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Meridian 1

# Call Processor PII/Fiber Network Guide

## System and Software Upgrade Guide

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Document Number: P0914248

Document Release: Standard 2.00

Date: June 2000

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## Revision history

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**June 2000**

Standard 2.00.

**April 2000**

Standard 1.00.



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# Contents

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<b>Introduction</b> .....	<b>7</b>
<b>System architecture</b> .....	<b>29</b>
<b>Prepare for upgrade</b> .....	<b>55</b>
<b>Option 61C upgrade to Option 81C with Fiber Network Fabric</b> .....	<b>103</b>
<b>Option 81 upgrade to Fiber Network</b> .....	<b>151</b>
<b>Option 81C upgrade to Fiber Network</b> .....	<b>181</b>
<b>Upgrade Option 71, 81 and 81C systems</b> .....	<b>207</b>
<b>Upgrade Option 81/81C Fiber Network Fabric to Option 81C Call Processor PII</b> .....	<b>309</b>
<b>Option 81C CP PII upgrade to Fiber Network Fabric</b> .....	<b>389</b>
<b>Upgrade Option 51/51C to Call Processor PII and Fiber Network Fabric</b> .....	<b>419</b>
<b>Upgrade Option 61/61C to Call Processor PII and Fiber Network Fabric</b> .....	<b>509</b>
<b>Add a Network Group</b> .....	<b>593</b>



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# Introduction

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## Content list

The following are the topics in this section:

- [Reference list](#) . . . . . 7
- [About this document](#) . . . . . 7
- [Product description](#) . . . . . 8
- [Upgrades](#) . . . . . 9
- [Requirements](#) . . . . . 13
- [Compatible hardware](#) . . . . . 18
- [SL-1 cabinet support](#) . . . . . 23
- [Incompatible FNF related hardware](#) . . . . . 23

## Reference list

- *System Installation Procedures* (553-3001-210)
- *Call Processor PII Description, Installation, and Administration Guide* (P0914249)

## About this document

This document is a global document. Contact your system supplier or your Nortel Networks representative to verify that the hardware and software described is supported in your area.

This manual contains instructions for:

- upgrading an Option 61C with NT5D21 Core/Net Modules to a two-group Option 81C with Fiber Network Fabric.
- upgrading an Option 81 or Option 81C system to Fiber Network Fabric

**Note:** For new Option 81C systems shipped with Fiber Network Fabric, refer to *System Installation Procedures (553-3001-210)* for Fiber Network Fabric new system installation instructions.

- upgrading Option 71 (module), Option 81 and 81C systems to Option 81C with Call Processor PII.
- upgrading Option 81 and 81C systems with Fiber Network Fabric to Option 81C with Call Processor PII
- upgrading an Option 81C with Call Processor PII to Fiber Network Fabric
- upgrading Options 51 and 51C systems to Option 81C with Call Processor PII and Fiber Network Fabric
- upgrading an Option 61C system to Option 81C with Call Processor PII and Fiber Network Fabric
- adding additional capacity to a system that has been upgraded to Fiber Network Fabric

**Note:** To install new Option 81C systems with Call Processor PII, refer to the *Call Processor PII Description, Installation, and Administration Guide (P0914249)*.

## Product description

### Fiber Network Fabric

Fiber Network allows the expansion of Meridian 1 Option 81 and 81C systems from five Network groups to eight Network groups, a 60% increase in port and trunk capacity.

The Intergroup cards and Intergroup module in current Meridian 1 systems are replaced by a Dual Ring fiber optic network. This Fiber Network provides complete non-blocking communication between the network groups, eliminating the incidence of busy signals for calls switched between groups.

A Fiber Network of eight Network groups provides 7680 timeslots for 3840 simultaneous conversations.

## **Call Processor PII**

The Call Processor PII (CP PII) provides the capacity and speed to meet the current and future communications demands of large and growing organizations.

CP PII is based on Intel's Pentium® processor to ensure uninterrupted voice and messaging services for the most demanding applications. The Meridian 1 open architecture is designed for seamless upgrades to increased capacity and to future generations of Intel Pentium processors.

CP PII is available only in an Option 81C configuration. Systems that are upgraded to CP PII are also converted to an Option 81C system.

## **Upgrades**

### **Fiber Network Fabric**

Upgrades are achieved by replacing the Intergroup cards in the Core/Net and Network modules with Fiber Junctor Interface (FIJI) cards (Figure 1 on page 11 and Figure 2 on page 12). These FIJI cards are connected with fiber optic cable to form a Dual Ring Fiber Network. In this new configuration, the Intergroup module is no longer used. The module can be left in place, or removed. The Intergroup module can also be converted into an IPE module with the IPE Expansion kit.

Existing CNI cards are replaced with CNI-3 cards to increase the maximum number of Network groups to eight (Figure 2 on page 12). Each CNI-3 card connects to a maximum of three Network groups. A combination of two port CNI cards and three port CNI-3 cards can be used in a system.

CNI-3 cards can be installed in Motorola based Core or Core/Net modules. These cards are not used in Call Processor PII (CP PII) Core/Net systems.

X11 Release 25 is required. Software Option 365 must be activated.

See “System architecture” on page 29 for a detailed description of Fiber Network configuration. Refer to “Option 81 upgrade to Fiber Network” on page 151 and “Option 81C upgrade to Fiber Network” on page 181 for instruction to perform an upgrade.

Figure 1  
Card upgrades in NT5D21 Core/Net modules

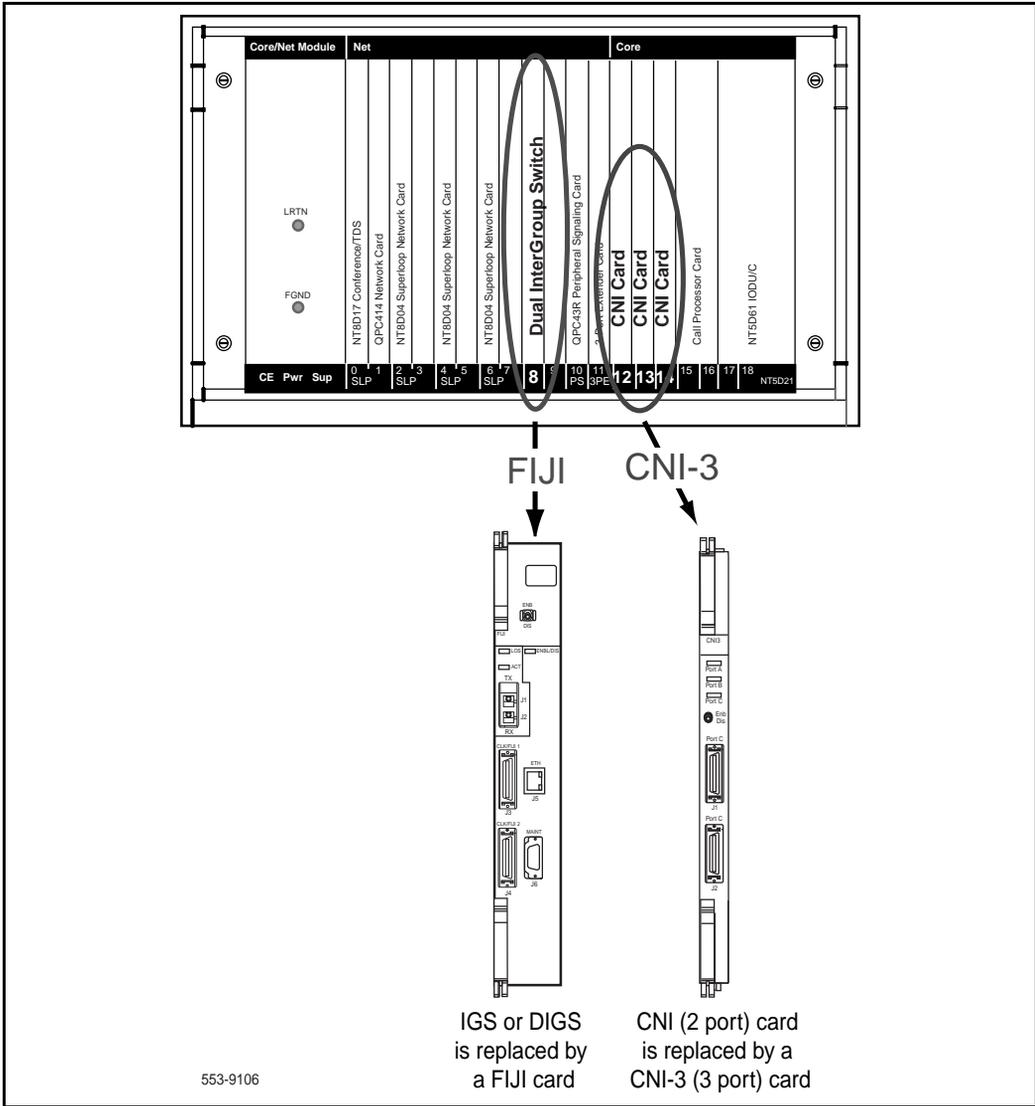
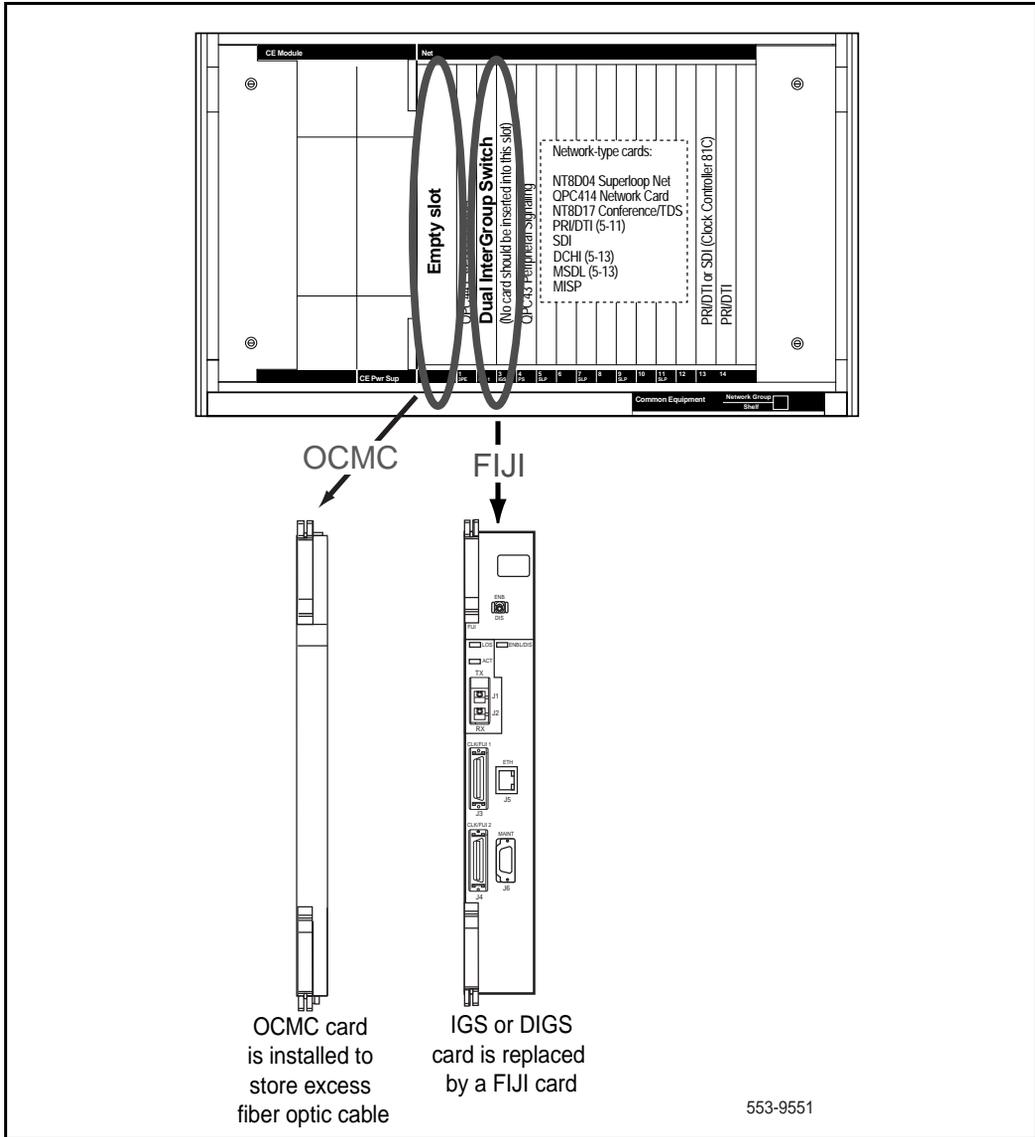


Figure 2  
Card upgrades in NT8D35 Network modules



## Call Processor PII

To upgrade a system to CP PII, the current Core or Core/Net equipment is replaced with CP PII equipment. The method of this upgrade depends on the type of system currently installed at the site.

- **Option 51 and 51C systems** can be upgraded to Option 81C only with both Call Processor PII and Fiber Network Fabric.
- **Option 61C, 81, and 81C systems:** The inner card cage in the Core or Core/Net module is removed and replaced with new CP PII card cages. The new card cages contain the CP PII Core equipment.
- **Option 71 (module-based), 81 and 81C systems:** The inner card cage in the Core or Core/Net module is removed and replaced with new CP PII card cages. The new card cages contain the CP PII Core equipment.

## Requirements

Meridian 1 systems can be configured with only one type of network fabric: either 100% IGS/IGM or 100% Fiber Network Fabric. A combination of IGS/IGM and Fiber Network equipment within a Meridian 1 system is not supported. If a system is upgraded to Fiber Network Fabric, FIJI cards and related equipment must be installed in all Network groups

## Required software

X11 Release 25 or higher is required for Fiber Network Fabric. Software Package 365 must be activated. Software package 368 is required for CP PII.

All systems must have a CD-ROM drive since Release 25 software is only shipped on CD-ROM media. In Motorola based systems, the CD ROM is part of the IODU/C unit (NT5D61AB). In the call processor based on Pentium, the CD ROM is part of the MMDU unit.

## Required hardware

The number of circuit cards required by each system depends on system capacity and module placement.

**Table 1**  
**Fiber Network cards and minimum vintage requirements**

Quantity	Part number	Description
1 per Network module	NTRB33	Fiber Junctor Interface (FIJI) card
1 per Network module, as needed	NTRE39	Optical Cable Management Card (OCMC)
6 per Motorola based system (3 per Core), as needed	NTRB34	Core Network Interface 3 (CNI-3) cards
1 per Network, Core or Core/Net module (DC powered systems only)	NT6D40 NT6D41	DC Power Supplies NT6D40 and NT6D41 must be AD vintage.
2 per system	QPC471*	Clock Controller cards (USA) must be vintage H or later.
2 per system	QPC775*	Clock Controller cards (all countries except USA) must be vintage E or later.
As required	NT5D12	Dual Density PRI (DDP) cards must be either: <ul style="list-style-type: none"> <li>• vintage AD or earlier</li> <li>• vintage AG or later</li> </ul> <p><b>Note:</b> Vintages AE and AF are not compatible with FNF.</p>
* Either Clock Controller can be installed, but QPC471 and QPC775 Clock cards cannot be combined in one system.		

## Required cables

**Table 2**  
Required cables

Cable type	Description	Quantity	Part number	Length
<b>Fiber Ring cable</b>	Fiber optic cable to connect the FIJI cards together in the Dual Ring Fiber Network.	1 per FIJI card	NTRC48AA	6 ft.
			NTRC48BA	10 ft.
			NTRC48CA	12 ft.
			NTRC48DA	14 ft.
			NTRC48EA	19 ft.
			NTRC48FA	26 ft.
			NTRC48GA	32 ft.
			NTRC48HA	50 ft.
<b>CNI to 3PE cable (CNI and CNI-3 backplane)</b>	Used to connect CNI and CNI-3 backplane connectors to 3PE cards	2 per CNI or CNI-3 card (2 cables per Network group)	NTND14	
<b>CNI-3 to 3PE cable (CNI-3 faceplate)</b>	Used to connect the "C" faceplate port on CNI-3 cards to 3PE cards.	2 per CNI-3 card	NT9D89CA	8 ft.
			NT9D89DA	10 ft.
			NT9D89EA	12 ft.
			NT9D89FA	25 ft.
			NT9D89GA	50 ft.
<b>Clock to FIJI</b>	Connects from the Clock to Clock card to the FIJI cards in Network group 0.	2 per system	NTRC46AA	4 ft.-4.5 ft.*
			NTRC46BA	5.5 ft. - 8 ft.*
			NTRC46CA	22 ft.-22 ft.*
<b>Clock to Clock</b>	Connects from Clock 0 to Clock 1. Also contains the connectors for the Clock to FIJI cables.	1 per system	NTRC49AA	6 ft.
			NTRC49BA	20 ft.

**Table 2**  
Required cables

Cable type	Description	Quantity	Part number	Length
<b>FIJI to FIJI Sync</b>	Connects between the FIJI cards in shelf 0 and shelf 1 of each Network group (except group 0).	1 per network group (except group 0)	NTRC47AA	5 ft.
* indicates the lengths of the two "Y" terminations.				

**Table 3**  
Equipment required for Option 61C upgrade to Option 81C with Fiber Network Fabric (Part 1 of 3)

Order number	Description	Quantity per system
NTRB33AA	Fiber Junctor Interface Card (FIJI)	4
NT4N50AA	Power Distribution Unit DC <sup>2</sup>	2
NT6D40BA	Peripheral Equipment Power Supply, DC <sup>2</sup>	2
NT6D41AD	Common Equipment Power Supply, DC <sup>2</sup>	2
NT7D00AA	Top Cap, AC <sup>1</sup>	1
NT7D00BA	Top Cap, DC <sup>2</sup>	1
NT7D06AA	Filler Panel	2
NT7D09CA	Pedestal, DC <sup>2</sup>	1
NT8D01BC	Controller - Four Card	1
NT8D04BA	SuperLoop Network Card	1
NT8D06AB	Peripheral Equipment Power Supply AC <sup>1</sup>	1
NT8D17FA	Conference/TDS Card	2

**Table 3**  
**Equipment required for Option 61C upgrade to Option 81C with Fiber Network Fabric**  
**(Part 2 of 3)**

Order number	Description	Quantity per system
NT8D22AC	System Monitor	1
NT8D27BB	Pedestal AC <sup>1</sup>	1
NT8D29AB	Common Equipment Power Supply AC <sup>1</sup>	2
NT8D35BA	Network Module AC <sup>1</sup>	2
NT8D35EA	Network Module DC <sup>2</sup>	2
NT8D37BA	Intelligent Peripheral Module AC <sup>1</sup>	1
NT8D37EC	Intelligent Peripheral Equipment Module DC <sup>2</sup>	1
NT8D46AL	System Monitor Serial Link Cable (7 ft.)	1
NT8D52AB	Pedestal Blower Unit AC <sup>1</sup>	1
NT8D52DD	Pedestal Blower Unit DC <sup>2</sup>	1
NT8D53CA	Power Distribution Unit AC <sup>1</sup>	2
NT8D91AE	Network to Controller Cable (8 ft.)	1
NT8D99AB	Network to Network Cable (2 ft.)	5
NTND14BA	CNI to 3PE Cable (6 ft.)	2
NTND14BB	CNI to 3PE Cable (8 ft.)	2
P0712003	Instruction Package	1
P0738686	Meridian 1 Pallet Ramp Set	1
QPC43R	Peripheral Signaling	2
QPC441F	Three-port Extender	2
NTRC49AA	Clock-Clock Synchronization Cable	1
NTRC46BA	Clock to FIJI Cable (5.5 ft. - 8 ft./1.7m - 2.4m)	2

**Table 3**  
**Equipment required for Option 61C upgrade to Option 81C with Fiber Network Fabric**  
**(Part 3 of 3)**

Order number	Description	Quantity per system
NTRC47AA	FIJI to FIJI Synch Cable	1
NTRC48AA	FIJI Fiber Ring Cable - 6 ft./2 m.	2
NTRC48CA	Fiber Ring Cables (12 ft./3.7 m)	2
NT4R39AA	Optical Cable Management Card (OCMC)	2
<sup>1</sup> Required for AC Systems only.		
<sup>2</sup> Required for DC Systems only.		

## Compatible hardware

Fiber Network Fabric is supported by Option 81 and 81C systems that include the hardware below:

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## Systems and related hardware

- All Enhanced Call Processor cards based on Motorola 68040, 68060, and 68060.
- Call Processor (CP PII) systems based on Intel Pentium II.
- All Network and Peripheral Equipment except equipment listed in “Incompatible FNF related hardware” on page 23. Fiber Network does not support equipment related to the Intergroup cards or Intergroup module.
- All Desktop and Applications Equipment.
- DC Power Supplies NT6D40 and NT6D41 must be AD vintage.
- QPC43 Peripheral Signaling cards must be minimum vintage R or later.
- QPC471 Clock Controller cards must be vintage H or later.
- QPC775 Clock Controller cards must be vintage E or later.

*Note:* QPC471 and QPC775 Clock cards cannot be combined in one system.

- QPC441 3-Port Extender (3PE) cards must be vintage F or later.
- NT8D29 ac Power Supply for CP PII must be vintage BA or later.
- NT6D41 dc Power Supply for CP PII must be vintage CA or later.

## Minimum memory requirements

Meridian 1 systems with Fiber Network must meet the minimum Release 25 memory requirements listed in Table 4 on page 20.

- Fiber Network systems must contain either the CP2 (68040), CP3 (68060), CP 4 (68060E) or CP PII Core processor cards.
- Systems that do not contain these cards (such as the XT) must upgrade to either the CP4 or CP PII cards.

DRAM memory can be upgraded by the customer. See “Memory upgrade guidelines” on page 21 for information on DRAM upgrades.

Flash memory cannot be upgraded by the customer.

**Table 4**  
**Minimum memory requirements<sup>1</sup>**

System configuration	Flash memory requirements	DRAM memory requirements	Total Memory requirements
Two to five Network groups	32 MB	64 MB	96 MB
Six to eight Network groups	32 MB	80 MB	112 MB
New 68060E systems or systems upgraded to 68060E call processor	64 MB	96 MB	160 MB
CP PII Core processors			128 MB <sup>2</sup>
<p><b>Note 1:</b> In addition to the memory requirements stated above, the call processor must have sufficient real time capacity. Consult your Nortel Networks representative after the upgrade process is complete to determine whether a call processor has sufficient real time capability.</p>			
<p><b>Note 2:</b> CP PII systems are only shipped in a 128 MB configuration. This memory cannot be upgraded in the field.</p>			

## Memory upgrade guidelines

Follow the instructions in Table 5 on page 21 to upgrade the memory in systems with two to five Network groups.

Follow the instructions in Table 6 on page 22 to upgrade the memory in systems with six to eight Network groups

These guidelines are for Option 81 or 81C systems with X11 Release 25 and Fiber Network. These guidelines are also for XT and single Core systems that are upgraded to dual Core systems:

**Table 5**  
**Memory upgrades for two to five Network groups**

Motorola call processor	Current flash memory	Current DRAM memory	Upgrade process
68040, 68060, 68060E	32 MB	32 MB	Upgrade the DRAM memory to 64 MB. Add one 32 MB DRAM SIMM per processor card.
68040, 68060, 68060E	32 MB	48 MB	Upgrade the DRAM memory to 80 MB. Add one 32 MB DRAM SIMM per processor card.
68040, 68060, 68060E	64 MB	48 MB	Upgrade the DRAM memory to 80 MB. Add one 32 MB DRAM SIMM per processor card.
68060E	64 MB	64 MB	No upgrade required.
<p><b>Note 1:</b> The NTZC75AA DRAM memory upgrade kit contains one 32 MB SIMM for the upgrades described above.</p> <p><b>Note 2:</b> The NTZC77AA kit contains the anti-static mat and ESD wrist-strap required to perform a memory upgrade.</p>			

**Table 6**  
**Memory upgrade guidelines for six to eight Network groups**

Motorola call processor	Current flash memory	Current DRAM memory	Upgrade process
68060, 68060E	32 MB	32 MB	Upgrade the DRAM memory to 96 MB. Add two 32 MB DRAM SIMMs per processor card.
68060, 68060E	32 MB	48 MB	Upgrade the DRAM memory to 112 MB. Add one 32 MB DRAM SIMM per processor card.
68060, 68060E	64 MB	48 MB	Upgrade the DRAM memory to 80 MB. Add one 32 MB DRAM SIMM per processor card.
68060E	64 MB	64 MB NT5D03FA	Upgrade the DRAM memory to 80 MB. Remove one 16 MB DRAM SIMM and add one 32 MB DRAM SIMM. Repeat this process for both processor cards.
68060E	64 MB	64 MB NT5D03FB	Upgrade the DRAM memory to 96 MB. Add one 32 MB DRAM SIMM per processor card.
<p><b>Note 1:</b> The NTZC75AA DRAM memory upgrade kit contains one 32 MB SIMM for the upgrades described above.</p> <p><b>Note 2:</b> The NTZC77AA kit contains the anti-static mat and ESD wrist-strap required to perform a memory upgrade.</p>			

## SL-1 cabinet support

Fiber Network supports “mixed network” systems that include a combination of SL-1 cabinets and Network modules. Such “mixed networks” are *not* supported on IGS/IGM based systems.

## Incompatible FNF related hardware

- InterGroup Switch (IGS) card (QPC412)
- Dual InterGroup Switch (DIGS) card (NT5D30)
- Intergroup module (NT8D36)
- Junctor Board (QPC417)
- All marketing packages that contain the above items.

## Option 71, 81 and 81C system upgrades

For Option 71 and 81 upgrades to CP PII, the existing common equipment card cages are replaced with the CP PII NT4N46AA Core/Net card cages. Of the existing common equipment cards, only the Clock Controller cards are reused. The Clock Controller cards are relocated to network modules. The Network side of the new CP PII Core/Net card cage can be left empty, or an additional Network group can be installed if required.

For Option 81C upgrades to CP PII, the existing Core/Net card cages are replaced with CP PII Core/Net card cages. All equipped cards in the Network shelf are relocated to the same card slots in the CP PII card cage.

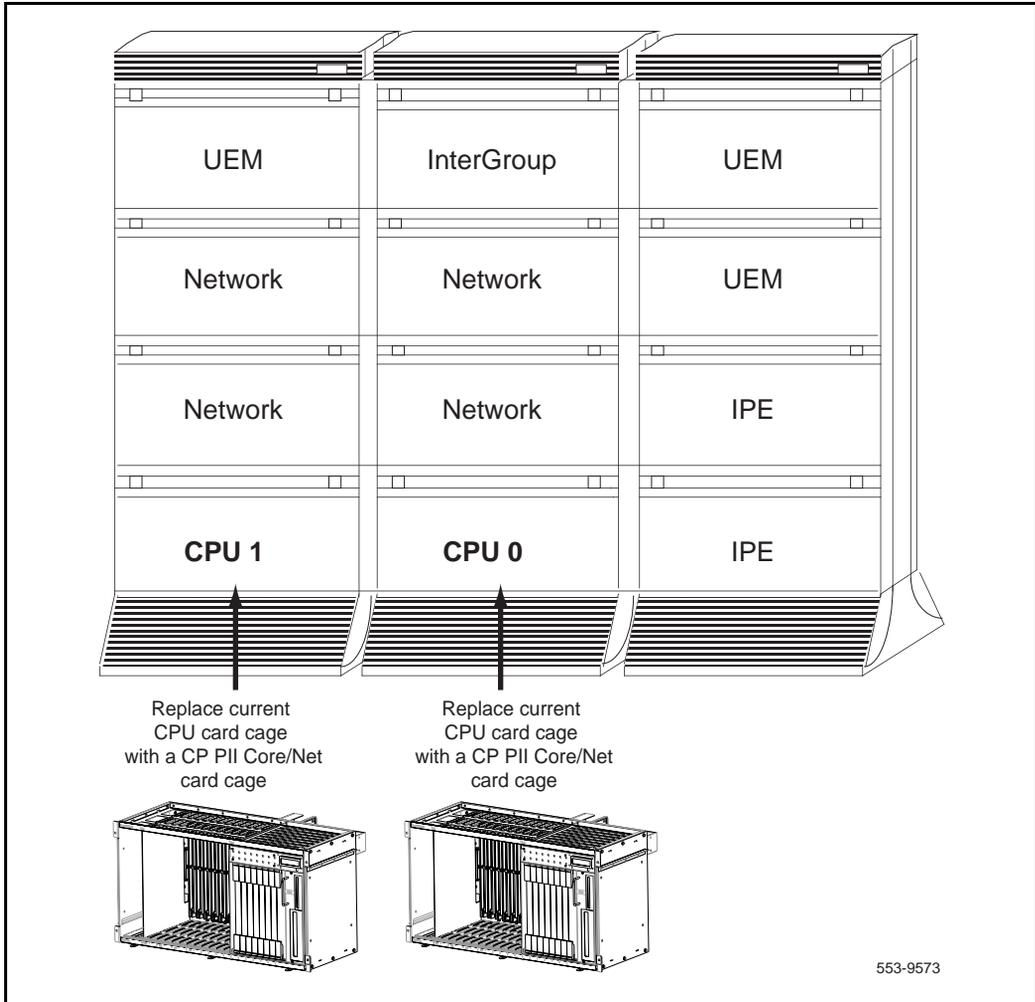
For an Option 71 upgrade to CP PII, see Figure 3 on page 24.

For an Option 81 upgrade to CP PII, see Figure 4 on page 25.

For an Option 81C upgrade to CP PII, see Figure 5 on page 26.

Figure 6 on page 27 shows the CP PII Core/Net card cage.

**Figure 3**  
**Option 71 upgrade to CP PII**



**Figure 4**  
**Option 81 upgrade to CP PII**

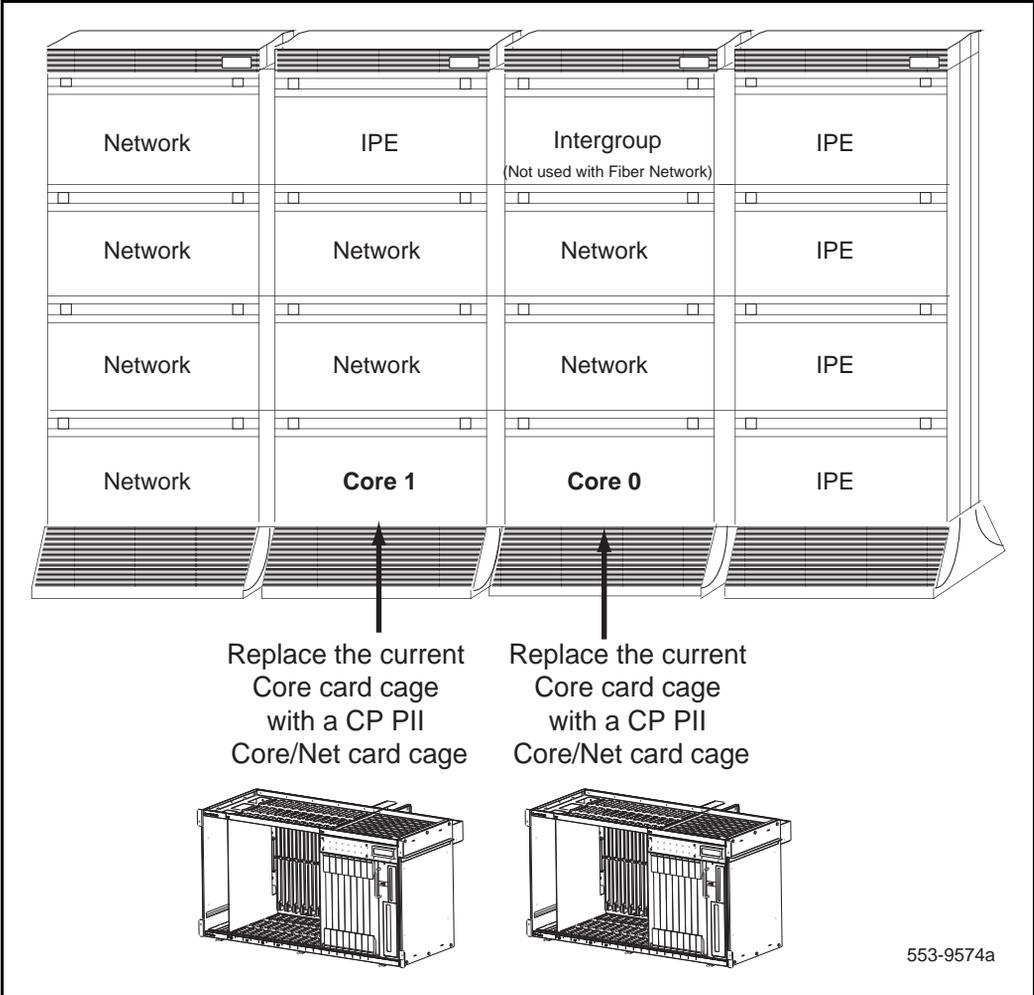
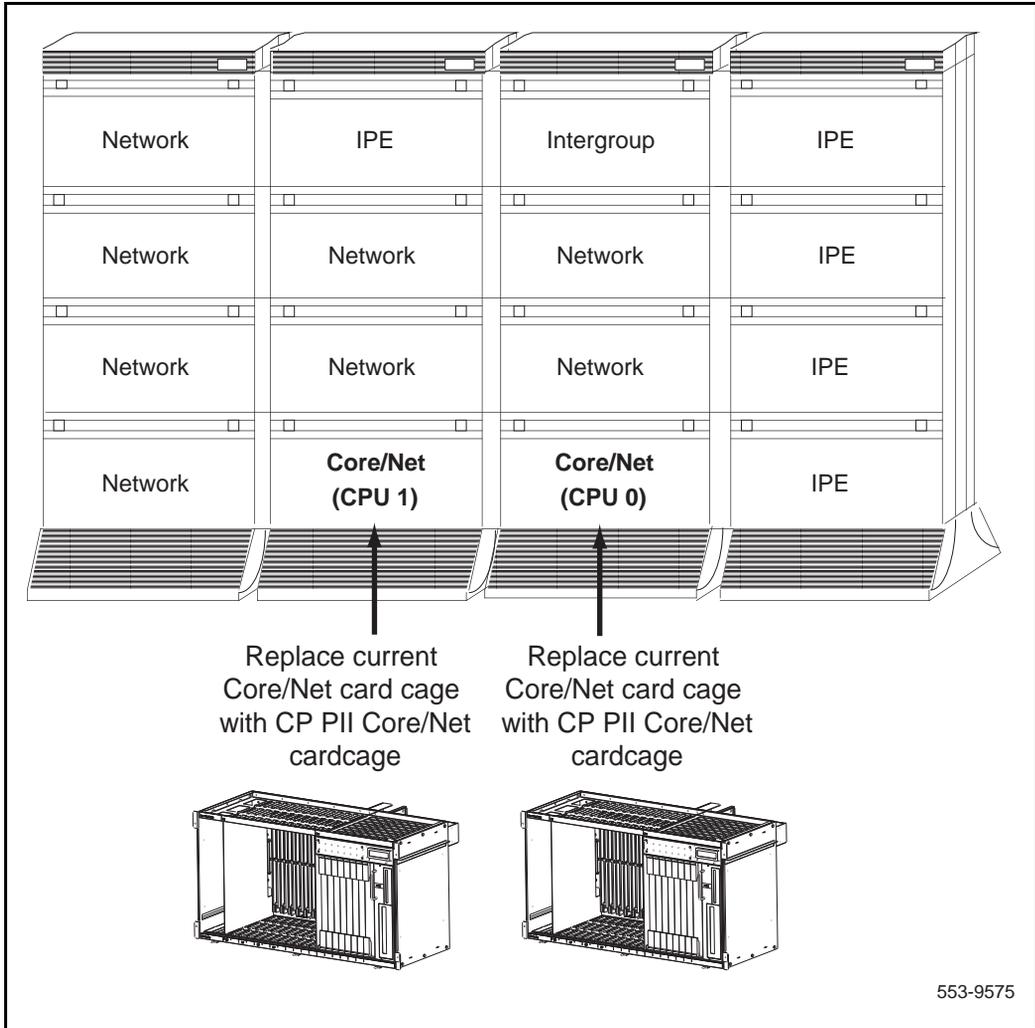
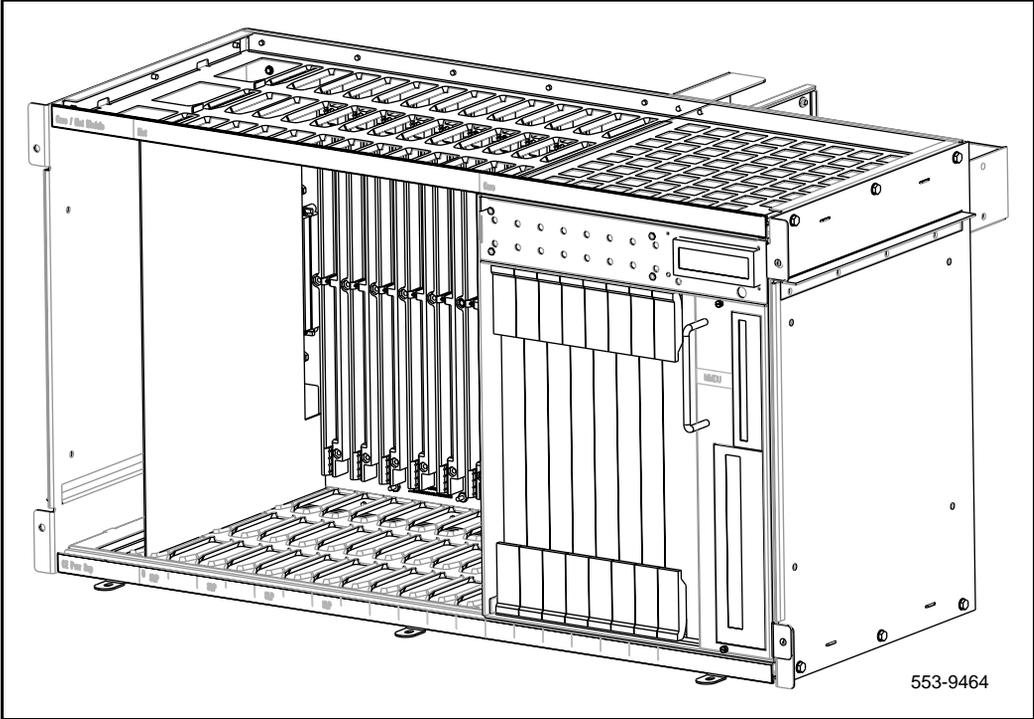


Figure 5  
Option 81C upgrade to CP PII



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**Figure 6**  
**NT4N46AA Core/Net card cage**





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# System architecture

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## Content list

The following are the topics in this section:

- [Fiber Network Fabric](#) . . . . . 29
- [FIJI card description](#) . . . . . 30
- [Dual Ring Fiber Network](#) . . . . . 33
- [Clock Controller configuration](#) . . . . . 39
- [Core to Network connections \(CNI cards\)](#) . . . . . 41
- [CP PII Core/Net equipment](#) . . . . . 43
- [Core equipment](#) . . . . . 44
- [Core redundancy](#) . . . . . 48
- [Network cards in the CP PII Core/Net](#) . . . . . 50
- [Backplane architecture](#) . . . . . 51
- [3PE Termination Panel](#) . . . . . 52

This chapter provides an overview of the Fiber Network Fabric and main CP PII components and functionality. See the relevant chapter for installation instructions.

## Fiber Network Fabric

The Fiber Network Fabric replaces the Intergroup cards and Intergroup module with Fiber Junctor Interface (FIJI) cards and the Dual Ring Fiber Network.

## FIJI card description

The Fiber Junctor Interface (FIJI) card functions as an active space switch for each network group. One NTRB33 FIJI card is required in each Core/Net or Network module of an Option 81 or 81C Meridian 1 system. See Figure 7 on page 31.

### Configuration

- FIJI cards replace the Intergroup (IGS and DIGS) cards.
- FIJI cards require two slots; they are installed in slots 2 and 3 of each Network module, or in slots 8 and 9 of each Core/Net module.
- The FIJI cards are connected with fiber optic cable to form the Dual Ring Fiber Network described below.
- The FIJI cards in Group 0 are connected to the Clock Controllers in the Network modules.
- A maximum of 16 FIJI cards can be installed in a system.

### Cables

- 1 FIJI Fiber Ring cable (NTRC48) for each FIJI card.
- 1 FIJI to FIJI Synchronization cable (NTRC47) for each Network Group except Group 0. These cables connect the two FIJI cards together to form a Network Group.
- 2 Clock to FIJI cables (NTRC46) for each system.
- 1 Clock to Clock cable (NTRC49AA) for each system.
- Faceplate port and display descriptions

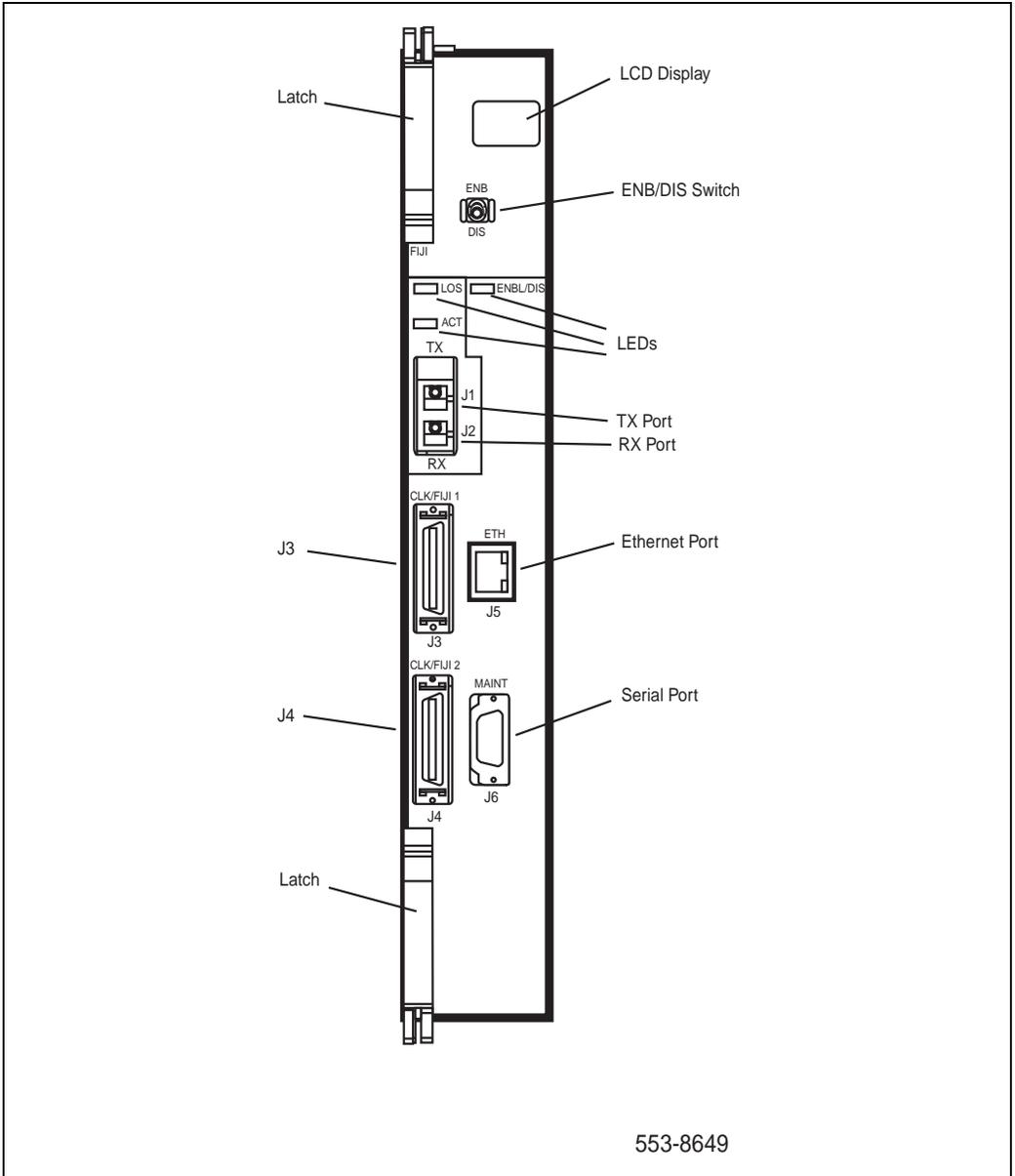
### LCD display

The LCD display shows the Network Group and shelf. If an error occurs, this window displays an Alarm code.

### The ENB/DIS switch

This switch is used to manually enable or disable the FIJI card.

Figure 7  
FIJI card faceplate



### LED lights

The three LED lights indicate the following:

- ENL/DIS (off/red): this LED is OFF when the card is enabled. The LED is RED when the card is disabled.
- LOS (yellow): indicates a LOSS of the Fiber Ring signal.
- ACT (green): indicates that the Fiber Ring signal is ACTIVE.

### Tx (J1) and Rx (J2) ports

These ports are used to connect the FIJI cards with fiber optic cable in the Dual Ring Fiber Network. See “Fiber optic cable configuration” on page 34.

### J3 (Clk 1) port

- The J3 port is only used in Network Group 0 to connect the **Group 0 FIJI cards to the Clock 1 cable**. See “Clock Controller configuration” on page 39.
- The J3 port is not used in Network Groups 1 through 7.

### J4 (Clk0/FIJI) port

- In Network **Group 0**, the J4 port is used to connect the **Group 0 FIJI cards to the Clock 0 cable**. See “Clock Controller configuration” on page 39.
- In Network **Groups 1 through 7** the J4 port is used to connect shelf 0 to shelf 1 in each Network Group (except Group 0). See “FIJI to FIJI connections (shelf 0 to shelf 1)” on page 37.

### Ethernet and serial ports

These ports are used for factory testing only.

## Dual Ring Fiber Network

The FIJI cards in the Network modules are connected with fiber optic cables to form a Dual Ring Fiber Network. This network replaces the Intergroup module and consists of two separate Rings: one Ring connects all the Network shelf 0's while the second Ring connects all the Network shelf 1's. This network communicates on a subset of the Sonet OC12c protocol (622 Mb bandwidth on each Ring).

### Intergroup switching

The Dual Ring fiber optic cable configuration provides complete non-blocking communication between the Network Groups. This configuration eliminates the incidence of busy signals for calls switched between groups. Each FIJI card handles 32 PCM links. A system of eight Network Groups provides 7680 timeslots for 3840 simultaneous conversations.

### Redundancy

The Dual Ring Fiber Network is fully redundant. Each of the fiber optic cable Rings is capable of handling the traffic for an entire eight group network. If a fault in one Ring is detected, the other Ring automatically takes over call processing. No calls are lost during the switchover.

### Ring states

The Dual Ring Fiber Network operates under four states:

#### Drives Half (normal state)

- Both Rings share call processing functions.
- Traffic is shared between the two Rings.
- Each FIJI card drives 480 timeslots.

#### Drives Full

- All traffic is handled by a single Ring.
- Each FIJI card in the active Ring drives 960 timeslots.

#### Drives None

- The Ring is inactive and does not support call processing.

## Survival

- The available FIJI cards in both Rings are used to maintain intergroup traffic.

**Note:** Only one Ring at a time can be under Drives Full or Drives None. These Ring states occur when a fault is found in one of the Rings.

The Rings can also be manually switched to “Full” or “None”. If one Ring is put into “Full”, the other automatically switches to “None”.

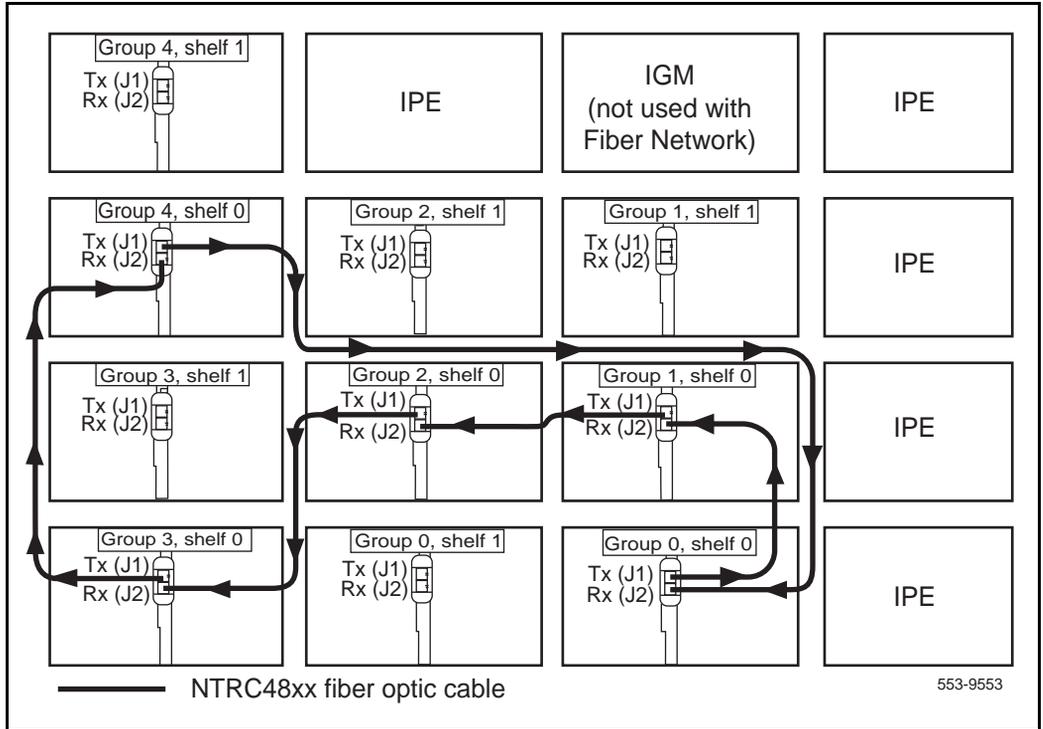
## Fiber optic cable configuration

The Dual Ring Fiber Network is comprised of two separate Rings of NTRC48 fiber optic cable: one Ring between the FIJI cards in all Network shelf 0's and a second Ring between the FIJI cards in all Network shelf 1's.

### Shelf 0 fiber optic Ring (ascending)

Connect the FIJI cards in each Network shelf 0 in *ascending* order (Figure 8 on page 35). Start with the Tx (J1) port in Group 0, shelf 0. Connect the cable to the Rx (J2) port in Group 1, shelf 0. Connect the remaining FIJI cards in an *ascending* daisy chain configuration (from Tx to Rx ports). To complete the Ring, connect a final cable from Tx in the highest number group, shelf 0 to Rx in Group 0, shelf 0.

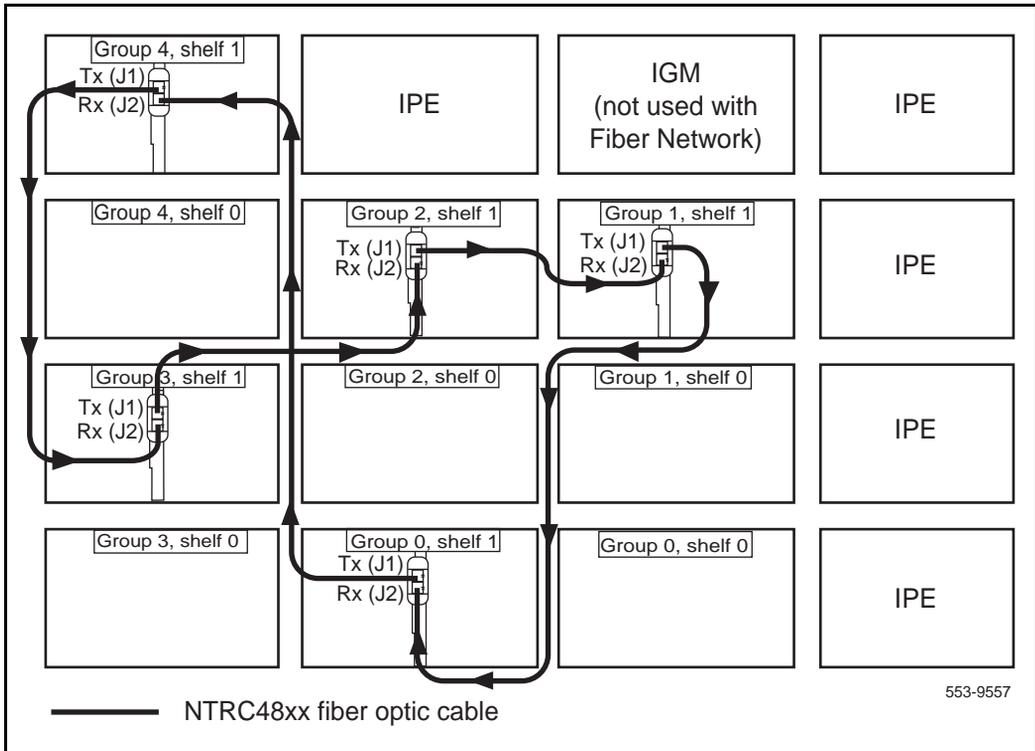
**Figure 8**  
**Shelf 0 ascending fiber optic Ring (Option 81C example)**



### Shelf 1 fiber optic Ring (descending)

Connect the FIJI cards in each Network shelf 1 in *descending* order (Figure 9 on page 36). Start with the Tx (J1) port in Group 0, shelf 1. Connect the cable to the Rx (J2) port in the highest Network Group, shelf 1. Connect the remaining FIJI cards in a *descending* daisy chain configuration (from Tx to Rx FIJI ports). To complete the Ring, connect a final cable from Tx in Group 1, shelf 1 to Rx in Group 0, shelf 1.

**Figure 9**  
**Shelf 1 descending fiber optic Ring (Option 81C example)**



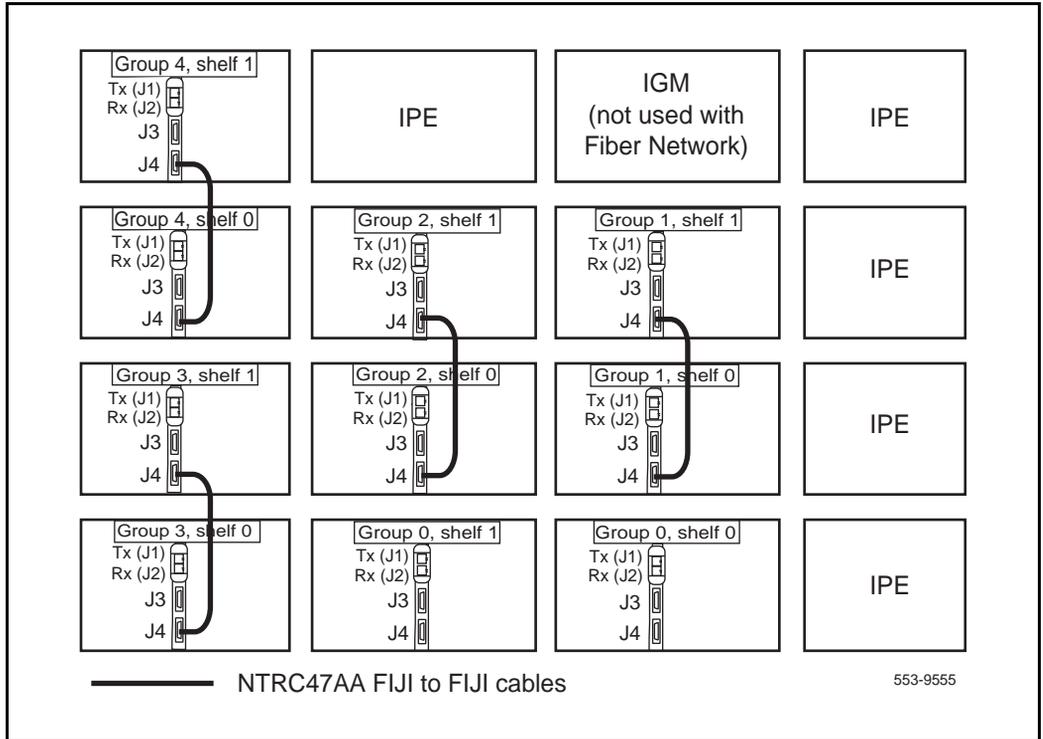
## FIJI to FIJI connections (shelf 0 to shelf 1)

One cable is required for each Network Group (one cable for every two FIJI cards).

The FIJI cards in shelf 0 and shelf 1 of each Network Group (except Group 0) must be directly connected with a NTRC47AA FIJI to FIJI Synch cable.

Connect a NTRC47AA cable from J4 to J4 of the FIJI cards in each Network Group, except Group 0. The FIJI to FIJI connection in Group 0 is made as part of the Clock Controller connection described on page 39.

**Figure 10**  
**FIJI shelf 0 to FIJI shelf 1 connections (Option 81C example)**



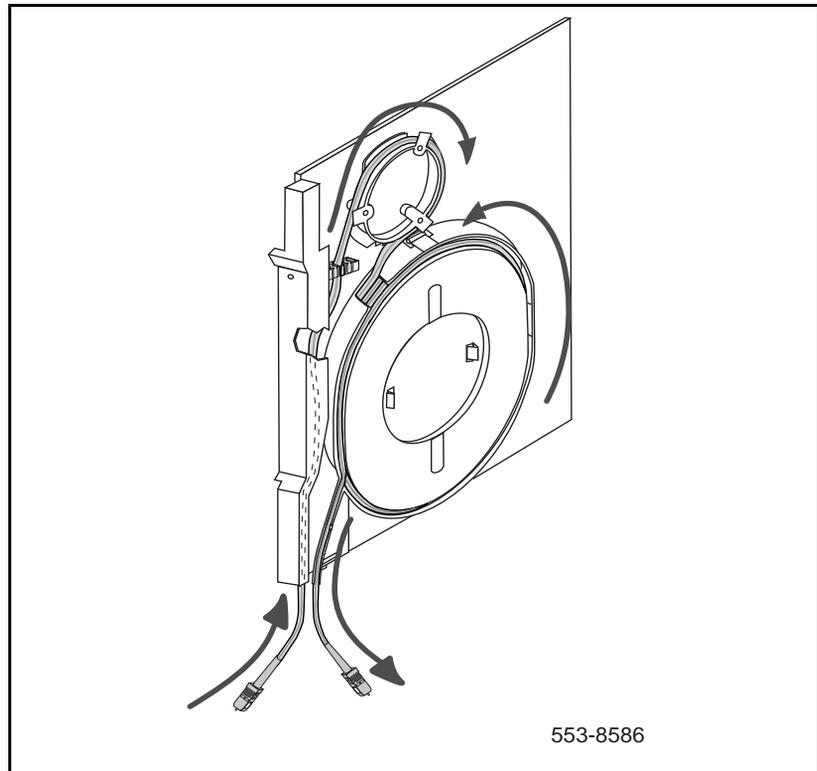
## Optical Cable Management Card (OCMC)

Because fiber optic cable is easily damaged if bent, the NTRE39 Optical Cable Management Card (OCMC) is installed in Network modules to store and protect excess cable length. The OCMC card ensures that the fiber cable is not bent beyond a 30 mm bend radius. See Figure 11 on page 38.

The OCMC contains no electronic components and is not powered by the backplane. This card is used primarily in upgrades where the intergroup cable distances vary greatly.

OCMC is a single width card installed between the power supply and slot 1 of a Network module.

**Figure 11**  
**OCMC: the Optical Cable Management Card**



## Clock Controller configuration

Two Clock Controller cards are required in each Fiber Network system. These cards synchronize the network and are the same as those in existing Meridian 1 Option 81 and 81C systems.

Figure 12 on page 40 displays the cable connections between the Clock Controllers and the FIJI cards. These connections also complete the FIJI to FIJI connections in Group 0.

### Card placement

- The two Clock Controllers must be installed in Slot 13 of any Network module.
- Clock Controller 0 must be installed in a Network shelf 0. Clock Controller 1 must be installed in a Network shelf 1.
- Clock Controllers cannot be placed in Core/Net modules due to space limitations. In Option 81C Core/Net systems, the Clocks must be placed in Network modules.
- In existing Option 81 Core systems, the Clocks are currently located in the Core shelves. These Clock Controllers must be moved to Network shelves.
- In Option 61C systems upgraded to Option 81C systems with Fiber Network Fabric, the Clocks are currently located in the Core/Net modules. These Clock Controller must be moved to Network shelves.
- If possible, install each Clock Controller in a different Network Group.
- If possible, install the Clock Controllers in separate columns for power and cooling redundancy.

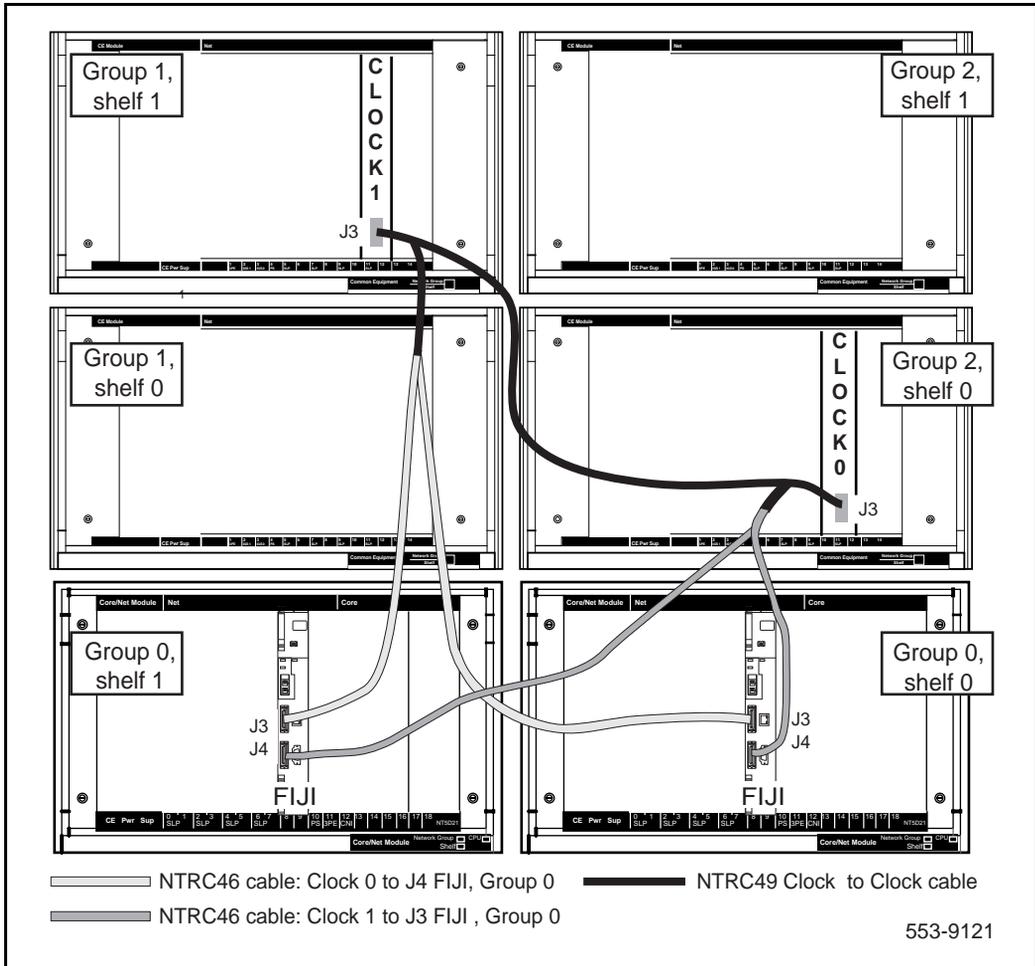
### Hardware compatibility

- QPC471 Clock Controller cards must be vintage H or later.
- QPC775 Clock Controller cards must be vintage E or later.
- QPC471 and QPC775 Clock cards cannot be combined in one system.

## Cable configuration

The NTRC49 is a Clock to Clock cable with a pigtail at each end. The cable connects between the J3 ports in Clock 0 and Clock 1. The pigtail connectors provide the connection to the NTRC46AA cables that connect to the FIJI cards in Group 0 (Figure 12 on page 40).

**Figure 12**  
**Clock Controller cable configuration (example)**



## Core to Network connections (CNI cards)

The 3PE card in each Network shelf is connected to CNI cards in the Core shelves. This connection provides the communication link between the Network Groups and the Core call processing components.

Three versions of CNI cards are available. Each of these cards provide the same functions. The type of CNI card installed in each system depends on the configuration of that system.

CNI and CNI-3 cards are used in Motorola based systems. cCNI cards (compact Core to Network) are used in CP PII based systems. All require X11 Release 25 software to work with Fiber Network.

An equal number of CNI, CNI-3 or cCNI cards must be installed in each Core shelf. If a mixture of CNI and CNI-3 cards is installed, the same mix and placement must be used in both Core shelves.

### Two group CNI cards

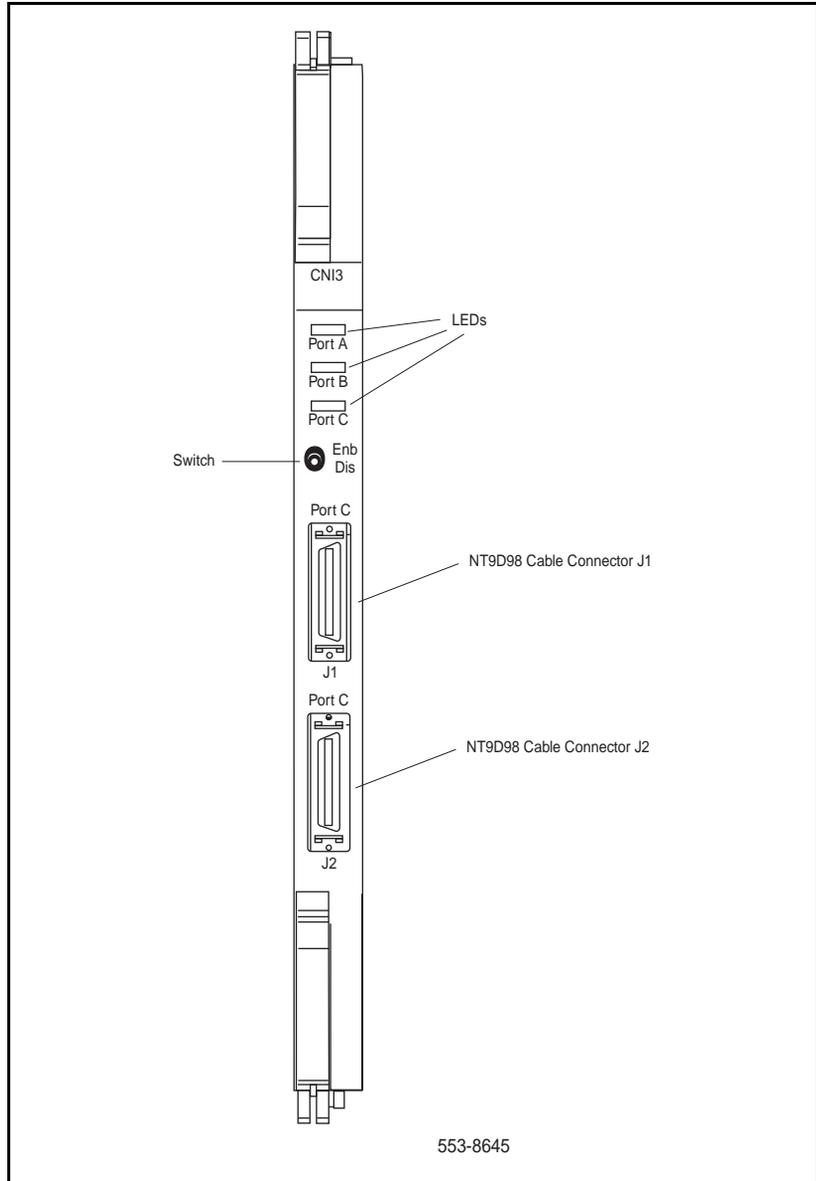
Two group CNI cards (NT6D65) already installed in Motorola X11 R25 Option 61C, 81, and 81C systems are compatible with Fiber Network.

### Three group CNI-3 cards

Three group CNI-3 cards (NTRB34) are installed to increase Meridian 1 capacity (Figure 13 on page 42). Each CNI-3 card can connect to three Network Groups. A mixture of CNI and CNI-3 cards can be used, but the same mixture and placement must be used in both Core or Core/Net modules.

The backplane ports are connected with two NTND14 CNI to 3PE cables per port. The third port connects from the faceplate of the CNI-3 card with two NT9D89 CNI-3 to 3PE cables. When a CNI card is upgraded to a CNI-3 cards, the original NTND14 backplane cables are left in place; only the NT9D89 CNI-3 to 3PE faceplate cables must be added.

**Figure 13**  
**CNI-3 faceplate**



## Two group cCNI cards (Call Processor PII)

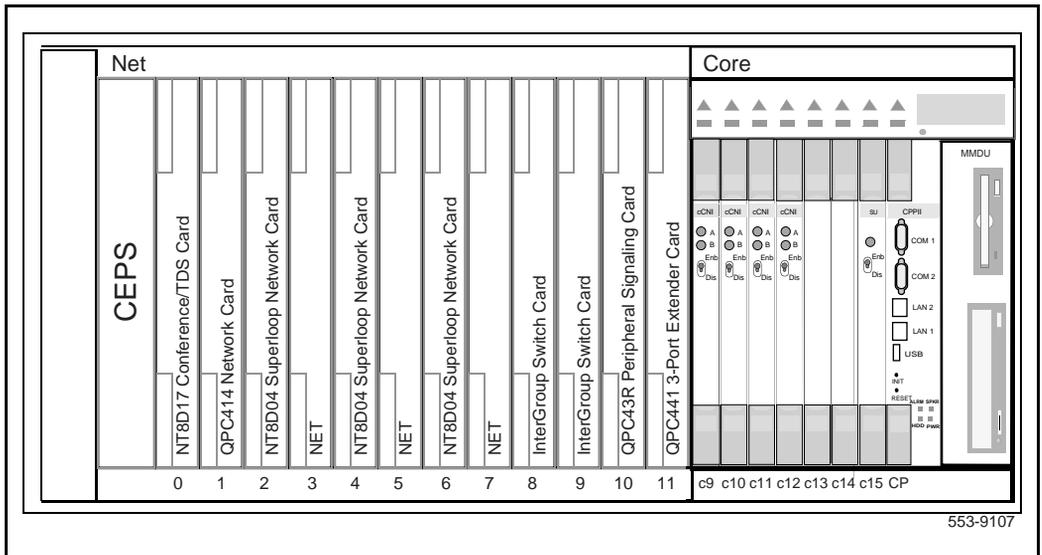
Meridian 1 systems with Call Processor PII Core/Net shelves require two group cCNI cards (compact Core to Network). Up to four cCNI cards are installed in each CP PII Core shelf (for a maximum of eight Network Groups). In the CP PII Core/Net shelves, cCNI 3PE to cCNI cables are connected at the Termination Panel on the backplane. These cards and cables are installed as part of the Call Processor PII upgrade.

## CP PII Core/Net equipment

The CP PII NT4N46AA Core/Net card cage (Figure 14 on page 43) contains slots for two types of equipment:

- **Core equipment** (see the description on page 44).
- **Network equipment** (see the description on page 50).

**Figure 14**  
CP PII Core/Net card layout



## Core equipment

The Core side of the CP PII card cage contains the circuit cards that process calls, manage network resources, store system memory, maintain the user database, and monitor the health of the system. These circuit cards also provide administration interfaces through a terminal, modem, or local area network.

CP PII is based on Intel's Compact Peripheral Controller Interconnect (cPCI). Circuit card names beginning with "c" indicate they are cPCI compatible.

Core cards are installed on both sides of the Core backplane:

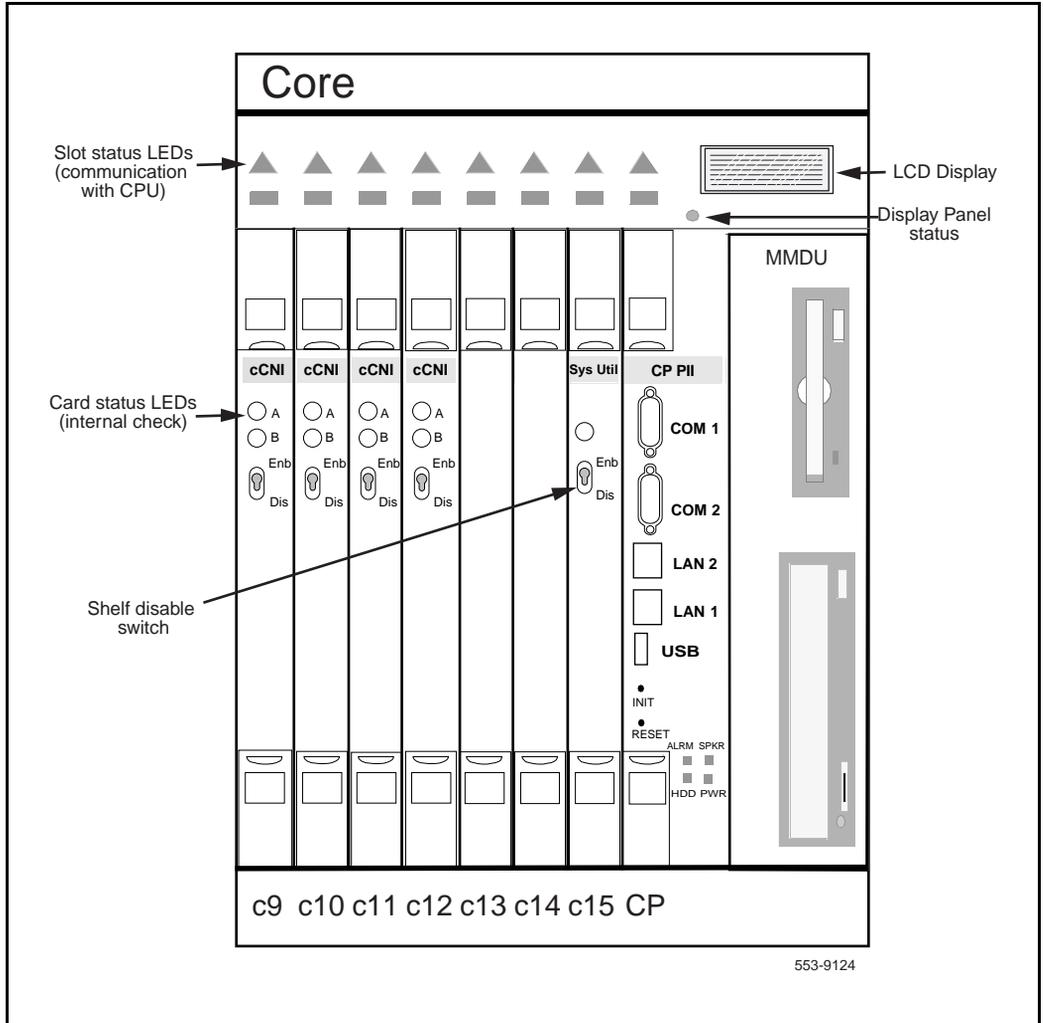
- the **front side** containing the **main Core cards** (described below).
- the **back side** containing the **Core Transition cards** (described on page 47).

### Front side Core cards

Figure 15 on page 45 shows the CP PII Core front side cards:

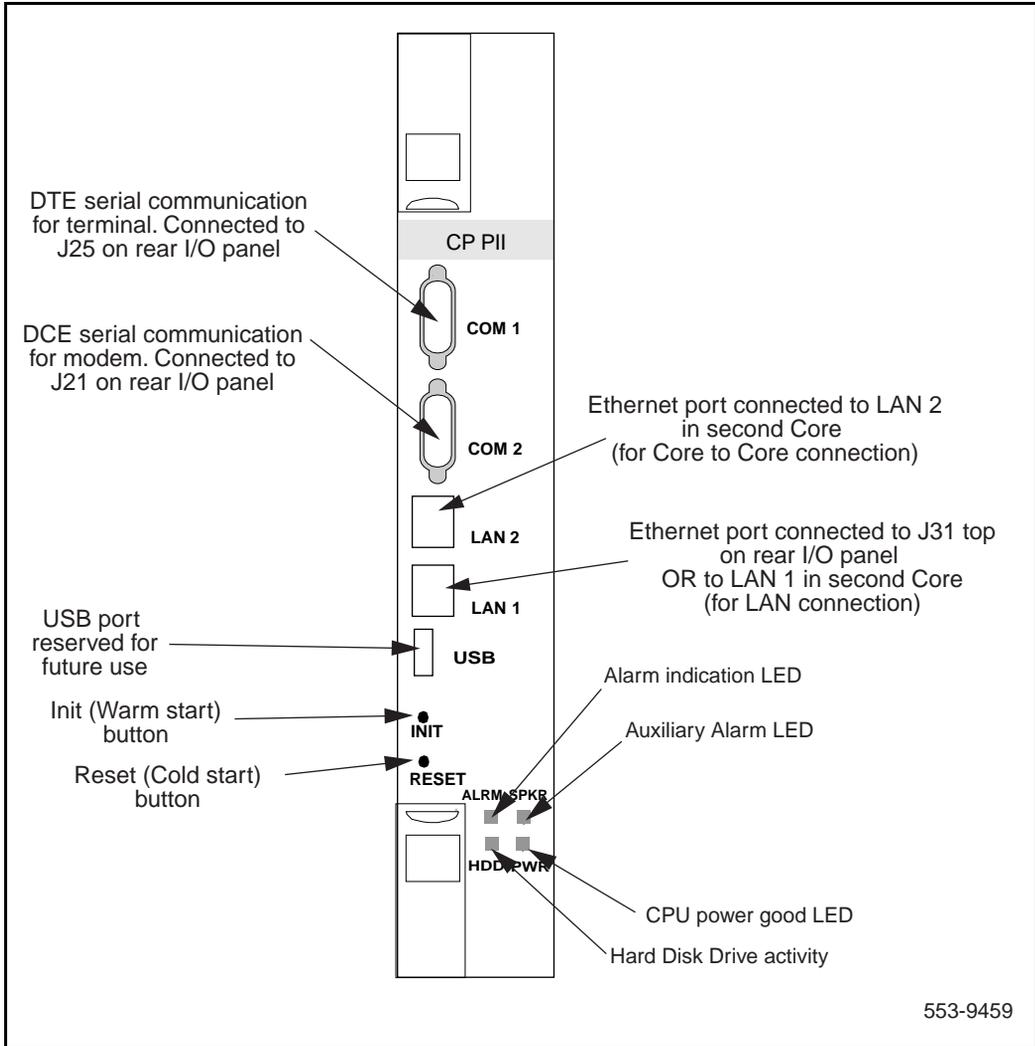
- The **Multi Media Disk Unit (MMDU)** on the far right of the shelf contains the CD-ROM drive, the floppy drive and the hard drive. This card is installed in the factory.
- The **Call Processor PII (CP PII)** card in slot "CP" is the Core Processor card (Figure 16 on page 46). This card contains the Pentium® processor and other equipment to manage call processing.
- The **System Utility (Sys Util)** card in slot c15 provides additional functionality for the CP PII card. These functions include connections to the System Monitor, Security device and display panel.
- Slots c13 and c14 are not used.
- The **compact Core to Network Interface (cCNI)** cards in slots c9 through c12 connect the Core equipment to the 3PE cards in the Network modules. Each system contains between one and four cCNI cards. The packing slip shows the number of cCNI cards for your system..

**Figure 15**  
**Core card layout (front side)**



553-9124

Figure 16  
CP PII card

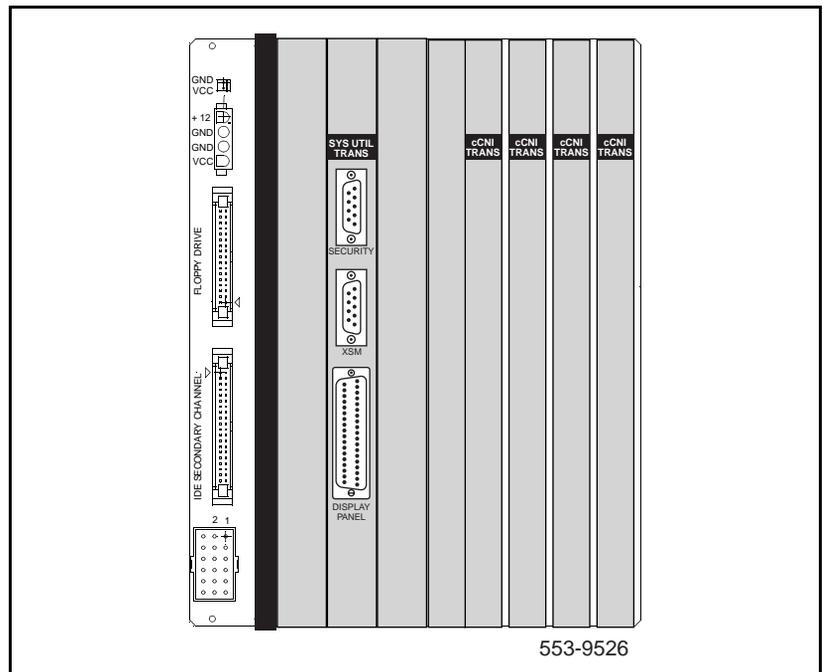


## Back side Core Transition cards

These cards add functionality and cable connections to the front side cards. There are two types of Transition cards:

- **cCNI Transition (cCNI Trans) cards:** These cards provide the cCNI to 3PE cable connections. One card is installed directly behind each cCNI card. Each CP PII system is equipped with four cCNI Transition cards per Core/Net module regardless of the number of main cCNI cards.
- **System Utility Transition (Sys Util Trans) card:** This card provides data, security and system monitoring connections for the Core shelf. One card is installed directly behind the System Utility card in each Core/Net module.

**Figure 17**  
Transition card layout (back side of the Core backplane)



## Core redundancy

Each Meridian 1 system with CP PII includes two identical Core circuit card packs; while one Core processes calls, the other Core monitors the health of the system and waits to take control if the first Core fails or degrades.

Two CP PII Core/Net modules are installed to achieve this redundancy. The Core/Net modules are installed side by side directly on top of the pedestals (Figure 18 on page 49). This configuration provides an additional level of power and cooling redundancy.

### Uninterrupted call processing

Redundancy ensures that call processing will continue if a Core/Net module or circuit card fails. Each Core regularly checks the status of the other Core. Data and memory from the active Core is continually backed up onto the standby Core. If a failure occurs, the standby Core immediately takes over the system. Since this second Core already contains the data and memory from the original Core, there is no noticeable difference in call processing to the end users.

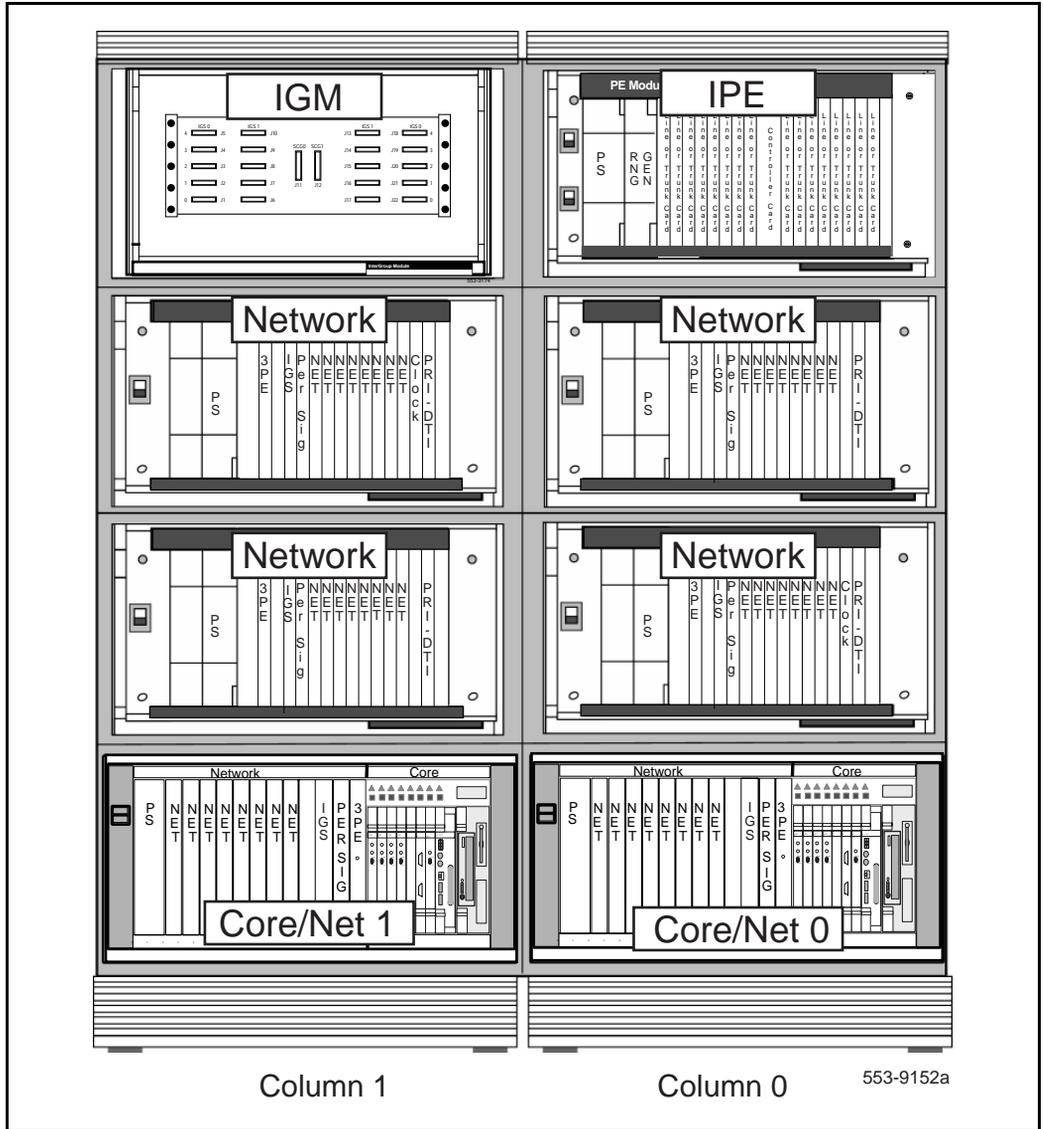
### Redundant links

This redundant system is made possible through a pair of Ethernet connections. One link directly connects the CP PII card in Core/Net 0 to the CP PII card in Core/Net 1. The second Ethernet port is connected to a LAN hub, if available. If connection to the LAN is not used, two links connect directly to each CP PII.

### Software control

The active and standby Cores are managed and switched with the X11 system software. Cores are switched automatically in the event of system failure. Cores are also switched manually with X11 system software to perform maintenance and upgrades.

Figure 18  
Example of CP PII redundant system



## **Network cards in the CP PII Core/Net**

Network equipment from existing systems is reused with CP PII card cage upgrades. See the descriptions below for information specific to the system being upgraded.

### **XN, XT and 71 cabinet system upgrades**

Two new CP PII Core/Net modules are included with the upgrade. The Network side of these modules are empty. The existing Network equipment in the cabinets can be used with the new CP PII Core/Net modules.

An additional Network group can also be installed in the Network side of the CP PII modules. This Network equipment must be ordered separately from the upgrade package.

### **Option 71 and 81 upgrades**

When a Core only system (such as Option 71 or 81) is upgraded to CP PII, the Network side of the new CP PII Core/Net shelves can be left empty. An additional Network group can also be added to the system by installing new Network cards in the new CP PII Core/Net shelves.

### **Option 81C upgrades**

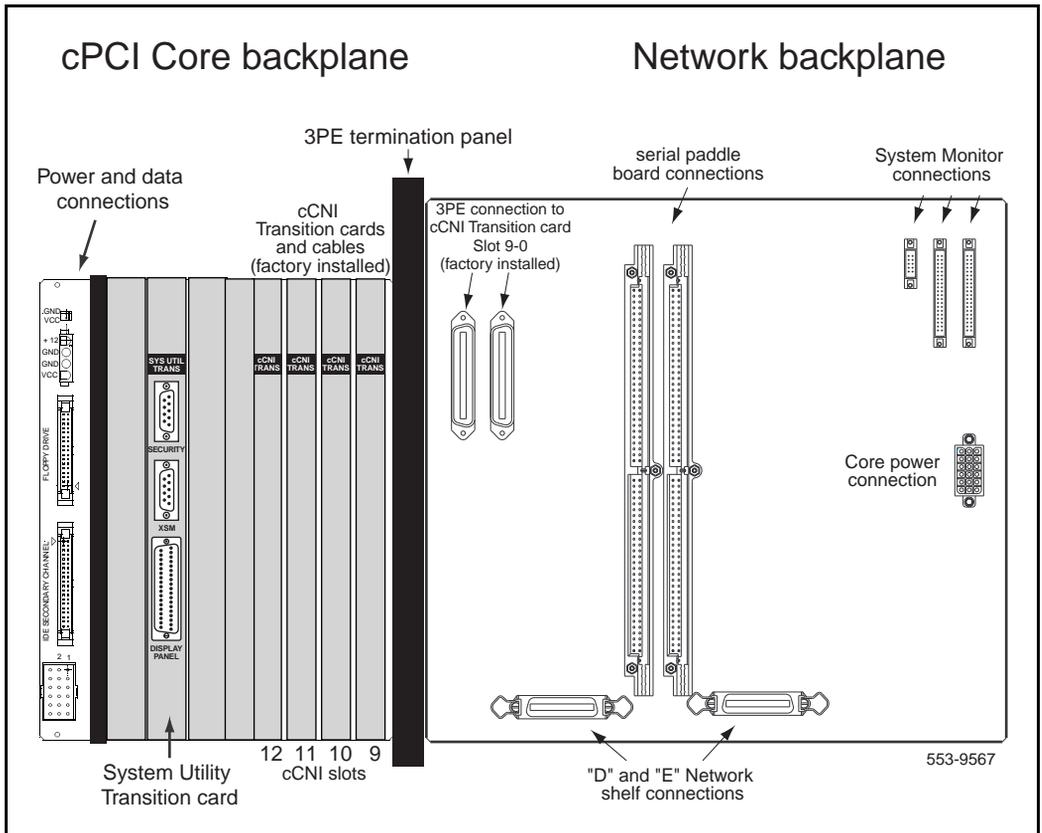
When a Core/Net system (such as Option 81C) is upgraded to CP PII, the Network cards from the original Core/Net shelves are reused in the CP PII card cages.

## Backplane architecture

The CP PII Core/Net card cage contains two distinct backplanes:

- The **Core** side of the CP PII card cage uses a cPCI backplane. This backplane is a high speed industry standard that allows expansion and replacement with “off the shelf” components.
- The **Network** side of the CP PII Core/Net card cage is a standard Meridian 1 backplane.

**Figure 19**  
CP PII Core/Net backplane (back view)

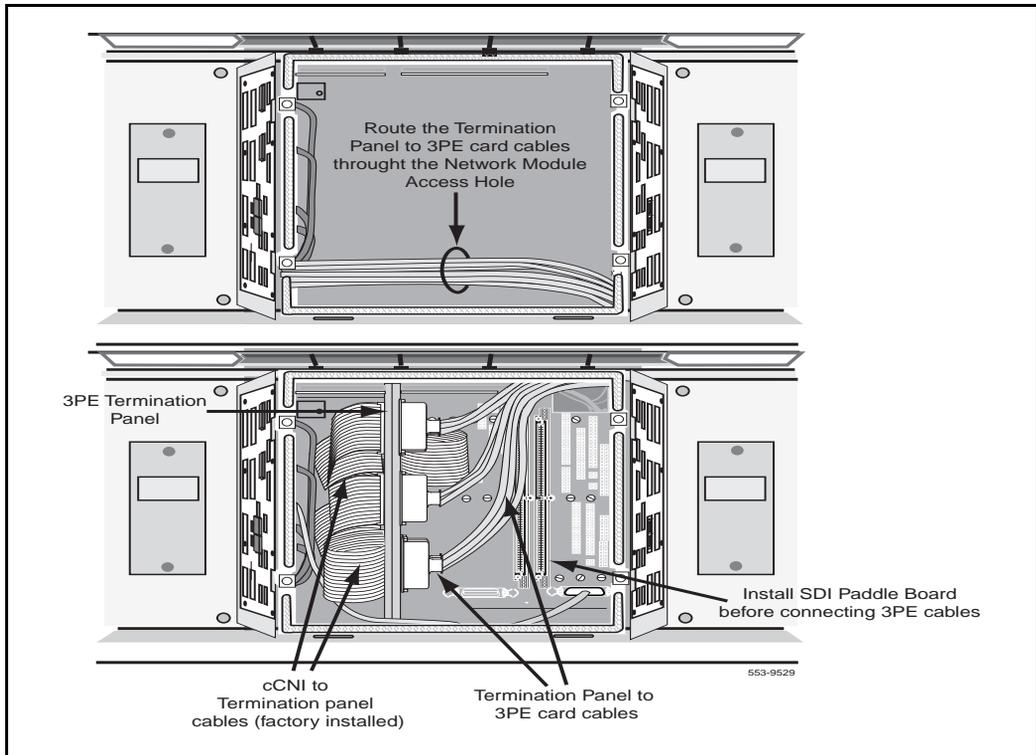


## 3PE Termination Panel

A Termination Panel on the back of each CP PII Core/Net card cage provides the connections for the cCNI to 3PE cables. There are two sets of cables for this connection. See Figure 20 on page 52:

- **cCNI to Termination Panel:** each cCNI Transition card includes two cables that attach to the left side of the Termination Panel. These cables are factory installed.
- **Termination Panel to 3PE:** the existing 3PE to CNI cables are replaced with new 3PE to cCNI cables. The new cables attach to the right side of the Core/Net Termination Panel.

**Figure 20**  
**3PE Termination Panel (rear module view)**



## Default factory cCNI to 3PE port assignments

In new installations, slot and group assignments for cCNI ports are made in the factory. These default factory default settings are described in Table 7 on page 53. Figure 21 on page 54 shows the port connection on the 3PE Termination Panel.

### CAUTION

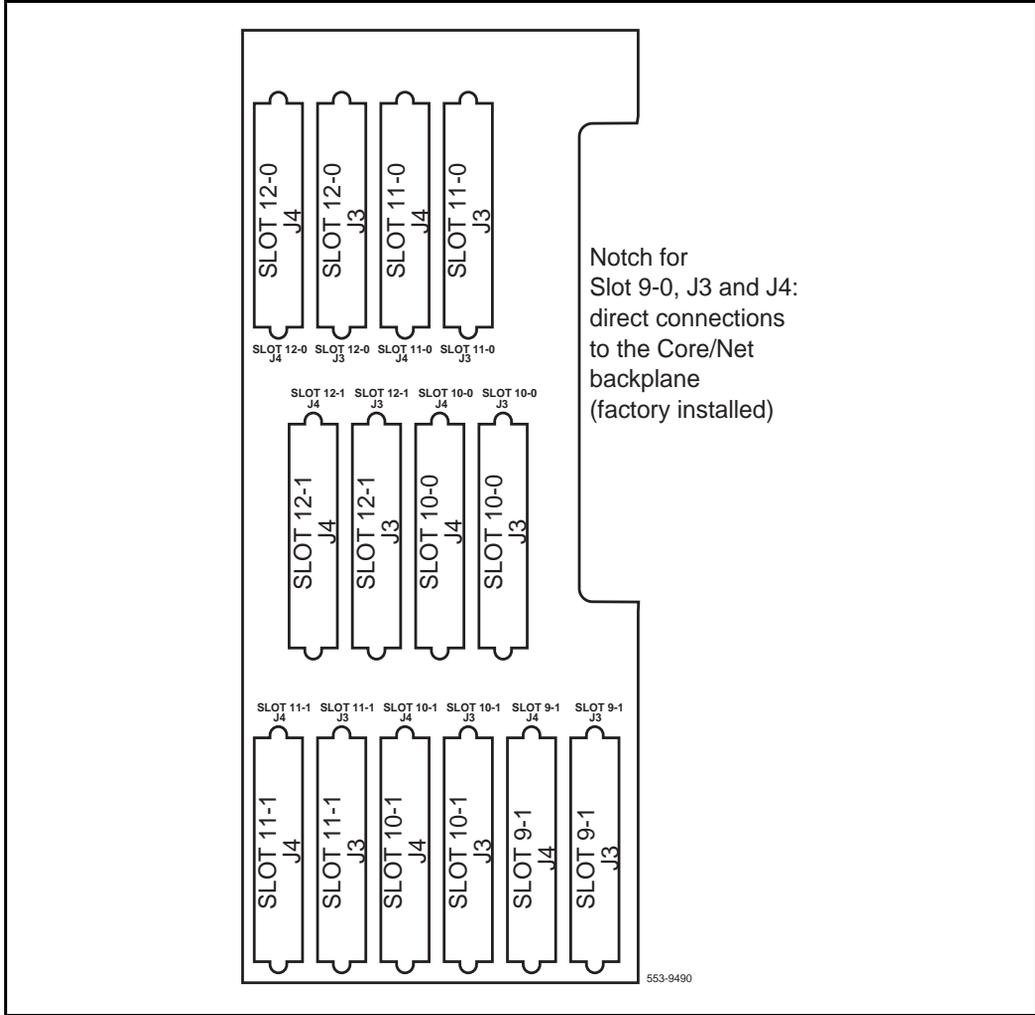
Verify that the cCNI port connections in the upgraded system are the same as those in the original system. If new Network groups are added or Network group assignments have been changed, the system database must be modified to reflect those changes.

**Table 7**  
Termination Panel to 3PE card connectors

Group number	Termination Panel connector	3PE card connector
0	9-0	See <i>Note</i> .
0	9-0	See <i>Note</i> .
1	9-1, J3	J3
1	9-1, J4	J4
2	10-0, J3	J3
2	10-0, J4	J4
3	10-1, J3	J3
3	10-1, J4	J4
4	11-0, J3	J3
4	11-0, J4	J4
5	11-1, J3	J3
5	11-1, J4	J4
6	12-0, J3	J3
6	12-0, J4	J4
7	12-1, J3	J3
7	12-1, J4	J4

**Note:** Group 0 cables connect from the cCNI Transition card directly: to the backplane of Core/Net 0 **OR** to the NT8D76 cable (depending on your CNI group configuration).

Figure 21  
Connectors for cCNI Transition Cables to the Termination Panel



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# Prepare for upgrade

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## Content list

The following are the topics in this section:

- [Prepare for upgrade of Option 61C to Option 81C with FNF . . .](#) 56
- [Prepare for upgrade of Option 71, 81, and 81C systems . . . . .](#) 56
- [Prepare for upgrade for Option 81/81C FNF to Option 81C CP PII57](#)
- [Prepare for upgradefor Option 81C CP PII to FNF . . . . .](#) 57
- [Prepare for upgrade for Option 51/51C to CP PII and FNF . . .](#) 58
- [Prepare for upgrade for Option 61/61C to CP PII and FNF . . .](#) 59
- [Check power supply version \(DC power only\) . . . . .](#) 60
- [Check power supply version \(DC power only\) . . . . .](#) 60
- [Check power supply version \(DC power only\) . . . . .](#) 60
- [Check minimum system requirements . . . . .](#) 60
- [Check 3PE settings. . . . .](#) 61
- [Prepare to move the Clock Controllers \(Option 61C and 81 to 81C with Fiber Network Fabric\). . . . .](#) 65
- [Connect a terminal . . . . .](#) 66
- [Print site data . . . . .](#) 68
- [Pre-route cables . . . . .](#) 79
- [Perform a template audit . . . . .](#) 89
- [Backup the database. . . . .](#) 90

- [Fiber Network Fabric application notes . . . . .](#) 92
- [New Information Messages for FIJI Automated Download . . .](#) 97

## **Prepare for upgrade of Option 61C to Option 81C with FNF**

### **Task summary list**

The following is a summary of the tasks in this section:

- Check power supply version (DC power only), page 60
- Check minimum system requirements, page 60
- Check 3PE settings, page 61
- Prepare to move the Clock Controllers (Option 61C and 81 to 81C with Fiber Network Fabric), page 65
- Connect a terminal, page 66
- Print site data, page 68

## **Prepare for upgrade of Option 71, 81, and 81C systems**

### **Task summary list**

The following is a summary of the tasks in this section:

- Identify two unique IP addresses, page 65
- Connect a terminal, page 66
- Check the Core ID switches, page 66
- Check 3PE settings, page 61
- Print site data, page 68
- Perform a template audit, page 71
- Back up the database (data dump and ABKO), page 72
- Convert the 4 MB database media to 2 MB database media, page 73
- Only Options 71 and 81 - Guidelines for moving Clock Controllers, page 77
- Route the 3PE to cCNI (NT8D76) cables, page 98

## Prepare for upgrade for Option 81/81C FNF to Option 81C CP PII

### Task summary list

The following is a summary of the tasks in this section:

- Identify two unique IP addresses, page 65
- Connect a terminal, page 66
- Check the Core ID switches, page 66
- Print site data, page 68
- Perform a template audit, page 71
- Back up the database (data dump and ABKO), page 72
- Route the NT8D76 3PE to cCNI cables, page 98

## Prepare for upgrade for Option 81C CP PII to FNF

### Task summary list

The following is a summary of the tasks in this section:

- Check power supply version (DC power only), page 60
- Check minimum system requirements, page 60
- Check 3PE settings, page 61
- Print site data, page 68
- Pre-route cables, page 79
- Perform a template audit, page 89
- Backup the database, page 90

## Prepare for upgrade for Option 51/51C to CP PII and FNF

### Task summary list

The following is a summary of the tasks in this section:

- Identify two unique IP addresses, page 65
- Check the Core ID switches, page 66
- Check minimum system requirements, page 60
- Print site data, page 68
- Perform a template audit, page 71
- Back up the database (data dump and ABKO), page 72
- Convert the 4 MB database media to 2 MB database media, page 73
- Prepare to move Clock Controllers on Option 51/51C, page 75
- In Core 0, pre-route cables, page 77
- Pre-route the 3PE to cCNI cables, page 99
- Pre-route the shelf 0 FIJI Fiber Ring cables, page 94

# Prepare for upgrade for Option 61/61C to CP PII and FNF

## Task summary list

The following is a summary of the tasks in this section:

- Identify two unique IP addresses, page 65
- Check the Core ID switches, page 66
- Check minimum system requirements, page 60
- Print site data, page 68
- Perform a template audit, page 71
- Back up the database (data dump and ABKO), page 72
- Convert the 4 MB database media to 2 MB database media, page 73
- Prepare to move Clock Controllers on Option 61/61C, page 76
- In Core 0, pre-route cables, page 77
- Pre-route the 3PE to cCNI cables, page 99
- Pre-route the shelf 0 FIJI Fiber Ring cables, page 94

## Reference list

The tasks in this section must be performed prior to upgrading Option 81 and 81C systems to Fiber Network Fabric. These tasks are also performed when upgrading an Option 61C to 81C with Fiber Network Fabric.

Failure to perform the tasks in this section will result in increased downtime and possible system failure.

## Check power supply version (DC power only)

DC Power Supplies NT6D40 and NT6D41 must be AD vintage.

*Note:* AC power supplies do not need to be upgraded.

Table 8 on page 60 lists the DC power supplies that must be replaced with AD vintage cards.

**Table 8**  
**DC Power supply vintages**

Power Supply	Type	Upgrade to new vintage
NT6D40AA, all vintages	PE Power Supply, DC power	vintage AD release 1
NT6D40AB, vintages 1 to 12	PE Power Supply, DC power	vintage AD release 1
NT6D41AA, all vintages	CE Power Supply, DC power	vintage AD release 1
NT6D41AB, vintages 1 to 8	CE Power Supply, DC power	vintage AD release 1

## Check minimum system requirements

Refer to Requirements, page 13 for detailed hardware and software requirements. All the requirements must be implemented for the system to operate correctly.

## Check 3PE settings

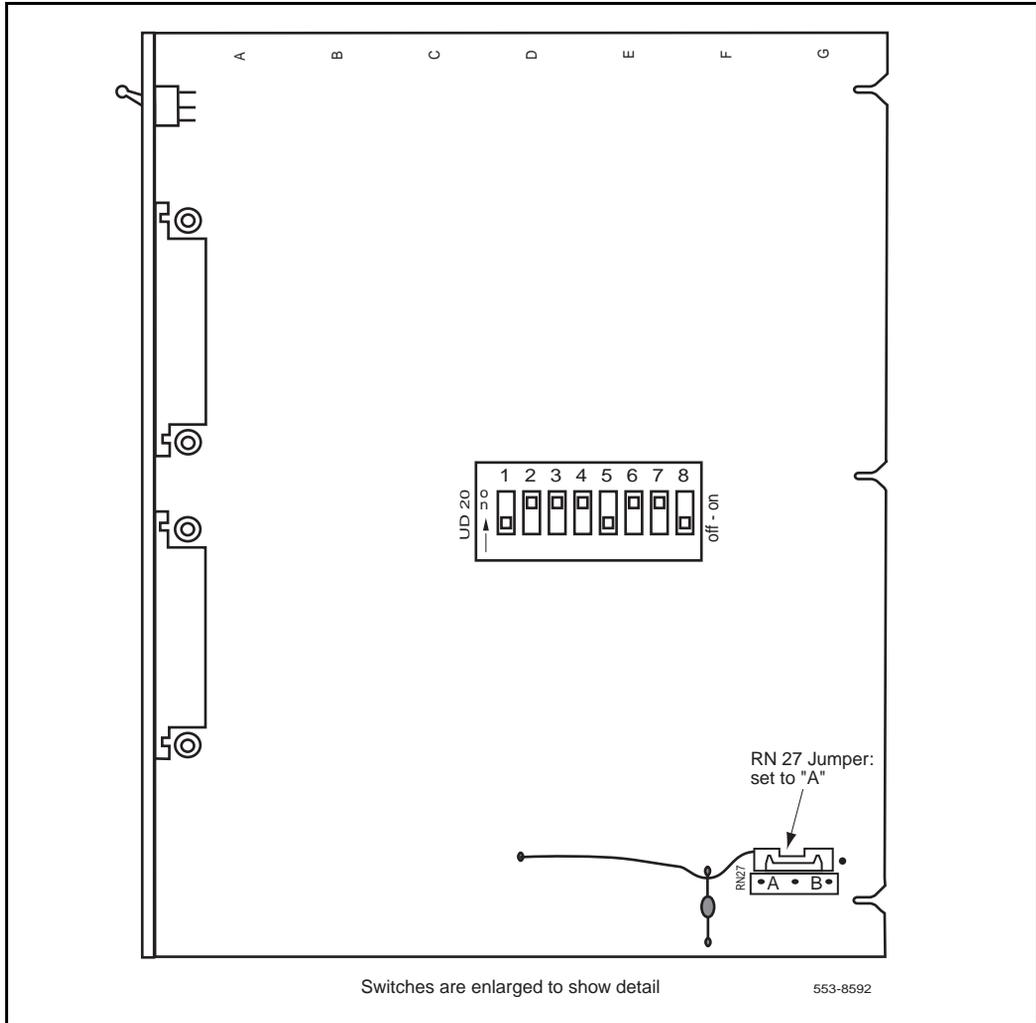
3PE card switches must be set to reflect the Network group number and Core module to which they belong. Follow the instructions below to verify that the 3PE cards are correctly configured:

- All 3PE cards must be vintage F or later.
- Jumper RN27 must also be set to “A”.
- If new groups are added or if a 3PE card is moved, the switches must be reset.
- The settings for 3PE cards in shelves NT5D21, NT6D39, NT6D60, and NT9D11 are different from those in all other shelves.
- Figure 22 on page 62 shows a side view of the 3PE card and the location of the switch settings.
- Table 9 on page 63 shows the 3PE settings for cards installed in **NT5D21, NT6D39, NT6D60, and NT9D11 Modules**.
- Table 10 on page 64 and Table 11 on page 64 show the 3PE settings for 3PE cards installed in all modules, *except* NT5D21, NT6D39, NT6D60, and NT9D11.

The 3PE switches and jumpers can be set before or during the upgrade.

3PE cards must be removed from the system to be configured. Since the removal of these cards will disrupt the system, reconfigure the 3PE cards when the impact to the site is minimal.

**Figure 22**  
**3PE card: side view**



**Table 9**  
**QPC441 3PE Card installed in the NT5D21, NT6D39, NT6D60, and NT9D11 Modules**

<b>Jumper Settings: Set Jumper RN27 at E35 to "A".</b>									
<b>Switch Settings</b>									
<b>Module</b>		<b>D20 switch position</b>							
NT6D60 (Option 81)		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
Core 0		off	on	on	off	off	on	off	on
Core 1		off	on	on	off	off	on	off	off
NT5D21 (Option 81C)		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
Core/Net 0 (Shelf 0)	Group 0	off	on	on	off	on	on	on	on
	Group 1	off	on	on	off	on	on	off	on
	Group 2	off	on	on	off	on	off	on	on
	Group 3	off	on	on	off	on	off	off	on
	Group 4	off	on	on	off	off	on	on	on
	Group 5	off	on	on	off	off	on	off	on
	Group 6	off	on	on	off	off	off	on	on
	Group 7	off	on	on	off	off	off	off	on
Core/Net 1 (Shelf 1)	Group 0	off	on	on	off	on	on	on	off
	Group 1	off	on	on	off	on	on	off	off
	Group 2	off	on	on	off	on	off	on	off
	Group 3	off	on	on	off	on	off	off	off
	Group 4	off	on	on	off	off	on	on	off
	Group 5	off	on	on	off	off	on	off	off
	Group 6	off	on	on	off	off	off	on	off
	Group 7	off	on	on	off	off	off	off	off

**Table 10**  
**QPC441 3PE Card installed in shelf 0 of modules or shelves *other than* NT5D21, NT6D39, NT6D60, and NT9D11**

Group	1	2	3	4	5	6	7	8
0	off	on	on	on	on	on	on	on
1	off	on	on	on	on	on	off	on
2	off	on	on	on	on	off	on	on
3	off	on	on	on	on	off	off	on
4	off	on	on	on	off	on	on	on
5	off	on	on	on	off	on	off	on
6	off	on	on	on	off	off	on	on
7	off	on	on	on	off	off	off	on

**Table 11**  
**QPC441 3PE Card installed in shelf 1 of modules or shelves *other than* NT5D21, NT6D39, NT6D60, and NT9D11**

Group	1	2	3	4	5	6	7	8
0	off	on	on	on	on	on	on	off
1	off	on	on	on	on	on	off	off
2	off	on	on	on	on	off	on	off
3	off	on	on	on	on	off	off	off
4	off	on	on	on	off	on	on	off
5	off	on	on	on	off	on	off	off
6	off	on	on	on	off	off	on	off
7	off	on	on	on	off	off	off	off

---

## Prepare to move the Clock Controllers (Option 61C and 81 to 81C with Fiber Network Fabric)

During an Option 61C upgrade to Option 81C with Fiber Network Fabric, the two Clock Controller cards must be relocated from the NT5D21 Core/Net modules to the NT8D35 Network modules.

During an Option 81 upgrade, the two Clock Controller cards must be relocated from the NT6D60 Core modules to the NT8D35 Network modules.

Before the upgrade, determine where the Clock Controllers will be moved based on the following rules:

- The two Clock Controllers must be installed in Slot 13 of any Network module. If another card is already located in slot 13, relocate the card prior to the upgrade.
- One Clock must be installed in a Network shelf 0. The second Clock Controller must be installed in a Network shelf 1.
- If current Clock Controller Reference cables are the wrong length after the Clock is moved, **new NT8D79xx or NTCG03xx PRI/DTI to Clock Controller cables must be ordered separately.**

**Note:** QPC720 PRI cards require NT8D79xx cables. NT5D12 Dual PRI/DTI cards require NTCG03xx cables.

- If possible, install each Clock Controller in a different Network group.
- If possible, install the Clock Controllers in separate columns for power and cooling redundancy.

**Note:** Either two QPC471 (vintage H or later) or two QPC775 (vintage E or later) Clock Controllers can be installed in a system. These two types of Clock cards cannot be combined in one system.

### Identify two unique IP addresses

Each CP PII system must be configured with two unique IP addresses for LAN identification and communication. One IP number is defined for the *active* Core. The second IP address is defined for the *inactive* Core.

In this configuration, the *active* Core (either Core 0 or Core 1) that handles call processing is always identified by the same IP address.

- Contact your systems administrator to identify two unique IP numbers before the upgrade.
- For instructions to configure these IP numbers, see Configure the IP addresses, page 258.

## Connect a terminal

A maintenance terminal is required to access the Core or Core/Net modules during the upgrade procedure. Connect a terminal to the J25 port on the I/O panel in the *inactive* Core or Core/Net module. The settings for the terminal are:

**9600 Baud, 7 data, space parity, 1 stop bit, full duplex, XOFF**

If only one terminal is used for both Core or Core/Net modules, the terminal will have to be connected from side to side to access each module. A “A/B” switch box can also be installed to switch the terminal from side to side.

## Check the Core ID switches

Each CP PII Core/Net card cage or module is identified as “Core 0” or “Core 1”. This setting is made by a set of option switches on the side of the System Utility Transition card. The Core ID switches are set in the factory. Confirm that these settings match the identification labels for the module into which they will be installed.

### **WARNING**

The CP PII Core/Net card cages **MUST** be installed in the correct Core 0 or Core 1 module.

- 1 Remove the screws on the top and bottom of the System Utility Transition card. This card is located in the back of the CP PII card cage or module (Figure 23 on page 67).
- 2 Pull the System Utility Transition card far enough out of its slot so you can see the ID switch settings. (Figure 24 on page 68).

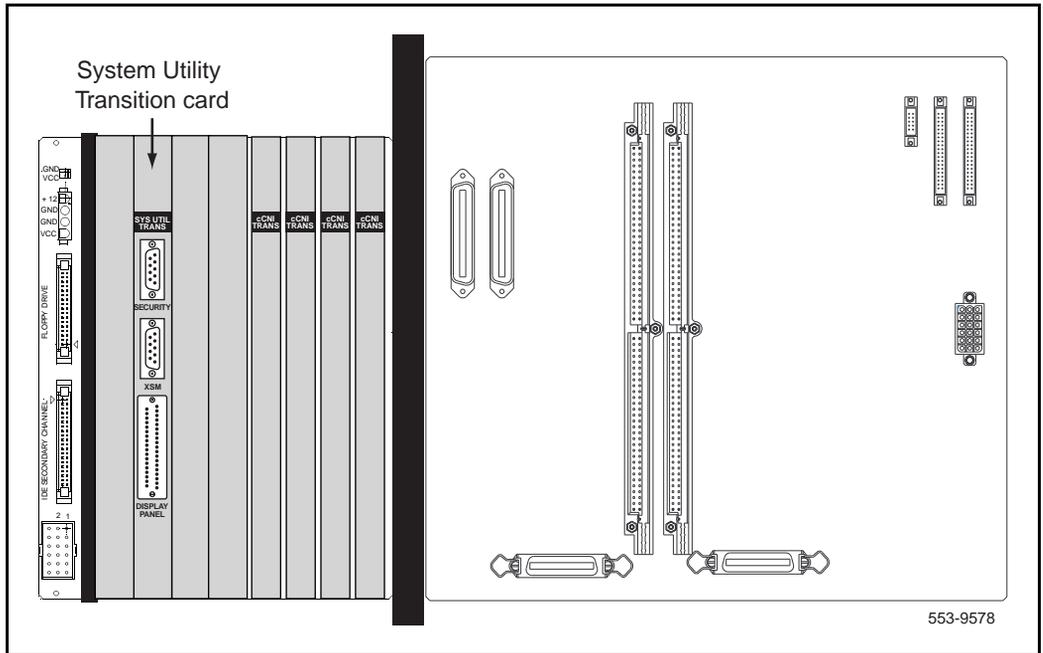
- 3 Configure the switch settings according to Table 12 on page 67.

**Table 12**  
**Core module ID switch settings (System Utility Transition card)**

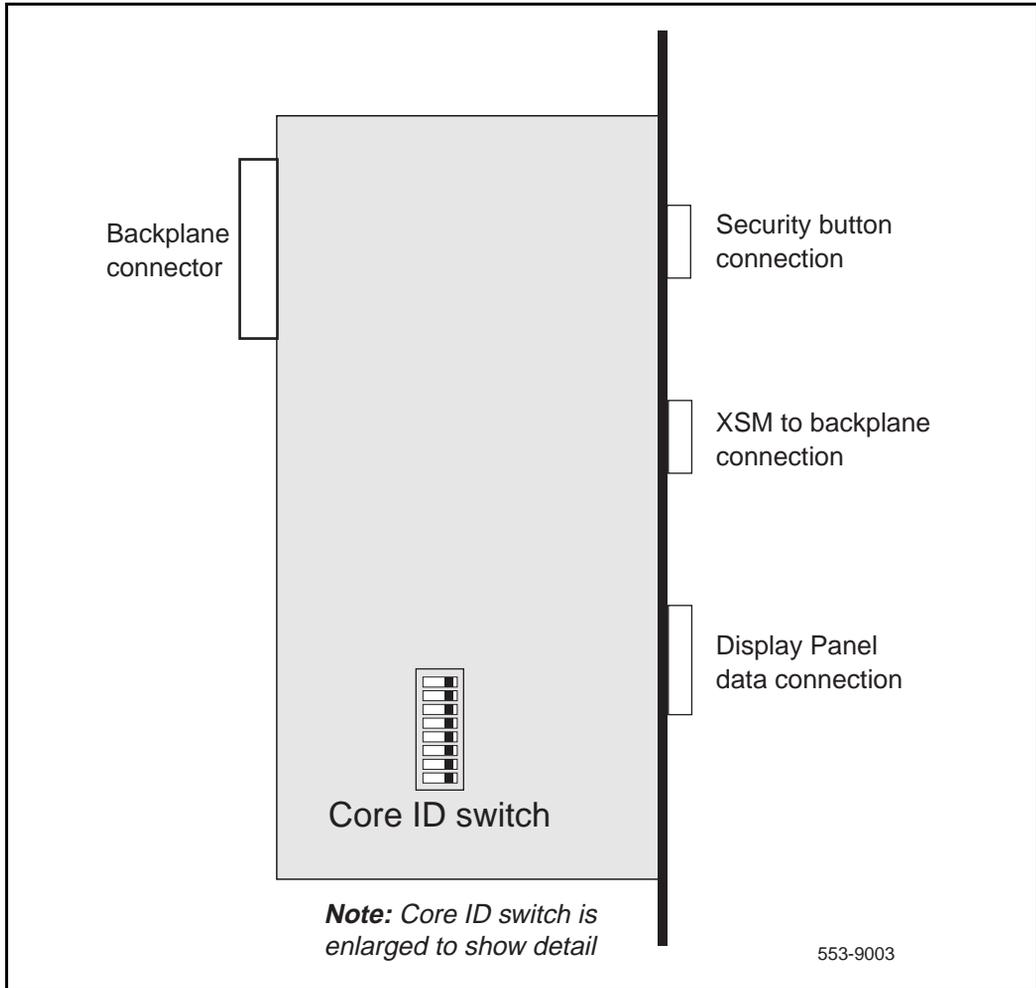
Core 0	All switches are set to ON
Core 1	Switch 1 is set to OFF Switches 2 through 8 are set to ON

- 4 Reinstall the System Utility Transition card:
  - a Gently slide the card into the slot until it makes contact with the backplane. Never force a card into the slot.
  - b Push in the top and bottom latches on the card to lock it in place.

**Figure 23**  
**Location of the System Utility Transition card (rear view of the CP PII backplane)**



**Figure 24**  
**System Utility Transition card (side view)**



## Print site data

Print site data to preserve a record of the system configuration (Table 13 on page 69). Verify all information is correct. Make corrections if necessary.

**Note:** Items marked with an asterisk (\*) are required. Other items are recommended for a total system status.

**Table 13**  
**Print site data (Part 1 of 2)**

Site data	Print command	
Terminal blocks for all TNs	LD 20	
	REQ	PRT
	TYPE	TNB
	CUST	<cr>
Directory Numbers	LD 20 (LD 22 prior to Release 16)	
	REQ	PRT
	TYPE	DNB
	CUST	<cr>
Attendant Console data block for all customers	LD 20	LD 20
	REQ	PRT
	TYPE	ATT, 2250
	CUST	<cr>
*Customer data block for all customers	LD 21	LD 21
	REQ	PRT
	TYPE	CDB
	CUST	<cr>
Route data block for all customers	LD 21	
	REQ	PRT
	TYPE	RDB
	CUST	Customer number
	ROUT	<cr>
	ACOD	<cr>
*Configuration Record	LD 22	
	REQ	PRT
	TYPE	CFN

**Table 13**  
**Print site data (Part 2 of 2)**

Site data	Print command	
*Software packages	LD 22	
	REQ TYPE	PRT PKG
*Software issue, ROM and tape ID	LD 22	
	REQ REQ REQ	ISS ROM TID
* Peripheral software versions	LD 22	
	REQ TYPE	PRT PSWV
ACD data block for all customers	LD 23	
	REQ TYPE CUST ACDN	PRT ACD Customer Number ACD DN (or <CR>)
Superloop card IDs and software version (peripheral controller, superloop network and controller cards)	LD 32	
	.	IDC loop
Multi-purpose ISDN Signaling Processor (MISP) card	LD 27	
	REQ TYPE LOOP APPL PH	PRT MISP loop number (0-158) <cr> <cr>
DTI/PRI data block for all customers	LD 73	
	REQ TYPE	PRT DDB
<b>Note:</b> Items marked with asterisks (*) are required printout for conversion. Other items are recommended for a total system status.		

## Perform a template audit

A template audit (LD 01) reviews the templates in your system. Corrupted and duplicate templates are cleaned up.

An example of the information generated during the audit is listed below.

**Note:** The template audit may take an extended period of time on large systems. Run the audit during a low traffic period.

### WARNING

Do not abort this overlay until the audit is complete. If the overlay is interrupted, data will be corrupted.

**LD 01** The audit begins as soon as LD 01 is entered.

#### TEMPLATE AUDIT

#### STARTING PBX TEMPLATE SCAN

TEMPLATE 0001 USER COUNT LOW CHECKSUM OK

TEMPLATE 0002 USER COUNT HIGH CHECKSUM OK

TEMPLATE 0003 NO USERS FOUND

#### STARTING SL1 TEMPLATE SCAN

TEMPLATE 0001 USER COUNT OK CHECKSUM OK

•

•

TEMPLATE 0120 USER COUNT OK CHECKSUM OK

TEMPLATE AUDIT COMPLETE

## Back up the database (data dump and ABKO)

To back up the data on the system, complete the two part procedure described below:

Perform a **data dump** to save all system memory to the hard disk.

Perform a **ABKO (attended backup)** to save the database to a spare set of floppy disks.

### Perform a data dump

- 1 Log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter  
**LD 43** To load the program.
- 3 When "EDD000" appears on the terminal, enter  
**EDD** To begin the data dump.
- 4 The messages "DATADUMP COMPLETE" and "DATABASE BACKUP COMPLETE" will appear once the data dump is complete  
**\*\*\*\*** To exit the program.

### CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before the system is upgraded to CP PII.

---

## Perform an ABKO (save the database to floppies)

- 1 Insert floppy diskettes into BOTH floppy disk drives in each Core IODU/C.  
**Note:** If the file is too large to fit on a single floppy disk, the ABKO command will compress the data. If the compressed data is still too large to fit on a single disk, both floppy disks in the two IODU/C drives will be used. Be sure to insert floppy disks into BOTH IODU/C drives before the ABKO backup is begun.
- 2 Load the Customer Configuration Backup and Restore (LD 143). At the prompt, enter  
**LD 143** to load the program
- 3 Run the ABKO backup (LD 143):  
**ABKO** To run the backup.
- 4 If the backup is successful, a message will state that the database backup is complete. A report will also indicate which floppy drives were used by the procedure.
- 5 If there are validation errors, repeat the procedure.

### CAUTION

If the backup is not successful, do not continue; contact your technical support organization. Any backup problems must be corrected before the system is upgraded to CP PII.

- 6 Once the backup is complete, type:  
**\*\*\*\*** To exit the program.

## Convert the 4 MB database media to 2 MB database media

Before the system is upgraded to CP PII, the database must be converted to 2 MB media. Systems with an IODU/C drive already have 2 MB media and can skip this procedure.

If the database is on a 4 MB database media (the system has an IOP/CMDU), the 4 MB customer database must be transferred to 2 MB media:

- 1 Split the Cores and transfer call processing to Core 0.
- 2 Install the Database Transfer Utility diskette into the floppy drive on the IOP or CMDU in Core 1.
- 3 Press the reset button (MAN RST) on the CP card in Core 1 to reboot the system. Start the Database Transfer Utility Tool.

### CAUTION

Select only options:

- <t> *Tools Menu* from the Install menu
- and <s> *To archive existing database* from the Tools menu.

DO NOT select any other options. Other options can result in operating system corruption.

- 4 From the installation menu select:  

<t>	<b>To go to the Tools menu.</b>
<s>	<b>To archive existing database.</b>
<cr> <a>	<b>To continue with archive (insert blank 2MB diskette from the software kit into the floppy drive in Core 1).</b>
<cr> <a>	<b>Diskette is now in floppy drive in Core 1.</b>
- 5 The message displays "Database backup complete!" and the Tool menu appears again after the backup completes correctly.
- 6 Remove the 2 MB diskette with the customer database from the floppy drive of the IOP or CMDU.  
Keep the diskette for use after you convert Core 1 to NT4N41 Core/Net 1.  
**Do not reboot the system at this point.**

---

## Prepare to move Clock Controllers on Option 51/51C

### CAUTION

**Do not move the Clock Controllers now. The guidelines are presented here for system planning. You will move the Clock Controllers later during the actual upgrade.**

The existing Clock Controller in Option 51/51C systems must be moved from the Core module to the Network modules.

Review the following rules to determine the new location of the Clock Controllers before you move Clock Controller 1.

- If possible, install each Clock Controller in a different Network group.
- If possible, install the Clock Controllers in separate columns for power and cooling redundancy.
- Install Clock Controller 0 in Network shelf 1-0, slot 13. Install Clock Controller 1 in Network shelf 1-1, slot 13.

**Note:** Either two QPC471 (vintage H or later) or two QPC775 (vintage E or later) Clock Controllers can be installed in a system. These two types of Clock Controllers cannot be combined in one system.

- If current Clock Controller cables are the wrong length after the Clock Controller is moved, **new NT8D79 or NTCG03 PRI/DTI to Clock Controller** cables must be ordered separately.

**Note:** QPC720 PRI cards require NT8D79 cables. NT5D12 Dual PRI/DTI cards require NTCG03 cables.

## Prepare to move Clock Controllers on Option 61/61C

### CAUTION

Do not move the Clock Controllers now. The guidelines are presented here for system planning. You will move the Clock Controllers later during the actual upgrade.

The existing Clock Controllers in Option 61/61C systems must be moved from the Core modules to the Network modules.

Review the following rules to determine the new location of the Clock Controllers before you move Clock Controller 1.

- If possible, locate each Clock Controller in a different Network group.
- If possible, locate the Clock Controllers in separate columns for power and cooling redundancy.
- Locate Clock Controller 0 in Network shelf 1-0, slot 13.
- Locate Clock Controller 1 in Network shelf 1-1, slot 13.
- Either two QPC471 (vintage H or later) or two QPC775 (vintage E or later) Clock Controllers can be used in a system. These two types of Clock Controllers cannot be combined in one system.
- If current Clock Controller cables are the wrong length after the Clock Controller is moved, **new NT8D79 or NTCG03 PRI/DTI to Clock Controller** cables must be ordered separately.
- QPC720 PRI cards require NT8D79 cables. NT5D12 Dual PRI/DTI cards require NTCG03 cables.

## In Core 0, pre-route cables

To minimize system downtime during the upgrade, whenever possible, route all cables before you begin the upgrade.

### CAUTION

Be careful not to dislodge existing cables when routing new cables.

- 1 Label all cables at both ends.
- 2 Remove all module trim panels where cables will be routed.
- 3 Do not excessively bend or cinch the Fiber Ring cables. These cables are easily damaged. Use the Optical Cable Management Card (OCMD) to manage and protect the Fiber Ring cables.

## Only Options 71 and 81 - Guidelines for moving Clock Controllers

### CAUTION

Do not move the Clock Controllers now. The guidelines are presented here for system planning. You will move the Clock Controllers later during the actual upgrade.

This information applies to Option 71 and 81 systems only. For Option 81C upgrades, proceed to Prepare to move the Clock Controllers (Option 61C and 81 to 81C with Fiber Network Fabric), page 65.

The Clock Controllers in Option 71 and 81 systems must be moved from the Core modules to the Network modules. The new CP PII Core/Net modules do not provide slots for the Clock Controller cards.

Review the following rules to determine the new location of the Clock Controllers before you move Clock Controller 1:

- The two Clock Controllers must be installed in Slot 13 of any two Network modules. If another card is already located in slot 13, relocate the card prior to the upgrade.

*Note:* Either two QPC471 (vintage H or later) or two QPC775 (vintage E or later) Clock Controllers can be installed in a system. These two types of Clock Controllers cannot be combined in one system.

- One Clock Controller must be installed in a Network shelf 0. The second Clock Controller must be installed in a Network shelf 1.
- If possible, install each Clock Controller in a different Network group.
- If possible, install the Clock Controllers in separate columns for power and cooling redundancy.
- If current Clock Controller cables are the wrong length after the Clock is moved, **new NT8D79 or NTCG03 PRI/DTI to Clock Controller** cables must be ordered separately.

*Note:* QPC720 PRI cards require NT8D79 cables. NT5D12 Dual PRI/DTI cards require NTCG03 cables.

---

## Pre-route cables

### Task summary list

The following is a summary of the tasks in this section:

- Route the FIJI Fiber Ring cables, page 80
- Route FIJI to FIJI cables, page 86
- Route the Clock Controller cables, page 87
- Route CNI to 3PE cables if necessary, page 89

To minimize system downtime during the upgrade, route all cables before the upgrade is begun.

Review the information in System architecture, page 29 to determine how the cables will be routed for your system. Use the information below to plan the exact path and placement of each cable.

<p style="text-align: center;"><b>CAUTION</b></p>
---

<p style="text-align: center;">Be careful not to dislodge existing cables when routing new cables.</p>
--

- Label all cables at both ends.
- Remove all module trim panels where cables will be routed.
- Do not excessively bend or kink the Fiber Ring cables. These cables are easily damaged. Use the Optical Cable Management Card (OCMC) to manage and protect the Fiber Ring cables. See page 38 a description of this card.
- Route all cables based on the descriptions and diagrams in System architecture, page 29.

## Route the FIJI Fiber Ring cables

The Dual Ring Fiber Network is comprised of two separate Rings of NTRC48 fiber optic cable: one Ring between the FIJI cards in all Network shelf 0's and a second Ring between the FIJI cards in all Network shelf 1's.

Carefully route the NTRC48 cables before installation. Always label both ends of each cable to simplify installation, reduce confusion and assist in troubleshooting.

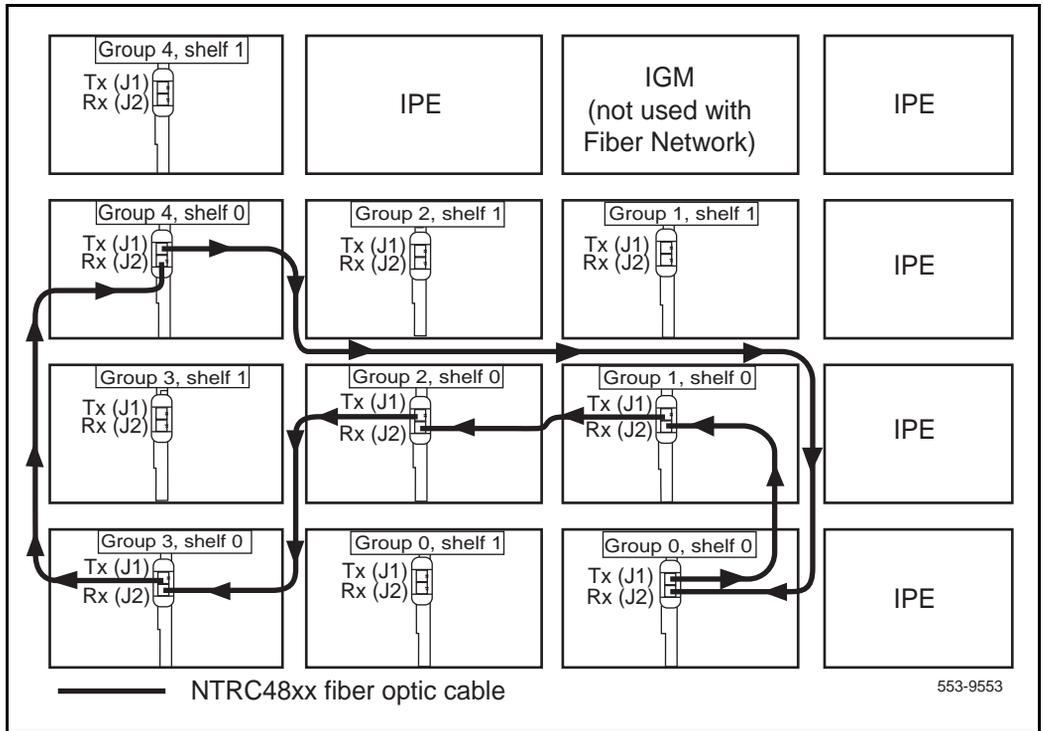
### Route the shelf 0 fiber optic cables (ascending)

Route the NTRC48 cables between the FIJI cards in each Network shelf 0 in *ascending* order (Figure 25 on page 81 and Table 14 on page 82):

**Note:** Each end of the NTRC48xx cable is labeled “Tx” or Rx” in the factory.

- Start with group 0, shelf 0.
- Route a NTRC48xx FIJI Fiber Ring cable of the appropriate length from the FIJI card in **Group 0, shelf 0** to the FIJI card in **Group 1, shelf 0**.
- Route a NTRC48xx FIJI Fiber Ring cable of the appropriate length from the FIJI card in **Group 1, shelf 0** to the FIJI card in **Group 2, shelf 0**.
- Continue to route NTRC48xx FIJI Fiber Ring cables of the appropriate length between the shelf 0 of each Network group. Route these cables in **ascending** order of Network groups.
- To complete the Ring, route a final cable from the **highest number group** back to **Group 0, shelf 0**.

**Figure 25**  
**Shelf 0 ascending fiber optic Ring (example)**



**Table 14**  
**FIJI Ring 0 connections**

Groups X - 0 are cabled in ascending order		
Group/shelf	NTRC48 fiber cable connector	FIJI card connector
0/0	P1	Tx - J1
1/0	P2	Rx - J2
1/0	P1	Tx - J1
2/0	P2	Rx - J2
2/0	P1	Tx - J1
3/0	P2	Rx - J2
3/0	P1	Tx - J1
4/0	P2	Rx - J2
4/0	P1	Tx - J1
5/0	P2	Rx - J2
5/0	P1	Tx - J1
6/0	P2	Rx - J2
6/0	P1	Tx - J1
7/0	P2	Rx - J2
7/0	P1	Tx - J1
0/0	P2	Rx - J2

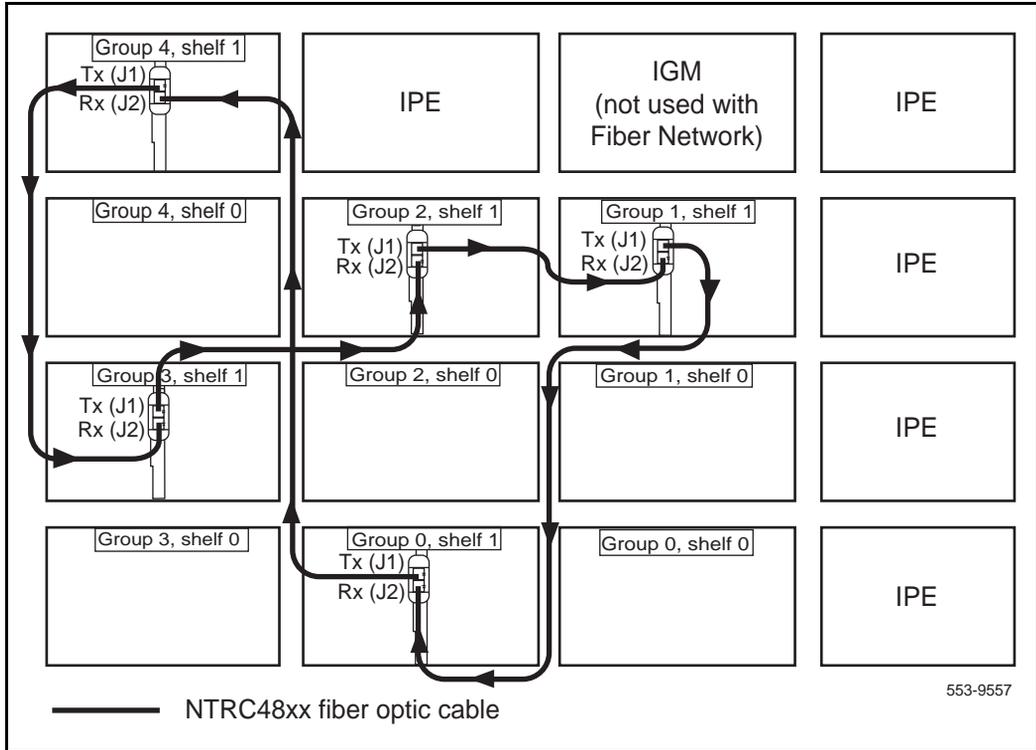
### Route the shelf 1 fiber optic cables (descending)

Route the NTRC48 cables between the FIJI cards in each Network shelf 1 in *descending* order (Figure 26 on page 84 and Figure 15 on page 85).

*Note:* Each end of the NTRC48xx cable is labeled “Tx” or Rx” in the factory.

- Start with the Tx (J1) port in group 0, shelf 1.
- Route a NTRC48xx FIJI Fiber Ring cable of the appropriate length from the FIJI card in **Group 0, shelf 1** to the FIJI card in the **highest Network group, shelf 1**.
- Route a NTRC48xx cable from the FIJI card in the **highest Network group, shelf 1** to the FIJI card in the **second highest Network group, shelf 1**.
- Continue to route NTRC48xx FIJI Fiber Ring cables of the appropriate length between shelf 1 of each Network group. Route these cables in **descending** order of Network Groups.
- To complete the Ring, route a final cable from **Group 1, shelf 1** to Group 0, shelf 1.

**Figure 26**  
**Shelf 1 descending fiber optic Ring (example)**



**Table 15**  
**FIJI Ring 1 connections**

<b>Groups 0 - X are cabled in descending order</b>		
<b>Group/shelf</b>	<b>NTRC48 fiber cable connector</b>	<b>FIJI card connector</b>
0/1	P1	Tx - J1
7/1	P2	Rx - J2
7/1	P1	Tx - J1
6/1	P2	Rx - J2
6/1	P1	Tx - J1
5/1	P2	Rx - J2
5/1	P1	Tx - J1
4/1	P2	Rx - J2
4/1	P1	Tx - J1
3/1	P2	Rx - J2
3/1	P1	Tx - J1
2/1	P2	Rx - J2
2/1	P1	Tx - J1
1/1	P2	Rx - J2
1/1	P1	Tx - J1
0/1	P2	Rx - J2

## Route FIJI to FIJI cables

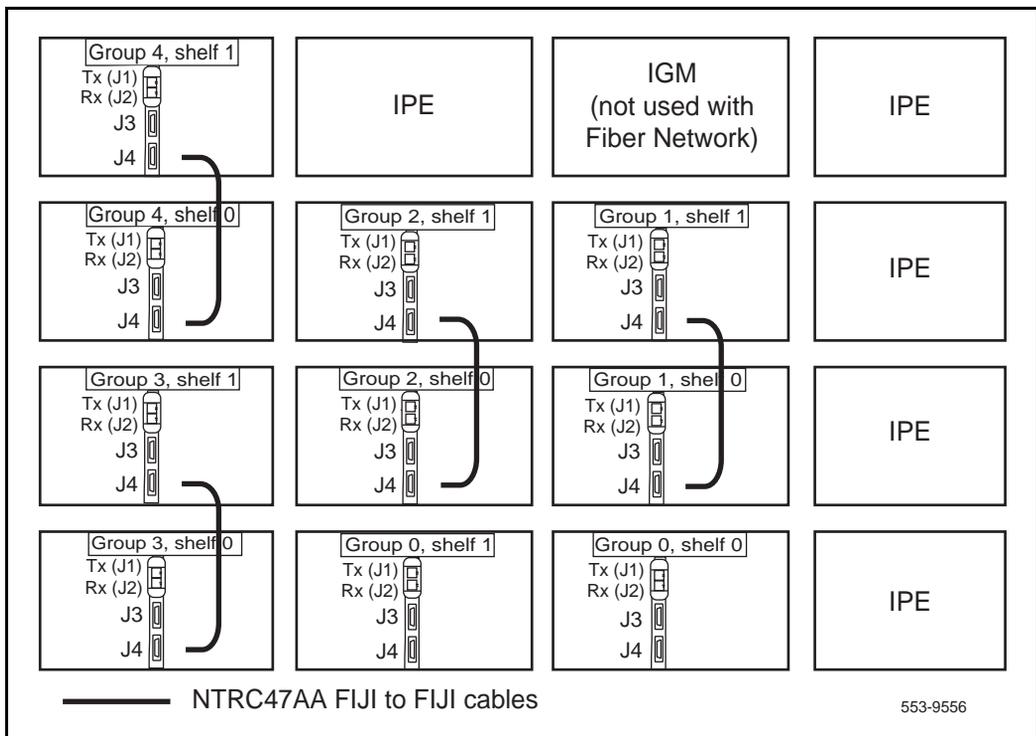
The FIJI cards in shelf 0 and shelf 1 in each Network group (*except group 0*) must be directly connected with a NTRC47AA FIJI to FIJI Synch cable.

**Note:** Route the cables only at this time. **DO NOT connect the cables until the appropriate time during the installation.**

Route a NTRC47AA cable between the FIJI cards in shelf 0 and shelf 1 of Network groups 1 through 7. These cables are connected to the J4 ports of the FIJI cards during the installation process.

**DO NOT route a cable in group 0.** The FIJI to FIJI connection in group 0 is part of the Clock Controller connection described on page 87.

**Figure 27**  
Route the FIJI to FIJI cables (Option 81C example)



---

## Route the Clock Controller cables

Clock to Clock (NTRC49) and Clock to FIJI (NTRC46) cables must be in place before the upgrade (Figure 28 on page 88). **Do not connect the cables to the FIJI cards or Clock Controller cards. Route the cables only.** The cables are not connected until the actual upgrade is performed.

### Route the Clock to Clock cable

- 1 Route a NTRC49 Clock to Clock cable between Clock 0 and Clock 1. Route the **P1 end to Clock 0** and the **P2 end to Clock 1**. Do not connect the cable to the Clock Controllers.

**Note 1:** If the Clock Controllers need to be moved, route the cables to the new Clock locations. See Prepare to move the Clock Controllers (Option 61C and 81 to 81C with Fiber Network Fabric), page 65 for more information.

### Connect the Clock to FIJI cables (Clock end)

- 2 From Clock 0: Connect the "**J1 Clock**" end of a Clock to FIJI cable (NTRC46Ax) to the **J1** end of the Clock to Clock cable.
- 3 From Clock 1: Connect the "**J1 Clock**" end of a second Clock to FIJI cable (NTRC46Ax) to the **J2** end of the Clock to Clock cable.

### Route the Clock 0 to FIJI cables (FIJI end)

- 4 From Clock 0: Route the **P1** end of the Clock to FIJI cable (NTRC46Ax) to **Group 0, shelf 0**.

Do not connect the cable to the FIJI card.

- 5 From Clock 0: Route the **P2** end of the Clock to FIJI cable (NTRC46Ax) to **Group 0, shelf 1**.

Do not connect the cable to the FIJI card.

### Route the Clock 1 to FIJI cables (FIJI end)

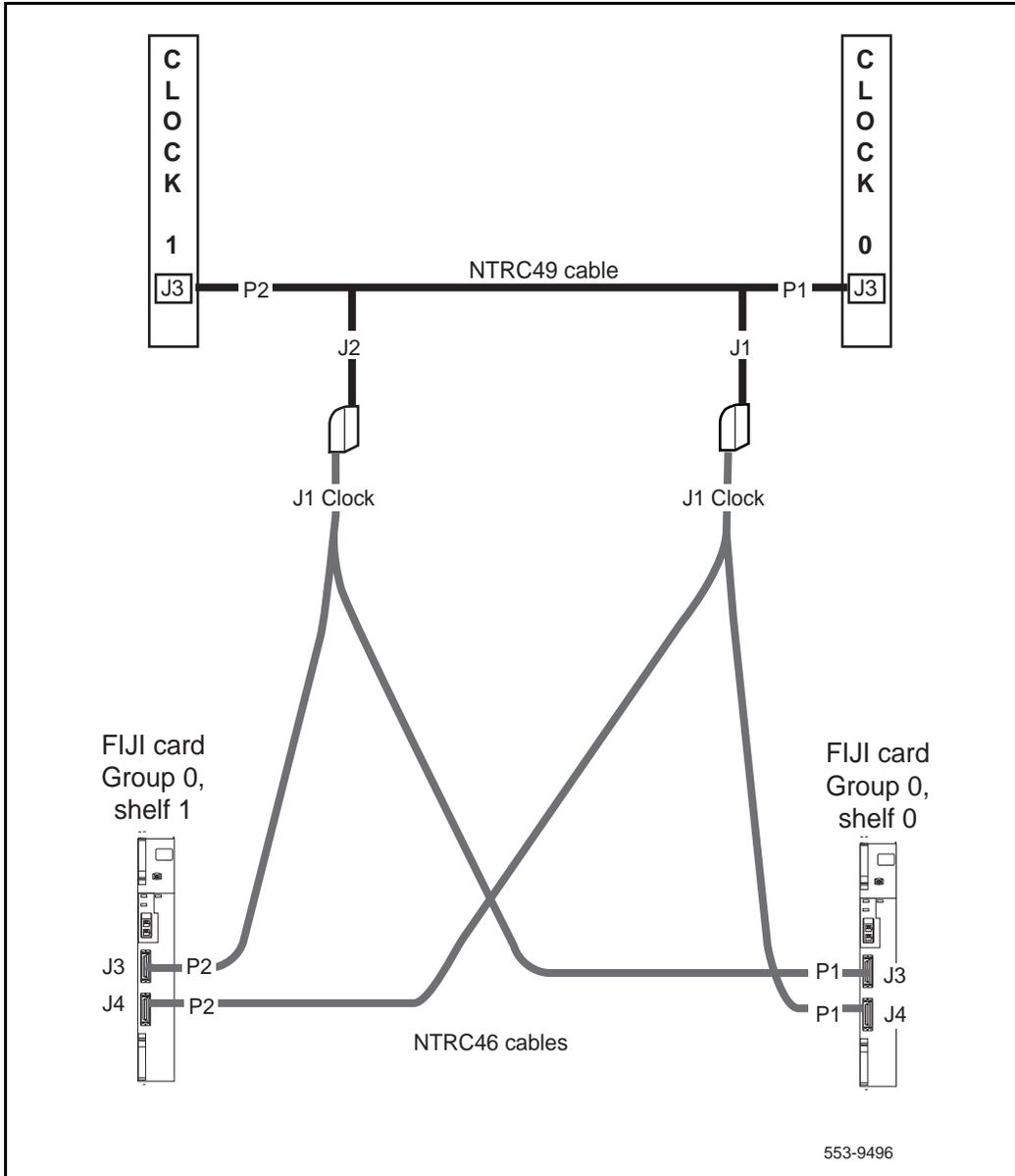
- 6 From Clock 1: Route the **P1** end of the Clock to FIJI cable (NTRC46Ax) to **Group 0, shelf 0**.

Do not connect the cable to the FIJI card.

- 7 From Clock 1: Route the **P2** end of the Clock to FIJI cable (NTRC46Ax) to **Group 0, shelf 1**.

Do not connect the cable to the FIJI card.

**Figure 28**  
**Clock Controller cable configuration**



## Route CNI to 3PE cables if necessary

The original NTND14 3PE to CNI cables are used with NCE.

When CNI-3 cards are installed in place of two port CNI cards, the original NTND14 cables can be left in place; only the NT9D89 CNI-3 to 3PE faceplate cables must be added.

Route two NT9D89 CNI-3 to 3PE cables from the faceplate of the 3PE card to the faceplate of the CNI3 card.

## Perform a template audit

A template audit (LD 01) reviews the templates in your system. Corrupted and duplicate templates are cleaned up.

An example of the information generated during the audit is listed below.

**Note:** The template audit may take an extended period of time on large systems. Run the audit during a low traffic period.

### WARNING

Do not abort this overlay until the audit is complete. If the overlay is interrupted, data will be corrupted.

**LD 01** The audit begins as soon as LD 01 is entered.

#### TEMPLATE AUDIT

#### STARTING PBX TEMPLATE SCAN

TEMPLATE 0001 USER COUNT LOW CHECKSUM OK

TEMPLATE 0002 USER COUNT HIGH CHECKSUM OK

TEMPLATE 0003 NO USERS FOUND

#### STARTING SL1 TEMPLATE SCAN

TEMPLATE 0001 USER COUNT OK CHECKSUM OK

•

•

TEMPLATE 0120 USER COUNT OK CHECKSUM OK

TEMPLATE AUDIT COMPLETE

## Backup the database

### Task summary list

The following is a summary of the tasks in this section:

- Perform a data dump, page 90
- Perform an ABKO (save the database to floppies), page 91

### Perform a data dump

- Log into the system.
- Load the Equipment Data Dump Program (LD 43). At the prompt, enter  
**LD 43** to load the program
- When “EDD000” appears on the terminal, enter  
**EDD** to begin the data dump
- The messages “DATADUMP COMPLETE” and “DATABASE BACKUP COMPLETE” will appear once the data dump is complete  
**\*\*\*\*** to exit the program

#### **CAUTION**

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before the system is upgraded to Fiber Network.

---

## Perform an ABKO (save the database to floppies)

- Insert floppy diskettes into BOTH floppy disk drives in each Core or Core/Net IODU/C.
- If the file is too large to fit on a single floppy disk, the ABKO command will compress the data. If the compressed data is still too large to fit on a single disk, both floppy disks in the two IODU/C drives will be used. Be sure to insert floppy disks into BOTH IODU/C drives before the ABKO backup is begun.
- Load the Customer Configuration Backup and Restore (LD 143). At the prompt, enter  
**LD 143** to load the program
- Run the ABKO backup (LD 143):  
**ABKO** to run the backup
- If the backup is successful, a message will state that the database backup is complete. A report will also indicate which floppy drives were used by the procedure.
- If there are validation errors, repeat the procedure.

### CAUTION

If the backup is not successful, do not continue; contact your technical support organization. Any backup problems must be corrected before the system is upgraded to Fiber Network.

- Once the backup is complete, type:  
**\*\*\*\*** to exit the program

## Fiber Network Fabric application notes

### Task summary list

The following is a summary of the tasks in this section:

- Automatic FIJI loadware download, page 92
- Manual FIJI loadware download, page 92

This section provides information about FIJI card loadware and explains how to perform automatic and manual loadware download procedures.

### Automatic FIJI loadware download

If there is a version change on any of the FIJIs, the automatic download will be triggered by INIT. It will start about two minutes after INIT. The automatic download will occur on up to four FIJI cards (on the same ring) in parallel. The automated download is almost four times faster than the manual method.

### Manual FIJI loadware download

If for any reason the automatic download does not complete successfully, you can perform a manual download of the FIJI firmware. If the automatic download is not successful, a FIJI006 (Ring Recovery Failure) message will be displayed. This message indicates that the download has stopped and that the ring being downloaded was unable to complete. If this occurs, issue the STAT FIJI x y FULL command in LD 39 to verify that the firmware version matches on all FIJI cards. If the firmware version does not match, proceed with the manual download process as described below.

There are two ways to manually download FIJI card loadware:

- download to an individual card
- download to an entire ring

**Note:** A FIJI card cannot be upgraded while the ring that the FIJI card is in carries traffic. You must move all traffic to the other ring before any download can be done to an individual card or a whole ring.

Following either download method will cause the FIJI cards to be upgraded one at a time. It takes approximately 15 minutes to upgrade one FIJI card. Downloading to an entire ring causes each FIJI card in the ring to be upgraded in sequence one at a time. For a four-group ring, it would take approximately one hour. An eight-group ring would take approximately two hours.

The total amount of time to manually download all 16 FIJI cards on an eight-group system (both rings) would be approximately four hours.

### **Download one FIJI card in Overlay 39**

- ARCV OFF.
- SWRG s (s the other ring).
- STAT SCG s
- If clock active on side s go to next step, otherwise, SCLK.
- DIS FIJI x y (x-group#, y-ring#).
- ENL FIJI x y [FDL] (FDL is needed only if there's no version change).
- ARCV ON.

### **Download an entire ring in Overlay 39**

- ARCV OFF.
- SWRG x (“x” the other ring).
- STAT SCG x
- If clock active on side “x” go to next step, otherwise, SCLK
- DIS RING y
- ENL RING y (will not download if there's no version change).
- This step could take approximately two hours to complete.
- To download other ring repeat steps 2-6 when S is current ring.
- ARCV ON.

### **Download to both rings in Overlay 39**

- ARCV OFF.
- SWRG 1 (Ring status will now be NONE/FULL).
- STAT SCG 1.
- If clock active on side 1 go to next step, otherwise, SCLK. The active clock must be on side 1, while side 0 is being upgraded.
- DIS RING 0.
- ENL RING 0 (will not download if there is no version change).
- This step could take approximately two hours to complete.
- SWRG 0 (Ring status will now be FULL/NONE).
- SCLK.
- DIS RING 1.
- ENL RING 1 (will not download if there's no version change).

**Note:** This step could take approximately two hours to complete.

- ARCV ON (within one minute Ring status will go to HALF/HALF).

### **Pre-route the shelf 0 FIJI Fiber Ring cables**

The Dual Ring Fiber Network is comprised of two separate Rings of NTRC48 fiber optic cable: one Ring between the FIJI cards in all Network self 0's and a second Ring between the FIJI cards in all Network shelf 1's.

Carefully route the NTRC48 cables for Core 0 before installation. Always label both ends of each cable to simplify installation, reduce confusion and assist in troubleshooting.

#### **Route the shelf 0 fiber optic cables (ascending)**

Route the NTRC48 cables between the FIJI cards in each Network shelf 0 in ascending order (Table 14 on page 82).

*Note:* Each end of the NTRC48 cable is labeled “Tx” or “Rx” in the factory.

- 1 Start with **Group 0, shelf 0**.
- 2 Route a NTRC48 FIJI Fiber Ring cable of the appropriate length from the FIJI card in **Group 0, shelf 0** to the FIJI card in **Group 1, shelf 0**.
- 3 To complete the Ring, route a final cable from **Group 1, shelf 0** to **Group 0, shelf 0**.

**Table 16**  
**FIJI Ring 0 connections**

Groups X - 0 are cabled in ascending order		
Group/shelf	NTRC48 fiber cable connector	FIJI card connector
0/0	P1	Tx - J1
1/0	P2	Rx - J2
1/0	P1	Tx - J1
2/0	P2	Rx - J2
2/0	P1	Tx - J1
3/0	P2	Rx - J2
3/0	P1	Tx - J1
4/0	P2	Rx - J2
4/0	P1	Tx - J1
5/0	P2	Rx - J2
5/0	P1	Tx - J1
6/0	P2	Rx - J2
6/0	P1	Tx - J1
7/0	P2	Rx - J2
7/0	P1	Tx - J1
0/0	P2	Rx - J2
<p><b>Note:</b> Groups 2 through 7 are shown for reference only.</p>		

## New Information Messages for FIJI Automated Download

The following new messages related to the automated download of firmware to the FIJI card for Fiber Network Fabric have been introduced with Release 25.

FIJI061 RING r: STARTING AUTOMATIC DOWNLOAD

FIJI062 FIJI g s: ENABLING FIJI CARD

FIJI063 FIJI g s: DOWNLOAD DONE. TESTING CARD

FIJI064 FIJI g s: SELFTEST DONE

where:

r = ring number (0 or 1)

g = group (0 - 7)

s = side (0 or 1)

**Note:** These messages are for information only, and are not alarms.

## Route the 3PE to cCNI (NT8D76) cables

The cCNI to 3PE cables in CP PII are different from existing CNI to 3PE cables. New NT8D76 cables must be installed for both existing Network groups and new Network equipment.

Cables are routed to a module alongside the Core modules to allow for the removal of old equipment. Once the old card cage is replaced by the new CP PII card cages, the cables can be installed into the new Core/Net modules

To route the 3PE to cCNI cables.

- 1 Label each cable at both ends with:
  - a the Network group number
  - b Shelf 0 or Shelf 1 of the Network group
  - c J3 or J4 (of the 3PE card)
- 2 Remove the module trim panels where the cables will be routed.
- 3 Route the cables:

**Note:** Route the cables along the right side of the Core modules to avoid interference from the power cards.

  - a In Core 1, route the cables from the Shelf 1 3PE cards to a module adjacent to Core 1, as shown in Figure 29 on page 101.
  - b In Core 0, route the cables, from the Shelf 0 3PE cards to a module adjacent to Core 0, as shown in Figure 29 on page 101.

## Route the NT8D76 3PE to cCNI cables

The cCNI to 3PE cables in CP PII are different from existing CNI to 3PE cables. New NT8D76 cables must be installed for both existing Network groups and new Network equipment.

Cables are routed to a module alongside the Core/Net modules to allow for the removal of old equipment. Once the old card cage is replaced by the NT4N46 card cages, the cables can be installed into the NT4N41 Core/Network modules.

To route the 3PE to cCNI cables.

- 1 Label each cable at both ends with:
  - a the Network group number
  - b Shelf 0 or Shelf 1 of the Network group
  - c J3 or J4 (of the 3PE card)
- 2 Remove the module trim panels where the cables will be routed.
- 3 Route the cables:

**Note:** Route the cables along the right side of the Core/Net modules to avoid interference from the power cards.

- a In Core 1, route the cables from the Shelf 1 3PE cards to a module adjacent to Core 1, as shown in Figure 29 on page 101.
- b In Core 0, route the cables, from the Shelf 0 3PE cards to a module adjacent to Core 0, as shown in Figure 29 on page 101.

## Pre-route the 3PE to cCNI cables

The cCNI to 3PE (NT8D76) cables in CP PII are different from existing CNI to 3PE cables. New NT8D76 cables must be installed for both existing Network groups and new Network equipment.

Cables are routed to a module alongside the Core 0 module to allow for the removal of old equipment. Once the old card cage is replaced by the new CP PII card cage, the cables can be installed into the new Core/Net modules

To route the 3PE to cCNI cables.

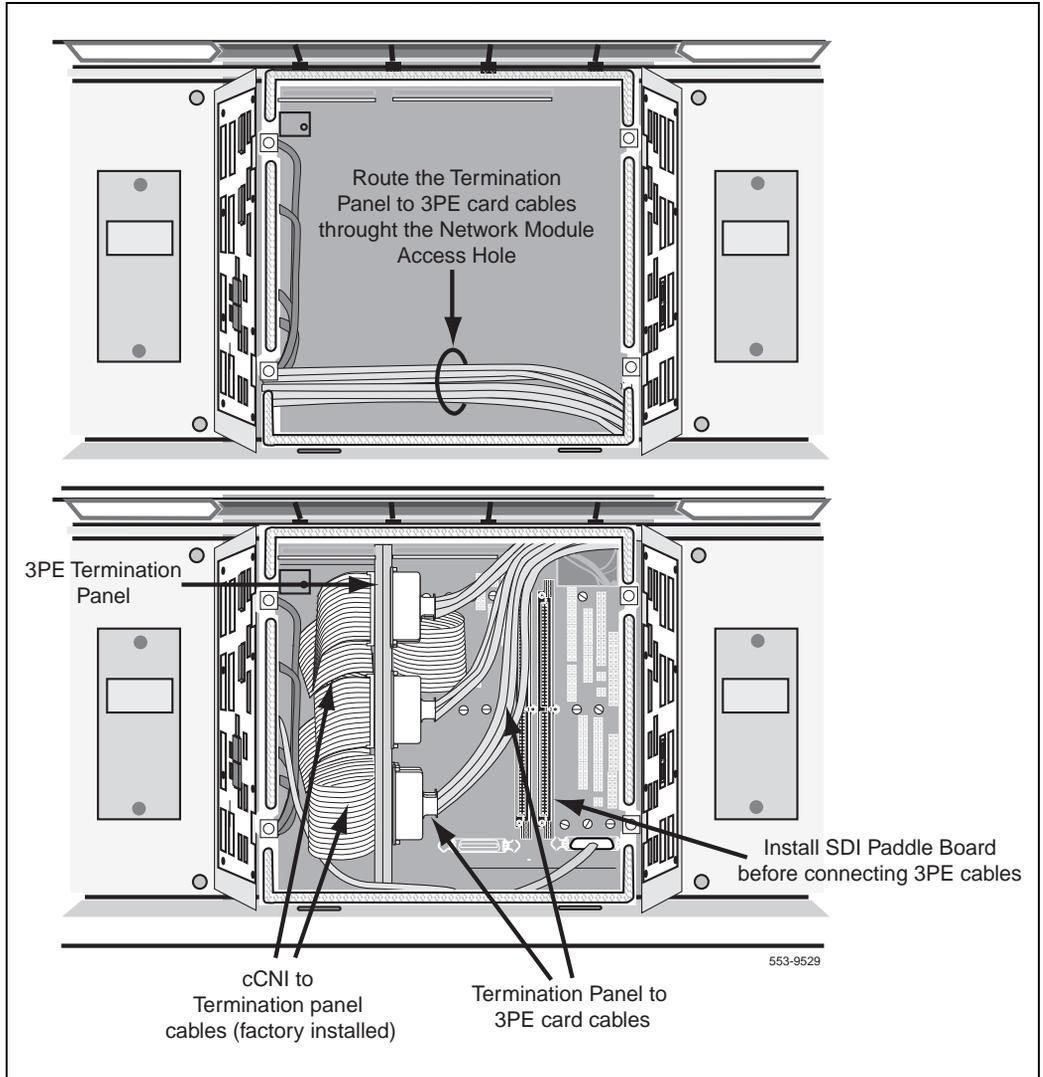
- 1 Label each cable at both ends with:
  - a the Network group number
  - b Shelf 0 or Shelf 1 of the Network group
  - c J3 or J4 (of the 3PE card)

- 2 In Core 0, route the cables from the Shelf 0 3PE card to a module adjacent to Core 0. See Figure 29 on page 101.

**Note 2:** Route the cables **outside** the UEM module to be connected later.

**Note 3:** Route the cables along the right side of the Core module to avoid interference from the power cards.

**Figure 29**  
**3PE Termination Panel (rear module view)**





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# Option 61C upgrade to Option 81C with Fiber Network Fabric

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## Content list

The following are the topics in this section:

- [Reference list](#) . . . . . 103
- [Overview of Option 61C to Option 81C with FNF upgrade](#) . . . 104
- [Prepare for upgrade](#) . . . . . 106
- [Add Network Group 1](#) . . . . . 106
- [Complete upgrade preparation tasks](#) . . . . . 112
- [Perform the upgrade.](#) . . . . . 122
- [Complete the upgrade](#) . . . . . 146

## Reference list

The following are the references in this section:

- *X11 Administration* (553-3001-311)
- *X11 Maintenance* (553-3001-511)

## Overview of Option 61C to Option 81C with FNF upgrade

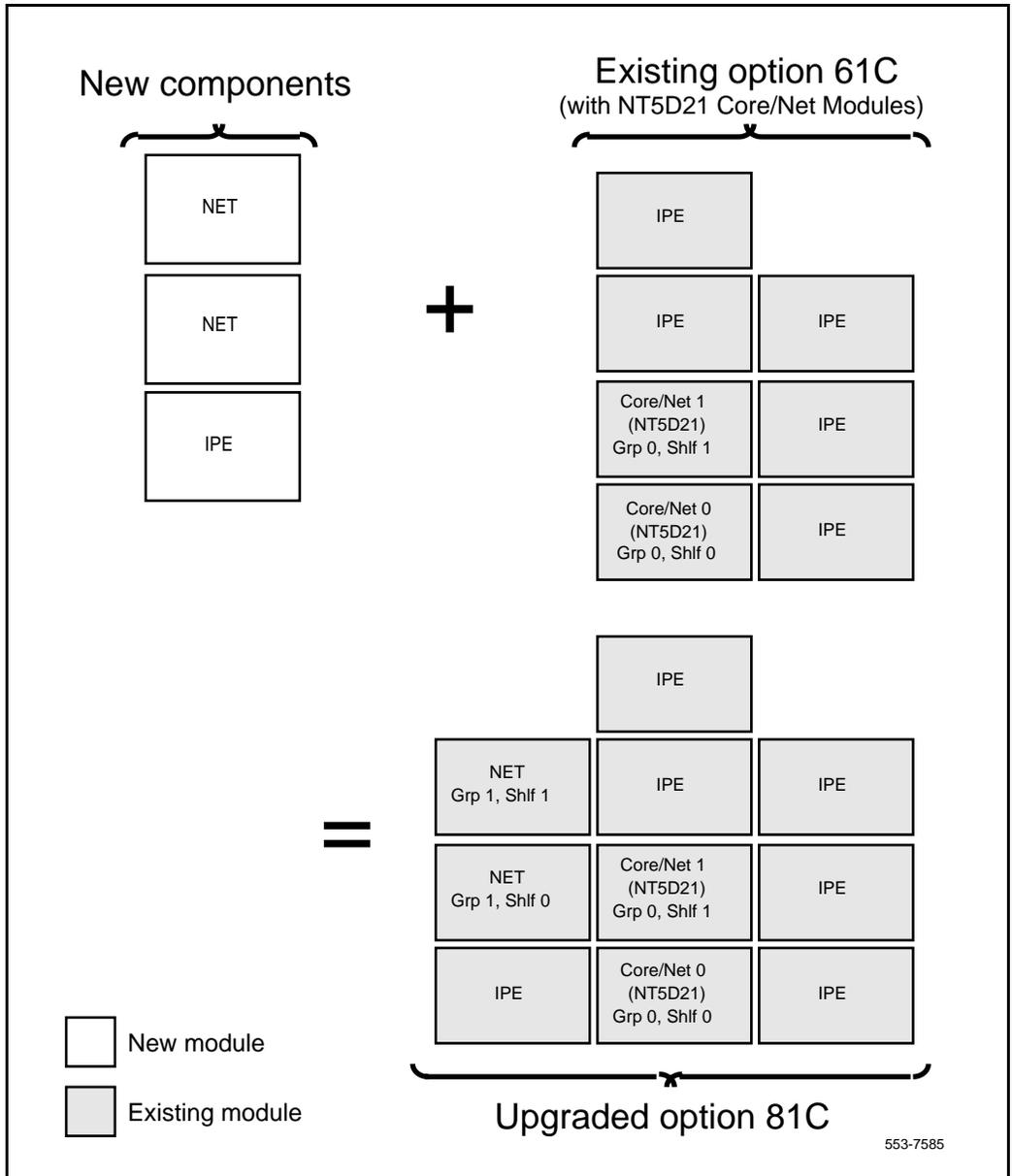
An Option 61C system with NT5D21 Core/Net modules can be upgraded to an Option 81C system with Fiber Network Fabric. This upgrade takes a 61C to an Option 81C with two (2) groups. Once the upgrade procedure is completed, additional groups may be added to the Option 81C by following the procedure to Add a Network Group, page 593.

To upgrade an Option 61C to an Option 81C with Fiber Network Fabric:

- A new column is installed next to the existing Option 61C column with the Core/Net modules.
- The new column contains one IPE module and two Network modules.
- The two new Network modules provide the new system with a minimum of two full Network groups.
- The existing Clock Controllers are moved from the Core/Net modules to the Network shelves.
- New cards for Fiber Network Fabric are added: NTRB33 Fiber Junctor Interface (FIJI) card and the NTRE39 Optical Cable Management Card (OCMC).
- An additional IPE module may be installed on the top of the new column.

Figure 30 on page 105 shows the upgrade from Option 61C to Option 81C with Fiber Network Fabric.

**Figure 30**  
**Upgrade from Option 61C to Option 81C with Fiber Network Fabric**



## Prepare for upgrade

Follow the Task Summary list instructions under the heading for Prepare for upgrade of Option 61C to Option 81C with FNF, page 56 and return to Add Network Group 1, page 106.

## Add Network Group 1

### Task summary list

The following is a summary of the tasks in this section:

- Install the new column, page 106
- Pre-route CNI to 3PE cables, page 106
- Install and enable the 3PE cards, page 109
- Install and enable the Peripheral Signaling (Per Sig) cards, page 111
- Disable and insert the FIJI cards, page 111
- Disable and insert the Conf/TDS cards, if necessary, page 111

Follow the procedures in this section to add the new Network Group 1.

### Install the new column

After completing the first six steps in Prepare for upgrade, page 55, you must install the new column. Follow the instructions in *System Installation Procedures* (553-3001-210) to correctly install the column and configure the power and System Monitor connections.

### Pre-route CNI to 3PE cables

The CNI backplane ports are connected to the 3PE cards with two NTND14 CNI to 3PE cables per port. The third port connects from the CNI-3 faceplate to the 3PE card with two NT9D89 cables.

When a CNI card is upgraded to a CNI-3 card, the original NTND14 backplane cables are left in place; only the NT9D89 CNI-3 to 3PE faceplate cables must be added.

- 1 Label the cables with Network Group, CNI port and connection information.
- 2 Route the new CNI to 3PE cables according to the port assignments in Table 17 on page 108. **Do NOT attach the cables.**

**Table 17**  
**Option 81C CNI group assignments**

Group	CNI slot connections	3PE faceplate connection	Cable
1	12D (Core/Net backplane)	J3	NTND14
1	12F (Core/Net backplane)	J4	NTND14
2	12 J1 (CNI-3 faceplate)	J3	NT9D89
2	12 J2 (CNI-3 faceplate)	J4	NT9D89
3	13A (Core/Net backplane)	J3	NTND14
3	13C (Core/Net backplane)	J4	NTND14
4	13D (Core/Net backplane)	J3	NTND14
4	13F (Core/Net backplane)	J4	NTND14
5	13 J1 (CNI-3 faceplate)	J3	NT9D89
5	13 J2 (CNI-3 faceplate)	J4	NT9D89
6	14A (Core/Net backplane)	J3	NTND14
6	14C (Core/Net backplane)	J4	NTND14
7	14D (Core/Net backplane)	J3	NTND14
7	14F (Core/Net backplane)	J4	NTND14
<p><b>Note 1:</b> Group 0 is hard-wired through the Core/Net module backplane; no cable is required.</p> <p><b>Note 2:</b> The default assignments in this table can be reconfigured with Overlay 17 (LD 17) if necessary.</p>			

## Install and enable the 3PE cards

Three steps are required to install the 3PE cards:

**1** Verify the 3PE card settings:

The group and shelf number of each Network module is determined by the switch settings on the 3PE card. Use the information in Table 18 on page 110 to verify that the 3PE cards in the new Network modules have the correct switch and jumper settings.

This group and shelf setting is displayed on the FIJI card display.

**2** Install a 3PE card in slot 1 of each new Network module. Push the latches forward to lock the card in place.

**3** Faceplate *enable* each 3PE card.

**Table 18**  
**Switch and jumper settings for 3PE cards in NT8D35 Network modules**

Jumper Settings									
Set Jumper RN27 at E35 to "A".									
Switch Settings									
D20 switch position:		1	2	3	4				
Option 81, 81C (Note)		off	on	on	on				
Shelf	Group	D20 switch position:				5	6	7	8
0 (3PE cards connected to the a CNI in Core or Core/Net 0)	0					on	on	on	on
	1					on	on	off	on
	2					on	off	on	on
	3					on	off	off	on
	4					off	on	on	on
	5					off	on	off	on
	6					off	off	on	on
	7					off	off	off	on
1 (3PE cards connected to the a CNI in Core or Core/Net 1)	0					on	on	on	off
	1					on	on	off	off
	2					on	off	on	off
	3					on	off	off	off
	4					off	on	on	off
	5					off	on	off	off
	6					off	off	on	off
	7					off	off	off	off

**Note:** For Option 81C systems, QPC441 vintage F or later must be used in all modules.

## Install and enable the Peripheral Signaling (Per Sig) cards

- 1 Install a Per Sig card into slot 4 of each new Network module. Push the latches forward to lock the card in place.
- 2 Faceplate *enable* the cards.

## Disable and insert the FIJI cards

- 1 Faceplate *disable* the FIJI cards.
- 2 Insert the FIJI cards into slots 2 and 3 of each new Network module.  
**DO NOT plug the card into the backplane.**

## Disable and insert the Conf/TDS cards, if necessary

If Conf/TDS cards are used in the system, follow the procedures below.

- 1 Faceplate *disable* the Conf/TDS cards.
- 2 Insert a Conf/TDS card into each new Network module.  
**DO NOT plug the card into the backplane.**

## Complete upgrade preparation tasks

### Task summary list

The following is a summary of the tasks in this section:

- Pre-route cables, page 112
- Route the FIJI Fiber Ring cables, page 113
- Route the Clock Controller to FIJI cables, page 117
- Perform a template audit, page 119
- Backup the database, page 120

Follow the procedures in this section to complete the remaining upgrade preparation tasks.

### Pre-route cables

To minimize system downtime during the upgrade, route all cables before the upgrade begins.

Review the information in System architecture, page 29 to determine how the cables will be routed for your system. Use the information below to plan the exact path and placement of each cable.

#### **CAUTION**

Be careful not to dislodge existing cables when routing new cables.

- 1 Label all cables at both ends.
- 2 Remove all module trim panels where cables will be routed.
- 3 Do not excessively bend or cinch the Fiber Ring cables. These cables are easily damaged. Use the Optical Cable Management Card (OCMC) to manage and protect the Fiber Ring cables. See page 38 for a description of this card.
- 4 Route all cables based on the descriptions and diagrams in System architecture, page 29.

## Route the FIJI Fiber Ring cables

The Dual Ring Fiber Network is comprised of two separate Rings of NTRC48 fiber optic cable: one Ring between the FIJI cards in all Network shelf 0's and a second Ring between the FIJI cards in all Network shelf 1's.

Carefully route the NTRC48 cables before installation. Always label both ends of each cable to simplify installation, reduce confusion and assist in troubleshooting.

### Route the shelf 0 fiber optic cables (ascending)

Route the NTRC48 cables between the FIJI cards in each Network shelf 0 in *ascending* order (Table 19 on page 114):

*Note:* Each end of the NTRC48xx cable is labeled “Tx” or Rx” in the factory.

- 1 Start with group 0, shelf 0.
- 2 Route a NTRC48xx FIJI Fiber Ring cable of the appropriate length from the FIJI card in **Group 0, shelf 0** to the FIJI card in **Group 1, shelf 0**.
- 3 To complete the Ring, route a final cable from **Group 1, shelf 0** back to **Group 0, shelf 0**.

**Table 19**  
**FIJI Ring 0 connections**

Groups X - 0 are cabled in ascending order		
Group/shelf	NTRC48 fiber cable connector	FIJI card connector
0/0	P1	Tx - J1
1/0	P2	Rx - J2
1/0	P1	Tx - J1
2/0	P2	Rx - J2
2/0	P1	Tx - J1
3/0	P2	Rx - J2
3/0	P1	Tx - J1
4/0	P2	Rx - J2
4/0	P1	Tx - J1
5/0	P2	Rx - J2
5/0	P1	Tx - J1
6/0	P2	Rx - J2
6/0	P1	Tx - J1
7/0	P2	Rx - J2
7/0	P1	Tx - J1
0/0	P2	Rx - J2
<p><b>Note:</b> Groups 2 through 7 are shown for reference only.</p>		

### Route the shelf 1 fiber optic cables (descending)

Route the NTRC48 cables between the FIJI cards in each Network shelf 1 in *descending* order (Table 20 on page 116).

**Note:** Each end of the NTRC48xx cable is labeled “Tx” or Rx” in the factory.

- 1 Start with the Tx (J1) port in group 0, shelf 1.
- 2 Route a NTRC48xx FIJI Fiber Ring cable of the appropriate length from the FIJI card in **Group 0, shelf 1** to the FIJI card in **Group 1, shelf 1**.
- 3 To complete the Ring, route a final cable from **Group 1, shelf 1** to **Group 0, shelf 1**.

**Table 20**  
**FIJI Ring 1 connections**

Groups 0 - X are cabled in descending order		
Group/shelf	NTRC48 fiber cable connector	FIJI card connector
0/1	P1	Tx - J1
7/1	P2	Rx - J2
7/1	P1	Tx - J1
6/1	P2	Rx - J2
6/1	P1	Tx - J1
5/1	P2	Rx - J2
5/1	P1	Tx - J1
4/1	P2	Rx - J2
4/1	P1	Tx - J1
3/1	P2	Rx - J2
3/1	P1	Tx - J1
2/1	P2	Rx - J2
2/1	P1	Tx - J1
1/1	P2	Rx - J2
1/1	P1	Tx - J1
0/1	P2	Rx - J2
<p><b>Note:</b> Groups 2 through 7 are shown for reference only.</p>		

## Route the Clock Controller to FIJI cables

Clock to FIJI (NTRC46) cables must be in place before the upgrade. See Figure 31 on page 118. **Do not connect the cables to the FIJI cards or Clock Controller cards. Route the cables only.** The cables are not connected until the actual upgrade is performed.

### Route the Clock 0 to FIJI cables (FIJI end)

- 1 From Clock 0: Route the **P1** end of the Clock to FIJI cable (NTRC46Ax) to **Group 0, shelf 0**.

Do not connect the cable to the FIJI card.

- 2 From Clock 0: Route the **P2** end of the Clock to FIJI cable (NTRC46Ax) to **Group 0, shelf 1**.

Do not connect the cable to the FIJI card.

### Route the Clock 1 to FIJI cables (FIJI end)

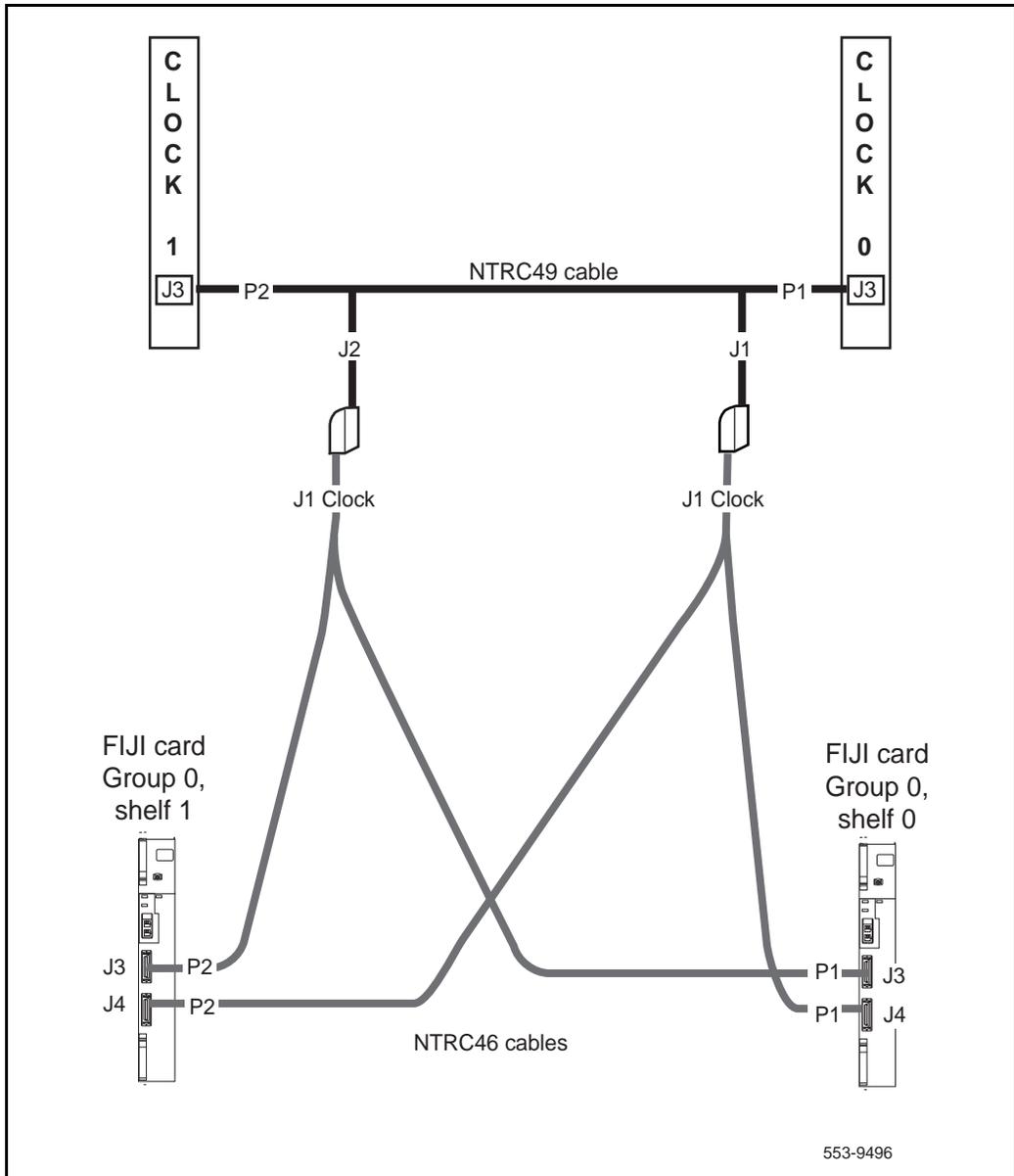
- 1 From Clock 1: Route the **P1** end of the Clock to FIJI cable (NTRC46Ax) to **Group 0, shelf 0**.

Do not connect the cable to the FIJI card.

- 2 From Clock 1: Route the **P2** end of the Clock to FIJI cable (NTRC46Ax) to **Group 0, shelf 1**.

Do not connect the cable to the FIJI card.

**Figure 31**  
**Clock Controller cable configuration**



## Perform a template audit

A template audit (LD 01) reviews the templates in your system. Corrupted and duplicate templates are cleaned up.

An example of the information generated during the audit is listed below.

**Note:** The template audit may take an extended period of time on large systems. Run the audit during a low traffic period.

### WARNING

Do not abort this overlay until the audit is complete. If the overlay is interrupted, data will be corrupted.

**LD 01** The audit begins as soon as LD 01 is entered.

#### TEMPLATE AUDIT

#### STARTING PBX TEMPLATE SCAN

TEMPLATE 0001 USER COUNT LOW CHECKSUM OK

TEMPLATE 0002 USER COUNT HIGH CHECKSUM OK

TEMPLATE 0003 NO USERS FOUND

#### STARTING SL1 TEMPLATE SCAN

TEMPLATE 0001 USER COUNT OK CHECKSUM OK

•

•

TEMPLATE 0120 USER COUNT OK CHECKSUM OK

TEMPLATE AUDIT COMPLETE

## Backup the database

To back up the data on the system, complete the two part procedure described below:

- Perform a **data dump** to save all system memory to the hard disk.
- Perform an **ABKO (attended backup)** to save the database to a spare set of floppy disks.

### Perform a data dump

- 1 Log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program
- 3 When "EDD000" appears on the terminal, enter **EDD** to begin the data dump
- 4 The messages "DATADUMP COMPLETE" and "DATABASE BACKUP COMPLETE" will appear once the data dump is complete  
**\*\*\*\*** to exit the program

### CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before the system is upgraded to Fiber Network.

### Perform an ABKO (save the database to floppies)

- 1 Insert floppy diskettes into BOTH floppy disk drives in each Core or Core/Net IODU/C.

**Note:** If the file is too large to fit on a single floppy disk, the ABKO command will compress the data. If the compressed data is still too large to fit on a single disk, both floppy disks in the two IODU/C drives will be used. Be sure to insert floppy disks into BOTH IODU/C drives before the ABKO backup is begun.

- 2 Load the Customer Configuration Backup and Restore (LD 143). At the prompt, enter  
**LD 143** to load the program
- 3 Run the ABKO backup (LD 43):  
**ABKO** to run the backup
- 4 If the backup is successful, a message will state that the database backup is complete. A report will also indicate which floppy drives were used by the procedure.
- 5 If there are validation errors, repeat the procedure.

**CAUTION**

If the backup is not successful, do not continue; contact your technical support organization. Any backup problems must be corrected before the system is upgraded to Fiber Network.

- 6 Once the backup is complete, type:  
**\*\*\*\*** to exit the program

## Perform the upgrade

### Task summary list

The following is a summary of the tasks in this section:

- Verify Core/Net 0 is active, page 123
- Split the Core/Nets, page 123
- Upgrade the Core/Net 1 software, page 124
- Enable the Core 1 CNI cards, page 128
- Enable new loops in Group 1, page 129
- Upgrade Side 1 hardware to FIJI, page 129
- Connect the shelf 1 FIJI Ring cables, page 130
- Turn module power off, page 132
- Seat the Side 1 FIJI cards, page 132
- Seat the Side 0 FIJI cards, page 132
- Connect the shelf 0 FIJI Ring cables, page 133
- Connect the Group 1 FIJI to FIJI cables, page 135
- Move Clock Controller 0, page 135
- Move Clock Controller 1, page 136
- Cable the Clock Controllers, page 138
- Prepare Core cards for power-up, page 140
- Restore power, page 140
- Verify the Fiber Rings, page 141
- Enable the Peripheral Signaling (Per Sig) card, page 142
- Enable the Conference/TDS card, page 142
- Upgrade Core/Net 0 software, page 143
- Enable the Core 0 CNI cards, page 145

To complete the Option 61C to Option 81C with Fiber Network Fabric upgrade, follow the procedures listed below in sequence.

## Verify Core/Net 0 is active

- 1 Get the status of the CPUs. Verify that all common equipment is enabled.

**LD 135** to load the program  
**STAT CPU** to get the status of both Core/Nets

- 2 Ensure Core/Net 0 is active.

If Core/Net 1 is active, switch Core/Nets.

**STAT CPU** to get the status of the Core/Nets  
**SCPU** to switch to Core/Net 0  
**\*\*\*\*** to exit the program

- 3 Ensure Clock Controller 0 is active and tracking.

**LD 60** to load the program  
**SSCK 0** to get the status of Clock 0  
**SSCK 1** to get the status of Clock 1  
**SWCK** if necessary, to switch to Clock 0

## Split the Core/Nets

- 1 Be sure Core/Net 0 is active and Core/Net 1 is standby. You may need to switch Cores:

**STAT CPU**  
**\*\*\*\*** exit program

- 2 Verify that IODU/C 0 is active. You may need to switch IODU/Cs.

**LD 137**  
**STAT** Get the status of IODU/C  
**SWAP** Switch IODU/Cs if necessary  
**\*\*\*\*** exit program

- 3 Connect a terminal to the CPSI port in Core/Net 1 to J25 of the I/O panel at the back of the Core/Net. Be sure it is configured as follows. The recommended baud rate is 9600, to be the same as the CPSI port.

**7 data bits, 1 stop bit, Space parity, Full duplex, XON protocol**

- 4 Place Core/Net 0 in Maintenance by setting the MAINT/NORM switch to MAINT.
- 5 In Core/Net 1, disable the NT6D65 Core to Network Interface (CNI) cards by setting the ENB/DIS faceplate switches to DIS.

## Upgrade the Core/Net 1 software

Core/Net 1 must be *inactive* to complete these procedures. A terminal must be connected to the J25 connector on Core/Net 1 to complete this procedure. See Connect a terminal, page 66.

Complete the steps below to install new software in Core/Net 1.

- 1 Place the CP Install disk that corresponds with the installed CP card type into the IODU/C in Core/Net 1.
- 2 Install the CD-ROM into the CD drive:
  - a press the button on the CD-ROM drive to open the CD-ROM disk holder
  - b place the CD-ROM disk into the holder with the disk label showing
  - c use the four tabs to secure the CD-ROM drive
  - d press the button again to close the CD-ROM disk holder (do not push the holder in by hand)
- 3 In Core/Net 1, perform the following three steps in uninterrupted sequence:
  - a press and hold the MAN RST button on the CP card
  - b set the MAINT/NORM switch on the CP card to MAINT
  - c release the MAN RST button

A sysload will begin (cold start). Wait for the Main Menu to appear on the terminal before proceeding.

**Note 1:** If the CD-ROM is not in the CD drive of the IODU/C, the installation procedure will not continue. Insert the CD-ROM into the drive to continue.

**Note 2:** If a problem is detected during the system verification, Install stops, prints an error message, and aborts the installation. If the verification is not successful, do not continue; contact your technical support organization.

- 4 Press <CR> to continue.
- 5 Remove the CP Install Program diskette and insert the Keycode diskette, when prompted.
  - <a> to continue with keycode validation
  - <y> to confirm that the keycode matches the CD-ROM release
- 6 When the Install Menu is displayed, select the following options in sequence when you are prompted to do so
  - <a> to install software, CP-BOOT ROM, and IOP-ROM
  - <a> to verify that the CD-ROM is now in driveThe Installation Status Summary screen appears that lists the options to be installed.
  - <y> Yes, start Installation
  - <a> Continue with Upgrade

- 7     Select a PSDL file to install. The PSDL file contains the loadware for all downloadable cards in the system and loadware for M3900 series sets.

**Select one of the six psdl files**

- <1>     Global 10 Languages <default>
- <2>     Western Europe 10 Languages
- <3>     Eastern Europe 10 Languages
- <4>     North America 6 Languages
- <5>     RIs24 up-issue
- <6>     North America 6 Languages:

The languages contained in each selection are outlined as follows:

- 1     English, French, German, Spanish, Swedish, Italian, Norwegian, Brazilian, Portuguese, Finnish, Japanese Katakana.
- 2     English, French, German, Spanish, Swedish, Norwegian, Danish, Finnish, Italian, Brazilian Portuguese.
- 3     English, French, German, Dutch, Polish, Czech, Hungarian, Russian, Latvian, Turkish.
- 4     English, Spanish, French, Brazilian Portuguese, Japanese Katakana, German.
- 5     English, French, German, Spanish, Swedish, Italian, Norwegian, Portuguese, Finnish, Japanese Katakana.
- 6     English, French, German, Spanish, Brazilian Portuguese, Japanese Katakana.

- 8 When the ROM installation screen appears, select the following prompts in sequence:
- <a> Continue with ROM Upgrade
- The following message appears:
- Software Release XX.XX was installed successfully on Core 1.  
All files were copied from CDROM to the hard disk.  
Please press <CR> to continue when ready...
- <a> Continue with ROM upgrade
  - <a> Yes, start Installation
  - <a> Continue with ROM upgrade
- When the Installation Status Summary screen appears, press <CR> when ready...
- <cr> Are you sure you want to continue with IOP ROM
  - <a> to install the IOP-ROM from hard disk
  - <y> Yes, start installation
  - <a> to continue with ROM upgrade
- The Installation Status Summary screen appears. Verify that CD to disk, disk to ROM, CP-BOOTROM, and IOP-ROM were installed.
- <cr> press return to continue
  - <q> to quit (remove any diskettes from the floppy drive)
  - <y> Yes, to confirm quit
  - <a> to reboot the system
- The system will automatically perform a sysload during which several messages will appear on the system terminal. Wait for "DONE" and then "INI" messages to be displayed before continuing.

**Software installation on Core/Net 1 is complete.**

**Note:** If the system fails to load, or system messages indicate data corruption, back out of the parallel reload process by performing the steps in Back out of a system software upgrade, page 157.

## Enable the Core 1 CNI cards

Follow these procedures to connect and activate the Core 1 CNI ports.

*Note:* CNI cards can be enabled and connected on the *inactive* Core only.

- 1 Verify that the cables are correctly routed and labeled. See Pre-route CNI to 3PE cables, page 106.
- 2 Attach the cables to the *inactive* 3PE faceplates.
- 3 Attach the cables to the *inactive* CNI cards.  
See Table 17 on page 108 for connection information.

### WARNING

The backplane connector pins are easily bent. Install backplane cables with extreme caution to ensure that these pins are not damaged.

- Carefully line up the cable and press it into place.
- Never force a cable into the slot. If the cable gets stuck, carefully remove it and try again. Damage to the backplane connector pins can make installation of CNI cables impossible.

- 4 Add CNI group:  
**LD 17** to load the program.  
**CNI s p g** (*slot port group*) to add a CNI group.
- 5 Software enable the *new* CNI port on the *inactive* Core:.  
**LD 135** to load the program.  
**ENL CNI c s p** (*core slot port*) to enable the card and ports.

## Enable new loops in Group 1

- 1 Define the loops in the new group:

For example:

```
LD 17          to load the program
REQ           CHG
TYPE         CEQU
....
XCT          xxx (enter the new loop)
              xxx
....
```

- 2 Enable the new loops.

```
LD 34          to load the program
ENLX          to enable the newly defined loop
****         to exit the program
```

## Upgrade Side 1 hardware to FIJI

Follow the procedures below in sequence:

- 1 Software disable the IGS/DIGS cards in Side 1 (IGS/DIGS odd-numbered cards, 1 - 19):

```
LD 39          to load the program
DISI IGS xx   xx is the IGS card number 1 - 19
```

**Note:** See the *X11 Maintenance* (553-3001-511) for more information on overlay 39 commands.

- 2 Faceplate disable the IGS/DIGS cards in Side 1.
- 3 Tag and disconnect the IGS/DIGS cables.
- 4 Remove the IGS/DIGS cards from Side 1.

**Note:** If you did not check the 3PE switch settings before, check the 3PE switch settings now. See “Check 3PE settings” on page 61.

- 5 Faceplate enable the FIJI cards.

- 6        Insert the FIJI cards in Side 1. **DO NOT seat the FIJI cards.**

**Note:** FIJI cards are installed in slots 2 and 3 of the Network modules, and slots 8 and 9 of the Core/Net modules.

## Connect the shelf 1 FIJI Ring cables

To create the shelf 1 fiber optic loop, connect the FIJI cards in each Network shelf 1 in **descending** order, from Tx to Rx (Table 21 on page 131).

Remove the black cap from the end of each cable before it is connected.

**Note:** Each end of the NTRC48 cable is labeled “Tx” or Rx” in the factory.

- a        Start with Network Group 0, shelf 1.
- b        Connect a NTRC48 FIJI Fiber Ring cable of the appropriate length from the Tx (J1) port of the FIJI card in **Group 0, shelf 1** to the Rx (J2) port of the FIJI card in **Group, shelf 1**.
- c        To complete the Ring, connect a final cable from Tx in **Group 1, shelf 1** to Rx in **Group 0, shelf 1**.

**Note:** Connect the Side 1 FIJI Ring cables only.

**Table 21**  
**FIJI Ring 1 connections**

Groups 0 - X are cabled in descending order		
Group/shelf	NTRC48 fiber cable connector	FIJI card connector
0/1	P1	Tx - J1
7/1	P2	Rx - J2
7/1	P1	Tx - J1
6/1	P2	Rx - J2
6/1	P1	Tx - J1
5/1	P2	Rx - J2
5/1	P1	Tx - J1
4/1	P2	Rx - J2
4/1	P1	Tx - J1
3/1	P2	Rx - J2
3/1	P1	Tx - J1
2/1	P2	Rx - J2
2/1	P1	Tx - J1
1/1	P2	Rx - J2
1/1	P1	Tx - J1
0/1	P2	Rx - J2

**Note:** Groups 2 through 7 are shown for reference only.

## Turn module power off

### WARNING

Call processing will be interrupted for approximately 30 minutes while the procedures are completed.

To reduce downtime, verify that all cables are pre-routed. See Complete upgrade preparation tasks, page 112.

Power down the modules with the module power switch. DO NOT power down the columns at the PDU:

- 1 Power down Core/Net Module 0.
- 2 Power down Core/Net Module 1.
- 3 Power down all Network Modules.

## Seat the Side 1 FIJI cards

The FIJI cards in side 1 can now be seated.

- 1 Push the faceplate latches forward to lock the cards in place.
- 2 Verify that the cards are faceplate *enabled*.

## Seat the Side 0 FIJI cards

- 1 Tag and disconnect the IGS/DIGS cables.
- 2 Remove the IGS/DIGs cards from Side 0.
- 3 Insert and seat the FIJI cards in Side 0.
- 4 Faceplate enable the FIJI cards.

## Connect the shelf 0 FIJI Ring cables

To create the shelf 0 fiber optic Ring 0, connect the FIJI cards in each Network shelf 0 in **ascending** order, from Tx to Rx ports (Table 22 on page 134).

Remove the black cap from the end of each cable before it is connected.

*Note:* Each end of the NTRC48 cable is labeled “Tx” or Rx” in the factory.

- a Start with Group 0, shelf 0.
- b Connect a NTRC48 FIJI Fiber Ring cable of the appropriate length from the Tx (J1) port of the FIJI card in **Group 0, shelf 0** to the Rx (J2) port of the FIJI card in **Group 1, shelf 0**.
- c To complete the Ring, connect a final cable from the Tx (J1) port in **Group 1, shelf 0** back to the Rx (J2) port in **Group 0, shelf 0**.

**Table 22**  
**FIJI Ring 0 connections**

Groups X - 0 are cabled in ascending order		
Group/shelf	NTRC48 fiber cable connector	FIJI card connector
0/0	P1	Tx - J1
1/0	P2	Rx - J2
1/0	P1	Tx - J1
2/0	P2	Rx - J2
2/0	P1	Tx - J1
3/0	P2	Rx - J2
3/0	P1	Tx - J1
4/0	P2	Rx - J2
4/0	P1	Tx - J1
5/0	P2	Rx - J2
5/0	P1	Tx - J1
6/0	P2	Rx - J2
6/0	P1	Tx - J1
7/0	P2	Rx - J2
7/0	P1	Tx - J1
0/0	P2	Rx - J2
<p><b>Note:</b> Groups 2 through 7 are shown for reference only.</p>		

## Connect the Group 1 FIJI to FIJI cables

- 1 Connect P2 of a NTRC47 FIJI to FIJI cable to J4 of the FIJI cards in each Network shelf 0, **except Group 0**.
- 2 Connect P1 of a NTRC47 FIJI to FIJI cable to J4 of the FIJI cards in each Network shelf 1, **except Group 0**.

*Note:* The FIJI cards in Group 0 do not receive a FIJI to FIJI cable.

## Move Clock Controller 0

- 1 Faceplate disable Clock Controller 0.
- 2 Disconnect the cable from the faceplate connector on the Clock Controller card.

Primary and secondary Clock reference cables that are connected to the faceplate should be disconnected next and labeled.

- 3 Remove Clock Controller 0 from the Core/Net module.
- 4 Set the Clock Controller 0 switch settings (see Table 23 on page 137).
- 5 Install Clock Controller 0 in Network Group 1, shelf 0, slot 13.

*Note:* Clock Controllers may be installed in any Network Group. However, a two-group Option 81C has only two Network Modules. In this case, both Clock Controllers must be installed in Group 1. If in the future the Option 81C is upgraded to more than two Network Groups, Nortel Networks recommends that Clock Controller 0 and 1 be located in different Network Groups.

- 6 Reconnect the Clock 0 Reference cables.
- 7 Faceplate enable the Clock Controller.

## Move Clock Controller 1

- 1 Faceplate disable Clock Controller 1.
- 2 Disconnect the cable from the faceplate connector on the Clock Controller card.

Primary and secondary Clock reference cables that are connected to the faceplate should be disconnected next and labeled.

- 3 Remove Clock Controller 1 from the Core/Net module.
- 4 Set the Clock Controller 0 switch settings (see Table 23 on page 137).
- 5 Install Clock Controller 1 in Network Group 1, shelf 1, slot 13.

**Note:** Clock Controllers may be installed in any Network Group. However, a two-group Option 81C has only two Network Modules. In this case, both Clock Controllers must be installed in Group 1. If in the future the Option 81C is upgraded to more than two Network Groups, Nortel Networks recommends that Clock Controller 0 and 1 be located in different Network Groups.

- 6 Reconnect the Clock 0 Reference cables.
- 7 Faceplate enable the Clock Controller.

**Table 23**  
**Clock Controller switch settings**

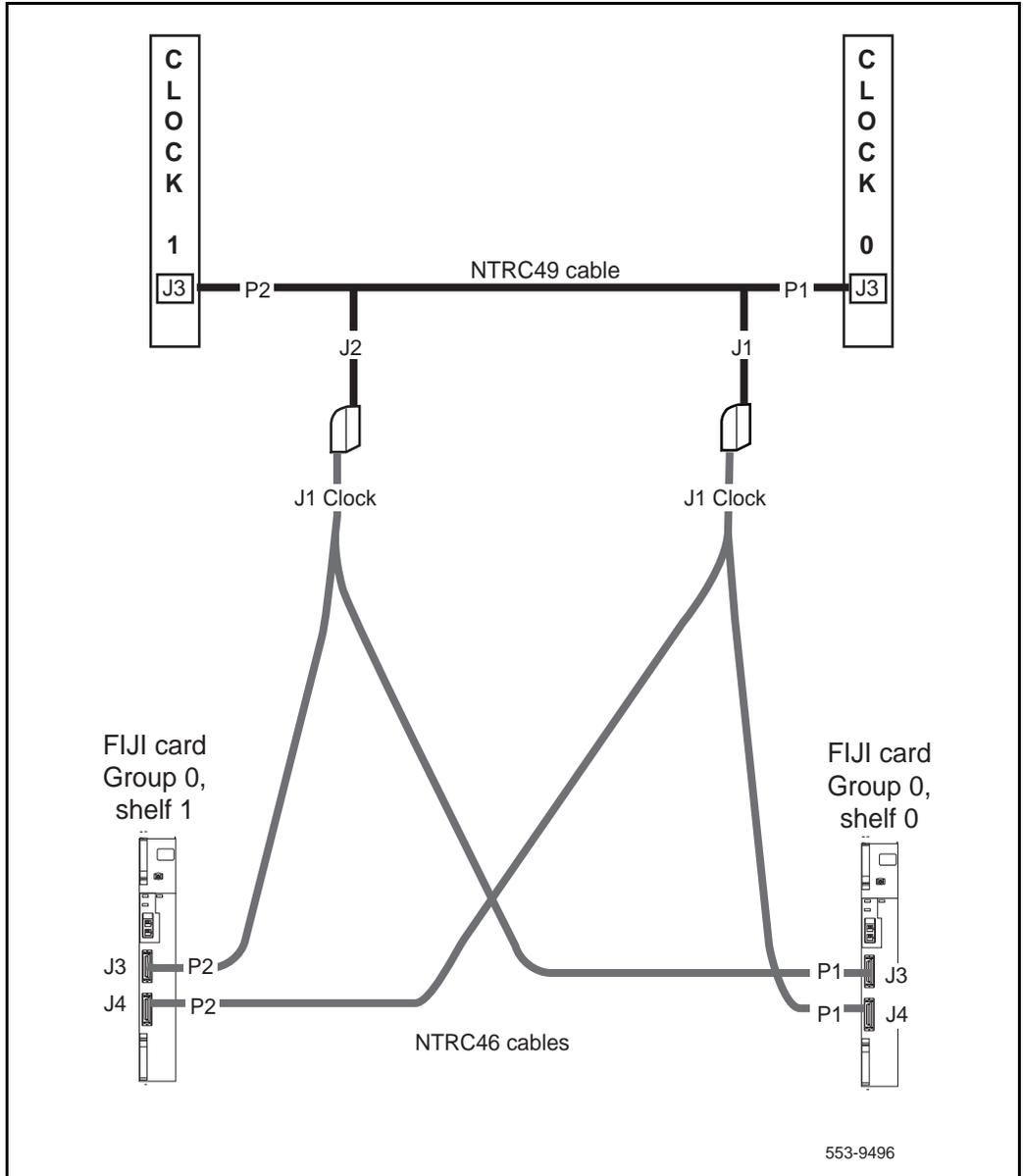
Option 81C switch settings must be used to enable Clock Hunt software. DO NOT use the Option 81 switch settings.											
SW1				SW2				SW4			
1	2	3	4	1	2	3	4	1	2	3	4
on	off	**	on	*	*						
*Cable length between the J3 faceplate connectors:											
0–4.3 m (0–14 ft.)										off	off
4.6–6.1 m (15–20 ft.)										off	on
6.4–10.1 m (21–33 ft.)										on	off
10.4–15.2 m (34–50 ft.)										on	on
<p>* If there is only one Clock Controller card in the system, set to OFF. If there are two Clock Controller cards, determine the total cable length between the J3 connectors (no single cable can exceed 25 ft.) and set these two switch positions for this cable length, as shown above. The maximum total (combined) length is 50 ft. Set the switches on both cards to the same settings.</p> <p>** Set to ON for Clock Controller 0. Set to OFF for Clock Controller 1.</p> <p><b>Note:</b> For FNF based-systems, the total clock path length is equal to the length of the NTRC49 cable used to connect between the two clock controller cards.</p>											

## Cable the Clock Controllers

Connect the cables to the Clock Controllers as shown in Figure 32 on page 139:

- 1 Connect the Clock to Clock cable:**
  - a** Connect P1 of the NTRC49 cable to port J3 of Clock Controller 0.
  - b** Connect P2 of the NTRC49 cable to port J3 of Clock Controller 1.
- 2 Connect the Clock 0 to FIJI cable:**
  - a** Connect P1 of the NTRC46 cable from Clock 0 to **J4** of the FIJI card in Group 0, **shelf 0**.
  - b** Connect P2 of the NTRC46 cable from Clock 0 to **J4** of the FIJI card in Group 0, **shelf 1**.
- 3 Connect the Clock 1 to FIJI cable:**
  - a** Connect P1 of the NTRC46 cable from Clock 1 to **J3** of the FIJI card in Group 0, **shelf 0**.
  - b** Connect P2 of the NTRC46 cable from Clock 1 to **J3** of the FIJI card in Group 0, **shelf 1**.

**Figure 32**  
**Clock Controller cable configuration**



## Prepare Core cards for power-up

- 1 Verify that a terminal is connected to the J25 I/O panel connector on Core/Net 1. See Connect a terminal, page 66.
- 2 Verify that both CP cards in the Core modules are in MAINT position.
- 3 Unseat the CP card in Core/Net 0.
- 4 Faceplate *disable* the CNI cards in Core/NET 0.
- 5 Faceplate *disable* the IODU/C in Core/Net 0.
- 6 Unseat the IODU/C in Core/Net 0.
- 7 Faceplate *enable* the CNI cards in Core/Net 1.

## Restore power

Restore power in the order below:

- 1 Restore power to Core/Net 1.
- 2 Restore power to Core/Net 0.
- 3 Restore power to the Network modules.
- 4 Wait for the system to load/init.
- 5 Re-initialize Core/Net 1.

**Note:** Re-initializing Core/Net 1 stops the midnight routines from running.

## Verify the Fiber Rings

See the *X11 Maintenance* (553-3001-511) for more information on Overlay 39 commands. Also see FIJI card description, page 30 for additional information on FIJI cards.

- 1 Check that Fiber Ring 1 operates correctly:
  - LD 39** to load the program
  - STAT RING 1** to check the status of Ring 1
  
- 2 Reset the Rings:
  - RSET** to reset the Rings and prepare them for redundancy
  - RSTR** to restore both Rings to HALF/HALF state
  
- 3 Check that the Rings operate correctly:
  - STAT RING 0** to check the status of Ring 0 (HALF/HALF)
  - STAT RING 1** to check the status of Ring 1 (HALF/HALF)
  
- 4 If any Ring problems occur, correct them now.
  - STAT ALRM <X> <Y>** to check the alarm status of individual FIJI cards or all FIJI cards. See *X11 Administration* (553-3001-311) for more information.
  
- 5 Verify that call processing operates correctly: this includes, but is not limited to the following:
  - Check for dial tone.
  - Make internal, external, and network calls.
  - Check attendant console activity.
  - Check DID trunks.
  - Check any auxiliary processors.

## Enable the Peripheral Signaling (Per Sig) card

- 1 Enable the Per Sig card in Group 1:  
**LD 32** to load the program  
**ENPS x** (slot) to enable the Peripheral Signalling card  
**\*\*\*\*** to exit the program

For example:

- ENPS 12** to enable slot 12 (Group 6)  
**ENPS 13** to enable slot 13 (Group 6)

See Table 17 on page 108 for slot and Group assignments.

## Enable the Conference/TDS card

- 1 Plug in the Conf/TDS card in Group 1. Push the latches forward to lock the card in place.
- 2 Faceplate enable the Conf/TDS cards.
- 3 Enable the Conf/TDS cards:  
**LD 34** to load the program  
**ENLX x** (loop) to enable the Conf/TDS card  
**\*\*\*\*** to exit the program

## Upgrade Core/Net 0 software

- 1 Seat the IODU/C. Verify the status on the display (A1).
- 2 Faceplate enable the IODU/C.
- 3 Insert the CP Install Program diskette into IODU/C floppy drive in Core/Net 0.
- 4 Verify that the CP card in Core/Net 0 is in MAINT mode.
- 5 Seat the CP card.
- 6 Connect a terminal to the J25 port on the I/O panel in Core/Net 0.
- 7 Press the MAN RST button on the CP card in Core/Net 0 to reboot the system and start the Software Installation Tool. (The terminal displays SYSLOAD messages during file loading. When SYSLOAD is completed, the NT logo appears.)
- 8 Initiate the installation by selecting the following prompt from the menu:  
`<cr> <u>>` to Install menu
- 9 Remove the CP Install Program diskette and insert the Keycode diskette, when prompted.  
`<a>` continue with keycode validation
- 10 Remove the Keycode diskette and re-insert the CP Install Program diskette into the IODU/C floppy drive in Core/Net/Net 0.
- 11 When the main menu appears, select the following option to copy the software from Core//Net 1 to Core/Net/Net 0 and exit the Main Menu:  
`<o>` to copy system software from the other Core/Net
- 12 When the software is installed successfully, press `<CR>` to install CP-software from the hard disk to Flash EEPROM, and install CP-BOOT ROM. Follow the screen directions until the Main Menu returns.

- 13** From the Main Menu, select the prompts in the following sequence to install the IOP-ROM:

<f> to install IOP-ROM only  
<cr> <a> to install the IOP-ROM from hard disk  
<y> Yes, start installation  
<cr> <a> to continue with ROM upgrade

Follow the screen directions until the Main Menu returns.

- 14** From the Main Menu, select the following options in sequence to copy the customer database from Core/Net/Net 1 to Core/Net/Net 0.:

<d> to go to the Database menu  
<d> to copy the database from Core/Net 1 to Core/Net 0  
<y> to confirm the installation status summary  
<a> to confirm database copy

- 15** From the Main Menu, select the following options to quit and reload the system:

<q> to quit  
<y> to confirm quit

- 16** Reboot the Core/Net/Net 0 CPU:

<a> to reboot the system

Wait for "DONE" and then "INI" messages to be displayed before continuing.

## Enable the Core 0 CNI cards

Follow these procedures to connect and activate the Core 0 CNI ports.

**Note:** CNI cards can be enabled and connected on the *inactive* Core only.

- 1 Verify that the cables are correctly routed and labeled. See Pre-route CNI to 3PE cables, page 106.
- 2 Attach the cables to the *inactive* 3PE faceplates.
- 3 Attach the cables to the *inactive* CNI cards.

See Table 17 on page 108 for connection information.

### WARNING

The backplane connector pins are easily bent. Install backplane cables with extreme caution to ensure that these pins are not damaged.

- Carefully line up the cable and press it into place.
- Never force a cable into the slot. If the cable gets stuck, carefully remove it and try again. Damage to the backplane connector pins can make installation of CNI cables impossible.

- 4 Add CNI group:
  - LD 17** to load the program.
  - CNI s p g** (*slot port group*) to add a CNI group.
- 5 Software enable the *new* CNI port on the *inactive* Core:
  - LD 135** to load the program.
  - ENL CNI c s p** (*core slot port*) to enable the card and ports.

## Complete the upgrade

### Task summary list

The following is a summary of the tasks in this section:

- Exit split mode, page 146
- Synchronize the hard disks, page 147
- Verify Core/Net redundancy, page 147
- Test Core/Net 1 and Core/Net 0, page 148
- Switch the Clocks, page 149
- Check Fiber Ring status, page 149
- Backup the database, page 150

Follow the procedures below in sequence to complete the upgrade. If an error occurs at any time, resolve the problem before continuing.

### Exit split mode

- 1 Perform the following in uninterrupted sequence:
  - Press and release the MAN RST button in Core/Net 0.
  - When SYS700 messages appears on LCD display on Core/Net 0, set the MAINT/NORM switch to NORM in Core/Net 0.

In 60 seconds, the LCD will display and confirm your processes with:

**RUNNING ROM OS**  
**ENTERING CP VOTE**

- 2 An HWI534 message indicates the start of memory synchronization. In 10 minutes, an HWI533 message on Core/Net 1 CSPI or SDI terminal indicates the memory synchronization is complete.  
**Note:** The HWI messages are displayed on the TTY device connected to the active core.
- 3 When the synchronization is complete, enable the CNI cards in Core/Net 0 (set the ENB/DIS faceplate switch to ENB).

- 4 Check the status of the CPU and CNI cards in Core/Net 1:  
**LD 135**  
**STAT CPU** Get status of CPU and memory  
**STAT CNI** Get status of CNI cards
- 5 Enable the CNI ports if necessary:  
**ENL CNI c s p** Enable CNI on *core, slot, port*
- 6 In Core/Net 1, set the MAINT/NORM switch on the CP card to NORM.

## Synchronize the hard disks

- 1 Load LD 137 and synchronize the hard disks. Synchronization may take up to seven minutes. To be sure that the contents of IODU/C 1 are copied to IODU/C 0, verify that IODU/C 0 is disabled.  
**LD 137**  
**STAT** Get the status of the IODU/C and redundancy  
**SYNC** Enter "Yes" to synchronize disks. Wait until the memory synchronization successfully completes before continuing.  
**TEST CMDU** Performs hard and floppy disk test.
- 2 Get the status of the IODU/Cs and be sure IODU/C 0 is active. Switch if necessary.  
**STAT** Get the status of IODU/C and redundancy  
**SWAP** Switch CMDU if necessary  
**STAT CMDU** Get the status of the IODU/Cs. Be sure the same IODU/C and CPU are active.  
\*\*\*\* exit program

## Verify Core/Net redundancy

To verify redundancy, switch the active Cores back and forth to verify that both sides operate without problems.

- LD 135**
- SCPU** to switch the active Core/Net
- SCPU** to switch the active Core/Net again

## Test Core/Net 1 and Core/Net 0

- 1 Perform a redundancy sanity test using the following sequence:

**LD 135**

<b>STAT CNI</b>	Get status of CNI cards
<b>STAT CPU</b>	Get status of CPU and memory
<b>TEST CPU</b>	Test the inactive Core/Net/Net
<b>TEST CNI c s</b>	Test each inactive CNI card

- 2 Switch Core/Nets and test the other side (Core/Net 0)

<b>SCPU</b>	Switch Core/Nets
<b>TEST CPU</b>	Test the inactive Core/Net/Net
<b>TEST CNI c s</b>	Test each inactive CNI card

**Note:** Testing the CP and CNI cards and synchronizing memory can take up to 20 minutes for each test. When the CP test is complete, the CP the memory is automatically synchronized.

- 3 Clear the display and minor alarms on both Core/Nets.

<b>CDSP</b>	Clear the displays on the Core/Nets
<b>CMAJ</b>	Clear major alarms
<b>CMIN ALL</b>	Clear minor alarms

- 4 Get the status of the Core/Nets, CNIs, and memory.

<b>STAT CPU</b>	Get the status of both Core/Nets
<b>STAT CNI</b>	Get the status of all configured CNIs and memory

**Note:** You may need to execute the STAT CNI command twice before receiving a response from the system.

\*\*\*\* exit program

## Switch the Clocks

- 1 Verify that the clock controller is assigned to the *active* Core.  
**LD 60** to lead the program  
**SSCK *x*** to get the status of the clock controllers (*x* is “0” or “1” for Clock 0 or Clock 1).  
**SWCK** to switch the Clock if necessary  
**\*\*\*\*** exit program
- 2 Verify that the Clock Controllers are switching correctly:.  
**SWCK** to switch the Clock  
**SWCK** to switch the Clock again

## Check Fiber Ring status

See the *X11 Maintenance* (553-3001-511) for more information on overlay 39 commands. Also see FIJI card description, page 30 for additional information on FIJI cards.

- 1 Check that the Fiber Rings operate correctly:  
**LD 39** to load the program  
**STAT RING 0** to check the status of Ring 0 (HALF/HALF)  
**STAT RING 1** to check the status of Ring 1 (HALF/HALF)
- 2 If necessary, restore the Rings to Normal State:  
**RSTR** to restore both Rings to HALF state
- 3 Check that the Rings operate correctly:  
**STAT RING 0** to check the status of Ring 0 (HALF/HALF)  
**STAT RING 1** to check the status of Ring 1 (HALF/HALF)
- 4 Check the status of the FIJI alarms  
**STAT ALRM** to query the alarm condition for all FIJI cards in all Network Groups

## Backup the database

- 1 Log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program
- 3 When "EDD000" appears on the terminal, enter **EDD** to begin the data dump
- 4 When "DATADUMP COMPLETE" and "DATABASE BACKUP COMPLETE" appears on the terminal, enter **\*\*\*\*** to exit the program

### CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before the upgrade is complete.

---

# Option 81 upgrade to Fiber Network

---

## Content list

The following are the topics in this section:

- [Verify Core 0 is active](#) . . . . . 152
- [Split the Cores](#) . . . . . 153
- [Upgrade Side 1](#) . . . . . 154
- [Turn module power off](#) . . . . . 163
- [Seat the FIJI cards in Side 1](#) . . . . . 163
- [Upgrade Side 0](#) . . . . . 163
- [Move the Clock Controllers](#) . . . . . 168
- [Cable the Clock Controllers](#) . . . . . 170
- [Remove the 3PE card in the Core shelves](#) . . . . . 172
- [Prepare Core cards for power-up](#) . . . . . 172
- [Restore power](#) . . . . . 172
- [Verify the Fiber Ring status](#) . . . . . 173
- [Upgrade Core 0 software](#) . . . . . 174
- [Complete the upgrade](#) . . . . . 176
- [Removal of unused Intergroup cables and module](#) . . . . . 180

## Reference list

The following are the references in this section:

- *X11 Administration* (553-3001-311)

- *X11 Maintenance (553-3001-511)*

Once the steps in Prepare for upgrade, page 55 are complete, follow the procedures listed below in sequence.

### CAUTION

**All tasks in the “Prepare for upgrade” section on page 55 must be completed before the upgrade is begun:**

- ✓ “Check power supply version (DC power only)”
- ✓ “Check minimum system requirements”
- ✓ “Check 3PE settings”
- ✓ “Prepare to move the Clock Controllers (Option 61C and 81 to 81C with Fiber Network Fabric)”
- ✓ “Connect a terminal”
- ✓ “Print site data”
- ✓ “Pre-route cables”
- ✓ “Perform a template audit”
- ✓ “Backup the database”

**Failure to complete these tasks will result in increased downtime and possible system failure.**

## Verify Core 0 is active

- 1 Get the status of the CPUs. Verify that all common equipment is enabled.

**LD 135** to load the program  
**STAT CPU** to get the status of both Cores

- 2 Ensure Core 0 is active.

If Core 1 is active, switch Cores.

**STAT CPU** to get the status of the Cores  
**SCPU** to switch to Core 0  
**\*\*\*\*** to exit the program

- 3 Ensure Clock Controller 0 is active and tracking.  
**LD 60** to load the program  
**SSCK 0** to get the status of Clock 0  
**SSCK 1** to get the status of Clock 1  
**SWCK** if necessary, to switch to Clock 0

## Split the Cores

- 1 Be sure Core 0 is active and Core 1 is standby. You may need to switch Cores:  
**LD 135** to load the program  
**STAT CPU** to get the status of both Cores  
\*\*\*\* exit program
- 2 Verify that IODU/C 0 is active. You may need to switch IODU/Cs.  
**LD 137**  
**STAT** Get the status of IODU/C  
**SWAP** Switch IODU/Cs if necessary  
\*\*\*\* exit program
- 3 Connect a terminal to the CPSI port in Core 1 to J25 of the I/O panel at the back of the Core. Be sure it is configured as follows. The recommended baud rate is 9600, to be the same as the CPSI port.  
**7 data bits, 1 stop bit, Space parity, Full duplex, XON protocol**
- 4 Place Core 0 in Maintenance by setting the MAINT/NORM switch to MAINT.
- 5 In Core 1, disable the NT6D65 or NTRB34 Core to Network Interface (CNI) cards by setting the ENB/DIS faceplate switches to DIS.

## Upgrade Side 1

### Task summary list

The following is a summary of the tasks in this section:

- Upgrade the Core 1 software, page 154
- Back out of a system software upgrade, page 157
- Upgrade Side 1 hardware, page 160
- Connect the shelf 1 FIJI Ring cables, page 160

Core 1 must be *inactive* to complete these procedures. A terminal must be connected to the J25 port on Core 1. See Connect a terminal, page 66.

### Upgrade the Core 1 software

Complete the steps below to install new software in Core/Net 1.

- 1 Place the CP Install disk that corresponds with the installed CP card type into the IODU/C in Core/Net 1.
- 2 Install the CD-ROM into the CD drive:
  - a press the button on the CD-ROM drive to open the CD-ROM disk holder
  - b place the CD-ROM disk into the holder with the disk label showing
  - c use the four tabs to secure the CD-ROM drive
  - d press the button again to close the CD-ROM disk holder (don't push the holder in by hand)
- 3 In Core/Net 1, perform the following three steps in uninterrupted sequence:
  - a press and hold the MAN RST button on the CP card
  - b set the MAINT/NORM switch on the CP card to MAINT
  - c release the MAN RST button

A sysload will begin (cold start). Wait for the Main Menu to appear on the terminal before proceeding.

**Note 1:** If the CD-ROM is not in the CD drive of the IODU/C, the installation procedure will not continue. Insert the CD-ROM into the drive to continue.

**Note 2:** If a problem is detected during the system verification, Install stops, prints an error message, and aborts the installation. If the verification is not successful, do not continue; contact your technical support organization.

- 4 Press <CR> to continue.
- 5 Remove the CP Install Program diskette and insert the Keycode diskette, when prompted.
  - <a> to continue with keycode validation
  - <y> to confirm that the keycode matches the CD-ROM release
- 6 When the Install Menu is displayed, select the following options in sequence when you are prompted to do so
  - <a> to install software, CP-BOOT ROM, and IOP-ROM
  - <a> to verify that the CD-ROM is now in driveThe Installation Status Summary screen appears that lists the options to be installed.
  - <y> Yes, start Installation
  - <a> Continue with Upgrade

- 7    Select a PSDL file to install. The PSDL file contains the loadware for all downloadable cards in the system and loadware for M3900 series sets.

**Select one of the six psdl files**

- <1>    Global 10 Languages <default>
- <2>    Western Europe 10 Languages
- <3>    Eastern Europe 10 Languages
- <4>    North America 6 Languages
- <5>    RIs24 up-issue
- <6>    North America 6 Languages:

The languages contained in each selection are outlined as follows:

- 1    English, French, German, Spanish, Swedish, Italian, Norwegian, Brazilian, Portuguese, Finnish, Japanese Katakana.
- 2    English, French, German, Spanish, Swedish, Norwegian, Danish, Finnish, Italian, Brazilian Portuguese.
- 3    English, French, German, Dutch, Polish, Czech, Hungarian, Russian, Latvian, Turkish.
- 4    English, Spanish, French, Brazilian Portuguese, Japanese Katakana, German.
- 5    English, French, German, Spanish, Swedish, Italian, Norwegian, Portuguese, Finnish, Japanese Katakana.
- 6    English, French, German, Spanish, Brazilian Portuguese, Japanese Katakana.

- 8 When the ROM installation screen appears, select the following prompts in sequence:

<a> Continue with ROM Upgrade

The following message appears:

Software Release XXXX was installed successfully on Core 1.  
All files were copied from CDROM to the hard disk.

Please press <CR> to continue when ready...

<a> Continue with ROM upgrade

<a> Yes, start Installation

<a> Continue with ROM upgrade

When the Installation Status Summary screen appears, press <CR> when ready...

<cr> Are you sure you want to continue with IOP ROM

<a> to install the IOP-ROM from hard disk

<y> Yes, start installation

<a> to continue with ROM upgrade

The Installation Status Summary screen appears. Verify that CD to disk, disk to ROM, CP-BOOTROM, and IOP-ROM were installed.

<cr> press return to continue

<q> to quit (remove any diskettes from the floppy drive)

<y> Yes, to confirm quit

<a> to reboot the system

The system will automatically perform a sysload during which several messages will appear on the system terminal. Wait for "DONE" and then "INI" messages to be displayed before continuing.

### Software installation on Core 1 is complete.

**Note:** If the system fails to load, or system messages indicate data corruption, back out of the parallel reload process by performing the steps in Back out of a system software upgrade, page 157.

## Back out of a system software upgrade

- 1 Place the original **Install disk 1** into the IODU/C in Side 1.
- 2 In Side 1, press the MAN RST button.

- 3 Select <u> to initiate the Install Tool.
- 4 Remove the CP Install diskette and insert the source keycode diskette.
- 5 Select <a> to continue with keycode validation.
- 6 When the install screen appears, select the following options in sequence, and insert the **source** database diskette when you are prompted to do so.
  - <b> to install software, database, CP-BOOT ROM, and IOP-ROM
  - <a> to start installation
  - <a> continue with upgrade
- 7 When the database installation screen appears, select the following:
  - <a> to install customer database (choose this option if the database was sent to Nortel Networks for conversion)
  - <a> to continue with the database install
- 8 When the ROM installation screen appears, select the following:
  - <a> to continue with the ROM upgrade
- 9 Following the database installation, upgrade the ROMs:
  - <a> to continue with ROM upgrade (CP-BOOT)
  - <y> to start installation
  - <a> to continue with ROM upgrade (IOP-ROM)
- 10 Remove the disk from the IODU/C in Side 1.
- 11 From the main menu, select the following options to quit and reload the system:
  - <q> to quit
  - <y> to confirm quit
- 12 Remove any diskettes from the floppy drive, and type
  - <a> to reboot the system
- 13 In Side 1, perform the following steps:
  - a enable the NT6D65 CNI cards by setting the ENB/DIS faceplate switches to ENB

- b** press and release the MAN RST button on the CP card
- c** When SYS700 messages appear on the CP 1 LCD display
- d** set CP 1 MAINT/NORM switch to NORM.

Within 60 seconds, the LCD will display the following messages, confirming the process.

**RUNNING ROM OS  
ENTERING CP VOTE**

An "HWI534" message from the CPSI or SDI port indicates the start of memory synchronization. Within 10 minutes, an "HWI533" message on Side 0 CPSI or SDI TTY indicates the memory synchronization is complete. Wait until the memory synchronization is complete before continuing.

- 14** In Side 0, set the MAINT/NORM switch on the CP card to NORM.
- 15** Perform a redundancy sanity test.

**LD 135**

<b>TEST CPU</b>	Test the standby (inactive) Side.
<b>SCPU</b>	Switch the Cores.
<b>CDSP</b>	Clear display.
<b>TEST CPU</b>	Test the standby (inactive) Side.
<b>SCPU</b>	Switch the Cores.

- 16** Testing the CPs can take up to 20 minutes for each test. When the test is complete, the memories are automatically synchronized.
- 17** Load LD 137 and synchronize hard disks. Synchronization may take up to 50 minutes. To be sure the contents of CMDU 0 are copied to CMDU 1, use the STAT command to verify that CMDU 1 is disabled.

**LD 137**

<b>STAT CMDU</b>	Get the status of both CMDUs.
<b>SYNC</b>	Synchronize disks.
<b>TEST CMDU</b>	Performs hard and floppy disk test.

You are now out of the parallel reload process, and have returned to the **Source** software.

## Upgrade Side 1 hardware

Follow the procedures below in sequence:

- 1 Software disable the IGS/DIGS cards in Side 1 (IGS/DIGS odd-numbered cards, 1 - 19):

**LD 39** to load the program

**DISI IGS xx** xx is the IGS card number 1 - 19

**Note:** See the *X11 Maintenance* (553-3001-511) for more information on overlay 39 commands.

- 2 Faceplate disable the IGS/DIGS cards in Side 1.
- 3 Tag and disconnect the IGS/DIGS cables.
- 4 Remove the IGS/DIGS cards from Side 1.

**Note:** If you did not check the 3PE switch settings previously, check the 3PE switch settings now. See “Check 3PE settings” on page 61.

- 5 Faceplate enable the FIJI cards.
- 6 Insert the FIJI cards in Side 1. **DO NOT seat the FIJI cards.**

**Note:** FIJI cards are installed in slots 2 and 3 of the Network modules, and slots 8 and 9 of the Core modules.

## Connect the shelf 1 FIJI Ring cables

To create the shelf 1 fiber optic loop, connect the FIJI cards in each Network shelf 1 in **descending** order, from Tx to Rx (Figure 33 on page 161 and Table 24 on page 162).

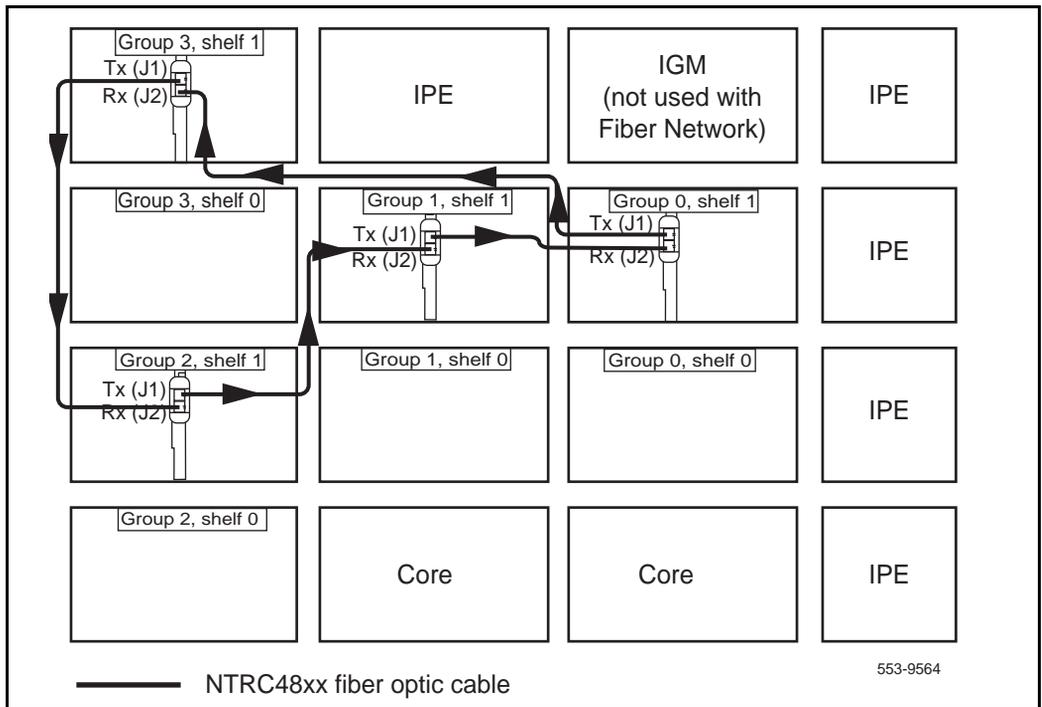
Remove the black cap from the end of each cable before it is connected.

**Note:** Each end of the NTRC48 cable is labeled “Tx” or Rx” in the factory.

- a Start with Network Group 0, shelf 1.
- b Connect a NTRC48 FIJI Fiber Ring cable of the appropriate length from the Tx (J1) port of the FIJI card in **Group 0, shelf 1** to the Rx (J2) port of the FIJI card in the **highest Network Group, shelf 1**.

- c Connect a NTRC48 cable from the Tx (J1) port of the FIJI card from the Tx (J1) port in the **highest Network Group, shelf 1** to the Rx (J2) port in the **second highest Network Group, shelf 1**.
- d Continue to connect NTRC48 FIJI Fiber Ring cables of the appropriate length from the Tx (J1) port to the Rx (J2) port in shelf 1 of each Network Group. Connect these cables in **descending** order of Network Groups.
- e To complete the Ring, connect a final cable from Tx in **Group 1, shelf 1** to Rx in Group 0, shelf 1.

**Figure 33**  
Shelf 1 *descending* fiber optic Ring (Option 81 example)



**Note:** Connect the Side 1 FIJI Ring cables only. DO NOT connect the Side 0 cables.

**Table 24**  
**FIJI Ring 1 connections**

<b>Groups 0 - X are cabled in descending order</b>		
<b>Group/shelf</b>	<b>NTRC48 fiber cable connector</b>	<b>FIJI card connector</b>
0/1	P1	Tx - J1
7/1	P2	Rx - J2
7/1	P1	Tx - J1
6/1	P2	Rx - J2
6/1	P1	Tx - J1
5/1	P2	Rx - J2
5/1	P1	Tx - J1
4/1	P2	Rx - J2
4/1	P1	Tx - J1
3/1	P2	Rx - J2
3/1	P1	Tx - J1
2/1	P2	Rx - J2
2/1	P1	Tx - J1
1/1	P2	Rx - J2
1/1	P1	Tx - J1
0/1	P2	Rx - J2

## Turn module power off

### **WARNING**

Call processing will be interrupted for approximately 30 minutes while the procedures are completed.

To reduce downtime, verify that all cables are pre-routed. See Pre-route cables, page 79.

Power down the modules with the module power switch. DO NOT power down the columns at the PDU:

- 1 Power down Core Module 0.
- 2 Power down Core Module 1.
- 3 Power down all Network Modules.

## Seat the FIJI cards in Side 1

The FIJI cards in side 1 can now be seated. Push the faceplate latches forward to lock the cards in place. Verify that the cards are faceplate *enabled*.

## Upgrade Side 0

### **Task summary list**

The following is a summary of the tasks in this section:

- Install Side 0 FIJI cards, page 163
- Connect the FIJI to FIJI cables, page 164
- Connect the shelf 0 FIJI Ring cables, page 165

### **Install Side 0 FIJI cards**

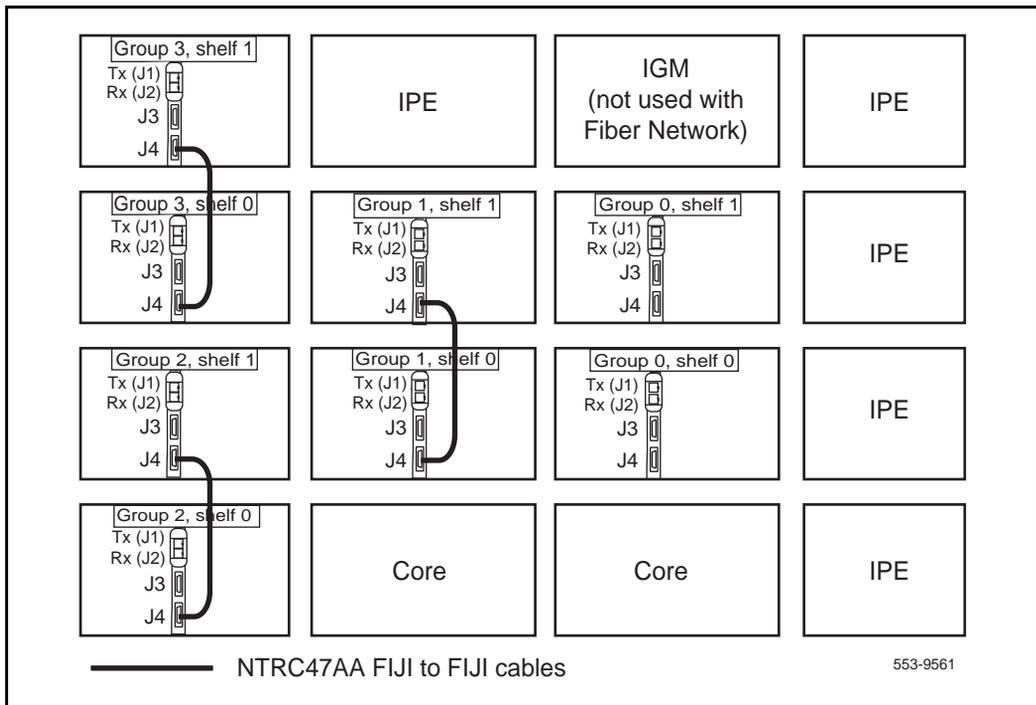
- 1 Tag and disconnect the IGS/DIGS cables.
- 2 Remove the IGS/DIGs cards from Side 0.
- 3 Insert and seat the FIJI cards in Side 0.
- 4 Faceplate enable the FIJI cards.

## Connect the FIJI to FIJI cables

- 1 Connect P2 of a NTRC47 FIJI to FIJI cable to J4 of the FIJI cards in each Network shelf 0, **except Group 0**.
- 2 Connect P1 of a NTRC47 FIJI to FIJI cable to J4 of the FIJI cards in each Network shelf 1, **except Group 0**.

*Note:* The FIJI cards in Group 0 do not receive a FIJI to FIJI cable.

**Figure 34**  
**FIJI to FIJI cable connections (Option 81 example)**



## Connect the shelf 0 FIJI Ring cables

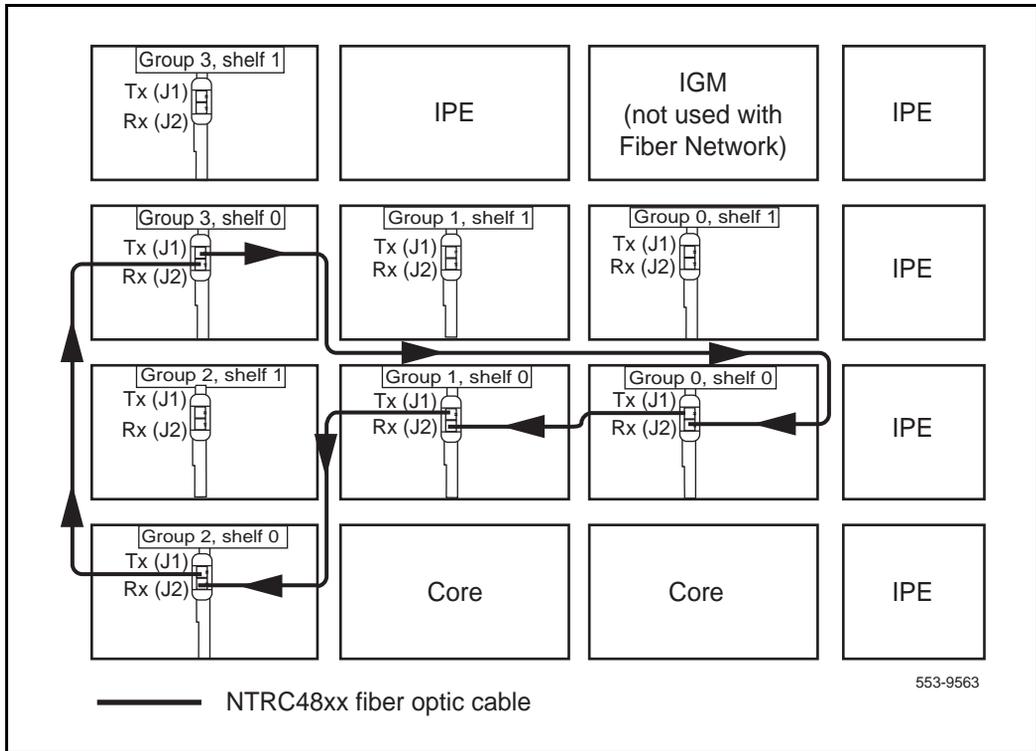
To create the shelf 0 fiber optic loop, connect the FIJI cards in each Network shelf 0 in **ascending** order, from Tx to Rx ports (Figure 35 on page 166 and Table 25 on page 167).

Remove the black cap from the end of each cable before it is connected.

*Note:* Each end of the NTRC48 cable is labeled “Tx” or Rx” in the factory.

- a Start with Group 0, shelf 0.
- b Connect a NTRC48 FIJI Fiber Ring cable of the appropriate length from the Tx (J1) port of the FIJI card in **Group 0, shelf 0** to the Rx (J2) port of the FIJI card in **Group 1, shelf 0**.
- c Connect a NTRC48 FIJI Fiber Ring cable of the appropriate length from the Tx (J1) port of the FIJI card in **Group 1, shelf 0** to the Rx (J2) port of the FIJI card in **Group 2, shelf 0**.
- d Continue to connect NTRC48 FIJI Fiber Ring cables of the appropriate length from the Tx (J1) port to the Rx (J2) port in shelf 0 of each Network Group. Connect these cables in **ascending** order of Network Groups.
- e To complete the Ring, connect a final cable from the Tx (J1) port in the **highest number group** back to the Rx (J2) port in **Group 0, shelf 0**.

**Figure 35**  
**Shelf 0 ascending fiber optic Ring (Option 81 example)**



**Table 25**  
**FIJI Ring 0 connections**

Groups X - 0 are cabled in ascending order		
Group/shelf	NTRC48 fiber cable connector	FIJI card connector
0/0	P1	Tx - J1
1/0	P2	Rx - J2
1/0	P1	Tx - J1
2/0	P2	Rx - J2
2/0	P1	Tx - J1
3/0	P2	Rx - J2
3/0	P1	Tx - J1
4/0	P2	Rx - J2
4/0	P1	Tx - J1
5/0	P2	Rx - J2
5/0	P1	Tx - J1
6/0	P2	Rx - J2
6/0	P1	Tx - J1
7/0	P2	Rx - J2
7/0	P1	Tx - J1
0/0	P2	Rx - J2

## Move the Clock Controllers

### Move Clock Controller 0

- 1 Faceplate disable Clock Controller 0.
- 2 Label and disconnect the cable from the J11 connector in the NT8D36 Intergroup Module at the junctor board.
- 3 Disconnect the cable from the faceplate connector on the Clock Controller card.

Primary and secondary Clock reference cables that are connected to the faceplate should be disconnected next and labeled.

- 4 Remove Clock Controller 0 from the Core module.
- 5 Set the Clock Controller 0 switch settings (see Table 26 on page 169).

**Note:** Option 81 systems equipped with Fiber Network must use the Option 81C switch settings to enable Clock Hunt software.

- 6 Install Clock Controller 0 on a Network shelf 0, slot 13.

**Note:** The Clock Controller can be installed in any Network Group, however Nortel Networks recommends that Clock Controller 0 and 1 be located in different Network Groups.

- 7 Reconnect the Clock 0 Reference cables.
- 8 Faceplate enable the Clock Controller.

### Move Clock Controller 1

- 1 Faceplate disable Clock Controller 1.
- 2 Label and disconnect the cable from the J12 connector in the NT8D36 Intergroup Module at the junctor board.
- 3 Disconnect the cable from the faceplate connector on the Clock Controller card.

Primary and secondary Clock reference cables that are connected to the faceplate should be disconnected next and labeled.

- 4 Remove Clock Controller 1 from the Core module.
- 5 Set the Clock Controller 0 switch settings (see Table 26 on page 169).

**Note:** Option 81 systems equipped with Fiber Network must use the Option 81C switch settings to enable Clock Hunt software.

- 6 Install Clock Controller 1 on a Network shelf 1, slot 13.  
**Note:** The Clock Controller can be installed in any Network Group, however Nortel Networks recommends that Clock Controller 0 and 1 be located in different Network Groups.
  - 7 Reconnect the Clock 0 Reference cables.
  - 8 Faceplate enable the Clock Controller.
- Option 81 systems equipped with Fiber Network must use Option 81C switch settings to enable Clock Hunt software.

**Table 26**  
**Clock Controller switch settings**

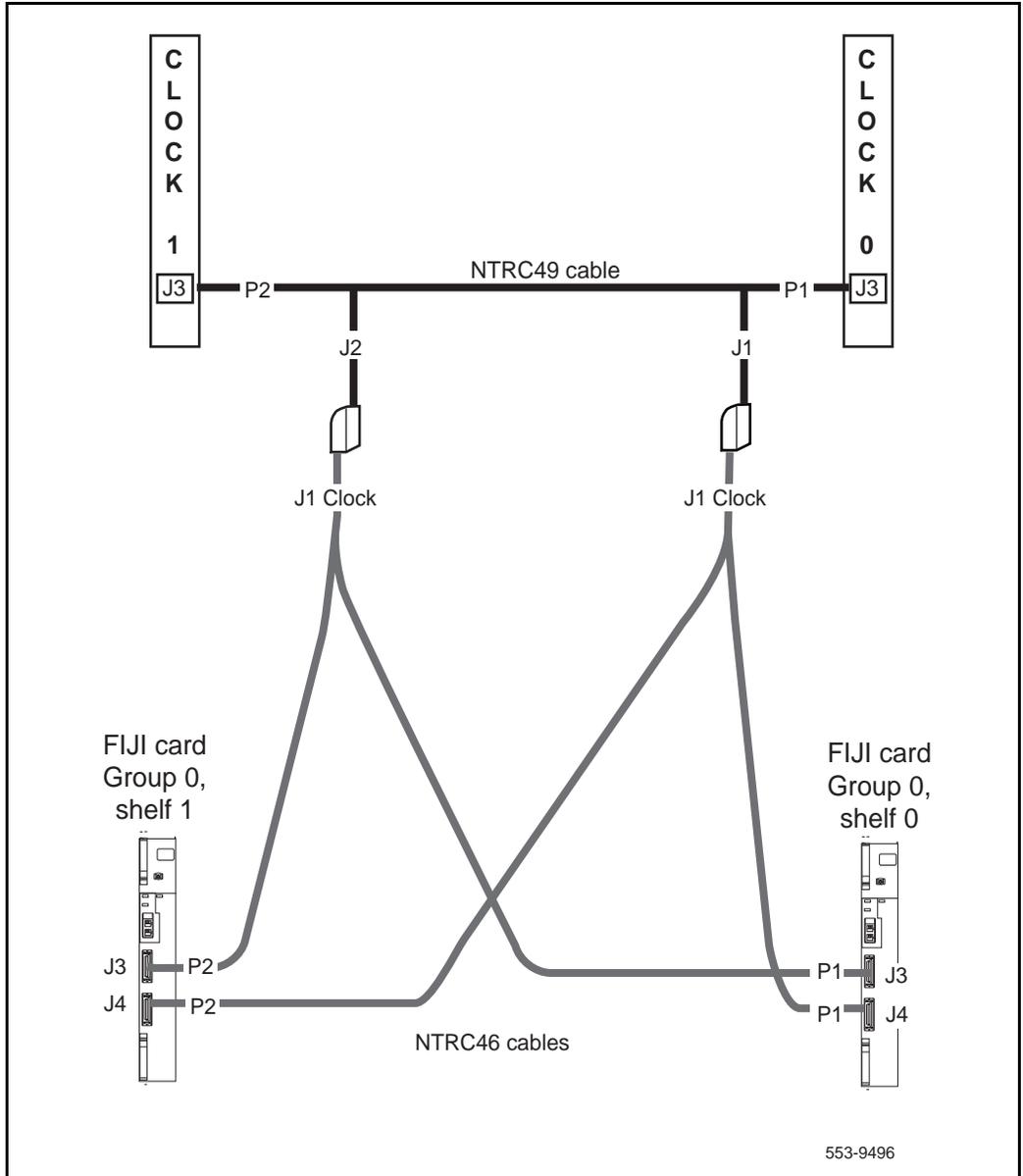
Option 81 systems equipped with Fiber Network must use the Option 81C switch settings to enable Clock Hunt software. DO NOT use the Option 81 switch settings.											
SW1				SW2				SW4			
1	2	3	4	1	2	3	4	1	2	3	4
on	off	**	on	*	*						
*Cable length between the J3 faceplate connectors:											
0–4.3 m (0–14 ft.)										off	off
4.6–6.1 m (15–20 ft.)										off	on
6.4–10.1 m (21–33 ft.)										on	off
10.4–15.2 m (34–50 ft.)										on	on
* If there is only one Clock Controller card in the system, set to OFF. If there are two Clock Controller cards, determine the total cable length between the J3 connectors (no single cable can exceed 25 ft.) and set these two switch positions for this cable length, as shown above. The maximum total (combined) length is 50 ft. Set the switches on both cards to the same settings.											
** Set to ON for Clock Controller 0. Set to OFF for Clock Controller 1.											
<b>Note:</b> For FNF based-systems, the total clock path length is equal to the length of the NTRC49 cable used to connect between the two clock controller cards.											

## Cable the Clock Controllers

Connect the cables to the Clock Controllers as shown in Figure 36 on page 171:

- 1 Connect the Clock to Clock cable:**
  - a** Connect P1 of the NTRC49 cable to port J3 of Clock Controller 0.
  - b** Connect P2 of the NTRC49 cable to port J3 of Clock Controller 1.
- 2 Connect the Clock 0 to FIJI cable:**
  - a** Connect P1 of the NTRC46 cable from Clock 0 to **J4** of the FIJI card in Group 0, **shelf 0**.
  - b** Connect P2 of the NTRC46 cable from Clock 0 to **J4** of the FIJI card in Group 0, **shelf 1**.
- 3 Connect the Clock 1 to FIJI cable:**
  - a** Connect P1 of the NTRC46 cable from Clock 1 to **J3** of the FIJI card in Group 0, **shelf 0**.
  - b** Connect P2 of the NTRC46 cable from Clock 1 to **J3** of the FIJI card in Group 0, **shelf 1**.

**Figure 36**  
**Clock Controller cable configuration**



## Remove the 3PE card in the Core shelves

In Option 81 systems, the 3PE card must be removed from the Core shelves. This 3PE card (in the Core shelves) is no longer used with Fiber Network.

**Note:** This procedure is for Option 81 systems with Core shelves. This procedure is NOT necessary for Option 81C systems with Core/Net shelves.

To remove the 3PE card from both Cores:

- 1 In Core 1, hardware disable the 3PE card.
- 2 In Core 0, hardware disable the 3PE card.
- 3 Remove the 3PE faceplate cable.
- 4 Remove the 3PE cards from Core 1 and 0.

## Prepare Core cards for power-up

- 1 Verify that a terminal is connected to the J25 I/O panel connector on Core 1. See Connect a terminal, page 66.
- 2 Verify that both CP cards in the Core modules are in MAINT position.
- 3 Unseat the CP card in Core 0
- 4 Faceplate *disable* the CNI cards in Core 0.
- 5 Faceplate *disable* the IODU/C in Core 0.
- 6 Unseat the IODU/C in Core 0.
- 7 Faceplate *enable* the CNI cards in Core 1.

## Restore power

Restore power to the modules below:

- 1 Restore power to Core 1.
- 2 Restore power to Core 0.
- 3 Restore power to the Network modules.
- 4 Wait for the system to load/init.
- 5 Re-initialize Core 1.

**Note:** Re-initializing Core 1 stops the midnight routines from running.

## Verify the Fiber Ring status

See the *X11 Maintenance* (553-3001-511) for more information on Overlay 39 commands. Also see FIJI card description, page 30 for additional information on FIJI cards.

- 1 Check that Fiber Ring 1 operates correctly:  
**LD 39** to load the program  
**STAT RING 1** to check the status of Ring 1
  
- 2 Reset the Rings:  
**RSET** to reset the Rings and prepare them for redundancy  
**RSTR** to restore both Rings to HALF state
  
- 3 Check that the Rings operate correctly:  
**STAT RING 0** to check the status of Ring 0 (HALF/HALF)  
**STAT RING 1** to check the status of Ring 1 (HALF/HALF)
  
- 4 If any Ring problems occur, correct them now.  
**STAT ALRM <X> <Y>** to check the alarm status of individual FIJI cards or all FIJI cards. See *X11 Administration* (553-3001-311) for more information.
  
- 5 Verify that call processing operates correctly: this includes, but is not limited to the following:
  - Check for dial tone.
  - Make internal, external, and network calls.
  - Check attendant console activity.
  - Check DID trunks.
  - Check any auxiliary processors.

## Upgrade Core 0 software

- 1 Seat the IODU/C. Verify the status on the display (A1).
- 2 Faceplate enable the IODU/C.
- 3 Insert the CP Install Program diskette into IODU/C floppy drive in Core 0.
- 4 Verify that the CP card in Core 0 is in MAINT mode.
- 5 Seat the CP card.
- 6 Connect a terminal to the J25 port on the I/O panel in Core 0.
- 7 Press the MAN RST button on the CP card in Core 0 to reboot the system and start the Software Installation Tool. (The terminal displays SYSLOAD messages during file loading. When SYSLOAD is completed, the NT logo appears.)
- 8 Initiate the installation by selecting the following prompt from the menu:  
`<cr> <u>>` to Install menu
- 9 Remove the CP Install Program diskette and insert the Keycode diskette, when prompted.  
`<a>` continue with keycode validation
- 10 Remove the Keycode diskette and re-insert the CP Install Program diskette into the IODU/C floppy drive in Core 0.
- 11 When the main menu appears, select the following option to copy the software from Core 1 to Core 0 and exit the Main Menu:  
`<o>` to copy system software from the other Core
- 12 When the software is installed successfully, press `<CR>` to install CP-software from the hard disk to Flash EEPROM, and install CP-BOOT ROM. Follow the screen directions until the Main Menu returns.
- 13 From the Main Menu, select the prompts in the following sequence to install the IOP-ROM:  
`<f>` to install IOP-ROM only  
`<cr> <a>` to install the IOP-ROM from hard disk

<y> Yes, start installation  
<cr> <a> to continue with ROM upgrade

Follow the screen directions until the Main Menu returns.

**14** From the Main Menu, select the following options in sequence to copy the customer database from Core 1 to Core 0.:

<d> to go to the Database menu  
<d> to copy the database from Core 1 to Core 0  
<y> to confirm the installation status summary  
<a> to confirm database copy

**15** From the Main Menu, select the following options to quit and reload the system:

<q> to quit  
<y> to confirm quit

**16** Reboot the Core 0 CPU:

<a> to reboot the system

Wait for "DONE" and then "INI" messages to be displayed before continuing.

## Complete the upgrade

### Task summary list

The following is a summary of the tasks in this section:

- Exit split mode, page 176
- Synchronize the hard disks, page 177
- Verify Core redundancy, page 177
- Test Core 1 and Core 0, page 178
- Switch the Clocks, page 179
- Check Fiber Ring Status, page 179
- Backup the database, page 180

Follow the procedures below in sequence. If an error occurs at any time, resolve the problem before continuing.

### Exit split mode

- 1 Perform the following in uninterrupted sequence:
  - Press and release the MAN RST button in Core 0.
  - When SYS700 messages appears on LCD display on Core 0, set the MAINT/NORM switch to NORM in Core 0.

In 60 seconds, the LCD will display and confirm your processes with:

**RUNNING ROM OS**  
**ENTERING CP VOTE**

- 2 An HWI534 message indicates the start of memory synchronization. In 10 minutes, an HWI533 message on Core 1 CSPI or SDI terminal indicates the memory synchronization is complete.  
**Note:** The HWI messages are displayed on the TTY device connected to the active core.
- 3 Once the synchronization is complete, enable the CNI cards in Core 0 (set the ENB/DIS faceplate switch to ENB).

- 4 Check the status of the CPU and CNI cards in Core 1:  
**LD 135**  
**STAT CPU** Get status of CPU and memory  
**STAT CNI** Get status of CNI cards
- 5 Enable the CNI ports if necessary:  
**ENL CNI c s p** Enable the CNI in *core, slot, port*
- 6 In Core 1, set the MAINT/NORM switch on the CP card to NORM.

## Synchronize the hard disks

- 1 Load LD 137 and synchronize the hard disks. Synchronization may take up to seven minutes. To be sure that the contents of IODU/C 1 are copied to IODU/C 0, verify that IODU/C 0 is disabled.  
**LD 137**  
**STAT** Get the status of the IODU/C and redundancy  
**SYNC** Enter "Yes" to synchronize disks. Wait until the memory synchronization successfully completes before continuing.  
**TEST CMDU** Performs hard and floppy disk test.
- 2 Get the status of the IODU/Cs and be sure IODU/C 0 is active. Switch if necessary.  
**STAT** Get the status of IODU/C and redundancy  
**SWAP** Switch CMDU if necessary  
**STAT CMDU** Get the status of the IODU/Cs. Be sure the same IODU/C and CPU are active.  
**\*\*\*\*** exit program

## Verify Core redundancy

To verify redundancy, switch the active Cores back and forth to verify that both sides operate without problems.

- LD 135**
- SCPU** to switch the active Core
- SCPU** to switch the active Core again

## Test Core 1 and Core 0

- 1 Perform a redundancy sanity test using the following sequence:

**LD 135**

<b>STAT CNI</b>	Get status of CNI cards
<b>STAT CPU</b>	Get status of CPU and memory
<b>TEST CPU</b>	Test the inactive Core
<b>TEST CNI c s</b>	Test each inactive CNI card

- 2 Switch Cores and test the other side (Core 0)

<b>SCPU</b>	Switch Cores
<b>TEST CPU</b>	Test the inactive Core
<b>TEST CNI c s</b>	Test each inactive CNI card

**Note:** Testing the CP and CNI cards and synchronizing memory can take up to 20 minutes for each test. When the CP test is complete, the CP memory is automatically synchronized.

- 3 Clear the display and minor alarms on both Cores.

<b>CDSP</b>	Clear the displays on the Cores
<b>CMAJ</b>	Clear major alarms
<b>CMIN ALL</b>	Clear minor alarms

- 4 Get the status of the Cores, CNIs, and memory.

<b>STAT CPU</b>	Get the status of both Cores
<b>STAT CNI</b>	Get the status of all configured CNIs and memory

**Note:** You may need to execute the STAT CNI command twice before receiving a response from the system.

\*\*\*\* exit program

## Switch the Clocks

- 1 Verify that the clock controller is assigned to the *active* Core.
  - LD 60** to lead the program
  - SSCK *x*** to get the status of the clock controllers (*x* is “0” or “1” for Clock 0 or Clock 1.
  - SWCK** to switch the Clock if necessary
  - \*\*\*\*** exit program
  
- 2 Verify that the Clock Controllers are switching correctly:.
  - LD 60** to load the program
  - SWCK** to switch the Clock
  - SWCK** to switch the Clock again

## Check Fiber Ring Status

See the *X11 Maintenance* (553-3001-511) for more information on overlay 39 commands. Also see FIJI card description, page 30 for additional information on FIJI cards.

- 1 Check that the Fiber Rings operate correctly:
  - LD 39** to load the program
  - STAT RING 0** to check the status of Ring 0 (HALF/HALF)
  - STAT RING 1** to check the status of Ring 1 (HALF/HALF)
  
- 2 If necessary, restore the Rings to Normal State:
  - RSET** to reset the Rings
  - RSTR** to restore both Rings to HALF state
  
- 3 Check that the Rings operate correctly:
  - STAT RING 0** to check the status of Ring 0 (HALF/HALF)
  - STAT RING 1** to check the status of Ring 1 (HALF/HALF)
  
- 4 Check the status of the FIJI alarms
  - STAT ALRM** to query the alarm condition for all FIJI cards in all Network Groups

## Backup the database

- 1 Log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program
- 3 When "EDD000" appears on the terminal, enter **EDD** to begin the data dump
- 4 When "DATADUMP COMPLETE" and "DATABASE BACKUP COMPLETE" appears on the terminal, enter **\*\*\*\*** to exit the program

### CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

## Removal of unused Intergroup cables and module

Once the system is operating and stable with Fiber Network, the unused Intergroup cables and Intergroup module can be removed if desired.

**Removal of the Intergroup cables and module is not required.** Unused Intergroup equipment can be left in place.

### CAUTION

If the Intergroup cables and module are removed from the Fiber Network system, be careful not to dislodge or damage any working cables or equipment.

The Intergroup (IGS) module can also be converted into an IPE module with the IPE Expansion kit.

---

# Option 81C upgrade to Fiber Network

---

## Content list

The following are the topics in this section:

- [Verify Core/Net 0 is active](#) ..... 182
- [Split the Core/Nets](#) ..... 183
- [Upgrade Side 1](#) ..... 184
- [Turn module power off](#) ..... 191
- [Seat the FIJI cards in Side 1](#) ..... 191
- [Upgrade Side 0](#) ..... 191
- [Cable the Clock Controllers](#) ..... 196
- [Prepare Core cards for power-up](#) ..... 198
- [Restore power](#) ..... 198
- [Verify the Fiber Rings](#) ..... 198
- [Upgrade Core/Net 0 software](#) ..... 199
- [Complete the upgrade](#) ..... 201
- [Removal of unused Intergroup cables and module](#) ..... 205

## Reference list

The following are the references in this section:

- *X11 Administration* (553-3001-311)
- *X11 Maintenance* (553-3001-511)

**CAUTION**

**All tasks in the “Prepare for upgrade” section on page 55 must be completed before the upgrade is begun:**

- ✓ “Check power supply version (DC power only)”
- ✓ “Check minimum system requirements”
- ✓ “Check 3PE settings”
- ✓ “Prepare to move the Clock Controllers (Option 61C and 81 to 81C with Fiber Network Fabric)”
- ✓ “Connect a terminal”
- ✓ “Print site data”
- ✓ “Pre-route cables”
- ✓ “Perform a template audit”
- ✓ “Backup the database”

**Failure to complete these tasks will result in increased downtime and possible system failure.**

Once the steps in Prepare for upgrade, page 55 are complete, follow the procedures listed below in sequence.

## Verify Core/Net 0 is active

- 1 Get the status of the CPUs. Verify that all common equipment is enabled.

**LD 135** to load the program  
**STAT CPU** to get the status of both Core/Nets

- 2 Ensure Core/Net 0 is active.

If Core/Net 1 is active, switch Core/Nets.

**STAT CPU** to get the status of the Core/Nets  
**SCPU** to switch to Core/Net 0  
**\*\*\*\*** to exit the program

- 3** Ensure Clock Controller 0 is active and tracking.
- |               |                                    |
|---------------|------------------------------------|
| <b>LD 60</b>  | to load the program                |
| <b>SSCK 0</b> | to get the status of Clock 0       |
| <b>SSCK 1</b> | to get the status of Clock 1       |
| <b>SWCK</b>   | if necessary, to switch to Clock 0 |

## Split the Core/Nets

### Task summary list

The following is a summary of the tasks in this section:

- Upgrade the Core/Net 1 software, page 184
  - Upgrade Side 1 hardware, page 188
  - Connect the shelf 1 FIJI Ring cables, page 188
- 1** Be sure Core/Net 0 is active and Core/Net 1 is standby. You may need to switch Cores:
- STAT CPU**
- ```
****      exit program
```
- 2** Verify that IODU/C 0 is active. You may need to switch IODU/Cs.
- LD 137**
- |             |                             |
|-------------|-----------------------------|
| <b>STAT</b> | Get the status of IODU/C    |
| <b>SWAP</b> | Switch IODU/Cs if necessary |
| <b>****</b> | exit program                |
- 3** Connect a terminal to the CPSI port in Core/Net 1 to J25 of the I/O panel at the back of the Core/Net. Be sure it is configured as follows. The recommended baud rate is 9600, to be the same as the CPSI port.
- 7 data bits, 1 stop bit, Space parity, Full duplex, XON protocol**
- 4** Place Core/Net 0 in Maintenance by setting the MAINT/NORM switch to MAINT.
- 5** In Core/Net 1, disable the NT6D65 Core to Network Interface (CNI) cards by setting the ENB/DIS faceplate switches to DIS.

## Upgrade Side 1

Core/Net 1 must be *inactive* to complete these procedures. A terminal must be connected to the J25 connector on Core/Net 1 to complete this procedure. See Connect a terminal, page 66.

### Upgrade the Core/Net 1 software

Complete the steps below to install new software in Core/Net 1.

- 1 Place the CP Install disk that corresponds with the installed CP card type into the IODU/C in Core/Net 1.
- 2 Install the CD-ROM into the CD drive:
  - a press the button on the CD-ROM drive to open the CD-ROM disk holder
  - b place the CD-ROM disk into the holder with the disk label showing
  - c use the four tabs to secure the CD-ROM drive
  - d press the button again to close the CD-ROM disk holder (don't push the holder in by hand)
- 3 In Core/Net 1, perform the following three steps in uninterrupted sequence:
  - a press and hold the MAN RST button on the CP card
  - b set the MAINT/NORM switch on the CP card to MAINT
  - c release the MAN RST button

A sysload will begin (cold start). Wait for the Main Menu to appear on the terminal before proceeding.

**Note 1:** If the CD-ROM is not in the CD drive of the IODU/C, the installation procedure will not continue. Insert the CD-ROM into the drive to continue.

**Note 2:** If a problem is detected during the system verification, Install stops, prints an error message, and aborts the installation. If the verification is not successful, do not continue; contact your technical support organization.

- 4 Press <CR> to continue.

- 5 Remove the CP Install Program diskette and insert the Keycode diskette, when prompted.
  - <a> to continue with keycode validation
  - <y> to confirm that the keycode matches the CD-ROM release
  
- 6 When the Install Menu is displayed, select the following options in sequence when you are prompted to do so
  - <a> to install software, CP-BOOT ROM, and IOP-ROM
  - <a> to verify that the CD-ROM is now in driveThe Installation Status Summary screen appears that lists the options to be installed.
  - <y> Yes, start Installation
  - <a> Continue with Upgrade
  
- 7 Select a PSDL file to install. The PSDL file contains the loadware for all downloadable cards in the system and loadware for M3900 series sets.

**Select one of the six psdl files**

- <1> Global 10 Languages <default>
- <2> Western Europe 10 Languages
- <3> Eastern Europe 10 Languages
- <4> North America 6 Languages
- <5> RIs24 up-issue
- <6> North America 6 Languages:

The languages contained in each selection are outlined as follows:

- 1 English, French, German, Spanish, Swedish, Italian, Norwegian, Brazilian, Portuguese, Finnish, Japanese Katakana.
- 2 English, French, German, Spanish, Swedish, Norwegian, Danish, Finnish, Italian, Brazilian Portuguese.
- 3 English, French, German, Dutch, Polish, Czech, Hungarian, Russian, Latvian, Turkish.
- 4 English, Spanish, French, Brazilian Portuguese, Japanese Katakana, German.
- 5 English, French, German, Spanish, Swedish, Italian, Norwegian, Portuguese, Finnish, Japanese Katakana.
- 6 English, French, German, Spanish, Brazilian Portuguese, Japanese Katakana.

- 8** When the ROM installation screen appears, select the following prompts in sequence:

<a> Continue with ROM Upgrade

The following message appears:

Software Release XXXX was installed successfully on Core 1.  
All files were copied from CDROM to the hard disk.

Please press <CR> to continue when ready...

<a> Continue with ROM upgrade

<a> Yes, start Installation

<a> Continue with ROM upgrade

When the Installation Status Summary screen appears, press <CR> when ready...

- <cr> Are you sure you want to continue with IOP ROM
- <a> to install the IOP-ROM from hard disk
- <y> Yes, start installation
- <a> to continue with ROM upgrade

The Installation Status Summary screen appears. Verify that CD to disk, disk to ROM, CP-BOOTROM, and IOP-ROM were installed.

- <cr> press return to continue
- <q> to quit (remove any diskettes from the floppy drive)
- <y> Yes, to confirm quit
- <a> to reboot the system

The system will automatically perform a sysload during which several messages will appear on the system terminal. Wait for “DONE” and then “INI” messages to be displayed before continuing.

**Software installation on Core/Net 1 is complete.**

**Note:** If the system fails to load, or system messages indicate data corruption, back out of the parallel reload process by performing the steps in Back out of a system software upgrade, page 157.

## Upgrade Side 1 hardware

Follow the procedures below in sequence:

- 1 Software disable the IGS/DIGS cards in Side 1 (IGS/DIGS odd-numbered cards, 1 - 19):

**LD 39** to load the program

**DISI IGS xx** xx is the IGS card number 1 - 19

**Note:** See the *X11 Maintenance* (553-3001-511) for more information on overlay 39 commands.

- 2 Faceplate disable the IGS/DIGS cards in Side 1.
- 3 Tag and disconnect the IGS/DIGS cables.
- 4 Remove the IGS/DIGS cards from Side 1.

**Note:** If you did not check the 3PE switch settings before, check the 3PE switch settings now. See “Check 3PE settings” on page 61.

- 5 Faceplate enable the FIJI cards.
- 6 Insert the FIJI cards in Side 1. **DO NOT seat the FIJI cards.**

**Note:** FIJI cards are installed in slots 2 and 3 of the Network modules, and slots 8 and 9 of the Core/Net modules.

## Connect the shelf 1 FIJI Ring cables

To create the shelf 1 fiber optic loop, connect the FIJI cards in each Network shelf 1 in **descending** order, from Tx to Rx (Figure 37 on page 189 and Table 27 on page 190).

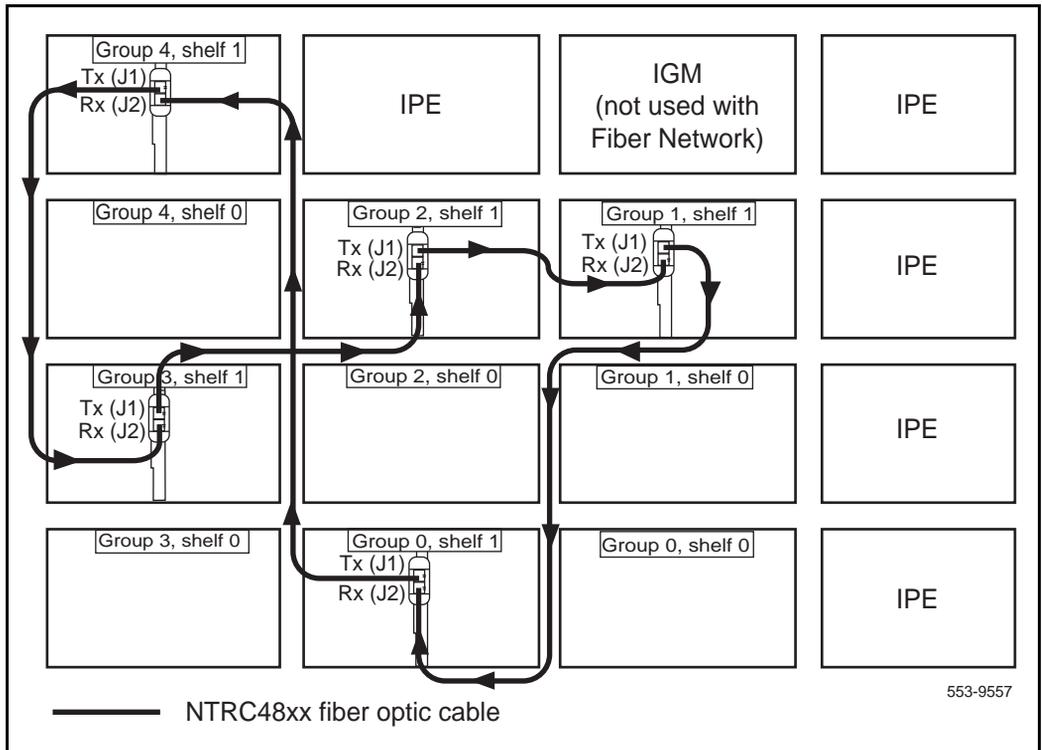
Remove the black cap from the end of each cable before it is connected.

**Note:** Each end of the NTRC48 cable is labeled “Tx” or “Rx” in the factory.

- a Start with Network Group 0, shelf 1.
- b Connect a NTRC48 FIJI Fiber Ring cable of the appropriate length from the Tx (J1) port of the FIJI card in **Group 0, shelf 1** to the Rx (J2) port of the FIJI card in the **highest Network Group, shelf 1**.

- c Connect a NTRC48 cable from the Tx (J1) port of the FIJI card from the Tx (J1) port in the **highest Network Group, shelf 1** to the Rx (J2) port in the **second highest Network Group, shelf 1**.
- d Continue to connect NTRC48 FIJI Fiber Ring cables of the appropriate length from the Tx (J1) port to the Rx (J2) port in shelf 1 of each Network Group. Connect these cables in **descending** order of Network Groups.
- e To complete the Ring, connect a final cable from Tx in **Group 1, shelf 1** to Rx in Group 0, shelf 1.

**Figure 37**  
**Shelf 1 descending fiber optic Ring (Option 81C example)**



**Note:** Connect the Side 1 FIJI Ring cables only.

**Table 27**  
**FIJI Ring 1 connections**

| <b>Groups 0 - X are cabled in descending order</b> |                                     |                            |
|----------------------------------------------------|-------------------------------------|----------------------------|
| <b>Group/shelf</b>                                 | <b>NTRC48 fiber cable connector</b> | <b>FIJI card connector</b> |
| 0/1                                                | P1                                  | Tx - J1                    |
| 7/1                                                | P2                                  | Rx - J2                    |
| 7/1                                                | P1                                  | Tx - J1                    |
| 6/1                                                | P2                                  | Rx - J2                    |
| 6/1                                                | P1                                  | Tx - J1                    |
| 5/1                                                | P2                                  | Rx - J2                    |
| 5/1                                                | P1                                  | Tx - J1                    |
| 4/1                                                | P2                                  | Rx - J2                    |
| 4/1                                                | P1                                  | Tx - J1                    |
| 3/1                                                | P2                                  | Rx - J2                    |
| 3/1                                                | P1                                  | Tx - J1                    |
| 2/1                                                | P2                                  | Rx - J2                    |
| 2/1                                                | P1                                  | Tx - J1                    |
| 1/1                                                | P2                                  | Rx - J2                    |
| 1/1                                                | P1                                  | Tx - J1                    |
| 0/1                                                | P2                                  | Rx - J2                    |

## Turn module power off

### **WARNING**

Call processing will be interrupted for approximately 30 minutes while the procedures are completed.

To reduce downtime, verify that all cables are pre-routed. See Pre-route cables, page 79.

Power down the modules with the module power switch. **DO NOT** power down the columns at the PDU:

- 1 Power down Core/Net Module 0.
- 2 Power down Core/Net Module 1.
- 3 Power down all Network Modules.

## Seat the FIJI cards in Side 1

The FIJI cards in side 1 can now be seated. Push the faceplate latches forward to lock the cards in place. Verify that the cards are faceplate *enabled*.

## Upgrade Side 0

### **Task summary list**

The following is a summary of the tasks in this section:

- Install Side 0 FIJI cards, page 191
- Connect the FIJI to FIJI cables, page 192
- Connect the shelf 0 FIJI Ring cables, page 193

### **Install Side 0 FIJI cards**

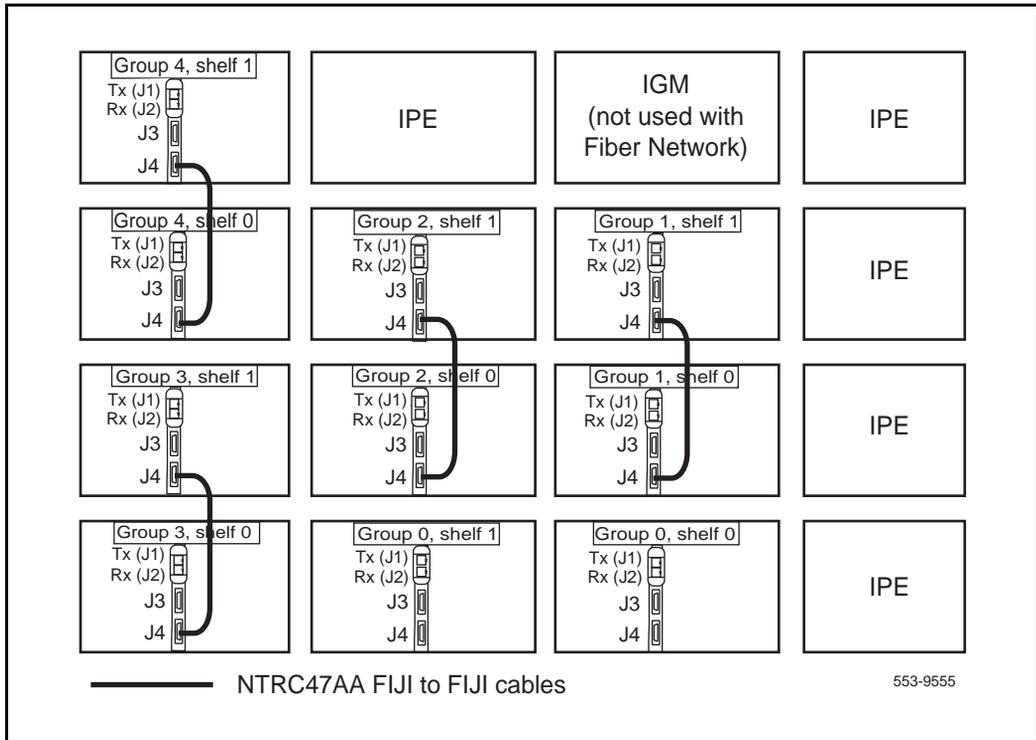
- 1 Tag and disconnect the IGS/DIGS cables.
- 2 Remove the IGS/DIGs cards from Side 0.
- 3 Insert and seat the FIJI cards in Side 0.
- 4 Faceplate enable the FIJI cards.

## Connect the FIJI to FIJI cables

- 1 Connect P2 of a NTRC47 FIJI to FIJI cable to J4 of the FIJI cards in each Network shelf 0, except Group 0.
- 2 Connect P1 of a NTRC47 FIJI to FIJI cable to J4 of the FIJI cards in each Network shelf 1, except Group 0.

*Note:* The FIJI cards in Group 0 do not receive a FIJI to FIJI cable.

**Figure 38**  
**FIJI shelf 0 to FIJI shelf 1 connections (Option 81C example)**



## Connect the shelf 0 FIJI Ring cables

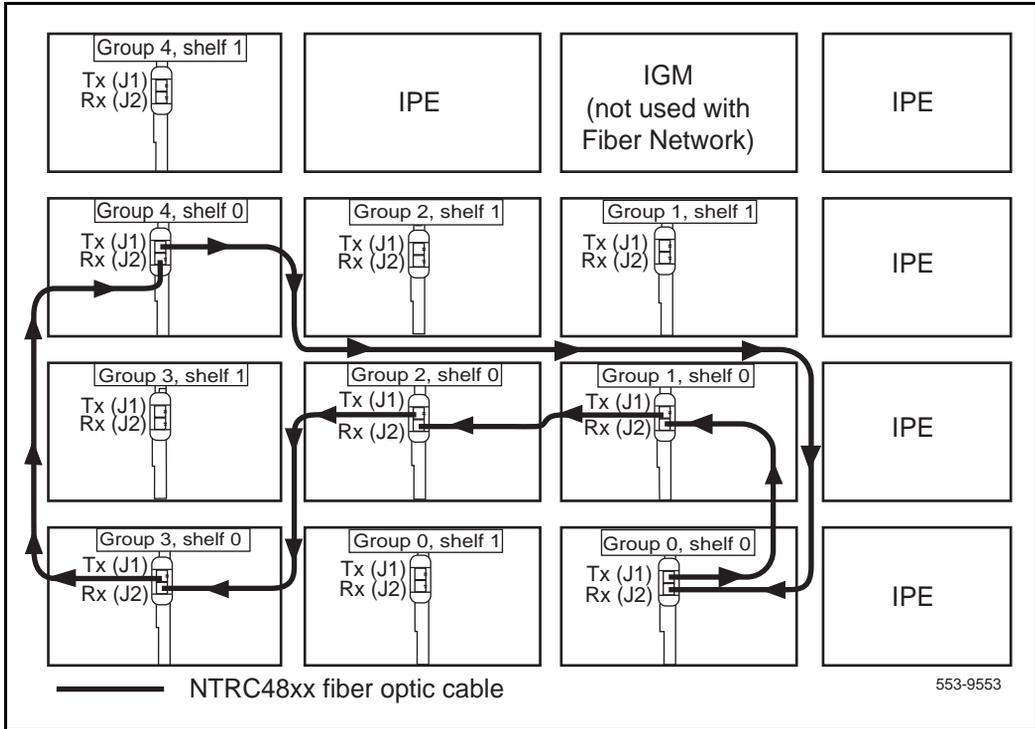
To create the shelf 0 fiber optic loop, connect the FIJI cards in each Network shelf 0 in **ascending** order, from Tx to Rx ports (Figure 39 on page 194 and Table 28 on page 195).

Remove the black cap from the end of each cable before it is connected.

*Note:* Each end of the NTRC48 cable is labeled “Tx” or Rx” in the factory.

- a Start with Group 0, shelf 0.
- b Connect a NTRC48 FIJI Fiber Ring cable of the appropriate length from the Tx (J1) port of the FIJI card in **Group 0, shelf 0** to the Rx (J2) port of the FIJI card in **Group 1, shelf 0**.
- c Connect a NTRC48 FIJI Fiber Ring cable of the appropriate length from the Tx (J1) port of the FIJI card in **Group 1, shelf 0** to the Rx (J2) port of the FIJI card in **Group 2, shelf 0**.
- d Continue to connect NTRC48 FIJI Fiber Ring cables of the appropriate length from the Tx (J1) port to the Rx (J2) port in shelf 0 of each Network Group. Connect these cables in **ascending** order of Network Groups.
- e To complete the Ring, connect a final cable from the Tx (J1) port in the **highest number group** back to the Rx (J2) port in **Group 0, shelf 0**.

**Figure 39**  
**Shelf 0 ascending fiber optic Ring (Option 81C example)**



**Table 28**  
**FIJI Ring 0 connections**

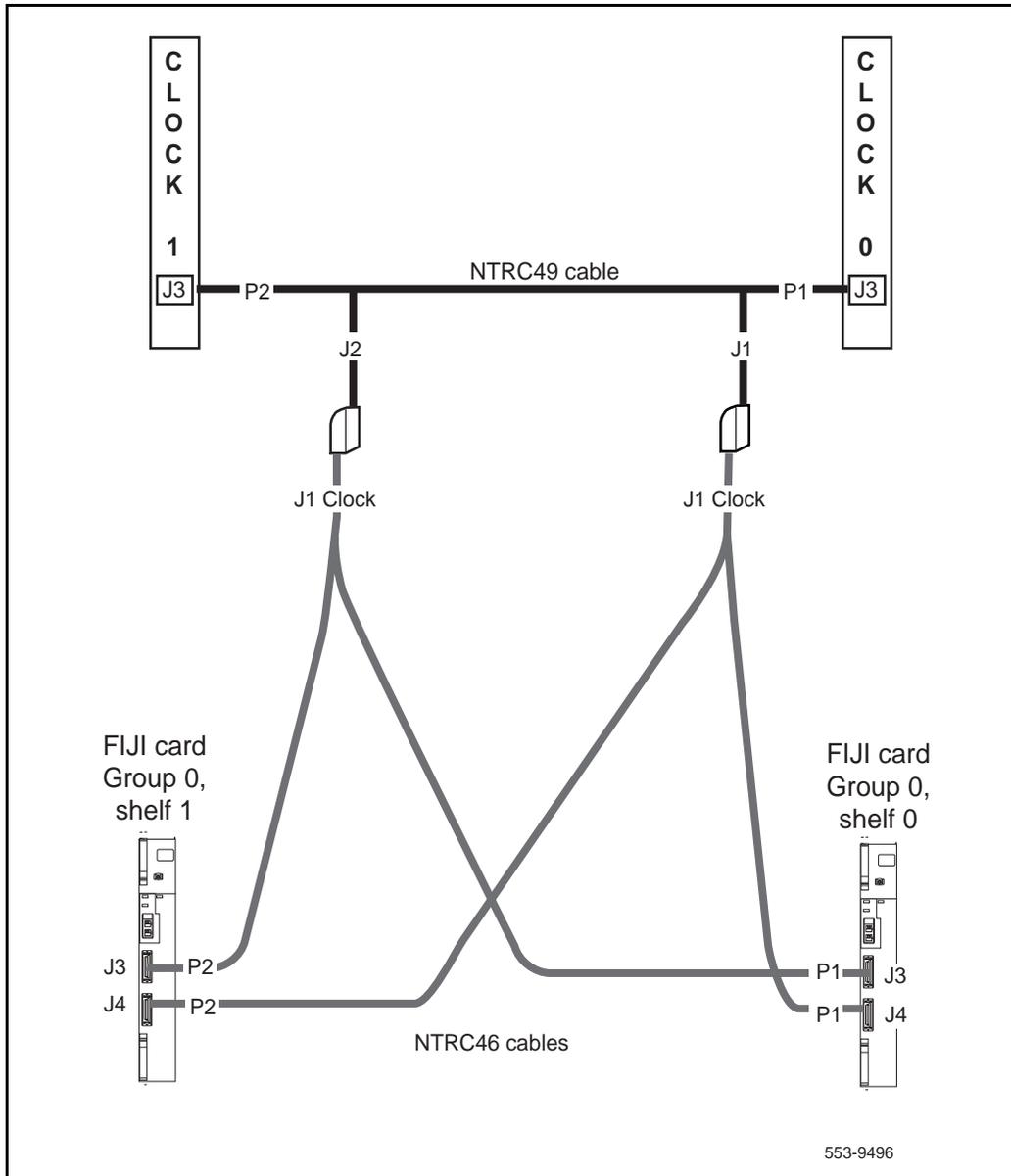
| Groups X - 0 are cabled in ascending order |                              |                     |
|--------------------------------------------|------------------------------|---------------------|
| Group/shelf                                | NTRC48 fiber cable connector | FIJI card connector |
| 0/0                                        | P1                           | Tx - J1             |
| 1/0                                        | P2                           | Rx - J2             |
| 1/0                                        | P1                           | Tx - J1             |
| 2/0                                        | P2                           | Rx - J2             |
| 2/0                                        | P1                           | Tx - J1             |
| 3/0                                        | P2                           | Rx - J2             |
| 3/0                                        | P1                           | Tx - J1             |
| 4/0                                        | P2                           | Rx - J2             |
| 4/0                                        | P1                           | Tx - J1             |
| 5/0                                        | P2                           | Rx - J2             |
| 5/0                                        | P1                           | Tx - J1             |
| 6/0                                        | P2                           | Rx - J2             |
| 6/0                                        | P1                           | Tx - J1             |
| 7/0                                        | P2                           | Rx - J2             |
| 7/0                                        | P1                           | Tx - J1             |
| 0/0                                        | P2                           | Rx - J2             |

## Cable the Clock Controllers

Connect the cables to the Clock Controllers as shown in Figure 40 on page 197:

- 1 Connect the Clock to Clock cable:**
  - a** Connect P1 of the NTRC49 cable to port J3 of Clock Controller 0.
  - b** Connect P2 of the NTRC49 cable to port J3 of Clock Controller 1.
- 2 Connect the Clock 0 to FIJI cable:**
  - a** Connect P1 of the NTRC46 cable from Clock 0 to **J4** of the FIJI card in Group 0, **shelf 0**.
  - b** Connect P2 of the NTRC46 cable from Clock 0 to **J4** of the FIJI card in Group 0, **shelf 1**.
- 3 Connect a Clock 1 to FIJI cable:**
  - a** Connect P1 of the NTRC46 cable from Clock 1 to **J3** of the FIJI card in Group 0, **shelf 0**.
  - b** Connect P2 of the NTRC46 cable from Clock 1 to **J3** of the FIJI card in Group 0, **shelf 1**.

**Figure 40**  
**Clock Controller cable configuration**



## Prepare Core cards for power-up

- 1      Verify that a terminal is connected to the J25 I/O panel connector on Core/Net 1. See Connect a terminal, page 66.
- 2      Verify that both CP cards in the Core modules are in MAINT position.
- 3      Unseat the CP card in Core/Net 0.
- 4      Faceplate *disable* the CNI cards in Core/NET 0.
- 5      Faceplate *disable* the IODU/C in Core/Net 0.
- 6      Unseat the IODU/C in Core/Net 0.
- 7      Faceplate *enable* the CNI cards in Core/Net 1.

## Restore power

Restore power in the order below:

- 1      Restore power to Core/Net 1.
- 2      Restore power to Core/Net 0.
- 3      Restore power to the Network modules.
- 4      Wait for the system to load/init.
- 5      Re-initialize Core/Net 1.  
  
**Note:** Re-initializing Core/Net 1 stops the midnight routines from running.

## Verify the Fiber Rings

See the *X11 Maintenance* (553-3001-511) for more information on Overlay 39 commands. Also see FIJI card description, page 30 for additional information on FIJI cards.

- 1      Check that Fiber Ring 1 operates correctly:  
**LD 39**                    to load the program  
**STAT RING 1**          to check the status of Ring 1 (HALF/HALF)
- 2      Reset the Rings:  
**RSET**                    to reset the Rings and prepare them for redundancy  
**RSTR**                    to restore both Rings to HALF state

- 3 Check that the Rings operate correctly:  
**STAT RING 0** to check the status of Ring 0 (HALF/HALF)  
**STAT RING 1** to check the status of Ring 1 (HALF/HALF)
- 4 If any Ring problems occur, correct them now.  
**STAT ALRM <X> <Y>** to check the alarm status of individual FIJI cards or all FIJI cards. See *X11 Administration* (553-3001-311) for more information.
- 5 Verify that call processing operates correctly: this includes, but is not limited to the following:
  - Check for dial tone.
  - Make internal, external, and network calls.
  - Check attendant console activity.
  - Check DID trunks.
  - Check any auxiliary processors.

## Upgrade Core/Net 0 software

- 1 Seat the IODU/C. Verify the status on the display (A1).
- 2 Faceplate enable the IODU/C.
- 3 Insert the CP Install Program diskette into IODU/C floppy drive in Core/Net 0.
- 4 Verify that the CP card in Core/Net 0 is in MAINT mode.
- 5 Seat the CP card.
- 6 Connect a terminal to the J25 port on the I/O panel in Core/Net 0.
- 7 Press the MAN RST button on the CP card in Core/Net 0 to reboot the system and start the Software Installation Tool. (The terminal displays SYSLOAD messages during file loading. When SYSLOAD is completed, the NT logo appears.)
- 8 Initiate the installation by selecting the following prompt from the menu:  
**<cr> <u>>** to Install menu

- 9** Remove the CP Install Program diskette and insert the Keycode diskette, when prompted.
- <a> continue with keycode validation
- 10** Remove the Keycode diskette and re-insert the CP Install Program diskette into the IODU/C floppy drive in Core/Net/Net 0.
- 11** When the main menu appears, select the following option to copy the software from Core//Net 1 to Core/Net/Net 0 and exit the Main Menu:
- <o> to copy system software from the other Core/Net
- 12** When the software is installed successfully, press <CR> to install CP-software from the hard disk to Flash EEPROM, and install CP-BOOT ROM. Follow the screen directions until the Main Menu returns.
- 13** From the Main Menu, select the prompts in the following sequence to install the IOP-ROM:
- <f> to install IOP-ROM only
  - <cr> <a> to install the IOP-ROM from hard disk
  - <y> Yes, start installation
  - <cr> <a> to continue with ROM upgrade
- Follow the screen directions until the Main Menu returns.
- 14** From the Main Menu, select the following options in sequence to copy the customer database from Core/Net/Net 1 to Core/Net/Net 0.:
- <d> to go to the Database menu
  - <d> to copy the database from Core/Net 1 to Core/Net 0
  - <y> to confirm the installation status summary
  - <a> to confirm database copy
- 15** From the Main Menu, select the following options to quit and reload the system:
- <q> to quit
  - <y> to confirm quit

- 16 Reboot the Core/Net/Net 0 CPU:  
<a> to reboot the system

Wait for “DONE” and then “INI” messages to be displayed before continuing.

## Complete the upgrade

### Task summary list

The following is a summary of the tasks in this section:

- Exit split mode, page 201
- Synchronize the hard disks, page 202
- Verify Core/Net redundancy, page 202
- Test Core/Net 1 and Core/Net 0, page 203
- Switch the Clocks, page 204
- Check Fiber Ring status, page 204
- Backup the database, page 205

Follow the procedures below in sequence. If an error occurs at any time, resolve the problem before continuing.

### Exit split mode

- 1 Perform the following in uninterrupted sequence:
- Press and release the MAN RST button in Core/Net 0.
  - When SYS700 messages appears on LCD display on Core/Net 0, set the MAINT/NORM switch to NORM in Core/Net 0.

In 60 seconds, the LCD will display and confirm your processes with:

**RUNNING ROM OS**  
**ENTERING CP VOTE**

- 2 An HWI534 message indicates the start of memory synchronization. In 10 minutes, an HWI533 message on Core/Net 1 CSPI or SDI terminal indicates the memory synchronization is complete.

**Note:** The HWI messages are displayed on the TTY device connected to the active core.

- 3 Once the synchronization is complete, enable the CNI cards in Core/Net 0 (set the ENB/DIS faceplate switch to ENB).
- 4 Check the status of the CPU and CNI cards in Core/Net 1:  
**LD 135**  
**STAT CPU** Get status of CPU and memory  
**STAT CNI** Get status of CNI cards
- 5 Enable the CNI ports if necessary:  
**ENL CNI *c s p*** Enable CNI on *core, slot, port*
- 6 In Core/Net 1, set the MAINT/NORM switch on the CP card to NORM.

### Synchronize the hard disks

- 1 Load LD 137 and synchronize the hard disks. Synchronization may take up to seven minutes. To be sure that the contents of IODU/C 1 are copied to IODU/C 0, verify that IODU/C 0 is disabled.  
**LD 137**  
**STAT** Get the status of the IODU/C and redundancy  
**SYNC** Enter "Yes" to synchronize disks. Wait until the memory synchronization successfully completes before continuing.  
**TEST CMDU** Performs hard and floppy disk test.
- 2 Get the status of the IODU/Cs and be sure IODU/C 0 is active. Switch if necessary.  
**STAT** Get the status of IODU/C and redundancy  
**SWAP** Switch CMDU if necessary  
**STAT CMDU** Get the status of the IODU/Cs. Be sure the same IODU/C and CPU are active.  
**\*\*\*\*** exit program

### Verify Core/Net redundancy

To verify redundancy, switch the active Cores back and forth to verify that both sides operate without problems.

**LD 135**

SCPU to switch the active Core/Net  
 SCPU to switch the active Core/Net again

## Test Core/Net 1 and Core/Net 0

- 1 Perform a redundancy sanity test using the following sequence:

**LD 135**

**STAT CNI** Get status of CNI cards  
**STAT CPU** Get status of CPU and memory  
**TEST CPU** Test the inactive Core/Net/Net  
**TEST CNI c s** Test each inactive CNI card

- 2 Switch Core/Nets and test the other side (Core/Net 0)

**SCPU** Switch Core/Nets  
**TEST CPU** Test the inactive Core/Net/Net  
**TEST CNI c s** Test each inactive CNI card

**Note:** Testing the CP and CNI cards and synchronizing memory can take up to 20 minutes for each test. When the CP test is complete, the CP the memory is automatically synchronized.

- 3 Clear the display and minor alarms on both Core/Nets.

**CDSP** Clear the displays on the Core/Nets  
**CMAJ** Clear major alarms  
**CMIN ALL** Clear minor alarms

- 4 Get the status of the Core/Nets, CNIs, and memory.

**STAT CPU** Get the status of both Core/Nets  
**STAT CNI** Get the status of all configured CNIs and memory

**Note:** You may need to execute the STAT CNI command twice before receiving a response from the system.

\*\*\*\* exit program

## Switch the Clocks

- 1 Verify that the clock controller is assigned to the *active* Core.  
**LD 60** to lead the program  
**SSCK *x*** to get the status of the clock controllers (*x* is “0” or “1” for Clock 0 or Clock 1).  
**SWCK** to switch the Clock if necessary  
**\*\*\*\*** exit program
  
- 2 Verify that the Clock Controllers are switching correctly:.  
**SWCK** to switch the Clock  
**SWCK** to switch the Clock again

## Check Fiber Ring status

See the *X11 Maintenance* (553-3001-511) for more information on overlay 39 commands. Also see FIJI card description, page 30 for additional information on FIJI cards.

- 1 Check that the Fiber Rings operate correctly:  
**LD 39** to load the program  
**STAT RING 0** to check the status of Ring 0 (HALF/HALF)  
**STAT RING 1** to check the status of Ring 1 (HALF/HALF)
  
- 2 If necessary, restore the Rings to Normal State:  
**RSTR** to restore both Rings to (HALF/HALF) state
  
- 3 Check that the Rings operate correctly:  
**STAT RING 0** to check the status of Ring 0 (HALF/HALF)  
**STAT RING 1** to check the status of Ring 1 (HALF/HALF)
  
- 4 Check the status of the FIJI alarms  
**STAT ALRM** to query the alarm condition for all FIJI cards in all Network Groups

## Backup the database

- 1 Log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program
- 3 When "EDD000" appears on the terminal, enter **EDD** to begin the data dump
- 4 When "DATADUMP COMPLETE" and "DATABASE BACKUP COMPLETE" appear on the terminal, enter **\*\*\*\*** to exit the program

### CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

## Removal of unused Intergroup cables and module

Once the system is operating and stable with Fiber Network, the unused Intergroup cables and Intergroup module can be removed if desired.

**Removal of the Intergroup cables and module is not required.** Unused Intergroup equipment can be left in place.

### CAUTION

If the Intergroup cables and module are removed from the Fiber Network system, be careful not to dislodge or damage any working cables or equipment.

The Intergroup (IGS) module can also be converted into an IPE module with the IPE Expansion kit.



---

# Upgrade Option 71, 81 and 81C systems

---

## Content list

The following are the topics in this section:

- [Review upgrade requirements](#) ..... 210
- [Prepare for upgrade](#) ..... 214
- [Upgrade Options 71, 81 or 81C to CP PII](#) ..... 215
- [Disable Core 1](#) ..... 216
- [Disable and remove equipment from Core 1](#) ..... 218
- [Install equipment in Core/Net 1](#) ..... 230
- [Power up and complete the Core/Net 1 upgrade](#) ..... 253
- [Disable and remove equipment from Core 0](#) ..... 266
- [Install equipment in Core/Net 0](#) ..... 277
- [Power up and complete the Core/Net 0 upgrade](#) ..... 300
- [Complete the CP PII upgrade](#) ..... 306

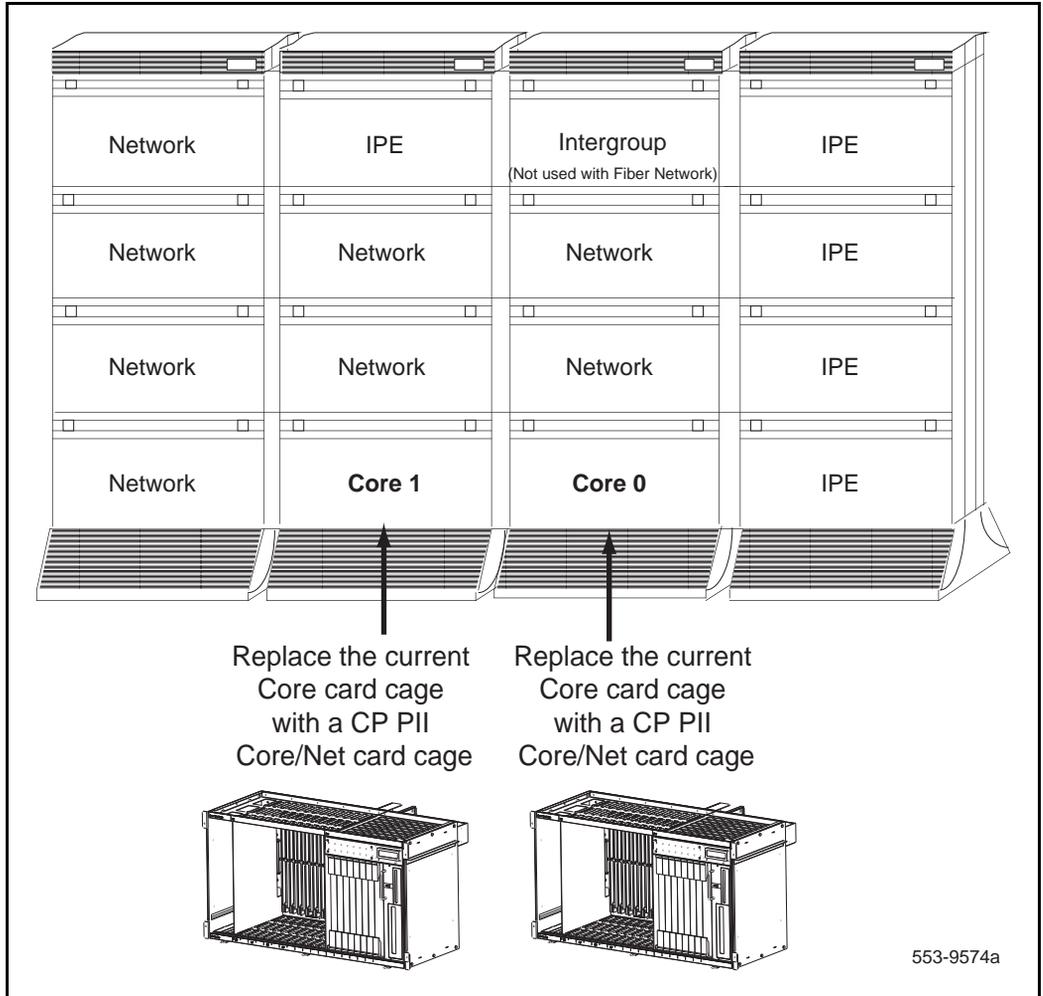
This chapter describes how to upgrade Option 71 (module) systems, Option 81 systems and Option 81C systems to Option 81C with CP PII.

For an Option 71 and 81 upgrade to CP PII, the existing common equipment card cages are replaced with the CP PII NT4N46AA Core/Net card cages. Of the existing common equipment cards, only the Clock Controller cards are reused. The Clock Controller cards are relocated to network modules. Figure 41 on page 209 shows an Option 81 upgrade to CP PII.

For an Option 81C upgrade to CP PII, the existing Core/Net card cages are replaced with CP PII Core/Net card cages. All equipped cards in the Network

shelf are relocated to the same card slots in the new card cage.  
Carefully follow the instructions in this chapter in sequence.

**Figure 41**  
**Option 81 upgrade to CP PII**



## Review upgrade requirements

### Task summary list

The following is a summary of the tasks in this section:

- Check equipment received, page 210
- Check required software, page 211
- Check vintage requirements for existing hardware, page 211
- Check required hardware, page 212
- Check required power equipment, page 213
- Check required tools, page 214
- Check personnel requirements, page 214
- Check personnel requirements, page 214

This section describes the **minimum** equipment required for CP PII. Additional equipment may also be installed during the upgrade. Verify that *all* equipment has been received.

### Check equipment received

Before the upgrade, check that the equipment on the order form is also on the packing slip. Check that all equipment has been received. If any items are missing, contact your supplier for replacements before you begin the upgrade.

#### **CAUTION**

DO NOT proceed with the upgrade if any of the required equipment is missing. All equipment must be received to complete the upgrade.

## Check required software

The following software packages are required to upgrade a system to Option 81C with CP PII:

- X11 Release 25
- Call Processor PII software package 368
- Option 81C Software Package 299
- Software Install Kit

## Check vintage requirements for existing hardware

Check the list below to make sure that existing hardware meets the minimum vintage requirements for CP PII.

If any of the equipment listed does not meet the requirements, replace the equipment before you begin the upgrade.

### WARNING

Equipment that does not meet the minimum vintage requirements will cause system malfunctions and loss of call processing.

- The QPC441 **3-Port Extender (3PE)** cards must be minimum vintage F.
- The QPC471 **Clock Controller** cards must be minimum vintage H.
- The QPC775 **Clock Controller** cards (all countries except USA) must be minimum vintage E.
- If the Clock Controllers are moved in Option 71 or 81 systems, the new **Clock Controller cables** must be the correct length. Order new NT8D79 or NTCG03 PRI/DTI to Clock Controller cables if necessary.

*Note:* QPC720 PRI cards require NT8D79 cables. NT5D12 Dual PRI/DTI cards require NTCG03 cables.

- The QPC43 **Peripheral Signaling** cards must be minimum vintage R.

## Check required hardware

Table 29 on page 212 describes the *minimum* equipment required to upgrade a system to CP PII. Table 30 on page 213 and Table 31 on page 214 list the DC and AC power equipment requirements. Additional equipment for increased Network capacity is ordered separately.

**Table 29**  
**Minimum requirements for Option 71, 81 and 81C systems**

| Order number | Description                                 | Quantity per system |
|--------------|---------------------------------------------|---------------------|
| A0810496     | CP PII Call Processor Card (128MB Memory)   | 2                   |
| NT4N65AB     | cPCI Core Network Interface Card (2 ports)  | 2                   |
| NT4N66AB     | cPCI Core Network Interface Transition Card | 2                   |
| NT4N67AA     | cPCI System Utility Card                    | 2                   |
| NT4N68AA     | cPCI System Utility Transition Card         | 2                   |
| NT4N88AA     | CP PII to I/O Panel DTE Cable (48 in.)      | 2                   |
| NT4N88BA     | CP PII to I/O Panel DCE Cable (48 in.)      | 2                   |
| NT4N90AA     | CP PII to I/O Panel Ethernet Cable (48 in.) | 2                   |
| NT4N43AA     | cPCI Multi-Media Disk Unit                  | 2                   |

**Table 29**  
**Minimum requirements for Option 71, 81 and 81C systems**

| Order number | Description                                 | Quantity per system |
|--------------|---------------------------------------------|---------------------|
| NTRC17AA     | CP PII Ethernet to Ethernet Cable (8.5 ft.) | 2                   |
| P0745716     | Rear I/O Panel                              | 2                   |
| P0906308     | cPCI Card Slot Filler Panel                 | 16                  |
| NTRE40AA     | Dual Ethernet Adapter (RJ45) for I/O Panel  | 2                   |
| NT4N89AA     | System Utility to XSM Cable                 | 2                   |
| NT4N46AA     | cPCI Core/Network Card Cage AC/DC           | 2                   |
| NT8D76BE     | IGS to IGM or cCNI to 3PE Cable (6 ft.)     | 2                   |
| NT8D76BF     | IGS to IGM or cCNI to 3PE Cable (10 ft.)    | 2                   |
| NT8D99AD     | CPU to Network Cable (6 ft.)                | 2                   |
| NT4N6809     | Security Device Holder                      | 2                   |

### Check required power equipment

- Table 30 on page 213 lists the equipment required for DC powered systems.
- Table 31 on page 214 lists the equipment required for AC powered systems.

**Table 30**  
**DC power requirements for Option 71, 81 and 81C upgrades**

| Order number | Description                                      | Quantity per system |
|--------------|--------------------------------------------------|---------------------|
| NT6D41CA     | Core/Network Power Supply DC                     | 2                   |
| NT4N97BA     | cPCI Upgrade Kit DC (Misc. Card Cage Components) | 2                   |

**Table 31**  
**AC power requirements for Option 71, 81 and 81C upgrades**

| <b>Order number</b> | <b>Description</b>                               | <b>Quantity per system</b> |
|---------------------|--------------------------------------------------|----------------------------|
| NT8D29BA            | Core/Network Power Supply AC                     | 2                          |
| NT4N97AA            | cPCI Upgrade Kit AC (Misc. Card Cage Components) | 2                          |

### **Check required tools**

With standard tools required to service a Meridian 1, use the following special tools for the upgrade:

- a 12" long, 3/8" hex head nut driver (to secure the screws in the back of the card cage)
- a flashlight

### **Check personnel requirements**

Nortel Networks recommends that a minimum of two people perform the card cage upgrade.

### **Option 71 only: database requirements**

For Option 71 only, you must send the database to Nortel Networks to be converted.

## **Prepare for upgrade**

Follow the Task Summary list instructions under the heading for Prepare for upgrade of Option 71, 81, and 81C systems, page 56 and return to Upgrade Options 71, 81 or 81C to CP PII, page 215.

## Upgrade Options 71, 81 or 81C to CP PII

To upgrade an Option 71, 81 or 81C system to CP PII, the existing CPU, Core or Core/Net card cages are upgraded to CP PII Core/Net card cages.

The card cage upgrade is performed first on Core 1, and then on Core 0.

### **WARNING**

Although the procedures to upgrade Core 0 are similar to those for Core 1, significant differences do exist.

Follow all the procedures carefully and in sequence. Failure to follow the specific installation and configuration procedures will result in system failure and increased downtime.

### **System downtime**

Although system downtime is required, this procedure minimizes the loss of call processing. Follow the instructions in this chapter carefully to ensure a successful upgrade.

### **CAUTION**

The upgrade requires system downtime. Schedule for system downtime when planning the system upgrade.

Always wear the static discharge bracelet (located inside the cabinet) before you handle circuit cards. Failure to wear the bracelet can result in damage to the circuit cards.

Proceed to CP PII card cage upgrade procedures.

Perform all procedures in order.

Start with Disable Core 1, page 216 and continue through Perform a data dump, page 308.

## Disable Core 1

### Task summary list

The following is a summary of the tasks in this section:

- Check that Core 0 is active, page 216
- Check that Clock Controller 0 is active, page 216
- Check that Ring 0 is active, page 217
- Split the Cores, page 217

### Check that Core 0 is active

To upgrade Core 1, verify that Core 0 is the active side performing call processing:

- 1 Verify that Core 0 is active.  
**LD 135** To load the program  
**STAT CPU** Get the status of the CPUs
- 2 If Core 1 is active, make Core 0 active:  
**SCPU** Switch to Core 0 (if necessary)  
**\*\*\*\*** Exit the program

### Check that Clock Controller 0 is active

- 1 Check the status of the Clock Controllers:  
**LD 60** to load the program  
**SSCK 0** Get the status of Clock Controller 0  
**SSCK 1** Get the status of Clock Controller 1
- 2 If Clock Controller 1 is active, switch to Clock Controller 0.  
**SWCK** If necessary, switch to Clock Controller 0  
**DIS CC 1** Disable Clock Controller 1  
**\*\*\*\*** Exit the program
- 3 Faceplate disable Clock Controller 1.

## Check that Ring 0 is active

- 1 Check the status of Ring 0.  
**LD 39** to load the program  
**STAT RING 0** to get the status of Ring 0. Ring state should be HALF/HALF.
  
- 2 Disable Ring auto recovery.  
**LD 39** to load the program  
**ARCV ON/OFF** Set or reset auto-recovery operation for ring
  
- 3 Swap to Ring 0.  
**LD 39** to load the program  
**SWRG 0** Switch call processing to ring 0
  
- 4 Disable Ring 1.  
**LD 39** to load the program  
**DIS RING 1** Disables all FIJI cards on side 1

## Split the Cores

Split the Cores and transfer call processing to Core 0:

- 1 In **Core 0**, set the NORM/MAINT switch on the CP card to MAINT.
- 2 In **Core 1**, set the ENB/DIS switch on all NT6D65 CNI cards to DIS.
- 3 In **Core 1**, set the NORM/MAINT switch on the CP card to MAINT.

**The system is now in split mode, with call processing on Core 0.**

## Disable and remove equipment from Core 1

### Task summary list

The following is a summary of the tasks in this section:

- Options 71 and 81 only: Move Clock Controller 1, page 218
- Option 81C only: Software disable Network cards in Core/Net 1, page 221230
- Remove the system monitors from Core 1 and Core 0, page 225
- Turn Core 1 module power OFF, page 225
- Remove Core 1 cables and card cage, page 226

### Options 71 and 81 only: Move Clock Controller 1

This section is for Option 71 and 81 upgrades only.

For Option 81C upgrades, proceed to Option 81C only: Software disable Network cards in Core/Net 1, page 221.

#### **CAUTION**

Move only Clock Controller 1 at this point in the upgrade.

Do not move Clock Controller 0 at this time.

- 1 Label and disconnect the Clock Controller 1 Junctor cable from the J12 connector in the InterGroup Module junctor board.
- 2 Disconnect the Junctor cable from the Clock Controller 1 faceplate card.
- 3 If primary and secondary clock reference cables are connected to the Clock Controller 1 faceplate, disconnect them last.
- 4 Remove Clock Controller 1 from the Core module.
- 5 Set the Clock Controller 1 switch settings according to Table 32 on page 220.

- 6 Move Clock Controller 1 to any Network Shelf 1, slot 13.  
**Seat Clock Controller 1 but do not enable the card.**  
**Note:** The Clock Controllers (0 and 1) must be located in different Network groups in different columns. Refer to the guidelines on page 65 to determine Clock Controller placement.
- 7 Reconnect the Clock Controller 1 Junctor cables.
- 8 Disable any ISDN PRI card in the Core module.
- 9 Disable the CNI card in Core module (phantom group 5):  
**LD 135** To load the program.  
**DIS CNI 1 8 0** Disable the CNI card in Core module 1, slot 8, port 0.

**Table 32**  
**Clock Controller 1 switch settings**

| Systems upgraded to CP PII must use the Option 81C switch settings to enable Clock Hunt software. Use the settings in this table. DO NOT use the Option 81 switch settings.                                                                                                                                                                                                                                                                                                           |     |     |     |     |     |     |     |     |    |     |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|
| SW1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |     |     |     | SW2 |     |     |     | SW4 |    |     |     |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2   | 3   | 4   | 1   | 2   | 3   | 4   | 1   | 2  | 3   | 4   |
| on                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | off | **  | on | *   | *   |
| *Total cable length between the J3 faceplate connectors:                                                                                                                                                                                                                                                                                                                                                                                                                              |     |     |     |     |     |     |     |     |    |     |     |
| 0–4.3 m (0–14 ft)                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |     |     |     |     |     |     |     |     |    | off | off |
| 4.6–6.1 m (15–20 ft)                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |     |     |     |     |     |     |     |     |    | off | on  |
| 6.4–10.1 m (21–33 ft)                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |     |     |     |     |     |     |     |     |    | on  | off |
| 10.4–15.2 m (34–50 ft)                                                                                                                                                                                                                                                                                                                                                                                                                                                                |     |     |     |     |     |     |     |     |    | on  | on  |
| <p>* If there is only one Clock Controller card in the system, set to OFF.<br/>                     If there are two Clock Controller cards, determine the total cable length between the J3 connectors (no single cable can exceed 25 ft.) and set these two switch position for this cable length, as shown above.<br/>                     Set the switches on both cards to the same settings.</p> <p>** Set to ON for Clock Controller 0. Set to OFF for Clock Controller 1.</p> |     |     |     |     |     |     |     |     |    |     |     |

**This is the end of the procedure to move Clock Controller 1. To continue with the Option 71 or 81 upgrades, proceed to Remove the system monitors from Core 1 and Core 0, page 225.**

## Option 81C only: Software disable Network cards in Core/Net 1

This procedure is for Option 81C systems only.

For Option 71 and 81 systems, go to Remove the system monitors from Core 1 and Core 0, page 225.

Software disable all cards in the network slots of Core/Net 1.

### **WARNING**

**At this point, the upgrade interrupts service.**

Cards in the Network slots include the following:

- NT8D04 Superloop Network card
- QPC414 Network card
- QPC441 Three-Port Extender (3PE) card
- QPC43R Peripheral Signaling card
- QPC 412 InterGroup Switch (IGS) card/NT5D30AA Dual InterGroup Switch (DIGS) card
- QPC513 Enhanced Serial Data Interface (ESDI) card
- NT8D41 Extended Serial Data Interface (XSDI) card
- QPC536 Digital Trunk Interface (DTI) card
- NT8D72 Primary Rate Interface (PRI) card
- NT6D80 Multipurpose Serial Data Link (MSDL) card

**Software disable cards in network slots of Core/Net 1:**

- 1 **In Core/Net 1 only**, software disable all network and I/O cards such as XNET, TTY, Conf/TDS and ISDN cards:
  - a **In Core/Net 1 only**, disable XNET.
  - b **In Core/Net 1 only**, disable ENET.
  - c **In Core/Net 1 only**, software disable each port on the SDI cards:  
**LD 37**  
**DIS TTY x**            x = the number of the interface device attached to a port.  
**\*\*\*\***                    Exit the program

**CAUTION**

If the system terminal is assigned to an SDI port that you are disabling, assign it to another port before you disable the SDI.

- d **In Core/Net 1 only**, disable DTI cards.
- e **In Core/Net 1 only**, disable PRI cards.
- f **In Core/Net 1 only**, disable MSDL cards.

**2 In Core/Net 1 only**, disable the IGS/DIGS cards:

**a** Software disable the IGS/DIGS card:

**LD 39**

**DISI IGS/DIGS x** "x" is the IGS/DIGS card number—0 to 19.

\*\*\*\*

Exit the program.

You see **ISR043** on the system terminal when the card is disabled. Busy channels are not disabled until the call is disconnected.

Repeat **step a** to disable remaining IGS/DIGS cards in **Core/Net 1 only**.

**Table 33**  
**IGS/DIGS card locations**

|                 |         |                  |
|-----------------|---------|------------------|
| Network Group 0 | Shelf 1 | IGS/DIGS 1 & 3   |
| Network Group 1 | Shelf 1 | IGS/DIGS 5 & 7   |
| Network Group 2 | Shelf 1 | IGS/DIGS 9 & 11  |
| Network Group 3 | Shelf 1 | IGS/DIGS 13 & 15 |
| Network Group 4 | Shelf 1 | IGS/DIGS 17 & 19 |

**b In Core/Net 1 only**, faceplate disable the IGS/DIGS cards.

- 3 In Core/Net 1 only**, software disable the QPC43 Peripheral Signaling Card:  
**LD 32**  
**DSPS x** Table 34 on page 224 lists Peripheral Signaling Card numbers specified by "x"  
**\*\*\*\*** Exit the program.

**Table 34**  
**Peripheral Signaling Card numbers**

| Group/<br>shelf | Peripheral<br>Signaling Card | Loops<br>disabled/enabled |   |     |  |
|-----------------|------------------------------|---------------------------|---|-----|--|
| 0 / 0           | 0                            | 0                         | – | 15  |  |
| 0 / 1           | 1                            | 16                        | – | 31  |  |
| 1 / 0           | 2                            | 32                        | – | 47  |  |
| 1 / 1           | 3                            | 48                        | – | 63  |  |
| 2 / 0           | 4                            | 64                        | – | 79  |  |
| 2 / 1           | 5                            | 80                        | – | 95  |  |
| 3 / 0           | 6                            | 96                        | – | 111 |  |
| 3 / 1           | 7                            | 112                       | – | 127 |  |
| 4 / 0           | 8                            | 128                       | – | 143 |  |
| 4 / 1           | 9                            | 144                       | – | 159 |  |
| 5 / 0           | 10                           | 160                       | – | 175 |  |
| 5 / 1           | 11                           | 176                       | – | 191 |  |
| 6 / 0           | 12                           | 192                       | – | 207 |  |
| 6 / 1           | 13                           | 208                       | – | 223 |  |
| 7 / 0           | 14                           | 224                       | – | 239 |  |
| 7 / 1           | 15                           | 240                       | – | 255 |  |

- 4 In Core/Net 1 only**, disable the 3PE card:  
Set the ENB/DIS switch on the 3PE card to DIS.

**This is the end of the Option 81C procedure to software disable cards in the network slots. Go to Remove the system monitors from Core 1 and Core 0, page 225.**

## Remove the system monitors from Core 1 and Core 0

- 1 **In Core 0**, software disable the master system monitor (NT8D22):  
**LD 37**  
**DIS TTY #**      Disable the master system monitor TTY interface.
- 2 **For both Core 1 and Core 0**, remove J3 and J4 cables on both system monitors.
- 3 **For both Core 1 and Core 0**, remove the system monitors from the rear of the pedestals.  
  
**Do *not*** turn off the blower units in the front of the pedestals.

### CAUTION

The system may shut down if the system monitors are not removed.  
Remove the monitors and keep the cooling fans ON.

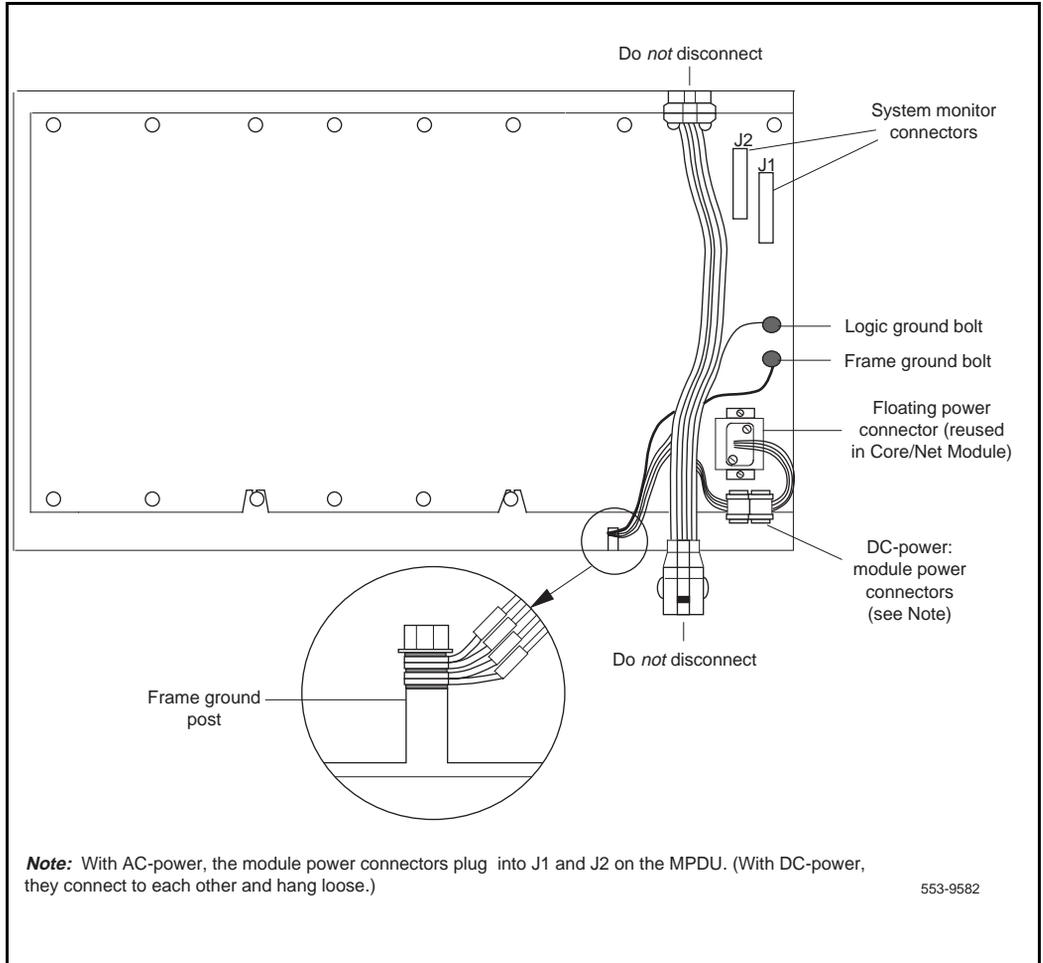
## Turn Core 1 module power OFF

- For AC-powered systems:** set the MPDU circuit breaker located at the left end of the module to OFF (top position).
- For DC-powered systems:** set the breaker for the Core 1 module in the back of the column pedestal to OFF (down position).

## Remove Core 1 cables and card cage

- 1 Label and disconnect all cables to the front of the module. Tape over the contacts to avoid grounding. Tape or tie all cables to the sides so the working area in front of the card cage is totally clear.
- 2 If there is an I/O safety panel, remove it by turning the screws on each side. Set the cover aside.
- 3 Tag and disconnect all cables from the backplane to the interior of the I/O assembly.
- 4 Tag and disconnect all plugs, wires, and cables to the backplane.  
**Note 3:** Leave the network cards in the card cage. You will relocate them to the CP PII Core/Net later in the upgrade procedure.  
**Note 4:** Two people are needed to remove the Core 1 card cage because of the weight of the card cage with the cards left installed.
- 5 Remove the two mounting screws at the bottom rear of the card cage that secure the card cage to the module casting. Keep the screws for use with the CP PII card cage. (You need a 1/4" nut driver to remove the screws.)
- 6 Remove the front cover plates on both sides of the card cage.
- 7 Remove the three mounting screws that secure the front of the card cage to the bottom of the module. Save the screws for use with the CP PII card cage.
- 8 Pull the card cage forward until it is halfway out of the module.
- 9 Remove the logic return (LTRN) (orange) wire from the backplane bolt. Be careful; do not drop the nut or lock washer into the pedestal. Save the nut for reuse later.  
  
See Figure 42 on page 227 for DC power connectors.  
See Figure 43 on page 228 for AC power connectors.
- 10 Remove preexisting CNI (NT4D14) cables.

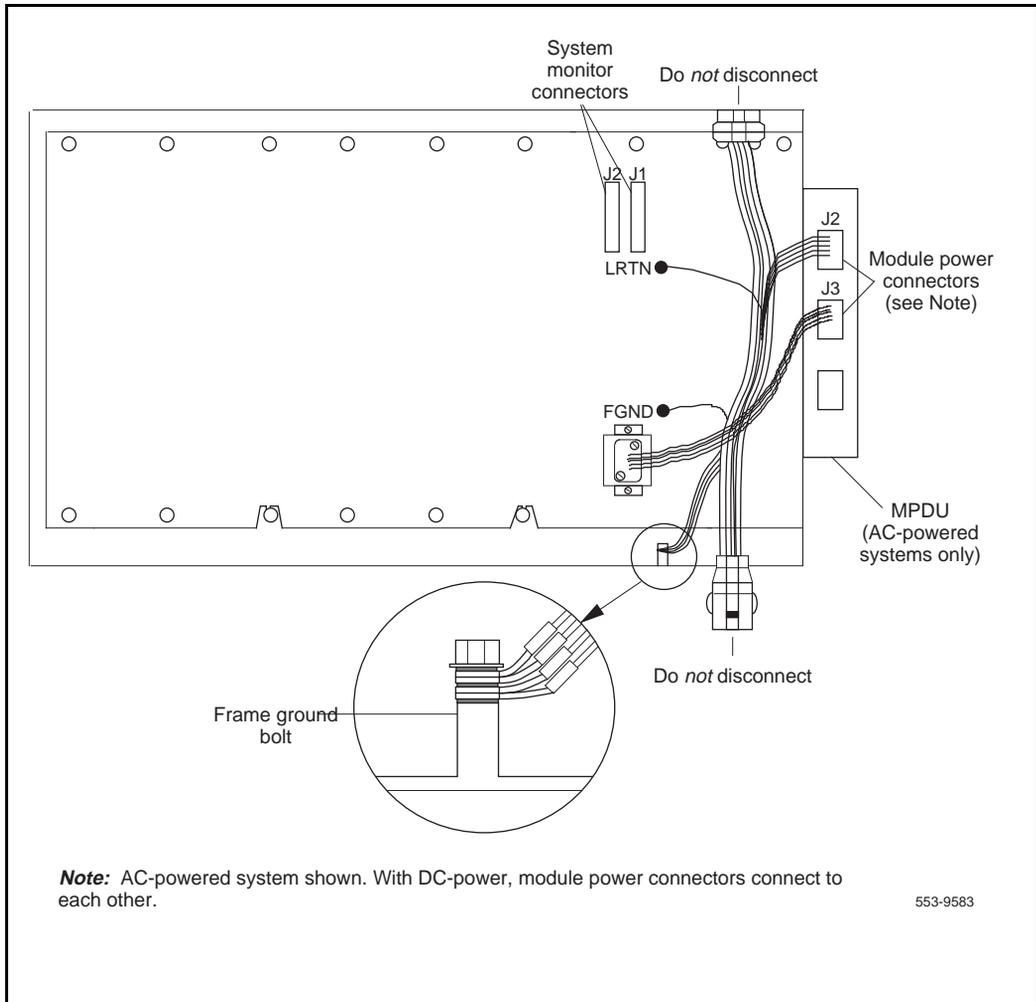
**Figure 42**  
**DC power connectors on the Core module backplane**



**Note:** With AC-power, the module power connectors plug into J1 and J2 on the MPDU. (With DC-power, they connect to each other and hang loose.)

553-9582

**Figure 43**  
**AC power connectors on the Core module backplane**



**Note:** AC-powered system shown. With DC-power, module power connectors connect to each other.

553-9583

- 11 Remove the frame ground (FGND) (green) wire from the frame ground bolt on the module. Save screws for reuse later.
- 12 Label and disconnect the module power connectors. These are small orange connectors plugged into the module power distribution unit (MPDU) in an AC-powered system, or connected to each other in a DC-powered system.
- 13 Label and disconnect the system monitor ribbon cables to J1 and J2.
- 14 Remove the Core card cage from the module.
- 15 Remove the power harness and reserve it for reinstallation as part of installing the new NT4N46 card cage.  
The power harness is located at the right rear lower corner and plugs into the rear of the power supply.
  - For AC systems, relocate power harness NT8D80AM.
  - for DC systems, relocate power harness NT7D11.

**CAUTION**

Be sure to perform the following step. If you do not tape the EMI shield in position, you will not be able to install the card cage in the module correctly.

- 16 Reposition the EMI shield (it looks like a brass grill) in the base of the module.  
**Tape over the front mounting tabs to hold the shield in position.**  
You will remove the tape later.

## Install equipment in Core/Net 1

### Task summary list

The following is a summary of the tasks in this section:

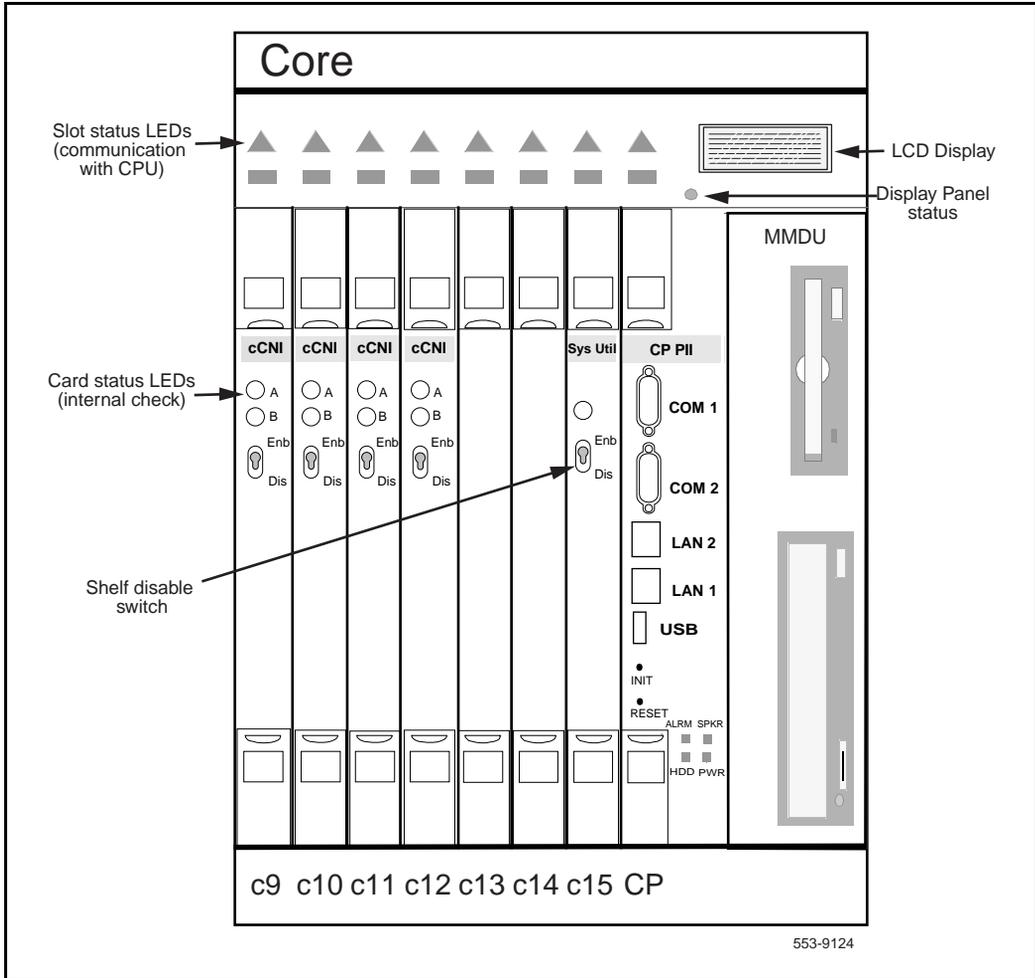
- Check that the main Core cards (front side) are installed, page 231
- Check that the Core Transition cards are installed, page 233
- Check for the shelf power cable, page 235
- Install the Security Device, page 236
- Install the NT4N46 Core/Net 1 card cage, page 239
- Cable COM 1 and COM 2 to the I/O panel, page 245
- Connect a terminal and modem to the I/O panel, page 245
- Connect LAN 1, page 246
- LAN 2 connections, page 246
- Faceplate disable the cCNI cards, page 248
- Faceplate enable the System Utility Main card, page 248
- Option 81C only: Move network cards to Core/Net 1, page 248
- Attach the 3PE cables, page 249

## Check that the main Core cards (front side) are installed

The main Core cards including the MMDU (with the cables for power and data) are installed in the factory (see Figure 44 on page 232):

- **NT4N65AB cPCI Core Network Interface (cCNI) cards:** Each system contains between one and four NT4N65 cCNI cards per Core/Net Module. The cCNI cards are located in slots c9-c12. If not already installed, install a P0906308 cPCI Card Slot Filler Panel to cover any of slots c10 - c 12 which do not contain cCNIs.
- Slots c13 and c14 are left empty. If not already installed, install a P0906308 cPCI Card Slot Filler Panel in each slot.
- **NT4N67AA System Utility (Sys Util) card** is located in slot c15.
- **A0810496 Call Processor PII (CP II)** is located in the slot marked CP.
- **NT4N43AA cPCI Multi-Media Disk Unit (MMDU)** is located in the extreme right hand slot next to the CP PII card. The MMDU contains the Hard drive, floppy drive and CD-ROM drive.

**Figure 44**  
**Core card placement in the NT4N41 Core/Net Module (front)**



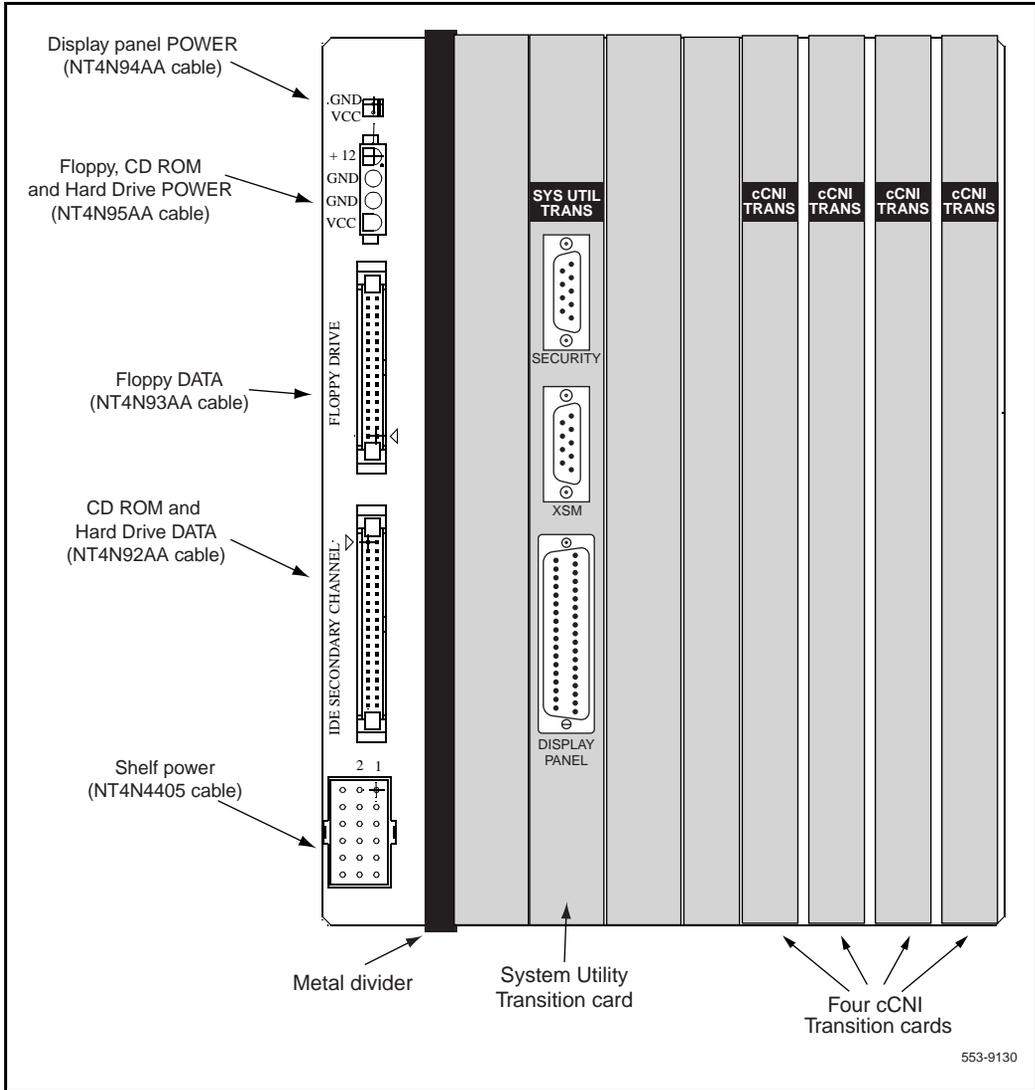
## Check that the Core Transition cards are installed

The Core Transition cards are located directly behind the corresponding main cards (on the rear of the Core backplane). Core Transition cards are installed in the factory:

- **NT4N66AB cCNI Transition Cards:** Each system contains four cCNI Transition cards.
- **NT4N68AA System Utility Transition card:** The System Utility Transition card is installed directly behind the System Utility card and contains connections for the Security Device, the System Monitor (XSM) and the Display Panel.

Figure 45 on page 234 displays the location of the Core Transition cards.

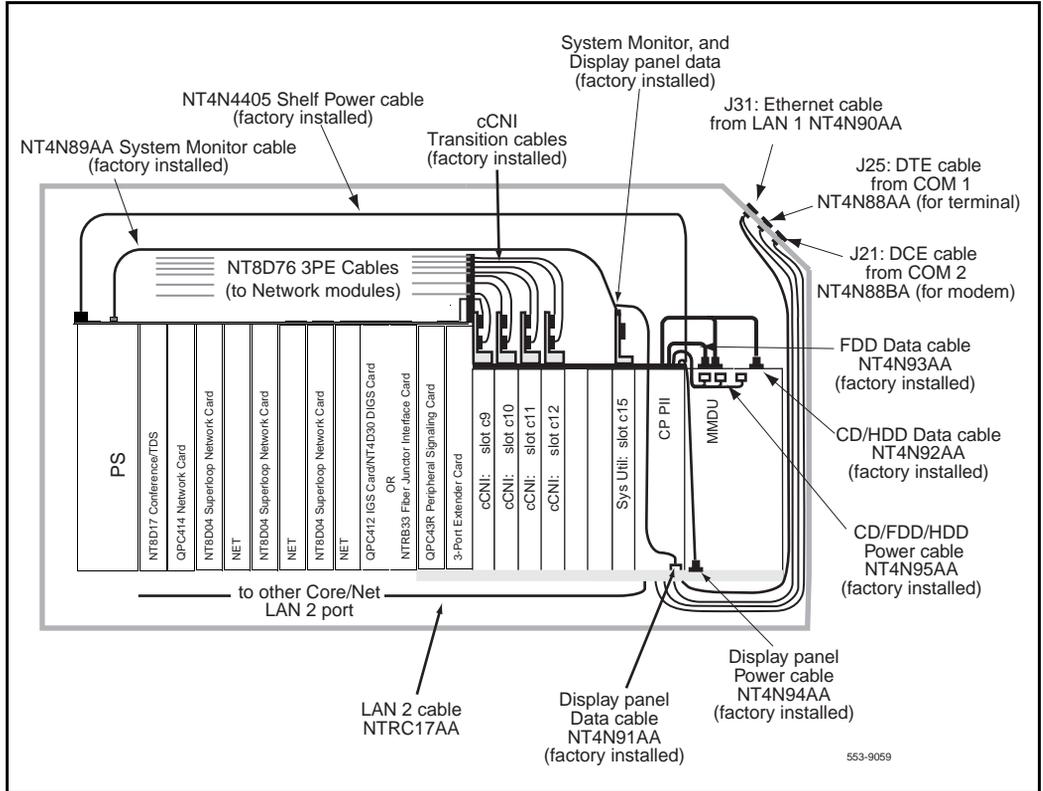
**Figure 45**  
**Location of Transition cards**



## Check for the shelf power cable

Check that the NT4N4405 Shelf Power Cable is installed in the NT4D46 card cage backplane. See Figure 46 on page 235 for cable location.

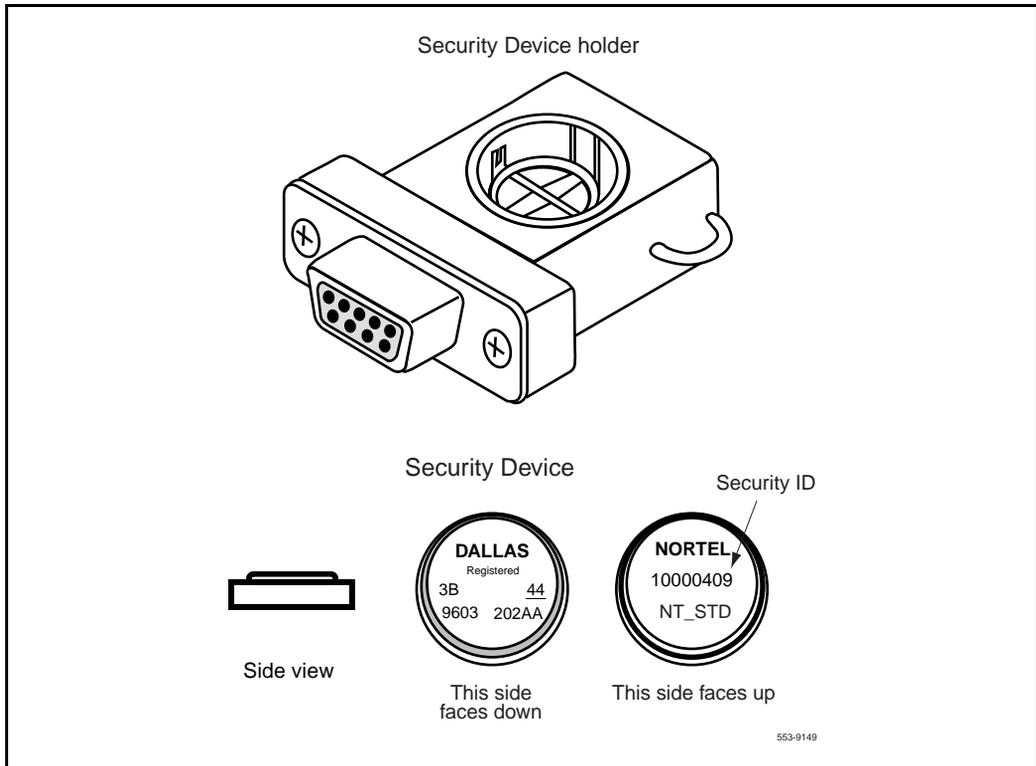
**Figure 46**  
**Core/Net cable connections (top view)**



## Install the Security Device

The Security Device fits into the Security Device holder (see Figure 47 on page 236). This assembly attaches to the System Utility Transition card located on the back of the core backplane.

**Figure 47**  
**Security Device and holder**



To install the Security Device:

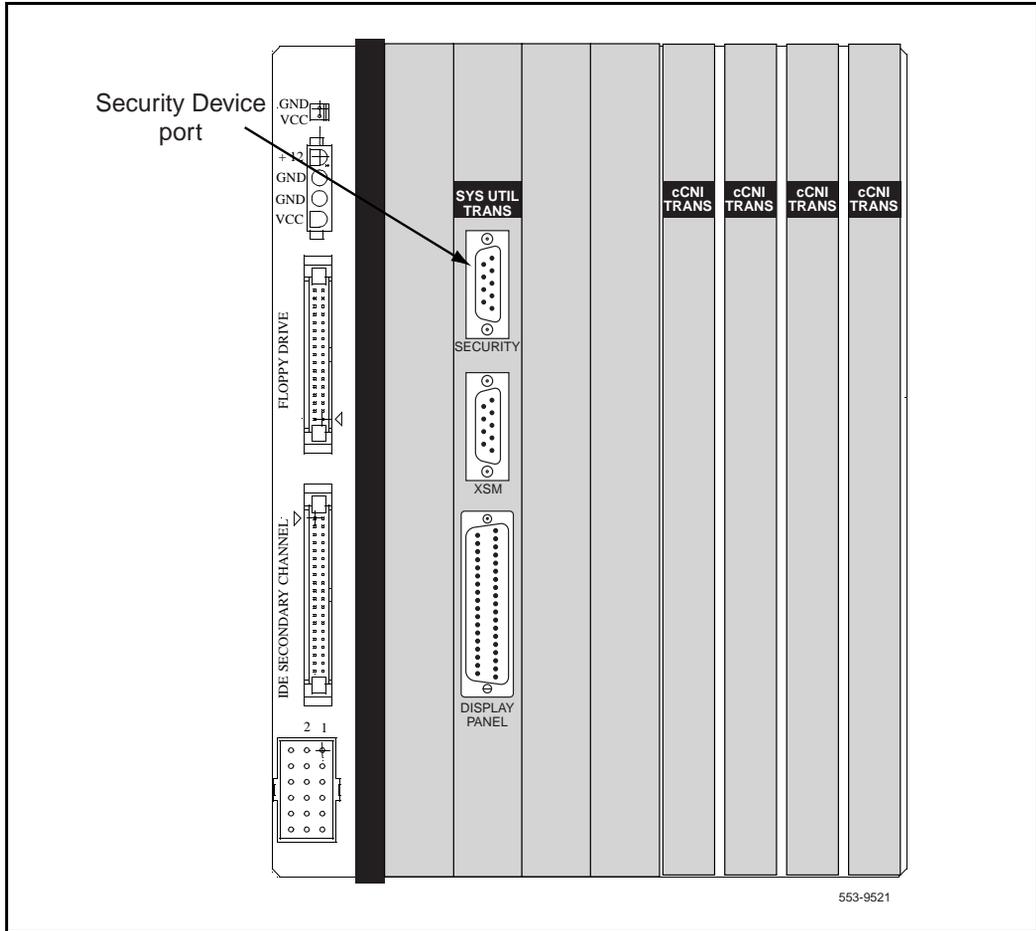
- 1 **If the original system had an IODU/C**, remove the Security Device from the IODU/C for reuse.
  - a Unlock the latches and remove the IODU/C card.
  - b Remove the round 1/2" diameter IODU/C Security Device from the round black Security Device holder on the top right corner of the IODU/C card.

**OR**

**If the original system did not have an IODU/C**, use the Security Device provided with the CP PII Software kit. Locate the Security Device holder in the plastic bag taped to the top of the card cage.

- 2 Insert the Security Device into the Security Device holder with the "Nortel" side facing up. Do not bend the clip more than necessary.
- 3 Insert the assembly (Security Device and holder) between the clips on the top of the System Utility Transition card (Figure 48 on page 238).
- 4 Check that the Security Device is securely in place.

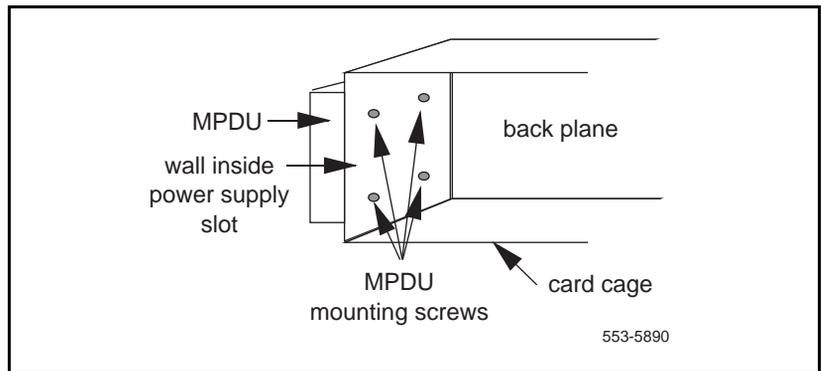
**Figure 48**  
**Security Device installation (System Utility Transition card)**



## Install the NT4N46 Core/Net 1 card cage

- 1 Check that the card cage is configured as Core 1. See **Check the Core ID switches**, page 66 for instructions.
- 2 For **AC-powered systems only**, after the card cage is out of the module, remove the MPDU and reinstall it on the CP PII card cage. Install the new MPDU, part of the cPCI Upgrade kit, to the side on the NT4N46 card cage. The screws that secure the MPDU are accessible from the power supply slot. See Figure 49 on page 239.

**Figure 49**  
Location of the screws for the MPDU



- 3 Check that the power harness at the right rear corner of the card cage has been transferred from the old card cage to the CP PII card cage.
  - a In **DC** powered systems, connect the module power connectors to each other.
- 4 Slide the CP PII card cage halfway into the module.
- 5 Hold the card cage firmly and make the following connections at the rear of the module.

- a In **AC** powered systems, connect the remaining module power connectors to J2 on the MPDU.

**In AC-power systems only**, plug the module power cable (the short harness attached to the module power connector) into connector J3 on the MPDU (attached to the side of the card cage).

**CAUTION**

Check for and remove any debris (such as screws) that may have fallen into the base of the UEM module.

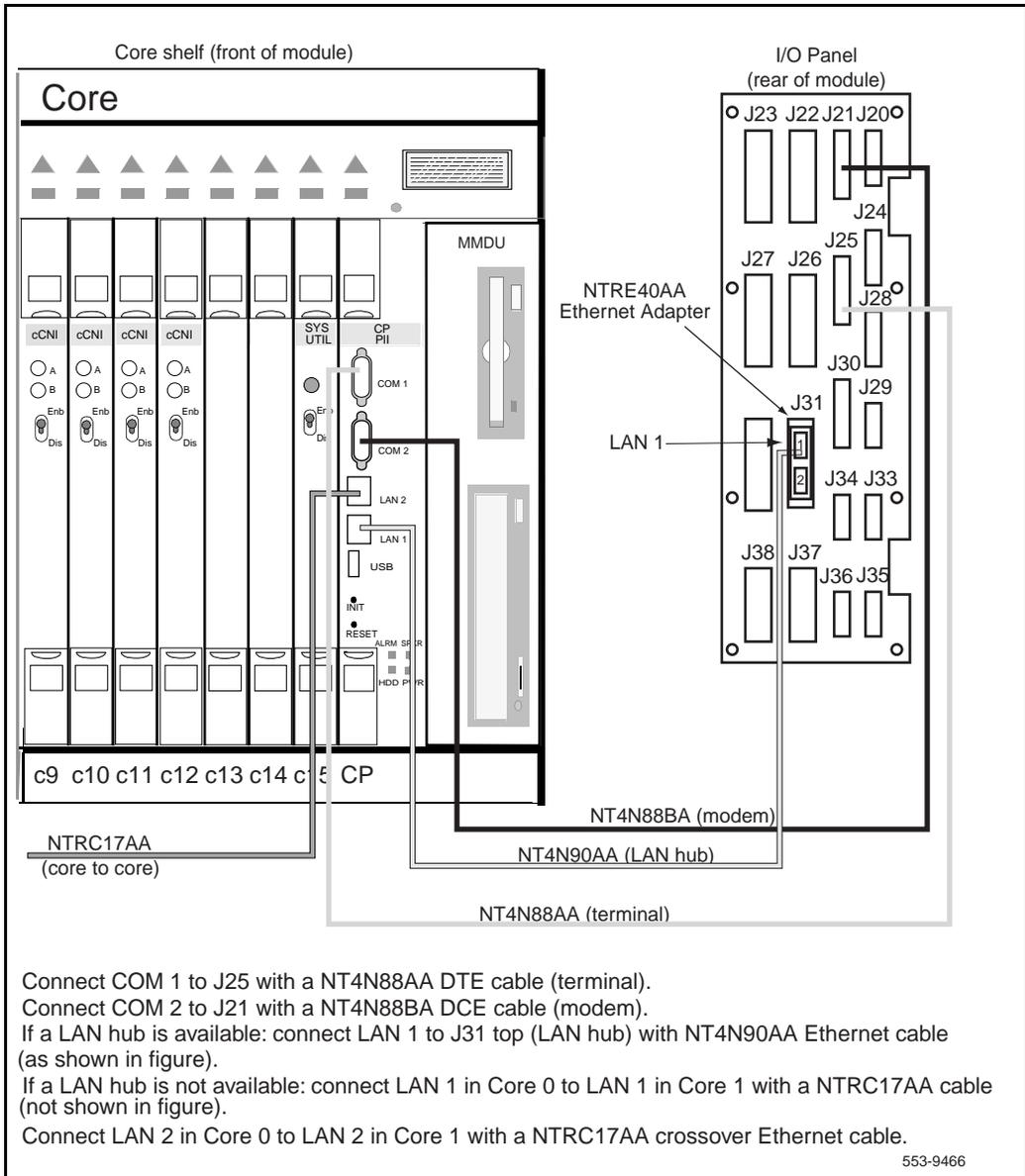
- b Attach the **system monitor** ribbon cables:
- connect the ribbon cable that goes down to the pedestal to connector **J1** on the backplane.
  - connect the ribbon cable that goes up the column to **J2** on the backplane.
- c Attach the green ground wire to the frame ground bolt on the module. (a 11/32" socket wrench is used to attach the wire.) Remove the nut and the lock washer at the top of the bolt. Put the frame ground wire terminal over the bolt. Reinstall the top lock washer and the nut, then tighten down the nut.

**Note:** For all of the wire terminals to fit on the bolt, remove one of the lock washers. Leave a lock washer at the bottom of the bolt and at the top of the bolt. Leave a third lock washer between the second and third, or the third and fourth, wire terminals.

- d Attach the orange logic return wire. Remove one nut and the lock washer from the LRTN blot at the rear of the card cage. Put the wire terminal over the bolt, reinstall the lock washer and nut, then tighten down the nut. (You need a 1/4" or 2/8" socket wrench.)
- 6 Slide the card cage all the way into the module.
- 7 Check the position of the EMI shield. If the EMI shield has shifted, reposition it. Remove the tape holding the EMI shield.

- 8** Pre-route cables NT4N88AA, NT4N88BA and NT4N90AA before you secure the card cage. (See Figure 50 on page 242.)
  - a** Route cable **NT4N88AA** from **COM1** on the CP PII faceplate to **J25** on the I/O panel. (NT4N88AA is used to connect a terminal.)
  - b** Route cable **NT4N88BA** from **COM2** on the CP PII faceplate to **J21** on the I/O panel. (NT4N88BA is used to connect a modem.)
  - c** Route cable **NT4N90AA** from **LAN 1** on the CP PII faceplate to **J31 (top)** of the I/O panel.
- 9** Install either the NT6D41 DC power supply (see Figure 30 on page 213, for details) or the NT8D29 AC power supply (see Figure 31 on page 214, for details).

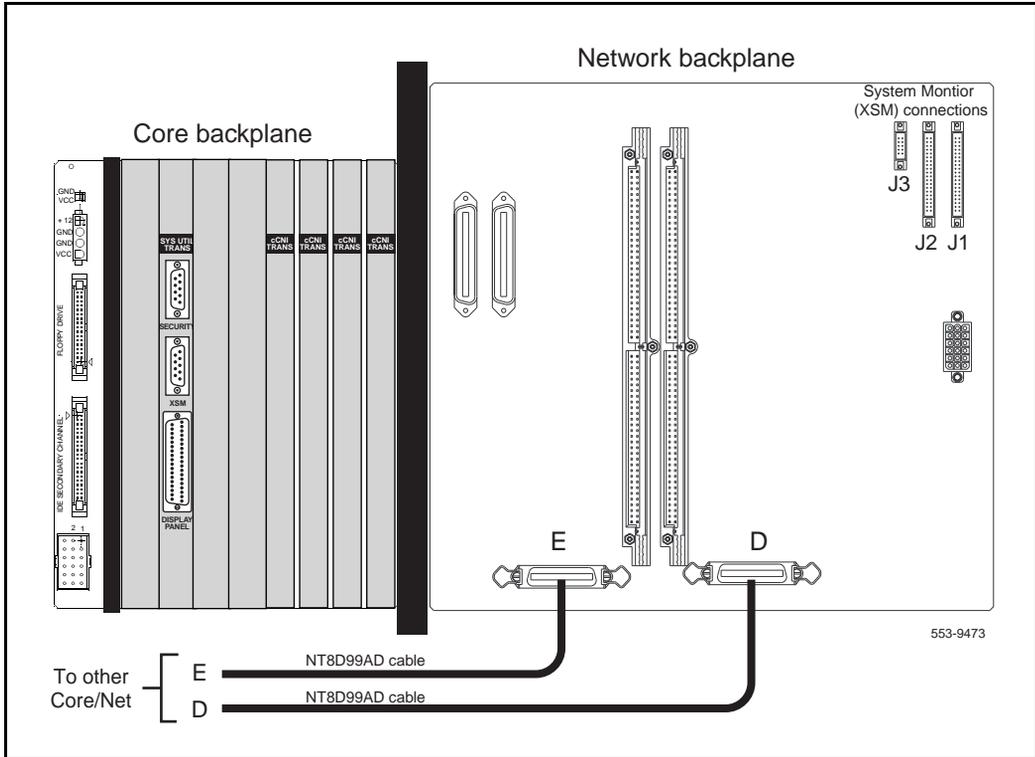
**Figure 50**  
**COM and LAN connections to the Core/Net I/O panel**



553-9466

- 10 Secure the card cage to the module with the three short screws in the front and the two long screws in the rear.  
**Note: You need a minimum 12" long, 3/8" hex head nut driver for the two screws in the rear of the card cage.**
- 11 Replace the trim panels on both sides of the card cage.
- 12 Install the screws at the back of the card cage.
- 13 Reconnect cables, plugs, and wires to the backplane:
  - a Connect all plugs, wires, and cables to the backplane.  
**Figure 51 on page 244 shows the existing D and E cables which connect the network side.**
  - b Position the I/O safety panel. Tighten the screws.

**Figure 51**  
**Connections on the Network backplane**



## Cable COM 1 and COM 2 to the I/O panel

COM 1 is used to connect a terminal (NT4N88AA cable).

COM 2 is used to connect a modem (NT4N88BA cable).

*Note:* If the system is Option 71 or Option 81, install the new I/O panel (PO745716).

Figure 52 on page 247 displays the COM and LAN cable connections.

- 1 Connect **COM1** on the CP PII faceplate to **J25** on the I/O panel with cable **NT4N88AA**.
- 2 Connect **COM2** on the CP PII faceplate to **J21** on the back of the I/O panel with cable **NT4N88BA**.

## Connect a terminal and modem to the I/O panel

- 1 Connect **J25** to a **terminal** for use during the upgrade. Use a separate terminal for each Core if available. J25 can also be connected to an A/B box to share a terminal between both Cores.
- 2 Connect **J21** to the device connected in the original system (such as a **modem or A/B box**).

## Connect LAN 1

The LAN 1 port is used to enable redundancy features between the two Core/Net modules. LAN 1 can also be connected to a local area network (LAN) for use with LAN based administration tools such as MAT.

### If the system will be connected to a LAN

- 1 Connect the “**Dual Ethernet Adapter** (RJ45) for I/O Panel” (NTRE40AA) to **J31**. Secure the adapter to J31 with the two screws included in the shipment.  
Insert the adapter from the inside of the I/O panel.
- 2 Connect **LAN 1** (Ethernet) on the CP PII faceplate to **J31 (top)** of the I/O panel with cable **NT4N90AA**. This connection can only be made *after* the Dual Ethernet Adapter is installed (see step 3 above).
- 3 Connect **J31** to a **LAN hub**.

### If a LAN is not available

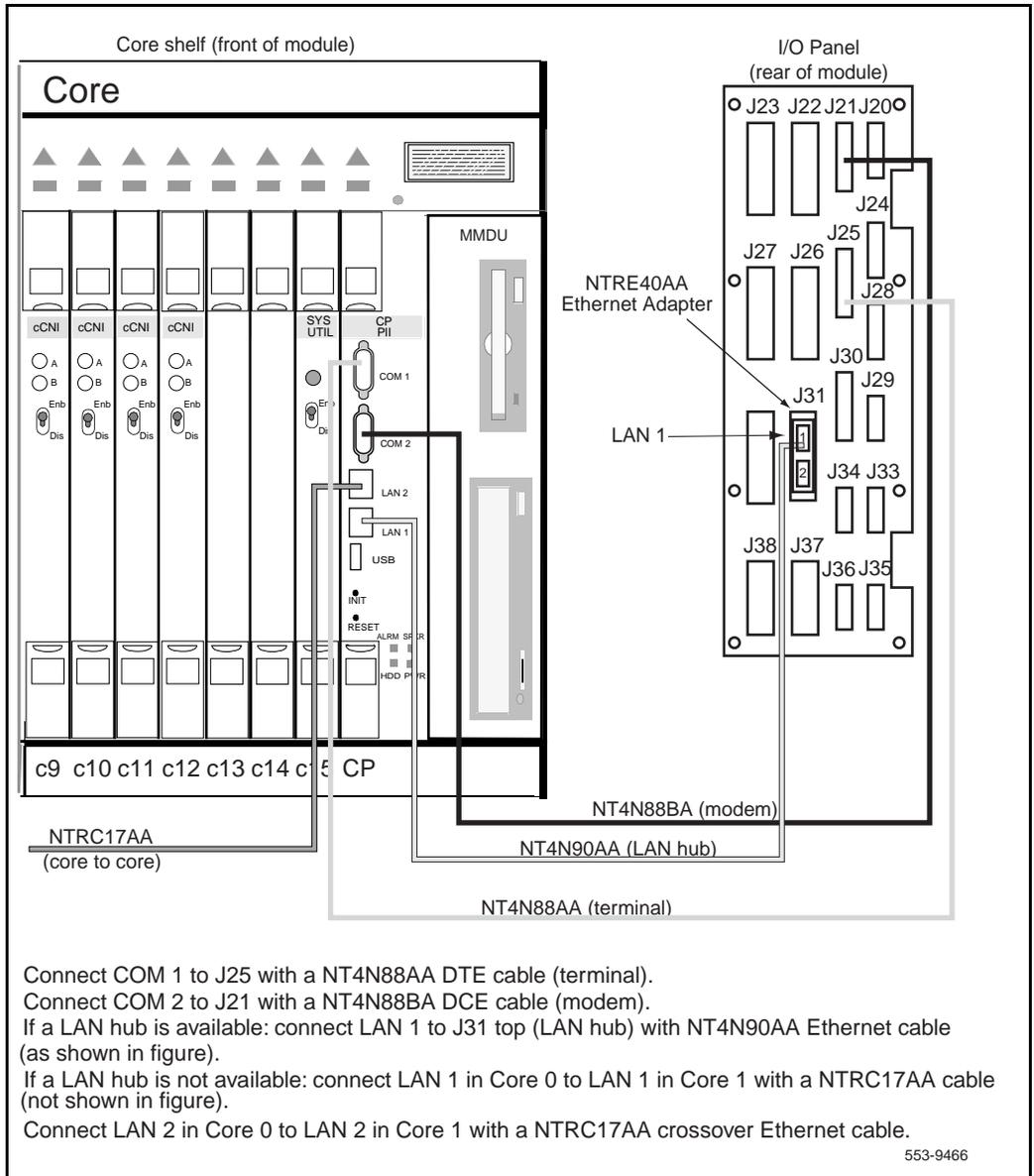
If a LAN hub is not available, do NOT connect LAN 1 to the I/O panel. The NTRE40AA Adapter and NT4N90AA cable are NOT installed.

If a LAN hub is not available, the LAN 1 port on the CP PII faceplate in Core/Net 0 is directly connected to LAN 1 in Core/Net 1 with a NTRC17AA crossover Ethernet cable. This connection is made later in the upgrade after the second card cage is installed.

## LAN 2 connections

The **LAN 2** portion the CP PII faceplate in Core/Net 0 is directly connected to LAN 2 in Core/Net 1 with a NTRC17AA crossover Ethernet cable. This cable is installed later in the upgrade after the Core/Net 0 card cage is installed.

**Figure 52**  
**COM and LAN connections to the Core/Net I/O panel**



## Faceplate disable the cCNI cards

In Core/Net 1, disengage all cCNI cards from the backplane and disable the faceplate switch on all cCNI cards.

## Faceplate enable the System Utility Main card

Faceplate enable the System Utility Main card.

## Option 81C only: Move network cards to Core/Net 1

**This procedure applies to Option 81C only. For Option 71 or 81 upgrades, go to “Attach the 3PE cables”.**

- 1 Remove each network card from the NT5D21 Core/Net 1.
- 2 Reinstall each card in the same network slot in the NT4N41 Core/Net 1.
- 3 Connect the tagged cables to the relocated cards.

**This is the end of the Option 81C-specific procedure. Proceed to “Attach the 3PE cables”.**

## Attach the 3PE cables

NT8D76 cables connect between the Core/Net Termination Panel and the 3PE cards:

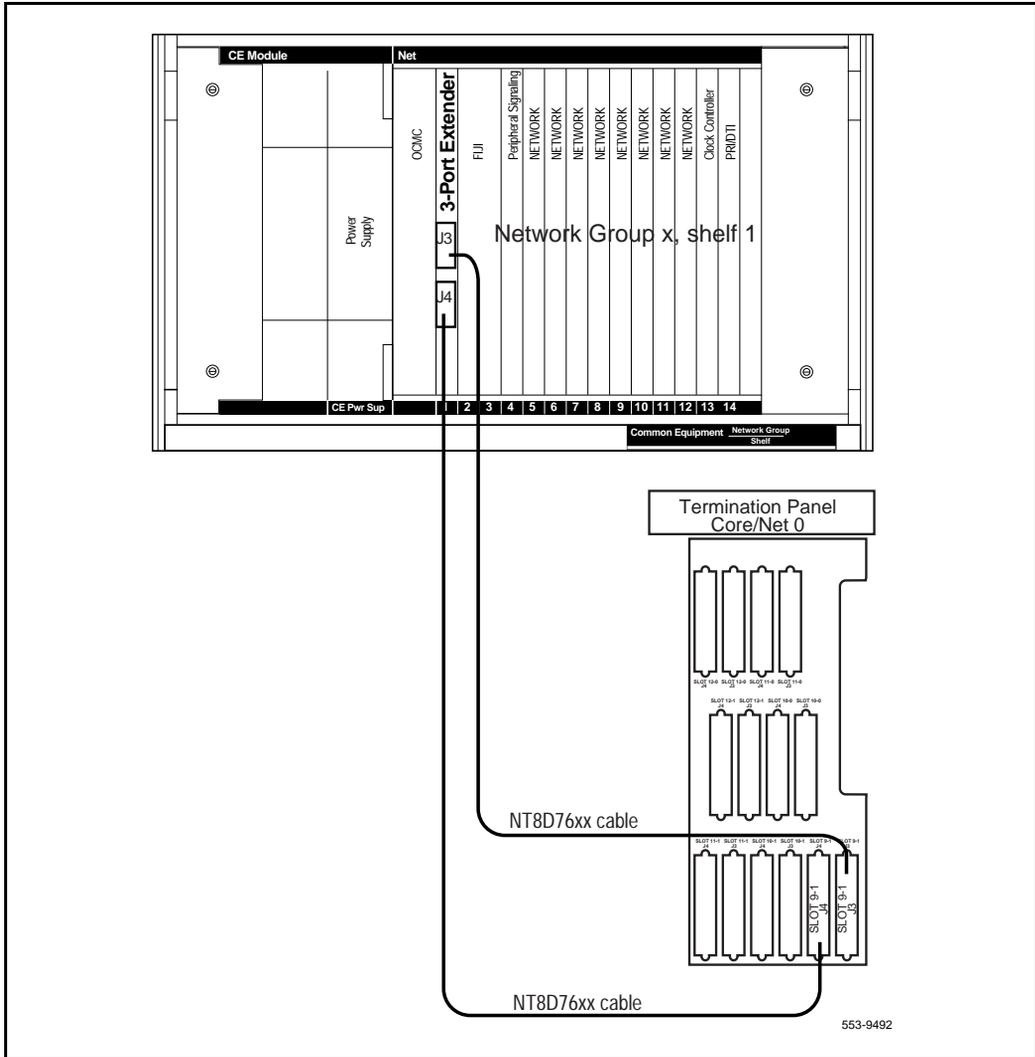
- See Table 35 on page 251 for detailed information on the slot and Network group assignments.
- This procedure applies to systems with columns in a single row. This procedure does not apply to systems with columns in separate aisles.
- Network group assignments for the cCNI ports in the new CP PII card cage must be the same as the original system. Check to make sure that the cables are installed according to the port assignments in the existing database.
- The new NT8D76 3PE cables must be routed and in place before this procedure is begun. Refer to Route the 3PE to cCNI (NT8D76) cables, page 98.
- Remember to label all cables with the connection information. Labels are necessary to perform troubleshooting or future upgrades
- Table 35 on page 251 contains connection information for 3PE faceplates and the Core/Net Termination Panel.
- Figure 54 on page 252 shows the connection information on the Termination Panel.

### Connect the 3PE cables in the shelf 1 Network modules

- 1 Disconnect the old cables from the J3 and J4 connectors on the 3PE cards in shelf 1 of each Network group.
- 2 Reinstall the two NT8D80BZ cables between the 3PE cards located in the existing Core 0 and the 3PE reinstalled in the new Core 1 module. Connect the first cable to J3 on each card and the second cable to J4 on each card.
- 3 Connect the new NT8D76 cables to J3 and J4 of the 3PE cards. See Figure 53 on page 250 and Table 35 on page 251 for connection information.
- 4 Connect the new NT8D76 cables to the Termination Panel in Core/Net 1 as shown in Figure 54 on page 252 and Table 35 on page 251.

**Note:** Remove the old unused CNI to 3PE cables.

**Figure 53**  
**3PE Termination Panel connections**



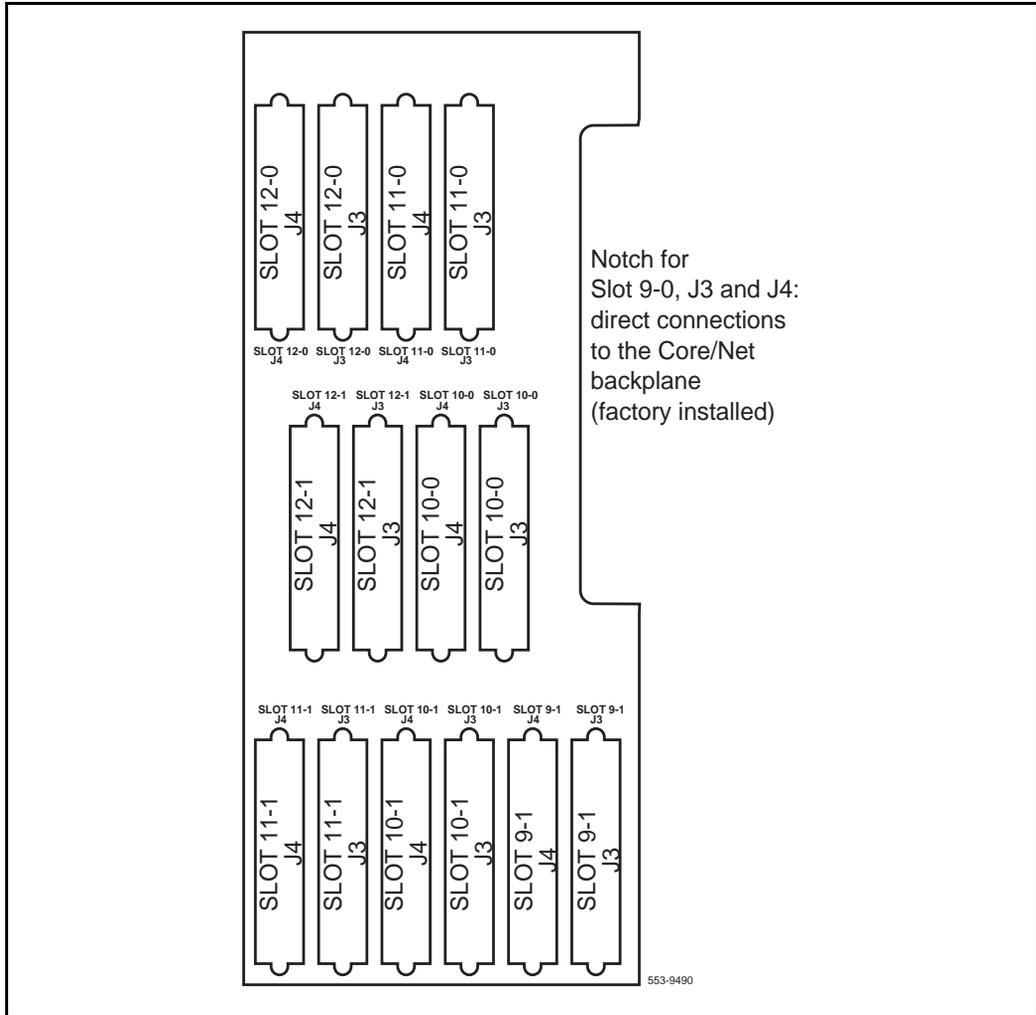
- 5 If the system has XSDI cards, reinstall the cards and attach the cables.

**Table 35**  
**Termination Panel to 3PE card connectors**

| Group number | Termination Panel connector | 3PE card connector |
|--------------|-----------------------------|--------------------|
| 0            | 9-0                         | See <i>Note</i> .  |
| 0            | 9-0                         | See <i>Note</i> .  |
| 1            | 9-1-J3                      | J3                 |
| 1            | 9-1-J4                      | J4                 |
| 2            | 10-0-J3                     | J3                 |
| 2            | 10-0-J4                     | J4                 |
| 3            | 10-1-J3                     | J3                 |
| 3            | 10-1-J4                     | J4                 |
| 4            | 11-0-J3                     | J3                 |
| 4            | 11-0-J4                     | J4                 |
| 5            | 11-1-J3                     | J3                 |
| 5            | 11-1-J4                     | J4                 |
| 6            | 12-0-J3                     | J3                 |
| 6            | 12-0-J4                     | J4                 |
| 7            | 12-1-J3                     | J3                 |
| 7            | 12-1-J4                     | J4                 |

**Note:** Group 0 cables connect from the cCNI Transition card directly to the backplane of Core/Net 0 OR to the NT8D76 cable (depending on your CNI group configuration).

**Figure 54**  
**Connectors for cCNI Transition Cables to the Termination Panel**



# Power up and complete the Core/Net 1 upgrade

## Task summary list

The following is a summary of the tasks in this section:

- Power up the system, page 253
- Confirm that all cards in the Network are working, page 253
- Install software and convert the database on Core/Net 1, page 253
- Configure the IP addresses, page 258
- Check for Peripheral Software Download to Core/Net 1, page 259
- For systems with fewer than five groups, delete CNIs, page 260
- Option 71 only, reconfigure I/O ports and call registers, page 261
- Reboot the system, page 262
- Transfer call processing to Core/Net 1, page 263
- Test the Core/Net 1 card cage upgrade, page 264
- Perform a data dump on Core/Net 1, page 265

## Power up the system

Turn on power to the module:

- **For AC-powered systems**, set the main circuit breaker to ON (top position) in the rear of the pedestal, then set the MPDU circuit breaker located at the left end of the module to ON (top position).
- **For DC-powered systems**, set the breaker to ON (up position) in the pedestal.

## Confirm that all cards in the Network are working

Bring up all the Network and Network I/O cards. Confirm that all the cards have working power.

## Install software and convert the database on Core/Net 1

- 1 Check that a terminal is connected to J25 on Core/Net 1.
- 2 In Core/Net 1, install the CD-ROM into the CD-ROM drive in the MMDU:

- a Press the button on the CD-ROM drive to open the CD-ROM disk holder.
- b Place the CD-ROM disk into the holder with the disk label showing.
- c Press the button again to close the CD-ROM disk holder.  
**Do not** push the holder in by hand.

**Note:** If the CD-ROM is not in the CD-ROM drive, the installation will not continue. Insert the CD-ROM to continue.

- 3 Place the CP PII Install floppy disk into the MMDU floppy drive.

**Note:** If a problem is detected during the system verification, Install stops, prints an error message, and aborts the installation. If the verification is not successful, do not continue; contact your technical support organization.

- 4 Press the manual RESET button on the CP PII card faceplate.
- 5 Before the install runs, the system validates hard disk partitioning which takes about five minutes. The screen displays:  
Testing partition 0  
0 percent done...1 percent done.....99 percent done....100 percent done  
Testing partition 1  
0 percent done...1 percent done.....99 percent done....100 percent done  
Testing partition 2  
0 percent done...1 percent done.....99 percent done....100 percent completed!  
Disk physical checking is completed!  
There are 3 partitions in disk 0:  
The size of partition 0 of disk 0 is XX MB  
The size of partition 0 of disk 0 is XX MB  
The size of partition 0 of disk 0 is XX MB  
Disk partitions and sectors checking is competed!
- 6 At the terminal, press <cr> to start the software installation.
- 7 When prompted, remove the CP PII Install Program diskette and insert the Keycode diskette.  
<a> Continue with keycode validation  
<y> Confirm that the keycode matches the CD-ROM release
- 8 When the screen displays the Install Menu, select the following options in sequence when prompted to do so:  
<b> Install software, database, and CP-BOOT ROM  
<a> Verify that the CD-ROM is now in drive  
The Installation Status Summary screen appears that lists the options to be installed.  
<a> Continue with Upgrade

- 9 Select a PSDL file to install. The PSDL file contains the loadware for all downloadable cards in the system and loadware for M3900 series sets.

**Select one of the six psdl files**

- <1> Global 10 Languages <default>
- <2> Western Europe 10 Languages
- <3> Eastern Europe 10 Languages
- <4> North America 6 Languages
- <5> RIs24 up-issue
- <6> North America 6 Languages:

The languages contained in each selection are outlined as follows:

- 1 English, French, German, Spanish, Swedish, Italian, Norwegian, Brazilian, Portuguese, Finnish, Japanese Katakana.
- 2 English, French, German, Spanish, Swedish, Norwegian, Danish, Finnish, Italian, Brazilian Portuguese.
- 3 English, French, German, Dutch, Polish, Czech, Hungarian, Russian, Latvian, Turkish.
- 4 English, Spanish, French, Brazilian Portuguese, Japanese Katakana, German.
- 5 English, French, German, Spanish, Swedish, Italian, Norwegian, Portuguese, Finnish, Japanese Katakana.
- 6 English, French, German, Spanish, Brazilian Portuguese, Japanese Katakana.

**10** Continue with upgrade when prompted. Select a database to install.

**<cr>** Enter carriage return to continue.

**<a>** Continue with CP BOOTROM installation

**<a>** Install the CP BOOTROM from hard disk

**<a>** Start installation

**<a>** Continue with ROM upgrade

The Installation Status Summary screen appears. Verify that CD to disk, disk to ROM, Database, and CP-BOOTROM were installed.

**<cr>** Continue

**<q>** Quit (remove any diskettes and the CD-ROM from the MMDU drives)

**<y>** Confirm quit

**<a>** Reboot the system

The system will automatically perform a sysload: several messages appear on the system terminal. Wait for "DONE" and then "INI" messages to display before you continue.

While the sysload is being performed, database conversion occurs.

Verify that the following message appears on the system terminal:

DATA CONVERSION

X11 RELEASE XX.XX TO RELEASE 25.

Confirm that the X11 release 25 software is installed and functional on Core/Net 0:

**LD 135** to load the program

**STAT CPU** to display the CPU status

## Configure the IP addresses

Two unique IP address are required for the CP PII system to communicate with the LAN. One IP number is defined for the *active* Core. The second IP address is defined for the *inactive* Core.

Contact your systems administrator to identify these IP numbers.

1 Configure the primary (*active*) and secondary (*inactive*) IP addresses:

|                                          |                                                                                                                                |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <b>LD 117</b>                            | To load the program.                                                                                                           |
| <b>new host <i>name 1</i> IP address</b> | To define the first IP address: "name 1" is an alias for the IP address such as "primary". The IP address is the IP number.    |
| <b>chg elnk active <i>name 1</i></b>     | To assign the "name 1" address to the <i>active</i> Core.                                                                      |
| <b>new host 'name 2' IP address'</b>     | To define the second IP address: "name 2" is an alias for the IP address such as "secondary". The IP address is the IP number. |
| <b>chg elnk inactive <i>name 2</i></b>   | To assign the "name 2" address to the <i>inactive</i> Core.                                                                    |
| <b>chg mask 255.255.240.0</b>            | To set the sub-net per local site. This number allows external sub-nets to connect to the system.                              |
| <b>new route 0.0.0.0 ip address</b>      | Sub-net router address, if required.                                                                                           |
| <b>prt route</b>                         | To print the route data. This returns a value assigned to the route used in the next step.                                     |
| <b>enl route #</b>                       | To enable the route table entry: the value is from the step above.                                                             |

2 Enable the new Ethernet interface:

|                 |                                                |
|-----------------|------------------------------------------------|
| <b>LD 137</b>   | To load the program.                           |
| <b>dis elnk</b> | To <i>disable</i> the old IP interface values. |
| <b>enl elnk</b> | To <i>enable</i> the new IP interface values.  |

## Check for Peripheral Software Download to Core/Net 1

Load LD 22 and print Target peripheral software version. The Source peripheral software version was printed during the procedure to Print site data, page 68.

If there is a difference between the Source and Target peripheral software version:

- A forced download occurs during initialization when coming out of parallel reload.
- System initialization takes longer.
- The system drops established calls on IPE.

### LD 22

**REQ**

PRT

**TYPE**

PSWV.

**ISSP**

Print System and Patch Information.

**SLT**

Print System Limits.

**TID**

Print the Tape ID.

**\*\*\*\***

Exit program.

## For systems with fewer than five groups, delete CNIs

Software has configured the system for five groups.

If your system has five groups, skip this procedure.

If your system has fewer than five groups, you must software remove the CNIs not used in your system configuration:

- 1 In Core/Net 1, disable all CNI cards using LD 135:  

|                      |                                                                                                       |
|----------------------|-------------------------------------------------------------------------------------------------------|
| <b>LD 135</b>        | To load the program.                                                                                  |
| <b>STAT CNI</b>      | Get the status of all CNI cards.                                                                      |
| <b>DIS CNI x s p</b> | Disable CNI cards where:<br>x = extender number (0 or 1)<br>s = card slot (9-12)<br>p = port (0 or 1) |
| <b>STAT CNI</b>      | Confirm that CNI cards are disabled.                                                                  |
| <b>****</b>          | Exit the program.                                                                                     |
  
- 2 Use LD 17 to remove the extra CNI cards.  

|                   |                                                                                                           |
|-------------------|-----------------------------------------------------------------------------------------------------------|
| <b>LD 17</b>      | To load the program.                                                                                      |
| <b>CHG</b>        |                                                                                                           |
| <b>CFN</b>        |                                                                                                           |
| <b>CEQU YES</b>   |                                                                                                           |
| <b>EXTO 3PE</b>   | Core/Net 0 extended to 3PE.                                                                               |
| <b>CNI s p xg</b> | Out the CNI card, where:<br>s = card slot (9-12)<br>p = port (0 or 1)<br>xg = out network group (x0-x4)   |
| <b>EXTI 3PE</b>   | Core/Net 1 extended to 3PE                                                                                |
| <b>CNI s p xg</b> | Out the CNI card, where:<br>s = card slot (9-12)<br>p = port (0 or 1)<br>xg = out network group (x0 - x4) |
| <b>****</b>       | Exit the program.                                                                                         |

## Option 71 only, reconfigure I/O ports and call registers

This procedure applies to Option 71 only.

For Option 81 and Option 81C upgrades, proceed to Reboot the system, page 262.

- 1 Remap all I/O ports (except CPSI ports) to the proper groups.  
The group number of these ports is determined by the physical location of the card.

The configuration information must match the CNI configuration

**LD 17** Load the program.

**CHG**

**CFN**

**CHG aaa x** aaa = terminal type (such as tty or aml).  
x = terminal number (0 -15).

**g** g = network group (0 - 4).

- 2 Evaluate the number of call registers and 500 telephone buffers that are configured for the system (suggested minimum values are 4500 and 1000 respectively). Refer to *Meridian 1 Capacity Engineering*.

If changes are required, reconfigure the values in LD 17:

**LD 17** Load the program.

**CHG**

**CFN**

**PARM YES**

**500B 1000** Use 1000 as a minimum value.

**NCR 5000** Use 5000 as a minimum value.

**\*\*\*\*** To exit the program.

- 3 Print the Configuration Record to confirm the changes made above:

**LD 22** Load the program.

**REQ PRT** Set the print Option.

**TYPE CFN** Print the configuration.

**\*\*\*\*** To exit the program.

- 4 Perform a data dump to save the customer database to the hard drive:
  - a Load the Equipment Data Dump Program (LD 43). At the prompt, enter  
**LD 43** To load the program.
  - b When "EDD000" appears on the terminal, enter  
**EDD** To begin the data dump.
  - c When "DATADUMP COMPLETE" and "DATABASE BACKUP COMPLETE" appear on the terminal, enter  
**\*\*\*\*** To exit the program.

**CAUTION**

If the data dump is not successful, do not continue; contact your technical support organization. You must correct a data dump problem before you continue.

**To continue the Option 71 upgrade, proceed to "Reboot the system".**

## Reboot the system

Press the RESET button on the CP PII card faceplate to reboot the system.

The system will automatically perform a sysload: several messages appear on the system terminal. Wait for "DONE" and then "INI" messages to display before you continue.

## Transfer call processing to Core/Net 1

- 1 From the active Core 0, disable the existing Ethernet interface:  
**LD 137** To load the program.  
**dis eInk** Disable the old IP interface.  
  
*Note:* Any applications using the Ethernet interface will be impacted.
  - 2 Disconnect the ethernet connection from Core 0 and connect to J31 of Core Net 1.  
  
*Note:* If the cable is too short, install a new cable.
  - 3 **In Core 0**, disable all the SBE or CNI cards.
  - 4 **In Core/Net 1**, enable all the cCNI cards.
  - 5 **For Option 71 or 81: in Network shelf 1**, faceplate enable Clock Controller 1.
  - 6 **In Core/Net 1**, press the **INIT** button.  
Wait for the INIT process to complete.
  - 7 Check the status of the Clock Controller 1:  
**LD 60** To load the program.  
**SSCK 1** Get the status of Clock Controller 1.
  - 8 **For Option 71 or 81:** if Clock Controller 1 is enabled standby, faceplate disable Clock Controller 0.
  - 9 Check the status of the Clock Controller 1 again.  
**LD 60** To load the program.  
**SSCK 1** Get the status of Clock Controller 1.  
  
Clock Controller 1 is enabled active.
- Core/Net 1 and Clock Controller 1 are now active.**

## Test the Core/Net 1 card cage upgrade

Test Call Processing. This includes, but is not limited to the following:

- 1 Check for dial tone.
- 2 Make internal, external, and network calls. Make sure intragroup and intergroup calls can be placed.
- 3 Check for error messages, line noise, chatter, or other problems. Track sources and resolve problems as necessary.
- 4 Check attendant console activity.
- 5 Check DID trunks.
- 6 Check any auxiliary processors.
- 7 Check I/O, XNET, MISP, TTYs (all cards disabled and removed).
- 8 Test Core/Net 1.

**Note:** Be aware that you are in single CPU mode at this point in the upgrade.

## Perform a data dump on Core/Net 1

Perform a data dump to save the customer database to the hard drive:

- 1 Log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter  
**LD 43** To load the program.
- 3 When "EDD000" appears on the terminal, enter  
**EDD** To begin the data dump.
- 4 When "DATADUMP COMPLETE" and "DATABASE BACKUP COMPLETE" appear on the terminal, enter  
**\*\*\*\*** To exit the program.

### **CAUTION**

If the data dump is not successful, do not continue; contact your technical support organization. You must correct a data dump problem before you continue.

**WARNING**

Although the procedures to upgrade Core 0 are similar to those for Core 1, significant differences do exist.

Follow all the procedures for Core 0 carefully. Complete the instructions in sequence. Failure to follow the specific installation and configuration procedures will result in system failure and increased downtime.

## **Disable and remove equipment from Core 0**

### **Task summary list**

The following is a summary of the tasks in this section:

- Options 71 and 81 only: move Clock Controller 0, page 266
- Option 81C only: Software disable Network cards in Core/Net 0, page 269
- Turn Core 0 module power OFF, page 272
- Remove Core 0 cables and card cage, page 273

### **Options 71 and 81 only: move Clock Controller 0**

For Option 81C upgrades, proceed to Option 81C only: Software disable Network cards in Core/Net 0, page 269.

The Clock Controllers in Option 81 systems must be moved to the Network modules according to the guidelines on Prepare to move the Clock Controllers (Option 61C and 81 to 81C with Fiber Network Fabric), page 65. Review these rules to determine the new location of the Clock Controllers.

- 1** Label and disconnect the Clock Controller Junctor cable from the J12 connector in the InterGroup Module junctor board.
- 2** Disconnect the Junctor cable from the Clock Controller 0 faceplate card.
- 3** If primary and secondary clock reference cables are connected to the Clock Controller faceplate, disconnect them last.

- 4 Remove Clock Controller 0 from the Core module.
- 5 Set the Clock Controller 0 switch settings according to Table 36 on page 268.
- 6 Move Clock Controller 0 to any Network shelf 0, slot 13.  
**Seat Clock Controller 0 but do not enable the card.**  
**Note:** The Clock Controllers (0 and 1) must be located in different Network groups in different columns. Refer to the guidelines on page 65 to determine Clock Controller placement.
- 7 Reconnect the Clock Controller 0 Junctor cables.
- 8 In Core 0, disable any ISDN PRI cards.
- 9 In Core 0, disable the CNI card (phantom group 5):  
**LD 135** To load the program.  
**DIS CNI 0 8 0** Disable the CNI card in Core module 0, slot 8, port 0.

**Table 36**  
**Clock Controller 0 switch settings**

| Systems upgraded to CP PII must use the Option 81C switch settings to enable Clock Hunt software. Use the settings in this table. DO NOT use the Option 81 switch settings.                                                                                                                                                                                                                                                                                                           |     |     |     |     |     |     |     |     |    |     |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|
| SW1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |     |     |     | SW2 |     |     |     | SW4 |    |     |     |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2   | 3   | 4   | 1   | 2   | 3   | 4   | 1   | 2  | 3   | 4   |
| on                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | off | **  | on | *   | *   |
| *Total cable length between the J3 faceplate connectors:                                                                                                                                                                                                                                                                                                                                                                                                                              |     |     |     |     |     |     |     |     |    |     |     |
| 0–4.3 m (0–14 ft)                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |     |     |     |     |     |     |     |     |    | off | off |
| 4.6–6.1 m (15–20 ft)                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |     |     |     |     |     |     |     |     |    | off | on  |
| 6.4–10.1 m (21–33 ft)                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |     |     |     |     |     |     |     |     |    | on  | off |
| 10.4–15.2 m (34–50 ft)                                                                                                                                                                                                                                                                                                                                                                                                                                                                |     |     |     |     |     |     |     |     |    | on  | on  |
| <p>* If there is only one Clock Controller card in the system, set to OFF.<br/>                     If there are two Clock Controller cards, determine the total cable length between the J3 connectors (no single cable can exceed 25 ft.) and set these two switch position for this cable length, as shown above.<br/>                     Set the switches on both cards to the same settings.</p> <p>** Set to ON for Clock Controller 0. Set to OFF for Clock Controller 1.</p> |     |     |     |     |     |     |     |     |    |     |     |

**This is the end of the procedure to move Clock Controller 0. To continue with Option 71 or 81 upgrades, proceed to Turn Core 0 module power OFF, page 272.**

## Option 81C only: Software disable Network cards in Core/Net 0

This procedure is for Option 81C systems only.

For Option 71 and 81 systems, proceed to Turn Core 0 module power OFF, page 272.

Software disable all cards in the network slots of Core/Net 0.

|                                                   |
|---------------------------------------------------|
| <p style="text-align: center;"><b>WARNING</b></p> |
|---------------------------------------------------|

|                                                                                          |
|------------------------------------------------------------------------------------------|
| <p style="text-align: center;"><b>At this point, the upgrade interrupts service.</b></p> |
|------------------------------------------------------------------------------------------|

Cards in the Network slots include the following:

- NT8D04 Superloop Network card
- QPC414 Network card
- QPC441 Three-Port Extender (3PE) card
- QPC43R Peripheral Signaling card
- QPC 412 InterGroup Switch (IGS) card/NT5D30AA Dual InterGroup Switch (DIGS) card
- QPC513 Enhanced Serial Data Interface (ESDI) card
- NT8D41 Extended Serial Data Interface (XSDI) card
- QPC536 Digital Trunk Interface (DTI) card
- NT8D72 Primary Rate Interface (PRI) card
- NT6D80 Multipurpose Serial Data Link (MSDL) card

**Software disable cards in network slots of Core/Net 0:**

- 1 **In Core/Net 0 only**, software disable all network and I/O cards such as XNET, TTY, Conf/TDS and ISDN cards:
  - a **In Core/Net 0 only**, disable XNET.
  - b **In Core/Net 0 only**, disable ENET.
  - c **In Core/Net 0 only**, software disable each port on the SDI cards.

**CAUTION**

If the system terminal is assigned to an SDI port that you are disabling, assign it to another port before you disable the SDI.

**LD 37**

**DIS TTY x**

x = the number of the interface device attached to a port.

\*\*\*\*

Exit the program.

- d **In Core/Net 0 only**, disable DTI cards.
- e **In Core/Net 0 only**, disable PRI cards.
- f **In Core/Net 0 only**, disable MSDL cards.

2 In **Core/Net 0** only, disable the IGS/DIGS cards:

a Software disable the IGS/DIGS card:.

**LD 39**

**DISI IGS/DIGS x** "x" is the IGS/DIGS card number—0 to 19.

\*\*\*\*

Exit the program.

You see **ISR043** on the system terminal when the card is disabled. Busy channels are not disabled until the call is disconnected.

Repeat **step a** to disable remaining IGS/DIGS cards in **Core/Net 0** only.

**Table 37**  
**IGS/DIGS card locations**

|                 |         |                  |
|-----------------|---------|------------------|
| Network Group 0 | Shelf 1 | IGS/DIGS 1 & 3   |
| Network Group 1 | Shelf 1 | IGS/DIGS 5 & 7   |
| Network Group 2 | Shelf 1 | IGS/DIGS 9 & 11  |
| Network Group 3 | Shelf 1 | IGS/DIGS 13 & 15 |
| Network Group 4 | Shelf 1 | IGS/DIGS 17 & 19 |

b In **Core/Net 0** only, faceplate disable the IGS/DIGS cards.

- 3 In Core/Net 1 only**, software disable the QPC43 Peripheral Signaling Card:  
**LD 32**  
**DSPS x** Table 34 on page 224 lists Peripheral Signaling Card numbers specified by "x."  
**\*\*\*\*** Exit the program.

**Table 38**  
**Peripheral Signaling Card numbers**

| Group/<br>shelf | Peripheral<br>Signaling Card | Loops<br>disabled/enabled |   |     |  |
|-----------------|------------------------------|---------------------------|---|-----|--|
| 0 / 0           | 0                            | 0                         | – | 15  |  |
| 0 / 1           | 1                            | 16                        | – | 31  |  |
| 1 / 0           | 2                            | 32                        | – | 47  |  |
| 1 / 1           | 3                            | 48                        | – | 63  |  |
| 2 / 0           | 4                            | 64                        | – | 79  |  |
| 2 / 1           | 5                            | 80                        | – | 95  |  |
| 3 / 0           | 6                            | 96                        | – | 111 |  |
| 3 / 1           | 7                            | 112                       | – | 127 |  |
| 4 / 0           | 8                            | 128                       | – | 143 |  |
| 4 / 1           | 9                            | 144                       | – | 159 |  |
| 5 / 0           | 10                           | 160                       | – | 175 |  |
| 5 / 1           | 11                           | 176                       | – | 191 |  |
| 6 / 0           | 12                           | 192                       | – | 207 |  |
| 6 / 1           | 13                           | 208                       | – | 223 |  |
| 7 / 0           | 14                           | 224                       | – | 239 |  |
| 7 / 1           | 15                           | 240                       | – | 255 |  |

- 4 In Core/Net 1 only**, disable the 3PE card:  
Set the ENB/DIS switch on the 3PE card to DIS.

**This is the end of the Option 81C procedure to software disable cards in the network slots. Proceed to Turn Core 0 module power OFF, page 272.**

## Turn Core 0 module power OFF

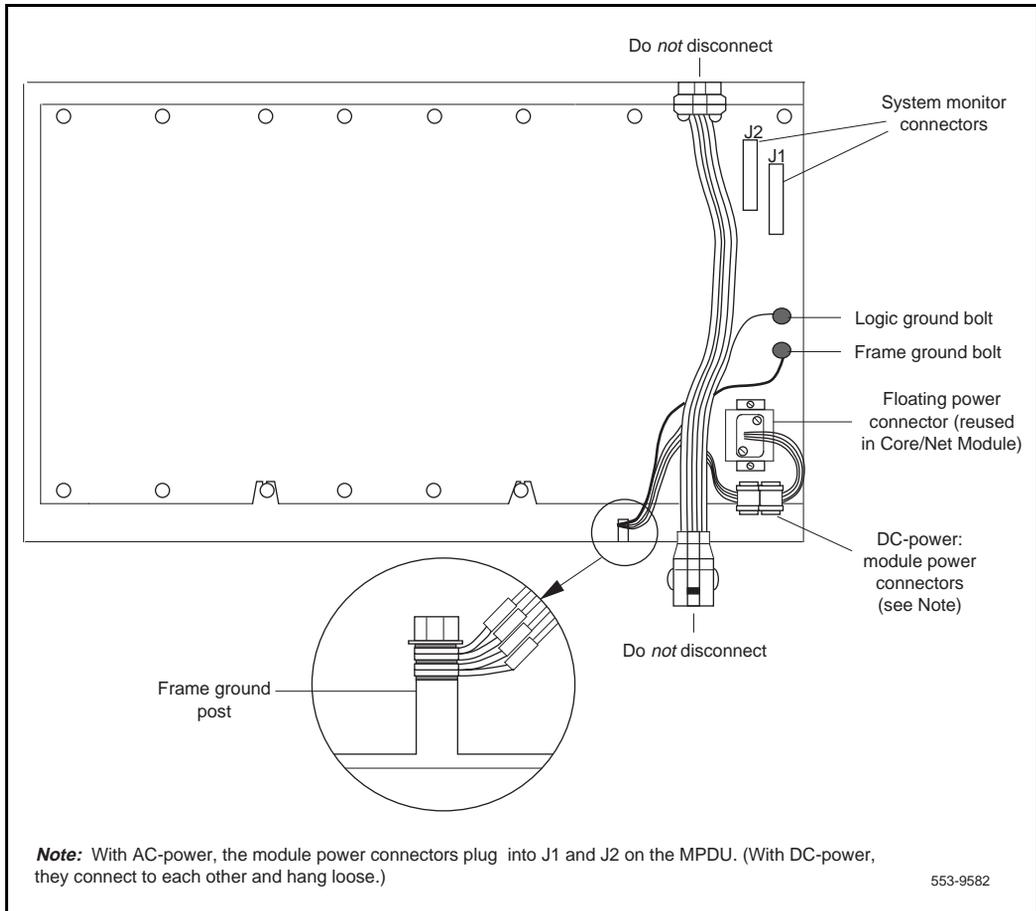
**For AC-powered systems:** set the MPDU circuit breaker at the let end of the module to OFF (top position)

**For DC-powered systems:** set the breaker in the back of the column pedestal to OFF (down position).

## Remove Core 0 cables and card cage

- 1 Label and disconnect all cables to the front of the module. Tape over the contacts to avoid grounding. Tape or tie all cables to the sides so the working area in front of the card cage is totally clear.
- 2 Remove the I/O safety panel by turning the screws on each side. Set the cover aside.
- 3 Tag and disconnect all cables from the backplane to the interior of the I/O assembly.
- 4 Tag and disconnect all plugs, wires, and cables to the backplane.  
**Note 1:** Leave the network cards in the card cage. You will relocate them to the CP PII card cage later in the upgrade procedure.  
**Note 2:** Two people are needed to remove the Core card cage because of the weight of the card cage with the cards left installed.
- 5 Remove the two mounting screws at the bottom rear of the card cage that secure the card cage to the module casting. Keep the screws for use with the CP PII card cage. (You need a 1/4" nut driver to remove the screws.)
- 6 Remove the front trim panels on both sides of the card cage.
- 7 Remove the three mounting screws that secure the front of the card cage to the bottom of the module. Save the screws for use with the CP PII card cage.
- 8 Pull the card cage forward until it is halfway out of the module.
- 9 Disconnect cables, plugs, and wires from the rear of the module to the backplane:
- 10 Remove the logic return (LTRN) (orange) wire from the backplane bolt. Be careful; do not drop the nut or lock washer into the pedestal.  
See Figure 55 on page 274, below, for DC power connectors.  
See Figure 56 on page 275, for AC power connectors.

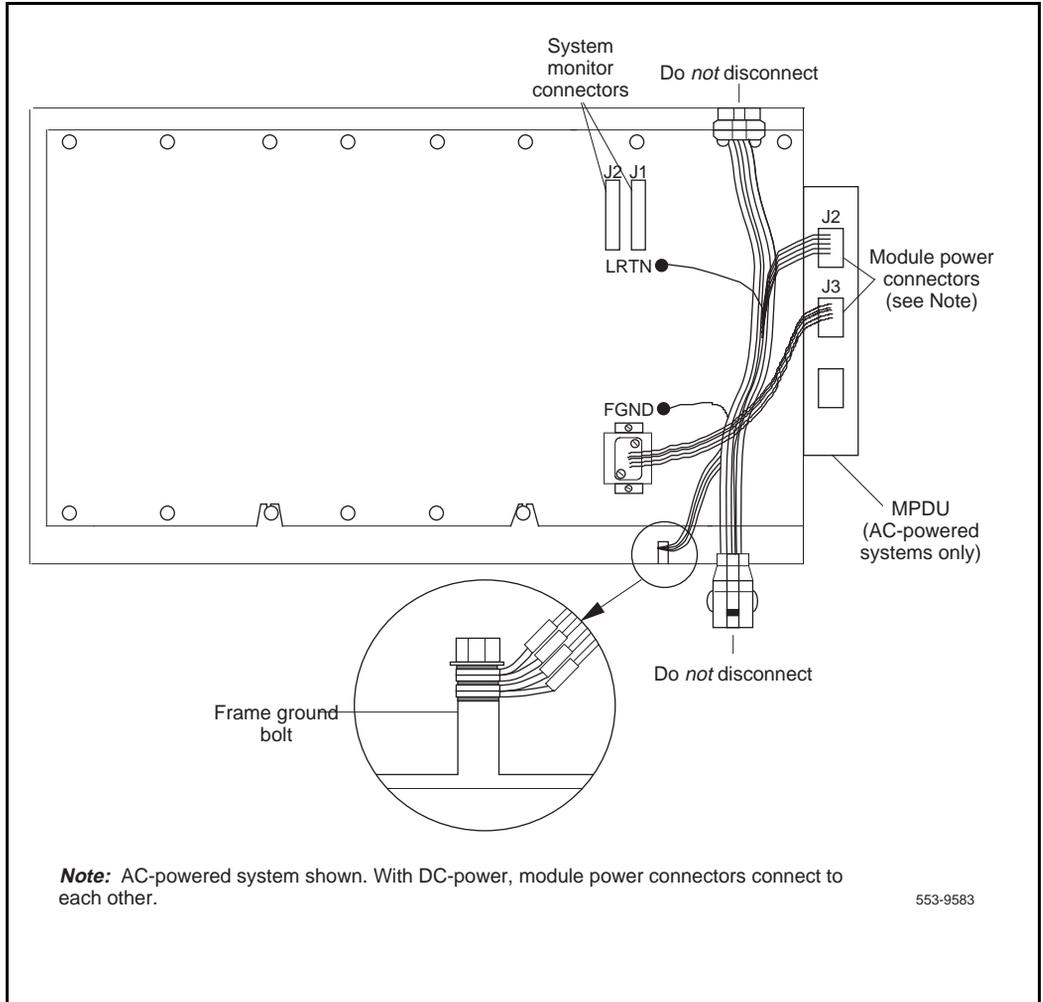
**Figure 55**  
**DC power connectors on the Core module backplane**



**Note:** With AC-power, the module power connectors plug into J1 and J2 on the MPDU. (With DC-power, they connect to each other and hang loose.)

553-9582

**Figure 56**  
**AC power connectors on the Core module backplane**



- 11 Remove the frame ground (FGND) (green) wire from the frame ground bolt on the module.
- 12 Label and disconnect the module power connectors. These are small orange connectors plugged into the module power distribution unit (MPDU) in an AC-powered system, or connected to each other in a DC-powered system.
- 13 Label and disconnect the system monitor ribbon cables to J1 and J2.
- 14 Remove the Core card cage from the module.S
- 15 Remove and reinstall the module to module power harness. The power harness is located at the right rear lower corner and plugs into the rear of the power supply.
  - For AC systems, relocate power harness NT8D80AM.
  - for DC systems, relocate power harness NT7D11.

**CAUTION**

Be sure to perform the following step. If you do not tape the EMI shield in position, you will not be able to install the card cage in the module correctly.

- 16 Reposition the EMI shield (it looks like a brass grill) in the base of the module. Tape over the front mounting tabs to hold the shield in position. You will remove the tape later.
- 17 In AC-power systems only, plug the module power cable (the short harness attached to the module power connector) into connector J3 on the MPDU (attached to the side of the card cage).

**CAUTION**

Check for and remove any debris (such as screws) that may have fallen into the base of the UEM module.

## Install equipment in Core/Net 0

### Task summary list

The following is a summary of the tasks in this section:

- Check that the main Core cards (front side) are installed, page 278
- Check that the Core Transition cards are installed, page 280
- Check for the shelf power cable, page 282
- Install the Security Device, page 283
- Install the NT4N46 Core/Net 0 card cage, page 286
- Cable COM 1 and COM 2 to the I/O panel, page 292
- Connect a terminal and modem to the I/O panel, page 292
- Connect LAN 1, page 292
- Connect LAN 2 in Core/Net 0 to LAN 2 in Core/Net 1, page 293
- Faceplate disable the cCNI cards, page 295
- Faceplate enable the System Utility Main card, page 295
- Option 81C only: Move Network cards to NT4N41 Core/Net 0, page 295
- Install the 3PE cables, page 295

### Equipment check

Check that the following equipment arrives installed in the CP PII card cage:

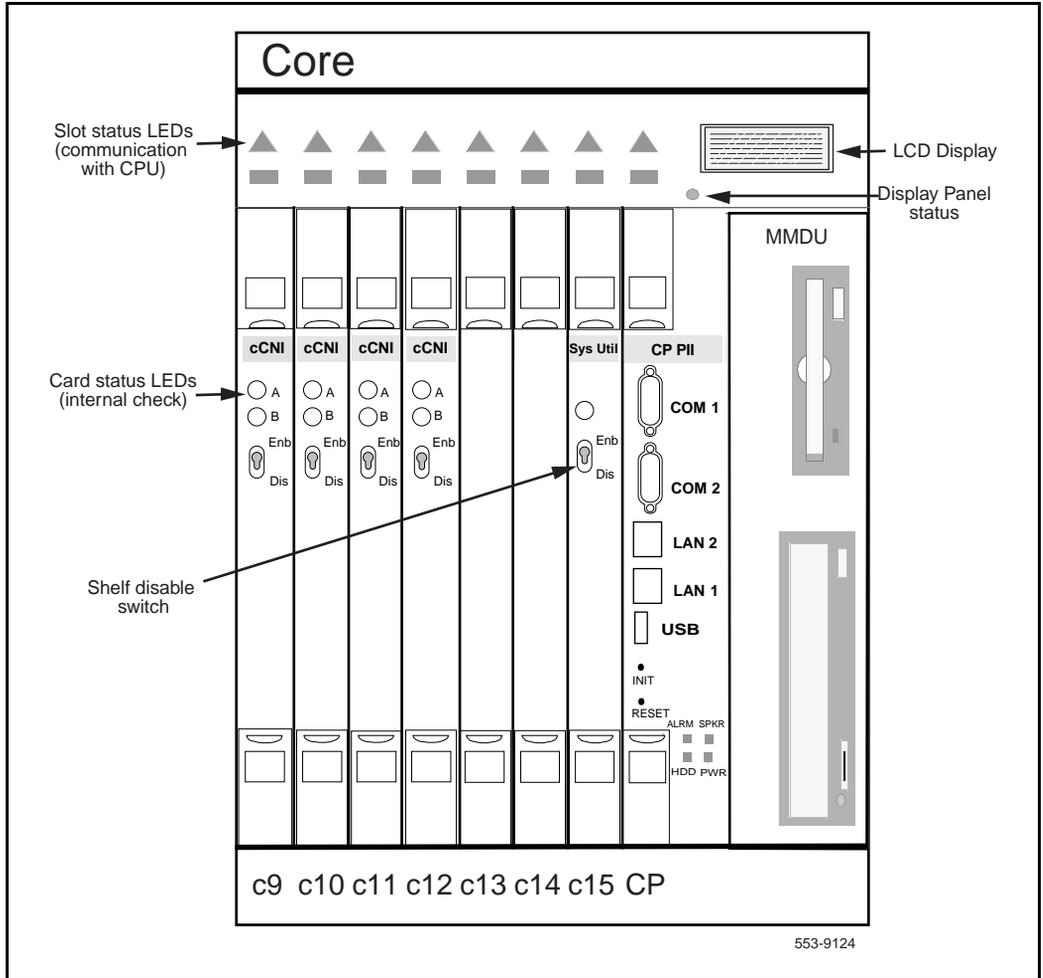
- 1 Check that the main Core cards (front side) are installed, page 278
- 2 Check that the Core Transition cards are installed, page 280
- 3 Check for the shelf power cable, page 282
- 4 Option 81C only: Move Network cards to NT4N41 Core/Net 0, page 295.

## Check that the main Core cards (front side) are installed

The main Core cards including the MMDU (with the cables for power and data) are installed in the factory (see Figure 57 on page 279):

- **NT4N65AA cPCI Core Network Interface (cCNI) cards:** Each system contains between one and four NT4N65 cCNI cards per Core/Net module. The cCNI cards are located in slots c9-c12. If not already installed, install a P0906308 cPCI Card Slot Filler Panel to cover any of slots c10 - c 12 which do not contain cCNIs.
- Slots c13 and c14 are left empty. If not already installed, install a P0906308 cPCI Card Slot Filler Panel in each slot.
- **NT4N67AA System Utility (Sys Util) card** is located in slot c15.
- **A0786611 Call Processor PII (CP II)** is located in the slot marked CP.
- **NT4N43AA cPCI Multi-Media Disk Unit (MMDU)** is located in the extreme right hand slot next to the CP PII card. The MMDU contains the Hard drive, floppy drive and CD-ROM drive.

**Figure 57**  
**Core card placement in the NT4N41 Core/Net (front)**



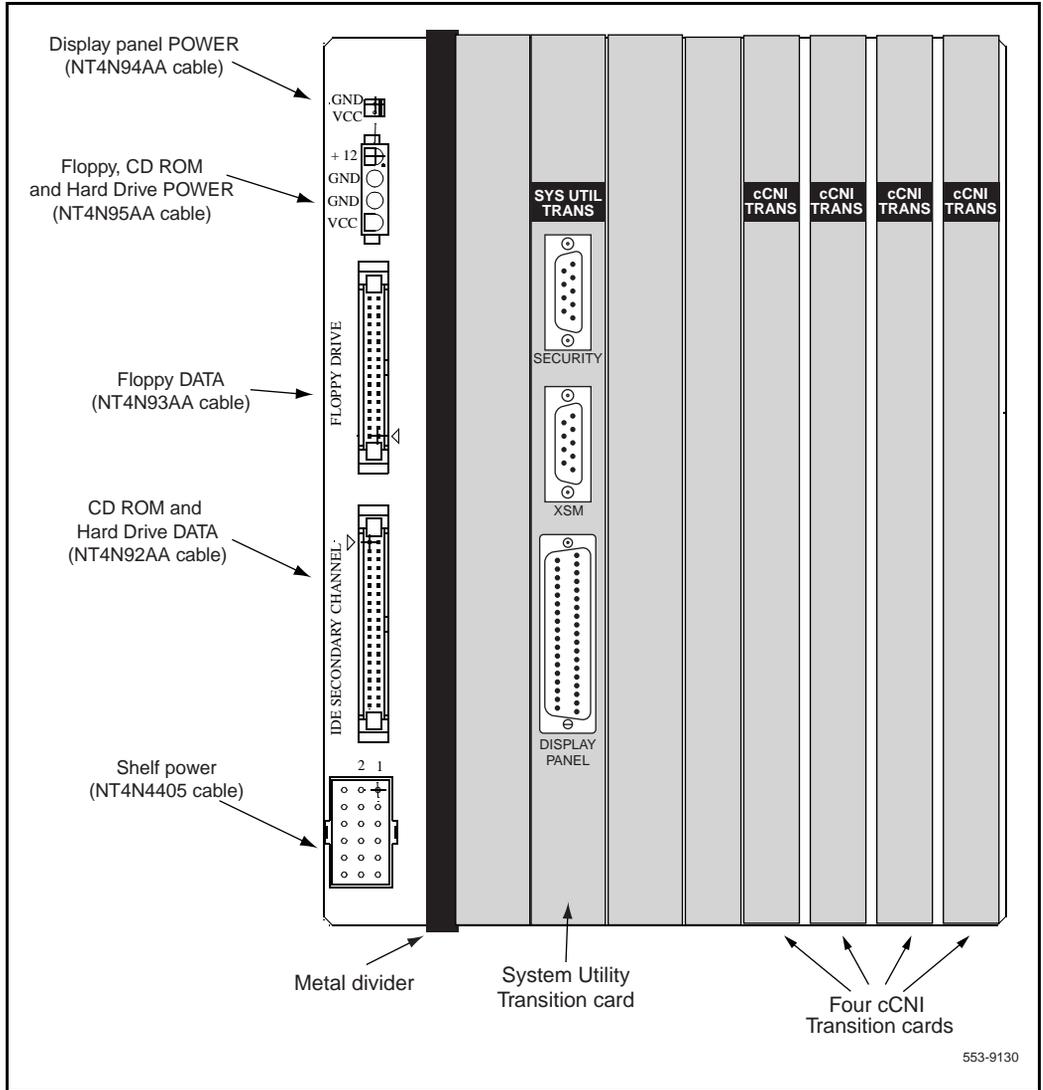
## Check that the Core Transition cards are installed

The Core Transition cards are located directly behind the corresponding main cards (on the rear of the Core backplane). Core Transition cards are installed in the factory:

- **NT4N66AA cCNI Transition cards:** Each system contains four of these cards.
- **NT4N68AA System Utility Transition card:** The System Utility Transition card is installed directly behind the System Utility card and contains connections for the Security Device, the System Monitor (XSM) and the Display Panel.

Figure 58 on page 281 displays the location of the Core Transition cards.

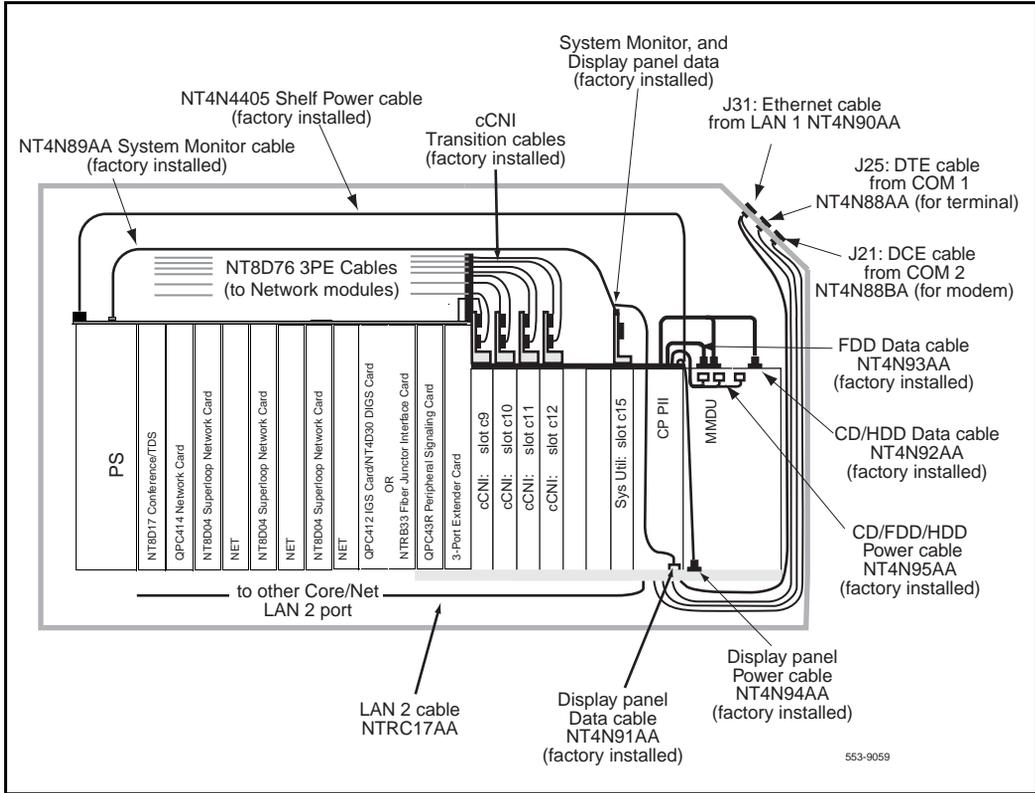
**Figure 58**  
**Location of Transition cards**



## Check for the shelf power cable

Check that the NT4N4405 shelf power cable is installed in the NT4D46 card cage backplane. See Figure 59 on page 282 for the cable location.

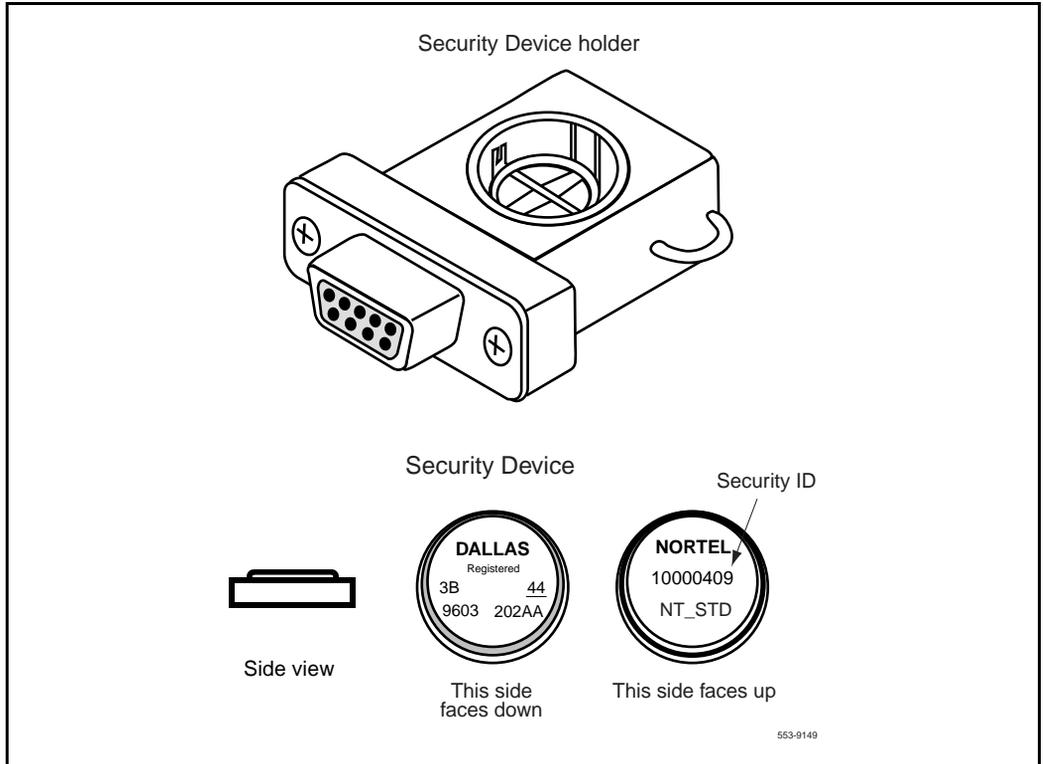
**Figure 59**  
**Core/Net cable connections**



## Install the Security Device

The Security Device fits into the Security Device holder (see Figure 60 on page 283) which attaches to the System Utility Transition card located on the core backplane.

**Figure 60**  
Security Device and holder



To install the Security Device:

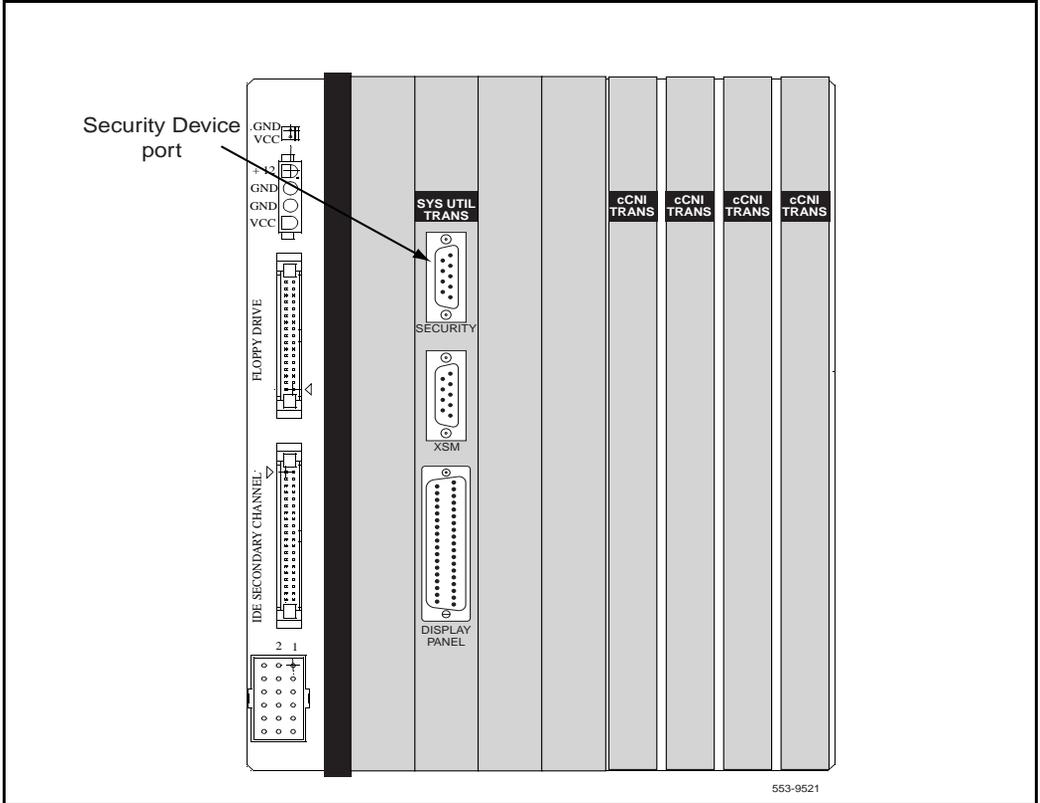
- 1 **If the original system had an IODU/C**, remove the Security Device from the IODU/C for reuse.
  - a Unlock the latches and remove the IODU/C card.
  - b Remove the round 1/2" diameter IODU/C Security Device from the round black Security Device holder on the top right corner of the IODU/C card.

**OR**

**If the original system did not have an IODU/C**, use the Security Device provided with the CP PII Software kit. Locate the Security Device holder in the plastic bag taped to the top of the card cage.

- 2 Insert the Security Device into the Security Device holder with the "Nortel" side facing up. Do not bend the clip more than necessary.
- 3 Insert the assembly (Security Device and holder) between the clips on the top of the System Utility Transition card (Figure 61 on page 285).
- 4 Check that the Security Device is securely in place.

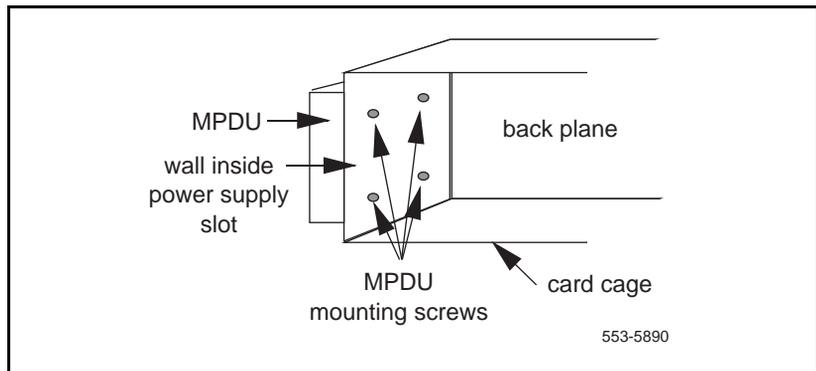
**Figure 61**  
**Security Device installation (System Utility Transition card)**



## Install the NT4N46 Core/Net 0 card cage

- 1 **Check that the card cage is configured as Core 0. See Check the Core ID switches, page 66 for instructions.**
- 2 **For AC-powered systems only**, after the card cage is out of the module, remove the MPDU and reinstall it on the CP PII card cage. Install the new MPDU, part of the cPCI Upgrade kit, to the side on the NT4N46 card cage. The screws that secure the MPDU are accessible from the power supply slot. See Figure 49 on page 239.

**Figure 62**  
**Location of the screws for the MPDU**



- 3 Check that the power harness at the right rear corner of the card cage has been transferred from the old card cage to CP PII card cage.
- 4 Slide the CP PII card cage halfway into the module.
- 5 Hold the card cage firmly and make the following connections at the rear of the module.
  - a In **AC** powered systems, connect the remaining module power connectors to J2 on the MPDU.  
In **DC** powered systems, connect the module power connectors to each other.
  - b Attach the **system monitor** ribbon cables:
    - connect the ribbon cable that goes down to the pedestal to connector **J1** on the backplane.
    - connect the ribbon cable that goes up the column to **J2** on the backplane.

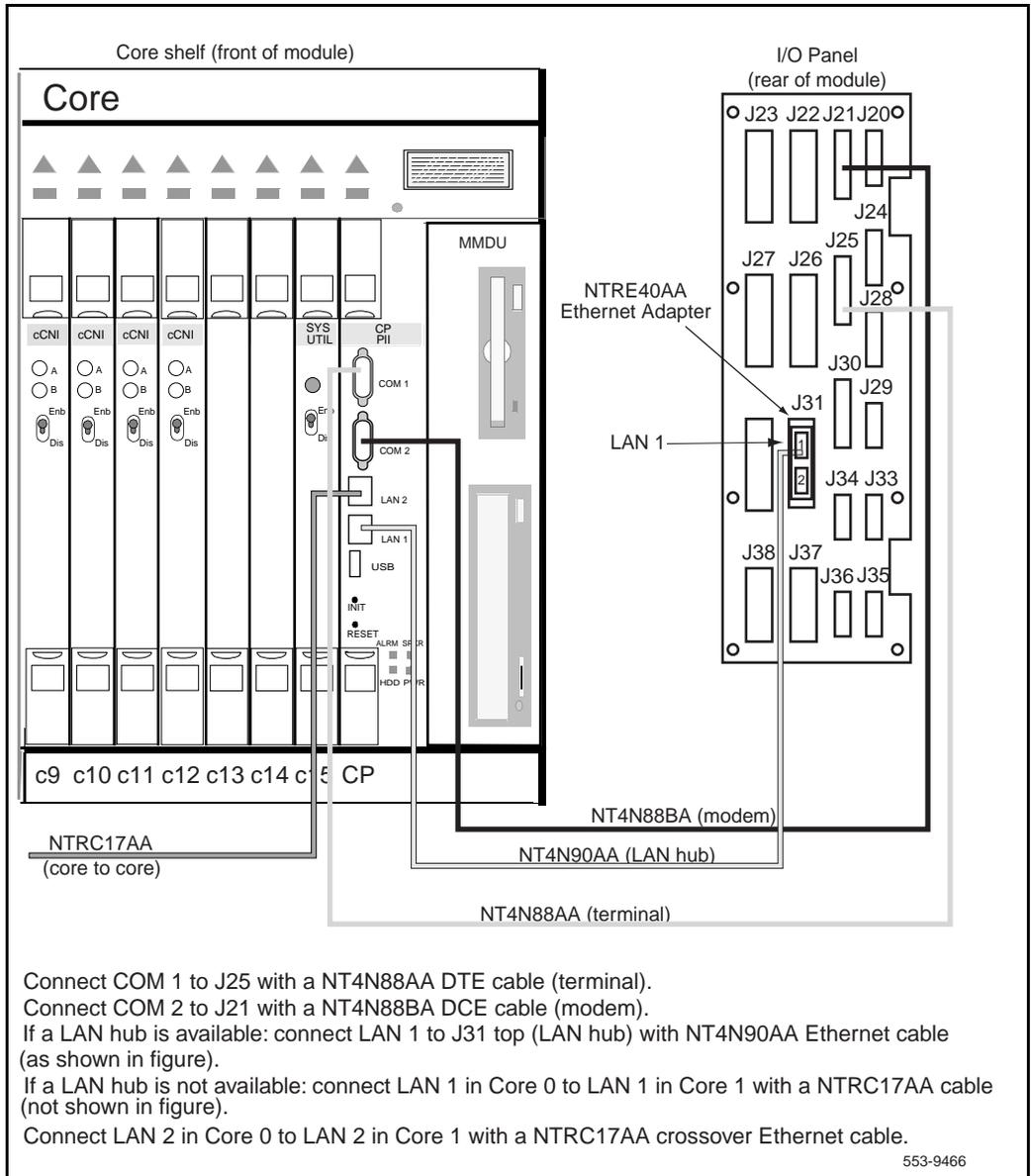
- c Attach the green ground wire to the frame ground bolt on the module. (a 11/32" socket wrench is used to attach the wire.) Remove the nut and the lock washer at the top of the bolt. Put the frame ground wire terminal over the bolt. Reinstall the top lock washer and the nut, then tighten down the nut.

**Note:** For all of the wire terminals to fit on the bolt, remove one of the lock washers. Leave a lock washer at the bottom of the bolt and at the top of the bolt. Leave a third lock washer between the second and third, or the third and fourth, wire terminals.

- d Attach the orange logic return wire. Remove one nut and the lock washer from the LRTN blot at the rear of the card cage. Put the wire terminal over the bolt, reinstall the lock washer and nut, then tighten down the nut. (You need a 1/4" or 2/8" socket wrench.)
- 6 Slide the card cage all the way into the module.
  - 7 Check the position of the EMI shield. If it has shifted, reposition it. Remove the tape holding the EMI shield.

- 8** Pre-route cables NT4N88AA, NT4N88BA and NT4N90AA before you secure the card cage. (See Figure 63 on page 289.)
  - a** Route cable **NT4N88AA** from **COM1** on the CP PII faceplate to **J25** on the I/O panel. (NT4N88AA is used to connect a terminal.)
  - b** Route cable **NT4N88BA** from **COM2** on the CP PII faceplate to **J21** on the I/O panel. (NT4N88BA is used to connect a modem.)
  - c** Route cable **NT4N90AA** from **LAN 1** on the CP PII faceplate to **J31 (top)** of the I/O panel.

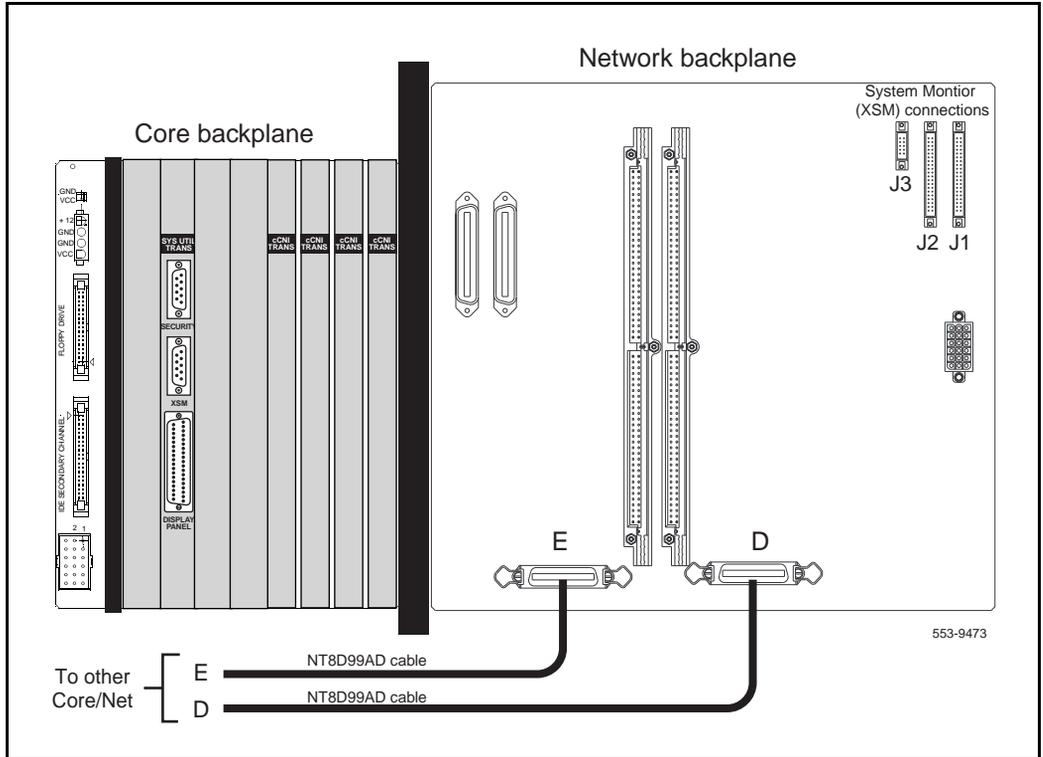
**Figure 63**  
**COM and LAN connections to the Core/Net I/O panel**



553-9466

- 9 Secure the card cage to the module with the three short screws in the front and the two long screws in the rear.  
**Note: You need a minimum 12" long, 3/8" hex head nut driver for the two screws in the rear of the card cage.**
- 10 Replace the front cover plates on both sides of the card cage.
- 11 Install the installing screws at the back of the card cage, the same way you removed them.
- 12 Reconnect cables, plugs, and wires to the backplane:
  - a Connect all plugs, wires, and cables to the backplane. Figure 64 on page 291 shows the existing **D and E cables** that connect the network sides.
  - b Position the I/O safety panel. Tighten the screws
- 13 Install either the NT6D41 DC power supply (see Figure 30 on page 213, for details) or the NT8D29 AC power supply (see Figure 31 on page 214, for details).

**Figure 64**  
**Connections on the Network backplane**



## Cable COM 1 and COM 2 to the I/O panel

- 1 Connect **COM1** on the CP PII faceplate to **J25** on the I/O panel with cable **NT4N88AA**.
- 2 Connect **COM2** on the CP PII faceplate to **J21** on the back of the I/O panel with cable **NT4N88BA**.

## Connect a terminal and modem to the I/O panel

- 1 Connect **J25** to a **terminal** for use during the upgrade. Use a separate terminal for each Core if available. J25 can also be connected to an A/B box to share a terminal between both Cores.
- 2 Connect **J21** to the device connected in the original system (such as a **modem or A/B box**)

## Connect LAN 1

The LAN 1 port is used to enable redundancy features between the two Core/Net modules. LAN 1 can also be connected to a local area network (LAN) for use with LAN based administration tools such as MAT.

The options for the LAN 1 connections are shown in Figure 65 on page 294.

### If the system will be connected to a LAN

- 1 Connect the "**Dual Ethernet Adapter (RJ45) for I/O Panel**" (NTRE40AA) to **J31**. Secure the adapter to J31 with the two screws included in the shipment.  
Insert the adapter from the inside of the I/O panel.
- 2 Connect **LAN 1** (Ethernet) on the CP PII faceplate to **J31 (top)** of the I/O panel with cable **NT4N90AA**. This connection can only be made *after* the Dual Ethernet Adapter is installed (see step 3 above).
- 3 Connect **J31** to a **LAN hub**.

**If a LAN is not available, connect LAN 1 directly to LAN 1**

If a LAN hub is not available, do NOT connect LAN 1 to the I/O panel. The NTRE40AA Adapter and NT4N90AA cable are NOT installed.

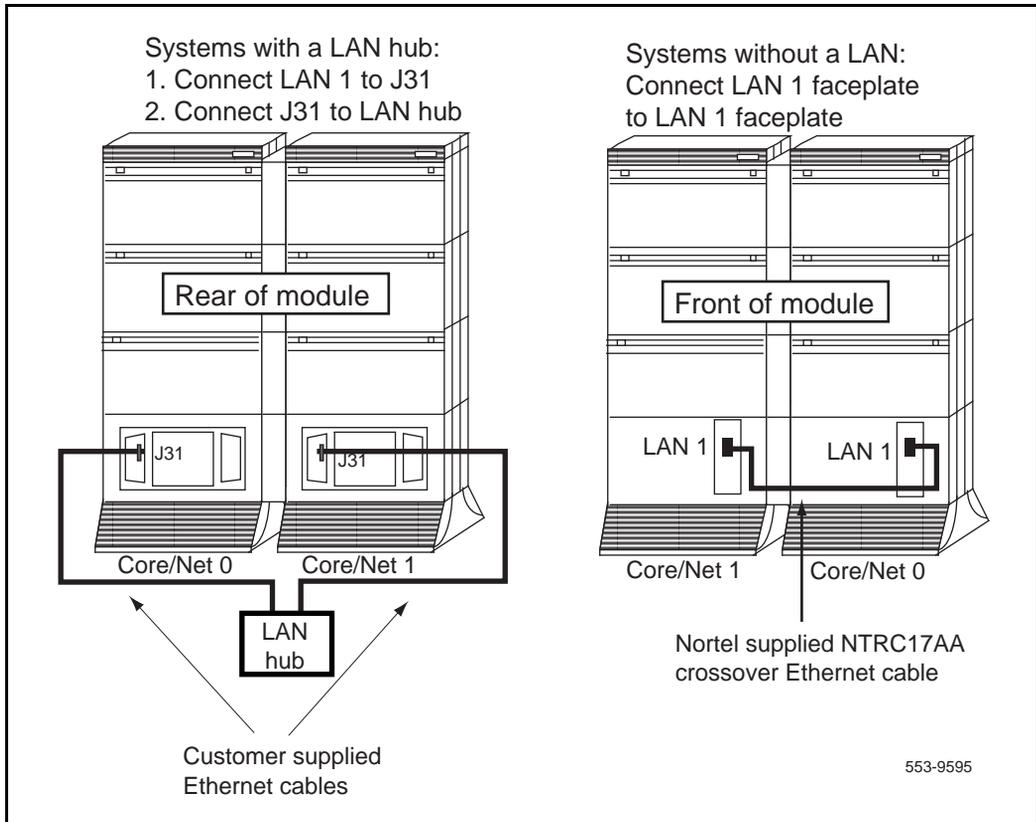
- 1 Connect a **crossover Ethernet cable (NTRC17AA)** to the **LAN 1** port on the CP PII faceplate of Core/Net 0.
- 2 To ensure EMI shielding, route the cable along the front of the card cage and through the sides of the Core/Net modules.
- 3 Connect the other end of the cable to the **LAN 1** port on the CP PII faceplate in Core/Net 1.

**Connect LAN 2 in Core/Net 0 to LAN 2 in Core/Net 1**

The LAN 2 ports on the CP PII faceplates are directly connected with a NTRC17AA cable. This connection is for Core redundancy. See Core redundancy, page 48 for more information on this feature.

- 1 Connect a **crossover Ethernet cable (NTRC17AA)** to the **LAN 2** port on the CP PII faceplate of Core/Net 0. (Figure 63 on page 289).
- 2 To ensure EMI shielding, route the cable along the front of the card cage and through the sides of the Core/Net modules.
- 3 Connect the other end of the cable to the **LAN 2** port on the CP PII faceplate in Core/Net 1.

**Figure 65**  
**Options for LAN 1 connection**



## Faceplate disable the cCNI cards

In Core/Net 0, hardware disable all cCNI cards from the backplane and disable the faceplate switch on all cCNI cards.

## Faceplate enable the System Utility Main card

In Core/Net 0, faceplate enable the System Utility Main card.

## Option 81C only: Move Network cards to NT4N41 Core/Net 0

- 1 Remove each network card from the NT5D21 Core/Net 0.
- 2 Reinstall each card in the same network slot in the NT4N41 Core/Net 0.
- 3 Connect the tagged cables to the relocated cards.

## Install the 3PE cables

NT8D76 cables connect between the Core/Net Termination Panel and the 3PE cards:

- See 3PE Termination Panel, page 52 for detailed information on the slot and Network group assignments.
- This procedure applies to systems with columns in a single row. This procedure does not apply to systems with columns in separate aisles.
- Network group assignments for the cCNI ports in the CP PII card cage must be the same as the original system. Check to make sure that the cables are installed according to the port assignments in the existing database.
- The new NT8D76 3PE cables must be routed and in place before this procedure is begun. Refer to Route the 3PE to cCNI (NT8D76) cables, page 98.
- Remember to label all cables with the connection information. Labels are necessary to perform troubleshooting or future upgrades
- Table 39 on page 298 contains connection information for 3PE faceplates and the Core/Net Termination Panel.
- Figure 67 on page 299 shows the connection information on the Termination Panel.

### Connect the 3PE cables in the shelf 0 Network modules

- 1 Disconnect the old cables from the J3 and J4 connectors on the 3PE cards in shelf 0 of each Network group.
- 2 Connect the new NT8D76 cables to J3 and J4 of the 3PE cards. See Figure 66 on page 297 and Table 39 on page 298 for connection information.
- 3 Connect the new NT8D76 cables to the Termination Panel in Core/Net 1. See Figure 67 on page 299 and Table 39 on page 298.

**Note:** The old, unused CNI to 3PE cables can be removed or left in place. If the cables are left in place, label them “no longer used” and tie them out of the way

- 4 If the system has XSDI cards, reinstall the cards and attach the cables.

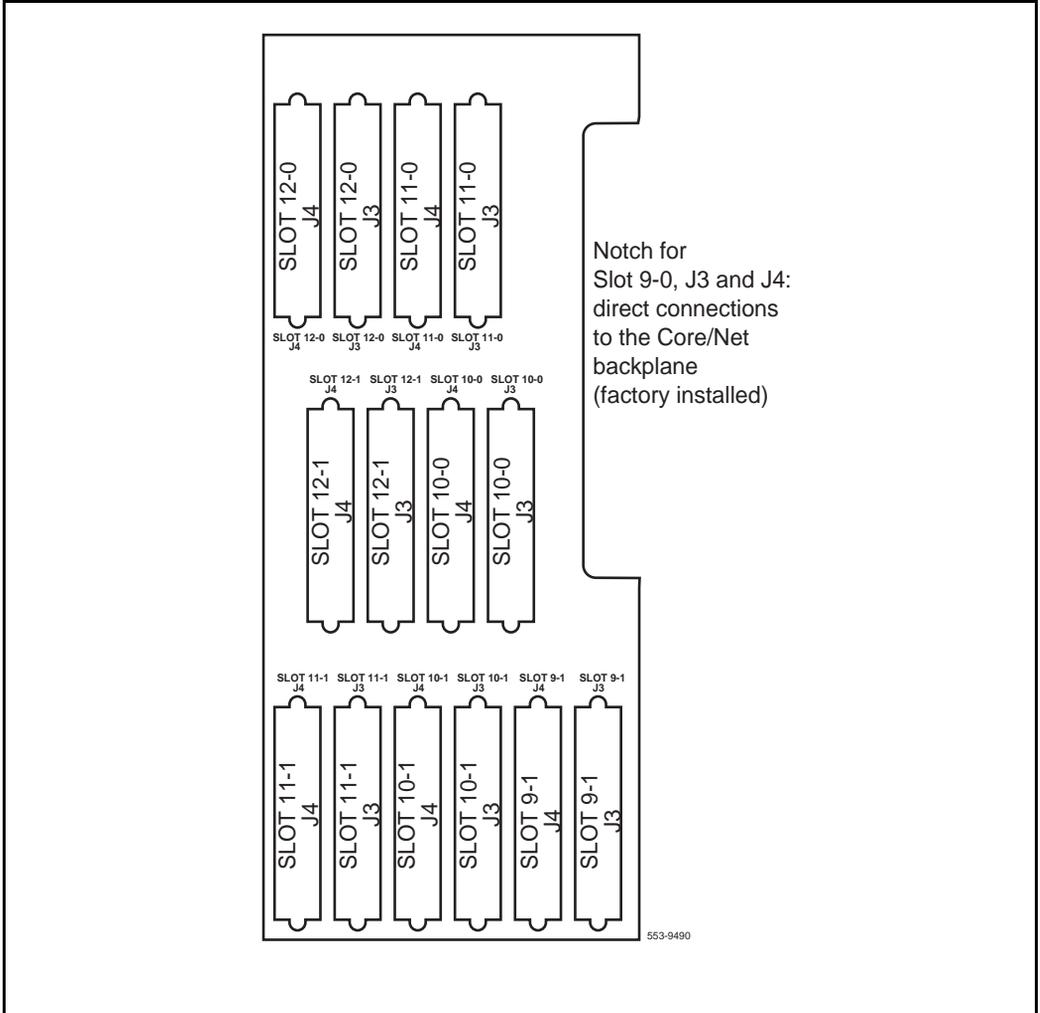


**Table 39**  
**Termination Panel to 3PE card connectors**

| Group Number | Termination Panel connector | 3PE card connector |
|--------------|-----------------------------|--------------------|
| 0            | 9-0                         | See Note.          |
| 0            | 9-0                         | See Note.          |
| 1            | 9-1-J3                      | J3                 |
| 1            | 9-1-J4                      | J4                 |
| 2            | 10-0-J3                     | J3                 |
| 2            | 10-0-J4                     | J4                 |
| 3            | 10-1-J3                     | J3                 |
| 3            | 10-1-J4                     | J4                 |
| 4            | 11-0-J3                     | J3                 |
| 4            | 11-0-J4                     | J4                 |
| 5            | 11-1-J3                     | J3                 |
| 5            | 11-1-J4                     | J4                 |
| 6            | 12-0-J3                     | J3                 |
| 6            | 12-0-J4                     | J4                 |
| 7            | 12-1-J3                     | J3                 |
| 7            | 12-1-J4                     | J4                 |

**Note:** Group 0 cables connect from the cCNI Transition card directly to the backplane of Core/Net 0 **OR** to the NT8D76 cable (depending on your CNI group configuration).

**Figure 67**  
**Connectors for cCNI Transition Cables to the Termination Panel**



## Power up and complete the Core/Net 0 upgrade

### Task summary list

The following is a summary of the tasks in this section:

- Power up the system, page 300
- Confirm that the Network cards are working, page 300
- Install software and convert the database on Core/Net 0, page 300
- Check for Peripheral Software Download to Core/Net 0, page 304
- Check for Peripheral Software Download to Core/Net 0, page 304

### Power up the system

Turn on power to the module:

- **For AC-powered systems**, set the main circuit breaker to ON (top position) in the rear of the pedestal, then set the MPDU circuit breaker located at the left end of the module to ON (top position).
- **For DC-powered systems**, set the breaker to ON (up position) in the pedestal.

### Confirm that the Network cards are working

Confirm that the Network and I/O cards have working power.

### Install software and convert the database on Core/Net 0

- 1 Check that a terminal is connected to J25 on Core/Net 0.
- 2 In Core/Net 0, install the CD-ROM into the CD-ROM drive in the MMDU:
  - a Press the button on the CD-ROM drive to open the CD-ROM disk holder.
  - b Place the CD-ROM disk into the holder with the disk label showing.
  - c Press the button again to close the CD-ROM disk holder.  
**Do not** push the holder in by hand.

**Note:** If the CD-ROM is not in the CD-ROM drive, the installation will not continue. Insert the CD-ROM to continue.

- 3 Place the CP PII Install floppy disk into the MMDU floppy drive.  
**Note:** If a problem is detected during the system verification, Install stops, prints an error message, and aborts the installation. If the verification is not successful, do not continue; contact your technical support organization.
- 4 Press the manual RESET button on the CP PII card faceplate.
- 5 Before the install runs, the system validates hard disk partitioning which takes about five minutes. The screen displays:  
Testing partition 0  
0 percent done...1 percent done.....99 percent done....100 percent done  
Testing partition 1  
0 percent done...1 percent done.....99 percent done....100 percent done  
Testing partition 2  
0 percent done...1 percent done.....99 percent done....100 percent completed!  
Disk physical checking is completed!  
There are 3 partitions in disk 0:  
The size of partition 0 of disk 0 is XX MB  
The size of partition 0 of disk 0 is XX MB  
The size of partition 0 of disk 0 is XX MB  
Disk partitions and sectors checking is completed!
- 6 At the terminal, press <cr> to start the software installation.
- 7 When prompted, remove the CP PII Install Program diskette and insert the Keycode diskette.  
<a> Continue with keycode validation  
<y> Confirm that the keycode matches the CD-ROM release
- 8 When the screen displays the Install Menu, select the following options in sequence when prompted to do so:  
<b> Install software, database, and CP-BOOT ROM  
<a> Verify that the CD-ROM is now in drive  
The Installation Status Summary screen appears that lists the options to be installed.  
<a> Continue with Upgrade

- 9 Select a PSDL file to install. The PSDL file contains the loadware for all downloadable cards in the system and loadware for M3900 series sets.

**Select one of the six psdl files**

- <1> Global 10 Languages <default>
- <2> Western Europe 10 Languages
- <3> Eastern Europe 10 Languages
- <4> North America 6 Languages
- <5> RIs 24 up-issue
- <6> North America 6 Languages:

The languages contained in each selection are outlined as follows:

- 1 English, French, German, Spanish, Swedish, Italian, Norwegian, Brazilian, Portuguese, Finnish, Japanese Katakana.
- 2 English, French, German, Spanish, Swedish, Norwegian, Danish, Finnish, Italian, Brazilian Portuguese.
- 3 English, French, German, Dutch, Polish, Czech, Hungarian, Russian, Latvian, Turkish.
- 4 English, Spanish, French, Brazilian Portuguese, Japanese Katakana, German.
- 5 English, French, German, Spanish, Swedish, Italian, Norwegian, Portuguese, Finnish, Japanese Katakana.
- 6 English, French, German, Spanish, Brazilian Portuguese, Japanese Katakana.

**10** Continue with upgrade when prompted. Select a database to install.

**<cr>** Enter carriage return to continue.

**<a>** Continue with CP BOOTROM installation

**<a>** Install the CP BOOTROM from hard disk

**<a>** Start installation

**<a>** Continue with ROM upgrade

The Installation Status Summary screen appears. Verify that CD to disk, disk to ROM, Database, and CP-BOOTROM were installed.

**<cr>** Continue

**<q>** Quit (remove any diskettes and the CD-ROM from the MMDU drives)

**<y>** Confirm quit

**<a>** Reboot the system

The system will automatically perform a sysload: several messages appear on the system terminal. Wait for "DONE" and then "INI" messages to display before you continue.

While the sysload is being performed, database conversion occurs.

Verify that the following message appears on the system terminal:

DATA CONVERSION

X11 RELEASE XX.XX TO RELEASE 25.

Confirm that the X11 Release 25 software is installed and functional on Core/Net 0:

**LD 135** to load the program

**STAT CPU** to display the CPU status

## Check for Peripheral Software Download to Core/Net 0

Load LD 22 and print Target peripheral software version. (the Source peripheral software version was printed during the procedure to Print site data, page 68.

If there is a difference between the Source and Target peripheral software version:

- A forced download occurs during initialization when coming out of parallel reload.
- System initialization takes longer.
- The system drops established calls on IPE.

### LD 22

|             |                                     |
|-------------|-------------------------------------|
| <b>REQ</b>  | PRT.                                |
| <b>TYPE</b> | PSWV.                               |
| <b>ISSP</b> | Print System and Patch Information. |
| <b>SLT</b>  | Print System Limits.                |
| <b>TID</b>  | Print the Tape ID.                  |
| <b>****</b> | Exit program.                       |

## Enable cCNI cards and reboot Core/Net 0

- 1 Enable the cCNIs on Core/Net 0.
- 2 Reboot Core/Net 0.

*Note:* Once the *inactive* Core (Core/Net 0) is rebooted, the system will operate in full redundant mode.

**3 For Option 71 only:**

- a In the Configuration Record (LD 17), add LD 135 and LD 137 to the midnight routines. Remove LD 35 but leave LD 37 selected.
- b Check the status of the clocks, swap clocks, and verify status:

|               |                                            |
|---------------|--------------------------------------------|
| <b>LD 60</b>  | To load the program.                       |
| <b>SSCK 0</b> | Get the status of Clock Controller 0.      |
| <b>SSCK 1</b> | Get the status of Clock Controller 1.      |
| <b>SWCK</b>   | Swap active clocks.                        |
| <b>SSCK 0</b> | Confirm that Clock Controller 0 is active. |
| <b>SSCK 0</b> | Confirm that Clock Controller 1 is active. |
| <b>****</b>   | Exit the program.                          |

## Complete the CP PII upgrade

### Task summary list

The following is a summary of the tasks in this section:

- Test Core/Net 1 and Core/Net 0, page 306
- Perform a data dump, page 308

### Test Core/Net 1 and Core/Net 0

**From Core/Net 1**, perform these tests for both Cores:

- 1 Perform a redundancy sanity test:  
**LD 135**  
**STAT CPU** Get status of CPU and memory.  
**TEST CPU** Test the CPU.
- 2 Check the LED and LCD states
  - a Perform a visual check of the LEDs and LCDs.
  - b Test LEDs and LCDs:  
**LD 135**  
**TEST LEDs** Test LEDs.  
**TEST LCDs** Test LCDs.  
**DSPL ALL**
  - c Check that the LED and LCD displays match the software check.
- 3 Test the System Utility cards and the cCNI cards:  
**LD 135**  
**STAT SUTL** Get the status of the System Utility (main and Transition) cards.  
**TEST SUTL** Test the System Utility (main and Transition) cards.  
**STAT CNI c s** Get status of cCNI cards (core, slot).  
**TEST CNI c s** Test cCNI (core, slot).

- 4 Switch Cores and repeat the tests to confirm that the data is consistent.:
- LD 135**
- SCPU** Switch cores.
- STAT CPU** Get status of the CPU.
- TEST CPU** Test the inactive Core.
- TEST LEDs** Test LEDs.
- TEST LCDs** Test LCDs.
- DSPL ALL**
- STAT SUTL** Get status of System Utility (both main and Transition) cards.
- TEST SUTL c s** Test System Utility cards, both main and Transition cards.
- STAT CNI c s** Get status of cCNI cards, both main and Transition cards (core, slot).
- TEST CNI c s** Test cCNI cards, both main and Transition cards (core, slot).
- 5 Test system redundancy:
- LD 137**
- TEST RDUN** Test redundancy.
- DATA RDUN**
- TEST CMDU** Test the MMDU card.
- 6 Install the two system monitors. Test that the system monitors are working.:
- LD 37** Load the program.
- STAT XSM** Check the system monitors
- \*\*\*\* Exit the program.
- 7 Clear the display and minor alarms on both Cores:
- LD 135**
- CDSP** Clear the displays on the cores.
- CMAJ** Clear major alarms.
- CMIN ALL** Clear minor alarms.

- 8 Get the status of the Cores, cNIS, and memory.
  - STAT CPU** Get the status of CPUs and redundancy.
  - STAT CNI c s** Get the status of cCNI cards (core, slot).

*Note:* You may need to execute the STAT CNI command twice before receiving a response from the system.

\*\*\*\* Exit program.

## Perform a data dump

Perform a data dump to backup the customer database:

- 1 Log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter
  - LD 43** Load the program.
- 3 Insert a floppy disk into the MMDU to back up the database.
- 4 When "EDD000" appears on the terminal, enter
  - EDD** Begin the data dump.
- 5 When "DATADUMP COMPLETE" and "DATABASE BACKUP COMPLETE" appear on the terminal, enter
  - \*\*\*\* Exit the program.

### CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. You must correct a data dump problem before you continue.

**The Option 71/81/81C upgrade to Option 81C with CP PII is complete.**

---

# Upgrade Option 81/81C Fiber Network Fabric to Option 81C Call Processor PII

---

## Content list

The following are the topics in this section:

- [Check minimum system requirements](#) . . . . . 312
- [Prepare for upgrade](#) . . . . . 317
- [Disable Core 1](#) . . . . . 317
- [Disable and remove equipment from Core 1](#) . . . . . 320
- [Install equipment in Core/Net 1](#) . . . . . 329
- [Power up and complete the Core/Net 1 installation](#) . . . . . 346
- [Disable and remove equipment from Core 0](#) . . . . . 356
- [Install equipment in Core/Net 0](#) . . . . . 363
- [Power up and complete the Core/Net 0 upgrade](#) . . . . . 380
- [Complete the CP PII upgrade](#) . . . . . 385

This chapter describes how to upgrade an Option 81 with Fiber Network Fabric or an Option 81C with Fiber Network Fabric to an Option 81C with Call Processor PII (CP PII).

For an Option 81 upgrade to CP PII, the existing common equipment card cage is replaced with the CP PII NT4N46AA Core/Net card cages. Of the existing common equipment cards, only the Clock Controller cards, Network cards, DTI cards, and, PRI cards are reused. Figure 68 on page 311 shows an Option 81 upgrade to CP PII.

For an Option 81C upgrade to CP PII, the existing Core/Net card cages are

replaced with CP PII Core/Net card cages. All equipped cards in the Network shelf are relocated to the same card slots in the new card cage.

Additional software packages are required for Option 81 and Option 81C upgrades to CP PII.

### **NT4N46 card cage upgrade**

To upgrade an Option 81/81C FNF system to CP PII, the Core/Network card cages are upgraded to NT4N46 card cages.

The card cage upgrade is performed first on Core 1, and then on Core 0.

#### **WARNING**

**Follow all the procedures carefully and in sequence. Failure to follow the specific installation and configuration procedures will result in system failure and increased downtime.**

### **System downtime**

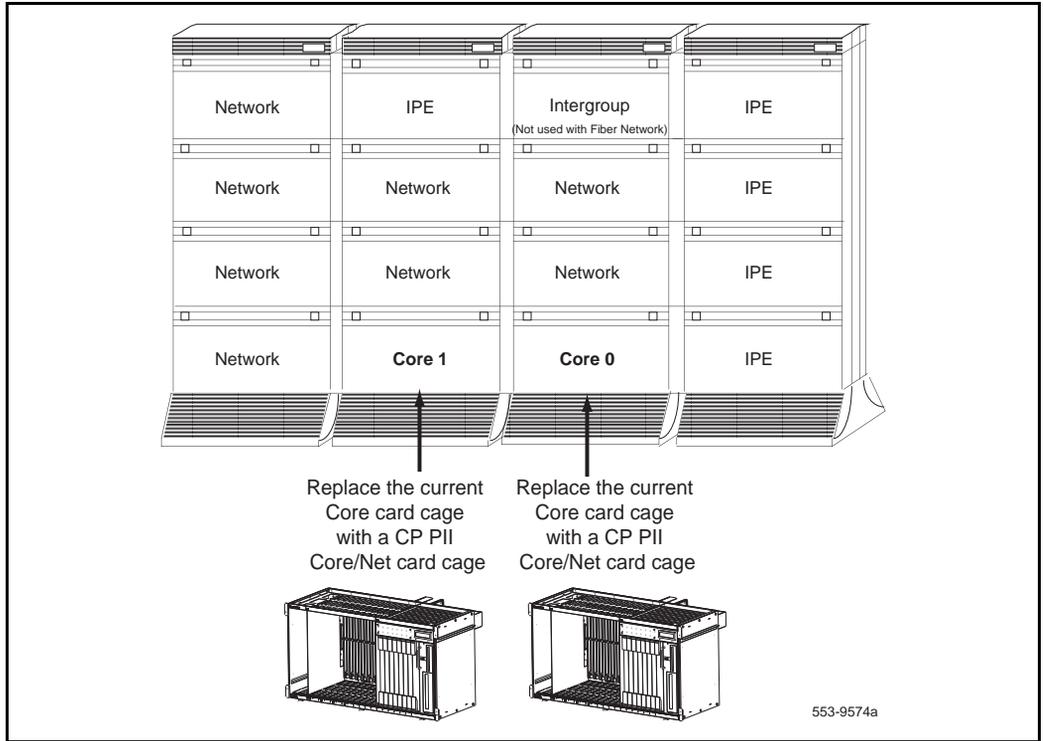
Although system downtime is required, this procedure minimizes the loss of call processing. Follow the instructions in this chapter carefully to ensure a successful upgrade.

#### **CAUTION**

The upgrade requires system downtime. Schedule for system downtime when planning the system upgrade.

Always wear the static discharge bracelet (located inside the cabinet) before you handle circuit cards. Failure to wear the bracelet can result in damage to the circuit cards.

**Figure 68**  
**Option 81 upgrade to CP PII**



To upgrade an Option 81C Fiber Network Fabric (FNF) system to Call Processor PII (CP PII), carefully follow the sequence of instructions in this chapter.

## Check minimum system requirements

### Task summary list

The following is a summary of the tasks in this section:

- Check received equipment, page 312
- Required software, page 312
- Vintage requirements for existing hardware, page 313
- Required hardware, page 314
- Required power equipment, page 315
- Required tools, page 316
- Required personnel, page 316

This section describes the minimum equipment required to upgrade an Option 81C FNF to CP PII. Additional equipment for increased Network capacity must be ordered separately from the basic upgrade package described below.

### Check received equipment

Before the upgrade, check that the equipment on the order form is also on the packing slip. Check that all equipment has been received. If any items are missing, contact your supplier for replacements before you begin the upgrade.

#### **CAUTION**

DO NOT proceed with the upgrade if any of the required equipment is missing. All equipment must be received to complete the upgrade.

### Required software

The following software packages are required to upgrade an Option 81 FNF or an Option 81C FNF to CP PII:

- Call Processor PII software package 368
- Option 81C Software package 299 (for an Option 81 only)
- Software Install Kit

## Vintage requirements for existing hardware

Check the list below to ensure that existing hardware meets the minimum vintage requirements for CP PII.

If any of the equipment does not meet the requirements, replace the equipment before beginning the upgrade.

### **WARNING**

Equipment that does not meet the minimum vintage requirements will cause system malfunctions and loss of call processing.

- The QPC441 **3-Port Extender (3PE)** cards must be minimum vintage F.
- The QPC471 **Clock Controller** cards must be minimum vintage H.
- The QPC775 **Clock Controller** cards (all countries except USA) must be minimum vintage E.
- The QPC43 **Peripheral Signaling** cards must be minimum vintage R.

## Required hardware

Table 40 on page 314 describes the *minimum* equipment required to upgrade a system to CP PII. Table 41 on page 315 and Table 42 on page 316 list the DC and AC power equipment requirements. Additional equipment for increased Network capacity is ordered separately.

**Table 40**  
**Minimum requirements for Option 81C FNF to CP PII upgrades**

| Order number | Description                                 | Quantity per system |
|--------------|---------------------------------------------|---------------------|
| A0810496     | CP PII Call Processor card (128MB Memory)   | 2                   |
| NT4N65AB     | cPCI Core Network Interface card (2 ports)  | 2                   |
| NT4N66AB     | cPCI Core Network Interface Transition card | 2                   |
| NT4N67AA     | cPCI System Utility card                    | 2                   |
| NT4N68AA     | cPCI System Utility Transition card         | 2                   |
| NT4N88AA     | CP PII to I/O Panel DTE Cable (48 in.)      | 2                   |
| NT4N88BA     | CP PII to I/O Panel DCE Cable (48 in.)      | 2                   |
| NT4N90AA     | CP PII to I/O Panel Ethernet Cable (48 in.) | 2                   |
| NT4N43AA     | cPCI Multi-Media Disk Unit                  | 2                   |

**Table 40**  
**Minimum requirements for Option 81C FNF to CP PII upgrades**

| Order number | Description                                 | Quantity per system |
|--------------|---------------------------------------------|---------------------|
| NTRC17AA     | CP PII Ethernet to Ethernet Cable (8.5 ft.) | 2                   |
| P0745716     | Rear I/O Panel                              | 2                   |
| P0906308     | cPCI Card Slot Filler Panel                 | 16                  |
| NTRE40AA     | Dual Ethernet Adapter (RJ45) for I/O Panel  | 2                   |
| NT4N89AA     | System Utility to XSM Cable                 | 2                   |
| NT4N46AA     | cPCI Core/Network Card Cage AC/DC           | 2                   |
| NT8D76BE     | IGS to IGM or cCNI to 3PE Cable (6 ft.)     | 2                   |
| NT8D76BF     | IGS to IGM or cCNI to 3PE Cable (10 ft.)    | 2                   |
| NT8D99AD     | CPU to Network cable (6 ft.)                | 2                   |
| NT4N6809     | Security Device Holder                      | 2                   |

### Required power equipment

Table 41 on page 315 lists the equipment required for DC powered systems.

Table 42 on page 316 lists the equipment required for AC powered systems.

**Table 41**  
**DC power requirements for Option 81C FNF to CP PII upgrades**

| Order number | Description                                      | Quantity per system |
|--------------|--------------------------------------------------|---------------------|
| NT6D41CA     | cPCI Core/Network Power Supply DC                | 2                   |
| NT4N97BA     | cPCI Upgrade Kit DC (Misc. Card Cage Components) | 2                   |

**Table 42**  
**AC power requirements for Option 81C FNF upgrades**

| Order number | Description                                      | Quantity per system |
|--------------|--------------------------------------------------|---------------------|
| NT8D29BA     | Core/Network Power Supply AC                     | 2                   |
| NT4N97AA     | cPCI Upgrade Kit AC (Misc. Card Cage Components) | 2                   |

### **Required tools**

With standard tools required to service a Meridian 1, use the following special tools for the upgrade:

- a 12" long, 3/8" hex head nut driver (to secure the screws in the back of the card cage)
- a flashlight

### **Required personnel**

Nortel Networks recommends that two people perform the card cage upgrade.

## Prepare for upgrade

Follow the Task Summary list instructions under the heading for Prepare for upgrade for Option 81/81C FNF to Option 81C CP PII, page 57 and return to Disable Core 1, page 317.

## Disable Core 1

### Task summary list

The following is a summary of the tasks in this section:

- Check that Core 0 is active, page 317
- Check that Clock Controller 0 is active, page 318
- Check that Ring 0 is active, page 318
- Split the Cores, page 319

### Check that Core 0 is active

To upgrade Core 1, verify that Core 0 is the active side performing call processing:

- 1 Verify that Core 0 is active.  
**LD 135** to load the program  
**STAT CPU** Get the status of the CPUs
- 2 If Core 1 is active, make Core 0 active:  
**SCPU** switch to Core 0 (if necessary)  
**\*\*\*\*** Exit the program

## Check that Clock Controller 0 is active

- 1 Check the status of the Clock Controllers.  
**LD 60** to load the program  
**SSCK 0** to get the status of Clock Controller 0  
**SSCK 1** to get the status of Clock Controller 1
  
- 2 If Clock Controller 1 is active, switch to Clock Controller 0.  
**SWCK** If necessary, switch to Clock Controller 0  
**DIS CC 1** to disable Clock Controller 1  
**\*\*\*\*** to exit the program

## Check that Ring 0 is active

- 1 Check the status of Ring 0.  
**LD 39** to load the program  
**STAT RING 0** to get the status of Ring 0. Ring state should be HALF/HALF.
  
- 2 Disable Ring auto recovery.  
**LD 39** to load the program  
**ARCV ON/OFF** Set or reset auto-recovery operation for ring
  
- 3 Swap to Ring 0.  
**LD 39** to load the program  
**SWRG 0** Switch call processing to ring 0
  
- 4 Disable Ring 1.  
**LD 39** to load the program  
**DIS RING 1** Disables all FIJI cards on side 1

## Split the Cores

Split the Cores and transfer call processing to Core 0:

- 1 In **Core 0**, set the NORM/MAINT switch on the CP card to MAINT.
- 2 In **Core 1**, set the ENB/DIS switch on all NT6D65 CNI cards to DIS.
- 3 In **Core 1**, set the NORM/MAINT switch on the CP card to MAINT.

The system is now in split mode, with call processing on Core 0.

## Disable and remove equipment from Core 1

### Task summary list

The following is a summary of the tasks in this section:

- Software disable Network cards in Core/Net 1 (Option 81C only), page 320
- Remove the system monitors from Core 1 and Core 0, page 323
- Turn Core 1 module power OFF, page 324
- Remove Core 1 cables and card cage, page 324

### Software disable Network cards in Core/Net 1 (Option 81C only)

For Option 81 system, go to **Remove the system monitors from Core 1 and Core 0**, page 323.

Software disable all DTI/PRI cards in the network slots of Core/Net 1.

**WARNING**

**At this point, the upgrade interrupts service.**

Cards in the Network slots include the following:

- NT8D04 Superloop Network card
- QPC414 Network card
- QPC441 Three-Port Extender (3PE) card
- QPC43R Peripheral Signaling card
- QPC412 InterGroup Switch (IGS) card/NT5D30AA Dual InterGroup Switch (DIGS) card
- QPC513 Enhanced Serial Data Interface (ESDI) card
- NT8D41 Extended Serial Data Interface (XSDI) card
- QPC536 Digital Trunk Interface (DTI) card
- NT8D72 Primary Rate Interface (PRI) card
- NT6D80 Multipurpose Serial Data Link (MSDL) card

**Software disable FIJI cards in network slots of Core/Net 1:**

**1 In Core/Net 1 only**, disable FIJI cards:

**a** Disable Ring auto recovery:

**LD 39** to load the program

**ARCV ON/OFF** Set or reset auto-recovery operation for ring.

**b** Switch traffic to the Ring that does not contain the FIJI card:

**SWRG 0** "Switch the Ring that DOES NOT contain the FIJI card to the Drives Full Ring State.

**\*\*\*\*** exit the program

**c** Disable Ring 1 and make Ring 0 full.

**LD 39** to load the program

**DIS RING 1** Disable all FIJI cards on side 1

**\*\*\*\*** exit the program

- d The Clock Controller on the Ring that contains the FIJI card to be disabled must be inactive.

Switch clocks if necessary.

**LD 60** to load the program  
**SSCK 0** Check the status of the Clock Controller  
**SWCK** Switch the active clock, if necessary  
**\*\*\*\*** exit the program

- e Set the ENB/DIS switch on the FIJI card to DIS.

- f Unplug the cables to the FIJI card in Core/Net 1.

- 2 **In Core/Net 1 only**, software disable all network and I/O cards such as XNET, TTY, Conf/TDS and ISDN cards:

- a **In Core/Net 1 only**, disable XNET.

- b **In Core/Net 1 only**, disable ENET.

- c **In Core/Net 1 only**, software disable each port on the SDI cards:

**LD 37** to load the program  
**DIS TTY x** x = the number of the interface device attached to a port  
**\*\*\*\*** Exit the program

**CAUTION**

If the system terminal is assigned to an SDI port that you are disabling, assign it to another port before you disable the SDI.

- d **In Core/Net 1 only**, disable DTI cards.

- e **In Core/Net 1 only**, disable PRI cards.

- f **In Core/Net 1 only**, disable MSDL cards.

- 3 **In Core/Net 1 only**, software disable the QPC43 Peripheral Signaling Card:

**LD 32** to load the program  
**DSPS x** Table 43 on page 323 lists Peripheral Signaling Card numbers specified by "x"  
**\*\*\*\*** Exit the program

**Table 43**  
**Peripheral Signaling Card numbers**

| <b>Group/<br/>shelf</b> | <b>Peripheral<br/>Signaling Card</b> | <b>Loops<br/>disabled/enabled</b> |   |     |
|-------------------------|--------------------------------------|-----------------------------------|---|-----|
| 0 / 0                   | 0                                    | 0                                 | – | 15  |
| 0 / 1                   | 1                                    | 16                                | – | 31  |
| 1 / 0                   | 2                                    | 32                                | – | 47  |
| 1 / 1                   | 3                                    | 48                                | – | 63  |
| 2 / 0                   | 4                                    | 64                                | – | 79  |
| 2 / 1                   | 5                                    | 80                                | – | 95  |
| 3 / 0                   | 6                                    | 96                                | – | 111 |
| 3 / 1                   | 7                                    | 112                               | – | 127 |
| 4 / 0                   | 8                                    | 128                               | – | 143 |
| 4 / 1                   | 9                                    | 144                               | – | 159 |
| 5 / 0                   | 10                                   | 160                               | – | 175 |
| 5 / 1                   | 11                                   | 176                               | – | 191 |
| 6 / 0                   | 12                                   | 192                               | – | 207 |
| 6 / 1                   | 13                                   | 208                               | – | 223 |
| 7 / 0                   | 14                                   | 224                               | – | 239 |
| 7 / 1                   | 15                                   | 240                               | – | 255 |

- 4**     **In Core/Net 1 only**, disable the 3PE card:  
Set the ENB/DIS switch on the 3PE card to DIS.

## **Remove the system monitors from Core 1 and Core 0**

- 1**     For an Option 81 only, disable ISDN PRI/DTI cards:  
**LD 60**           to load the program  
**DISL loop**       Disable network and DTI/PRI cards of loop
- 2**     **In Core 0**, software disable the master system monitor (NT8D22):  
**LD 37**           to load the program  
**DIS TTY #**       Disable the master system monitor TTY interface.
- 3**     **For both Core 1 and Core 0**, remove J3 and J4 cables on both system monitors.

- 4 **For both Core 1 and Core 0**, remove the system monitors from the rear of the pedestals.

**Do not** turn off the blower units in the front of the pedestals.

### CAUTION

The system may shut down if the system monitors are not removed. Remove the monitors and keep the cooling fans ON.

## Turn Core 1 module power OFF

**For AC-powered systems:** set the MPDU circuit breaker located at the left end of the module to OFF (top position).

**For DC-powered systems:** set the breaker for the Core 1 module in the back of the column pedestal to OFF (down position).

## Remove Core 1 cables and card cage

- 1 Label and disconnect all cables to the front of the module. Tape over the contacts to avoid grounding. Tape or tie all cables to the sides so the working area in front of the card cage is totally clear.
- 2 Remove the I/O safety panel by turning the screws on each side. Set the cover aside.
- 3 Tag and disconnect all cables from the backplane to the interior of the I/O assembly.
- 4 Tag and disconnect all plugs, wires, and cables to the backplane.

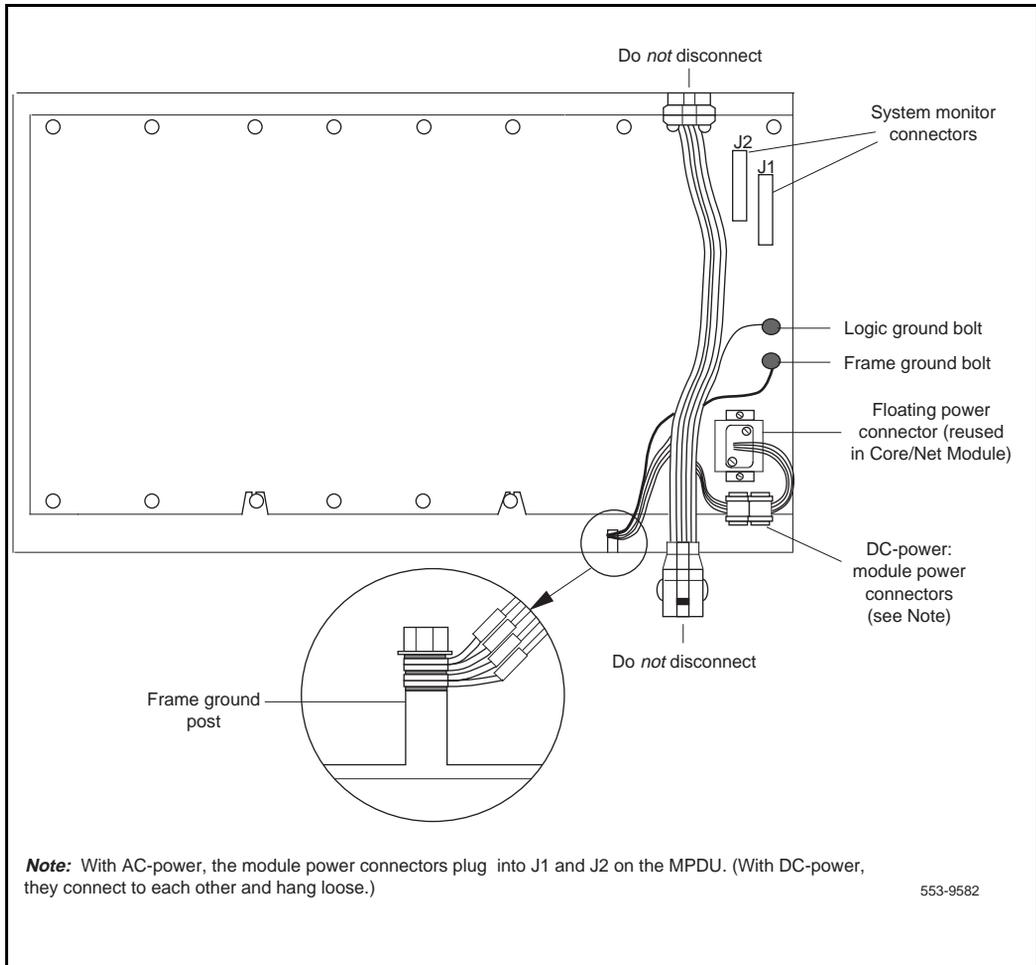
**Note 1:** Leave the network cards in the card cage. You will relocate them to the CP PII Core/Net later in the upgrade procedure.

**Note 2:** Two people are needed to remove the Core 1 card cage because of the weight of the card cage with the cards left installed.

- 5 Remove the two mounting screws at the bottom rear of the card cage that secure the card cage to the module casting. Keep the screws for use with the NT4N46 card cage. (You need a 1/4" nut driver to remove the screws.)
- 6 Remove the front cover plates on both sides of the card cage.

- 7** Remove the three mounting screws that secure the front of the card cage to the bottom of the module.  
Save the screws for use with the NT4N46 card cage.
- 8** Pull the card cage forward until it is halfway out of the module.
- 9** Disconnect cables, plugs, and wires from the rear of the module to the backplane.
- 10** Remove the logic return (LTRN) (orange) wire from the backplane bolt. Be careful; do not drop the nut or lock washer into the pedestal. Save the nut for reuse later.  
  
See Figure 69 on page 326 for DC power connectors.  
  
See Figure 70 on page 327 for AC power connectors.
- 11** Remove the frame ground (FGND) (green) wire from the frame ground bolt on the module. Save screws for reuse later.
- 12** Label and disconnect the module power connectors. These are small orange connectors plugged into the module power distribution unit (MPDU) in an AC-powered system, or connected to each other in a DC-powered system.
- 13** Label and disconnect the system monitor ribbon cables to J1 and J2.

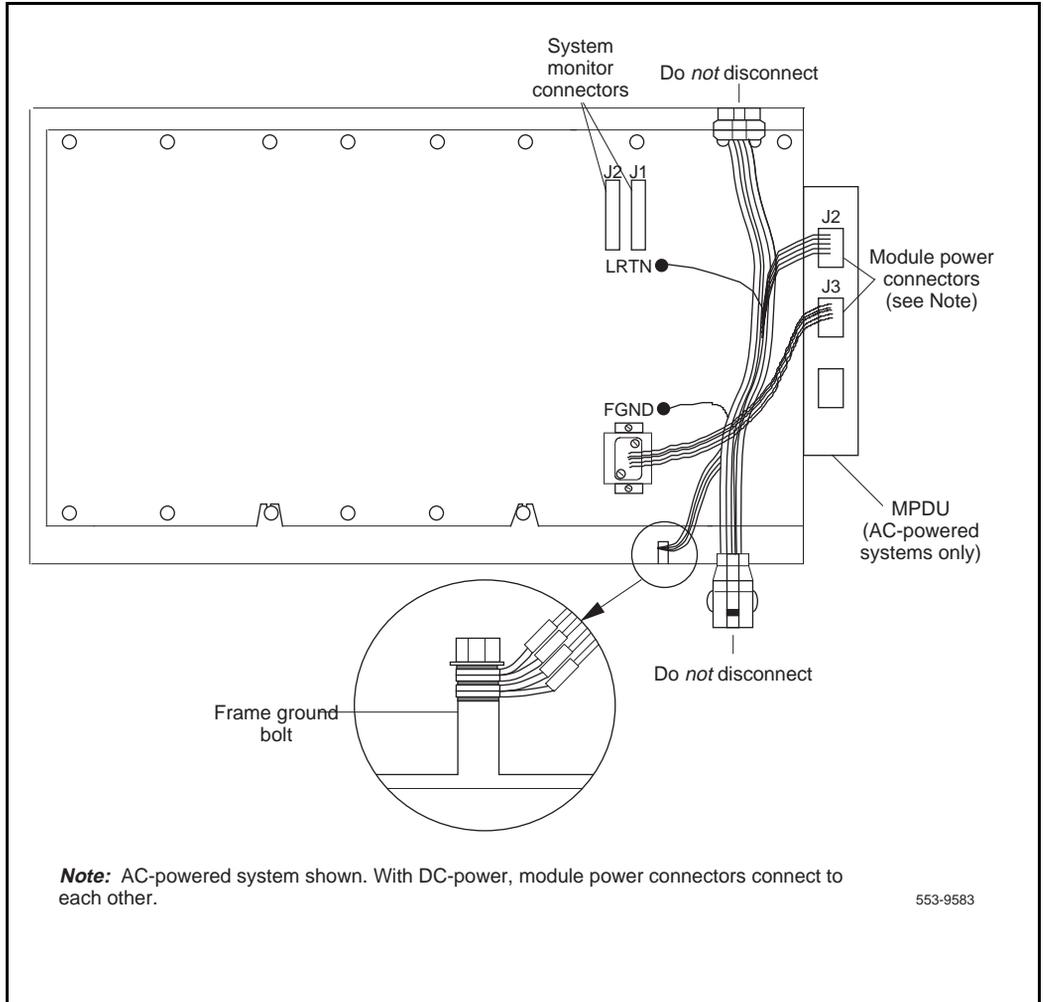
**Figure 69**  
**DC power connectors on the Core module backplane**



**Note:** With AC-power, the module power connectors plug into J1 and J2 on the MPDU. (With DC-power, they connect to each other and hang loose.)

553-9582

**Figure 70**  
**AC power connectors on the Core module backplane**



- 14 Remove the Core card cage from the module
- 15 Remove the power harness and reserve it for reinstallation as part of installing the new NT4N46 card cage.  
The power harness is located at the right rear lower corner and plugs into the rear of the power supply.
  - For AC systems, relocate power harness NT8D80AM.
  - for DC systems, relocate power harness NT7D11.

**CAUTION**

Be sure to perform the following step. If you do not tape the EMI shield in position, you will not be able to install the card cage in the module correctly.

- 16 Reposition the EMI shield (it looks like a brass grill) in the base of the module.  
**Tape over the front mounting tabs to hold the shield in position.**  
You will remove the tape later.

## Install equipment in Core/Net 1

### Task summary list

The following is a summary of the tasks in this section:

- Verify the main Core cards (front side) are installed, page 329
- Verify that the Core Transition cards are installed, page 330
- Check for the CEPS power harness, page 330
- Install the Security Device, page 330
- Install the NT4N46 card cage in Core/Net 1, page 334
- Cable COM 1 and COM 2 to the I/O panel, page 336
- Connect a terminal and modem to the I/O panel, page 339
- Connect LAN 1, page 339
- Connect LAN 2, page 340
- Faceplate disable the cCNI cards, page 340
- Faceplate enable the System Utility Main card, page 340
- Move network cards to NT4N41Core/Net 1 (NT4N46 card cage), page 340
- Attach the 3PE cables, page 342

### Verify the main Core cards (front side) are installed

The main Core cards including the MMDU (with the cables for power and data) are installed in the factory (see Figure 71 on page 331):

- **NT4N65 cPCI Core Network Interface (cCNI) cards:** Each system contains between one and four NT4N65 cCNI cards. The cCNI cards are located in slots c9-c12. If not already installed, install a P0906308 cPCI Card Slot Filler Panel to cover any of slots c10 - c12 which do not contain cCNIs.

**Note:** If the system is shipped with cCNIs installed, disengage them from the backplane now and ensure the cCNI faceplate switch is disabled at this point in the procedure.

- Slots c13 and c14 are left empty. If not already installed, install a P0906308 cPCI Card Slot Filler Panel in each slot.
- **NT4N67 System Utility (Sys Util) card** is located in slot c15.
- **A086496 Call Processor PII (CP II)** is located in the slot marked CP.
- **NT4N43AA cPCI Multi-Media Disk Unit (MMDU)** is located in the extreme right hand slot next to the CP PII card. The MMDU contains the Hard drive, floppy drive and CD-ROM drive.

## Verify that the Core Transition cards are installed

The Core Transition cards are located directly behind the corresponding main cards (on the rear of the Core backplane):

- **NT4N66 cCNI Transition cards:** One cCNI Transition card is installed for each main cCNI card.
- **NT4N68 System Utility Transition card:** The System Utility Transition card is installed directly behind the System Utility card and contains connections for the Security Device, the System Monitor (XSM) and the Display Panel.

Figure 83 on page 366 displays the location of the Core Transition cards.

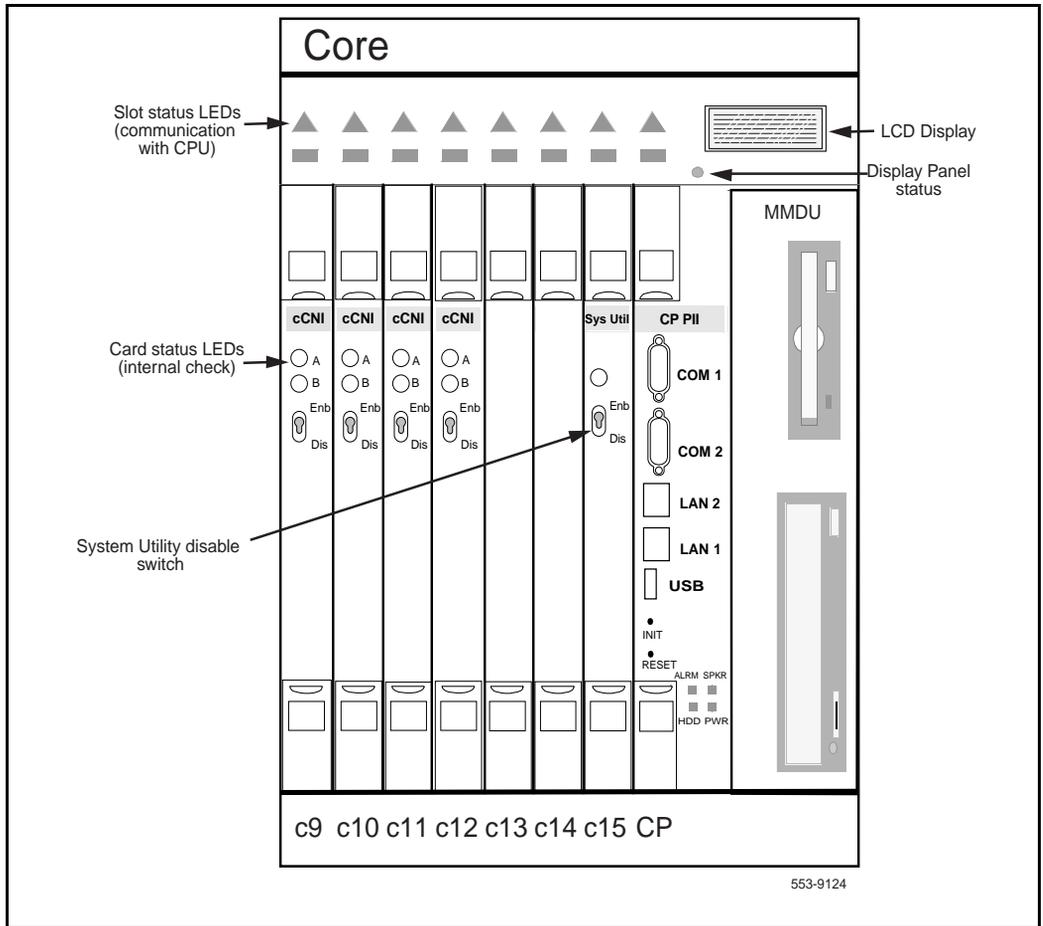
## Check for the CEPS power harness

Verify that the CEPS power harness is installed in the NT4D46 card cage backplane.

## Install the Security Device

The Security Device fits into the Security Device holder (see Figure 84 on page 367) which attaches to the System Utility Transition card located on the core backplane.

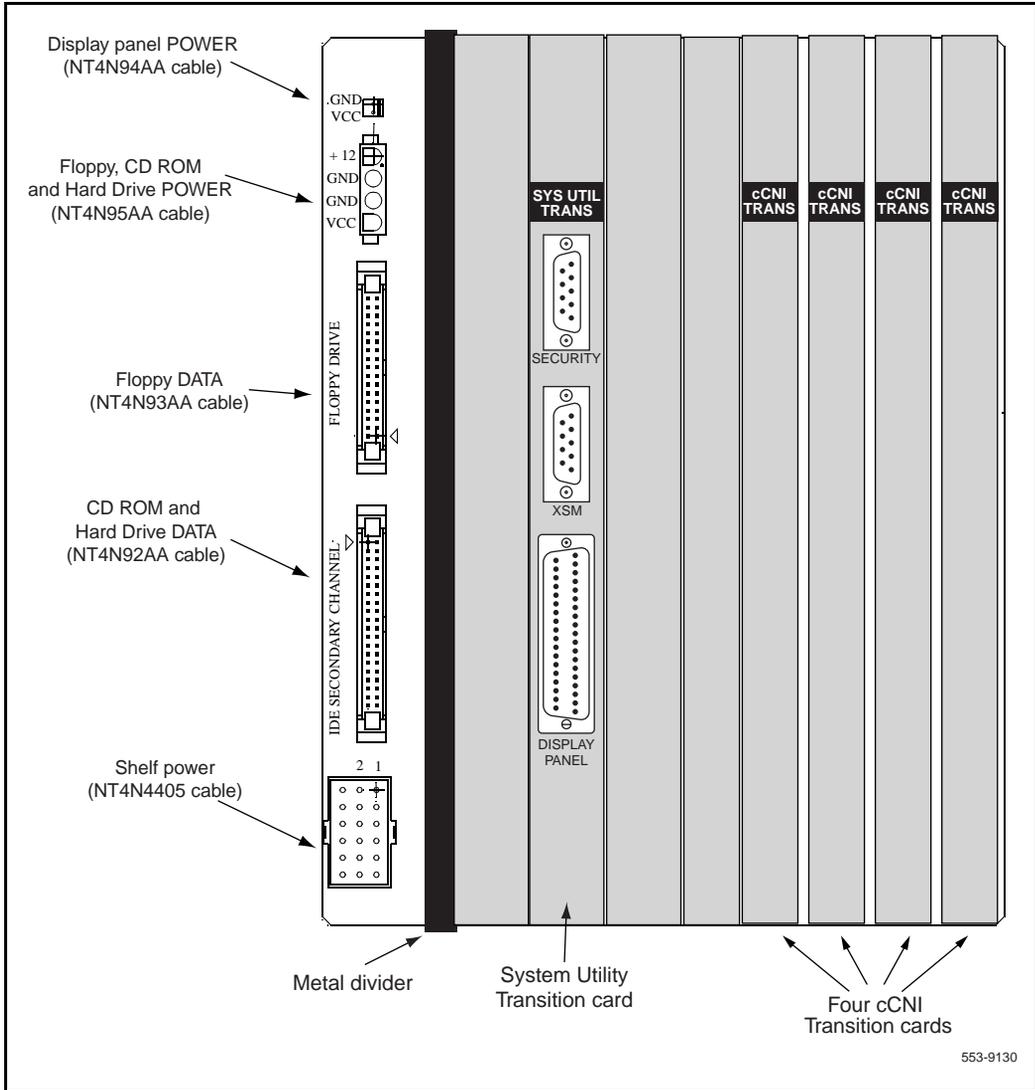
**Figure 71**  
**Core card placement in the NT4N41 Core/Net (front)**



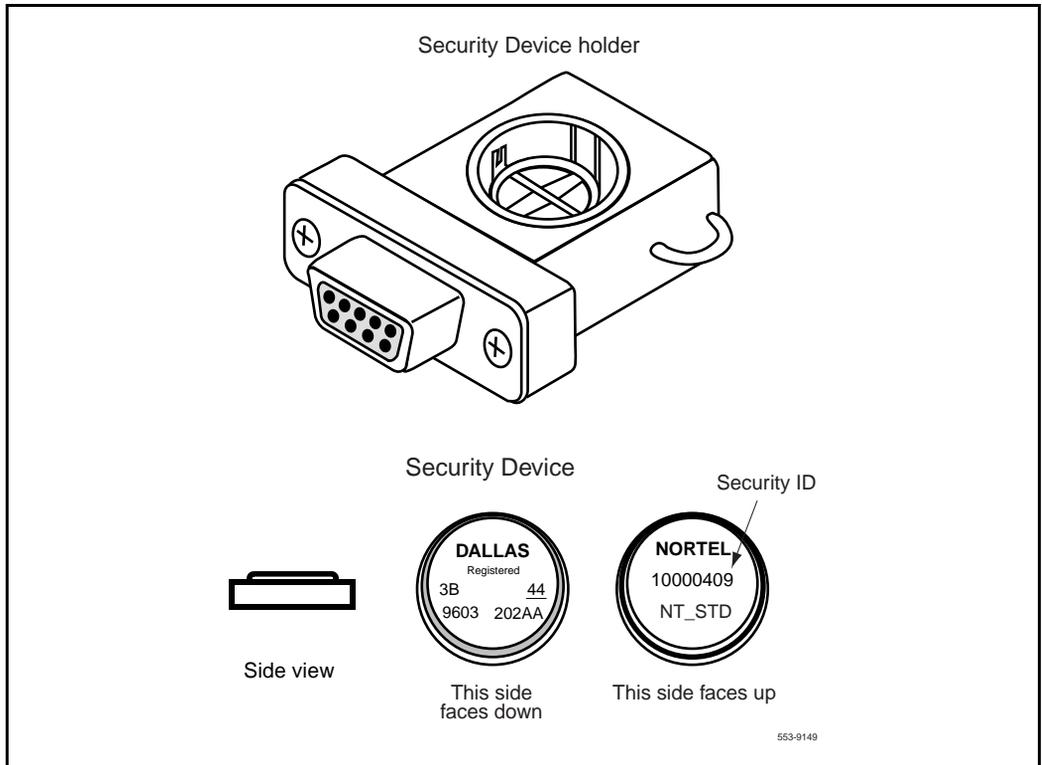
To install the Security Device:

- 1 **If the original system had an IODU/C**, remove the Security Device from the IODU/C for reuse.
  - a Unlock the latches and remove the IODU/C card.

**Figure 72**  
**Location of Transition cards**



**Figure 73**  
**Security Device and holder**



- b** Remove the round 1/2" diameter IODU/C Security Device from the round black Security Device holder on the top right corner of the IODU/C card.

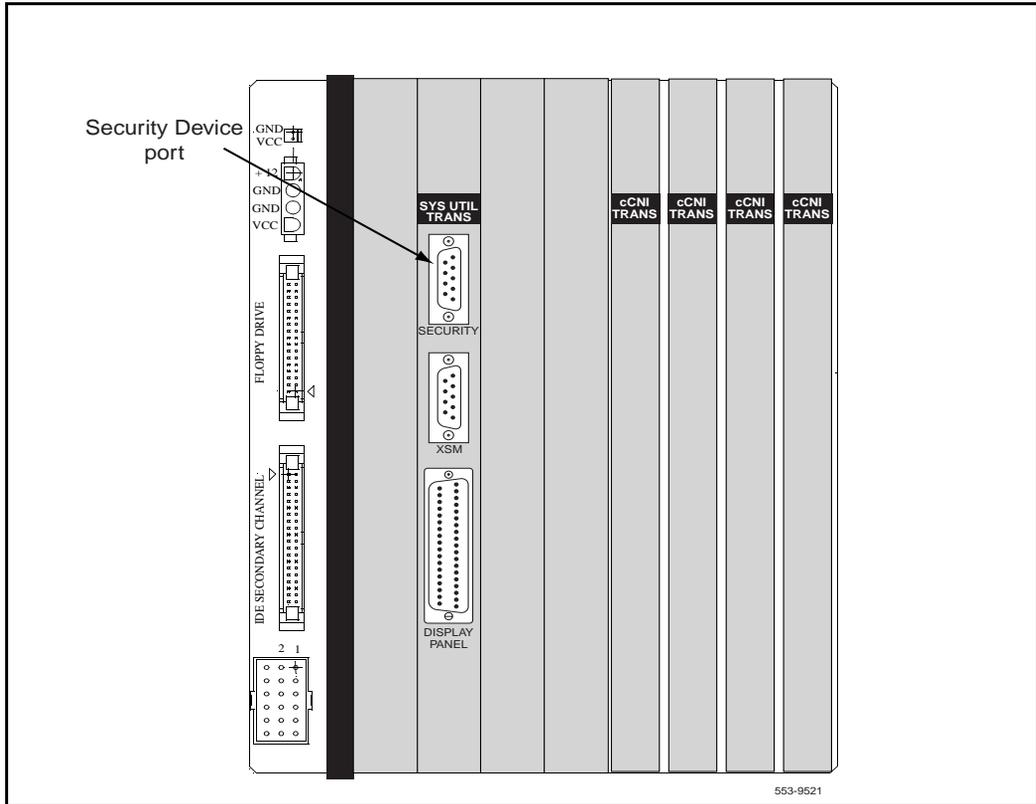
**OR**

**If the original system did not have an IODU/C**, use the Security Device provided with the CP PII Software kit. Locate the Security Device holder in the plastic bag taped to the top of the card cage.

- 2** Insert the Security Device into the Security Device holder with the "Nortel" side facing up. Do not bend the clip more than necessary.

- 3 Insert the assembly (Security Device and holder) between the clips on the top of the System Utility Transition card (Figure 85 on page 369).
- 4 Check that the Security Device is securely in place.

**Figure 74**  
**Security Device installation (System Utility Transition card)**



### Install the NT4N46 card cage in Core/Net 1

- 1 Verify that the card cage is configured as Core 1. See Check the Core ID switches, page 66 for instructions.
- 2 If the system is AC, install an MPDU kit NT4N97AA.

- 3 Check that the power harness at the right rear corner of the card cage has been transferred from the old card cage to the CP PII card cage
- 4 Slide the NT4N46 card cage halfway into the module.
- 5 Hold the card cage firmly and make the following connections at the rear of the module.
- 6 In **AC** powered systems, connect the remaining module power connectors to J2 on the MPDU.

**In AC-power systems only**, plug the module power cable (the short harness attached to the module power connector) into connector J3 on the MPDU (attached to the side of the card cage).

### **CAUTION**

Check for and remove any debris (such as screws) that may have fallen into the base of the UEM module.

- a In **DC** powered systems, connect the module power connectors to each other.
- b Attach the **system monitor** ribbon cables:
  - connect the ribbon cable that goes down to the pedestal to connector **J1** on the backplane.
  - connect the ribbon cable that goes up the column to **J2** on the backplane.
- c Attach the green ground wire to the frame ground bolt on the module. (a 5/16" socket wrench is used to attach the wire.) Remove the nut and the lock washer at the top of the bolt. Put the frame ground wire terminal over the bolt. Reinstall the top lock washer and the nut, then tighten down the nut.

**Note:** For all of the wire terminals to fit on the bolt, remove one of the lock washers. Leave a lock washer at the bottom of the bolt and at the top of the bolt. Leave a third lock washer between the second and third, or the third and fourth, wire terminals.
- d Attach the orange logic return wire. Remove one nut and the lock washer from the LRTN blot at the rear of the card cage. Put the wire terminal over the bolt, reinstall the lock washer and nut, then tighten down the nut. (You need a 3/8" socket wrench.)

- 7 Slide the card cage all the way into the module.
- 8 Check the position of the EMI shield. If the EMI shield has shifted, reposition it. Remove the tape holding the EMI shield.
- 9 Pre-route cables NT4N88AA, NT4N88BA and NT4N90AA before you secure the card cage. (See Figure 77 on page 341.)
  - a Route cable **NT4N88AA** from **COM1** on the CP PII faceplate to **J25** on the I/O panel. (NT4N88AA is used to connect a terminal.)
  - b Route cable **NT4N88BA** from **COM2** on the CP PII faceplate to **J21** on the I/O panel. (NT4N88BA is used to connect a modem.)
  - c Route cable **NT4N90AA** from **LAN 1** on the CP PII faceplate to **J31 (top)** of the I/O panel.
- 10 Secure the card cage to the module with the three short screws in the front and the two long screws in the rear.

**Note:** You need a minimum 12" long, 3/8" hex head nut driver for the two screws in the rear of the card cage.
- 11 Replace the trim panels on both sides of the card cage.
- 12 Install the screws at the back of the card cage.
- 13 Reconnect cables, plugs, and wires to the backplane:
  - a Connect all cables from the interior of the I/O assembly to the backplane.
  - b Connect all plugs, wires, and cables to the backplane.

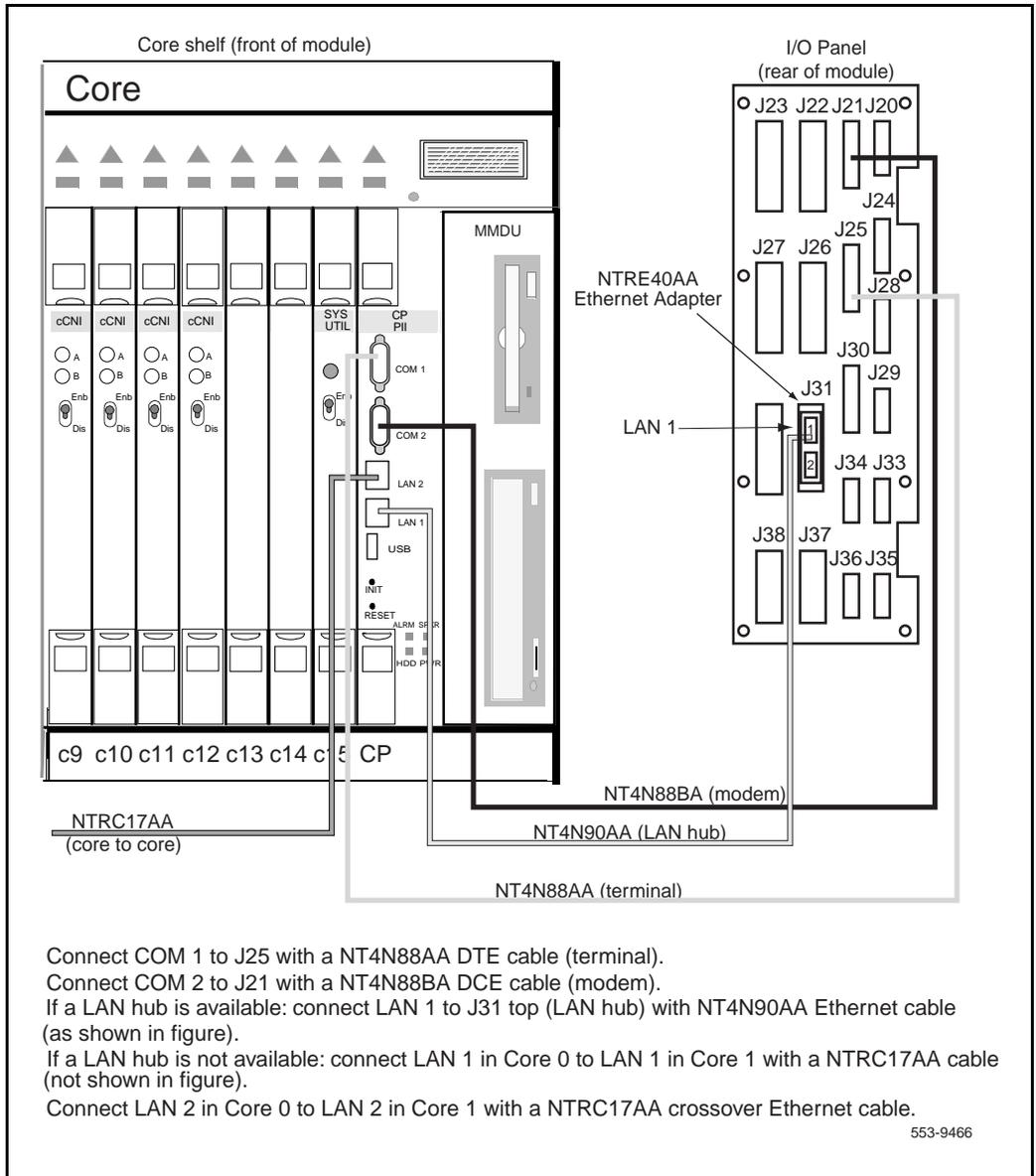
**Figure 76 on page 338 shows the existing D and E cables which connect the network side.**
  - c Position the I/O safety panel. Tighten the screws.
- 14 Check that the top and bottom screws on all Core cards are tight.
- 15 Install either the NT6D41 DC power supply (see Figure 41 on page 315, for details) or the NT8D29 AC power supply (see Figure 42 on page 316, for details).

## Cable COM 1 and COM 2 to the I/O panel

COM 1 is used to connect a terminal (NT4N88AA cable).

COM 2 is used to connect a modem (NT4N88BA cable).

**Figure 75**  
**COM and LAN connections to the Core/Net I/O panel**



Connect COM 1 to J25 with a NT4N88AA DTE cable (terminal).  
 Connect COM 2 to J21 with a NT4N88BA DCE cable (modem).  
 If a LAN hub is available: connect LAN 1 to J31 top (LAN hub) with NT4N90AA Ethernet cable (as shown in figure).  
 If a LAN hub is not available: connect LAN 1 in Core 0 to LAN 1 in Core 1 with a NTRC17AA cable (not shown in figure).  
 Connect LAN 2 in Core 0 to LAN 2 in Core 1 with a NTRC17AA crossover Ethernet cable.

**Figure 76**  
**Connections on the Network backplane**

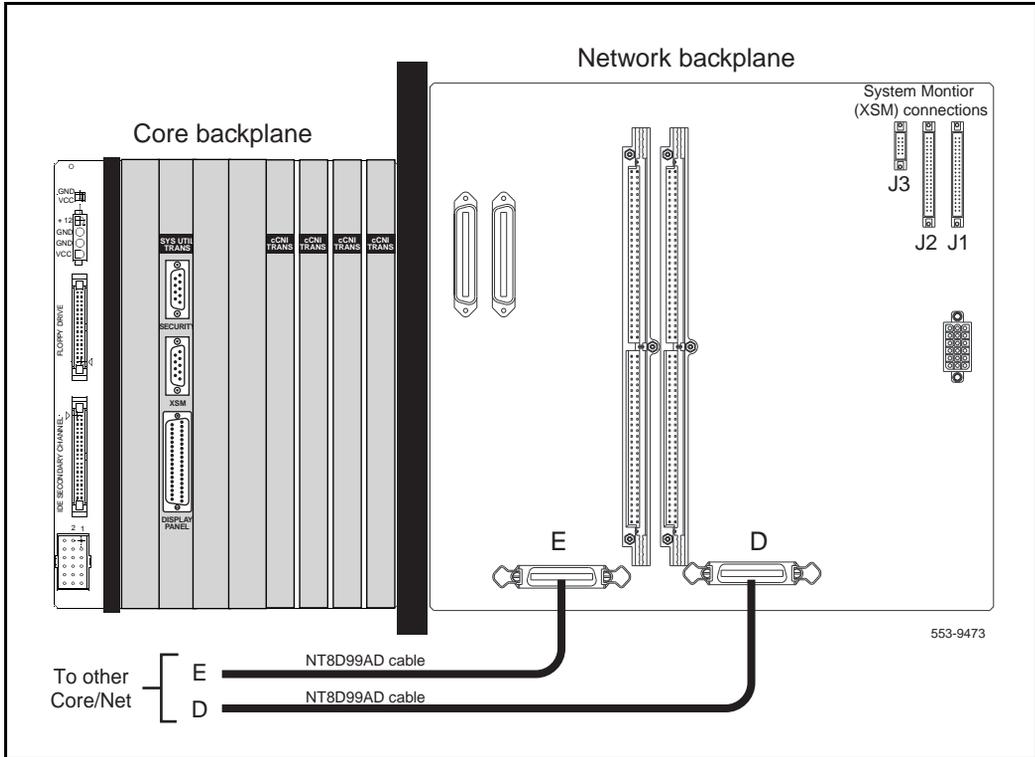


Figure 77 on page 341 displays the COM and LAN cable connections.

- 1 Connect **COM1** on the CP PII faceplate to **J25** on the I/O panel with cable **NT4N88AA**.
- 2 Connect **COM2** on the CP PII faceplate to **J21** on the back of the I/O panel with cable **NT4N88BA**.

## Connect a terminal and modem to the I/O panel

- 1 Connect **J25** to a **terminal** for use during the upgrade. Use a separate terminal for each Core if available. J25 can also be connected to an A/B box to share a terminal between both Cores.
- 2 Connect **J21** to the device connected in the original system (such as a **modem or A/B box**).

## Connect LAN 1

The LAN 1 port is used to enable redundancy features between the two Core/Net modules. LAN 1 can also be connected to a local area network (LAN) for use with LAN based administration tools such as MAT.

### If the system connects to a LAN

- 1 Connect the “**Dual Ethernet Adapter** (RJ45) for I/O Panel” (NTRE40AA) to **J31**. Secure the adapter to J31 with the two screws included in the shipment.  
Insert the adapter from the inside of the I/O panel.
- 2 Connect **LAN 1** (Ethernet) on the CP PII faceplate to **J31 (top)** of the I/O panel with cable **NT4N90AA**. This connection can only be made *after* the Dual Ethernet Adapter is installed (see step 3 above).
- 3 Connect **J31** to a **LAN hub**.

### If the system does not connect to a LAN

- 1 Disconnect the NT4N90AA cable from the LAN 1 faceplate connection.
- 2 Connect a NTRC17AA crossover Ethernet cable to the LAN 1 port on the CP PII faceplate in Core/Net 0. (The other end of NTRC17AA connects to Core/Net 0 after the second card cage is installed.)

## **Connect LAN 2**

- 1 Connect a NTRC17AA crossover Ethernet cable to the LAN 2 port on the CP PII faceplate in Core/Net 0. (The other end of NTRC17AA connects to LAN 2 in Core/Net 1 after the second card cage is installed.)

## **Faceplate disable the cCNI cards**

- 1 In Core/Net 1, disengage all cCNI cards from the backplane and disable the faceplate switch on all cCNI cards.

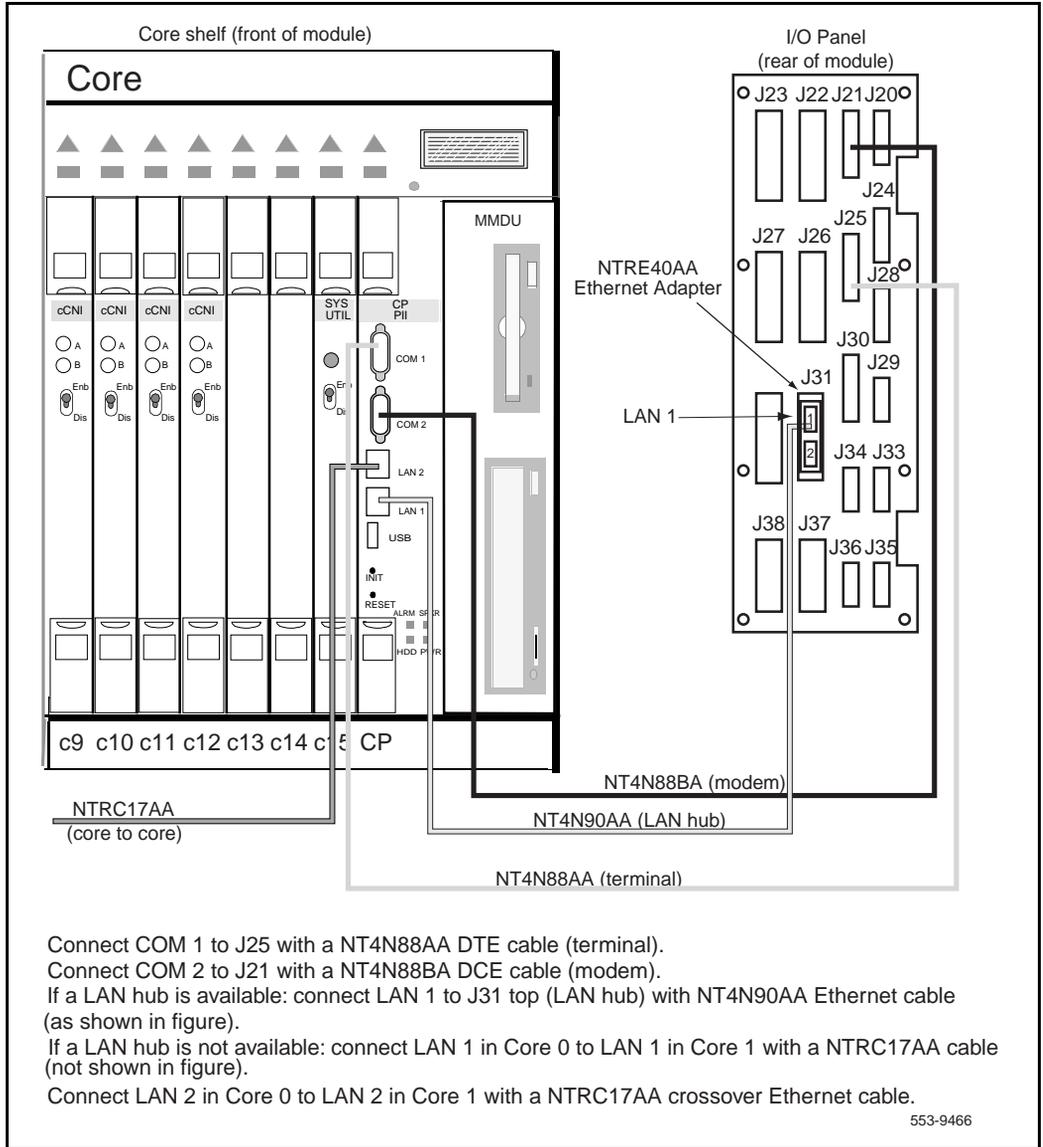
## **Faceplate enable the System Utility Main card**

- 1 Faceplate enable the System Utility Main card.

## **Move network cards to NT4N41Core/Net 1 (NT4N46 card cage)**

- 1 Remove each network card from the NT5D21 Core/Net 1.
- 2 Reinstall each card in the same network slot in the NT4N41 Core/Net 1.
- 3 Connect the tagged cables to the relocated cards.

**Figure 77**  
**COM and LAN connections to the Core/Net I/O panel**



Connect COM 1 to J25 with a NT4N88AA DTE cable (terminal).  
 Connect COM 2 to J21 with a NT4N88BA DCE cable (modem).  
 If a LAN hub is available: connect LAN 1 to J31 top (LAN hub) with NT4N90AA Ethernet cable (as shown in figure).  
 If a LAN hub is not available: connect LAN 1 in Core 0 to LAN 1 in Core 1 with a NTRC17AA cable (not shown in figure).  
 Connect LAN 2 in Core 0 to LAN 2 in Core 1 with a NTRC17AA crossover Ethernet cable.

553-9466

## Attach the 3PE cables

NT8D76 cables connect between the Core/Net Termination Panel and the 3PE cards:

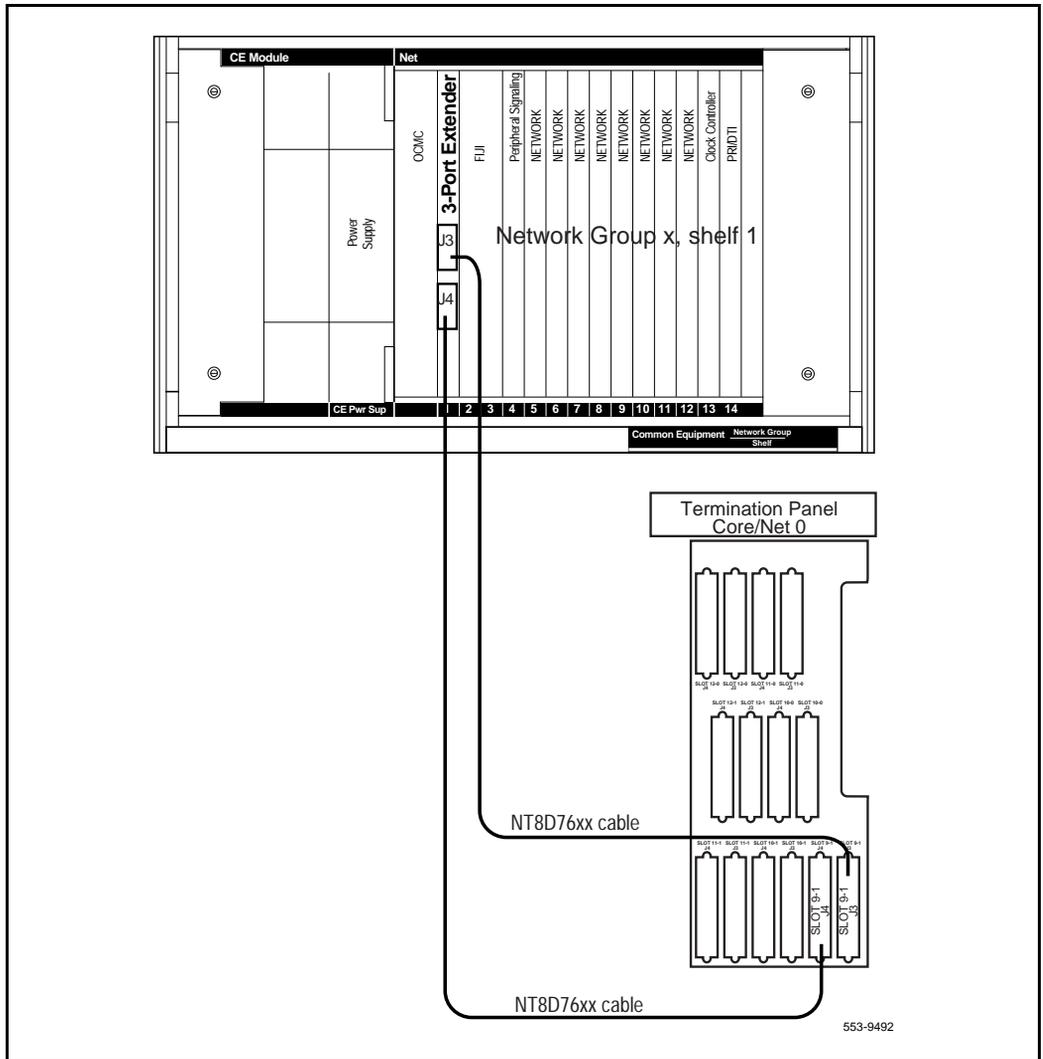
- See Figure 78 on page 343 and Table 46 on page 378 for detailed information on the slot and Network group assignments.
- This procedure applies to systems with columns in a single row. This procedure does not apply to systems with columns in separate aisles.
- Network group assignments for the cCNI ports in the new CP PII card cage must be the same as the original system. Check to make sure that the cables are installed according to the port assignments in the existing database.
- The new NT8D76 3PE cables must be routed and in place before this procedure is begun. Refer to Route the NT8D76 3PE to cCNI cables, page 98.
- Remember to label all cables with the connection information. Labels are necessary to perform troubleshooting or future upgrades
- Table 44 on page 344 contains connection information for 3PE faceplates and the Core/Net Termination Panel.
- Figure 79 on page 345 shows the connection information on the Termination Panel.

### Connect the 3PE cables in the shelf 1 Network modules

- 1 Disconnect the old cables from the J3 and J4 connectors on the 3PE cards in shelf 1 of each Network group.
- 2 Reinstall the two NT8D80BZ cables between the 3PE cards located in the existing Core 0 and the 3PE reinstalled in the new Core 1 module. Connect the first cable to J3 on each card and the second cable to J4 on each card.
- 3 Connect the new NT8D76 cables to J3 and J4 of the 3PE cards. See Figure 78 on page 343 and Figure 44 on page 344 for connection information.
- 4 Connect the new NT8D76 cables to the Termination Panel in Core/Net 1 as shown in Figure 78 on page 343 and Table 44 on page 344.

**Note:** Remove the old unused CNI to 3PE cables.

**Figure 78**  
**3PE Termination Panel connections**



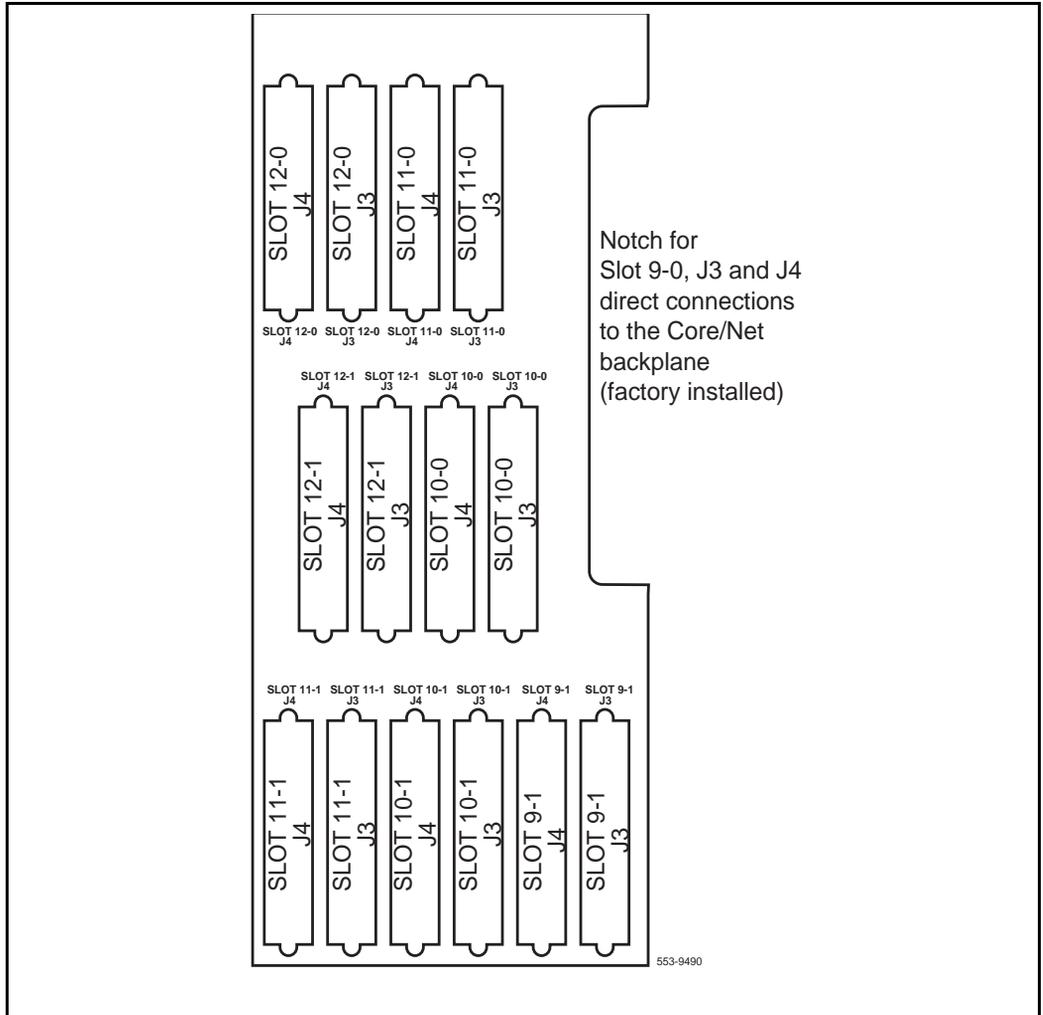
- 5 If the system has XSDI cards, reinstall the cards and attach the cables..

**Table 44**  
**Termination Panel to 3PE card connectors**

| Group number | Termination Panel connector | 3PE card connector |
|--------------|-----------------------------|--------------------|
| 0            | 9-0                         | See <i>Note</i> .  |
| 0            | 9-0                         | See <i>Note</i> .  |
| 1            | 9-1, J3                     | J3                 |
| 1            | 9-1, J4                     | J4                 |
| 2            | 10-0, J3                    | J3                 |
| 2            | 10-0, J4                    | J4                 |
| 3            | 10-1, J3                    | J3                 |
| 3            | 10-1, J4                    | J4                 |
| 4            | 11-0, J3                    | J3                 |
| 4            | 11-0, J4                    | J4                 |
| 5            | 11-1, J3                    | J3                 |
| 5            | 11-1, J4                    | J4                 |
| 6            | 12-0, J3                    | J3                 |
| 6            | 12-0, J4                    | J4                 |
| 7            | 12-1, J3                    | J3                 |
| 7            | 12-1, J4                    | J4                 |

*Note:* Group 0 cables connect from the cCNI Transition card directly to the backplane of Core/Net 0 OR to the NT8D76 cable (depending on your CNI group configuration).

**Figure 79**  
**Connectors for cCNI Transition Cables to the Termination Panel**



## Power up and complete the Core/Net 1 installation

### Task summary list

The following is a summary of the tasks in this section:

- Power up the system, page 346
- Confirm that all cards in the Network are working, page 346
- Install software and convert the database on Core/Net 1, page 346
- Configure the IP addresses, page 349
- Check for Peripheral Software Download to Core/Net 1, page 350
- Match the systems network groups to the number of CNIs, page 352
- Transfer call processing to Core/Net 1, page 353
- Test the Core/Net 1 card cage upgrade, page 354
- Perform a data dump on Core/Net 1, page 354

### Power up the system

Turn on power to the module:

- **For AC-powered systems**, set the main circuit breaker to ON (top position) in the rear of the pedestal, then set the MPDU circuit breaker located at the left end of the module to ON (top position).
- **For DC-powered systems**, set the breaker to ON (up position) in the pedestal.

### Confirm that all cards in the Network are working

Bring up all the Network and Network I/O cards. Verify that all the cards have working power. Enable any DTI or PRI cards on an Option 81.

### Install software and convert the database on Core/Net 1

- 1 Verify that a terminal is connected to J25 on Core/Net 1.
- 2 Install the CD-ROM into the CD-ROM drive in the MMDU:

- a** Press the button on the CD-ROM drive to open the CD-ROM disk holder.
  - b** Place the CD-ROM disk into the holder with the disk label showing.
  - c** Use the four tabs to secure the CD-ROM drive.
  - d** Press the button again to close the CD-ROM disk holder.  
**Do not** push the holder in by hand.
- 3** Place the CP PII Install floppy disk into the MMDU floppy drive.  
**Note 1:** If the CD-ROM is not in the CD-ROM drive, the installation will not continue. Insert the CD-ROM to continue.  
**Note 2:** If a problem is detected during the system verification, Install stops, prints an error message, and aborts the installation. If the verification is not successful, do not continue; contact your technical support organization.
- 4** Press the RST button on CP PII.
- 5** Before the Install menu runs, the system validates hard disk partitioning which takes about five minutes. The screen displays:  
Testing partition 0  
0 percent done...1 percent done.....99 percent done....100 percent done  
Testing partition 1  
0 percent done...1 percent done.....99 percent done....100 percent done  
Testing partition 2  
0 percent done...1 percent done.....99 percent done....100 percent completed!  
Disk physical checking is completed!  
There are 3 partitions in disk 0:  
The size of partition 0 of disk 0 is XX MB  
The size of partition 0 of disk 0 is XX MB  
The size of partition 0 of disk 0 is XX MB  
Disk partitions and sectors checking is competed!
- 6** Press <cr> to start the software installation.

7 When prompted, remove the CP PII Install Program diskette and insert the Keycode diskette.

<a> Continue with keycode validation.

<y> Confirm that the keycode matches the CD-ROM release.

8 When the screen displays the Install Menu, select the following options in sequence when you are prompted to do so:

<a> Install software.

<a> Verify that the CD-ROM is now in drive.

The Installation Status Summary screen appears that lists the options to be installed.

<y> Start Installation.

<a> Continue with Upgrade.

9 Select a PSDL file to install. The PSDL file contains the loadware for all downloadable cards in the system and loadware for M3900 series sets.

Select one of the six psdl files

<1> Global 10 Languages <default>

<2> Western Europe 10 Languages

<3> Eastern Europe 10 Languages

<4> North America 6 Languages

<5> RIs24 up-issue

<6> North America 6 Languages:

The languages contained in each selection are outlined as follows:

1 English, French, German, Spanish, Swedish, Italian, Norwegian, Brazilian, Portuguese, Finnish, Japanese Katakana.

2 English, French, German, Spanish, Swedish, Norwegian, Danish, Finnish, Italian, Brazilian Portuguese.

3 English, French, German, Dutch, Polish, Czech, Hungarian, Russian, Latvian, Turkish.

4 English, Spanish, French, Brazilian Portuguese, Japanese Katakana, German.

5 English, French, German, Spanish, Swedish, Italian, Norwegian, Portuguese, Finnish, Japanese Katakana.

6 English, French, German, Spanish, Brazilian Portuguese, Japanese Katakana.

- 10** Continue with ROM upgrade when prompted. Select a database to install.
- <cr>** Enter carriage return to continue.
  - <a>** Continue with CP BOOTROM installation.
  - <a>** Install the CP BOOTROM from hard disk.
  - <a>** Start installation.
  - <a>** Continue with ROM upgrade.
- The Installation Status Summary screen appears. Verify that CD to disk, disk to ROM, and CP-BOOTROM were installed.
- <cr>** Continue.
  - <q>** Quit.  
Remove any diskettes and the CD-ROM from the MMDU drives.
  - <y>** Confirm quit.
  - <a>** Reboot the system.
- 11** The system automatically performs a sysload: several message appear on the system terminal. Wait for "DONE" and then "INI" message to display before you continue.
- While the sysload is being performed, database conversion occurs.
- Verify that the following message appears on the system terminal:
- DATA CONVERSION**  
X11 RELEASE 25.XX TO RELEASE 25.XX
- 12** Confirm that X11 release 25 software is installed and working on Core/Net 1:
- LD 135** Load the program.
  - STAT CPU** Display the CPU status.
  - STAT CNI** Display the cCNI status.

## Configure the IP addresses

Two unique IP address are required for the CP PII system to communicate with the LAN. One IP number is defined for the *active* Core. The second IP address is defined for the *inactive* Core.

Contact your systems administrator to identify the following IP numbers.

1 Configure the primary (*active*) and secondary (*inactive*) IP addresses:

- |                                             |                                                                                                                                |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <b>LD 117</b>                               | to load the program                                                                                                            |
| <b>new host <i>name 1</i> IP address</b>    | to define the first IP address: “name 1” is an alias for the IP address such as “primary”. The IP address is the IP number.    |
| <b>chg elnk active <i>name 1</i></b>        | to assign the “name 1” address to the <i>active</i> Core.                                                                      |
| <b>new host ‘<i>name 2</i>’ IP address’</b> | to define the second IP address: “name 2” is an alias for the IP address such as “secondary”. The IP address is the IP number. |
| <b>chg elnk inactive <i>name 2</i></b>      | to assign the “name 2” address to the <i>inactive</i> Core.                                                                    |
| <b>chg mask 255.255.240.0</b>               | to set the sub-net per local site. This number allows external sub-nets to connect to the system.                              |
| <b>new route 0.0.0.0 <i>ip address</i></b>  | sub-net router address, if required                                                                                            |
| <b>prt route</b>                            | to print the route data. This returns a value assigned to the route used in the next step.                                     |
| <b>enl route #</b>                          | to enable the route table entry: the value is from the step above.                                                             |

2 Enable the new Ethernet interface:

- |                 |                                               |
|-----------------|-----------------------------------------------|
| <b>LD 137</b>   | to load the program                           |
| <b>dis elnk</b> | to <i>disable</i> the old IP interface values |
| <b>enl elnk</b> | to <i>enable</i> the new IP interface values  |

## Check for Peripheral Software Download to Core/Net 1

Load LD 22 and print Target peripheral software version. The Source peripheral software version was printed during the procedure to Print site data, page 68.

If there is a difference between the Source and Target peripheral software version:

- A forced download occurs during initialization when coming out of parallel reload.
- System initialization takes longer.
- The system drops established calls on IPE.

|              |                                    |
|--------------|------------------------------------|
| <b>LD 22</b> | to load the program                |
| <b>REQ</b>   | PRT                                |
| <b>TYPE</b>  | PSWV                               |
| <b>ISSP</b>  | Print System and Patch Information |
| <b>SLT</b>   | Print System Limits                |
| <b>TID</b>   | Print the Tape ID                  |
| <b>SLLP</b>  | Print System and patch information |
|              | Print auxiliary ID                 |
| <b>****</b>  | exit program                       |

## Match the systems network groups to the number of CNIs

Software configures the system for five groups.

You must match the number of CNIs to the number of groups in your system. If your system has fewer than five groups, you must software remove the CNIs not used in your system configuration.

If your system has more than five groups, you must software add CNIs to your system configuration:

- 1 In Core/Net 1, disable all CNI cards using LD 135:

|                      |                                                                                                       |
|----------------------|-------------------------------------------------------------------------------------------------------|
| <b>LD 135</b>        | To load the program.                                                                                  |
| <b>STAT CNI</b>      | Get the status of all CNI cards.                                                                      |
| <b>DIS CNI x s p</b> | Disable CNI cards where:<br>x = extender number (0 or 1)<br>s = card slot (9-12)<br>p = port (0 or 1) |
| <b>STAT CNI</b>      | Confirm that CNI cards are disabled.                                                                  |
| <b>****</b>          | Exit the program.                                                                                     |

- 2 Use LD 17 to add or remove the extra CNI cards.

|                   |                                                                                                         |
|-------------------|---------------------------------------------------------------------------------------------------------|
| <b>LD 17</b>      | To load the program.                                                                                    |
| <b>CHG</b>        |                                                                                                         |
| <b>CFN</b>        |                                                                                                         |
| <b>CEQU YES</b>   |                                                                                                         |
| <b>EXTO 3PE</b>   | Core/Net 0 extended to 3PE.                                                                             |
| <b>CNI s p xg</b> | Add the CNI card, where:<br>s = card slot (9-12)<br>p = port (0 or 1)<br>g = out network group (0-7)    |
|                   | Out the CNI card, where:<br>s = card slot (9-12)<br>p = port (0 or 1)<br>xg = out network group (x0-x4) |
| <b>EXTI 3PE</b>   | Core/Net 1 extended to 3PE                                                                              |

**CNI s p xg** Add the CNI card, where:  
s = card slot (9-12)  
p = port (0 or 1)  
g = out network group (0-7)  
Out the CNI card, where:  
s = card slot (9-12)  
p = port (0 or 1)  
xg = out network group (x0 - x4)

**\*\*\*\*** Exit the program.

## Transfer call processing to Core/Net 1

- 1 Switch from Ring 0 to Ring 1 and disable auto recovery:
  - LD 39** To load the program
  - ARCV OFF** Set or reset auto-recovery operation for ring
  - SWRG 1** Switch call processing to ring 1
  - STAT RING 1** Check the status of Ring 1
  
- 2 From the active Core 0, disable the existing Ethernet interface:
  - LD 137** to load the program
  - dis eInk** to disable the old IP interface

**Note:** Any applications using the Ethernet interface will be impacted.
  
- 3 Disconnect ethernet connection from Core 0 and connect to J31 of Core Net 1.

**Note:** If the cable is too short, install a new cable.
  
- 4 **In Core 0**, disable the CNI cards.
- 5 **In Core/Net 1**, enable the cCNI cards.
- 6 **In Network shelf 1**, faceplate enable Clock Controller 1.
- 7 **In Core/Net 1**, press the **INIT** button.  
Wait for the INIT process to complete.
  
- 8 Check the status of the Clock Controller 1:
  - LD 60** to load the program
  - SCK 1** Get the status of Clock Controller 1

9 if Clock Controller 1 is enabled standby, faceplate disable Clock Controller 0.

10 Check the status of the Clock Controller 1 again.

**LD 60** to load the program

**SSCK 1** Get the status of Clock Controller 1

Clock Controller 1 is enabled active.

Core/Net 1 and Clock Controller 1 are now active.

11 Check for dial tone. Make intergroup calls.

## Test the Core/Net 1 card cage upgrade

*Note:* Be aware that you are in single CPU mode at this point in the upgrade.

## Perform a data dump on Core/Net 1

Perform a data dump to save the customer database to the hard drive:

1 Log into the system.

2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter

**LD 43** to load the program

3 When "EDD000" appears on the terminal, enter

**EDD** to begin the data dump

4 When "DATADUMP COMPLETE" and "DATABASE BACKUP COMPLETE" appear on the terminal, enter

**\*\*\*\*** to exit the program

### CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. You must correct a data dump problem before you continue.

**WARNING**

**Although the procedures to upgrade Core 0 are similar to those for Core 1, differences do exist.**

**Follow all the procedures for Core 0 carefully. Complete the instructions in sequence. Failure to follow the specific installation and configuration procedures will result in system failure and increased downtime.**

## Disable and remove equipment from Core 0

### Task summary list

The following is a summary of the tasks in this section:

- Software disable Network cards in Core/Net 0, page 356
- Turn Core 0 module power OFF, page 359
- Remove Core 0 cables and card cage, page 359

### Software disable Network cards in Core/Net 0

Software disable all DTI/ PRI cards in the network slots of Core/Net 0.

**WARNING**

**At this point, the upgrade interrupts service.**

Cards in the Network slots include the following:

- NTRB33 Fiber Junctor Interface (FIJI) card
- NT8D04 Superloop Network card
- QPC414 Network card
- QPC441 Three-Port Extender (3PE) card
- QPC43R Peripheral Signaling card
- QPC513 Enhanced Serial Data Interface (ESDI) card
- NT8D93 Extended Serial Data Interface (XSDI) card
- QPC536 Digital Trunk Interface (DTI) card
- NT8D72 Primary Rate Interface (PRI) card
- NT6D80 Multipurpose Serial Data Link (MSDL) card

**Software disable FIJI cards in network slots of Core/Net 0:**

- 1 **In Core/Net 0 only**, disable FIJI cards:
  - a Disable Ring auto recovery:  
**LD 39** to load the program  
**ARCV ON/OFF** Set or reset auto-recovery operation for ring.
  - b Switch traffic to the Ring that does not contain the FIJI card:  
**SWRG 1** "Switch the Ring that DOES NOT contain the FIJI card to the Drives Full Ring State.  
\*\*\*\*  
exit the program
  - c Disable Ring 0 and make Ring 1 full.  
**LD 39** to load the program  
**DIS RING 0** Disable all FIJI cards on side 0  
\*\*\*\*  
exit the program
  - d The Clock Controller on the Ring that contains the FIJI card to be disabled must be inactive.  
Switch clocks if necessary.  
**LD 60** to load the program  
**SSCK 1** Check the status of the Clock Controller  
**SWCK** Switch the active clock, if necessary  
\*\*\*\*  
exit the program
  - e Set the ENB/DIS switch on the FIJI card to DIS.
  - f Unplug the cables to the FIJI card in Core/Net 0.
- 2 **In Core/Net 0 only**, software disable all network and I/O cards such as XNET, TTY, Conf/TDS and ISDN cards:
  - a **In Core/Net 0 only**, disable XNET.
  - b **In Core/Net 0 only**, disable ENET.
  - c **In Core/Net 0 only**, software disable each port on the SDI cards:  
**LD 37** to load the program  
**DIS TTY x** x = the number of the interface device attached to a port  
\*\*\*\*  
exit the program

**CAUTION**

If the system terminal is assigned to an SDI port that you are disabling, assign it to another port before you disable the SDI.

- d** In **Core/Net 0** only, disable DTI cards.
  - e** In **Core/Net 0** only, disable PRI cards.
  - f** In **Core/Net 0** only, disable MSDL cards.
- 3** In **Core/Net 0** only, software disable the QPC43 Peripheral Signaling Card:
- LD 32** to load the program
  - DSPS x** Table 43 on page 323 lists Peripheral Signaling Card numbers specified by "x"
  - \*\*\*\*** Exit the program

**Table 45**  
**Peripheral Signaling Card numbers**

| Group/<br>shelf | Peripheral<br>Signaling Card | Loops<br>disabled/enabled |   |     |
|-----------------|------------------------------|---------------------------|---|-----|
| 0 / 0           | 0                            | 0                         | – | 15  |
| 0 / 1           | 1                            | 16                        | – | 31  |
| 1 / 0           | 2                            | 32                        | – | 47  |
| 1 / 1           | 3                            | 48                        | – | 63  |
| 2 / 0           | 4                            | 64                        | – | 79  |
| 2 / 1           | 5                            | 80                        | – | 95  |
| 3 / 0           | 6                            | 96                        | – | 111 |
| 3 / 1           | 7                            | 112                       | – | 127 |
| 4 / 0           | 8                            | 128                       | – | 143 |
| 4 / 1           | 9                            | 144                       | – | 159 |
| 5 / 0           | 10                           | 160                       | – | 175 |
| 5 / 1           | 11                           | 176                       | – | 191 |
| 6 / 0           | 12                           | 192                       | – | 207 |
| 6 / 1           | 13                           | 208                       | – | 223 |
| 7 / 0           | 14                           | 224                       | – | 239 |
| 7 / 1           | 15                           | 240                       | – | 255 |

- 4** In **Core/Net 0** only, disable the 3PE card:  
Set the ENB/DIS switch on the 3PE card to DIS.

## Turn Core 0 module power OFF

**For AC-powered systems:** set the MPDU circuit breaker at the let end of the module to OFF (top position)

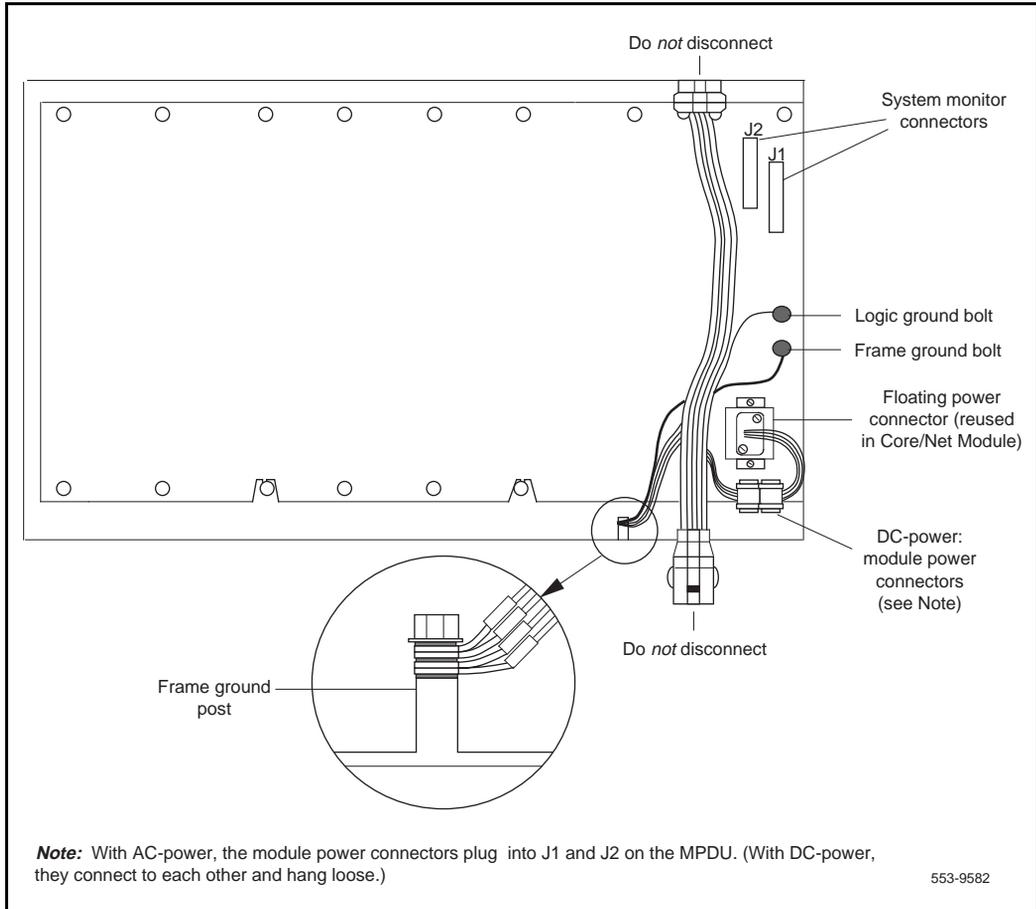
**For DC-powered systems:** set the breaker in the back of the column pedestal 0 to OFF (down position).

## Remove Core 0 cables and card cage

- 1 Label and disconnect all cables to the front of the module. Tape over the contacts to avoid grounding. Tape or tie all cables to the sides so the working area in front of the card cage is totally clear.
- 2 Remove the I/O safety panel by turning the screws on each side. Set the cover aside.
- 3 Tag and disconnect all cables from the backplane to the interior of the I/O assembly.
- 4 Tag and disconnect all plugs, wires, and cables to the backplane.  
**Note 1:** Leave the network cards in the card cage. You will relocate them to the NT4N46 card cage later in the upgrade procedure.  
**Note 2:** Two people are needed to remove the existing Core/Net card cage because of the weight of the card cage with the cards left installed.
- 5 Remove the two mounting screws at the bottom rear of the card cage that secure the card cage to the module casting. Keep the screws for use with the NT4N46 card cage. (You need a 1/4" nut driver to remove the screws.)
- 6 Remove the front trim panels on both sides of the card cage.
- 7 Remove the three mounting screws that secure the front of the card cage to the bottom of the module. Save the screws for use with the NT4N46 card cage.
- 8 Pull the card cage forward until it is halfway out of the module.
- 9 Disconnect cables, plugs, and wires from the rear of the module to the backplane:

- 10 Remove the logic return (LTRN) (orange) wire from the backplane bolt. Be careful; do not drop the nut or lock washer into the pedestal.  
See Figure 80 on page 360, for DC power connectors.

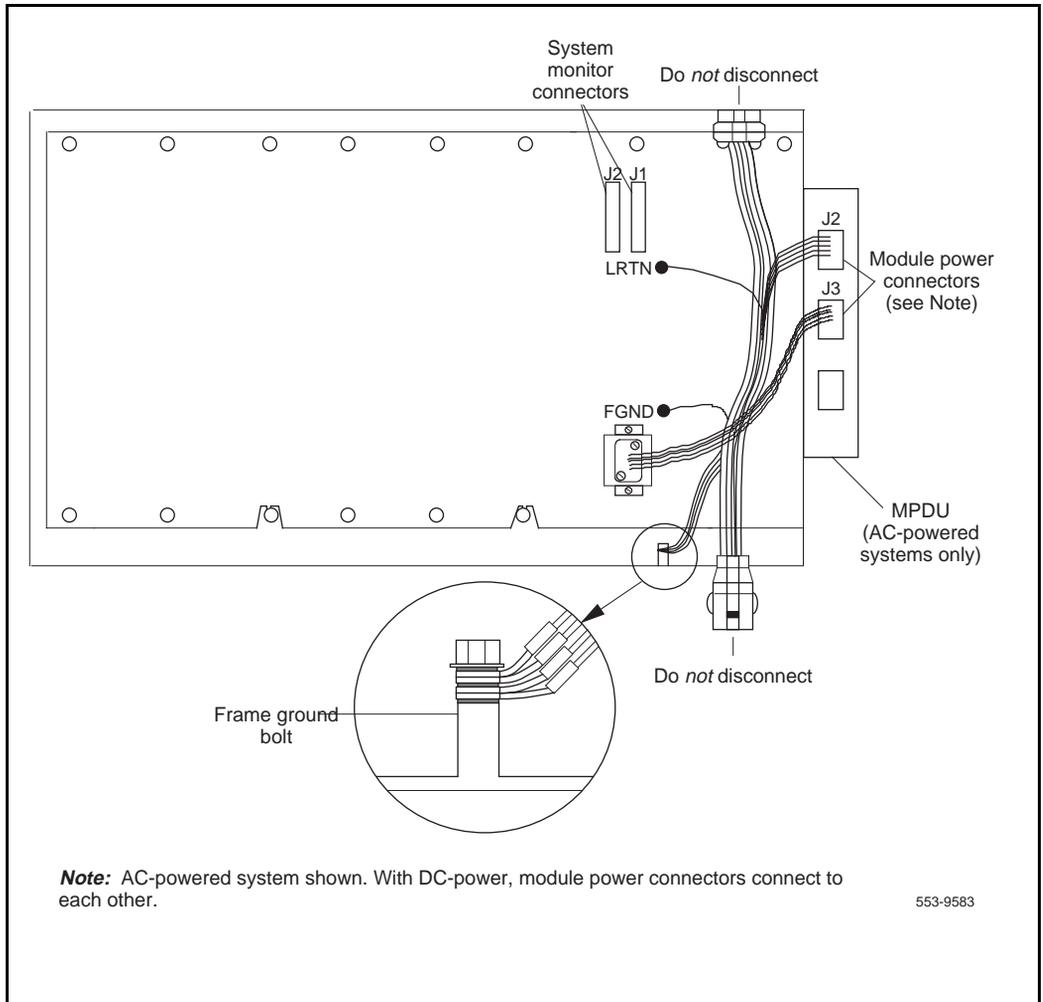
**Figure 80**  
**DC power connectors on the Core module backplane**



See Figure 70 on page 327, for AC power connectors.

- 11 Remove the frame ground (FGND) (green) wire from the frame ground bolt on the module.

**Figure 81**  
**AC power connectors on the Core module backplane**



- 12** Label and disconnect the module power connectors. These are small orange connectors plugged into the module power distribution unit (MPDU) in an AC-powered system, or connected to each other in a DC-powered system.
- 13** Label and disconnect the system monitor ribbon cables to J1 and J2.

- 14 Remove the Core card cage from the module

**CAUTION**

Be sure to perform the following step. If you do not tape the EMI shield in position, you will not be able to install the card cage in the module correctly.

- 15 Reposition the EMI shield (it looks like a brass grill) in the base of the module.  
**Tape over the front mounting tabs to hold the shield in position.**  
You will remove the tape later.
- 16 **In AC-power systems only**, plug the module power cable (the short harness attached to the module power connector) into connector J3 on the MPDU (attached to the side of the card cage).

**CAUTION**

Check for and remove any debris (such as screws) that may have fallen into the base of the UEM module.

## Install equipment in Core/Net 0

### Task summary list

The following is a summary of the tasks in this section:

- Verify the main Core cards (front side) are installed, page 363
- Verify that the Core Transition cards are installed, page 364
- Check for the CEPS power harness, page 364
- Install the Security Device, page 365
- Install the NT4N46 card cage in Core/Net 0, page 368
- Cable COM 1 and COM 2 to the I/O panel, page 372
- Connect a terminal and modem to the I/O panel, page 373
- Connect LAN 1, page 373
- Connect LAN 2 in Core/Net 0 to LAN 2 in Core/Net 1, page 374
- Faceplate disable the cCNI cards, page 374
- Faceplate enable the System Utility Main card, page 374
- Move Network cards to NT4N41 Core/Net 0, page 374
- Install the 3PE cables, page 376

### Verify the main Core cards (front side) are installed

The main Core cards including the MMDU (with the cables for power and data) are installed in the factory (see Figure 82 on page 365):

- **NT4N65 cPCI Core Network Interface (cCNI) cards:** Each system contains between one and four NT4N65 cCNI cards. The cCNI cards are located in slots c9-c12. If not already installed, install a P0906308 cPCI Card Slot Filler Panel to cover any of slots c10 - c12 which do not contain cCNIs.

**Note:** If the system is shipped with cCNIs installed, disengage them from the backplane now and ensure the cCNI faceplate switch is disabled at this point in the procedure.

- Slots c13 and c14 are left empty. If not already installed, install a P0906308 cPCI Card Slot Filler Panel in each slot.
- **NT4N67 System Utility (Sys Util) card** is located in slot c15.
- **A086496 Call Processor PII (CP II)** is located in the slot marked CP.
- **NT4N43 cPCI Multi-Media Disk Unit (MMDU)** is located in the extreme right hand slot next to the CP PII card. The MMDU contains the Hard drive, floppy drive and CD-ROM drive.

## Verify that the Core Transition cards are installed

The Core Transition cards are located directly behind the corresponding main cards (on the rear of the Core backplane). From one to four Core Transition cards (depending on system order) are installed in the factory:

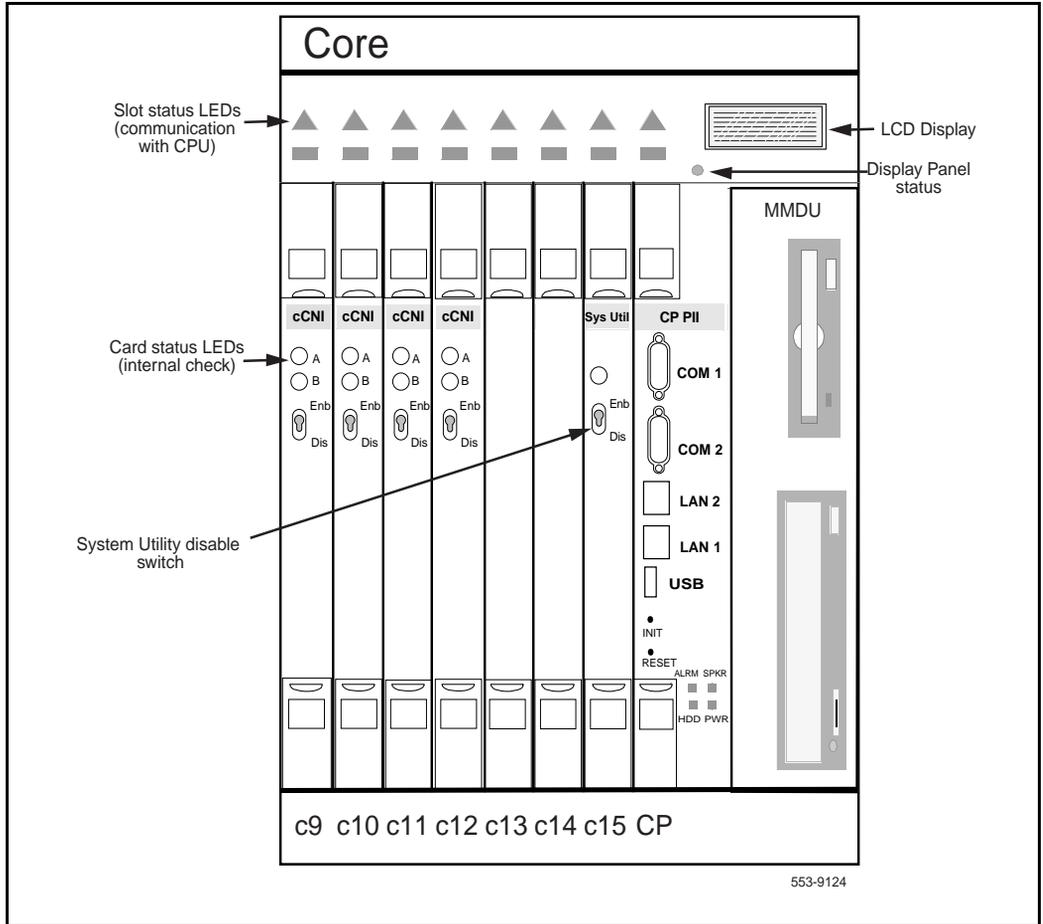
- **NT4N66 cCNI Transition cards:** One cCNI Transition card is installed for each main cCNI card. Each system contains between one and four of these cards. The number of cards corresponds to the number of Network groups in the system.
- **NT4N68 System Utility Transition card:** The System Utility Transition card is installed directly behind the System Utility card and contains connections for the Security Device, the System Monitor (XSM) and the Display Panel.

Figure 83 on page 366 displays the location of the Core Transition cards.

## Check for the CEPS power harness

Verify that the CEPS power harness is installed in the NT4D46 card cage backplane.

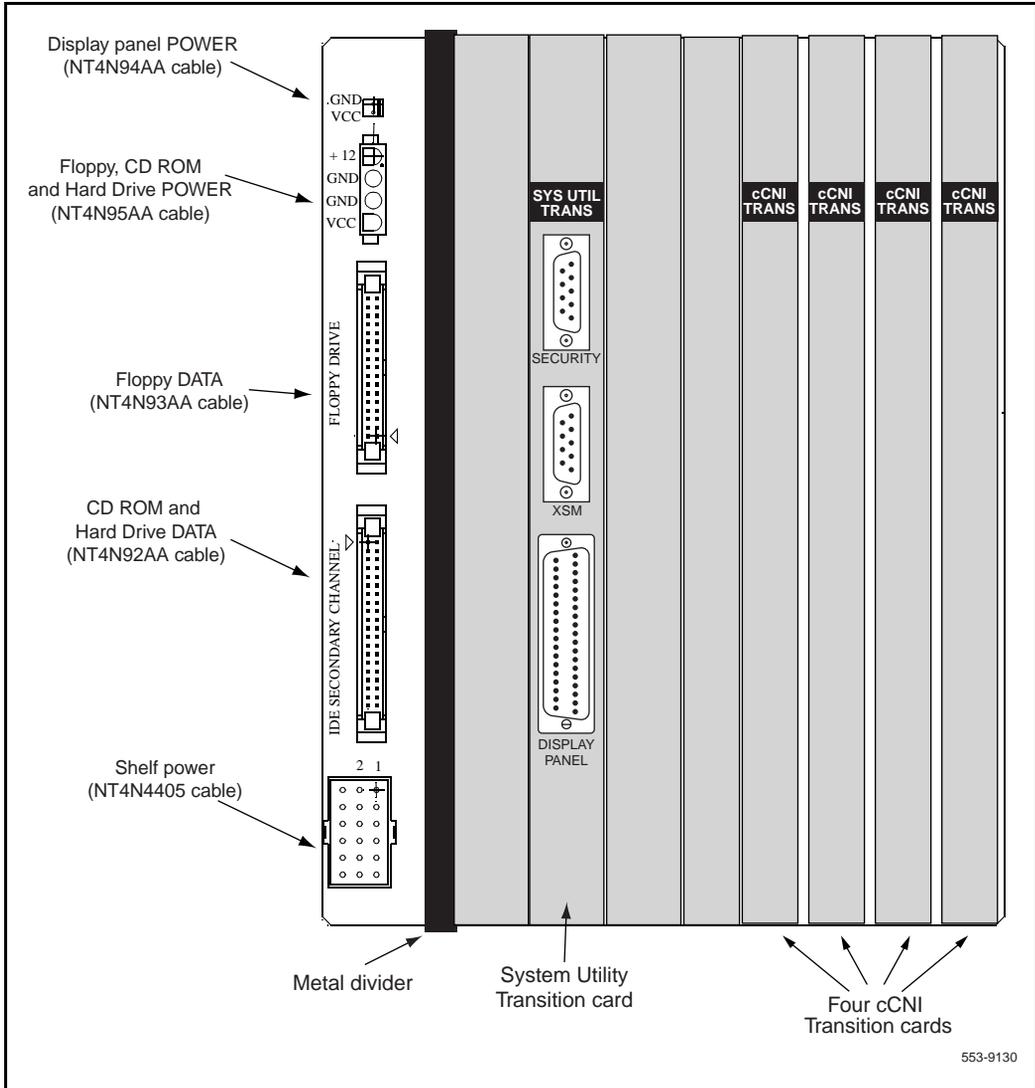
**Figure 82**  
**Core card placement in the NT4N41 Core/Net (front)**



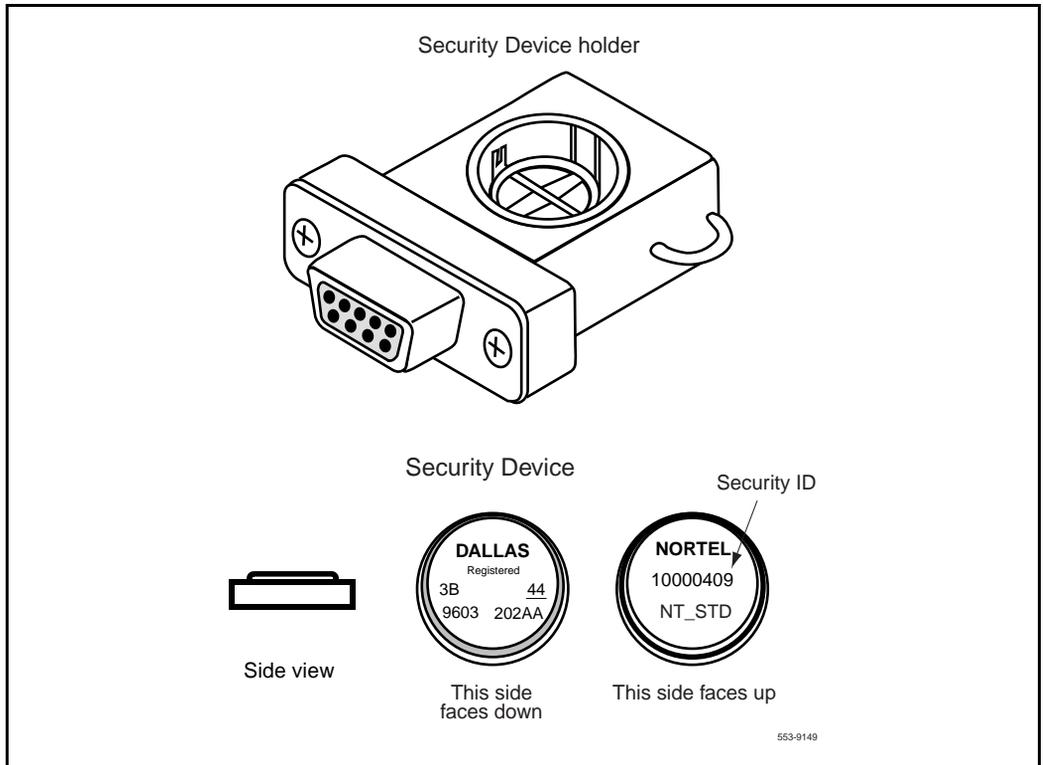
## Install the Security Device

The Security Device fits into the Security Device holder (see Figure 84 on page 367) which attaches to the System Utility Transition card located on the core backplane.

**Figure 83**  
**Location of Transition cards**



**Figure 84**  
**Security Device and holder**

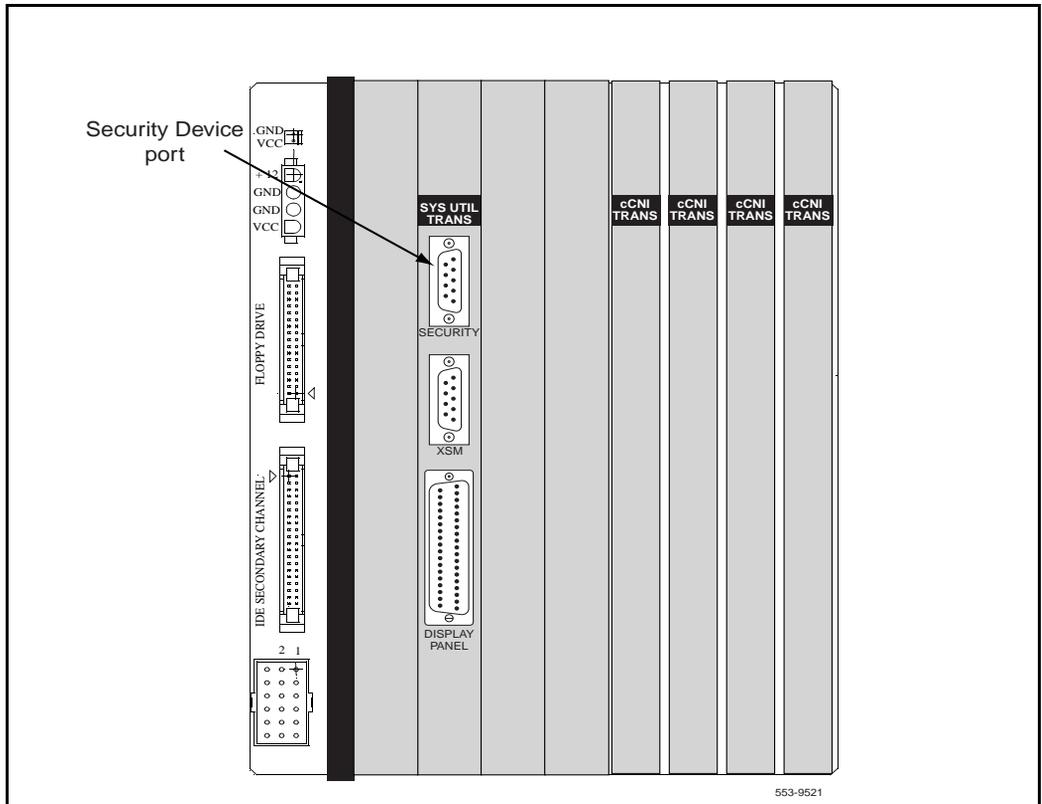


To install the Security Device:

- 1 **If the original system had an IODU/C**, remove the Security Device from the IODU/C for reuse.
  - a Unlock the latches and remove the IODU/C card.



**Figure 85**  
**Security Device installation (System Utility Transition card)**

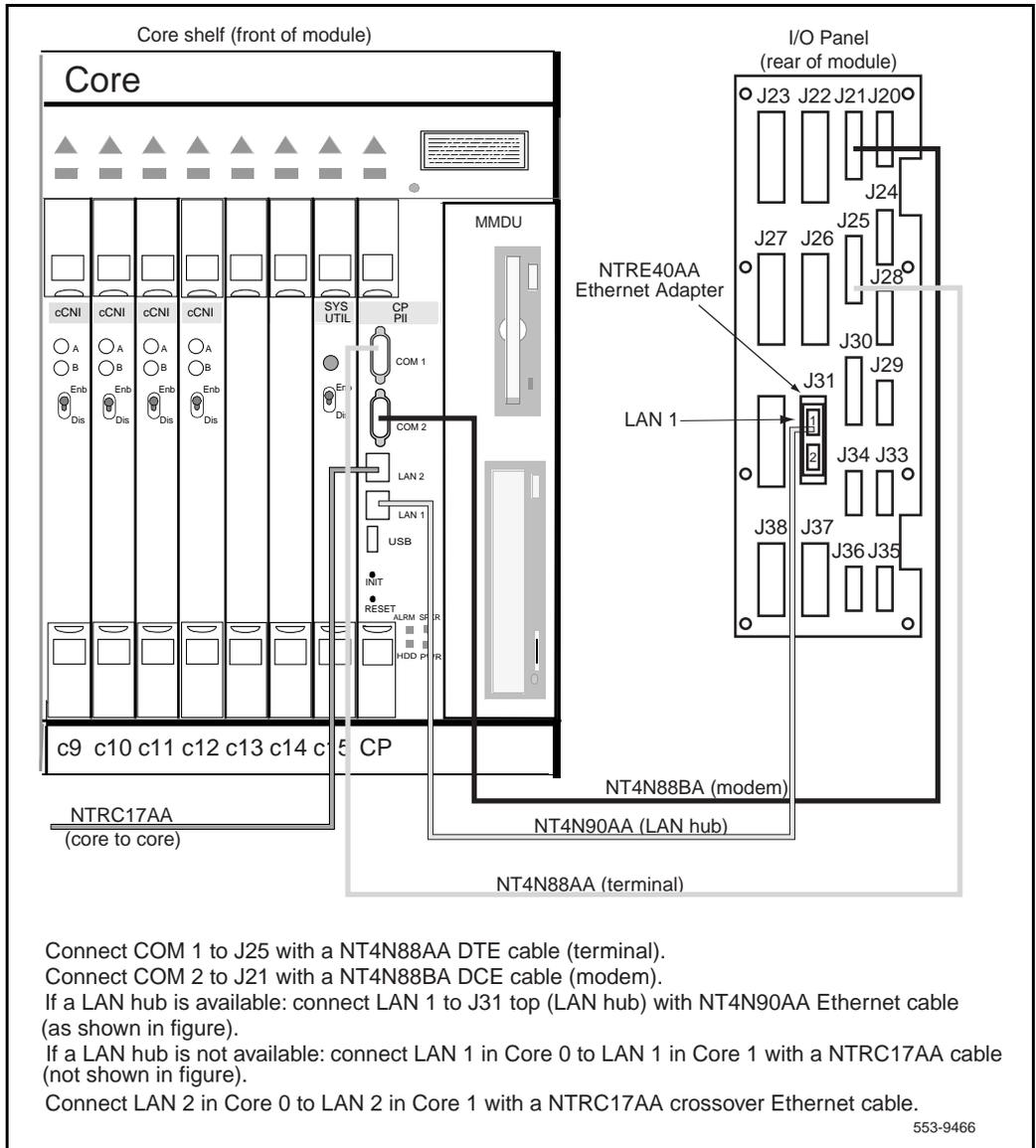


- c** Attach the green ground wire to the frame ground bolt on the module. (a 5/16" socket wrench is used to attach the wire.) Remove the nut and the lock washer at the top of the bolt. Put the frame ground wire terminal over the bolt. Reinstall the top lock washer and the nut, then tighten down the nut.

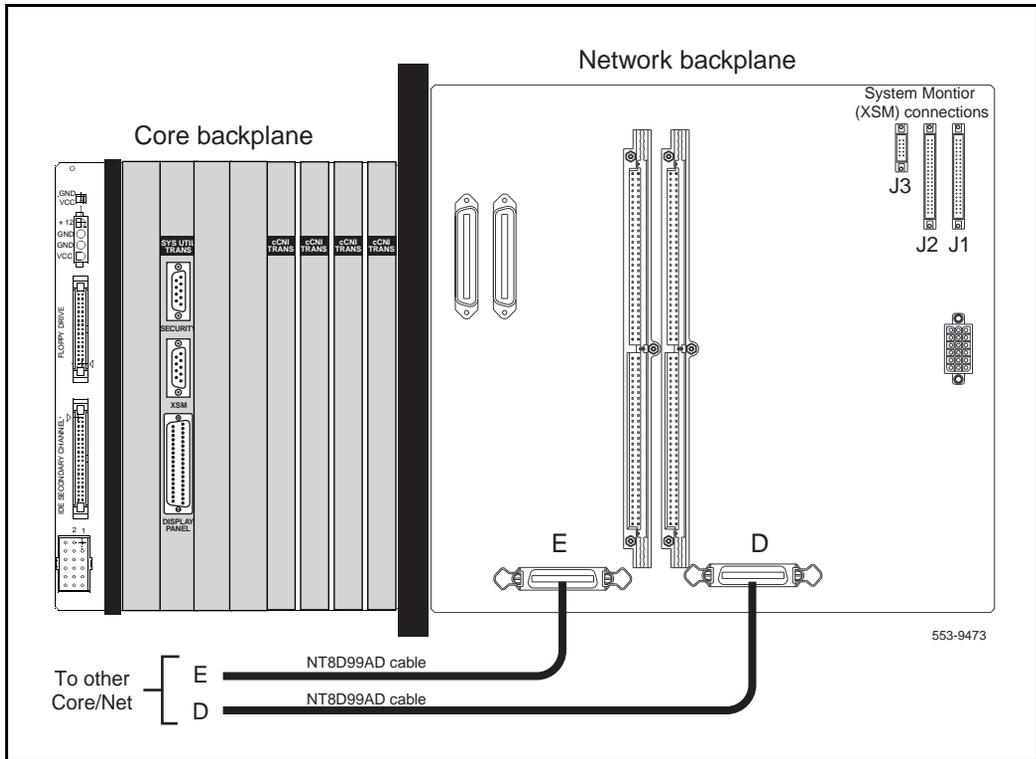
**Note:** For all of the wire terminals to fit on the bolt, remove one of the lock washers. Leave a lock washer at the bottom of the bolt and at the top of the bolt. Leave a third lock washer between the second and third, or the third and fourth, wire terminals.



**Figure 86**  
**COM and LAN connections to the NT4N46 Core/Net I/O panel**



**Figure 87**  
**Connections on the Network backplane**



### Cable COM 1 and COM 2 to the I/O panel

- 1 Connect **COM1** on the CP PII faceplate to **J25** on the I/O panel with cable **NT4N88AA**.
- 2 Connect **COM2** on the CP PII faceplate to **J21** on the back of the I/O panel with cable **NT4N88BA**.

## Connect a terminal and modem to the I/O panel

- 1 Connect **J25** to a **terminal** for use during the upgrade. Use a separate terminal for each Core if available. J25 can also be connected to an A/B box to share a terminal between both Cores.
- 2 Connect **J21** to the device connected in the original system (such as a **modem or A/B box**)

## Connect LAN 1

The LAN 1 port is used to enable redundancy features between the two Core/Net modules. LAN 1 can also be connected to a local area network (LAN) for use with LAN based administration tools such as MAT.

The options for the LAN 1 connections are shown in Figure 88 on page 375.

### If the system connects to a LAN

- 1 Connect the “**Dual Ethernet Adapter (RJ45) for I/O Panel**” (NTRE40AA) to **J31**. Secure the adapter to J31 with the two screws included in the shipment.  
Insert the adapter from the inside of the I/O panel.
- 2 Connect **LAN 1** (Ethernet) on the CP PII faceplate to **J31 (top)** of the I/O panel with cable **NT4N90AA**. This connection can only be made *after* the Dual Ethernet Adapter is installed (see step 3 above).
- 3 Connect **J31** to a **LAN hub**.

### If a LAN is not available, connect LAN 1 directly to LAN 1

If a LAN hub is not available, do NOT connect LAN 1 to the I/O panel. The NTRE40AA Adapter and NT4N90AA cable are NOT installed.

- 1 Connect a **crossover Ethernet cable (NTRC17AA)** to the **LAN 1** port on the CP PII faceplate of Core/Net 0.
- 2 To ensure EMI shielding, route the cable along the front of the card cage and through the sides of the Core/Net modules.
- 3 Connect the other end of the cable to the **LAN 1** port on the CP PII faceplate in Core/Net 1.

## Connect LAN 2 in Core/Net 0 to LAN 2 in Core/Net 1

The LAN 2 ports on the CP PII faceplates are directly connected with a NTRC17AA cable. This connection is for Core redundancy. See <Core redundancy on page 14> for more information on this feature.

- 1 Connect a **crossover Ethernet cable (NTRC17AA)** to the **LAN 2** port on the CP PII faceplate of Core/Net 0. (Figure 86 on page 371).
- 2 To ensure EMI shielding, route the cable along the front of the card cage and through the sides of the Core/Net modules.
- 3 Connect the other end of the cable to the **LAN 2** port on the CP PII faceplate in Core/Net 1.

## Faceplate disable the cCNI cards

In Core/Net 0, hardware disable all cCNI cards from the backplane and disable the faceplate switch on all cCNI cards.

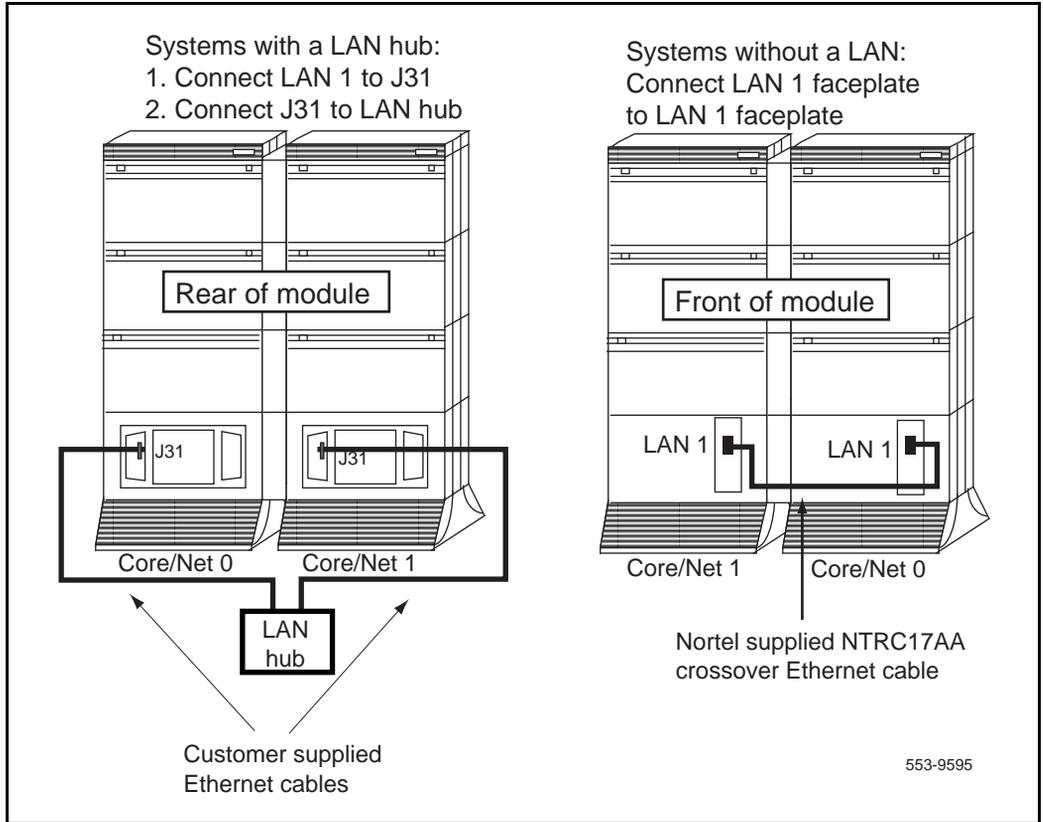
## Faceplate enable the System Utility Main card

In Core/Net 0, faceplate enable the System Utility Main card.

## Move Network cards to NT4N41 Core/Net 0

- 1 Remove each network card from the NT5D21 Core/Net 0.
- 2 Reinstall each card in the same network slot in the Nt4N41 Core/Net 0.
- 3 Connect the tagged cables to the relocated cards.

**Figure 88**  
**Options for LAN 1 connection**



## Install the 3PE cables

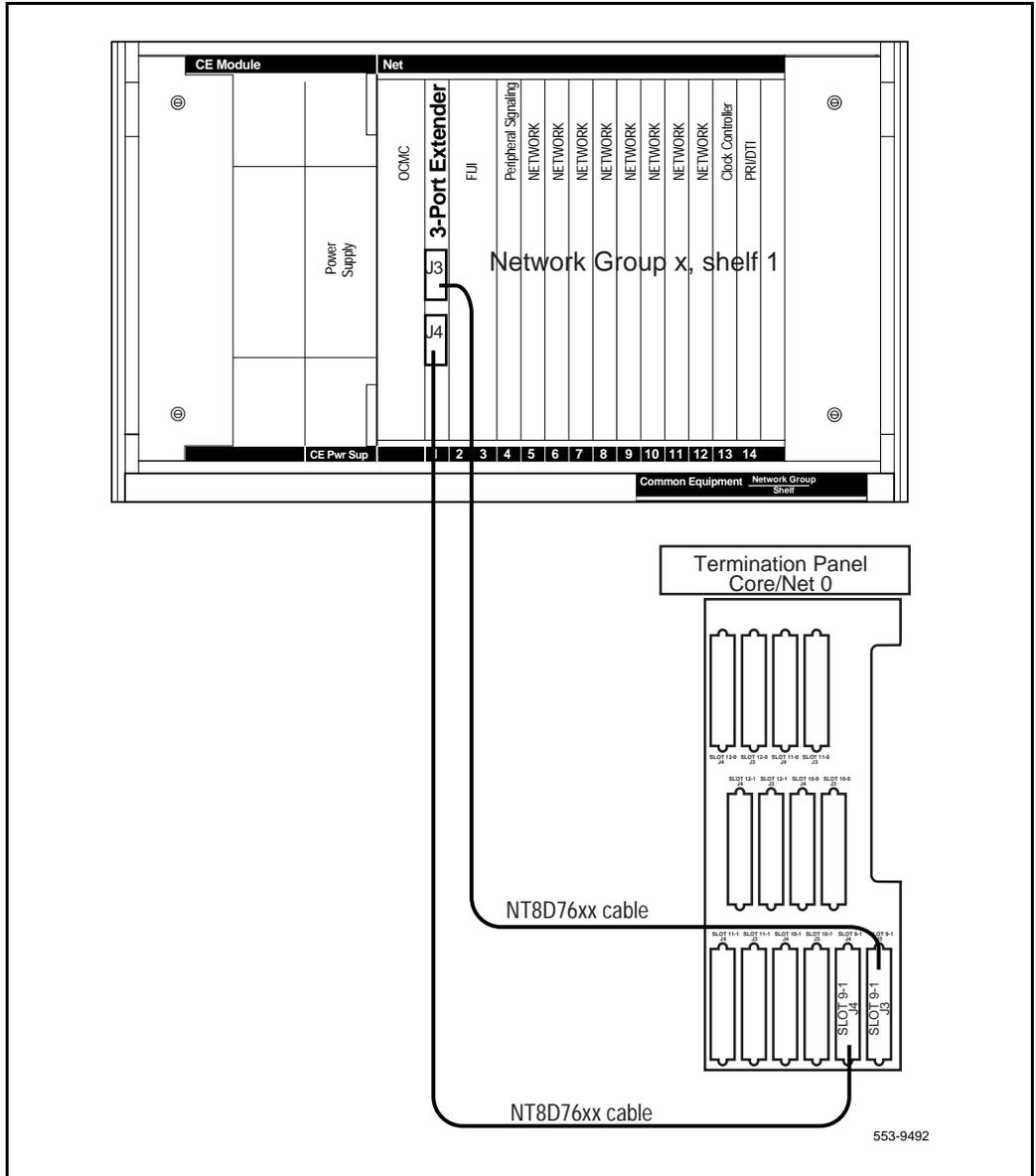
NT8D76 cables connect between the Core/Net Termination Panel and the 3PE cards:

- See Table 46 on page 378 for detailed information on the slot and Network group assignments.
- This procedure applies to systems with columns in a single row. This procedure does not apply to systems with columns in separate aisles.
- Network group assignments for the cCNI ports in the NT4N46 card cage must be the same as the original system. Check to make sure that the cables are installed according to the port assignments in the existing database.
- The new NT8D76 3PE cables must be routed and in place before this procedure is begun. Refer to Route the NT8D76 3PE to cCNI cables, page 98.
- Remember to label all cables with the connection information. Labels are necessary to perform troubleshooting or future upgrades
- Table 46 on page 378 contains connection information for 3PE faceplates and the Core/Net Termination Panel.
- Figure 90 on page 379 shows the connection information on the Termination Panel.

### Connect the 3PE cables in the shelf 0 Network modules

- 1 Disconnect the old cables from the J3 and J4 connectors on the 3PE cards in shelf 0 of each Network group.
- 2 Connect the new NT8D76 cables to J3 and J4 of the 3PE cards. See Figure 89 on page 377 and Table 46 on page 378 for connection information.
- 3 Connect the new NT8D76 cables to the Termination Panel in Core/Net 1. See Figure 90 on page 379 and Table 46 on page 378.  
**Note:** Remove the old unused CNI to 3PE cables.
- 4 If the system has XSDI cards, reinstall the cards and attach the cables.

**Figure 89**  
**3PE Termination Panel connections**



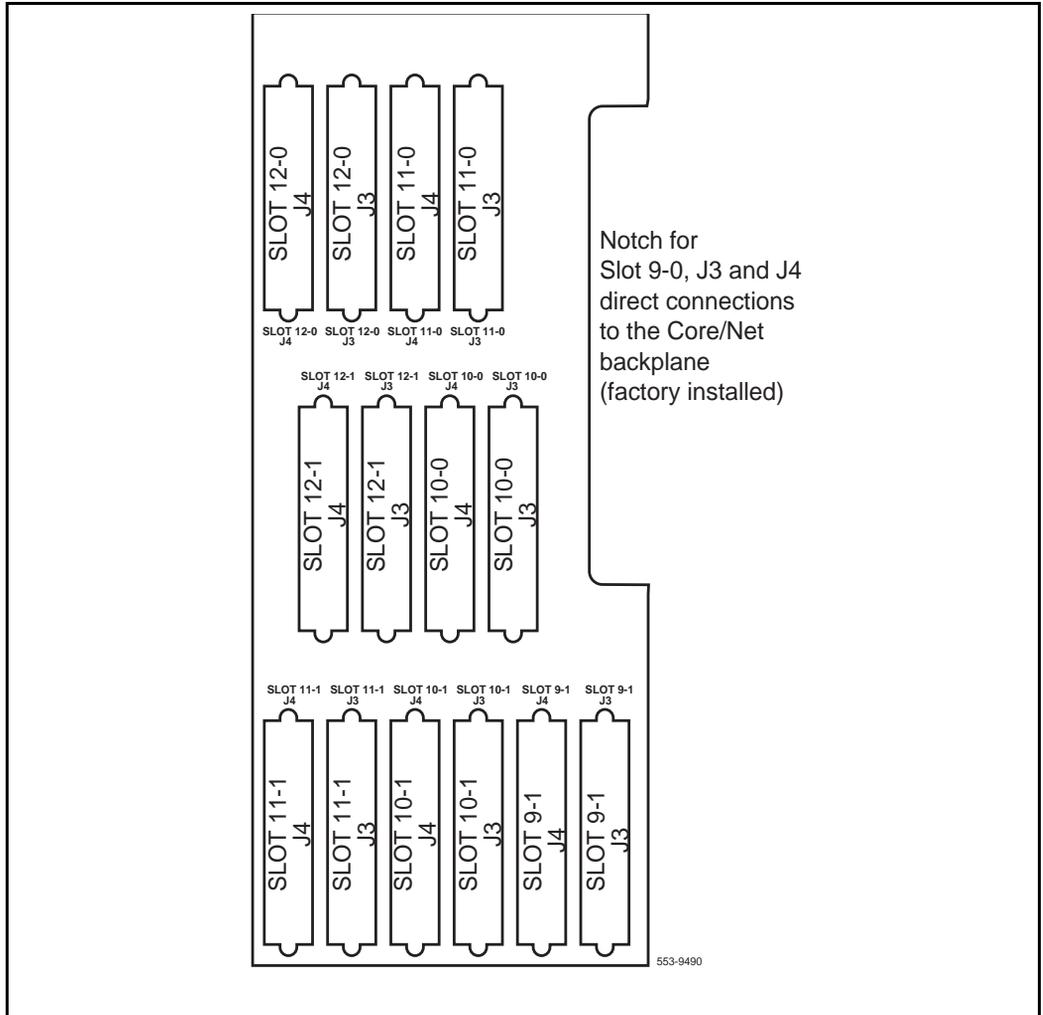
553-9492

**Table 46**  
**Termination Panel to 3PE card connectors**

| Group Number | Termination Panel connector | 3PE card connector |
|--------------|-----------------------------|--------------------|
| 0            | 9-0                         | See Note.          |
| 0            | 9-0                         | See Note.          |
| 1            | 9-1, J3                     | J3                 |
| 1            | 9-1, J4                     | J4                 |
| 2            | 10-0, J3                    | J3                 |
| 2            | 10-0, J4                    | J4                 |
| 3            | 10-1, J3                    | J3                 |
| 3            | 10-1, J4                    | J4                 |
| 4            | 11-0, J3                    | J3                 |
| 4            | 11-0, J4                    | J4                 |
| 5            | 11-1, J3                    | J3                 |
| 5            | 11-1, J4                    | J4                 |
| 6            | 12-0, J3                    | J3                 |
| 6            | 12-0, J4                    | J4                 |
| 7            | 12-1, J3                    | J3                 |
| 7            | 12-1, J4                    | J4                 |

**Note:** Group 0 cables connect from the cCNI Transition card directly to the backplane of Core/Net 0 OR to the NT8D76 cable (depending on your CNI group configuration).

**Figure 90**  
**Connectors for cCNI Transition Cables to the Termination Panel**



## Power up and complete the Core/Net 0 upgrade

### Task summary list

The following is a summary of the tasks in this section:

- Power up the system, page 380
- Confirm that the Network cards are working, page 380
- Install software and convert the database on Core/Net 0, page 380
- Check for Peripheral Software Download to Core/Net 0, page 383
- Enable cCNI cards and reboot Core/Net 0, page 384

### Power up the system

Turn on power to the module:

- **For AC-powered systems**, set the main circuit breaker to ON (top position) in the rear of the pedestal, then set the MPDU circuit breaker located at the left end of the module to ON (top position).
- **For DC-powered systems**, set the breaker to ON (up position) in the pedestal.

### Confirm that the Network cards are working

Bring up all the Network and Network I/O cards. Verify that all the cards have working power. Enable any DTI or PRI cards on an Option 81.

### Install software and convert the database on Core/Net 0

- 1 Verify that a terminal is connected to J25 on Core/Net 0.
- 2 Install the CD-ROM into the CD-ROM drive in the MMDU:
  - a Press the button on the CD-ROM drive to open the CD-ROM disk holder.
  - b Place the CD-ROM disk into the holder with the disk label showing.
  - c Use the four tabs to secure the CD-ROM drive.

- d** Press the button again to close the CD-ROM disk holder.  
**Do not** push the holder in by hand.
- 3** Place the CP PII Install floppy disk into the MMDU floppy drive.  
**Note 1:** If the CD-ROM is not in the CD-ROM drive, the installation will not continue. Insert the CD-ROM to continue.  
**Note 2:** If a problem is detected during the system verification, Install stops, prints an error message, and aborts the installation. If the verification is not successful, do not continue; contact your technical support organization.
- 4** Press the RST button on CP PII.
- 5** Before the Install menu runs, the system validates hard disk partitioning which takes about five minutes. The screen displays:  
Testing partition 0  
0 percent done...1 percent done.....99 percent done....100 percent done  
Testing partition 1  
0 percent done...1 percent done.....99 percent done....100 percent done  
Testing partition 2  
0 percent done...1 percent done.....99 percent done....100 percent completed!  
Disk physical checking is completed!  
There are 3 partitions in disk 0:  
The size of partition 0 of disk 0 is XX MB  
The size of partition 0 of disk 0 is XX MB  
The size of partition 0 of disk 0 is XX MB  
Disk partitions and sectors checking is completed!
- 6** Press <cr> to start the software installation.
- 7** When prompted, remove the CP PII Install Program diskette and insert the Keycode diskette.  
<a> Continue with keycode validation.  
<y> Confirm that the keycode matches the CD-ROM release.

- 8** When the screen displays the Install Menu, select the following options in sequence when you are prompted to do so:

<a> Install software.

<a> Verify that the CD-ROM is now in drive.

The Installation Status Summary screen appears that lists the options to be installed.

<y> Start Installation.

<a> Continue with Upgrade.

- 9** Select a PSDL file to install. The PSDL file contains the loadware for all downloadable cards in the system and loadware for M3900 series sets.

Select one of the six psdl files

<1> Global 10 Languages <default>

<2> Western Europe 10 Languages

<3> Eastern Europe 10 Languages

<4> North America 6 Languages

<5> RIs24 up-issue

<6> North America 6 Languages:

The languages contained in each selection are outlined as follows:

- 1 English, French, German, Spanish, Swedish, Italian, Norwegian, Brazilian, Portuguese, Finnish, Japanese Katakana.
- 2 English, French, German, Spanish, Swedish, Norwegian, Danish, Finnish, Italian, Brazilian Portuguese.
- 3 English, French, German, Dutch, Polish, Czech, Hungarian, Russian, Latvian, Turkish.
- 4 English, Spanish, French, Brazilian Portuguese, Japanese Katakana, German.
- 5 English, French, German, Spanish, Swedish, Italian, Norwegian, Portuguese, Finnish, Japanese Katakana.
- 6 English, French, German, Spanish, Brazilian Portuguese, Japanese Katakana.

- 10** Continue with ROM upgrade when prompted. Select a database to install.
- <cr>** Enter carriage return to continue.
  - <a>** Continue with CP BOOTROM installation.
  - <a>** Install the CP BOOTROM from hard disk.
  - <a>** Start installation.
  - <a>** Continue with ROM upgrade.
- The Installation Status Summary screen appears. Verify that CD to disk, disk to ROM, and CP-BOOTROM were installed.
- <cr>** Continue.
  - <q>** Quit.  
Remove any diskettes and the CD-ROM from the MMDU drives.
  - <y>** Confirm quit.
  - <a>** Reboot the system.
- 11** The system automatically performs a sysload: several messages appear on the system terminal. Wait for "DONE" and then "INI" message to display before you continue.
- While the sysload is being performed, database conversion occurs.
- Verify that the following message appears on the system terminal:
- DATA CONVERSION**  
X11 RELEASE 25.XX TO RELEASE 25.XX
- 12** Confirm that X11 release 25 software is installed and working on Core/Net 0:
- LD 135** Load the program.
  - STAT CPU** Display the CPU status.
  - STAT CNI** Display the cCNI status.

## Check for Peripheral Software Download to Core/Net 0

Load LD 22 and print Target peripheral software version. (the Source peripheral software version was printed during the procedure to Print site data, page 68).

If there is a difference between the Source and Target peripheral software version:

- A forced download occurs during initialization when coming out of parallel reload.
- System initialization takes longer.
- The system drops established calls on IPE.

|              |                                    |
|--------------|------------------------------------|
| <b>LD 22</b> | to load the program                |
| <b>REQ</b>   | PRT                                |
| <b>TYPE</b>  | PSWV                               |
| <b>ISSP</b>  | Print System and Patch Information |
| <b>SLT</b>   | Print System Limits                |
| <b>TID</b>   | Print the Tape ID                  |
| <b>SLLP</b>  | Print System and patch information |
|              | Print auxiliary ID                 |
| <b>****</b>  | exit program                       |

## Enable cCNI cards and reboot Core/Net 0

- 1 Enable the cCNIs on Core/Net 0.
- 2 Reboot Core/Net 0.
- 3 When Core/Net 0 re-boots, restore redundancy:

|               |                                                                        |
|---------------|------------------------------------------------------------------------|
| <b>LD 135</b> | to load the program                                                    |
| <b>SHDW</b>   | Restore redundancy to a system put in single mode by the SPLIT command |

**Note:** Once the *inactive* Core (Core/Net 0) is rebooted, the system will operate in full redundant mode.

## Complete the CP PII upgrade

### Task summary list

The following is a summary of the tasks in this section:

- Test Core/Net 1 and Core/Net 0, page 385
- Switch the Clock Controllers, page 387
- Check the status of the Fiber Ring, page 387
- Perform a data dump, page 388

### Test Core/Net 1 and Core/Net 0

From the active CPU, Core/Net 1, perform the following tests.

- 1 Perform a redundancy sanity test using the following sequence:
 

|                     |                                                                               |
|---------------------|-------------------------------------------------------------------------------|
| <b>LD 135</b>       | to load the program                                                           |
| <b>STAT CNI c s</b> | Get status of cCNI cards                                                      |
| <b>STAT CPU</b>     | Get status of CPU and memory                                                  |
| <b>TEST CPU</b>     | Test the CP PII card in both Core/Nets                                        |
| <b>STAT CNI</b>     | Get the status of all configured CNIs                                         |
| <b>TEST CNI c s</b> | Test each in active cCNI card (core, slot)                                    |
| <b>STAT SUTL</b>    | Get status of the System Utility (main and Transition) cards                  |
| <b>TEST SUTL</b>    | Test the System Utility (main and Transition) cards                           |
| <b>TEST IPB</b>     | Test the Inter Processor Bus                                                  |
| <b>TEST LEDs</b>    | Test LEDs                                                                     |
| <b>TEST LCDs</b>    | Test LCDs                                                                     |
| <b>DSPL ALL</b>     | Get contents of maintenance display for the active Core and previous displays |
  
- 2 Switch Cores and test the other side, Core/Net 0, to confirm that the data is consistent.:
 

|                 |                                        |
|-----------------|----------------------------------------|
| <b>LD 135</b>   | to load the program                    |
| <b>SCPU</b>     | Switch cores                           |
| <b>STAT CPU</b> | Get status of CPU and memory           |
| <b>TEST CPU</b> | Test the CP PII card in both Core/Nets |
| <b>STAT CNI</b> | Get the status of all configured CNIs  |

- TEST CNI c s** Test each in active cCNI card (core, slot)
  - STAT SUTL** Get status of the System Utility (main and Transition) cards
  - TEST SUTL** Test the System Utility (main and Transition) cards
  - TEST IPB** Test the Inter Processor Bus
  - TEST LEDs** Test LEDs
  - TEST LCDs** Test LCDs
  - DSPL ALL** Get contents of maintenance display for the active Core and previous displays
  
- 3 Install the two system monitors. Test that the system monitors are working.
  
- 4 Clear the display and minor alarms on both Cores:
  - CDSP** Clear the displays on the cores
  - CMAJ** Clear major alarms
  - CMIN ALL** Clear minor alarms
  
- 5 Get the status of the Cores, cCNIS, and memory.
  - STAT CPU** Get the status of both Cores and redundancy
  - STAT CNI c s** Get status of all configured cCNI cards and memory

*Note:* You may need to execute the STAT CNI command twice before receiving a response from the system.

\*\*\*\*

Exit program

## Switch the Clock Controllers

- 1 Check that the Clock Controller is assigned to the *active* Core.:  
**LD 60** to load the program  
**SSCK x** Get the status of the Clock Controllers (x is "0" or "1" for Clock Controller 0 or Clock Controller 1)  
**SWCK** Switch the Clock Controller if necessary  
**\*\*\*\*** exit program
- 2 Verify that the Clock Controllers are switching correctly:  
**SWCK** Switch the Clock Controller  
**SWCK** Switch the Clock Controller again

## Check the status of the Fiber Ring

- 1 Check that the Fiber Rings operate correctly:  
**LD 39** to load the program  
**STAT RING 0** Check the status of Ring 0  
**STAT RING 1** Check the status of Ring 1
- 2 If necessary, restore the Rings to Normal State:  
**ARCV ON** Set or reset auto-recovery operation for ring  
**RSTR** Restore both Rings to Normal state
- 3 Check that the Rings operate correctly  
**STAT RING 0** Check the status of Ring 0  
**STAT RING 1** Check the status of Ring 1
- 4 Check the status of the FIJI alarms:  
**STAT ALRM** Query the alarm condition for all FIJI cards in all Network groups

## Perform a data dump

Perform a data dump to backup the customer database:

- 1 Log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program
- 3 When “EDD000” appears on the terminal, enter **EDD** to begin the data dump
- 4 When “DATADUMP COMPLETE” and “DATABASE BACKUP COMPLETE” appear on the terminal, enter **\*\*\*\*** to exit the program

### CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. You must correct a data dump problem before you continue.

The upgrade is complete. Congratulate yourself.

---

# Option 81C CP PII upgrade to Fiber Network Fabric

---

## Content list

The following are the topics in this section:

- [Prepare for upgrade . . . . .](#) 389
- [Perform Option 81C CP PII upgrade to Fiber Network Fabric .](#) 390

This chapter contains instructions for preparing and upgrading an Option 81C with Call Processor PII (CP PII) to Fiber Network Fabric.

## Prepare for upgrade

Follow the Task Summary list instructions under the heading for Prepare for upgrade for Option 81C CP PII to FNF, page 57 and return to Perform Option 81C CP PII upgrade to Fiber Network Fabric, page 390.

## Perform Option 81C CP PII upgrade to Fiber Network Fabric

### Task summary list

The following is a summary of the tasks in this section:

- Check the status of the hardware, page 391
- Check that Core 0 is active, page 391
- Check that Clock Controller 0 is active, page 391
- Split the Cores, page 392
- Upgrade software on Core/Net 1, page 392
- Check for Peripheral Software Download to Core/Net 1, page 396
- Upgrade Side 1 hardware, page 397
- Turn module power off, page 400
- Seat the FIJI cards in Side 1, page 400
- Upgrade Side 0 hardware, page 400
- Cable the Clock Controllers, page 405
- Prepare Core cards for power-up, page 407
- Restore power, page 407
- Verify the Fiber Rings, page 408
- Upgrade software on Core/Net 0, page 409
- Check for Peripheral Software Download to Core/Net 0, page 413
- Enable system redundancy, page 414
- Test Core/Net 1 and Core/Net 0, page 414
- Removal of unused Intergroup cables and module, page 418

Once the steps in Prepare for upgrade, page 389 are complete, follow the procedures listed below in sequence. You must install X11 software on both Core hard drives in order to complete the installation.

## Check the status of the hardware

- 1 Load LD 137 to check the status of the hard disks.
  - LD 137**
  - STAT** Get the status of the hard disks
  - TEST CMDU** Perform hard and floppy disk test
  
- 2 Load LD 135 and check the status of the CPs, CNIs and memories.
  - LD 135**
  - STAT CPU** Get the status of both CPs and memory
  - STAT CNI** Get the status of all configured CNIs

### **CAUTION**

Verify that CMDUs, CPUs, and CNIs are in sync/redundant status. If they are not, correct the status before continuing with the upgrade.

## Check that Core 0 is active

- 1 Check that Core 0 is active.  
If Core 1 is active, make Core 0 active:
  - LD 135**
  - STAT CPU** Get the status of the CPUs
  - SCPU** Switch to Core 0 (if necessary)

## Check that Clock Controller 0 is active

- 1 Get the status of the Clock Controllers:
  - LD 60** Load the program
  - SSCK 0** Get the status of clock 0
  - SSCK 1** Get the status of clock 1
  
- 2 If Clock Controller 1 is active, switch to Clock Controller 0.
  - SWCK** If necessary, to switch to clock controller 0
  - \*\*\*\*** Exit the program

## Split the Cores

- 1 From the active side, split the cores:  
**LD 135**  
**SPLIT** Enter Split on the active core  
Allow the former active side to INIT before continuing  
**\*\*\*\*** Exit program

The system is now in split mode.

## Upgrade software on Core/Net 1

- 1 In Core/Net 1, install the CD-ROM into the CD-ROM drive in the MMDU:
  - a Press the button on the CD-ROM drive to open the CD-ROM disk holder.
  - b Place the CD-ROM disk into the holder with the disk label showing.
  - c Press the button again to close the CD-ROM disk holder.  
**Do not** push the holder in by hand.

**Note:** If the CD-ROM is not in the CD-ROM drive, the installation will not continue. Insert the CD-ROM to continue.

- 2 Place the CP PII Install floppy disk into the MMDU floppy drive.

**Note:** If a problem is detected during the system verification, Install stops, prints an error message, and aborts the installation. If the verification is not successful, do not continue; contact your technical support organization.

- 3 Press the manual RESET button on the CP PII card faceplate.
- 4 Before the install runs, the system validates hard disk partitioning which takes about five minutes. The screen displays:  
Testing partition 0  
0 percent done...1 percent done.....99 percent done....100 percent done  
Testing partition 1  
0 percent done...1 percent done.....99 percent done....100 percent done  
Testing partition 2  
0 percent done...1 percent done.....99 percent done....100 percent completed!  
Disk physical checking is completed!  
There are 3 partitions in disk 0:  
The size of partition 0 of disk 0 is XX MB  
The size of partition 0 of disk 0 is XX MB  
The size of partition 0 of disk 0 is XX MB  
Disk partitions and sectors checking is competed!
- 5 At the terminal, press <cr> to start the software installation.
- 6 When prompted, remove the CP PII Install Program diskette and insert the Keycode diskette.  
<a> Continue with keycode validation  
<y> Confirm that the keycode matches the CD-ROM release
- 7 When the screen displays the Install Menu, select the following options in sequence when prompted to do so:  
<a> Install software and CP-BOOT ROM  
<a> Verify that the CD-ROM is now in drive  
The Installation Status Summary screen appears that lists the options to be installed.  
<a> Continue with Upgrade

- 8      Select a PSDL file to install. The PSDL file contains the loadware for all downloadable cards in the system and loadware for M3900 series sets.

**Select one of the six psdl files**

- <1>      Global 10 Languages <default>
- <2>      Western Europe 10 Languages
- <3>      Eastern Europe 10 Languages
- <4>      North America 6 Languages
- <5>      RIs24 up-issue
- <6>      North America 6 Languages:

The languages contained in each selection are outlined as follows:

- 1      English, French, German, Spanish, Swedish, Italian, Norwegian, Brazilian, Portuguese, Finnish, Japanese Katakana.
- 2      English, French, German, Spanish, Swedish, Norwegian, Danish, Finnish, Italian, Brazilian Portuguese.
- 3      English, French, German, Dutch, Polish, Czech, Hungarian, Russian, Latvian, Turkish.
- 4      English, Spanish, French, Brazilian Portuguese, Japanese Katakana, German.
- 5      English, French, German, Spanish, Swedish, Italian, Norwegian, Portuguese, Finnish, Japanese Katakana.
- 6      English, French, German, Spanish, Brazilian Portuguese, Japanese Katakana.

9 Continue with upgrade when prompted. Select a database to install.

<cr> Enter carriage return to continue.

<a> Continue with CP BOOTROM installation

<a> Install the CP BOOTROM from hard disk

<a> Start installation

<a> Continue with ROM upgrade

The Installation Status Summary screen appears. Verify that CD to disk, disk to ROM, and CP-BOOTROM were installed.

<cr> Continue

<q> Quit (remove any diskettes and the CD-ROM from the MMDU drives)

<y> Confirm quit

<a> Reboot the system

The system will automatically perform a sysload: several messages appear on the system terminal. Wait for "DONE" and then "INI" messages to display before you continue.

While the sysload is being performed, database conversion occurs.

Verify that the following message appears on the system terminal:

DATA CONVERSION

X11 RELEASE 25.XX TO RELEASE 25.

Confirm that the X11 Release 25 software is installed and functional on Core/Net 1:

**LD 135** to load the program

**STAT CPU** to display the CPU status

**Note:** FIJI system/alarm messages are displayed during this step since the FIJI cards are not installed.

## Check for Peripheral Software Download to Core/Net 1

- 1 Load LD 22 and print Target peripheral software version. The Source peripheral software version was printed during the procedure to Print site data, page 68.

If there is a difference between the Source and Target peripheral software version:

- A forced download occurs during initialization when coming out of parallel reload.
- System initialization takes longer.
- The system drops established calls on IPE.

### LD 22

```
REQ          PRT
TYPE         CFN
TYPE         PKG 365
TYPE         PKG 368
TYPE         PSWV
ISSP         Print issue and release
TID          Print Tape ID
SLLP         Print System and patch
              information
              Print auxiliary ID
****        exit program
```

- 2 Print number of stations in the converted system and verify database is converted. .

### LD 81

```
REQ          CNT
...
...
FEAT         SETS
```

If the system fails to load, or system messages indicate data corruption, back out of the parallel reload process.

**The software upgrade on Core/Net 1 is complete.**

## Upgrade Side 1 hardware

Follow the procedures below in sequence:

- 1 Software disable the IGS/DIGS cards in Side 1 (IGS/DIGS odd-numbered cards, 1 - 19):  
**LD 39** to load the program  
**DISI IGS xx** xx is the IGS card number 1 - 19
- 2 Faceplate disable the IGS/DIGS cards in Side 1.
- 3 Tag and disconnect the IGS/DIGS cables.
- 4 Remove the IGS/DIGS cards from Side 1.
- 5 Faceplate enable the FIJI cards.
- 6 Insert the FIJI cards in Side 1. **DO NOT seat the FIJI cards.**  
**Note:** FIJI cards are installed in slots 2 and 3 of the Network modules, and slots 8 and 9 of the Core/Net modules.

### Connect the shelf 1 FIJI Ring cables

Create Fiber Ring 1. Connect the FIJI cards in all Network shelves 1 in **descending** order, from Tx to Rx (Figure 91 on page 398 and Table 47 on page 399).

Remove the black cap from the end of each cable before it is connected.

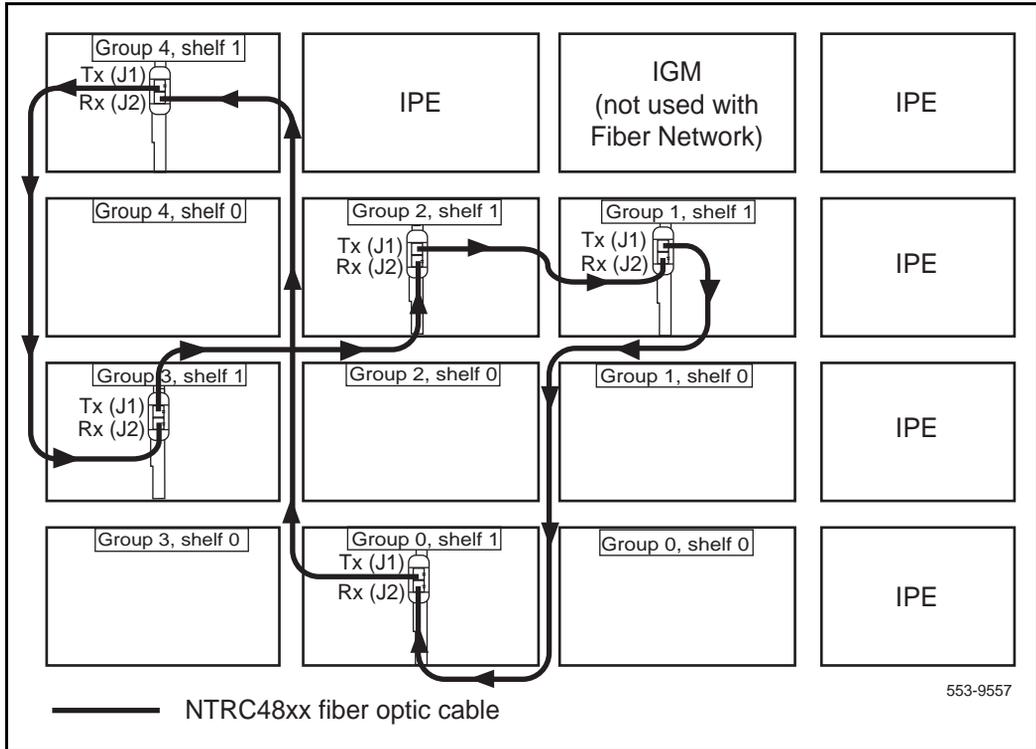
**Note:** Each end of the NTRC48xx cable is labeled "Tx" or Rx" in the factory.

- 1 Start with Network group 0, shelf 1.
- 2 Connect a NTRC48xx FIJI Fiber Ring cable of the appropriate length from the Tx (J1) port of the FIJI card in **Group 0, shelf 1** to the Rx (J2) port of the FIJI card in the **highest Network group, shelf 1**.
- 3 Connect a NTRC48xx cable from the Tx (J1) port of the FIJI card from the Tx (J1) port in the **highest Network group, shelf 1** to the Rx (J2) port in the **second highest Network group, shelf 1**.
- 4 Continue to connect NTRC48xx FIJI Fiber Ring cables of the appropriate length from the Tx (J1) port to the Rx (J2) port in shelf 1 of each Network group. Connect these cables in **descending** order of Network groups.

- 5 To complete the Ring, connect a final cable from Tx in **Group 1, shelf 1** to Rx in Group 0, shelf 1.

**Note:** Connect the Side 1 FIJI Ring cables only.

**Figure 91**  
Shelf 1 *descending* fiber optic Ring



**Table 47**  
**FIJI Ring 1 connections**

| Groups 0 - X are cabled in descending order |                |       |
|---------------------------------------------|----------------|-------|
| Group/Shelf                                 | FIJI Connector | Tx/Rx |
| 0/1                                         | P1             | Tx    |
| 7/1                                         | P2             | Rx    |
| 7/1                                         | P1             | Tx    |
| 6/1                                         | P2             | Rx    |
| 6/1                                         | P1             | Tx    |
| 5/1                                         | P2             | Rx    |
| 5/1                                         | P1             | Tx    |
| 4/1                                         | P2             | Rx    |
| 4/1                                         | P1             | Tx    |
| 3/1                                         | P2             | Rx    |
| 3/1                                         | P1             | Tx    |
| 2/1                                         | P2             | Rx    |
| 2/1                                         | P1             | Tx    |
| 1/1                                         | P2             | Rx    |
| 1/1                                         | P1             | Tx    |
| 0/1                                         | P2             | Rx    |

## Turn module power off

### WARNING

Call processing will be interrupted for approximately 30 minutes while the procedures are completed.

Power down the modules with the module power switch. DO NOT power down the columns at the PDU:

- 1 Power down Core/Net Module 0.
- 2 Power down Core/Net Module 1.
- 3 Power down all Network Modules.

## Seat the FIJI cards in Side 1

The FIJI cards in side 1 can now be seated.

- 1 Push the faceplate latches forward to lock the cards in place.
- 2 Verify that the cards are faceplate *enabled* (set the ENB/DIS switch to ENB).

## Upgrade Side 0 hardware

### Install Side 0 FIJI cards

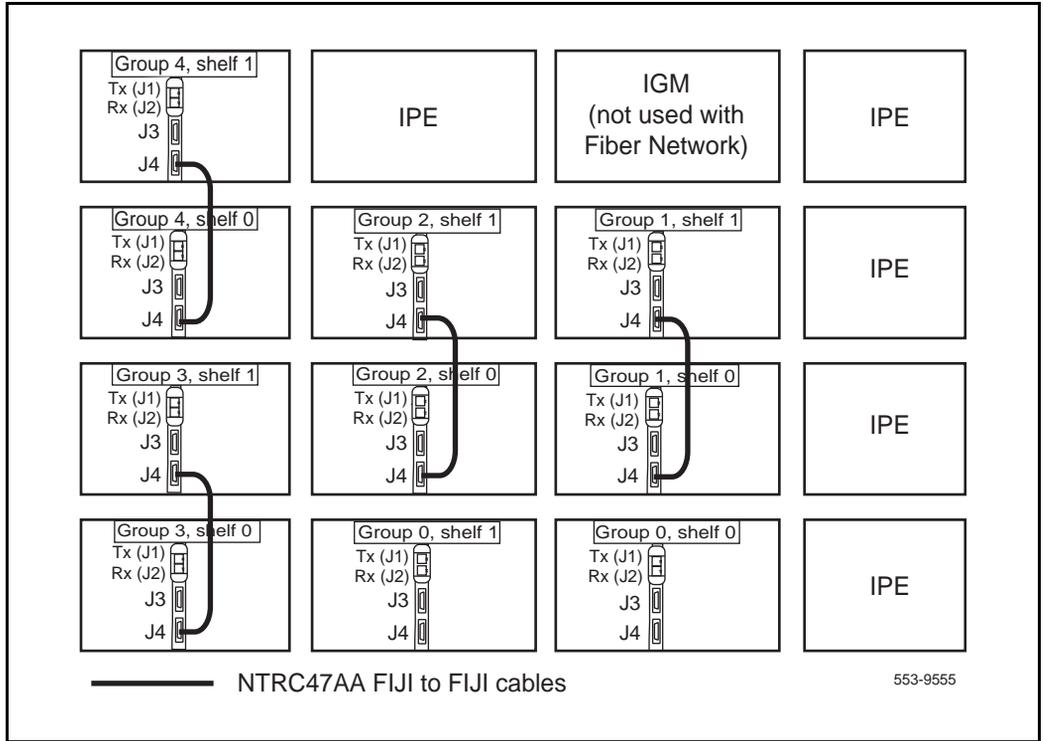
- 1 Tag and disconnect the IGS/DIGS cables.
- 2 Remove the IGS/DIGs cards from Side 0.
- 3 Insert and seat the FIJI cards in Side 0 (push the faceplate latches forward to lock the cards in place).
- 4 Faceplate enable the FIJI cards (set the ENB/DIS switch to ENB).

### Connect the FIJI to FIJI cables

- 1 Connect P2 of a NTRC47 FIJI to FIJI cable to J4 of the FIJI cards in each Network shelf 0, except group 0.
- 2 Connect P1 of a NTRC47 FIJI to FIJI cable to J4 of the FIJI cards in each Network shelf 1, except group 0.

**Note:** The FIJI cards in Group 0 do not receive a FIJI to FIJI cable.

**Figure 92**  
**FIJI shelf 0 to FIJI shelf 1 connections**



### Connect the shelf 0 FIJI Ring cables

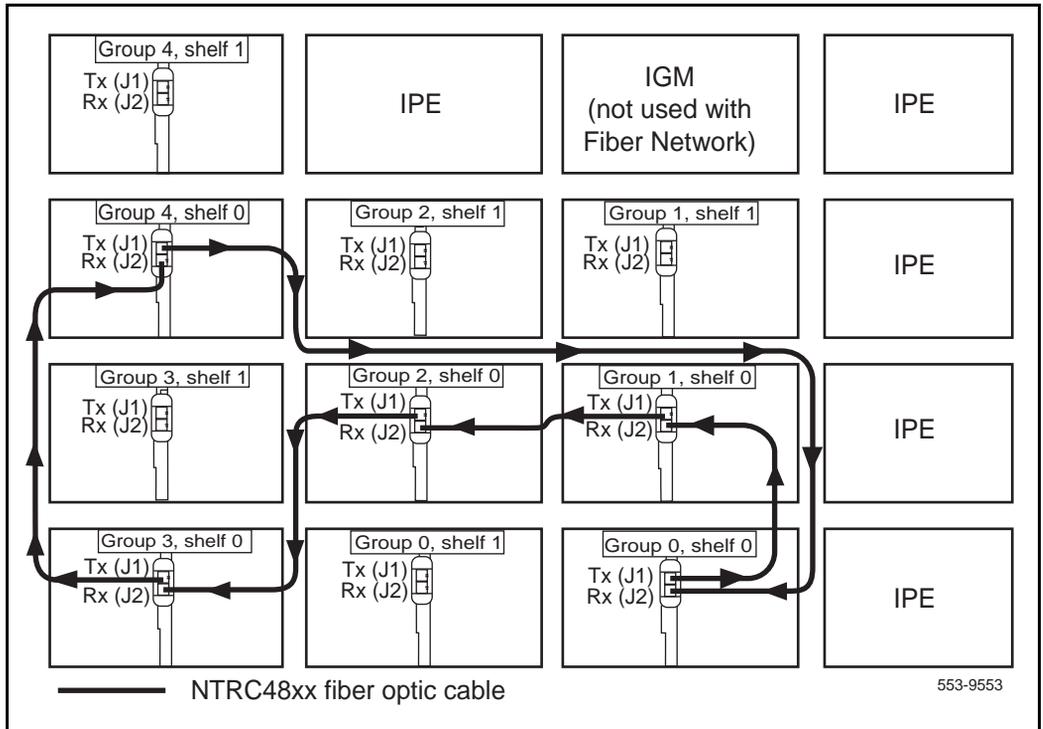
Create Fiber Ring 0. Connect the FIJI cards in all Network shelves 0 in **ascending** order, from Tx to Rx ports (Figure 93 on page 403 and Table 48 on page 404).

Remove the black cap from the end of each cable before it is connected.

**Note:** Each end of the NTRC48xx cable is labeled “Tx” or Rx” in the factory.

- 1 Start with group 0, shelf 0.
- 2 Connect a NTRC48xx FIJI Fiber Ring cable of the appropriate length from the Tx (J1) port of the FIJI card in **Group 0, shelf 0** to the Rx (J2) port of the FIJI card in **Group 1, shelf 0**.
- 3 Connect a NTRC48xx FIJI Fiber Ring cable of the appropriate length from the Tx (J1) port of the FIJI card in **Group 1, shelf 0** to the Rx (J2) port of the FIJI card in **Group 2, shelf 0**.
- 4 Continue to connect NTRC48xx FIJI Fiber Ring cables of the appropriate length from the Tx (J1) port to the Rx (J2) port in shelf 0 of each Network group. Connect these cables in **ascending** order of Network groups.
- 5 To complete the Ring, connect a final cable from the Tx (J1) port in the **highest number group** back to the Rx (J2) port in **Group 0, shelf 0**.

**Figure 93**  
**Shelf 0 ascending fiber optic Ring**



**Table 48**  
**FIJI Ring 0 connections**

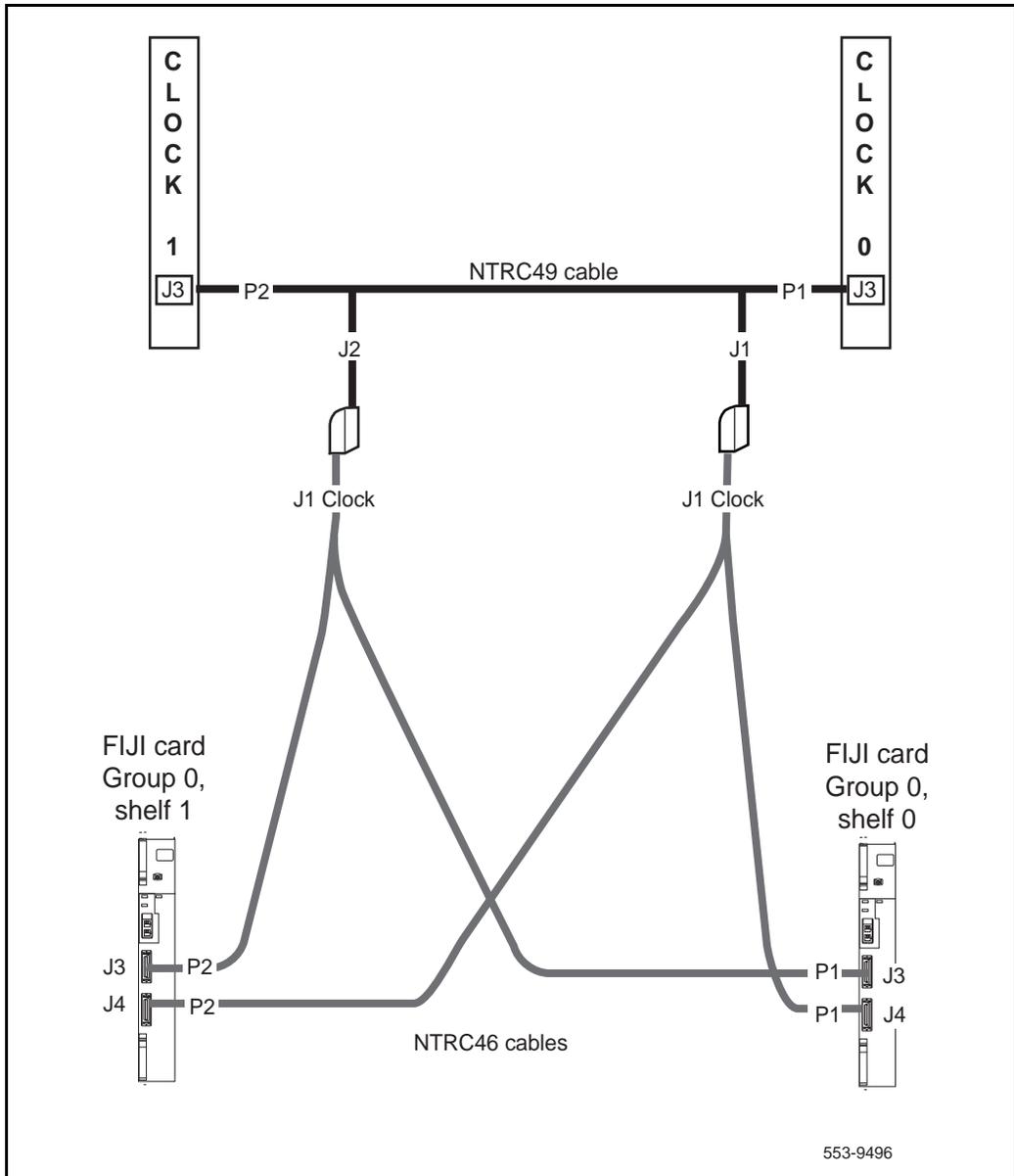
| <b>Groups X - 0 are cabled in ascending order</b> |                       |              |
|---------------------------------------------------|-----------------------|--------------|
| <b>Group/Shelf</b>                                | <b>FIJI Connector</b> | <b>Tx/Rx</b> |
| 0/0                                               | P1                    | Tx           |
| 1/0                                               | P2                    | Rx           |
| 1/0                                               | P1                    | Tx           |
| 2/0                                               | P2                    | Rx           |
| 2/0                                               | P1                    | Tx           |
| 3/0                                               | P2                    | Rx           |
| 3/0                                               | P1                    | Tx           |
| 4/0                                               | P2                    | Rx           |
| 4/0                                               | P1                    | Tx           |
| 5/0                                               | P2                    | Rx           |
| 5/0                                               | P1                    | Tx           |
| 6/0                                               | P2                    | Rx           |
| 6/0                                               | P1                    | Tx           |
| 7/0                                               | P2                    | Rx           |
| 7/0                                               | P1                    | Tx           |
| 0/0                                               | P2                    | Rx           |

## Cable the Clock Controllers

Connect the cables to the Clock Controllers as shown in Figure 94 on page 406:

- 1 Connect the Clock to Clock cable:**
  - a** Connect P1 of the NTRC49 cable to port J3 of Clock Controller 0.
  - b** Connect P2 of the NTRC49 cable to port J3 of Clock Controller 1.
- 2 Connect the Clock 0 to FIJI cable:**
  - a** Connect P1 of the NTRC46 cable from Clock 0 to **J4** of the FIJI card in group 0, **shelf 0**.
  - b** Connect P2 of the NTRC46 cable from Clock 0 to **J4** of the FIJI card in group 0, **shelf 1**.
- 3 Connect a Clock 1 to FIJI cable:**
  - a** Connect P1 of the NTRC46 cable from Clock 1 to **J3** of the FIJI card in group 0, **shelf 0**.
  - b** Connect P2 of the NTRC46 cable from Clock 1 to **J3** of the FIJI card in group 0, **shelf 1**.

**Figure 94**  
**Clock Controller cable configuration**



## Prepare Core cards for power-up

- 1 Verify that a terminal is connected to the J25 I/O panel connector on Core/Net 1.
- 2 Faceplate *disable* the cCNI cards in Core/NET 0.
- 3 Faceplate *enable* the cCNI cards in Core/Net 1.

## Restore power

Restore power in the order below:

- 1 Restore power to Core/Net 1.
- 2 Restore power to Core/Net 0.
- 3 Restore power to the Network modules.
- 4 Wait for the system to load/initialize.
- 5 Re-initialize Core/Net 1.

**Note:** Re-initializing Core/Net 1 stops the midnight routines from running.



## Upgrade software on Core/Net 0

- 1 In Core/Net 0, install the CD-ROM into the CD-ROM drive in the MMDU:
  - a Press the button on the CD-ROM drive to open the CD-ROM disk holder.
  - b Place the CD-ROM disk into the holder with the disk label showing.
  - c Press the button again to close the CD-ROM disk holder.  
**Do not** push the holder in by hand.

**Note:** If the CD-ROM is not in the CD-ROM drive, the installation will not continue. Insert the CD-ROM to continue.

- 2 Place the CP PII Install floppy disk into the MMDU floppy drive.

**Note:** If a problem is detected during the system verification, Install stops, prints an error message, and aborts the installation. If the verification is not successful, do not continue; contact your technical support organization.

- 3 Press the manual RESET button on the CP PII card faceplate.
- 4 Before the install runs, the system validates hard disk partitioning which takes about five minutes. The screen displays:  
Testing partition 0  
0 percent done...1 percent done.....99 percent done....100 percent done  
Testing partition 1  
0 percent done...1 percent done.....99 percent done....100 percent done  
Testing partition 2  
0 percent done...1 percent done.....99 percent done....100 percent completed!  
Disk physical checking is completed!  
There are 3 partitions in disk 0:  
The size of partition 0 of disk 0 is XX MB  
The size of partition 0 of disk 0 is XX MB  
The size of partition 0 of disk 0 is XX MB  
Disk partitions and sectors checking is competed!
- 5 At the terminal, press <cr> to start the software installation.
- 6 When prompted, remove the CP PII Install Program diskette and insert the Keycode diskette.  
<a> Continue with keycode validation  
<y> Confirm that the keycode matches the CD-ROM release
- 7 When the screen displays the Install Menu, select the following options in sequence when prompted to do so:  
<a> Install software and CP-BOOT ROM  
<a> Verify that the CD-ROM is now in drive  
The Installation Status Summary screen appears that lists the options to be installed.  
<a> Continue with Upgrade

- 8** Select a PSDL file to install. The PSDL file contains the loadware for all downloadable cards in the system and loadware for M3900 series sets.

**Select one of the six psdl files**

- <1> Global 10 Languages <default>
- <2> Western Europe 10 Languages
- <3> Eastern Europe 10 Languages
- <4> North America 6 Languages
- <5> RIs24 up-issue
- <6> North America 6 Languages:

The languages contained in each selection are outlined as follows:

- 1 English, French, German, Spanish, Swedish, Italian, Norwegian, Brazilian, Portuguese, Finnish, Japanese Katakana.
- 2 English, French, German, Spanish, Swedish, Norwegian, Danish, Finnish, Italian, Brazilian Portuguese.
- 3 English, French, German, Dutch, Polish, Czech, Hungarian, Russian, Latvian, Turkish.
- 4 English, Spanish, French, Brazilian Portuguese, Japanese Katakana, German.
- 5 English, French, German, Spanish, Swedish, Italian, Norwegian, Portuguese, Finnish, Japanese Katakana.
- 6 English, French, German, Spanish, Brazilian Portuguese, Japanese Katakana.

9        Continue with upgrade when prompted. Select a database to install.

<cr>    Enter carriage return to continue.

<a>      Continue with CP BOOTROM installation

<a>      Install the CP BOOTROM from hard disk

<a>      Start installation

<a>      Continue with ROM upgrade

The Installation Status Summary screen appears. Verify that CD to disk, disk to ROM, and CP-BOOTROM were installed.

<cr>    Continue

<q>      Quit (remove any diskettes and the CD-ROM from the MMDU drives)

<y>      Confirm quit

<a>      Reboot the system

The system will automatically perform a sysload: several messages appear on the system terminal. Wait for "DONE" and then "INI" messages to display before you continue.

While the sysload is being performed, database conversion occurs.

Verify that the following message appears on the system terminal:

DATA CONVERSION

X11 RELEASE 25.XX TO RELEASE 25.

Confirm that the X11 Release 25 software is installed and functional on Core/Net 0:

**LD 135** to load the program

**STAT CPU** to display the CPU status

## Check for Peripheral Software Download to Core/Net 0

- 1 Load LD 22 and print Target peripheral software version. The Source peripheral software version was printed during the procedure to Print site data, page 68.

If there is a difference between the Source and Target peripheral software version:

- A forced download occurs during initialization when coming out of parallel reload.
- System initialization takes longer.
- The system drops established calls on IPE.

### LD 22

|             |                                    |
|-------------|------------------------------------|
| <b>REQ</b>  | PRT                                |
| <b>TYPE</b> | CFN                                |
| <b>TYPE</b> | PKG 365                            |
| <b>TYPE</b> | PKG 368                            |
| <b>TYPE</b> | PSWV                               |
| <b>ISSP</b> | Print issue and release            |
| <b>TID</b>  | Print Tape ID                      |
| <b>SLLP</b> | Print System and patch information |
|             | Print auxiliary ID                 |
| ****        | exit program                       |

- 2 Print number of stations in the converted system and verify database is converted. .

### LD 81

|             |      |
|-------------|------|
| <b>REQ</b>  | CNT  |
| ...         |      |
| ...         |      |
| <b>FEAT</b> | SETS |

## Enable system redundancy

- 1 From the active CPU, Core/Net 1, enable redundancy:

**LD 135**

**JOIN** Synchronize the memory drives

The inactive CPU warm starts and then synchronizes memory and drives.

## Test Core/Net 1 and Core/Net 0

From the active CPU, Core/Net 1, perform these tests:

- 1 Perform a redundancy sanity test using the following sequence:

**LD 135**

**STAT CNI c s** Get status of CNI cards

**STAT CPU** Get status of CPU and memory

**TEST CPU** Test the CP PII card in both Core/Nets

**TEST CNI c s** Test each inactive CNI card

**STAT SUTL** Get status of Sys Util card

**TEST SUTL** Test the Sys Util card

**TEST IPB** Test Inter Processor Bus

**TEST LCD** Test LCDs

**TEST LED** Test LEDs

**DSPL ALL** Get contents of maintenance display for the active Core and previous 63 displays

- 2 Test system redundancy:

**LD 137**

**TEST RDUN** Test the inactive Core/Net

**DATA RDUN** Test each inactive CNI card

**TEST CMDU** Test the MMDU

- 3 Switch Cores and test the other side (Core/Net 0)

**LD 135**

**SCPU** Switch cores

**TEST CPU** Test the inactive Core/Net

- |          |                     |                                                                                  |
|----------|---------------------|----------------------------------------------------------------------------------|
|          | <b>STAT CNI c s</b> | Get status of cCNI cards                                                         |
|          | <b>TEST CNI c s</b> | Test cCNI cards                                                                  |
|          | <b>STAT CNI e s</b> | Get status of cCNI cards                                                         |
|          | <b>STAT SUTL</b>    | Get status of Sys Util card                                                      |
|          | <b>TEST SUTL</b>    | Test Sys Util card                                                               |
|          | <b>TEST IPB</b>     | Test Inter Processor Bus                                                         |
|          | <b>TEST LCD</b>     | Test LCDs                                                                        |
|          | <b>TEST LED</b>     | Test LEDs                                                                        |
|          | <b>DSPL ALL</b>     | Get contents of maintenance display for the active Core and previous 63 displays |
| <b>4</b> |                     | Clear the display and minor alarms on both Cores.                                |
|          | <b>CDSP</b>         | Clear the displays on the Cores                                                  |
|          | <b>CMAJ</b>         | Clear major alarms                                                               |
|          | <b>CMIN ALL</b>     | Clear minor alarms                                                               |
| <b>5</b> |                     | Get the status of the Cores, CNIs, and memory.                                   |
|          | <b>STAT CPU</b>     | Get the status of both Cores and redundancy                                      |
|          | <b>STAT CNI c s</b> | Get the status of all configured cCNIs and memory                                |
|          | <b>****</b>         | Exit program                                                                     |

### Switch the Clocks

- |          |                      |                                                                                             |
|----------|----------------------|---------------------------------------------------------------------------------------------|
| <b>1</b> |                      | Verify that the clock controller is assigned to the <i>active</i> Core.                     |
|          | <b>LD 60</b>         | to load the program                                                                         |
|          | <b>SSCK <i>x</i></b> | to get the status of the clock controllers ( <i>x</i> is “0” or “1” for Clock 0 or Clock 1. |
|          | <b>SWCK</b>          | to switch the Clock if necessary                                                            |
|          | <b>****</b>          | exit program                                                                                |
| <b>2</b> |                      | Verify that the Clock Controllers are switching correctly:.                                 |
|          | <b>SWCK</b>          | to switch the Clock                                                                         |
|          | <b>SWCK</b>          | to switch the Clock again                                                                   |

### Check Fiber Ring status

- 1 Check that the Fiber Rings operate correctly:
  - LD 39** to load the program
  - STAT RING 0** to check the status of Ring 0 (HALF/HALF)
  - STAT RING 1** to check the status of Ring 1 (HALF/HALF)
  
- 2 If necessary, restore the Rings to Normal State:
  - RSTR** to restore both Rings to HALF state
  
- 3 Check that the Rings operate correctly:
  - STAT RING 0** to check the status of Ring 0 (HALF/HALF)
  - STAT RING 1** to check the status of Ring 1 (HALF/HALF)
  
- 4 Check the status of the FIJI alarms
  - STAT ALRM** to query the alarm condition for all FIJI cards in all Network groups

### Backup the database

- 1 Log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter **LD 43** to load the program
- 3 Insert a floppy disk in the MMDU to capture the backup.
- 4 When "EDD000" appears on the terminal, enter **EDD** to begin the data dump
- 5 When "DATADUMP COMPLETE" and "DATABASE BACKUP COMPLETE" appears on the terminal, enter **\*\*\*\*** to exit the program

#### **CAUTION**

If the data dump is not successful, do not continue; contact your technical support organization. A data dump problem must be corrected before proceeding.

## Removal of unused Intergroup cables and module

Once the system is operating and stable with Fiber Network Fabric, the unused Intergroup cables and Intergroup module can be removed if desired.

**Removal of the Intergroup cables and module is not required.** Unused Intergroup equipment can be left in place.

### CAUTION

If the Intergroup cables and module are removed from the Fiber Network Fabric system, be careful not to dislodge or damage any working cables or equipment.

The Intergroup (IGS) module can also be converted into an IPE module with the IPE Expansion kit.

---

# Upgrade Option 51/51C to Call Processor PII and Fiber Network Fabric

---

## Content list

The following are the topics in this section:

- Overview of Option 51/51C to CP PII with FNF upgrade . . . . 420
- Review upgrade requirements . . . . . 424
- Prepare for upgrade . . . . . 431
- Install Core 1 hardware . . . . . 431
- Cable Core 1. . . . . 442
- Power up Core 1. . . . . 452
- Install software on Core 1 . . . . . 453
- Disable and remove equipment from Core 0 . . . . . 462
- Upgrade Core 0 hardware . . . . . 469
- Cable Core 0. . . . . 482
- Connect inter-module cables . . . . . 494
- Restore power . . . . . 495
- Install software on Core 0 . . . . . 496
- Complete the CP PII upgrade. . . . . 504
- Add an IPE module, if required . . . . . 507

## Reference list

The following are the references in this section:

- *System Installation Procedures (553-3001-210)*
- *X11 Maintenance (553-3001-511)*

Options 51 and 51C can be upgraded to Option 81C only with both Call Processor PII (CP PII) and Fiber Network Fabric. Upgrades from Option 51 or 51C to CP PII alone or to Fiber Network Fabric alone are not supported.

This upgrade takes an Option 51 or 51C to a two group Option 81C with CP PII and Fiber Network Fiber. Additional groups may be added by following the procedure Add a Network Group, page 593.

## Overview of Option 51/51C to CP PII with FNF upgrade

To upgrade an Option 51C system to CP PII with Fiber Network Fabric:

- The card cage in the existing Core/Net module is replaced with a CP PII card cage.
- An additional CP PII Core/Net module is installed to the left of the existing equipment.

**Note:** Always install CP PII Core/Net modules side by side directly on top of the pedestals. This ensures power and cooling redundancy as well as proper cooling from the pedestal fans.

- New CP PII cards are located in the Core side of the Core/Net module or card cage.
- Existing network cards are relocated to the CP PII card cage.
- Two new Network modules are installed on top of the new CP PII Core/Net module. This provides the new system with a minimum of two full Network groups.
- The existing Clock Controller is moved from the Core/Net to a Network shelf.
- New cards for Fiber Network Fabric are added: NTRB33 Fiber Junctor Interface (FIJI) card and the NTRE39 Optical Cable Management Card (OCMC).
- An IPE module may be installed on the top of the new column.

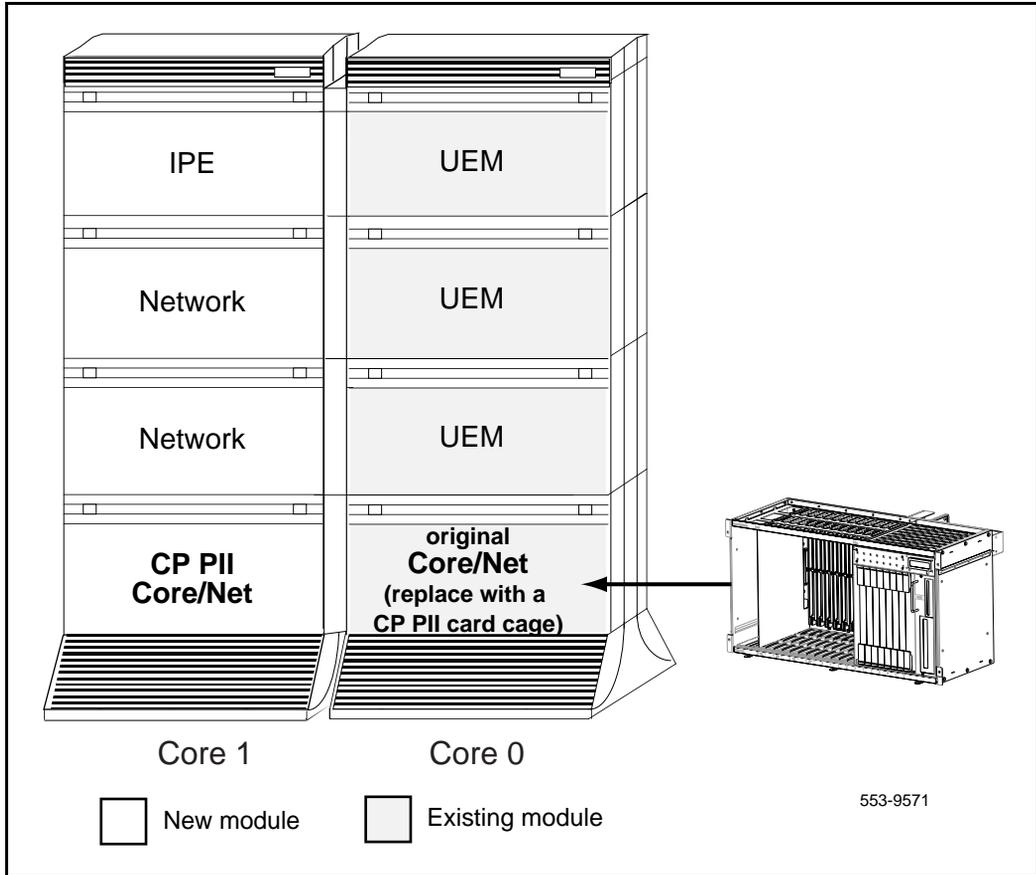
**CAUTION**

To perform this upgrade, the system must be shut down. Schedule the upgrade procedure for a time when the loss of call processing has minimal impact.

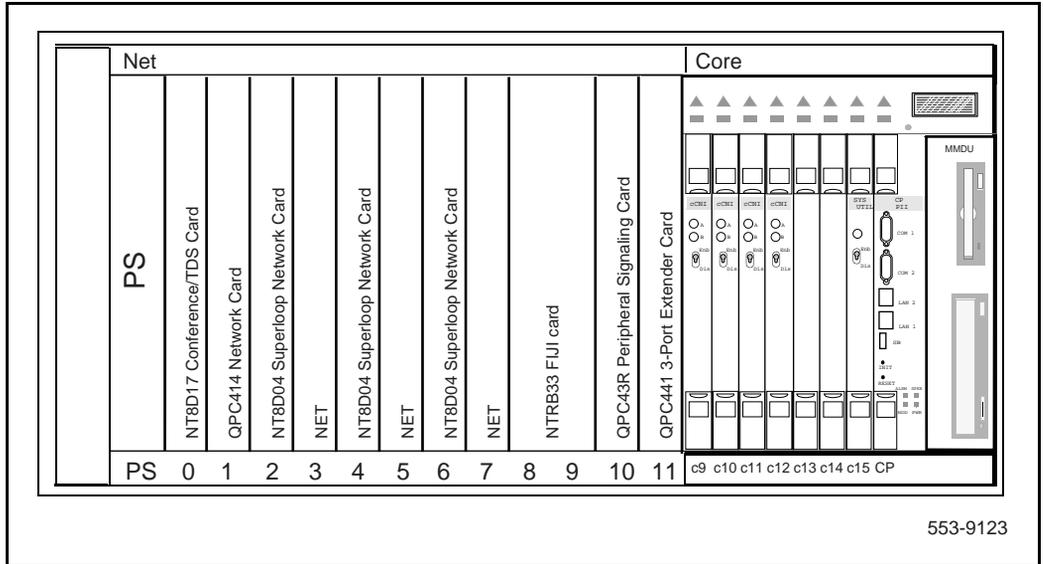
Figure 95 on page 422 shows an upgrade from an Option 51C to Option 81C with Call Processor PII and Fiber Network Fabric.

Figure 96 on page 423 shows the layout of a CP PII Core/Net Module

Figure 95  
Option 51C upgrade to CP PII



**Figure 96**  
**CP PII Core/Net Module**



553-9123

## Review upgrade requirements

### Task summary list

- Check equipment received, page 424
- Check required software, page 424
- Check vintage requirements for existing hardware, page 425
- Check required hardware, page 426
- Check required power equipment, page 429
- Check required tools, page 430
- Check personnel requirements, page 430
- Database requirements, page 430

This section describes the **minimum** equipment required for CP PII. Additional equipment may also be installed during the upgrade. Verify that *all* equipment has been received.

### Check equipment received

Before the upgrade, check that the equipment on the order form is also on the packing slip. Check that all equipment has been received. If any items are missing, contact your supplier for replacements before you begin the upgrade

#### **CAUTION**

DO NOT proceed with the upgrade if any of the required equipment is missing. All equipment must be received to complete the upgrade.

### Check required software

The following software packages are required to upgrade a system to Option 81C with CP PII:

- X11 release 25
- Call Processor PII software package 368
- Fiber Network Fabric software package 365
- Option 81C Software Package 299

- Software Install Kit

## Check vintage requirements for existing hardware

Check the list below to make sure that existing hardware meets the minimum vintage requirements for CP PII.

If any of the equipment listed does not meet the requirements, replace the equipment before you begin the upgrade.

### **WARNING**

Equipment that does not meet the minimum vintage requirements will cause system malfunctions and loss of call processing.

- The QPC441 **3-Port Extender (3PE)** cards must be minimum vintage F.
- The QPC471 **Clock Controller** cards must be minimum vintage H.
- The QPC775 **Clock Controller** cards (all countries except USA) must be minimum vintage E.
- If the Clock Controllers are moved in Option 51 or 51C systems, the new **Clock Controller cables** must be the correct length. Order new NT8D79 or NTCG03 PRI/DTI to Clock Controller cables if necessary.

*Note:* QPC720 PRI cards require NT8D79 cables. NT5D12 Dual PRI/DTI cards require NTCG03 cables.

- The QPC43 **Peripheral Signaling** cards must be minimum vintage R.

## Check required hardware

Table 49 on page 426 describes the *minimum* equipment required to upgrade a system to CP PII. Table 50 on page 429 and Table 51 on page 429 list the DC and AC power equipment requirements. Additional equipment for increased Network capacity is ordered separately.

**Table 49**  
**Minimum requirements for Option 51 and 51C systems**

| Order number | Description                                 | Quantity per system |
|--------------|---------------------------------------------|---------------------|
| A0810496     | CP PII Call Processor Card (128MB Memory)   | 2                   |
| NT1R91AA     | Modem Kit                                   | 1                   |
| NT4N43AA     | cPCI Multi-Media Disk Unit                  | 2                   |
| NT4N46AA     | cPCI Core/Network Card Cage AC/DC           | 2                   |
| NT4N65AB     | cPCI Core Network Interface Card (2 ports)  | 2                   |
| NT4N66AB     | cPCI Core Network Interface Transition Card | 2                   |
| NT4N67AA     | cPCI System Utility Card                    | 2                   |
| NT4N68AA     | cPCI System Utility Transition Card         | 2                   |
| NT4N6809     | Security Device Holder                      | 2                   |
| NT4N88AA     | CP PII to I/O Panel DTE Cable (48 in.)      | 2                   |
| NT4N88BA     | CP PII to I/O Panel DCE Cable (48 in.)      | 2                   |
| NT4N89AA     | System Utility to System Monitor Cable      | 2                   |
| NT4N90AA     | CP PII to I/O Panel Ethernet Cable (48 in.) | 2                   |
| NT8D01BC     | Controller - Four Card                      | 1                   |
| NT8D04BA     | Superloop Network Card                      |                     |
| NT8D17FA     | Conference/TDS Card                         |                     |
| NT8D22AC     | System Monitor                              |                     |

**Table 49**  
**Minimum requirements for Option 51 and 51C systems**

| Order number          | Description                                                                               | Quantity per system |
|-----------------------|-------------------------------------------------------------------------------------------|---------------------|
| NT8D35BA/<br>NT8D35EA | Network Module AC/<br>Network Module DC                                                   | 2                   |
| NT8D37BA/<br>NT8D37EC | Intelligent Peripheral Equipment Module AC/<br>Intelligent Peripheral Equipment Module DC | 1                   |
| NT8D41BA              | Quad SDI Paddle Board                                                                     | 1                   |
| NT8D46AD              | System Monitor to SDI Cable (60 in.)                                                      | 1                   |
| NT8D46AL              | System Monitor Serial Link Cable (7 ft.)                                                  | 1                   |
| NT8D46AS              | System Monitor InterCPU Cable (30 in.)                                                    | 1                   |
| NT8D49AA              | Column Spacer Kit (2.75 in.)                                                              |                     |
| NT8D76BE              | IGS to IGM or cCNI to 3PE Cable (6 ft)                                                    | 2                   |
| NT8D76BF              | IGS to IGM or cCNI to 3PE Cable (10 ft)                                                   | 2                   |
| NT8D80BZ              | CPU Interface Cable (5 ft.)                                                               |                     |
| NT8D84AA              | SDI Paddleboard to I/O Cable (18 in.)                                                     |                     |
| NT8D90AF              | SDI Multi-Port Extension Cable (10 ft)                                                    |                     |
| NT8D91AD              | Network to Controller Cable (6 ft)                                                        |                     |
| NT8D99AB              | CPU to Network Cable (2 ft)                                                               | 2                   |
| NT8D99AD              | CPU to Network Cable (6 ft)                                                               | 2                   |
| NT9D18AA              | Module Side Cover                                                                         |                     |
| NTRB33AA              | Fiber Junctor Interface (FIJI) Card                                                       |                     |

**Table 49**  
**Minimum requirements for Option 51 and 51C systems**

| Order number | Description                                      | Quantity per system |
|--------------|--------------------------------------------------|---------------------|
| NTRC17AA     | CP PII Ethernet to Ethernet Cable (8.5 ft)       | 2                   |
| NTRC46BA     | Clock - FIJI Cable (1.7M - 2.4M (5.5 ft - 8 ft)) |                     |
| NTRC47AA     | FIJI - FIJI Synch Cable                          |                     |
| NTRC48AA     | FIJI Fiber Ring Cable (2M (6 ft))                |                     |
| NTRC49AA     | Clock - Clock Symch Cable                        |                     |
| NTRD25AA     | AC Pedestal Assembly                             |                     |
| NTRE39AA     | Optical Cable Management Card (OCMC)             |                     |
| NTRE40AA     | Dual Ethernet Adapter (RJ45) for I/O Panel       | 2                   |
| P0745716     | Rear I/O Panel                                   | 2                   |
| P0906308     | cPCI Card Slot Filler Panel                      | 16                  |

## Check required power equipment

- Table 50 on page 429 lists the equipment required for DC powered systems.
- Table 51 on page 429 lists the equipment required for AC powered systems.

**Table 50**  
**DC power requirements for Option 51/51C upgrades**

| Order number | Description                                      | Quantity per system |
|--------------|--------------------------------------------------|---------------------|
| NT6D41CA     | Core/Network Power Supply DC                     | 2                   |
| NT4N97BA     | cPCI Upgrade Kit DC (Misc. Card Cage Components) | 2                   |

**Table 51**  
**AC power requirements for Option 51/51C upgrades**

| Order number | Description                                      | Quantity per system |
|--------------|--------------------------------------------------|---------------------|
| NT8D29BA     | Core/Network Power Supply AC                     | 2                   |
| NT4N97AA     | cPCI Upgrade Kit AC (Misc. Card Cage Components) | 2                   |

## Check required tools

With standard tools required to service a Meridian 1, use the following special tools for the upgrade:

- a 12" long, 3/8" hex head nut driver (to secure the screws in the back of the card cage)
- a flashlight

## Check personnel requirements

Nortel Networks recommends that a minimum of two people perform the card cage upgrade.

## Database requirements

Option 51 systems must be sent to Nortel Networks for software conversion.

If your X11 software is pre-release 19, you must send the database to Nortel Networks to be converted.

## Prepare for upgrade

Follow the Task Summary list instructions under the heading for Prepare for upgrade for Option 51/51C to CP PII and FNF, page 58 and return to Install Core 1 hardware, page 431.

## Install Core 1 hardware

### Task summary list

The following is a summary of the tasks in this section:

- Install the new column, page 431
- Check that the main Core cards are installed, page 432
- Check that the Core Transition cards are installed, page 434
- Install the Security Device, page 436
- Check for the shelf power cable, page 439
- Check the location of Clock Controller 1 and switch settings, page 440
- Check that the Network cards are installed, page 441

### Install the new column

After completing the steps in Prepare for upgrade, page 431, you must install the new column.

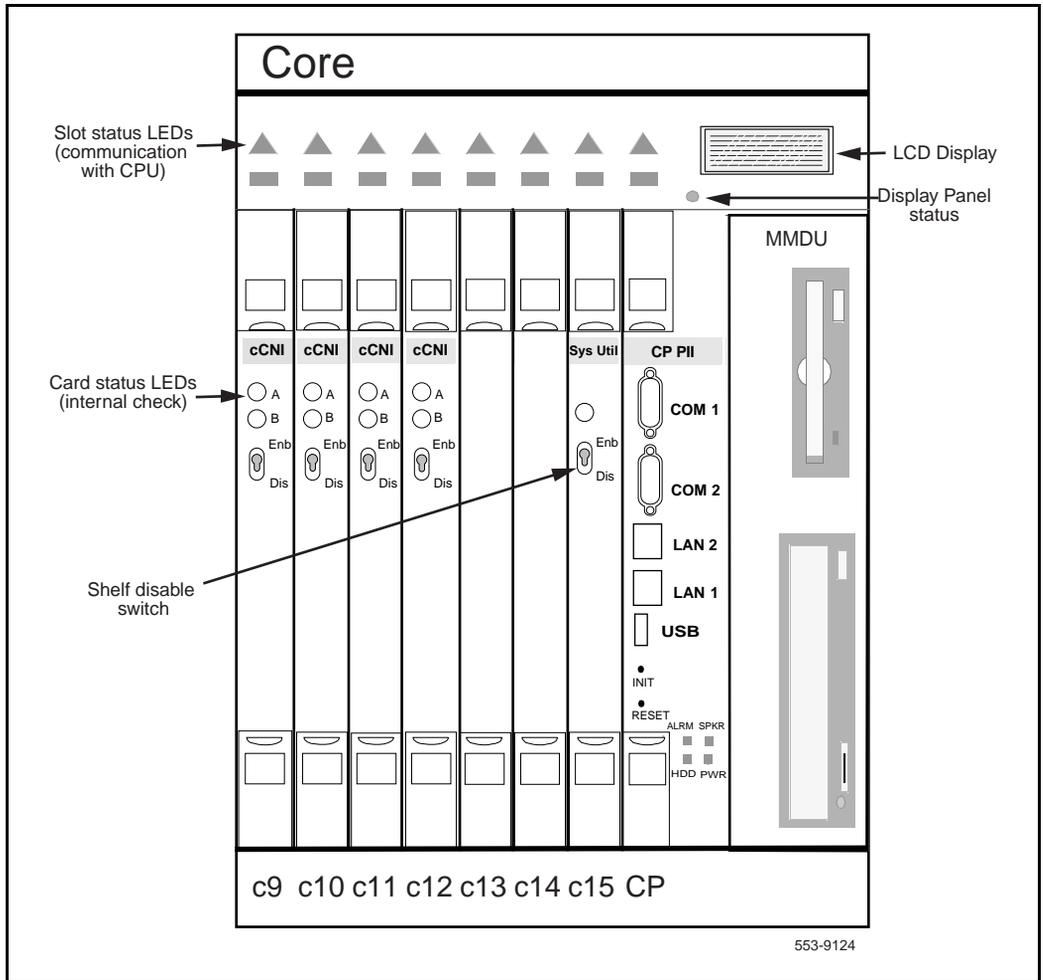
- 1** Install the NT4N41 CP PII Core/Net 1 module to the left of the existing Core/Net 0 column. See *System Installation Procedures (553-3001-210), Adding a module to the base of a column.*
- 2** Configure the power and System Monitor connections. See *System Installation Procedures (553-3001-210), Configure the the system monitor.*
- 3** Install two NT8D35 Network modules on top of the CP PII Core/Net 1 module. See *System Installation Procedures (553-3001-210), Adding a module to a column.*

## Check that the main Core cards are installed

The main Core cards including the MMDU (with the cables for power and data) are installed in the factory (see Figure 97 on page 433):

- **NT4N65AB cPCI Core Network Interface (cCNI) cards:** Each system contains between one and four NT4N65 cCNI cards per Core/Net Module. The cCNI cards are located in slots c9-c12. If not already installed, install a P0906308 cPCI Card Slot Filler Panel to cover any of slots c10 - c 12 which do not contain cCNIs.
- Slots c13 and c14 are left empty. If not already installed, install a P0906308 cPCI Card Slot Filler Panel in each slot.
- **NT4N67AA System Utility (Sys Util) card** is located in slot c15.
- **A0810496 Call Processor PII (CP II)** is located in the slot marked CP.
- **NT4N43AA cPCI Multi-Media Disk Unit (MMDU)** is located in the extreme right hand slot next to the CP PII card. The MMDU contains the hard drive, floppy drive and CD-ROM drive.

**Figure 97**  
**Core card placement in the NT4N41 Core/Net Module (front)**



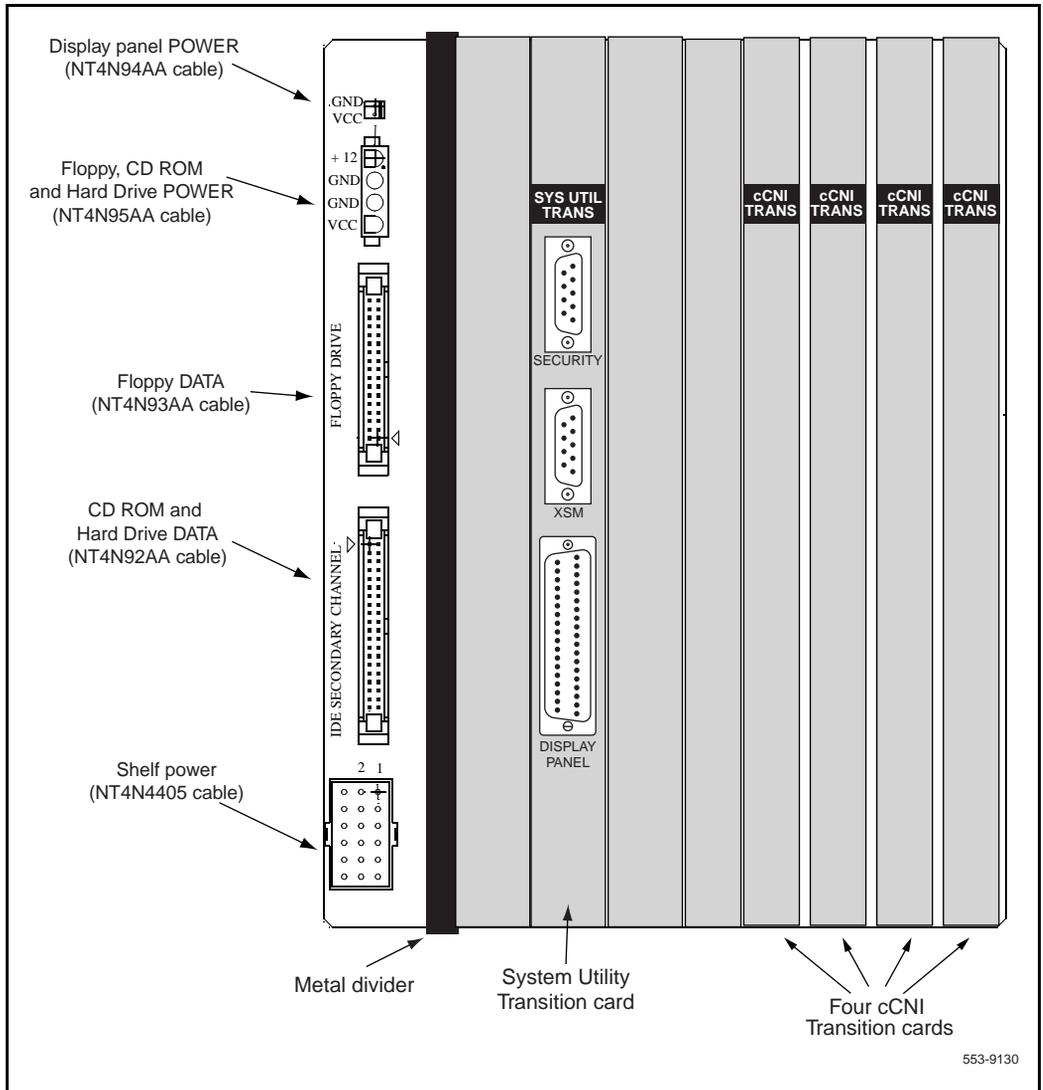
## Check that the Core Transition cards are installed

The Core Transition cards are located directly behind the corresponding main cards (on the rear of the Core backplane). Core Transition cards are installed in the factory:

- **NT4N66AB cCNI Transition Cards:** Each system contains four cCNI Transition cards.
- **NT4N68AA System Utility Transition card:** The System Utility Transition card is installed directly behind the System Utility card and contains connections for the Security Device, the System Monitor (XSM) and the Display Panel.

Figure 98 on page 435 displays the location of the Core Transition cards.

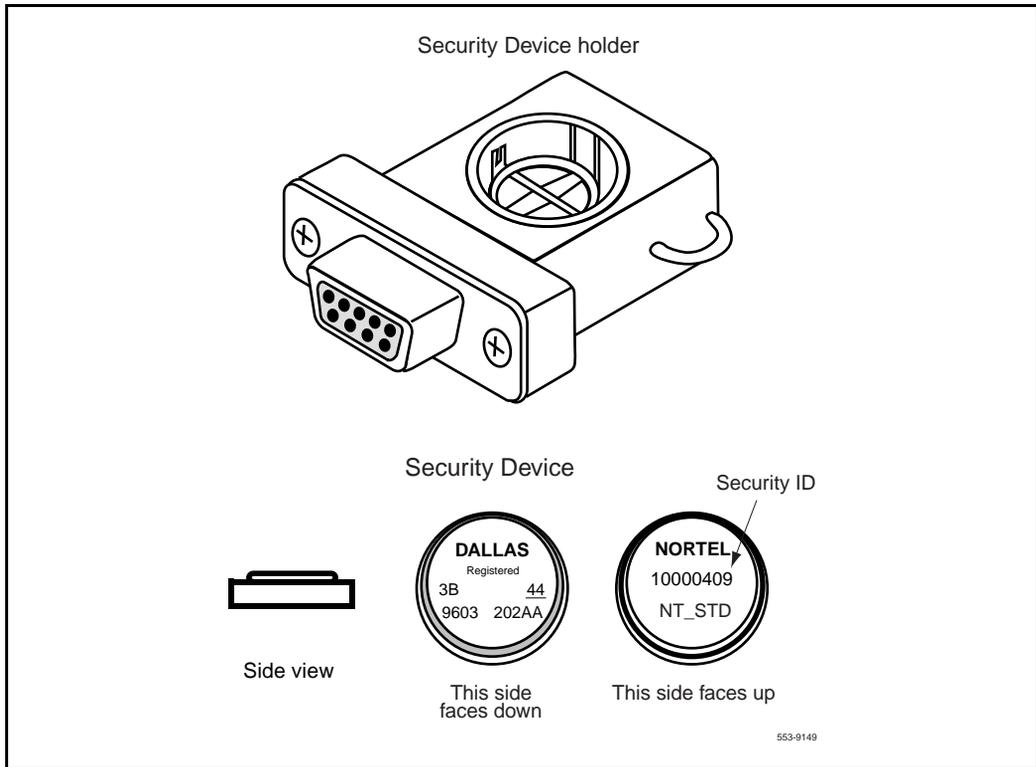
**Figure 98**  
**Location of Transition cards**



## Install the Security Device

The Security Device fits into the Security Device holder (see Figure 99 on page 436). This assembly attaches to the System Utility Transition card located on the back of the core backplane.

**Figure 99**  
**Security Device and holder**



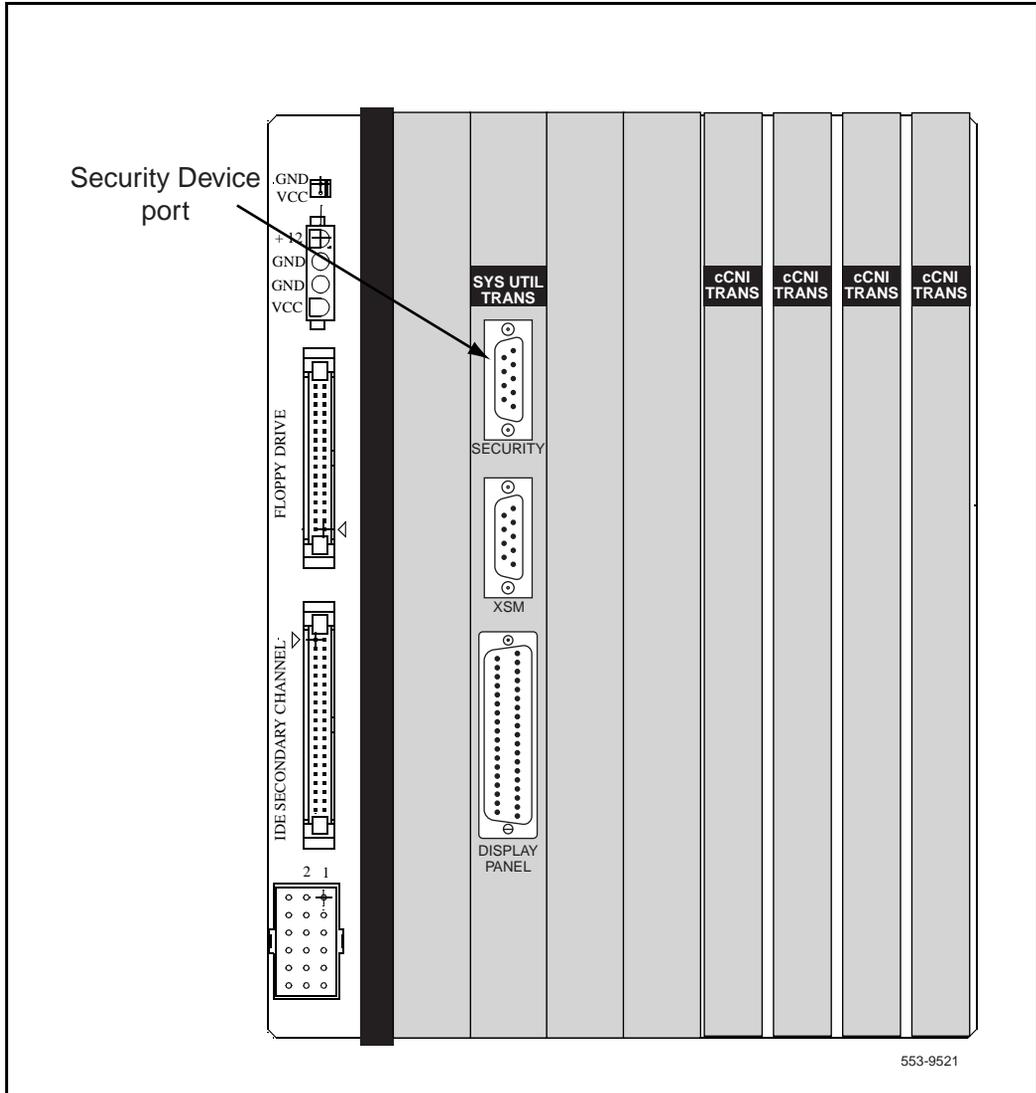
To install the Security Device:

- 1**     **If the original system had an IODU/C**, remove the Security Device from the IODU/C for reuse.
  - a**     Unlock the latches and remove the IODU/C card.
  - b**     Remove the round 1/2" diameter IODU/C Security Device from the round black Security Device holder on the top right corner of the IODU/C card.

**OR**

- If the original system did not have an IODU/C**, use the Security Device provided with the CP PII Software kit. Locate the Security Device holder in the plastic bag taped to the top of the card cage.
- 2**     Insert the Security Device into the Security Device holder with the "Nortel" side facing up. Do not bend the clip more than necessary.
  - 3**     Insert the assembly (Security Device and holder) between the clips on the top of the System Utility Transition card (Figure 100 on page 438).
  - 4**     Check that the Security Device is securely in place.

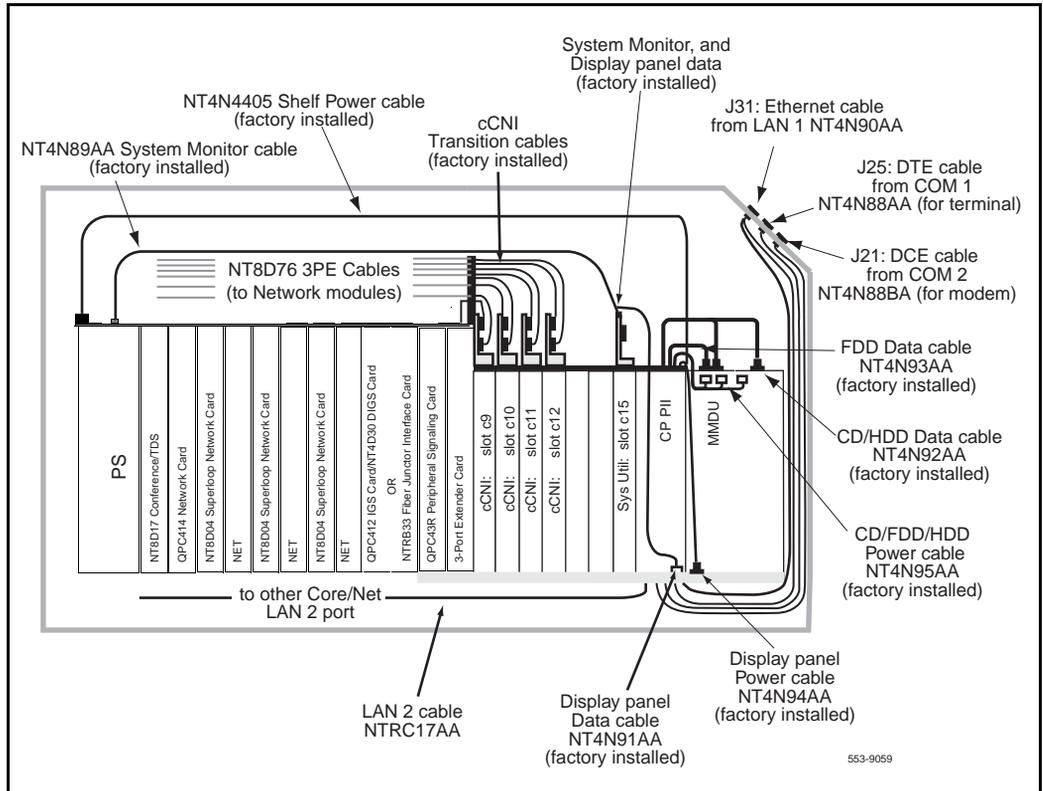
**Figure 100**  
**Security Device installation (System Utility Transition card)**



## Check for the shelf power cable

Check that the NT4N4405 Shelf Power Cable is installed in the CP PII card cage backplane. See Figure 101 on page 439 for cable location.

**Figure 101**  
**Core/Net cable connections (top view)**



## Check the location of Clock Controller 1 and switch settings

For Option 51/51C upgrades to Option 81C with CP PII and Fiber Network Fabric, Clock Controller 1 is factory installed in Network group 1, shelf 1, slot 13:

- 1 If Clock Controller 1 is not installed in that slot, move it there now.
- 2 Verify Clock Controller switch settings. See Table 52 on page 440.

**Table 52**  
**Clock Controller switch settings**

| <b>Systems upgraded to CP PII must use the Option 81C switch settings to enable Clock Hunt software. Use the settings in this table. DO NOT use any other switch settings.</b>                                                                                                                                                                                                                                                          |          |          |          |            |          |          |          |            |          |          |          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|----------|------------|----------|----------|----------|------------|----------|----------|----------|
| <b>SW1</b>                                                                                                                                                                                                                                                                                                                                                                                                                              |          |          |          | <b>SW2</b> |          |          |          | <b>SW4</b> |          |          |          |
| <b>1</b>                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>2</b> | <b>3</b> | <b>4</b> | <b>1</b>   | <b>2</b> | <b>3</b> | <b>4</b> | <b>1</b>   | <b>2</b> | <b>3</b> | <b>4</b> |
| on                                                                                                                                                                                                                                                                                                                                                                                                                                      | off      | off      | off      | off        | off      | off      | off      | **         | on       | *        | *        |
| *Total cable length between the J3 faceplate connectors:                                                                                                                                                                                                                                                                                                                                                                                |          |          |          |            |          |          |          |            |          |          |          |
| 0–4.3 m (0–14 ft)                                                                                                                                                                                                                                                                                                                                                                                                                       |          |          |          |            |          |          |          |            |          | off      | off      |
| 4.6–6.1 m (15–20 ft)                                                                                                                                                                                                                                                                                                                                                                                                                    |          |          |          |            |          |          |          |            |          | off      | on       |
| 6.4–10.1 m (21–33 ft)                                                                                                                                                                                                                                                                                                                                                                                                                   |          |          |          |            |          |          |          |            |          | on       | off      |
| 10.4–15.2 m (34–50 ft)                                                                                                                                                                                                                                                                                                                                                                                                                  |          |          |          |            |          |          |          |            |          | on       | on       |
| <p>* If there is only one Clock Controller card in the system, set to OFF.<br/>If there are two Clock Controller cards, determine the total cable length between the J3 connectors (no single cable can exceed 25 ft.) and set these two switch position for this cable length, as shown above. Set the switches on both cards to the same settings.</p> <p>** Set to ON for Clock Controller 0. Set to OFF for Clock Controller 1.</p> |          |          |          |            |          |          |          |            |          |          |          |



## Cable Core 1

### Task summary list

The following is a summary of the tasks in this section:

- In Core 1, route and connect the 3PE to cCNI (NT8D76) cables, page 442
- Connect FIJI to FIJI cables, page 447
- Route and connect the Shelf 1 FIJI Fiber Ring Cables, page 448
- Remove the system monitors from Core 1 and Core 0, page 451

### In Core 1, route and connect the 3PE to cCNI (NT8D76) cables

The cCNI to 3PE cables in CP PII are different from existing CNI to 3PE cables. New NT8D76 cables must be installed for both existing Network groups and new Network equipment. See Figure 103 on page 444.

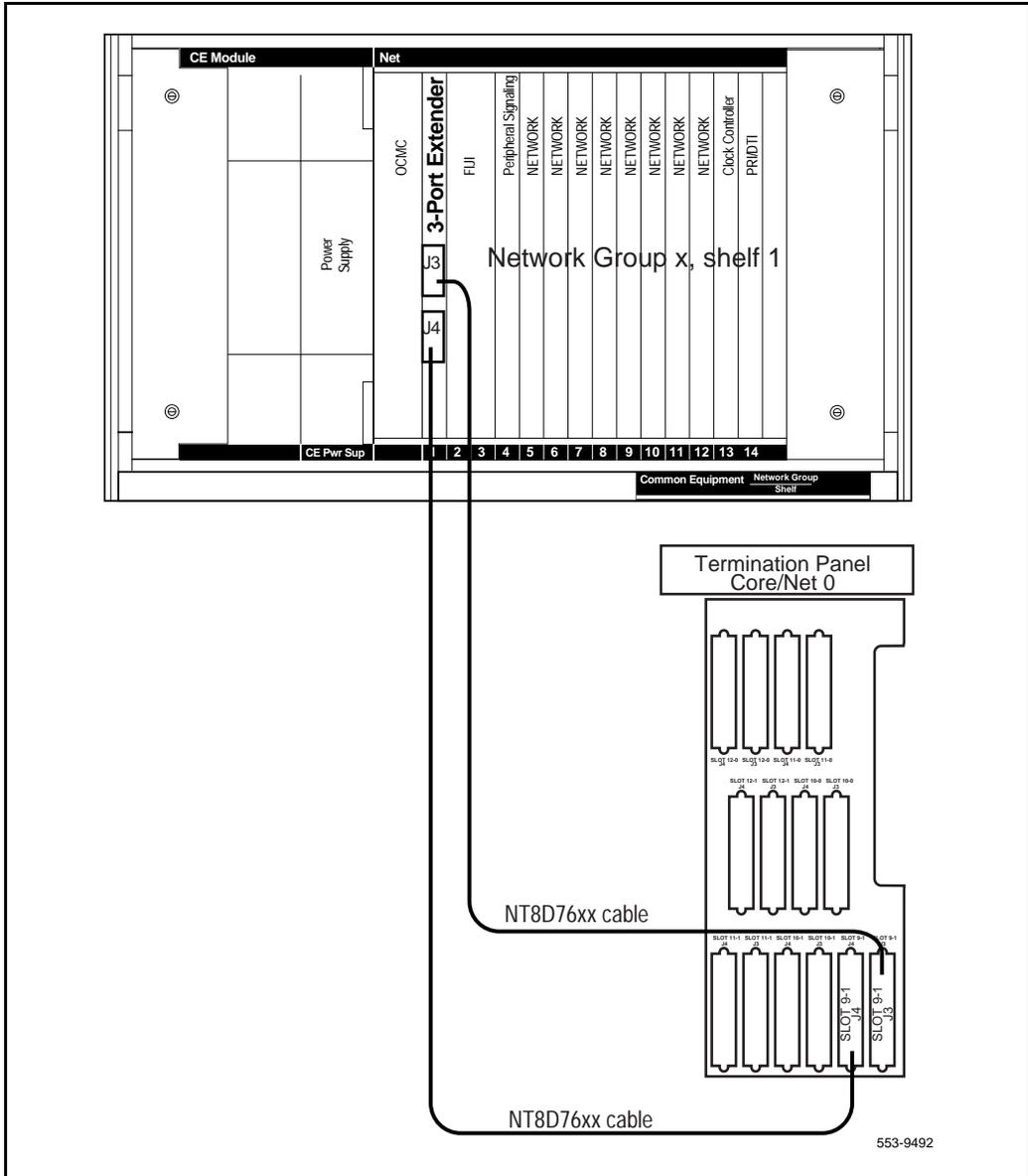
Cables are routed to a module alongside the Core module. To route the 3PE to cCNI cables:

- 1 Label each cable at both ends with:
  - a the Network group number
  - b Shelf 0 or Shelf 1 of the Network group
  - c J3 or J4 (of the 3PE card)
- 2 Remove the module trim panels where the cables will be routed.
- 3 In Core 1, route the cables from the Shelf 1 3PE cards to a module adjacent to Core 1.

**Note:** Route the cables along the right side of the Core module to avoid interference from the power cards.
- 4 In Core 1, pull the new NT8D76 cables inside the UEM. Connect the new NT8D76 cables to J3 and J4 of the 3PE cards. See Figure 103 on page 444 and Table 53 on page 445 for connection information.
- 5 Connect the new NT8D76 cables to the Termination Panel in Core/Net 1. See Figure 104 on page 446 and Table 53 on page 445.

- 6** Install the new NT8D80BZ cables between the 3PE cards located in the existing Core 0 and the 3PE reinstalled in the new Core 1 module. Connect the first cable to J3 on each card and the second cable to J4 on each card.
- 7** If the system has XSDI cards, reinstall the cards and attach the cables.

**Figure 103**  
**3PE Termination Panel connectors**



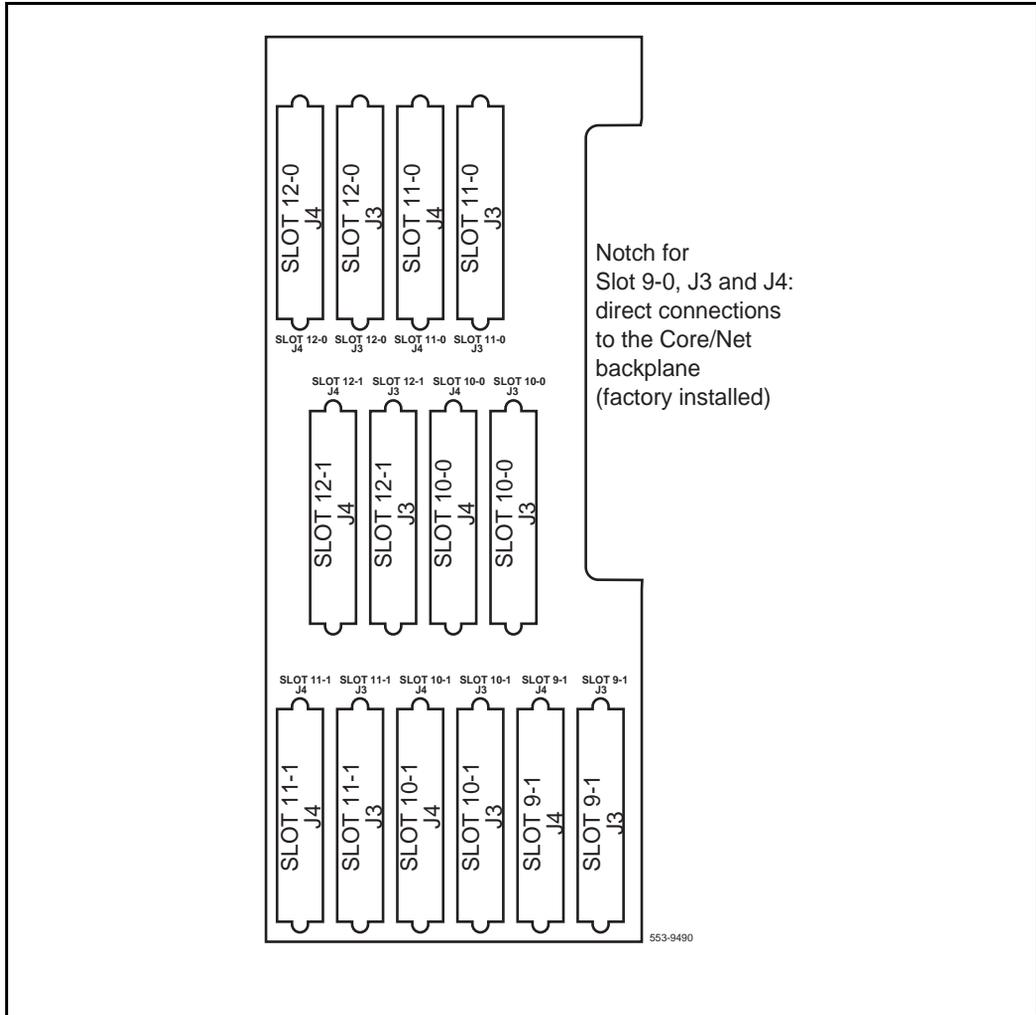
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**Table 53**  
**Termination Panel to 3PE card connectors**

| Group Number | Termination Panel connector | 3PE card connector |
|--------------|-----------------------------|--------------------|
| 0            | 9-0                         | <b>See Note.</b>   |
| 0            | 9-0                         | <b>See Note.</b>   |
| 1            | 9-1-J3                      | J3                 |
| 1            | 9-1-J4                      | J4                 |
| 2            | 10-0-J3                     | J3                 |
| 2            | 10-0-J4                     | J4                 |
| 3            | 10-1-J3                     | J3                 |
| 3            | 10-1-J4                     | J4                 |
| 4            | 11-0-J3                     | J3                 |
| 4            | 11-0-J4                     | J4                 |
| 5            | 11-1-J3                     | J3                 |
| 5            | 11-1-J4                     | J4                 |
| 6            | 12-0-J3                     | J3                 |
| 6            | 12-0-J4                     | J4                 |
| 7            | 12-1-J3                     | J3                 |
| 7            | 12-1-J4                     | J4                 |

**Note:** Group 0 cables connect from the cCNI Transition card directly to the backplane of Core/Net 0 OR to the NT8D76 cable (depending on your CNI group configuration).

**Figure 104**  
**Connectors for cCNI Transition Cables to the Termination Panel**

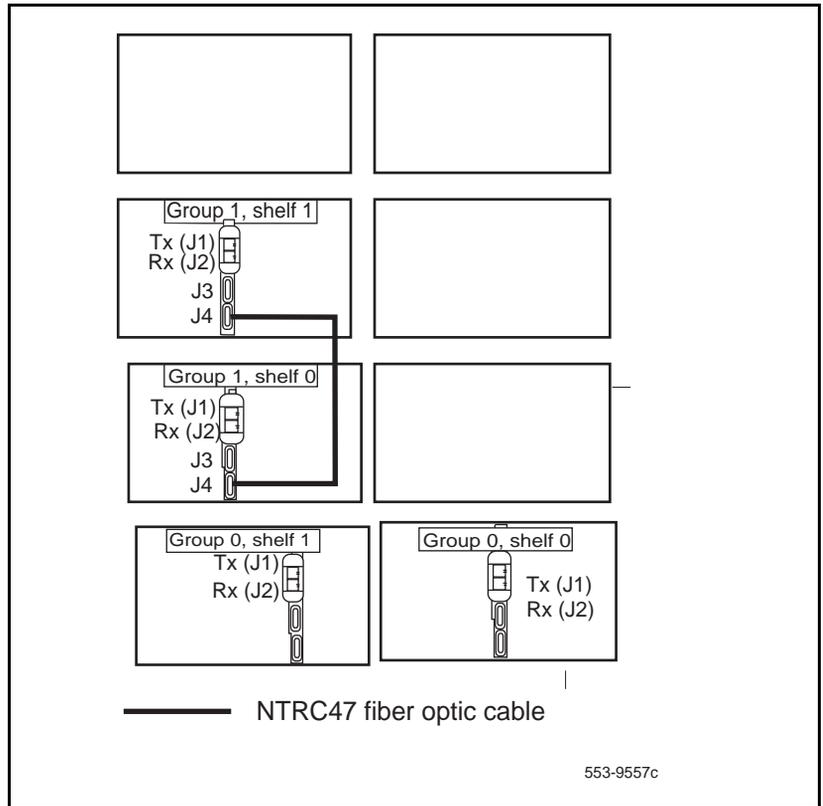


## Connect FIJI to FIJI cables

- 1 Connect P2 of a NTRC47 FIJI to FIJI cable to J4 of the FIJI cards in each Network shelf 0, except Group 0.
- 2 Connect P1 of a NTRC47 FIJI to FIJI cable to J4 of the FIJI cards in each Network shelf 1, except Group 0.

The FIJI cards in Group 0 do not receive a FIJI to FIJI cable.

**Figure 105**  
**FIJI to FIJI cables**



## Route and connect the Shelf 1 FIJI Fiber Ring Cables

Carefully route the NTRC48 cables before installation. Always label both ends of each cable to simplify installation, reduce confusion and assist in troubleshooting.

### Route Shelf 1 fiber optic cables (descending)

Route the NTRC48 cables between the FIJI cards in each Network shelf 1 in *descending* order (Table 54 on page 449 and Figure 106 on page 450).

**Note:** Each end of the NTRC48 cable is labeled “Tx” or “Rx” in the factory.

- 1 Start with the Tx (J1) port in Group 0, shelf 1.
- 2 Route a NTRC48 FIJI fiber Ring cable from the FIJI card in **Group 1, shelf 1** to the FIJI card in **Group 1, shelf 1**.
- 3 To complete the Ring, route a final cable from **Group 1, shelf 1** to **Group 0, shelf 1**.

### Connect Shelf 1 fiber optic cables (descending)

Remove the black cap from the end of each cable before it is connected.

**Note:** Each end of the NTRC48 cable is labeled “Tx” or “Rx” in the factory.

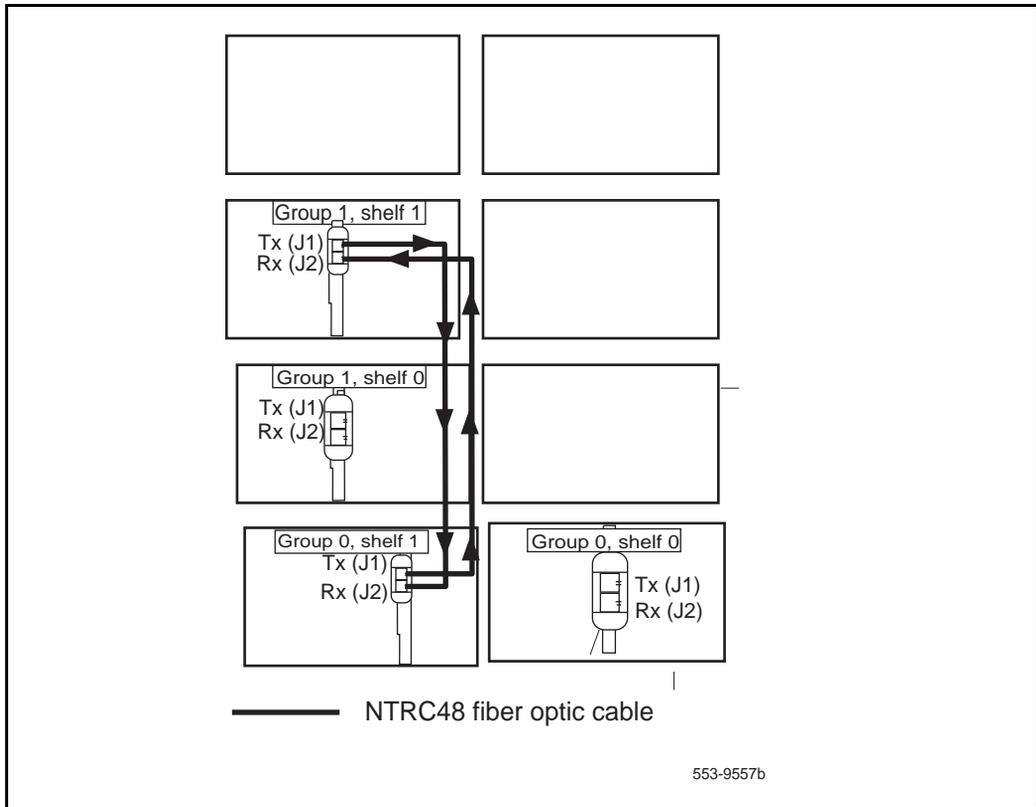
- 1 Start with Network Group 1, shelf 1.
- 2 Connect a NTRC48 FIJI Fiber Ring cable of the appropriate length from the Tx (J1) port of the FIJI card in **Group 1, shelf 1** to the Rx (J2) port of the FIJI card in the **Group 0, shelf 1**.
- 3 To complete the Ring, connect a final cable from Tx in **Group 0, shelf 1** to Rx in Group 1, shelf 1.

..

**Table 54**  
**FIJI Ring 1 connections**

| Groups 0 - X are cabled in descending order                   |                              |                     |
|---------------------------------------------------------------|------------------------------|---------------------|
| Group/shelf                                                   | NTRC48 fiber cable connector | FIJI card connector |
| 0/1                                                           | P1                           | Tx - J1             |
| 7/1                                                           | P2                           | Rx - J2             |
| 7/1                                                           | P1                           | Tx - J1             |
| 6/1                                                           | P2                           | Rx - J2             |
| 6/1                                                           | P1                           | Tx - J1             |
| 5/1                                                           | P2                           | Rx - J2             |
| 5/1                                                           | P1                           | Tx - J1             |
| 4/1                                                           | P2                           | Rx - J2             |
| 4/1                                                           | P1                           | Tx - J1             |
| 3/1                                                           | P2                           | Rx - J2             |
| 3/1                                                           | P1                           | Tx - J1             |
| 2/1                                                           | P2                           | Rx - J2             |
| 2/1                                                           | P1                           | Tx - J1             |
| 1/1                                                           | P2                           | Rx - J2             |
| 1/1                                                           | P1                           | Tx - J1             |
| 0/1                                                           | P2                           | Rx - J2             |
| <b>Note:</b> Groups 2 through 7 are shown for reference only. |                              |                     |

Figure 106  
Shelf 1 descending fiber optic Ring (Option 51C example)



## Remove the system monitors from Core 1 and Core 0

- 1** In **Core 0**, software disable the master system monitor (NT8D22):  
**LD 37**  
**DIS TTY #**      Disable the master system monitor TTY interface.
- 2** For both **Core 1 and Core 0**, remove J3 and J4 cables on both system monitors.
- 3** For both **Core 1 and Core 0**, remove the system monitors from the rear of the pedestals.  
Do *not* turn off the blower units in the front of the pedestals.

### **CAUTION**

The system may shut down if the system monitors are not removed.  
Remove the monitors and keep the cooling fans ON.

## Power up Core 1

### Task summary list

The following is a summary of the tasks in this section:

- Prepare for power up, page 452
- Power up Core 1, page 452
- Confirm Core 1 cards are working, page 452

### Prepare for power up

- 1 Check that a terminal is connected to the J25 I/O panel connector on Core/Net 1.

A maintenance terminal is required to access the Core/Net modules during the upgrade. Connect a terminal to the J25 port on the I/O panel in the *inactive* Core. The settings for the terminal are:

9600 Baud, 7 data, space parity, 1 stop bit, full duplex, XOFF

If only one terminal is used for both Cores, the terminal will have to be switched from side to side to access each module. An "A/B" switch box can also be installed to switch the terminal from side to side.

- 2 Faceplate *enable* the cCNI cards in Core 1.
- 3 Check that the FIJI cards in Core 1 are unseated.

### Power up Core 1

- 1 Power up the Core/Net Module.
- 2 Power up the Network modules.
- 3 Wait for the system to load/initialize.

### Confirm Core 1 cards are working

Check that the Network and I/O cards have working power.

# Install software on Core 1

## Task summary list

The following is a summary of the tasks in this section:

- Configure the IP addresses, page 456
- Check for Peripheral Software Download to Core 1, page 458
- For systems with fewer than eight groups, delete CNIs, page 459
- Reconfigure I/O ports and call registers, page 460
- Reboot Core 1, page 461

- 1 In Core/Net 1, install the CD-ROM into the CD-ROM drive in the MMDU:
  - a Press the button on the CD-ROM drive to open the CD-ROM disk holder.
  - b Place the CD-ROM disk into the holder with the disk label showing.
  - c Press the button again to close the CD-ROM disk holder.  
**Do not** push the holder in by hand.

**Note:** If the CD-ROM is not in the CD-ROM drive, the installation will not continue. Insert the CD-ROM to continue.

- 2 Place the CP PII Install floppy disk into the MMDU floppy drive.  
**Note:** If a problem is detected during the system verification, Install stops, prints an error message, and aborts the installation. If the verification is not successful, do not continue; contact your technical support organization.

- 3 Press the manual RESET button on the CP PII card faceplate.

- 4 Before the install runs, the system validates hard disk partitioning which takes about five minutes. The screen displays::

Testing partition 0

0 percent done...1 percent done.....99 percent done....100  
percent done

Testing partition 1

0 percent done...1 percent done.....99 percent done....100 percent done

Testing partition 2

0 percent done...1 percent done.....99 percent done....100 percent completed!

Disk physical checking is completed!

There are 3 partitions in disk 0:

The size of partition 0 of disk 0 is XX MB

The size of partition 0 of disk 0 is XX MB

The size of partition 0 of disk 0 is XX MB

Disk partitions and sectors checking is completed!

- 5 At the terminal, press <cr> to start the software installation.
- 6 When prompted, remove the CP PII Install Program diskette and insert the Keycode diskette.
  - <a> Continue with keycode validation
  - <y> Confirm that the keycode matches the CD-ROM release
- 7 When the screen displays the Install Menu, select the following options in sequence when prompted to do so:
  - <b> Install software, database, and CP-BOOT ROM
  - <a> Verify that the CD-ROM is now in driveThe Installation Status Summary screen appears that lists the options to be installed.
  - <a> Continue with Upgrade

- 8** Select a PSDL file to install. The PSDL file contains the loadware for all downloadable cards in the system and loadware for M3900 series sets.

**Select one of the six psdl files**

- <1> Global 10 Languages <default>
- <2> Western Europe 10 Languages
- <3> Eastern Europe 10 Languages
- <4> North America 6 Languages
- <5> RIs24 up-issue
- <6> North America 6 Languages:

The languages contained in each selection are outlined as follows:

- 1 English, French, German, Spanish, Swedish, Italian, Norwegian, Brazilian, Portuguese, Finnish, Japanese Katakana.
- 2 English, French, German, Spanish, Swedish, Norwegian, Danish, Finnish, Italian, Brazilian Portuguese.
- 3 English, French, German, Dutch, Polish, Czech, Hungarian, Russian, Latvian, Turkish.
- 4 English, Spanish, French, Brazilian Portuguese, Japanese Katakana, German.
- 5 English, French, German, Spanish, Swedish, Italian, Norwegian, Portuguese, Finnish, Japanese Katakana.
- 6 English, French, German, Spanish, Brazilian Portuguese, Japanese Katakana.

9 Continue with upgrade when prompted. Select a database to install.

<cr> Enter carriage return to continue.

<a> Continue with CP BOOTROM installation

<a> Install the CP BOOTROM from hard disk

<a> Start installation

<a> Continue with ROM upgrade

The Installation Status Summary screen appears. Verify that CD to disk, disk to ROM, Database, and CP-BOOTROM were installed.

<cr> Continue

<q> Quit (remove any diskettes and the CD-ROM from the MMDU drives)

<y> Confirm quit

<a> Reboot the system

The system will automatically perform a sysload: several messages appear on the system terminal. Wait for "DONE" and then "INI" messages to display before you continue.

While the sysload is being performed, database conversion occurs.

Verify that the following message appears on the system terminal:

DATA CONVERSION

X11 RELEASE XX.XX TO RELEASE 25.

Confirm that the X11 release 25 software is installed and functional on Core/Net 0:

**LD 135** to load the program

**STAT CPU** to display the CPU status

## Configure the IP addresses

Two unique IP address are required for the CP PII system to communicate with the LAN. One IP number is defined for the *active* Core. The second IP address is defined for the *inactive* Core.

Contact your systems administrator to identify these IP numbers.

- 1 Configure the primary (*active*) and secondary (*inactive*) IP addresses:

|                                             |                                                                                                                                |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <b>LD 117</b>                               | To load the program.                                                                                                           |
| <b>new host <i>name 1</i> IP address</b>    | To define the first IP address: “name 1” is an alias for the IP address such as “primary”. The IP address is the IP number.    |
| <b>chg elnk active <i>name 1</i></b>        | To assign the “name 1” address to the <i>active</i> Core.                                                                      |
| <b>new host ‘<i>name 2</i>’ IP address’</b> | To define the second IP address: “name 2” is an alias for the IP address such as “secondary”. The IP address is the IP number. |
| <b>chg elnk inactive <i>name 2</i></b>      | To assign the “name 2” address to the <i>inactive</i> Core.                                                                    |
| <b>chg mask 255.255.240.0</b>               | To set the sub-net per local site. This number allows external sub-nets to connect to the system.                              |
| <b>new route 0.0.0.0 <i>ip address</i></b>  | Sub-net router address, if required.                                                                                           |
| <b>prt route</b>                            | To print the route data. This returns a value assigned to the route used in the next step.                                     |
| <b>enl route #</b>                          | To enable the route table entry: the value is from the step above.                                                             |

- 2 Enable the new Ethernet interface:

|                 |                                                |
|-----------------|------------------------------------------------|
| <b>LD 137</b>   | To load the program.                           |
| <b>dis elnk</b> | To <i>disable</i> the old IP interface values. |
| <b>enl elnk</b> | To <i>enable</i> the new IP interface values.  |

## Check for Peripheral Software Download to Core 1

Load LD 22 and print Target peripheral software version. The Source peripheral software version was printed during the procedure to Print site data, page 68.

If there is a difference between the Source and Target peripheral software version:

- A forced download occurs during initialization when coming out of parallel reload.
- System initialization takes longer.
- The system drops established calls on IPE.

### LD 22

|             |                                     |
|-------------|-------------------------------------|
| <b>REQ</b>  | PRT                                 |
| <b>TYPE</b> | PSWV.                               |
| <b>ISSP</b> | Print System and Patch Information. |
| <b>SLT</b>  | Print System Limits.                |
| <b>TID</b>  | Print the Tape ID.                  |
| <b>****</b> | Exit program.                       |

## For systems with fewer than eight groups, delete CNIs

Software has configured the system for eight groups.

If your system has eight groups, skip this procedure.

If your system has fewer than eight groups, you must software remove the CNIs not used in your system configuration:

- 1 In Core/Net 1, disable all CNI cards using LD 135:

```

LD 135           To load the program.
STAT CNI        Get the status of all CNI cards.
DIS CNI x s p   Disable CNI cards where:
                  x = extender number (0 or 1)
                  s = card slot (9-12)
                  p = port (0 or 1)

STAT CNI        Confirm that CNI cards are disabled.
****            Exit the program.

```

- 2 Use LD 17 to remove the extra CNI cards.

```

LD 17           To load the program.
CHG
CFN
CEQU YES
EXTO 3PE       Core/Net 0 extended to 3PE.
CNI s p xg     Out the CNI card, where:
                  s = card slot (9-12)
                  p = port (0 or 1)
                  xg = out network group (x0-x4)

EXTI 3PE       Core/Net 1 extended to 3PE
CNI s p xg     Out the CNI card, where:
                  s = card slot (9-12)
                  p = port (0 or 1)
                  xg = out network group (x0 - x4)

****            Exit the program.

```

## Reconfigure I/O ports and call registers

- 1 Remap all I/O ports (except CPSI ports) to the proper groups.  
The group number of these ports is determined by the physical location of the card.

The configuration information must match the CNI configuration

**LD 17** Load the program.

**CHG**

**CFN**

**CHG aaa x** aaa = terminal type (such as tty or aml).  
x = terminal number (0 -15).

**g** g = network group (0 - 4).

- 2 Evaluate the number of call registers and 500 telephone buffers that are configured for the system (suggested minimum values are 4500 and 1000 respectively). Refer to *Meridian 1 Capacity Engineering*.

If changes are required, reconfigure the values in LD 17:

**LD 17** Load the program.

**CHG**

**CFN**

**PARM YES**

**500B 1000** Use 1000 as a minimum value.

**NCR 5000** Use 5000 as a minimum value.

**\*\*\*\*** To exit the program.

- 3 Print the Configuration Record to confirm the changes made above:

**LD 22** Load the program.

**REQ PRT** Set the print Option.

**TYPE CFN** Print the configuration.

**\*\*\*\*** To exit the program.

- 4** Perform a data dump to save the customer database to the hard drive:
  - a** Load the Equipment Data Dump Program (LD 43). At the prompt, enter  
**LD 43** To load the program.
  - b** When "EDD000" appears on the terminal, enter  
**EDD** To begin the data dump.
  - c** When "DATADUMP COMPLETE" and "DATABASE BACKUP COMPLETE" appear on the terminal, enter  
**\*\*\*\*** To exit the program.

**CAUTION**

If the data dump is not successful, do not continue; contact your technical support organization. You must correct a data dump problem before you continue.

## Reboot Core 1

Press the RESET button on the CP PII card faceplate to reboot the system.

The system will automatically perform a sysload: several messages appear on the system terminal. Wait for "DONE" and then "INI" messages to display before you continue.

## Disable and remove equipment from Core 0

### Task summary list

The following is a summary of the tasks in this section:

- Turn module power off, page 462
- Move Clock Controller 0 to Network group 1 shelf 0, slot 13, page 463
- Remove Core 0 cables and card cage, page 465

### Turn module power off

**WARNING**

**Call processing will be interrupted for approximately 30 minutes while the procedures are completed.**

Power down the modules with the module power switch. DO NOT power down the columns at the PDU:

- 1 Power down Core/Net Module 0.
- 2 Power down Core/Net Module 1.
- 3 Power down all Network Modules.

## Move Clock Controller 0 to Network group 1 shelf 0, slot 13

The existing Clock Controller in the Option 51 or 51C must be moved to a Network module according to the guidelines on Prepare to move Clock Controllers on Option 51/51C, page 75.

- 1 Label and disconnect the Clock Controller Junctor cable from the J12 connector in the InterGroup Module junctor board.
- 2 Disconnect the Junctor cable from the Clock Controller 0 faceplate card.
- 3 If primary and secondary clock reference cables are connected to the Clock Controller faceplate, disconnect them last.
- 4 Remove Clock Controller 0 from the Core module.
- 5 Set the Clock Controller 0 switch settings according to Table 55 on page 464.
- 6 Move Clock Controller 0 to Network shelf 1-0, slot 13.  
**Seat Clock Controller 0 but do not enable the card.**

**Note:** The Clock Controllers may be installed in any Network group; however, a two group option 81C has only two Network Modules. In this case, both Clock Controllers must be installed in Group 1. If in the future the Option 81C is upgraded to more than two Network groups, Nortel Networks recommends that Clock Controller 0 and 1 be located in different Network groups. Refer to the guidelines on Prepare to move Clock Controllers on Option 51/51C, page 75 to determine Clock Controller placement.

- 7 In Core 0, disable any ISDN PRI cards.
- 8 In Core 0, disable the CNI card (phantom group 5):
  - LD 135** To load the program.
  - DIS CNI 0 8 0** Disable the CNI card in Core module 0, slot 8, port 0.

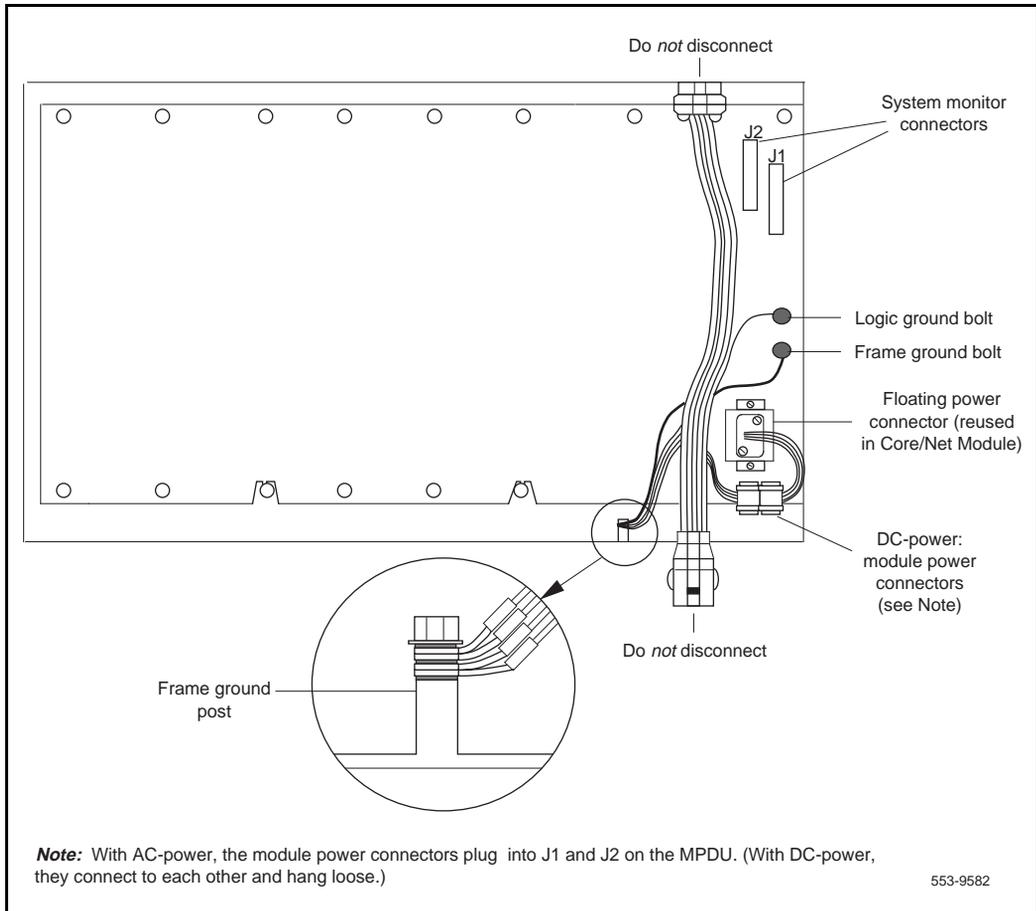
**Table 55**  
**Clock Controller 0 switch settings**

| Systems upgraded to CP PII must use the Option 81C switch settings to enable Clock Hunt software. Use the settings in this table. DO NOT use any other switch settings.                                                                                                                                                                                                                                                                                                               |     |     |     |     |     |     |     |     |    |     |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|
| SW1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |     |     |     | SW2 |     |     |     | SW4 |    |     |     |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2   | 3   | 4   | 1   | 2   | 3   | 4   | 1   | 2  | 3   | 4   |
| on                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | off | **  | on | *   | *   |
| *Total cable length between the J3 faceplate connectors:                                                                                                                                                                                                                                                                                                                                                                                                                              |     |     |     |     |     |     |     |     |    |     |     |
| 0–4.3 m (0–14 ft)                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |     |     |     |     |     |     |     |     |    | off | off |
| 4.6–6.1 m (15–20 ft)                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |     |     |     |     |     |     |     |     |    | off | on  |
| 6.4–10.1 m (21–33 ft)                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |     |     |     |     |     |     |     |     |    | on  | off |
| 10.4–15.2 m (34–50 ft)                                                                                                                                                                                                                                                                                                                                                                                                                                                                |     |     |     |     |     |     |     |     |    | on  | on  |
| <p>* If there is only one Clock Controller card in the system, set to OFF.<br/>                     If there are two Clock Controller cards, determine the total cable length between the J3 connectors (no single cable can exceed 25 ft.) and set these two switch position for this cable length, as shown above.<br/>                     Set the switches on both cards to the same settings.</p> <p>** Set to ON for Clock Controller 0. Set to OFF for Clock Controller 1.</p> |     |     |     |     |     |     |     |     |    |     |     |

## Remove Core 0 cables and card cage

- 1 Label and disconnect all cables to the front of the module. Tape over the contacts to avoid grounding. Tape or tie all cables to the sides so the working area in front of the card cage is totally clear.
- 2 Remove the I/O safety panel by turning the screws on each side. Set the cover aside.
- 3 Tag and disconnect all cables from the backplane to the interior of the I/O assembly.
- 4 Tag and disconnect all plugs, wires, and cables to the backplane.  
**Note 1:** Leave the network cards in the card cage. You will relocate them to the CP PII card cage later in the upgrade procedure.  
**Note 2:** Two people are needed to remove the Core card cage because of the weight of the card cage with the cards left installed.
- 5 Remove the two mounting screws at the bottom rear of the card cage that secure the card cage to the module casting. Keep the screws for use with the CP PII card cage. (You need a 1/4" nut driver to remove the screws.)
- 6 Remove the front trim panels on both sides of the card cage.
- 7 Remove the three mounting screws that secure the front of the card cage to the bottom of the module. Save the screws for use with the CP PII card cage.
- 8 Pull the card cage forward until it is halfway out of the module.
- 9 Disconnect cables, plugs, and wires from the rear of the module to the backplane:
- 10 Remove the logic return (LTRN) (orange) wire from the backplane bolt. Be careful; do not drop the nut or lock washer into the pedestal.  
See Figure 107 on page 466 for DC power connectors.  
See Figure 108 on page 467 for AC power connectors.

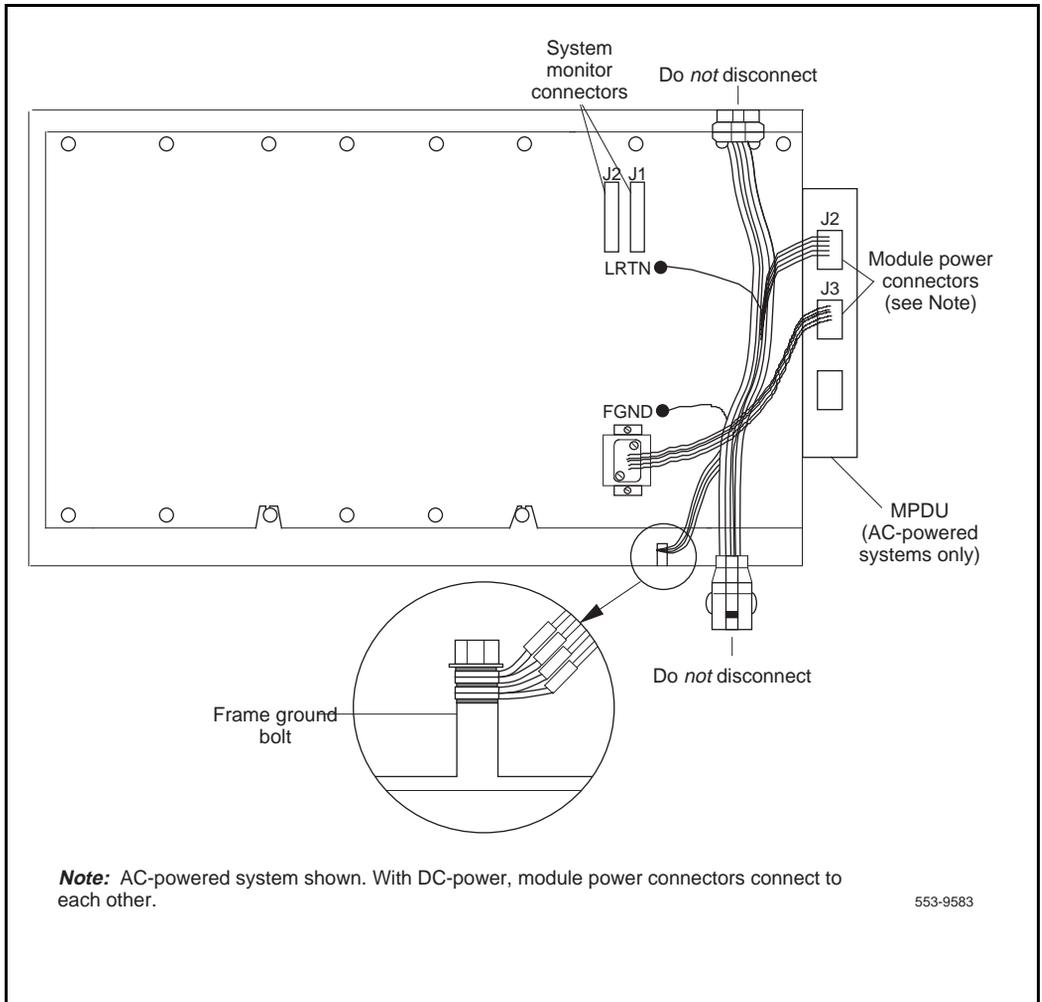
**Figure 107**  
**DC power connectors on the Core module backplane**



**Note:** With AC-power, the module power connectors plug into J1 and J2 on the MPDU. (With DC-power, they connect to each other and hang loose.)

553-9582

**Figure 108**  
**AC power connectors on the Core module backplane**



- 11 Remove the frame ground (FGND) (green) wire from the frame ground bolt on the module.
- 12 Label and disconnect the module power connectors. These are small orange connectors plugged into the module power distribution unit (MPDU) in an AC-powered system, or connected to each other in a DC-powered system.
- 13 Label and disconnect the system monitor ribbon cables to J1 and J2.
- 14 Remove the Core card cage from the module.
- 15 Remove and reinstall the module to module power harness. The power harness is located at the right rear lower corner and plugs into the rear of the power supply.
  - For AC systems, relocate power harness NT8D80AM.
  - for DC systems, relocate power harness NT7D11.

**CAUTION**

Be sure to perform the following step. If you do not tape the EMI shield in position, you will not be able to install the card cage in the module correctly.

- 16 Reposition the EMI shield (it looks like a brass grill) in the base of the module. Tape over the front mounting tabs to hold the shield in position. You will remove the tape later.
- 17 In AC-power systems only, plug the module power cable (the short harness attached to the module power connector) into connector J3 on the MPDU (attached to the side of the card cage).

**CAUTION**

Check for and remove any debris (such as screws) that may have fallen into the base of the UEM module.

## Upgrade Core 0 hardware

### Task summary list

The following is a summary of the tasks in this section:

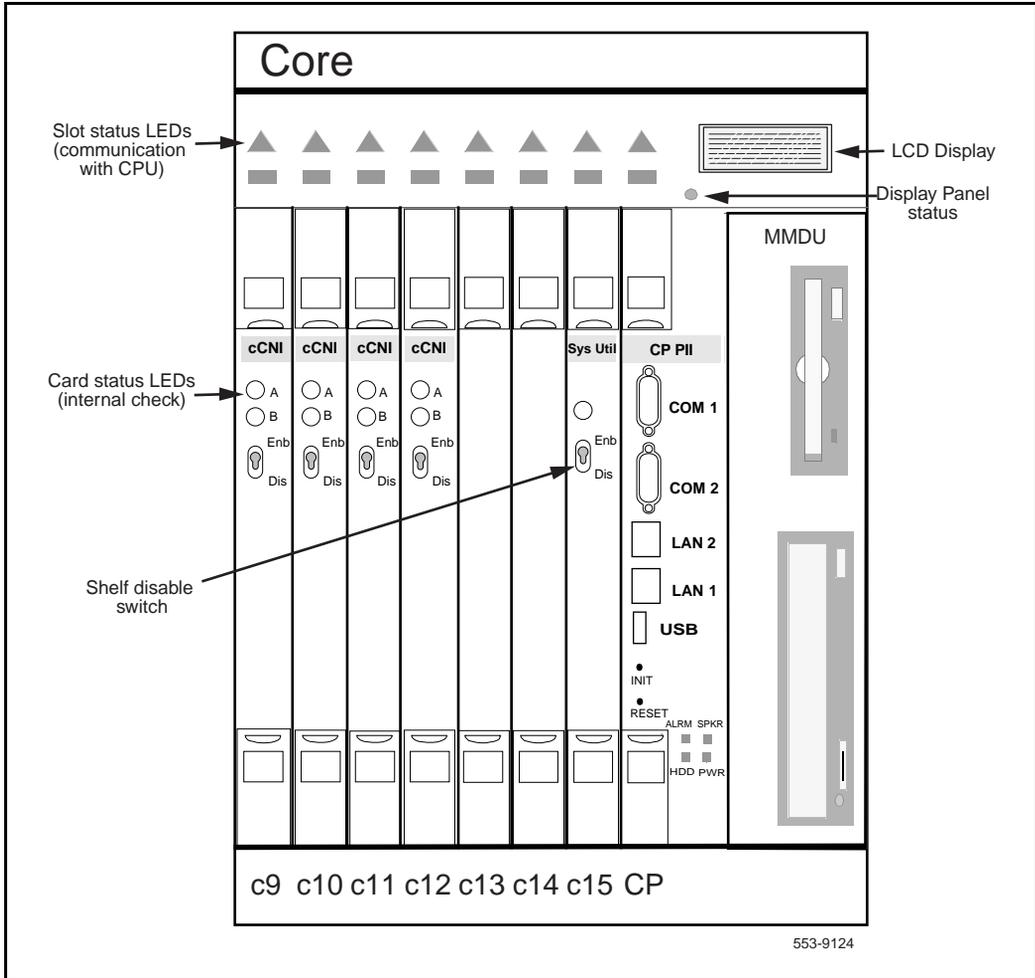
- Check that the main Core cards (front side) are installed, page 469
- Check that the Core Transition cards are installed, page 471
- Check for the shelf power cable, page 473
- Install the Security Device, page 474
- Seat the Core 1 and Core 0 FIJI cards, page 475
- Install the CP PII card cage in Core 0, page 475
- Relocate Network cards to CP PII Core 0, page 480

### Check that the main Core cards (front side) are installed

The main Core cards including the MMDU (with the cables for power and data) are installed in the factory (see Figure 109 on page 470):

- **NT4N65AB cPCI Core Network Interface (cCNI) cards:** Each system contains between one and four NT4N65 cCNI cards per Core/Net module. The cCNI cards are located in slots c9-c12. If not already installed, install a P0906308 cPCI Card Slot Filler Panel to cover any of slots c10 - c 12 which do not contain cCNIs.
- Slots c13 and c14 are left empty. If not already installed, install a P0906308 cPCI Card Slot Filler Panel in each slot.
- **NT4N67AA System Utility (Sys Util) card** is located in slot c15.
- **A0810496 Call Processor PII (CP II)** is located in the slot marked CP.
- **NT4N43AA cPCI Multi-Media Disk Unit (MMDU)** is located in the extreme right hand slot next to the CP PII card. The MMDU contains the hard drive, floppy drive and CD-ROM drive.

**Figure 109**  
**Core card placement in the CP PII Core/Net (front)**



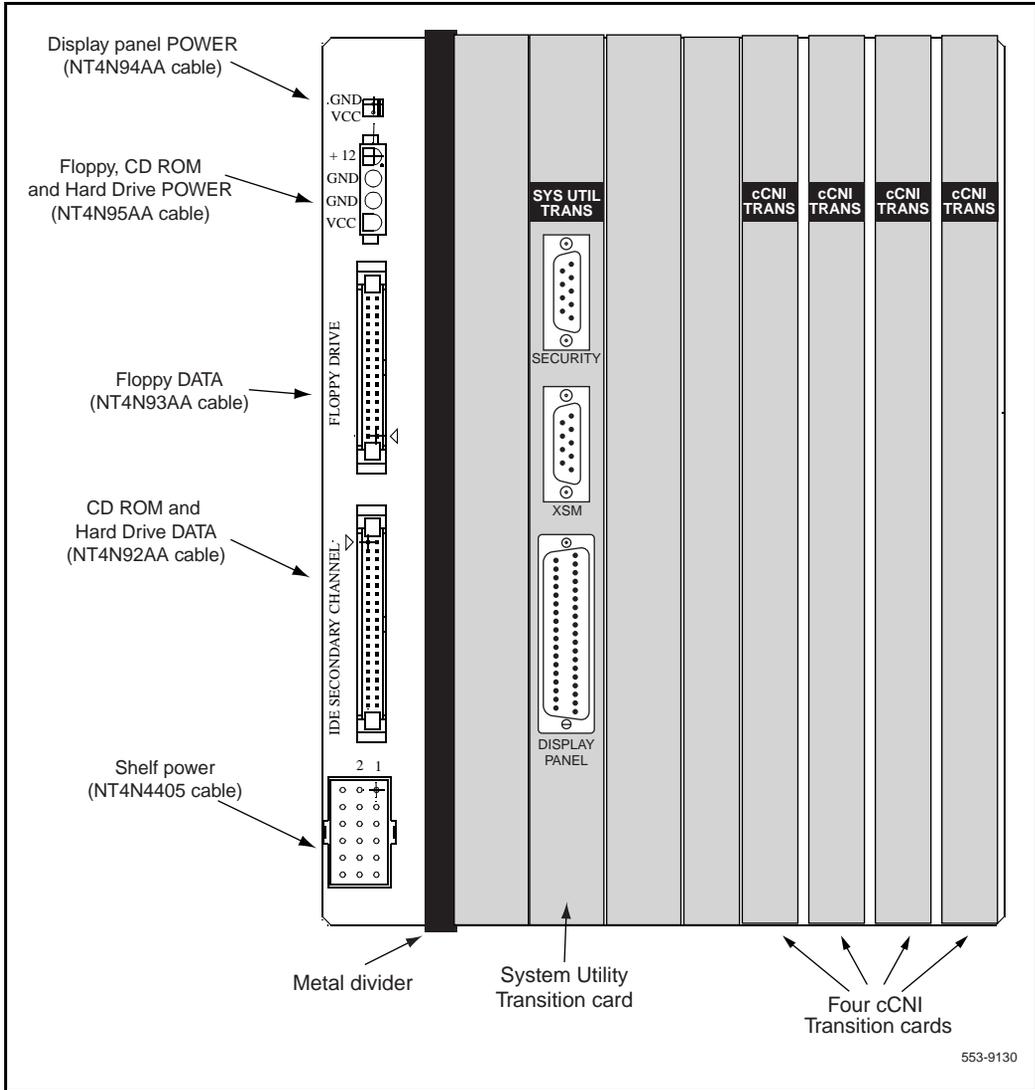
## Check that the Core Transition cards are installed

The Core Transition cards are located directly behind the corresponding main cards (on the rear of the Core backplane). Core Transition cards are installed in the factory:

- **NT4N66AA cCNI Transition cards:** Each system contains four of these cards.
- **NT4N68AA System Utility Transition card:** The System Utility Transition card is installed directly behind the System Utility card and contains connections for the Security Device, the System Monitor (XSM) and the Display Panel.

Figure 110 on page 472 displays the location of the Core Transition cards.

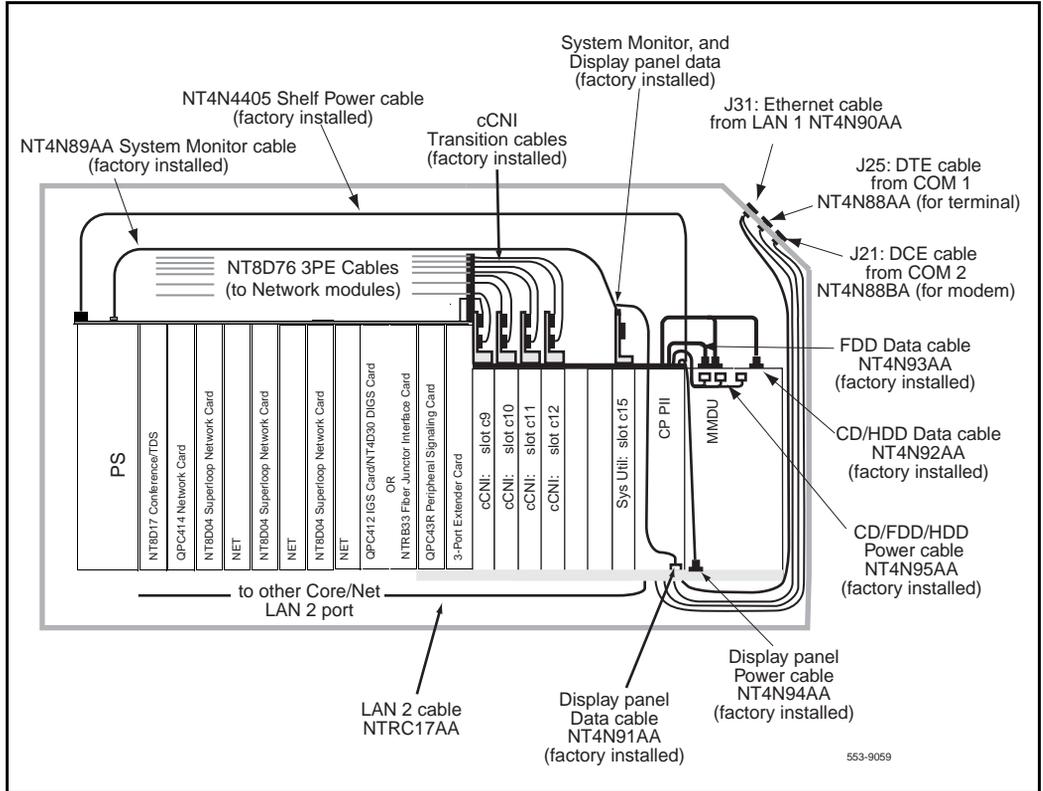
**Figure 110**  
**Location of Transition cards**



## Check for the shelf power cable

Check that the NT4N4405 shelf power cable is installed in the CP PII card cage backplane. See Figure 111 on page 473 for the cable location.

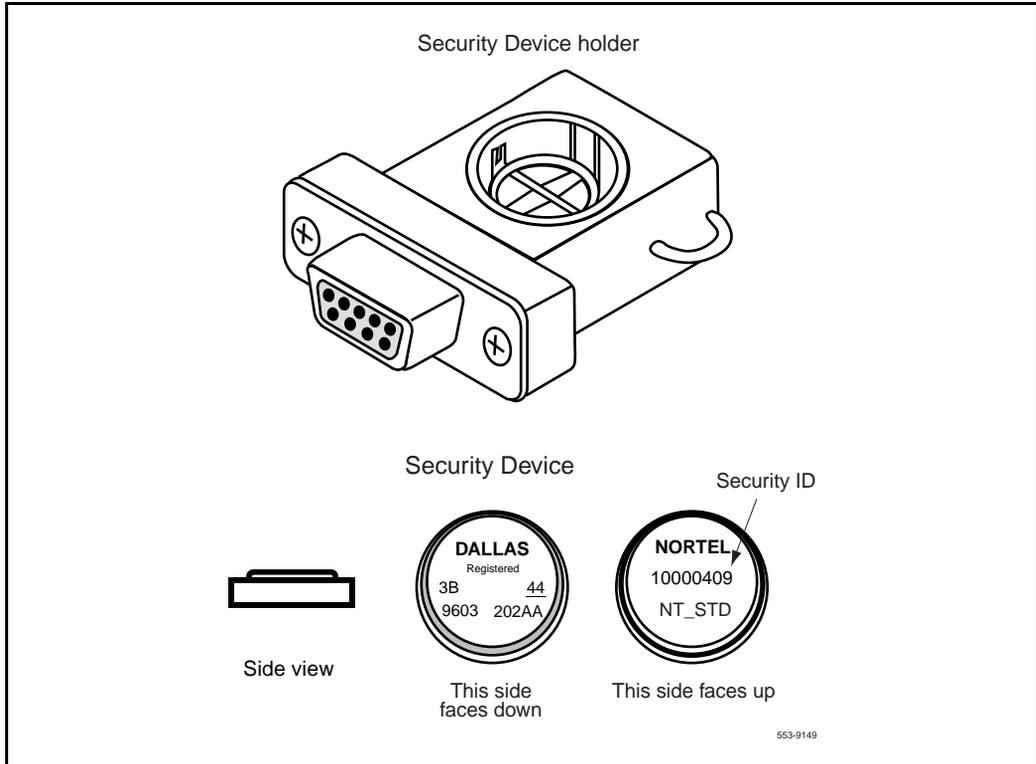
**Figure 111**  
**Core/Net cable connections**



## Install the Security Device

The Security Device fits into the Security Device holder (see Figure 112 on page 474) which attaches to the System Utility Transition card located on the core backplane.

**Figure 112**  
**Security Device and holder**



To install the Security Device:

- 1 **If the original system had an IODU/C**, remove the Security Device from the IODU/C for reuse.
  - a Unlock the latches and remove the IODU/C card.
  - b Remove the round 1/2" diameter IODU/C Security Device from the round black Security Device holder on the top right corner of the IODU/C card.

**OR**

**If the original system did not have an IODU/C**, use the Security Device provided with the CP PII Software kit. Locate the Security Device holder in the plastic bag taped to the top of the card cage.

- 2 Insert the Security Device into the Security Device holder with the "Nortel" side facing up. Do not bend the clip more than necessary.
- 3 Insert the assembly (Security Device and holder) between the clips on the top of the System Utility Transition card (Figure 113 on page 476).
- 4 Check that the Security Device is securely in place.

## **Seat the Core 1 and Core 0 FIJI cards**

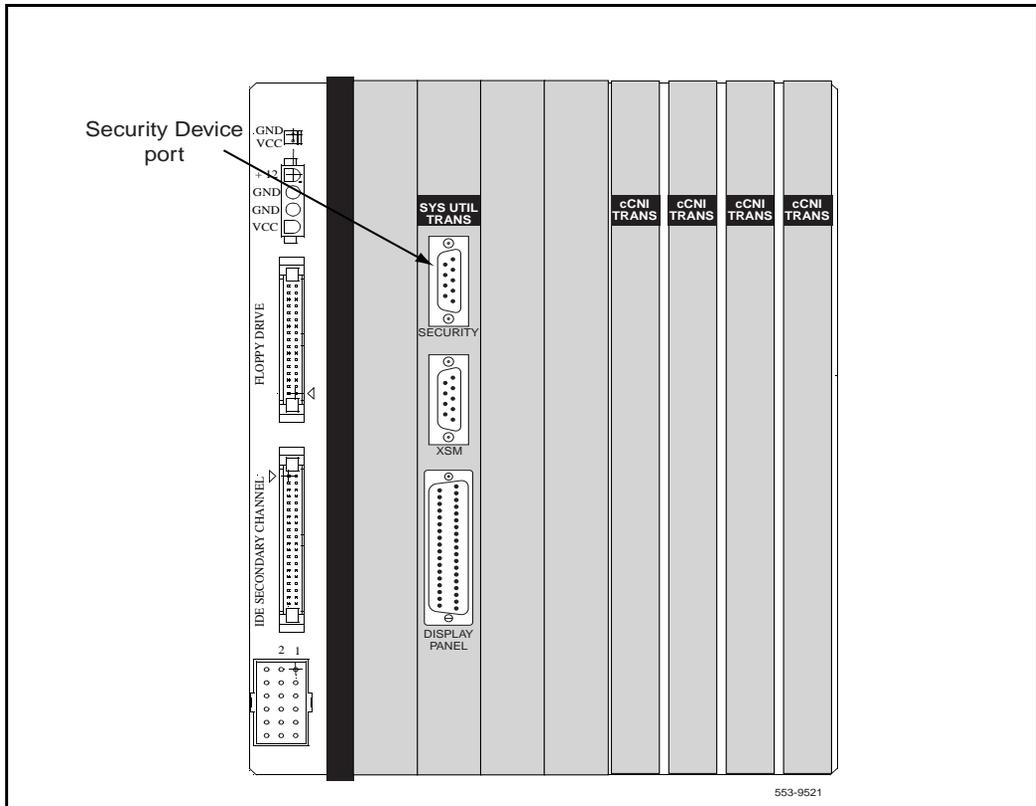
The FIJI cards in both Cores can now be seated.

- 1 Push the faceplate latches forward to lock the cards in place.
- 2 Verify that the cards are faceplate enabled.

## **Install the CP PII card cage in Core 0**

- 1 **Check that the card cage is configured as Core 0. See Check the Core ID switches, page 66 for instructions.**
- 2 **For AC-powered systems only**, after the card cage is out of the module, remove the MPDU and reinstall it on the CP PII card cage. Install the new MPDU, part of the cPCI Upgrade kit, to the side on the NT4N46 card cage. The screws that secure the MPDU are accessible from the power supply slot. See Figure 114 on page 477.
- 3 Check that the power harness at the right rear corner of the card cage has been transferred from the old card cage to the CP PII card cage
- 4 Slide the CP PII card cage halfway into the module.

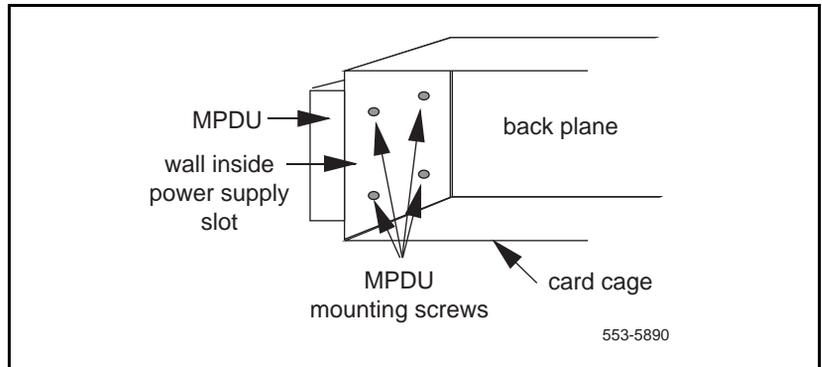
**Figure 113**  
**Security Device installation (System Utility Transition card)**



- 5** Hold the card cage firmly and make the following connections at the rear of the module.
  - a** In **AC** powered systems, connect the remaining module power connectors to J2 on the MPDU.

In **DC** powered systems, connect the module power connectors to each other.

**Figure 114**  
**Location of the screws for the MPDU**

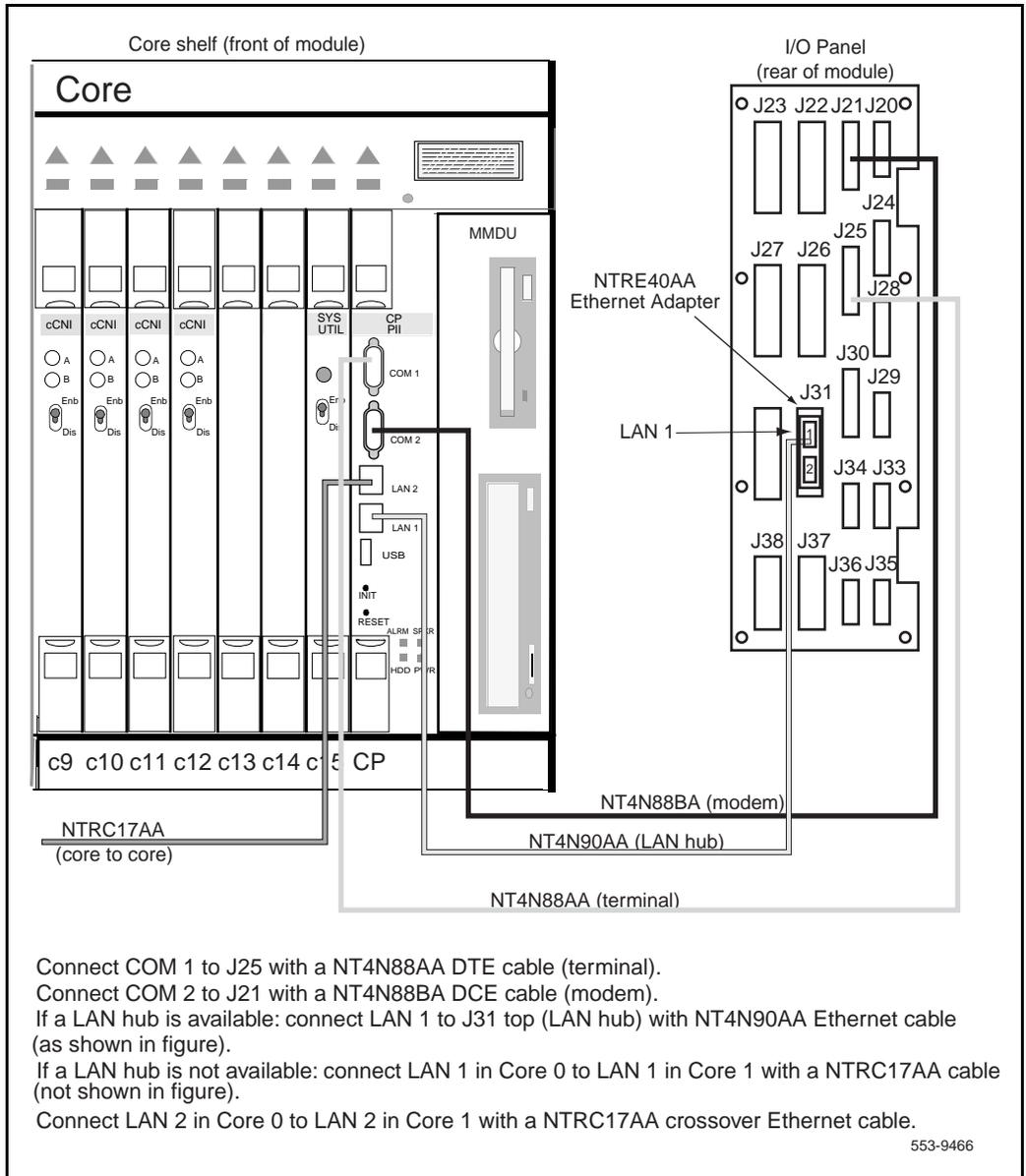


- b** Attach the **system monitor** ribbon cables:
- connect the ribbon cable that goes down to the pedestal to connector **J1** on the backplane.
  - connect the ribbon cable that goes up the column to **J2** on the backplane.
- c** Attach the green ground wire to the frame ground bolt on the module. (a 11/32" socket wrench is used to attach the wire.) Remove the nut and the lock washer at the top of the bolt. Put the frame ground wire terminal over the bolt. Reinstall the top lock washer and the nut, then tighten down the nut.
- Note:** For all of the wire terminals to fit on the bolt, remove one of the lock washers. Leave a lock washer at the bottom of the bolt and at the top of the bolt. Leave a third lock washer between the second and third, or the third and fourth, wire terminals.
- d** Attach the orange logic return wire. Remove one nut and the lock washer from the LRTN blot at the rear of the card cage. Put the wire terminal over the bolt, reinstall the lock washer and nut, then tighten down the nut. (You need a 1/4" or 2/8" socket wrench.)
- 6** Slide the card cage all the way into the module.
- 7** Check the position of the EMI shield. If the EMI shield has shifted, reposition it. Remove the tape holding the EMI shield.
- 8** Pre-route cables NT4N88AA, NT4N88BA and NT4N90AA before you secure the card cage. (See Figure 115 on page 479.)

- a Route cable **NT4N88AA** from **COM1** on the CP PII faceplate to **J25** on the I/O panel. (NT4N88AA is used to connect a terminal.)
- b Route cable **NT4N88BA** from **COM2** on the CP PII faceplate to **J21** on the I/O panel. (NT4N88BA is used to connect a modem.)

Route cable **NT4N90AA** from **LAN 1** on the CP PII faceplate to **J31 (top)** of the I/O panel.

**Figure 115**  
**COM and LAN connections to the Core/Net I/O panel**



## Relocate Network cards to CP PII Core 0

- 1 Remove all remaining network cards from the Option 51/51C Core 0.
  - 2 When you move the 3PE card, check the switch settings and jumpers. Figure on page 61 shows a side view of the 3PE card and the location of the switch settings.
    - a All 3PE cards must be vintage F or later.
    - b Check that the RN27 Jumper is set to "A".
    - c The settings for 3PE cards in Core/Net shelves are different from those in all other shelves: Table 56 on page 481 shows the 3PE settings for cards installed in CP PII Core/Net Modules.
- Note:* For 3PE settings for cards installed in Network Modules, see Figure on page 61.
- 3 Reinstall each removed card in the same network slot in the CP PII Core/Net 0.
  - 4 Connect the tagged cables to the relocated cards.

**Table 56**  
**QPC441 3PE Card installed in the CP PII Core/Net modules**

| <b>Jumper Settings: Set Jumper RN27 at E35 to "A".</b> |         |                            |          |          |          |          |          |          |          |
|--------------------------------------------------------|---------|----------------------------|----------|----------|----------|----------|----------|----------|----------|
| <b>Switch Settings</b>                                 |         |                            |          |          |          |          |          |          |          |
| <b>Module</b>                                          |         | <b>D20 switch position</b> |          |          |          |          |          |          |          |
| CP PII Core/Net modules only                           |         | <b>1</b>                   | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> |
| Core/Net 0<br>(Shelf 0)                                | Group 0 | off                        | on       | on       | off      | on       | on       | on       | on       |
|                                                        | Group 1 | off                        | on       | on       | off      | on       | on       | off      | on       |
|                                                        | Group 2 | off                        | on       | on       | off      | on       | off      | on       | on       |
|                                                        | Group 3 | off                        | on       | on       | off      | on       | off      | off      | on       |
|                                                        | Group 4 | off                        | on       | on       | off      | off      | on       | on       | on       |
|                                                        | Group 5 | off                        | on       | on       | off      | off      | on       | off      | on       |
|                                                        | Group 6 | off                        | on       | on       | off      | off      | off      | on       | on       |
|                                                        | Group 7 | off                        | on       | on       | off      | off      | off      | off      | on       |
| Core/Net 1<br>(Shelf 1)                                | Group 0 | off                        | on       | on       | off      | on       | on       | on       | off      |
|                                                        | Group 1 | off                        | on       | on       | off      | on       | on       | off      | off      |
|                                                        | Group 2 | off                        | on       | on       | off      | on       | off      | on       | off      |
|                                                        | Group 3 | off                        | on       | on       | off      | on       | off      | off      | off      |
|                                                        | Group 4 | off                        | on       | on       | off      | off      | on       | on       | off      |
|                                                        | Group 5 | off                        | on       | on       | off      | off      | on       | off      | off      |
|                                                        | Group 6 | off                        | on       | on       | off      | off      | off      | on       | off      |
|                                                        | Group 7 | off                        | on       | on       | off      | off      | off      | off      | off      |

## Cable Core 0

### Task summary list

The following is a summary of the tasks in this section:

- Cable COM 1 and COM 2 to the I/O panel, page 482
- Connect a terminal and modem to the I/O panel, page 482
- Connect LAN 1, page 483
- Connect pre-routed cCNI to 3PE cables, page 485
- Connect the Shelf 0 FIJI Fiber Ring Cables, page 489
- Cable the Clock Controllers, page 491

### Cable COM 1 and COM 2 to the I/O panel

- 1 Connect **COM1** on the CP PII faceplate to **J25** on the I/O panel with cable **NT4N88AA**.
- 2 Connect **COM2** on the CP PII faceplate to **J21** on the back of the I/O panel with cable **NT4N88BA**.

### Connect a terminal and modem to the I/O panel

- 1 Connect **J25** to a **terminal** for use during the upgrade. Use a separate terminal for each Core if available. J25 can also be connected to an A/B box to share a terminal between both Cores.
- 2 Connect **J21** to the device connected in the original system (such as a **modem or A/B box**)

## Connect LAN 1

The LAN 1 port is used to enable redundancy features between the two Core/Net modules. LAN 1 can also be connected to a local area network (LAN) for use with LAN based administration tools such as the Meridian Administration Tool (MAT).

The options for the LAN 1 connections are shown in Figure 116 on page 484.

### If the system will be connected to a LAN

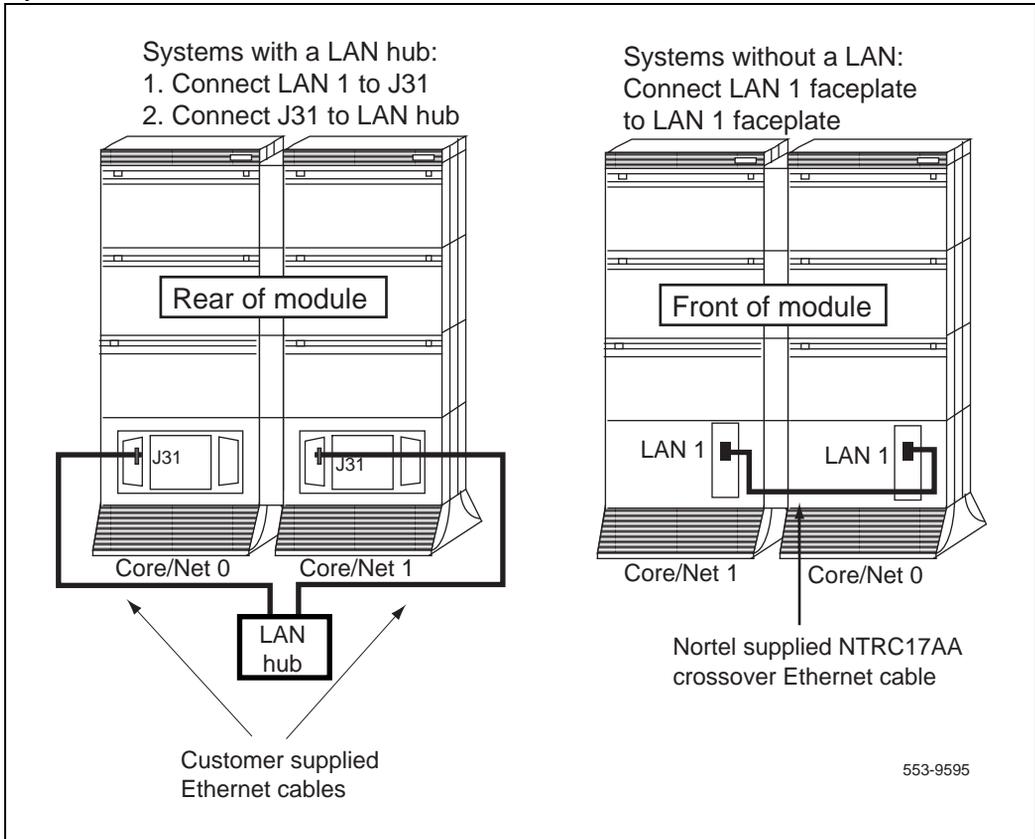
- 1 Connect the “**Dual Ethernet Adapter (RJ45)** for I/O Panel” (NTRE40AA) to **J31**. Secure the adapter to J31 with the two screws included in the shipment.  
Insert the adapter from the inside of the I/O panel.
- 2 Connect **LAN 1** (Ethernet) on the CP PII faceplate to **J31 (top)** of the I/O panel with cable **NT4N90AA**.  
This connection can only be made *after* the Dual Ethernet Adapter is installed (see step 1 above).
- 3 Connect **J31** to a **LAN hub**.

### If a LAN is not available, connect LAN 1 directly to LAN 1

If a LAN hub is not available, do NOT connect LAN 1 to the I/O panel. The NTRE40AA Adapter and NT4N90AA cable are NOT installed.

- 1 Connect a **crossover Ethernet cable (NTRC17AA)** to the **LAN 1** port on the CP PII faceplate of Core/Net 0.
- 2 To ensure EMI shielding, route the cable along the front of the card cage and through the sides of the Core/Net modules.
- 3 Connect the other end of the cable to the **LAN 1** port on the CP PII faceplate in Core/Net 1.

**Figure 116**  
**Options for LAN 1 connection**



## Connect pre-routed cCNI to 3PE cables

NT8D76 cables connect between the Core/Net Termination Panel and the 3PE cards:

- See 3PE Termination Panel, page 52 for detailed information on the slot and Network group assignments.
- This procedure applies to systems with columns in a single row. This procedure does not apply to systems with columns in separate aisles.
- Network group assignments for the cCNI ports in the CP PII card cage must be the same as the original system. Check to make sure that the cables are installed according to the port assignments in the existing database.
- The new NT8D76 3PE cables must be routed and in place before this procedure is begun. Refer to Pre-route cables, page 79.
- Remember to label all cables with the connection information. Labels are necessary to perform troubleshooting or future upgrades
- Table 57 on page 487 contains connection information for 3PE faceplates and the Core/Net Termination Panel.
- Figure 118 on page 488 shows the connection information on the Termination Panel.

### Connect the 3PE cables in the shelf 0 Network modules

- 1 Disconnect the old cables from the J3 and J4 connectors on the 3PE cards in shelf 0 of each Network group.
- 2 Pull the new Nt8D76 cables inside the UEM. Connect the new NT8D76 cables to J3 and J4 of the 3PE cards. See Figure 117 on page 486 and Table 57 on page 487 for connection information.
- 3 Connect the new NT8D76 cables to the Termination Panel in Core/Net 1. See Figure 118 on page 488 and Table 57 on page 487.  
**Note:** Remove the old unused CNI to 3PE cables
- 4 If the system has XSDI cards, reinstall the cards and attach the cables.

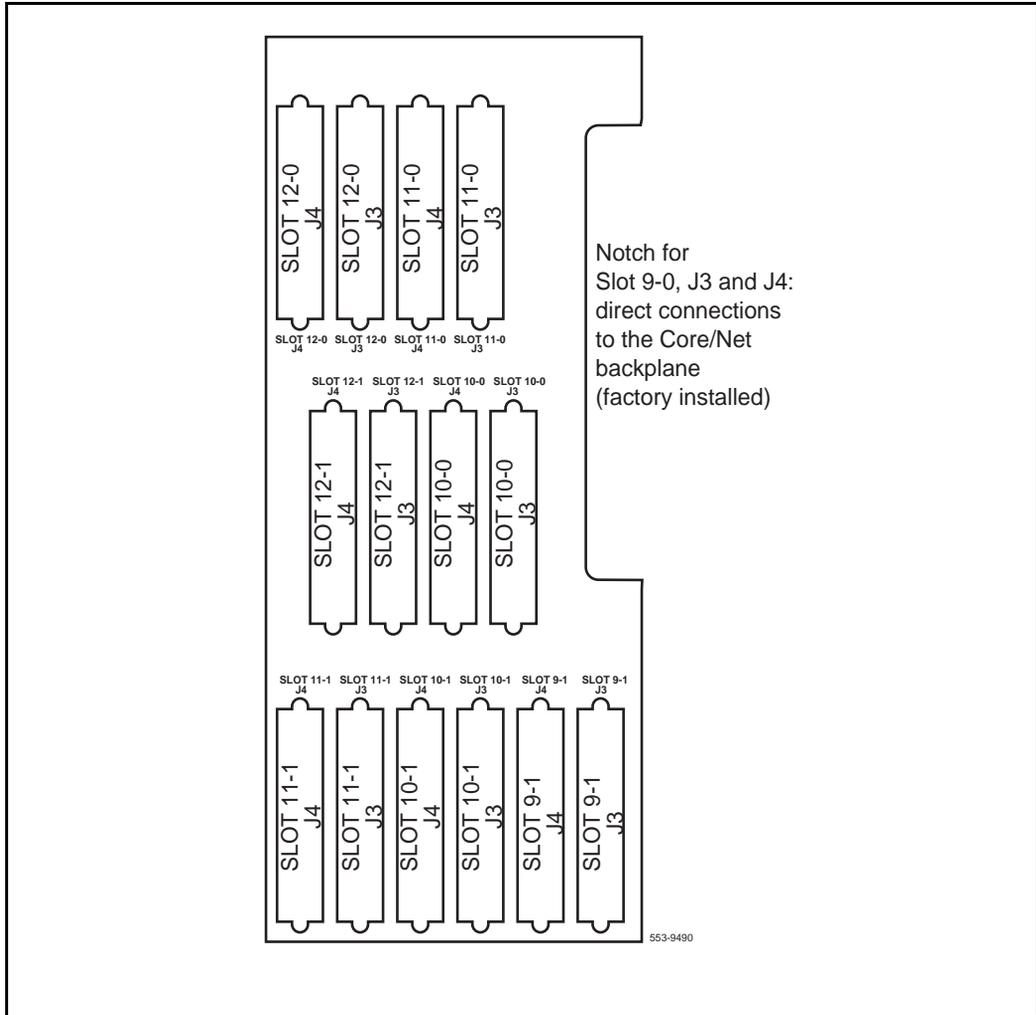


**Table 57**  
**Termination Panel to 3PE card connectors**

| Group Number | Termination Panel connector | 3PE card connector |
|--------------|-----------------------------|--------------------|
| 0            | 9-0                         | See <i>Note</i> .  |
| 0            | 9-0                         | See <i>Note</i> .  |
| 1            | 9-1-J3                      | J3                 |
| 1            | 9-1-J4                      | J4                 |
| 2            | 10-0-J3                     | J3                 |
| 2            | 10-0-J4                     | J4                 |
| 3            | 10-1-J3                     | J3                 |
| 3            | 10-1-J4                     | J4                 |
| 4            | 11-0-J3                     | J3                 |
| 4            | 11-0-J4                     | J4                 |
| 5            | 11-1-J3                     | J3                 |
| 5            | 11-1-J4                     | J4                 |
| 6            | 12-0-J3                     | J3                 |
| 6            | 12-0-J4                     | J4                 |
| 7            | 12-1-J3                     | J3                 |
| 7            | 12-1-J4                     | J4                 |

**Note:** Group 0 cables connect from the cCNI Transition card directly to the backplane of Core/Net 0 OR to the NT8D76 cable (depending on your CNI group configuration).

**Figure 118**  
**Connectors for cCNI Transition Cables to the Termination Panel**



## Connect the Shelf 0 FIJI Fiber Ring Cables

To create the shelf 0 fiber optic Ring 0, connect the FIJI cards in each Network shelf 0 in **ascending** order, from Tx to Rx ports (Table 58 on page 490).

Remove the black cap from the end of each cable before it is connected.

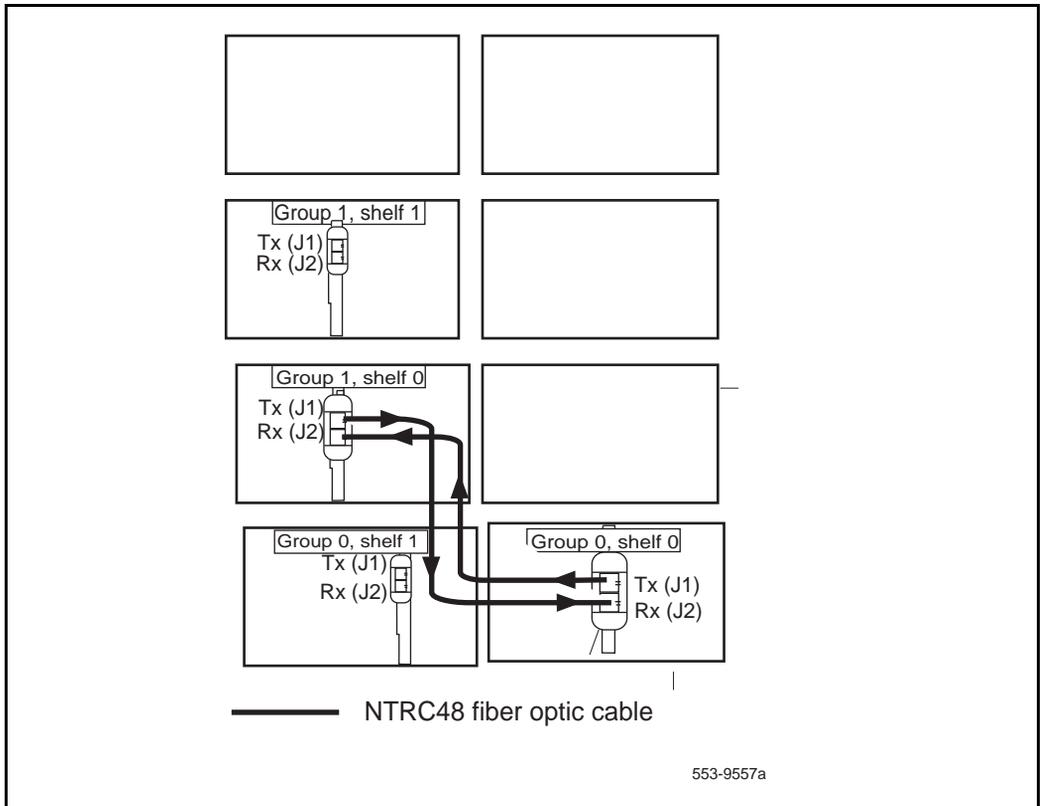
**Note:** Each end of the NTRC48 cable is labeled "Tx" or Rx" in the factory.

- 1 Start with Group 0, shelf 0.
- 2 Connect a NTRC48 FIJI Fiber Ring cable of the appropriate length from the Tx (J1) port of the FIJI card in **Group 0, shelf 0** to the Rx (J2) port of the FIJI card in the **Group 1, shelf 0**.
- 3 To complete the Ring, connect a final cable from Tx in **Group 1, shelf 0** back to the to Rx (J2) port in **Group 0**.

**Table 58**  
**FIJI Ring 0 connections**

| Groups X - 0 are cabled in ascending order                           |                              |                     |
|----------------------------------------------------------------------|------------------------------|---------------------|
| Group/shelf                                                          | NTRC48 fiber cable connector | FIJI card connector |
| 0/0                                                                  | P1                           | Tx - J1             |
| 1/0                                                                  | P2                           | Rx - J2             |
| 1/0                                                                  | P1                           | Tx - J1             |
| 2/0                                                                  | P2                           | Rx - J2             |
| 2/0                                                                  | P1                           | Tx - J1             |
| 3/0                                                                  | P2                           | Rx - J2             |
| 3/0                                                                  | P1                           | Tx - J1             |
| 4/0                                                                  | P2                           | Rx - J2             |
| 4/0                                                                  | P1                           | Tx - J1             |
| 5/0                                                                  | P2                           | Rx - J2             |
| 5/0                                                                  | P1                           | Tx - J1             |
| 6/0                                                                  | P2                           | Rx - J2             |
| 6/0                                                                  | P1                           | Tx - J1             |
| 7/0                                                                  | P2                           | Rx - J2             |
| 7/0                                                                  | P1                           | Tx - J1             |
| 0/0                                                                  | P2                           | Rx - J2             |
| <p><b>Note:</b> Groups 2 through 7 are shown for reference only.</p> |                              |                     |

**Figure 119**  
**Shelf 0 ascending fiber optic Ring (Option 51C example)**



## Cable the Clock Controllers

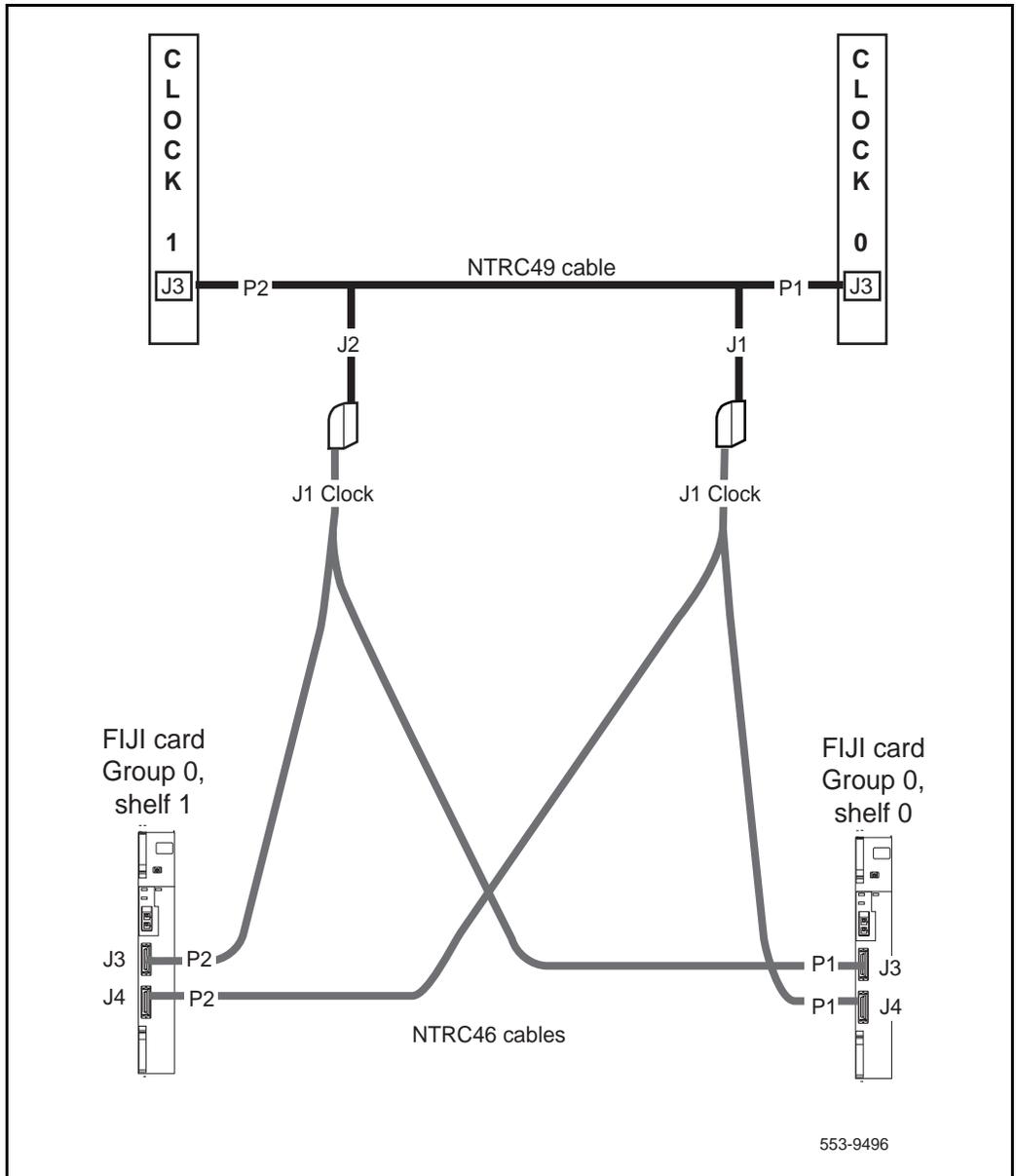
Earlier in the upgrade, you checked that Clock Controller 1 is installed in Network 1 shelf 1, slot 13; and Clock Controller 0 has been moved to Network group 1 shelf 0, slot 13.

Connect the cables to the Clock Controllers as shown in Figure 120 on page 493:

- 1 Connect the Clock to Clock cable:**
  - a** Connect J1 of the NTRC49 cable to port J3 of Clock Controller 0.

- b** Connect J2 of the NTRC49 cable to port J3 of Clock Controller 1.
- 2** **Connect the Clock 0 to FIJI cable:**
  - a** Connect J1 of the NTRC46 cable from Clock 0 to **J4** of the FIJI card in Group 0, **shelf 0**.
  - b** Connect J2 of the NTRC46 cable from Clock 0 to **J4** of the FIJI card in Group 0, **shelf 1**.
- 3** **Connect a Clock 1 to FIJI cable:**
  - a** Connect J1 of the NTRC46 cable from Clock 1 to **J3** of the FIJI card in Group 0, **shelf 0**.
  - b** Connect J2 of the NTRC46 cable from Clock 1 to **J3** of the FIJI card in Group 0, **shelf 1**.

**Figure 120**  
**Clock Controller cable configuration**



## Connect inter-module cables

### Task summary list

The following is a summary of the tasks in this section:

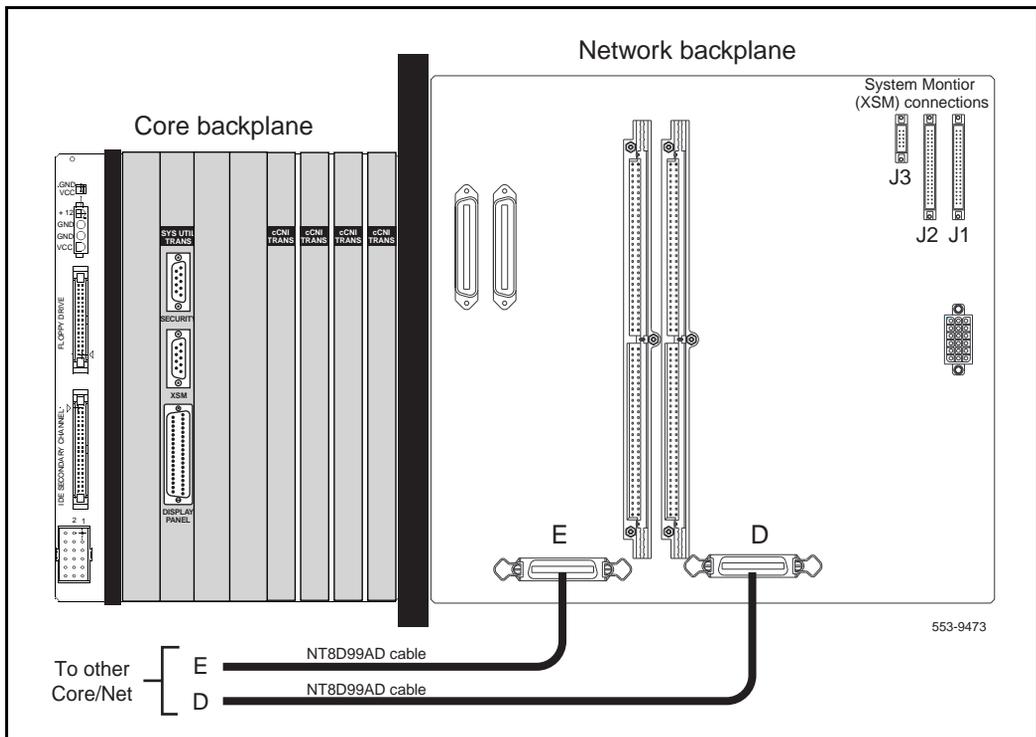
- Connect D and E cables, page 494
- Connect LAN 2 in Core/Net 0 to LAN 2 in Core/Net 1, page 495

### Connect D and E cables

Connect D and E cables as shown in Figure 121 on page 494.

Figure 121

#### Connections on the network side of the CP PII Core/Net backplane



## Connect LAN 2 in Core/Net 0 to LAN 2 in Core/Net 1

The LAN 2 ports on the CP PII faceplates are directly connected with a NTRC17AA cable. This connection is for Core redundancy. See Core redundancy, page 48 for more information on this feature.

- 1 Connect a **crossover Ethernet cable (NTRC17AA)** to the **LAN 2** port on the CP PII faceplate of Core/Net 0. (Figure 115 on page 479).
- 2 To ensure EMI shielding, route the cable along the front of the card cage and through the sides of the Core/Net modules.
- 3 Connect the other end of the cable to the **LAN 2** port on the CP PII faceplate in Core/Net 1.

## Restore power

### Task summary list

The following is a summary of the tasks in this section:

- Prepare Core cards for power up, page 495
- Restore power, page 495

### Prepare Core cards for power up

- 1 In Core 0, disable the cCNI cards:
  - a Hardware disable all cCNI cards from the backplane.
  - b Disable the faceplate switch on all cCNI cards.
- 2 In Core 1, faceplate enable the cCNI cards.
- 3 Faceplate enable the System Utility Main card.

### Restore power

Restore power in the order below:

- 1 Restore power to Core/Net 1.
- 2 Restore power to Core/Net 0.
- 3 Restore power to the network modules
- 4 Wait for the system to load/initialize.
- 5 Re-initialize Core/Net 1.

*Note:* Re-initializing Core/Net 1 stops the midnight routines from running.

## Install software on Core 0

### Task summary list

The following is a summary of the tasks in this section:

- Install software on Core 0, page 496
- Check for Peripheral Software Download to Core 0, page 500
- On Core 1, reconfigure Group 0 and both sides of Group 1, page 501
- Make the system redundant, page 503

### Install software on Core 0

- 1 Check that a terminal is connected to J25 on Core/Net 0.
- 2 In Core/Net 0, install the CD-ROM into the CD-ROM drive in the MMDU:
  - a Press the button on the CD-ROM drive to open the CD-ROM disk holder.
  - b Place the CD-ROM disk into the holder with the disk label showing.
  - c Press the button again to close the CD-ROM disk holder.  
**Do not** push the holder in by hand.

*Note:* If the CD-ROM is not in the CD-ROM drive, the installation will not continue. Insert the CD-ROM to continue.

- 3 Place the CP PII Install floppy disk into the MMDU floppy drive.  
*Note:* If a problem is detected during the system verification, Install stops, prints an error message, and aborts the installation. If the verification is not successful, do not continue; contact your technical support organization.
- 4 Press the manual RESET button on the CP PII card faceplate.

- 5** Before the install runs, the system validates hard disk partitioning which takes about five minutes. The screen displays:
- Testing partition 0  
0 percent done...1 percent done.....99 percent done....100 percent done
- Testing partition 1  
0 percent done...1 percent done.....99 percent done....100 percent done
- Testing partition 2  
0 percent done...1 percent done.....99 percent done....100 percent completed!
- Disk physical checking is completed!  
There are 3 partitions in disk 0:  
The size of partition 0 of disk 0 is XX MB  
The size of partition 0 of disk 0 is XX MB  
The size of partition 0 of disk 0 is XX MB  
Disk partitions and sectors checking is completed!
- 6** At the terminal, press <cr> to start the software installation.
- 7** When prompted, remove the CP PII Install Program diskette and insert the Keycode diskette.
- <a> Continue with keycode validation
  - <y> Confirm that the keycode matches the CD-ROM release
- 8** When the screen displays the Install Menu, select the following options in sequence when prompted to do so:
- <b> Install software, database, and CP-BOOT ROM
  - <a> Verify that the CD-ROM is now in drive
- The Installation Status Summary screen appears that lists the options to be installed.
- <a> Continue with Upgrade

- 9 Select a PSDL file to install. The PSDL file contains the loadware for all downloadable cards in the system and loadware for M3900 series sets.

**Select one of the six psdl files**

- <1> Global 10 Languages <default>
- <2> Western Europe 10 Languages
- <3> Eastern Europe 10 Languages
- <4> North America 6 Languages
- <5> RIs24 up-issue
- <6> North America 6 Languages:

The languages contained in each selection are outlined as follows:

- 1 English, French, German, Spanish, Swedish, Italian, Norwegian, Brazilian, Portuguese, Finnish, Japanese Katakana.
- 2 English, French, German, Spanish, Swedish, Norwegian, Danish, Finnish, Italian, Brazilian Portuguese.
- 3 English, French, German, Dutch, Polish, Czech, Hungarian, Russian, Latvian, Turkish.
- 4 English, Spanish, French, Brazilian Portuguese, Japanese Katakana, German.
- 5 English, French, German, Spanish, Swedish, Italian, Norwegian, Portuguese, Finnish, Japanese Katakana.
- 6 English, French, German, Spanish, Brazilian Portuguese, Japanese Katakana.

**10** Continue with upgrade when prompted. Select a database to install.

**<cr>** Enter carriage return to continue.

**<a>** Continue with CP BOOTROM installation

**<a>** Install the CP BOOTROM from hard disk

**<a>** Start installation

**<a>** Continue with ROM upgrade

The Installation Status Summary screen appears. Verify that CD to disk, disk to ROM, Database, and CP-BOOTROM were installed.

**<cr>** Continue

**<q>** Quit (remove any diskettes and the CD-ROM from the MMDU drives)

**<y>** Confirm quit

**<a>** Reboot the system

The system will automatically perform a sysload: several messages appear on the system terminal. Wait for "DONE" and then "INI" messages to display before you continue.

While the sysload is being performed, database conversion occurs.

Verify that the following message appears on the system terminal:

DATA CONVERSION

X11 RELEASE XX.XX TO RELEASE 25.

Confirm that the X11 release 25 software is installed and functional on Core/Net 0:

**LD 135** to load the program

**STAT CPU** to display the CPU status

## Check for Peripheral Software Download to Core 0

Load LD 22 and print Target peripheral software version. The Source peripheral software version was printed during the procedure to Print site data, page 68.

If there is a difference between the Source and Target peripheral software version:

- A forced download occurs during initialization when coming out of parallel reload.
- System initialization takes longer.
- The system drops established calls on IPE.

### LD 22

|             |                                     |
|-------------|-------------------------------------|
| <b>REQ</b>  | PRT                                 |
| <b>TYPE</b> | PSWV.                               |
| <b>ISSP</b> | Print System and Patch Information. |
| <b>SLT</b>  | Print System Limits.                |
| <b>TID</b>  | Print the Tape ID.                  |
| <b>****</b> | Exit program.                       |

- 11 Perform a data dump to save the customer database to the hard drive:
  - a Load the Equipment Data Dump Program (LD 43). At the prompt, enter  
**LD 43** To load the program.
  - b When "EDD000" appears on the terminal, enter  
**EDD** To begin the data dump.
  - c When "DATADUMP COMPLETE" and "DATABASE BACKUP COMPLETE" appear on the terminal, enter  
**\*\*\*\*** To exit the program.

### **CAUTION**

If the data dump is not successful, do not continue; contact your technical support organization. You must correct a data dump problem before you continue.

### **Enable the conference/TDS card**

- 1 Plug in the Conf/TDS card in Group 1. Push the latches forward to lock the card in place.
- 2 Faceplate enable the Conf/TDS cards.:
- 3 Enable the Conf/TDS cards:
  - LD 34** To load the program.
  - ENLX x (loop)** To enable the Conf/TDS card.
  - \*\*\*\*** To exit the program

### **On Core 1, reconfigure Group 0 and both sides of Group 1**

Configure Conference/TDS card (as a minimum) and any other network cards.

Configure both sides of Group 1 for a two-group system.

### Enable the Peripheral Signaling card

1 Enable the Peripheral Signaling (Per Sig) card in Group 1:

**LD 32** to load the program.

**ENPS x** (slot) To enable the Peripheral Signaling card.

**\*\*\*\*** To exit the program.

For example:

**ENPS 12** To enable slot 12 (Group 6).

**ENPS 13** To enable slot 12 (Group 6).

**\*\*\*\*** to exit the program

## Make the system redundant

To enable system redundancy, enable cCNI cards and reboot Core/Net 0:

- 1 On Core/Net 0 and Core/Net 1, enable the cCNIs.
- 2 Reboot Core/Net 0.

**Note:** Once the *inactive* Core (Core/Net 0) is rebooted, the system will operate in full redundant mode with Core/Net 0 active.

## Complete the CP PII upgrade

### Task summary list

The following is a summary of the tasks in this section:

- Test Core/Net 1 and Core/Net 0, page 504
- Perform a data dump, page 507

### Test Core/Net 1 and Core/Net 0

**From Core/Net 1**, perform these tests for both Cores:

- 1 Perform a redundancy sanity test:  
**LD 135**  
**STAT CPU** Get status of CPU and memory.  
**TEST CPU** Test the CPU.
- 2 Check the LED and LCD states
  - a Perform a visual check of the LEDs and LCDs.
  - b Test LEDs and LCDs:  
**LD 135**  
**TEST LEDs** Test LEDs.  
**TEST LCDs** Test LCDs.  
**DSPL ALL**
  - c Check that the LED and LCD displays match the software check.
- 3 Test the System Utility cards and the cCNI cards:  
**LD 135**  
**STAT SUTL** Get the status of the System Utility (main and Transition) cards.  
**TEST SUTL** Test the System Utility (main and Transition) cards.  
**STAT CNI c s** Get status of cCNI cards (core, slot).  
**TEST CNI c s** Test cCNI (core, slot).

- 4** Switch Cores and repeat the tests to confirm that the data is consistent.:
- LD 135**
  - SCPU** Switch cores.
  - STAT CPU** Get status of the CPU.
  - TEST CPU** Test the inactive Core.
  - TEST LEDs** Test LEDs.
  - TEST LCDs** Test LCDs.
  - DSPL ALL**
  - STAT SUTL** Get status of System Utility (both main and Transition) cards.
  - TEST SUTL c s** Test System Utility cards, both main and Transition cards.
  - STAT CNI c s** Get status of cCNI cards, both main and Transition cards (core, slot).
  - TEST CNI c s** Test cCNI cards, both main and Transition cards (core, slot).
- 5** Test system redundancy:
- LD 137**
  - TEST RDUN** Test redundancy.
  - DATA RDUN**
  - TEST CMDU** Test the MMDU card.
- 6** Install the two system monitors. Test that the system monitors are working:
- LD 37** Load the program.
  - STAT XSM** Check the system monitors
  - \*\*\*\*** Exit the program.
- 7** Clear the display and minor alarms on both Cores:
- LD 135**
  - CDSP** Clear the displays on the cores.
  - CMAJ** Clear major alarms.
  - CMIN ALL** Clear minor alarms.

- 8 Get the status of the Cores, cNIS, and memory.
- STAT CPU** Get the status of CPUs and redundancy.
  - STAT CNI c s** Get the status of cCNI cards (core, slot).

*Note:* You may need to execute the STAT CNI command twice before receiving a response from the system

- 9 Test the clocks:
- a Verify that the clock controller is assigned to the *active* Core.
    - LD 60** To load the program.
    - SSCK x** To get the status of the clock controllers (*x* is "0" or "1" for Clock 0 or Clock 1.
    - SWCK** To switch the Clock if necessary.
    - \*\*\*\*** Exit program.
  - b Verify that the Clock Controllers are switching correctly:..
    - SWCK** To switch the Clock.
    - SWCK** to switch the Clock again.

- 10 Test the Fiber Rings
- See the *X11 Maintenance* (553-3001-511) for more information on overlay 39 commands.
- a Check that the Fiber Rings operate correctly:
    - LD 39** To load the program.
    - STAT RING 0** To check the status of Ring 0 (HALF/HALF)
    - STAT RING 1** To check the status of Ring 1 (HALF/HALF)
  - b If necessary, restore the Rings to Normal State:
    - RSTR** To restore both Rings to Half state.
  - c Check that the Rings operate correctly:
    - STAT RING 0** To check the status of Ring 0 (HALF/HALF)
    - STAT RING 1** To check the status of Ring 1 (HALF/HALF)

- 11 Check the status of the FIJI alarms  
**STAT ALRM** to query the alarm condition for all FIJI cards in all Network Groups  
  
\*\*\*\* Exit program.

## Perform a data dump

Perform a data dump to backup the customer database:

- 1 Log into the system.
- 2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter  
**LD 43** Load the program.
- 3 Insert a floppy disk into the MMDU to back up the database.
- 4 When "EDD000" appears on the terminal, enter  
**EDD** Begin the data dump.
- 5 When "DATADUMP COMPLETE" and "DATABASE BACKUP COMPLETE" appear on the terminal, enter  
\*\*\*\* Exit the program.

### CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. You must correct a data dump problem before you continue.

## Add an IPE module, if required

Place an IPE module on top of Core 1 column, if required. Refer to *System Installation Procedures* (553-3001-210).

**Refer to Engineering Guidelines for Option 81C to re-engineer the system, if required.**

**The Option 51/51C upgrade to Option 81C with CP PII and Fiber Network Fabric is complete.**



---

# Upgrade Option 61/61C to Call Processor PII and Fiber Network Fabric

---

## Content list

The following are the topics in this section:

- [Overview of Option 61/61C to CP PII with FNF upgrade . . . .](#) 510
- [Review upgrade requirements . . . . .](#) 512
- [Prepare for upgrade . . . . .](#) 518
- [Install Core 1 hardware . . . . .](#) 519
- [Disable Core 1 . . . . .](#) 527
- [Disable and remove equipment from Core 1 . . . . .](#) 528
- [Cable Core 1. . . . .](#) 533
- [Power up Core 1. . . . .](#) 541
- [Install software on Core 1 . . . . .](#) 542
- [Disable and remove equipment from Core 0 . . . . .](#) 550
- [Upgrade Core 0 hardware . . . . .](#) 558
- [Cable Core 0. . . . .](#) 569
- [Connect inter-module cables . . . . .](#) 579
- [Restore power . . . . .](#) 581
- [Install software on Core 0 . . . . .](#) 581
- [Complete the CP PII upgrade. . . . .](#) 587

- [Add an IPE module, if required](#) . . . . . 591

### Reference list

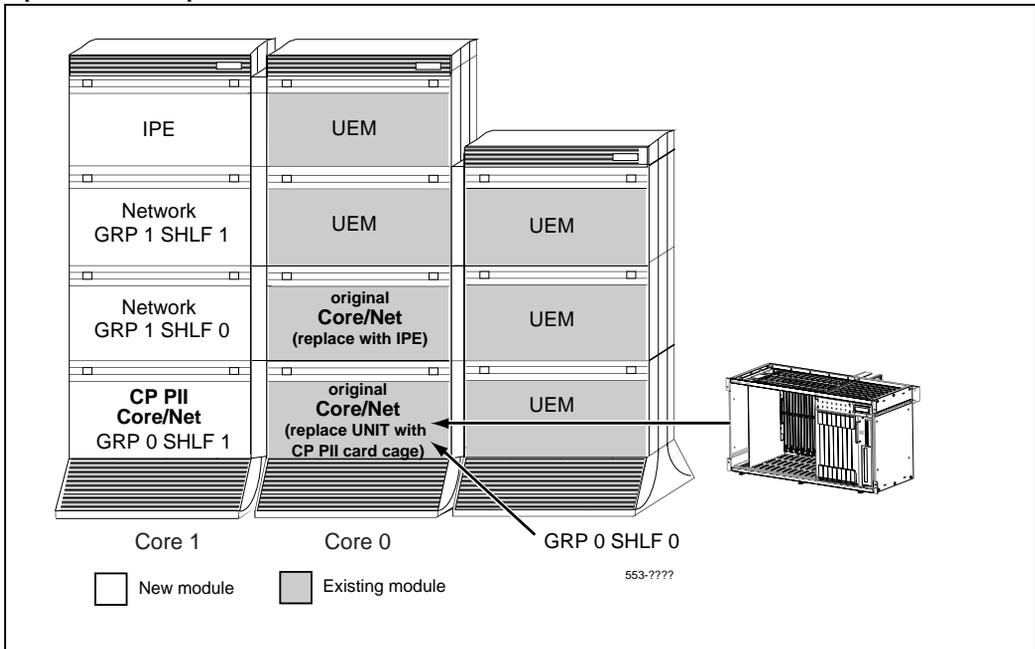
The following are the references in this section:

- *Capacity Engineering* (553-3001-149)
- *System Installation Procedures* (553-3001-210)
- *X11 Maintenance* (553-3001-511)

## Overview of Option 61/61C to CP PII with FNF upgrade

Figure 122 on page 510 shows an upgrade from an Option 61C to Option 81C with Call Processor PII and Fiber Network Fabric.

**Figure 122**  
Option 61C to Option 81C with CP PII and FNF



Options 61 and 61C can be upgraded to Option 81C only with both Call Processor PII (CP PII) and Fiber Network Fabric. Upgrades from Option 61 or 61C to CP PII alone or to Fiber Network Fabric alone are not supported.

This upgrade takes an Option 61 or 61C to a two group Option 81C with CP PII and Fiber Network Fabric. Additional groups can be added by following the procedure Add a Network Group, page 593.

To upgrade an Option 61C system to CP PII with Fiber Network Fabric:

- The card cages in the existing Core/Net modules are replaced with CP PII card cages.
- The CP PII Core/Net modules side by side directly on top of the pedestals. This ensures power and cooling redundancy as well as proper cooling from the pedestal fans.
- New CP PII cards are located in the Core/Net modules or card cage.
- Existing network cards are relocated to the CP PII card cage.
- Two new Group 1 Network modules are installed on top of the new CP PII Core/Net 1 module. This provides the new system with a minimum of two full Network groups.
- The existing Clock Controllers are moved from the Core/Net to the Network shelves.
- New cards for Fiber Network Fabric are added: NTRB33 Fiber Junctor Interface (FIJI) card and the NTRE39 Optical Cable Management Card (OCMC).
- An IPE module can be installed on top of CP PII Core/Net 0 module.



This section describes the **minimum** equipment required for CP PII. Additional equipment can also be installed during the upgrade. Verify that *all* equipment has been received.

### **Check equipment received**

Before the upgrade, check that the equipment on the order form is also on the packing slip. Check that all equipment has been received. If any items are missing, contact your supplier for replacements before you begin the upgrade.

#### **CAUTION**

DO NOT proceed with the upgrade if any of the required equipment is missing. All equipment must be received to complete the upgrade.

### **Check required software**

The following software packages are required to upgrade a system to Option 81C with CP PII:

- X11 Release 25
- Call Processor PII software package 368
- Fiber Network Fabric software package 365
- Option 81C Software Package 299
- Software Install Kit

## Check vintage requirements for existing hardware

Check the list below to make sure that existing hardware meets the minimum vintage requirements for CP PII.

If any of the equipment listed does not meet the requirements, replace the equipment before you begin the upgrade.

### WARNING

Equipment that does not meet the minimum vintage requirements will cause system malfunctions and loss of call processing.

- The QPC441 **3-Port Extender (3PE)** cards must be minimum vintage F.
- The QPC471 **Clock Controller** cards must be minimum vintage H.
- The QPC775 **Clock Controller** cards (all countries except USA) must be minimum vintage E.
- If the Clock Controllers are moved in Option 61 or 61C systems, the new **Clock Controller cables** must be the correct length. Order new NT8D79 or NTCG03 PRI/DTI to Clock Controller cables if necessary.

*Note:* QPC720 PRI cards require NT8D79 cables. NT5D12 Dual PRI/DTI cards require NTCG03 cables.

- The QPC43 **Peripheral Signaling** cards must be minimum vintage R.

## Check required hardware

Table 59 on page 515 describes the *minimum* equipment required to upgrade a system to CP PII. Table 60 on page 517 and Table 61 on page 518 list the DC and AC power equipment requirements. Additional equipment for increased Network capacity is ordered separately.

**Table 59**  
**Minimum requirements for Option 61 and 61C systems**

| Order number | Description                                 | Quantity per system |
|--------------|---------------------------------------------|---------------------|
| A0810496     | CP PII Call Processor Card (128MB Memory)   | 2                   |
| NT1R91AA     | Modem Kit                                   | 1                   |
| NT4N43AA     | cPCI Multi-Media Disk Unit                  | 2                   |
| NT4N46AA     | cPCI Core/Network Card Cage AC/DC           | 2                   |
| NT4N65AB     | cPCI Core Network Interface Card (2 ports)  | 2                   |
| NT4N66AB     | cPCI Core Network Interface Transition Card | 2                   |
| NT4N67AA     | cPCI System Utility Card                    | 2                   |
| NT4N68AA     | cPCI System Utility Transition Card         | 2                   |
| NT4N6809     | Security Device Holder                      | 2                   |
| NT4N88AA     | CP PII to I/O Panel DTE Cable (48 in.)      | 2                   |
| NT4N88BA     | CP PII to I/O Panel DCE Cable (48 in.)      | 2                   |
| NT4N89AA     | System Utility to System Monitor Cable      | 2                   |
| NT4N90AA     | CP PII to I/O Panel Ethernet Cable (48 in.) | 2                   |
| NT8D01BC     | Controller - Four Card                      | 1                   |
| NT8D04BA     | Superloop Network Card                      |                     |
| NT8D17FA     | Conference/TDS Card                         |                     |
| NT8D22AC     | System Monitor                              |                     |

**Table 59**  
**Minimum requirements for Option 61 and 61C systems**

| Order number          | Description                                                                               | Quantity per system |
|-----------------------|-------------------------------------------------------------------------------------------|---------------------|
| NT8D35BA/<br>NT8D35EA | Network Module AC/<br>Network Module DC                                                   | 2                   |
| NT8D37BA/<br>NT8D37EC | Intelligent Peripheral Equipment Module AC/<br>Intelligent Peripheral Equipment Module DC | 1                   |
| NT8D41BA              | Quad SDI Paddle Board                                                                     | 1                   |
| NT8D46AD              | System Monitor to SDI Cable (60 in.)                                                      | 1                   |
| NT8D46AL              | System Monitor Serial Link Cable (7 ft.)                                                  | 1                   |
| NT8D46AS              | System Monitor InterCPU Cable (30 in.)                                                    | 1                   |
| NT8D49AA              | Column Spacer Kit (2.75 in.)                                                              |                     |
| NT8D76BE              | IGS to IGM or cCNI to 3PE Cable (6 ft)                                                    | 2                   |
| NT8D76BF              | IGS to IGM or cCNI to 3PE Cable (10 ft)                                                   | 2                   |
| NT8D80BZ              | CPU Interface Cable (5 ft.)                                                               |                     |
| NT8D84AA              | SDI Paddleboard to I/O Cable (18 in.)                                                     |                     |
| NT8D90AF              | SDI Multi-Port Extension Cable (10 ft)                                                    |                     |
| NT8D91AD              | Network to Controller Cable (6 ft)                                                        |                     |
| NT8D99AB              | CPU to Network Cable (2 ft)                                                               | 2                   |
| NT8D99AD              | CPU to Network Cable (6 ft)                                                               | 2                   |
| NT9D18AA              | Module Side Cover                                                                         |                     |
| NTRB33AA              | Fiber Junctor Interface (FIJI) Card                                                       |                     |

**Table 59**  
**Minimum requirements for Option 61 and 61C systems**

| Order number | Description                                      | Quantity per system |
|--------------|--------------------------------------------------|---------------------|
| NTRC17AA     | CP PII Ethernet to Ethernet Cable (8.5 ft)       | 2                   |
| NTRC46BA     | Clock - FIJI Cable (1.7M - 2.4M (5.5 ft - 8 ft)) |                     |
| NTRC47AA     | FIJI - FIJI Synch Cable                          |                     |
| NTRC48AA     | FIJI Fiber Ring Cable (2M (6 ft))                |                     |
| NTRC49AA     | Clock - Clock Symch Cable                        |                     |
| NTRD25AA     | AC Pedestal Assembly                             |                     |
| NTRE39AA     | Optical Cable Management Card (OCMC)             |                     |
| NTRE40AA     | Dual Ethernet Adapter (RJ45) for I/O Panel       | 2                   |
| P0745716     | Rear I/O Panel                                   | 2                   |
| P0906308     | cPCI Card Slot Filler Panel                      | 16                  |

### Check required power equipment

Table 60 on page 517 lists the equipment required for DC powered systems.

Table 61 on page 518 lists the equipment required for AC powered systems..

**Table 60**  
**DC power requirements for Option 61/61C upgrades**

| Order number | Description                                      | Quantity per system |
|--------------|--------------------------------------------------|---------------------|
| NT6D41CA     | Core/Network Power Supply DC                     | 2                   |
| NT4N97BA     | cPCI Upgrade Kit DC (Misc. Card Cage Components) | 2                   |

**Table 61**  
**AC power requirements for Option 61/61C upgrades**

| <b>Order number</b> | <b>Description</b>                               | <b>Quantity per system</b> |
|---------------------|--------------------------------------------------|----------------------------|
| NT8D29BA            | Core/Network Power Supply AC                     | 2                          |
| NT4N97AA            | cPCI Upgrade Kit AC (Misc. Card Cage Components) | 2                          |

### **Check required tools**

With standard tools required to service a Meridian 1, use the following special tools for the upgrade:

- a 12" long, 3/8" hex head nut driver (to secure the screws in the back of the card cage)
- a flashlight

### **Check personnel requirements**

Nortel Networks recommends that a minimum of two people perform the card cage upgrade.

### **Database requirements**

Option 61 systems must be sent to Nortel Networks for software conversion.

If your X11 software is pre-release 19, you must send the database to Nortel Networks to be converted.

### **Prepare for upgrade**

Follow the Task Summary list instructions under the heading for Prepare for upgrade for Option 61/61C to CP PII and FNF, page 59 and return to Install Core 1 hardware, page 519.

## Install Core 1 hardware

### Task summary list

The following is a summary of the tasks in this section:

- Install the new column, page 519
- Check that the main Core cards are installed, page 519
- Check that the Core Transition cards are installed, page 521
- Install the Security Device, page 522
- Check for the shelf power cable, page 524
- Check the location of Clock Controller 1 and switch settings, page 525
- Check that the Network cards are installed, page 526

### Install the new column

After completing the steps in Prepare for upgrade, page 518, you must install the new column. Follow the instructions in *System Installation Procedures* (553-3001-210) to correctly install the column and configure the power and System Monitor connections.

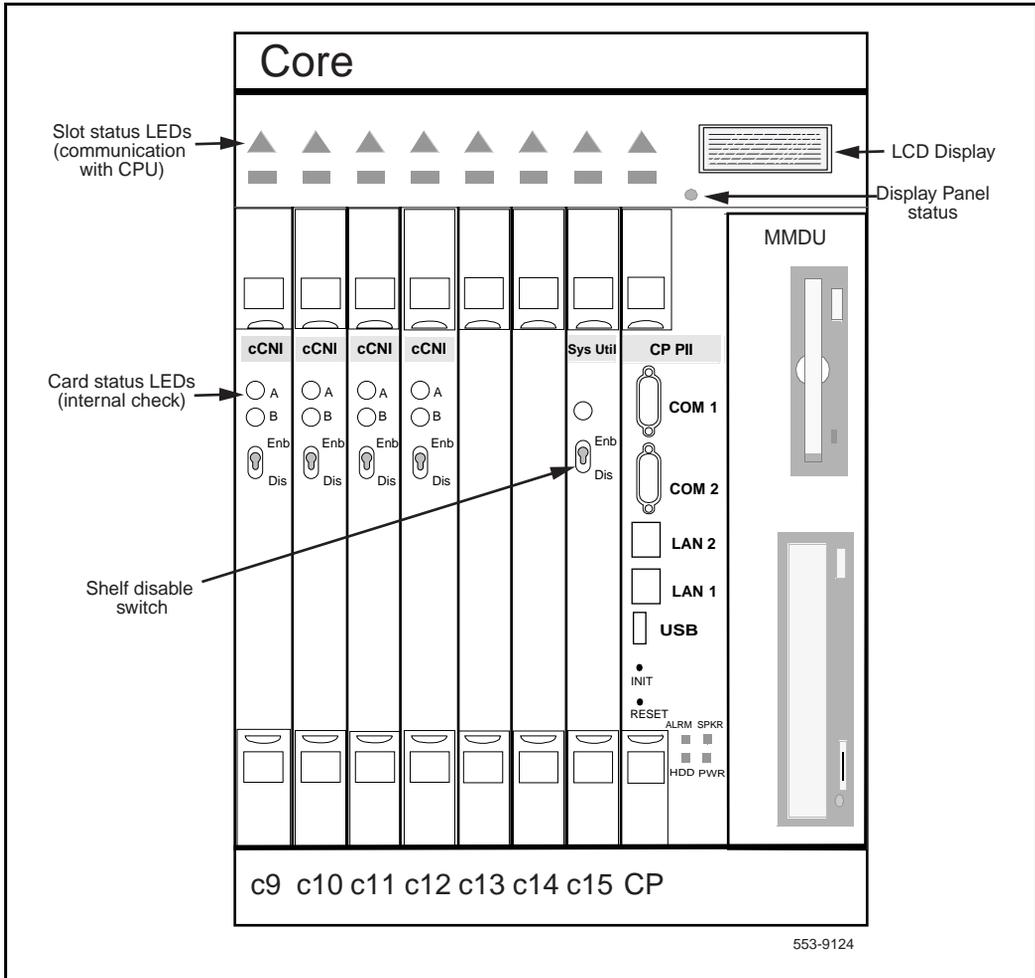
### Check that the main Core cards are installed

The main Core cards including the MMDU (with the cables for power and data) are installed in the factory, as shown in Figure 124 on page 520:

- **NT4N65AB cPCI Core Network Interface (cCNI) cards:** Each system contains between one and four NT4N65 cCNI cards per Core/Net Module. The cCNI cards are located in slots c9-c12. If not already installed, install a P0906308 cPCI Card Slot Filler Panel to cover any of slots c10 - c 12 which do not contain cCNIs.
- Slots c13 and c14 are left empty. If not already installed, install a P0906308 cPCI Card Slot Filler Panel in each slot.
- **NT4N67AA System Utility (Sys Util) card** is located in slot c15.
- **A0810496 Call Processor PII (CP II)** is located in the CP slot.
- **NT4N43AA cPCI Multi-Media Disk Unit (MMDU)** is located in the extreme right hand slot next to the CP PII card. The MMDU

contains the hard drive, floppy drive and CD-ROM drive.

**Figure 124**  
**Core card placement in the NT4N41 Core/Net Module (front)**



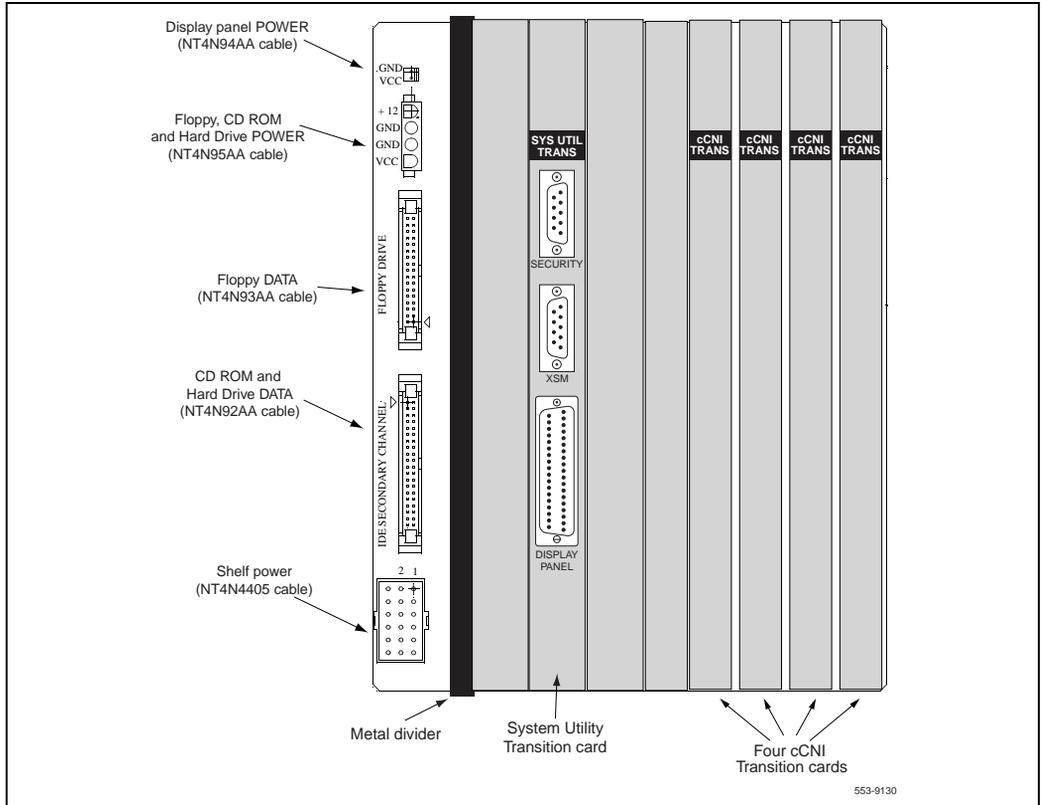
553-9124

## Check that the Core Transition cards are installed

The Core Transition cards are located directly behind the corresponding main cards (on the rear of the Core backplane). Core Transition cards are installed in the factory:

- **NT4N66AB cCNI Transition Cards:** Each system contains four cCNI Transition cards.
- **NT4N68AA System Utility Transition card:** The System Utility Transition card is installed directly behind the System Utility card and contains connections for the Security Device, the System Monitor (XSM) and the Display Panel.

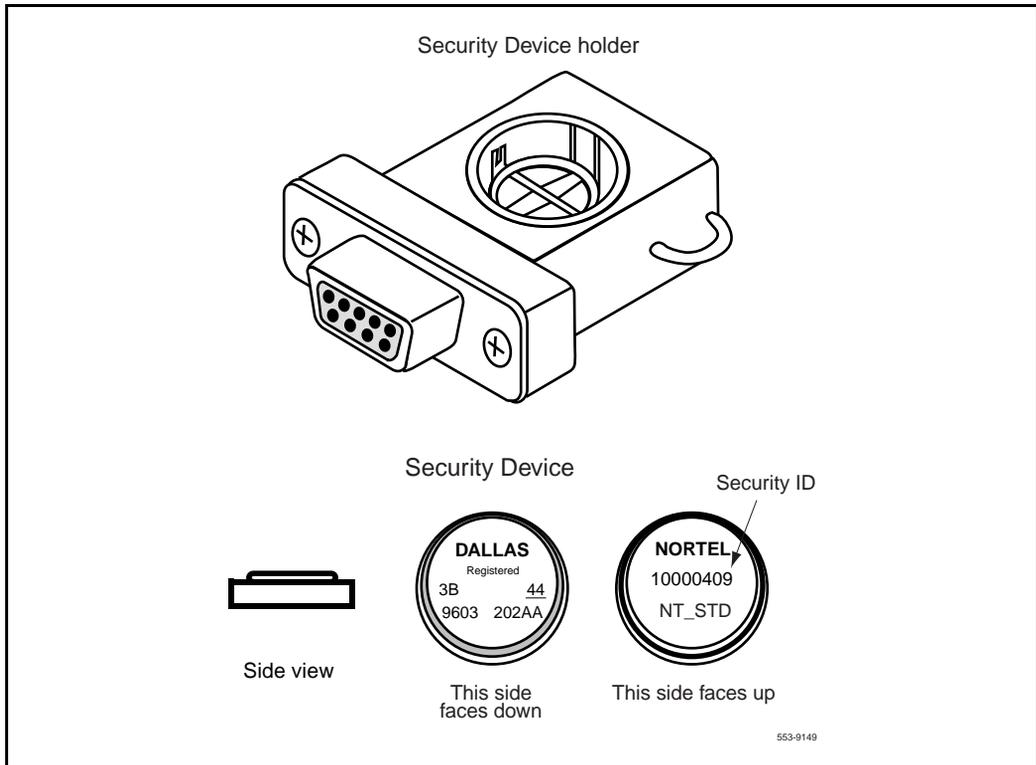
**Figure 125**  
**Location of Transition cards**



## Install the Security Device

The Security Device fits into the Security Device holder (Figure 126 on page 522). This assembly attaches to the System Utility Transition card located on the back of the core backplane.

**Figure 126**  
**Security Device and holder**



To install the Security Device:

- 1 **If the original system had an IODU/C**, remove the Security Device from the IODU/C for reuse.
  - a Unlock the latches and remove the IODU/C card.

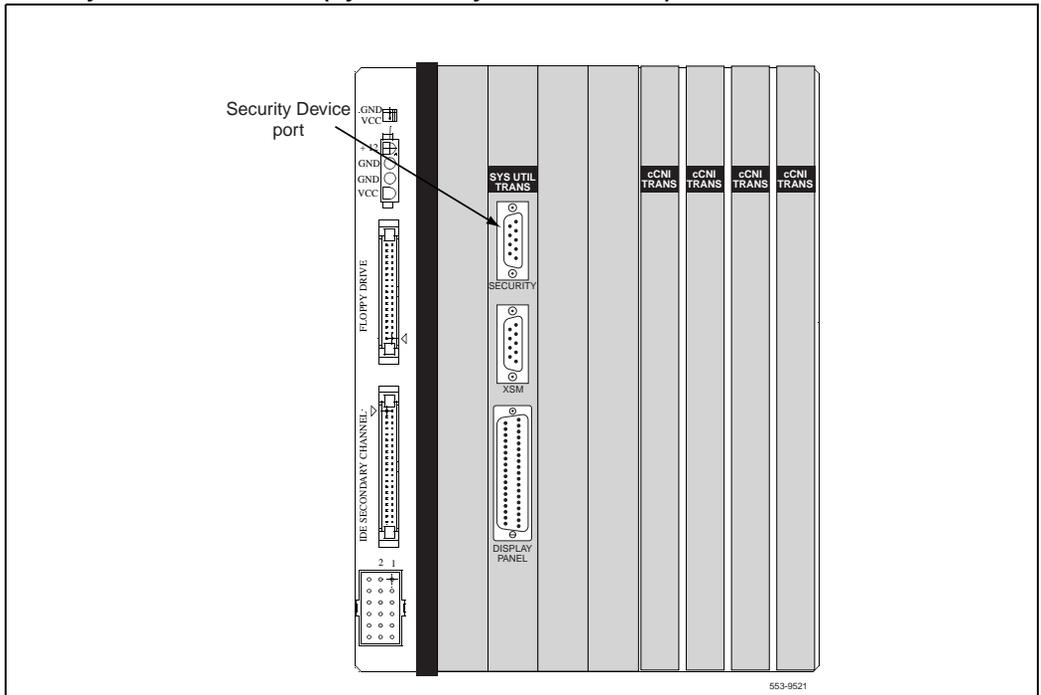
- b Remove the round 1/2" diameter IODU/C Security Device from the round black Security Device holder on the top right corner of the IODU/C card.

**OR**

**If the original system did not have an IODU/C**, use the Security Device provided with the CP PII Software kit. Locate the Security Device holder in the plastic bag taped to the top of the card cage.

- 2 Insert the Security Device into the Security Device holder with the "Nortel" side facing up. Do not bend the clip more than necessary.
- 3 Insert the assembly (Security Device and holder) between the clips on the top of the System Utility Transition card (Figure 127 on page 523).
- 4 Check that the Security Device is securely in place.

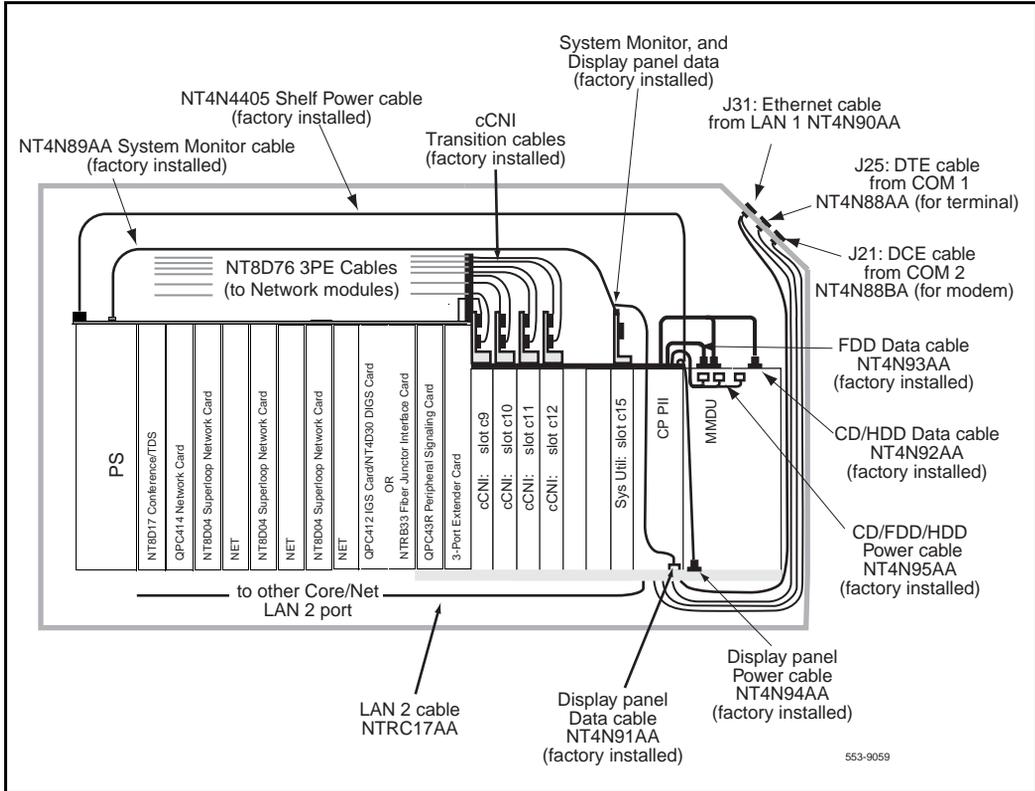
**Figure 127**  
**Security Device installation (System Utility Transition card)**



## Check for the shelf power cable

Check that the NT4N4405 Shelf Power Cable is installed in the CP PII card cage backplane. See Figure 128 on page 524 for cable location.

**Figure 128**  
**Core/Net cable connections (top view)**



## Check the location of Clock Controller 1 and switch settings

For Option 61/61C upgrades to Option 81C with CP PII and Fiber Network Fabric, Clock Controller 1 is factory installed in Network group 1, shelf 1, slot 13:

- 1 If Clock Controller 1 is not installed in that slot, move it there now.
- 2 Verify Clock Controller switch settings. See Table 62 on page 525.

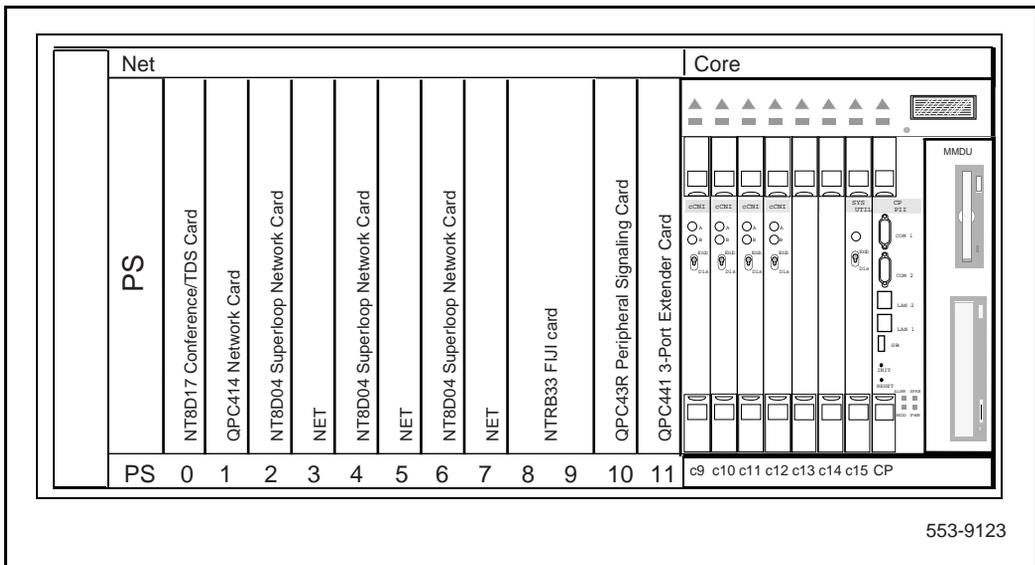
**Table 62**  
**Clock Controller switch settings**

| <b>Systems upgraded to CP PII must use the Option 81C switch settings to enable Clock Hunt software. Use the settings in this table. DO NOT use any other switch settings.</b>                                                                                                                                                                                                                                                                                                        |          |          |          |            |          |          |          |            |          |          |          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|----------|------------|----------|----------|----------|------------|----------|----------|----------|
| <b>SW1</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |          |          | <b>SW2</b> |          |          |          | <b>SW4</b> |          |          |          |
| <b>1</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>2</b> | <b>3</b> | <b>4</b> | <b>1</b>   | <b>2</b> | <b>3</b> | <b>4</b> | <b>1</b>   | <b>2</b> | <b>3</b> | <b>4</b> |
| on                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | off      | off      | off      | off        | off      | off      | off      | **         | on       | *        | *        |
| *Total cable length between the J3 faceplate connectors:                                                                                                                                                                                                                                                                                                                                                                                                                              |          |          |          |            |          |          |          |            |          |          |          |
| 0–4.3 m (0–14 ft)                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |          |          |          |            |          |          |          |            |          | off      | off      |
| 4.6–6.1 m (15–20 ft)                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |          |          |          |            |          |          |          |            |          | off      | on       |
| 6.4–10.1 m (21–33 ft)                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |          |          |            |          |          |          |            |          | on       | off      |
| 10.4–15.2 m (34–50 ft)                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |          |          |            |          |          |          |            |          | on       | on       |
| <p>* If there is only one Clock Controller card in the system, set to OFF.<br/>                     If there are two Clock Controller cards, determine the total cable length between the J3 connectors (no single cable can exceed 25 ft.) and set these two switch position for this cable length, as shown above.<br/>                     Set the switches on both cards to the same settings.</p> <p>** Set to ON for Clock Controller 0. Set to OFF for Clock Controller 1.</p> |          |          |          |            |          |          |          |            |          |          |          |

## Check that the Network cards are installed

- 1 Check that the Network cards are installed in Network shelves as shown in the system layout.
- 2 Check that the cards in the network side of the CP PII Core/Net Module are installed according to the system layout. See Figure 129 on page 526.
  - The NTRB33 Fiber Junctor Interface (FIJI) card is a double width card located either in slots 2 and 3 of each Network module, or in slots 8 and 9 in each Core/Net shelf. **Do not seat the FIJIs yet.**
  - The NTRE39 Optical Cable Management Card (OCMC) is a single width card installed between the power supply and slot 1 of a Network module.

**Figure 129**  
Card layout in the CP PII Core/Net Module



## Disable Core 1

### Task summary list

The following is a summary of the tasks in this section:

- Check that Core 0 is active, page 527
- Check that Clock Controller 0 is active, page 527
- Check that Ring 0 is active, page 528
- Split the Cores, page 528

### Check that Core 0 is active

To upgrade Core 1, verify that Core 0 is the active side performing call processing:

- 1 Verify that Core 0 is active.  
**LD 135** To load the program  
**STAT CPU** Get the status of the CPUs
- 2 If Core 1 is active, make Core 0 active:  
**SCPU** Switch to Core 0 (if necessary)  
**\*\*\*\*** Exit the program

### Check that Clock Controller 0 is active

- 1 Check the status of the Clock Controllers:  
**LD 60** to load the program  
**SSCK 0** Get the status of Clock Controller 0  
**SSCK 1** Get the status of Clock Controller 1
- 2 If Clock Controller 1 is active, switch to Clock Controller 0.  
**SWCK** If necessary, switch to Clock Controller 0  
**DIS CC 1** Disable Clock Controller 1  
**\*\*\*\*** Exit the program
- 3 Faceplate disable Clock Controller 1.

## Check that Ring 0 is active

- 1 Check the status of Ring 0.  
**LD 39** to load the program  
**STAT RING 0** to get the status of Ring 0. Ring state should be HALF/HALF.
- 2 Disable Ring auto recovery.  
**LD 39** to load the program  
**ARCV ON/OFF** Set or reset auto-recovery operation for ring
- 3 Swap to Ring 0.  
**LD 39** to load the program  
**SWRG 0** Switch call processing to ring 0
- 4 Disable Ring 1.  
**LD 39** to load the program  
**DIS RING 1** Disables all FIJI cards on side 1

## Split the Cores

- 1 In **Core 0**, set the NORM/MAINT switch on the CP card to MAINT.
- 2 In **Core 1**, set the ENB/DIS switch on all NT6D65 CNI cards to DIS.
- 3 In **Core 1**, set the NORM/MAINT switch on the CP card to MAINT.

The system is now in split mode, with call processing on Core 0.

## Disable and remove equipment from Core 1

### Task summary list

The following is a summary of the tasks in this section:

- Move Clock Controller 1, page 529
- Software disable Network cards in Core/Net 1, page 530

## Move Clock Controller 1

### CAUTION

Move only Clock Controller 1 at this point in the upgrade.

Do not move Clock Controller 0 at this time.

- 1 Label and disconnect the Clock Controller 1.
- 2 Disconnect the cable from the Clock Controller 1 faceplate card.
- 3 If primary and secondary clock reference cables are connected to the Clock Controller 1 faceplate, disconnect them last.
- 4 Remove Clock Controller 1 from the Core module.
- 5 Set the Clock Controller 1 switch settings according to Table 1 on page 530.
- 6 Move Clock Controller 1 to Group 1 Network Shelf 1, slot 13.  
**Seat Clock Controller 1 but do not enable the card.**  
**Note:** The Clock Controllers (0 and 1) must be located in different Network groups in different columns. Refer to the guidelines on Prepare to move Clock Controllers on Option 61/61C, page 76 to determine Clock Controller placement.
- 7 Reconnect the Clock Controller 1 cables.
- 8 Disable any ISDN PRI card in the Core module.
- 9 Disable the CNI card in Core module (phantom group 5):  
**LD 135** To load the program.  
**DIS CNI 1 8 0** Disable the CNI card in Core module 1, slot 8, port 0.

**Table 1**  
**Clock Controller 1 switch settings**

| <b>Systems upgraded to CP PII must use the Option 81C switch settings to enable Clock Hunt software. Use the settings in this table.</b>                                                                                                                                                                                                            |          |          |          |            |          |          |          |            |          |          |          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|----------|------------|----------|----------|----------|------------|----------|----------|----------|
| <b>SW1</b>                                                                                                                                                                                                                                                                                                                                          |          |          |          | <b>SW2</b> |          |          |          | <b>SW4</b> |          |          |          |
| <b>1</b>                                                                                                                                                                                                                                                                                                                                            | <b>2</b> | <b>3</b> | <b>4</b> | <b>1</b>   | <b>2</b> | <b>3</b> | <b>4</b> | <b>1</b>   | <b>2</b> | <b>3</b> | <b>4</b> |
| on                                                                                                                                                                                                                                                                                                                                                  | off      | off      | off      | off        | off      | off      | off      | **         | on       | *        | *        |
| *Total cable length between the J3 faceplate connectors:                                                                                                                                                                                                                                                                                            |          |          |          |            |          |          |          |            |          |          |          |
| 0–4.3 m (0–14 ft)                                                                                                                                                                                                                                                                                                                                   |          |          |          |            |          |          |          |            |          | off      | off      |
| 4.6–6.1 m (15–20 ft)                                                                                                                                                                                                                                                                                                                                |          |          |          |            |          |          |          |            |          | off      | on       |
| 6.4–10.1 m (21–33 ft)                                                                                                                                                                                                                                                                                                                               |          |          |          |            |          |          |          |            |          | on       | off      |
| 10.4–15.2 m (34–50 ft)                                                                                                                                                                                                                                                                                                                              |          |          |          |            |          |          |          |            |          | on       | on       |
| * If there is only one Clock Controller card in the system, set to OFF.<br>If there are two Clock Controller cards, determine the total cable length between the J3 connectors (no single cable can exceed 25 ft.) and set these two switch position for this cable length, as shown above.<br>Set the switches on both cards to the same settings. |          |          |          |            |          |          |          |            |          |          |          |
| ** Set to ON for Clock Controller 0. Set to OFF for Clock Controller 1.                                                                                                                                                                                                                                                                             |          |          |          |            |          |          |          |            |          |          |          |

**This is the end of the procedure to move Clock Controller 1.**

### **Software disable Network cards in Core/Net 1**

Prepare to software disable all cards in the network slots of Core/Net 1.

**WARNING**  
**At this point, the upgrade interrupts service.**

Cards in the Network slots include the following:

- NT8D04 Superloop Network card
- QPC414 Network card
- QPC441 Three-Port Extender (3PE) card
- QPC43R Peripheral Signaling card
- QPC513 Enhanced Serial Data Interface (ESDI) card
- NT8D41 Extended Serial Data Interface (XSDI) card
- QPC536 Digital Trunk Interface (DTI) card
- NT8D72 Primary Rate Interface (PRI) card
- NT6D80 Multipurpose Serial Data Link (MSDL) card

### Software disable cards in network slots of Core/Net 1:

- 1 **In Core/Net 1 only**, software disable all network and I/O cards such as XNET, TTY, Conf/TDS and ISDN cards:
  - a **In Core/Net 1 only**, disable XNET.
  - b **In Core/Net 1 only**, disable ENET.

#### **CAUTION**

If the system terminal is assigned to an SDI port that you are disabling, assign it to another port before you disable the SDI.

- c **In Core/Net 1 only**, software disable each port on the SDI cards:

**LD 37**

**DIS TTY x**      x = the number of the interface device attached to a port.

\*\*\*\*              Exit the program

- d **In Core/Net 1 only**, disable DTI cards.
      - e **In Core/Net 1 only**, disable PRI cards.
      - f **In Core/Net 1 only**, disable MSDL cards.

- 2     **In Core/Net 1 only**, software disable the QPC43 Peripheral Signaling Card:  
       LD 32  
       **DSPS x**           Table 63 on page 532 lists Peripheral Signaling Card numbers specified by "x"  
       \*\*\*\*                Exit the program.

**Table 63**  
**Peripheral Signaling Card numbers**

| Group/<br>shelf | Peripheral<br>Signaling Card | Loops<br>disabled/enabled |   |     |  |
|-----------------|------------------------------|---------------------------|---|-----|--|
| 0 / 0           | 0                            | 0                         | – | 15  |  |
| 0 / 1           | 1                            | 16                        | – | 31  |  |
| 1 / 0           | 2                            | 32                        | – | 47  |  |
| 1 / 1           | 3                            | 48                        | – | 63  |  |
| 2 / 0           | 4                            | 64                        | – | 79  |  |
| 2 / 1           | 5                            | 80                        | – | 95  |  |
| 3 / 0           | 6                            | 96                        | – | 111 |  |
| 3 / 1           | 7                            | 112                       | – | 127 |  |
| 4 / 0           | 8                            | 128                       | – | 143 |  |
| 4 / 1           | 9                            | 144                       | – | 159 |  |
| 5 / 0           | 10                           | 160                       | – | 175 |  |
| 5 / 1           | 11                           | 176                       | – | 191 |  |
| 6 / 0           | 12                           | 192                       | – | 207 |  |
| 6 / 1           | 13                           | 208                       | – | 223 |  |
| 7 / 0           | 14                           | 224                       | – | 239 |  |
| 7 / 1           | 15                           | 240                       | – | 255 |  |

- 3     **In Core/Net 1 only**, disable the 3PE card:  
       Set the ENB/DIS switch on the 3PE card to DIS.

**This is the end of the procedure to software disable cards in the network slots.**

## Cable Core 1

### Task summary list

The following is a summary of the tasks in this section:

- In Core 1, route and connect the 3PE to cCNI (NT8D76) cables, page 533
- Connect FIJI to FIJI cables, page 536
- Route and connect the Shelf 1 FIJI Fiber Ring Cables, page 537
- Remove the system monitors from Core 1 and Core 0, page 540

### In Core 1, route and connect the 3PE to cCNI (NT8D76) cables

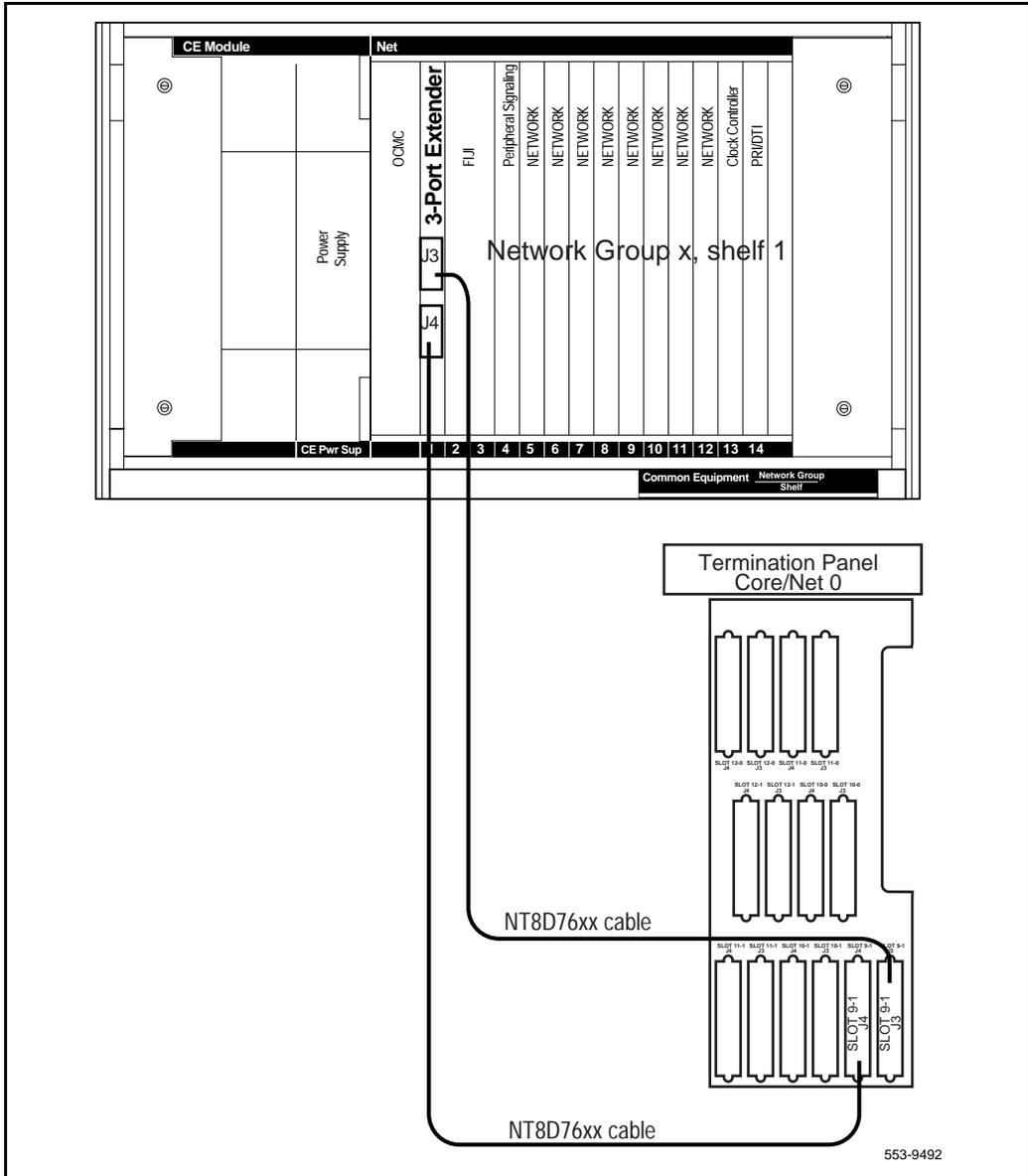
The cCNI to 3PE cables in CP PII are different from existing CNI to 3PE cables. New NT8D76 cables must be installed for both existing Network groups and new Network equipment. See Figure 130 on page 534.

Cables are routed to a module alongside the Core module. To route the 3PE to cCNI cables:

- 1 Label each cable at both ends with:
  - a the Network group number
  - b Shelf 0 or Shelf 1 of the Network group
  - c J3 or J4 (of the 3PE card)
- 2 Remove the module trim panels where the cables will be routed.
- 3 In Core 1, route the cables from the Shelf 1 3PE cards to a module adjacent to Core 1.

**Note:** Route the cables along the right side of the Core module to avoid interference from the power cards.
- 4 In Core 1, pull the new NT8D76 cables inside the UEM. Connect the new NT8D76 cables to J3 and J4 of the 3PE cards. See Figure 130 on page 534 and Table 64 on page 535 for connection information.
- 5 Connect the new NT8D76 cables to the Termination Panel in Core/Net 1. See Figure 131 on page 536 and Table 64 on page 535.
- 6 If the system has XSDI cards, reinstall the cards and attach the cables.

**Figure 130**  
**3PE Termination Panel connections**

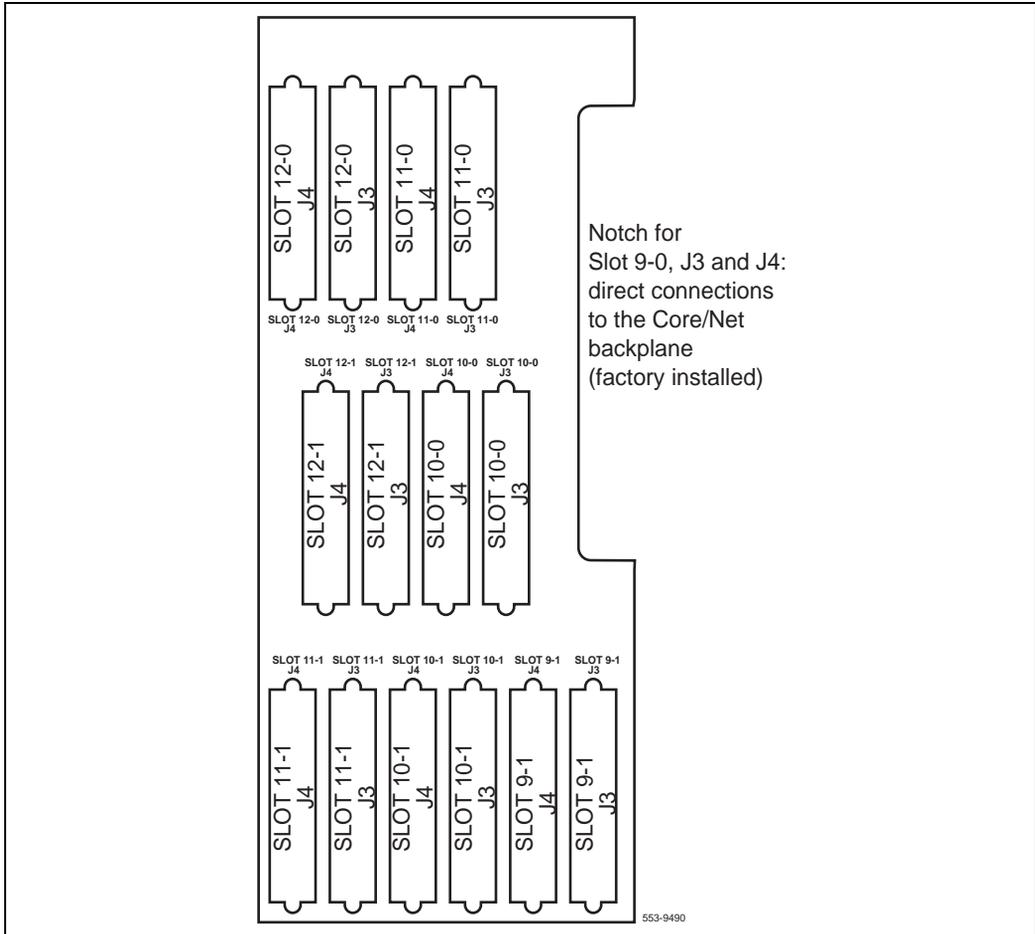


**Table 64**  
**Termination Panel to 3PE card connectors**

| Group Number | Termination Panel connector | 3PE card connector |
|--------------|-----------------------------|--------------------|
| 0            | 9-0                         | See <i>Note</i> .  |
| 0            | 9-0                         | See <i>Note</i> .  |
| 1            | 9-1-J3                      | J3                 |
| 1            | 9-1-J4                      | J4                 |
| 2            | 10-0-J3                     | J3                 |
| 2            | 10-0-J4                     | J4                 |
| 3            | 10-1-J3                     | J3                 |
| 3            | 10-1-J4                     | J4                 |
| 4            | 11-0-J3                     | J3                 |
| 4            | 11-0-J4                     | J4                 |
| 5            | 11-1-J3                     | J3                 |
| 5            | 11-1-J4                     | J4                 |
| 6            | 12-0-J3                     | J3                 |
| 6            | 12-0-J4                     | J4                 |
| 7            | 12-1-J3                     | J3                 |
| 7            | 12-1-J4                     | J4                 |

**Note:** Group 0 cables connect from the cCNI Transition card directly to the backplane of Core/Net 0 OR to the NT8D76 cable (depending on your CNI group configuration).

**Figure 131**  
**Connectors for cCNI Transition Cables to the Termination Panel**

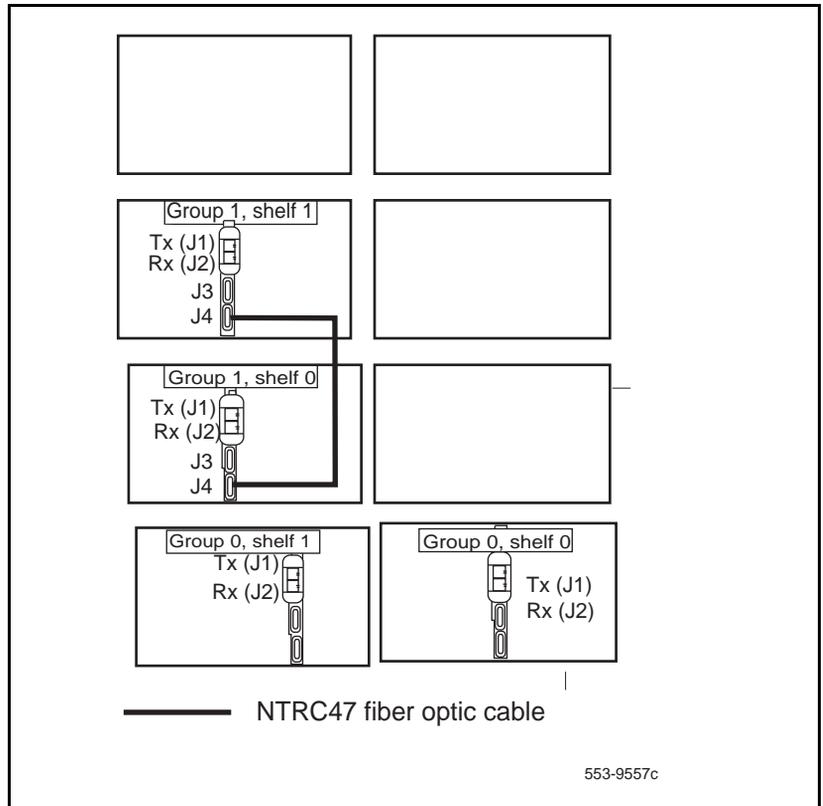


**Connect FIJI to FIJI cables**

- 1 Connect P2 of a NTRC47 FIJI to FIJI cable to J4 of the FIJI cards in each Network shelf 0, except Group 0.
- 2 Connect P1 of a NTRC47 FIJI to FIJI cable to J4 of the FIJI cards in each Network shelf 1, except Group 0.

The FIJI cards in Group 0 do not use a FIJI to FIJI cable.

**Figure 132**  
**FIJI to FIJI cables**



## Route and connect the Shelf 1 FIJI Fiber Ring Cables

Carefully route the NTRC48 cables before installation. Always label both ends of each cable to simplify installation, reduce confusion and assist in troubleshooting.

### Route Shelf 1 fiber optic cables (descending)

Route the NTRC48 cables between the FIJI cards in each Network shelf 1 in *descending* order (Table 65 on page 539 and Figure 133 on page 540).

*Note:* Each end of the NTRC48 cable is labeled “Tx” or “Rx” in the factory.

- 1 Start with the Tx (J1) port in Group 0, shelf 1.
- 2 Route a NTRC48 FIJI fiber Ring cable from the FIJI card in **Group 1, shelf 1** to the FIJI card in **Group 1, shelf 1**.
- 3 To complete the Ring, route a final cable from **Group 1, shelf 1** to **Group 0, shelf 1**.

### **Connect Shelf 1 fiber optic cables (descending)**

Each end of the NTRC48 cable is labeled “Tx” or Rx” in the factory.

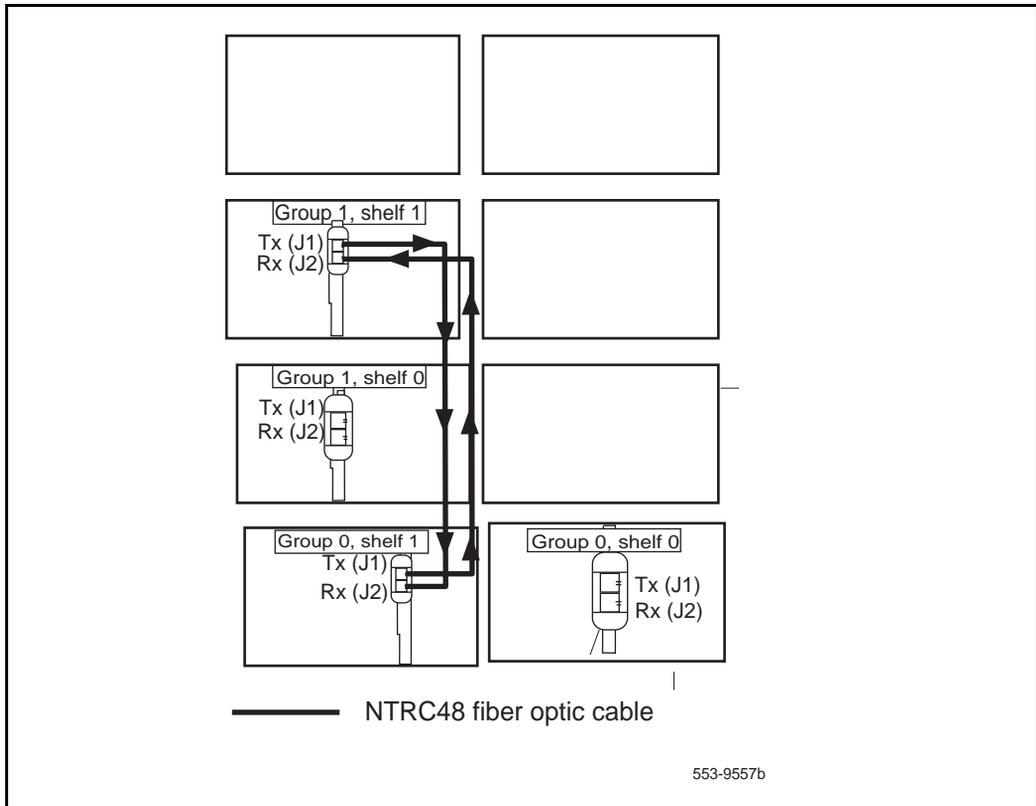
- 1 Remove the black cap from the end of each cable before it is connected.
- 2 Connect a NTRC48 FIJI Fiber Ring cable of the appropriate length from the Tx (J1) port of the FIJI card in **Group 1, shelf 1** to the Rx (J2) port of the FIJI card in the **Group 0, shelf 1**.
- 3 To complete the Ring, connect a final cable from Tx in **Group 0, shelf 1** to Rx in Group 1, shelf 1.

..

**Table 65**  
**FIJI Ring 1 connections**

| Groups 0 - X are cabled in descending order                   |                              |                     |
|---------------------------------------------------------------|------------------------------|---------------------|
| Group/shelf                                                   | NTRC48 fiber cable connector | FIJI card connector |
| 0/1                                                           | P1                           | Tx - J1             |
| 7/1                                                           | P2                           | Rx - J2             |
| 7/1                                                           | P1                           | Tx - J1             |
| 6/1                                                           | P2                           | Rx - J2             |
| 6/1                                                           | P1                           | Tx - J1             |
| 5/1                                                           | P2                           | Rx - J2             |
| 5/1                                                           | P1                           | Tx - J1             |
| 4/1                                                           | P2                           | Rx - J2             |
| 4/1                                                           | P1                           | Tx - J1             |
| 3/1                                                           | P2                           | Rx - J2             |
| 3/1                                                           | P1                           | Tx - J1             |
| 2/1                                                           | P2                           | Rx - J2             |
| 2/1                                                           | P1                           | Tx - J1             |
| 1/1                                                           | P2                           | Rx - J2             |
| 1/1                                                           | P1                           | Tx - J1             |
| 0/1                                                           | P2                           | Rx - J2             |
| <b>Note:</b> Groups 2 through 7 are shown for reference only. |                              |                     |

Figure 133  
Shelf 1 descending fiber optic Ring (Option 61C example)



## Remove the system monitors from Core 1 and Core 0

- 1 In Core 0**, software disable the master system monitor (NT8D22):  
**LD 37**  
**DIS TTY #** Disable the master system monitor TTY interface.
- 2 For both Core 1 and Core 0**, remove J3 and J4 cables on both system monitors.  
**Note:** Do *not* turn off the blower units in the front of the pedestals

- 3 **For both Core 1 and Core 0**, remove the system monitors from the rear of the pedestals. .

**CAUTION**

The system can shut down if the system monitors are not removed. Remove the monitors and keep the cooling fans ON.

## Power up Core 1

### Task summary list

The following is a summary of the tasks in this section:

- Prepare for power up, page 541
- Power up Core 1, page 542
- Confirm Core 1 cards are working, page 542

### Prepare for power up

- 1 Check that a terminal is connected to the J25 I/O panel connector on Core/Net 1.

**Note:** A maintenance terminal is required to access the Core/Net modules during the upgrade.

- 2 Connect a terminal to the J25 port on the I/O panel in the *inactive* Core.

- 3 Check the terminal settings as follows:

- 9600 Baud
- 7 data
- space parity
- 1 stop bit
- full duplex
- XOFF

**Note:** If only one terminal is used for both Cores, the terminal will have to be switched from side to side to access each module. An "A/B" switch box can also be installed to switch the terminal from side to side.

- 4 Faceplate *enable* the cCNI cards in Core 1.
- 5 Check that the FIJI cards in Core 1 are unseated.

## Power up Core 1

- 1 Power up the Core/Net Module.
- 2 Power up the Network modules.
- 3 Wait for the system to load/initialize.

## Confirm Core 1 cards are working

- 1 Check that the Network and I/O cards have working power.

# Install software on Core 1

## Task summary list

The following is a summary of the tasks in this section:

- Configure the IP addresses, page 545
- Check for Peripheral Software Download to Core 1, page 546
- For systems with fewer than eight groups, delete CNIs, page 548
- Reconfigure I/O ports and call registers, page 549
- Reboot Core 1, page 550

- 1 In Core/Net 1, install the CD-ROM into the CD-ROM drive in the MMDU:
  - a Press the button on the CD-ROM drive to open the CD-ROM disk holder.
  - b Place the CD-ROM disk into the holder with the disk label showing.
  - c Press the button again to close the CD-ROM disk holder.  
**Do not** push the holder in by hand.

**Note:** If the CD-ROM is not in the CD-ROM drive, the installation will not continue. Insert the CD-ROM to continue.

- 2 Place the CP PII Install floppy disk into the MMDU floppy drive.  
**Note:** If a problem is detected during the system verification, Install stops, prints an error message, and aborts the installation. If the verification is not successful, do not continue; contact your technical support organization.
- 3 Press the manual RESET button on the CP PII card faceplate.
- 4 Before the install runs, the system validates hard disk partitioning which takes about five minutes. The screen displays:  
Testing partition 0  
0 percent done... 1 percent done... 99 percent done.... 100 percent done....  
Testing partition 1  
0 percent done... 1 percent done... 99 percent done... 100 percent done....  
Testing partition 2  
0 percent done... 1 percent done... 99 percent done.... 100 percent completed!  
Disk physical checking is completed!  
There are 3 partitions in disk 0:  
The size of partition 0 of disk 0 is XX MB  
The size of partition 0 of disk 0 is XX MB  
The size of partition 0 of disk 0 is XX MB  
Disk partitions and sectors checking is competed!
- 5 At the terminal, press <cr> to start the software installation.
- 6 When prompted, remove the CP PII Install Program diskette and insert the Keycode diskette.  
<a> Continue with keycode validation  
<y> Confirm that the keycode matches the CD-ROM release
- 7 When the screen displays the Install Menu, select the following options in sequence when prompted to do so:  
<b> Install software, database, and CP-BOOT ROM  
<a> Verify that the CD-ROM is now in drive

The Installation Status Summary screen appears that lists the options to be installed.

<a> Continue with Upgrade

- 8 Select a PSDL file to install. The PSDL file contains the loadware for all downloadable cards in the system and loadware for M3900 series sets.

Select one of the six psdl files

<1> Global 10 Languages <default>

<2> Western Europe 10 Languages

<3> Eastern Europe 10 Languages

<4> North America 6 Languages

<5> RIs 24 up-issue

<6> North America 6 Languages:

The languages contained in each selection are outlined as follows:

- 1 English, French, German, Spanish, Swedish, Italian, Norwegian, Brazilian, Portuguese, Finnish, Japanese Katakana.
- 2 English, French, German, Spanish, Swedish, Norwegian, Danish, Finnish, Italian, Brazilian Portuguese.
- 3 English, French, German, Dutch, Polish, Czech, Hungarian, Russian, Latvian, Turkish.
- 4 English, Spanish, French, Brazilian Portuguese, Japanese Katakana, German.
- 5 English, French, German, Spanish, Swedish, Italian, Norwegian, Portuguese, Finnish, Japanese Katakana.
- 6 English, French, German, Spanish, Brazilian Portuguese, Japanese Katakana.

- 9 Continue with upgrade when prompted. Select a database to install.

<cr> Enter carriage return to continue.

<a> Continue with CP BOOTROM installation

<a> Install the CP BOOTROM from hard disk

<a> Start installation

<a> Continue with ROM upgrade

The Installation Status Summary screen appears. Verify that CD to disk, disk to ROM, Database, and CP-BOOTROM were installed.

- <cr>** Continue
- <q>** Quit (remove any diskettes and the CD-ROM from the MMDU drives)
- <y>** Confirm quit
- <a>** Reboot the system

The system will automatically perform a sysload: several messages appear on the system terminal. Wait for “DONE” and then “INI” messages to display before you continue.

While the sysload is being performed, database conversion occurs.

Verify that the following message appears on the system terminal:

DATA CONVERSION

X11 RELEASE XX.XX TO RELEASE 25.

Confirm that the X11 release 25 software is installed and functional on Core/Net 0:

**LD 135** to load the program

**STAT CPU** to display the CPU status

## Configure the IP addresses

Two unique IP address are required for the CP PII system to communicate with the LAN. One IP number is defined for the *active* Core. The second IP address is defined for the *inactive* Core.

- 1** Contact your systems administrator to identify these IP numbers.
- 2** Configure the primary (*active*) and secondary (*inactive*) IP addresses:
  - LD 117** To load the program.
  - new host name 1 IP address** To define the first IP address: “name 1” is an alias for the IP address such as “primary”. The IP address is the IP number.
  - chg elnk active name 1** To assign the “name 1” address to the *active* Core.

- new host 'name 2' 'IP address'** To define the second IP address: "name 2" is an alias for the IP address such as "secondary". The IP address is the IP number.
  - chg elnk inactive name 2** To assign the "name 2" address to the *inactive* Core.
  - chg mask 255.255.240.0** To set the sub-net per local site. This number allows external sub-nets to connect to the system.
  - new route 0.0.0.0 ip address** Sub-net router address, if required.
  - prt route** To print the route data. This returns a value assigned to the route used in the next step.
  - enl route #** To enable the route table entry: the value is from the step above.
- 3** Enable the new Ethernet interface:
- LD 137** To load the program.
  - dis elnk** To *disable* the old IP interface values.
  - enl elnk** To *enable* the new IP interface values.

## Check for Peripheral Software Download to Core 1

Load LD 22 and print Target peripheral software version. The Source peripheral software version was printed during the procedure to Print site data, page 68.

If there is a difference between the Source and Target peripheral software version:

- A forced download occurs during initialization when coming out of parallel reload.
- System initialization takes longer.
- The system drops established calls on IPE

1 Load LD 22 and print Target peripheral software version.

**LD 22**

**REQ** PRT

**TYPE** PSWV.

**ISSP** Print System and Patch Information.

**SLT** Print System Limits.

**TID** Print the Tape ID.

**\*\*\*\*** Exit program.

## For systems with fewer than eight groups, delete CNIs

Software has configured the system for eight groups.

If your system has eight groups, skip this procedure.

If your system has fewer than eight groups, you must software remove the CNIs not used in your system configuration:

- 1 In Core/Net 1, disable all CNI cards using LD 135:

**LD 135** To load the program.  
**STAT CNI** Get the status of all CNI cards.  
**DIS CNI x s p** Disable CNI cards where:  
x = extender number (0 or 1)  
s = card slot (9-12)  
p = port (0 or 1)  
**STAT CNI** Confirm that CNI cards are disabled.  
**\*\*\*\*** Exit the program.

- 2 Use LD 17 to remove the extra CNI cards.

**LD 17** To load the program.  
**CHG**  
**CFN**  
**CEQU YES**  
**EXTO 3PE** Core/Net 0 extended to 3PE.  
**CNI s p xg** Out the CNI card, where:  
s = card slot (9-12)  
p = port (0 or 1)  
xg = out network group (x0-x4)  
**EXTI 3PE** Core/Net 1 extended to 3PE  
**CNI s p xg** Out the CNI card, where:  
s = card slot (9-12)  
p = port (0 or 1)  
xg = out network group (x0 - x4)  
**\*\*\*\*** Exit the program.

## Reconfigure I/O ports and call registers

- 1 Remap all I/O ports (except CPSI ports) to the proper groups.  
The group number of these ports is determined by the physical location of the card.

The configuration information must match the CNI configuration

**LD 17** Load the program.

**CHG**

**CFN**

**CHG aaa x** aaa = terminal type (such as tty or aml).  
x = terminal number (0 -15).

**g** g = network group (0 - 4).

- 2 Evaluate the number of call registers and 500 telephone buffers that are configured for the system (suggested minimum values are 4500 and 1000 respectively). Refer to *Capacity Engineering* (553-3001-149).

If changes are required, reconfigure the values in LD 17:

**LD 17** Load the program.

**CHG**

**CFN**

**PARM YES**

**500B 1000** Use 1000 as a minimum value.

**NCR 5000** Use 5000 as a minimum value.

**\*\*\*\*** To exit the program.

- 3 Print the Configuration Record to confirm the changes made above:

**LD 22** Load the program.

**REQ PRT** Set the print Option.

**TYPE CFN** Print the configuration.

**\*\*\*\*** To exit the program.

- 4 Perform a data dump to save the customer database to the hard drive:

a Load the Equipment Data Dump Program (LD 43). At the prompt, enter

**LD 43** To load the program.

b When "EDD000" appears on the terminal, enter

**EDD** To begin the data dump.

c When "DATADUMP COMPLETE" and "DATABASE BACKUP COMPLETE" appear on the terminal, enter

**\*\*\*\*** To exit the program.

### CAUTION

If the data dump is not successful, do not continue; contact your technical support organization. You must correct a data dump problem before you continue.

## Reboot Core 1

1 Press the RESET button on the CP PII card faceplate to reboot the system.

**Note:** The system will automatically perform a sysload: several messages appear on the system terminal.

2 Wait for "DONE" and then "INI" messages to display before you continue.

## Disable and remove equipment from Core 0

### Task summary list

The following is a summary of the tasks in this section:

- Turn module power off, page 551
- Move Clock Controller 0 to Network group 1 shelf 0, slot 13, page 551
- Remove Core 0 cables and card cage, page 553

## Turn module power off

**WARNING**

Call processing will be interrupted for approximately 30 minutes while the procedures are completed.

Power down the modules with the module power switch. **DO NOT** power down the columns at the PDU:

- 1 Power down Core/Net Module 0.
- 2 Power down Core/Net Module 1.
- 3 Power down all Network Modules.

## Move Clock Controller 0 to Network group 1 shelf 0, slot 13

The existing Clock Controller in the Option 61 or 61C must be moved to a Network module according to the guidelines on page 76.

- 1 Label and disconnect the Clock Controller Junctor cable from the J12 connector in the InterGroup Module junctor board.
- 2 Disconnect the Junctor cable from the Clock Controller 0 faceplate card.
- 3 If primary and secondary clock reference cables are connected to the Clock Controller faceplate, disconnect them last.
- 4 Remove Clock Controller 0 from the Core module.
- 5 Set the Clock Controller 0 switch settings according to Table 66 on page 553.

- 6 Move Clock Controller 0 to Network shelf 1-0, slot 13.  
**Seat Clock Controller 0 but do not enable the card.**  
**Note:** The Clock Controllers can be installed in any Network group, except group 0. However, a two group option 81C has only two Network Modules. In this case, both Clock Controllers must be installed in Group 1.  
If in the future the Option 81C is upgraded to more than two Network groups, Nortel Networks recommends that Clock Controller 0 and 1 be located in different Network groups. Refer to the guidelines on page 76 to determine Clock Controller placement.
- 7 In Core 0, disable any ISDN PRI cards.
- 8 In Core 0, disable the CNI card (phantom group 5):  
**LD 135** To load the program.  
**DIS CNI 0 8 0** Disable the CNI card in Core module 0, slot 8, port 0.

**Table 66**  
**Clock Controller 0 switch settings**

| <b>Systems upgraded to CP PII must use the Option 81C switch settings to enable Clock Hunt software. Use the settings in this table. DO NOT use any other switch settings.</b>                                                                                                                                                                      |          |          |          |            |          |          |          |            |          |          |          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|----------|------------|----------|----------|----------|------------|----------|----------|----------|
| <b>SW1</b>                                                                                                                                                                                                                                                                                                                                          |          |          |          | <b>SW2</b> |          |          |          | <b>SW4</b> |          |          |          |
| <b>1</b>                                                                                                                                                                                                                                                                                                                                            | <b>2</b> | <b>3</b> | <b>4</b> | <b>1</b>   | <b>2</b> | <b>3</b> | <b>4</b> | <b>1</b>   | <b>2</b> | <b>3</b> | <b>4</b> |
| on                                                                                                                                                                                                                                                                                                                                                  | off      | off      | off      | off        | off      | off      | off      | **         | on       | *        | *        |
| *Total cable length between the J3 faceplate connectors:                                                                                                                                                                                                                                                                                            |          |          |          |            |          |          |          |            |          |          |          |
| 0–4.3 m (0–14 ft)                                                                                                                                                                                                                                                                                                                                   |          |          |          |            |          |          |          |            |          | off      | off      |
| 4.6–6.1 m (15–20 ft)                                                                                                                                                                                                                                                                                                                                |          |          |          |            |          |          |          |            |          | off      | on       |
| 6.4–10.1 m (21–33 ft)                                                                                                                                                                                                                                                                                                                               |          |          |          |            |          |          |          |            |          | on       | off      |
| 10.4–15.2 m (34–50 ft)                                                                                                                                                                                                                                                                                                                              |          |          |          |            |          |          |          |            |          | on       | on       |
| * If there is only one Clock Controller card in the system, set to OFF.<br>If there are two Clock Controller cards, determine the total cable length between the J3 connectors (no single cable can exceed 25 ft.) and set these two switch position for this cable length, as shown above.<br>Set the switches on both cards to the same settings. |          |          |          |            |          |          |          |            |          |          |          |
| ** Set to ON for Clock Controller 0. Set to OFF for Clock Controller 1.                                                                                                                                                                                                                                                                             |          |          |          |            |          |          |          |            |          |          |          |

## **Remove Core 0 cables and card cage**

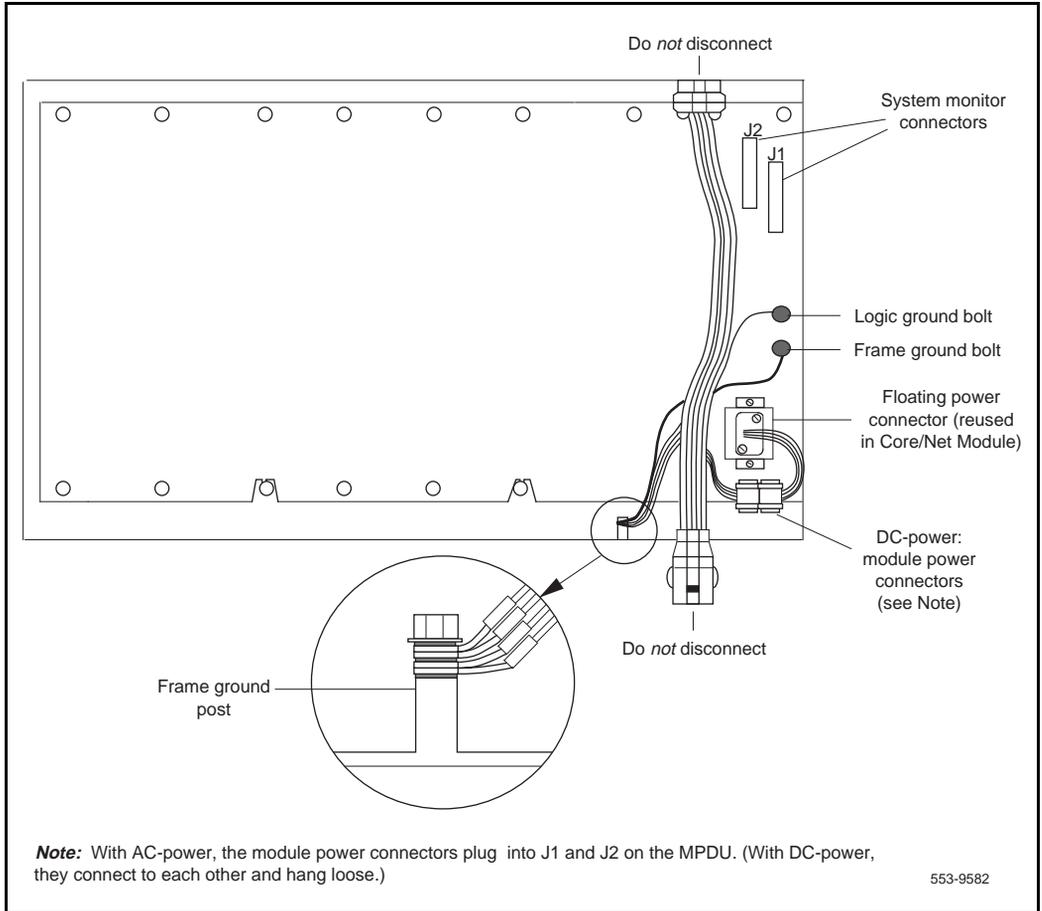
- 1** Label and disconnect all cables to the front of the module.
- 2** Tape over the contacts to avoid grounding.
- 3** Tie all cables to the sides so the working area in front of the card cage is totally clear.
- 4** Remove the I/O safety panel by turning the screws on each side. Set the I/O safety panel aside.
- 5** Tag and disconnect all cables from the backplane to the interior of the I/O assembly.
- 6** Tag and disconnect all plugs, wires, and cables to the backplane.

**Note 1:** Leave the network cards in the card cage. You will relocate them to the CP PII card cage later in the upgrade procedure.

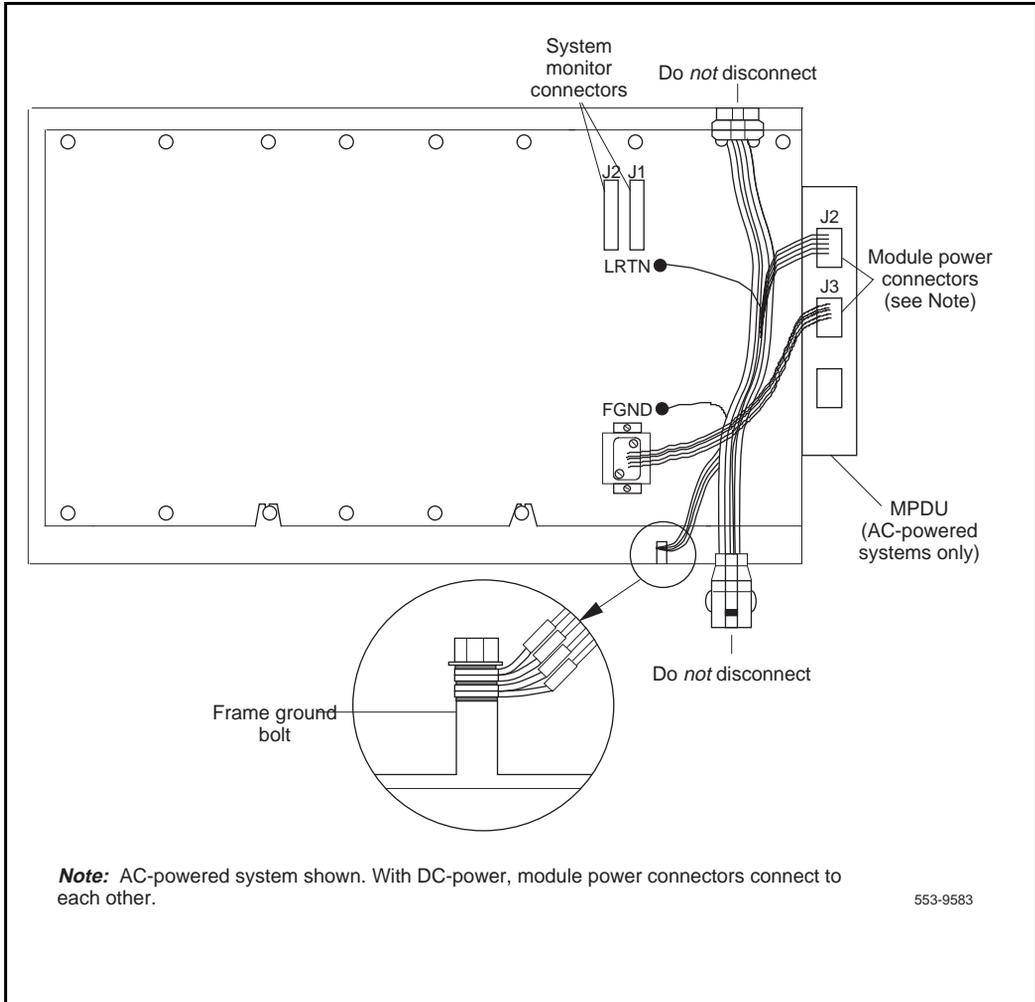
**Note 2:** Two people are needed to remove the Core card cage because of the weight of the card cage with the cards left installed.

- 7 Remove the two mounting screws at the bottom rear of the card cage that secure the card cage to the module casting.  
Keep the screws for use with the CP PII card cage. (You need a 1/4" nut driver to remove the screws.)
- 8 Remove the front trim panels on both sides of the card cage.
- 9 Remove the three mounting screws that secure the front of the card cage to the bottom of the module.  
Save the screws for use with the CP PII card cage.
- 10 Pull the card cage forward until it is halfway out of the module.
- 11 Disconnect cables, plugs, and wires from the rear of the module to the backplane.
- 12 Remove the logic return (LTRN) (orange) wire from the backplane bolt. Be careful; do not drop the nut or lock washer into the pedestal.  
  
See Figure 134 on page 555 for DC power connectors.  
  
See Figure 135 on page 556 for AC power connectors.
- 13 Remove the frame ground (FGND) (green) wire from the frame ground bolt on the module.
- 14 Label and disconnect the module power connectors. These are small orange connectors plugged into the module power distribution unit (MPDU) in an AC-powered system, or connected to each other in a DC-powered system.
- 15 Label and disconnect the system monitor ribbon cables to J1 and J2.
- 16 Remove the Core card cage from the module.

**Figure 134**  
**DC power connectors on the Core module backplane**



**Figure 135**  
**AC power connectors on the Core module backplane**



- 17** Remove the power harness and reserve it for reinstallation as part of installing the new NT4N46 card cage. The power harness is located at the right rear lower corner and plugs into the rear of the power supply.
- For AC systems, relocate power harness NT8D80AM.
  - for DC systems, relocate power harness NT7D11.

**CAUTION**

Be sure to perform the following step. If you do not tape the EMI shield in position, you will not be able to install the card cage in the module correctly.

- 18** Reposition the EMI shield (it looks like a brass grill) in the base of the module. Tape over the front mounting tabs to hold the shield in position. You will remove the tape later.
- 19** In AC-power systems only, plug the module power cable (the short harness attached to the module power connector) into connector J3 on the MPDU (attached to the side of the card cage).

**CAUTION**

Check for and remove any debris (such as screws) that could have fallen into the base of the UEM module.

## Upgrade Core 0 hardware

### Task summary list

The following is a summary of the tasks in this section:

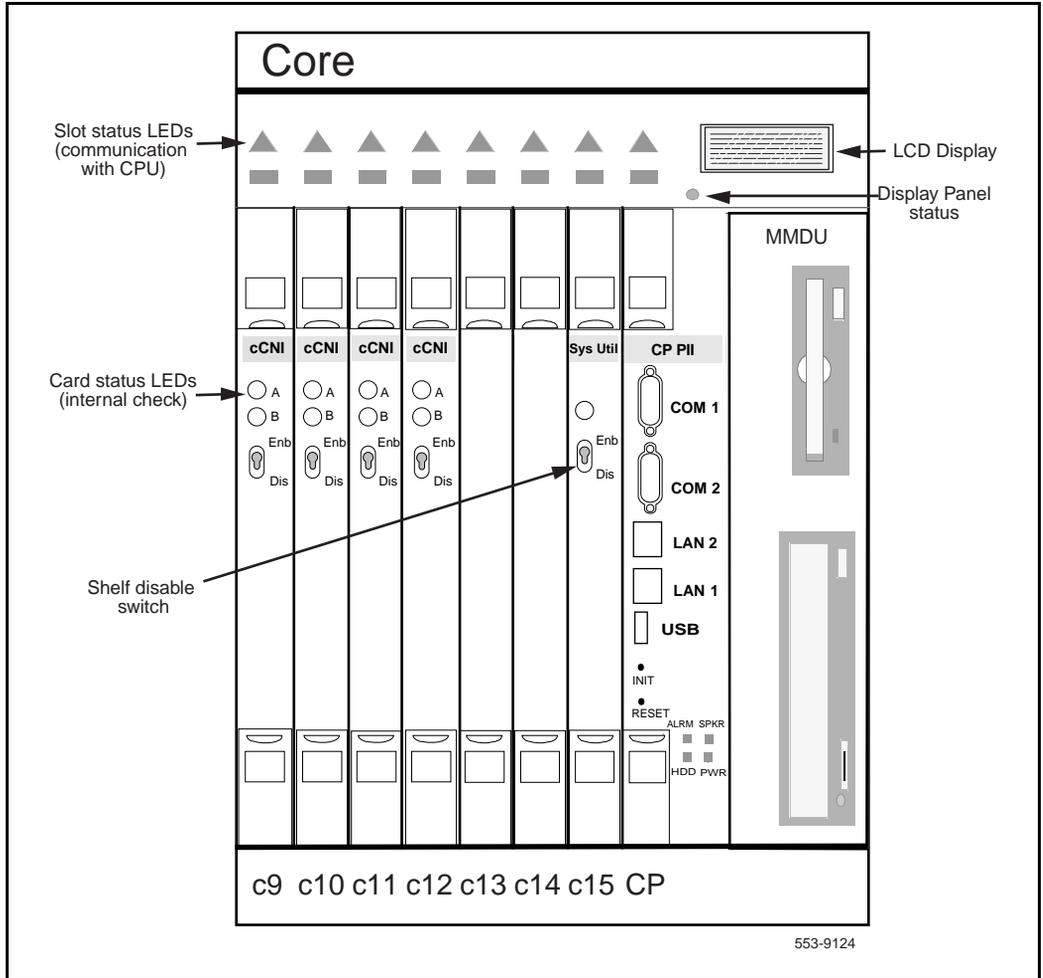
- Check that the main Core cards (front side) are installed, page 558
- Check that the Core Transition cards are installed, page 560
- Check for the shelf power cable, page 560
- Install the Security Device, page 560
- Seat the Core 1 and Core 0 FIJI cards, page 562
- Install the CP PII card cage in Core 0, page 563
- Relocate Network cards to CP PII Core 0, page 566

### Check that the main Core cards (front side) are installed

The main Core cards including the MMDU (with the cables for power and data) are installed in the factory (see Figure 136 on page 559):

- **NT4N65AA cPCI Core Network Interface (cCNI) cards:** Each system contains between one and four NT4N65 cCNI cards per Core/Net module. The cCNI cards are located in slots c9-c12. If not already installed, install a P0906308 cPCI Card Slot Filler Panel to cover any of slots c10 - c 12 which do not contain cCNIs.
- Slots c13 and c14 are left empty. If not already installed, install a P0906308 cPCI Card Slot Filler Panel in each slot.
- **NT4N67AA System Utility (Sys Util) card** is located in slot c15.
- **A0810496 Call Processor PII (CP II)** is located in the CP slot.
- **NT4N43AA cPCI Multi-Media Disk Unit (MMDU)** is located in the extreme right hand slot next to the CP PII card. The MMDU contains the hard drive, floppy drive and CD-ROM drive.

**Figure 136**  
**Core card placement in the CP PII Core/Net (front)**



## Check that the Core Transition cards are installed

The Core Transition cards are located directly behind the corresponding main cards (on the rear of the Core backplane). Core Transition cards are installed in the factory:

- **NT4N66AB cCNI Transition cards:** Each system contains four of these cards.
- **NT4N68AA System Utility Transition card:** The System Utility Transition card is installed directly behind the System Utility card and contains connections for the Security Device, the System Monitor (XSM) and the Display Panel.

Figure 137 on page 561 displays the location of the Core Transition cards.

## Check for the shelf power cable

Check that the NT4N4405 shelf power cable is installed in the CP PII card cage backplane. See Figure 138 on page 562 for the cable location.

## Install the Security Device

The Security Device fits into the Security Device holder (see Figure 139 on page 563) which attaches to the System Utility Transition card located on the core backplane.

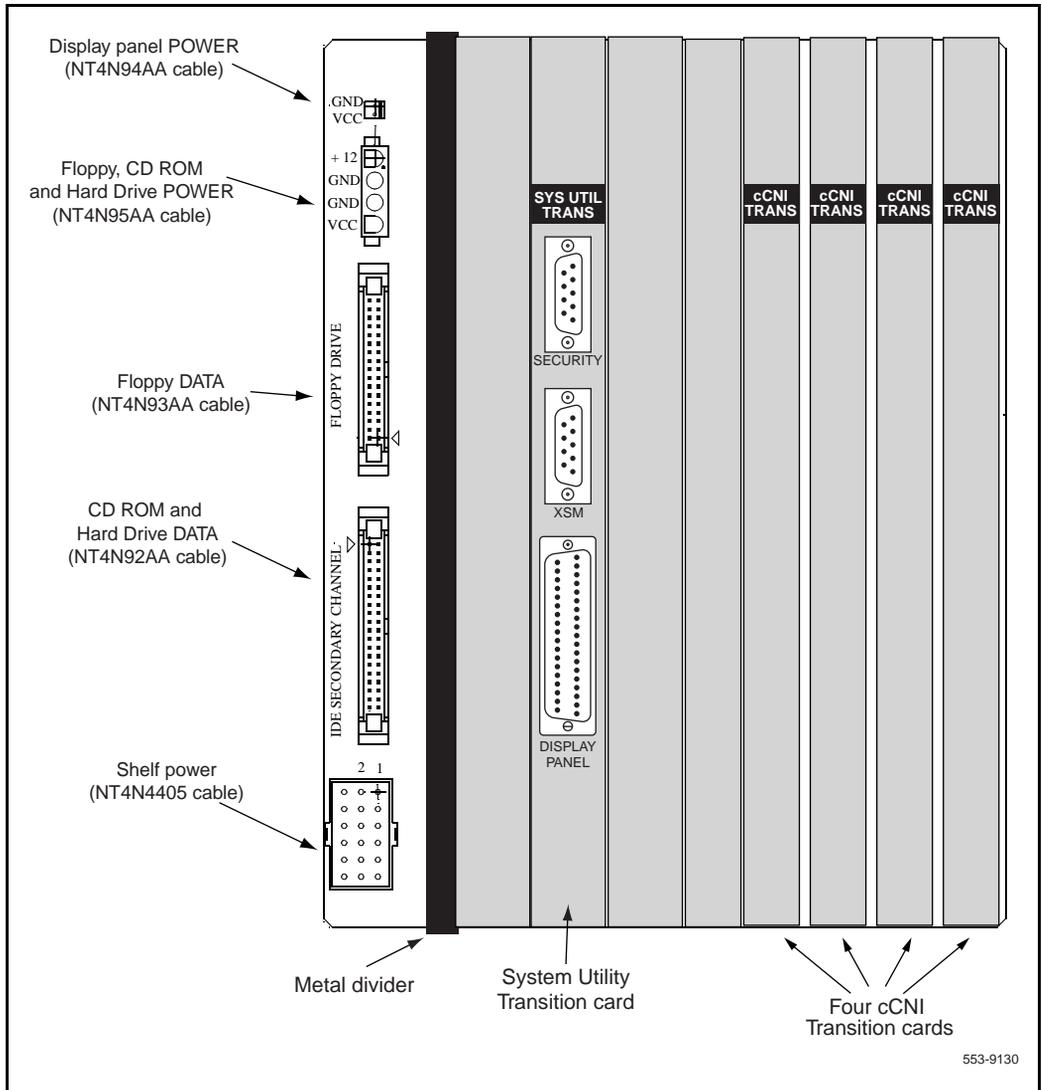
To install the Security Device:

- 1** **If the original system had an IODU/C**, remove the Security Device from the IODU/C for reuse.
  - a** Unlock the latches and remove the IODU/C card.
  - b** Remove the round 1/2" diameter IODU/C Security Device from the round black Security Device holder on the top right corner of the IODU/C card.

**OR**

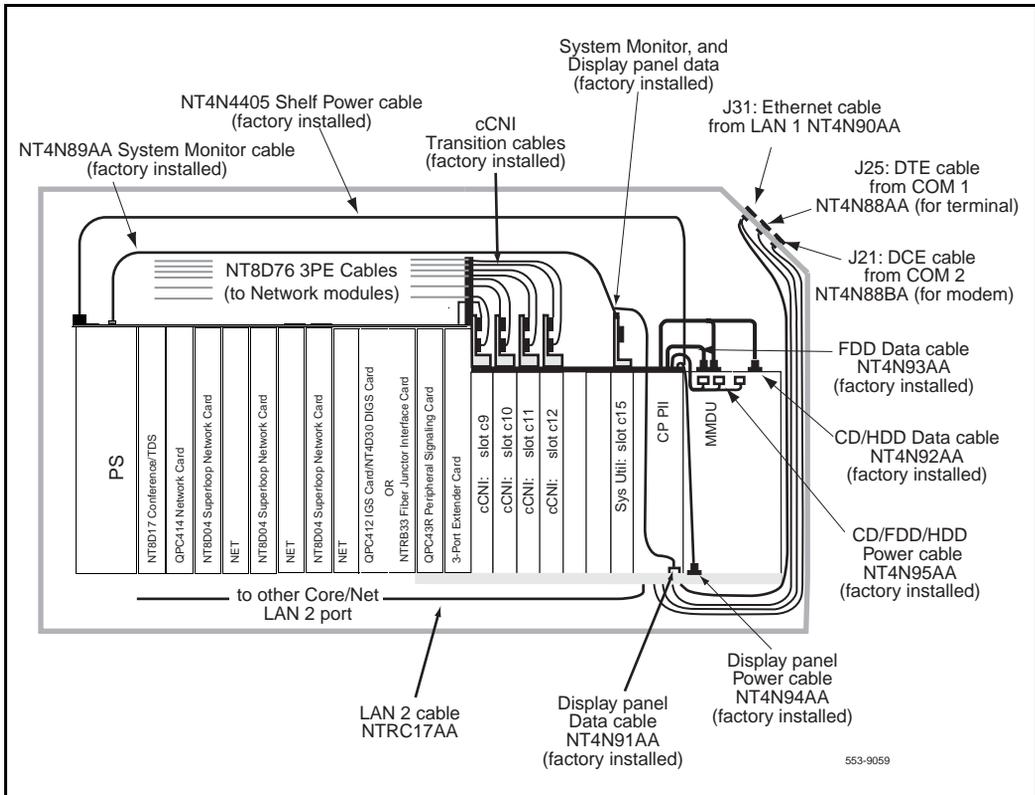
**If the original system did not have an IODU/C**, use the Security Device provided with the CP PII Software kit. Locate the Security Device holder in the plastic bag taped to the top of the card cage.
- 2** Insert the Security Device into the Security Device holder with the "Nortel" side facing up. Do not bend the clip more than necessary.

**Figure 137**  
**Location of Transition cards**



- 3** Insert the assembly (Security Device and holder) between the clips on the top of the System Utility Transition card (Figure 140 on page 564).

**Figure 138**  
**Core/Net cable connections**



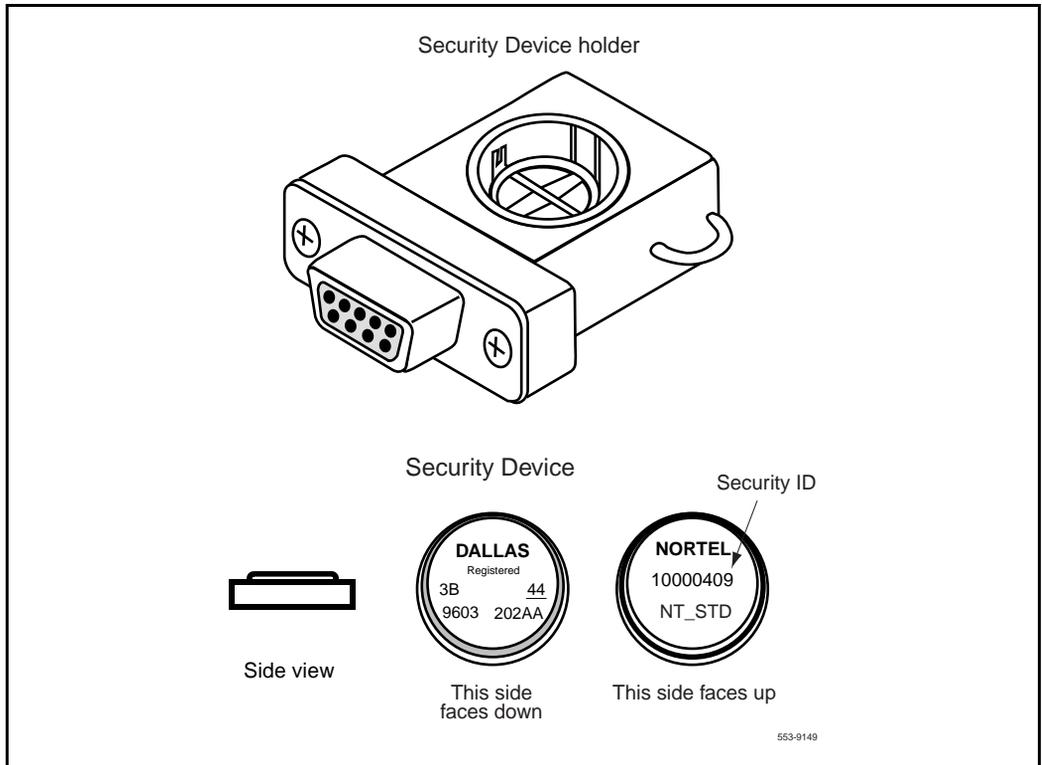
- 4 Check that the Security Device is securely in place.

**Seat the Core 1 and Core 0 FIJI cards**

The FIJI cards in both Cores can be seated.

- 1 Push the faceplate latches forward to lock the cards in place.
- 2 Verify that the cards are faceplate enabled.

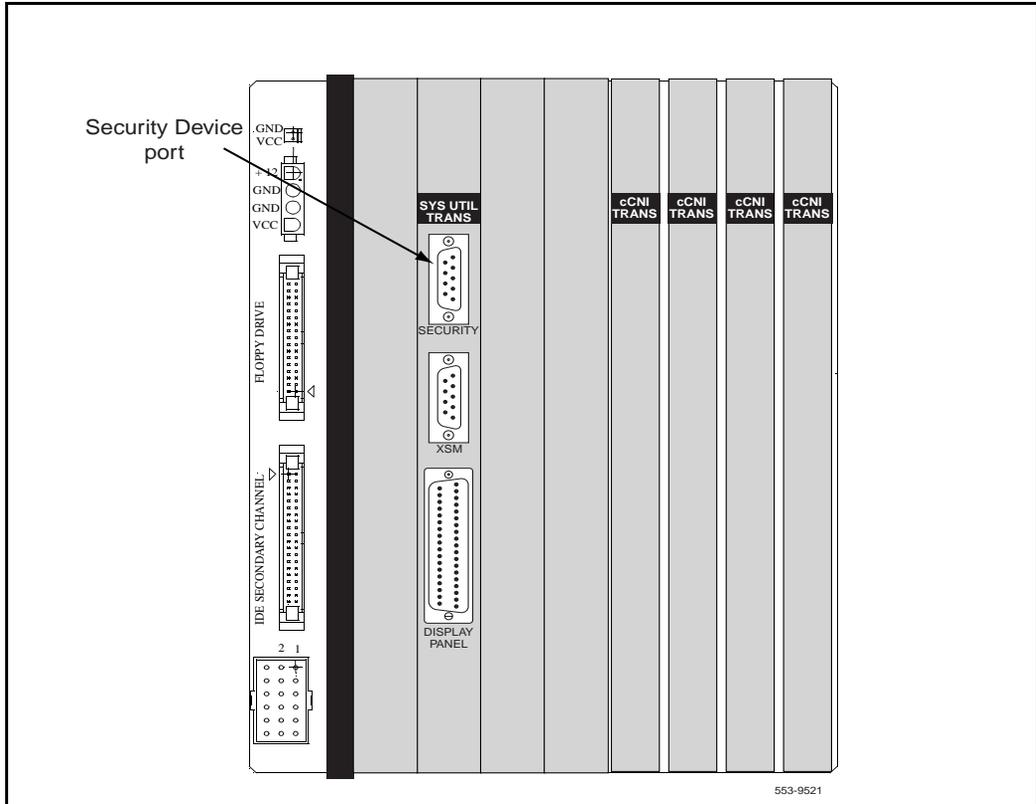
**Figure 139**  
**Security Device and holder**



## Install the CP PII card cage in Core 0

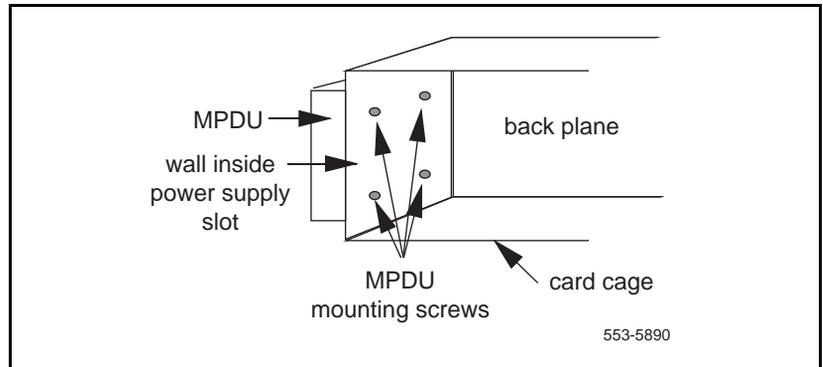
- 1 Check that the card cage is configured as Core 0. See Check the Core ID switches, page 66 for instructions.
- 2 **For AC-powered systems only**, after the card cage is out of the module, remove the MPDU and reinstall it on the CP PII card cage. Install the new MPDU, part of the cPCI Upgrade kit, to the side on the NT4N46 card cage. The screws that secure the MPDU are accessible from the power supply slot. See Figure 141 on page 565.
- 3 Check that the power harness at the right rear corner of the card cage has been transferred from the old card cage to the CP PII card cage
- 4 Slide the CP PII card cage halfway into the module.

**Figure 140**  
**Security Device installation (System Utility Transition card)**



- 5** Hold the card cage firmly and make the following connections at the rear of the module.

**Figure 141**  
**Location of the screws for the MPDU**



- a** In **AC** powered systems, connect the remaining module power connectors to J2 on the MPDU.

**In AC-power systems only**, plug the module power cable (the short harness attached to the module power connector) into connector J3 on the MPDU (attached to the side of the card cage).

### CAUTION

Check for and remove any debris (such as screws) that may have fallen into the base of the UEM module.

- a** In **DC** powered systems, connect the module power connectors to each other.
- b** Attach the **system monitor** ribbon cables:
- connect the ribbon cable that goes down to the pedestal to connector **J1** on the backplane.
  - connect the ribbon cable that goes up the column to **J2** on the backplane.

- c Attach the green ground wire to the frame ground bolt on the module. (a 11/32" socket wrench is used to attach the wire.) Remove the nut and the lock washer at the top of the bolt. Put the frame ground wire terminal over the bolt. Reinstall the top lock washer and the nut, then tighten down the nut.

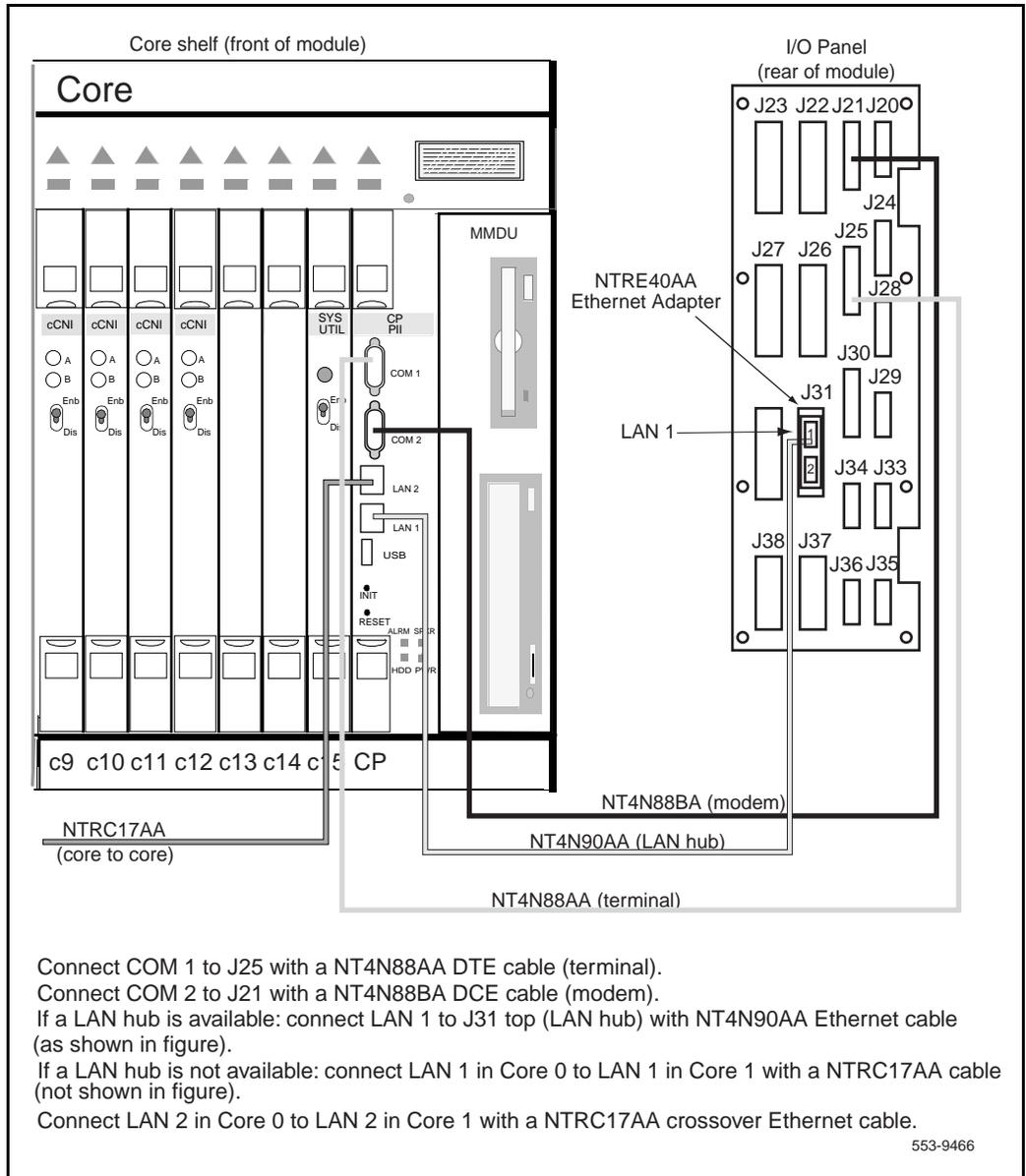
**Note:** For all of the wire terminals to fit on the bolt, remove one of the lock washers. Leave a lock washer at the bottom of the bolt and at the top of the bolt. Leave a third lock washer between the second and third, or the third and fourth, wire terminals.

- d Attach the orange logic return wire. Remove one nut and the lock washer from the LRTN blot at the rear of the card cage. Put the wire terminal over the bolt, reinstall the lock washer and nut, then tighten down the nut. (You need a 1/4" or 2/8" socket wrench.)
- 6 Slide the card cage all the way into the module.
  - 7 Check the position of the EMI shield. If the EMI shield has shifted, reposition it. Remove the tape holding the EMI shield.
  - 8 Pre-route cables NT4N88AA, NT4N88BA and NT4N90AA before you secure the card cage. (See Figure 142 on page 567.)
    - a Route cable **NT4N88AA** from **COM1** on the CP PII faceplate to **J25** on the I/O panel. (NT4N88AA is used to connect a terminal.)
    - b Route cable **NT4N88BA** from **COM2** on the CP PII faceplate to **J21** on the I/O panel. (NT4N88BA is used to connect a modem.)
  - 9 Route cable **NT4N90AA** from **LAN 1** on the CP PII faceplate to **J31 (top)** of the I/O panel.

## Relocate Network cards to CP PII Core 0

- 1 Remove all remaining network cards from the Option 61/61C Core 0.
- 2 When you move the 3PE card, check the switch settings and jumpers. Figure on page 61 shows a side view of the 3PE card and the location of the switch settings.
  - a All 3PE cards must be vintage F or later.
  - b Check that the RN27 Jumper is set to "A".

**Figure 142**  
**COM and LAN connections to the Core/Net I/O panel**



- c The settings for 3PE cards in Core/Net shelves are different from those in all other shelves: Table 67 on page 568 shows the 3PE settings for cards installed in CP PII Core/Net Modules.

**Note:** For 3PE settings for cards installed in Network Modules, see Table on page 61.

- 3 Reinstall each removed card in the same network slot in the CP PII Core/Net 0.
- 4 Connect the tagged cables to the relocated cards.

**Table 67**  
**QPC441 3PE Card installed in the CP PII Core/Net modules**

| <b>Jumper Settings:</b> Set Jumper RN27 at E35 to "A". |         |                     |    |    |     |     |     |     |     |
|--------------------------------------------------------|---------|---------------------|----|----|-----|-----|-----|-----|-----|
| Switch Settings                                        |         |                     |    |    |     |     |     |     |     |
| Module                                                 |         | D20 switch position |    |    |     |     |     |     |     |
| CP PII Core/Net modules only                           |         | 1                   | 2  | 3  | 4   | 5   | 6   | 7   | 8   |
| Core/Net 0<br>(Shelf 0)                                | Group 0 | off                 | on | on | off | on  | on  | on  | on  |
|                                                        | Group 1 | off                 | on | on | off | on  | on  | off | on  |
|                                                        | Group 2 | off                 | on | on | off | on  | off | on  | on  |
|                                                        | Group 3 | off                 | on | on | off | on  | off | off | on  |
|                                                        | Group 4 | off                 | on | on | off | off | on  | on  | on  |
|                                                        | Group 5 | off                 | on | on | off | off | on  | off | on  |
|                                                        | Group 6 | off                 | on | on | off | off | off | on  | on  |
|                                                        | Group 7 | off                 | on | on | off | off | off | off | on  |
| Core/Net 1<br>(Shelf 1)                                | Group 0 | off                 | on | on | off | on  | on  | on  | off |
|                                                        | Group 1 | off                 | on | on | off | on  | on  | off | off |
|                                                        | Group 2 | off                 | on | on | off | on  | off | on  | off |
|                                                        | Group 3 | off                 | on | on | off | on  | off | off | off |
|                                                        | Group 4 | off                 | on | on | off | off | on  | on  | off |
|                                                        | Group 5 | off                 | on | on | off | off | on  | off | off |
|                                                        | Group 6 | off                 | on | on | off | off | off | on  | off |
|                                                        | Group 7 | off                 | on | on | off | off | off | off | off |

## Cable Core 0

### Task summary list

The following is a summary of the tasks in this section:

- Cable COM 1 and COM 2 to the I/O panel, page 569
- Connect a terminal and modem to the I/O panel, page 569
- Connect LAN 1, page 569
- Connect pre-routed cCNI to 3PE cables, page 572
- Connect the Shelf 0 FIJI Fiber Ring Cables, page 574
- Cable the Clock Controllers, page 577

### Cable COM 1 and COM 2 to the I/O panel

- 1 Connect **COM1** on the CP PII faceplate to **J25** on the I/O panel with cable **NT4N88AA**.
- 2 Connect **COM2** on the CP PII faceplate to **J21** on the back of the I/O panel with cable **NT4N88BA**.

### Connect a terminal and modem to the I/O panel

- 1 Connect **J25** to a **terminal** for use during the upgrade. Use a separate terminal for each Core if available. J25 can also be connected to an A/B box to share a terminal between both Cores.
- 2 Connect **J21** to the device connected in the original system (such as a **modem or A/B box**)

### Connect LAN 1

The LAN 1 port is used to enable redundancy features between the two Core/Net modules. LAN 1 can also be connected to a local area network (LAN) for use with LAN based administration tools such as the Meridian Administration Tool (MAT).

The options for the LAN 1 connections are shown in Figure 143 on page 571.

**If the system will be connected to a LAN**

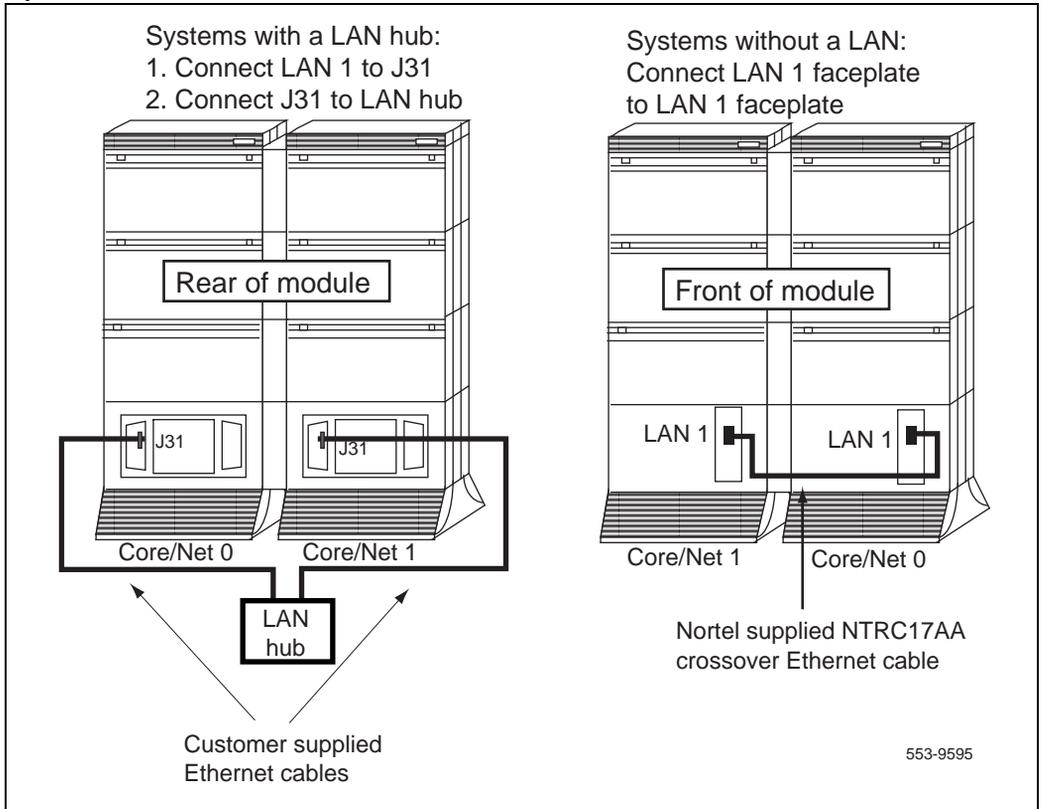
- 1 Connect the “**Dual Ethernet Adapter** (RJ45) for I/O Panel” (NTRE40AA) to **J31**. Secure the adapter to J31 with the two screws included in the shipment.  
Insert the adapter from the inside of the I/O panel.
- 2 Connect **LAN 1** (Ethernet) on the CP PII faceplate to **J31 (top)** of the I/O panel with cable **NT4N90AA**.  
This connection can only be made *after* the Dual Ethernet Adapter is installed (see step 1 above).
- 3 Connect **J31** to a **LAN hub**.

**If a LAN is not available, connect LAN 1 directly to LAN 1**

If a LAN hub is not available, do NOT connect LAN 1 to the I/O panel. The NTRE40AA Adapter and NT4N90AA cable are NOT installed.

- 1 Connect a **crossover Ethernet cable (NTRC17AA)** to the **LAN 1** port on the CP PII faceplate of Core/Net 0.
- 2 To ensure EMI shielding, route the cable along the front of the card cage and through the sides of the Core/Net modules.
- 3 Connect the other end of the cable to the **LAN 1** port on the CP PII faceplate in Core/Net 1.

**Figure 143**  
**Options for LAN 1 connection**



## Connect pre-routed cCNI to 3PE cables

NT8D76 cables connect between the Core/Net Termination Panel and the 3PE cards:

- See Termination Panel to 3PE card connectors, page 574 for detailed information on the slot and Network group assignments.
- This procedure applies to systems with columns in a single row. This procedure does not apply to systems with columns in separate aisles.
- Network group assignments for the cCNI ports in the CP PII card cage must be the same as the original system. Check to make sure that the cables are installed according to the port assignments in the existing database.
- The new NT8D76 3PE cables must be routed and in place before this procedure is begun. Refer to Pre-route cables, page 79.
- Remember to label all cables with the connection information. Labels are necessary to perform troubleshooting or future upgrades
- Table 68 on page 574 contains connection information for 3PE faceplates and the Core/Net Termination Panel.
- Figure 145 on page 575 shows the connection information on the Termination Panel.

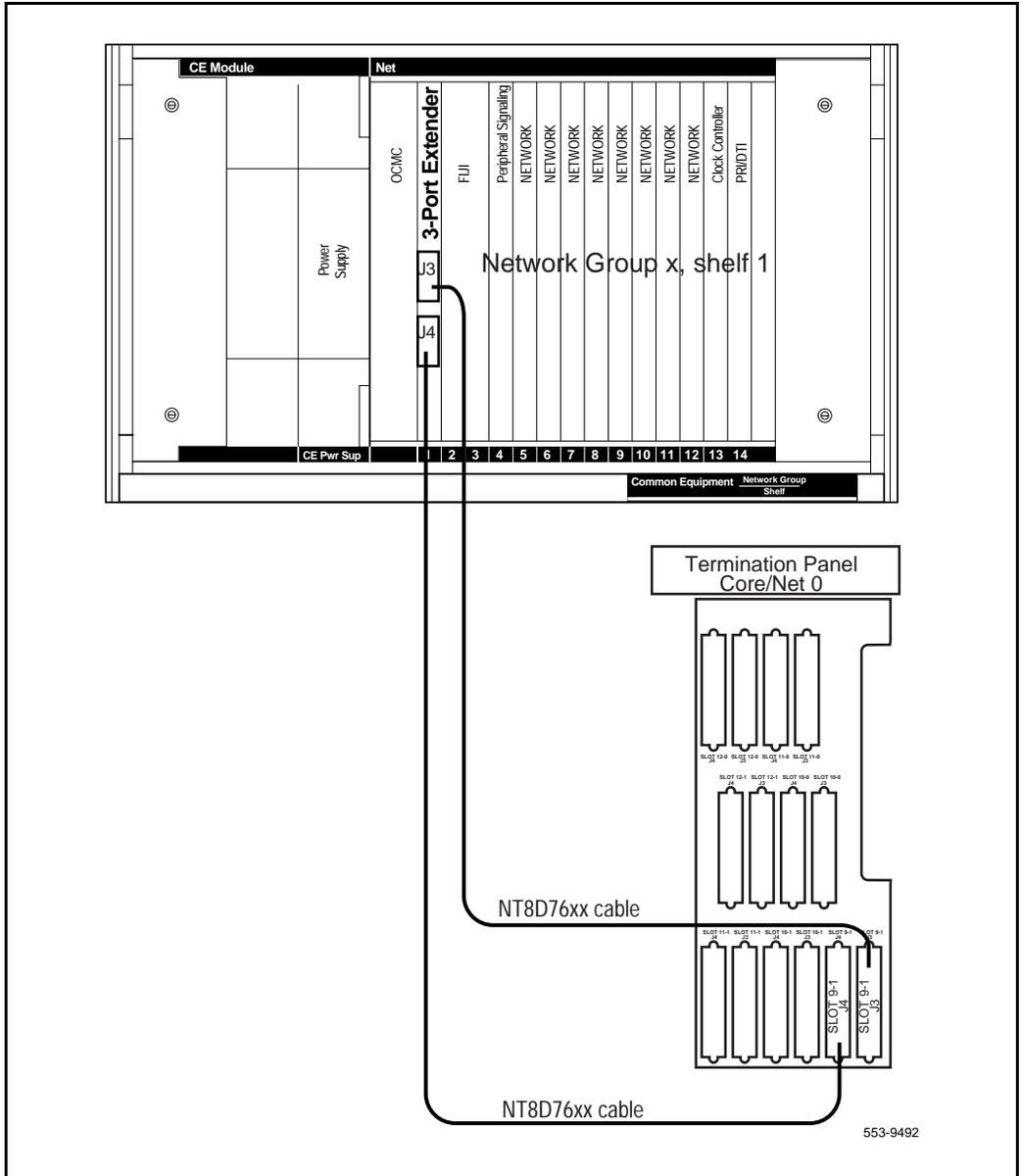
### Connect the 3PE cables in the shelf 0 Network modules

- 1 Disconnect the old cables from the J3 and J4 connectors on the 3PE cards in shelf 0 of each Network group.
- 2 Pull the new NT8D76 cables inside the UEM. Connect the new NT8D76 cables to J3 and J4 of the 3PE cards. See Figure 144 on page 573 and Table 68 on page 574 for connection information.
- 3 Connect the new NT8D76 cables to the Termination Panel in Core/Net 1. See Figure 145 on page 575 and Table 68 on page 574.

**Note:** Remove the old unused CNI to 3PE cables.

- 4 If the system has XSDI cards, reinstall the cards and attach the cables.

**Figure 144**  
**3PE Termination Panel connections**



553-9492

**Table 68**  
Termination Panel to 3PE card connectors

| Group Number | Termination Panel connector | 3PE card connector |
|--------------|-----------------------------|--------------------|
| 0            | 9-0                         | See Note.          |
| 0            | 9-0                         | See Note.          |
| 1            | 9-1-J3                      | J3                 |
| 1            | 9-1-J4                      | J4                 |
| 2            | 10-0-J3                     | J3                 |
| 2            | 10-0-J4                     | J4                 |
| 3            | 10-1-J3                     | J3                 |
| 3            | 10-1-J4                     | J4                 |
| 4            | 11-0-J3                     | J3                 |
| 4            | 11-0-J4                     | J4                 |
| 5            | 11-1-J3                     | J3                 |
| 5            | 11-1-J4                     | J4                 |
| 6            | 12-0-J3                     | J3                 |
| 6            | 12-0-J4                     | J4                 |
| 7            | 12-1-J3                     | J3                 |
| 7            | 12-1-J4                     | J4                 |

**Note:** Group 0 cables connect from the cCNI Transition card directly to the backplane of Core/Net 0 OR to the NT8D76 cable (depending on your CNI group configuration).

## Connect the Shelf 0 FIJI Fiber Ring Cables

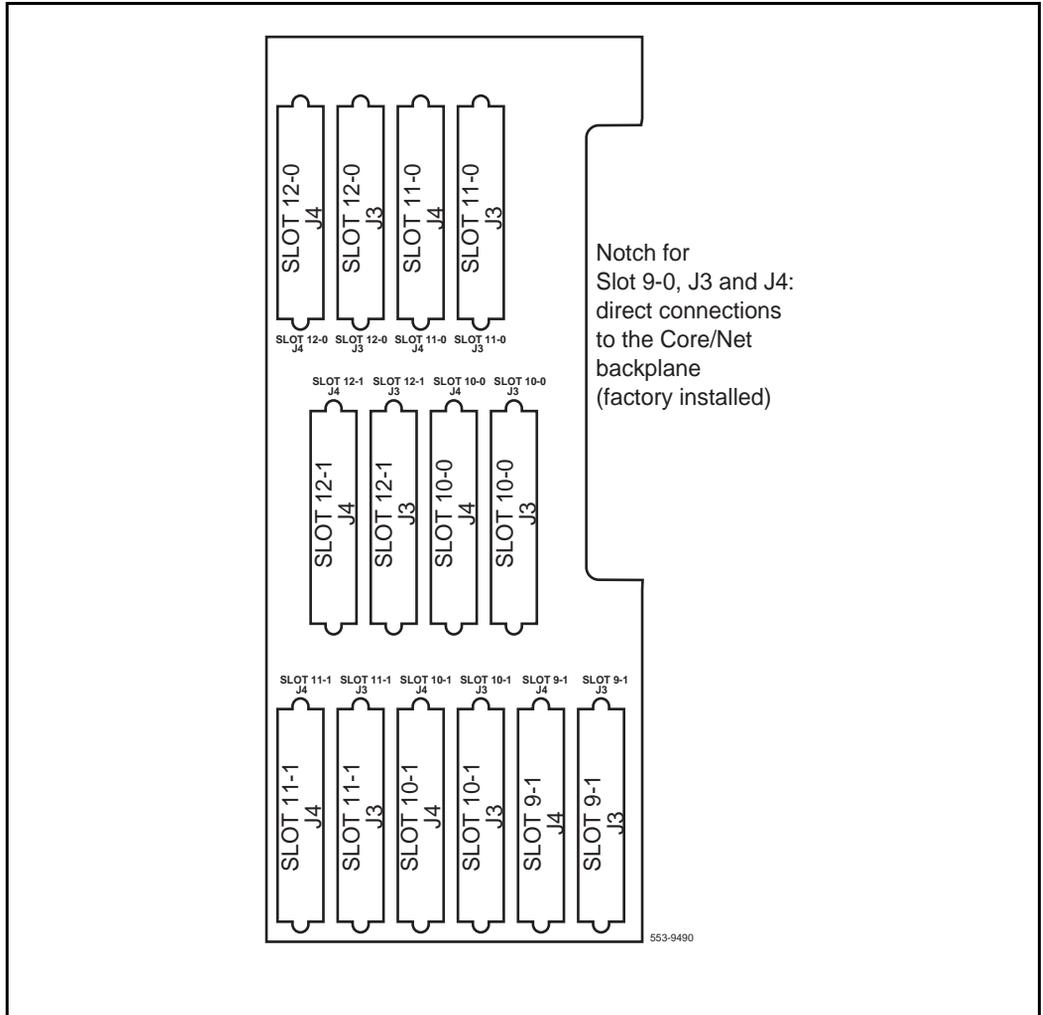
To create the shelf 0 fiber optic Ring 0, connect the FIJI cards in each Network shelf 0 in **ascending** order, from Tx to Rx ports (Table 69 on page 576).

Remove the black cap from the end of each cable before it is connected.

**Note:** Each end of the NTRC48 cable is labeled “Tx” or Rx” in the factory.

- 1 Start with Group 0, shelf 0.
- 2 Connect a NTRC48 FIJI Fiber Ring cable of the appropriate length from the Tx (J1) port of the FIJI card in **Group 0, shelf 0** to the Rx (J2) port of the FIJI card in the **Group 1, shelf 0**.

**Figure 145**  
**Connectors for cCNI Transition Cables to the Termination Panel**

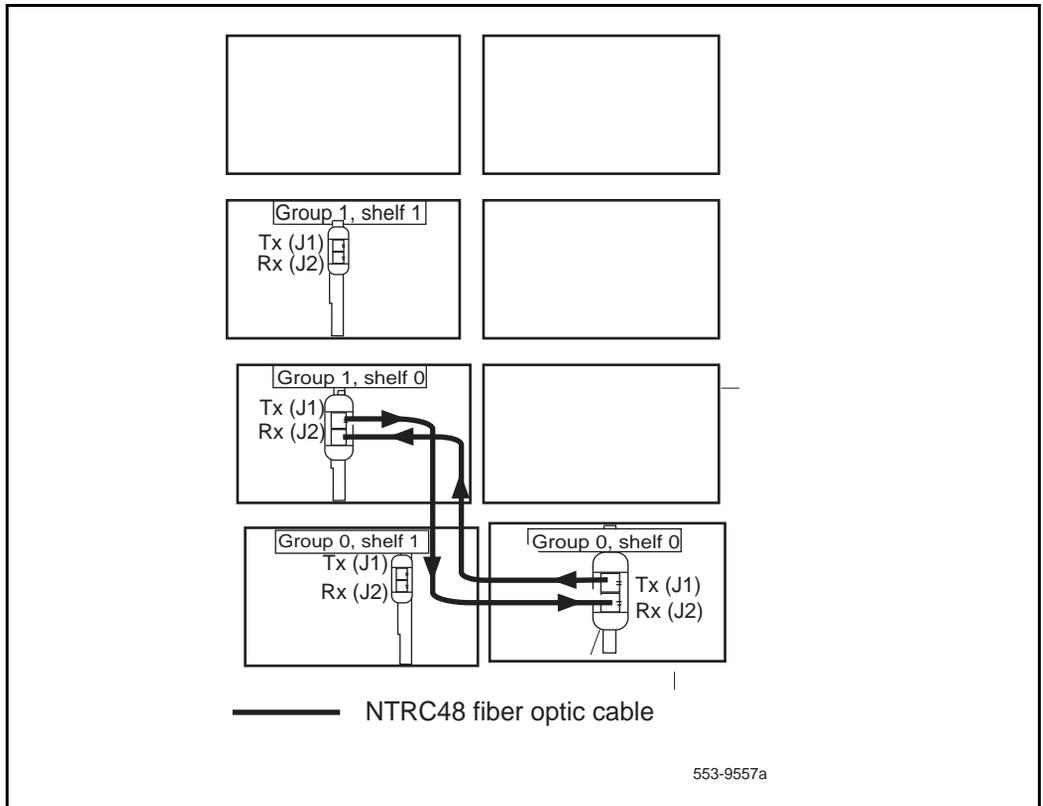


- 3 To complete the Ring, connect a final cable from Tx in **Group 1, shelf 0** back to the to Rx (J2) port in **Group 0**.

**Table 69**  
**FIJI Ring 0 connections**

| Groups X - 0 are cabled in ascending order                    |                              |                     |
|---------------------------------------------------------------|------------------------------|---------------------|
| Group/shelf                                                   | NTRC48 fiber cable connector | FIJI card connector |
| 0/0                                                           | P1                           | Tx - J1             |
| 1/0                                                           | P2                           | Rx - J2             |
| 1/0                                                           | P1                           | Tx - J1             |
| 2/0                                                           | P2                           | Rx - J2             |
| 2/0                                                           | P1                           | Tx - J1             |
| 3/0                                                           | P2                           | Rx - J2             |
| 3/0                                                           | P1                           | Tx - J1             |
| 4/0                                                           | P2                           | Rx - J2             |
| 4/0                                                           | P1                           | Tx - J1             |
| 5/0                                                           | P2                           | Rx - J2             |
| 5/0                                                           | P1                           | Tx - J1             |
| 6/0                                                           | P2                           | Rx - J2             |
| 6/0                                                           | P1                           | Tx - J1             |
| 7/0                                                           | P2                           | Rx - J2             |
| 7/0                                                           | P1                           | Tx - J1             |
| 0/0                                                           | P2                           | Rx - J2             |
| <b>Note:</b> Groups 2 through 7 are shown for reference only. |                              |                     |

**Figure 146**  
**Shelf 0 ascending fiber optic Ring (Option 61C example)**



## Cable the Clock Controllers

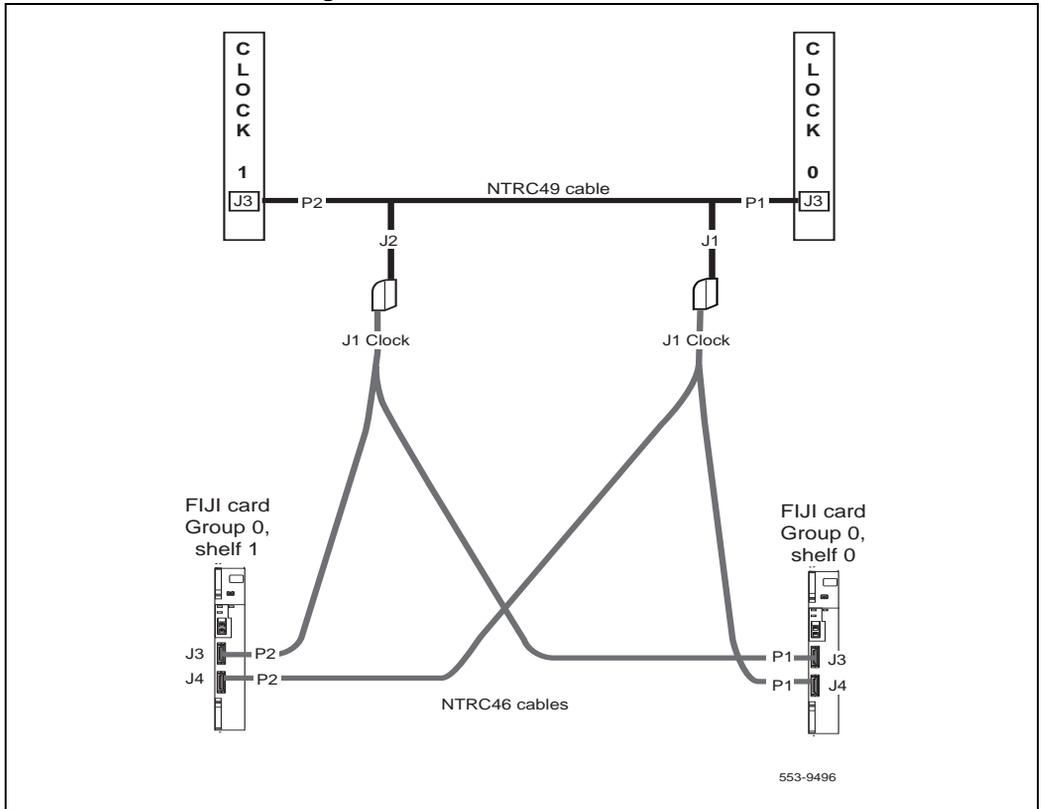
Earlier in the upgrade, you checked that Clock Controller 1 is installed in Network 1 shelf 1, slot 13; and Clock Controller 0 has been moved to Network group 1 shelf 0, slot 13.

Connect the cables to the Clock Controllers as shown in Figure 147 on page 579:

- 1 Connect the Clock to Clock cable:
  - a Connect J1 of the NTRC49 cable to port J3 of Clock Controller 0.

- b** Connect J2 of the NTRC49 cable to port J3 of Clock Controller 1.
- 2** Connect the Clock 0 to FIJI cable:
  - a** Connect J1 of the NTRC46 cable from Clock 0 to **J4** of the FIJI card in Group 0, **shelf 0**.
  - b** Connect J2 of the NTRC46 cable from Clock 0 to **J4** of the FIJI card in Group 0, **shelf 1**.
- 3** Connect a Clock 1 to FIJI cable:
  - a** Connect J1 of the NTRC46 cable from Clock 1 to **J3** of the FIJI card in Group 0, **shelf 0**.
  - b** Connect J2 of the NTRC46 cable from Clock 1 to **J3** of the FIJI card in Group 0, **shelf 1**.

**Figure 147**  
**Clock Controller cable configuration**



## Connect inter-module cables

### Task summary list

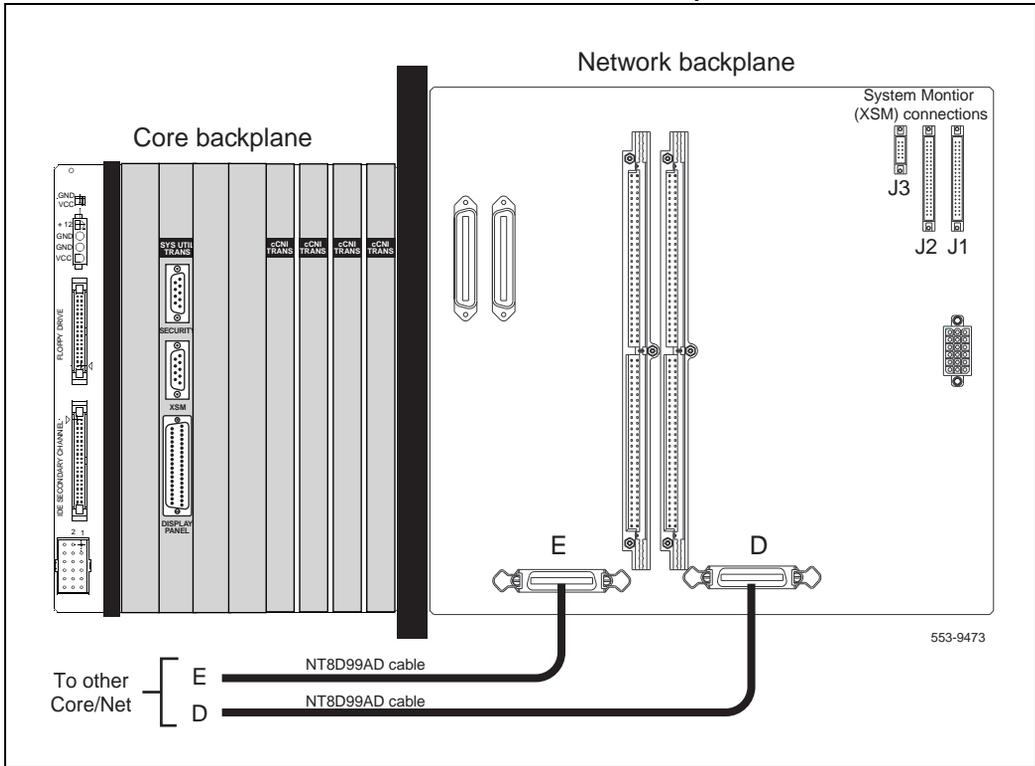
The following is a summary of the tasks in this section:

- Connect D and E cables, page 579
- Connect LAN 2 in Core/Net 0 to LAN 2 in Core/Net 1, page 580

### Connect D and E cables

Connect D and E cables as shown in Figure 148 on page 580.

**Figure 148**  
**Connections on the network side of the CP PII Core/Net backplane**



### Connect LAN 2 in Core/Net 0 to LAN 2 in Core/Net 1

The LAN 2 ports on the CP PII faceplates are directly connected with a NTRC17AA cable. This connection is for Core redundancy.

- 1 Connect a **crossover Ethernet cable (NTRC17AA)** to the **LAN 2** port on the CP PII faceplate of Core/Net 0. (Figure 142 on page 567).
- 2 To ensure EMI shielding, route the cable along the front of the card cage and through the sides of the Core/Net modules.
- 3 Connect the other end of the cable to the **LAN 2** port on the CP PII faceplate in Core/Net 1.

## Restore power

### Task summary list

The following is a summary of the tasks in this section:

- Prepare Core cards for power up, page 581
- Restore power, page 581

### Prepare Core cards for power up

- 1 In Core 0, disable the cCNI cards:
  - a Hardware disable all cCNI cards from the backplane.
  - b Disable the faceplate switch on all cCNI cards.
- 2 In Core 1, faceplate enable the cCNI cards.
- 3 Faceplate enable the System Utility Main card.

### Restore power

Restore power in the order below:

- 1 Restore power to Core/Net 1.
- 2 Restore power to Core/Net 0.
- 3 Restore power to the network modules
- 4 Wait for the system to load/initialize.
- 5 Re-initialize Core/Net 1.

**Note:** Re-initializing Core/Net 1 stops the midnight routines from running.

## Install software on Core 0

### Task summary list

The following is a summary of the tasks in this section:

- Install software on Core 0, page 582
- Check for Peripheral Software Download to Core 0, page 585
- On Core 1, reconfigure Group 0 and both sides of Group 1, page 586
- Make the system redundant, page 587

## Install software on Core 0

- 1 Check that a terminal is connected to J25 on Core/Net 0.
- 2 In Core/Net 0, install the CD-ROM into the CD-ROM drive in the MMDU:
  - a Press the button on the CD-ROM drive to open the CD-ROM disk holder.
  - b Place the CD-ROM disk into the holder with the disk label showing.
  - c Press the button again to close the CD-ROM disk holder.  
**Do not** push the holder in by hand.

**Note:** If the CD-ROM is not in the CD-ROM drive, the installation will not continue. Insert the CD-ROM to continue.

- 3 Place the CP PII Install floppy disk into the MMDU floppy drive.

**Note:** If a problem is detected during the system verification, Install stops, prints an error message, and aborts the installation. If the verification is not successful, do not continue; contact your technical support organization.

- 4 Press the manual RESET button on the CP PII card faceplate.
- 5 Before the install runs, the system validates hard disk partitioning which takes about five minutes. The screen displays:

Testing partition 0

0 percent done... 1 percent done... 99 percent done... 100 percent done

Testing partition 1

0 percent done... 1 percent done... 99 percent done... 100 percent done

Testing partition 2

0 percent done... 1 percent done... 99 percent done... 100 percent completed!

Disk physical checking is completed!

There are 3 partitions in disk 0:  
The size of partition 0 of disk 0 is XX MB  
The size of partition 0 of disk 0 is XX MB  
The size of partition 0 of disk 0 is XX MB  
Disk partitions and sectors checking is competed!

- 6** At the terminal, press <cr> to start the software installation.
- 7** When prompted, remove the CP PII Install Program diskette and insert the Keycode diskette.

<a> Continue with keycode validation  
<y> Confirm that the keycode matches the CD-ROM release

- 8** When the screen displays the Install Menu, select the following options in sequence when prompted to do so:

<b> Install software, database, and CP-BOOT ROM  
<a> Verify that the CD-ROM is now in drive  
The Installation Status Summary screen appears that lists the options to be installed.  
<a> Continue with Upgrade

- 9** Select a PSDL file to install. The PSDL file contains the loadware for all downloadable cards in the system and loadware for M3900 series sets.

Select one of the six psdl files  
<1> Global 10 Languages <default>  
<2> Western Europe 10 Languages  
<3> Eastern Europe 10 Languages  
<4> North America 6 Languages  
<5> RIs 24 up-issue  
<6> North America 6 Languages:

The languages contained in each selection are outlined as follows:

- 1** English, French, German, Spanish, Swedish, Italian, Norwegian, Brazilian, Portuguese, Finnish, Japanese Katakana.
- 2** English, French, German, Spanish, Swedish, Norwegian, Danish, Finnish, Italian, Brazilian Portuguese.

- 3 English, French, German, Dutch, Polish, Czech, Hungarian, Russian, Latvian, Turkish.
- 4 English, Spanish, French, Brazilian Portuguese, Japanese Katakana, German.
- 5 English, French, German, Spanish, Swedish, Italian, Norwegian, Portuguese, Finnish, Japanese Katakana.
- 6 English, French, German, Spanish, Brazilian Portuguese, Japanese Katakana.

**10** Continue with upgrade when prompted. Select a database to install.

- <cr> Enter carriage return to continue.
- <a> Continue with CP BOOTROM installation
- <a> Install the CP BOOTROM from hard disk
- <a> Start installation
- <a> Continue with ROM upgrade

The Installation Status Summary screen appears. Verify that CD to disk, disk to ROM, Database, and CP-BOOTROM were installed.

- <cr> Continue
- <q> Quit (remove any diskettes and the CD-ROM from the MMDU drives)
- <y> Confirm quit
- <a> Reboot the system

The system will automatically perform a sysload: several messages appear on the system terminal. Wait for “DONE” and then “INI” messages to display before you continue.

While the sysload is being performed, database conversion occurs.

Verify that the following message appears on the system terminal:

DATA CONVERSION

X11 RELEASE XX.XX TO RELEASE 25.

Confirm that the X11 release 25 software is installed and functional on Core/Net 0:

**LD 135** to load the program

**STAT CPU** to display the CPU status

## Check for Peripheral Software Download to Core 0

Load LD 22 and print Target peripheral software version. The Source peripheral software version was printed during the procedure to Print site data, page 68.

If there is a difference between the Source and Target peripheral software version:

- A forced download occurs during initialization when coming out of parallel reload.
- System initialization takes longer.
- The system drops established calls on IPE.

### LD 22

|             |                                     |
|-------------|-------------------------------------|
| <b>REQ</b>  | PRT                                 |
| <b>TYPE</b> | PSWV.                               |
| <b>ISSP</b> | Print System and Patch Information. |
| <b>SLT</b>  | Print System Limits.                |
| <b>TID</b>  | Print the Tape ID.                  |
| <b>****</b> | Exit program.                       |

**11** Perform a data dump to save the customer database to the hard drive:

**a** Load the Equipment Data Dump Program (LD 43). At the prompt, enter

**LD 43** To load the program.

**b** When "EDD000" appears on the terminal, enter

**EDD** To begin the data dump.

**c** When "DATADUMP COMPLETE" and "DATABASE BACKUP COMPLETE" appear on the terminal, enter

**\*\*\*\*** To exit the program.

**CAUTION**

If the data dump is not successful, do not continue; contact your technical support organization. You must correct a data dump problem before you continue.

**Enable the conference/TDS card**

- 1 Plug in the Conf/TDS card in Group 1. Push the latches forward to lock the card in place.
- 2 Faceplate enable the Conf/TDS cards.
- 3 Enable the Conf/TDS cards:
  - LD 34** To load the program.
  - ENLX x (loop)** To enable the Conf/TDS card.
  - \*\*\*\*** To exit the program

**On Core 1, reconfigure Group 0 and both sides of Group 1**

Configure Conference/TDS card (as a minimum) and any other network cards.

Configure both sides of Group 1 for a two-group system.

**Enable the Peripheral Signaling card**

- 1 Enable the Peripheral Signaling (Per Sig) card in Group 1:
  - LD 32** to load the program.
  - ENPS x (slot)** To enable the Peripheral Signaling card.
  - \*\*\*\*** To exit the program.

For example:

- ENPS 12** To enable slot 12 (Group 6).
- ENPS 13** To enable slot 12 (Group 6).
- \*\*\*\*** to exit the program

## Make the system redundant

To enable system redundancy, enable cCNI cards and reboot Core/Net 0:

- 1 On Core/Net 0 and Core/Net 1, enable the cCNIs.
- 2 Reboot Core/Net 0.

**Note:** Once the *inactive* Core (Core/Net 0) is rebooted, the system will operate in full redundant mode with Core/Net 0 active.

## Complete the CP PII upgrade

### Task summary list

The following is a summary of the tasks in this section:

- Test Core/Net 1 and Core/Net 0, page 587
- Perform a data dump, page 590

### Test Core/Net 1 and Core/Net 0

**From Core/Net 1**, perform these tests for both Cores:

- 1 Perform a redundancy sanity test:

#### **LD 135**

**STAT CPU** Get status of CPU and memory.

**TEST CPU** Test the CPU.

- 2 Check the LED and LCD states

**a** Perform a visual check of the LEDs and LCDs.

**b** Test LEDs and LCDs:

#### **LD 135**

**TEST LEDs** Test LEDs.

**TEST LCDs** Test LCDs.

#### **DSPL ALL**

**c** Check that the LED and LCD displays match the software check.

- 3 Test the System Utility cards and the cCNI cards:
- LD 135**
- STAT SUTL** Get the status of the System Utility (main and Transition) cards.
- TEST SUTL** Test the System Utility (main and Transition) cards.
- STAT CNI c s** Get status of cCNI cards (core, slot).
- TEST CNI c s** Test cCNI (core, slot).
- 4 Switch Cores and repeat the tests to confirm that the data is consistent.:
- LD 135**
- SCPU** Switch cores.
- STAT CPU** Get status of the CPU.
- TEST CPU** Test the inactive Core.
- TEST LEDs** Test LEDs.
- TEST LCDs** Test LCDs.
- DSPL ALL**
- STAT SUTL** Get status of System Utility (both main and Transition) cards.
- TEST SUTL c s** Test System Utility cards, both main and Transition cards.
- STAT CNI c s** Get status of cCNI cards, both main and Transition cards (core, slot).
- TEST CNI c s** Test cCNI cards, both main and Transition cards (core, slot).
- 5 Test system redundancy:
- LD 137**
- TEST RDUN** Test redundancy.
- DATA RDUN**
- TEST CMDU** Test the MMDU card.

- 6 Install the two system monitors. Test that the system monitors are working:
- LD 37** Load the program.
  - STAT XSM** Check the system monitors
  - \*\*\*\*** Exit the program.
- 7 Clear the display and minor alarms on both Cores:
- LD 135**
  - CDSP** Clear the displays on the cores.
  - CMAJ** Clear major alarms.
  - CMIN ALL** **Clear minor alarms.**
- 8 Get the status of the Cores, cNIS, and memory.
- STAT CPU** Get the status of CPUs and redundancy.
  - STAT CNI c s** Get the status of cCNI cards (core, slot).
- Note:** You will need to execute the STAT CNI command twice before receiving a response from the system
- 9 Test the clocks:
- a** Verify that the clock controller is assigned to the *active* Core.
  - LD 60** To lead the program.
  - SSCK x** To get the status of the clock controllers (*x* is “0” or “1” for Clock 0 or Clock 1.
  - SWCK** To switch the Clock if necessary.
  - \*\*\*\*** Exit program.
  - b** Verify that the Clock Controllers are switching correctly:.
  - SWCK** To switch the Clock.
  - SWCK** to switch the Clock again.
- 10 Test the Fiber Rings
- See the *X11 Maintenance* (553-3001-511) for more information on overlay 39 commands.

a Check that the Fiber Rings operate correctly:

**LD 39** To load the program.

**STAT RING 0** To check the status of Ring 0 (HALF/HALF)

**STAT RING 1** To check the status of Ring 1 (HALF/HALF)

b If necessary, restore the Rings to Normal State:

**RSTR** To restore both Rings to HALF state.

c Check that the Rings operate correctly:

**STAT RING 0** To check the status of Ring 0 (HALF/HALF)

**STAT RING 1** To check the status of Ring 1 (HALF/HALF)

11 Check the status of the FIJI alarms

**STAT ALRM** to query the alarm condition for all FIJI cards in all Network Groups

\*\*\*\* Exit program.

## Perform a data dump

Perform a data dump to backup the customer database:

1 Log into the system.

2 Load the Equipment Data Dump Program (LD 43). At the prompt, enter

**LD 43** Load the program.

3 Insert a floppy disk into the MMDU to back up the database.

4 When "EDD000" appears on the terminal, enter

**EDD** Begin the data dump.

5 When "DATADUMP COMPLETE" and "DATABASE BACKUP COMPLETE" appear on the terminal, enter

\*\*\*\* Exit the program.

**CAUTION**

If the data dump is not successful, do not continue; contact your technical support organization. You must correct a data dump problem before you continue.

## **Add an IPE module, if required**

Place an IPE module on top of Core 1 column, if required. Refer to *System Installation Procedures* (553-3001-210).

Refer to Engineering Guidelines for Option 81C to re-engineer the system, if required.

The Option 61/61C upgrade to Option 81C with CP PII and Fiber Network Fabric is complete.



---

# Add a Network Group

---

## Content list

The following are the topics in this section:

- [Reference list 593](#)
- [Prepare for installation 594](#)
- [Verify removal of 3PE cards from Option 81 Core shelves 594](#)
- [Add the new Network modules 595](#)
- [Add CNI cards if necessary 595](#)
- [Pre-route CNI to 3PE cables 596](#)
- [Pre-route the FIJI cables 599](#)
- [Install cards in the Network modules 606](#)
- [Install and enable the 3PE cards 606](#)
- [Install and enable the Peripheral Signaling \(Per Sig\) cards 608](#)
- [Disable and insert the FIJI cards 608](#)
- [Disable and insert the Conf/TDS cards, if necessary 608](#)
- [Enable the CNI cards 608](#)
- [Enable the FIJI cards 609](#)
- [Connect the new groups to the Fiber Network 611](#)

## Reference list

The following are the references in this section:

- *System Installation Procedures (553-3001-210)*

The procedures in this section are for systems that have already been upgraded to Fiber Network. Follow the procedures in order.

## Prepare for installation

Complete these steps before installation of the new Network Groups. Follow the steps in order.

### Task summary

- 1 "Verify removal of 3PE cards from Option 81 Core shelves" (below).
- 2 "Add the new Network modules" (below).
- 3 "Add CNI cards if necessary" on page 595.
- 4 "Pre-route CNI to 3PE cables" on page 596.
- 5 "Pre-route the FIJI cables" on page 599.

## Verify removal of 3PE cards from Option 81 Core shelves

In Option 81 systems, the 3PE card must be removed from the Core shelves. This card should have been removed during the upgrade procedure (page 172).

If this card was not removed during the upgrade process, remove it now.

**Note:** This procedure is for Option 81 systems with Core shelves. This procedure is NOT necessary for Option 81C systems with Core/Net shelves.

To remove the 3PE card from both Cores:

- 1 In Core 1, hardware disable the 3PE card.
- 2 In Core 0, hardware disable the 3PE card.
- 3 Remove the 3PE faceplate cable.
- 4 Remove the 3PE cards from Core 1 and 0.

## Add the new Network modules

The new Network modules must be connected to the system. Follow the instructions in *System Installation Procedures* (553-3001-210) to correctly configure the power and System Monitor connections.

## Add CNI cards if necessary

CNI-3 cards are added only if additional ports are required. CNI-3 cards can only be installed in an *inactive* Core module.

### Port assignments

The default port assignments for CNI cards in Option 81 and 81C systems are shown in Table 2 and Table 3. These assignments can be modified in overlay 17 (LD 17) if necessary.

When a two port CNI card is replaced with a three port CNI-3 card, the original port assignments for the backplane connections remain the same.

### Install the CNI-3 cards

- 1 On the *inactive* Core, software disable the CNI slots where the new cards will be installed:  
**LD 135** to load the program.  
**DIS CNI c s p** (*core slot port*) to disable the card and ports.
- 2 Faceplate disable the CNI cards to be replaced on the *inactive* Core.
- 3 Remove the CNI cards to be replaced, if necessary.
- 4 Install the new CNI-3 cards. The CNI-3 cards must be faceplate disabled before installation.
- 5 Faceplate enable all CNI cards on the *inactive* Core.

### Add a CNI group

- 1 Add CNI group(s).  
**LD 17** to load the program.  
**CNI s p g** (*slot port group*) to add a CNI group.
- 2 Software enable the *original* CNI ports on the *inactive* Core. Do NOT activate the CNI ports for the new Network Groups:.  
**LD 135** to load the program.  
**ENL CNI c s p** (*core slot port*) to enable the card and ports.
- 3 Switch active Cores:  
**SCPU** to switch Cores
- 4 Follow steps 2 through 8 to install the CNI cards on the second Core. Be sure to make the second Core *inactive*.
- 5 Verify the status of the CNI cards:  
**STAT CNI** to check the status of the cards and ports.

### Pre-route CNI to 3PE cables

The CNI backplane ports are connected to the 3PE cards with two NTND14 CNI to 3PE cables per port. The third port connects from the CNI-3 faceplate to the 3PE card with two NT9D89 cables.

When a CNI card is upgraded to a CNI-3 card, the original NTND14 backplane cables are left in place; only the NT9D89 CNI-3 to 3PE faceplate cables must be added.

- 1 Label the cables with Network Group, CNI port and connection information.
- 2 Route the new CNI to 3PE cables according to the port assignments in Table 2 and Table 3. **Do NOT attach the cables.**

**Table 2**  
**Option 81 CNI group assignments**

| Group                                                                                                        | CNI connection          | 3PE faceplate connection | Cable  |
|--------------------------------------------------------------------------------------------------------------|-------------------------|--------------------------|--------|
| 5                                                                                                            | 8A (Core backplane)     | J3                       | NTND14 |
| 5                                                                                                            | 8C (Core backplane)     | J4                       | NTND14 |
| 0                                                                                                            | 8D (Core backplane)     | J3                       | NTND14 |
| 0                                                                                                            | 8F (Core backplane)     | J4                       | NTND14 |
| 1                                                                                                            | 9A (Core backplane)     | J3                       | NTND14 |
| 1                                                                                                            | 9C (Core backplane)     | J4                       | NTND14 |
| 2                                                                                                            | 9D (Core backplane)     | J3                       | NTND14 |
| 2                                                                                                            | 9F (Core backplane)     | J4                       | NTND14 |
| 3                                                                                                            | 10A (Core backplane)    | J3                       | NTND14 |
| 3                                                                                                            | 10C (Core backplane)    | J4                       | NTND14 |
| 4                                                                                                            | 10D (Core backplane)    | J3                       | NTND14 |
| 4                                                                                                            | 10F (Core backplane)    | J4                       | NTND14 |
| 6                                                                                                            | 9 J1 (CNI-3 faceplate)  | J3                       | NT9D89 |
| 6                                                                                                            | 9 J2 (CNI-3 faceplate)  | J4                       | NT9D89 |
| 7                                                                                                            | 10 J1 (CNI-3 faceplate) | J3                       | NT9D89 |
| 7                                                                                                            | 10 J2 (CNI-3 faceplate) | J4                       | NT9D89 |
| <b>Note:</b> The default assignments in this table can be reconfigured with Overlay 17 (LD 17) if necessary. |                         |                          |        |

**Table 3**  
**Option 81C CNI group assignments**

| Group | CNI slot connections     | 3PE faceplate connection | Cable  |
|-------|--------------------------|--------------------------|--------|
| 1     | 12D (Core/Net backplane) | J3                       | NTND14 |
| 1     | 12F (Core/Net backplane) | J4                       | NTND14 |
| 2     | 12 J1 (CNI-3 faceplate)  | J3                       | NT9D89 |
| 2     | 12 J2 (CNI-3 faceplate)  | J4                       | NT9D89 |
| 3     | 13A (Core/Net backplane) | J3                       | NTND14 |
| 3     | 13C (Core/Net backplane) | J4                       | NTND14 |
| 4     | 13D (Core/Net backplane) | J3                       | NTND14 |
| 4     | 13F (Core/Net backplane) | J4                       | NTND14 |
| 5     | 13 J1 (CNI-3 faceplate)  | J3                       | NT9D89 |
| 5     | 13 J2 (CNI-3 faceplate)  | J4                       | NT9D89 |
| 6     | 14A (Core/Net backplane) | J3                       | NTND14 |
| 6     | 14C (Core/Net backplane) | J4                       | NTND14 |
| 7     | 14D (Core/Net backplane) | J3                       | NTND14 |
| 7     | 14F (Core/Net backplane) | J4                       | NTND14 |

**Note 1:** Group 0 is hard-wired through the Core/Net module backplane; no cable is required.

**Note 2:** The default assignments in this table can be reconfigured with Overlay 17 (LD 17) if necessary.

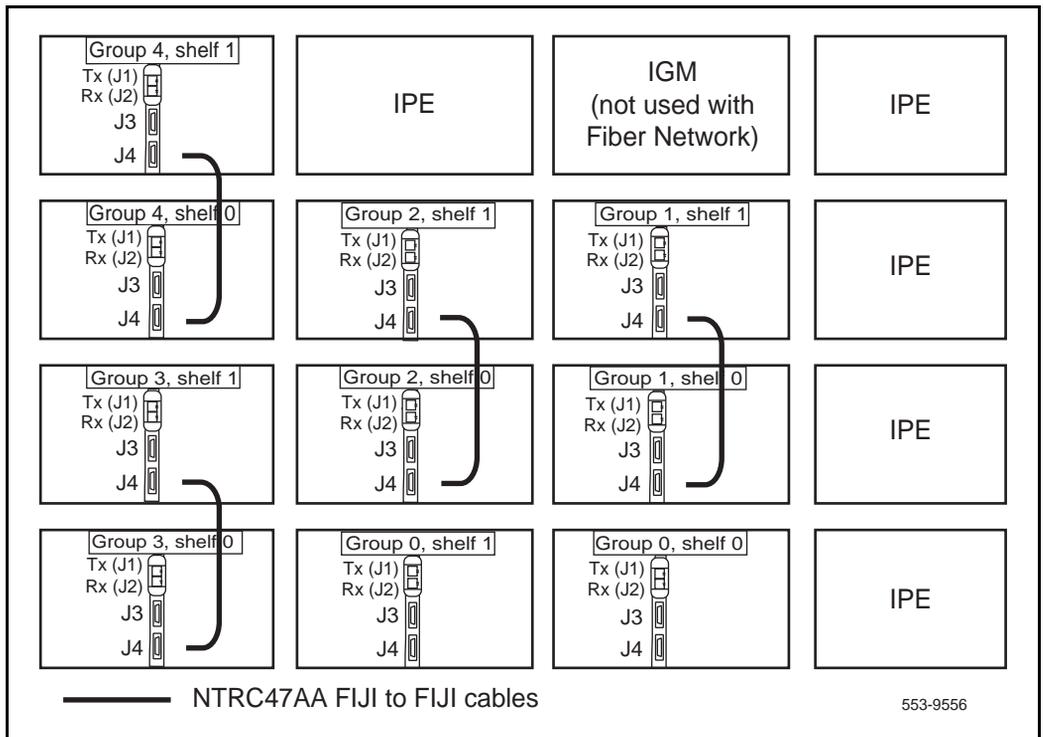
## Pre-route the FIJI cables

To minimize system downtime during the upgrade, all FIJI cables must be in place before the new Network Groups are added. See “System architecture” on page 29 for an overview of FIJI cable configuration.

### Route FIJI to FIJI cables

Route a NTRC47AA cable between the FIJI cards in shelf 0 and shelf 1 of each new Network Group.

**Figure 149**  
Route FIJI to FIJI cables (Option 81C example)



### Label and route the shelf 0 fiber optic cables (ascending)

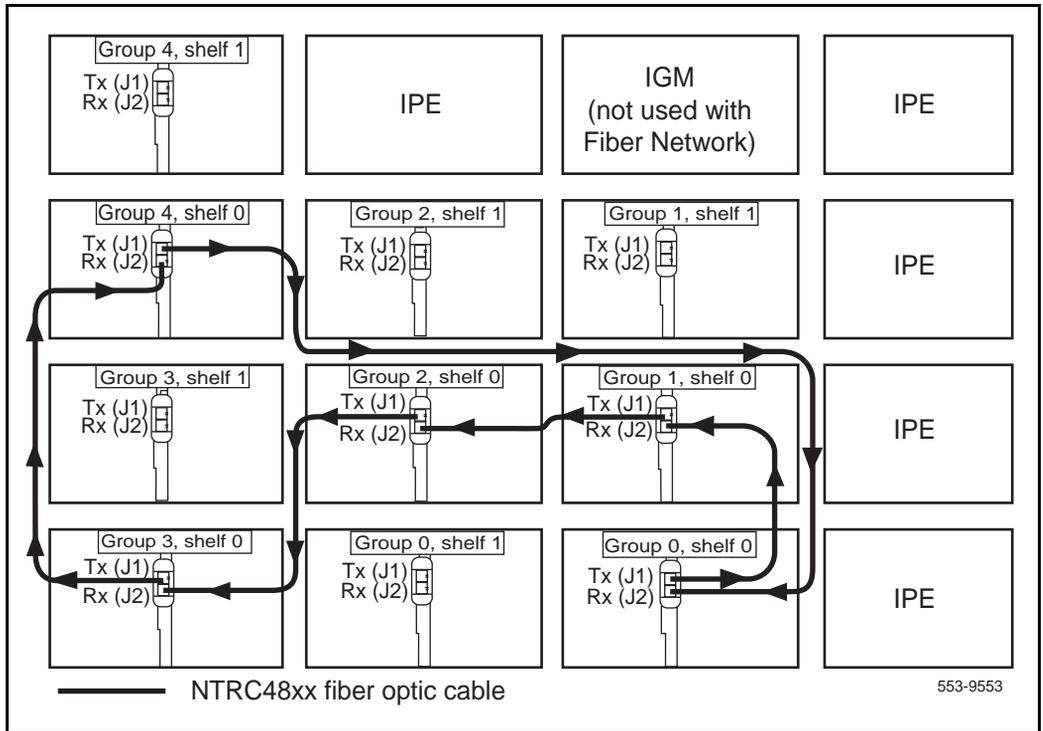
Route the NTRC48 cables between the FIJI cards in each new Network shelf 0 in *ascending* order (Figure 150):

#### CAUTION

Do not excessively bend or cinch the Fiber Ring cables. These cables are easily damaged. Use the Optical Cable Management Card (OCMC) to manage and protect the Fiber Ring cables. See page 38 for a description of this card.

- 1 Start with shelf 0 in the current highest Network Group.
- 2 Label each cable on both sides with the appropriate connection information from Table 4.
- 3 Route a NTRC48 FIJI Fiber Ring cable of the appropriate length from the FIJI card in **shelf 0 of the current highest Network Group**, to the FIJI card in **shelf 0 of the new Network Group**.
- 4 If more than one Network Group is to be added, route a second NTRC48 cable of the appropriate length to **shelf 0 of the second new group**.
- 5 Continue to route NTRC48 cable of the appropriate length in ***ascending*** order between shelf 0 of each new Network Group.
- 6 To complete the Ring, route a final cable from the **highest number group** back to **Group 0, shelf 0**.

**Figure 150**  
**Shelf 0 ascending fiber optic Ring (example)**



**Table 4**  
**FIJI Ring 0 connections**

| Groups X - 0 are cabled in ascending order |                              |                     |
|--------------------------------------------|------------------------------|---------------------|
| Group/shelf                                | NTRC48 fiber cable connector | FIJI card connector |
| 0/0                                        | P1                           | Tx - J1             |
| 1/0                                        | P2                           | Rx - J2             |
| 1/0                                        | P1                           | Tx - J1             |
| 2/0                                        | P2                           | Rx - J2             |
| 2/0                                        | P1                           | Tx - J1             |
| 3/0                                        | P2                           | Rx - J2             |
| 3/0                                        | P1                           | Tx - J1             |
| 4/0                                        | P2                           | Rx - J2             |
| 4/0                                        | P1                           | Tx - J1             |
| 5/0                                        | P2                           | Rx - J2             |
| 5/0                                        | P1                           | Tx - J1             |
| 6/0                                        | P2                           | Rx - J2             |
| 6/0                                        | P1                           | Tx - J1             |
| 7/0                                        | P2                           | Rx - J2             |
| 7/0                                        | P1                           | Tx - J1             |
| 0/0                                        | P2                           | Rx - J2             |

**Label and route the shelf 1 fiber optic cables (descending)**

Route the NTRC48 cables between the FIJI cards in each Network shelf 1 in *descending* order (Figure 151).

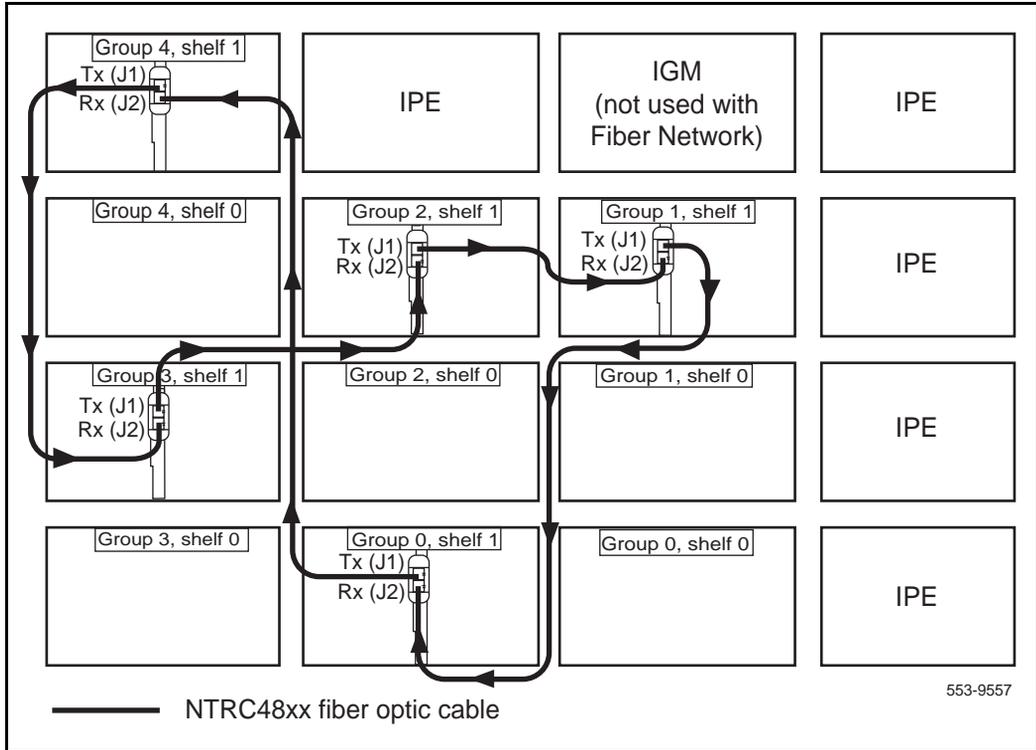
**CAUTION**

Do not excessively bend or cinch the Fiber Ring cables. These cables are easily damaged. Use the Optical Cable Management Card (OCMC) to manage and protect the Fiber Ring cables. See page 38 for a description of this card.

**Note:** Each end of the NTRC48 cable is labeled “Tx” or Rx” in the factory.

- 1 Start with Group 0, shelf 1.
- 2 Label each cable on both sides with the appropriate connection information from Table 5.
- 3 Route a NTRC48 FIJI Fiber Ring cable of the appropriate length from **shelf 1** of the FIJI card in **Group 0**, to the FIJI card in the **new highest Network Group, shelf 1**.
- 4 Route a NTRC48 cable from the FIJI card in the **new highest Network Group, shelf 1** to the FIJI card in the **second highest Network Group, shelf 1**.
- 5 Continue to route NTRC48 FIJI Fiber Ring cables of the appropriate lengths between shelf 1 of each new Network Group. Route these cables in *descending* order of Network Groups.
- 6 Route a final cable to the current highest Network Group, shelf 1.

**Figure 151**  
**Shelf 1 descending fiber optic Ring (example)**



**Table 5**  
**FIJI Ring 1 connections**

| Groups 0 - X are cabled in descending order |                              |                     |
|---------------------------------------------|------------------------------|---------------------|
| Group/shelf                                 | NTRC48 fiber cable connector | FIJI card connector |
| 0/1                                         | P1                           | Tx - J1             |
| 7/1                                         | P2                           | Rx - J2             |
| 7/1                                         | P1                           | Tx - J1             |
| 6/1                                         | P2                           | Rx - J2             |
| 6/1                                         | P1                           | Tx - J1             |
| 5/1                                         | P2                           | Rx - J2             |
| 5/1                                         | P1                           | Tx - J1             |
| 4/1                                         | P2                           | Rx - J2             |
| 4/1                                         | P1                           | Tx - J1             |
| 3/1                                         | P2                           | Rx - J2             |
| 3/1                                         | P1                           | Tx - J1             |
| 2/1                                         | P2                           | Rx - J2             |
| 2/1                                         | P1                           | Tx - J1             |
| 1/1                                         | P2                           | Rx - J2             |
| 1/1                                         | P1                           | Tx - J1             |
| 0/1                                         | P2                           | Rx - J2             |

## Install cards in the Network modules

Network cards must be installed in the new Network modules as described below. Each card must be installed and enabled or disabled as indicated.

- 1 "Install and enable the 3PE cards" (below).
- 2 "Install and enable the Peripheral Signaling (Per Sig) cards" on page 608.
- 3 "Disable and insert the FIJI cards" on page 608.
- 4 "Disable and insert the Conf/TDS cards, if necessary" on page 608.

### Install and enable the 3PE cards

Three steps are required to install the 3PE cards:

- 1 Verify the 3PE card settings:

The group and shelf number of each Network module is determined by the switch settings on the 3PE card. Use the information in Table 6 to verify that the 3PE cards in the new Network modules have the correct switch and jumper settings.

This group and shelf setting is displayed on the FIJI card display.
- 2 Install a 3PE card in slot 1 of each new Network module. Push the latches forward to lock the card in place.
- 3 Attach the cables to the *inactive* 3PE faceplates.
- 4 Faceplate *enable* each 3PE card.

**Table 6**  
**Switch and jumper settings for 3PE cards in NT8D35 Network modules**

| Jumper Settings                                                      |       |                      |    |    |    |     |     |     |     |
|----------------------------------------------------------------------|-------|----------------------|----|----|----|-----|-----|-----|-----|
| Set Jumper RN27 at E35 to "A".                                       |       |                      |    |    |    |     |     |     |     |
| Switch Settings                                                      |       |                      |    |    |    |     |     |     |     |
| D20 switch position:                                                 |       | 1                    | 2  | 3  | 4  |     |     |     |     |
| 81, 81C (Note)                                                       |       | off                  | on | on | on |     |     |     |     |
| Shelf                                                                | Group | D20 switch position: |    |    |    | 5   | 6   | 7   | 8   |
| <b>0</b><br>(3PE cards connected to the a CNI in Core or Core/Net 0) | 0     |                      |    |    |    | on  | on  | on  | on  |
|                                                                      | 1     |                      |    |    |    | on  | on  | off | on  |
|                                                                      | 2     |                      |    |    |    | on  | off | on  | on  |
|                                                                      | 3     |                      |    |    |    | on  | off | off | on  |
|                                                                      | 4     |                      |    |    |    | off | on  | on  | on  |
|                                                                      | 5     |                      |    |    |    | off | on  | off | on  |
|                                                                      | 6     |                      |    |    |    | off | off | on  | on  |
|                                                                      | 7     |                      |    |    |    | off | off | off | on  |
| <b>1</b><br>(3PE cards connected to the a CNI in Core or Core/Net 1) | 0     |                      |    |    |    | on  | on  | on  | off |
|                                                                      | 1     |                      |    |    |    | on  | on  | off | off |
|                                                                      | 2     |                      |    |    |    | on  | off | on  | off |
|                                                                      | 3     |                      |    |    |    | on  | off | off | off |
|                                                                      | 4     |                      |    |    |    | off | on  | on  | off |
|                                                                      | 5     |                      |    |    |    | off | on  | off | off |
|                                                                      | 6     |                      |    |    |    | off | off | on  | off |
|                                                                      | 7     |                      |    |    |    | off | off | off | off |

**Note:** For option 81C systems, QPC441 vintage F or later must be used in all modules.

## Install and enable the Peripheral Signaling (Per Sig) cards

- 1 Install a Per Sig card into slot 4 of each new Network module. Push the latches forward to lock the card in place.
- 2 Faceplate *enable* the cards.

## Disable and insert the FIJI cards

- 1 Faceplate *disable* the FIJI cards.
- 2 Insert the FIJI cards into slots 2 and 3 of each new Network module.  
**DO NOT plug the card into the backplane.**

## Disable and insert the Conf/TDS cards, if necessary

If Conf/TDS cards are used in the system, follow the procedures below.

- 1 Faceplate *disable* the Conf/TDS cards.
- 2 Insert a Conf/TDS card into each new Network module.  
**DO NOT plug the card into the backplane.**

## Enable the CNI cards

**Note:** If you are adding more than one Network Group, it is recommended that you add one group at a time in software. Follow all the remaining procedures in this chapter to complete the addition of one group before starting to add another group.

If new CNI-3 cards are required, they must be installed before the cards are enabled. See “Add CNI cards if necessary” on page 595 to install the cards.

**Note:** CNI cards can be enabled and connected on the *inactive* Core only.

Follow these procedures to connect and activate the new CNI ports:

- 1 Verify that the cables are correctly routed, labeled, and connected to the 3PE cards. See “Pre-route CNI to 3PE cables” on page 596.
- 2 Attach the cables to the *inactive* CNI cards.  
See Table 2, “Option 81 CNI group assignments,” on page 597 and Table 3, “Option 81C CNI group assignments,” on page 598 for connection information.

### **WARNING**

The backplane connector pins are easily bent. Install backplane cables with extreme caution to ensure that these pins are not damaged.

- Carefully line up the cable and press it into place.
- Never force a cable into the slot. If the cable gets stuck, remove it and try again. Damage to the backplane connector pins can make installation of CNI cables impossible.

- 3 Software enable the *new* CNI ports on the *inactive* Core:
  - LD 135** to load the program.
  - ENL CNI c s p** (*core slot port*) to enable the card and ports.
- 4 Switch active Cores:
  - SCPU** to switch Cores
- 5 Repeat steps 1 through 5 to attach the CNI to 3PE cables on the second Core side. Make sure that the second Core is now *inactive*.

## Enable the FIJI cards

The FIJI cards are placed but not inserted and connected in slots 2 and 3 of each new Network shelf. Follow the procedures below to enable the cards:

- 1 Verify that the faceplate switch on each new FIJI card is *disabled*.
- 2 Plug the FIJI cards into the Network module backplane. Push the latches forward to lock the card in place.

- 3 Enable the faceplate switch.

**Note:** The card will not enable until a loop in that Network shelf is defined as described below.

- 4 Wait for the FIJI LED panel to display the Network Group and shelf of the card. This information is based on the 3PE switch settings. Verify that this information matches the printed label on the outside of the module case.

**Note 1:** The time required for the FIJI cards to display group and shelf information will vary.

**Note 2:** For 3PE switch settings, see “Install and enable the 3PE cards” on page 606.

- 5 Define the loops in the new group:

For example:

```
LD 17          to load the program
REQ           CHG
TYPE          CEQU
....
XCT           xxx (enter the new loop)
              xxx
....
```

- 6 Enable the new loops.

```
LD 34          to load the program
ENLX          to enable the newly defined loop
****         to exit the program
```

- 7 Wait for the FIJI card to enable. The time to enable will vary.

## Connect the new groups to the Fiber Network

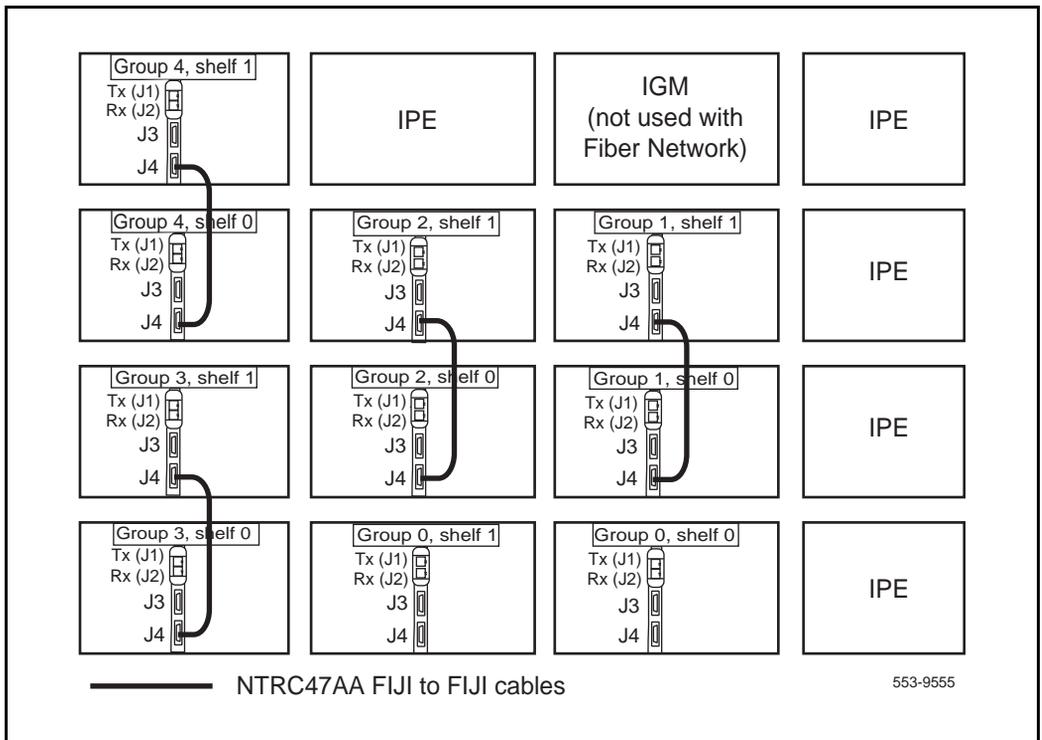
### WARNING

The Fiber Network Rings must be in Normal mode to complete this procedure. Resolve any faults and restore the Rings to Normal mode before Network Groups are added.

See “FIJI card description” on page 30 for additional information on FIJI cards.

- 1 In each new Network Group, connect a NTRC47AA cable from J4 to J4 of the FIJI cards (see Figure 152).

**Figure 152**  
**FIJI shelf 0 to FIJI shelf 1 connections (Option 81C example)**



- 2 Stat the Rings.  
**LD 39** to load the program  
**STAT RING 0** Ring state should be NORMAL STATE  
**STAT RING 1** Ring state should be NORMAL STATE  
**\*\*\*\*** to exit the program
  
- 3 Verify that Clock 1 is *active*. Switch clocks if necessary.  
**LD 60** to load the program  
**SSCK 0** to check if Clock 0 is active or standby  
**SWCK** to switch clocks if necessary  
**\*\*\*\*** to exit the program
  
- 4 Verify that all cables are labeled and in place. Failure to pre-route cables will result in increased downtime and possible system failure. See "Pre-route the FIJI cables" on page 599 if the cables are not already routed.
  
- 5 Break Ring 0 by removing the cable from the current highest Network Group P1 to Group P2. The Rings will switch to SURVIVAL STATE once the Ring is broken.
  
- 6 Attach the new Ring 0 cables in the correct configuration.
  
- 7 Make Clock 0 active.  
**LD 60** to load the program  
**SSCK 0** to check if Clock 1 is active or standby  
**SWCK** to switch to clock 0  
**\*\*\*\*** to exit the program
  
- 8 Break Ring 1 by removing the cable from Group 0 P1 to the current highest Network Group P2.
  
- 9 Attach the new Shelf 1 Fiber Ring cables in the correct configuration.

- 10** Verify that the Rings are in Survival State and FIJI cards are enabled:
- |                    |                               |
|--------------------|-------------------------------|
| <b>LD 39</b>       | to load the program           |
| <b>STAT RING 0</b> | to check the status of Ring 0 |
| <b>STAT RING 1</b> | to check the status of Ring 1 |

**Note:** The readout will specify the state of the Rings and which FIJI cards are enabled or disabled.

- 11** Reset the Rings:
- |              |                      |
|--------------|----------------------|
| <b>LD 39</b> | to load the program  |
| <b>RSET</b>  | to reset the Rings   |
| <b>RSTR</b>  | to restore the Rings |

- 12** Check that the Rings operate correctly:
- |                    |                               |
|--------------------|-------------------------------|
| <b>LD 39</b>       | to load the program           |
| <b>STAT RING 0</b> | to check the status of Ring 0 |
| <b>STAT RING 1</b> | to check the status of Ring 1 |

**Note 1:** Each Ring should now be in one of three States: None, Full or Half. The Rings should NOT be in Survival state.

**Note 2:** All FIJI cards should be enabled.

- 13** Enable the Per Sig card:
- |                      |                                          |
|----------------------|------------------------------------------|
| <b>LD 32</b>         | to load the program                      |
| <b>ENPS x (slot)</b> | to enable the Peripheral Signalling card |
| <b>****</b>          | to exit the program                      |

For example:

- |                |                             |
|----------------|-----------------------------|
| <b>ENPS 12</b> | to enable slot 12 (Group 6) |
| <b>ENPS 13</b> | to enable slot 13 (Group 6) |

See Table 2, "Option 81 CNI group assignments," on page 597 or Table 3, "Option 81C CNI group assignments," on page 598 for slot and Group assignments.

14 Plug in the Conf/TDS cards. Push the latches forward to lock the card in place.

15 Faceplate enable the Conf/TDS cards.

16 Enable the Conf/TDS cards:

**LD 34** to load the program

**ENLX x** (loop) to enable the Conf/TDS card

**\*\*\*\*** to exit the program

17 Add additional Network cards as required.

**The upgrade procedure is complete.** The FIJI Ring States should be in Half mode. Verify that phone calls can be made in the new group.

---

## Appendix A: CP PII System Messages

---

### BUG

|         |                                                                     |
|---------|---------------------------------------------------------------------|
| BUG2012 | LCS: send failed in gswo command from overlay 135.                  |
| BUG2013 | LCS: cmQSend( ) error.                                              |
| BUG2026 | LCS: lcsRecovery( ) error.                                          |
| BUG2027 | LCS: lcsTaskInit( ) error.                                          |
| BUG2028 | LCS: cmQReceiveTO( ) error.                                         |
| BUG2041 | LCS: checkpoint mgr sending failed.                                 |
| BUG2042 | LCS: disk redundancy sending failed.                                |
| BUG2043 | switchover mg sending failed.                                       |
| BUG2059 | CPM: CPM completed protected memory sync.                           |
| BUG2077 | HIRM: Failed to send unProtected data form inactive to active side. |
| BUG2275 | HB: message Q create failed.                                        |
| BUG2276 | HB: CM register failed.                                             |
| BUG2277 | HB: Time out mesg send failed.                                      |
| BUG2278 | HB: time create failed.                                             |
| BUG2279 | HB: timer connect failed.                                           |
| BUG2280 | HB: message receive error.                                          |
| BUG2281 | HB: FSM failed.                                                     |

BUG2282 HB: secondary sending failed.

BUG2283 HB: primary sending failed.

BUG2284 HB: local sending failed.

BUG2285 HB: remote side health change: %D.

BUG2286 HB: receives an unexpected msg, type = %d, state = %d, channel = %d.

BUG2287 HB: set timer error.

BUG2288 HB: HSP is DOWN.

BUG2289 HB: HSP is UP.

BUG2290 HB: HBWaitEtherRep - HB threshold exceeded.

BUG2291 HB: is in an invalid state.

BUG2292 HB: ask start failed.

BUG2293 HB: Can't register pre switchover function.

BUG2294 HB: cmQDelete Error.

BUG2295 HB: The /U DISK have INCONSISTENT IMAGE, TRY TO DELAY UNGSWO BY %D CYCLE.

BUG2352 IPM: Can't assign IP mask to fei1.

BUG2353 IPM: Can't assign IP to fei1.

BUG2361 TIMESYNCCCLIENT: create FAILED.

BUG2362 TIMESYNCCCLIENT: unknown host %s.

BUG2363 TIMESYNCCCLIENT: could not open socket.

BUG2364 TIMESYNCCCLIENT: bind failed.

BUG2365 TIMESYNCCCLIENT: Can't send message to %s:%d.

BUG2366 TIMESYNCCCLIENT: Error in receiving message.

BUG2367 TIMESYNCCCLIENT: Invalid message from %s:%d.

|         |                                                                           |
|---------|---------------------------------------------------------------------------|
| BUG2368 | timeSyncInit: Error in creating msg queue.                                |
| BUG2369 | timeSyncInit: wdCreate FAILED.                                            |
| BUG2370 | timeSyncRollCall: mesg Queue sending error.                               |
| BUG2371 | timeSyncUpdateReqTask: error in receiving message.                        |
| BUG2372 | timeSyncServer: bind failed.                                              |
| BUG2373 | timeSyncServer: error in receiving message.                               |
| BUG2374 | timeSyncServer: can't send message to %s:%d.                              |
| BUG2375 | timeSyncServer: Invalid request receiving from %s:%d.                     |
| BUG2376 | timeSyncUpdateReqTask: could not open socket.                             |
| BUG2377 | timeSyncUpdateReqTask: bind failed.                                       |
| BUG2378 | timeSyncUpdateReqTask: mesg queue can't receive mesg.                     |
| BUG2379 | timeSyncUpdateReqTask: can't send message to %s:%d.                       |
| BUG2380 | timeSyncUpdateReqTask: unknown mesg retrieved from mesg queue.            |
| BUG2381 | timeSyncInsertBspInetAddr: too many bsp's registered with timeSyncServer. |
| BUG2385 | VOTE: voteSend - vote message send failed.                                |
| BUG2386 | VOTE: voteTaskInit - vote message Q create fail.                          |
| BUG2387 | VOTE: voteTaskInit - CM registration failed.                              |
| BUG2388 | VOTE: voteRun - timer create failed.                                      |
| BUG2389 | VOTE: voteRun - timer connect failed.                                     |
| BUG2390 | VOTE: voteRun - message Q receive error.                                  |
| BUG2391 | VOTE: voteSendMsg - Sending to LCS Failed.                                |
| BUG2392 | VOTE: voteSendMsg - Sending to remote Vote Mgr via HSP failed.            |
| BUG2393 | VOTE: voteSendMsg - cmSendarySend failed.                                 |
| BUG2394 | VOTE: receives an unexpected msg, type = %d, state = %d.                  |

BUG2395 VOTE: voteFSM - set timer failed.

BUG2396 VOTE: voteFSM - cancel timer error.

BUG2397 VOTE: vote is in an invalid state %d.

BUG2398 VOTE: vote task start failed.

BUG2480 Disk Partition: tried to pmlnit ( ) with an invalid drive number.

BUG2481 Disk Partition: could not create the ide device.

BUG2482 Disk Partition: only found %d partitions on hard disk.

BUG2483 Disk Partition: could not create hard disk device %s.

BUG2484 Disk Partition: could not initialize hard disk partition %s.

BUG2485 Disk Partition: error initializing partitions.

BUG2486 Disk Partition: all partitions successfully initialized.

BUG2487 Disk Partition: did not find any partitions on disk.

BUG2488 Disk Partition: received an invalid IDE drive to attach.

BUG2489 Disk Partition: received an invalid partition number to attach.

BUG2491 Disk Partition: format request received.

BUG2492 Disk Partition: format requested on invalid drive number.

BUG2493 Disk Partition: could not fill out format config information.

BUG2494 Disk Partition: unable to format partition %s.

BUG2495 Disk Partition: unable to find the active partition.

BUG2496 Disk Partition: could not attach device to DOS for formatting.

BUG2497 Disk Partition: unable to open partition %s for formatting.

BUG2498 Disk Partition: unable to format partition %s.

BUG2499 Disk Redundancy: pmlnit ( ) failed.

BUG2500 Disk Redundancy: drSmallInit ( ) failed.

|          |                                                                                   |
|----------|-----------------------------------------------------------------------------------|
| BUG2501  | Disk Redundancy: psinit ( ) failed.                                               |
| BUG2502  | Disk Redundancy: errors found and fixed during check disk.                        |
| BUG2503  | Disk Redundancy: partition selector could not find device matching one requested. |
| BUG2504  | Disk Redundancy: couldn't mount partition %s.                                     |
| BUG2505  | Disk Redundancy: asked to create a NULL dr device.                                |
| BUG2506  | Disk Redundancy: not enough memory for redundant device.                          |
| BUG2507  | Disk Redundancy: not enough memory for ps device.                                 |
| BUG2508  | Disk Redundancy: could not install Partition Selector driver.                     |
| BUG2509  | Disk Redundancy: could not add PS device %s.                                      |
| BUG2510  | Disk Redundancy: asked to send a NULL message.                                    |
| BUG2511  | Disk Redundancy: sending to LCS failed.                                           |
| BUG2512  | Disk Redundancy: sending to other disk redundancy failed.                         |
| BUG2513  | Disk Redundancy: asked to send to unknown destination.                            |
| BUG2514  | Disk Redundancy: got an invalid device during drBigInit.                          |
| BUG2515  | Disk Redundancy: could not create semaphore.                                      |
| BUG2516  | Disk Redundancy: could not spawn task tDiskRed.                                   |
| BUG2517  | Disk Redundancy: tried to take recovery action and failed.                        |
| BUG2518  | Disk Redundancy: read invalid message from drQ.                                   |
| BUG2519  | Disk Redundancy: failed to delete drQ during recovery action.                     |
| BUG2520  | Disk Redundancy: failed to create drQ during recovery action.                     |
| BUG2521  | Disk Redundancy: failed to create drQ during drTaskInit ( ).                      |
| BUG2522  | Disk Redundancy: could not register with CM.                                      |
| BUG 2523 | Disk Redundancy: could not create drMsg semaphore.                                |
| BUG2524  | Disk Redundancy: could not create dr Msg semaphore.                               |

|         |                                                                                                    |
|---------|----------------------------------------------------------------------------------------------------|
| BUG2525 | Disk Redundancy: failed to delete drMsgQ during recovery.                                          |
| BUG2526 | Disk Redundancy: failed to create drMsgQ during recovery.                                          |
| BUG2527 | Disk Redundancy: received message with invalid option.                                             |
| BUG2528 | Disk Redundancy: Master received Start Sync, will go to Slave.                                     |
| BUG2529 | Disk Redundancy: Master is starting disk sync.                                                     |
| BUG2552 | LCS: Protected memory and disk synchronization complete.                                           |
| BUG2553 | LCS: Join denied. Incompatible software releases. Both sides must have the same release installed. |
| BUG2554 | LCS: MY DISK IS IN INCONSISTENT STATE, I temporarily SET DISK STATE TO SPLIT.                      |
| BUG2555 | LCS: Can not Join NOW, The ACTIVE U DISK has BAD IMAGE, try CUTOVR first.                          |
| BUG2570 | Disk Redundancy: Master asked to stop disk sync.                                                   |
| BUG2571 | Disk Redundancy: Master asked to stop updates and flush file system.                               |
| BUG2572 | Disk Redundancy: Master unable to flush file system.                                               |
| BUG2573 | Disk Redundancy: Master asked to stop updates.                                                     |
| BUG2574 | Disk Redundancy: Disk sync completed.                                                              |
| BUG2575 | Disk Redundancy: Slave received sync block out of range.                                           |
| BUG2576 | Disk Redundancy: Slave received too few sync blocks.                                               |
| BUG2577 | Disk Redundancy: received unknown message.                                                         |
| BUG2578 | Disk Redundancy: sync Queue has overflowed.                                                        |
| BUG2579 | Disk Redundancy: error sending to disk message queue.                                              |
| BUG2580 | Disk Redundancy: problem flushing file system during disk sync.                                    |
| BUG2581 | Disk Redundancy: requested to stop disk sync during disk sync.                                     |
| BUG2582 | Disk Redundancy: disk sync did not complete.                                                       |

|         |                                                                                                       |
|---------|-------------------------------------------------------------------------------------------------------|
| BUG2583 | Disk Redundancy: error sending message during disk sync.                                              |
| BUG2584 | Disk Redundancy: problem spawning disk sync.                                                          |
| BUG2585 | Disk Redundancy: Disk sync %d%% complete.                                                             |
| BUG2586 | Disk Redundancy: disk sync not allowed because of mismatching disks.                                  |
| BUG2587 | Disk Redundancy: Disk_sync flag turns on!                                                             |
| BUG2588 | Disk Redundancy: Can not create flag for disk sync!                                                   |
| BUG2589 | Disk Redundancy: Disk_sync flag is turned off!                                                        |
| BUG2590 | Disk Redundancy: Fail to remove inactive.dr after disk-sync done, please remove inactive.dr manually! |
| BUG6361 | taskSpawn failed.                                                                                     |

## **CIOD**

|          |                                          |
|----------|------------------------------------------|
| CIOD0209 | Mismatch between CP/x Card and software. |
|----------|------------------------------------------|

## **CNI**

|         |                                                |
|---------|------------------------------------------------|
| CNI0201 | CNI x y : Watchdog timeout detected count = n. |
|---------|------------------------------------------------|

## **HWI**

|         |                                              |
|---------|----------------------------------------------|
| HWI0820 | SUIO: IN_TEST_MODE OOS reason set.           |
| HWI0821 | SUIO: siop2691 just went *Out-Of-Service*    |
| HWI0822 | SUIO: Craftsperson DIS OOS reason set.       |
| HWI0823 | SUIO: siop2691 just went *In Service*.       |
| HWI0824 | SUIO: NO_HW_ACCESS OOS reason cleared.       |
| HWI0825 | SUIO: HI_OOSR_BAD_PORT OOS reason cleared.   |
| HWI0826 | SUIO: HI_OOSR_BAD_DONGLE OOS reason cleared. |

HWI0827 SUIO: NOT\_SW\_CONFIGURED OOS reason cleared.  
HWI0828 SUIO: IN\_TEST\_MODE OOS reason cleared.  
HWI0829 SUIO: All OOS rsns cleared due to Craftsperson ENL.  
HWI0830 SUIO: Can't config serial port.  
HWI0831 SUIO: SUTL\_CARD\_PLX chip is NOT CONFIG'D.  
HWI0832 SUIO: NO\_HW\_ACCESS OOS reason set.  
HWI0833 SUIO: HI\_OOSR\_BAD\_PORT OOS reason set.  
HWI0834 SUIO: HI\_OOSR\_BAD\_DONGLE OOS reason set.  
HWI0835 SUIO: NOT\_SW\_CONFIGURED OOS reason set.  
HWI0922 IPB: The given slot x is not within IPB's slot boundary.  
HWI0923 IPB: Failed to program the pci Router due to invalid IRQ number x.

## SRPT

SRPT0728 "ROM PS x: Loading ""diskos"" from /flash/flashos".  
SRPT0760 SWD: Swd watchdog timer expired on task {name}.  
SRPT0790 RST x: SL-1 requested warm start - INIT reason {x}.  
SRPT4591 PDT password reset successful.  
SRPT4592 PDT password reset attempt failed.  
SRPT4595 Failed to read IOP Card ID on Core Side x.  
SRPT4596 IOP cards are not identical.  
SRPT4597 KC: failed to retrieve data from keycode file: {file name}.  
SRPT4598 "KC mismatch: System ID in keycode " "n" " and in direct.rec".  
SRPT4599 "KC x: " "n" " does not match the direct record. Keycode value = x,  
direct.rec value = y".  
SRPT4600 KC x: Keycode Error Code: n.



SRPT4625      Keycode file type of x is not supported. Check that correct keycode is used.

SRPT4626      Can't read keycode file {file name} - insufficient buffer.

SRPT4627      IO problem for Keycode x. Check that correct keycode is used.

SRPT4628      Keycode file {file name} has wrong format. Check that correct keycode is used.

SRPT4629      Keycode file {file name} is not found. Check that correct keycode is used.

SRPT4630      CRC problem for Keycode x. Check that correct keycode is used.



Meridian 1

## **Call Processor PII/Fiber**

### **Network Guide**

#### **System and Software Upgrade Guide**

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Publication number: P0914248

Document release: Standard 2.00

Date: June 2000

Printed in Canada



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