APPENDIX C

Installing and Upgrading Memory and Data Modules

This chapter describes how to install or upgrade memory or data modules in your router and contains the following sections:

- Opening the Chassis
- Locating Modules
- Installing a Mini-Flash Module
- Installing a Dual In-Line Memory Module
- Installing a Packet Voice Data Module
- Closing the Chassis

Safety Information

This section contains safety information that you should read before installing or upgrading memory in the router.

Warning Before working on a system that has an on/off switch, turn off the power and unplug the power cord.

Warning Before opening the chassis, disconnect the telephone-network cables to avoid contact with telephone-network voltages.

Warning Do not work on the system or connect or disconnect cables during periods of lightning activity.

Warning Do not touch the power supply when the power cord is connected. For systems with a power switch, line voltages are present within the power supply even when the power switch is off and the power cord is connected. For systems without a power switch, line voltages are present within the power supply when the power cord is connected.

Warning Before working on equipment that is connected to power lines, remove jewelry (including rings, necklaces, and watches). Metal objects will heat up when connected to power and ground and can cause serious burns or weld the metal object to the terminals.

Warning Only trained and qualified personnel should be allowed to install or replace this equipment.

Warning Hazardous network voltages are present in WAN ports regardless of whether power to the router is OFF or ON. To avoid electric shock, use caution when working near WAN ports. When detaching cables, detach the end away from the router first.

Warning During this procedure, wear grounding wrist straps to avoid ESD damage to the router. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.

Opening the Chassis

To install or upgrade memory or data modules, you must open the chassis. Opening the chassis requires a number one Phillips screwdriver.

Follow these steps to open the chassis:

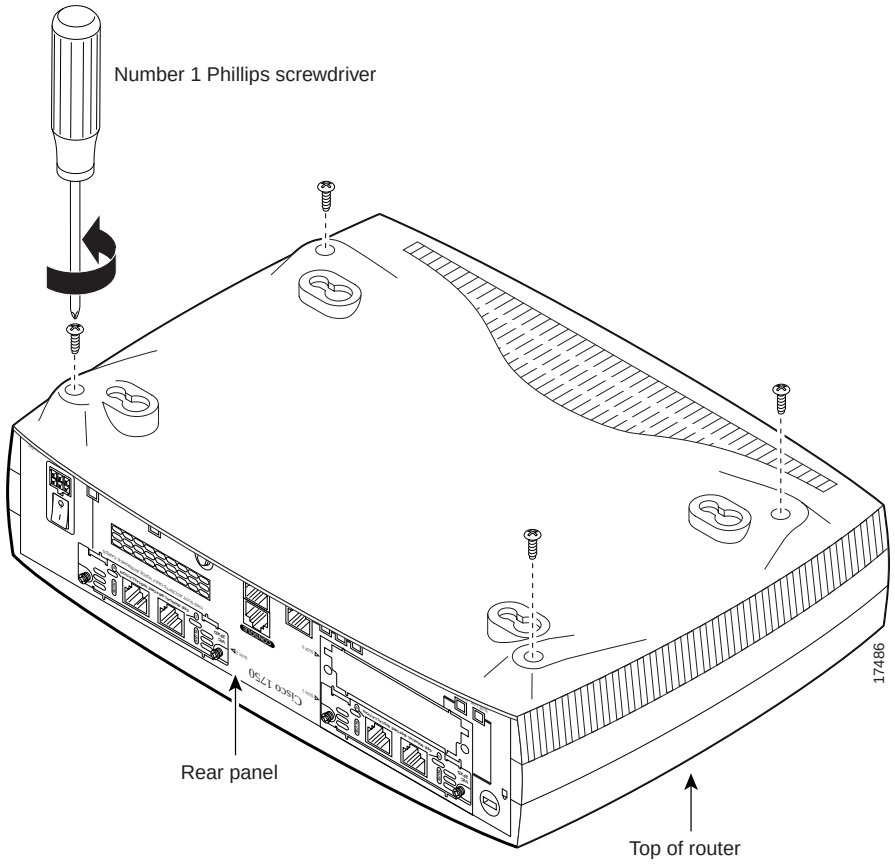
Step 1 Make sure the router is turned off and is disconnected from the power supply.

Step 2 Turn the router upside down, and rest the top of the router on a flat surface.

Step 3 Use the Phillips screwdriver to remove the four screws that hold the top and bottom of the chassis together, as shown in Figure C-1.

Step 4 Turn the router back to its original position (right-side up).

Figure C-1 Removing the Chassis Screws



Step 5 Gently pull the top of the router (which is facing up toward you) up and away from the bottom of the router (which is resting on the flat surface).

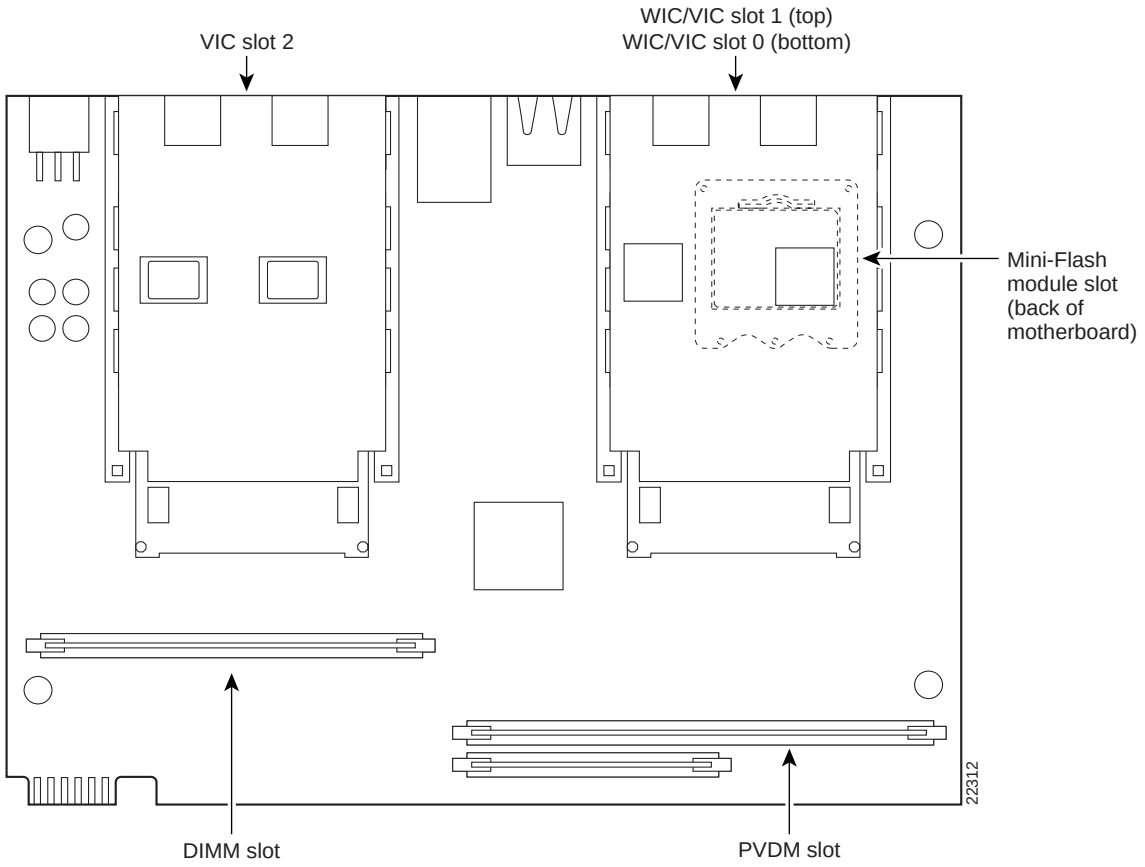
At this point, disconnect the fan, which is inside the top of the router chassis, from the motherboard. Do this by disconnecting the fan cable from the connector (labeled FAN) on the motherboard.

Step 6 Place the router bottom on an antistatic mat and begin installing memory.

Locating Modules

Figure C-2 shows where to install a dual in-line memory module (DIMM), a packet voice data module (PVDM), and a mini-Flash memory module on the motherboard. The mini-Flash memory module is on the back of the motherboard.

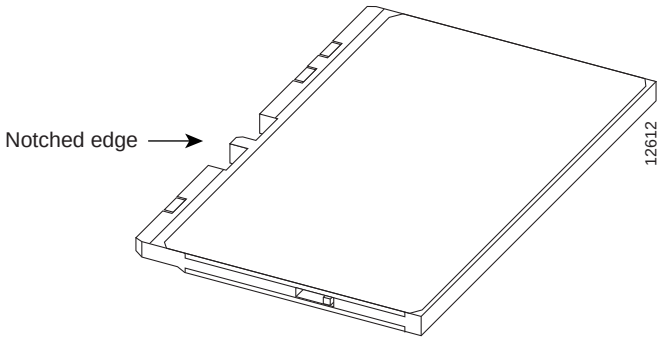
Figure C-2 Cisco 1750 Motherboard—Module Locations



Installing a Mini-Flash Module

You can install a mini-Flash module (shown in Figure C-3) to increase the amount of Flash memory in the router.

Figure C-3 Mini-Flash Module



Removing a Mini-Flash Module

Follow these steps to remove a mini-Flash memory module:

Note You need to remove the motherboard from the chassis to remove the mini-Flash memory module.

Warning During this procedure, wear grounding wrist straps to avoid ESD damage to the router. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.

Step 1 Lift the motherboard from the chassis, turn it upside down, and place it on a flat surface. The mini-Flash memory module is on the back of the motherboard.

Step 2 Insert your index finger between the mini-Flash memory module and the mini-Flash memory module release lever, as shown in Figure C-4.

Step 3 Firmly pull the release lever away from the module until the module pops up and away from the module slot.

Figure C-4 Removing a Mini-Flash Module

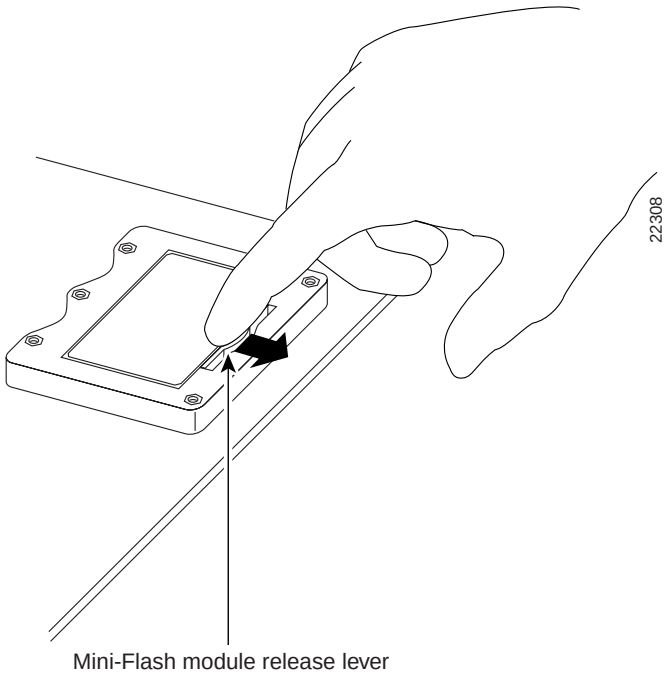
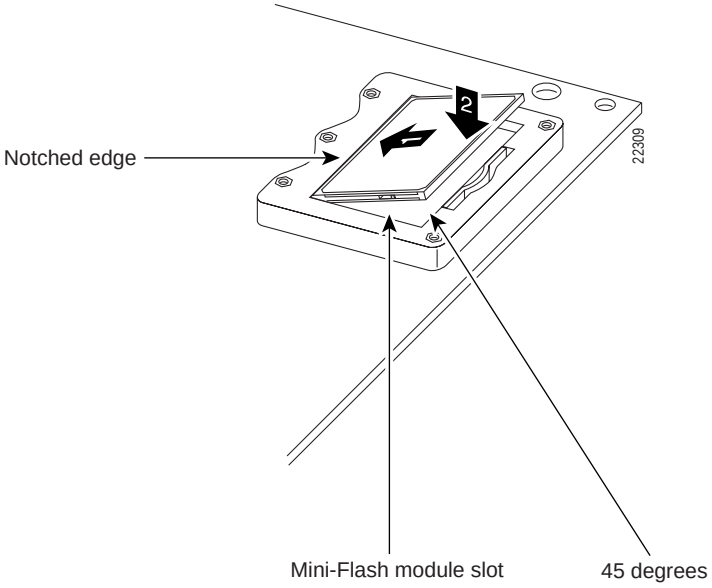


Figure C-5 Installing a Mini-Flash Module



Follow these steps to install a mini-Flash memory module on the motherboard:

Note You need to remove the motherboard from the chassis to remove the mini-Flash memory module.

Step 1 Locate the module slot on the motherboard, shown in Figure C-2.

Step 2 Hold the module with the notched edge away from you.

Step 3 Insert the module into the module slot at a 45-degree angle, as shown in Figure C-5.

Step 4 Press down firmly on the module until you hear a clicking sound and the module is firmly seated in the slot.

Step 5 Turn the motherboard back to its original position (right-side up) and place it in the chassis as before.

Installing a Dual In-Line Memory Module

You can install a dual in-line memory module (DIMM) to increase the amount of dynamic RAM (DRAM) in the router.

Follow these steps to install a DIMM on the router motherboard:

Warning During this procedure, wear grounding wrist straps to avoid ESD damage to the router. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.

Step 1 Locate the DIMM slot on the motherboard, shown in Figure C-2.

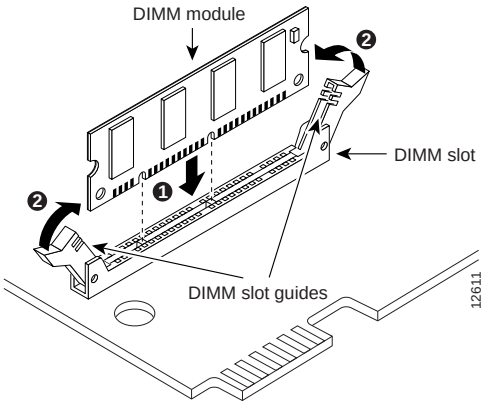
Step 2 Remove any existing DIMM by pulling the DIMM slot guides (shown in Figure C-6) away from the DIMM and down towards the motherboard.

Step 3 Hold the replacement DIMM with the notched edge away from you and facing the router.

Step 4 Insert the DIMM into the DIMM slot, making sure that the notches on the edge of the DIMM are inserted over the bars inside the DIMM slot, as in Figure C-6.

Step 5 Press the DIMM firmly into the slot until the slot guides on each side of the slot move up and over the end of the DIMM, as in Figure C-6. If the guides do not move up over the edge of the DIMM, move them with your hands.

Figure C-6 Installing a DIMM



Installing a Packet Voice Data Module

You can install a packet voice data module (PVDM) to support enhanced versions of digital signal processors (DSPs).

Follow these steps to install a PVDM on the router motherboard:

Warning During this procedure, wear grounding wrist straps to avoid ESD damage to the router. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.

Step 1 Locate the PVDM slot on the motherboard, shown in Figure C-2.

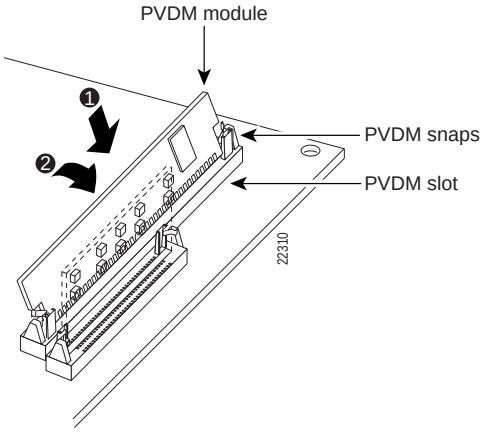
Step 2 Remove any existing PVDM by pulling the PVDM snaps (shown in Figure C-7) away from the PVDM.

Step 3 Hold the replacement PVDM with the double notched edge on your left.

Step 4 Insert the PVDM into the PVDM slot, making sure that the notches on the edge of the PVDM are inserted over the bars inside the PVDM slot, as in Figure C-7.

Step 5 Push the module towards the slot and press firmly until you hear a clicking sound and the module is firmly seated in the slot, as shown in Figure C-7.

Figure C-7 Installing a PVDM



Closing the Chassis

After installing memory or data modules on the motherboard, close the chassis by following these steps:

Step 1 If you disconnected the fan from the motherboard as described in the "Opening the Chassis" section, reconnect the fan cable to the connector labeled FAN on the motherboard.

Step 2 Locate the posts that protrude from the inside of the chassis cover and the corresponding openings on the chassis bottom.

Step 3 Line up the posts with the corresponding openings, as shown in Figure C-8, and carefully slide the posts into the openings. Be careful not to damage the router motherboard with the posts.

Step 4 Replace the screws that you removed when opening the chassis. (See Figure C-1.)

Figure C-8 Closing the Chassis