Netra™ CT 820 Server Installation Guide

Adobe PostScript

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Preface

The *Netra CT 820 Server Installation Guide* describes how to perform the initial installation of the Netra™ CT 820 server. Upon completion of the procedures in this document, your server will be functional.

The intended reader of this manual is an experienced system administrator who has experience installing hardware systems and components and has used the Solaris™ operating environment (Solaris OE). The reader should be comfortable with LAN fundamentals and with networking concepts in general.

Before performing the procedures described this book, you should review the information in the *Netra CT 820 Server Product Overview*.

Safety and Compliance

All Netra CT 820 servers are shipped with the *Netra CT 820 Server Safety and Compliance Manual*, which specifies the environmental and electrical safety requirements for the product and contains compliance certification for various countries. Review the information in the *Netra CT 820 Server Safety and Compliance Manual* before proceeding with the instructions in this document.

How This Book Is Organized

Chapter 1 presents the documentation overview for this document.

Chapter 2 describes how to mount the chassis into a rack and connect the DC power to the chassis.

describes how to install additional cards into the Netra CT 820 server.

describes how to connect the necessary cables to the Netra CT 820 server.

describes how to power the Netra CT 820 server on and off.

describes how to install the Netra CT 820 server software.

provides the system specifications.

Using UNIX Commands

This document contains only limited information on basic UNIX® commands and procedures such as shutting down the system, booting the system, and configuring devices.

Refer to one or more of the following for this information:

- *Solaris Handbook for Sun Peripherals*
- AnswerBook2™ online documentation for the Solaris OE
- Other software documentation that you received with your system

Shell Prompts

Shell	Prompt
C shell	*machine_name*%
C shell superuser	*machine_name*#
Bourne shell and Korn shell	$
Bourne shell and Korn shell superuser	#

Typographic Conventions

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

Related Documentation

The Netra CT 820 server documentation is listed in the following table:

Title	Part Number
Netra CT 820 Server Product Overview	817-2643
Netra CT 820 Server Installation Guide	817-2641
Netra CT 820 Server Service Manual	817-2642
Netra CT 820 Server System Administration Guide	817-2647
Netra CT 820 Server Safety and Compliance Manual	817-2645
Netra CT 820 Server Product Note	817-2646

Refer to documentation on the following software for additional information: the Solaris OE, the ChorusOS™ environment, and the Netra High Availability (HA) Suite.

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`http://www.sun.com/documentation`

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`docfeedback@sun.com`

Please include the part number (817-2641-11) of your document in the subject line of your email.

Installation Overview

This chapter provides an overview of the tasks to install the Netra CT 820 server. Detailed instructions for each task are provided on the pages specified.

Task	Detailed Instructions
Unpack your system.	Page 3
Mount the chassis in a rack.	Page 6
Make the DC power connections.	Page 9
Install additional cards.	Page 11
Connect the cables to the rear transition card for the distributed management cards.	Page 17
Connect the cables to the rear transition card for the switching fabric boards.	Page 23
Connect the cables to additional rear transition cards.	Page 28
Power on the server.	Page 48
Install the server software.	Page 53

Installing the Chassis

This chapter describes the steps necessary to install and set up the Netra CT 820 server. It includes instructions on unpacking, rackmounting, and making power connections.

Tools Required

You will need the following tools to install, remove, or replace most of the components in a Netra CT 820 server:

- No. 1 Phillips screwdriver
- No. 2 Phillips screwdriver
- 1/8-inch flat-blade screwdriver
- No. 15 socket/driver

Unpacking the System

Check the shipping carton for damage. If the shipping carton and contents are damaged, notify the carrier and Sun Microsystems for an insurance settlement. Retain the shipping carton and packing material for inspection by the carrier. Obtain authorization before returning any product to Sun Microsystems. Contact your local Sun Microsystems sales representative for more information.

Caution – Sun Microsystems has designed special packing material to protect the system during shipping. It is critical that the packing material be saved after unpacking the enclosure. Shipping the unit without the original packing material might void the warranty. Replacement packing material can be purchased from Sun Microsystems.

Caution – This system contains board-level components that must be protected from static discharge and physical shock. Wear a wrist strap grounded through one of the system's ESD ground jacks when handling system components.

Shipping Contents

The Netra CT 820 server is shipped fully assembled and tested. The baseline configuration and most common options are listed below. Your system might differ from the system described in this manual.

Basic Configuration

- High capacity 12U, 19-inch rackmount enclosure
  - 21–slot PICMG 2.16 R1.0 packet switching midplane, with slots for 18 node boards, 2 switching fabric boards, and 2 distributed management cards
  - DC power input panel
- Eight DC power supplies
- Two distributed management cards and a rear transition card
- Two switching fabric boards and rear transition cards
- One Netra CP2300 board (node board) and rear transition card
- Three fan trays with three blowers each
- Air intake grill with filter
- 19–inch rackmount kit
- Filler panels covering empty node board slots
- Safety and compliance literature

Fan trays (3)

Node boards
(slots 3-20)

Distributed
management
cards (slots
1A and 1B)

Switching
fabric boards
(slots 2 and 21)

ESD ground jack

Removable grill
with filter

Power supplies (8)
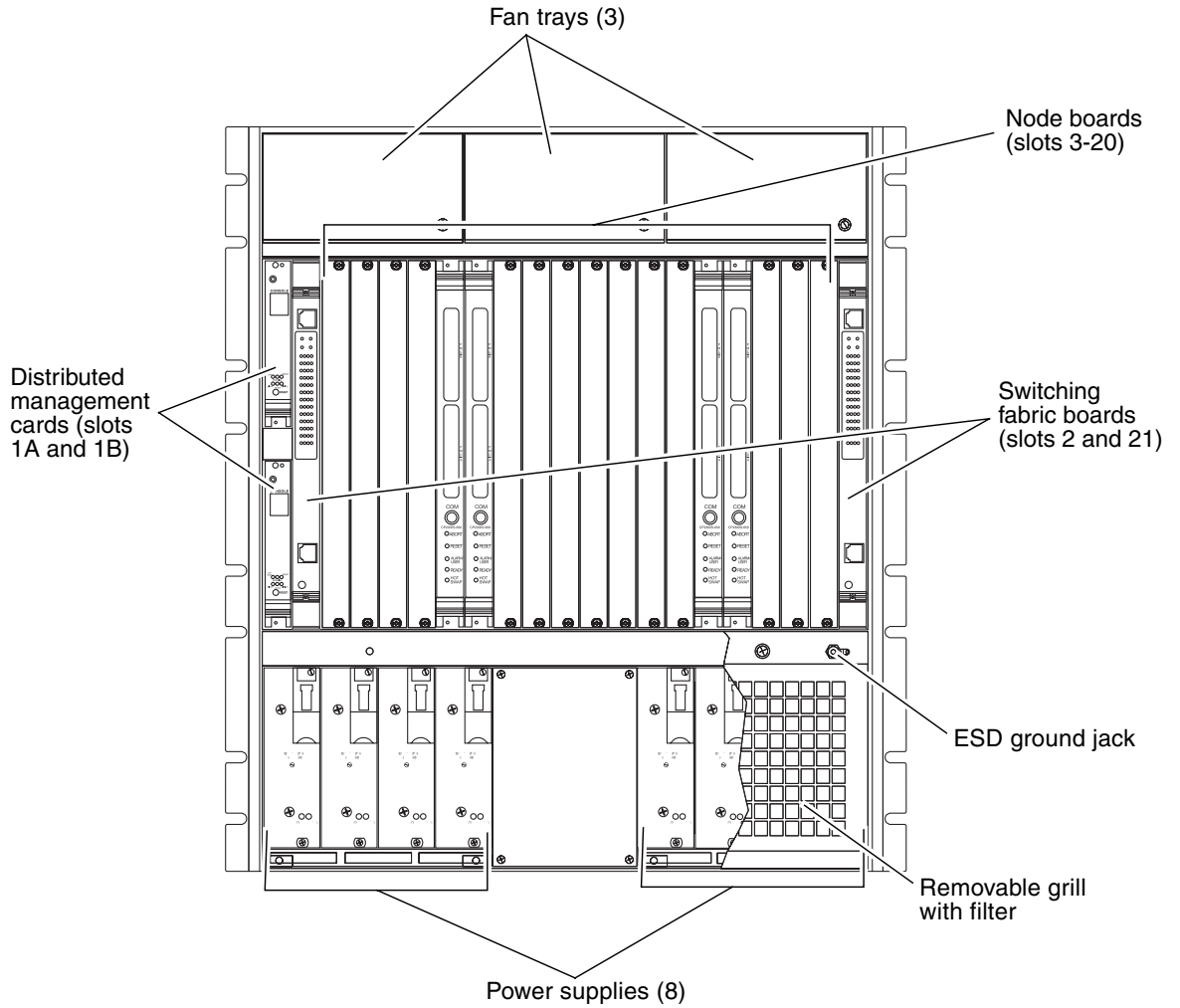
FIGURE 2-1 Netra CT 820 Server (Front)
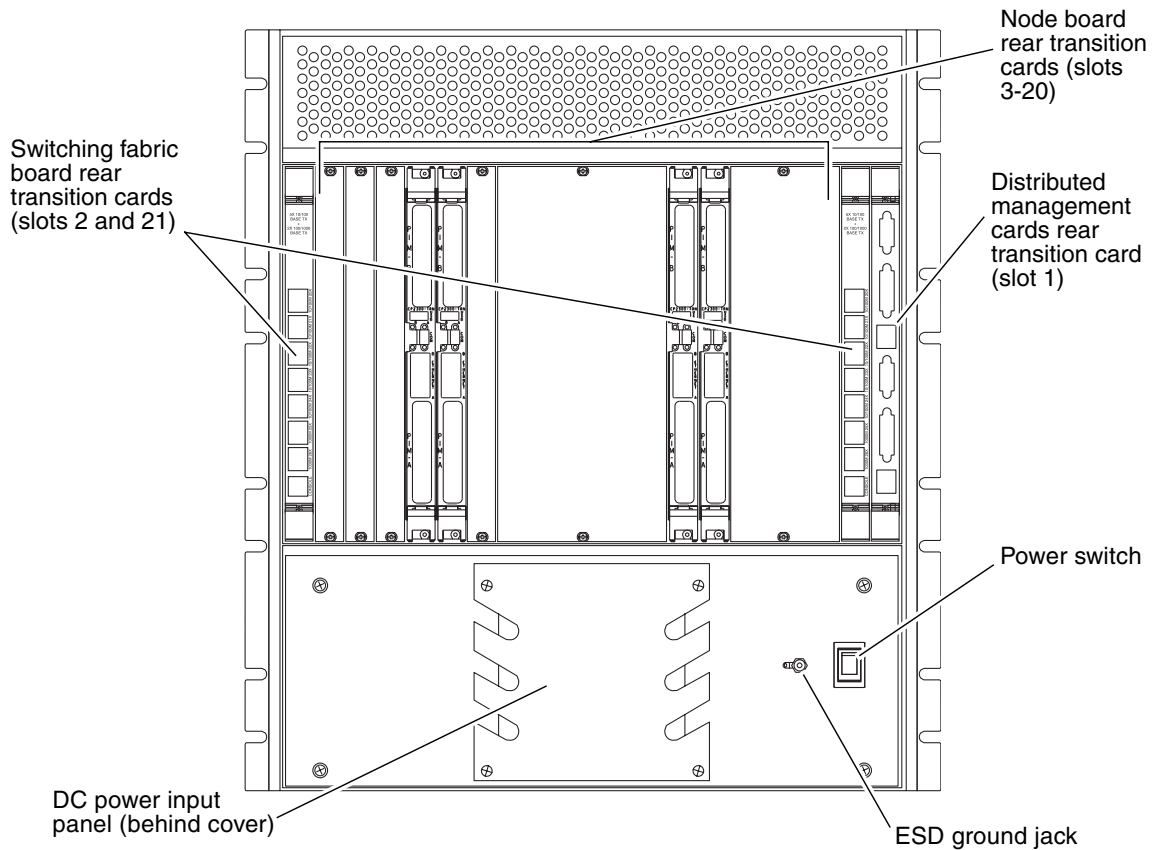
FIGURE 2-2   Netra CT 820 Server (Rear)

Installing the System

Note – ESD ground jacks are located at the front and rear of the system. To protect system components from static shock when handling them, wear a wrist strap plugged into the most convenient ESD ground jack. See FIGURE 2-1 and FIGURE 2-2 for ESD ground jack locations.

Before installing and using the Netra CT 820 server, ensure that all cover panels are in place and that all component slots are populated with a component or covered with a blank filler panel.

Caution – Failure to cover open slots could cause overheating of power supplies, boards, or other components, and could damage the system.

The Netra CT 820 server fits standard 19-inch EIA racks. Mounting flanges are attached to the front of the enclosure to facilitate front mounting. The flanges can be repositioned for center-mounting the enclosure.

Caution – It takes more than one person to safely lift a Netra CT 820 server. Get assistance and use proper lifting techniques when moving the system. To prevent damage to the components, never use component handles or cables to lift or move the entire system.

This system is intended for stationary mounting in a rack designed to meet the physical strength requirements of NEBS GR-63-CORE and NEBS GR 487. Be sure to mount the system in a way that ensures even weight distribution in the rack. Uneven mechanical loading can result in a hazardous condition. Secure all mounting bolts when installing the enclosure to the frame or rack.

The maximum ambient temperature at which a factory-configured Netra CT 820 server should operate is 55˚C (131˚F) at 5% to 85% relative humidity (see Appendix A for details). The operating ambient temperature inside the enclosure might be greater than the room's ambient temperature if the system is installed with its ventilation intakes near another system's exhaust or in a closed or multiunit rack assembly. Install the system in an environment compatible with this recommended maximum ambient temperature. Due to the modular design of the system, components might be installed that alter the system's operating requirements. Please refer to product-specific documentation for the maximum recommended ambient temperature for individual components.

Safe operation of the Netra CT 820 server is dependent on the 250LFM/slot of forced-air cooling provided by the system's cooling fans. Be sure to install the system in an environment that does not compromise this recommended minimum airflow requirement.

Rackmounting the System

1. **Disconnect all power sources and external connections and cables prior to installing or removing the system from a rack.**

2. **Select a position in the rack that does not interfere with other equipment and that provides safe weight distribution.**

3. **Ensure that the area around the Netra CT 820 server's intake and exhaust vents are clear of obstructions for efficient cooling.**

   The intake should be away from another system's exhaust. FIGURE 2-3 shows the proper airflow for the Netra CT 820 server.

Rear of chassis

Front of chassis
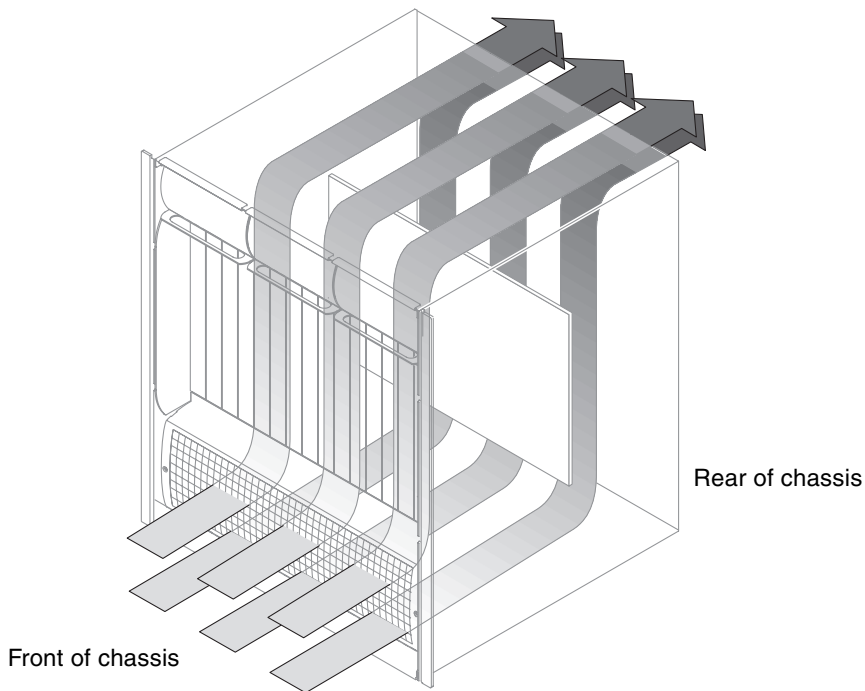
FIGURE 2-3   Airflow

4. **Secure the mounting flanges to the front or middle of the enclosure.**

5. **Place the enclosure in its intended location and line up the mounting holes on the Netra CT 820 server's flanges with the rack's mounting holes.**

6. **Bolt the enclosure to the rack.**

   Rack hardware is not included.

Providing Power

The power input panel configuration must match the voltage input configuration of the power supplies intended for use with the system.

The Netra CT 820 server must be connected to properly rated supplies. For permanently connected equipment, a readily accessible disconnect device should be incorporated in the building wiring installation. Circuit breakers should be rated to handle the current indicated in the input specifications listed on the product identification label at the rear of the Netra CT 820 server.

Refer to the *Netra CT 820 Server Product Overview* for more information about providing power to the Netra CT 820 server.

Caution – Always ensure that the system is properly grounded before applying power. When the system is plugged in, energy hazards are present on the midplane. Do not reach into the enclosure.

Connecting DC Power

1. **Verify that the power switch is in the Off (O) position.**

   See FIGURE 2-2 for the power switch location.

2. **Remove the service panel cover from the DC terminal block.**

3. **Attach the cables to the A and B terminal posts on the DC power input panel (**FIGURE 2-4**).**

   - Use No. 10 ring terminals (copper conductors only) for the -48V and Return terminal posts.
   - Use 1/4-inch ring terminals for the chassis ground posts.

   Conductors should be of adequate size to accommodate the maximum power output of the supplies (250W multiplied by the number of supplies powered from each feed), plus 20% for supply inefficiency. For each 2N configuration, each feed powers four power supplies, which equates to 1,000W per feed (plus 20% for supply inefficiency). To provide DC input power redundancy, connect both the A and B inputs to different redundant power sources. Refer to the *Netra CT 820 Server Product Overview* for more information about DC input power redundancy.

"A" terminals: -48V   Return   Chassis ground

A

-48VDC   RTN

B   GND

Power switch

"B" terminals: -48V   Return   Chassis ground
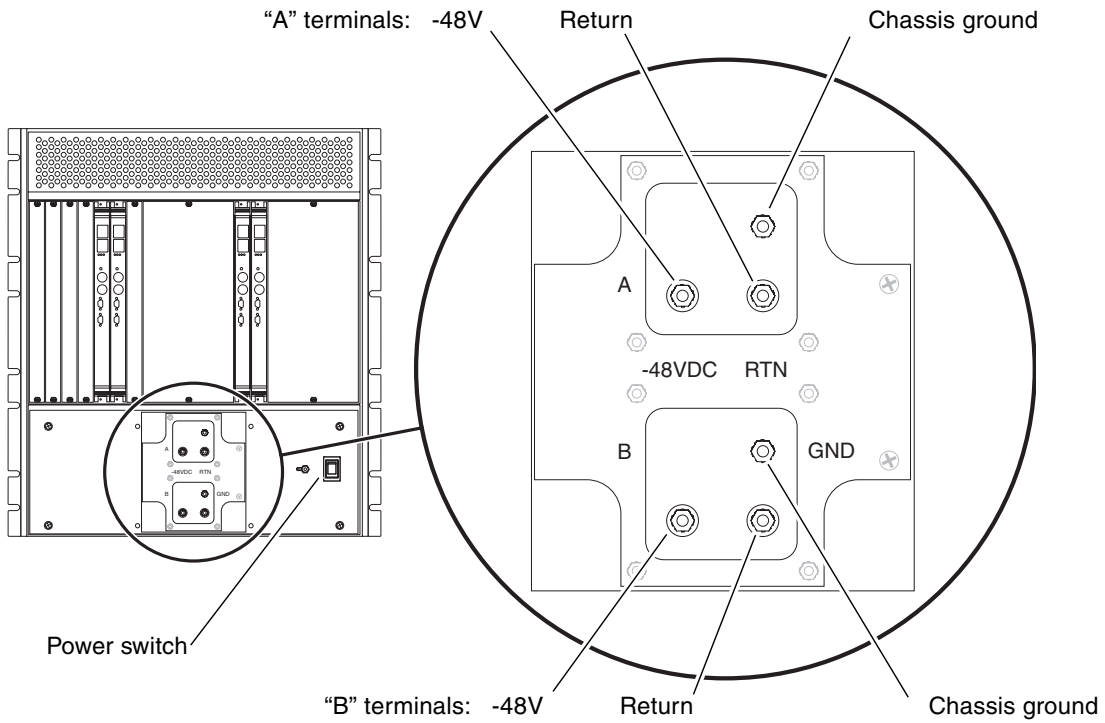
FIGURE 2-4   DC Power Input Panel

4. **Replace the protective cover on the terminal block.**

5. **Complete the connection to the DC power source.**

Installing Additional Cards Into the Netra CT 820 Server

Note – The instructions in this chapter are for installing additional cards into a server as part of the overall installation process where the server is powered *off*. If you are installing additional cards into a server that is powered *on*, follow the instructions in the *Netra CT 820 Server Service Manual*.

Every Netra CT 820 server comes with the following cards factory installed:

■ Two distributed management cards and one rear transition card
■ Two switching fabric boards and rear transition cards
■ One Netra CP2300 board and rear transition card

If you have any additional boards to install in the server, such as the Netra CP2300 boards, follow the instructions in this chapter. If you do not have any additional boards to install, go to Chapter 4.

Antistatic Precautions

Before you can install any additional cards into your system, you must first take the necessary antistatic precautions.

ESD ground jacks are located at the front and rear of the system. To protect system components from static shock when handling them, wear a wrist strap plugged into the most convenient ESD jack. Refer to FIGURE 2-1 and FIGURE 2-2 for ESD ground jack locations.

Installing Additional Cards in the Netra CT 820 Server

The Netra CT 820 server is available only as a rear-access server, so every card installed in the front of the server should also have an accompanying rear transition card installed in the same slot number at the rear of the server.

When installing additional cards in a Netra CT 820 server, you should first install the rear transition card at the rear of the server, then install the front card in the front of the server. Even though you will be installing the rear transition card first, it might be useful to look at the front of the server and locate the slot number where you will be installing the cards, then go to the back of the server and install the rear transition card in that particular slot. FIGURE 3-1 shows the location of the node slots from the front of the Netra CT 820 server.

When fully loading the system with either additional cards or filler panels, fill slot 11 first, then work outward, filling each odd-numbered slot, alternating from left-to-right (slot 11 first, then slot 9, then slot 13, and so on). Once all of the odd-numbered slots have been filled, begin filling each even-numbered slot, starting with slot 10 and alternating from left-to-right (slot 10 first, then slot 8, then slot 12, and so on).
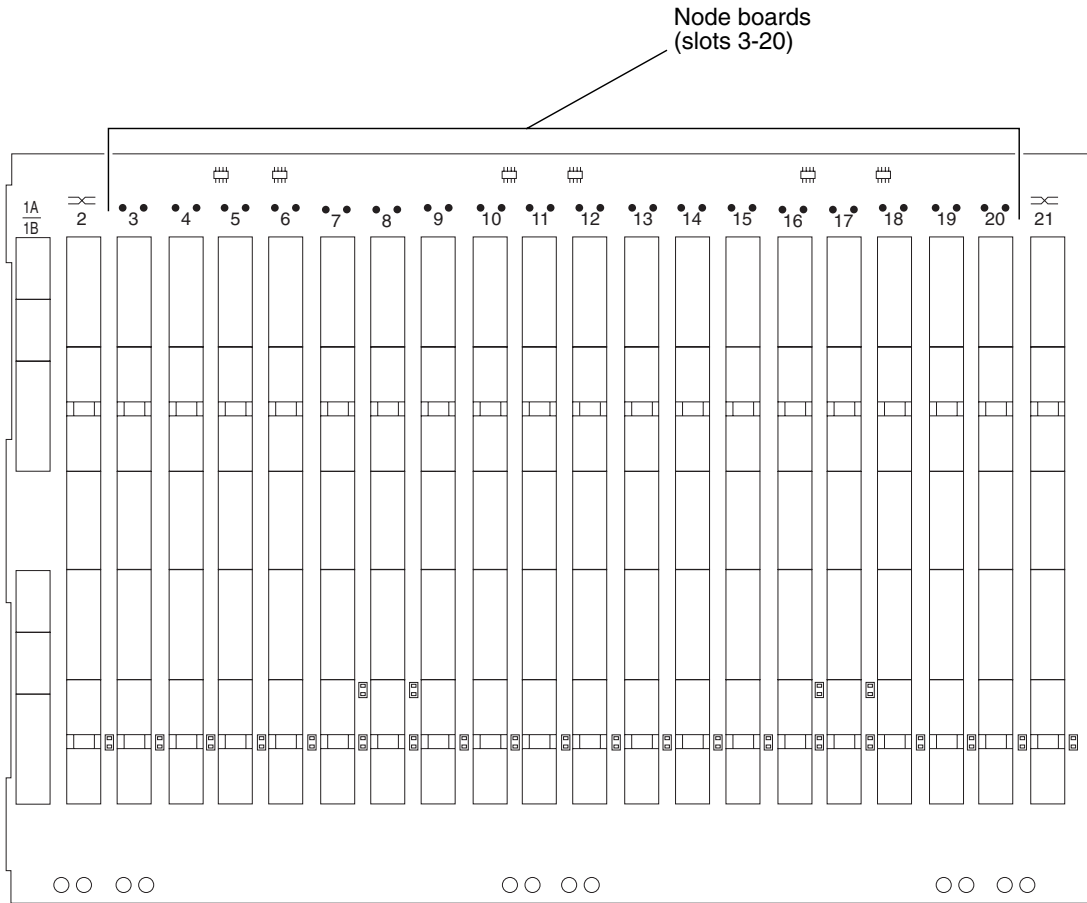
FIGURE 3-1   Location of Node Slots

Caution – An energy and cooling hazard is present if any slots are left uncovered. If you remove a card from a slot, you must either fill the slot with a replacement card or cover it with a filler panel.

Ethernet Networking on the Netra CP2300 Board

Before installing Netra CP2300 boards into the Netra CT 820 server, you must decide whether you want the Ethernet signals routed through the Netra CP2300 board rear transition cards or through the switching fabric board rear transition cards.

Position 0 of the SW503 DIP switch on the Netra CP2300 board controls the Ethernet networking on the Netra CP2300 board and rear transition card. By default, position 0 is set to Off, which means that the board is set for cPSB network mode and the Netra CP2300 rear transition card's RJ45 Ethernet ports are disabled. Ethernet signals are routed to the switching fabric board rear transition card.

If you want Ethernet signals routed through the Netra CP2300 board rear transition card and *not* through the switching fabric board rear transition card, set Position 0 of SW503 to On, so that you can use the RJ45 Ethernet connectors on the Netra CP2300 board transition card. Refer to FIGURE 3-2 for the location and settings of Position 0 on the SW503 DIP switch.
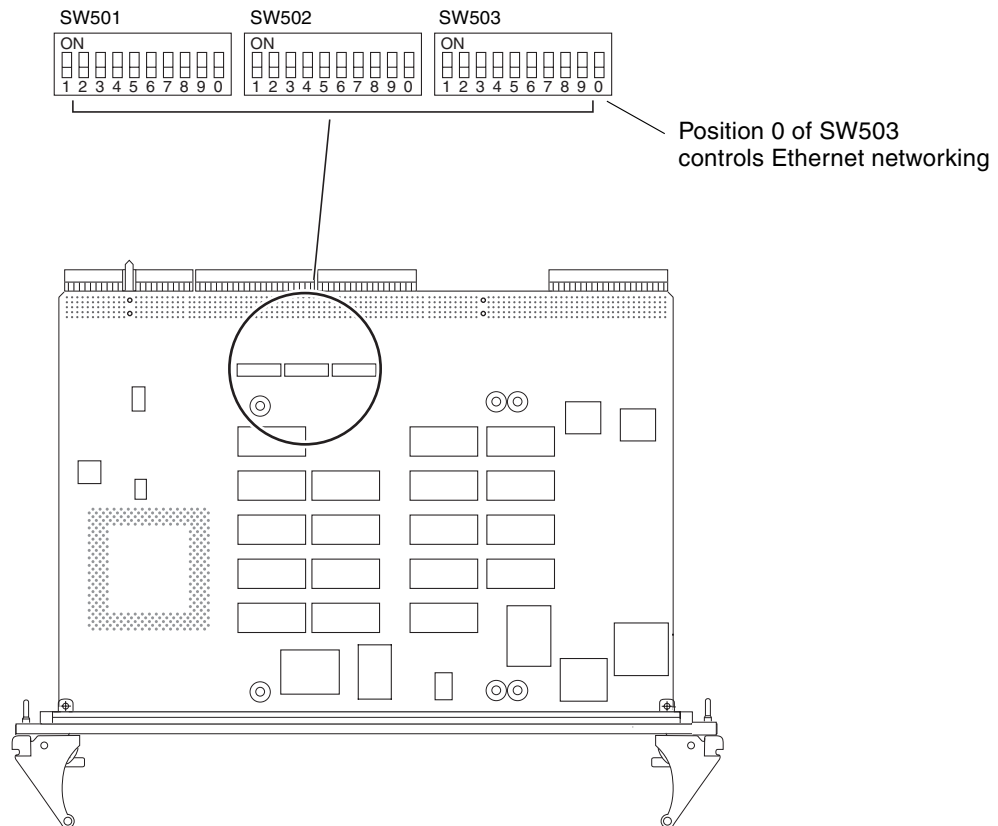
FIGURE 3-2   Location and Default Settings of the SW503 DIP Switch

Installing Rear Transition Cards

1. **Verify that you've taken the necessary antistatic precautions.**

   See "Antistatic Precautions" on page 11 for those instructions.

2. **Go to the rear of the system and remove the slot filler panel, if necessary.**

3. **Get the rear transition card from the ship kit.**

4. **Perform any card-specific hardware procedures, if necessary.**

   Refer to the documentation that you received with the card for more information.

5. **Choose an appropriate slot for the rear transition card.**

   Rear transition cards must be installed inline behind the accompanying front board. For example, if the accompanying front board is going to be installed in slot 3, its rear transition card must be installed at the back of the system in slot 3.

6. **Prepare the card by opening the injector/ejector mechanisms (**FIGURE 3-3**).**
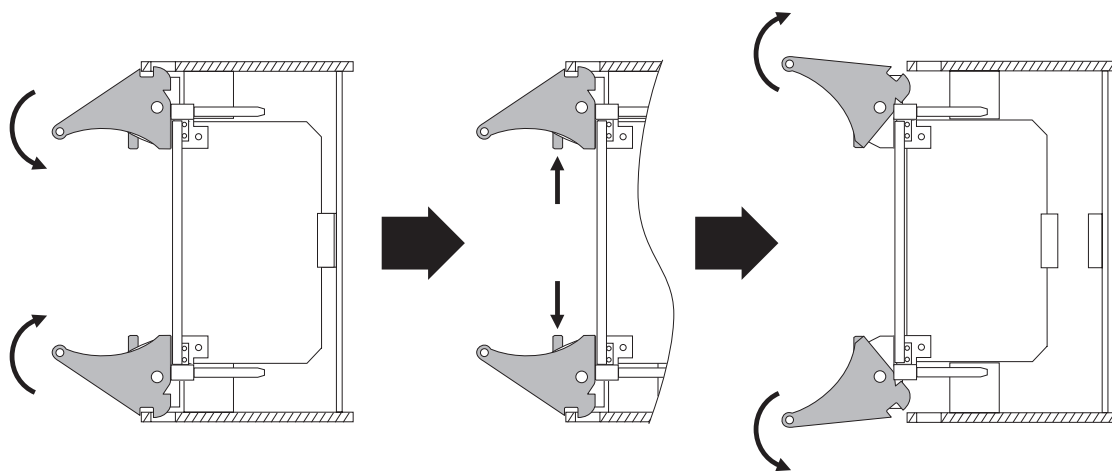
FIGURE 3-3 Injector/Ejector Operation (Board-Level Components)

7. **Connect any internal system cabling, such as cabling to an IDE device, to the appropriate headers on the rear transition card.**

   Route the cabling so that it will not become snagged or kinked when the card is inserted.

8. **Carefully align the edges of the card with the card guides in the appropriate slot.**

   It might be helpful to look into the enclosure to verify correct alignment of the rails in the guides.

9. **Taking care to keep the board aligned in the guides, slide the card in until the injector/ejector mechanisms engage the retention bars.**

10. **Simultaneously push in the board and rotate the injector/ejector mechanisms inward to their closed positions to seat the midplane connectors.**

Installing Node Cards

1. **Go to the front of the system and locate the card slot where you installed the rear transition card at the rear of the system.**

2. **Remove the filler panel, if necessary.**

   The filler panel is secured to the card cage using two screws, one at the top of the filler panel, the other at the bottom. Store the filler panel in a safe place; you might need to use it again if you have to remove a card for an extended period of time.

3. **Get the node card that you want to install in the Netra CT 820 server from the ship kit.**

4. **Perform any card-specific hardware procedures, if necessary.**

   Refer to the documentation that you received with the card for more information.

5. **Prepare the board by opening the injector/ejector mechanisms (FIGURE 3-3).**

6. **Carefully align the edges of the board with the card guides in the appropriate slot.**

   It might be helpful to look into the enclosure to verify correct alignment of the rails in the guides.

7. **Taking care to keep the board aligned in the guides, slide the board in until the injector/ejector mechanisms engage the retention bars.**

8. **Simultaneously push in the board and rotate the injector/ejector mechanisms inward to their closed positions to seat the midplane connectors.**

9. **Tighten the board retention screws to ensure the board is secured into the chassis.**

Cabling the System

This chapter gives instructions for connecting cables to the cards. It is divided into the following sections:

Connecting Cables to the Distributed Management Cards

The Netra CT 820 server is available only as a rear-access server, so most of the cabling for the distributed management card will be to the rear transition card at the rear of the server. The only exception would be the console port on the distributed management card at the front of the server. You can administer the Netra CT 820 server either from the front of the server, through the console port on the distributed management card, or from the rear of the server, through one of the two console ports on the rear transition card.

Caution – Do *not* attempt to administer the Netra CT 820 server through the console ports on both the distributed management card and the rear transition card at the same time. No mechanism is provided to disable simultaneous input from the front and rear cards, so attempts to input data from both ports will place the boards in an unknown state.

- If you are connecting a cable to the console port on the distributed management card at the front of the server, go to "Ports on the Distributed Management Card" on page 18.

- If you are connecting cables to the ports on the rear transition card at the rear of the server, go to "Ports on the Rear Transition Card for the Distributed Management Card" on page 20.

Ports on the Distributed Management Card

FIGURE 4-1 shows the location of the console port on the distributed management card. The pinouts for the console port on the distributed management card are given in "Console Port" on page 19.
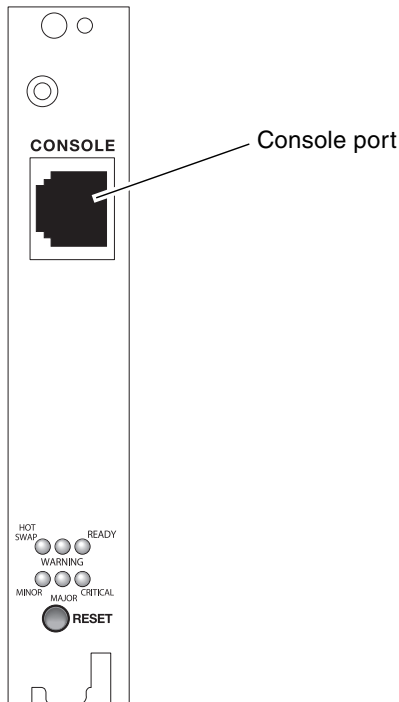
FIGURE 4-1 Location of the Console Port on the Distributed Management Card

Console Port

The console port on the distributed management card uses a standard RJ-45 connector.
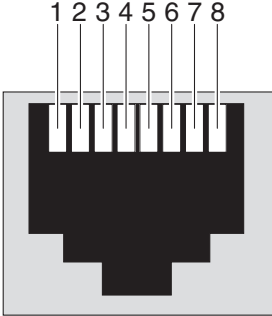
FIGURE 4-2   RJ-45 Console Port Diagram

TABLE 4-1   Console Port Pinouts

Pin No.	Description	Pin No.	Description
1	RTS	5	DCD
2	DTR	6	RXD
3	TXD	7	DSR
4	GND	8	CTS

Ports on the Rear Transition Card for the Distributed Management Card

FIGURE 4-3 shows the ports on the rear transition card for the distributed management cards. Note that a single rear transition card gives ports for both of the distributed management cards installed in the front of the server (1A and 1B).
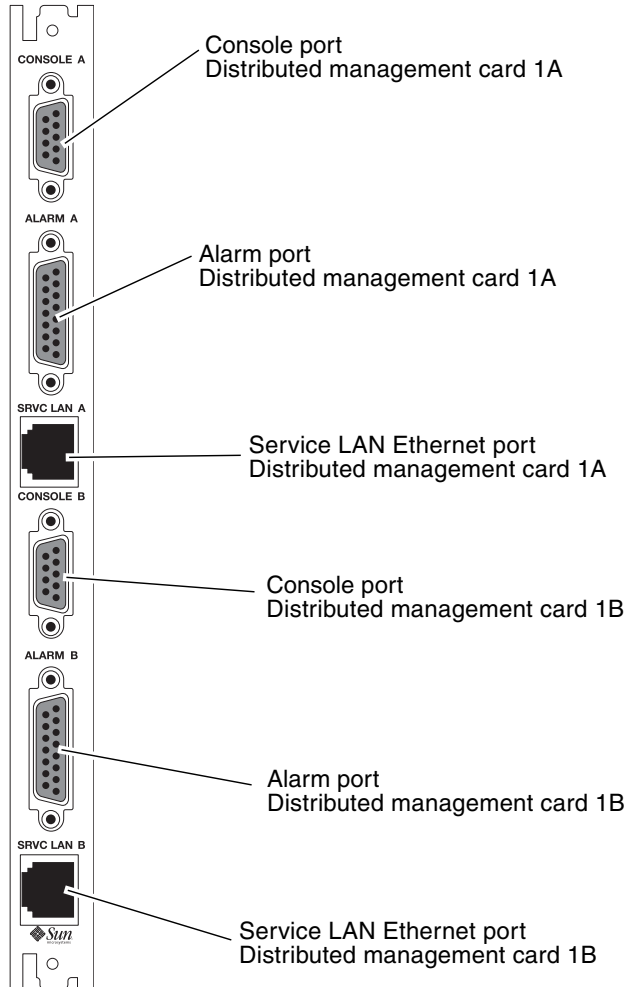
FIGURE 4-3 Distributed Management Card Rear Transition Module Ports

Following are the pinouts for each of the ports on the rear transition module for the distributed management card:

- "Console Ports 1A and 1B" on page 21
- "Alarm Ports 1A and 1B" on page 22
- "Ethernet Ports 1A and 1B" on page 22

Console Ports 1A and 1B

The console ports 1A and 1B on the rear transition card for the distributed management card use standard DB-9 connectors.
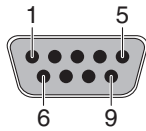
FIGURE 4-4   Console Port Connector Pins

The signal interfaces of the connectors are described in the following two tables.

TABLE 4-2   Console Port 1A

Pin No.	Signal	Pin No.	Signal
1	COM_A_DCD	6	COM_A_DSR
2	COM_A_RXD	7	COM_A_RTS
3	COM_A_TXD	8	COM_A_CTS
4	COM_A_DTR	9	COM_A_RI
5	GND_A		

TABLE 4-3   Console Port 1B

Pin No.	Signal	Pin No.	Signal
1	COM_B_DCD	6	COM_B_DSR
2	COM_B_RXD	7	COM_B_RTS
3	COM_B_TXD	8	COM_B_CTS
4	COM_B_DTR	9	COM_B_RI
5	GND_B		

Alarm Ports 1A and 1B

The alarm ports 1A and 1B on the rear transition module for the distributed management card use standard male DB-15 connectors.
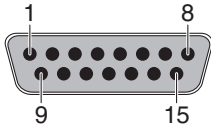
FIGURE 4-5   Alarm Port

TABLE 4-4   Alarm Ports 1A and 1B Pinouts

Pin No.	Signal	Pin No.	Signal	Pin No.	Signal
1	RESET0 +	6	ALARM0_NC	11	ALARM2_NO
2	RESET0 -	7	ALARM0_COM	12	ALARM2_NC
3	RESET1 +	8	ALARM1_NO	13	ALARM2_COM
4	RESET1 -	9	ALARM1_NC	14	ALARM3_NO
5	ALARM0_NO	10	ALARM1_COM	15	ALARM3_COM

Ethernet Ports 1A and 1B

The Ethernet ports 1A and 1B on the rear transition module for the distributed management card use standard RJ-45 connectors. They are both 10 Mbit/sec Ethernet ports.

Note – The external Ethernet interface on the distributed management card and the external Ethernet interface on the switching fabric board must be connected to different subnets. If they are configured on the same subnet, arp messages will be displayed on the distributed management card console.
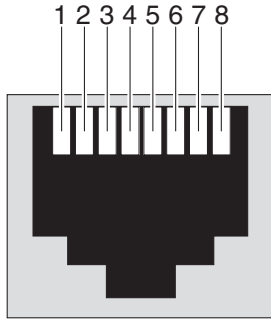
FIGURE 4-6   RJ-45 Ethernet Connector Diagram

TABLE 4-5   Ethernet Ports 1A and 1B Pinouts

Pin No.	Description	Pin No.	Description
1	TX+	5	Not used
2	TX-	6	RX-
3	RX+	7	Not used
4	Not used	8	Not used

Connecting Cables to the Switching Fabric Boards

Note – If you want the Ethernet signals to be routed to the rear transition card for the switching fabric board, verify that the SW503 DIP switch on the Netra CP2300 board is set correctly. See "Ethernet Networking on the Netra CP2300 Board" on page 14 for more information before proceeding with these instructions.

Note – The external Ethernet interface on the distributed management card and the external Ethernet interface on the switching fabric board must be connected to different subnets. If they are configured on the same subnet, `arp` messages will be displayed on the distributed management card console.

The Netra CT 820 server is available only as a rear-access server, so all of the cabling for the switching fabric board will be to the rear transition card at the rear of the server. There are no active components on the rear transition card, so you must have the accompanying switching fabric board installed in the same slot at the front of the server, even though no cables will be connected to that front card. The rear transition card is connected to the switching fabric board through the midplane through the RJ3 and RJ5 CompactPCI connectors. This card used to route Ethernet traffic through five 10/100–megabit switched Ethernet MDIX ports through shielded RJ-45 connectors (ports 20–23), two 1000–megabit Ethernet MDIX ports (ports 25–26), and an RJ-11 console port. FIGURE 4-7 shows the ports on the rear transition card for the switching fabric board.

Note – Port 24 on the rear transition card for the switching fabric board is reserved for future use.
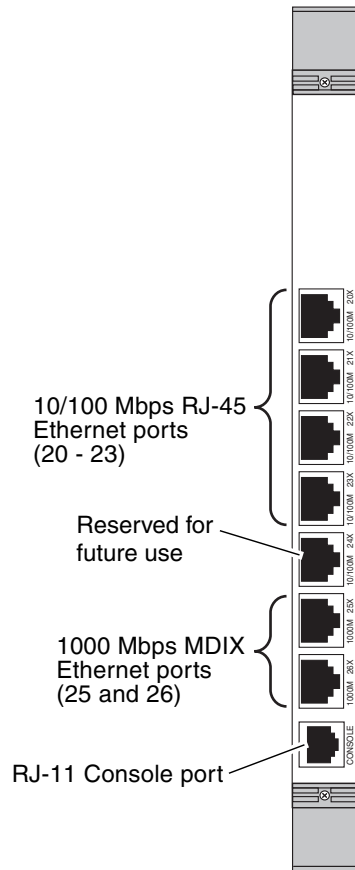
FIGURE 4-7 Ports on the Rear Transition Card for the Switching Fabric Board

Following are the pinouts for each of the ports on rear transition card for the switching fabric board:

10/100 Mbit/sec Ethernet Ports (20–23)

The Ethernet ports 20–23 on the rear transition module for the switching fabric board use standard RJ-45 connectors. They are all 10/100 Mbit/sec Ethernet ports.
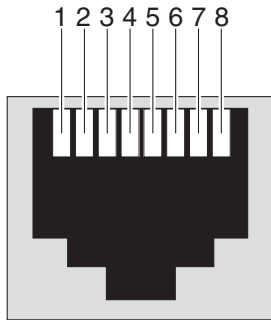
FIGURE 4-8   RJ-45 Ethernet Connector Diagram

TABLE 4-6   10/100Mb Switched Ethernet Port Pinout

Pin No.	Signal	Pin No.	Signal
1	RX+	5	—
2	RX-	6	TX-
3	TX+	7	—
4	—	8	—

1000 Mbit/sec Ethernet Ports (25 and 26)

The Ethernet ports 25 and 26 on the rear transition module for the switching fabric board use standard RJ-45 connectors. They are both 1000 Mbit/sec Ethernet ports.
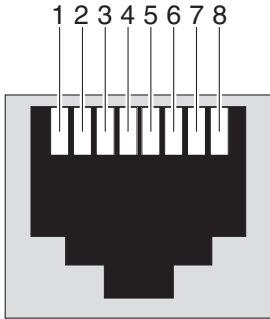
FIGURE 4-9 RJ-45 Ethernet Connector Diagram

TABLE 4-7 1000Mb Switched Ethernet Port Pinout

Pin No.	Signal	Pin No.	Signal
1	TRDB+	5	TRDD-
2	TRDB-	6	TRDA-
3	TRDA+	7	TRDC+
4	TRDD+	8	TRDC-

Console Port

The console port on the rear transition module for the switching fabric board uses a standard RJ-11 connector. A special cable for connection with the console port is included in the Netra CT 820 server ship kit.
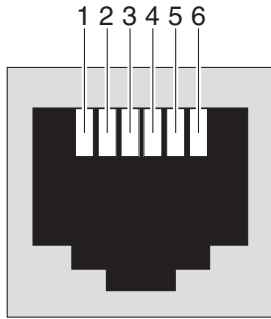
FIGURE 4-10 RJ-11 Console Connector Diagram

The only signals used are transmit, receive, and ground. The pinouts for this port is shown in TABLE 4-8.

TABLE 4-8   RJ11 Console Port Pinout

RJ11 Pin Number	Signal Name	DCE DB-9* Pin Number	DTE DB-9 Pin Number
1	—	—	—
2	GND	5	5
3	RX	3	2
4	TX	2	3
5	GND	—	—
6	—	—	—

* With use of null modem provided.

Note – DTE DB-9 also provides loopback of DTR (pin 4) to DSR (pin 6) and of RTS (pin 8) to CTS (pin 9).

Connecting the Cables to the Netra CP2300 Boards

The Netra CT 820 server is available only as a rear-access server, so all of the cabling for the Netra CP2300 boards will be to the rear transition card at the rear of the server. However, in order to use the PCI Interface Modules (PIMs) on the rear transition card, you must also have the accompanying PCI mezzanine cards (PMCs) installed on the Netra CP2300 board.

PMCs on the Netra CP2300 Board

FIGURE 4-11 shows the location of the PMCs on the Netra CP2300 board, and "PMC Connectors" on page 29 gives connector interface information for the PMC slots.
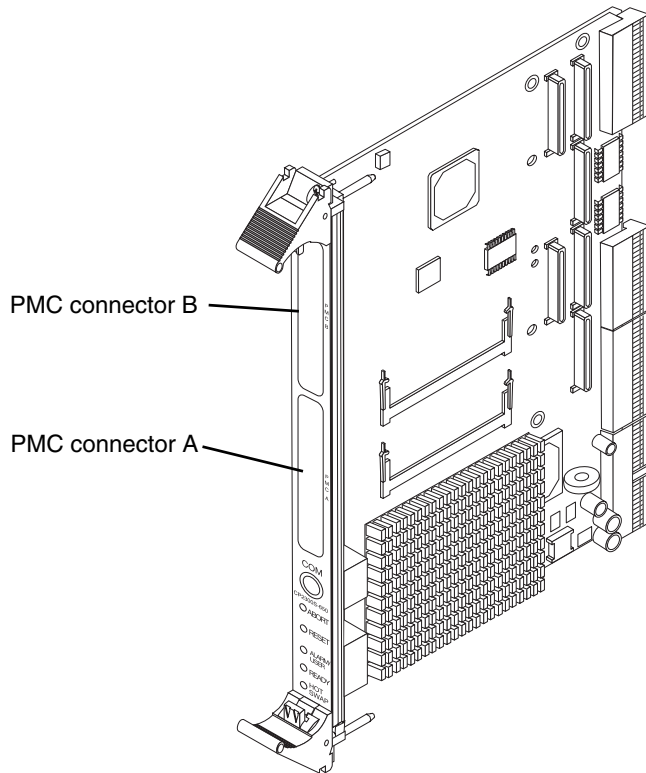
FIGURE 4-11 Netra CP2300 Board

PMC Connectors

FIGURE 4-12 shows the locations of PMC port connectors. The following tables show contact allocations.
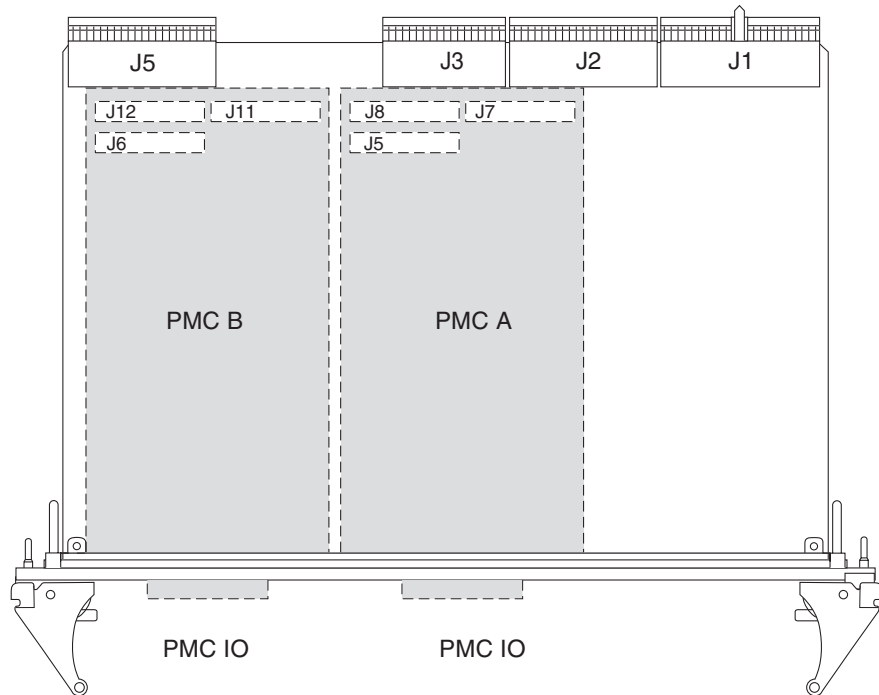
FIGURE 4-12 Netra CP2300 Board PMC Port Connectors

Note – The P1386.1 standard reserves the Jn3 64-pin connector for PCI 64-bit extensions, so it is not fitted on the Netra CP2300 board.

PMC B Connector Interfaces

The PMC B connector interface consists of three connectors: J6, J12, and J11. These connectors conform to the common mezzanine card (CMC) specification.

TABLE 4-9   PMC B J6 Connector Interface

Pin	Description	Pin	Description
1	TCK; JTAG clock signal.	2	-12V
3	GND	4	PMC_B_INT_A_L
5	PMC_B_INT_B_L	6	PMC_B_INT_C_L
7	PMC_BUSMODE1_L	8	VCC (5V)
9	PMC_B_INT_D_L	10	NC
11	GND	12	NC
13	PMC_CLK	14	GND
15	GND	16	PMC_GNT_L
17	PMC_REQ_L	18	VCC
19	LOCAL_VIO	20	PCI_B_AD<31>
21	PCI_B_AD<28>	22	PCI_B_AD<27>
23	PCI_B_AD<25>	24	GND
25	GND	26	PCI_B_CBE3_L
27	PCI_B_AD<22>	28	PCI_B_AD<21>
29	PCI_B_AD<19>	30	VCC
31	LOCAL_VIO	32	PCI_B_AD<17>
33	PCI_B_FRAME_L	34	GND
35	GND	36	PCI_B_IRDY_L
37	PCI_B_DEVSEL_L	38	VCC
39	GND	40	PCI_B_LOCK_L
41	PMC_SDONE	42	PMC_SB0_L
43	PCI_B_PAR	44	GND
45	LOCAL_VIO	46	PCI_B_AD<15>
47	PCI_B_AD<12>	48	PCI_B_AD<11>
49	PCI_B_AD<9>	50	VCC
51	GND	52	PCI_B_CBE_L<0>
53	PCI_B_AD<6>	54	PCI_B_AD<5>

TABLE 4-9   PMC B J6 Connector Interface *(Continued)*

Pin	Description	Pin	Description
55	PCI_B_AD<4>	56	GND
57	LOCAL_VIO	58	PCI_B_AD<3>
59	PCI_B_AD<2>	60	PCI_B_AD<1>
61	PCI_B_AD<0>	62	VCC
63	GND	64	PCI_B_REQ64_L

TABLE 4-10   PMC B J12 Connector Interface

Description	Pin	Pin	Description
+12V	1	2	JTAG_PMC_RST_L
TMS	3	4	PMC_TDO
PMC_TDI	5	6	GND
GND	7	8	NC
NC	9	10	NC
PMC_BUSMODE2_L	11	12	VDD (3.3V)
PCI_B_RST_L	13	14	PMC_BUSMODE3_L
VDD	15	16	PMC_BUSMODE4_L
NC	17	18	GND
PCI_B_AD<30>	19	20	PCI_B_AD<29>
GND	21	22	PCI_B_AD<26>
PCI_B_AD<24>	23	24	VDD
PCI_B_IDSEL	25	26	PCI_B_AD<23>
VDD	27	28	PCI_B_AD<20>
PCI_B_AD<18>	29	30	GND
PCI_B_AD<16>	31	32	PCI_B_CBE_L<2>
GND	33	34	NC
PCI_B_TRDY_L	35	36	VDD
GND	37	38	PCI_B_STOP_L
PCI_B_PERR_L	39	40	GND
VDD	41	42	PCI_B_SERR_L
PCI_B_CBE_L<1>	43	44	GND
PCI_B_AD<14>	45	46	PCI_B_AD<13>

TABLE 4-10 PMC B J12 Connector Interface *(Continued)*

Description	Pin	Pin	Description
GND	47	48	PCI_B_AD<10>
PCI_B_AD<8>	49	50	VDD
PCI_B_AD<7>	51	52	NC
VDD	53	54	NC
NC	55	56	GND
NC	57	58	NC
GND	59	60	NC
PCI_B_ACK64_L	61	62	VDD
GND	63	64	NC

TABLE 4-11 PMC B J11 Connector Interface

Pin	Description
1-64	PMC_B_IO<1-64> are user–defined IO pins

PMC A Connector Interfaces

The PMC A connector interface consists of three connectors: J5, J8, and J7. These connectors conform to the common mezzanine card (CMC) specification.

TABLE 4-12 PMC A J5 Connector Interface

Pin	Description	Pin	Description
1	TCK; JTAG clock signal.	2	-12V
3	GND	4	PMC_A_INT_A_L
5	PMC_A_INT_B_L	6	PMC_A_INT_C_L
7	PMC_BUSMODE1_L[*]	8	VCC (5V)
9	PMC_A_INT_D_L	10	NC
11	GND	12	NC
13	PMC_CLK	14	GND
15	GND	16	PMC_GNT_L
17	PMC_REQ_L	18	VCC
19	LOCAL_VIO	20	PCI_B_AD<31>
21	PCI_B_AD<28>	22	PCI_B_AD<27>

TABLE 4-12 PMC A J5 Connector Interface *(Continued)*

Pin	Description	Pin	Description
23	PCI_B_AD<25>	24	GND
25	GND	26	PCI_B_CBE3_L
27	PCI_B_AD<22>	28	PCI_B_AD<21>
29	PCI_B_AD<19>	30	VCC
31	LOCAL_VIO	32	PCI_B_AD<17>
33	PCI_B_FRAME_L	34	GND
35	GND	36	PCI_B_IRDY_L
37	PCI_B_DEVSEL_L	38	VCC
39	GND	40	PCI_B_LOCK_L
41	PMC_SDONE	42	PMC_SB0_L
43	PCI_B_PAR	44	GND
45	LOCAL_VIO	46	PCI_B_AD<15>
47	PCI_B_AD<12>	48	PCI_B_AD<11>
49	PCI_B_AD<9>	50	VCC
51	GND	52	PCI_B_CBE_L<0>
53	PCI_B_AD<6>	54	PCI_B_AD<5>
55	PCI_B_AD<4>	56	GND
57	LOCAL_VIO	58	PCI_B_AD<3>
59	PCI_B_AD<2>	60	PCI_B_AD<1>
61	PCI_B_AD<0>	62	VCC
63	GND	64	PCI_B_REQ64_L

* BUSMODE signals require a pull-up

TABLE 4-13 PMC A J8 Connector Interface

Pin	Description	Pin	Description
1	+12V	2	JTAG_PMC_RST_L
3	TMS	4	PMC_TDO
5	PMC_TDI	6	GND
7	GND	8	NC
9	NC	10	NC

TABLE 4-13 PMC A J8 Connector Interface *(Continued)*

Pin	Description	Pin	Description
11	PMC_BUSMODE2_L	12	VDD (3.3V)
13	PCI_B_RST_L	14	PMC_BUSMODE3_L
15	VDD	16	PMC_BUSMODE4_L
17	NC	18	GND
19	PCI_B_AD<30>	20	PCI_B_AD<29>
21	GND	22	PCI_B_AD<26>
23	PCI_B_AD<24>	24	VDD
25	PCI_B_IDSEL	26	PCI_B_AD<23>
27	VDD	28	PCI_B_AD<20>
29	PCI_B_AD<18>	30	GND
31	PCI_B_AD<16>	32	PCI_B_CBE_L<2>
33	GND	34	NC
35	PCI_B_TRDY_L	36	VDD
37	GND	38	PCI_B_STOP_L
39	PCI_B_PERR_L	40	GND
41	VDD	42	PCI_B_SERR_L
43	PCI_B_CBE_L<1>	44	GND
45	PCI_B_AD<14>	46	PCI_B_AD<13>
47	GND	48	PCI_B_AD<10>
49	PCI_B_AD<8>	50	VDD
51	PCI_B_AD<7>	52	NC
53	VDD	54	NC
55	NC	56	GND
57	NC	58	NC
59	GND	60	NC
61	PCI_B_ACK64_L	62	VDD
63	GND	64	NC

Note – The P1386.1 standard reserves the Jn3 64-pin connector for PCI 64-bit extensions. This connector is not fitted on these boards.

TABLE 4-14   PMC A J7 Connector Interface

Pin	Description
1-64	PMC_A_IO<1-64> are user–defined IO pins

Ports on the Rear Transition Card for the Netra CP2300 Board

FIGURE 4-13 shows the ports on the rear transition card for the Netra CP2300 board.
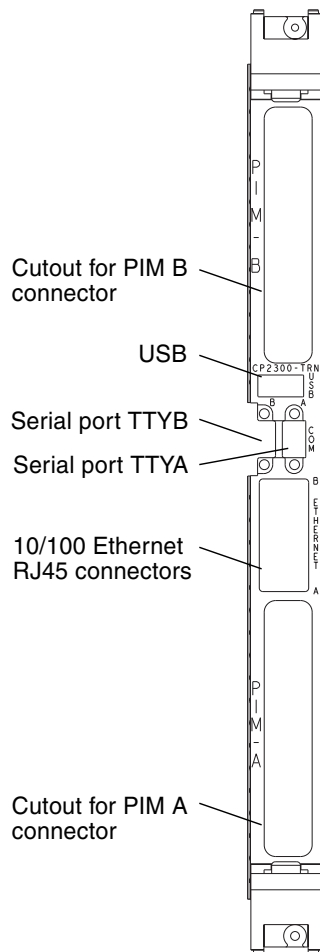
FIGURE 4-13   Rear Transition Card for the Netra CP2300 Board

Following are figures and tables showing the pinouts for each of the ports on the rear transition card for the Netra CP2300 board:

- "PIM Connectors" on page 36
- "USB Port" on page 42
- "Serial Ports" on page 42
- "Fast Ethernet Connectors" on page 43

PIM Connectors

PIM A has two 64-pin connectors at J4 and J5, and PIM B has two 64-pin connectors at J6 and J7. See FIGURE 4-14 for the connector pin numbering, and see FIGURE 4-13 for the location of these connectors on the transition card.
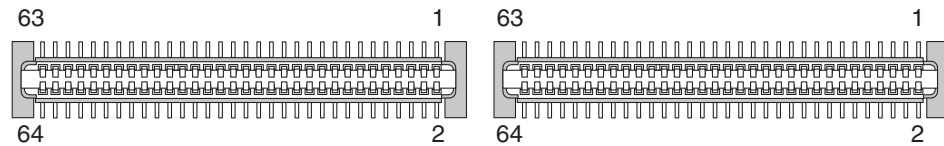
FIGURE 4-14 PIM Connector Pins

PIM A Connector Pin Assignments

The PIM A connector is switch selectable with the EIDE connector. On the back of the Netra CP2300 cPSB board, there are three DIP switches: SW501, SW502, and SW503. When all of the positions on SW501 and SW502, and positions 1 through 9 on SW503 are set to Off, the EIDE connector is disabled and all of the PIM A connector pins are available. When these switch positions are off, the EIDE connector is active and PIM A J5 connector I/0 pins 1 to 29 (signals PMC_A_IO_1 through PMC_A_IO_29) are disabled and *must* be disconnected.

Refer to the *Netra CP2300 cPSB Board Installation and Technical Reference Manual* (816-7186) for more information about switch settings.

TABLE 4-15 lists the pin assignments for the PIM A connector at J4, and TABLE 4-16 lists the pin assignments for the PIM A connector at J5.

TABLE 4-15 PIM A Connector J4

Signal Name	Pin	Pin	Signal Name
SMC_TX	1	2	+12V
SMC_RX	3	4	
+5V	5	6	
TXN_I2C_SDA	7	8	
TXN_I2C_SCL	9	10	+3.3V
I2C_PWR	11	12	
GND	13	14	
	15	16	
	17	18	GND
RSV(PCI_RST#)	19	20	
+5V	21	22	
RSV	23	24	
RSV	25	26	+3.3V
	27	28	
GND	29	30	
	31	32	
	33	34	GND
	35	36	
+5V	37	38	
	39	40	
	41	42	+3.3V
	43	44	
GND	45	46	
	47	48	
	49	50	GND
	51	52	
+5V	53	54	
	55	56	
	57	58	+3.3V

TABLE 4-15 PIM A Connector J4 *(Continued)*

Signal Name	Pin	Pin	Signal Name
	59	60	
-12V	61	62	
	63	64	

TABLE 4-16 PIM A Connector J5

Signal Name	Pin	Pin	Signal Name
PMC_A_IO_1	1	2	PMC_A_IO_2
PMC_A_IO_3	3	4	PMC_A_IO_4
PMC_A_IO_5	5	6	PMC_A_IO_6
PMC_A_IO_7	7	8	PMC_A_IO_8
PMC_A_IO_9	9	10	PMC_A_IO_10
PMC_A_IO_11	11	12	PMC_A_IO_12
PMC_A_IO_13	13	14	PMC_A_IO_14
PMC_A_IO_15	15	16	PMC_A_IO_16
PMC_A_IO_17	17	18	PMC_A_IO_18
PMC_A_IO_19	19	20	PMC_A_IO_20
PMC_A_IO_21	21	22	PMC_A_IO_22
PMC_A_IO_23	23	24	PMC_A_IO_24
PMC_A_IO_25	25	26	PMC_A_IO_26
PMC_A_IO_27	27	28	PMC_A_IO_28
PMC_A_IO_29	29	30	PMC_A_IO_30
PMC_A_IO_31	31	32	PMC_A_IO_32
PMC_A_IO_33	33	34	PMC_A_IO_34
PMC_A_IO_35	35	36	PMC_A_IO_36
PMC_A_IO_37	37	38	PMC_A_IO_38
PMC_A_IO_39	39	40	PMC_A_IO_40
PMC_A_IO_41	41	42	PMC_A_IO_42
PMC_A_IO_43	43	44	PMC_A_IO_44
PMC_A_IO_45	45	46	PMC_A_IO_46

TABLE 4-16 PIM A Connector J5 *(Continued)*

Signal Name	Pin	Pin	Signal Name
PMC_A_IO_47	47	48	PMC_A_IO_48
PMC_A_IO_49	49	50	PMC_A_IO_50
PMC_A_IO_51	51	52	PMC_A_IO_52
PMC_A_IO_53	53	54	PMC_A_IO_54
PMC_A_IO_55	55	56	PMC_A_IO_56
PMC_A_IO_57	57	58	PMC_A_IO_58
PMC_A_IO_59	59	60	PMC_A_IO_60
PMC_A_IO_61	61	62	PMC_A_IO_62
PMC_A_IO_63	63	64	PMC_A_IO_64

PIM B Connector Pin Assignments

TABLE 4-17 lists the pin assignments for the PIM B connector at J6, and TABLE 4-18 lists the pin assignments for the PIM B connector at J7.

TABLE 4-17 PIM B Connector J6

Signal Name	Pin	Pin	Signal Name
SMC_TX	1	2	+12V
SMC_RX	3	4	
+5V	5	6	
TXN_I2C_SDA	7	8	
TXN_I2C_SCL	9	10	+3.3V
I2C_PWR	11	12	
GND	13	14	
	15	16	
	17	18	GND
RSV(PCI_RST#)	19	20	
+5V	21	22	
RSV	23	24	
RSV	25	26	+3.3V
	27	28	

TABLE 4-17 PIM B Connector J6 *(Continued)*

Signal Name	Pin	Pin	Signal Name
GND	29	30	
	31	32	
	33	34	GND
	35	36	
+5V	37	38	
	39	40	
	41	42	+3.3V
	43	44	
GND	45	46	
	47	48	
	49	50	GND
	51	52	
+5V	53	54	
	55	56	
	57	58	+3.3V
	59	60	
-12V	61	62	
	63	64	

TABLE 4-18 PIM B Connector J7

Signal Name	Pin	Pin	Signal Name
PMC_B_IO_1	1	2	PMC_B_IO_2
PMC_B_IO_3	3	4	PMC_B_IO_4
PMC_B_IO_5	5	6	PMC_B_IO_6
PMC_B_IO_7	7	8	PMC_B_IO_8
PMC_B_IO_9	9	10	PMC_B_IO_10
PMC_B_IO_11	11	12	PMC_B_IO_12
PMC_B_IO_13	13	14	PMC_B_IO_14
PMC_B_IO_15	15	16	PMC_B_IO_16

TABLE 4-18   PIM B Connector J7 *(Continued)*

Signal Name	Pin	Pin	Signal Name
PMC_B_IO_17	17	18	PMC_B_IO_18
PMC_B_IO_19	19	20	PMC_B_IO_20
PMC_B_IO_21	21	22	PMC_B_IO_22
PMC_B_IO_23	23	24	PMC_B_IO_24
PMC_B_IO_25	25	26	PMC_B_IO_26
PMC_B_IO_27	27	28	PMC_B_IO_28
PMC_B_IO_29	29	30	PMC_B_IO_30
PMC_B_IO_31	31	32	PMC_B_IO_32
PMC_B_IO_33	33	34	PMC_B_IO_34
PMC_B_IO_35	35	36	PMC_B_IO_36
PMC_B_IO_37	37	38	PMC_B_IO_38
PMC_B_IO_39	39	40	PMC_B_IO_40
PMC_B_IO_41	41	42	PMC_B_IO_42
PMC_B_IO_43	43	44	PMC_B_IO_44
PMC_B_IO_45	45	46	PMC_B_IO_46
PMC_B_IO_47	47	48	PMC_B_IO_48
PMC_B_IO_49	49	50	PMC_B_IO_50
PMC_B_IO_51	51	52	PMC_B_IO_52
PMC_B_IO_53	53	54	PMC_B_IO_54
PMC_B_IO_55	55	56	PMC_B_IO_56
PMC_B_IO_57	57	58	PMC_B_IO_58
PMC_B_IO_59	59	60	PMC_B_IO_60
PMC_B_IO_61	61	62	PMC_B_IO_62
PMC_B_IO_63	63	64	PMC_B_IO_64

USB Port

FIGURE 4-15 shows the USB connector port A on the rear transition card for the Netra CP2300 board. TABLE 4-19 lists the pin assignments for the USB port.
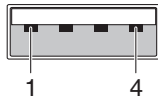
FIGURE 4-15 USB Connector Port A Pins

TABLE 4-19 USB Port A

Pin	Signal
1	+5V POWER
2	POS
3	NEG
4	GND

Serial Ports

Two serial ports from the Netra CP2300 transition card are available through the rear panel with single-stacked, 9-pin connectors. One connector is assigned to Port A and the other connector to Port B (FIGURE 4-16).
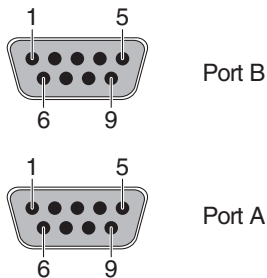
FIGURE 4-16 Serial Port Connector Pins

The signal interfaces of the connectors are described in and .

TABLE 4-20   Serial Port A

Pin No.	Signal	Pin No.	Signal
1	SER_A_DCD	6	SER_A_DSR
2	SER_A_RXD	7	SER_A_RTS
3	SER_A_TXD	8	SER_A_CTS
4	SER_A_DTR	9	SER_A_RI
5	GND_A		

TABLE 4-21   Serial Port B

Pin No.	Signal	Pin No.	Signal
1	SER_B_DCD	6	SER_B_DSR
2	SER_B_RXD	7	SER_B_RTS
3	SER_B_TXD	8	SER_B_CTS
4	SER_B_DTR	9	SER_B_RI
5	GND_B		

Fast Ethernet Connectors

The dual-jack RJ-45 (J701) AMP1116353-8 Ethernet connectors, located on the transition card's back panel, provide two 10/100 Mbit/sec fast Ethernet ports.
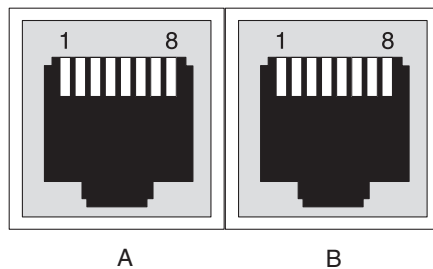
FIGURE 4-17 Fast Ethernet Connector Pins

By default, the Netra CP2300 board is set so that Ethernet traffic is routed to the switching fabric board rear transition card, and the fast Ethernet connectors on the Netra CP2300 rear transition card are disabled. You can use the fast Ethernet connectors on the Netra CP2300 rear transition card only if you changed the default settings on the Netra CP2300 board beforehand. Refer to "Ethernet Networking on the Netra CP2300 Board" on page 14 for more information before proceeding with these instructions.

Powering the Server On and Off

> **Note –** The distributed management card does not support battery backup time-of-day because battery life cannot be monitored to predict end of life, and drift in system clocks can be common. To provide a consistent system time, set the date and time on the distributed management card using one of these methods:
>
> - Manually, using the CLI `setdate` command. The date and time must be reset after any power cycle.
> - Configuring the distributed management card to be an NTP client, using the CLI `setntpserver` command. The Network Time Protocol (NTP) provides the correct timestamp for all systems on a network by synchronizing the clocks of all the systems. A Solaris server, called xntp, sets and maintains the timestamp. Refer to the online `man` pages for the `xntpd`, `ntpq`, and `ntpdate` commands for more information about NTP.

This chapter gives instructions on powering the Netra CT 820 server on and off.

- "Connecting a Terminal Console to the Server" on page 45
- "Powering On the Server or Boards" on page 48
- "Powering Off the Server" on page 50

Connecting a Terminal Console to the Server

You can access the Netra CT 820 server either remotely, where you would log in to the Netra CT 820 server as superuser through another server on the network, or directly, where you would connect a terminal console directly to your Netra CT 820 server. A terminal console can be an ASCII terminal, workstation, or PC laptop.

You can administer your Netra CT 820 server directly through the CONSOLE port on either the distributed management card or the rear transition card for the distributed management card. Refer to "Connecting Cables to the Distributed Management Cards" on page 17 for more information.

For a direct login, the connection you use varies depending on the Netra CT 820 server model you have, the type of terminal console you are using, and the card that you are connecting to:

- If you are using an ASCII terminal to access the Netra CT 820 server, go to "Using an ASCII Terminal" on page 46.
- If you are using a Solaris workstation to access the Netra CT 820 server, go to "Using a Solaris Workstation" on page 47.
- If you are using a PC laptop to access the Netra CT 820 server, go to "Using a PC Laptop" on page 48.

Using an ASCII Terminal

1. **Get the appropriate cable(s) and adapter(s) and make the necessary connections.**

   Use the information in TABLE 5-1 to make the necessary connections.

   TABLE 5-1   Connecting an ASCII Terminal

CONSOLE Port on Netra CT 820 Server Board	Adapter	Cable	Adapter	Serial Port on Terminal
RJ-45 on the distributed management card	RJ-45-to-DB-9 male	DB-9 female-to-DB-25 male straight-through	DB-25 female-to-DB-25 female gender changer	DB-25 male
DB-9 male on the rear transition card	Not needed	DB-9 female-to-DB-25 male straight-through	DB-25 female-to-DB-25 female gender changer	DB-25 male

2. **Access the Set Up Menu of the ASCII terminal and bring up the Serial Communications section.**

3. **Set up the serial port communications parameters.**

   The default settings should match the values reported on the host serial port.

   - Hardwired modem connection
   - No parity
   - 9600 baud
   - 1 stop bit
   - 8 bit data

4. **Test the connection.**

   Verify that communication has been established to the server and the keyboard/display of the ASCII terminal.

Using a Solaris Workstation

1. **Get the appropriate cable(s) and adapter(s) and make the necessary connections.**

   Use the information in TABLE 5-2 to make the necessary connections.

TABLE 5-2   Connecting a Solaris Workstation

CONSOLE Port on Netra CT 820 Server Board	Adapter	Cable	Adapter	Serial Port on Workstation
RJ-45 on the distributed management card	RJ-45-to-DB-9 male	DB-9 female-to-DB-25 male null modem	Not needed.	DB-25 female
DB-9 male on the rear transition card	Not needed	DB-9 female-to-DB-25 male null modem	Not needed.	DB-25 female

2. **Check the** `/etc/remote` **file for the appropriate line.**

   To connect to the *TTY A or CONSOLE 1* port on the workstation, check for this line:

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

3. **Type** `tip hardwire` **at the prompt.**

   You should see the word `connected` as the response.

4. **To disconnect the tip window, type** `~.` **(tilde period) at the prompt.**

Using a PC Laptop

1. **Get the appropriate cable(s) and adapter(s) and make the necessary connections.**

   Use the information in TABLE 5-3 to make the necessary connections.

TABLE 5-3 Connecting a PC Laptop

CONSOLE Port on Netra CT 820 Server Board	Adapter	Cable	Adapter	Serial Port on PC Laptop
RJ-45 on the distributed management card	RJ-45-to-DB-9 male	DB-9 female-to-DB-9 female null modem	Not needed	DB-9 male
DB-9 male on the rear transition card	Not needed	DB-9 female-to-DB-9 female null modem	Not needed	DB-9 male

2. **Set the following connection parameters:**

   - No parity
   - 9600 baud
   - 1 stop bit
   - 8 bit data

Powering On the Server or Boards

There are two ways to apply power to the Netra CT 820 server or to the boards installed in the server:

- Hardware power-on—This powers on the entire Netra CT 820 server and would be used when you first install the server; however, you must be physically located at the site with the Netra CT 820 server in order to do a hardware power-on. In addition, you should go through a hardware power-on only if you powered down the server using the hardware power-off instructions (see "Performing a Hardware Power-Off" on page 51).

- Software power-on—This powers on node or switching fabric slots on a slot-by-slot basis through the distributed management card. You can go through a slot-by-slot software power-on only if you powered down the individual slots using the software power-off instructions (see "Performing a Software Power-Off" on page 51); you cannot go through a slot-by-slot software power-on if you powered off the entire system using the hardware power-off instructions.

Performing a Hardware Power-On

1. **At the rear of the Netra CT 820 server, verify that you have made the proper connections to the DC power input panel.**

   See "Providing Power" on page 9 for more information.

2. **Locate the power switch at the rear of the server and press it to the On (|) position (**FIGURE 5-1**).**

   The distributed management card powers on first, then it powers on the switching fabric board and node boards.
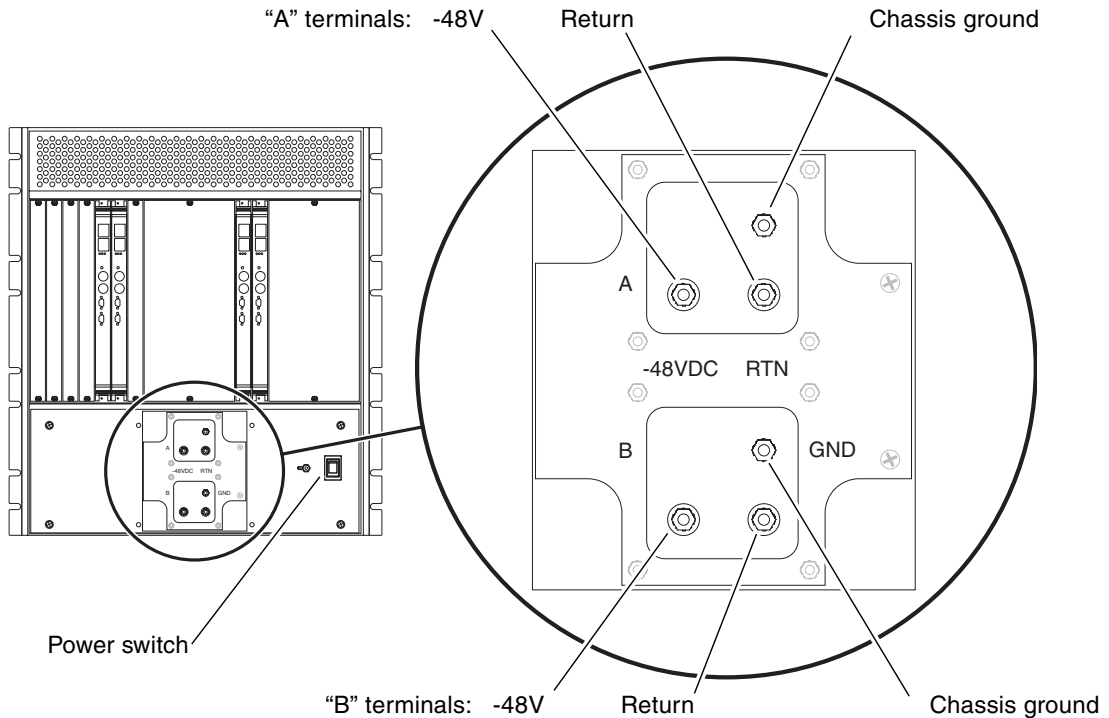
FIGURE 5-1 Netra CT 820 Server (Rear)

Performing a Software Power-On

1. Log into your Netra CT 820 server through the distributed management card or its rear transition card, and administer the system.

See "Connecting a Terminal Console to the Server" on page 45 for instructions on connecting a terminal to your server, if necessary. Refer to the *Netra CT 820 Server System Administration Guide* for detailed instructions on accessing the systems through the distributed management card or its rear transition card.

2. Power on the appropriate slots in the Netra CT 820 server using the distributed management card software:

```
hostname cli> poweron slot_number
```

For example, to power on the node card in slot 11 in your Netra CT 820 server, enter the following command:

```
hostname cli> poweron 11
```

Refer to the *Netra CT 820 Server System Administration Guide* for more detailed instructions.

Powering Off the Server

There are two ways to power off the Netra CT 820 server or the boards installed in the server:

- Hardware power-off—This powers off the entire Netra CT 820 server; however, you must be physically located at the site with the Netra CT 820 server in order to do a hardware power-off. In addition, after you've gone through a hardware power-off for the system, you can only power it back on again using the hardware power-on instructions; you cannot remotely power-on the Netra CT 820 server using software power-on instructions if you've gone through a hardware power-off.

- Software power-off—This powers off node or switching fabric slots on a slot-by-slot basis through the distributed management card. Note that you will only be able to power off node or switching fabric slots using this method; the distributed management cards will remain powered on. This will allow you to power-on the node or switching fabric slots remotely through the distributed management cards using the software power-on instructions.

Performing a Hardware Power-Off

1. **In preparation for bringing down the operating system and powering off the server, ensure that all significant application activity is quiesced on the server.**

2. **Locate the power switch at the rear of the Netra CT 820 server and press it to the Off (O) position (**FIGURE 5-1**).**

   Caution – The power switch turns off the output of the power supplies. To completely disconnect power to the system, you must remove the input feed power going to the DC terminals at the rear of the server.

3. **If you want to completely power off the Netra CT 820 server, remove the service panel cover from the DC terminal block and disconnect the DC supply terminals from the terminal block (**FIGURE 5-1**).**

   Note that you must disconnect the DC supply terminals from both the A terminals and the B terminals on the terminal block in order to completely remove power from the Netra CT 820 server.

Performing a Software Power-Off

1. **Log into your Netra CT 820 server through the distributed management card or rear transition module, and administer the system.**

   See "Connecting a Terminal Console to the Server" on page 45 for instructions on connecting a terminal to your server, if necessary. Refer to the *Netra CT 820 Server System Administration Guide* for detailed instructions on accessing the system through the distributed management card or its rear transition card.

2. **Power off the appropriate slots in the Netra CT 820 server using the distributed management card software:**

   ```
   hostname cli> poweroff slot_number
   ```

   For example, to power off the node card in slot 11 in your Netra CT 820 server, enter the following command:

   ```
   hostname cli> poweroff 11
   ```

   Refer to the *Netra CT 820 Server System Administration Guide* for more detailed instructions.

Installing the Software

The following procedure describes how to install the Solaris™ 8 2/02 operating environment onto the Netra™ CP2300 cPSB board using *Operating Environment Installation DVD for Use with Solaris 8 2/02 Operating Environment; Only for Netra CP2300, Netra CT 820* (708-0042-11) DVD which is referred to as the Netra CP2300 Installation DVD in this manual. Future supported Solaris operating environment versions will require different installation instructions and may or may not require an installation DVD.

Note – You will need the latest patch list from the *Netra CT 820 Server Release Notes* in order to successfully install all the software for the Netra CT 820 server. Verify that you have the latest *Netra CT 820 Server Release Notes* from the www.sun.com documentation web site for the Netra CT 820 server before proceeding with the instructions in this chapter.

This document contains the following sections:

Preparing for the Solaris Operating Environment Installation

Before installing the Solaris operating environment, see TABLE 6-1 for a list of the installation requirements.

TABLE 6-1   Solaris Operating Environment Installation Requirements

Required for Installation	Information
Installation DVD	To install the Solaris 8 2/02 operating environment, you will need the Netra CP2300 Installation DVD. **Note –** For future compatible versions of the Solaris operating environment, you may or may not need an installation DVD. Refer to the latest version of the Netra CP2300 documentation for more information.
Solaris 8 2/02 Media Kit	You will need a copy of the Solaris 8 2/02 Media Kit, along with the Netra CP2300 Installation DVD, to install the Solaris operating environment. **Note –** You must use the Solaris 8 2/02 Media Kit with this installation DVD. You cannot install other Solaris operating environment versions, either earlier or later, with this installation DVD
Latest firmware	You may need to update the Netra CP2300 board firmware prior to installing the Solaris operating environment. For information about where to download the latest firmware, refer to the latest version of the *Netra CP2300 cPSB Board Release Notes*. For instructions on upgrading the firmware, refer to the *Netra CP2300 cPSB Board Installation and Technical Reference Manual* (816-7186).
Correct DIP switch setting	You must set the Netra CP2300 board DIP switches correctly before installing the hardware and software. The DIP switch settings will differ depending on whether you use a PMC disk drive or if you plan to connect an external IDE disk drive to the Netra CP2300 transition card's EIDE connector. Refer to the *Netra CP2300 cPSB Board Installation and Technical Reference Manual* (816-7186) for the proper settings.
Correct IDE cable	If you are connecting a DVD-ROM drive or an IDE disk drive to the Netra CP2300 transition card's EIDE connector, you *must* use only high-performance Ultra ATA-100, or faster, IDE cables. Do not use ATA-66 or slower IDE cables.

Required for Installation	Information
DVD-ROM drive	In order to install the Netra CP2300 software, you must have a DVD-ROM drive accessible to either the network install server or the Netra CP2300 board. **Note –** If you connect an DVD-ROM drive and a disk drive to the Netra CP2300 transition card's EIDE connector, ensure that you set the disk drive as the *master* device and the DVD-ROM drive as the *slave* device. Refer to your drive documentation for information about configuring the IDE drive settings.
Solaris installation documentation	For more specific details about installing Solaris operating environment, refer to the *Solaris 8 Installation Guide* (806-0955) and the *Solaris 8 Advanced Installation Guide* (806-0957), which shipped in your Solaris Media Kit and can be viewed on the Solaris documentation web site: `http://docs.sun.com/`
Answers to Solaris installation questions	During the Solaris operating environment installation, you will be prompted to answer the following questions: • Network connectivity • DHCP • Host name • IP address • Net mask (255.255.255.0 is the default) • IPv6 • Default router • Kerberos • Time zone • Name service (NIS+, NIS, DNS, LDAP or None) • Domain name • Name server • Date and time • Root password **Note –** Refer to the Solaris installation documentation for more information about these questions.
Disable the `watchdog-enable?` OpenBoot™ PROM parameter	By default, the Netra CP2300 board's OpenBoot PROM `watchdog-enable?` parameter will be disabled. Ensure that this parameter is disabled before installing the Solaris operating environment. Refer to the *Netra CP2300 cPSB Board Installation and Technical Reference Manual* (816-7186) for more information.

About the Installation DVD

The Netra CP2300 Installation DVD (sometimes referred to as the installation DVD in this document), must only be used when installing the Solaris 8 2/02 operating environment on Netra CP2300 boards. By using this installation DVD and the Solaris Media Kit, you will install the Solaris operating environment as well as the packages and patches needed to support the Netra CP2300 cPSB board.

⚠ **Caution –** Do not use the Netra CP2300 Installation DVD to install the Solaris software on any platform other than the Netra CP2300 board.

⚠ **Caution –** You must use the Netra CP2300 Installation DVD to begin the Solaris operating environment installation on Netra CP2300 cPSB boards. Do *not* start the installation using the Solaris DVD or any of the CDs that shipped with the Solaris 8 2/02 Media Kit.

Note – You must use the Solaris 8 2/02 Media Kit with this Netra CP2300 Installation DVD. You cannot install other Solaris operating environment versions, either earlier or later, with this installation DVD.

For more specific details about installing the Solaris operating environment, refer to the *Solaris 8 Installation Guide* (806-0955) and the *Solaris 8 Advanced Installation Guide* (806-0957). These shipped in your Solaris Media Kit and can be viewed on the Solaris documentation web site:

`http://docs.sun.com/`

Note – Your Netra CP2300 board must have the latest version of the OpenBoot PROM before you can successfully install the Solaris 8 2/02 operating environment using the installation DVD. Refer to the *Netra CP2300 cPSB Board Installation and Technical Reference Manual* (816-7186) for information about upgrading the Netra CP2300 firmware.

- If you are installing Solaris on a PMC disk or a hard drive connected to the Netra CP2300 board, go to "Installing the Solaris Operating Environment on an IDE Disk Drive" on page 57.
- If you are creating a patched network installation image, which would be needed for diskless clients, go to "Preparing Network Installations of the Solaris Operating Environment" on page 65.

Installing the Solaris Operating Environment on an IDE Disk Drive

The following procedures describe how to install the Solaris operating environment on either a PMC disk or an IDE drive attached to the Netra CP2300 transition card's EIDE connector.

Note – The procedures described in this document should only be used with the Solaris 8 2/02 Operating Environment. Do not use any other release of the Solaris operating environment.

Before installing the Solaris operating environment on an IDE drive:

- Use the proper UATA-100 cables to connect the DVD-ROM and disk drives (see "Preparing for the Solaris Operating Environment Installation" on page 54 for more information).

- Set the DIP switches correctly (refer to the *Netra CP2300 cPSB Board Installation and Technical Reference Manual* (816-7186) for more information).

- Set the DVD-ROM IDE drive as *slave* and the IDE disk drive as *master* if they are both connected on the same IDE controller. (For example, if they are both connected to the Netra CP2300 transition card's EIDE connector.)

- Have a copy of the Solaris 8 2/02 Solaris Media Kit and the Netra CP2300 Installation DVD.

- Prepare answers to the Solaris installation questions (see "Preparing for the Solaris Operating Environment Installation" on page 54 for more information).

See "Preparing for the Solaris Operating Environment Installation" on page 54 for additional requirements.

Caution – This procedure overwrites existing contents on the hard drive(s). Back up all vital data and software before beginning the Solaris installation.

▼ To Install the Solaris Operating Environment on an IDE Disk Drive

1. **Place the Netra CP2300 Installation DVD in a DVD-ROM drive accessible to the Netra CP2300 board.**

2. **Halt the system in one of the following ways:**

   ■ **For new installs:**

   Power on and wait for the OpenBoot PROM bringup. At the `ok` prompt, skip to Step 3.

   ■ **For systems running the Solaris operating environment:**

   When upgrading the Solaris software, the system should be halted gracefully in order to leave existing file systems in a consistent state.

   An orderly shutdown may be performed by becoming superuser (also known as root) and using the `halt`, `init 0`, or `shutdown` commands. See the `halt`(1M), `init`(1M) and `shutdown`(1M) man pages for details.

   You should now be at the OpenBoot PROM `ok` prompt.

3. **To boot the Netra CP2300 Installation DVD, you must use the** `boot` **command and the complete device path to the DVD-ROM device at the** `ok` **prompt.**

   If you do not know the complete DVD-ROM device path, use the OpenBoot PROM `probe-ide-all` and `devalias` commands to find the DVD-ROM device path.

   CODE EXAMPLE 2 shows example `probe-ide-all` command output. The `probe-ide-all` command lists the internal and external IDE devices connected to the Netra CP2300 board's IDE interface. In this example, the `probe-ide-all` command shows that the DVD-ROM drive is connected to the IDE interface as the primary slave device. Note that if you have a PMC disk installed in the Netra CP2300 board, you may see different output from that shown below.

   CODE EXAMPLE 2 OpenBoot PROM `probe-ide-list` Command Output

   ```
   ok probe-ide-all
   /pci@1f,0/pci@1,1/ide@d
     Device 0  ( Primary Master )
            ATA Model: ST340016A

     Device 1  ( Primary Slave )
            Removable ATAPI Model: LITEON  DVD-ROM LTD163

     Device 2  ( Secondary Master )
            Not Present

     Device 3  ( Secondary Slave )
            Not Present
   ```

   Note – If you connect an DVD-ROM drive and an external disk drive to the Netra CP2300 transition card's EIDE connector, you *must* set the disk drive as the master device and the DVD-ROM drive as the slave device.

CODE EXAMPLE 3 shows example `devalias cdrom` command output.

CODE EXAMPLE 3 OpenBoot PROM `devalias` Command Output

```
ok devalias cdrom
cdrom                      /pci@1f,0/pci@1,1/ide@d/cdrom@0,0:f
```

The `devalias cdrom` command output lists the complete path to the DVD-ROM drive's `cdrom` device. This output is misleading, however, since the `probe-ide-all` command lists the DVD-ROM drive as a slave device.

The preceding code examples show the full path to the IDE interface to be:

`/pci@1f,0/pci@1,1/ide@d/`

If the `cdrom@x,0:f` device name depends on whether the drive was connected as a master or a slave IDE device:

- Master device: `cdrom@0,0:f`
- Slave device: `cdrom@1,0:f`

In the above examples, the DVD-ROM drive is connected as a slave device, so the full device path to the DVD-ROM drive is:

`/pci@1f,0/pci@1,1/ide@d/cdrom@1,0:f`

To boot the Installation DVD in this example, you would type:

```
ok boot /pci@1f,0/pci@1,1/ide@d/cdrom@1,0:f
```

The Installation DVD will boot and the Solaris mini-os (mini-root) will be loaded into the system memory.

4. **After a few minutes, you are asked to select the language you want to use while running the installer. Type the appropriate number for your choice of language.**

5. **Answer the installation questions when prompted.**

The installation DVD loads an installation mini-os software (mini-root) temporarily on one of the disk partitions (usually the swap partition). Near the start of the installation process, you are asked to select the disk where the mini-root software will be loaded.

⚠ **Caution –** The installer overwrites the existing contents on the hard disk. Before beginning Solaris installation, back up all needed data and software.

The length of time that it takes for the mini-root to load depends on what you answered in the menus and on the speed of your system. When the mini-root installation is complete, the system automatically boots from the mini-root.

6. **Respond to the questions in the Web Start Solaris command-line interface.**

   You may be asked to supply the following system information:

   - Network connectivity (standalone)
   - DHCP
   - Host name
   - IP address
   - Net mask (255.255.255.0 is the default)
   - IPv6
   - Default router
   - Kerberos
   - Time zone
   - Name service (NIS+, NIS, DNS, LDAP or None)
   - Domain name
   - Name server
   - Date and time
   - Root password

   Note – Refer to the Solaris 8 2/02 installation documentation for more information about answering these questions. You can find these installation documents on the `http://docs.sun.com` web site.

   ---

7. **Review the Confirm Information screen to make sure that all the installation information is correct.**

   When making changes by way of a dumb terminal interface use the arrow buttons to select your choice. Press the Return key to place a mark in your chosen field. Press the F2 key or ESC-2 keys to confirm your choices.

   The Solaris Web Start installation program begins.

8. **Respond to the questions displayed in the Web Start installation program.**

   Set the following preferences before continuing with the installation:

   - Reboot automatically (AutoBoot) after the software installation

   - Eject the CD/DVD (AutoEject) after the software installation

   - Solaris Installation Media (select CD/DVD)

   The installation DVD will then eject from the DVD-ROM drive.

9. **When prompted, insert the Solaris 8 2/02 DVD or the Solaris 8 2/02 Software 1 of 2 CD into your drive, and select OK.**

   Note – The Solaris 8 2/02 DVD might be easier to use since you do not need to eject the CD 1 of 2 and insert CD 2 of 2 during the operating environment installation. These discs are included with the standard Solaris 8 2/02 Media Kit. However, there is a lower-cost Solaris 8 2/02 Media Kit that does not contain a DVD.

   ---

10. **Respond to the questions presented by the Web Start installation program.**

The questions may cover the following areas:

- Upgrade or initial installation (select initial)
- Default or custom installation (select custom)

Caution – You *must* select the custom installation option or the Netra CP2300 software installation will fail.

- Language and locale of the software to be installed. (The language you choose here can be different from the choice you may have made earlier in)

11. **Select the correct products to install.**

After you have selected the language and locale of the software, the following screen will appear, with these options set by default:

```
Select the products you would like to install.

 [X]  0  Solaris 8 Documentation European    167.1 MB
 [X]  1  Solaris 8 Documentation Asian    0.0 MB
 [ ]  2  Solaris 8 Software 2 of 2    0.0 MB
 [-]  3  Multilingual Computer Systems Supplement CD    249.3 MB
 [ ]  4  Netra Supplement    0.0 MB
```

a. **Deselect item** 3, `Multilingual Computer Systems Supplement CD`, **by entering** 3 **once to select it, then entering** 3 **again to deselect the option.**

Note – Selecting the item 0 and 1 products is optional and not required for this installation.

After you have deselected item 3, `Multilingual Computer Systems Supplement CD`, you should see the following screen:

```
Select the products you would like to install.

 [X]  0  Solaris 8 Documentation European    167.1 MB
 [X]  1  Solaris 8 Documentation Asian    0.0 MB
 [ ]  2  Solaris 8 Software 2 of 2    0.0 MB
 [ ]  3  Multilingual Computer Systems Supplement CD    249.3 MB
 [ ]  4  Netra Supplement    0.0 MB
```

b. Enter 4 **to select the** `Netra Supplement` **option.**

The following screen appears:

```
Select which product components to install with the system.
Components marked with an [X] will be installed.

[ ]   4     Netra Supplement     0.0 MB
[ ]   4.0   Netra ct Platform 3.0   18.9 MB
```

c. Select 4.0 (`Netra ct Platform 3.0`).

d. Select n **to complete the product installation portion of the software installation.**

12. **Make the appropriate choices in the remaining screens.**

   ■ Choose to install additional CDs from the Media Kit (select Products screen), if necessary.

   ■ Choose to install additional software from another product CD or DVD, a Kiosk download, or over the net.

   ■ Select the 64-bit support selection.

Caution – You must select to install the 64-bit support. The Solaris 64-bit kernel is the only one supported on Netra CP2300 boards. Do *not* choose to install the 32-bit kernel only.

13. **When asked to select among the available Solaris software groups, you must select** 1 (`Entire Group Plus OEM`):

```
Available Solaris Software groups:
1. Entire Group Plus OEM (1048.9 MB)
2. Entire Group (1015.7 MB)
3. Developer Group (977.6 MB)
4. End User Group (629.0 MB)
5. Core Group (221.7 MB)

    Select the number corresponding to the desired Solaris software group [2]: 1

The Entire Solaris Software Group Plus OEM Support consists of the Entire
Solaris Software Group plus additional hardware drivers, including drivers for
hardware not present at the time of installation.
```

14. **After selecting the** `Entire Group Plus OEM group`**, select** `1` **to install the default packages.**

```
1. Default Packages
2. Custom Packages

   Default Packages or Custom Packages [1] 1
```

15. **Continue responding to the Web Start installation questions.**
    - Select the disk you want to install the disk selection
    - Select whether you want to preserve existing data
    - Preserve or modify the disk partition table

    Note – You may need to repartition the disk to allocate at least 10 Gbytes of space for the Solaris operating environment and the Netra CP2300 board software.

    ---

16. **When prompted, verify that the software listed by the Web Start installation program is correct, and type** `y` **to install the software.**

```
  Enter 'y' to accept these values and start the installation, or 'n' to
  return to the beginning and make changes (y/n): y
```

17. **Wait for the Solaris 8 2/02 DVD or Solaris 8 2/02 Software 1 of 2 CD to complete the installation.**

    This could take an hour or more, depending on the software you chose to install and the speed of your system. If you are using the Solaris CDs for the installation, you may be prompted to insert the Solaris 8 2/02 Software 2 of 2 CD and continue the installation.

18. **When the installation completes, select** `Done` **at the Installation details screen.**

    The installation program automatically installs the required Netra CP2300 board software packages and patches.

```
Launching installer. Please wait...

Installing Additional Software
|-1%--------------25%---------------50%--------------75%--------------100%|
```

19. **After the Netra CP2300 board software is installed, select** `Done` **to continue the Solaris installation.**

The system reboot. If you chose to eject the DVD or CD at the end of the installation, the DVD or CD is ejected and the Web Start application starts.

After you have completed the software installation from the Solaris CDs or DVD, you see the following screen:

```
Please specify the media from which you will install Netra Supplement.

Alternatively, choose the selection for "Skip" to skip this disc and go on to
the next one.

Media:

1. CD/DVD
2. Network File System
3. Skip

   Media [1]:
```

20. **Place the Netra CP2300 Installation DVD in the DVD-ROM drive again, and select** `1` **(**`CD/DVD`**) to install the remaining supplemental software from that DVD.**

21. **When the last CD has finished installing the remaining supplemental Netra CP2300 software, select to reboot the system.**

The system automatically installs the patches from the DVD and boots using the Solaris release that you just installed.

22. **Download and install additional patches.**

Refer to the *Netra CT 820 Server Release Notes* (817-2646) for the latest information on the patches available for the Netra CT 820 server. The document can be downloaded from the following web site:

`http://www.sun.com/products-n-solutions/hardware/docs/Servers/`

Follow the instructions in the "Applying Patches to a Boot Disk" section of the *Netra CT 820 Server Release Notes* (817-2646) to download and install the patches.

Note – You *must* install the patches listed in the most recent version of the *Netra CT 820 Server Release Notes* (817-2646) document. The "Applying Patches to a Boot Disk" section in the release notes lists the latest ID numbers of the required patches needed for IDE disk installations. Since the release of this installation document, new patches might have been added and existing patches might have been revised.

---

23. **After the patches are installed, reboot the CP23000 cPSB board.**

Preparing Network Installations of the Solaris Operating Environment

The following procedures describe how to create a network installation server. Before creating a patched network installation server, see for installation requirements.

Note – If you are planning to use the network installation server as a boot server for diskless clients, make sure that you have allocated enough space for the diskless server and clients. As a general rule, you need roughly 1.7 GBytes of space for the diskless server and around 300 MBytes for each diskless client in the directory where the diskless clients will be installed (by convention, this directory is in the server's `/export` directory.)

Note – The following procedures assume that your system mounts the CD media using the Solaris Volume Manager software. If you have disabled the Volume Manager software, you need to mount the media using the `mount`(1M) command. Refer to the Solaris documentation for more information.

▼ To Create a Network Installation Image Using the Solaris 8 2/02 DVD

Creating a network installation image using the Solaris 8 2/02 *DVD* is not supported at this time; you must use the Solaris *CDs* to create a network installation image instead. Go to for those instructions.

▼ To Create a Network Installation Image Using the Solaris 8 2/02 CDs

1. **Become superuser.**

2. **Insert the Solaris 8 2/02 Software 1 of 2 CD in a CD-ROM or DVD-ROM drive accessible to the installation server.**

3. **Change directories to the** `Tools` **directory on the Solaris 8 2/02 CD 1 of 2.**

```
# cd /cdrom/sol_8_202_sparc/s0/Solaris_8/Tools/
```

4. **Run the** `setup_install_server` **script to create an install image on the server:**

```
# ./setup_install_server image_directory
```

Replace *image_directory* with the directory on the server where you want to create the Solaris 8 2/02 installation image.

5. **Change directories to the root directory.**

```
# cd /
```

6. **Eject the Solaris 8 2/02 Software 1 of 2 CD.**

```
# eject cdrom
```

7. **Insert the Solaris 8 Software 2 of 2 CD in a CD-ROM or DVD-ROM drive accessible to the installation server.**

8. **Change directories to the** `Tools` **directory on the Solaris 8 2/02 CD 2 of 2.**

```
# cd /cdrom/sol_8_202_sparc_2/Solaris_8/Tools/
```

9. **Run the** `add_to_install_server` **script to add the Solaris 8 Software 2 of 2 CD software to the install image:**

```
# ./add_to_install_server image_directory
```

Replace *image_directory* with the Solaris 8 2/02 install image directory.

10. **Change directories to the root directory of the CD.**

```
# cd /
```

11. **Eject the Solaris 8 2/02 Software 2 of 2 CD.**

```
# eject cdrom
```

12. **Insert the installation DVD into a DVD-ROM drive accessible to the installation server.**

13. **Change directories to the** `/cdrom/multi_icd_sol_8_202_sparc_cs/s0` **directory.**

```
# cd /cdrom/multi_icd_sol_8_202_sparc_cs/s0
```

14. **Run the following script to patch the install image:**

```
# ./modify_install_server.cp2300 -d image_directory
```

Replace *image_directory* with the Solaris 8 2/02 installation image directory.

15. **Prepare a space for the additional system-specific packages.**

You manually apply these system-specific packages later on in this procedure.

a. **Create a directory to hold the additional system-specific packages:**

```
# mkdir package_directory
```

Where *package_directory* is the name of the directory that you are creating to hold these additional system-specific packages.

b. **Enter in the following commands to copy the system-specific packages to the directory you just created:**

```
# cd /cdrom/multi_icd_sol_8_202_sparc_cs/s0/Netra_Supplement/Netra_ct_Platform_3.0/Product
# tar cvf -  ./* | ( cd package_directory ; tar xvf - )
# echo "share -F nfs -o ro,anon=0 package_directory" >> /etc/dfs/dfstab
```

Where *package_directory* is the name of the directory that you created to hold these additional system-specific packages.

16. **Continue to perform the standard Solaris network installation procedure.**

17. **Once you have completed the standard Solaris network installation procedure, login as superuser on diskfull node on which you just installed Solaris.**

18. **Manually apply the following packages:**

```
# pkgadd -d /net/install_server/package_directory SUNW2jdrt SUNWctmgx SUNWctac
```

Where *install_server* is the name of the installation server and *package_directory* is the name of the directory that you created to hold these additional system-specific packages.

19. **Download and install additional patches.**

Refer to the *Netra CT 820 Server Release Notes* (817-2646) for the latest information on the patches available for the Netra CT 820 server. The document can be downloaded from the following web site:

`http://www.sun.com/products-n-solutions/hardware/docs/CPU_Boards`

Follow the instructions in the "Applying Patches to a Boot Disk" section of the *Netra CT 820 Server Release Notes* (817-2646) to download and install the patches.

Note – You must install the patches listed in the most recent version of the *Netra CT 820 Server Release Notes* (817-2646) document. The "Applying Patches to a Boot Disk" section in the release notes lists the latest ID numbers of the required patches needed for IDE disk installations. Since the release of this installation document, new patches might have been added and existing patches might have been revised.

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20. **After the patches are installed, reboot the CP23000 cPSB board.**

Note – If you are installing diskless clients, follow the procedures in "Installing Diskless Clients" on page 69 to set up the boot server and to add diskless clients.

An alternative approach for steps Step 15, Step 17, and Step 18 would be to use a post-installation script on the installation server to automatically add these packages. For more information, see the "Preparing to Install Solaris Software Over the Network" chapter in the *Solaris Advanced Installation Guide*, which is included in the Solaris Media Kit and can be viewed on the Solaris documentation web site:

`http://docs.sun.com`

Installing Diskless Clients

The following procedures describes how to create a boot server for diskless clients and how to add new diskless clients to the patched boot server. For additional instructions on installing diskless clients, refer to the Solaris 8 2/02 documentation, which you can find on the `http://docs.sun.com` web site.

Note – You must have a root password on your diskless server to perform the following tasks.

▼ To Create a Boot Server For Diskless Clients

Note – This procedure will set up a boot server by starting the operating systems services required for diskless clients. Once you have set up the boot server, see "To Add a Diskless Client" on page 73 for instructions on adding diskless clients to the boot server.

1. **Prepare a patched network installation server using the Netra CP2300 Installation DVD and the Solaris 8 2/02 Media Kit software.**

   Follow the procedures in "Preparing Network Installations of the Solaris Operating Environment" on page 65 to create a patched network installation server.

   Note – When setting up the boot server for diskless clients, make sure that you have allocated enough space for the diskless clients. You need roughly 1.7 GBytes of space for the diskless server and around 300 MBytes for each diskless client in the directory where the diskless clients will be installed (by convention, this directory is in the server's `/export` directory.)

2. **Verify that the IP addresses for all other network interfaces on the boot server have corresponding hostnames in the hosts database.**

3. **Log into the network server as superuser and change directories to the** `/usr/sadm/bin` **directory.**

   ```
   # cd /usr/sadm/bin
   ```

4. **Use the** `smosservice` **command to add boot services to the installation server.**

Note – The following command is a single long entry. Do not press the Return key until you have typed the entire text string shown in the following command.

```
# ./smosservice add -u root -p root_password -- -x mediapath=image_directory
-x platform=sparc.sun4u.Solaris_8 -x cluster=SUNWCXall -x locale=locale
```

Where:

- *root_password* is the root password for the installation server
- *image_directory* is the path to the directory where the Solaris 8 install image is stored
- *locale* is the locale that you want to use

Refer to the `smosservice`(1M) man page for more information and options.

For example, if the following entries were used for each variable, the command would appear as follows.

- *root_password* = root_password
- *image_directory* = /export/install
- *locale* = en_US

```
# ./smosservice add -u root -p root_password -- -x mediapath=/export/install
-x platform=sparc.sun4u.Solaris_8 -x cluster=SUNWCXall -x locale=en_US
```

5. **Place the Netra CP2300 Installation DVD in the DVD-ROM drive again.**

6. **Create a usr admin file with the following contents for the** `SUNWctac` **package:**
   - mail=
   - instance=unique
   - partial=nocheck
   - runlevel=nocheck
   - idepend=nocheck
   - rdepend=nocheck
   - space=nocheck
   - setuid=nocheck
   - conflict=nocheck
   - action=nocheck
   - basedir=/usr_sparc.all

7. **Enter the following command to add the** SUNWctac **package to the** usr **area of the boot service.**

Note – The following command is a single long entry. Do not press the Return key until you have typed the entire text string shown in the following command.

```
# /usr/sbin/pkgadd -S -M -R /export/Solaris_8 -d
/cdrom/multi_icd_sol_8_202_sparc_cs/s0/Netra_Supplement/Netra_ct_Platform_3.0/Product
-a path_to_usr_admin_file -n SUNWctac
```

where *path_to_usr_admin_file* is the path to the usr admin file that you created in Step 6.

8. **Create a root admin file with the following contents for the** SUNWctmgx **and** SUNW2jdrt **packages:**
   - mail=
   - instance=unique
   - partial=nocheck
   - runlevel=nocheck
   - idepend=nocheck
   - rdepend=nocheck
   - space=nocheck
   - setuid=nocheck
   - conflict=nocheck
   - action=nocheck
   - basedir=/opt

9. **Enter the following command to add the** SUNW2jdrt **package to the clone area.**

Note – The following command is a single long entry. Do not press the Return key until you have typed the entire text string shown in the following command.

```
# /usr/sbin/pkgadd -S -n -R /export/root/clone/Solaris_8/sun4u -a path_to_root_admin_file -d
/cdrom/multi_icd_sol_8_202_sparc_cs/s0/Netra_Supplement/Netra_ct_Platform_3.0/Product
SUNW2jdrt
```

where *path_to_root_admin_file* is the path to the root admin file that you created in Step 8. Answer yes to all questions after entering this command.

> **Note –** You may see several error messages after entering this command. These error messages are extraneous and should be ignored.

10. **Enter the following command to add the** SUNWctmgx **package to the clone area.**

> **Note –** The following command is a single long entry. Do not press the Return key until you have typed the entire text string shown in the following command.

```
# /usr/sbin/pkgadd -S -n -R /export/root/clone/Solaris_8/sun4u -a path_to_root_admin_file -d
/cdrom/multi_icd_sol_8_202_sparc_cs/s0/Netra_Supplement/Netra_ct_Platform_3.0/Product
SUNWctmgx
```

where *path_to_root_admin_file* is the path to the root admin file that you created in Step 8. Answer yes to all questions after entering this command.

> **Note –** You may see several error messages after entering this command. These error messages are extraneous and should be ignored.

11. **Enter the following commands to copy the** SUNW2jdrt **package to the template area:**

```
# mkdir /export/root/templates/Solaris_8/SUNW2jdrt_4.1_all
# cd /cdrom/multi_icd_sol_8_202_sparc_cs/s0/Netra_Supplement/Netra_ct_Platform_3.0/Product
# tar cvf -  ./SUNW2jdrt | ( cd /export/root/templates/Solaris_8/SUNW2jdrt_4.1_all ; tar xvf - )
```

12. **Enter the following commands to copy the** SUNWctmgx **package to the template area.**

> **Note –** The command beginning with tar cvf is a single long entry. Do not press the Return key until you have typed the entire text string shown.

```
# mkdir /export/root/templates/Solaris_8/SUNWctmgx_1.0,REV=2000.11.22.10.47_sparc.all
# cd /cdrom/multi_icd_sol_8_202_sparc_cs/s0/Netra_Supplement/Netra_ct_Platform_3.0/Product
# tar cvf -  ./SUNWctmgx | ( cd /export/root/templates/Solaris_8/SUNWctmgx_1.0,REV=
2000.11.22.10.47_sparc.all ; tar xvf - )
```

13. **Download and install additional patches.**

Refer to the *Netra CT 820 Server Release Notes* (817-2646) for the latest information on the patches available for the Netra CT 820 server. The document can be downloaded from the following web site:

`http://www.sun.com/products-n-solutions/hardware/docs/CPU_Boards`

Follow the instructions in the "Applying Patches to a Diskless Service" section of the *Netra CT 820 Server Release Notes* (817-2646) to download and install the patches.

14. **After the patches are installed, follow the procedure in "To Add a Diskless Client" on page 73.**

▼ To Add a Diskless Client

1. **Prepare a boot server for the diskless clients.**

If you have not yet created a boot server for the diskless clients, follow the steps in "To Create a Boot Server For Diskless Clients" on page 69 before continuing with this procedure.

2. **Log into the patched boot server as superuser.**

3. **Collect the following information for the diskless client you are adding:**
   - the client's IP address
   - the client's Ethernet address
   - the client's host name

4. **Change directories to the** `/usr/sadm/bin` **directory.**

```
# cd /usr/sadm/bin
```

5. **Set up the diskless clients.**

For each diskless client, type the following command as superuser (root):

```
# ./smdiskless add -- -i ip_address -e ethernet_address -n host_name -x os=
sparc.sun4u.Solaris_8 -x root=/export/root/host_name -x swap=
/export/swap/host_name -x swapsize=swap_size -x tz=time_zone -x locale=locale -x ns=
name_service -x nameserver=name_server
```

Where:
- *ip_address* is the client's IP address
- *ethernet_address* is the client's Ethernet address

- *host_name* is the client's host name
- *swap_size* is the size of the swap space that you will be using. The default is 24, however, your swap space should be the same amount as your memory. The maximum is 999.
- *time_zone* is the client's time zone
- *locale* is the client's locale
- *name_service* is the client's nameservice
- *name_server* is the nameserver's hostname

Refer to the smdiskless(1m) man page for more information and options.

For example, if the following entries were used for each variable, the command would appear as follows.

- *ip_address* = 129.144.214.999
- *ethernet_address* = 8:0:20:22:b3:aa
- *host_name* = client_host
- *swap_size* = 128
- *time_zone* = US/Pacific
- *locale* = en_US
- *name_service* = NIS
- *name_server* = nameserver_host:

```
# ./smdiskless add -- -i 129.144.214.999 -e 8:0:20:22:b3:aa -n client_host -x
os=sparc.sun4u.Solaris_8 -x root=/export/root/client_host -x swap=
/export/swap/client_host -x swapsize=128 -x tz=US/Pacific -x locale=en_US -x
ns=NIS -x nameserver=nameserver_host
```

You have to type your superuser password again after typing this command. The installation process should take roughly 5 minutes per client and about 15-30 minutes for the operating environment service to install; however, no progress is displayed on screen while the process is running. Do not cancel or kill the process until the process has successfully completed.

You should see messages similar to the following after a few moments, confirming that the command went through successfully the second time:

```
Login to client_host as user root was successful.
Download of com.sun.admin.osservermgr.cli.OsServerMgrCli from client_host was
successful.
```

6. **Boot the diskless client.**

System Specifications

This appendix gives the system specifications for the Netra CT 820 server.

Electrical Specifications

TABLE A-1 DC Input Specifications

Parameter	Conditions/Description	MIN	NOM	MAX	Units
Input Voltage –DC	Continuous input range	36		75	VDC
Hold-up Time	From 48 VDC input	4			ms
Input Current	At full rated load; 36 VDC, 48VDC		7.6, 5.4		A
Input Protection	Non-user serviceable, internally-located input line fuse				
Inrush Surge Current	Internally limited by thermistor and electronic switch			12	A
Operating Frequency	Switching frequency of main output transformer	125		145	KHz
Input Transient Protection	Varistor				

Environmental Specifications

The Netra CT 820 server is designed for harsh environments. The chassis features sturdy steel and aluminum construction with a corrosion resistant finish.

Due to the modular construction of the system, components could be added that change the system's environmental constraints. Board-level components and power supply modules have their own operating temperature ratings. Refer to component-specific product manuals for operational details that may affect system performance.

TABLE A-2 summarizes the environmental specifications for the Netra CT 820 server. The source of these specifications is NEBS GR-63-CORE. Systems were subjected to these environments and passed all testing.

TABLE A-2   Chassis Environmental Specifications

Parameter	Description
Temperature – Operating	0° C to 40° C (32° F to 104° F)
Temperature – Operating, short-term (per NEBS GR-63-CORE)	-5° C to 55° C (23° F to 131° F)
Temperature – Non-Operating	-40° C to 70° C (-40° F to 158° F)
Humidity – Non-Operating	90% noncondensing relative humidity at @ 30° C
Shock – Unpackaged	Up to 110.2 lbs: 2 inch drop Over 110.2 lbs: 1 inch drop
Shock – Packaged	< 450 lbs: 11.8 inch drop (category B, palletized)
Vibration – Unpackaged	5 Hz to 100 Hz, at 0.1 g sine
Vibration – Packaged	5 to 100 Hz at 0.5 g sine and 100 to 500 Hz at 1.5 g sine

Glossary

Knowledge of the following terms and acronyms is useful in the administration of the Netra CT 820 server.

B

basic hot swap   One of the hot swap methods. In the basic hot swap model, the hardware connection process can be performed automatically by the hardware, while the software connection process requires operator assistance. See *hot swap*, *full hot swap*

C

CompactPCI   A standard for computer boards and buses. CompactPCI is adapted from the *Peripheral Component Interconnect (PCI) Specification* for industrial and/or embedded applications requiring a more robust mechanical form factor than desktop PCI. CompactPCI is supported by the PCI Industrial Computer Manufacturers Group (PICMG), a consortium that uses PCI for embedded applications.

F

field replaceable unit (FRU)
From a service point of view, the smallest irreducible elements of a server. Examples of FRUs are disk drives, I/O cards, and power supplies. Note that a server, with all of its cards and other components, is not a FRU. However, an empty server is.

full hot swap
One of the hot swap methods. In the full hot swap model, both the hardware and the software connection process are performed automatically.

See *hot swap*, *basic hot swap*

H

hot swap
Implies the ability to remove and replace cards from and in a running server. See *full hot swap*, *basic hot swap*

M

midplane
The functional equivalent of a backplane. The midplane is secured to the back of the server. The CPU card, I/O cards and storage devices plug into the midplane from the front, and the rear transition cards plug into the midplane from the rear.

N

NEBS
An acronym for Network Equipment/Building System. A set of requirements for equipment installed in telco offices. These requirements cover personnel safety, protection of property, and operational continuity. "NEBS testing" involves subjecting equipment to various vibration stresses, fire, and other environmental insults. There are three levels of NEBS compliance, each a

superset of the preceding. NEBS level 3, the highest level, certifies that a piece of equipment can be safely deployed in an "extreme environment." A telco central office is considered an extreme environment.

The NEBS standards are maintained by Telcordia Technologies, Inc., formerly Bellcore.

P

PICMG Acronym for the PCI Inductrial Computer Manufacturers Group. (PCI stands for Peripheral Component Interconnect.) PICMG is the group that promulgates the CompactPCI standard.

See *CompactPCI*.

R

rear-access The model of the Netra CT 820 server that is configured so that all of the cables come out from the rear of the chassis.

rear transition card Used only on the rear access models of the Netra CT 820 server. The rear transition cards extend the connectors to the rear of the chassis.

Reliability, Availability, Serviceability (RAS) Refers to hardware and software features that implement or improve the reliability, availability and serviceability of a server.

U

U A unit of measure equal to 1.75 inches.

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