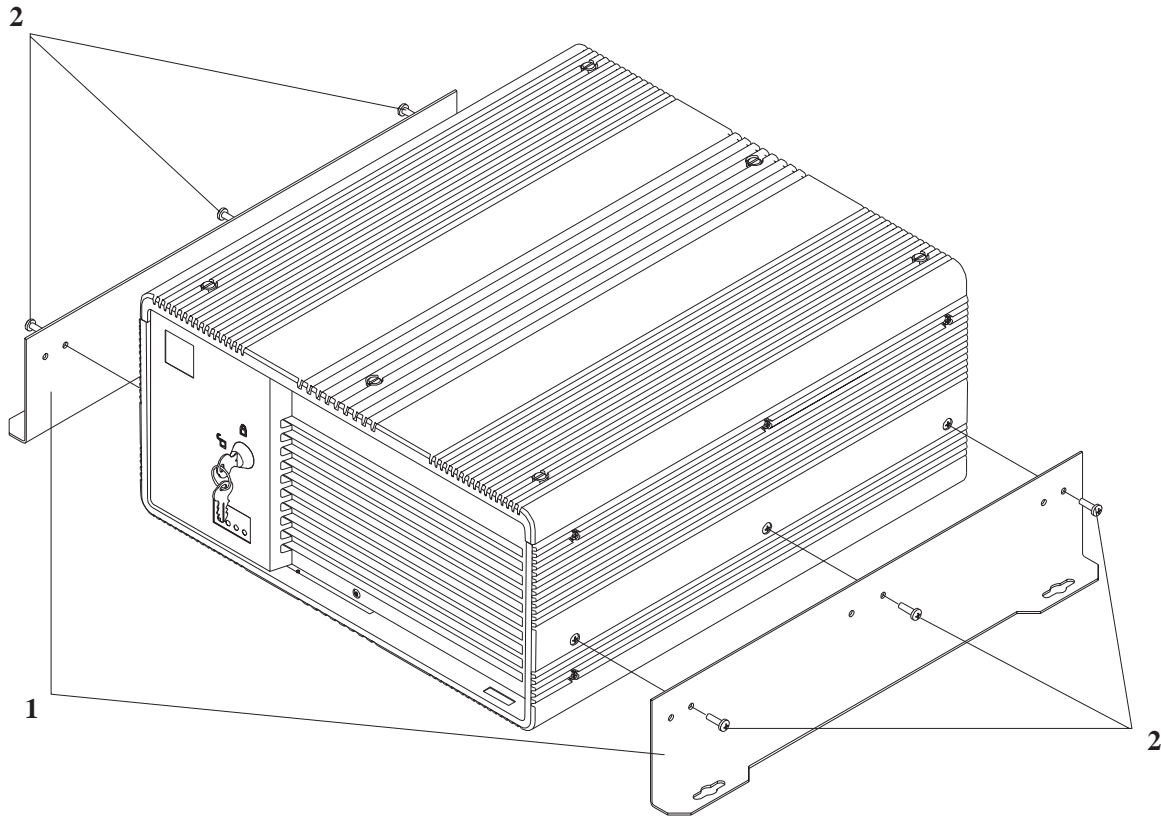
Note: The mounting plate has four studs for mounting the feet, two studs in the front and two studs in the back. When systems are being placed next to each other, the feet can be staggered to allow the systems to be closer together.



2. Lay the 7588 Computer on its side with the bottom of the unit supported 6 inches (150 millimeters) off the floor.
3. Remove the three screws; then install the foot assembly onto the system unit using the three screws supplied with the kit (4).
4. Make sure that the orientation of the plate centers the feet on the system unit, and then stand the unit upright.
5. Replace the logo (5).

Installing the Panel-Mount Option

1. Remove the six screws from the sides of the system unit; then install the panel-mount rails (1) to the sides of the system unit using the six screws (2) in the holes as shown.



2. Make sure that the panel where you install the 7588 Computer meets all applicable safety codes for that location. The panel must be at least a 12-gauge (2.67-millimeter/0.105-inch) steel panel, and the mounting screw must be at least an M5 pan-head screw.

