



# Netra™ CP3060 Rear Transition Module User's Guide

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Sun Microsystems, Inc.  
www.sun.com

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# Preface

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The *Netra CP3060 Rear Transition Module User's Guide* describes the Netra™ CP3060 rear transition module (RTM) and provides installation instructions and hardware specifications.

This manual is written for system integration engineers, field applications and service engineers, and others involved in the integration of this module into Netra Advanced Telecommunications Computing Architecture (ATCA) systems.

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## How This Document Is Organized

[Chapter 1](#) provides an overview of the Netra CP3060 rear transition module.

[Chapter 2](#) provides instructions on hardware installation.

[Chapter 3](#) provides hardware specifications and connector pinouts.

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## Using UNIX Commands

This document might not contain information about basic UNIX® commands and procedures such as shutting down the system, booting the system, and configuring devices. Refer to the following for this information:

- Software documentation that you received with your system
- Solaris™ Operating System documentation, which is at:

<http://docs.sun.com/>

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# Shell Prompts

Shell	Prompt
C shell	<i>machine-name%</i>
C shell superuser	<i>machine-name#</i>
Bourne shell and Korn shell	\$
Bourne shell and Korn shell superuser	#

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# Typographic Conventions

Typeface*	Meaning	Examples
AaBbCc123	The names of commands, files, and directories; on-screen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. % You have mail.
<b>AaBbCc123</b>	What you type, when contrasted with on-screen computer output	% <b>su</b> Password:
<i>AaBbCc123</i>	Book titles, new words or terms, words to be emphasized. Replace command-line variables with real names or values.	Read Chapter 6 in the <i>User's Guide</i> . These are called class options. You must be superuser to do this. To delete a file, type <code>rm filename</code> .

\* The settings on your browser might differ from these settings.

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# Related Documentation

For additional information about the Netra CP3060 rear transition module and Netra CP3060 board, refer to the following documents.

<b>Title</b>	<b>Part Number</b>
<i>Netra CP3060 Rear Transition Module Getting Started Guide</i>	819-6692
<i>Netra CP3060 Rear Transition Module User's Guide (this manual)</i>	819-6689
<i>Netra CP3060 Board Getting Started Guide</i>	819-4971
<i>Netra CP3060 Board Product Notes</i>	819-4966
<i>Netra CP3060 Board User's Guide</i>	819-4967
<i>Netra CP3060 Board Programming Guide</i>	819-4969
<i>Netra CP3060 Board Safety and Compliance Guide</i>	819-4965
<i>Important Safety Information for Sun Hardware Systems (Printed version only)</i>	816-7190

Except for the *Getting Started Guides* and the *Important Safety Information for Sun Hardware Systems*, all the documents listed are available online at:

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Please include the title and part number of your document with your feedback:

*Netra CP3060 Rear Transition Module User's Guide*, part number 819-6689-10

# Overview of the Netra CP3060 Rear Transition Module

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This chapter contains the following sections:

- [Section 1.1, “Features of the Rear Transition Module” on page 1-2](#)
- [Section 1.2, “PICMG Standards Compliance” on page 1-2](#)
- [Section 1.3, “I/O Interfaces” on page 1-3](#)
- [Section 1.4, “EEPROM” on page 1-5](#)
- [Section 1.5, “Software Support” on page 1-5](#)
- [Section 1.6, “Part Number, Serial Number, and Revision Number” on page 1-6](#)

The Netra™ CP3060 rear transition module (RTM) is a fully compatible, carrier-grade Advanced Telecom Computing Architecture® (ATCA) I/O rear transition module for the Netra CP3060 board. The Netra CP3060 rear transition module is designed to be used with the Netra CP3060 board and is fully compliant with the PICMG® 3.0 and 3.1 specifications. However, the Netra CP3060 rear transition module is not compatible with other ATCA cards.

The Netra CP3060 rear transition module requires an ATCA shelf (chassis) with a midplane that accommodates front and rear board installations. The primary purpose of this module is to provide rear access connections to the Netra CP3060 board’s I/O ports.

The system designer is responsible for integrating peripheral devices with the connectors on the midplane in an ATCA shelf configuration. A designer can either connect directly to the midplane signals or use a Netra CP3060 rear transition module. This document provides information only for the integration of the Netra CP3060 rear transition module in a supported ATCA shelf.

---

## 1.1 Features of the Rear Transition Module

The 8-rack unit (8U) form factor, single-slot rear transition module supplies rear I/O connections that support additional peripherals for use with compatible Netra CP3060 boards. The rear I/O access enables you to replace the Netra CP3060 boards without disconnecting cables. Industry-standard connectors and pin assignments ensure ease of use and flexible design. The Netra CP3060 rear transition module permits the creation of high-density systems by enabling easy access to I/O ([FIGURE 1-1](#)).

Features of the Netra CP3060 rear transition module include:

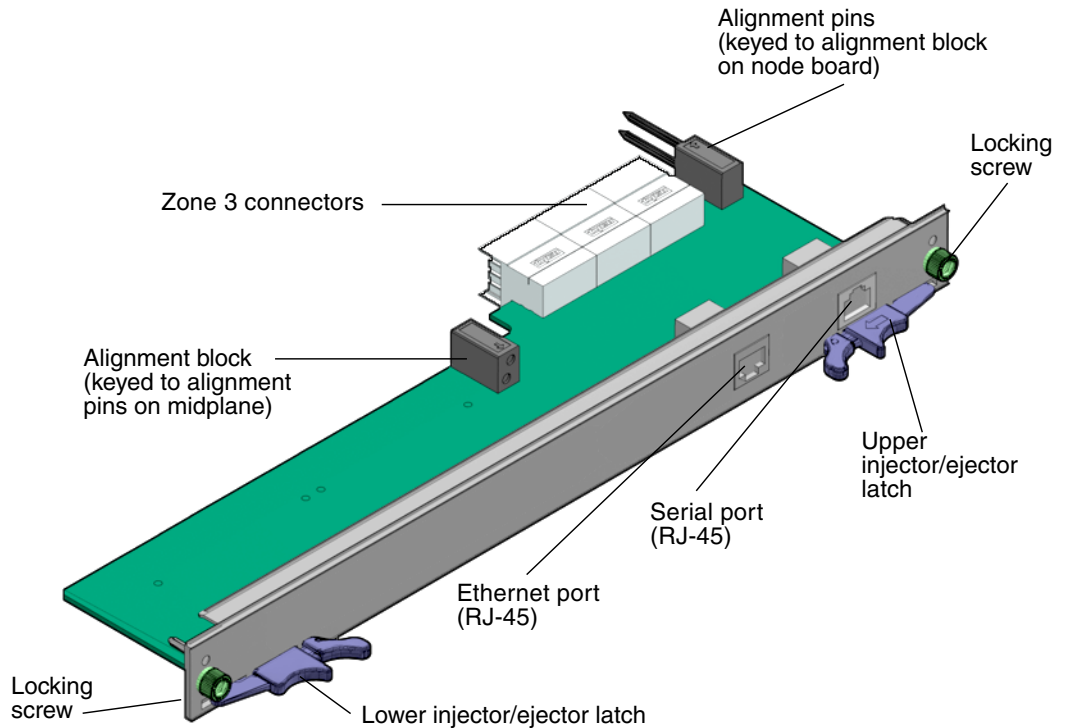
- One 10/100BASE-T Ethernet port with RJ-45 connector on the faceplate.
- One asynchronous serial port with RJ-45 connector on the faceplate
- Field-replaceable unit ID (FRU ID) EEPROM to hold board identification and manufacturing information. The EEPROM can be accessed through the Intelligent Platform Management Controller (IPMC) interface.
- The Netra CP3060 rear transition module draws power from the Zone 3 connector: 5V, 3.3V, +12V, and -12V.

---

## 1.2 PICMG Standards Compliance

The Netra CP3060 rear transition module is fully compliant with the following PCI Industrial Computer Manufacturers Group (PICMG) specifications:

- PICMG 3.0 Revision 2.0
- PICMG 3.1 Revision 1.0

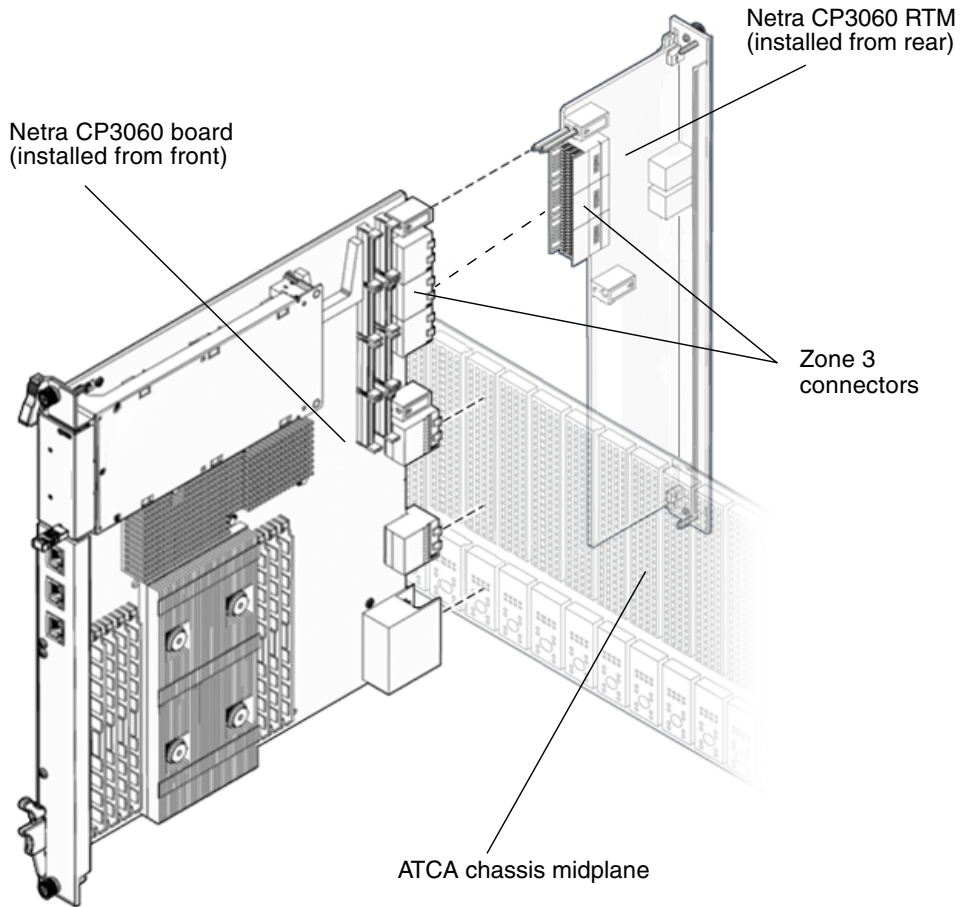


**FIGURE 1-1** Netra CP3060 Rear Transition Module

## 1.3 I/O Interfaces

The Netra CP3060 rear transition module installs into the rear of the ATCA enclosure, opposite a Netra CP3060 board. The rear transition module connects to the node board's Zone 3 rear I/O connectors through the midplane. The rear transition module carries one serial port and one Ethernet port with RJ-45 connector to its faceplate ([FIGURE 1-1](#)).

[FIGURE 1-2](#) shows the physical relationship between the node board, rear transition module, and the midplane in a typical ATCA system.



**FIGURE 1-2** Relationship of the Netra CP3060 Board, ATCA Midplane, and Netra CP3060 Rear Transition Module

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**Note** – When the Netra CP3060 rear transition module is used with a Netra CP3060 board, shielded cables are required for serial I/O ports. Unshielded cables can be used on Ethernet ports to satisfy EMI compliance standards. The shields for all shielded cables must be terminated on both ends.

---

The customer can order the Netra CP3060 rear transition module, build a custom module, or buy a module from an independent hardware vendor (IHV). A minimum set of I/O is required to provide a boot path for the Netra CP3060 board and for console I/O to issue commands and read board and system status.



Possible boot and console configurations are described in [TABLE 1-1](#). Sun Microsystems provides the Netra CP3060 boards and compatible Netra CP3060 rear transition module. This module provides one 10/100BASE-T Ethernet RJ-45 port from the Netra CP3060 board to the back of the system, and can optionally be used for network booting as a diskless client. The other configurations require IHV hardware.

**TABLE 1-1** Netra CP3060 Rear Transition Module I/O Configurations

I/O	Hardware Required	Description
Ethernet	Netra CP3060 rear transition module—supplied as an option for rear access	Default boot path uses an Ethernet port; the board runs in a diskless client configuration.
Serial data (console)	Netra CP3060 rear transition module	The serial port on the Netra CP3060 board’s front panel provides the path for the default console I/O. When the RTM is installed, the RTM’s serial port also provides a path for the default console I/O (see <a href="#">FIGURE 1-1</a> for location). Either serial port can be used; but only one of the serial ports can be used at a time.

## 1.4 EEPROM

The only active component on the Netra CP3060 rear transition module is the I<sup>2</sup>C EEPROM. The board is fully passive, but some power is provided to the EEPROM.

The I<sup>2</sup>C EEPROM (FRU ID) component contains board identification and some manufacturing information, such as the part number and date code of the Netra CP3060 rear transition module. The IPMC on the Netra CP3060 board monitors and identifies the I<sup>2</sup>C interface. The serial EEPROM is accessed through the local Netra CP3060 I<sup>2</sup>C bus.

## 1.5 Software Support

The Netra CP3060 rear transition module supports the Netra CP3060 board and the software supported by those boards. Refer to the following documentation for software support information:

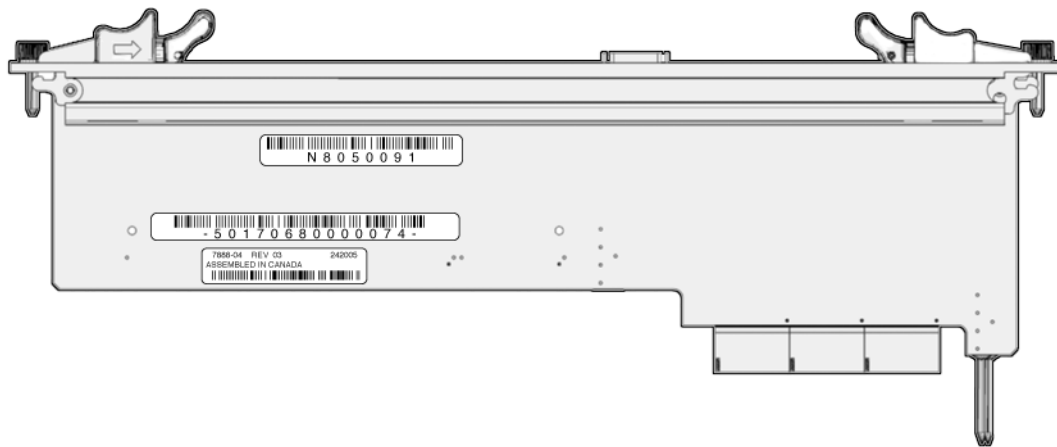
- *Netra CP3060 Board Product Notes* (819-4966)
- *Netra CP3060 Board User’s Guide* (819-4967)

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## 1.6 Part Number, Serial Number, and Revision Number

The Netra CP3060 rear transition module part number, serial number, and revision number are labeled on the module. For proper identification of the rear transition module, find the Sun Microsystems barcode labels on the module. The barcode labels provide the following information:

- Module part number (for example, 3753134), which is the first seven digits on the barcode label. The next six digits are the module serial number (for example, 000316).
- Product part number, including dash level (for example, 575-3134-03) and revision number (for example, REV 50).
- Module date code (for example, 17/2006, which represents the seventeenth week of the year 2006).
- Country of origin (for example, Assembled in Taiwan).



**FIGURE 1-3** Rear Transition Module Identification Labels

# Installation of the Netra CP3060 Rear Transition Module

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This chapter contains the procedures for installing and removing the Netra CP3060 rear transition module. The chapter contains the following sections:

- [Section 2.1, “Installation and Removal of the Rear Transition Module” on page 2-1](#)
- [Section 2.1.1, “Installing the Rear Transition Module” on page 2-2](#)
- [Section 2.2.1, “Removing the Rear Transition Module” on page 2-6](#)

---

## 2.1 Installation and Removal of the Rear Transition Module

The Netra CP3060 rear transition module can be installed into an ATCA shelf (chassis) with a midplane made for front and rear board installations ([FIGURE 2-1](#)). The module must be installed in the slot directly behind the Netra CP3060 board. These back-to-back slots have common pins to enable passing of signals.

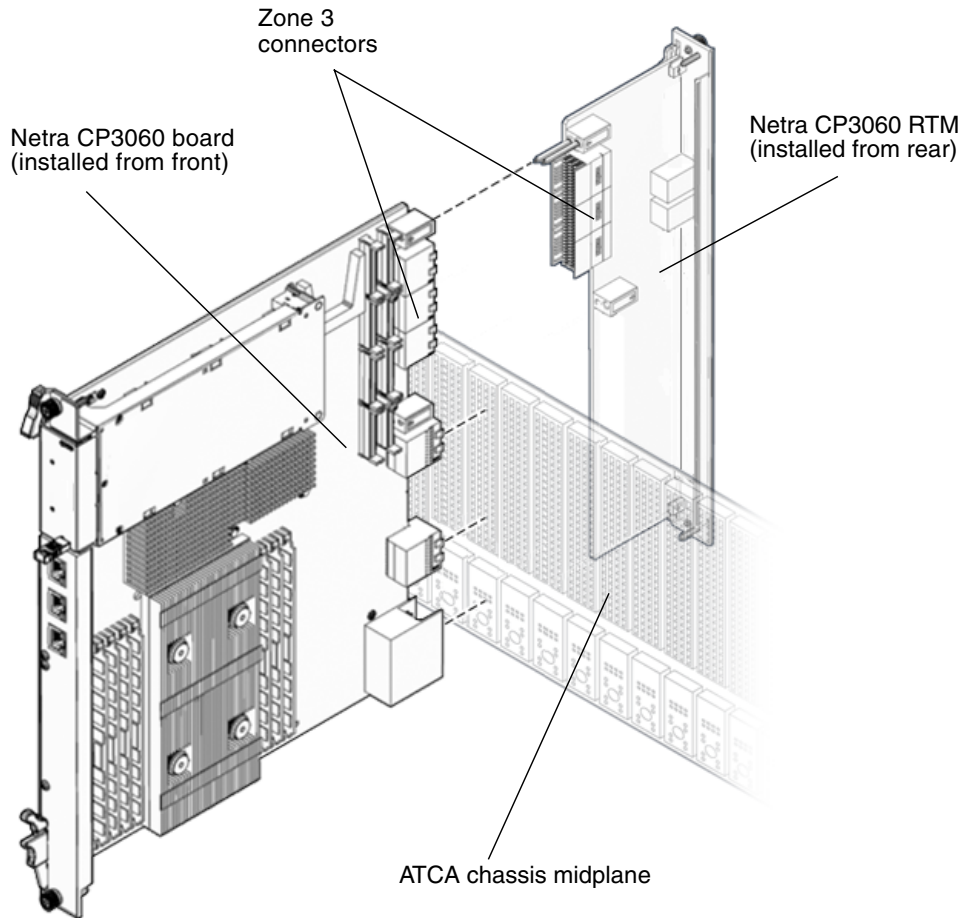
Before installing the Netra CP3060 rear transition module, verify the module’s part number to ensure that the correct RTM is being installed into the system. For information on identifying the Netra CP3060 rear transition module, see [Section 1.6, “Part Number, Serial Number, and Revision Number” on page 1-6](#).



---

**Caution** – Rear transition modules built for use with other node boards are not compatible with the Netra CP3060 boards. If installed, they might cause damage to themselves, the node board, and the midplane.

---



**FIGURE 2-1** Installing the Node Board and Rear Transition Module Into the ATCA Shelf

## 2.1.1 Installing the Rear Transition Module

The Netra CP3060 rear transition module must be used with a Netra CP3060 board for rear I/O access. The RTM enables access to the network, to a boot device, and to a console terminal.

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**Note** – The Netra CP3060 rear transition module and the corresponding Netra CP3060 board can be installed while the shelf is powered—however, start with a powered shelf only if you must do so. The RTM must be installed before the node board.

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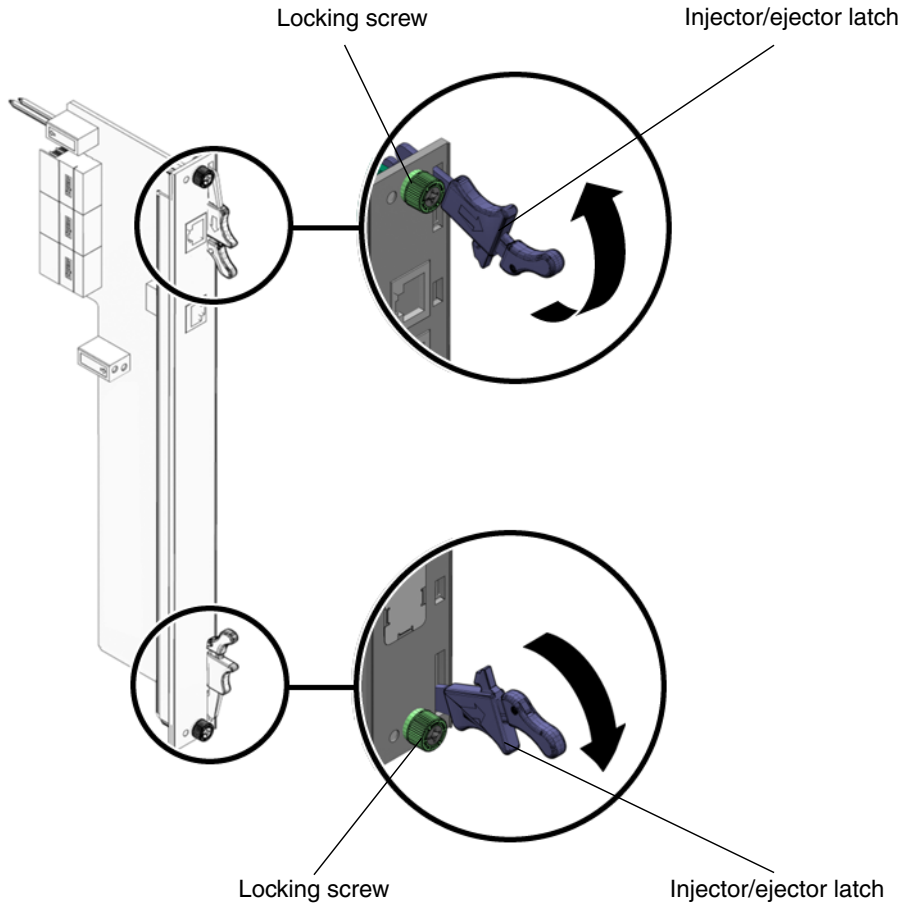
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**Caution** – Ensure that no node board is installed in front of the rear midplane slot. This precaution is very important if you are installing into a powered midplane.

---

1. **Verify that you have taken the necessary antistatic precautions.**
2. **Go to the rear of the system and choose an appropriate slot for the rear transition module.**

The RTM must be installed inline behind the accompanying node board. For example, if the accompanying node board is going to be installed in slot 3, its RTM must be installed at the back of the system in slot 3.
3. **Remove the slot filler panel from the selected node board slot, if necessary.**
4. **Prepare the module by loosening the locking screws and opening the injector/ejector latches at the top and bottom of the module (FIGURE 2-2).**



**FIGURE 2-2** Injector/Ejector Latch and Locking Screw

5. Carefully align the edges of the module with the guides in the appropriate slot. Look into the enclosure to verify correct alignment of the rails in the guides.
6. Taking care to keep the module aligned in the guides, slide the module in until the injector/ejector mechanisms engage.
7. Simultaneously push in the module and push the injector/ejector mechanisms inward to their closed positions to seat the midplane connectors.
8. Tighten the RTM locking screws to ensure that the RTM is secured into the shelf.

9. Install the node board into the front of the chassis (FIGURE 2-1) and push the board toward the midplane. Ensure that it is seated properly and that the connectors make good contact with the RTM.

For further details on installation of the board, refer to the *Netra CP3060 Board User's Guide* (819-4967).

10. Power on the system, if necessary.

Refer to your system manual for instructions on correctly powering on the system.

---

## 2.2 Connecting External I/O Cables

The External I/O cables can connect to both the Netra CP3060 board and the Netra CP3060 rear transition module except for the serial cable which connects to either board but not both. Information on connecting each of these cables follows:

- For Ethernet connections, category 5e or better network cable is required. One end of the Ethernet cable is connected to a suitable 10/100BASE-T switch and the other end to the Ethernet port on the Netra CP3060 rear transition module.

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**Note** – The Ethernet ports on the Netra CP3060 board front panel are also usable when the Netra CP3060 rear transition module is installed.

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- Use the bge device names shown in TABLE 2-1 when configuring the Netra CP3060 rear transition module Ethernet port.

TABLE 2-1 bge Device Names

Ethernet Ports	Solaris 10 OS
RTM Ethernet Port	e1000g0

An asynchronous serial I/O cable can be attached from serial communication devices to the RJ-45 serial port on the Netra CP3060 rear transition module or on the Netra CP3060 board. The serial port on either the Netra CP3060 rear transition module or Netra CP3060 board can be used, but both ports cannot be used at the same time.

Once a serial cable is connected, use the `tip` utility to establish a full-duplex terminal connection with the Solaris OS on the Netra CP3060 board. At the UNIX prompt in a command tool or shell tool, type:

```
# tip -9600 /dev/ttya
```

## 2.2.1 Removing the Rear Transition Module

Power to the RTM must be off before the module can be safely removed. Therefore, the attached node board, which provides power to the RTM, must be powered off before the module can be removed.

1. **Power off the attached node board either by turning off the system or by pulling the node board out of the midplane.**
2. **Loosen the locking screws on the RTM.**
3. **Unlatch the top and bottom latches and pull RTM out of the card slot.**
4. **If the card slot is to remain empty, install a filler panel in the slot.**
5. **Reinstall the node board, if necessary.**



# Hardware Descriptions and Connectors

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This chapter provides the specifications and connector pinouts for the Netra CP3060 rear transition module. The chapter contains the following sections:

- [Section 3.1, “Specifications for the Rear Transition Module” on page 3-1](#)
- [Section 3.2, “Hardware Descriptions” on page 3-2](#)
- [Section 3.3, “Connectors and Pin Assignments” on page 3-3](#)
- [Section 3.4, “Jumper Settings” on page 3-8](#)

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## 3.1 Specifications for the Rear Transition Module

This section provides mechanical, electrical, environmental, and other relevant specifications for the Netra CP3060 rear transition module.

### 3.1.1 Physical Dimensions

The Netra CP3060 rear transition module is a 322.25 mm x 70 board using an 8U x 6 high profile (HP) face plate. It complies with IEEE 1101.11 mechanical standards, as required by the PICMG 3.0 Revision 1.0 specification. The Netra CP3060 rear transition module uses alignment pins and blocks for keying to conform with the PICMG 3.0, Keying of ATCA Boards and Backplanes specification.

## 3.1.2 Power Requirements

Most components of the Netra CP3060 rear transition module are passive. However, some power from the midplane is provided to the I<sup>2</sup>C EEPROM.

## 3.1.3 Electrical Requirements

The Netra CP3060 rear transition module is powered through the Netra CP3060 board. The node board provides the following voltages: 3.3V/5V/+12V/-12V (total combined maximum voltage is 2.5 W).

Some power is provided from the shelf midplane to the I<sup>2</sup>C EEPROM. For more information, see the *Netra CP3060 User's Guide* (819-4967).

## 3.1.4 Environmental Specifications and Compliance

For details on the environmental specifications and compliance, see *Important Safety Information for Sun Hardware Systems* (816-7190) and the *Netra CP3060 Board User's Guide* (819-4967).

You can download and view these documents from the following web site:

<http://www.sun.com/documentation/>

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# 3.2 Hardware Descriptions

## 3.2.1 Ethernet Port

The Netra CP3060 rear transition module has one Ethernet RJ-45 connector on its faceplate. This port includes the following features:

- IEEE 802.3 compliant
- 10/100BASE-TX modes
- Autonegotiating

## 3.2.2 Asynchronous Serial Port

One serial port with a RJ-45 serial connector is included on the Netra CP3060 rear transition module I/O faceplate.

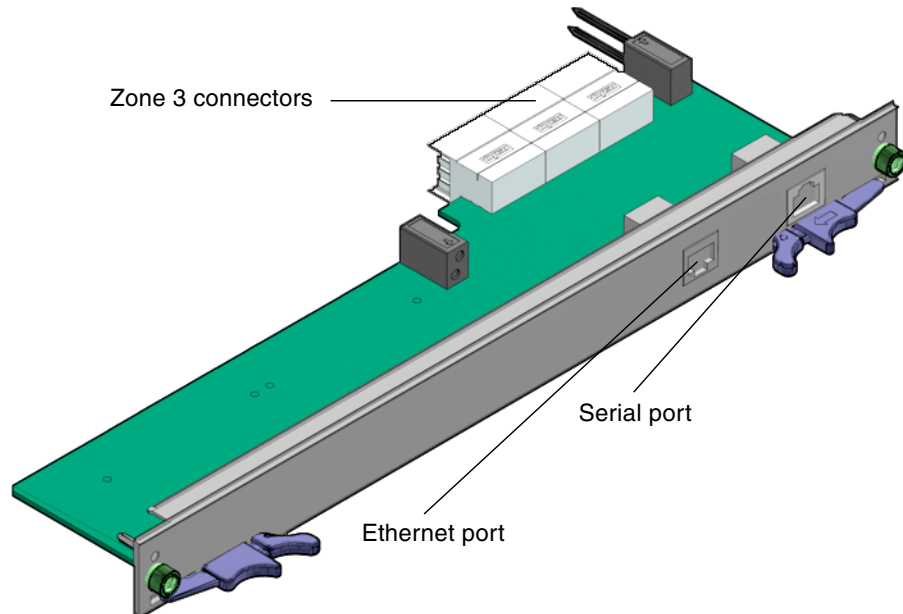
## 3.2.3 FRU ID EEPROM

A FRU ID EEPROM on the Netra CP3060 rear transition module provides FRU ID functionality as needed. The EEPROM contains both IPMI and SUN FRU information.

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## 3.3 Connectors and Pin Assignments

[FIGURE 3-1](#) shows the location of the connectors.



**FIGURE 3-1** Netra CP3060 Rear Transition Module Connectors

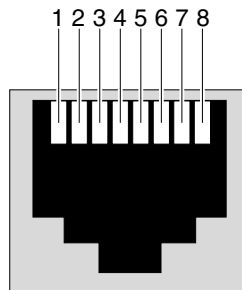
## 3.3.1 I/O Connectors

This section lists the pins and signal names of the I/O faceplate connectors on the Netra CP3060 rear transition module. The faceplate has the following connectors:

- One 10/100BASE-T Ethernet port (RJ-45)
- One serial port (RJ-45)

### 3.3.1.1 Ethernet Port

The Ethernet connector is an RJ-45 connector. The controller autonegotiates to either 10BASE-T or 100BASE-T. [FIGURE 3-2](#) shows an Ethernet RJ-45 connector.



**FIGURE 3-2** Ethernet RJ-45 Connector

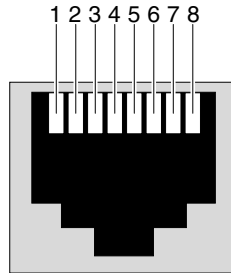
[TABLE 3-1](#) gives the pin assignments for the Ethernet ports.

**TABLE 3-1** Ethernet Port Connector Pin Assignments

Pin	Signal Name	Pin	Signal Name
1	TXD+	5	Not Used
2	TXD-	6	RXD-
3	RXD+	7	Not Used
4	Not Used	8	Not Used

### 3.3.1.2 Serial Port

The serial port connector is an RJ-45 connector. [FIGURE 3-3](#) shows a serial port connector.



**FIGURE 3-3** Serial Port Connector

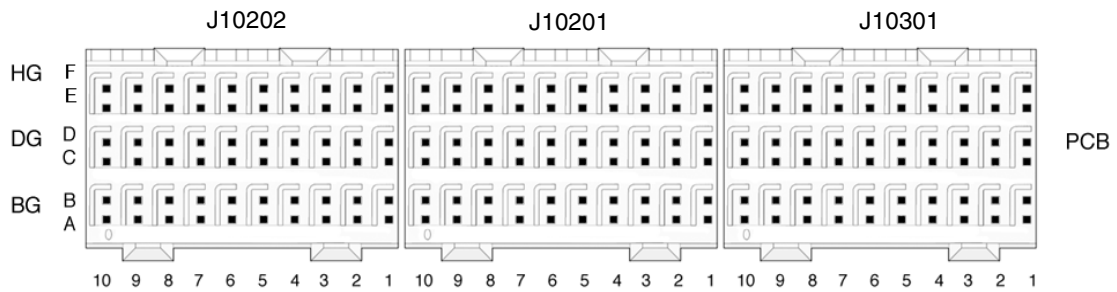
[TABLE 3-2](#) gives the serial port connector pin assignments.

**TABLE 3-2** Serial Port Connector Pin Assignments

Pin	Signal Name	Pin	Signal Name
1	RTS	5	DCD
2	DTR	6	RXD
3	TXD	7	DSR
4	GND	8	CTS

### 3.3.2 Zone 3 Connectors

All the I/O connections for rear access are provided by the Netra node board through the Zone 3 connectors. The Zone 3 connectors are J10202, J10201, and J10301. The Zone 3 connectors are shown in [FIGURE 3-4](#).



**FIGURE 3-4** Zone 3 Connectors

[TABLE 3-3](#) lists the Zone 3, J10202 connector pinouts.

**TABLE 3-3** Zone 3 J10202 Connector Pin Assignments

Row	A	B	BG	C	D	DG	E	F	FG
1	PCIE_Tx7_p	PCIE_Tx7_n		PCIE_Rx7_p	PCIE_Rx7_n		n/c	n/c	GND
2	PCIE_Tx6_p	PCIE_Tx6_n		PCIE_Rx6_p	PCIE_Rx6_n		n/c	n/c	
3	PCIE_Tx5_p	PCIE_Tx5_n		PCIE_Rx5_p	PCIE_Rx5_n	GND	n/c	n/c	
4	PCIE_Tx4_p	PCIE_Tx4_n		PCIE_Rx4_p	PCIE_Rx4_n		n/c	n/c	
5	PCIE_Tx3_p	PCIE_Tx3_n		PCIE_Rx3_p	PCIE_Rx3_n		n/c	n/c	
6	PCIE_Tx2_p	PCIE_Tx2_n		PCIE_Rx2_p	PCIE_Rx2_n		n/c	n/c	GND
7	PCIE_Tx1_p	PCIE_Tx1_n		PCIE_Rx1_p	PCIE_Rx1_n		n/c	n/c	
8	PCIE_Tx0_p	PCIE_Tx0_n		PCIE_Rx0_p	PCIE_Rx0_n	GND	n/c	n/c	
9	n/c	n/c		n/c	n/c		n/c	n/c	
10	n/c	n/c		n/c	n/c		n/c	n/c	

TABLE 3-4 lists the Zone 3, J10201 connector pinouts.

**TABLE 3-4** Zone 3 J10201 Connector Pin Assignments

Row	A	B	BG	C	D	DG	E	F	FG
1	AMC0_IO1	AMC0_IO2	GND	AMC0_IO3	AMC0_IO4	GND	AMC0_IO5	AMC0_IO6	GND
2	AMC0_IO7	AMC0_IO8	GND	AMC0_IO9	AMC0_IO10	GND	AMC0_IO11	AMC0_IO12	GND
3	AMC0_IO24	AMC0_IO23	GND	AMC0_IO22	AMC0_IO21	GND	AMC0_IO20	AMC0_IO19	GND
4	AMC0_IO18	AMC0_IO17	GND	AMC0_IO16	AMC0_IO15	GND	AMC0_IO14	AMC0_IO13	GND
5	AMC0_IO36	AMC0_IO35	GND	AMC0_IO34	AMC0_IO33	GND	AMC0_IO32	AMC0_IO31	GND
6	AMC0_IO30	AMC0_IO29	GND	AMC0_IO28	AMC0_IO27	GND	AMC0_IO26	AMC0_IO25	GND
7	n/c	n/c	GND	n/c	n/c	GND	n/c	n/c	GND
8	n/c	n/c	GND	n/c	n/c	GND	n/c	n/c	GND
9	n/c	n/c	GND	n/c	n/c	GND	n/c	n/c	GND
10	n/c	n/c	GND	n/c	n/c	GND	n/c	n/c	GND

TABLE 3-5 lists the Zone 3, J10301 connector pinouts.

**TABLE 3-5** Zone 3 J10301 Connector Pin Assignments

Row A	B	BG	C	D	DG	E	F	FG	
1	n/c	n/c	n/c	n/c		n/c	-12V		
2	n/c	n/c	5V	n/c	n/c	5V	+12V	+12V	5V
3	RTM_SER1_ CTS	RTM_SER1_ DTR	3.3V	RTM_SER1_ DCD	RTM_SER1_ DSR	3.3V	RTM_SER1_ RXD	RTM_SER1_ TXD	3.3V
4	RTM_SER1_ RTS	n/c	3.3V	n/c	n/c	3.3V	n/c	n/c	3.3V
5	n/c	n/c	5V	n/c	n/c	5V	n/c	n/c	5V
6	RTM_SATA1_ RX_P	RTM_SATA1_ RX_N	GND	RTM_ETH_ LED_1	RTM_ETH_ LED_2	GND	RTM_SATA1_ TX_N	RTM_SATA1_ TX_P	GND
7	RTM_PRSNT_ N	3V_STBY	GND	RTM_I2C_ SDA	RTM_I2C_ SCL	GND	3V_STBY	3V_STBY	GND
8	RTM_SATA2_ RX_P	RTM_SATA2_ RX_N	GND	RTM_ETH_ LED3	RTM_ETH_ LED4	GND	RTM_SATA2_ TX_N	RTM_SATA2_ TX_P	GND
9	RTM_ETH_ TRD_3P	RTM_ETH_ TRD_3N	GND	2.5V	2.5V	GND	RTM_ETH_ TRD_2P	RTM_ETH_ TRD_2N	GND
10	RTM_ETH_ TRD_1P	RTM_ETH_ TRD_1N	GND	2.5V	2.5V	GND	RTM_ETH_ TRD_0P	RTM_ETH_ TRD_0N	GND

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## 3.4 Jumper Settings

There are two jumper positions on the Netra CP3060 rear transition module that are configured in the factory and should not be changed. [TABLE 3-6](#) lists the factory settings and purpose.

**TABLE 3-6** Jumper Settings

<b>Jumper</b>	<b>Factory Setting</b>	<b>Purpose</b>
J0802	Shorted – jumper installed	Indicates that the RTM is present.
J0803	Open – no jumper	Protects the SUN FRU ID data in the upper 2 Kbytes of the EEPROM from being overwritten.



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