

# Juniper Networks CTP2000 Circuit to Packet Platform

Upgrade to CTPOS 6.0R1



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## CHAPTER 1

# Introduction to CTPOS 6.0 Upgrade Kits

- CTPOS 6.0R1 Upgrade Kits on page 1

## CTPOS 6.0R1 Upgrade Kits

Because of the new features and hardware supported in CTPOS 6.0R1, a direct code upgrade by means of an upgrade archive from earlier versions of CTPOS is not supported. This topic includes the procedures for performing an upgrade using an upgrade kit and for registering the upgrade. There are two upgrade kits, the use of which depends on whether you are using a PP310 or PP332 processor in your CTP2000 series device. Figure 1 on page 1 shows the front of the CPU that contains the PP310 processor and Figure 2 on page 1 shows the front of the CPU that contains the PP332 processor.

Figure 1: PP310 CPU

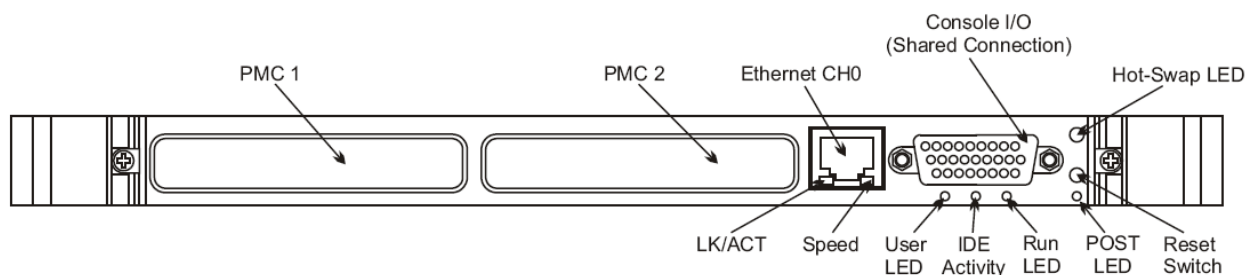


Figure 2: PP332 CPU



g015420



NOTE: You must register your upgrade and validate it with Juniper Networks. If your upgrade kit includes a new RTM, you must also register the RTM. After you register the upgrade and, if included, the RTM, allow up to 45 days for restocking of the new hardware configuration to support any Next Day or Same Day contracts. Juniper Networks will provide Best Effort support until restocking of the converted product is complete. After the registration process is completed and the new configuration is updated in the depot, you will have access to the software and tools that support your device.



NOTE: The use of the upgrade kit is supported only on CTP2000 Series products.



CAUTION: You cannot use CTPView to perform a system save of a node running a version of CTPOS before 6.0R1 and restore the system to a node running 6.0R1. CTPView cannot be used to migrate from pre-6.0R1 to 6.0R1. *System save/restore between different CTPOS versions is not supported.*

### PP310 Upgrade Kit - CTP2000-RAM-RTM-UPG

The PP310 upgrade kit contains:

- 4-GB CTPOS 6.0R1 upgrade CompactFlash card
- USB to CompactFlash adapter
- 1-GB non-ECC RAM module
- Rear transition module (RTM)
- Jumper (for BIOS reset)

### PP332 Upgrade Kit - CTP2000-RAM-UPG

The PP332 upgrade kit contains:

- 4-GB CTPOS 6.0R1 upgrade CompactFlash card
- USB to CompactFlash adapter
- 1-GB ECC RAM module



NOTE: The 4-GB upgrade CompactFlash card and USB to CompactFlash adapters are the same in both kits. Whereas the PP310 and PP332 use the same model RTM after you complete the upgrade, the RTMs are jumpered differently for the two processors. Switching RTMs from a PP310 to a PP332 or vice versa without changing the jumper settings can damage the CPU.

## CHAPTER 2

# Upgrading the CTP2000 Series Device to CTPOS 6.0R1

This topic describes the following upgrade procedures. Follow proper antistatic procedures throughout:

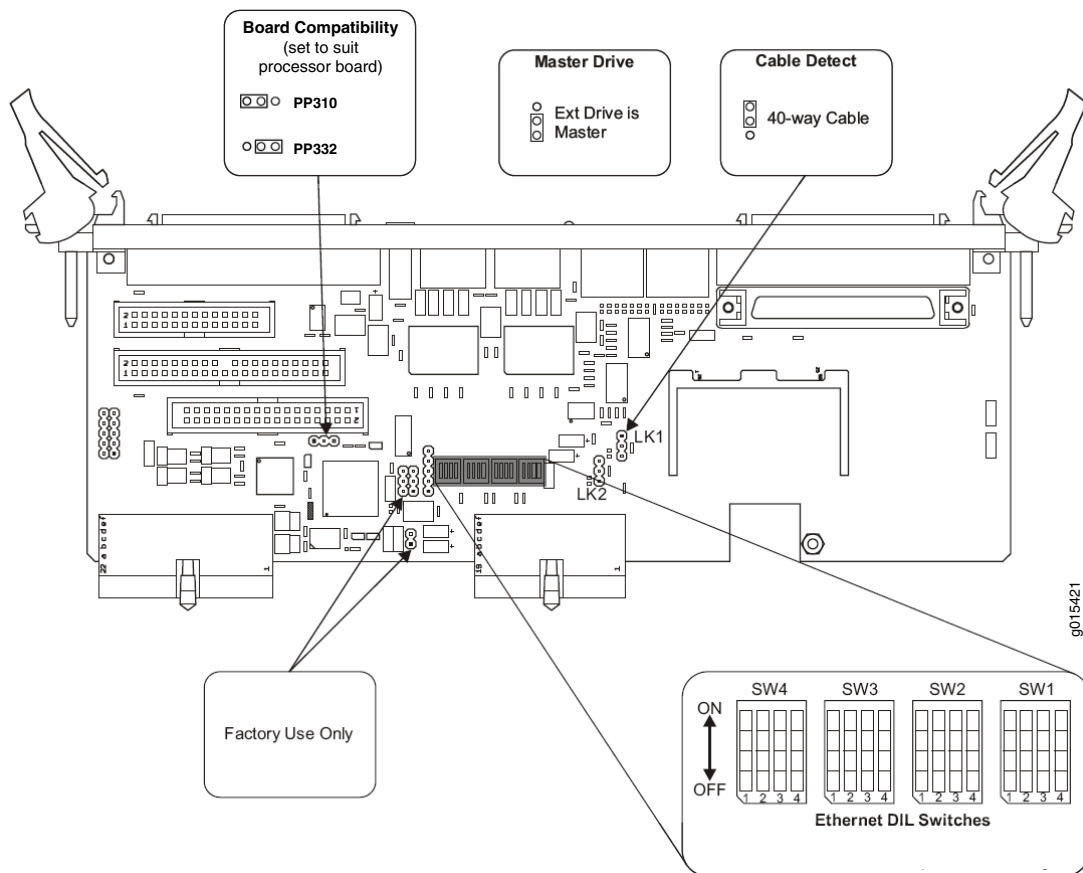
- Upgrading with the PP310 Upgrade Kit on page 3
- Upgrading with the PP332 Upgrade Kit on page 5
- Using the Upgrade CompactFlash Card on page 6
- Registering Your Upgrade on page 12
- Related Procedures on page 12

### Upgrading with the PP310 Upgrade Kit

---

1. Power down the system through either the menu or CTPView.
2. Remove the power cord.
3. Remove the RTM from the chassis and remove the old CompactFlash card from the RTM. See "Installing or Removing a CTP2000 Series CompactFlash Card" on page 16.
4. Confirm that the jumper settings on the new RTM provided in the upgrade kit conform to PP310 jumper settings, as shown in Figure 3 on page 4.

Figure 3: RTM Default Jumper Settings



5. Confirm that Ethernet dip switches SW1 and SW2 are set to ON, and that SW3 and SW 4 are set to OFF (see Figure 3 on page 4).
6. Install the 4-GB CompactFlash card from the upgrade kit in the new RTM and install the new RTM in the chassis. See “Installing or Removing a CTP2000 Series CompactFlash Card” on page 16.
7. Attach a terminal server or similar device to the serial console port, COM2, on the RTM. This device will be used to interact with the script that runs when the upgrade CompactFlash card is booted.
8. Remove the CPU card from the chassis, and replace the memory module on the CPU card with that from the upgrade kit. Install the memory module shipped with the kit only after you have finished these tasks. See “Installing or Replacing CTP2000 DRAM Memory Modules in the PP310 or PP332 CPU” on page 13 and Upgrading CTP2000 Series Components for Memory Upgrades.
9. Reset the BIOS to factory defaults. See “Restoring BIOS Defaults for the CTPOS 6.0R1 Upgrade (PP310)” on page 15.
10. Reconnect all Ethernet cables.

11. Replace the power cord.
12. Power on the system and follow the procedure “Using the Upgrade CompactFlash Card” on page 6 to respond to the instructions that appear on the serial console. You have the option of conserving information from a prior release of the operating system or setting the device for firstboot with CTPOS 6.0R1.



NOTE: The system may go through multiple reboots during this process. The BIOS, FPGAs, and the firmware on the cards may be updated. If the power is removed during these upgrades, the cards may become unusable. Please ensure that the process continues until completion. Failure to do so may render the system unusable.

---

## Upgrading with the PP332 Upgrade Kit

---

1. Power down the system through either the menu or CTPView.
2. Remove the power cord.
3. Remove the RTM from the chassis and remove the old CompactFlash card from the RTM. See “Installing or Removing a CTP2000 Series CompactFlash Card” on page 16.
4. Install the 4-GB compact flash from the upgrade kit in the RTM and reinstall the RTM in the chassis. See “Installing or Removing a CTP2000 Series CompactFlash Card” on page 16.
5. Attach a terminal server or similar device to the serial console port, COM2, on the RTM. This device will be used to interact with the script that runs when the upgrade CompactFlash card is booted.
6. Remove the CPU card from the chassis, and replace the memory module on the CPU card with that from the upgrade kit. Install the memory module shipped with the kit only after you have finished these tasks. Reinstall the CPU module in the chassis when finished. See “Installing or Replacing CTP2000 DRAM Memory Modules in the PP310 or PP332 CPU” on page 13 and Upgrading CTP2000 Series Components for Memory Upgrades.
7. Reconnect all Ethernet cables.
8. Replace the power cord.
9. Power on the system and follow the procedure “Using the Upgrade CompactFlash Card” on page 6 to respond to the instructions that appear on the serial console.



NOTE: The system may go through multiple reboots during this process. The BIOS, FPGAs, and the firmware on the cards may be updated. If the power is removed during these upgrades, the cards may become unusable. Please ensure that the process continues until completion. Failure to do so may render the system unusable.

---

## Using the Upgrade CompactFlash Card

---

The 4-GB CompactFlash script shipped in the upgrade kit can be used to either (1) migrate a system running a previous operating system to CTPOS 6.0R1 (PP310 only), or (2) prepare a system for firstboot in CTPOS 6.0R1.

The CompactFlash script runs an application that checks for the proper BIOS (PP310 only) and upgrades the BIOS if necessary. The application checks for proper FPGAs on the cards and daughter cards installed and upgrades them as necessary.

When used to prepare a system for firstboot into CTPOS 6.0R1, all cards and daughter cards intended to be run on the system should be installed before booting the flash for the first time.

If the system is migrating from an old CompactFlash card running CTPOS 4.6R7 or 5.4R3, the application transfers all necessary information from the old CompactFlash card to the new CompactFlash card and leaves the system in a state with all configured and activated circuits running.

Use one of the following procedures after completing either “Upgrading with the PP310 Upgrade Kit” on page 3 or “Upgrading with the PP332 Upgrade Kit” on page 5.

- Migrating from a Previous Operating System on page 7
- Preparing a System for Firstboot Using CTPOS 6.0R1 on page 10



## Migrating from a Previous Operating System

You should see the following upgrade script output when you complete the steps described in “Upgrading with the PP310 Upgrade Kit” on page 3. The upgrade script output produced when you complete the steps described in “Upgrading with the PP332 Upgrade Kit” on page 5 is very similar, and you must respond to the same prompts.

```
Gathering system information.
* Please wait this could take up to 45 seconds.
Found:
System type      PP310
Bios             2.21
Memory installed 1024 MB
Slot 0:  Type T1E1
          FPGA 0xea * needs 0xea
Slot 1:  Type Serial
          FPGA 0x73
Slot 2:  Type FXS
          FPGA 0x5010150
ID restored      No
```

Hit return to continue...

This application will prepare the installed hardware for CTPOS 6.0R1. It will upgrade FPGAs if necessary, upgrade the bios if necessary, and can migrate the ID of a system running CTPOS 4.6R7 or 5.4R3.

This application will reboot the system multiple times. Please continue the process through to completion. Failure to do so can leave the system in an unknown state.

Hit return to continue...

The bios configuration needs to be changed.  
Hit return to setup the bios configuration and reboot.



**NOTE:** The set and reboot for the BIOS appears only for the PP310 processor.

---

1. Press Enter. For the PP310, the BIOS configuration is updated and the device reboots. The following upgrade script output is displayed for the PP310. The upgrade script output for the PP332 is very similar, and you must respond to the same prompts.

```
Gathering system information.
* Please wait this could take up to 45 seconds.
Found:
System type      PP310
Bios             2.21
Memory installed 1024 MB
Slot 0:  Type T1E1
          FPGA 0xea * needs 0xea
Slot 1:  Type Serial
          FPGA 0x73
Slot 2:  Type FXS
          FPGA 0x5010150
ID restored  No
```

Hit return to continue...

Do you want to restore the ID from a CTPOS 4.6R7 or 5.4R3 system?

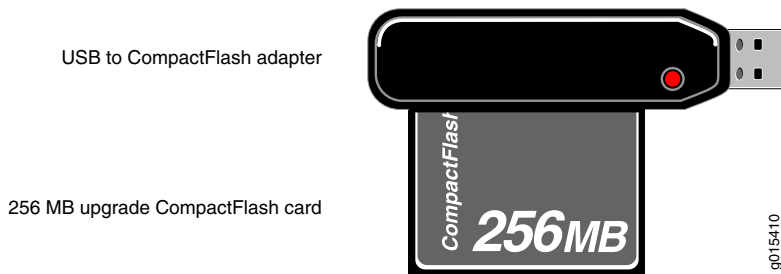
2. Enter y. The following output is displayed:

```
Please insert the old flash into the compact flash to USB
adapter and plug the adapter into the usb slot on the CPU.
```

Hit return when you are finished.

3. Insert the old (256 MB) CompactFlash card into the CompactFlash adapter (see Figure 4 on page 8).

**Figure 4: CompactFlash Adapter with CompactFlash Card Inserted**



4. Connect the adapter to the CTP2000 USB port.
5. Press Enter to indicate that you are finished inserting the CompactFlash card into the adapter and connecting the adapter. Follow the onscreen instructions.

```
Got old CTPOS version: 4.6R7
```

```
Gathering old system information.
```

```
Please remove the old flash, hit return when finished.
```

```
Migrating system ID to new flash.
```

```
* The system will reboot when finished.
```

```
INIT: Sending processes the TERM signal
```

```

Gathering system information.
* Please wait this could take up to 45 seconds.
Found:
System type      PP310
Bios             2.21
Memory installed 1024 MB
Slot 0:  Type T1E1
           FPGA 0xea * needs 0xea
Slot 1:  Type Serial
           FPGA 0x73
Slot 2:  Type FXS
           FPGA 0x5010150
ID restored  Yes

Hit return to continue...
Restarting syslog.

. done.
Upgrading T1E1 card in slot 0 to FPGA rev 0xea.

Upgrading FPGA on card 0. Please wait for completion.

. done.
Upgrading FPGA on card 0 complete.

Upgrading Winmon. Please wait for completion.

..... . done.
Upgrading Winmon complete.

Upgrading Daughter cards. Please wait for completion.

. done.
Upgrading Daughter cards complete.


**** ****
Finished preparing system for running CTPOS 6.0R1.
Finished migrating ID from CTPOS . Reboot required.
**** ****

**** ****
Please verify that all circuits and system setting are
correct after the system reboots.
**** ****
Hit return to reboot the system.

```

6. Press Enter to reboot the system.

## Preparing a System for Firstboot Using CTPOS 6.0R1

You should see the following upgrade script output when you complete the steps described in “Upgrading with the PP310 Upgrade Kit” on page 3. The upgrade script output produced when you complete the steps described in “Upgrading with the PP332 Upgrade Kit” on page 5 is very similar, and you must respond to the same prompts.

```
Gathering system information.
* Please wait this could take up to 45 seconds.
Found:
System type      PP310
Bios             2.21
Memory installed 1024 MB
Slot 0:  Type T1E1
          FPGA 0xea * needs 0xea
Slot 1:  Type Serial
          FPGA 0x73
Slot 2:  Type FXS
          FPGA 0x5010150
ID restored      No

Hit return to continue...
```

This application will prepare the installed hardware for CTPOS 6.0R1. It will upgrade FPGAs if necessary, upgrade the BIOS if necessary, and can migrate the ID of a system running CTPOS 4.6R7 or 5.4R3.

This application will reboot the system multiple times. Please continue the process through to completion. Failure to do so can leave the system in an unknown state.  
Hit return to continue...

The BIOS configuration needs to be changed.  
Hit return to setup the BIOS configuration and reboot.



**NOTE:** The set and reboot for the BIOS appears only for the PP310 processor.

---

1. Press Enter. The BIOS configuration is updated, the device reboots, and the following output is displayed:

```
Gathering system information.
* Please wait this could take up to 45 seconds.
Found:
System type      PP310
Bios             2.21
Memory installed 1024 MB
Slot 0:  Type T1E1
             FPGA 0xea * needs 0xea
Slot 1:  Type Serial
             FPGA 0x73
Slot 2:  Type FXS
             FPGA 0x5010150
ID restored  No

Hit return to continue...
```

2. Reboot the device. The following output is displayed:
3. Enter **n** when you receive the following prompt (PP310 only):

```
Do you want to restore the ID from a CTPOS 4.6R7 or 5.4R3 system? [n]
```

The upgrade continues to completion, displaying the following information:

```
Upgrading T1E1 card in slot 0 to FPGA rev 0xea.
Upgrading FPGA on card 0. Please wait for completion.

. done.
Upgrading FPGA on card 0 complete.

Upgrading Winmon. Please wait for completion.

..... . done.
Upgrading Winmon complete.

Upgrading Daughter cards. Please wait for completion.

. done.
Upgrading Daughter cards complete.

**** ****
Finished preparing system for running CTPOS 6.0R1.
The system needs to be powered down.
**** ****
Hit return to power down the system.
```

4. Press Enter to power off the system.

## Registering Your Upgrade

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To register your upgrade:

1. Locate the Access Install Base web page at  
<https://www.juniper.net/customers/csc/management/updateinstallbase.jsp>
2. Enter the following required information:
  - System Model Number
  - System Serial Number
  - Support/Level Service Part Number
  - Interface Card/Module Model Number—Include for replacement RTM
  - Interface Card/Module Serial Number—Include for replacement RTM
  - Support/Level Service Part Number
  - Company Name
  - Site Address
  - Where Equipment Will Be Moved
  - Authorized Contract Name, Phone, and Email
  - Name of the Upgrade—Enter the name of your upgrade kit:  
CTP2000-RAM-RTM-UPG or CTP2000-RAM-UPG
3. Click **Submit**.

## Related Procedures

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The following procedures are referenced by the upgrade procedures.

- Servicing the CTP2000 CPU on page 13
- Installing or Replacing CTP2000 DRAM Memory Modules in the PP310 or PP332 CPU on page 13
- Restoring BIOS Defaults for the CTPOS 6.0R1 Upgrade (PP310) on page 15
- Installing or Removing a CTP2000 Series CompactFlash Card on page 16

## Servicing the CTP2000 CPU

This topic describes how to remove the CTP2000 CPU from the chassis for service or upgrade, and how to return the CPU to the chassis. Follow proper antistatic procedures when you perform the following procedures.

To remove the CPU from the CTP2000 chassis:

1. Ground yourself by using an antistatic wrist strap or other device, and connect it to one of the ESD grounding jacks, if available, or another grounding device.
2. Power off the unit.
3. If an Ethernet cable is connected to the CPU (PP310 only), disconnect the cable.
4. Using a Phillips screwdriver, loosen each of the retaining screws on the outside edge of the CPU until the ejector that the screw secures is released.
5. Use the ejectors to remove the card from the chassis.

To return the CPU to the chassis:

1. Guide the CPU into the chassis by placing it between the guides of the slot and pushing the module until it stops.

The module stops sliding when the ejectors make contact with the chassis.

2. Tighten each of the retaining screws on the outside edge of the CPU.
3. If an Ethernet cable was connected to the CPU (PP310 only), reconnect the cable.

## Installing or Replacing CTP2000 DRAM Memory Modules in the PP310 or PP332 CPU

The PP310 accepts standard 200-pin DDR SODIMM modules fitted with 2.5V PC2100 DDR SDRAM without ECC. ECC is supported by devices soldered onto the board. Two sockets are provided that can accommodate SODIMMs of 512 MB or 1 GB capacities.

The PP332 accepts standard 200-pin DDR SODIMM modules fitted with 2.5V PC2100 or PC2700 DDR SDRAM. Both 64-bit non-ECC SODIMM modules and 72-bit ECC SODIMM modules are supported. If ECC is required, then ECC modules must be fitted. Two sockets are provided that can accommodate modules up to 1 GB capacity each

When fitting only one SODIMM (for either CPU) this must be in the SODIMM #1 position.

To install or replace a memory module in the PP310 CPU:

1. Ground yourself by using an antistatic wrist strap or other device, and connect it to one of the ESD grounding jacks, if available, or another grounding device.
2. Remove the new memory module from its antistatic bag.
3. Remove the CPU board from the CTP2000 chassis. See "Servicing the CTP2000 CPU" on page 13.
4. To remove a memory module:

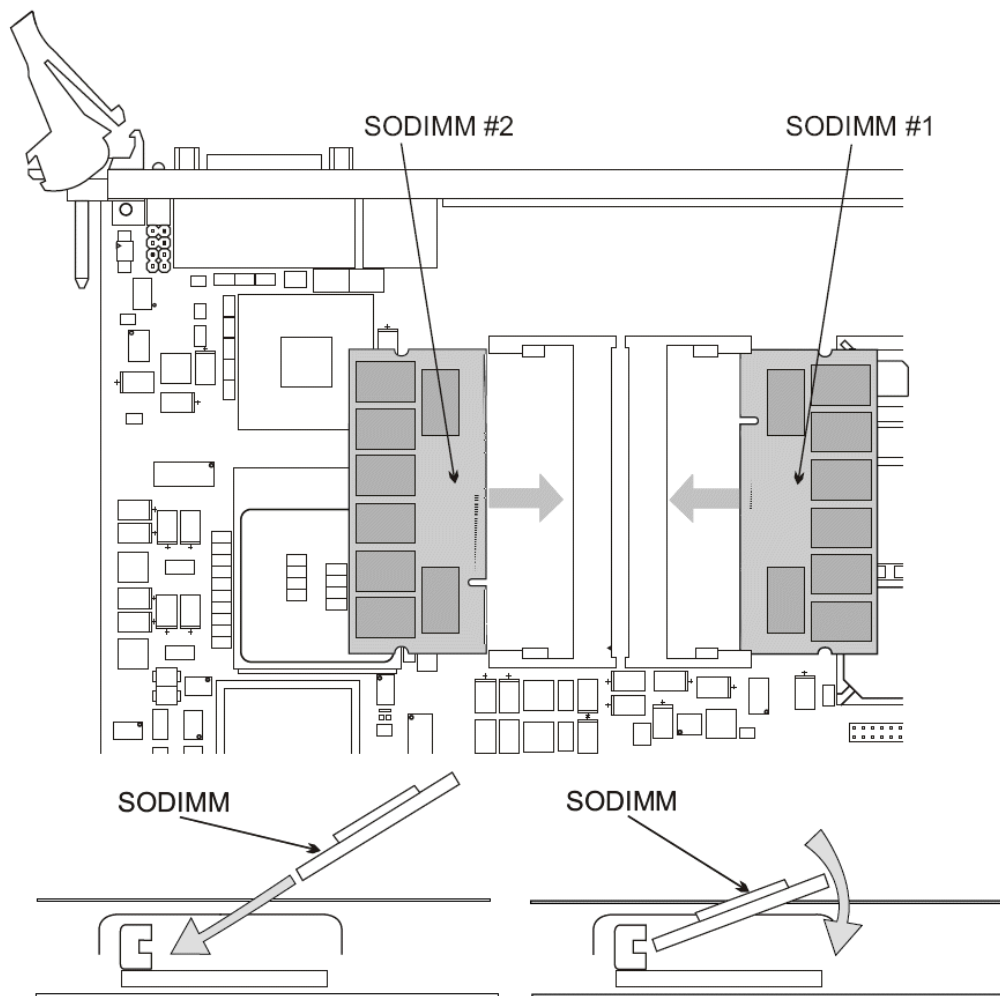
- Release the memory module by using your thumb to raise the end of the memory module to the angle shown in Figure 5 on page 14.



**NOTE:** Figure 5 on page 14 shows the PP310 CPU. The memory module is removed and replaced in the same manner for the PP332 CPU.

- Hold the memory module between your thumb and forefinger and gently pull it out of the socket.

**Figure 5: DRAM Memory Module Replacement — PP310**



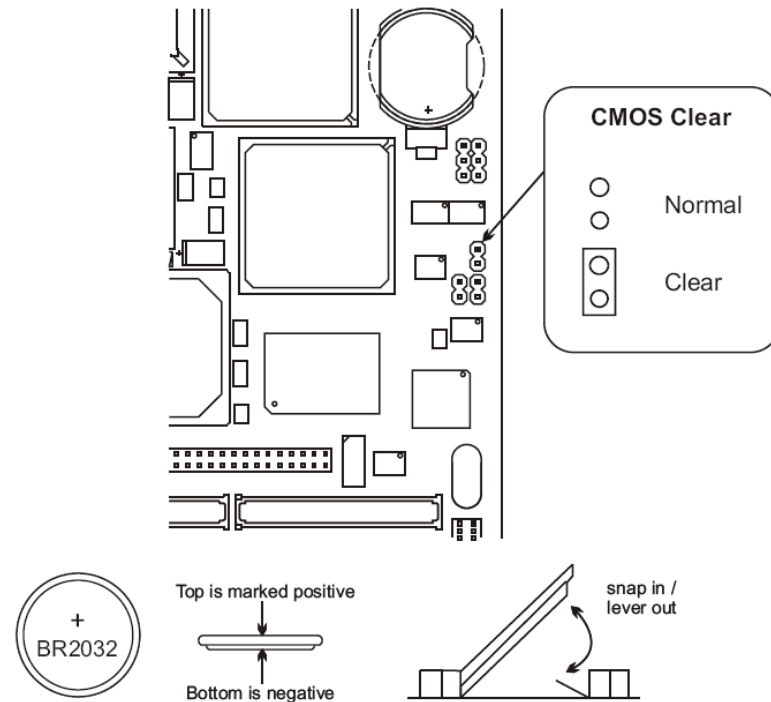
5. To insert the new memory module:
  - Hold the module between your thumb and forefinger and insert one end into the socket at the angle shown in Figure 5 on page 14.
  - Lower the free end of the module until it snaps into place.
6. Return the CPU to the chassis and secure it in place. See “Servicing the CTP2000 CPU” on page 13.



## Restoring BIOS Defaults for the CTPOS 6.0R1 Upgrade (PP310)

You must restore default BIOS settings (stored in CMOS) during the CTPOS 6.0R1 upgrade process for the PP310. Refer to Figure 6 on page 15 when performing the following procedure.

**Figure 6: Jumper Setting for Restoring BIOS Defaults**



To restore default BIOS settings:

1. Remove the CPU from the CTP2000 device chassis. See “Servicing the CTP2000 CPU” on page 13.
2. Locate the BIOS reset pins, which are shown as two black circles inside a figure 8 and captioned as CMOS Clear.



**NOTE:** The two BIOS reset pins are the only reset pins that are used in this procedure.

3. Attach the BIOS reset jumper included in the CTP2000 upgrade kit to the BIOS reset pins in order to short them together.
4. Insert the CPU into the device. See “Servicing the CTP2000 CPU” on page 13.
5. Apply power to the device for 10 seconds.
6. Power off the device.
7. Remove the CPU from the chassis.

8. Remove the BIOS reset jumper so that the BIOS reset pins are no longer shorted together.
9. Insert the CPU into the device. When you power on the device, the default BIOS settings will be in effect.

### Installing or Removing a CTP2000 Series CompactFlash Card

To remove or install the CompactFlash card for the CTP2000 series:

1. Power off the unit.
2. Remove the processor RTM by unscrewing the retaining screws and pushing the extractors outward with the latching buttons depressed.
3. Remove the CompactFlash card retaining screw and nut. You can then remove or install the CompactFlash card in the flash socket (see Figure 7 on page 16).
4. Reinstall the CompactFlash card retaining screw and nut.
5. Reinstall the processor RTM into the chassis, and secure the retaining screws.

**Figure 7: CompactFlash on the RTM**

