Replacing PROMs and PLDs

This chapter describes the procedures for installing new firmware and programmable logic in circuit cards. Firmware is shipped in the form of programmable read only memory (PROMs), dual in-line packages (DIPs), integrated circuits (ICs) for through-hole mounting, and plastic leaded chip carriers (PLCC) for surface mount.

Programmable logic is shipped in the form of programmable logic devices (PLDs), DIPs for through-hole mounting, and PLCCs for surface mount.

PROMs are labeled with configuration data which should be checked, prior to installation, against the firmware requirements contained in the current *Cisco VCO/4K System Software Version 5.n(n) Release Notes*. PLDs are labeled with their LP identification number.

Removing and Replacing Through-hole PROMs and PLDs

The following sections provide information about removing and replacing through-hole PROMs and PLDs. Refer to the appropriate technical description for the physical locations of the PROMs and PLDs on each circuit card.

Removing Through-hole PROMs and PLDs

Step 1   If the circuit card is currently installed in the switch, follow the removal and replacement procedures in the appropriate technical description. Be sure to also locate affected circuit cards kept as spares.

⚠
Caution   Observe antistatic precautions near circuit cards. Wear a ground strap connected to the equipment frame whenever servicing or cleaning circuit cards. The ground point is located above the card slots on the front of the switch, and is indicated by the "Connect ESD Wrist Strap Here" label.

Step 2   Remove the PROM to be replaced from the circuit card. Use a PROM removal tool to grasp the integrated circuit and pull it straight up and away from the socket.

⚠
Caution   To prevent damaging PROM pins or scratching the circuit card, avoid using devices such as screwdrivers to remove PROMs.

Step 3   Remove the new PROM chip from the shipping package. Refer to the current *Cisco VCO/4K System Software Version 5.n(n) Release Notes* to verify that the label on the chip matches the software requirements.

Replacing Through-Hole PROMs and PLDs

Step 1   Before installing the new chip, verify that its pins are all evenly spaced and vertically aligned. If necessary, align the IC pins properly prior to installation. To align the pins, you can either use a commercially available pin-straightener tool, sized for a 28-pin DIP device, or you can lay the PROM or PLD on its side and gently press the top edge, as shown in Figure 3-1, being careful not to press on the pins. Repeat this procedure for the other row of pins.
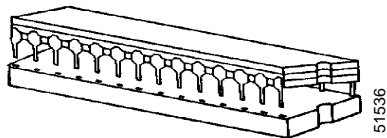
Figure 3-1   Aligning PROM or PLD Pins
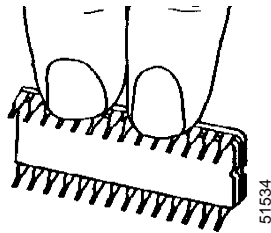
Step 2   Orient the PROM or PLD chip so that the notch in the chip, shown in Figure 3-2, faces the notch on the circuit card.

*Figure 3-2   Notch Orientation for IC Pin*
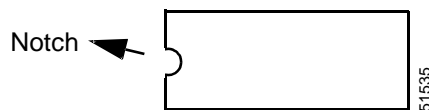
Step 3   Carefully insert the pins on one side of the PROM or PLD chip into holes on the correct side of the socket, as shown in Figure 3-3.

Figure 3-3   Inserting Pins on One Side of Socket

Step 4   Insert the pins on the other side of the PROM or PLD chip into the remaining holes of the socket, as shown in Figure 3-4.

Figure 3-4   Inserting Pins on Other Side of Socket
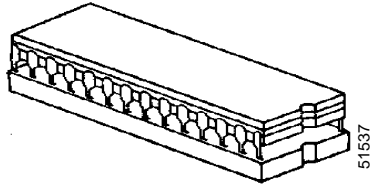
Note   If the pins are not aligned with the socket holes, remove the PROM or PLD chip and straighten the pins, as described in Step 1. After realigning the pins, repeat Step 2 through Step 4.

Step 5   Carefully examine all the pins on the PROM or PLD chip. Be sure that none of the pins are bent or touching one another.

Step 6   With all of the pins inserted into the socket holes, apply gentle and even pressure to the top of the chip until it is fully seated in the socket.

Step 7   Re-install the circuit card in the system or return the card to spares stock.

Removing and Replacing Surface-mount PROMs and PLDs

This section provides information about removing and replacing surface-mount PROMs and PLDs. Refer to the appropriate technical description for the physical locations of the PROMs and PLDs on each circuit card.

⚠
Caution   To prevent damage to the board, make sure you use the proper tool to remove surface mount PROMs and PLDs.

Removing Surface-Mount PROMs and PLDs

Step 1   If the circuit card is currently installed in the system, follow the removal and replacement procedures contained in the appropriate technical description. Be sure to also locate affected circuit cards kept as spares.

⚠
Caution   Observe antistatic precautions near circuit cards. Wear a ground strap connected to the equipment frame whenever servicing or cleaning circuit cards. The ground point is located above the card slots on the front of the switch, and is indicated by the "Connect ESD Wrist Strap Here" label.

Step 2   Use the surface-mount chip removal tool, provided by Cisco Systems, Inc., to remove the PROM or PLD that is to be replaced on the circuit card. To remove the PROM or PLD chip:

    c. Spread or compress the tool legs so the tongs fit into the slots of the chip carrier socket.

    d. Insert the tool tongs into the slots of the socket, and push firmly so that the tool butts on the socket.

    e. Place the thumb and forefinger on the tool's grip. Squeeze the thumb and forefinger together to remove the chip from the socket.

Step 3   Remove the new PROM or PLD chip from the shipping package. Refer to *Release Notes for Cisco VCO/4K System Software Release 5.x* to verify that the label on the chip matches the software requirements.

Replacing Surface-Mount PROMs and PLDs

Step 1   Before installing the new PROM or PLD, verify that the pins are all evenly spaced and properly aligned. If necessary, use tweezers to carefully align the IC pins prior to installation.

Step 2   Align the notched edge on the PROMP/PLD to the silk screened dot on the circuit card, as shown in Figure 3-5.

Figure 3-5   PROM/PLD Alignment
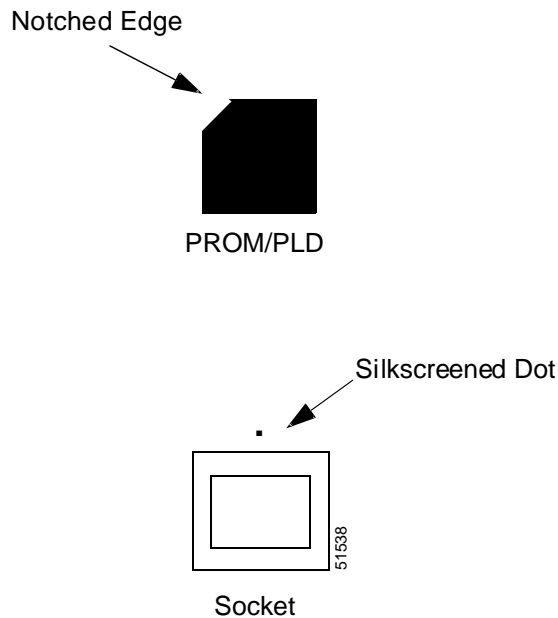
Step 3   With all pins aligned to the pins of the socket, apply gentle, even finger pressure to the top of the chip until it is fully seated in its socket. This completes the installation of the surface mount chip.

Step 4   Reinstall the circuit card in the system or return the card to spares stock.