



Juniper Networks CTP2000 Circuit to Packet Platform

Upgrade to CTPOS 7.x



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Upgrade to CTPOS 7.x

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CHAPTER 1

Introduction to CTPOS 7.0 Upgrade Kits

- CTPOS 7.0R1 and Later Upgrade Kits on page 7

CTPOS 7.0R1 and Later Upgrade Kits

Because of the new features and hardware supported in CTPOS 7.0R1 and later, 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 three upgrade kits, the use of which depends on whether you are using a PP310, PP332, or PP833 processor in your CTP2000 series device. [Figure 1 on page 7](#) shows the front of the CPU that contains the PP310 processor and [Figure 2 on page 7](#) shows the front of the CPU that contains the PP332 processor.

Figure 1: PP310 CPU

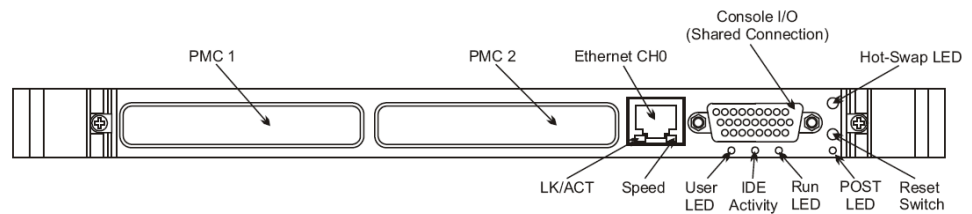


Figure 2: PP332 CPU



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 7.0R1 and restore the system to a node running 7.0R1 and later. CTPView cannot be used to migrate from pre-7.0R1 to 7.0R1 and later. *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 7.0R1 or later 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 7.0R1 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.

PP833 Upgrade Kit - CTP2000-RAM-RTM-UPG

The PP833 upgrade kit contains:

- 4-GB CTPOS 7.0R1 upgrade CompactFlash card
- USB to CompactFlash adapter
- 1-GB ECC RAM module (two slots of 4096 MB)
- Rear transition module (RTM)
- Jumper (for BIOS reset)

RAM Details

```

Handle 0x001B, DMI type 17, 34 bytesMemory Device      Array Handle: 0x001A
  Error Information Handle: 0x001D      Total Width: 128 bits      Data
Width: 64 bits      Size: 4096 MB      Form Factor: DIMM      Set: None
  Locator: ChannelA-DIMM0      Bank Locator: BANK 0      Type: DDR3
  Type Detail: Synchronous      Speed: Unknown      Manufacturer: CCT Memory
  Serial Number: No serial number      Asset Tag: 0123456789      Part
Number: No part number      Rank: Unknown      Configured Clock Speed: 1333
MHzHandle 0x001F, DMI type 17, 34 bytesMemory Device      Array Handle: 0x001A
  Error Information Handle: 0x0021      Total Width: 128 bits      Data
Width: 64 bits      Size: 4096 MB      Form Factor: DIMM      Set: None
  Locator: ChannelB-DIMM0      Bank Locator: BANK 2      Type: DDR3
  Type Detail: Synchronous      Speed: Unknown      Manufacturer: CCT Memory
  Serial Number: No serial number      Asset Tag: 0123456789      Part
Number: No part number      Rank: Unknown      Configured Clock Speed: 1333
MHz

```


CHAPTER 2

Upgrading the CTP2000 Series Device to CTPOS 7.x

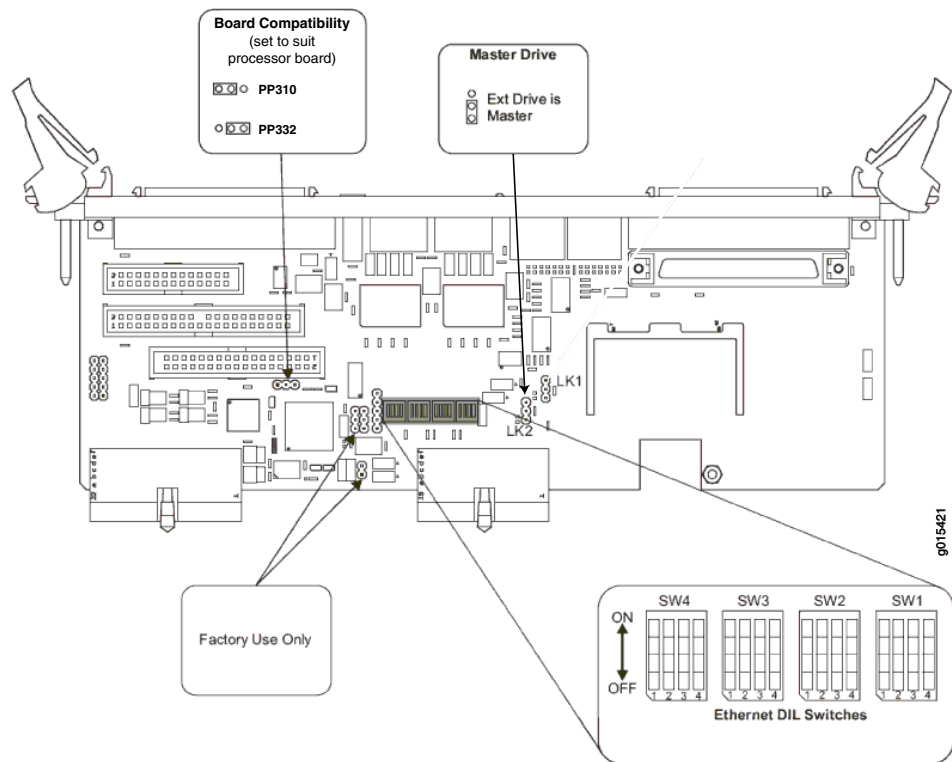
This topic describes the following upgrade procedures. Follow proper antistatic procedures throughout:

- [Upgrading with the PP310 Upgrade Kit on page 11](#)
- [Upgrading with the PP332 Upgrade Kit on page 13](#)
- [Upgrading with the PP833 Upgrade Kit on page 14](#)
- [Using the Upgrade CompactFlash Card on page 14](#)
- [Registering Your Upgrade on page 22](#)
- [Related Procedures on page 22](#)

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 26](#).
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 12](#).

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 12](#)).
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 26](#).
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 23](#) and [Upgrading CTP2000 Series Components for Memory Upgrades](#).
9. Reset the BIOS to factory defaults. See [“Restoring BIOS Defaults for the CTPOS 7.0R1 and Later Upgrade \(PP310\)” on page 24](#).
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 14](#) 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 7.0R1 and later.



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 26](#).
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 26](#).
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 23](#) 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 14](#) 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.

Upgrading with the PP833 Upgrade Kit

To remove or install the CompactFlash card for the CTP2000 Series with the new PP833 processor:

1. Power down the system through either the menu or CTPView.
2. Remove the power cord.
3. Remove the PP833 PRC card from the chassis and remove the old CompactFlash card from the PRC card. (PP833 has the CompactFlash card slot in the PRC itself.) See *Installing or Removing a CTP2000 Series CompactFlash Card*.
4. Install the 4-GB compact flash from the upgrade kit in the PRC card and reinstall the PRC card in the chassis. See *Installing or Removing a CTP2000 Series CompactFlash Card*.
5. Attach a terminal server or similar device to the USB 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. CTP2008, CTP2024, and CTP2056 devices with the new PP833 processor use a USB connector. The USB port on the device is connected to an RS-232 serial cable using a USB connector. The RS-232 cable is then connected to the console using an RJ-45 connector. CTP2000 series devices with the PP310 and PP332 processors use an RJ-45 connected to the **COM2** port. This cable must be connected during the first boot process.
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* 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* 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 7.0R1 and later, or (2) prepare a system for firstboot in CTPOS 7.0R1 or later.

The CompactFlash script runs an application that checks for the proper BIOS 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 7.0R1 or later, 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 through 5.4R6, 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 11](#) or [“Upgrading with the PP332 Upgrade Kit” on page 13](#).

- [Migrating from a Previous Operating System on page 16](#)
- [Preparing a System for Firstboot Using CTPOS 7.0R1 and Later on page 20](#)

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 11. The upgrade script output produced when you complete the steps described in “Upgrading with the PP332 Upgrade Kit” on page 13 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.

For the PP332 processor, the BIOS version is 2.14 and a BIOS upgrade is not required.

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?
```



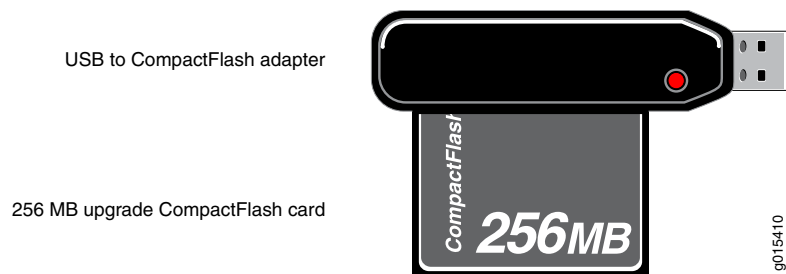
NOTE: For the PP332 processor, the BIOS version is 2.14 and a BIOS upgrade is not required.

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 17](#)).

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.



NOTE: For the PP332 processor, the BIOS version is 2.14 and a BIOS upgrade is not required.

6. Press Enter to reboot the system.

Preparing a System for Firstboot Using CTPOS 7.0R1 and Later

You should see the following upgrade script output when you complete the steps described in “Upgrading with the PP310 Upgrade Kit” on page 11. The upgrade script output produced when you complete the steps described in “Upgrading with the PP332 Upgrade Kit” on page 13 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.

For the PP332 processor, the BIOS version is 2.14 and a BIOS upgrade is not required.

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...
```



NOTE: For the PP332 processor, the BIOS version is 2.14 and a BIOS upgrade is not required.

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

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

The following procedures are referenced by the upgrade procedures.

- [Servicing the CTP2000 CPU on page 23](#)
- [Installing or Replacing CTP2000 DRAM Memory Modules in the PP310 or PP332 CPU on page 23](#)
- [Restoring BIOS Defaults for the CTPOS 7.0R1 and Later Upgrade \(PP310\) on page 24](#)
- [Installing or Removing a CTP2000 Series CompactFlash Card on page 26](#)

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 23](#).
4. To remove a memory module:

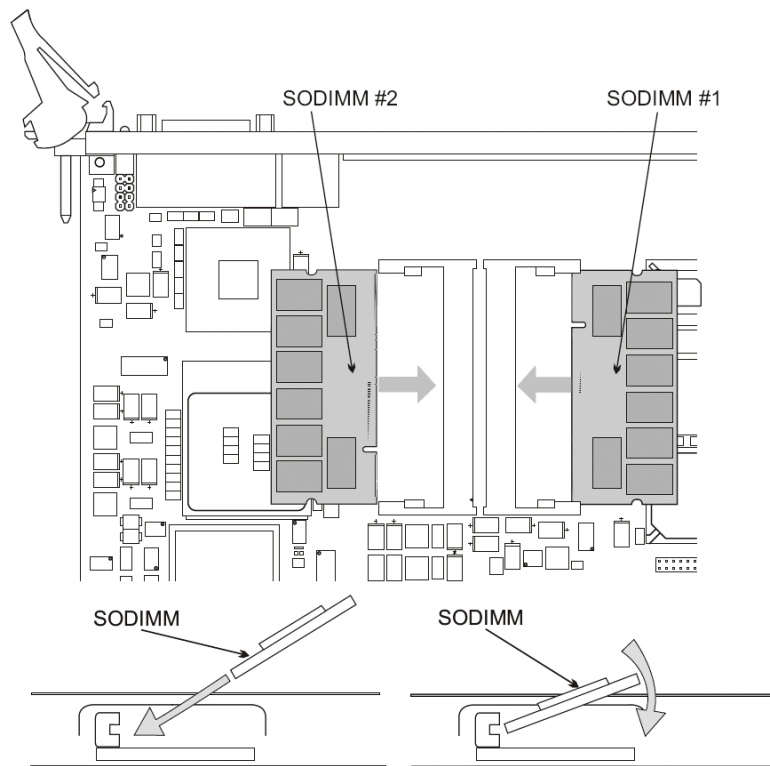
- Release the memory module by using your thumb to raise the end of the memory module to the angle shown in [Figure 5 on page 24](#).



NOTE: [Figure 5 on page 24](#) 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

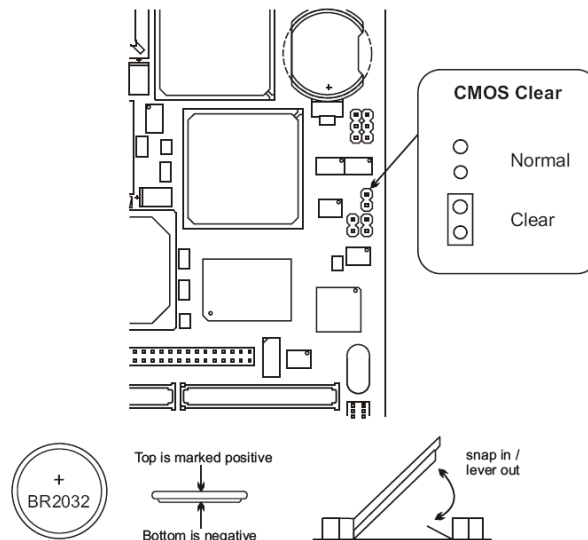


- To insert the new memory module:
 - Hold the module between your thumb and forefinger and insert one end into the socket at the angle shown in [Figure 5 on page 24](#).
 - Lower the free end of the module until it snaps into place.
- Return the CPU to the chassis and secure it in place. See [“Servicing the CTP2000 CPU” on page 23](#).

Restoring BIOS Defaults for the CTPOS 7.0R1 and Later Upgrade (PP310)

You must restore default BIOS settings (stored in CMOS) during the CTPOS 7.0R1 upgrade process for the PP310. Refer to [Figure 6 on page 25](#) 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 23](#).
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 23](#).
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

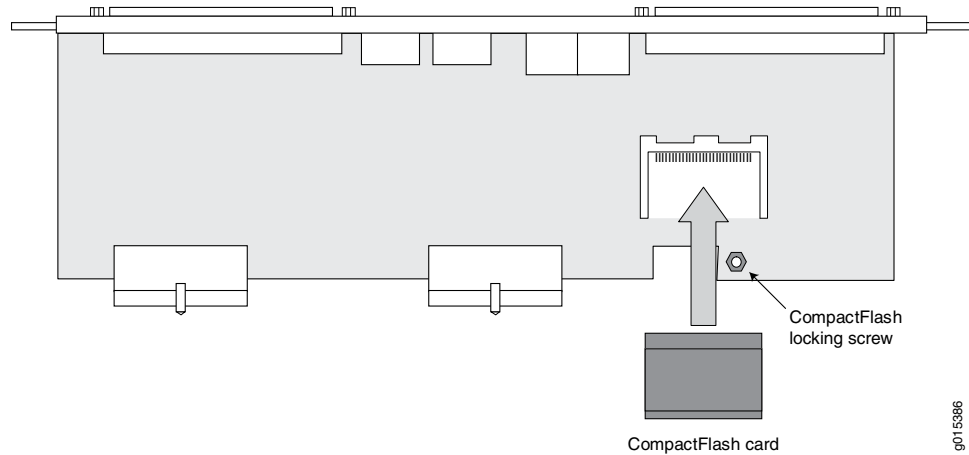
To remove or install the CompactFlash card for the CTP2000 series with the new PP833 processor:

1. Power off the unit.
2. Remove the PP833 PRC card by unscrewing the retaining screws and pushing the extractors outward with the latching buttons depressed.
3. You can then remove or install the CompactFlash card in the flash socket.
4. Reinstall the PP833 PRC card into the chassis, and secure the retaining screws.

To remove or install the CompactFlash card for the CTP2000 series with the PP310 and PP332 processors:

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 26](#)).
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



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