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Installing the A4504A PMC Bridge Adapter and A4509A Expansion Adapter



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Kit Descriptions

Kit A4504A is the PCI Mezzanine Card (PMC) bridge adapter that is used with the Model 743 and 744 board computers to adapt up to two industry standard +5V signalling PMC cards. The bridge adapter occupies one VME slot in addition to the board computer, so that the resulting assembly occupies two VME slots.

Kit A4509A is the PMC expansion adapter that allows adapting of two additional PMC cards by extending the assembly into a third VME slot.

You must install PMC cards to the adapters before installing the adapters to the board computer.

Kit Contents

Make sure that your kit contains the following items:

- PMC Bridge assembly (A4504A) or Expansion Assembly (A4509A)
- Screws
- Standoffs (A4509A only)
- Boot ROM for Model 743 VMEbus board computer (A4504A only)
- IC Removal Tool (A4504A only)
- Ejector handle connectors (A4509A only)
- Ferrite beads and Ty-wraps (2 in each kit)
- Anti-static Strap (Disposable)

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Tools Required

You'll need the following items to install the PMC Bridge or Expander:

- Small flat-tipped screwdriver
- No. 1 Pozidriv screwdriver
- $^{3}/_{16}$-inch nut driver
- Static-free work area.

Prerequisites

1 Your system must be running HP-UX version 10.20 or later.

2 There are minimum firmware revision levels for board computers (model numbers can be determined from labels on ejector handles):

- Model 744 board computers require a firmware upgrade if the Boot ROM revision is **prior** to revision 3.2. To determine the revision level of the Boot ROM on your Model 744, type the command **IN FV** at the Boot Console Handler (BCH) Main Menu prompt (more details are available in your *Model 744 Owner's Guide*).You may obtain a firmware upgrade and instructions from your local Country Response Center (in North America you may call 800-633-3600) or through the WWW at: http://us-support.external.hp.com/wpsl/bin/doc.pl.
- Model 743 board computers require a firmware upgrade if the Boot ROM revision is **prior** to revision 307.2.1. A new Boot ROM is shipped with the PMC bridge adapter upgrade kit. To determine if the Boot ROM in your system needs to be replaced, you need to determine the revision number, which can be done in two ways: use the Boot Console Handler (BCH) interface as described in the *Model 743 Owner's Guide*, or you can examine the label on the Boot ROM - a revision number is printed on the label. If the revision number on the Boot ROM installed on the Model 743 is a lower number than the one included in this kit, you should replace that Boot ROM with the one in

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this kit. If the revision number on the Boot ROM installed on the Model 743 is equal to or greater than the one included in this kit, **DO NOT** replace the Boot ROM on the model 743.

3 If you need to compute power usage for the PMC bridge adapter, the expansion adapter, and the installed PMC cards, be aware of the following:

- The PMC bridge adapter uses 0.6 A at +5 Vdc
- The PMC expansion adapter uses no current
- PMC cards may draw from:
  - +5 Vdc
  - +12 Vdc
  - -12 Vdc
  - +3.3 Vdc (provided to PMC cards on both the bridge adapter and expansion adapter through a +5 Vdc converter on the bridge adapter)

CAUTION: The internal components of your workstation are susceptible to mechanical and electrostatic shock. To prevent such damage from occurring, observe the following precautions during the installation procedure.

- Stand on a static-free mat
- Wear a static-grounding wrist strap to ensure that any accumulated electrostatic charge discharges from your body to ground. Attach the static-grounding wrist strap by following the instructions on the package that contains the strap. Be sure to attach one end of the strap to the system chassis.
- Handle workstation and upgrade kit components carefully to prevent damage from mechanical shock.

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Procedure

NOTE: If you need to update a **Model 744** board computer's firmware as instructed in **Prerequisites**, update now before completing the procedure.

1 Stop any application programs, then shut down your workstation.

2 Turn the workstation off, and unplug the power cord(s).

WARNING: **To avoid electrical shock, make sure you unplug the power cable from the wall outlet and the system unit before proceeding any further.**

3 Using a flat-tipped screwdriver, unscrew the captive screws that secure the board computer in the card cage, as shown in Figure 1.

4 Use the ejector handles to eject the board, and pull the board computer assembly out of the card cage.

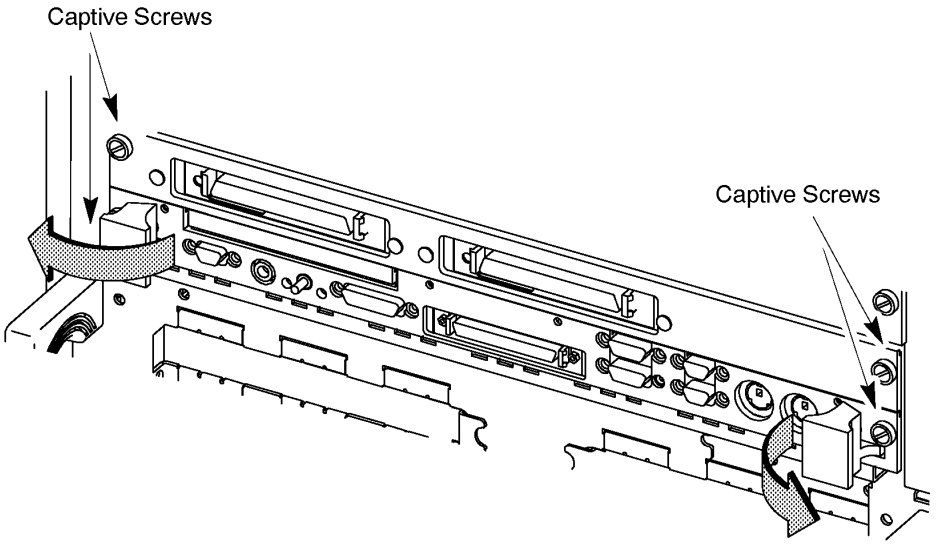


Figure 1 **Removing the Board Computer Assembly**

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5 Remove GSC Expansion Adapter (or HCRX graphics adapter) from the board computer, if installed, as shown in Figure 2. Be sure to remove ALL standoffs with the adapter.

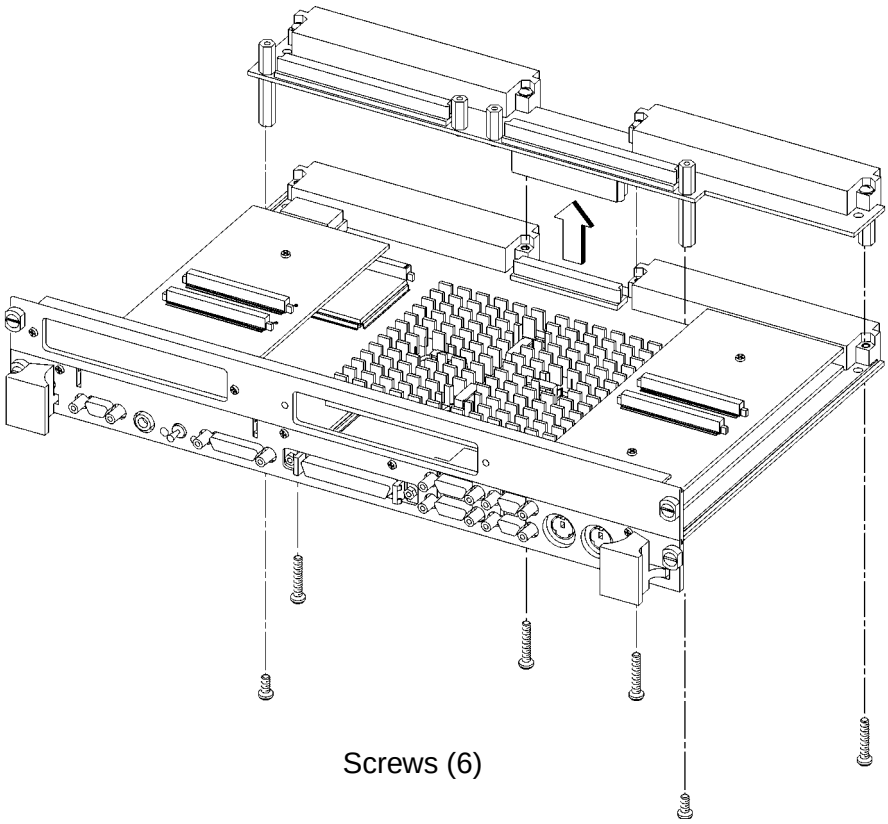


Figure 2 GSC Expansion Adapter Removal

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Procedure

6 Remove GSC expansion bezel from the board computer, if installed, as shown in Figure 3.

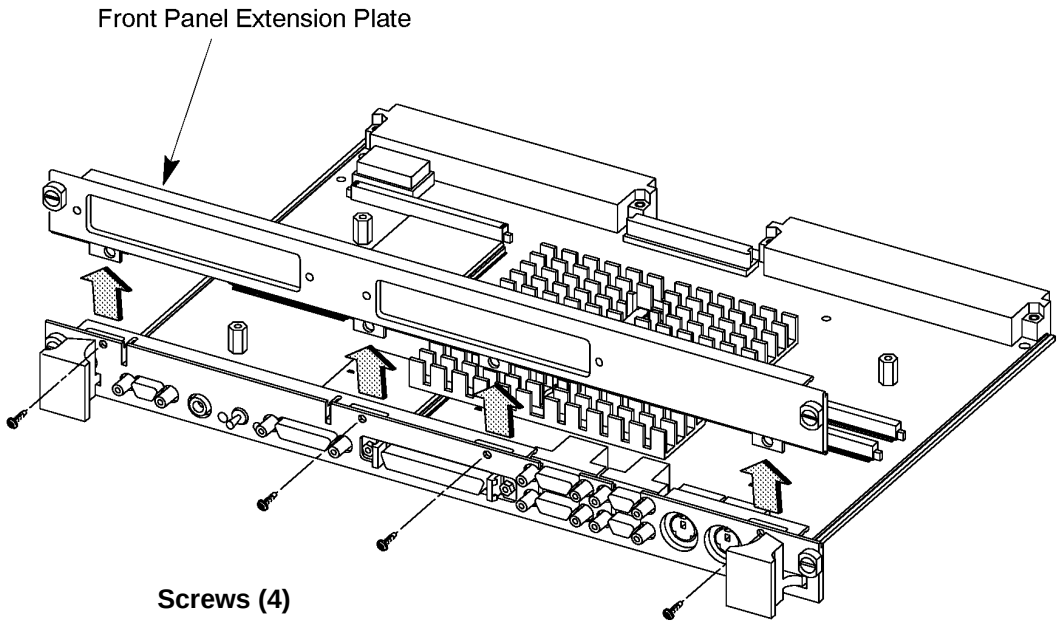


Figure 3 **Removing GSC Expansion Bezel**

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7 If you need to update a **Model 743** board computer's firmware to make use of the PMC bridge adapter:

a Remove any option cards, if installed. Refer to the *Model 743 Owner's Guide* for specific instructions for your option card.

NOTE: Before removing the **Model 743** Boot ROM, note its orientation. The replacement Boot ROM must be installed in the same orientation.

b Remove the Boot ROM from its socket using the IC removal tool.

c Align the new Boot ROM in its socket and carefully press it into the socket.

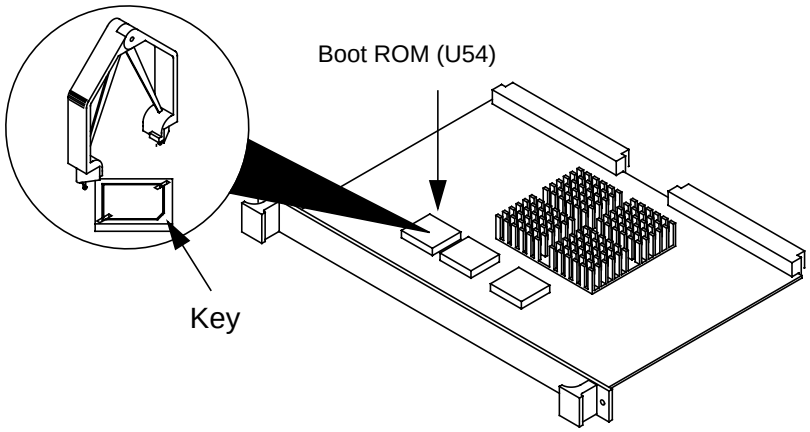


Figure 4 **Model 743 Boot ROM Location**

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Procedure

8 Refer to your PMC card installation manual, and set any configuration switches or jumpers that may be required for your application.

9 On the PMC bridge adapter board, at the sites where you will be installing the PMC card(s), remove the two screws that secure the bezel blank(s), and remove the blank(s). See Figure 5.

NOTE: When installing a PMC card, ensure that the O-ring type gasket near the bezel remains in place.

10 Install the PMC card(s) onto the bridge adapter by aligning the front of the card with the front bezel, and the rear of the card with the connectors and keying pin. See Figure 5. There are four screws that secure the PMC card from the bottom of the bridge adapter.

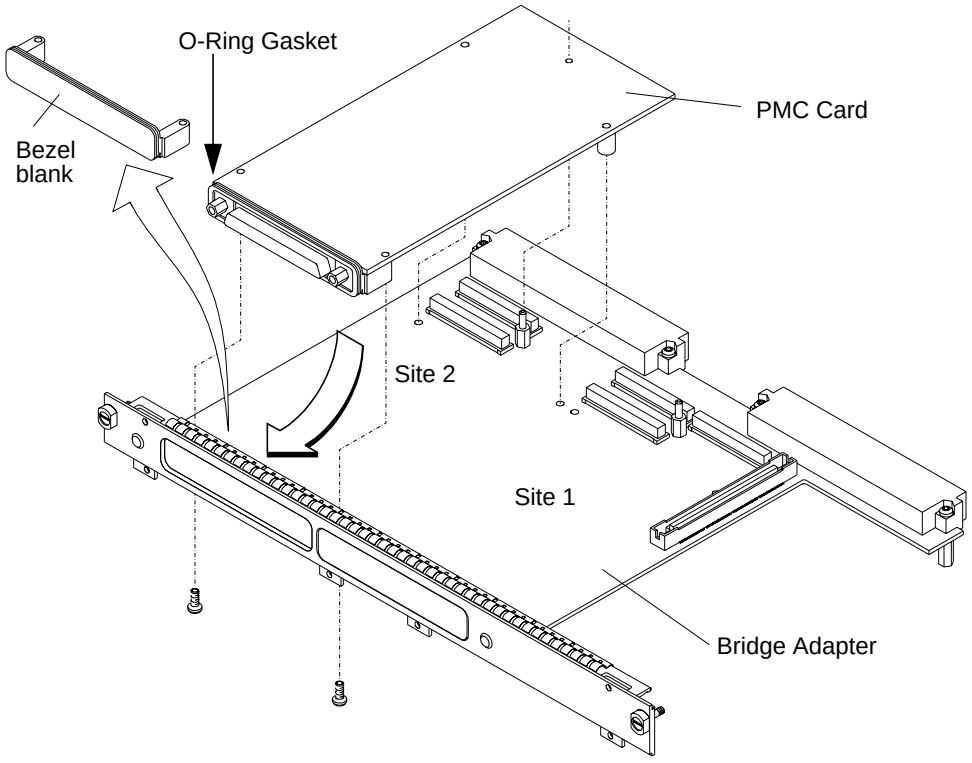


Figure 5 **Installing a PMC Card onto the Bridge Adapter**

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If you are installing only the bridge adapter, go on to step 17. If you are also installing the expansion adapter, continue with step 11.

11 Refer to your PMC card installation manual, and set any configuration switches or jumpers that may be required for your application.

12 On the PMC expansion adapter, remove the bezel blank(s) from the sites where you will be installing the PMC card(s). See Figure 6.

NOTE: When installing a PMC card, ensure that the O-ring type gasket near the bezel remains in place.

13 Install PMC card(s) onto the expansion adapter by aligning the front of the card with the front bezel, and the rear of the card with the connectors and keying pin. See Figure 6.

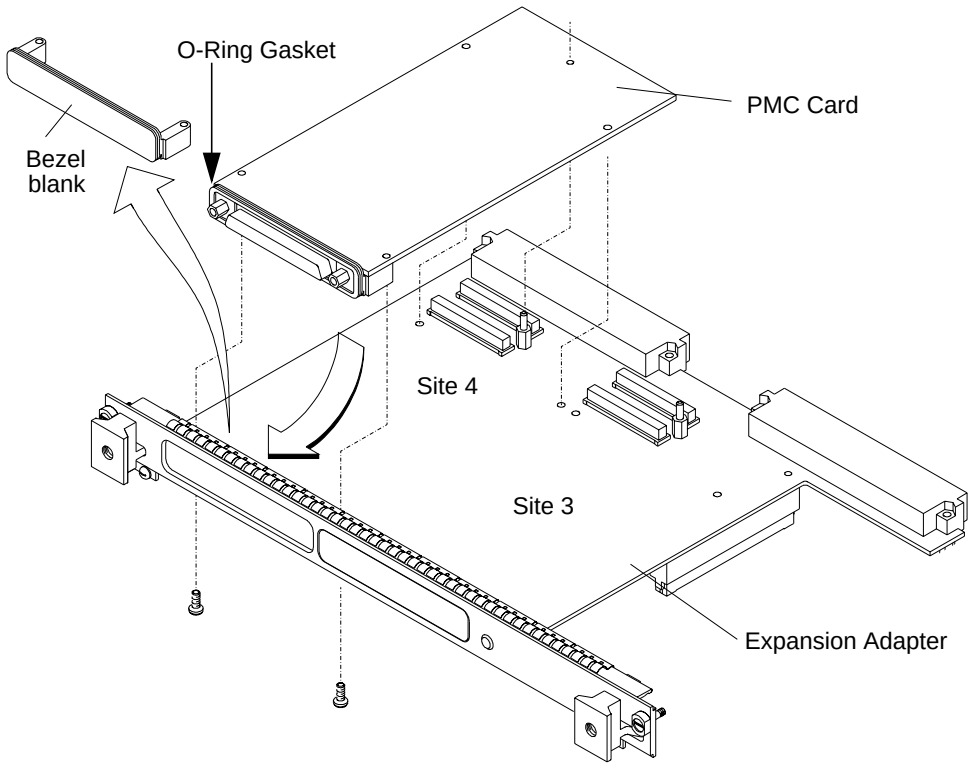


Figure 6 **Installing a PMC Card onto the Expansion Adapter**

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Procedure

14 The bridge adapter should NOT be assembled to the board computer. If it is, remove it by reversing the steps shown in Figure 9.

15 Remove the four screws from bridge adapter VME connectors, and replace them with the four standoffs included in the expansion adapter kit. See Figure 7.

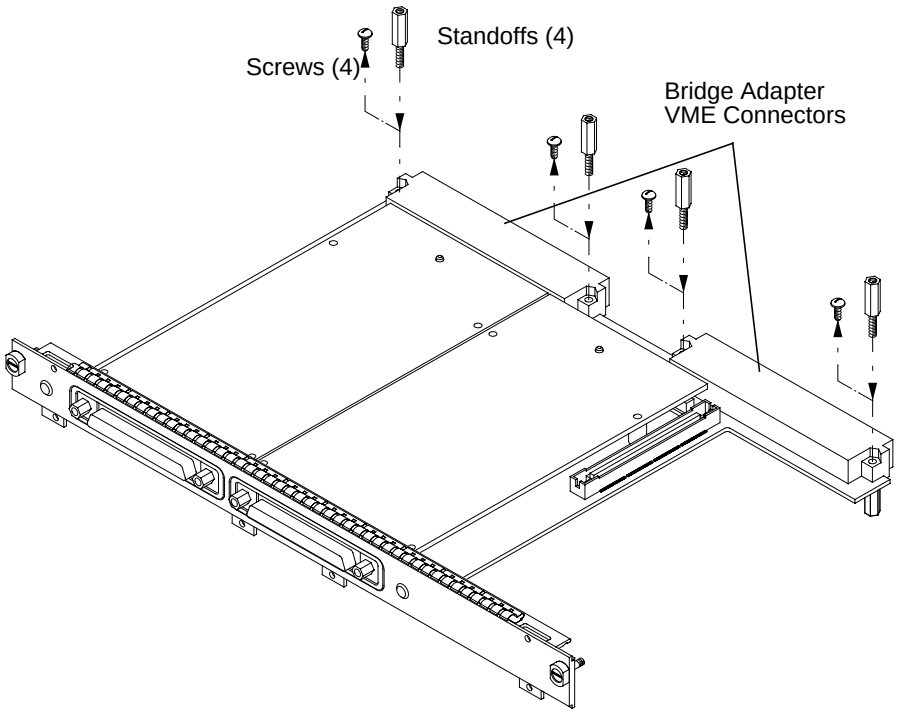


Figure 7 Removing Bridge Adapter Screws

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16 Making sure that the connector and bezels are properly aligned, install the PMC expansion adapter onto the bridge adapter, as shown in Figure 8. Ensure that the interboard connector seats properly by applying pressure to the top of the expansion board and to the bottom of the bridge board at the interboard connector. There are two screws that secure the front bezel and four screws to secure the VMEbus connectors.

NOTE: If the interboard connector is not tightly seated, PMC cards on the expansion adapter will not operate.

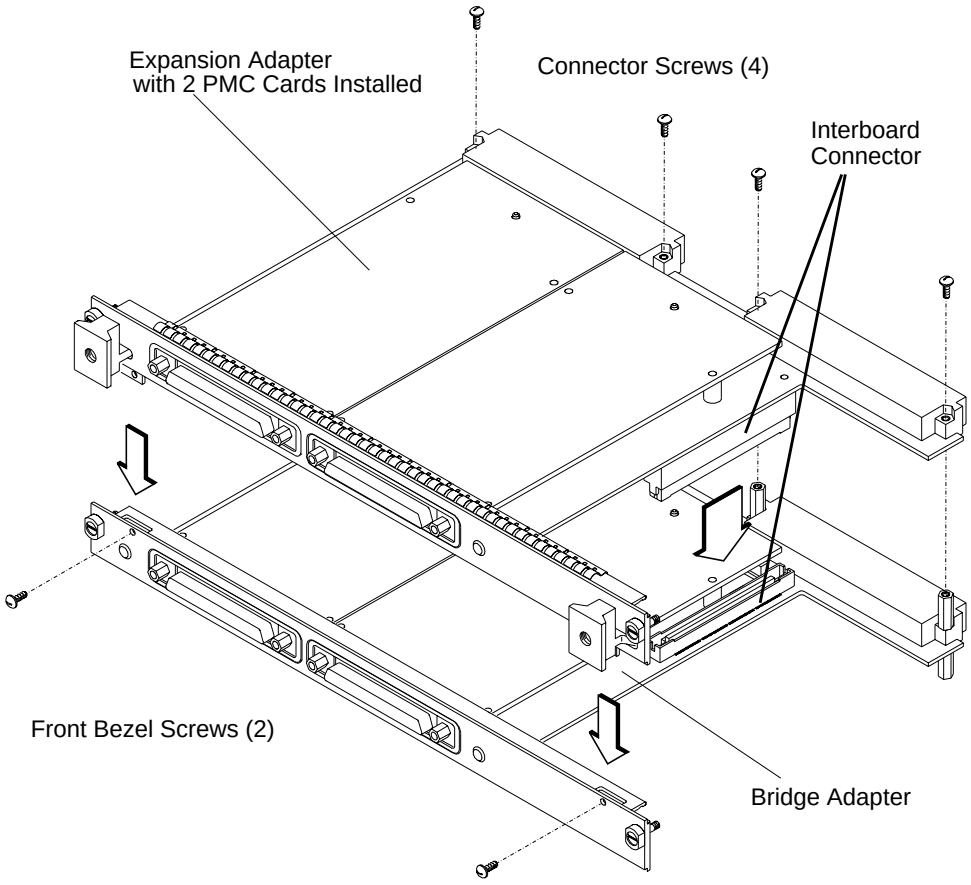


Figure 8 Installing the Expansion Adapter onto the Bridge Adapter

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Procedure

17 Remove the EMI gaskets from the bezel of the board computer, if installed.

18 Install the PMC bridge adapter (as shown in Figure 9) or the bridge adapter with expansion adapter (as shown in Figure 10) onto the board computer. Align the GSC connector first, then the tabs on the front panel, and push the boards together. There are four screws that secure the front bezel, and four screws that secure the VME connectors.

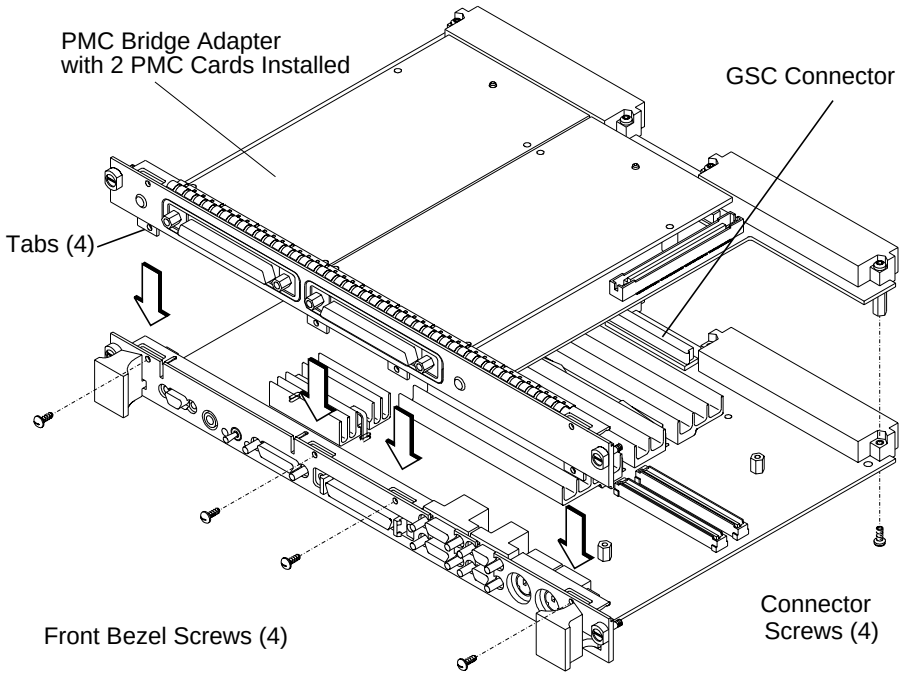


Figure 9 **Installing the PMC Bridge Adapter onto the Board Computer**

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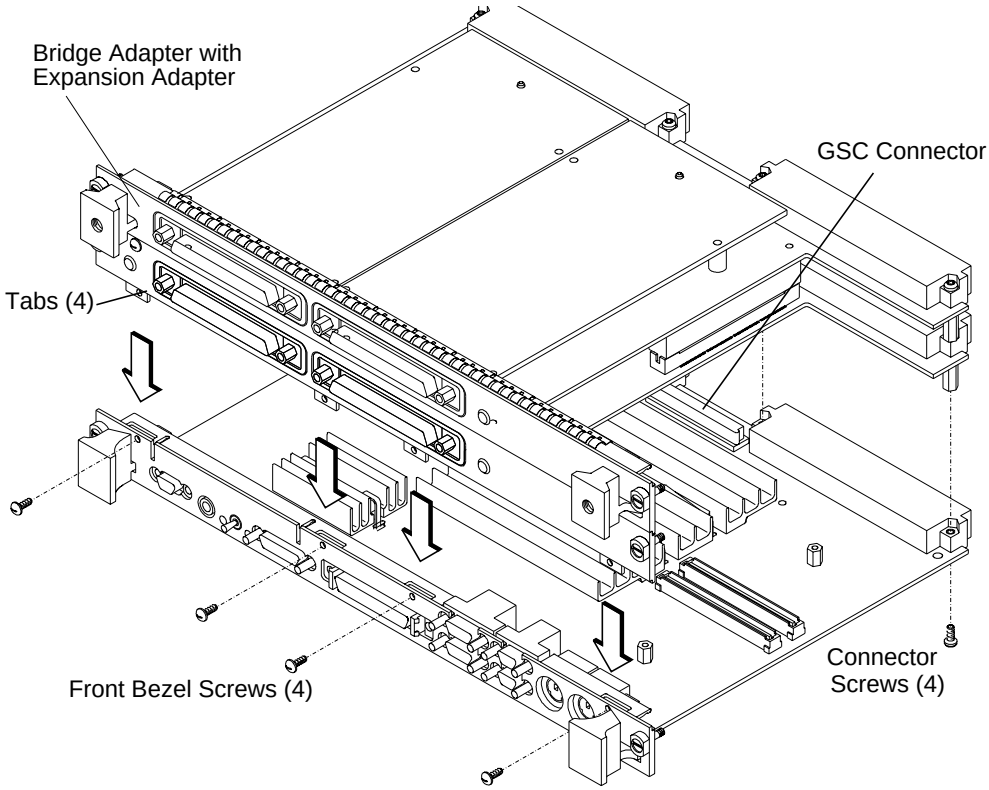


Figure 10 **Installing the Bridge Adapter with the Expansion Adapter onto the Board Computer**

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Procedure

19 If you have installed a PMC expansion adapter, resulting in a three board assembly, we recommend that you install the ejector handle sleeves included in your kit.

a Remove the logo and model labels from the ejector handles on your board computer, as shown in Figure 11.

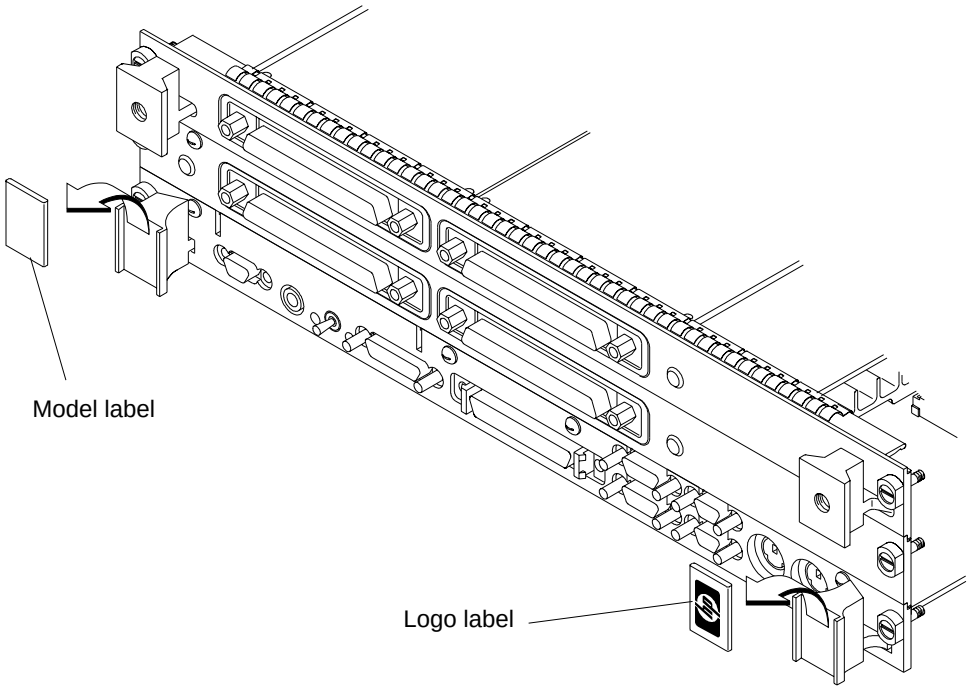


Figure 11 **Removing Ejector Handle Labels**

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b Slide the sleeves over each set of handles, as shown in Figure 12.

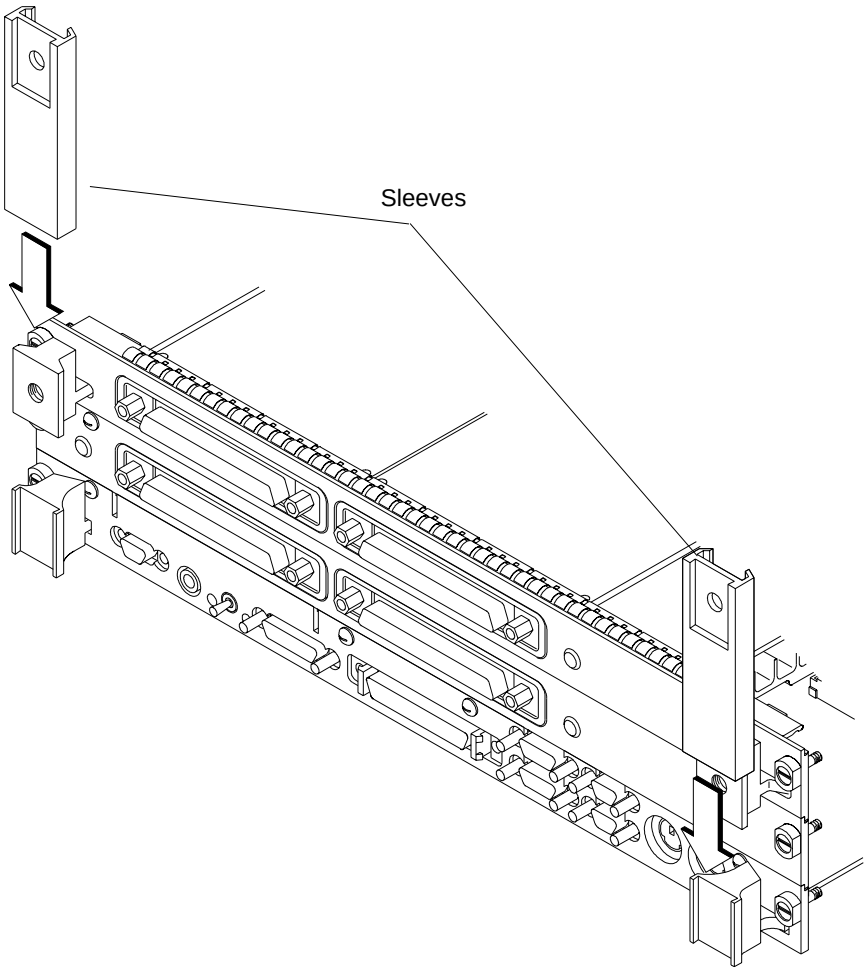


Figure 12 **Installing Ejector Handle Sleeves**

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Procedure

c Thread the springs included in the kit into the ejector handles on the PMC expansion board, and with the springs compressed, slide the labels from the board computer into the sleeves, as shown in Figure 13.

NOTE: To properly identify the board computer model and manufacturer, we strongly advise that the original labels from the board computer be placed into the ejector handle sleeves.

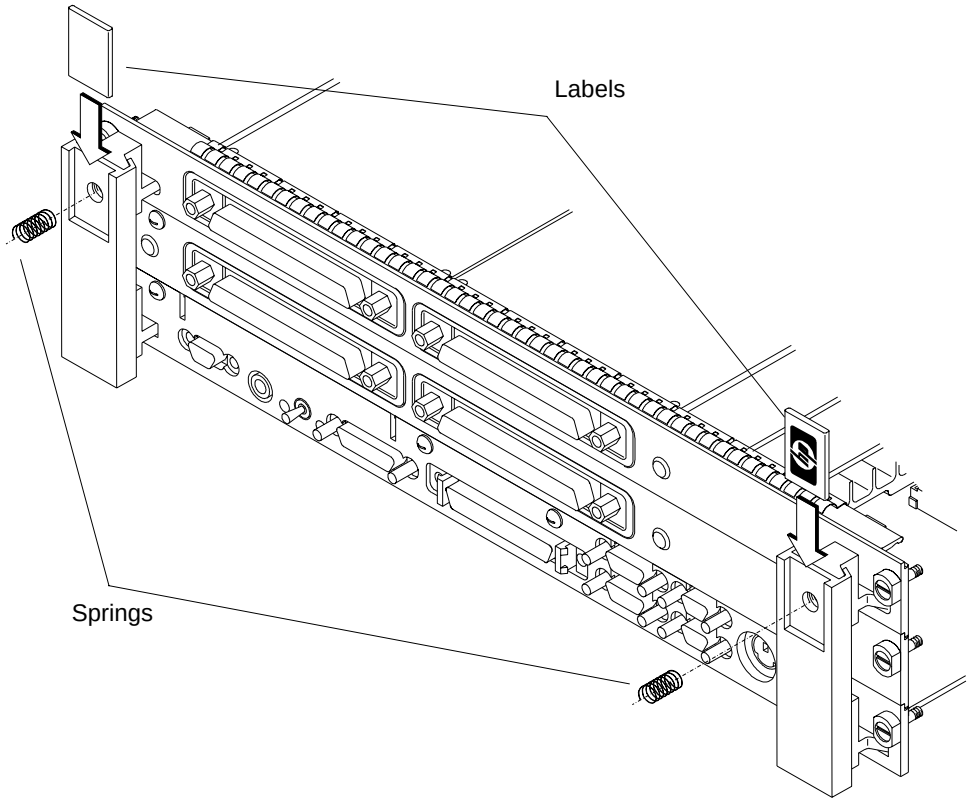


Figure 13 Installing the Springs and Labels

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20 Remove the VME slot cover plate(s) from the VME card cage, as required to open the slots the new assembly will occupy.

CAUTION: When installing the board computer and PMC adapter(s) into a Model 748 industrial workstation, to properly seat the assembly in the card cage you must push down slightly on the assembly for the last 2.5 cm (one inch) of travel in order to compress the EMI gasket on the card cage.

21 Insert the board computer with the attached PMC adapter(s) into the card cage slots until the assembly seats properly and the front panels are flush against the card cage.

CAUTION: Do not tighten any captive screws until each captive screw has been started to be threaded into its hole.

22 Engage all captive screws before tightening each screw of the board computer and PMC adapter(s). See Figure 14.

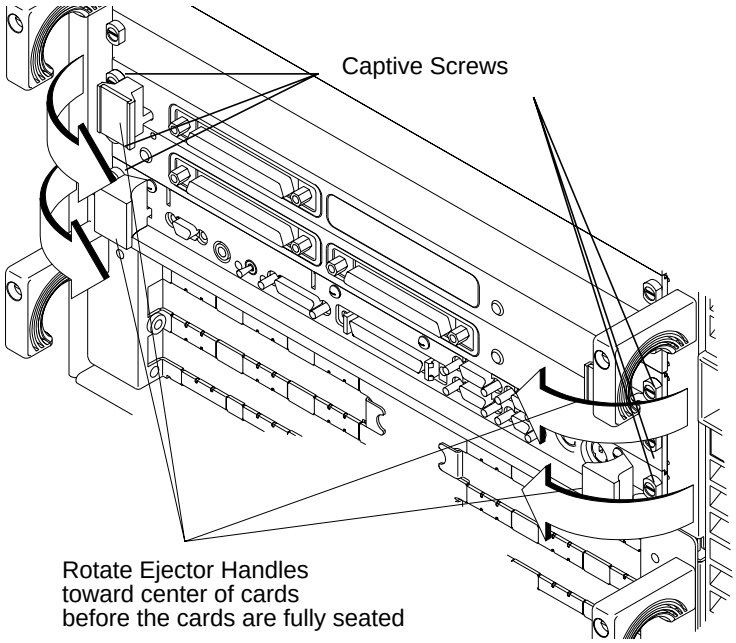


Figure 14 **Installing the Board Computer with PMC into VMEbus Card Cage**

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Procedure

23 When connecting a cable to a PMC card connector, if the cable you are using does not already have a ferrite bead attached, you need to add a ferrite bead included in your kit. Position the bead as close as possible to the PMC card connector. Use the Ty-wrap to hold the bead in place if it is loose on the cable. See Figure 15.

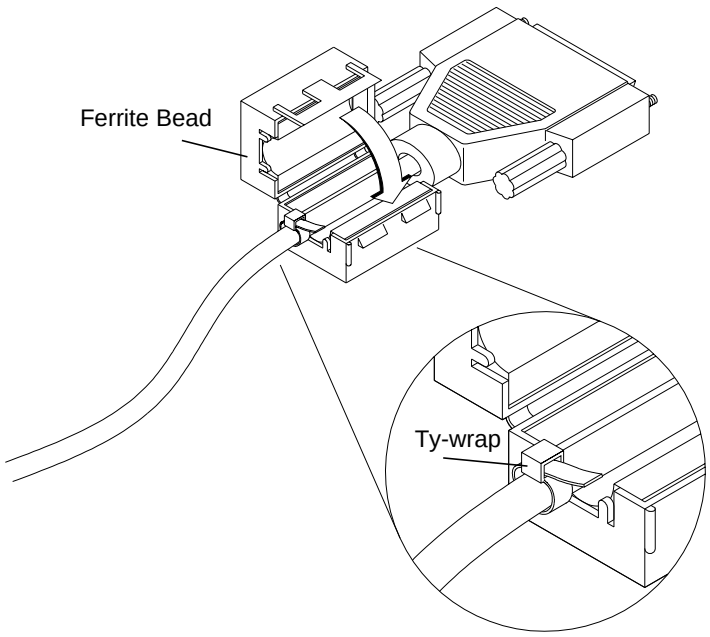


Figure 15 **Attaching Ferrite Bead to Cable**

24 Plug in the power cord(s) and all other cables, and then turn on the power for the VME card cage and boot the operating system.

25 Log in as **root** and use the **SAM** utility to configure the HP-UX kernel for PCI support. (PMC cards require PCI drivers in the kernel.)

26 When SAM has started, choose the `Kernel Configuration ->` menu.

27 From the Kernel Configuration menu, choose `Drivers`

28 From the Drivers menu, select `GSCtoPCI Driver.`

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29 Go to the `Actions` menu and select `Add Driver to  Kernel.`

30 Go to the `Actions` menu and select `Create a New Kernel.`

31 SAM asks if you want to move the kernel into place and reboot. Choose **Yes.**

The system reboots with the PCI driver loaded.

For More Information

Refer to *Installing Peripherals* and your PMC card's installation guide for information on the PMC accessory card application, loading the software, and running it.

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