Nortel Communication Server 1000
Nortel Communication Server 1000 Release 7.0

Communication Server 1000M and Meridian 1

81C IGS to CS 1000M MG CP PIV FNF Upgrade

Document Number: NN43021-471
Document Release: Standard 04.02
Date: June 2010

Contents

New in this release

This chapter contains information about Nortel Communication Server 1000 Release 7.0 new features.

Hardware

Common Processor Dual Core (CP DC) card

The Common Processor Dual Core (CP DC) card is introduced in CS 1000 Release 7.0.

The CS 1000M system supports the NTDW54AAE6 double slot metal faceplate CP DC card as a stand-alone Signaling Server platform.

The CP DC card contains a dual core AMD processor and upgraded components which can provide improvements in processing power and speed over existing Server cards.

The CP DC card requires the Linux Base Operating System. The CP DC card does not support the standard or high availability Call Server configuration.

Other

See the following sections for information about changes that are not feature-related:

Revision history

June 2010

Standard 04.02. This document is upissued to update the CS 1000M task flow graphic and to include CP PM version 2 content.

June 2010

Standard 04.01. This document is upissued to support Communication Server 1000 Release 7.0.

June 2009

Standard 03.03. This document is upissued to update the CP PM BIOS upgrade procedure.

May 2009

Standard 03.02. This document is upissued to include task flow graphics for Nortel Communication Server 1000 Release 6.0.

May 2009

Standard 03.01. This document is issued to support Nortel Communication Server 1000 Release 6.0.

November 2007

Standard 02.01. This document is issued to support Nortel Communication Server 1000 Release 5.5.

July 2007

Standard 01.02. This document is upissued with corrections for invoking the install menu during CP PIV and CP P4 upgrades.

May 2007

Standard 01.01. This document is up-issued for Communication Server 1000 Release 5.0.

May 2006

Standard 5.00. This document is upissued with corrections for installing clock controllers and keycode upgrade procedure for CP PIV.

January 2006

Standard 4.00. This document is upissued with corrections for various upgrade procedures.

August 2005

Standard 3.00. This document is upissued to support CP PIV and Communication Server 1000 Release 4.5.

September 2004

Standard 2.00. This document is upissued for Communication Server 1000 Release 4.0.

October 2003

Standard 1.00. This document is a new NTP for Succession 3.0. It was created to support a restructuring of the Documentation Library. This document contains information previously contained in the following legacy document, now retired: *Upgraded Systems Installation: Upgrade to Options 51C, 61C, 81C* (553-3001-258).

Finding the latest updates on the Nortel web site

The content of this documentation was current at the time the product was released. To check for updates to the latest documentation and software for CS 1000 Release 7.0, click one of the links below.

Latest Software	Go directly to the Nortel page for CS 1000 Release 7.0 software.
Latest Documentation	Go directly to the Nortel page for CS 1000 Release 7.0 documentation.

How to get help

This chapter explains how to get help for Nortel products and services.

Getting help from the Nortel Web site

The best way to get technical support for Nortel products is from the Nortel Technical Support Web site:

www.nortel.com/support

This site provides quick access to software, documentation, bulletins, and tools to address issues with Nortel products. More specifically, the site enables you to:

- download software, documentation, and product bulletins
- search the Technical Support Web site and the Nortel Knowledge Base for answers to technical issues
- sign up for automatic notification of new software and documentation for Nortel equipment
- open and manage technical support cases

Getting help over the telephone from a Nortel Solutions Center

If you don't find the information you require on the Nortel Technical Support Web site, and have a Nortel support contract, you can also get help over the phone from a Nortel Solutions Center.

In North America, call 1-800-4NORTEL (1-800-466-7835).

Outside North America, go to the following Web site to obtain the phone number for your region:

www.nortel.com/callus

Getting help from a specialist by using an Express Routing Code

To access some Nortel Technical Solutions Centers, you can use an Express Routing Code (ERC) to quickly route your call to a specialist in your Nortel product or service. To locate the ERC for your product or service, go to:

www.nortel.com/erc

Getting help through a Nortel distributor or reseller

If you purchased a service contract for your Nortel product from a distributor or authorized reseller, contact the technical support staff for that distributor or reseller.

System information

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

Subject

Use this document to perform upgrades on Meridian 1 Large Systems. This document also contains information about database transfers, Call Processor card upgrades, and network group upgrades.

This document also contains information about converting Release 3.0 or later software to CS 1000 Release 7.0 on Meridian 1 Options 81C, CS 1000M SG and CS 1000M MG systems. For software conversion procedures prior to Release 3.0, see the *Software conversion procedures* (553-2001-320) NTP for software Release 24.

IMPORTANT!

Database conversion for Meridian 1 Options 21E, 51, 61, 71, STE, NT, and XT must be completed by Nortel's Software Conversion Lab. Consult the current Nortel price book for cost and contact information.

Note on legacy products and releases

This NTP contains information about systems, components, and features that are compatible with Nortel Communication Server 1000 Release 6.0 software. For more information about legacy products and releases, click the **Technical Documentation** link under **Support** on the Nortel home page:

www.nortel.com/

Applicable systems

This document applies to the following systems:

- Communication Server 1000M Single Group (CS 1000M SG)
- Communication Server 1000M Multi Group (CS 1000M MG)
- Meridian 1 PBX 61C
- Meridian 1 PBX 81C

  Note: When upgrading software, memory upgrades may be required on the Signaling Server, the Call Server, or both.

System migration

When particular Meridian 1 systems are upgraded to run CS 1000 Release 7.0 software and configured to include a Signaling Server, they become CS 1000M systems. Table 1 lists each Meridian 1 system that supports an upgrade path to a CS 1000M system.

Table 1
Meridian 1 systems to CS 1000M systems

This Meridian 1 system...	Maps to this CS 1000M system
Meridian 1 PBX 61C	CS 1000M Single Group
Meridian 1 PBX 81C	CS 1000M Multi Group

Signaling Server configuration

Meridian 1 Large Systems can be configured to run one or more Signaling Servers. The following Signaling Servers are supported in a Large System configuration for CS 1000 Release 7.0:

- CP PM Signaling Server
- Common Processor Dual Core (CP DC)
- Commercial off-the-shelf (COTS) Signaling Server

For more information, see “Installing a Signaling Server” on page 195.

Upgrade paths

This document contains information about the following Large System upgrades:

- Meridian 1 Options 81C, CS 1000M SG, and CS 1000M MG
- upgrades to FNF
- software upgrades
- network additions

The upgrades documented in this NTP are structured as source platform to target platform upgrades.

Intended audience

This document is intended for individuals responsible for upgrading Large Systems.

This document is intended for individuals responsible for software conversion and memory upgrades.

Conventions

Terminology

The following systems are referred to generically as “Large System”:

- Communication Server 1000M Half Group (CS 1000M HG)
- Communication Server 1000M Single Group (CS 1000M SG)
- Communication Server 1000M Multi Group (CS 1000M MG)
- Meridian 1 PBX 51C
- Meridian 1 PBX 61C
- Meridian 1 PBX 81C

The Common Processor Pentium Mobile, Common Processor Dual Core (CP DC), and Commercial off-the-Shelf (COTS) platforms are referred to as server.

NTP feedback

Nortel strives to provide accurate documentation for our customers. However, if you feel there are errors or omissions in this document, your feedback is welcome.

Send comments via email to gntsdoc@nortel.com or open a problem report via the normal procedures.

Please provide as much information as possible including the NTP number, standard version and date of the document, as well as the page, problem description, and any supporting documentation and capture files.

Related information

CAUTION — Data Loss

Only personnel who are familiar with the system and with conversion procedures should perform the conversion.

Read the applicable procedures carefully before beginning any the conversion.

Note: Converting software on single CPU systems disrupts call processing and allows service only to those telephones connected to Power Failure Transfer Units (PFTU).

CAUTION WITH ESDS DEVICES

To avoid damaging equipment from electrostatic discharge, wear a properly connected antistatic wrist strap when working on system equipment.

Perform pre-conversion and postconversion procedures for every system conversion.

Throughout this document the term *media* refers to tape, disk, CD-ROM or Compact Flash (CF), whichever applies to the system.

The term **source** refers to the hardware and software that is currently running. The term **target** refers to the new hardware and software to which the system is converting.

CAUTION — Data Loss

Read “General software conversion information” in *CS 1000M and Meridian 1 Large System Upgrades Overview* (NN43021-458) before performing any operations.

It contains information vital to the conversion process.

NTPs

The following NTPs are referenced in this document:

- *Product Compatibility* (NN43001-256)
- *Converging the Data Network with VoIP* (NN43001-260)
- *Circuit Card: Description and Installation* (NN43001-311)
- *Linux Platform Base and Applications Installation and Commissioning* (NN43001-315)
- *IP Peer Networking: Installation and Commissioning* (NN43001-313)
- *Features and Services* (NN43001-106)
- *Software Input/Output: Administration* (NN43001-611)
- *Element Manager: System Administration* (NN43001-632)
- *IP Trunk: Description, Installation, and Operation* (NN43001-563)
- *Signaling Server IP Line Applications Fundamentals* (NN43001-125)
- *ISDN Basic Rate Interface: Features* (NN43001-580)

- *Software Input/Output: Maintenance* (NN43001-711)
- *Communication Server 1000M and Meridian 1: Large System Planning and Engineering* (NN43021-220)
- *Communication Server 1000M and Meridian 1: Large System Installation and Commissioning* (NN43021-310)
- *Communication Server 1000M and Meridian 1: Large System Maintenance* (NN43021-700)
- *Communication Server 1000M and Meridian 1 Large System Upgrade NTPs* (NN43021-458 – NN43021-475)

Online

To access Nortel documentation online, click the **Technical Documentation** link under **Support** on the Nortel home page:

www.nortel.com

CD-ROM

To obtain Nortel documentation on CD-ROM, contact your Nortel customer representative.

Technical support

For technical support contact information, see “Technical Assistance service” on page 243.

Preparing and planning for the upgrade

Contents

This chapter contains the following topics:

Introduction

This document implements a “source- to-target” approach to performing an upgrade. It is important to correctly identify the source platform, target platform, and maintenance window required to perform the upgrade.

IMPORTANT!

This upgrade requires that the PC you are working from is equipped with a floppy disk drive and CF reader (or, if a CF reader is not available, a PCMCIA CF adaptor).

Each section features check boxes indicating what state the system should be in at that stage of the upgrade. If the system is not in the proper state steps should be taken to correct this.

Each section is written to maintain Dial Tone where possible and limit service interruptions.

Before attempting any software or hardware upgrade field personnel should follow the steps in Table 2:

Table 2
Prepare for upgrade steps

Planning

Planning for an upgrade involves the following tasks:

- Read and understand the current release Product Bulletin.
- Review the current release product bulletin related specifically to the software being upgraded.
- Conduct a site inspection to determine proper power and grounding.
- Review the site profile to determine proper foot space if adding new columns or modules.

  Note: For information about adding new network shelves, see *Communication Server 1000M and Meridian 1: Large System Installation and Commissioning* (NN43021-310).
- Ensure sufficient power for new columns/modules or applications.
- Identify all applications that are currently installed on the source platform.
- Identify and correct outstanding service problems.
- Verify the site log is updated with current trunking, call routing, application notes, and site contact information.
- Review all product bulletins and Nortel Alerts that impact the site.
- Determine if software can be converted on site or must be sent to Nortel.
- Prepare a contingency plan for backing out of the upgrade.

DANGER OF ELECTRIC SHOCK

In a DC-powered system, power to the column can remain on during the following procedures. In an AC-powered system, however, power to the entire column *must* be shut down throughout the procedures.

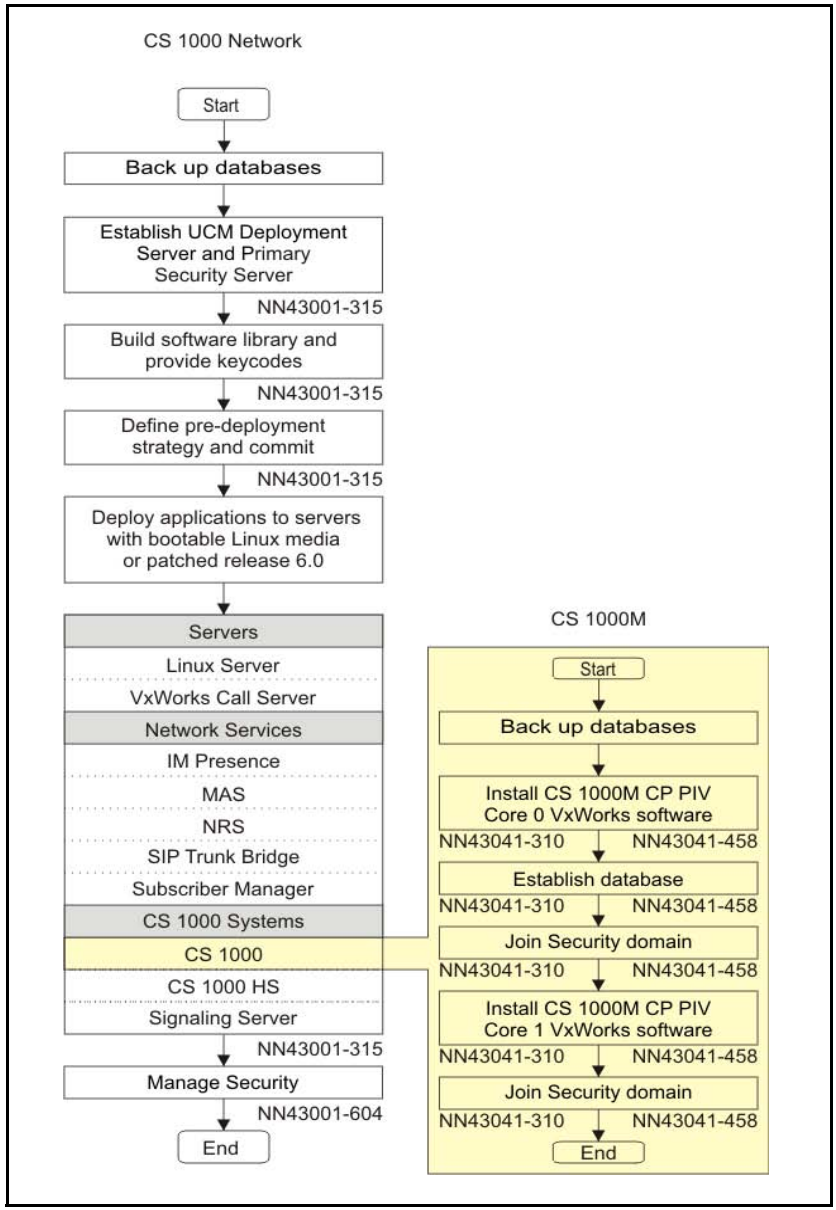
Communication Server 1000 task flow

This section provides a high-level task flow for the installation or upgrade of a CS 1000 system. The task flow indicates the recommended sequence of events to follow when configuring a system and provides the NTP number that contains the detailed procedures required for the task.

For more information refer to the following NTPs, which are referenced in Figure 1 on page 25:

- *Linux Platform Base and Applications Installation and Commissioning* (NN43001-321)
- *Communication Server 1000M and Meridian 1 Large System Installation and Commissioning* (NN43021-310)
- *CS 1000M and Meridian 1 Large System Upgrades Overview* (NN43021-458)

Figure 1
Communication Server 1000M task flow



Upgrade Checklists

Upgrade checklists can be found in "Upgrade checklists" on page 231. Engineers may print this section for reference during the upgrade.

Preparing

Preparing for an upgrade involves the following tasks:

- Identify and become familiar with all procedures.
- Verify that all installed applications meet the minimum software requirements for the target platform (see *Communication Server 1000M and Meridian 1: Large System Planning and Engineering* (NN43021-220)).
- Verify proper cable lengths for the target platform.
- Determine and note current patch or Dep lists installed at the source platform.
- Determine required patch or Dep lists at the target platform for all system-patchable components.
- Determine the required patches or DEP lists installed on applicable applications.
- Determine and communicate the required maintenance window, contingency plan and the impact to the customer to complete the procedure.
- Perform an inventory on required software and hardware.
- Secure the source software and key code.
- Secure the target software and key code.
- Verify the new key code using the DKA program.
- Print site data.

Identifying the proper procedure

Each procedure has been written in a "source- to-target" format. Each procedure features warning boxes and check boxes placed at critical points.

Changing the procedure or ignoring the warning boxes could cause longer service interruptions.

Connect a terminal

Procedure 1
Connecting a terminal

A maintenance terminal is required to access the Core or Core/Net modules during the upgrade procedure.

1. Connect a terminal to the J25 port on the I/0 panel in the *inactive* Core or Core/Net module.
2. The settings for the terminal are:
   a. 9600 baud
   b. 8 data
   c. parity none
   d. 1 stop bit
   e. full duplex
   f. XOFF
3. If only one terminal is used for both Core or Core/Net modules, the terminal must be connected 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.

End of Procedure

Printing site data

Print site data to preserve a record of the system configuration (see Table 3 on page 28). Verify that all information is correct. Make corrections as necessary.

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

Table 3
Print site data (Part 1 of 3)

Site data	Print command	
Terminal blocks for all TNs	LD 20	
	REQ	PRT
	TYPE	TNB
	CUST	<cr>
Directory Numbers	LD 20	
	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 3
Print site data (Part 2 of 3)

Site data	Print command	
*Software packages	LD 22	
	REQ	PRT
	TYPE	PKG
*Software issue and tape ID	LD 22	
	REQ	ISS
	REQ	TID
* Peripheral software versions	LD 22	
	REQ	PRT
	TYPE	PSWV
ACD data block for all customers	LD 23	
	REQ	PRT
	TYPE	ACD
	CUST	Customer Number
	ACDN	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	PRT
	TYPE	MISP
	LOOP	loop number (0-158)
	APPL	<cr>
	PH	<cr>
DTI/PRI data block for all customers	LD 73	
	REQ	PRT
	TYPE	DDB

Table 3
Print site data (Part 3 of 3)

Site data	Print command	
Print the configured host information	LD 117	PRT HOST (provides system IP addresses)
Superloops and XPEs	LD 97	
	REQ TYPE SUPL	CHG SUPL Vxxx V stands for a virtual superloop and xxx is the number of the virtual superloop. xxx = 0-252 in multiples of four for MG 1000E
Note: Items marked with asterisks (*) are required printout for conversion. Other items are recommended for a total system status.		

Performing 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.

CAUTION — Service Interruption

Loss of Data

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
```

Backing up the database (data dump and ABKO)

To back up system data, complete the following two procedures.

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

Procedure 2
Performing a data dump

1. Log into the system.
2. Load the Equipment Data Dump Program (LD 43). At the prompt, enter:

   LD 43 Load program

3 When “EDD000” appears on the terminal, enter:

EDD	Begin the data dump

CAUTION

Loss of Data

If the data dump does not succeed, do not continue. Contact your technical support organization. You must correct a data dump problem before the system can be upgraded.

4 The messages “DATADUMP COMPLETE” and “DATABASE BACKUP COMPLETE” will appear once the data dump is complete.

****	Exit program

End of Procedure

Procedure 3
Performing an ABKO (save the database to floppies)

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

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	Load program

3 Run the ABKO backup (LD 143).

ABKO	Run backup

Result: If the backup is successful, the system displays a message that states that the database backup is complete and generates a report that indicates which floppy drives were used.

4 If there are validation errors, repeat the procedure.

CAUTION

Loss of Data

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 PIV.

5 Once the backup is complete, type:

****	Exit program

IMPORTANT!

If the system is equipped with IOP/CMDU cards the database must be converted with the Database Transfer utility below.

If the system is equipped with IODUC cards, the database should be data dumped (EDD) to a blank 2 MB floppy.

All systems can be converted by Nortel in the software conversion lab.

Procedure 4
Converting the 4 MB database media to 2 MB database media

Before the system is upgraded to CP PIV, the database must reside on a 2 MByte floppy disk for conversion to CF. Systems with an IODU/C drive already have 2 MByte floppy drive and can skip this procedure.

If the database is on a 4 MByte floppy (the system has an IOP/CMDU), the 4 MByte customer database must be transferred to a 2 MByte floppy disk.

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/CMDU in Core 1.

3 Press the reset button (MAN RST) on the Call Processor card in Core 1 to reboot the system. Start the Database Transfer Utility Tool.

CAUTION — Service Interruption

Select only options:

- <t> Tools Menu from the Install menu, and
- <s> To archive 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>	Go to the Tools menu.
<s>	Archive existing database.
<cr> <a>	Continue with archive (insert blank 2 MByte diskette from the software kit into the floppy drive in Core 1).
<cr> <a>	Diskette is now in floppy drive in Core 1.

5 The message displays “Database backup complete!” and the Tool menu appears again after the backup completes correctly.

6 Remove the 2 MByte customer database diskette from the floppy drive of the IOP/CMDU. Do not reboot the system at this point.

End of Procedure

Making the RMD bootable

CAUTION — Data Loss

The PC utility used in the following procedure (mkbootrmd.exe) does not validate whether the drive letter entered is a valid RMD CF card. You must enter the correct RMD drive letter when prompted or risk formatting the incorrect drive.

Note: This utility is supported by all versions of Microsoft Windows.

The installation RMD CF card must come preformatted and bootable from Nortel. Consumer CF cards are not bootable by default and must be made bootable as outlined in Procedure 5 on page 35.

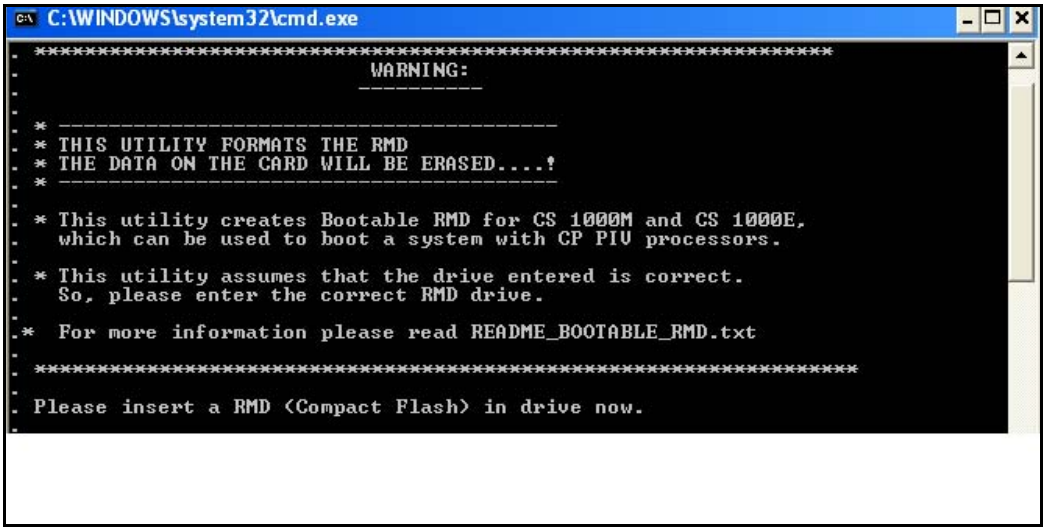
Procedure 5
Making the RMD bootable

1 After downloading the software image file, unzip it to a directory on your PC.

2 Open the utilities folder.

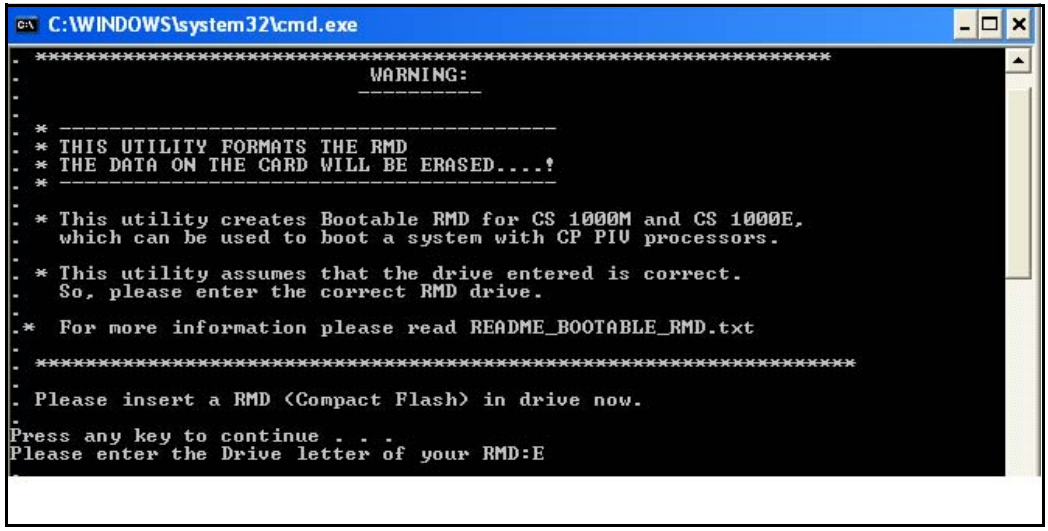
3 Double click the mkbootrmd.bat file. Insert a blank 512 MByte CF card (see Figure 2).

Figure 2
mkbootrmd.bat



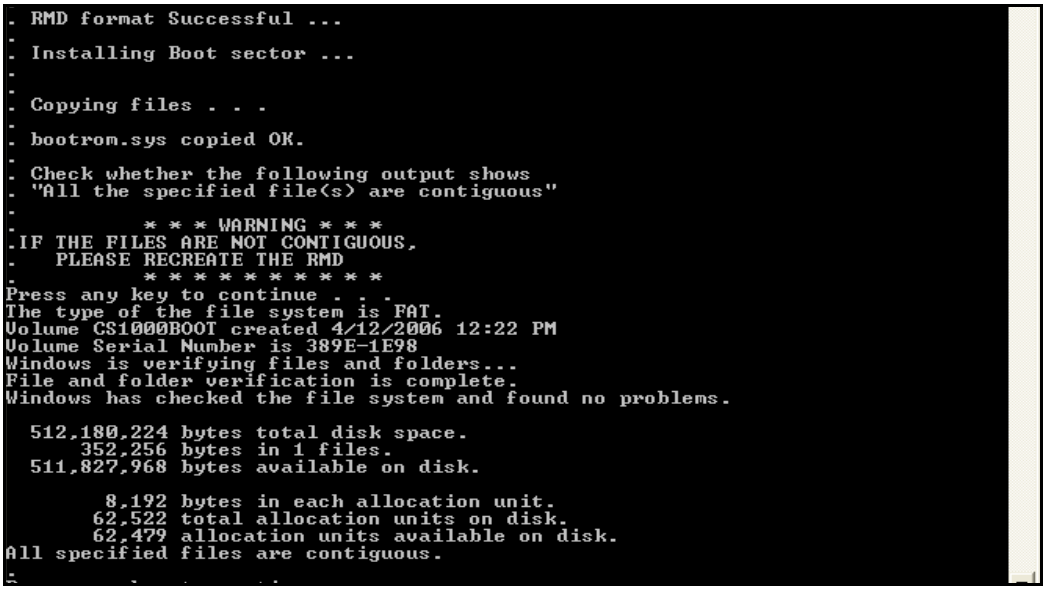
4 Enter the correct drive letter of the RMD (see Figure 3).

Figure 3
mkbootrmd.bat



5 The boot sector files (bootrom.sys and nvram.sys) are successfully copied making the CF card bootable (see Figure 4).

Figure 4
Boot sector successfully installed



End of Procedure

Transferring the database from floppy disk to CF (customer database media converter tool)

IMPORTANT!

This upgrade requires that the PC you are working from is equipped with a floppy disk drive and CF reader (or, if a CF reader is not available, a PCMCIA CF adaptor).

The floppy disk that contains the backed up customer database needs to be transferred to a CF card. This procedure converts the customer database from a 2 MByte floppy disk to CF card, which is restored during the CS 1000

Release 7.0 software upgrade later in this section. Nortel recommends using the extra CF card included with the Software Install Kit.

Procedure 6
Transferring the customer database from floppy disk to CF

This procedure requires that the PC you are working from is equipped with a floppy disk drive and CF reader (or, if a CF reader is not available, a PCMCIA CF adaptor).

1. Insert the floppy disk containing the backed up customer database from Procedure 2 on page 31.
2. Insert a CF card (there is one included in the Software Install Kit) into the CF reader or PCMCIA CF adapter.
3. Start the Database Media Converter utility. The first screen (Figure 5 on page 40) prompts you to select the correct drive letter for the floppy disk drive.

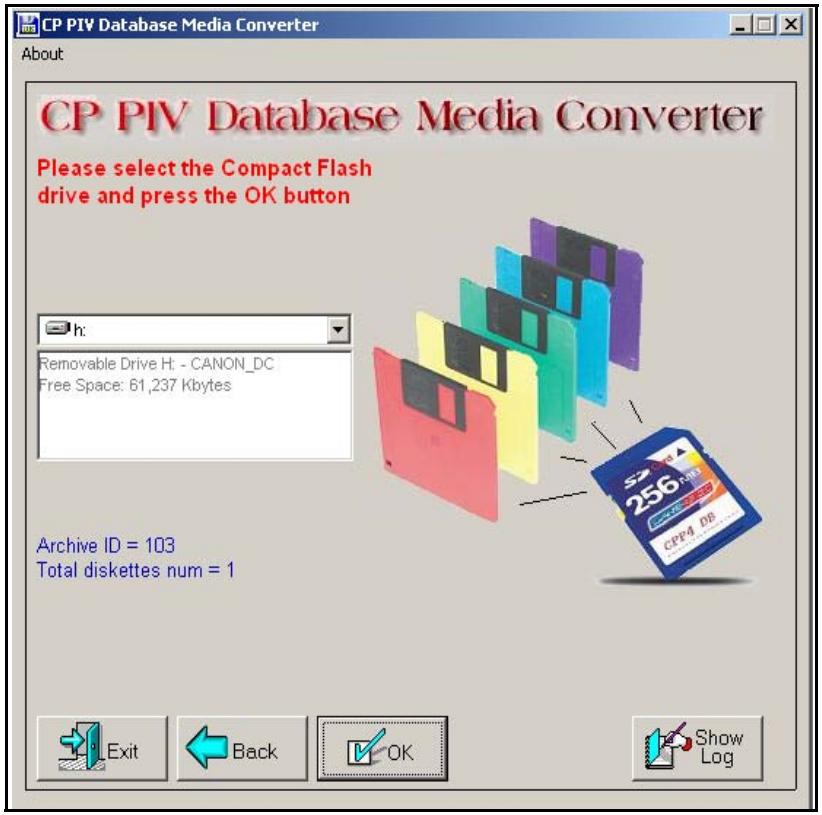
Figure 5
Select the floppy disk drive

4 The utility then prompts you to insert the floppy disk (diskette 1) and click OK (see Figure 6 on page 41).

Figure 6
Insert diskette 1

5 After verifying the database on the floppy disk, the utility prompts you to select the CF drive (see Figure 7 on page 42).

Figure 7
Select the CF drive

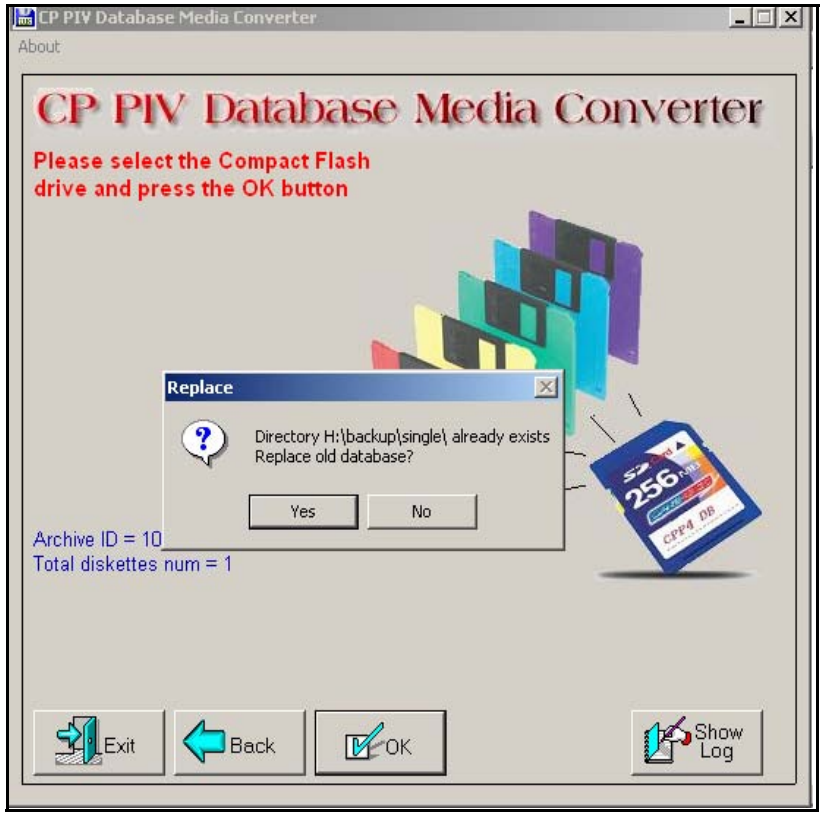


6 At this point, 2 options are available:

a. If the CF card already contains a previously backed-up database, a dialog box appears (see Figure 8 on page 43). Click yes to replace old database.

b. If the CF card is blank, the database is backed up to the CF card.

Figure 8
Replace database on CF drive



7 The utility completes the transfer to CF and prompts you to copy another or EXIT.

Figure 9
Copy another or exit

End of Procedure

Identifying two unique IP addresses

Each CP PIV system must be configured with two unique IP addresses for LAN identification and communication. One IP address 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 addresses before the upgrade.
- For instructions to configure these IP numbers, see “Configuring IP addresses” on page 113.

Checking requirements for CNI to 3PE cables (NTND14)

IMPORTANT!

When configuring NTND14 cables, observe the following rules:

- The shortest NTND14 Cable should always be used.
- A network group requires 4 NTND14 cables, 2 to each half group. Both cables to each half group must be the same length.
- A check should be made on the existing NTND14 cables. Replace any cables that do not meet the above requirement.

Note: The NTND14 BX 50' cables are manufacture discontinued.

Performing the upgrade

Contents

This chapter contains the following topics:

Introduction

The target upgrade to Meridian 1 Option 81C CP PIV with FNF must meet the requirements of Product Bulletins P2002-1658-NA, PAA-2003-0199-NA, and 2000-047 rev1. Highlights include:

- PB requires NTRB53AA Clock Controller
- NT5D12AC, AD, and AG (1.54MB) support

- NT5D97AB, AD (2.0 MByte) support
- Both NTRC46 cables must be the same length

IMPORTANT!

The shortest Fiber Cable must always be used.

The cables from group 0 to group 1 must always be the same length as the cables from the last group back to group 0.

The distance between the lengths of each fiber ring from group 0 to any other group must not exceed 50'. Rings are directional. Ring 0 is ascending and ring 1 is descending.

Note: When adding an additional network group, fiber cables must be changed to adhere to the rules above.

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- The shortest NTND14 Cable should always be used.
- A network group requires 4 NTND14 cables, 2 to each half group. Both cables to each half group must be the same length.
- A check should be made on the existing NTND14 cables. Replace any cables that do not meet the above requirement.

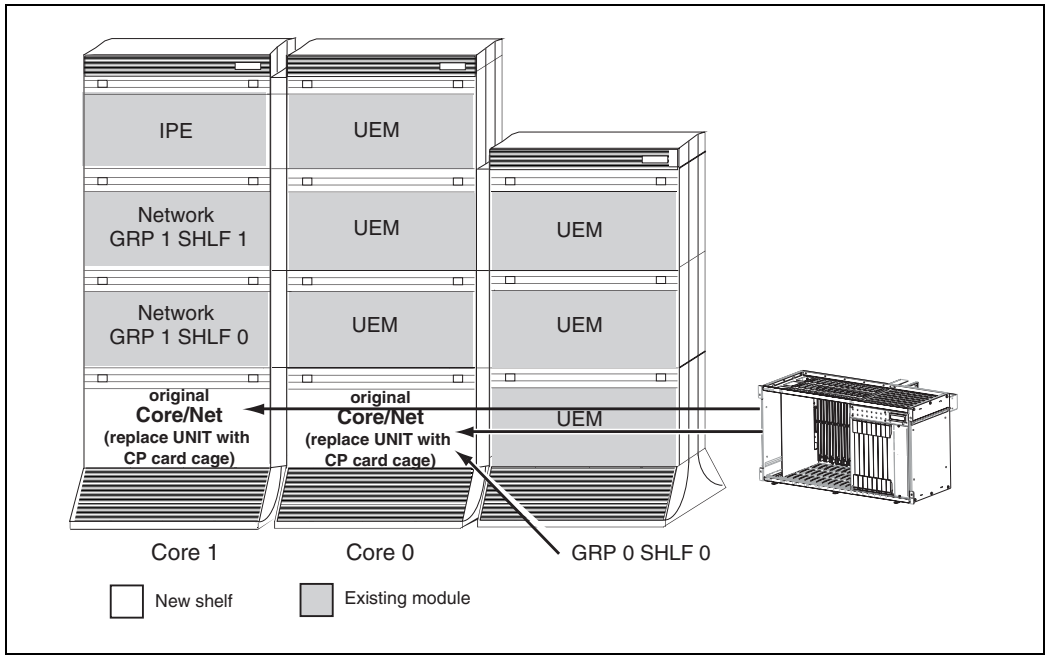
Note: The NTND14 BX 50' cables are manufacture discontinued.

DANGER OF ELECTRIC SHOCK

In a DC-powered system, power to the column can remain on during the following procedures. In an AC-powered system, however, power to the entire column *must* be shut down throughout the procedures.

Figure 10 shows an upgrade from a Meridian 1 Option 81C/IGS to a Meridian 1 Option 81C with CP PIV and Fiber Network Fabric.

Figure 10
Meridian 1 Option 81C/IGS to Meridian 1 Option 81C CP PIV with FNF

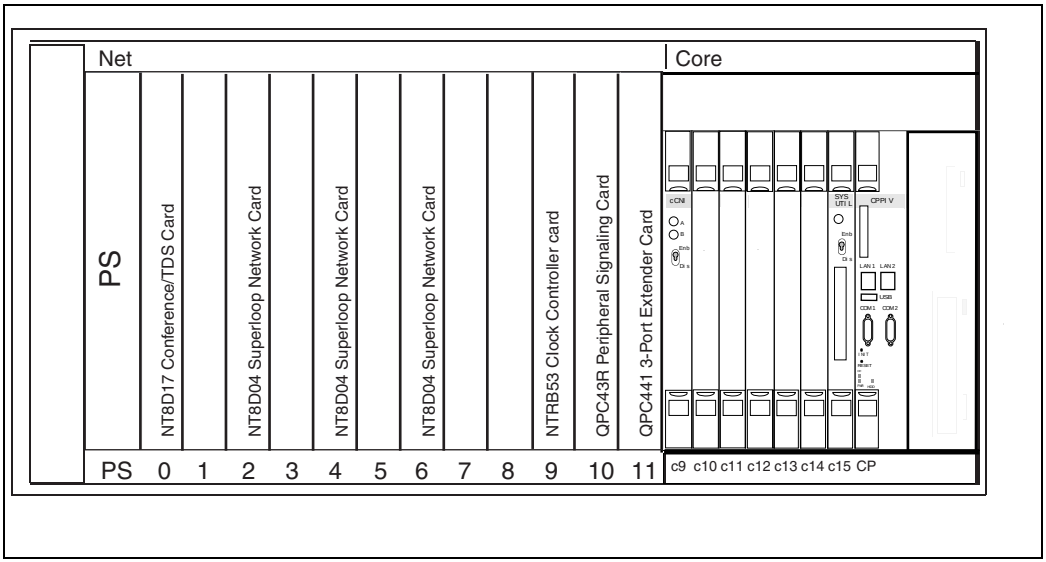


This upgrade takes a Meridian 1 Option 81C/IGS to a Meridian 1 Option 81C CP PIV with FNF. Additional groups can be added by following the Adding a Network Group procedures in *CS 1000M and Meridian 1 Large System Upgrades Overview* (NN43021-458).

To upgrade a Meridian 1 Option 81C/IGS system to a Meridian 1 Option 81C CP PIV with Fiber Network Fabric:

- Two card cages in the existing Core/Net modules are replaced with two NT4N40 CP card cages.
- New CP PIV cards are located in the Core/Net modules or card cage.
- Existing network cards are relocated to the CP card cages.
- Clock Controller cards must be NTRB53AA.
- NTRB33 Fiber Junctor Interface (FIJI) card and the NTRE39 Optical Cable Management Card (OCMC) are added for FNF.

Figure 11
CP Core/Net Module



Reviewing upgrade requirements

Upgrading to CS 1000M

The upgrade to CS 1000M (installing a Signaling Server) occurs after completing the procedures in this section. See Appendix : “Installing a Signaling Server” on page 195.

Checking software requirements

The following software packages are required to upgrade a system to Meridian 1 Option 81C with CP PIV:

- CORENET Core Network Module Package 299
- CPP_CNI CP Pentium Backplane for Intel Machine Package 368
- FIBN Fiber Network Package 365
- Compact Flash Software Install Kit, containing the following items:
  - One CF (512 MByte) card containing:
    - Install Software files
    - CS 1000 Release 7.0 software
    - Dep. Lists (PEPs)
    - Key code File
  - One blank CF card for database backup
- One Nortel CS 1000 Release 7.0 Documentation CD

Check equipment received

This section describes the **minimum** equipment required for CP PIV with FNF. Additional equipment can also be installed during the upgrade. Verify that *all* equipment has been 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

Service Interruption

DO NOT proceed with the upgrade if any of the required equipment is missing. All equipment must be received to complete the upgrade.

Check vintage requirements for existing hardware

Make sure that existing hardware meets the following minimum vintage requirements for CP PIV:

- The NT4N65AC cCNI card must be minimum vintage of AC
- The NT4N48 System Utility card must be minimum vintage AA
- The QPC441 3-Port Extender (3PE) cards must be minimum vintage F.
- The NTRB53 Clock Controller cards must be minimum vintage AA.
- The existing QPC471 Clock Controller cards must be minimum vintage H or the QPC775 Clock Controller cards (all countries except USA) must be minimum vintage E.
- NT6D41CA (DC) Power Supply
- NT8D29BA (AC) Power Supply
- The QPC43 Peripheral Signaling cards must be minimum vintage R.

If any of the equipment listed does not meet the requirements, replace the equipment before you begin the upgrade.

CAUTION

Service Interruption

Equipment that does not meet the minimum vintage requirements will cause system malfunctions and loss of call processing.

Table 4 describes the *minimum* equipment required to upgrade a system to CP PIV. Table 5 on page 55 and Table 6 on page 56 list the DC and AC power equipment requirements. Additional equipment for increased Network capacity is ordered separately.

Table 4
Minimum requirements for Meridian 1 Option 81C CP PIV with FNF systems (Part 1 of 3)

Order number	Description	Quantity per system
NT4N39	CP PIV Call Processor Card (512 MByte memory)	2
N0026096	MMDU replacement faceplate	2
NT4N40AA	CP Core/Network Card Cage AC/DC	2
NT4N65AC	CP Core Network Interface Card (2 ports)	2
NT4N48	CP System Utility Card	2
NT4N88AA	CP to I/O Panel DTE Cable (48 in.)	2
NT4N88BA	CP to I/O Panel DCE Cable (48 in.)	2
NT4N90BA	CP to I/O Panel Ethernet Cable (48 in.)	2
*NT8D01	Controller - Four Card	1
*NT8D04	Superloop Network Card	
*NT8D17FA	Conference/TDS Card for North America	
*NT8D17GA	Conference/TDS Card for Italy	

Table 4
Minimum requirements for Meridian 1 Option 81C CP PIV with FNF systems (Part 2 of 3)

Order number	Description	Quantity per system
*NT8D17HA	Conference/TDS Card for Europe	
*NT8D17HB	Global Conference/TDS Card	
*NT8D22AC	System Monitor	
*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
*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)	
*NT8D99AD	CPU to Network Cable (6 ft)	2
*NTRA07AA	Conference/TDS Card for China	
NTRB33AD/ NTRB33BBE5	Fiber Junctor Interface (FIJI) Card	Determined by system configuration
NTRC17BA	CP Ethernet to Ethernet Cable (8.5 ft)	2
NTRC46BB	Clock - FIJI Cable (1.7M - 2.4M (5.5 ft - 8 ft))	2
NTRC47AA	FIJI - FIJI Sync Cable	Determined by system configuration
NTRC48XX	FIJI Fiber Ring Cable (2M (6 ft.))	Determined by system configuration

Table 4
Minimum requirements for Meridian 1 Option 81C CP PIV with FNF systems (Part 3 of 3)

Order number	Description	Quantity per system
NTRC49AA	Clock - Clock Sync Cable	1
NTRE39AA	Optical Cable Management Card (OCMC)	Determined by system configuration
NTRE40AA	Dual Ethernet Adapter (RJ-45) for I/O Panel	2
*P0745716	Rear I/O Panel	2
P0605337	CP Card Slot Filler Panel	Determined by system configuration
Note: *As specified for the country or customer supplied from existing system.		

Check required power equipment

Table 5 lists the equipment required for DC-powered systems. Table 6 lists the equipment required for AC-powered systems.

Table 5
DC power requirements for Meridian 1 Option 81C CP PIV with FNF upgrades

Order number	Description	Quantity per system
NT6D41CA	Core/Network Power Supply DC	2
NTHU50DA	CP PIV Upgrade Kit DC (Misc. Card Cage Components)	2

Table 6
AC power requirements for Meridian 1 Option 81C CP PIV with FNF upgrades

Order number	Description	Quantity per system
NT8D29BA	Core/Network Power Supply AC	2
NTHU50AA	CP PIV Upgrade Kit AC (Misc. Card Cage Components)	2

Check required tools

Table 7 lists the tools required to upgrade a Nortel system. Special tools required in a procedure are listed with that procedure.

Table 7
List of recommended tools (Part 1 of 2)

- Digital Multimeter (DMM)
- Pliers, needle-nose
- Pliers, standard
- Screwdriver, 3/16” flat blade
- Screwdriver, #2 Phillips
- Wire cutters
- Electrical insulation tape
- 5/16” socket wrench
- Electric drill and drill bits
- Hammer and sheet metal center punch
- 1/4” socket wrench
- 3/8” socket wrench
- 1/4” nut driver
- 7/16” socket driver

Table 7
List of recommended tools (Part 2 of 2)

— 11/32 Deep Socket — Flashlight

Check personnel requirements

Nortel recommends that a minimum of two people perform the card cage upgrade.

Upgrading Core 1

Procedure 7
Checking main Core card installation

The main Core cards are installed in the factory as shown in Figure 12 on page 59:

1 NT4N65AC CP Core Network Interface (cCNI) cards:
Each system contains 1-4 NT4N65AC cCNI card per Core/Net module. The cCNI cards are located in slot c9-c12. If not already installed, install a P0605337 CP Card Slot Filler Panel to cover slots which do not contain cCNIs.

Note: In the NT4N40 Core/Net card cage, port 0 on the NT4N65AC Core to Network Interface (cCNI) Card in slot c9 must be configured as “group 0.” Port 1 on this card must be configured as group 1. The cCNI and 3PE cards for group 0 communicate through the NT4N29 cables. The cCNi to 3PE cables for groups 1 to 7 communicate through the NTND14 cables.

2 Slots c13 and c14 are left empty. If not already installed, install a P0605337 CP Card Slot Filler Panel in each slot.

3 NT4N48 System Utility (Sys Util) card is located in slot c15.

a. Check side ID switch settings for SU card in Core/Net 1 according to Table 8.

Table 8
Core module ID switch settings (System Utility card)

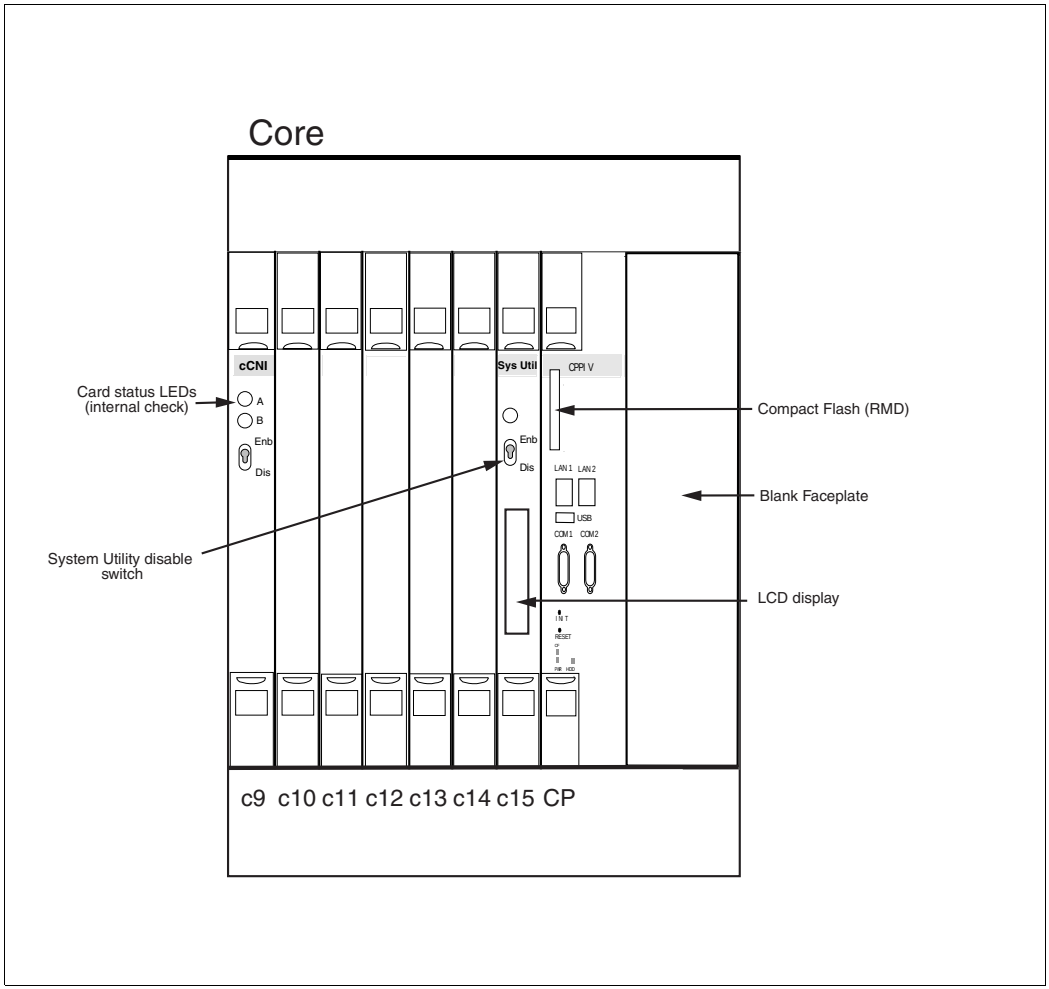
	Position 1	**Position 2**
Core/Net 0	On	On
Core/Net 1	Off	On

4 NT4N39 CP PIV is located in the Call Processor slot.

5 The N0026096 MMDU faceplate is located in the extreme right-hand slot next to the CP PIV card.

End of Procedure

Figure 12
Core card placement in the NT4N41 Core/Net Module (front)



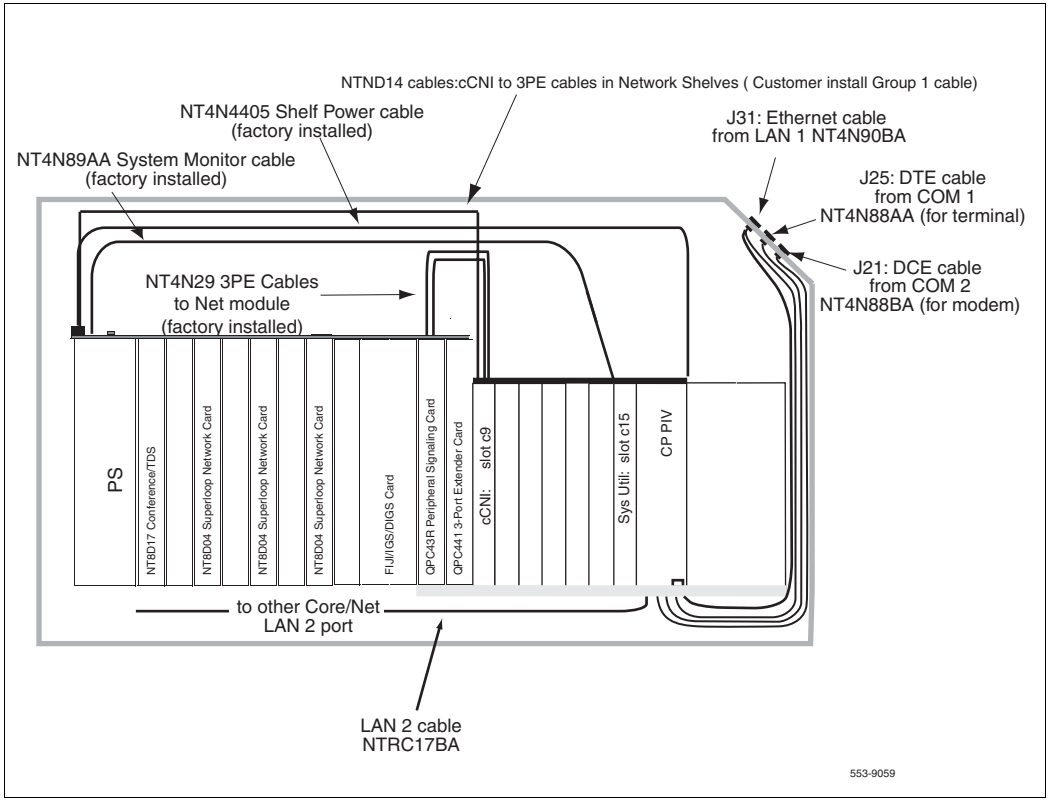
Check factory-installed cables

Table 9 lists factory-installed cables. See Figure 13 on page 61.

Table 9
Factory-installed cables

Order Number	Description	Quantity per Core/Net shelf
NT4N4405	Shelf Power Cable	1
NT4N89AA	System Monitor cable	1
NT4N29AA	CNI to 3PE cable	2

Figure 13
Core/Net cable connections



Disable Core 1

Procedure 8
Checking 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	Load program
STAT CPU	Obtain status of the CPUs

2 If Core 1 is active, make Core 0 active:

SCPU	Switch to Core 0 (if necessary)
********	Exit program

End of Procedure

Procedure 9
Checking that Clock Controller 0 is active

1 Check the status of the Clock Controllers:

LD 60	Load program
SSCK 0	Obtain the status of Clock Controller 0
SSCK 1	Obtain the status of Clock Controller 1

2 If Clock Controller 1 is active, switch to Clock Controller 0.

SWCK	Switch to Clock Controller 0 (if necessary)
DIS CC 1	Disable Clock Controller 1
********	Exit the program

3 Faceplate disable Clock Controller 1.

End of Procedure

Disable IGS

Procedure 10
Disable IGS

1 Disable the IGS/DIGS cards located in each network group shelf 1:

LD 39	Load program
DIS IGS X	X = IGS cards located in each network group shelf 1
********	Exit program

Note: To determine the number of the IGS/DIGS card, see Table 10.

Table 10
Shelf 1 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
Note: The DIGS card is located in slot 2 of the network shelf and slot 9 of the Core/Net shelf.		

End of Procedure

Procedure 11
Upgrading Clock Controller 1

CAUTION

Clock Controller cards must be NTRB53 Clock Controller cards.

CAUTION — Service Interruption

Service Interruption occurs if wrong Clock Controller is removed!

Move only Clock Controller 1 at this point in the upgrade.

Do not move Clock Controller 0 at this time.

If the system has a QPC471 or QPC775 Clock Controller, replace it with an NTRB53 Clock Controller (to be installed in slot 13 of any network shelf other than the Core/Net shelf) and verify settings according to Table 11 on page 65.

If the system has an NTRB53 Clock Controller, skip this procedure.

1. Label and disconnect the Clock Controller 1.
2. Disconnect the cable from the Clock Controller 1 faceplate.
3. If primary and secondary clock reference cables are connected to the Clock Controller 1 faceplate, disconnect them last.
4. Remove QPC Clock Controller 1 from the Network Module.
5. Set the new NTRB53 Clock Controller 1 switch settings according to and Table 11 on page 65.

   Note: If the NTRC49AA cable is used, set switches 3 and 4 to 0-14 feet. If the NTRC49BA cable is used, set switches 3 and 4 to 15-20 feet.
6. Place the NTRB53 Clock Controller in slot 13 of any Network shelf. DO NOT seat the Clock Controller 1 and DO NOT faceplate enable the card.

7 Re-connect all reference cables.

Note: The Clock Controllers (0 and 1) must be located in Group1 (in a 2 group system only). If in the future the Meridian 1 Option 81C CP PIV is upgraded to more than 2 Network groups, Nortel recommends that Clock Controller 0 and 1 be located in different Network groups.

Table 11
Clock Controller switch settings for NTRB53

<table>
<tr><th>Multi-group
Single group</th><th>Machine
Type #1</th><th colspan="3">Faceplate Cable Length
CC to CC</th><th>Side
Number</th><th>Machine
Type #2</th></tr>
<tr><td>1</td><td>2</td><td>3</td><td>4</td><td></td><td>5</td><td>6</td></tr>
<tr><td>Multi-group = Off
Single group = On</td><td>21E = Off
51, 61, 51C, 61C 71, 81, 81C = On</td><td>Off</td><td>Off</td><td>0-14 Ft.</td><td>Side 0 = On
Side 1 = Off</td><td>71,81 = Off
21E, 51, 51C, 61. 61C, 81C = On</td></tr>
<tr><td colspan="2" rowspan="3"></td><td>Off</td><td>On</td><td>4.6–6.1 m (15–20 ft.)</td><td colspan="2" rowspan="3"></td></tr>
<tr><td>On</td><td>Off</td><td>6.4–10.1 m (21–33 ft.)</td></tr>
<tr><td>On</td><td>On</td><td>10.4–15.2 m (34–50 ft.)</td></tr>
<tr><td colspan="7">Note: Switch 7 and 8 are not used.</td></tr>
</table>

End of Procedure

Procedure 12
Splitting the Cores

1 In Core 0, set the NORM/MAINT switch on the Call Processor 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 Call Processor card to MAINT.

The system is now in split mode, with call processing on Core 0 with Clock Controller 0 active and IGS in Shelf 0 is active.

End of Procedure

Software disable Network cards in Core/Net 1 from Core/Net 0

CAUTION

Service Interruption

At this point, the upgrade interrupts service.

Procedure 13
Software disabling cards in network slots of Core/Net 1

1 In Core/Net 1 only, software disable the network and I/O cards such as XNET, TTY, Conf/TDS and ISDN cards:

a. In Core/Net 1 only, disable XNET.

LD 32	Load program
DISL sl	Disable the XNET, where sl = the superloop number of the XNET card
****	Exit program

b. In Core/Net 1 only, disable ENET.

LD 32	Load program
DISL X	Disable the ENET, where X= the loop number of the ENET card
****	Exit program

c. In Core/Net 1 only, software disable each port on the SDI cards:

LD 37	Load program
DIS TTY x	Disable each port, where x = the number of the interface device attached to a port
********	Exit program

d. In Core/Net 1 only**,** disable DTI cards.

LD 60	Load program
DISL x	Disable DTI card, where x = the loop number of the DTI port
********	Exit program

e. In Core/Net 1 only, disable DCH and PRI cards.

LD 96	Load program
DIS DCH x	Disable DCH, where x = associated D-Channel
********	Exit program
LD 60	Load program
DISL x	Disable PRI card, where x = the loop number PRI port
********	Exit program

f. In Core/Net 1 only, disable MSDL cards.

LD 48	Load program
DIS MSDL x	Disable MSDL card, where x = the MSDL card number. System will respond with group 0
********	Exit program

g. In Core/Net 1 only, disable XCT cards.

LD 34	Load program
DISX x	Disable XCT card, where x = the superloop number of the XCT card
****	Exit program

2 In Core/Net 1 only, software disable the QPC43 Peripheral Signaling Card:

LD 32	Load program
DSPS x	Disable QPC43 card. Table 12 lists Peripheral Signaling Card numbers
****	Exit the program

Table 12
Peripheral Signaling Card numbers

Group/ shelf	Peripheral Signaling Card	Loops 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, faceplate disable the 3PE, Per Sig and all network cards.

4 Faceplate disable all IGS/DIGS cards in each network shelf 1.

End of Procedure

CAUTION

Service Interruption

The system can shut down if the system monitors are not removed. Remove the monitors and keep the cooling fans ON.

Procedure 14
Removing the system monitors from Core 0 and Core 1

Note: This procedure applies to both AC and DC systems.

1 **In Core 0**, software disable the master system monitor (NT8D22):

LD 37	Load program
DIS TTY #	Disable master system monitor TTY interface

2 Remove J3 and J4 cables on Core 0 and Core 1 system monitors.

Note: Do *not* turn off the blower units in the front of the pedestals.

3 Remove the system monitor from the rear of the pedestal on Core 0 and Core 1.

End of Procedure

DANGER OF ELECTRIC SHOCK

In a DC-powered system, power to the column can remain on during the following procedures. In an AC-powered system, however, power to the entire column *must* be shut down throughout the procedures.

Power down Core/Net 1

CAUTION

Service Interruption

Call processing is interrupted for approximately 60 minutes while the procedures are completed.

For AC-powered systems: set the MPDU circuit breaker located at the left end of the module to OFF (down position).

For DC-powered systems: set the breaker for the Core 1 module in the back of the column pedestal to OFF (down position).

Procedure 15
Removing Core 1 cables and card cage

1. Label and disconnect all cables from 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 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 Use a a 1/4” nut driver to remove the two mounting screws at the bottom rear of the card cage. The screws secure the card cage to the module casting. Keep the screws for use with the CP card cage.

CAUTION

Do not drop the mounting screws into the pedestal. Doing so can cause serious damage.

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. Keep the screws for use with the CP 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 not to drop the nut or lock washer into the pedestal. See Figure 14 on page 72 for DC power connectors. See Figure 15 on page 73 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.

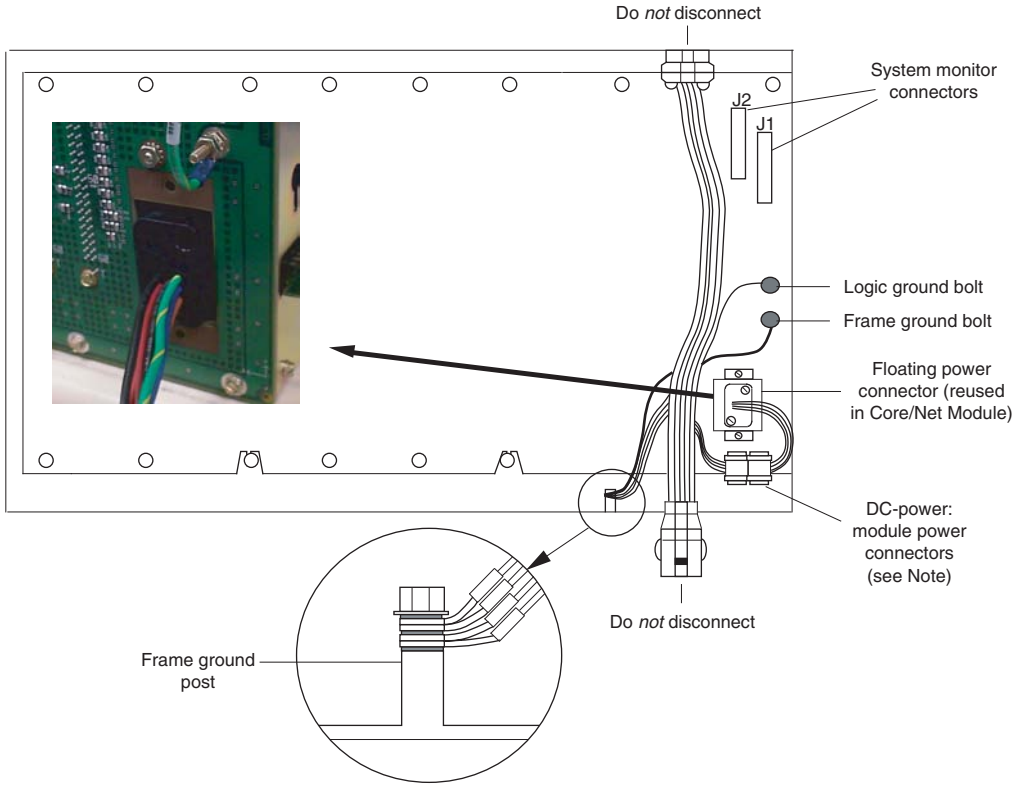
15 Label and disconnect the system monitor ribbon cables to J1 and J2.

16 Remove the Core card cage from the module.

17 Remove the power harness and reserve it for reinstallation when you install the new NT4N40 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 NT8D40.
- For DC systems, relocate power harness NT7D11.

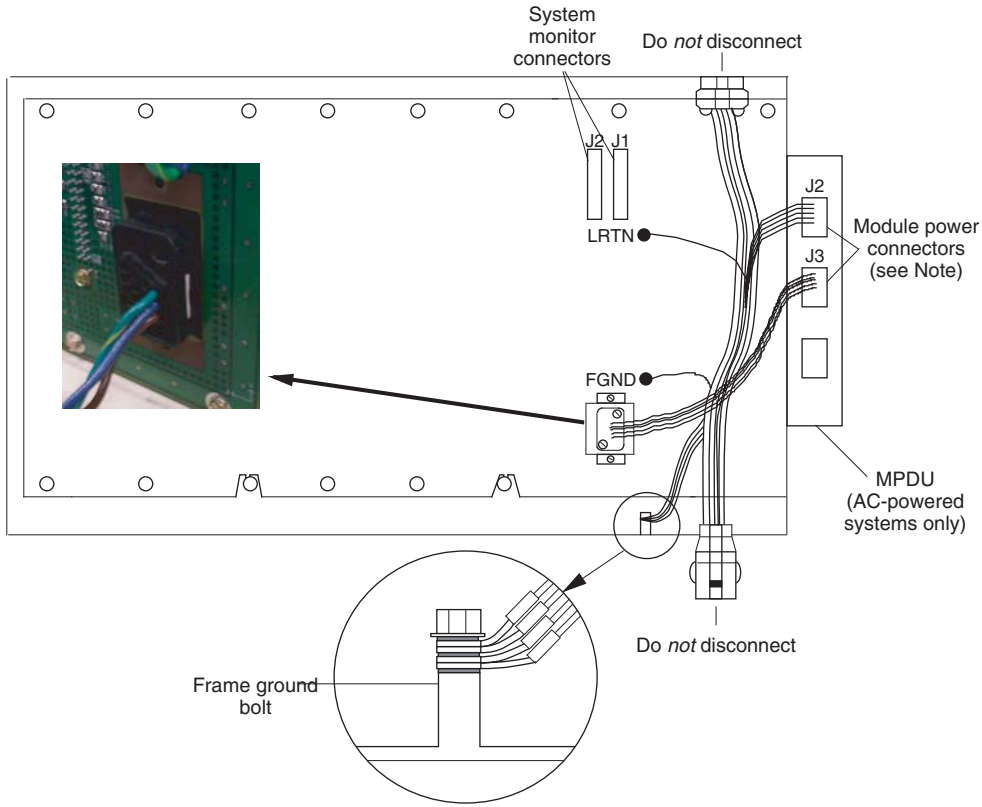
Figure 14
DC power connectors on the Core module backplane



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 15
AC power connectors on the Core module backplane



Note: AC-powered system shown. With DC power, module power connectors connect to each other.

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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.

WARNING

If you do not tape the EMI shield in position, you will not be able to install the card cage in the module correctly.

CAUTION

Check for and remove any debris (such as screws) that fell into the base of the UEM module.

End of Procedure

Install the CP card cage in Core 1

Procedure 16
Installing the CP card cage in Core 1

1 Check that the card cage is configured as Core 1. See Table 13 for instructions.

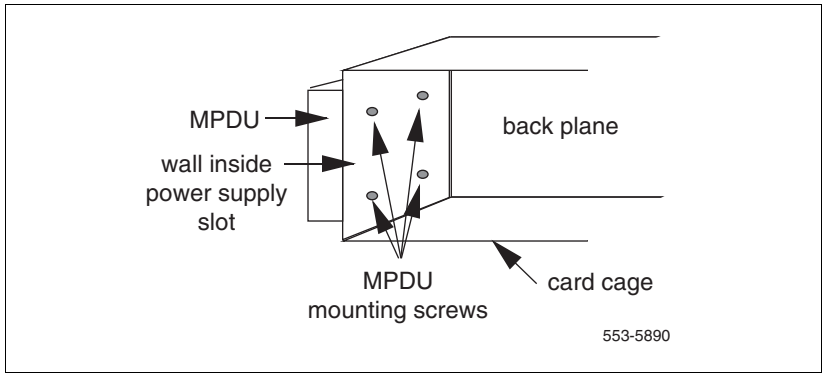
Table 13
Core module ID switch settings (System Utility card)

	Position 1	Position 2
Core/Net 0	On	On
Core/Net 1	Off	On

2 For AC-powered systems only, attach the MPDU, part of the CP PIV Upgrade kit, to the side on the NT4N40 card cage. The screws that secure the MPDU are accessible from the power supply slot. See Figure 16.

Note: Prethread 2 bottom mounting screws at the back of the Core/Net shelf.

Figure 16
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 card cage.

4 Slide the CP 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. Then 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

Damage to Equipment

Check for and remove any debris (such as screws) that may have fallen into the base of the UEM module.

b. In DC-powered systems, connect the module power connectors to each other.

c. Attach the system monitor ribbon cables:

i. Connect the ribbon cable that goes down to the column to connector J1 on the backplane.

ii. Connect the ribbon cable that goes up the column to J2 on the backplane.

d. Use a 11/32” socket wrench to attach the green ground wire to the frame ground bolt on the module. 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.

e. Attach the orange logic return wire. Remove one nut and the lock washer from the LRTN bolt 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” 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 Secure the card cage and EMI shield to the module re-using the existing screws.

9 Preroute cables NT4N88AA, NT4N88BA and NT4N90BA.

a. Route cable NT4N88AA from COM1 on the CP PIV faceplate to J25 on the I/O panel. (NT4N88AA is used to connect a terminal.)

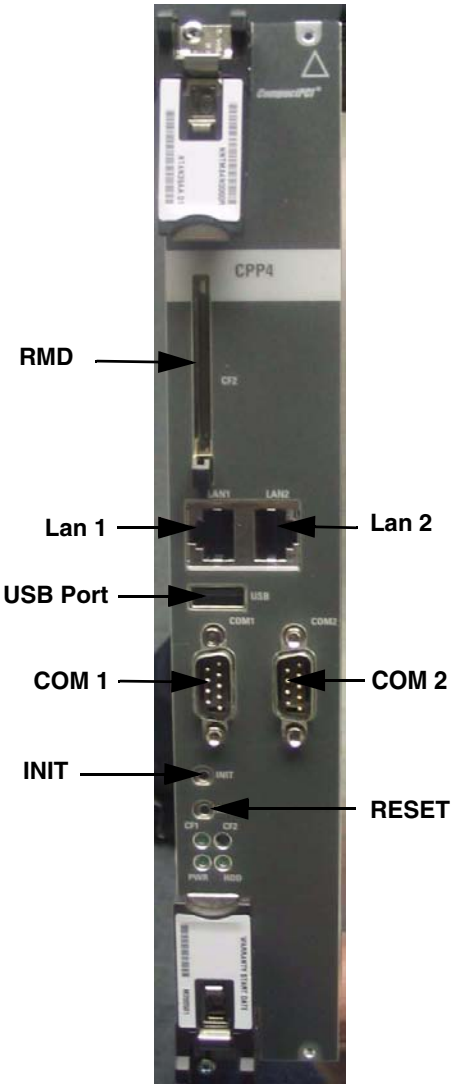
b. Route cable NT4N88BA from COM2 on the CP PIV faceplate to J21 on the I/O panel. (NT4N88BA is used to connect a modem.)

10 Route cable NT4N90BA from LAN 1 on the CP PIV faceplate to J31 (top) of the I/O panel.

11 Do not connect the LAN 2 NTRC17BA crossover ethernet cable at this time.

End of Procedure

Figure 17
CP PIV call processor card (front)



Unpack and install NT6D41CA (DC) or NT8D29BA (AC) Power Supply

Procedure 17
Installing the power supply

1. Unpack the power supply.
2. Faceplate disable the power supply.
3. Insert power supply into Core/Net module power supply slot.

End of Procedure

Procedure 18
Relocating Network cards to CP PIV Core/Net 1

1. Move any existing cards from slots 0-11 of the old Core/Net 1 card cage to the same slots (0-11) in the new NT4N40 Core/Net 0 card cage, **except for the IGS/DIGS cards**.
2. Connect the tagged cables to the relocated cards.
3. When you move the 3PE card, check the switch settings and jumpers. See Table 14 on page 80.
   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 14 shows the 3PE settings for cards installed in CP Core/Net Modules.

Table 14
QPC441 3PE Card installed in the NT4N40 Module

Jumper Settings: Set Jumper RN27 at E35 to "A".									
Switch Settings									
Module		D20 switch position							
NT4N40 (Option 81C CP PIV)		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
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

End of Procedure

Procedure 19
Installing the Security Device

The Security Device fits into the System Utility card (see Figure 18 on page 82). To install the Security Device, do the following.

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

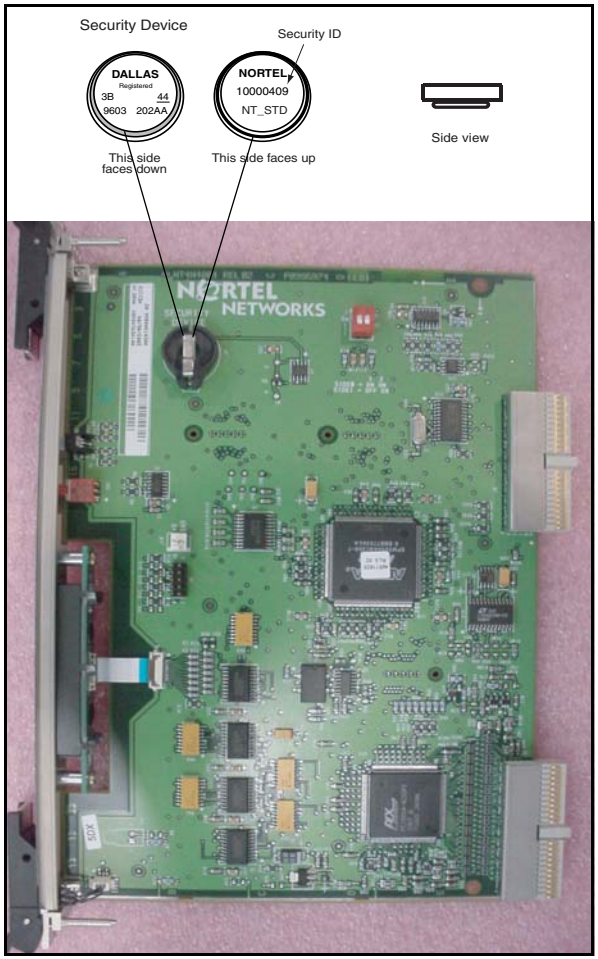
   If the original system did not have an IODU/C, use the Security Device provided with the CP PIV Software kit.

   Insert the Security Device into the Security Device holder on the System Utility card with the "Nortel" side facing up. Do not bend the clip more than necessary.

2 Check that the Security Device is securely in place.

End of Procedure

Figure 18
Security Device

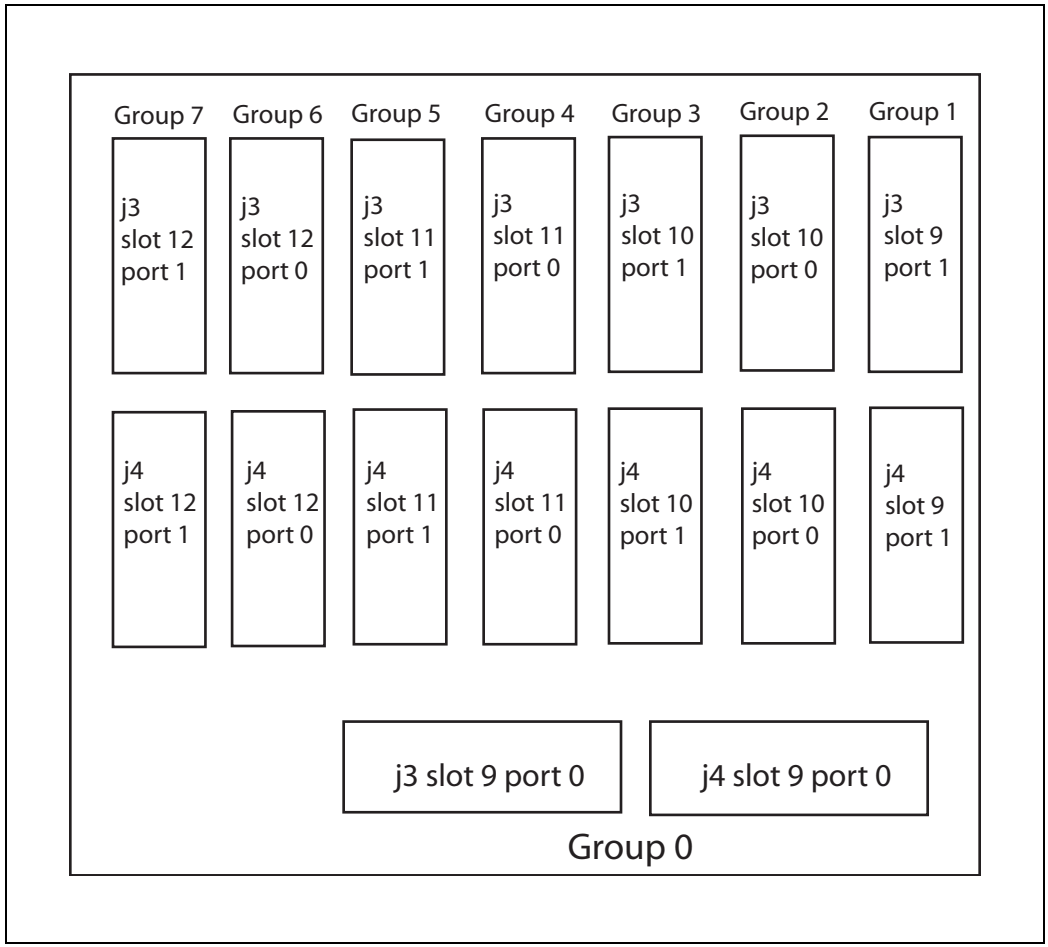


Cable Core 1

In Core 1, inspect factory-installed cables

The NT4N29AA cables should be installed for the existing network group in Core/Net 1. If the system has XSDI cards, reinstall the cards and attach the cables. Inspect the system monitor cables (NT4N89).

Figure 19
Connectors for CNI-3PE cables to the Fanout panel



In Core 1, route and connect the cCNI to 3PE (NTND14) cables

The existing NTND14 cables may be reused if they meet the requirements of the Important box below. If it is determined that existing NTND14 cables must be replaced on side 1, remove the existing cables and replace with the correct length cables. Connect the NTND14 cables to the Fanout panel in Core/Net 1 and the 3PE cards in each equipped network group shelf 1. See Table 15 on page 86 and Figure 20 on page 88.

IMPORTANT!

When configuring NTND14 cables, observe the following rules:

- The shortest NTND14 Cable should always be used.
- A network group requires 4 NTND14 cables, 2 to each half group. Both cables to each half group must be the same length.
- A check should be made on the existing NTND14 cables. Replace any cables that do not meet the above requirement.

Note: The NTND14 BX 50' cables are manufacture discontinued.

When upgrading to CP PIV, it is important to know whether Network group 0 will be in the Core/Net module or not. In many installations, Group 0 will be established in a standard Network shelf, and a higher network group will occupy the Core/Net module.

If Network group 0 will be in the Core/Net, the factory configuration of the new Core/Net modules is correct, and no further action is required.

If Network Group 0 will not be in the Core/Net module, some re-configuration of the Core/Net module is required to allow for concurrent or future use of the Network portion of the Core/Net as a higher Network group.

The NT4N40 shelf is factory-installed with NT4N29 cables and is configured as group 0. If the network portion of the Core/Net shelf is used as a higher

network group, use the extraction tool to disconnect the NT4N29 cables from the Core backplane. Once the cables are disconnected, connect them to the appropriate group. For correct connector replacement, see Figure 19 on page 83.

WARNING

Damage to Equipment

Do not pry against the connector with the extraction tool. Simply inserting the tool between the connector and the securing clip is sufficient to unlock the connector. Prying may cause damage to the connector or the backplane pins.

Table 15
Fanout Panel to 3PE card connectors

Group Number	Fanout Panel connector	3PE card connector
0	9-0, J3	A
0	9-0, J4	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 1: Group 0 cables (NT4N29) connect from the Fanout panel directly to the backplane of Core/Net 1. See Figure 20 on page 88.

Note 2: Group 1 cables (NTND14) connect from the Fanout panel to the faceplate of the 3PE cards of Group 1. See Figure 20 on page 88.

Adding Side 1 FIJI hardware

Procedure 20
Adding Side 1 FIJI hardware

Perform the procedures below in sequence:

1 Tag and disconnect the IGS/DIGS cables.

2 Remove the IGS/DIGs cards from all network group shelf 1 locations.

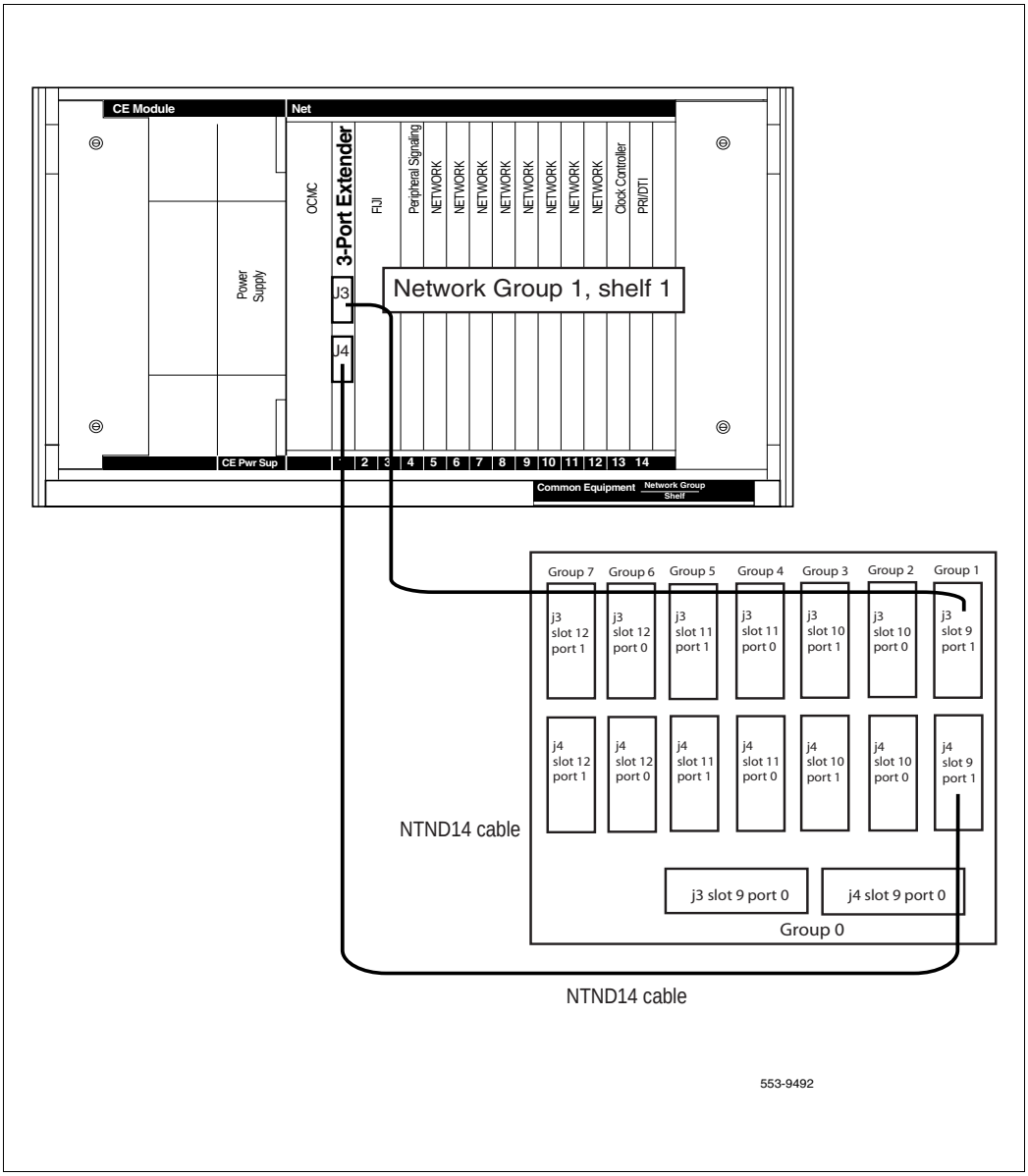
3 Faceplate disable the FIJI cards.

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

Note: Double slot FIJI cards install in slots 2 and 3 of the Network modules, and slots 8 and 9 of the Core/Net modules. Single slot FIJI cards (with vintages later than NTRB33BBE5) install in slot 2 of the Network modules, and slot 9 of the Core/Net modules.

End of Procedure

Figure 20
3PE Fanout Panel connections



Procedure 21
Connecting the shelf 1 FIJI Ring cables (descending)

IMPORTANT!

The shortest Fiber Cable must always be used.

The cables from group 0 to group 1 must always be the same length as the cables from the last group back to group 0.

The distance between the lengths of each fiber ring from group 0 to any other group must not exceed 50'. Rings are directional. Ring 0 is ascending and ring 1 is descending.

Note: When adding an additional network group, fiber cables must be changed to adhere to the rules above.

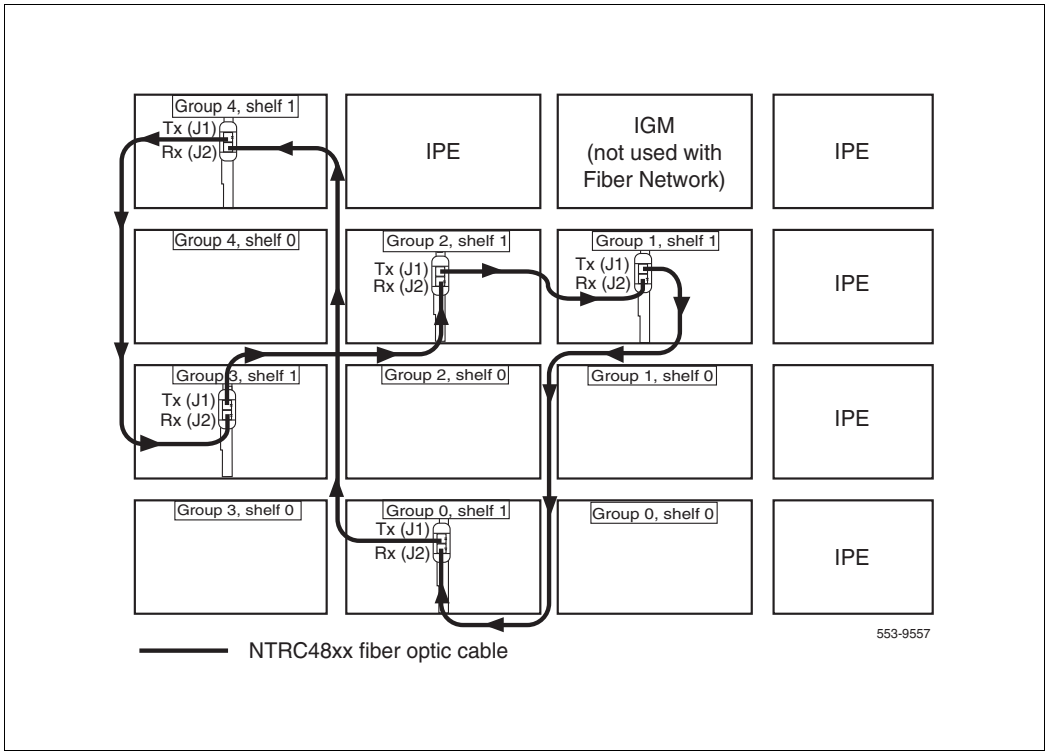
Create Fiber Ring 1. Connect the FIJI cards in all Network shelves 1 in **descending** order, from Tx to Rx (see Figure 21 on page 90 and Table 16 on page 91).

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.

Figure 21
Shelf 1 *descending* fiber optic Ring (Meridian 1 Option 81C 5 group example)



5 To complete the Ring, connect a final cable from Tx in **Group 1, shelf 1** to Rx in Group 0, shelf 1.

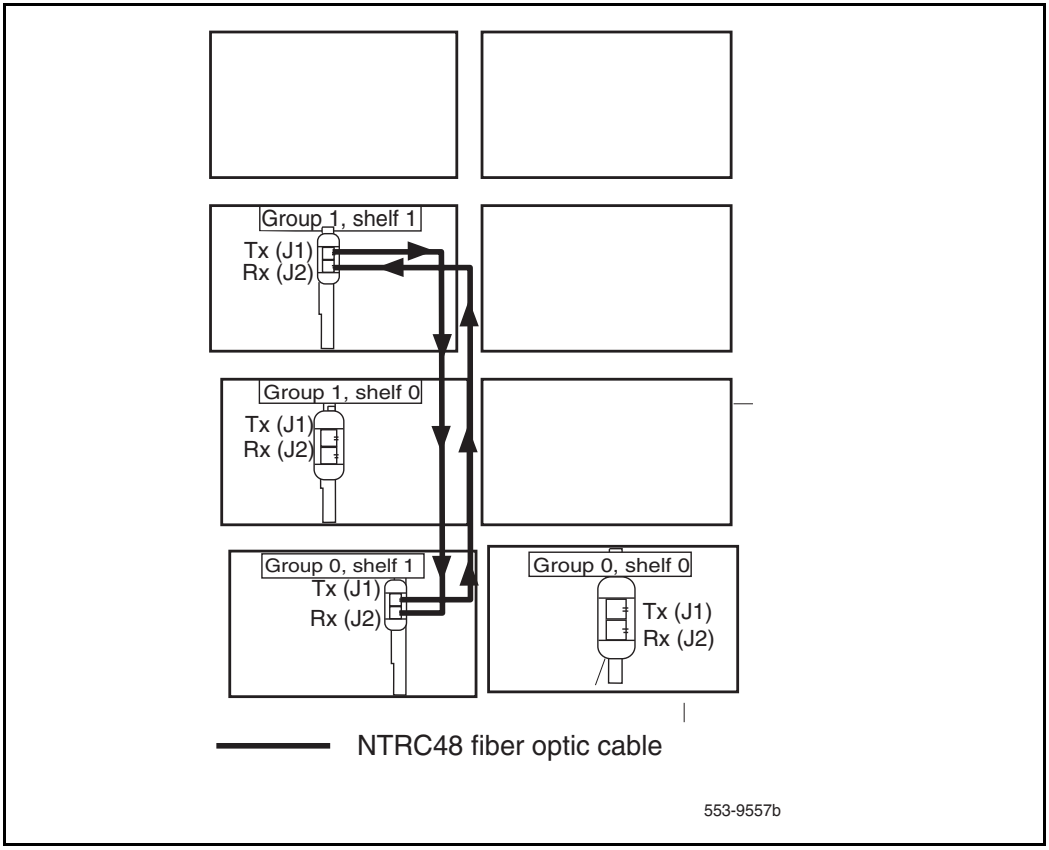
Note: Connect the Side 1 FIJI Ring cables only.

Table 16
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

End of Procedure

Figure 22
Shelf 1 des*cending* fiber optic Ring (Meridian 1 Option 81C 2 group example)



Cable the Clock Controller 1 to FIJI

Procedure 22
Cable the Clock Controller 1 to FIJI hardware

Connect the cables to the Clock Controller 1 as shown in Figure 23 on page 93.

1 Connect J2 of the NTRC49 cable to J1 of the NTRC46 cable.

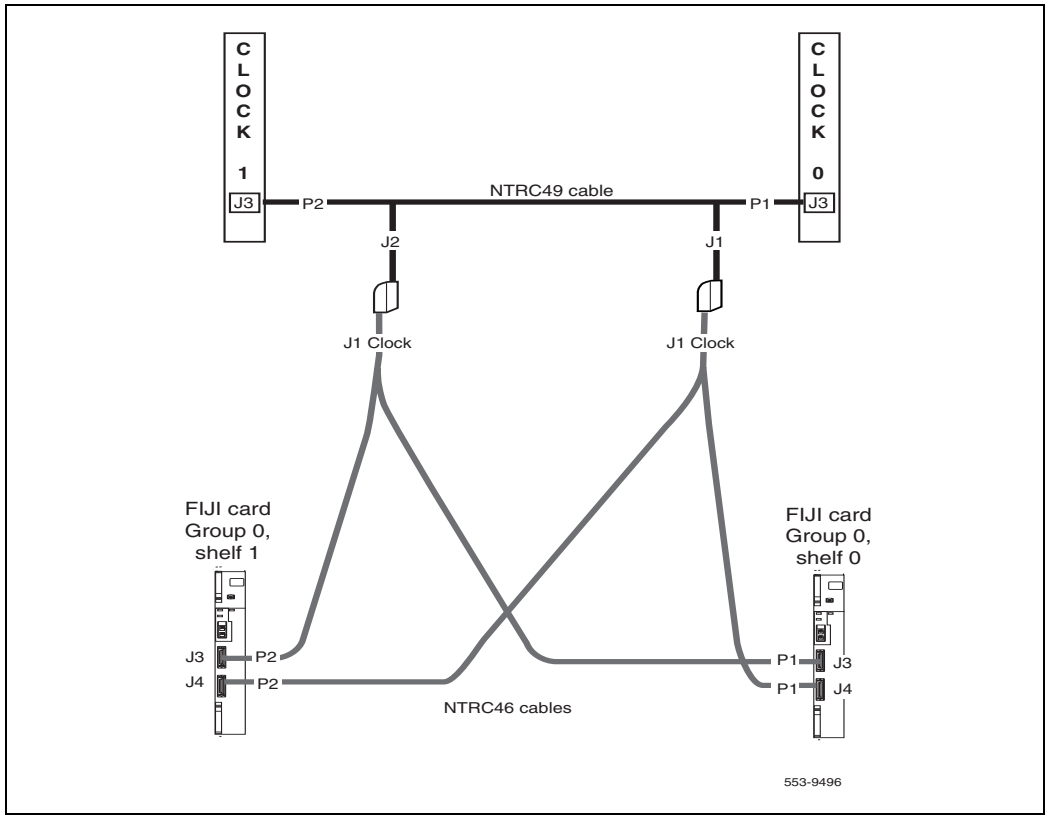
2 Connect P2 of the NTRC49 cable to port J3 of Clock Controller 1.

3 Connect P2 of the NTRC46 cable from Clock 1 to J3 of the FIJI card in group 0, shelf 1.

IMPORTANT!

Both NTRC46 cables must be the same length.

Figure 23
Clock Controller cable configuration



Power up Core 1

Procedure 23
Preparing for power up

1. Check that a terminal is connected to the J25 I/O panel connector (COM 1) 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/0 panel in the *inactive* Core.

3. Check the terminal settings as follows:

   a. 9600 Baud

   b. 8 data

   c. parity none

   d. 1 stop bit

   e. full duplex

   f. 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* all core and network cards.

5. Faceplate *enable* the power supply.

End of Procedure

Power up Core cards

Procedure 24
Powering up core cards

1 For AC-powered systems: set the MPDU circuit breaker located at the left end of the module to ON (top position).

2 For DC-powered systems: set the breaker for the Core 1 module in the back of the column pedestal to ON (top position).

End of Procedure

Restore power

Procedure 25
Restoring power

1 Restore power to Core/Net 1.

2 Wait for the system to load/initialize.

3 Check that the Network and I/O cards have working power.

System is in split mode, CP 0 is active, clock 0 is active, all network cards in shelf 1 are software disabled.

End of Procedure

CS 1000 Release 7.0 upgrade

Upgrading the software

Procedure 26 outlines the steps involved in installing CS 1000 Release 7.0 for the CP PIV processor.

Procedure 26
Upgrading the software

1. Check that a terminal is now connected to COM 1port in CP 1. The settings for the terminal are:
   - **a.** Terminal type: VT100
   - **b.** 9600 Baud
   - **c.** Data bits: 8
   - **d.** Parity: none
   - **e.** Stop bits: 1
   - **f.** Flow control: none
2. Insert the RMD into the CF card slot on Call Processor 1 (inactive).
3. Perform a KDIF in LD 143.
4. Press the manual RESET button the Call Processor 1 (inactive) card faceplate.
5. Call up the Software Installation Program during a SYSLOAD. During SYSLOAD, the following prompt appears:

```
Read boot parameters from:

  F: Faceplate compact flash

  H: Hard Drive

  0 [H]
```

Press F to boot from the compact flash (which contains the software).

For the CP PIV upgrade, the **F** must be in uppercase.

6 Enter <CR> at the Install Tool Menu.

Note: Blank CF prompts begin here.

```
Mounting /cf2
Found /cf2/nvram.sys
Mounting /boot
Found /boot/nvram.sys

                    Selecting nvram file from 2
sources

Read boot parameters from:
F: Faceplate compact flash
H: Hard Drive

 10 [F]

Press <CR> when ready

Reading boot parameters from /boot/nvram.sys

Press any key to stop auto-boot...
```

7 The system then enters the `Main Menu` for keycode authorization.

```
                M A I N    M E N U

The Software Installation Tool will install or
upgrade Communication Server 1000 Software,
Database and the CP-BOOTROM. You will be
prompted throughout the installation and given
the opportunity to quit at any time.

Please enter:

<CR> -> <u> - To Install menu

        <t> - To Tools menu.

        <q> - Quit.

        Enter Choice> <u>
```

The system searches for available keycode files in the “keycode” directory on the RMD. If no keycode file is found, the system displays the following menu:

```
Communication Server 1000 Software/Database/
BOOTROM RMD Install Tool
================================================
====================

No keycode files are available on the removable
media.

Please replace the RMD containing the keycode
file(s).

Please enter:

          <CR> -> <a> - RMD is now in the drive.

          <q> - Quit.

          Enter choice>
```

At this point, either replace the RMD or quit the installation. If you select option “<q> - Quit.”, the system requires confirmation.

```
Communication Server 1000 Software/Database/
BOOTROM RMD Install Tool

================================================
====================

You selected to quit. Please confirm.

Please enter:

        <CR> -> <y> - Yes, quit.

        <n> - No, DON’T quit.

        Enter choice>
```

If “y” (quit) is selected, the system prints “INST0127 Keycode file is corrupted. Check Keycode file.” and returns to the installation main menu.

After accessing the RMD containing the valid keycode(s), press <CR>. The system displays the keycode file(s) available as in the following example:

```
The following keycode files are available on the
removable media:

Name                      Size   Date      Time

--------------------    -------          -----

<CR> -> <1> -keycode.kcd 1114 mon-d-year hr:min

<2> - KCport60430m.kcd   1114 mon-d-year hr:min

<q> - Quit

Enter choice> 2
```

Note: A maximum of 20 keycode files can be stored under the “keycode” directory on the RMD. The keycode files must have the same extension “.kcd”.

8 Select the keycode to be used on the system.The system validates the selected keycode and displays the software release and machine type authorized.

```
Validating keycode ...

Copying "/cf2/keycode/KCport60430m.kcd" to "/u/
keycode" -

Copy OK: 1114 bytes copied

The provided keycode authorizes the install of
xxxx software (all subissues) for machine type
xxxx (CP PIV processor on <system>).
```

Note: The software release displayed depends on the keycode file content. The system requests keycode validation.

```
Communication Server 1000 Software/Database/
BOOTROM RMD Install Tool

================================================

Please confirm that this keycode matches the
System S/W on the RMD.

Please enter:

         <CR> -> <y> - Yes, the keycode matches.
Go on to Install Menu.

         <n> - No, the keycode does not match.
Try another keycode.

Enter choice>
```

9 If the keycode matches, enter <CR> to continue the installation. The system displays the Install Menu. Select option "<a>.

Note: Option A uses the existing db from the FMD. External database backup is Option B.

```
Communication Server 1000 Software/Database/
BOOTROM RMD Install Tool
================================================

I N S T A L L    M E N U

        The Software Installation Tool will
install or upgrade Communication Server 1000
Software, Database and the CP-BOOTROM. You will be
prompted throughout the installation and given the
opportunity to quit at any time.

        Please enter:

<CR> -> <a> - To install Software, CP-BOOTROM.

        <b> - To install Software, Database,
CP-BOOTROM.

        <c> - To install Database only.

        <d> - To install CP-BOOTROM only.

        <t> - To go to the Tools menu.

        <k> - To install Keycode only.

               For Feature Expansion, use OVL143.

        <p> - To install 3900 set Languages.

        <q> - Quit.

        Enter Choice> <a>
```

10 The system requires the insertion of the RMD containing the software to be installed.

```
Communication Server 1000 Software/Database/
BOOTROM RMD Install Tool

================================================
Please insert the Removable Media Device into the
drive on Core x.

Please enter:

         <CR> -> <a> - RMD is now in drive.
Continue with s/w checking.

         <q> - Quit.

Enter choice> <CR>
```

11 If the RMD containing the software is already in the drive, select option "<a> - RMD is now in drive. Continue with s/w checking." (or simply press <CR>) to continue. If the RMD is not yet in the drive, insert it and then press <CR>.

12 The system displays the release of the software found on RMD under the "swload" directory and requests confirmation to continue the installation.

```
Communication Server 1000 Software/Database/
BOOTROM RMD Install Tool

================================================

The RMD contains System S/W version xxxx.

Please enter:

        <CR> -> <y> - Yes, this is the correct
version. Continue.

        <n> - No, this is not the correct version.
Try another RMD or a different keycode.

Enter choice> <CR>
```

Note: If the RMD contains the correct software release, select option "<y> - Yes, this is the correct version. Continue." (or simply press <CR>) to continue. If the software release is not correct and you want to replace the RMD, insert the correct RMD in the drive and then press <CR>. If you want to replace the keycode, select option "<n> - No, this is not the correct version".

13 Choosing Yes for the Dependency Lists installation.

Note: If Dependency Lists are not installed on media, the following prompts do not appear. Proceed to step 14 on page 106.

Do you want to install Dependency Lists?

Please enter:

<CR> -> <y> - Yes, Do the Dependency Lists installation

<n> - No, Continue without Dependency Lists installation

Enter choice>

The default choice is YES as shown in the prompt.

If the choice is no, then the following prompt will appear for the confirmation:

Are you sure?

Please enter:

<CR> -> <n> - No, Go to the Dependency List menu

<y> - Yes, Go to the next menu

Enter choice>

The default choice is NO which will return the user to deplist menu.

Enable Automatic Centralized Software Upgrade (CSU) Feature?

Please enter:

<CR> -> <y> - Yes

<n> - No

Enter choice>

14 Select to enable/disable CSU option.

Note: if Sequential is selected **<1>**, upgrades to the MG 1000Es are performed across the LAN in a sequential manner. One MG 1000E is upgraded at a time. No other MG 1000E upgrades are initiated until the current MG 1000E completes its installation.

If Simultaneous is selected **<2>**, upgrades to the MG 1000Es are performed simultaneously across the LAN. Up to eight MG 1000Es are upgraded at the same time. If there are more than eight MG 1000Es, the upgrade to the next MG 1000E begins after the upgrade of one MG 1000E is complete. The following warning is presented to the installer:

```
WARNING:
Call Processing is not guaranteed to operate on the call server
during simultaneous upgrades.
Do you wish to proceed? (y/n)
```

```
Set Automatic Centralized Software Upgrade Mode to:

            Please enter:

<CR> -> <1> - Sequential

          <2> - Simultaneous

           Enter choice>

>Processing the install control file ...

>Installing release 0600x
```

15 The PSDL files menu appears. Enter the appropriate choice for the site's geographic location.

```
**********************************************
PSDL INSTALLATION MENU

The PSDL contains the loadware for all
downloadable cards in the system and loadware for
M3900 series sets.

**********************************************
Select ONE of the SEVEN PSDL files:

1. Global 10 Languages
2. Western Europe 10 Languages
3. Eastern Europe 10 Languages
4. North America 6 Languages
5. Spare Group A
6. Spare Group B
7. Packaged Languages
[Q]uit, <CR> - default

By default option 1 will be selected.
Enter your choice ->x

>Copying new PSDL ...
```

16 The installation summary screen appears. Verify the parameters and enter <CR> when ready.

17 Enter <CR> to confirm and continue upgrade.

Note: After entering yes below, the system copies the software from RMD to FMD (the files copied are listed). This file copy takes between 5 and 10 minutes to complete.

```
 Please enter:

<CR> -> <y> - Yes, start upgrade.

       <n> - No, stop upgrade. Return to the Main
Menu.


        Enter choice>

>Checking system configuration

You selected to upgrade Software release: XXXX to
release: xxxx. This will erase all old system
files.

This will  create  all  necessary  directories and
pre-allocate files on the hard disk.

You  may continue  with software  upgrade or quit
now and leave your software unchanged.

Please enter:

        <CR> -> <a> - Continue with upgrade.

        <q> - Quit.

        Enter choice>
```

18 Successful installation confirmation appears, enter <CR> to continue.

```
Communication Server 1000 Software/Database/
BOOTROM RMD Install Tool

================================================

Software release xxxx was installed successfully
on Core x.

All files were copied from RMD to FMD.


Please press <CR> when ready ...
```

19 Press "Enter" after checking the Installation summary.

20 Upon returning to the main install menu, enter **q** to quit.

```
                I N S T A L L    M E N U

        The Software Installation Tool will
install or upgrade Succession Enterprise System
Software, Database and the CP-BOOTROM. You will be
prompted throughout the installation and given the
opportunity to quit at any time.

        Please enter:

<CR> -> <a> - To install Software, CP-BOOTROM.

        <b> - To install Software, Database,
CP-BOOTROM.

        <c> - To install Database only.

        <d> - To install CP-BOOTROM only.

        <t> - To go to the Tools menu.

        <k> - To install Keycode only.

                For Feature Expansion, use OVL143.

        <p> - To install 3900 set Languages.

        <q> - Quit.

        Enter Choice> q
```

21 The system then prompts you to confirm and reboot. Enter <CR> to quit. Enter <CR> again to reboot.

```
You selected to quit. Please confirm.

    Please enter:

<CR> -> <y> - Yes, quit.

        <n> - No, DON'T quit.


        Enter choice> <CR>

You selected to quit the Install Tool.

You may reboot the system or return to the Main
Menu.




        ------------------------------

        DO NOT REBOOT USING RESET BUTTON!!!


        ------------------------------


        Please enter:

<CR> -> <a> - Reboot the system.

        <m> - Return to the Main menu.

        Enter Choice> <CR>

>Removing temporary file "/u/disk3521.sys"

>Removing temporary file "/u/disk3621.sys"

>Rebooting system ...
```

At this point the system reloads and initializes.

End of Procedure

Verifying the upgraded database

Procedure 27
Verifying the upgraded database

1 Print ISSP (system software issue and patches)

LD 22	Load program
REQ	ISSP
****	Exit program

2 Print the system configuration record in LD 22 and compare the output with the preupgraded configuration record.

LD 22	Load program
REQ	PRT
TYPE	CFN
****	Exit program

3 Print the SLT in LD 22. This output provides used and unused ISM parameters. Compare with preupgrade SLT output.

LD 22	Load program
REQ	SLT
****	Exit program

4 Print the customer data block(s) in LD 21.

LD 21	Load program
REQ	PRT
TYPE	CDB
CUST	xx
********	Exit program

Core 0 is now active, clock 0 is active, CNI is disabled in Core 1. The system is in split mode.

End of Procedure

Configuring IP addresses

Procedure 28
Configuring the IP addresses

Two unique IP address are required for the CP PIV system to communicate with the LAN. One IP address is defined for the *active* Core. The second IP address is defined for the *inactive* Core.

1 Use the following to check the status of the system's IP address:

LD 117	Load program
PRT HOST	Print the configured host information

If the system returns with host names "active" and "inactive", go to "Check for Peripheral Software Download to Core 1" on page 114. If the system returns no host names, complete the steps below.

2 Contact your System Administrator to identify IP address and subnet mask information.

3 Configure the primary (*active*) and secondary (*inactive*) IP addresses:

LD 117	Load program
NEW HOST *NAME 1 IP ADDRESS*	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*	Assign the "name 1" address to the *active* Core
NEW HOST 'NAME 2' 'IP ADDRESS'	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*	Assign the "name 2" address to the *inactive* Core.
CHG MASK *XXX.XXX.XXX.XXX*	Set the sub-net per local site (This number allows external sub-nets to connect to the system)

4 Enable the new Ethernet interface.

LD 137	Load program
update dbs	Update the ELINK database
dis elnk	*Disable* the old IP interface values
enl elnk	*Enable* the new IP interface values

Check for Peripheral Software Download to Core 1

Enter LD 22 and print Target peripheral software version. The Source peripheral software version was printed in "Printing site data" on page 27.

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.

Load LD 22 and print Target peripheral software version.

LD 22	
REQ	PRT
TYPE	PSWV
********	Exit program

For systems with fewer than eight groups, delete CNIs

Procedure 29
Deleting CNIs

Software has configured the system for eight groups. If the system has eight groups, skip this procedure. If the system has fewer than eight groups, you must software remove the CNIs not used in the system configuration:

1 In Core/Net 1, disable all cCNI cards using LD 135:

LD 135	Load program
STAT CNI	Obtain status of all cCNI cards
DIS CNIP x s p	Disable cCNI ports where: x = Core number (0 or 1) s = card slot (9-12) p = port (0 or 1)
DIS CNI x s	Disable cCNI cards where: x = Core number (0 or 1) s = card slot (9-12)
STAT CNI	Confirm that cCNI cards are disabled
********	Exit program

2 Use LD 17 to remove the extra cCNI cards.

LD 17	Load program
CHG	CFN
TYPE	CEQU
CEQU	
carriage return to EXTO	
EXTO 3PE	Core/Net 0 extended to 3PE

CNI s p x	Out the cCNI card, where: s = card slot (9-12) p = port (0 or 1) x = out network group
EXTI 3PE	Core/Net 1 extended to 3PE
CNI s p x	Out the cCNI card, where: s = card slot (9-12) p = port (0 or 1) x= out network group
carriage return to end of program	
****	Exit program

3 Use LD 135 to re-enable cCNI cards:

LD 135	Load program
STAT CNI	Obtain status of all cCNI cards
ENL CNI x s	Enable cCNI cards where: x= Core number (0,1) s = card slot (9-12)
ENL CNIP x s p	Enable cCNI ports where: x= Core number (0,1) s = card slot (9-12) p = port (0 or 1)
STAT CNI	Confirm that cCNI cards are enabled (see note below)
****	Exit program

Note: At this point, cCNI cards in Core 1 are controlled by the active call processor in Core 0. Therefore, it remains disabled.

End of Procedure

Reconfigure I/O ports and call registers

Procedure 30
Reconfiguring I/O ports and call registers

1 Evaluate the number of call registers and 500 telephone buffers that are configured for the system (suggested minimum values are 20,000 and 1000 respectively). Refer to *Communication Server 1000M and Meridian 1: Large System Planning and Engineering* (NN43021-220). If changes are required, reconfigure the values in LD 17:

LD 17	Load program
CHG	
CFN	
PARM YES	
500B 1000	Use 1000 as a minimum value
NCR 20000	Use 20000 as a minimum value
********	Exit program

End of Procedure

At this point, all applications must be shut down (CallPilot, Symposium, and so on).

Procedure 31
Rebooting Core 1

CAUTION

Service Interruption

The INI may take up to 15 minutes to complete.

CAUTION

Service Interruption

Call processing is interrupted for approximately 60 minutes while the procedures are completed.

At this stage, Core 0 is still the active call processor with Clock Controller 0 active. The following procedure will transfer call processing from Core 0 to Core 1, switching Clock Controller from 0 to 1 and switching from IGS/DIGS to FIJI.

1 In Core/Net 0 only, faceplate disable the CNI cards.

2 In Core/Net 0 only, faceplate disable the IODU/C card.

3 In Core/Net 0 only, unseat the Core Processor card.

4 Faceplate disable Clock Controller 0 and unseat the card.

5 Faceplate disable all IGS/DIGS cards in shelf 0 and unseat the card.

6 Seat and faceplate enable Clock Controller 1.

7 Seat and faceplate enable all FIJI cards in shelf 1.

8 Faceplate enable CNI cards in Core 1.

9 Press the 'RESET' button on the CP PIV card faceplate to initialize the system.

10 Wait for “DONE” and then “INI” messages to display before you continue.

CAUTION

Service Interruption

Allow the system to recover from all downloads after the INI completes.

During INI, FIJI error messages (from Shelf 0) appear on the screen. FIJI card on shelf 1 resets. Upon INI completion, RING 1 is full, FIJI Ring 0 (in Core/Net 0) is disabled, AUTO recovery is on and Clock Controller 1 is active.

End of Procedure

Core 1 is now active with ring 1 drives full. Clock Controller 1 is active. Call processing should be active on Core/Net 1.

Performing the customer’s test plan

Ensure that all network resources in Core/Net shelf 1 are now functional.

Testing Core/Net 1

CAUTION

All network resources should be functional with the exception of the network resources in Core/Net 0.

Procedure 32
Testing Core/Net 1

1 Check dial-tone.

2 Stat D-channels:

LD 96	
STAT DCH	Stat all D-channels
****	Exit program

3 Stat all T1 interfaces:

LD 60	
STAT	Stat all DTI and PRI
****	Exit program

4 Stat network cards:

LD 32	
STAT x	x = loop number
****	Exit program

5 Print status of all controllers:

LD 97	
REQ	PRT

TYPE	XPE (returns status of all controller cards)
****	Exit program

6 Make internal, external and network calls.

7 Check attendant console activity.

8 Check DID trunks.

Call processing should be active on Core/Net 1.

End of Procedure

Upgrading Core 0

Note: At this point, the active side Core/Net 1 registers all Network cards in Core/Net 0 as disabled.

Procedure 33
Faceplate disabling cards in core and network slots of Core/Net 0:

1 In Core/Net 0 only, faceplate disable the 3PE, Per Sig and all network cards.

2 Faceplate disable all IGS/DIGS cards in each network shelf 0.

End of Procedure

Table 17
Shelf 0 IGS/DIGS card locations (Part 1 of 2)

Network Group 0	Shelf 0	IGS/DIGS 0 & 2
Network Group 1	Shelf 0	IGS/DIGS 4 & 6
Network Group 2	Shelf 0	IGS/DIGS 8 & 10
Network Group 3	Shelf 0	IGS/DIGS 12 & 14

Table 17
Shelf 0 IGS/DIGS card locations (Part 2 of 2)

Network Group 4	Shelf 0	IGS/DIGS 18 & 20
Note: The DIGS card should be located in slot 9 of the network shelf.		

Procedure 34
Upgrading Clock Controller 0

CAUTION

Clock Controller cards must be NTRB53 Clock Controller cards.

CAUTION — Service Interruption

Service Interruption occurs if wrong Clock Controller is removed!

Move only Clock Controller 0 at this point in the upgrade.

Do not move Clock Controller 1 at this time.

If the system has a QPC471 or QPC775 Clock Controller, replace it with an NTRB53 Clock Controller (to be installed in slot 13 of any network shelf other than the Core/Net shelf) and verify settings according to Table 11 on page 65.

If the system has an NTRB53 Clock Controller, skip this procedure.

1 Label and disconnect the Clock Controller 0.

2 Disconnect the cable from the Clock Controller 0 faceplate.

3 If primary and secondary clock reference cables are connected to the Clock Controller 0 faceplate, disconnect them last.

4 Remove QPC Clock Controller 0 from the Network Module.

5 Set the new NTRB53 Clock Controller 0 switch settings according to and Table 11 on page 65.

Note: If the NTRC49AA cable is used, set switches 3 and 4 to 0-14 feet. If the NTRC49BA cable is used, set switches 3 and 4 to 15-20 feet.

6 Place the NTRB53 Clock Controller in slot 13 of any Network shelf. DO NOT seat the Clock Controller 0 and DO NOT faceplate enable the card.

7 Re-connect all reference cables.

Note: The Clock Controllers (0 and 1) must be located in Group1 (in a 2 group system only). If in the future the Meridian 1 Option 81C CP PIV is upgraded to more than 2 Network groups, Nortel recommends that Clock Controllers 0 and 1 be located in different Network groups.

Table 18
Clock Controller switch settings for NTRB53

<table>
<tr><th>Multi-group
Single group</th><th>Machine
Type #1</th><th colspan="3">Faceplate Cable Length
CC to CC</th><th>Side
Number</th><th>Machine
Type #2</th></tr>
<tr><td>1</td><td>2</td><td>3</td><td>4</td><td></td><td>5</td><td>6</td></tr>
<tr><td>Multi-group = Off
Single group = On</td><td>21E = Off
51, 61, 51C, 61C 71, 81, 81C = On</td><td>Off</td><td>Off</td><td>0-14 Ft.</td><td>Side 0 = On
Side 1 = Off</td><td>71,81 = Off
21E, 51, 51C, 61. 61C, 81C = On</td></tr>
<tr><td colspan="2" rowspan="3"></td><td>Off</td><td>On</td><td>4.6–6.1 m (15–20 ft.)</td><td colspan="2" rowspan="3"></td></tr>
<tr><td>On</td><td>Off</td><td>6.4–10.1 m (21–33 ft.)</td></tr>
<tr><td>On</td><td>On</td><td>10.4–15.2 m (34–50 ft.)</td></tr>
<tr><td colspan="7">Note: Switch 7 and 8 are not used.</td></tr>
</table>

End of Procedure

Procedure 35
Cabling the Clock Controllers to FIJI card

Connect the cables to the Clock Controllers as shown in Figure 24 on page 126:

1 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**.

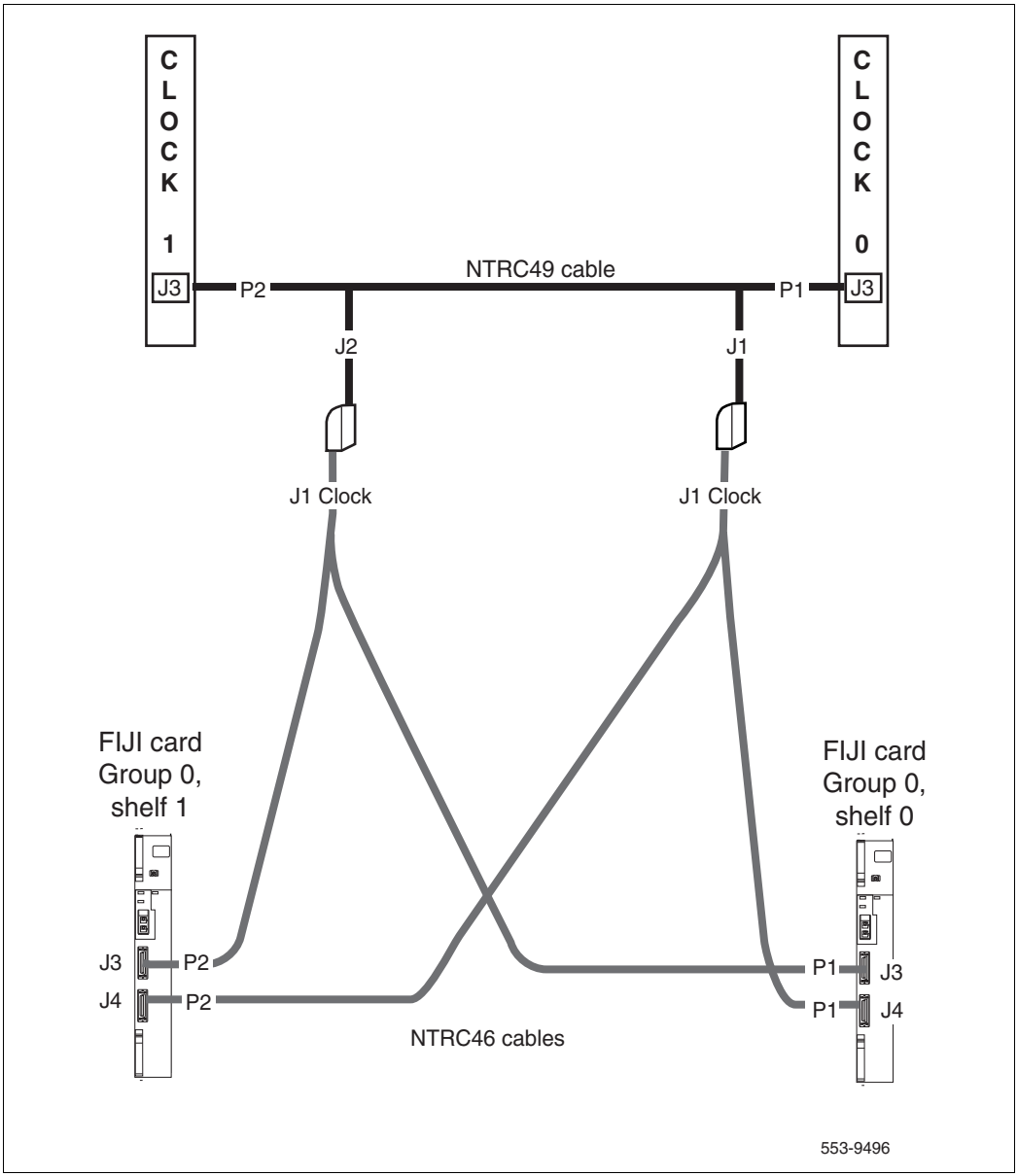
b. Connect P2 of the NTRC46 cable for Clock 0 to **J4** of the FIJI card in group 0, **shelf 1**

2 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.**

End of Procedure

Figure 24
Clock Controller cable configuration



Power down Core/Net 0

CAUTION

Service Interruption

Call processing is interrupted for approximately 60 minutes while the procedures are completed.

DANGER OF ELECTRIC SHOCK

In a DC-powered system, power to the column can remain on during the following procedures. In an AC-powered system, however, power to the entire column *must* be shut down throughout the procedures.

For AC-powered systems: set the MPDU circuit breaker located at the left end of the module to OFF (down position).

For DC-powered systems: set the breaker for the Core 0 module in the back of the column pedestal to OFF (down position).

Procedure 36
Removing 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 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 Use a 1/4” nut driver to 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 card cage.

CAUTION

Do not drop the mounting screws into the pedestal. Doing so can cause serious damage.

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 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 not to drop the nut or lock washer into the pedestal. See Figure 25 on page 129 for DC power connectors. See Figure 26 on page 130 for AC power connectors.

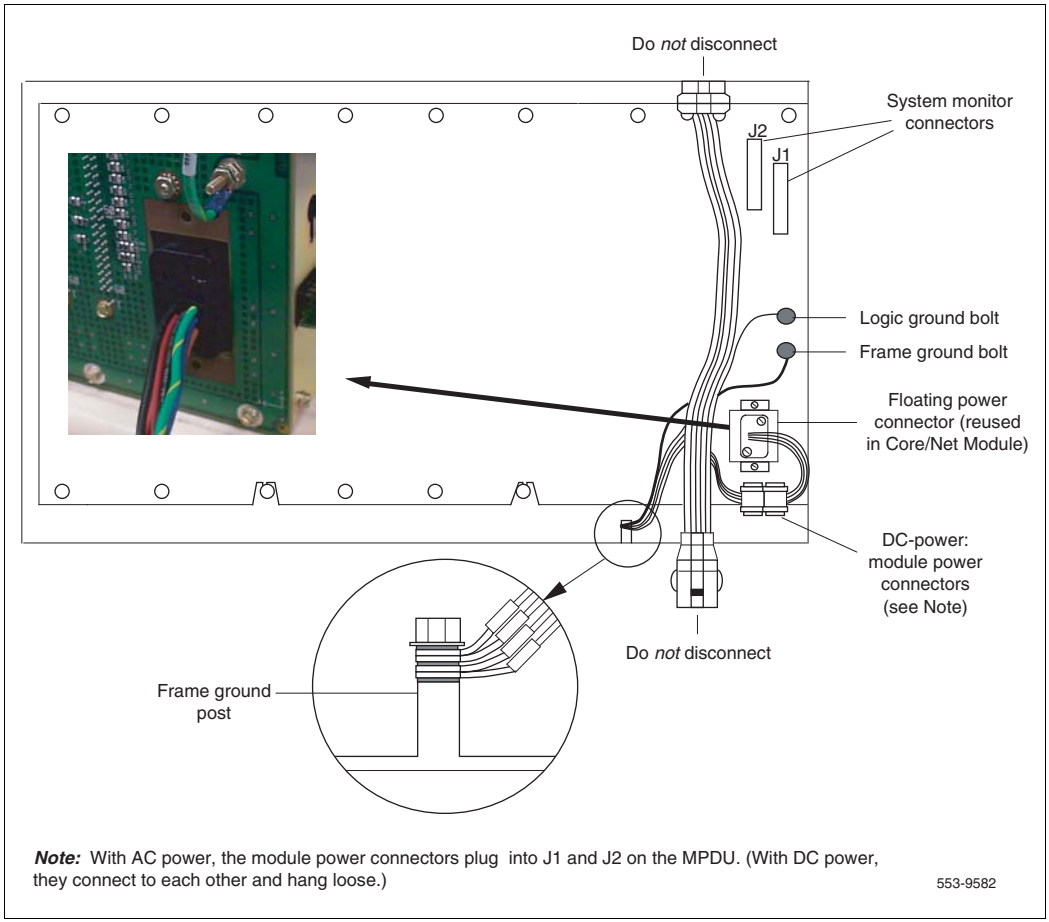
13 Remove the frame ground (FGND) (green) wire from the frame ground bolt on the module.

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.

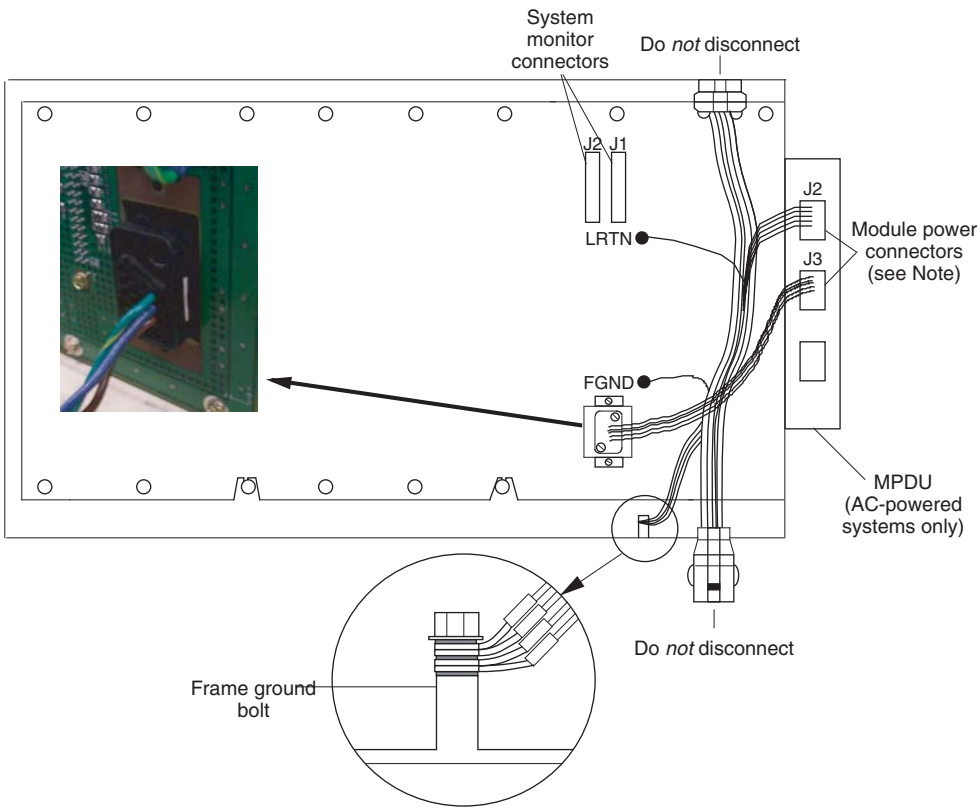
16 Remove the Core card cage from the module.

Figure 25
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.)

Figure 26
AC power connectors on the Core module backplane



Note: AC-powered system shown. With DC power, module power connectors connect to each other.

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17 Remove the power harness and reserve it for reinstallation as part of installing the new NT4N40 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 NT8D40.
- For DC systems, relocate power harness NT7D11.

WARNING

Be sure to perform the following step. If you do not tape the EMI shield in position, you cannot 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.

CAUTION

Damage to Equipment

Check for and remove any debris (such as screws) that fell into the base of the UEM module.

End of Procedure

Upgrade Core 0 hardware

Check that the main Core cards (front side) are installed

Procedure 37
Checking main Core card installation

The main Core cards are installed in the factory as shown in Figure 27 on page 133.

1 NT4N65AC CP PIV Core Network Interface (cCNI) cards:
Each system contains 1-4 NT4N65AC cCNI card per Core/Net module. The cCNI cards are located in slot c9-c12. If not already installed, install a P0605337 CP Card Slot Filler Panel to cover slots which do not contain cCNIs.

Note: In the NT4N40 Core/Net card cage, port 0 on the NT4N65AC Core to Network Interface (cCNI) Card in slot c9 must be configured as "group 0." Port 1 on this card must be configured as group 1. The cCNI and 3PE cards for group 0 communicate through the NT4N29 cables. The cCNi to 3PE cables for groups 1 to 7 communicate through the NTND14 cables.

2 Slots c13 and c14 are left empty. If not already installed, install a P0605337 CP Card Slot Filler Panel in each slot.

3 NT4N48 System Utility (Sys Util) card is located in slot c15.

a. Check side ID switch settings for SU card in Core/Net 0 according to Table 19.

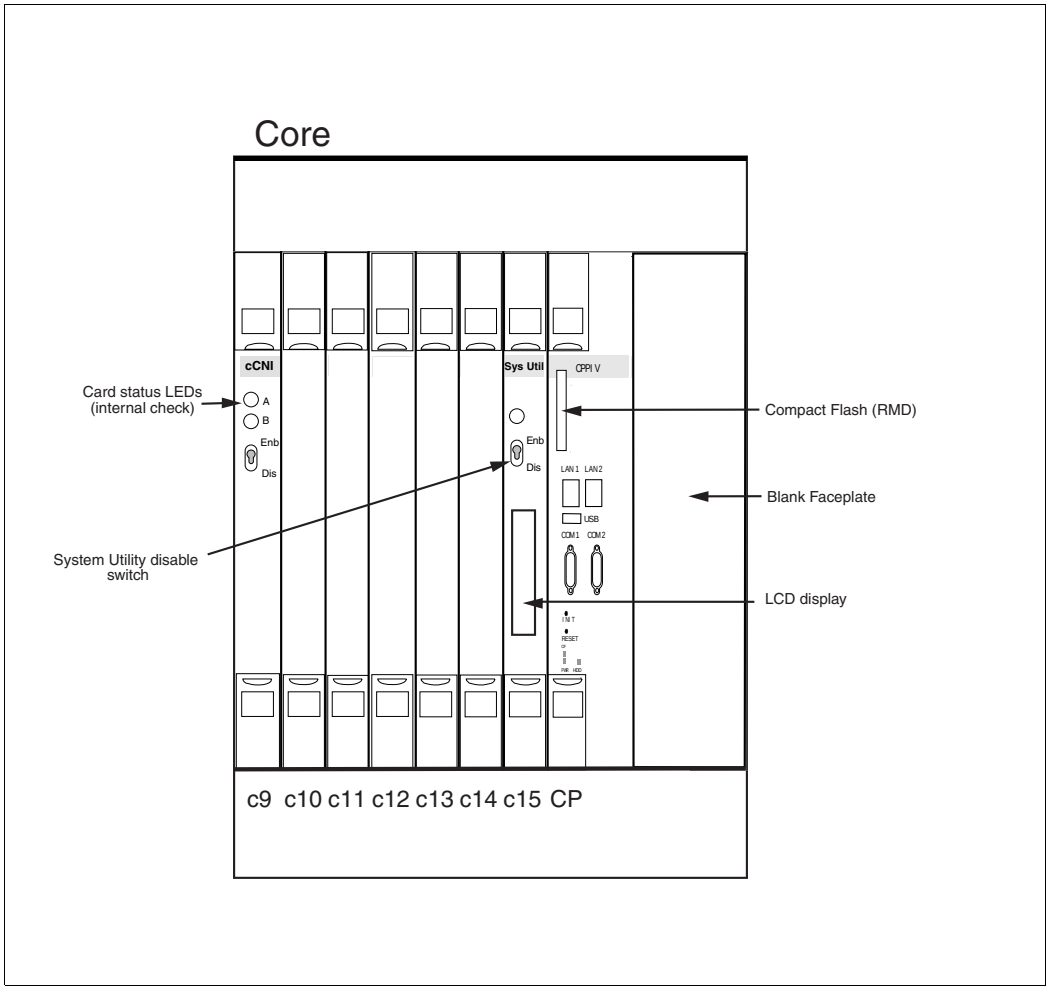
Table 19
Core module ID switch settings (System Utility card)

	Position 1	**Position 2**
Core/Net 0	On	On
Core/Net 1	Off	On

4 NT4N39 CP PIV is located in the Call Processor slot.

End of Procedure

Figure 27
Core card placement in the NT4N41 Core/Net Module (front)



Check factory-installed cables

Table 20 lists factory-installed cables. See Figure 28 on page 135.

Table 20
Factory-installed cables

Order Number	Description	Quantity per Core/Net shelf
NT4N4405	Shelf Power Cable	1
NT4N89AA	System Monitor cable	1
NT4N29AA	CNI to 3PE cable	2

Install the Security Device

Procedure 38
Installing the Security Device

The Security Device fits into the System Utility card (see Figure 29 on page 136).

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 PIV Software kit.

   Insert the Security Device into the Security Device holder on the System Utility card with the "Nortel" side facing up. Do not bend the clip more than necessary.

2 Check that the Security Device is securely in place.

Figure 28
Core/Net cable connections

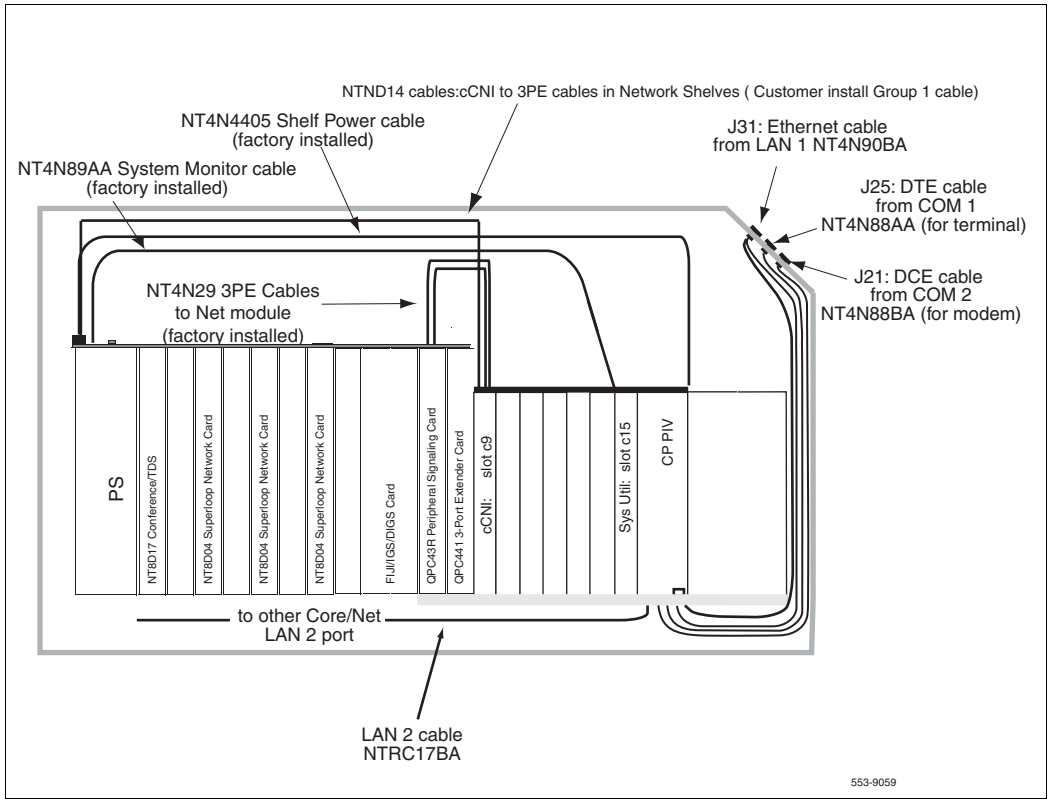
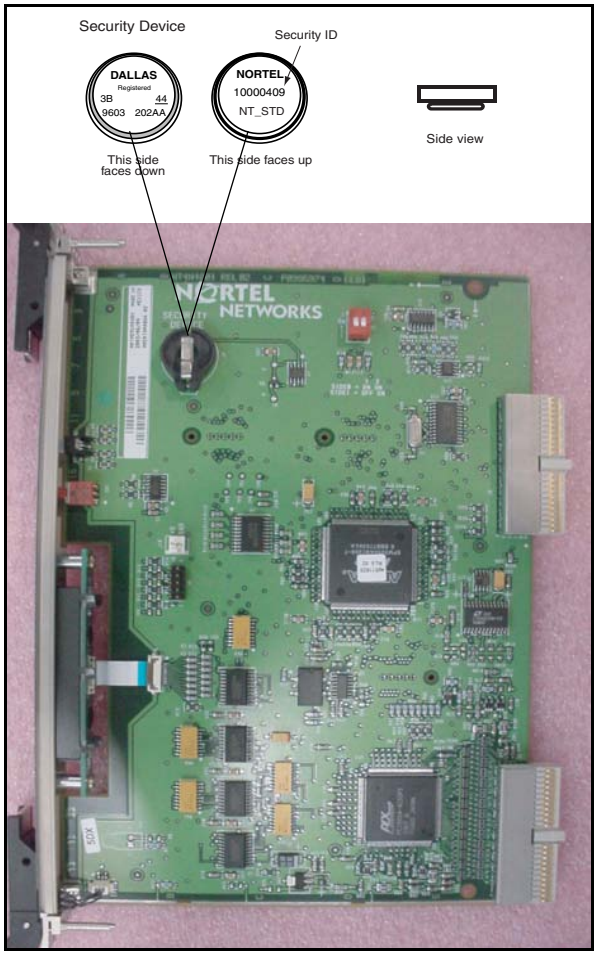


Figure 29
Security Device



Install the CP card cage in Core 0

Procedure 39
Installing the CP card cage in Core 0

1 Check that the card cage is configured as Core 0. See Table 21 for instructions.

Table 21
Core module ID switch settings (System Utility card)

	Position 1	Position 2
Core/Net 0	On	On
Core/Net 1	Off	On

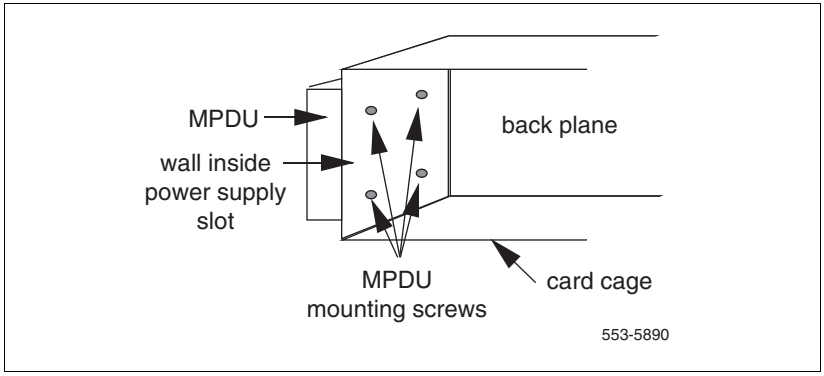
2 For AC-powered systems only, install the new MPDU (part of the CP PIV Upgrade kit) to the side on the NT4N40 card cage. The screws that secure the MPDU are accessible from the power supply slot. See Figure 30 on page 138.

Note: Prethread 2 bottom mounting screws at the back of the Core/Net shelf.

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 PIV card cage.

4 Slide the CP PIV card cage halfway into the module.

Figure 30
Location of the screws for the MPDU



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. Then 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

Damage to Equipment

Check for and remove any debris (such as screws) that fell into the base of the UEM module.

b. In DC-powered systems, connect the module power connectors to each other.

c. Attach the system monitor ribbon cables:

i. Connect the ribbon cable that goes down to the pedestal to connector J1 on the backplane.

ii. Connect the ribbon cable that goes up the column to J2 on the backplane.

d. Attach the green ground wire to the frame ground bolt on the module. (an 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.

e. Attach the orange logic return wire. Remove one nut and the lock washer from the LRTN bolt 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 Secure the card cage and EMI shield to the module re-using the existing screws.

9 Preroute cables NT4N88AA, NT4N88BA and NT4N90BA.

a. Route cable NT4N88AA from COM1 on the CP PIV faceplate to J25 on the I/O panel. (NT4N88AA is used to connect a terminal.)

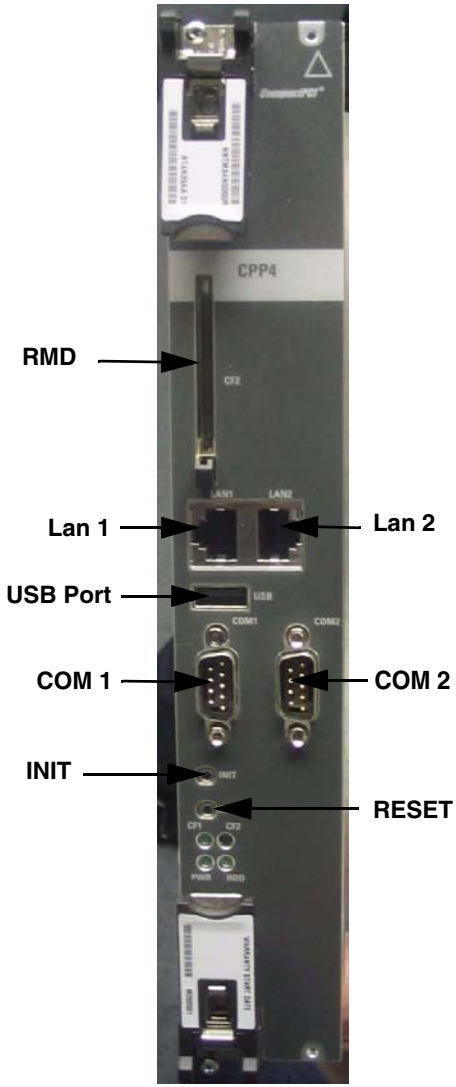
b. Route cable NT4N88BA from COM2 on the CP PIV faceplate to J21 on the I/O panel. (NT4N88BA is used to connect a modem.)

10 Route cable NT4N90BA from LAN 1 on the CP PIV faceplate to J31 (top) of the I/O panel.

11 Do not connect the NTRC17BA crossover ethernet cable at this time.

End of Procedure

Figure 31
CP PIV call processor card (front)



End of Procedure

Unpack and install NT6D41CA (DC) or NT8D29BA (AC) Power Supply

Procedure 40
Installing the power supply

1 Unpack the power supply.

2 Faceplate disable the power supply.

3 Insert power supply into Core/Net module power supply slot.

End of Procedure

Procedure 41
Relocating Network cards to CP PIV Core/Net 0

1 Move any existing cards from slots 0-11 of the old Core/Net 0 card cage to the same slots (0-11) in the new NT4N40 Core/Net 1 card cage, **except for the IGS/DIGS cards**.

2 Connect the tagged cables to the relocated cards.

3 When you move the 3PE card, check the switch settings and jumpers. See Table 14 on page 80.

   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 22 shows the 3PE settings for cards installed in CP Core/Net Modules.

Table 22
QPC441 3PE Card installed in the NT4N40 Module

Jumper Settings: Set Jumper RN27 at E35 to “A”.									
Switch Settings									
Module		D20 switch position							
NT4N40 (Option 81C CP PIV)		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
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

End of Procedure

Cable Core 0

Cable COM 1 and COM 2 to the I/O panel

1 Connect COM1 on the CP PIV faceplate to J25 on the I/O panel with cable NT4N88AA.

2 Connect COM2 on the CP PIV 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. The options for the LAN 1 connections are shown in Figure 32 on page 145.

Procedure 42
If the system will be connected to a LAN

1 Connect the “Dual Ethernet Adapter (RJ-45) 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 PIV faceplate to J31 (top) of the I/O panel with cable NT4N90BA. This connection can only be made *after* the Dual Ethernet Adapter is installed (see step 1 above).

3 Connect J31 to a LAN switch.

4 If a LAN switch is not available, connect J31 of Core 0 to J31 of Core 1 by NTRC17BA cable.

End of Procedure

Figure 32
Options for LAN 1 connection

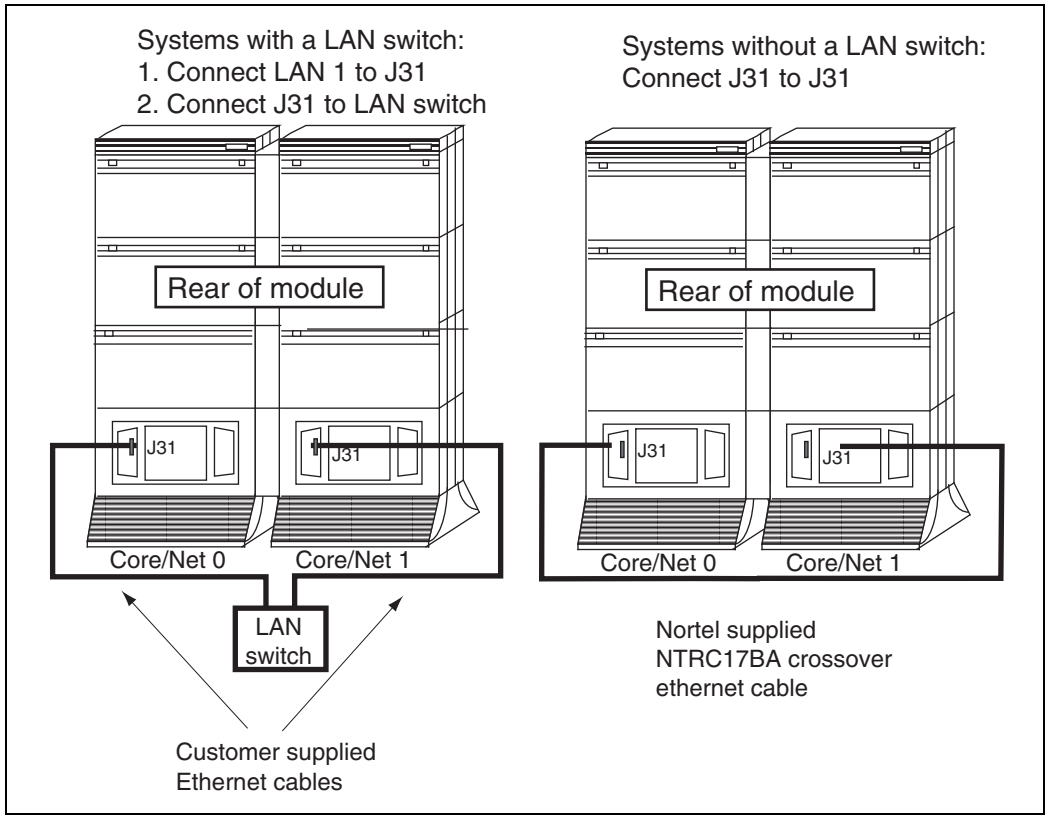
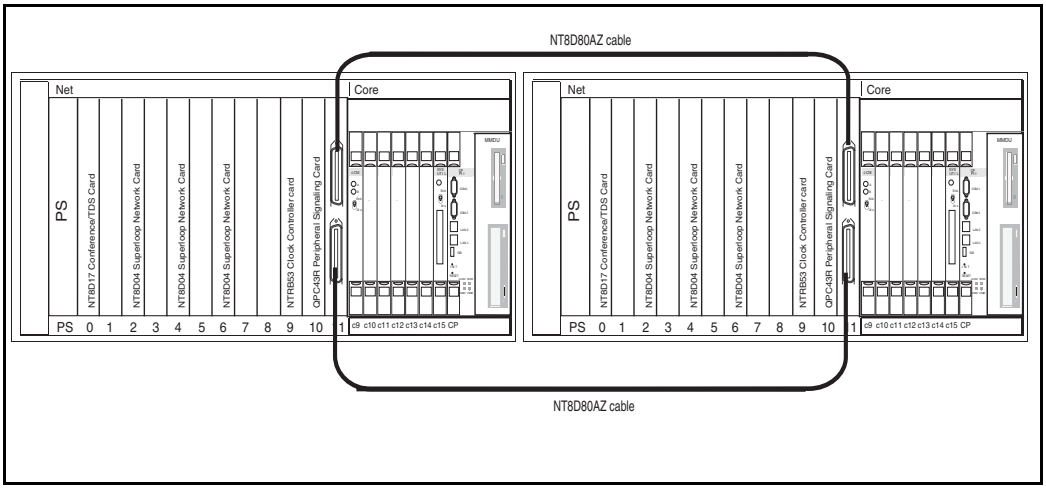


Figure 33
3PE card connections



In Core 0, inspect factory-installed cables

The NT4N29AA cables should be installed for the existing network group in Core/Net 0. If the system has XSDI cards, reinstall the cards and attach the cables. Inspect the system monitor cables (NT4N89).

Installing intermodule cables

Procedure 43
Installing intermodule cables

1. Connect the NT8D99AD and NT8D80BZ cables.
2. Install NT8D99AD cables between the D connectors on the backplane of each Core/Net module. Install another NT8D99AD cable between the E connectors on the backplane of each Core/Net module (see Figure 34 on page 147).

3 Install an NT8D80BZ cable between the J3 connector on the 3PE card in Core/Net 0 and the J3 connector on the 3PE card in Core/Net 1. Install another cable between the J4 connectors on the 3PE cards (see Figure 35 on page 148).

4 If the system has XSDI cards, reinstall the cards and attach the cables.

End of Procedure

Figure 34
Fanout Panel connections on the CP Core/Net backplane

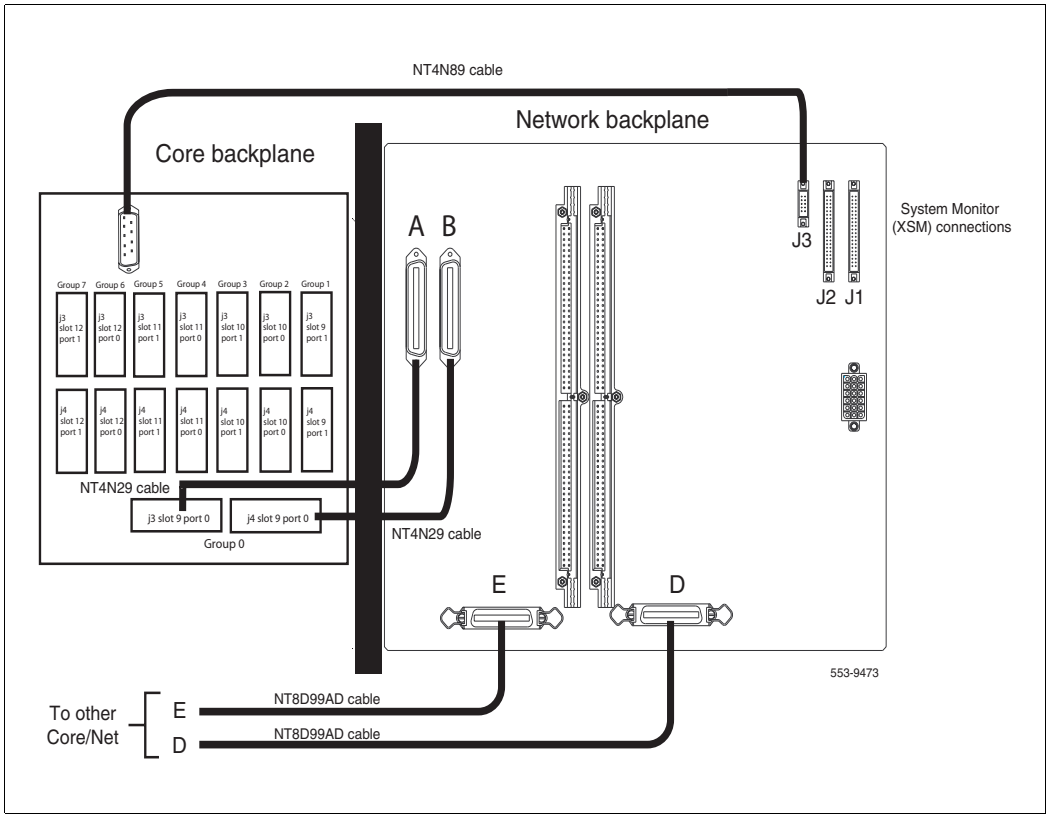
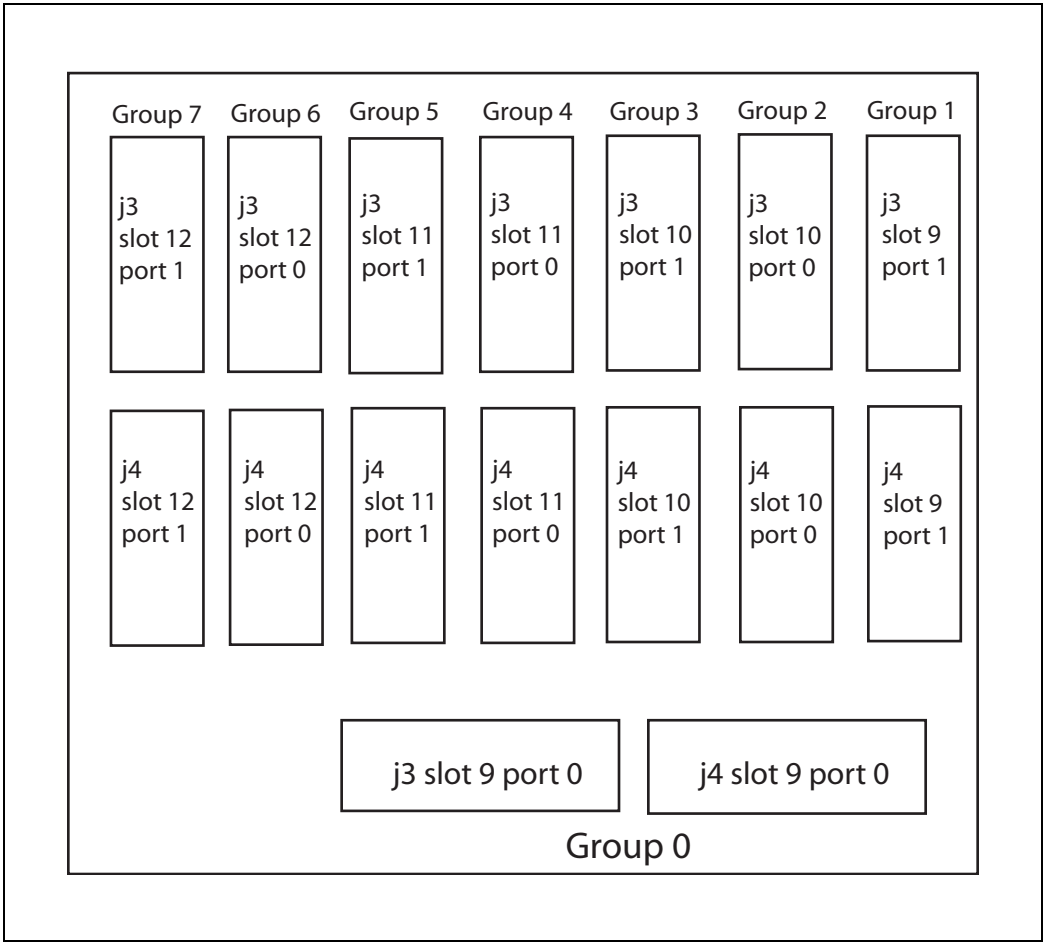


Figure 35
Fanout panel connectors



In Core 0, route and connect the cCNI to 3PE (NTND14) cables

The existing NTND14 cables can be reused for Network groups 1-7. Connect the NTND14 cables to the Fanout Panel in Core/Net 0. See Figure 36 on page 151 and Table 23 on page 150.

IMPORTANT!

When configuring NTND14 cables, observe the following rules:

- The shortest NTND14 Cable should always be used.
- A network group requires 4 NTND14 cables, 2 to each half group. Both cables to each half group must be the same length.
- Check existing NTND14 cables. Replace any cables that do not meet the above requirement.

Note: The NTND14 BX 50' cables are manufacture discontinued.

When upgrading to CP PIV, it is important to know whether Network group 0 will be in the Core/Net module or not. In many installations, Group 0 will be established in a standard Network shelf, and a higher network group will occupy the Core/Net module.

If Network group 0 will be in the Core/Net, the factory configuration of the new Core/Net modules is correct, and no further action is required.

If Network Group 0 will not be in the Core/Net module, some re-configuration of the Core/Net module is required to allow for concurrent or future use of the Network portion of the Core/Net as a higher Network group.

The NT4N40 shelf is factory-installed with NT4N29 cables and is configured as group 0. If the network portion of the Core/Net shelf is used as a higher network group, use the extraction tool to disconnect the NT4N29 cables from the Core backplane. Once the cables are disconnected, connect them to the appropriate group. For correct connector replacement, see Figure 36 on page 151.

WARNING

Damage to Equipment

Do not pry against the connector with the extraction tool. Simply inserting the tool between the connector and the securing clip is sufficient to unlock the connector. Prying may cause damage to the connector or the backplane pins.

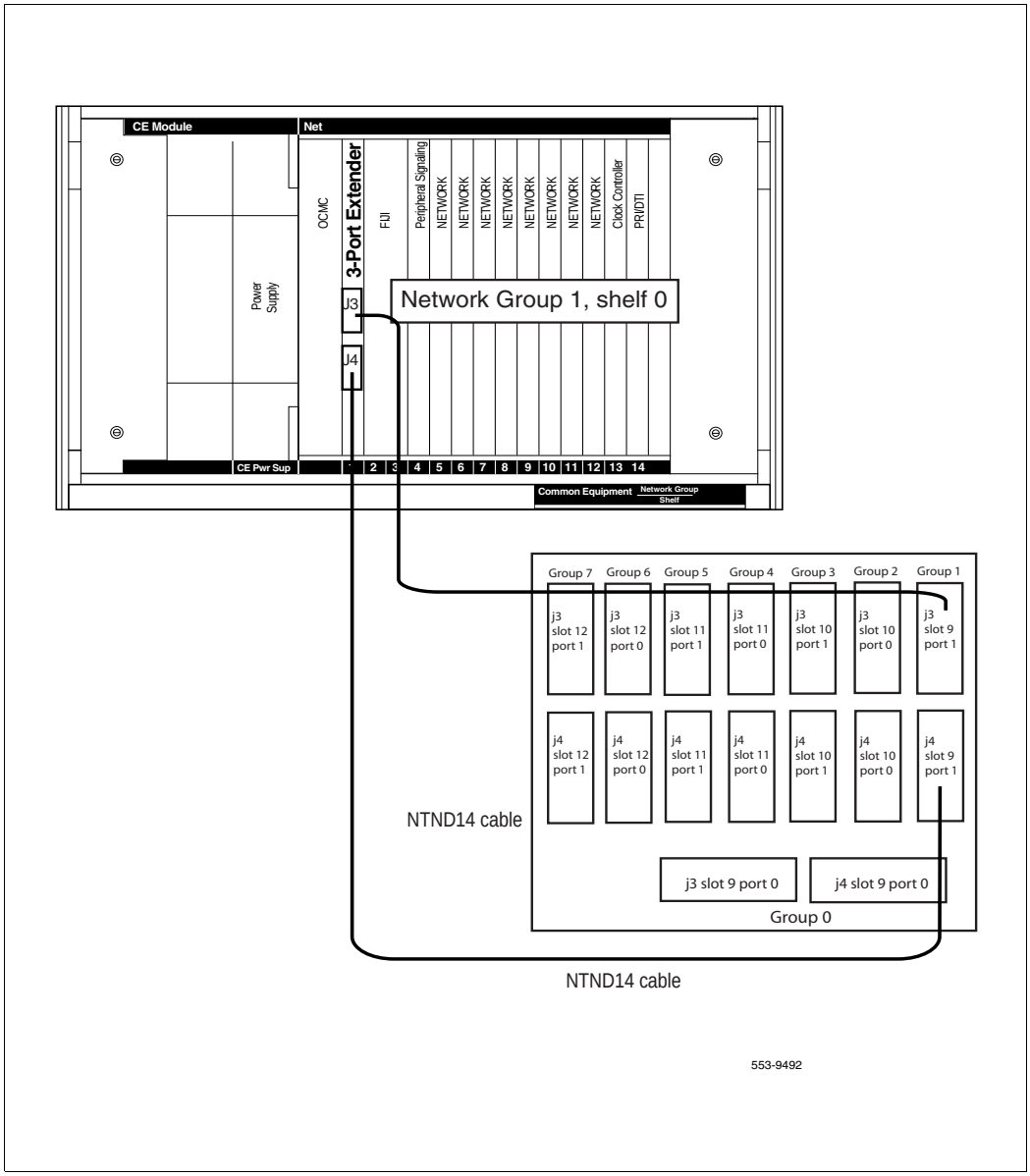
Table 23
Fanout Panel to 3PE card connectors

Group Number	Fanout Panel connector	3PE card connector
0	9-0, J3	A
0	9-0, J4	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 1: Group 0 cables (NT4N29) connect from the Fanout panel directly to the backplane of Core/Net 1 (see Figure 36 on page 151).

Note 2: Group 1 cables (NTND14) connect from the Fanout panel to the faceplate of the 3PE cards of Group 1 (see Figure 36 on page 151)

Figure 36
3PE Fanout Panel connections



Add Side 0 FIJI hardware

Procedure 44
Install Side 0 FIJI cards

1 Unpack the FIJI cards (NTRB33).

2 Faceplate-disable the NTRB33 cards.

3 Insert and seat the FIJI cards in all Side 0 shelves.

Note: Double slot FIJI cards install in slots 2 and 3 of the Network modules, and slots 8 and 9 of the Core/Net modules. Single slot FIJI cards (with vintages later than NTRB33BBE5) install in slot 2 of the Network modules, and slot 9 of the Core/Net modules.

End of Procedure

Procedure 45
Connect the FIJI to FIJI cables

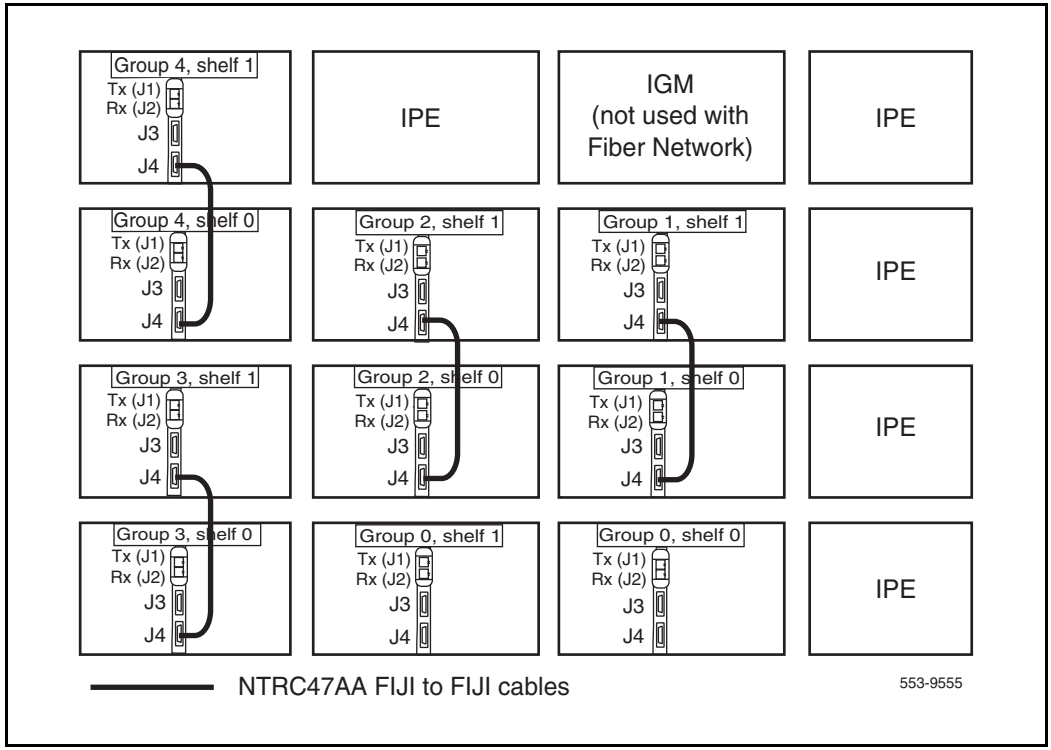
1 Connect P1 of a NTRC47 FIJI to FIJI cable to J4 of the FIJI cards in each Network shelf 1, except group 0.

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

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

End of Procedure

Figure 3
FIJI shelf 0 to FIJI shelf 1 connections



Procedure 46
Connecting the shelf 0 FIJI Ring cables (ascending)

Create Fiber Ring 0. Connect the FIJI cards in all Network shelves 0 in **ascending** order, from Tx to Rx ports (see Figure 37 on page 155 and Figure 38 on page 157).

IMPORTANT!

The shortest Fiber Cable must always be used.

The cables from group 0 to group 1 must always be the same length as the cables from the last group back to group 0.

The distance between the lengths of each fiber ring from group 0 to any other group must not exceed 50'. Rings are directional. Ring 0 is ascending and ring 1 is descending.

Note: When adding an additional network group, fiber cables must be changed to adhere to the rules above.

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.

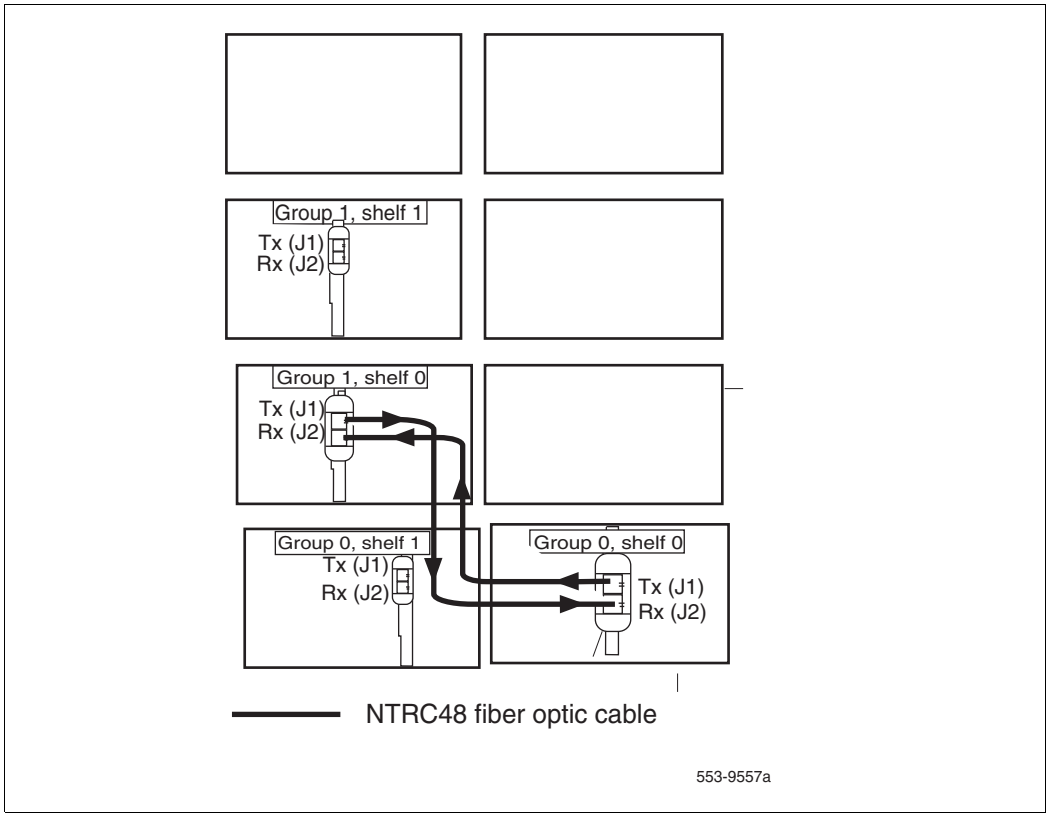
1 Start with group 0, shelf 0.

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.

Figure 37
Shelf 0 as*cending* fiber optic Ring (Meridian 1 Option 81C 2 group example)



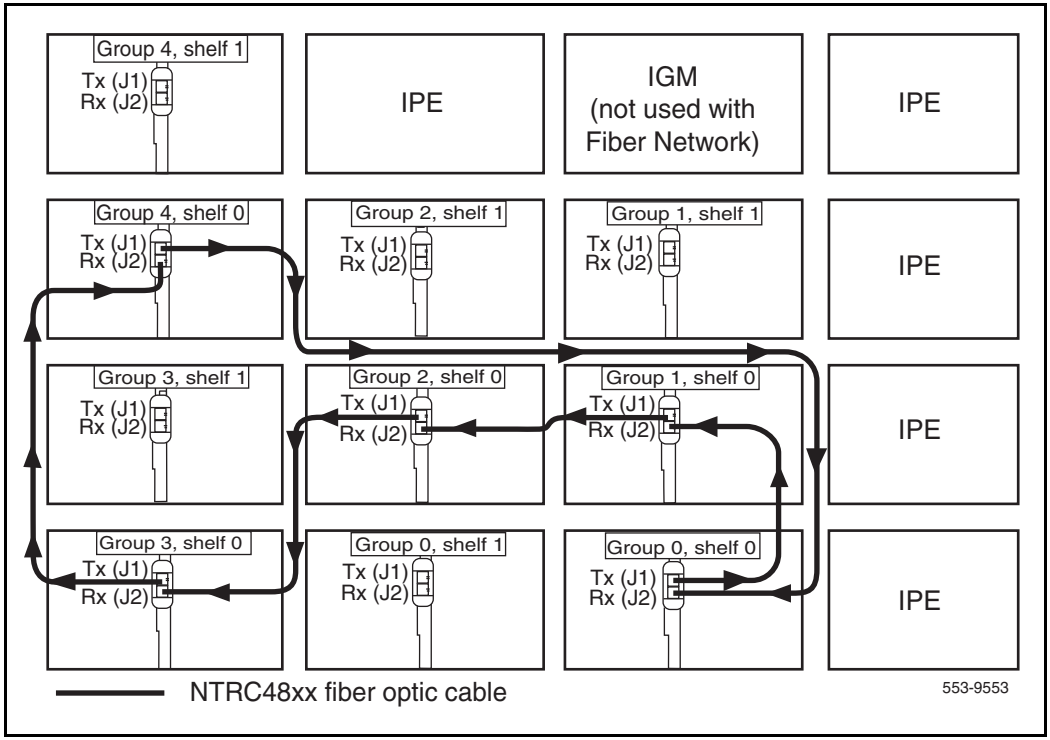
5 To complete the Ring, connect a final cable from the Tx (J1) port in the **highest number group** back to the Rx (J2) port in **Group 0, shelf 0.**

Table 24
FIJI Ring 0 connections

Groups X - 0 are cabled in ascending order		
Group/Shelf	**FIJI Connector**	**Tx/Rx**
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

End of Procedure

Figure 38
Shelf 0 *ascending* fiber optic Ring (Meridian 1 Option 81C 5 group example)



Procedure 47
Cabling the Clock Controllers to FIJI card

Connect the cables to the Clock Controllers as shown in Figure 24 on page 126:

1 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 for Clock 0 to **J4** of the FIJI card in group 0, **shelf 1**

2 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.**

End of Procedure

Power up Core 0

Procedure 48
Preparing for power up

1 Confirm that a terminal is connected to the J25 I/O panel connector on Core/Net 0.

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/0 panel in Core 0.

3 Check the terminal settings as follows:

a. 9600 Baud

b. 8 data

c. parity none

d. 1 stop bit

e. full duplex

f. XOFF

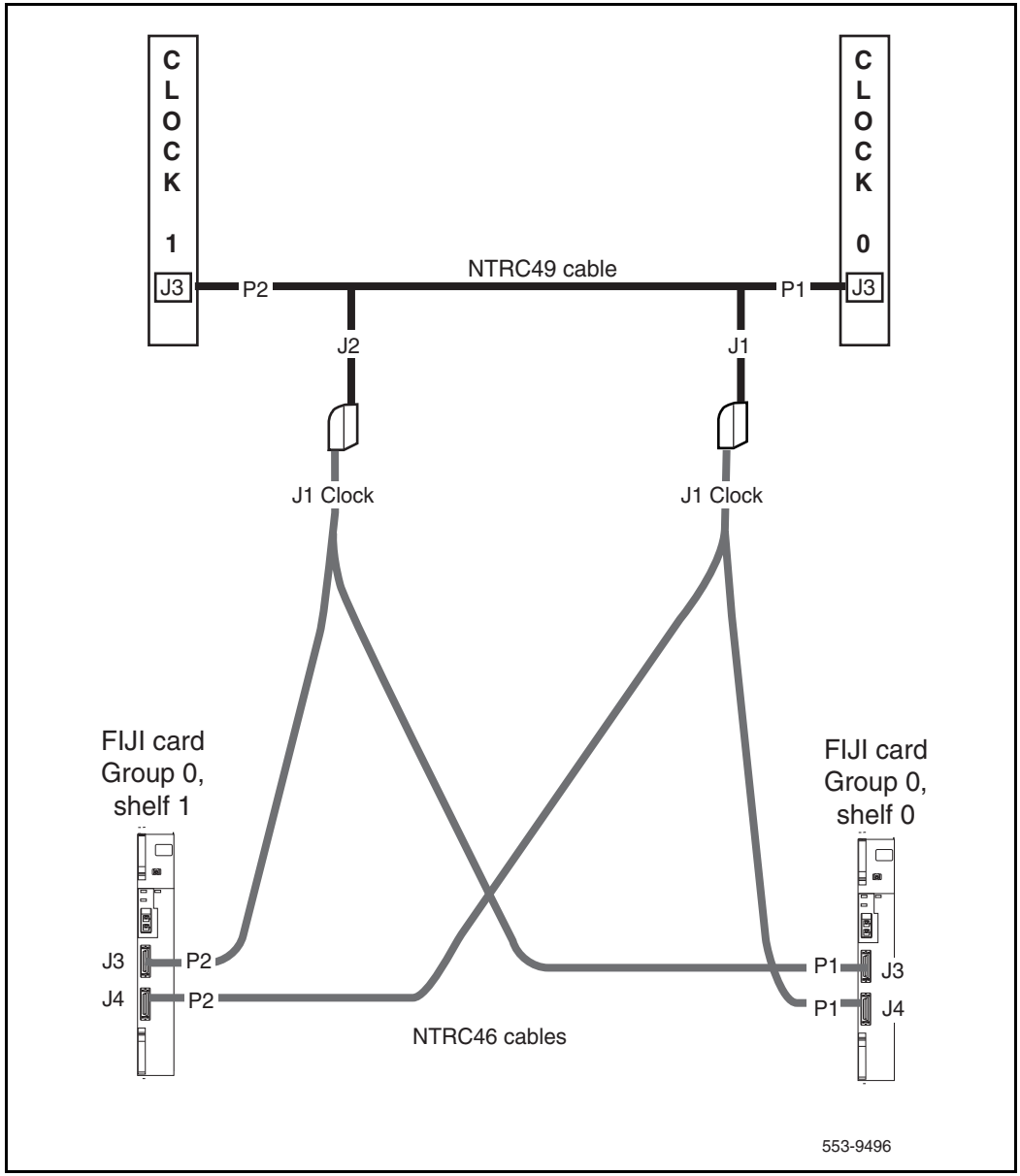
Note: If only one terminal is used for both Cores, the terminal will have to be switched from side-to-side to access each module. An “A/B” switch box can also be installed to switch the terminal from side to side.

4 Seat and Faceplate enable Clock Controller 0 and ALL FIJI on Shelf 0.

5 Faceplate enable all core and network cards.

End of Procedure

Figure 39
Clock Controller cable configuration



Power up Core cards

Procedure 49
Powering up core cards

1. Connect the LAN 2 NTRC17BA crossover ethernet cable to the faceplate of CPU 0.
2. For AC-powered systems (NT8D29BA): set the MPDU circuit breaker located at the left end of the module to ON (top position).
3. For DC-powered systems: faceplate enable the NT6D41CA power supply and then set the breaker for the Core 0 module in the back of the column pedestal to ON (top position).
4. 10 seconds after power up of Core/Net 0, press the INI button on Core/Net 1.
5. Wait for the system to initialize.
6. Start up and check all applications.

Core/Net 1 is now active. All network cards in Core/Net 0 and Core/Net 1 are enabled. Call processing is resumed.

End of Procedure

Procedure 50
Testing Core/Net 1

1. Check dial-tone.
2. Test the Fiber Rings

   See the *Software Input/Output: Maintenance* (NN43001-711) for more information about LD 39 commands.

a. Check that the Fiber Rings operate correctly:

LD 39	Load program
ENL RING 0	Enable Ring 0
STAT RING 0	Check the status of Ring 0 (HALF/HALF)
STAT RING 1	Check the status of Ring 1 (HALF/HALF)

b. Restore the Rings to Normal State:

RSET	Reset both Rings
RSTR	Restore both Rings to HALF state
ARCV ON	Turn Auto Recovery on

c. Check that the Rings operate correctly:

STAT RING 0	Check status of Ring 0 (HALF/HALF)
STAT RING 1	Check status of Ring 1 (HALF/HALF)
********	Exit program

3 Stat network cards:

LD 32	Load program
STAT x	Stat the network card, where x = loop number
********	Exit program

4 Test the clocks:

a. Verify that the clock controller is assigned to the *active* Core:

LD 60	Load program
SSCK *x*	To get the status of the clock controllers (*x* is "0" or "1" for Clock 0 or Clock 1)
SWCK	Switch Clock (if necessary)
********	Exit program

b. Verify that the clock controllers are switching correctly:

SWCK	Switch Clock
	Note: You must wait a minimum of one minute for clocks to synchronize.
SWCK	Switch Clock again
********	Exit program

5 Stat D-channels:

LD 96	
STAT DCH	Stat all D-channels
********	Exit program

6 Stat all T1 interfaces:

LD 60	
STAT	Stat all DTI and PRI
********	Exit program

7 Stat network cards:

LD 32	
STAT x	x = loop number
********	Exit program

8 Print status of all controllers:

LD 97	
REQ	PRT
TYPE	XPE (returns status of all controller cards)
********	Exit program

9 Make internal, external and network calls.

10 Check attendant console activity.

11 Check DID trunks.

12 Check applications.

End of Procedure

CS 1000 Release 7.0 upgrade

Upgrading the software

Procedure 51 outlines the steps involved in installing CS 1000 Release 7.0 for the CP PIV processor.

Procedure 51
Upgrading the software

1 Check that a terminal is now connected to COM 1port in CP 1. The settings for the terminal are:

a. Terminal type: VT100

b. 9600 Baud

c. Data bits: 8

d. Parity: none

e. Stop bits: 1

f. Flow control: none

2 Insert the RMD into the CF card slot on Call Processor 1 (inactive).

3 Perform a KDIF in LD 143.

4 Press the manual RESET button the Call Processor 1 (inactive) card faceplate.

5 Call up the Software Installation Program during a SYSLOAD. During SYSLOAD, the following prompt appears:

```
Read boot parameters from:

  F: Faceplate compact flash

  H: Hard Drive

  0 [H]
```

Press F to boot from the compact flash (which contains the software).

For the CP PIV upgrade, the **F** must be in uppercase.

6 Enter <CR> at the Install Tool Menu.

Note: Blank CF prompts begin here.

```
Mounting /cf2
Found /cf2/nvram.sys
Mounting /boot
Found /boot/nvram.sys

                    Selecting nvram file from 2
sources

Read boot parameters from:
F: Faceplate compact flash
H: Hard Drive

 10 [F]

Press <CR> when ready

Reading boot parameters from /boot/nvram.sys

Press any key to stop auto-boot...
```

7 The system then enters the `Main Menu` for keycode authorization.

```
                M A I N    M E N U

The Software Installation Tool will install or
upgrade Communication Server 1000 Software,
Database and the CP-BOOTROM. You will be
prompted throughout the installation and given
the opportunity to quit at any time.

Please enter:

<CR> -> <u> - To Install menu

        <t> - To Tools menu.

        <q> - Quit.

        Enter Choice> <u>
```

The system searches for available keycode files in the “keycode” directory on the RMD. If no keycode file is found, the system displays the following menu:

```
Communication Server 1000 Software/Database/
BOOTROM RMD Install Tool
================================================
====================

No keycode files are available on the removable
media.

Please replace the RMD containing the keycode
file(s).

Please enter:

          <CR> -> <a> - RMD is now in the drive.

          <q> - Quit.

          Enter choice>
```

At this point, either replace the RMD or quit the installation. If you select option “<q> - Quit.”, the system requires confirmation.

```
Communication Server 1000 Software/Database/
BOOTROM RMD Install Tool

================================================
====================

You selected to quit. Please confirm.

Please enter:

        <CR> -> <y> - Yes, quit.

        <n> - No, DON’T quit.

        Enter choice>
```

If “y” (quit) is selected, the system prints “INST0127 Keycode file is corrupted. Check Keycode file.” and returns to the installation main menu.

After accessing the RMD containing the valid keycode(s), press <CR>. The system displays the keycode file(s) available as in the following example:

```
The following keycode files are available on the
removable media:

Name                      Size   Date      Time

--------------------    -------          -----

<CR> -> <1> -keycode.kcd 1114 mon-d-year hr:min

<2> - KCport60430m.kcd   1114 mon-d-year hr:min

<q> - Quit

Enter choice> 2
```

Note: A maximum of 20 keycode files can be stored under the “keycode” directory on the RMD. The keycode files must have the same extension “.kcd”.

8 Select the keycode to be used on the system.The system validates the selected keycode and displays the software release and machine type authorized.

```
Validating keycode ...

Copying "/cf2/keycode/KCport60430m.kcd" to "/u/
keycode" -

Copy OK: 1114 bytes copied

The provided keycode authorizes the install of
xxxx software (all subissues) for machine type
xxxx (CP PIV processor on <system>).
```

Note: The software release displayed depends on the keycode file content. The system requests keycode validation.

```
Communication Server 1000 Software/Database/
BOOTROM RMD Install Tool

================================================

Please confirm that this keycode matches the
System S/W on the RMD.

Please enter:

         <CR> -> <y> - Yes, the keycode matches.
Go on to Install Menu.

         <n> - No, the keycode does not match.
Try another keycode.

Enter choice>
```

9 If the keycode matches, enter <CR> to continue the installation. The system displays the Install Menu. Select option "<a>.

Note: Option A uses the existing db from the FMD. External database backup is Option B.

```
Communication Server 1000 Software/Database/
BOOTROM RMD Install Tool
================================================

I N S T A L L    M E N U

        The Software Installation Tool will
install or upgrade Communication Server 1000
Software, Database and the CP-BOOTROM. You will be
prompted throughout the installation and given the
opportunity to quit at any time.

        Please enter:

<CR> -> <a> - To install Software, CP-BOOTROM.

        <b> - To install Software, Database,
CP-BOOTROM.

        <c> - To install Database only.

        <d> - To install CP-BOOTROM only.

        <t> - To go to the Tools menu.

        <k> - To install Keycode only.

               For Feature Expansion, use OVL143.

        <p> - To install 3900 set Languages.

        <q> - Quit.

        Enter Choice> <a>
```

10 The system requires the insertion of the RMD containing the software to be installed.

```
Communication Server 1000 Software/Database/
BOOTROM RMD Install Tool

================================================
Please insert the Removable Media Device into the
drive on Core x.

Please enter:

         <CR> -> <a> - RMD is now in drive.
Continue with s/w checking.

         <q> - Quit.

Enter choice> <CR>
```

11 If the RMD containing the software is already in the drive, select option "<a> - RMD is now in drive. Continue with s/w checking." (or simply press <CR>) to continue. If the RMD is not yet in the drive, insert it and then press <CR>.

12 The system displays the release of the software found on RMD under the "swload" directory and requests confirmation to continue the installation.

```
Communication Server 1000 Software/Database/
BOOTROM RMD Install Tool

================================================

The RMD contains System S/W version xxxx.

Please enter:

        <CR> -> <y> - Yes, this is the correct
version. Continue.

        <n> - No, this is not the correct version.
Try another RMD or a different keycode.

Enter choice> <CR>
```

Note: If the RMD contains the correct software release, select option "<y> - Yes, this is the correct version. Continue." (or simply press <CR>) to continue. If the software release is not correct and you want to replace the RMD, insert the correct RMD in the drive and then press <CR>. If you want to replace the keycode, select option "<n> - No, this is not the correct version".

13 Choosing Yes for the Dependency Lists installation.

Note: If Dependency Lists are not installed on media, the following prompts do not appear. Proceed to step 14 on page 174.

Do you want to install Dependency Lists?

Please enter:

<CR> -> <y> - Yes, Do the Dependency Lists installation

<n> - No, Continue without Dependency Lists installation

Enter choice>

The default choice is YES as shown in the prompt.

If the choice is no, then the following prompt will appear for the confirmation:

Are you sure?

Please enter:

<CR> -> <n> - No, Go to the Dependency List menu

<y> - Yes, Go to the next menu

Enter choice>

The default choice is NO which will return the user to deplist menu.

Enable Automatic Centralized Software Upgrade (CSU) Feature?

Please enter:

<CR> -> <y> - Yes

<n> - No

Enter choice>

14 Select to enable/disable CSU option.

Note: if Sequential is selected **<1>**, upgrades to the MG 1000Es are performed across the LAN in a sequential manner. One MG 1000E is upgraded at a time. No other MG 1000E upgrades are initiated until the current MG 1000E completes its installation.

If Simultaneous is selected **<2>**, upgrades to the MG 1000Es are performed simultaneously across the LAN. Up to eight MG 1000Es are upgraded at the same time. If there are more than eight MG 1000Es, the upgrade to the next MG 1000E begins after the upgrade of one MG 1000E is complete. The following warning is presented to the installer:

```
WARNING:
Call Processing is not guaranteed to operate on the call server
during simultaneous upgrades.
Do you wish to proceed? (y/n)
```

```
Set Automatic Centralized Software Upgrade Mode to:

            Please enter:

<CR> -> <1> - Sequential

          <2> - Simultaneous

           Enter choice>

>Processing the install control file ...

>Installing release 0600x
```

15 The PSDL files menu appears. Enter the appropriate choice for the site's geographic location.

```
***********************************************
PSDL INSTALLATION MENU

The PSDL contains the loadware for all
downloadable cards in the system and loadware for
M3900 series sets.

***********************************************
Select ONE of the SEVEN PSDL files:

1. Global 10 Languages
2. Western Europe 10 Languages
3. Eastern Europe 10 Languages
4. North America 6 Languages
5. Spare Group A
6. Spare Group B
7. Packaged Languages
[Q]uit, <CR> - default

By default option 1 will be selected.
Enter your choice ->x

>Copying new PSDL ...
```

16 The installation summary screen appears. Verify the parameters and enter <CR> when ready.

17 Enter <CR> to confirm and continue upgrade.

Note: After entering yes below, the system copies the software from RMD to FMD (the files copied are listed). This file copy takes between 5 and 10 minutes to complete.

```
 Please enter:

<CR> -> <y> - Yes, start upgrade.

       <n> - No, stop upgrade. Return to the Main
Menu.


        Enter choice>

>Checking system configuration

You selected to upgrade Software release: XXXX to
release: xxxx. This will erase all old system
files.

This will  create  all  necessary  directories and
pre-allocate files on the hard disk.

You  may continue  with software  upgrade or quit
now and leave your software unchanged.

Please enter:

        <CR> -> <a> - Continue with upgrade.

        <q> - Quit.

        Enter choice>
```

18 Successful installation confirmation appears, enter <CR> to continue.

```
Communication Server 1000 Software/Database/
BOOTROM RMD Install Tool

================================================

Software release xxxx was installed successfully
on Core x.

All files were copied from RMD to FMD.


Please press <CR> when ready ...
```

19 Press "Enter" after checking the Installation summary
.

20 Upon returning to the main install menu, enter **q** to quit.

```
                I N S T A L L    M E N U

        The Software Installation Tool will
install or upgrade Succession Enterprise System
Software, Database and the CP-BOOTROM. You will be
prompted throughout the installation and given the
opportunity to quit at any time.

        Please enter:

<CR> -> <a> - To install Software, CP-BOOTROM.

        <b> - To install Software, Database,
CP-BOOTROM.

        <c> - To install Database only.

        <d> - To install CP-BOOTROM only.

        <t> - To go to the Tools menu.

        <k> - To install Keycode only.

                For Feature Expansion, use OVL143.

        <p> - To install 3900 set Languages.

        <q> - Quit.

        Enter Choice> q
```

21 The system then prompts you to confirm and reboot. Enter <CR> to quit. Enter <CR> again to reboot.

```
You selected to quit. Please confirm.

    Please enter:

<CR> -> <y> - Yes, quit.

        <n> - No, DON'T quit.


        Enter choice> <CR>

You selected to quit the Install Tool.

You may reboot the system or return to the Main
Menu.




        ------------------------------

        DO NOT REBOOT USING RESET BUTTON!!!


        ------------------------------


        Please enter:

<CR> -> <a> - Reboot the system.

        <m> - Return to the Main menu.

        Enter Choice> <CR>

>Removing temporary file "/u/disk3521.sys"

>Removing temporary file "/u/disk3621.sys"

>Rebooting system ...
```

At this point the system reloads and initializes.

End of Procedure

Verifying the upgraded database

Procedure 52
Verifying the upgraded database

1 Print ISSP (system software issue and patches)

LD 22	Load program
REQ	ISSP
********	Exit program

Core 1 is now active, clock 1 is active, FIJI 1 is half/half, CNI is disabled in Core 0. The system is in split mode.

End of Procedure

Making the system redundant

At this point, Core/Net 0 is ready to be synchronized with Core/Net 1.

Procedure 53
Making the system redundant

1 The LAN 1 and LAN 2 cables should be attached to the CP PIV faceplate connectors on Core 0 and Core 1.

2 Enter LD 135 and issue the JOIN command. The high speed pipe (HSP) status is now up. This begins the synchronization of the Call Servers.

LD 135	Load program
JOIN	Join the 2 CPUs together to become redundant

3 Once the synchronization of memories and drives is complete, STAT the CPU and verify that the CPUs are in a true redundant state.

LD 135

STAT CPU	Obtain status of CPU and memory
********	Exit the program

```
.stat cpu


cp 0 16 PASS -- STDBY


TRUE REDUNDANT

DISK STATE = REDUNDANT

HEALTH  = 20

VERSION = Mar  3 2005, 16:26:40

 Side = 0, DRAM SIZE = 512 MBytes


cp 1 16 PASS -- ENBL


TRUE REDUNDANT

DISK STATE = REDUNDANT

HEALTH = 20

VERSION = Mar  3 2005, 16:26:40

 Side = 1, DRAM SIZE = 512 MBytes
```

4 Tier 1 and Tier 2 health of both Cores must be identical in order to successfully switch service from Core 1 to Core 0.
CPUs.

LD 135

STAT HEALTH	Obtain status of CPU and memory
****	Exit the program

```
.stat health
Local (Side 0, Active, Redundant):
Components without TIER 1 Health contribution:
================================================
     disp 0 15 1:In Service
     sio2 0 15 1:In Service
          cp 0 16:In Service
            ipb 0:In Service
TIER 1 Health Count Breakdown:
====================================
     sio8 0 16 1: 0002
     sio8 0 16 2: 0002
       sutl 0 15: 0002
       strn 0 15: 0002
     xsmp 0 15 1: 0002
     cmdu 0 16 1: 0008
      eth 0 16 0: 0002
Local TIER 1 Health Total: 20
```

```
TIER 2 Health Count Breakdown:

=====================================

ELAN 16 IP : 47.11.138.150 Health = 2

ELAN 17 IP : 47.11.138.153 Health = 2


Local AML over ELAN Total Health:4

Local Total IPL Health = 6


IPL connection history:3 3 3 3 3 3 3 3 3 3 3 3 3
3 3 3 3 3


Local TIER 2 Health Total:10


Remote (Side 1, Inactive, Redundant):

Components without TIER 1 Health contribution:

     disp 1 15 1:In Service

     sio2 1 15 1:In Service

         cp 1 16:In Service

           ipb 1:In Service

TIER 1 Health Count Breakdown:

     sio8 1 16 1: 0002
     sio8 1 16 2: 0002
      sutl 1 15: 0002
      strn 1 15: 0002
      xsmp 1 15 1: 0002
      cmdu 1 16 1: 0008
       eth 1 16 0: 0002

Remote TIER 1 Health Total: 20
```

```
TIER 2 Health Count Breakdown:

=====================================

ELAN 16 IP : 47.11.138.150 Health = 2

ELAN 17 IP : 47.11.138.153 Health = 2


Remote AML over ELAN Total Health:4

Remote Total IPL health = 6


Remote TIER 2 Health Total:10
```

The system is now operating in full redundant mode with Core/Net 1 active.

Note: On FNF based systems after the INI:
A FIJI download will occur if the FIJI firmware on Bank 1 of the FIJI card is different from the firmware on the system hard drive (PSDL file). This is automatic and no attempt should be made to prevent the download. The system will switch full to one ring, downloading up to 4 FIJI cards on the opposite ring at a time. This process continues on both rings until all FIJI's have been downloaded. The rings will then reset and come into service with the highest firmware available. This process is not service affecting. Depending on the number of groups installed, this process may take up to 20 minutes per ring.

Note: The single slot FIJI packs (NTRB33BBE5) require a different firmware than double slot FIJI packs. The single slot and double slot firmware is available from the system hard drive. The FIJI card downloads the required firmware based on the FIJI card ID information.

End of Procedure

Completing the CP PIV upgrade

LD 137

The CMDU/MMDU commands are not applicable to CP PIV. Instead, the following commands are used in LD 137.

- STAT FMD
  display text: **Status of both Fixed Media Devices (FMD)**
  command parameter: none
- STAT FMD
  display text: **Status of the specified Fixed Media Device**
  command parameter: “core #” with values of 0 or 1
- STAT RMD
  display text: **Status of both Removable Media Devices (RMD)**
  command parameter: none
- STAT RMD
  display text: **Status of the specified Removable Media Device**
  command parameter: “core #” with values of 0 or 1

Testing the Cores

Procedure 54
Testing Core/Net 1

At this point in the upgrade, Core/Net 0 is tested from active Core/Net 1. Upon successful completion of these tests, call processing is switched and the same tests are performed on Core/Net 1 from active Core/Net 0.

From Core/Net 1, perform these tests:

1 Perform a redundancy sanity test:

LD 135	Load program
STAT CPU	Obtain status of CPU and memory
TEST CPU	Test CPU

2 Test the System Utility card and the cCNI cards:

LD 135	Load program
STAT SUTL	Obtain the status of the System Utility card
TEST SUTL	Test the System Utility card
STAT CNI c s	Obtain status of cCNI cards (core, slot)
TEST CNI c s	Test cCNI (core, slot)

3 Test system redundancy:

LD 137	Load program
TEST RDUN	Test redundancy
DATA RDUN	Test database integrity
STAT FMD	Status of one or both Fixed Media Devices (FMD)
STAT RMD	Status of one or both Removable Media Devices (RMD)

4 Install the two system monitors. Test that the system monitors are working:

LD 37	Load program
ENL TTY x	Enable the XMS, where x= system XMS

STAT XSM	Check the system monitors
********	Exit program

5 Clear the display and minor alarms on both Cores:

LD 135	Load program
CDSP	Clear displays on the cores
CMAJ	Clear major alarms
CMIN ALL	Clear minor alarms

6 Test the clocks:

a. Verify that the clock controller is assigned to the *active* Core:

LD 60	Load program
SSCK *x*	Obtain status of the clock controllers (*x* is "0" or "1" for Clock 0 or Clock 1)
SWCK	Switch the Clock (if necessary)
********	Exit program

b. Verify that the Clock Controllers are switching correctly:

SWCK	Switch Clock
	Note: You must wait a minimum of one minute for clocks to synchronize.
SWCK	Switch Clock again

7 Test the Fiber Rings:

See *Software Input/Output: Maintenance* (NN43001-711) for more information about LD 39 commands.

a. Check that the Fiber Rings operate correctly:

LD 39	Load program
STAT RING 0	Check the status of Ring 0 (HALF/HALF)
STAT RING 1	Check the status of Ring 1 (HALF/HALF)

b. If necessary, restore the Rings to Normal State:

RSTR	Restore both Rings to HALF state

c. Check that the Rings operate correctly:

STAT RING 0	Check the status of Ring 0 (HALF/HALF)
STAT RING 1	Check the status of Ring 1 (HALF/HALF)

8 Check the status of the FIJI alarms:

STAT ALRM	Query the alarm condition for all FIJI cards in all Network Groups
****	Exit program

9 Check applications.

10 Check dial tone.

End of Procedure

Switching call processing

Procedure 55
Switching call processing

LD 135	Load program
SCPU	Switch call processing from Core/Net 1 to Core/ Net 0

Core/Net 0 is now the active call processor.

Procedure 56
Testing Core/Net 0

From Core/Net 0, perform these tests:

1 Perform a redundancy sanity test:

LD 135	Load program
STAT CPU	Obtain status of CPU and memory
TEST CPU	Test CPU

2 Test the System Utility card and the cCNI cards:

LD 135	Load program
STAT SUTL	Obtain the status of the System Utility card
TEST SUTL	Test the System Utility card
STAT CNI c s	Obtain status of cCNI cards (core, slot)
TEST CNI c s	Test cCNI (core, slot)

3 Test system redundancy:

LD 137	Load program
TEST RDUN	Test redundancy
DATA RDUN	Test database integrity
STAT FMD	Status of one or both Fixed Media Devices (FMD)
STAT RMD	Status of one or both Removable Media Devices (RMD)

4 Install the two system monitors. Test that the system monitors are working:

LD 37	Load program
ENL TTY x	Enable the XMS, where x= system XMS
STAT XSM	Check the system monitors
********	Exit program

5 Clear the display and minor alarms on both Cores:

LD 135	Load program
CDSP	Clear displays on the cores
CMAJ	Clear major alarms
CMIN ALL	Clear minor alarms

6 Test the clocks:

a. Verify that the clock controller is assigned to the *active* Core:

LD 60	Load program
SSCK *x*	Obtain status of the clock controllers (*x* is "0" or "1" for Clock 0 or Clock 1)
SWCK	Switch the Clock (if necessary)
********	Exit program

b. Verify that the Clock Controllers are switching correctly:

SWCK	Switch Clock
	Note: You must wait a minimum of one minute for clocks to synchronize.
SWCK	Switch Clock again

7 Test the Fiber Rings:

See *Software Input/Output: Maintenance* (NN43001-711) for more information about LD 39 commands.

a. Check that the Fiber Rings operate correctly:

LD 39	Load program
STAT RING 0	Check the status of Ring 0 (HALF/HALF)
STAT RING 1	Check the status of Ring 1 (HALF/HALF)

b. If necessary, restore the Rings to Normal State:

RSTR	Restore both Rings to HALF state

c. Check that the Rings operate correctly:

STAT RING 0	Check the status of Ring 0 (HALF/HALF)
STAT RING 1	Check the status of Ring 1 (HALF/HALF)

8 Check the status of the FIJI alarms:

STAT ALRM	Query the alarm condition for all FIJI cards in all Network Groups
****	Exit program

9 Check applications.

10 Check dial tone.

End of Procedure

Performing a customer backup data dump (upgraded release)

Procedure 57
Performing a data dump to backup the customer database:

1 Log into the system.

2 Insert a CF card into the active Core/Net RMD slot to back up the database.

3 Load the Equipment Data Dump Program (LD 43). At the prompt, enter:

LD 43	Load program.
.	EDD

4 When “EDD000” appears on the terminal, enter:

EDD	Begin the data dump.

CAUTION

Loss of Data

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

5 When “DATADUMP COMPLETE” and “DATABASE BACKUP COMPLETE” appear on the terminal, enter:

****	Exit program

The Meridian 1 Option 81C IGS upgrade to Meridian 1 Option 81C CP PIV with FNF is complete.

Installing a Signaling Server

Contents

This chapter contains the following topics:

Introduction

This chapter contains general instructions to install and connect Server card hardware. This chapter also contains general instructions to connect Commercial off-the-shelf (COTS) servers.

The Communication Server 1000M system supports the Common Processor Pentium Mobile (CP PM) card model NTDW66, the Common Processor Dual Core (CP DC) model NTDW54, and the Commercial off-the-shelf (COTS) servers.

A Nortel CP PM, CP DC or COTS server that you deploy with Signaling Server applications is referred to as a Signaling Server. A Nortel CP PM or

COTS server that you deploy with SIP Line can be referred to as a SIP Line Gateway.

IMPORTANT!

Instructions to install an IBM X306m, IBM x3350, or HP DL320-G4, or Dell R300 COTS server are not included in this chapter. Detailed installation instructions are in the IBM xSeries 306m User Guide, IBM x3350 User Guide, HP ProLiant DL320 Generation 4 Server User Guide, or the Dell PowerEdge R300 User Guide shipped with the server.

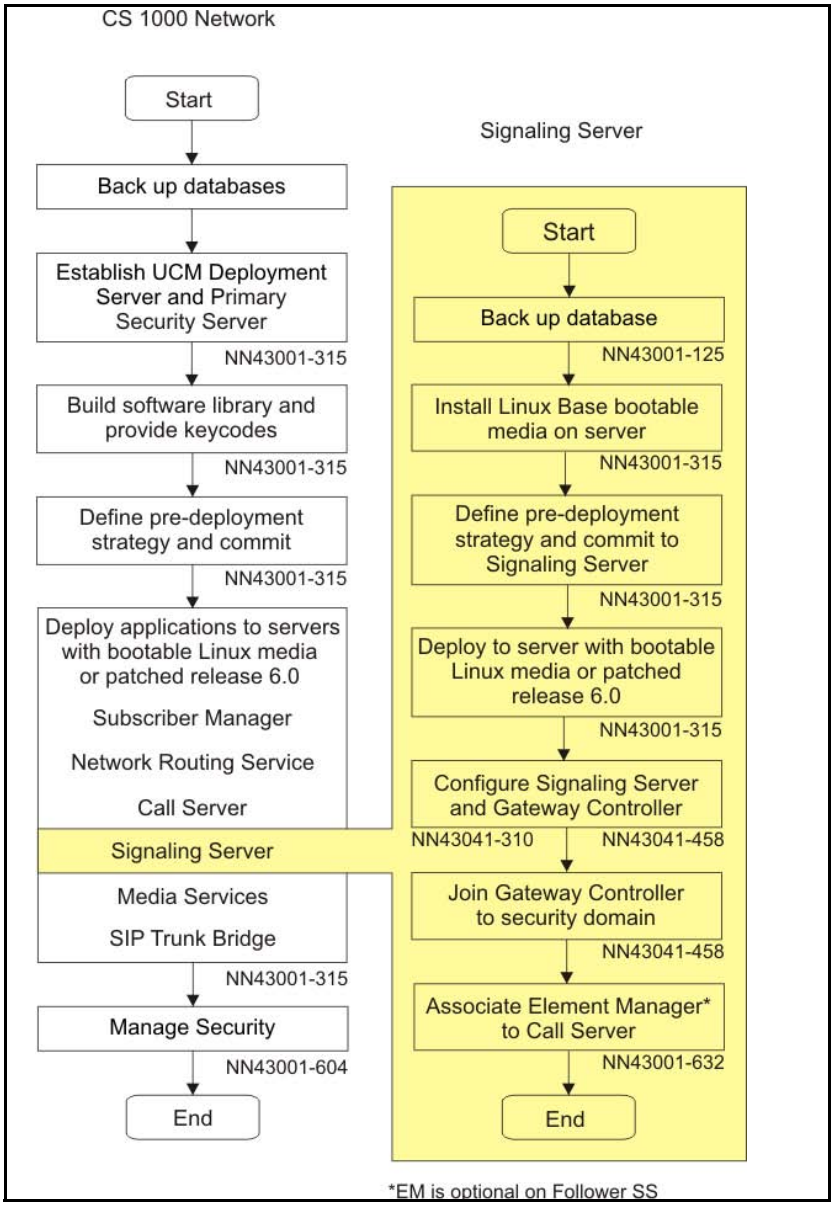
Signaling Server task flow

This section provides a high-level task flow for the installation or upgrade of a CS 1000 system. The task flow indicates the recommended sequence of events to follow when configuring a system and provides the NTP number that contains the detailed procedures required for the task.

For more information refer to the following NTPs, which are referenced in Figure 40 on page 197:

- *Linux Platform Base and Applications Installation and Commissioning* (NN43001-315)
- *Element Manager: System Administration* (NN43001-632)
- *Signaling Server IP Line Applications Fundamentals* (NN3001-125)

Figure 40
Signaling Server task flow



Readiness checklist

Before installing a Signaling Server in a Communication Server 1000 system, complete the following checklist.

WARNING
Do not modify or use a supplied AC-power cord if it is not the exact type required in the region where you install and use the Signaling Server. Be sure to replace the cord with the correct type.

Table 25
Readiness checklist (Part 1 of 2)

Have you:	
Read all safety instructions in *Communication Server 1000M and Meridian 1 Large System Installation and Commissioning* (NN43021-310), as appropriate for your Communication Server 1000 system?	
Do you have all equipment and peripherals? **For COTS servers:** • installation accessories for rack-mounting the server • AC-power cord • a DTE-DTE null modem cable (supplied) • Linux Signaling Server software DVD for COTS servers **For a Server cards (NTDW66 CP PM, and NTDW54 CP DC)** • (CP PM only) NTM427CBE6: CP PM Signaling Server Linux Upgrade kit, which includes — NTDW6102E5: CP PM Signaling Server Hard Drive kit (Linux OS preloaded) — NTM42703: 2 GB Compact Flash (CF) with Linux software, 2 GB blank CF — NTDW6109E6: 1 GB DDR SO-DIMM memory upgrade • NTAK19ECE6: CP PM Signaling Server 2 port SDI Cable assembly kit • NTDW69AAE5: CP PM Signaling Server Large System Cabling kit • N0106745: CP PM Signaling Large System Cabling • a DTE-DTE null modem cable (supplied) ***Note:*** Save the packaging container and packing materials in case you must ship the product.	
Make sure the area meets all environmental requirements?	
Check for all power requirements?	
Verify the CP PM or COTS hardware meets all required specifications (2GB ram, 40GB hard drive, NTDW66AAE6 CP PM BIOS version 18 or higher)?	

Table 25
Readiness checklist (Part 2 of 2)

Have you:	
Check for correct grounding facilities?	
Obtained the following • screwdrivers • an ECOS 1023 POW-R-MATE or similar type of multimeter • appropriate cable terminating tools • a computer (maintenance terminal) to connect directly to the Signaling Server, with — teletype terminal (ANSI-W emulation, serial port, 9600 bps) — a Web browser for Element Manager (configure cache settings to check for new Web pages every time the browser is invoked, and to empty the cache when the browser is closed)	
Prepared the network data as suggested in *Converging the Data Network with VoIP* (NN43001-260) or *Communication Server 1000M and Meridian 1 Large System Planning and Engineering* (NN43021-220), as appropriate for your Communication Server 1000 system?	
Read all safety instructions in *Communication Server 1000M and Meridian 1 Large System Installation and Commissioning* (NN43021-310), as appropriate for your Communication Server 1000 system?	

Server card hardware installation

This section contains instructions to install a Server card in a Communication Server 1000M system. The Communication Server 1000M system supports the NTDW66 CP PM card and the NTDW54 CP DC card.

This section contains only general instructions to install the CP PM circuit card in Communication Server 1000M systems. For more detailed installation

instructions, see *Linux Platform Base and Applications Installation and Commissioning* (NN43001-315).

IMPORTANT!

There are several switches on CP PM circuit cards. All switch settings must be factory defaults except for the switch labelled S5. Switch S5 must be in position 2 to support the internal hard drive used on the CP PM Signaling Server circuit card.

Installation in a Communication Server 1000M system

For CP PM cards, the first task that you must perform is to install the hard drive shipped with the server or Linux upgrade kit. For instructions, see *Linux Platform Base and Applications Installation and Commissioning* (NN43001-315).

The NTDW66 CP PM card and NTDW54 CP DC card are double wide faceplate cards designed for use in a CS 1000M Universal Equipment Module (UEM).You can insert the double wide CP PM or CP DC card into any slot of a CS 1000M UEM except slot 7. The External Peripheral Equipment Controller (XPEC) is next to slot 7 and prevents the double wide faceplate from seating into slot 7.

The next task that you must perform is to install ELAN and TLAN Ethernet ports on the back of the Communication Server 1000M UEM. These ports are used to connect your Server to the ELAN and TLAN Ethernet subnets of your Communication Server 1000M system.

Use the following procedure to install ELAN and TLAN Ethernet ports on the back of a Communication Server 1000M UEM.

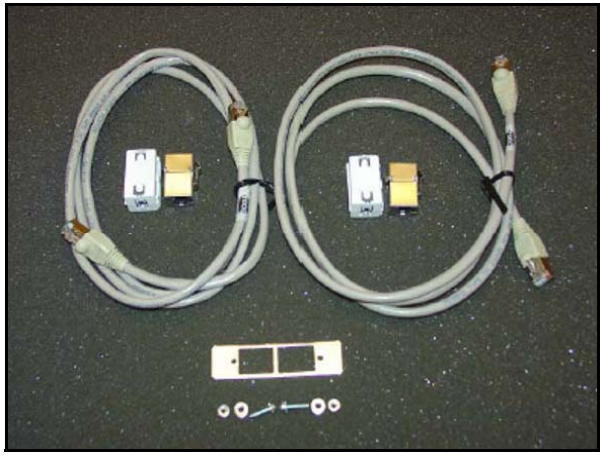
IMPORTANT!

Installing ELAN and TLAN Ethernet ports on the back of a Communication Server 1000M Universal Equipment Module (UEM) disrupts service. You must turn off power to the shelf during this procedure.

Procedure 58
Installing ELAN and TLAN Ethernet ports on the back of a Communication Server 1000M UEM

1 Obtain the special cabling kit (NTDW69AAE5). The NTDW69AAE5 cabling kit includes the items shown in Figure 41.

Figure 41
NTDW69AAE5 Cabling Kit contents

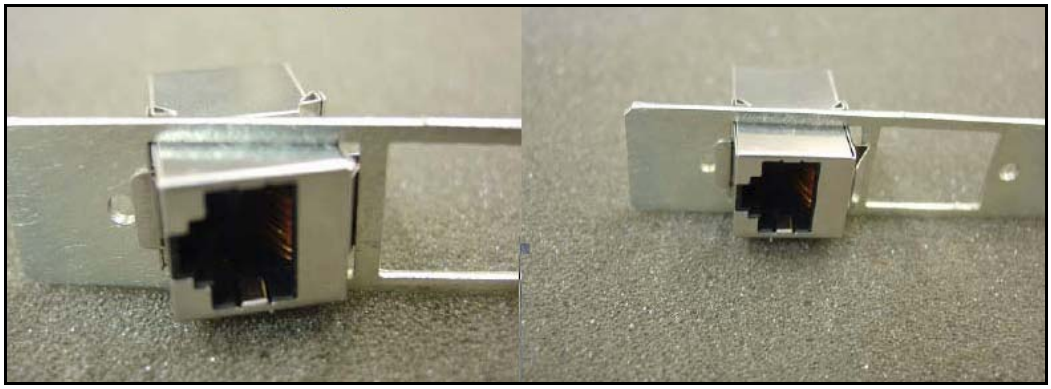


The following is a list of items in the NTDW69AAE5 cabling kit:

- two RJ-45 CAT5 Ethernet patch cables
- two Ethernet port couplers
- one Ethernet port adapter plate
- two screws
- two nuts
- two washers
- two ferrite beads

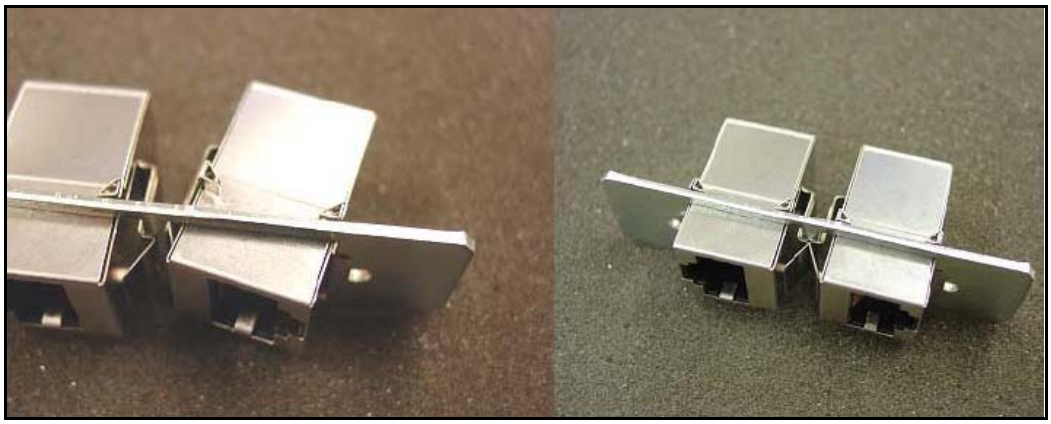
2 Insert an Ethernet port coupler into the adapter plate. See Figure 42.

Figure 42
One Ethernet port coupler in adapter plate



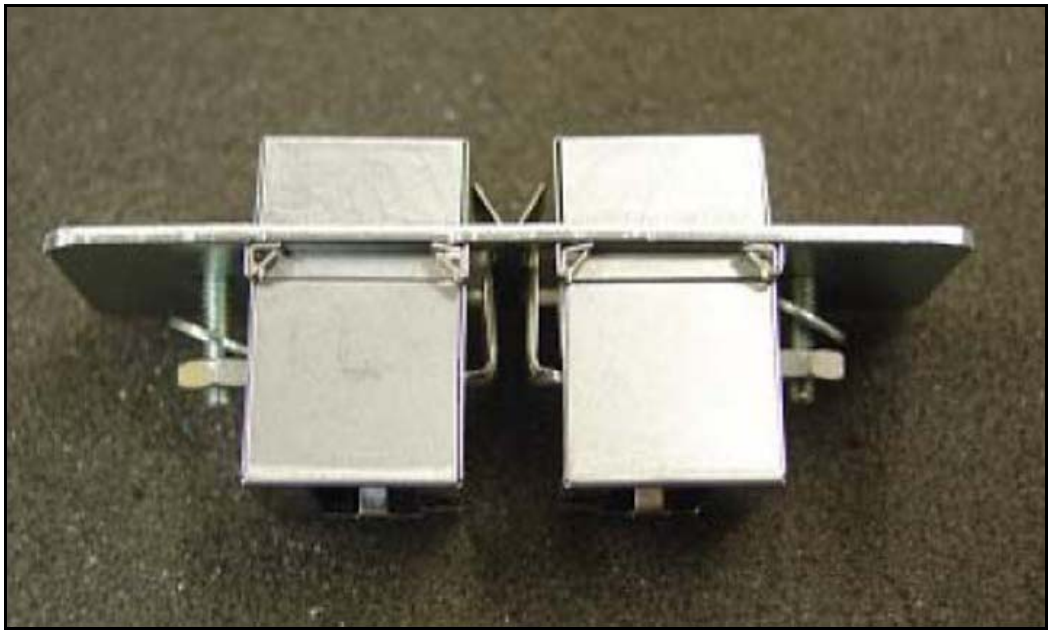
3 Insert the other Ethernet port coupler into the adapter plate. See Figure 43 on page 203.

Figure 43
Two Ethernet port couplers in adapter plate



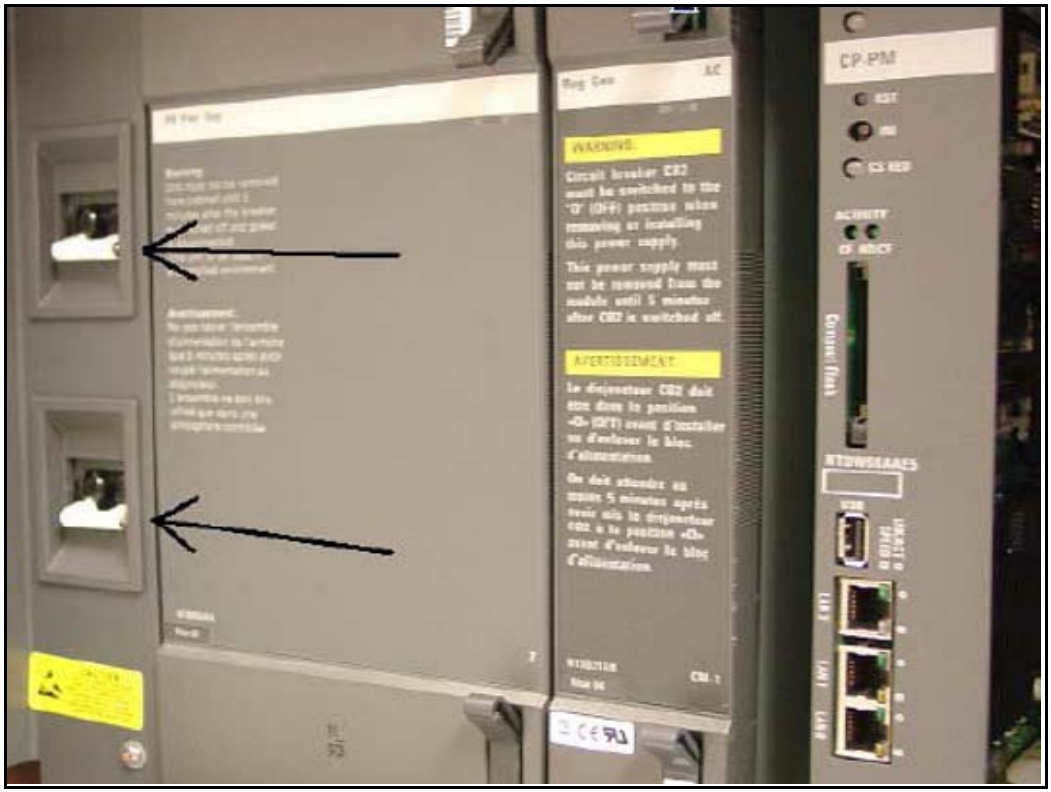
4 Loosely attach screws, washers, and nuts to the Ethernet port adapter plate. See Figure 44.

Figure 44
One Ethernet port coupler in adapter plate



5 Switch off the UEM power supplies. See Figure 45.

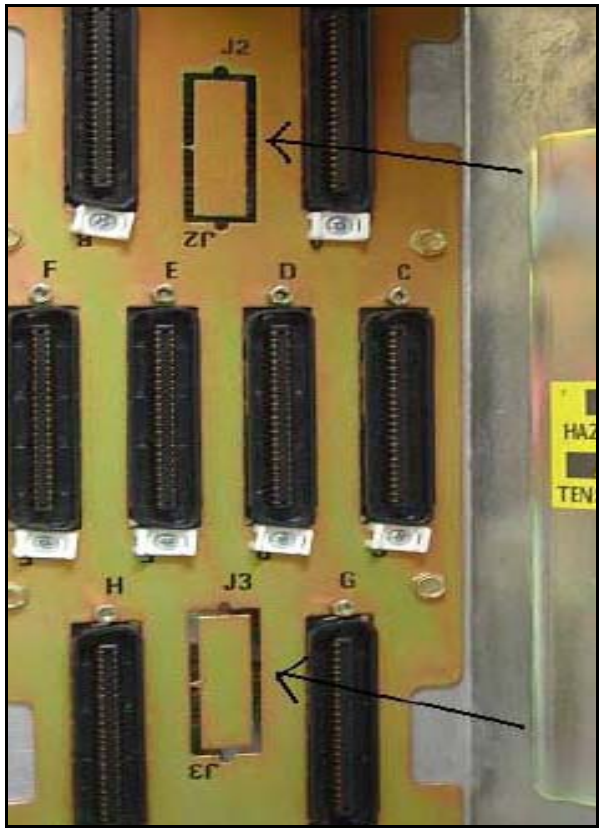
Figure 45
Shut down UEM power supplies



6 Select one of the J2-J5 knock-out plates on the back of the UEM. See Figure 46.

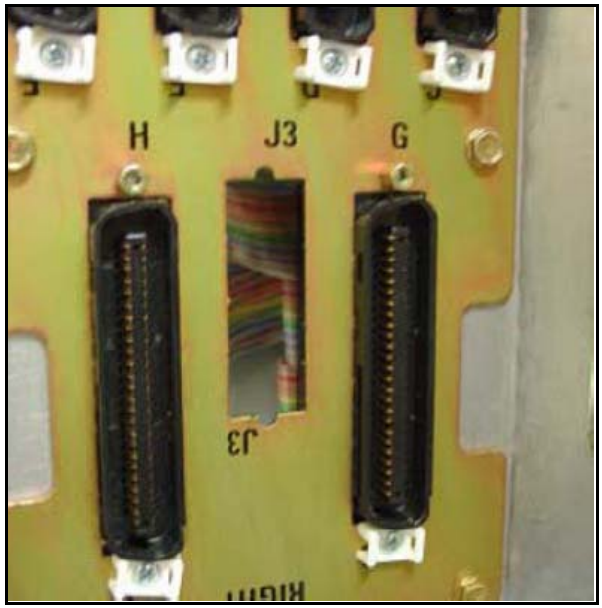
Note: For DC powered systems, turn off the breakers in the pedestal not on the shelf.

Figure 46
J2-J5 plates on back panel of UEM



7 Knock out the metal plate from the selected J2-J5 location to provide a hole through which the Ethernet patch cables are routed and to which the Ethernet port adapter plate is attached. See Figure 47.

Figure 47
Selected J2-J5 plate on back panel of UEM



8 Establish an ELAN port on the back panel of the UEM.

a. Insert the end of one of the RJ-45 CAT5 Ethernet patch cables (supplied) into the ELAN network interface (ELAN port) on the Server faceplate.

b. Route the Ethernet patch cable through the hole you made in the back panel of the UEM.

c. Plug the other end of the Ethernet patch cable into one of the Ethernet port couplers mounted in the Ethernet port adapter plate.

d. Label the Ethernet port coupler as ELAN.

See Figure 48 and Figure 49.

Figure 48
ELAN connection on the CP PM faceplate

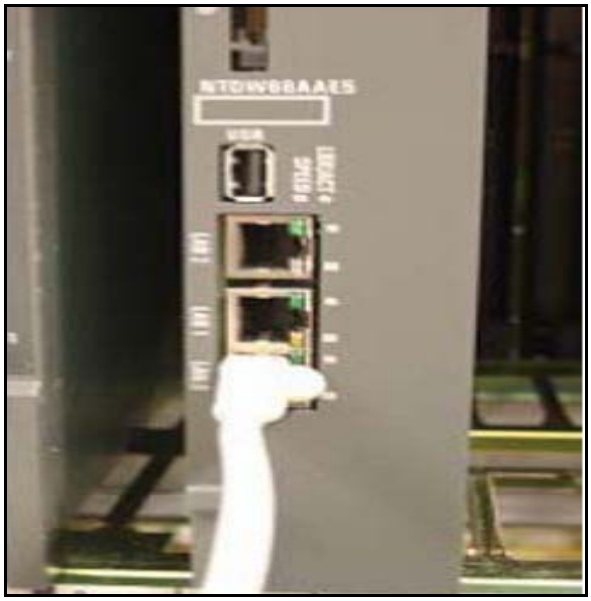


Figure 49
ELAN connection on Ethernet port coupler

9 Connect the server to the TLAN subnet.

a. Insert one end of the remaining RJ-45 CAT5 Ethernet patch cable (supplied) into the TLAN network interface (TLAN port) on the Server faceplate.

b. Route the Ethernet patch cable through the hole you made in the back panel of the UEM.

c. Plug the other end of the Ethernet patch cable into the remaining Ethernet port coupler mounted in the Ethernet port adapter plate.

d. Label the Ethernet port coupler as TLAN.

See Figure 50 and Figure 51.

Figure 50
TLAN connection on the CP PM faceplate

Figure 51
TLAN connection on Ethernet port coupler

10 Fit the Ethernet port adapter plate into the hole on the back of the UEM and tighten the screws. See Figure 52.

Figure 52
Installed Ethernet port adapter plate

11 Attach the ferrite beads to the Ethernet patch cables.See Figure 53.

Figure 53
Attached Ethernet patch cable ferrite beads

End of Procedure

Connections

This section contains connection information.

Connection checklist

WARNING

Do not modify or use a supplied AC power cord if it is not the correct type required for the host region.

IMPORTANT!

Server Cards are powered through the backplane of the Media Gateway, Universal Equipment Module, or 11C cabinet into which they are installed and do not require a power cord.

Before connecting a Server, ensure that you have the following materials on-hand.

Table 26
Connections checklist

Do you have:	
A serial cable (DTE-DTE null modem cable) to connect the server to a maintenance terminal? The IBM x3350 requires a NTRX26NPE6 9 pin female to 9 pin female null modem cable.	
NTAK19EC cable for each CP PM or CP DC card. This cable adapts the 50-pin MDF connector on the back of the shelf of the Media Gateway, Universal Equipment Module, or 11C cabinet to a 25-pin DB connector.	
Shielded CAT5 cables (or better) to connect the server to the ELAN and TLAN subnets?	

Connecting a Signaling Server

This section contains instructions to connect a Server to the ELAN and TLAN subnet of a CS 1000M system. It also contains instructions to connect a maintenance terminal to the Server.

A Server card is inserted into a slot of a Universal Equipment Module (UEM). UEMs do not have built-in ELAN and TLAN Ethernet ports. You must install Ethernet ports on the back of the UEM to enable the Server to connect to the ELAN and TLAN subnets of your Communication Server 1000 system (see Procedure 58: "Installing ELAN and TLAN Ethernet ports on the back of a Communication Server 1000M UEM" on page 202.)

Perform Procedure 59 to connect a Server card to the ELAN and TLAN subnets of a Communication Server 1000M system.

IMPORTANT!

Connecting a Server card to the ELAN and TLAN subnets of a CS 1000M system causes a service disruption.

Procedure 59
Connecting a Server Card to the ELAN and TLAN subnets of a Communication Server 1000M system

1. Insert the end of an RJ-45 CAT5 Ethernet cable (not supplied) into the ELAN network interface port (ELAN port) on the back of the Communication Server 1000M UEM. (You installed this ELAN port at the back of the UEM when you installed the Signaling Server in the UEM. For more information, see Procedure 58: "Installing ELAN and TLAN Ethernet ports on the back of a Communication Server 1000M UEM" on page 202.
2. Insert the other end of the RJ-45 CAT5 Ethernet cable into an Ethernet port on the ELAN Ethernet switch.
3. Insert the end of another RJ-45 CAT5 Ethernet cable (not supplied) into the TLAN network interface port (TLAN port) on the back of the Communication Server 1000M UEM. (You installed this TLAN port at the back of the UEM when you installed the Signaling Server in the UEM. For more information, see Procedure 58: "Installing ELAN and TLAN Ethernet ports on the back of a Communication Server 1000M UEM" on page 202.

4 Insert the other end of the RJ-45 CAT5 Ethernet cable into an Ethernet port on the TLAN Ethernet switch.

End of Procedure

Verify or change the baud rate

To verify or change the baud rate on a Nortel CP PM Signaling Server, see *Linux Platform Base and Applications Installation and Commissioning* (NN43001-315).

Connecting an IBM COTS server

In geographic regions that are susceptible to electrical storms, Nortel recommends that you plug the IBM COTS server into an AC surge suppressor.

Figure 54 shows the rear view of the IBM X306m server.

Figure 54
IBM X306m (rear view)

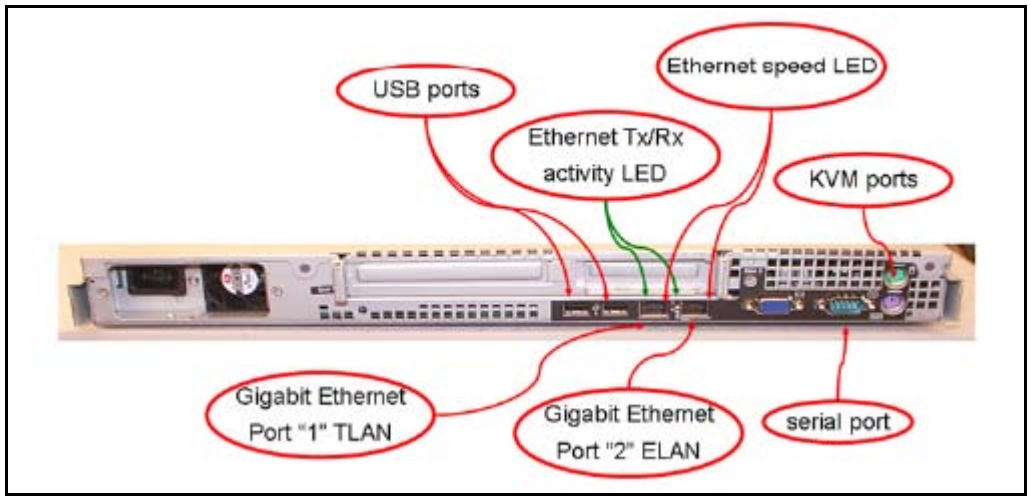
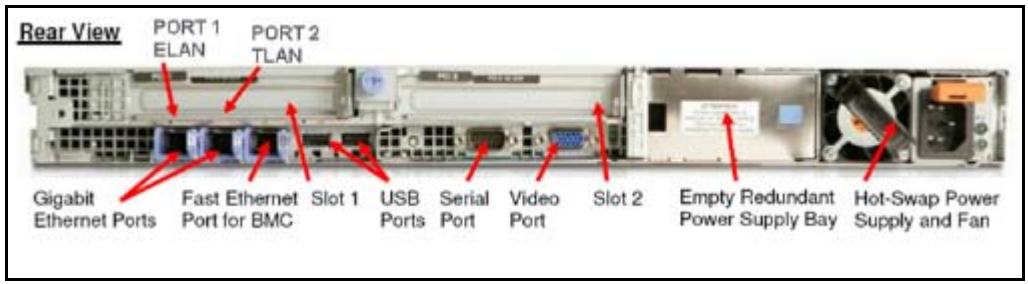


Figure 55 shows the rear view of the IBM x3350 server.

Figure 55
IBM x3350 (rear view)



Note: When you perform Procedure 60, "Connecting an IBM COTS server," on page 218, see Figure 54 or Figure 55.

Procedure 60
Connecting an IBM COTS server

1. Connect the IBM server to the TLAN subnet. Insert the RJ-45 CAT5 (or better) cable into the TLAN Ethernet port on the back of the server. Insert the other end of the cable into the TLAN subnet of the Layer 2 switch.
2. Connect the IBM server to the ELAN subnet. Insert the RJ-45 CAT5 (or better) cable into the ELAN Ethernet port on the back of the server. Insert the other end of the cable into the ELAN subnet of the Layer 2 switch.
3. Connect a DTE–DTE null modem serial cable from the serial port on the back of the server to the serial port on a maintenance terminal. The IBM x3350 requires a NTRX26NPE6 9 pin female to 9 pin female null modem cable.
4. Connect the IBM server power cord.
   a. Check that the power cord is the type required in the region where you use the server. Do not modify or use the supplied AC power cord if it is not the correct type.
   b. Attach the female end of the power cord to the mating AC power receptacle on the server back panel. Plug the male end of the AC power cord into the AC power source (wall outlet).
5. Set the baud rate for the serial port on the server to 9600 b/ps. See *Linux Platform Base and Applications Installation and Commissioning* (NN43001-315).

   Note: The IBM X306m Signaling Server ships with the serial port configured to 9600 b/ps.
6. Configure the connected maintenance terminal. See *Linux Platform Base and Applications Installation and Commissioning* (NN43001-315).
7. Press the Power switch.

   Note: For more information about operating information, see the IBM User Guide on the CD-ROM shipped with your IBM server.

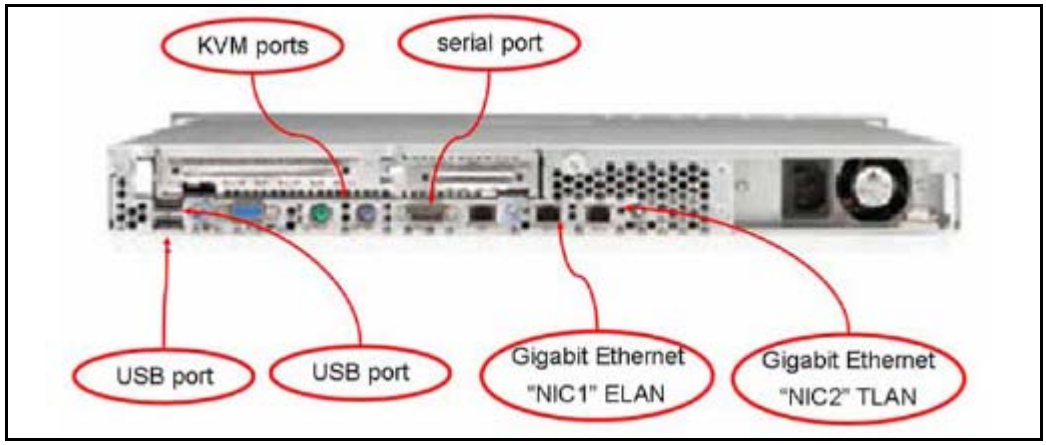
End of Procedure

Connecting an HP COTS server

In geographic regions that are susceptible to electrical storms, Nortel recommends that you plug the HP server into an AC surge suppressor.

Figure 56 shows the rear view of the HP DL320-G4 server.

Figure 56
HP DL320-G4 (rear view)



Note: When you perform Procedure 61, "Connecting an HP COTS server," on page 219, see Figure 56.

Procedure 61
Connecting an HP COTS server

1. Connect the HP server to the TLAN subnet. Insert the RJ-45 CAT5 (or better) cable into the TLAN Ethernet port on the back of the server.
2. Connect the HP server to the ELAN subnet. Insert the RJ-45 CAT5 (or better) cable into the ELAN Ethernet port on the back of the server.
3. Connect a DTE–DTE null modem serial cable from the Serial Port on the back of the server to a maintenance terminal.
4. Connect the HP server power cord.

a. Check that the power cord is the type required in the region where you use the server. Do not modify or use the supplied AC power cord if it is not the correct type.

b. Attach the female end of the power cord to the mating AC power receptacle on the right-hand side of the server back panel. Plug the male end of the AC power cord into the AC power source (wall outlet).

5 Configure the COM1 serial port as the communication port for the connected maintenance terminal. Configure the COM 1 baud rate for the serial port on the server to 9600 b/ps. See *Linux Platform Base and Applications Installation and Commissioning* (NN43001-315).

6 Configure the connected maintenance terminal. See *Linux Platform Base and Applications Installation and Commissioning* (NN43001-315).

7 Press the Power switch.

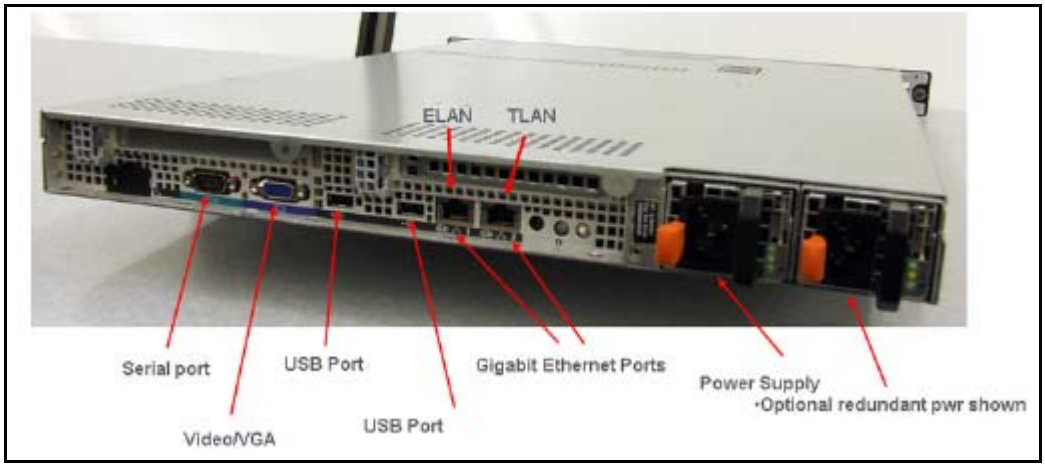
End of Procedure

Connecting a Dell COTS server

In geographic regions that are susceptible to electrical storms, Nortel recommends that you plug the Dell server into an AC surge suppressor.

Figure 57 shows the rear view of the Dell R300 server.

Figure 57
Dell R300 server (rear view)



Note: When you perform Procedure 62, "Connecting a Dell COTS server," on page 221, see Figure 57.

Procedure 62
Connecting a Dell COTS server

1. Connect the Dell server to the TLAN subnet. Insert the RJ-45 CAT5 (or better) cable into the TLAN Ethernet port on the back of the server. Insert the other end of the cable into the TLAN subnet of the Layer 2 switch.
2. Connect the Dell server to the ELAN subnet. Insert the RJ-45 CAT5 (or better) cable into the ELAN Ethernet port on the back of the server. Insert the other end of the cable into the ELAN subnet of the Layer 2 switch.
3. Connect a DTE–DTE null modem serial cable from the Serial Port on the back of the server to a maintenance terminal.
4. Connect the Dell server power cord.

a. Check that the power cord is the type required in the region where you use the server. Do not modify or use the supplied AC power cord if it is not the correct type.

b. Attach the female end of the power cord to the mating AC power receptacle on the right-hand side of the server back panel. Plug the male end of the AC power cord into the AC power source (wall outlet).

5 Configure the COM1 serial port as the communication port for the connected maintenance terminal. Configure the COM 1 baud rate for the serial port on the server to 9600 b/ps. See *Linux Platform Base and Applications Installation and Commissioning* (NN43001-315).

6 Configure the connected maintenance terminal. See *Linux Platform Base and Applications Installation and Commissioning* (NN43001-315).

7 Press the Power switch.

End of Procedure

Maintenance terminal configuration parameters

To configure Signaling Server maintenance terminal configuration parameters, see the Maintenance chapter of *Linux Platform Base and Applications Installation and Commissioning* (NN43001-315).

Installing the software

IMPORTANT!

The CP PM and COTS server are out of service during software installation.

Introduction

This section provides references you can use when you install CS 1000 Linux Base and application software a Server.

IMPORTANT!

CP PM, and COTS servers support no Signaling Server software prior to Communication Server 1000 Release 5.0 and support no SIP Line software prior to Communication Server 1000 Release 6.0.

Communication Server 1000 Release 7.0 Signaling Server and SIP Line software runs only on the Linux Base platform.

Before you begin

Before installing the software, you must perform the following

- Connect and power up the server. See “Connections” on page 214.
- For CP PM cards, ensure that Switch S5 is in position 2 (to support the internal hard drive)
- Obtain the CS 1000 Release 7.0 Linux Base installation media.
- For CP PM cards, Nortel advises that you remove the wire on the CF card clip before you insert a CP PM card into the slot. The clip can fall open and cause an electrical short.

Upgrade the CP PM BIOS

The NTDW66CAE6 CP PM card (CP PM version 2) does not require a BIOS upgrade. The CP PM version 2 uses an updated design, BIOS, and boot manager. Older NTDW66 CP PM cards (CP PM version 1) can require a BIOS upgrade to support Linux.

The Communication Server 1000 Release 7.0 Linux Platform Base installer requires that a CP PM version 1 card runs BIOS version 18 or higher. If the installer detects a lower version on the CP PM card it automatically loads software for you to upgrade the CP PM BIOS. Perform the steps in Procedure 63 to upgrade the CP PM BIOS to version 18.

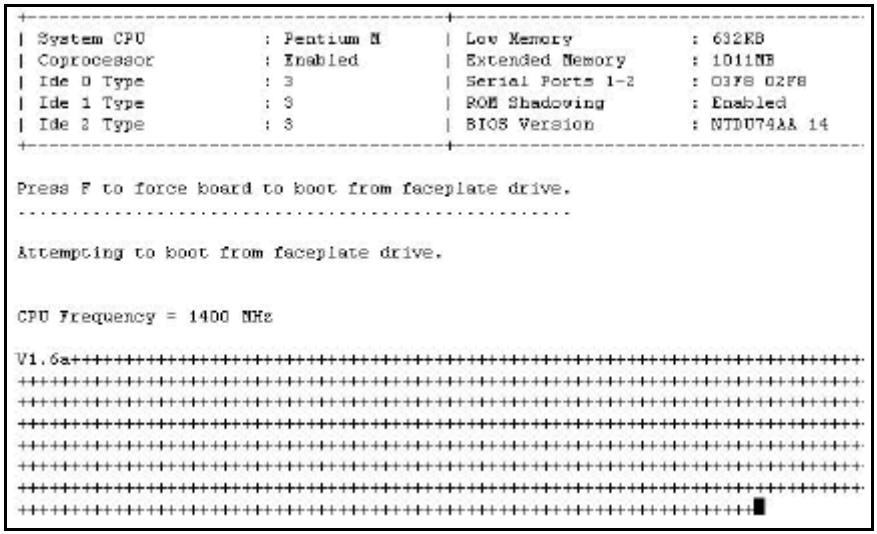
For information about manually upgrading the CP PM BIOS with VxWorks software, see *Communications Server 1000E Maintenance* (NN43041-700).

Procedure 63
Upgrading the CP PM BIOS with the Linux Base installer

1. Connect to serial port 1 on the CP PM.
2. Insert the Linux Base installation CF card into the faceplate CF slot.
3. Power on the system.
4. Once the initial boot and memory check completes for a CP PM version 1 card, Figure 58 appears. Press the **F** key to boot from the Linux Base installation faceplate CF card.

   Note: For CP PM version 2 cards, press the **F** key to enter the boot menu, select Faceplate RMD, and press **Enter** to boot from the faceplate CF card.

Figure 58
CP PM faceplate drive boot



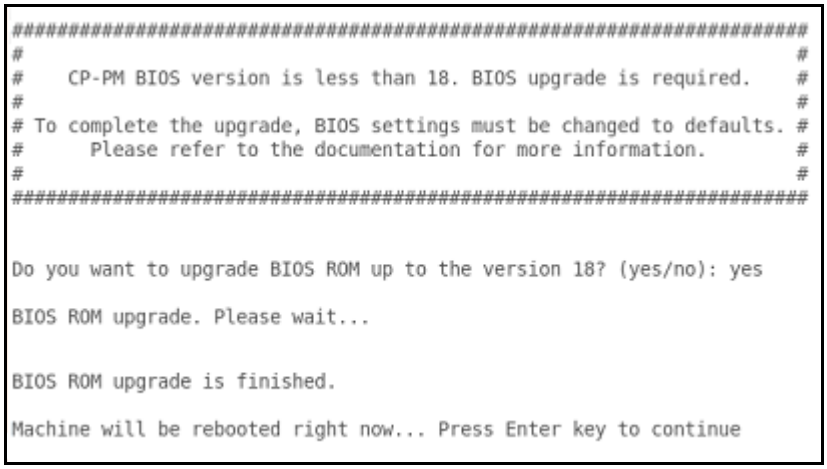
5 The welcome screen appears. Press **ENTER** to direct the input and output to COM1.

6 Figure 59 appears if the CP PM card has a BIOS version lower than 18. Enter **yes** to proceed with the automatic upgrade.

CAUTION — Damage to Equipment

Do not interrupt the BIOS upgrade process.

Figure 59
CP PM BIOS automatic upgrade



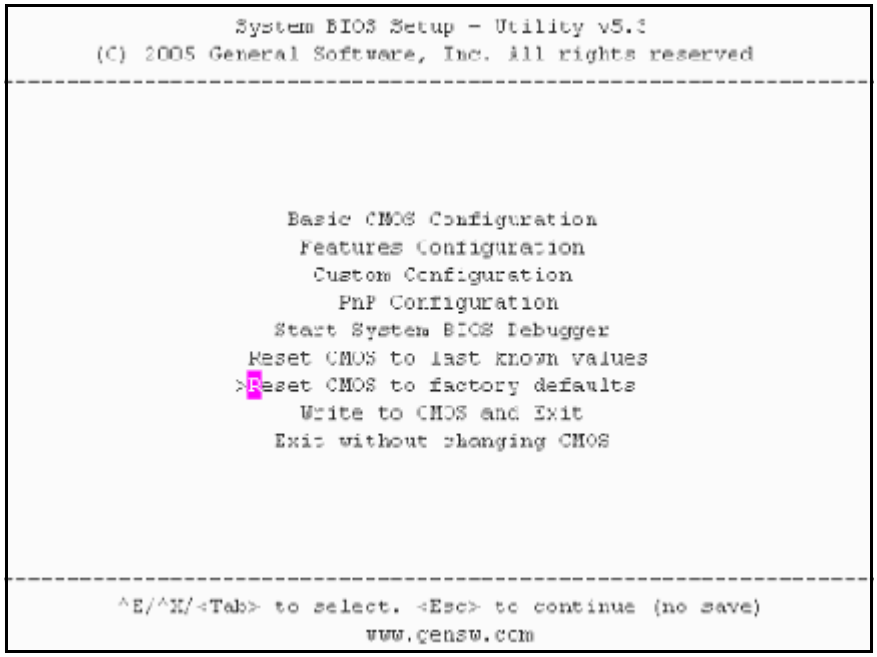
7 Verify that the BIOS upgrade is finished. Press **Enter** to reboot.

8 During the reboot memory check, press **Ctrl c** to access the CP PM BIOS setup menu.

Note: If you miss the timing to press **Ctrl c** you must reboot the system and try again. The Linux Platform Base installation software will display a warning if you do not reset the CP PM BIOS to factory defaults.

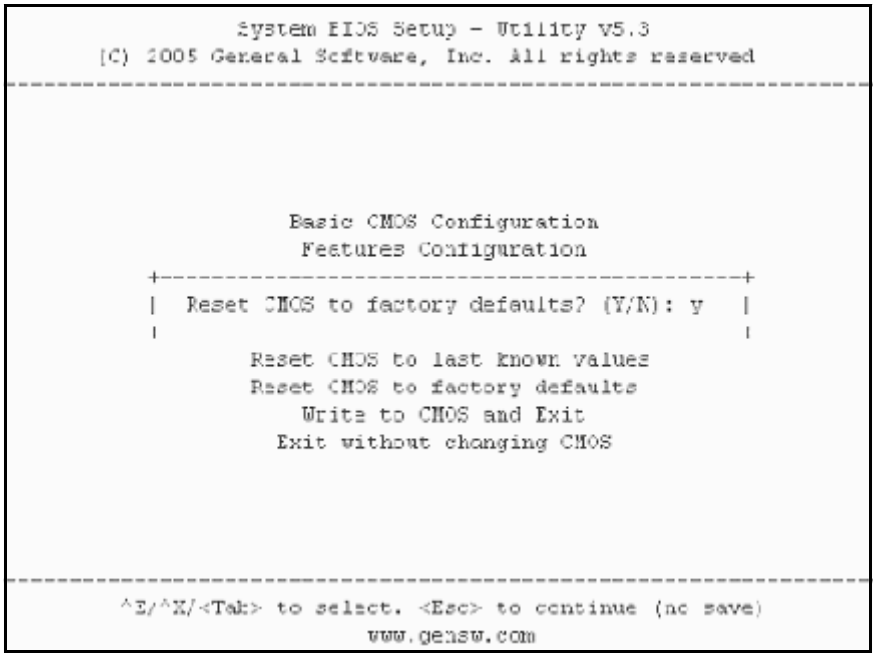
9 Figure 60 appears. Select **Reset CMOS to factory defaults** from the menu.

Figure 60
CP PM BIOS setup



10 Figure 61 appears. Press **y** to reset CMOS to factory defaults.

Figure 61
CP PM BIOS reset



11 The system reboots. After initial boot Figure 58 appears and the new BIOS version is displayed. Verify BIOS version is 18. You can now press the **F** key to boot from the faceplate CF card and proceed with the Linux Platform Base software installation.

End of Procedure

Installing the Linux Base

Perform the Linux Base installation if your Signaling Server does not currently run Linux Base for Release 7.0. The CP PM Linux upgrade kit contains a hard drive with Linux Base preloaded. You can install Linux Base from the command line interface (CLI) using a bootable CF card on CP PM, and using a bootable optical disk on COTS. Configure the ELAN, TLAN, IP address, Gateway, subnet masks, date, and time settings during the Linux Base installation. For more information about installing or upgrading Linux Base, see *Linux Platform Base and Applications Installation and Commissioning* (NN43001-315).

Installing Linux applications

Nortel Communication Server 1000 Release 7.0 Signaling Server and SIP line software are Linux applications. Linux applications install on Linux Base and interact with the Linux Base application framework. You can deploy and install Linux applications with the Linux Base Centralized Deployment manager. You can configure a deploy SIP Line with Element Manager (EM).

For information about Linux applications, Centralized Deployment manager, and EM, see *Element Manager: System Administration* (NN43001-632), *Signaling Server IP Line Applications Fundamentals* (NN3001-125), and *Linux Platform Base and Applications Installation and Commissioning* (NN43001-315).

Joining the UCM security domain

The UCM Primary Security Server acts as the RADIUS server that Communication Server 1000 devices use to obtain authentication and access control parameters for CLI access. The UCM Primary Security Server sends RADIUS related parameters to Communication Server 1000 devices using the SSH protocol.

When a device joins the UCM security domain, a mutually-trusted SSH channel is created. You must manually confirm the fingerprint of the public key before the UCM Primary Security Server RSA public key is added to the authorized key file. This verification prevents third-party intercepts.

When a mutually-trusted SSH tunnel establishes a connection to a Communication Server 1000 device, the UCM Primary Security Server can send SSH remote commands to the device using RSA public key-based authentication.

For more information about joining the UCM security domain, see *Security Management* (NN43001-604).

Appendix A: Upgrade checklists

Contents

This chapter contains the following topics:

Introduction

The following section provides Large System upgrade checklists.

Technical Support

Nortel can provide an Installation and Upgrade Support team to assist with PBX upgrades on a scheduled bases. This service is billable and a purchase order is required. Please refer to current price book for rates.

Note: This service requires that a service request be opened in advance of the upgrade.

Site details

Table 27
Site Details

Customer Name	
Tape ID (LD 22)	
Modem Number (Core)	
Switch Room Telephone	
Baud Rate	
Modem Password	
PBX Password	
System Type	
Software Generic	

Upgrade details

Table 28
Upgrade details

Current Software - Generic	
Target Software - Generic	
Hardware being added	
Feature Upgrade	
License Upgrade	

Preupgrade checklists

Software Upgrade

Software audit

Table 29
Software audit

Software Audit		
Perform the software audit prior to the scheduled upgrade.		
Take corrective action if answer is no		
	Yes	No
Software CD Ready		
Keycode Disk Ready		
Install Disk Ready		
DEP Patch Disk Ready		
Review Keycode Data Sheet - (SDID,PKGS,License,TID)		
Review Site Specific Patches - (Non MDCS)		
Read GRB for target Release – (Verify Memory Requirements)		

License Upgrade

Table 30
Keycode audit

Keycode Audit		
Perform the keycode Audit prior to the scheduled upgrade.		
Take corrective action if answer is no		
	Yes	No
Keycode Disk Ready		
Keycode Data Sheet Ready		
SDID Matches System		
TID Matches System		
Perform a KDIFF in LD 143 to compare keycodes		

Conversion Required

Table 31
Conversion Procedures

Conversion Procedures	
Upgrades between different machine types require some type of conversion.	
If the disk media is changing the database must be physically transferred	
between storage devices. Please select source and target media.	

Table 32
Typical Storage Media Changes Between machine Types (Part 1 of 2)

Typical Storage Media Changes Between machine Types		
Source	Target	Procedure Required
CMDU	IODUC	4M - 2M media transfer

Table 32
Typical Storage Media Changes Between machine Types (Part 2 of 2)

IODUC	MMDU	Disk to new Drive both use 2M Floppy Drives
MMDU	MMDU	Disk to new Drive

Hardware Upgrade

Hardware audit

Table 33
Hardware audit

Hardware Audit		
Perform the Hardware Audit prior to the scheduled upgrade.		
	Yes	No
Verify Shipping List - Complete and Accurate		
Audit Site for new hardware locations		
Pre Run Cables if possible		
Review All switch settings for new cards		
Read all applicable NTP Procedures completely		

Preconversion steps

Table 34
Preconversion steps (Part 1 of 2)

Pre Conversion Steps
A capture file should be made of the following information using a PC or Printer.
Perform an overall system check:
LD 135 SCPU (ensure that the system is redundant)
LD 137 STAT/TEST CMDU
LD 96 STAT DCH
LD 48 STAT AML
LD 32 STAT
LD 60 STAT

Table 34
Preconversion steps (Part 2 of 2)

LD 30 LDIS (Verify what Is disabled if any)
Obtain Software Information from LD 22
ISSP - Patches in service - Future Reference if required LD 143 - MDP ISSP -Prints all inservice patches and patch handle numbers (includes all DepList patches)
TID/SLT - License Parameters - To compare with converted database
LD 21 - PRT CFN
LD 97 - PRT SUPL/XPEC
Run a Template Audit
LD 1 - Auto Run
Perform a Datadump
Backup at least two copies of the current database, retain the copies.
Print History File or System Event Log
LD 22 - Print AHST - Capture Systems Events to compare will new software if required
LD 117 - PRT SEL 500 - Same as above

Postconversion checks

Table 35
Postconversion checks

Post Conversion Checks
Perform these checks after a successful INI.
Test for dial tone
Stat D Channels for proper operation
Ensure that all XPEC's are in service via visual inspection
Ensure that all AUX applications are working
LD 30 LDIS (Verify that output is the same prior to upgrade)

Quick reference

IGS Cabling Chart - MultiGroup PBX - Opt 81/81C/CPP (5 Groups Maximum)

Table 36
IGS cabling chart (Part 1 of 2)

Net Group	Net Shelf	IGS Connector	IGS Net	Slot	Net	DIGS	Slot Connector	Intergroup connector	IGS	Clock
0	0	0	3	8	2	9	BOTTOM	J1	0	
0	0	1	2	9	2	9	TOP	J6	2	0
0	1	1	2	9	2	9	TOP	J17	3	1
0	1	0	3	8	2	9	BOTTOM	J22	1	
1	0	0	3	8	2	9	BOTTOM	J2	4	

Table 36
IGS cabling chart (Part 2 of 2)

1	0	1	2	9	2	9	TOP	J7	6	0
1	1	1	2	9	2	9	TOP	J16	7	1
1	1	0	3	8	2	9	BOTTOM	J21	5	
2	0	0	3	8	2	9	BOTTOM	J3	8	
2	0	1	2	9	2	9	TOP	J8	10	0
2	1	1	2	9	2	9	TOP	J15	11	1
2	1	0	3	8	2	9	BOTTOM	J20	9	
3	0	0	3	8	2	9	BOTTOM	J4	12	
3	0	1	2	9	2	9	TOP	J9	14	0
3	1	1	2	9	2	9	TOP	J14	15	1
3	1	0	3	8	2	9	BOTTOM	J19	13	
4	0	0	3	8	2	9	BOTTOM	J5	16	
4	0	1	2	9	2	9	TOP	J10	18	0
4	1	1	2	9	2	9	TOP	J14	19	1
4	1	0	3	8	2	9	BOTTOM	J18	17	

Note: A DIGS Card is located in the card slot position for IGS 1 in all network shelves. The IGS 1 slot detects the clock signals from the active clock controller and distributes the clock to the entire group. Three out of four IGS cards can be disabled at any given time via LD 39, the IGS 1 that is associated with the active clock cannot be disabled via software, e.g. if clock 1 is active then IGS's 3,7,11,15 and 19 can never be disabled as they are providing clock for their respective network groups.

Group/Loop/PS/FIJI/3PE Switch Settings

Table 37
Switch settings (Part 1 of 2)

Group	Shelf	PS	Loops	FIJI*	3PE NT8D35 Net**	3PE NT5D21 Core Net**
0	0	0	0-16	0 0	off on on on on on on on	off on on off on on on on
0	1	1	16-31	0 1	off on on on on on on off	off on on off on on on off
1	0	2	32-47	1 0	off on on on on on off on	off on on off on on off on
1	1	3	48-63	1 1	off on on on on on off off	off on on off on on off off
2	0	4	64-79	2 0	off on on on on off on on	off on on off on off on on
2	1	5	80-95	2 1	off on on on on off on off	off on on off on off on off
3	0	6	96-111	3 0	off on on on on off off on	off on on off on off off on
3	1	7	112-127	3 1	off on on on on off off off	off on on off on off off off
4	0	8	128-143	4 0	off on on on off on on on	off on on off off on on on
4	1	9	144-159	4 1	off on on on off on on off	off on on off off on on off
5	0	10	160-175	5 0	off on on on off on off on	off on on off off on off on

Table 37
Switch settings (Part 2 of 2)

5	1	11	176-191	5 1	off on on on off on off off	off on on off off on off off
6	0	12	192-207	6 0	off on on on off off on on	off on on off off off on on
6	1	13	208-233	6 1	off on on on off off on off	off on on off off off on off
7	0	14	224-239	7 0	off on on on off off off on	off on on off off off off on
7	1	15	240-255	7 1	off on on on off off off off	off on on off off off off off

Appendix B: Technical Assistance service

Contents

This chapter contains following topics:

Nortel Technical Assistance Centers

To help customers obtain maximum benefit, reliability, and satisfaction from their CS 1000E systems, Nortel provides technical assistance in resolving system problems. Table 38 on page 244 lists the centers that provide this service.

If you purchased a service contract for your Nortel product from a distributor or authorized reseller, contact the technical support staff for that distributor or reseller for assistance.

If you purchased a Nortel service program, contact one of the following Nortel Technical Solutions Centers.

Table 38
Customer Technical Services (Part 1 of 2)

Location	Contact
Nortel Global Enterprise Technical Support (GETS) PO Box 833858 2370 Performance Drive Richardson, TX 75083 USA	North America Telephone: 1 800 4NORTEL
Nortel Corp. P.O. Box 4000 250 Sydney Street Belleville, Ontario K8N 5B7 Canada	North America Telephone: 1 800 4NORTEL
Nortel Service Center - EMEA	EMEA Telephone: 00 800 8008 9009 or +44 (0)870 907 9009 E-mail: emeahelp@nortel.com
Nortel 1500 Concord Terrace Sunrise, Florida 33323 USA	Brazil Telephone: 5519 3705 7600 E-mail: entcts@nortel.com English Caribbean Telephone: 1 800 4NORTEL Spanish Caribbean Telephone: 1 954 858 7777 Latin America Telephone: 5255 5480 2170

Table 38
Customer Technical Services (Part 2 of 2)

Location	Contact
Network Technical Support (NTS)	Asia Pacific Telephone: +61 28 870 8800 Australia Telephone:1800NORTEL (1800 667835) or +61 2 8870 8800 E-mail: asia_support@nortel.com People's Republic of China Telephone: 800 810 5000 E-mail: chinatsc@nortel.com Japan Telephone: 010 6510 7770 E-mail: supportj@nortel.com Hong Kong Telephone: 800 96 4199 E-mail: chinatsc@nortel.com Taiwan Telephone: 0800 810 500 E-mail: chinatsc@nortel.com Indonesia Telephone: 0018 036 1004 Malaysia Telephone: 1 800 805 380 New Zealand Telephone: 0 800 449 716 Philippines Telephone: 1 800 1611 0063 or 632 917 4420 Singapore Telephone: 800 616 2004 South Korea Telephone: 0079 8611 2001 Thailand: Telephone: 001 800 611 3007

Services available

Services available through the Technical Assistance Centers include:

- diagnosing and resolving software problems not covered by support documentation
- diagnosing and resolving hardware problems not covered by support documentation
- assisting in diagnosing and resolving problems caused by local conditions

There are several classes of service available. Emergency requests (Class E1 and E2) receive an immediate response. Service for emergency requests is continuous until normal system operation is restored. Non-emergency

requests (Class S1, S2, and NS) are serviced during normal working hours. Tables 39 and 40 describe the service classifications.

Table 39
Technical service emergency classifications

Class	Degree of failure	Symptoms
E1	Major failure causing system degradation or outage	System out-of-service with complete loss of call-processing capability. Loss of total attendant console capability. Loss of incoming or outgoing call capability. Loss of auxiliary Call Detail Reporting (CDR) in resale application. Call processing degraded for reasons such as trunk group out-of-service: • 10% or more lines out-of-service • frequent initializations (seven per day or more) • inability to recover from initialization or SYSLOAD • consistently slow dial tone (eight seconds or more delay)
E2	Major failure causing potential system degradation or outage	Standby CPU out-of-service. Frequent initializations (one per day or more). Disk drive failure. Two sets of disks inoperative.

Table 40
Technical services non-emergency classifications

Class	Degree of failure	Symptoms
S1	Failure that affects service	Software or hardware trouble directly and continuously affecting user's service or customer's ability to collect revenue. Problem that will seriously affect service at in-service or cut-over date.
S2	Intermittent failure that affects service	Software or hardware faults that only intermittently affect service. System-related documentation errors that directly result in or lead to impaired service.
NS	Failure that does not affect service	Documentation errors. Software inconsistencies that do not affect service. Hardware diagnostic failures (not defined above) that cannot be corrected by resident skills. Test equipment failures for which a backup or manual alternative can be used. Any questions concerning products.

Except as excluded by the provisions of warranty or other agreements with Nortel, a fee for technical assistance may be charged, at rates established by Nortel. Information on rates and conditions for services are available through Nortel sales representatives.

Requesting assistance

Collect the information listed in Table 41 before you call for service.

Table 41
Checklist for service requests

Name of person requesting service	
Company represented	
Telephone number	
System number/identification	
Installed software generic and issue (located on data disk)	
Modem telephone number and password (if applicable)	
Seriousness of request (see Tables 39 and 40)	
Description of assistance required	

Index

Nortel Communication Server 1000

Communication Server 1000M and Meridian 1

81C IGS to CS 1000M MG CP PIV FNF Upgrade

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