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## **Nortel Communication Server 1000**

Nortel Communication Server 1000 Release 5.5

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# **Communication Server 1000E Upgrade**

## **Hardware Upgrade Procedures**

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## New in this release

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### Features

There are no new features in this NTP for CS 1000 Release 5.5.

### Revision history

#### June 2009

Standard 02.10. This document is up-issued to add an attention to chapter 'Installing software on the CS1000 E'.

#### January 2009

Standard 02.09. This document is up-issued to add technical content in 'Upgrading Small System hardware' chapter.

#### October 2008

Standard 02.08. This document is up-issued to add technical content in 'Overview' chapter and 'Review Prerequisites Checklist' chapter.

#### August 2008

Standard 02.07. This document is up-issued to give reference to the Communication Server 1000E Software Upgrades document.

#### August 2008

Standard 02.06. This document is up-issued to include the PLM inputs to support Communication Server 1000E hardware upgrade Release 5.5.

**May 2008**

Standard 02.05. This document is up-issued to include lab trial information.

**April 2008**

Standard 02.04. This document is up-issued to include lab trial information.

**March 2008**

Standard 02.03. This document is up-issued to include Conversion and Mapping information.

**February 2008**

Standard 02.02. This document is up-issued to support Communication Server 1000 Release 5.5.

**December 2007**

Standard 02.01. This document is up-issued to support Communication Server 1000 Release 5.5. This document contains the hardware upgrade information previously contained in the following Release 5.0 documents:

- *Communication Server 1000E Upgrade Procedures* (NN43041-458)
- *Option 11C Cabinet (TDM) to Communication Server 1000E Upgrade Procedures* (NN43041-464)
- *Option 11C Chassis (TDM) to Communication Server 1000E Upgrade Procedures* (NN43041-465)
- *Communication Server 1000M Cabinet to Communication Server 1000E Upgrade Procedures* (NN43041-466)
- *Communication Server 1000M Chassis to Communication Server 1000E Upgrade Procedures* (NN43041-467)
- *Communication Server 1000S to Communication Server 1000E Upgrade Procedures* (NN43041-470)

For Release 5.5, software upgrade information is covered in *Communication Server 1000E Software Upgrades* (NN43041-458).

**July 2007**

Standard 01.05. This document is up-issued to support Communication Server 1000 Release 5.0.

**July 2007**

Standard 01.04. This document is up-issued to address the following CRs:

- Q01598009
- Q01639378
- Q01650913-01
- Q01649647
- Q01668243-01
- Q01646098

**June 2007**

Standard 01.03. This document is up-issued to address CR Q01652825.

**May 2007**

Standard 01.02. This document is up-issued to support Communication Server 1000 Release 5.0.

**May 2007**

Standard 01.01. This document is issued to support Communication Server 1000 Release 5.0. This document contains information previously contained in the following legacy document, now retired: Communication Server 1000M and Meridian 1 Small System Upgrade Procedures (553-3011-258).

**August 2005**

Standard 3.00. This document is up-issued to support Communication Server 1000 Release 4.5.

**September 2004**

Standard 2.00. This document is up-issued to support 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, which resulted in the merging of multiple legacy NTPs. This new document consolidates

information previously contained in the following legacy documents, now retired:

- *Option 11C Mini: Expansion using Fiber-optic and IP Connectivity Guide (553-3021-208)*  
(Content from *Option 11C Mini: Expansion using Fiber-optic and IP Connectivity Guide (553-3021-208)* also appears in *Communication Server 1000M and Meridian 1: Small System Overview (NN43011-110)* and *Communication Server 1000M and Meridian 1: Small System Planning and Engineering (NN43011-220)*.)
- *Option 11C and 11C Mini: Upgrade Procedures Guide (553-3021-250)*  
(Content from *Option 11C and 11C Mini: Upgrade Procedures Guide (553-3021-250)* also appears in *Communication Server 1000M and Meridian 1: Small System Maintenance (NN43011-700)*.)

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# System Information

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

## Subject

*Communication Server 1000E Hardware Upgrade Procedures* (NN43041-464) describes the process required to upgrade the hardware for an existing (Release 5.0 or earlier) Option 11C or CS 1000 system to a CS 1000 Release 5.5 CS 1000E system. Option 11C upgrades from CS 1000 Release 5.0 to CS 1000 Release 5.5 are software only and are supported. Option 11C TDM only (no Signaling Server) is supported in CS 1000 Release 5.5.

This guide does not describe how to add equipment (such as additional cabinets or line cards) to the system. Refer to *Meridian 1: Small System Installation and Configuration* (NN43011-310) when the upgrade requires installing equipment (such as another cabinet expander at a remote site). Also refer to the site and system planning information in *Communication Server 1000M and Meridian 1: Small System Planning and Engineering* (NN43011-220).

### Note on legacy products and releases

This NTP contains information about systems, components, and features that are compatible with Nortel Communication Server 1000 Release 5.5 software. For more information on legacy products and releases, click the **Technical Documentation** link under **Support & Training** on the Nortel home page:

[www.nortel.com](http://www.nortel.com)

## Applicable systems

This document applies to the following Systems:

- Option 11C Cabinet
- Option 11C Chassis
- Communication Server 1000M Cabinet
- Communication Server 1000M Chassis
- Communication Server 1000S
- Communication Server 1000E

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

## Intended audience

This document is intended for individuals responsible for upgrading and expanding existing CS 1000 systems.

## Conventions

### Terminology

In this document, the CS 1000E system is referred to generically as “system.”

The following systems are referred to generically as “Small system”:

- Communication Server 1000M Chassis (CS 1000M Chassis)
- Communication Server 1000M Cabinet (CS 1000M Cabinet)
- Communication Server 1000S (CS 1000S)

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## Related information

This section lists information sources that relate to this document.

### NTPs

The following NTPs are referenced in this document:

- *Communication Server 1000E Software Upgrades (NN43041-458)*
- *Features and Services (NN43001-106)*
- *Converging the Data Network with VoIP (NN43001-260)*
- *Circuit Card: Description and Installation (NN43001-311)*
- *Signaling Server: Installation and Commissioning (NN43001-312)*
- *IP Peer Networking: Installation and Commissioning (NN43001-313)*
- *Element Manager: System Administration (NN43001-332)*
- *IP Line: Fundamentals (NN43001-500)*
- *Network Routing Service Installation and Commissioning (NN43001-564)*
- *Software Input/Output: Administration (NN43001-611)*
- *Element Manager: System Administration (NN43001-632)*
- *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 1000E: Planning and Engineering (NN43041-220)*
- *Communication Server 1000E: Installation and Commissioning (NN43041-310)*
- *Communication Server 1000E: Upgrade Procedures (NN43041-458)*
- *Telephony Manager 3.1 Installation and Commissioning (NN43050-300)*

- *Telephony Manager 3.1 System Administration* (NN43050-601)

### **Online**

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

[www.nortel.com](http://www.nortel.com)

### **CD-ROM**

To obtain Nortel documentation on CD-ROM (NTLH91XX), contact your Nortel customer representative.

## **How to get Help**

### **Getting Help from the Nortel Web site**

The best source of support for Nortel products is the Nortel Support Web site:

[www.nortel.com/support](http://www.nortel.com/support)

This site enables customers to:

- download software and related tools
- download technical documents, release notes, and product bulletins
- sign up for automatic notification of new software and documentation
- search the Support Web site and Nortel Knowledge Base
- open and manage technical support cases

### **Getting Help over the phone from a Nortel Solutions Center**

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

In North America, call 1-800-4NORTEL (1-800-466-7865).

Outside North America, go to the Web site below and look up the phone number that applies in your region:

[www.nortel.com/callus](http://www.nortel.com/callus)

When you speak to the phone agent, you can reference an Express Routing Code (ERC) to more quickly route your call to the appropriate support specialist. To locate the ERC for your product or service, go to:

[www.nortel.com/erc](http://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, you can contact the technical support staff for that distributor or reseller.



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# Overview

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## Introduction

This guide describes how to perform a hardware upgrade from:

- an existing small system to a CS 1000E system; or,
- a CP PII platform to a CP PIV platform

Installation of Release 5.5 software is covered in *Communication Server 1000E Software Upgrades* (NN43041-458).

**Note:** For your convenience, the procedures required to back up the system database prior to the hardware upgrade are contained in this NTP.

## References in preparation for an upgrade

To plan the network, refer to *Communication Server 1000E: Planning and Engineering* (NN43041-220) and *Converging the Data Network with VoIP* (NN43001-260).

To read about installing, configuring, and managing Voice Gateway Media Cards and IP Phones, refer to *IP Line: Fundamentals* (NN43100-500) and *IP Phones: Fundamentals* (NN43001-368).

For detailed information about installing and configuring components, refer to *Communication Server 1000E: Installation and Commissioning* (NN43041-310). To read about virtual trunking and the Network Routing Service (NRS), refer to *IP Peer Networking: Installation and Commissioning* (NN43001-313), *Network Routing Service Installation and Commissioning* (NN43001-564), and *Communication Server 1000E: Overview* (NN43041-110).

For all other tasks related to an upgrade, see “Related information” on [page 15](#).

## CS 1000 hardware

CS 1000 Release 5.0 introduced the following hardware for the CS 1000E system.

### Media Gateway Controller Card (MGC)

**Note:** Depending on the upgrade, the NTDW60BA MGC should replace the Small System Controller (SSC) in the CPU card position (card 0) as well as the SSC as media gateway in the expansion cabinets of the MG 1000E. This statement applies strictly to CP PM Call Servers; CP II and CP IV can have an SSC as the IPMG controller.

The CS 1000 MGC features include:

- Signaling and switching
- Conference and Tones
- Three remote SDI ports (NTDK48K)
- Internal RMD slot
- Six external ethernet switch ports
- DTRs and Multi Frequency controllers
- MGC 100BT Adapter (NTDW63AAE5)—Cabinets only

### DSP Daughterboards (optional)

Two optional DSP Daughterboards are available for the MGC, the NTDW62AA 32-port DSP daughterboard and the NTDW64AA 96-port DSP daughterboard. These daughterboards provide DSP resources for connecting IP and TDM devices. However, Voice Gateway Media Cards are still supported in CS 1000E.

### Common Processor Pentium Mobile (CP PM) Call Server

The CS 1000E system features single or dual CS 1000E NTDW61AA CP PM Core Call Servers (0 and 1). The CP PM call server hardware includes the following components and features:

- Intel Pentium M 738 1.4 GHz processor
- Two compact flash sockets: (1) a 1GB fixed media disk (FMD) on the card and (2) a hot swappable removable media disk (RMD) accessible on the faceplate

*Note:* The hardware shipped by Nortel includes three compact flash cards: the FMD (1 GB), the Software installation RMD (512 MB), and Backup RMD (128 MB).

- DDR RAM expandable up to 2 GB
- Support for up to 50 Media Gateways
- Three Ethernet ports
- Two NTAK19ECE6 serial data interface ports (one for maintenance and one for a modem).

- One USB port.
- Security device

## CP PM Signaling Server

CP PM hardware can be used as a platform for the CS 1000 Signaling Server. For more information see *Signaling Server: Installation and Commissioning* (NN43001-312).

## Estimating installation time

When all equipment and software is available, Nortel recommends planning a two to four hour period in which to perform the upgrade. Service interruptions can occur during this period. Making IP Peer Networking modifications also requires additional time beyond that of an upgrade. It can be performed after completing a standalone configuration upgrade. It does not require the interruption of call processing. See *IP Peer Networking: Installation and Commissioning* (NN43001-313) and *Network Routing Service Installation and Commissioning* (NN43001-564) for details.

System expansions and additional installations require additional time. See *Communication Server 1000E: Installation and Commissioning* (NN43041-310) for details.

Upgrade and installation times depend on the following criteria:

- number and availability of technicians
- familiarity with CS 1000E
- physical location of hardware components
- interoperability products (Contact Center, TM, CallPilot, Symposium (5.0), OCS, HMS400, MCS 5100, NMC5.0/MAS 5.1)

## Administration tools

### Element Manager

Each Signaling Server hosts a web server that enables access to a user-friendly graphical user interface. This management framework, which is called Element Manager, can be accessed directly through a web browser, the Telephony Manager 3.1 navigator, or ECM. The Telephony Manager 3.1 navigator includes integrated links to each system's Element Manager in a network.

Element Manager increases the speed and efficiency of system management by organizing parameters in logical groups, where single web pages provide access to information that was traditionally spread across multiple overlays. The ability of Element Manager to “hide or show information” helps the user focus on specific information, avoiding the distraction of multiple parameters.

Element Manager reduces configuration errors by providing a full text description of each parameter and acronym. It also reduces errors by simplifying parameter value selection through the use of pre-selected default values and drop-down lists.

*Note:* The CS 1000E system and MG 1000T platform are managed separately from their own Signaling Servers, which in turn run Element Manager web servers.

The following management tasks can be performed using Element Manager:

- **System Status**  
Enables users to perform maintenance actions on Call Server components (D-channel, MSDL, TMDI, Digital Trunk, Clock Controller, Network and Peripheral, Trunk diagnostic) and IP Telephony.
- **Configuration**  
Enables users to configure customer data, trunks and routes (traditionally done in LD 14, 15, and 16), D-channel and Common Equipment data (LD 17), digital trunk interface (LD 73), Flexible Code Restriction and Incoming Digit conversion (LD 49), and the IP telephony node.

- **Network Numbering Plan**  
Enables users to configure the Network Routing Service, and ESN data blocks for the Call Server (LD 86, 87, and 90).
- **Software Upgrade**  
Enables users to obtain Call Server software version, License parameters, and packages list. Users can also upgrade Voice Gateway Media Card loadware and IP Phone firmware.
- **Patching**  
Enables users to download, activate and deactivate patches for the Call Server and IP Telephony components.
- **System Utilities**  
Enables users to backup and restore databases, set time and date, and upload software files and patches to a directory on the Signaling Server.

Configuration procedures for these tasks are in *Communication Server 1000E: Installation and Commissioning* (NN43041-310), *System Management* (NN43001-600), and *Element Manager: System Administration* (NN43001-632).

## Telephony Manager 3.1 (TM 3.1)

The TM 3.1 application can be used to manage a network-wide view of all telephony equipment. Network management tools allow network-level views and navigation of elements within the network. MG 1000T Expansions and MG 1000B platforms can be added to a network through TMs **System Properties Network** tab. For more information about TM, refer to *Telephony Manager 3.1 System Administration* (NN43050-601).

### Web-based management tools

CS 1000E simplifies overall network management through the following web-based management enhancements:

- Support for element-level configuration and maintenance.
- Support for network-wide functions.
- Support for web-based station administration.

## Network-level tools

Network-level tools in the CS 1000E consolidate billing and directory information for network calls.

For more information, see *Telephony Manager 3.1 Installation and Commissioning* (NN43050-300) or *Communication Server 1000E: Overview* (NN43041-110). For more information about retrieving Call Detail Recording records, see *Communication Server 1000E: Installation and Commissioning* (NN43041-310).

## Installing the Signaling Server

To install the Signaling Server to Communication Server 1000 Release 5.5, see “Installing or upgrading the Signaling Server” on [page 111](#).

## MRV Terminal Server

### Main role

**Note:** For CS 1000 Release 4.5 and earlier, the MRV Terminal Server was a necessary system component. This is no longer the case for CS 1000 Release 5.5, as serial ports are supported and the MRV Terminal Server is optional.

The MRV IR-8020M IP-based Terminal Server provides the Call Server with standard serial ports for applications and maintenance.

### Hardware components

The MRV Terminal Server provides 20 console ports for modular RJ-45 connectors. It is also equipped with one RJ-45 10BaseT connection for network interface to the ELAN subnet and an internal modem to provide remote access.

## Operating parameters

Traditionally, serial ports are used to connect terminals and modems to a system for system maintenance. As well, many third-party applications require serial port interfaces to connect to a PBX. Because the Call Server provides only two local serial ports for maintenance purposes, an IP-based Terminal Server is required to provide the necessary serial ports.

The Terminal Server provides standard serial ports for applications. These applications include billing systems that analyze Call Detail Recording (CDR) records, Site Event Buffers (SEB) that track fault conditions, and various legacy applications such as Property Management System (PMS) Interface and Intercept Computer applications. In addition, serial ports are used to connect system terminals for maintenance, modems for support staff, and printers for system output.

The Terminal Server is configured to automatically log in to the active Call Server at startup. For this reason, each Call Server pair requires only one Terminal Server. Customers can configure up to 16 TTY ports for each Call Server pair.

The Terminal Server can be located anywhere on the ELAN subnet. However, if the Terminal Server is used to provide local connections to a Com port on the Call Server, it must be collocated with the system.

The Terminal Server can also be used as a central point to access and manage several devices through their serial ports.

### **IMPORTANT!**

Currently, the CS 1000E only supports the MRV IR-8020M commercial Terminal Server.

## Conversion and mapping information

The following information is required for the database conversion that must be performed as part of the Release 5.0 software installation.

## Option 11C Cabinet or Chassis to IPMG mapping

The following pages detail how the Small System TNs are mapped to Large System TNs. The SIPE cabinets are converted to IPMGs as shown in Table 1.

**Table 1**  
**SIPE cabinet/chassis to IPMG conversion**

<b>Cabinet/Chassis</b>	<b>IPMG</b>
Main	000 0
Expansion Cabinet/Chassis 1	000 1
Expansion Cabinet/Chassis 2	004 0
Expansion Cabinet/Chassis 3	004 1
Expansion Cabinet/Chassis 4	008 0

### Minimum software release

The conversion process can be applied to the database of existing small systems provided that the small system has a minimum software version of 23.10.

## TN mapping

The following tables map the small system TNs to the CS 1000E TNs (large system TNs). The conversion feature maps the SIPE TNs to CS1000E TNs on the IPMGs.

### IP phone TN mapping

When converting from small systems (Option 11C, MG1000B, CS 1000M or CS 1000S) to a CS 1000E CP PM system, the slot and unit number is mapped to the loop, shelf, card, and unit number as shown in Table 2. Because these

TNs map from a “small system” TN format to a “large system” TN format, the IP sets do NOT require reprogramming with a new TN.

**Table 2**  
**IP phone TN mapping**

CS 1000S/M		CS 1000E CP PM			
Slot	Unit	Loop	Shelf	Card	Unit
61-64	0-31	96	0	1-4	0-31
65-68	0-31	100	0	1-4	0-31
69-72	0-31	104	0	1-4	0-31
73-76	0-31	108	0	1-4	0-31
77-80	0-31	112	0	1-4	0-31
81-84	0-31	96	1	1-4	0-31
85-88	0-31	100	1	1-4	0-31
89-92	0-31	104	1	1-4	0-31
93-96	0-31	108	1	1-4	0-31
97-99	0-31	112	1	1-3	0-31

### ALC, DLC, analog trunk and regular IPE pack TN mapping

Table 3 provides TN mapping information for analog line cards, digital line cards, analog trunk cards, and xdtrs (digital trunk cards or IP phones are not addressed in this table). Not all slots are present on all small systems.

**Table 3**  
**ALC, DLC, analog trunk and regular IPE pack TN mapping (Part 1 of 3)**

CS 1000S/M		CS 1000E CP PM			
Slot	Unit	Superloop	Shelf	Card	Unit
1	0-31	0	0	1	0-31
2	0-31	0	0	2	0-31
3	0-31	0	0	3	0-31
4	0-31	0	0	4	0-31
5	0-31	0	0	5	0-31
6	0-31	0	0	6	0-31
7	0-31	0	0	7	0-31
8	0-31	0	0	8	0-31
9	0-31	0	0	9	0-31
10	0-31	0	0	10	0-31
11	0-31	0	1	1	0-31
12	0-31	0	1	2	0-31
13	0-31	0	1	3	0-31
14	0-31	0	1	4	0-31
15	0-31	0	1	5	0-31
16	0-31	0	1	6	0-31
17	0-31	0	1	7	0-31
18	0-31	0	1	8	0-31

**Table 3**  
**ALC, DLC, analog trunk and regular IPE pack TN mapping (Part 2 of 3)**

CS 1000S/M		CS 1000E CP PM			
Slot	Unit	Superloop	Shelf	Card	Unit
19	0-31	0	1	9	0-31
20	0-31	0	1	10	0-31
21	0-31	4	0	1	0-31
22	0-31	4	0	2	0-31
23	0-31	4	0	3	0-31
24	0-31	4	0	4	0-31
25	0-31	4	0	5	0-31
26	0-31	4	0	6	0-31
27	0-31	4	0	7	0-31
28	0-31	4	0	8	0-31
29	0-31	4	0	9	0-31
30	0-31	4	0	10	0-31
31	0-31	4	1	1	0-31
32	0-31	4	1	2	0-31
33	0-31	4	1	3	0-31
34	0-31	4	1	4	0-31
35	0-31	4	1	5	0-31
36	0-31	4	1	6	0-31
37	0-31	4	1	7	0-31
38	0-31	4	1	8	0-31
39	0-31	4	1	9	0-31

**Table 3**  
**ALC, DLC, analog trunk and regular IPE pack TN mapping (Part 3 of 3)**

CS 1000S/M		CS 1000E CP PM			
Slot	Unit	Superloop	Shelf	Card	Unit
40	0-31	4	1	10	0-31
41	0-31	8	0	1	0-31
42	0-31	8	0	2	0-31
43	0-31	8	0	3	0-31
44	0-31	8	0	4	0-31
45	0-31	8	0	5	0-31
46	0-31	8	0	6	0-31
47	0-31	8	0	7	0-31
48	0-31	8	0	8	0-31
49	0-31	8	0	9	0-31
50	0-31	8	0	10	0-31

### Digital trunk mapping

This mapping (shown in Table 4) applies to DTI, DTI2, PRI, PRI2, MISP, DPNSS and other circuit packs.

**Table 4**  
**Digital trunk mapping (Part 1 of 4)**

CS 1000S/M		CS 1000E CP PM				
Slot	Channel	Digital Loop	Channel	Superloop	Shelf	Card
1	0 - 31	20	0 - 31	0	0	1
2	0 - 31	21	0 - 31	0	0	2

**Table 4**  
**Digital trunk mapping (Part 2 of 4)**

CS 1000S/M		CS 1000E CP PM				
Slot	Channel	Digital Loop	Channel	Superloop	Shelf	Card
3	0 - 31	22	0 - 31	0	0	3
4	0 - 31	23	0 - 31	0	0	4
5	0 - 31	24	0 - 31	0	0	5
6	0 - 31	25	0 - 31	0	0	6
7	0 - 31	26	0 - 31	0	0	7
8	0 - 31	27	0 - 31	0	0	8
9	0 - 31	28	0 - 31	0	0	9
11	0 - 31	52	0 - 31	0	1	1
12	0 - 31	53	0 - 31	0	1	2
13	0 - 31	54	0 - 31	0	1	3
14	0 - 31	55	0 - 31	0	1	4
15	0 - 31	56	0 - 31	0	1	5
16	0 - 31	57	0 - 31	0	1	6
17	0 - 31	58	0 - 31	0	1	7
18	0 - 31	59	0 - 31	0	1	8
19	0 - 31	60	0 - 31	0	1	9
21	0 - 31	76	0 - 31	4	0	1
22	0 - 31	77	0 - 31	4	0	2
23	0 - 31	78	0 - 31	4	0	3
24	0 - 31	79	0 - 31	4	0	4

**Table 4**  
**Digital trunk mapping (Part 3 of 4)**

CS 1000S/M		CS 1000E CP PM				
Slot	Channel	Digital Loop	Channel	Superloop	Shelf	Card
25	0 - 31	80	0 - 31	4	0	5
26	0 - 31	81	0 - 31	4	0	6
27	0 - 31	82	0 - 31	4	0	7
28	0-31	83	0-31	4	0	8
29	0-31	84	0-31	4	0	9
31	0-31	85	0-31	4	1	1
32	0-31	86	0-31	4	1	2
33	0-31	87	0-31	4	1	3
34	0-31	88	0-31	4	1	4
35	0-31	89	0-31	4	1	5
36	0-31	90	0-31	4	1	6
37	0-31	91	0-31	4	1	7
38	0-31	92	0-31	4	1	8
39	0-31	93	0-31	4	1	9
41	0-31	116	0-31	8	0	1
42	0-31	117	0-31	8	0	2
43	0-31	118	0-31	8	0	3
44	0-31	119	0-31	8	0	4
45	0-31	120	0-31	8	0	5
46	0-31	121	0-31	8	0	6

**Table 4**  
**Digital trunk mapping (Part 4 of 4)**

CS 1000S/M		CS 1000E CP PM				
Slot	Channel	Digital Loop	Channel	Superloop	Shelf	Card
47	0-31	122	0-31	8	0	7
48	0-31	123	0-31	8	0	8
49	0-31	124	0-31	8	0	9

### XNET and XPEC conversion

Although XNETs and XPECs are not configured by CS 1000 small systems, they are utilized internally by the system and appear in the database. The contents of the XNET blocks must be converted to virtual XNET blocks.

### TTY conversion

The TTYs from small systems are converted as shown in Table 5.

**Table 5**  
**TTY conversion**

TTY Port Before Conversion		TTY Port After Conversion		
Cabinet/ Chassis	Port†	Card	IPMG	Port
Main	0	CP PM	N/A	0
	1	MGC	000 0	1
	2	MGC	000 0	2
Expansion 1	0	MGC	000 1	0
	1	MGC	000 1	1
	2	MGC	000 1	2

**Table 5**  
**TTY conversion**

TTY Port Before Conversion		TTY Port After Conversion		
Cabinet/ Chassis	Port†	Card	IPMG	Port
Expansion 2	0	MGC	004 0	0
	1	MGC	004 0	1
	2	MGC	004 0	2
Expansion 3	0	MGC	004 1	0
	1	MGC	004 1	1
	2	MGC	004 1	2
Expansion 4	0	MGC	008 0	0
	1	MGC	008 0	1
	2	MGC	008 0	2

***Ports on the SSC card (†)***

Only the TTY ports from the SSC cards in the small system are converted while the other TTY ports (for example, TTYs from the SDI card) are deleted.

**Tone Receiver Conversion**

Tone receivers are converted using the same algorithm as that used for IPE shelf conversion. The tone receivers map to cards 14 and 15 for each of the five IPMGs (see Table 6 on [page 36](#)).

If units 8-11 in the SSCs have MFC, MFE, MFK units provisioned, then these units are provisioned in units 0-3. If these units (8-15) were provisioned as DTRs in the SSC, then these units are provisioned as DTRs in units 0-7.

**Table 6**  
**Tone receiver conversion**

CS 1000S/M		CS 1000E CP PM			
Slot	Unit	Superloop	Shelf	Card	Unit
0	0-7	0	0	14	0-7
0	8-11 or 8-15	0	0	15	0-3 or 0-7
If these cabinets are populated with MGCs, then these units must be configured.  Unit types and unit numbers in each MG are matched to the configuration that exists in slot 0.		0	1	14	0-7
		0	1	15	0-3 or 0-7
		4	0	14	0-7
		4	0	15	0-3 or 0-7
		4	1	14	0-7
		4	1	15	0-3 or 0-7
		8	0	14	0-7
		8	0	15	0-3 or 0-7

### Conference and Tone Generator conversion

All existing Tone and Conference loops are removed and two loops (one for tone and one for conference) are allotted for each IPMG as shown in Table 7.

**Table 7**  
**Conference and Tone Generator conversion**

IPMG	MG TDS	MG CONF
000 0	124	125
000 1	126	127

**Table 7**  
**Conference and Tone Generator conversion**

IPMG	MG TDS	MG CONF
004 0	128	129
004 1	130	131
008 0	132	133

## IPMG Configuration

The IP address for each of the IPMG must be entered in overlay 97. Note that the SIPE IP addresses cannot not be used in this case since the SIPE IP connections are point to point and may not be in the same subnet as the ELAN IP address. As part of conversion the IPMG Type is set to MGC.

## Media Card TN Configuration

The small system to large system conversion process does not propagate the card TN information to the media card. This TN value is stored in the bootp.tab file of the media card.

After the conversion process, the card TN value must be entered using Element Manager and transferred to the media card.

## DSP Resources for IPMGs

New hardware must be added to media gateways that do not have a media card present to provide the DSP resources required for inter-gateway calls or TDM to IP calls. Note that a media gateway does not require DSP resources for calls within the same media gateway (IP to IP calls). The DSP resources are required for TDM to IP calls. These DSP resources are only available to the media gateway in which the DSP is located.

Once conversion is complete, the DSP resources that were previously configured are now available to the gateway where the media card is located. DSP resources are required in all gateways in order to support inter-gateway calls and TDM to IP calls. The DSP resources can be provided by the MGC DSP daughterboard or the media card. The configuration required for the new

DSP resources must be performed manually, as it is not part of the conversion process.

## Deleted information

The following information is removed during the conversion process:

- SIPE IP addresses (deleted from the database)
- TDS and Conference configuration
- Survivable SSC IP address
- Redundant serial port information
- Meridian Mail LSL, AML and other TNs.

Any deleted items are printed out during the conversion process.

*Note:* Although the above items are removed during the conversion process, the data in the compact flash remains intact with the small system database.

## Campus Redundancy (High Availability) Package Support

The CP PM Call Server project introduces a package (410) for enabling and disabling the Campus Redundancy or High Availability (HA) feature. For more information, refer to Appendix : “Appendix A: Upgrading to a High Availability system” on [page 137](#).

Software determines if the HA package is present in the keycode. If the package is present, the CP PM call server behaves in the same manner as the Release 4.5 CP II or CP IV (for example, it uses the High Speed Pipe (HSP) to detect the presence of the other core). If the other core is detected, then both the cores negotiate to determine which core is active and which core is the standby.

If the CP PM call server is unable to detect the other core, then it comes up as a single core system. If the HA package is not present in the keycode, then the existing call server software is modified to block the HSP connection so that the CP PM call server does not attempt to detect the presence of the core. In the absence of the HA package, the CP PM call server runs as a single core

system—even in a system with two cores where the HSP ports on both cores are connected.

## Database Media Converter Tool

The CP PM call server utilizes the same database media converter tool developed for the CP IV in Release 4.5.

This is a Windows application that runs on a PC and is a tool used to copy database files from floppy disks onto compact flash cards. This CP PM call server application only supports databases converted from CP II.

**Note:** This tool is not required if a database saved from a CP IV call server is to be used for a CP PM call server system. This is because the database file from a CP IV is already on a compact flash card, and this card can be directly inserted into the CP PM call server faceplate during software installation.



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# Review Prerequisites Checklist

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## Contents

This section contains information on the following topics:

Planning the upgrade . . . . .	41
Preparing for the upgrade . . . . .	42
Things to know . . . . .	43
Hardware requirements . . . . .	43
Readiness checklist . . . . .	48

## Planning the upgrade

Planning for an upgrade involves the following tasks:

- Conduct a site inspection to determine proper power and grounding.
- Determine if additional Cabinets/Chassis' need to be mounted or bolted to the wall.
- 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.
- 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.

## **Preparing for the upgrade**

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.
- 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 (Call Servers, Voice Gateway Media Cards, Media Gateway Controllers, Signaling Servers and so on).
- Determine the required patches or DEP lists installed on all 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.

## Things to know

### Hardware requirements

This section describes the *minimum* hardware and software required for a Small System upgrade. Additional equipment can also be installed during the upgrade. Verify that *all* hardware has been received.

Before the upgrade, check that items on the order form are also on the packing slip. Check that all items been received. If any items are missing, contact your supplier for replacements before you begin the upgrade.



#### **WARNING**

##### **Service Interruption**

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

**Note:** CS 1000T is not supported post CS 1000 Release 5.0. For more information, see *Communication Server 1000E: Software Upgrades* (NN43041-458).

### Check required hardware

Table 8 lists the hardware required for the upgrade.

**Table 8**  
**Hardware requirements**

Order number	Description	Quantity per IPMG
NT4N64	Common Processor Pentium II (CP PII) Call Server	Depends on configuration
NT4N39	Common Processor Pentium IV (CP PIV) Call Server	Depends on configuration

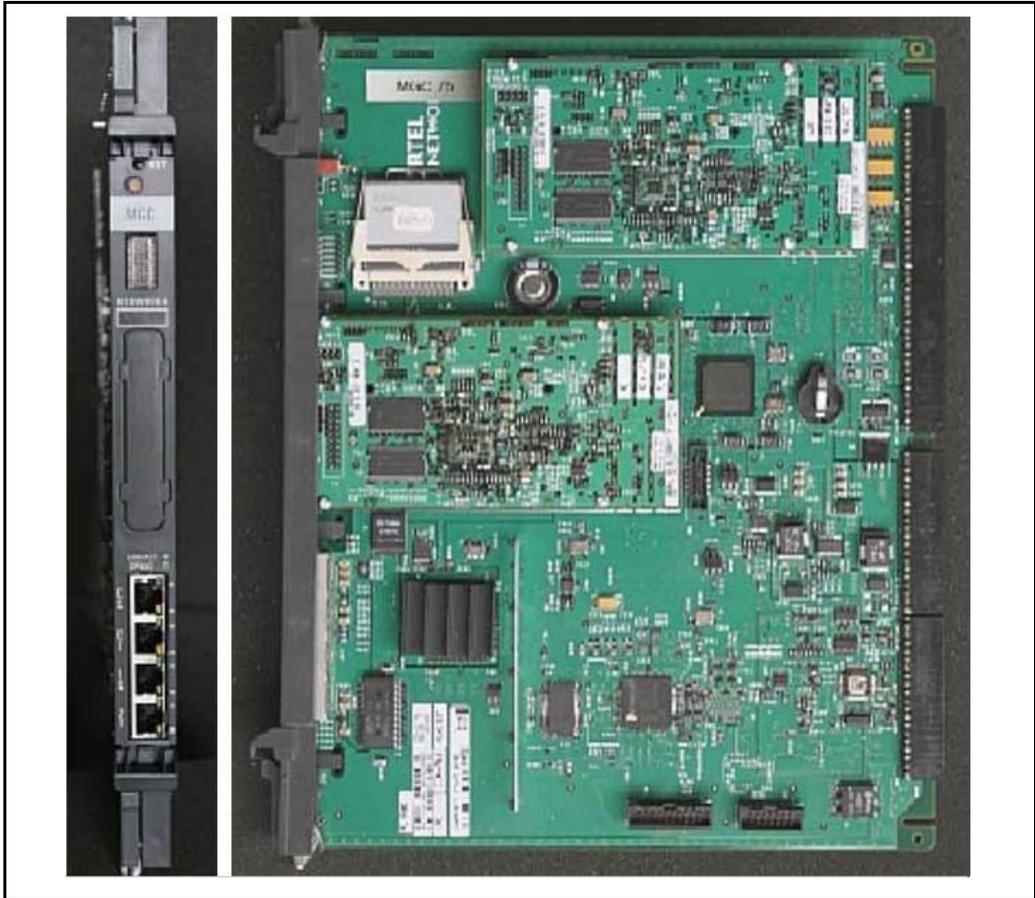
**Table 8**  
**Hardware requirements**

Order number	Description	Quantity per IPMG
NTDW61	Common Processor Pentium Mobile (CP PM) Call Server (Figure 1 on <a href="#">page 45</a> )	Depends on configuration
NTDW60BAE5	Media Gateway Controller (Figure 2 on <a href="#">page 46</a> )	1
NTDW62AAE5 (32 Port) NTDW64AAE5 (96 Port)	DSP Daughterboard (Figure 3 on <a href="#">page 47</a> )	Depends on configuration
CAT5 cable	For ELAN and TLAN connections	3
NTAK19EC	2-port SDI cable	1
NTBK48AA	3-port SDI cable	1
<p><b>Note:</b> A TLAN IP address is needed for each DSP Daughterboard.</p> <p><b>Note:</b> A straight through female to female adapter is required.</p>		

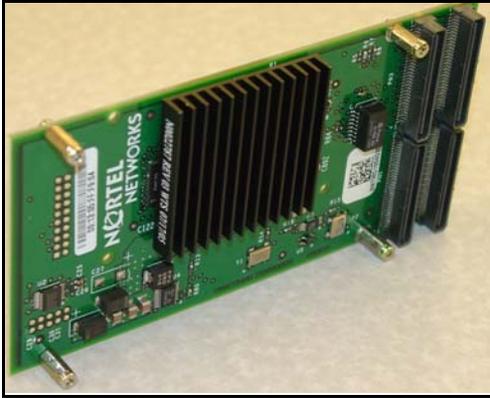
Figure 1  
NTDW61 CP PM card



Figure 2  
NTDW60BAE5 MGC card



**Figure 3**  
**DSP daughterboard**



## Readiness checklist

As part of the upgrade process, complete the Upgrade readiness checklist.

**Table 9**  
**Upgrade readiness checklist (Part 1 of 4)**

Action	✓
Received equipment: <ul style="list-style-type: none"> <li>• Received hardware</li> <li>• Received software</li> <li>• Received keycodes</li> <li>• Received Dongle</li> <li>• Download any current patches</li> <li>• Tools</li> </ul>	
Available Card slots: <ul style="list-style-type: none"> <li>• Are there sufficient card slots (for example, for CPPM card)?</li> </ul> <p><b>Note:</b> If another card is removed to open up a slot for the CP PM card, it is recommended that all configuration for that slot be removed prior to an upgrade from a small to a large system.</p>	

**Table 9**  
**Upgrade readiness checklist (Part 2 of 4)**

Action	✓
<p>Cables:</p> <ul style="list-style-type: none"> <li>• CAT5 cable (for ELAN and TLAN connections)</li> <li>• NTAK19EC 2-port SDI cable</li> <li>• NTBK48AA 3-port SDI cable</li> </ul> <p><b>Note:</b> To connect a terminal to the CP PM card, complete the following steps:</p> <ul style="list-style-type: none"> <li>• Connect the NTAK19EC cable (shipped with the CP PM Signaling Server) to the 50 pin MDF connector on the back of the desired shelf of the IPMG.</li> <li>• Connect a 25 pin to 9 pin straight through serial cable to the 25 pin DB connector at the end of the NTAK19EC cable (a female to female gender changer may be required). These are customer provided.</li> <li>• Connect the other end of the 25 pin to 9 pin straight through serial cable to the serial port on the maintenance terminal. These are customer provided.</li> </ul>	

**Table 9**  
**Upgrade readiness checklist (Part 3 of 4)**

Action	✓
<p>Make sure that all the software that was ordered has been received.:</p> <ul style="list-style-type: none"> <li>• New version and patches / DEP lists</li> <li>• Current version</li> <li>• Compatibility and Planning</li> <li>• Ensure you can perform a direct upgrade, otherwise plot the intervening path required or have Nortel do the database conversion</li> <li>• If there are any external applications that have CS1000 with a Small System TN format (Card - Unit) configured as part of their interop with the CS1000 or M1 solutions, the existing TNs will map to new Large System based TNs that are in the format of SUPL- Shelf-Card-Unit. These applications may need to be changed in order to interop with the new TN that is generated as part of the conversion process.</li> </ul>	
Compact Flash and PCMCIA adapter	

**Table 9**  
**Upgrade readiness checklist (Part 4 of 4)**

Action	✓
<p>Provide a PC or workstation that runs the web browser for Element Manager.</p> <p>The web browser can access the Element Manager web server on either the ELAN subnet or TLAN subnet. Use Microsoft Internet Explorer 6.x or higher. Make sure that the cache settings are enabled to check for new pages every time, and to empty the cache when browser is closed.</p>	
<p>Prepare the network data, such as new IP addresses, in:</p> <ul style="list-style-type: none"> <li>• <i>Converging the Data Network with VoIP</i> (NN43001-260)</li> <li>• <i>IP Peer Networking: Installation and Commissioning</i> (NN43001-313)</li> <li>• <i>Network Routing Service Installation and Commissioning</i> (NN43001-564)</li> <li>• <i>Communication Server 1000E: Installation and Commissioning</i> (NN43041-310)</li> <li>• <i>Communication Server 1000E: Software Upgrades</i> (NN43041-458)</li> </ul>	



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# Upgrading Small System hardware

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## Contents

This section contains information on the following topics:

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## Backing up the Small System Call Server to an external drive

**Note:** For your convenience, the procedures required to back up the system database prior to the hardware upgrade are contained in this NTP.

The CP PM call server supports converting the databases saved on the CS 1000 small system through the following methods:

- LD 43 EDD
- LD 143 archive database option (invoked from upgrade menus)

- LD 43 BKO

*Note:* The CCBR method of database backup is not supported for small system to large system database conversion.

By combining the EDD and archive methods, the database files are saved onto a compact flash card (with a PCMCIA card adapter when plugged into the SSC card) so that it can be inserted into the CP PM call server during software installation to perform the database conversion. LD 43 EDD updates the database on the internal drive (to ensure that the latest memory contents are backed up) and LD 143 backs up the database to the backup RMD (128 MB). Failure to perform a recent LD 43 (EDD) may result in the loss of any recent changes to the database.

*Note:* An alternative to the Archive command in LD 143 is the BKO command in LD 43. However; the Archive in LD 143 is the recommended method as it allows for multiple databases to be copied to the RMD. As a result, there is less risk of overwriting existing files using LD 143 to archive the database.

There is a fundamental difference between the small system, running an SSC, and a CS 1000E running a CP PM call server. This difference is represented in how the format of the TN (Terminal Number) is displayed.

The small system TN is displayed to the administrator using a two-field format, or card-unit. In a CS 1000E CP PM system, the TN is displayed using a four-field format, or loop-shelf-card-unit. This four-field TN format is the same as those used in current large systems (for example, CP PII, CP PIV).

The end result is that when a small system database is converted to a large system database, the TNs are re-mapped. The result is that the displayed TN changes during the conversion process. The administrator must be aware of the TN mapping. For example, a small system with an IP phone configured in TN 61-0 now has that same IP phone show up in 96-0-1-0 after the conversion process.

## LD 43 using EDD command

### Procedure 1

#### Backing up the database using LD 43

- 1 To back up the customer database to the internal drive (to ensure the most recent database is copied to the backup RMD (128 MB) in LD 143), enter **LD 43** at the command prompt.

**2** Enter **EDD**. The following output is generated.

```
>LD 43
EDD

EDD000
Backing up reten.bkp
Internal backup complete
All files are backed up!
DATADUMP COMPLETE
.

EDD000
```

**3** The internal backup is complete.

---

**End of Procedure**

---

## **LD 143 using the UPGRADE command**

The second step involved in backing up the database involves moving the database from the hard drive to the RMD. This step is performed through the Utilities menu in LD 143.

### **Procedure 2 Archiving the database in LD 143**

**1** Insert the PCMCIA card in the card slot A. Enter **LD 143** at the command prompt, then enter **UPGRADE**. The following screen appears.

```
SOFTWARE INSTALLATION PROGRAM
*****
Verify
Security ID: XXXXXX
*****
```

- 2** The following menu appears. Enter **2** to select Call Server/Main Cabinet/Chassis.

```
Technology Software Installation Main Menu:
1. Media Gateway/IPExpansion Cabinet
2. Call Server/Main Cabinet
[q]uit, [h]elp or [?], <cr> - redisplay
Enter Selection : 2
```

- 3** The Call Server/Main Cabinet/Chassis Software Installation Main Menu appears. Enter **3** to select Utilities.

```
Call Server/Main Cabinet Software Installation Main Menu :
1. New Install or Upgrade from Option 11/11E - From
Software DaughterBoard
2. System Upgrade
3. Utilities
4. New System Installation - From Software Delivery Card

[q]uit, [p]revious, [m]ain menu, [h]elp or [?], <cr> -
redisplay
Enter Selection : 3
```

- 4** The Utilities menu appears. Enter **2** to select Archive Database Utilities.

```
Utilities Menu :
1. Restore Backed Up Database
2. Archive Database Utilities
3. Install Archived Database
4. Review Upgrade Information
5. Clear Upgrade Information
6. Flash Boot ROM Utilities
7. Current Installation Summary
8. Change 3900 series set languages.
9. IP FPGA Utilities

[q]uit, [p]revious, [m]ain menu, [h]elp or [?], <cr> -
redisplay
Enter Selection : 2
```

- 5** At the Customer Database Archives menu, enter **3** to select Archive a customer database.

Customer Database Archives:

1. List customer databases.
2. Remove customer database.
3. Archive a customer database.

[q]uit, [p]revious, [m]ain menu, [h]elp or [?], <cr> -  
redisplay

Enter Selection : 3

- 6** At this point, you are prompted for a Customer name for your archived database. In this example, the name **CS1000SU** is entered as the Customer name.

Enter a Customer name for your customized data :

CS1000SU

Customer database created: CS1000SU

Copying database from primary drive to CS1000SU

Archive copy completed.

- 7** The archive copy has been saved as CS1000SU. The Customer Database Archives menu appears. Enter **1** to select List customer databases.

Customer Database Archives:

1. List customer databases.
2. Remove customer database.
3. Archive a customer database.

[q]uit, [p]revious, [m]ain menu, [h]elp or [?], <cr> -  
redisplay

Enter Selection : 1

The following list is generated:

Customer Database Archives available:

1. 450WBASE
2. 450W\_CP
3. CS1000SU

**8** Enter **q** to quit LD 143, and then **y** to confirm your selection.

Customer Database Archives:

1. List customer databases.
2. Remove customer database.
3. Archive a customer database.

```
[q]uit, [p]revious, [m]ain menu, [h]elp or [?], <cr> -  
redisplay
```

```
Enter Selection : Q
```

```
Are you sure? (y/n/[a]bort) : Y
```

---

**End of Procedure**

---

Once you have completed the backup and archive of the customer database, shut down the system and remove the PCMCIA card from slot. You are now ready to install the hardware.

## Choosing the cabinet or chassis and slot locations

An MG 1000E performs functions under the control of the CS 1000E Core call server. Traditionally, this core call server was a CP II or CP IV in its own call server cabinet or chassis; however, the CP PM call server sits in one of the MG 1000E Cabinet slots. Slot location is based on the type of system:

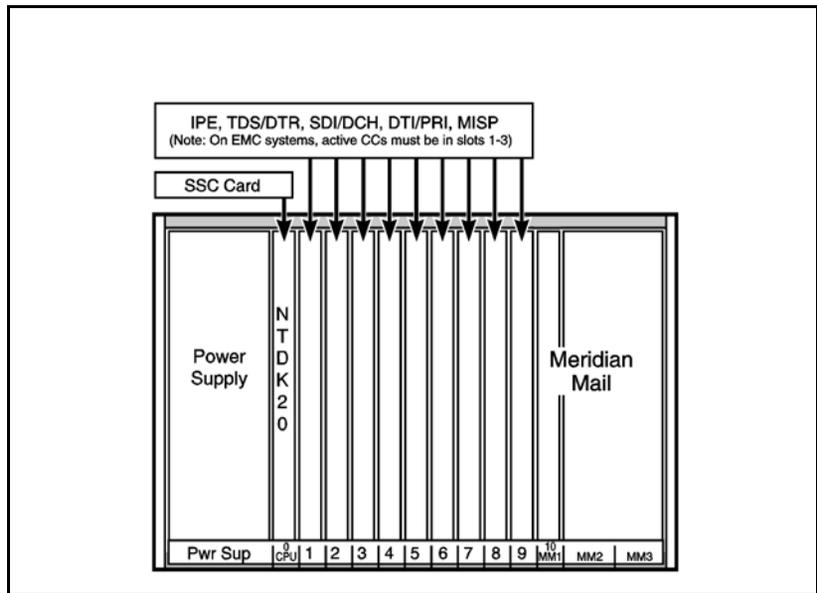
- For Cabinet systems, refer to “Cabinet” on [page 60](#)
- For Chassis systems, refer to “Chassis” on [page 63](#)
- For CS 1000S systems, refer to “CS 1000S” on [page 65](#)

## Cabinet

The CP PM Call Server drives the IPMG through the MGC using the ELAN interface, and therefore does not require backplane connectivity (other than power and slot ID). The following rules apply to the preferential placement of the CP PM call server in the MG 1000E:

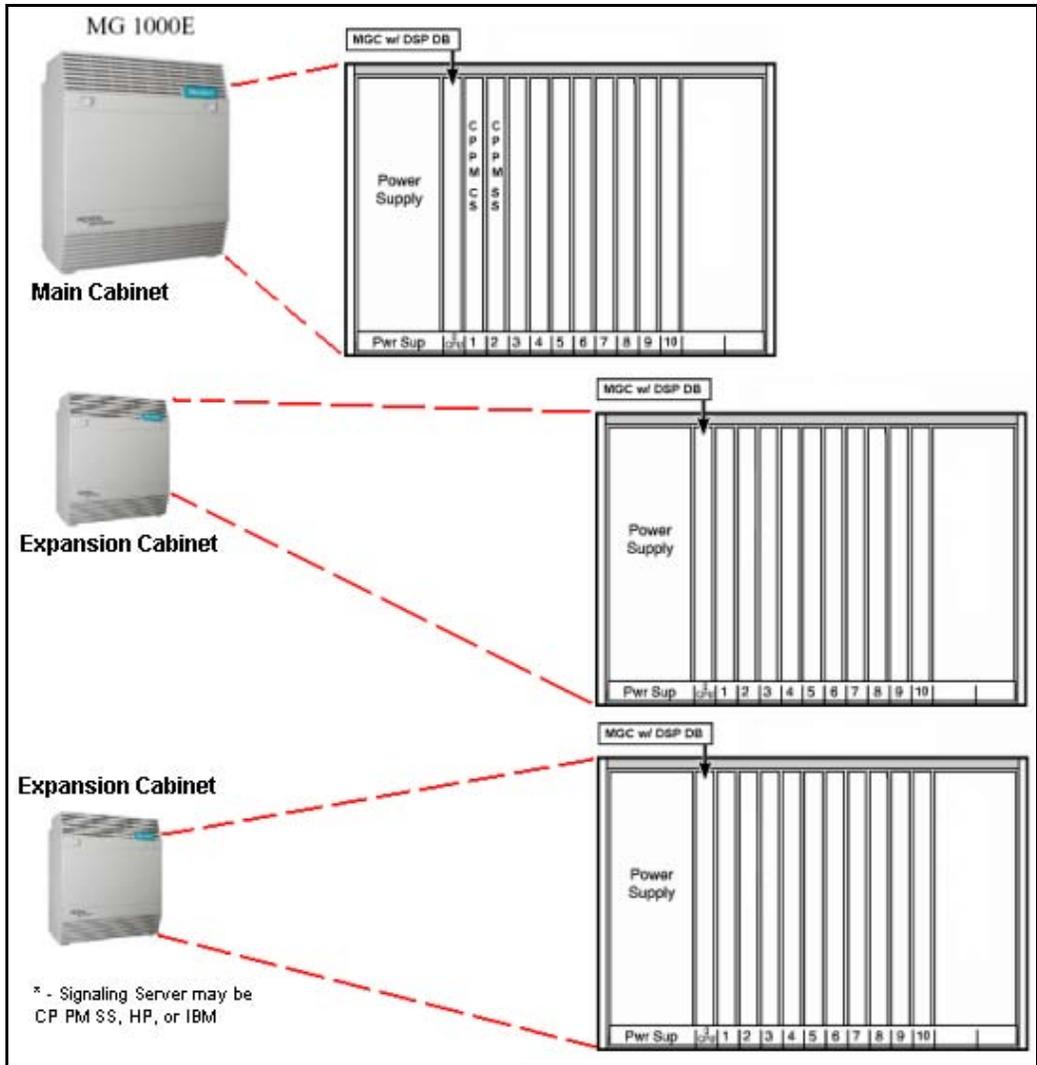
- The CP PM Call Server cannot be placed in slot 0 of any MG 1000E. Slot 0 is reserved for the MGC.
- To allow for ease of cabling, the CP PM call server may be placed in slots 1 through 10 (see Figure 4). The CP PM Signaling Server may be placed in slots 1 through 10 (see Figure 5 on [page 62](#)) or in another cabinet if necessary.
- If utilizing the Campus Redundancy High Availability Call Server option, place the two CP PM call servers in separate CS 1000M cabinets to allow for increased survivability.

**Figure 4**  
**NTAK11 Cabinet with SSC card**



Once the upgrade is complete, a typical SA three cabinet system resembles Figure 5 on [page 62](#) with an MGC in slot 0, and a CP PM call server and signaling server in the main cabinet. The additional media gateways would then contain MGC cards only for an SA configuration.

**Figure 5**  
**Typical three cabinet SA system**



**Note:** A High Speed Pipe package (410) must be activated in order to install any type of redundancy option. For more information, refer to Appendix : “Appendix A: Upgrading to a High Availability system” on [page 137.](#))

To proceed with the upgrade, proceed to the “Hardware Upgrade Task Overview” on [page 68.](#)

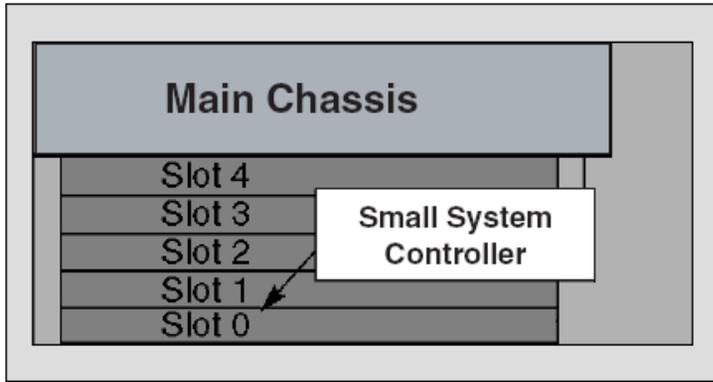
## Chassis

The CP PM Call Server drives the IPMG through the MGC using the ELAN interface, and therefore does not require backplane connectivity (other than power and slot ID). The following rules apply to the preferential placement of the CP PM call server in the MG 1000E:

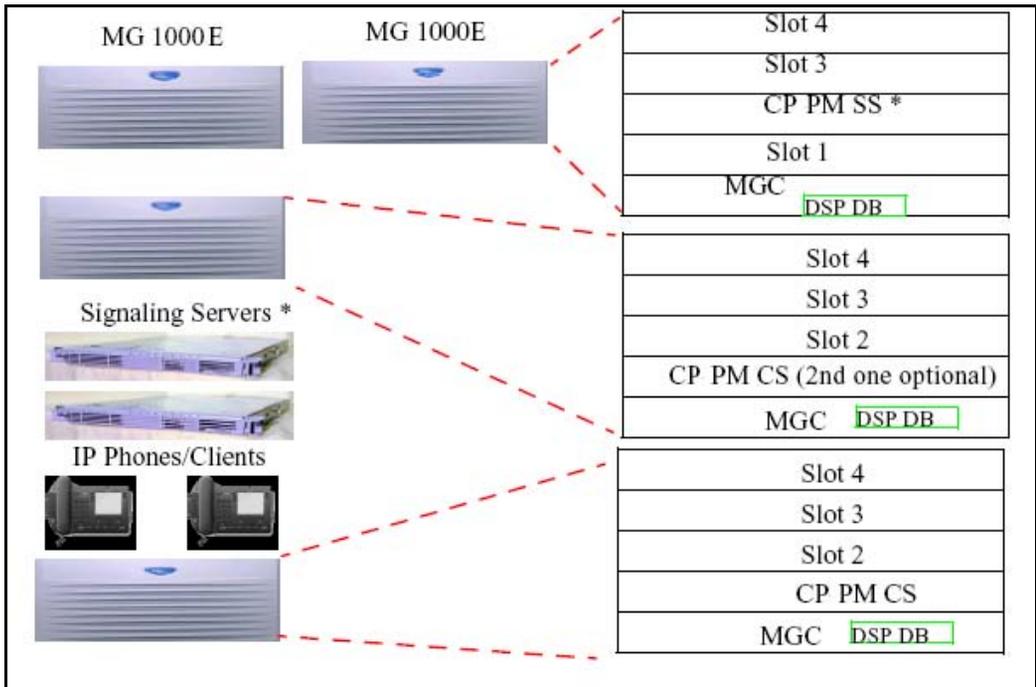
- The CP PM Call Server cannot be placed in slot 0 of any MG 1000E. Slot 0 is reserved for the MGC.
- To allow for ease of cabling, the CP PM call server may be placed in slots 1 through 4 of the chassis, with the exception of the Option 11C Mini. The Option 11C Mini cannot have a CP PM card installed in slot 4 as this slot was originally allocated for the 48 port DLC only.
- The CP PM Signaling Server may be placed in slots 1 through 4 (see Figure 6 on [page 64](#)) or in another chassis if necessary.
- If utilizing the Campus Redundancy High Availability Call Server option, place the two CP PM call servers in separate Chassis’ to allow for increased survivability.

Figure 6 shows an existing Option 11C or CS 1000M Chassis call server with the SSC card. Once the upgrade is complete, a typical SA Chassis system will resemble Figure 7 on [page 64](#) with an MGC in slot 0, and a CP PM call server and signaling server in the main chassis. The additional media gateways would then contain MGC cards only for an SA configuration.

**Figure 6**  
Option 11C or CS 1000M Chassis call server



**Figure 7**  
Typical SA Chassis system



\*—Signaling Server may be one of the following:

- CP PM Signaling Server;
- ISP 1100 Signaling Server;
- HP DL320 G4 Commercial off-the-shelf (COTS) Signaling Server; or
- IBM x306m COTS Signaling Server

A High Speed Pipe package (410) must be activated in order to install any type of redundancy option. For more information, refer to “Appendix A: Upgrading to a High Availability system” on [page 137](#).)

To proceed with the upgrade, proceed to the “Hardware Upgrade Task Overview” on [page 68](#).

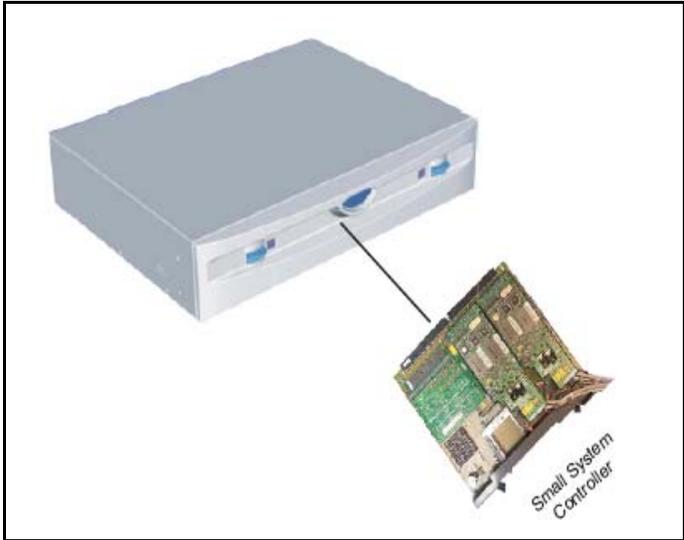
## CS 1000S

The CP PM Call Server drives the IPMG through the MGC using the ELAN interface, and therefore does not require backplane connectivity (other than power and slot ID). The following rules apply to the preferential placement of the CP PM call server in the MG 1000E:

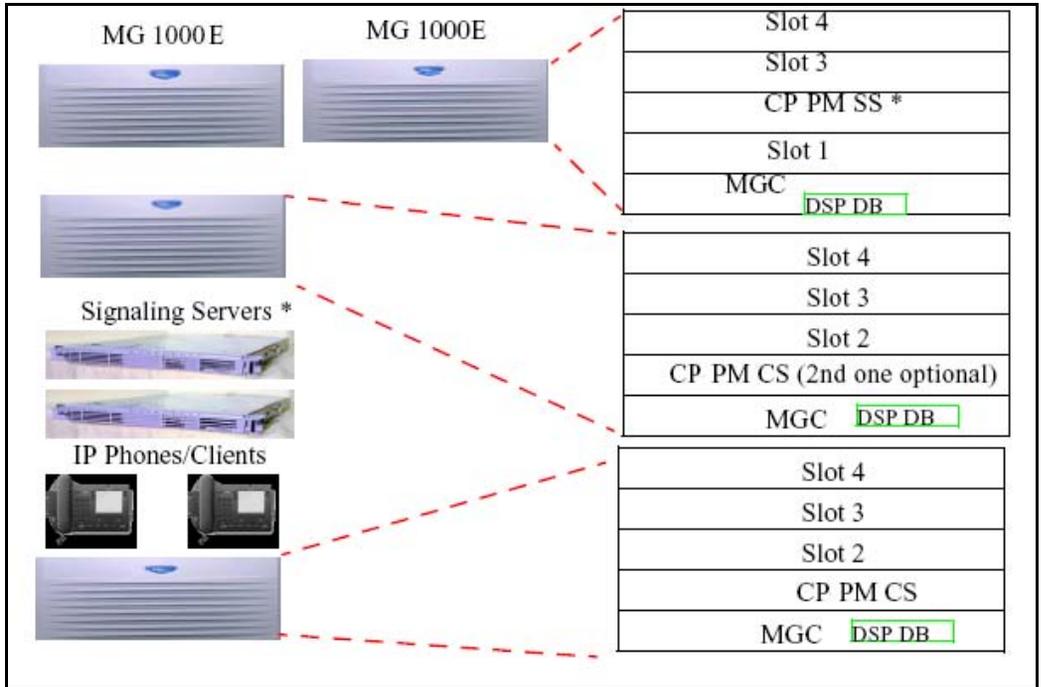
- The CP PM Call Server cannot be placed in slot 0 of any MG 1000E. Slot 0 is reserved for the MGC.
- To allow for ease of cabling, the CP PM call server may be placed in slots 1 through 4 of the chassis, with the exception of the Option 11C Mini. The Option 11C Mini cannot have a CP PM card installed in slot 4 as this slot was originally allocated for the 48 port DLC only. The CP PM Signaling Server may be placed in slots 1 through 4 (see Figure 8 on [page 66](#)) or in another chassis if necessary.
- If utilizing the Campus Redundancy High Availability Call Server option, place the two CP PM call servers in separate CS 1000M chassis to allow for increased survivability.

Figure 6 shows an existing CS 1000S call server with the SSC card. Once the upgrade is complete, a typical SA Chassis system will resemble Figure 9 on [page 67](#) with an MGC in slot 0, and a CP PM call server and signaling server in the main chassis. The additional media gateways would then contain MGC cards only for an SA configuration.

**Figure 8**  
**CS 1000S (NTDU30) call server**



**Figure 9**  
**Typical SA Chassis system**



\*—Signaling Server may be one of the following:

- CP PM Signaling Server;
- ISP 1100 Signaling Server;
- HP DL320 G4 Commercial off-the-shelf (COTS) Signaling Server; or
- IBM x306m COTS Signaling Server

A High Speed Pipe package (410) must be activated in order to install any type of redundancy option. For more information, refer to Appendix : “Appendix A: Upgrading to a High Availability system” on [page 137.](#))

## Hardware Upgrade Task Overview

To install the hardware for a Small System upgrade, perform the following steps:

- 1 Power down the Main Cabinet or Chassis.
- 2 Remove the SSC card as described in Procedure 3 on [page 68](#).
- 3 Install the DSP Daughterboard on the MGC card as described in Procedure 4 on [page 71](#).
- 4 Install the MGC card as described in Procedure 5 on [page 73](#).
- 5 Install the CP PM as described in Procedure 6 on [page 74](#).
- 6 Cable the cards as shown in “Cabling the cards” on [page 75](#).
- 7 Power up the MG 1000E.
- 8 Enter the ‘mgcsetup’ menu and configure the IP parameters, then reboot the MGC.

If the Centralized Software Upgrade (CSU) feature is enabled on the Call Server, the firmware for the MGC is downloaded automatically (or if the internal Compact Flash is blank), otherwise initiate the firmware download using Overlay 143 commands.

## Installing the cards

The following sections describe the process required to install the MGC and CP PM cards.

### Removing the SSC card

#### Procedure 3 Removing the SSC Card

- 1 Power down the system.
- 2 Unlatch the SSC card.

- 3 Remove the SSC card from its slot.



### IMPORTANT!

The SSC card and dongle should be preserved for a minimum of five days.

It is illegal to continue to run the system software on the existing SSC card. Please DESTROY or RETURN the SSC dongle to your local Nortel Repairs>Returns center upon confirmation of a successful upgrade. No further orders will be accepted for the serial number since it will be decommissioned and tracked in Nortel's database.

**Note:** If the upgrade fails, you will not be able to revert back to the old system without the SSC card and dongle.

————— End of Procedure —————

## Installing a DSP Daughterboard onto an MGC card

Table 10 lists the configuration options for Position 1 and 2.

**Table 10**  
**DSP Daughterboard configurations**

Position 1 (DB1)	Position 2 (DB2)
DB32 (card slot 11)	None
None	DB32 (card slot 0)
DB32 (card slot 11)	DB32 (card slot 0)
DB96 (card slot 11, 12, & 13)	None
DB96 (card slot 11, 12, & 13)	DB32 (card slot 0)
<b>Note:</b> Only the PRI - IPMG MGC can house two 96 port DSP daughter boards.	



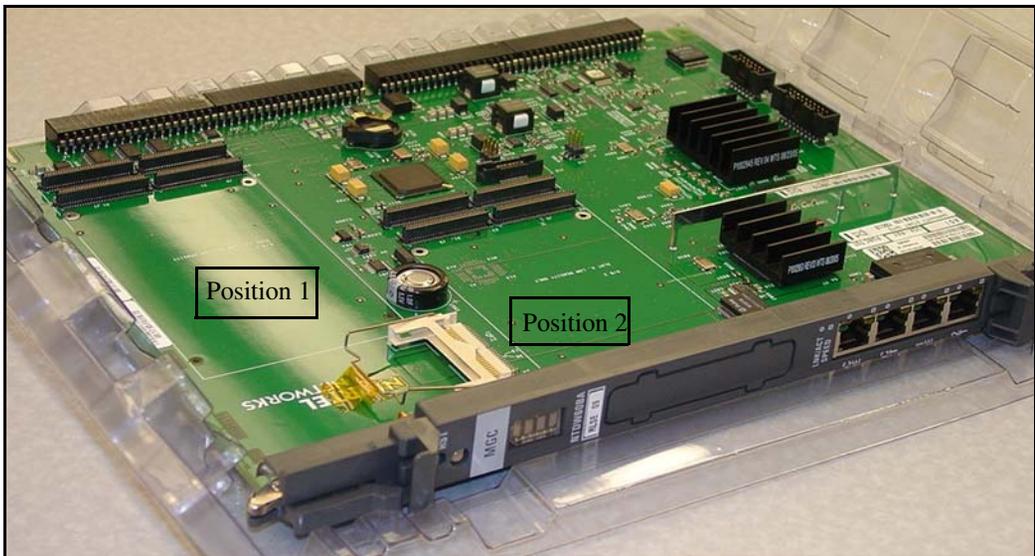
**IMPORTANT!**

Due to historical TN mapping for the Call Server SL1 software, even though the DSP channels will occupy Card 0 in the MG 1000Es, the TN (I s c u) 000 0 00 00 (ie unit 0 of card 0 in the first IPMG <supl sh> = 000 0) is not available.

A single channel (unit 0) is not available on the first IPMG ONLY if there is a 32 port DB installed in daughterboard position #2. If there is a 96 port DB installed in daughterboard position #1, all 96 channels are available. If there is a 32 port DB installed in daughterboard position #1, all 32 channels are available.

The following procedure describes how to install a DSP Daughterboard on an MGC card. See Figure 10.

**Figure 10**  
**DSP Daughterboard**



#### Procedure 4 Installing a DSP Daughterboard

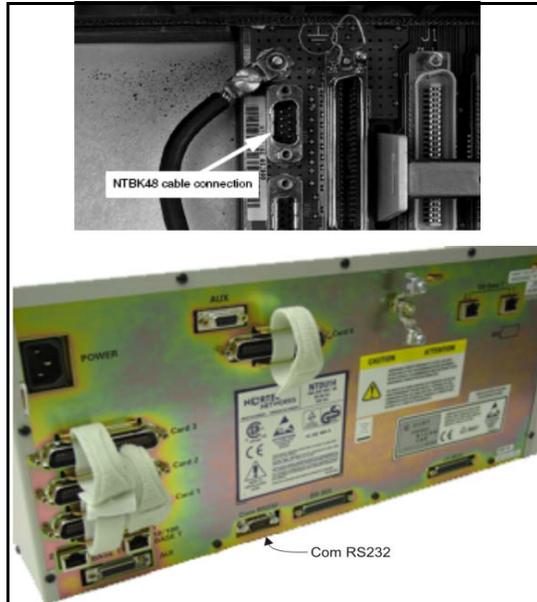
- 1 Place the MGC on a safe ESD surface.
- 2 Place the DSP DB in either DB position 1 (for DSP DB-32 or DSP DB-96) or DB position 2 (for DSP DB-32), depending on how the DB is configured from a TN perspective.
- 3 Ensure the DSP DB is securely attached to the MGC. (using supplied screws).

End of Procedure

## Installing the MGC card

The existing 3-port SDI cable (NTBK48) is reused. It connects to the SDI on the cabinet and the COM RS232 port on the chassis. Figure 11 on [page 71](#) illustrates the two connectors.

**Figure 11**  
**NTBK48 connectors**



### MGC serial port capabilities

Table 11 on [page 72](#) shows the MGC Serial Port Capabilities.

**Table 11**  
**MGC Serial Port Capabilities**

<b>Port</b>	<b>Modem Support?</b>	<b>Used for initial Configuration?</b>
SDI0	Yes (requires null modem to connect to a TTY)	Yes
SDI1	No (No hardware flow control)	No. Port 1 is not enabled during the initial configuration of the MGC.
SDI2	No (No hardware flow control)	No (Only available after FPGA is enabled. Not available during initial configuration menu display)

**Procedure 5**  
**Installing the MGC card**

In Release 5.0, the MGC card replaces the existing SSC used in a small system cabinet or chassis.

- 1 Insert the MGC into Slot 0 of the cabinet or chassis.

**IMPORTANT!**

Please DESTROY or RETURN the SSC dongle to your local Nortel Repairs>Returns center upon confirmation of a successful upgrade. If the SSC system was using remote dongles for any expansion cabinets, please DESTROY or RETURN to your local Nortel Repairs>Returns center upon confirmation of a successful upgrade.

**Note:** If the upgrade fails, you will not be able to revert back to the old system without the SSC card and dongle.

For the CP PM call server, you must use the dongle provided with the software kit. Chassis Expander dongles may be disposed of, as they are no longer needed.

- 2 Connect the 3-port SDI cable (NTBK48AA) to the SDI0 port on the chassis.
- 3 Power on the IPMG.
  - MGC display will read BOOT.
  - Power on self-test will begin. MGC display will read POST.
  - If self-test completes successfully, MGC display changes to PASS. Otherwise, an error code Exxx is displayed.
  - The MGC begins loading application software. Display changes to LOAD.

---

**End of Procedure**

---

## Installing the CP PM card

The following procedure describes how to install the CP PM card in a Cabinet or Chassis.

**Note:** Ensure that the Dip Switch (S5) is set to position 1 if using the CP PM as a Call Server or position 2 if using the card as a CP PM Signaling Server.

### Procedure 6 Installing the CP PM card

- 1 Ensure that the security dongle (the one that comes as part of the software kit) is inserted on the CP PM call processor.

**Note 1:** This first step is applicable only when the CP PM card is used as a Call Server.

**Note 2:** Remove the retainer clip from the FMD slot when the card is used as a Signaling Server. The clip must be removed to prevent it from shorting out adjacent cards.

- 2 Ensure that the FMD (1 GB) is correctly inserted and locked in place.
- 3 Slide the CP PM call processor into Slot 1 (or higher) of the cabinet or chassis.
- 4 Lock the card into the faceplate latches.
- 5 Attach the 2-port SDI cable. The 50-pin Amphenol NTAK19EC connects to the back of the CP PM call server.

**Note:** To connect a terminal to the CP PM card, complete the following steps:

- Connect the NTAK19EC cable (shipped with the CP PM Signaling Server) to the 50 pin MDF connector on the back of the desired shelf of the IPMG.
- Connect a 25 pin to 9 pin straight through serial cable to the 25 pin DB connector at the end of the NTAK19EC cable (a female to female gender changer may be required). These are customer provided.
- Connect the other end of the 25 pin to 9 pin straight through serial cable to the serial port on the maintenance terminal. These are customer provided.

---

**End of Procedure**

---

**Figure 12**  
**2-port SDI cable (NTAK19EC) cable**



---

**End of Procedure**

---

The preceding steps enable users to upgrade the system one MG 1000E at a time. For each additional IPMG, repeat Procedure 3 to Procedure 5 on [page 73](#).

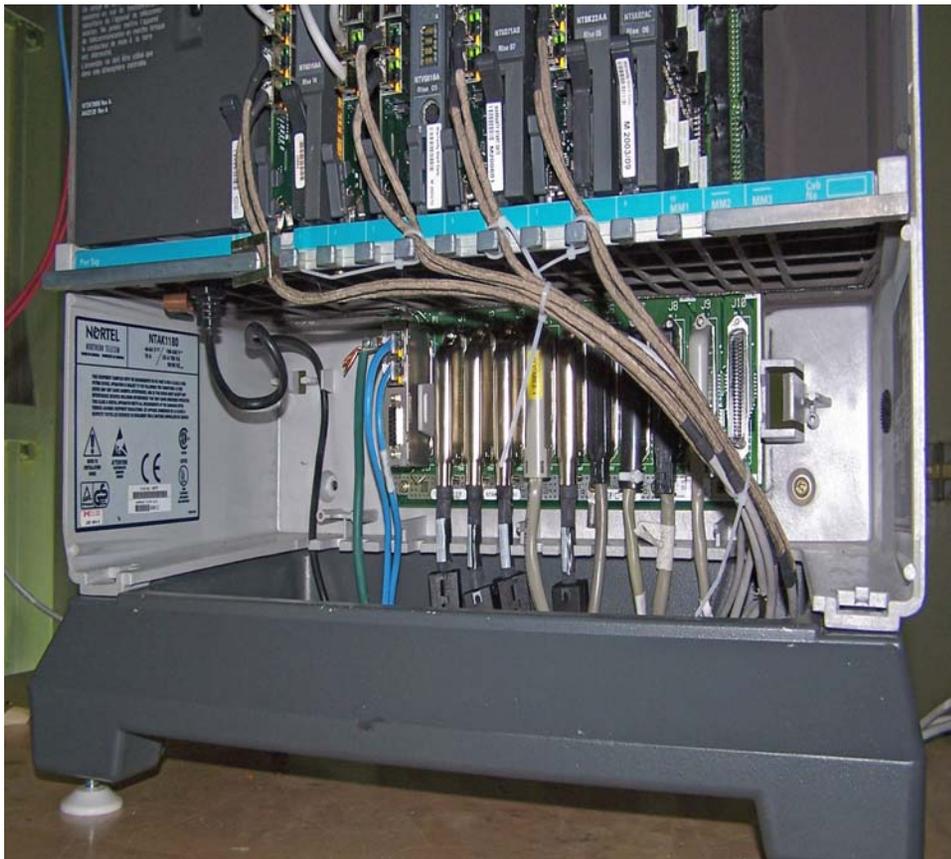
## **Cabling the cards**

The following sections describe the process required to cable the MGC and CP PM cards.

## Guidelines for Cabling an Option 11C cabinet

When using Option 11C Cabinet as Media Gateway Cabinet, it is recommended to use Shielded Cables including the Shielded CAT5 cable for the ELAN and TLAN. The cables need to be routed towards the right side of the cabinet as shown in the Figure 13.

**Figure 13**  
**Cabling an Option 11C cabinet**



## Cabling the MGC

A MGC features six Ethernet interfaces set to autonegotiate by default, four on the faceplate and two on the backplane. Figure 14 on [page 77](#) shows the Ethernet connectors on the front of the MGC. The CE and CT ports are available for supported cabling to the CP PM card or as maintenance ports to the ELAN and TLAN. The two ports on the backplane connector are accessible using the 100BT breakout adapter (See Figure 15 on [page 78](#)) when installed in a Cabinet or available through 10/100BaseT Ethernet connectors on the back of the MG. The 1E (ELAN) and 2T (TLAN) Ethernet ports must be attached to a Layer 2 switch.

## MGC Ethernet Capabilities

**Figure 14**  
MGC faceplate

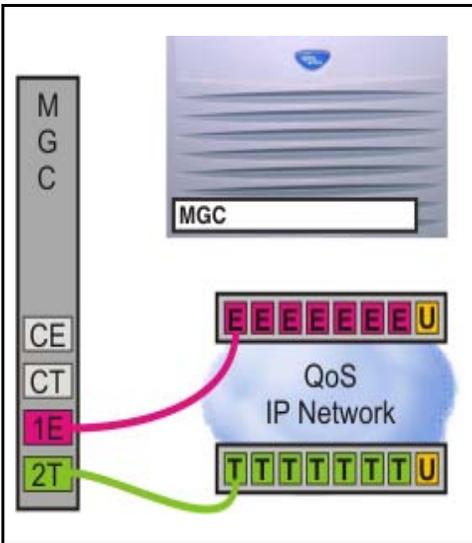


**Figure 15**  
**Breakout adaptor**

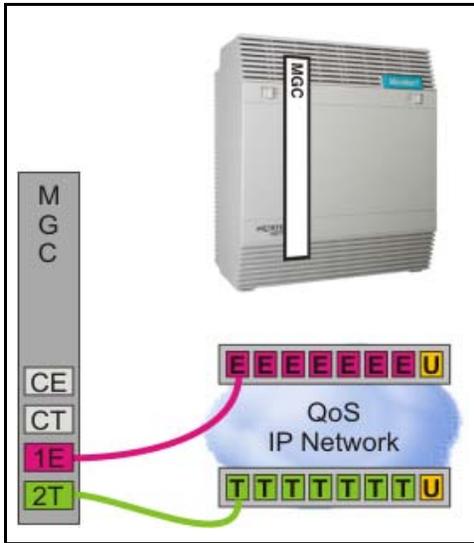


Nortel recommends using direct connections from the faceplate jacks of the MGC to the Layer 2 switch. Figure 16 on [page 78](#) illustrates a MG or chassis with a MGC connected directly to a Layer 2 switch. Figure 17 on [page 79](#) illustrates a cabinet with MGC connected directly to the Layer 2 switch.

**Figure 16**  
**MGC MG Cable**



**Figure 17**  
**MGC Cabinet Cable**

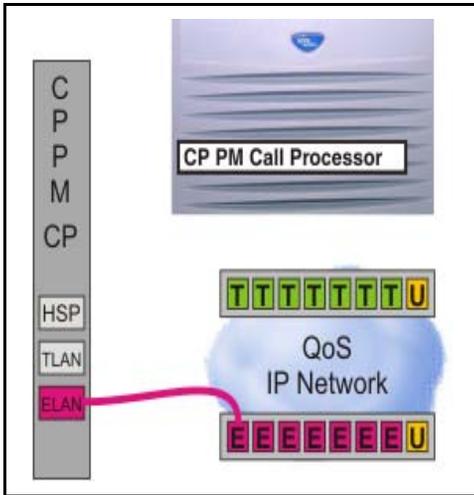


### Cabling the CP PM card

In a typical configuration, the SDI port of the CP PM card is routed through the backplane of the shelf to the 50-pin Amphenol connector on the back of the shelf. A SDI cable (NTAK19) is shipped with the CP PM that adapts the 50-pin Amphenol connector to two 25-pin DB connectors. Port 0 is used for maintenance access, and Port 1 is for an external modem connection.

Nortel recommends using direct connections from the faceplate jacks of the CP PM cards to the Layer 2 ethernet switches. Figure 18 on [page 80](#) illustrates a MG or chassis with a CP PM call processor connected directly to a Layer 2 switch. Figure 19 on [page 80](#) illustrates a MG chassis with a CP PM Signaling Server connected directly to a Layer 2 switch.

**Figure 18**  
**CPPM CP MG Cable**



**Figure 19**  
**CPPM SS MG cable**

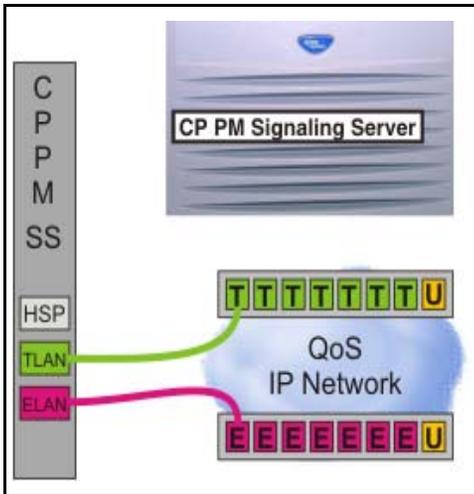


Figure 20 on [page 81](#) illustrates a cabinet with CP PM call processor connected directly to a Layer 2 switch.

**Figure 20**  
**CPPM CP Cabinet cable**

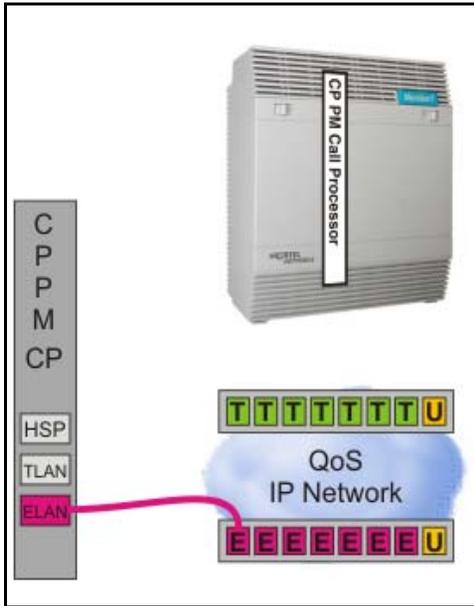
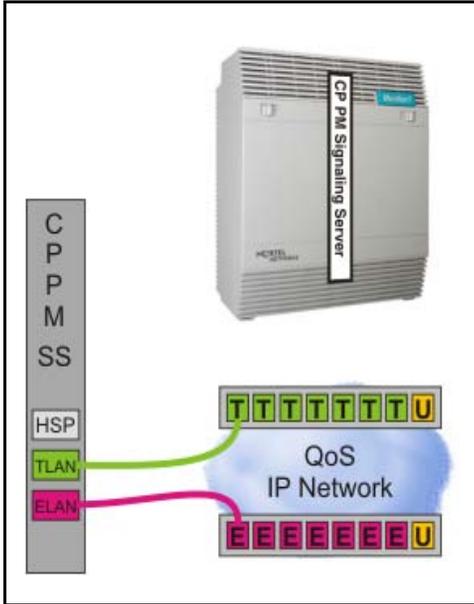


Figure 21 on [page 82](#) illustrates a cabinet with a CP PM Signaling Server connected directly to a Layer 2 switch.

**Figure 21**  
**CPPM SS Cabinet cable**



## Configuring initial IP configuration data on MGC

*Note:* Coordinate all Nars/Bars and NRS changes to ensure that your cutover plan is designed for minimum downtime.

The MGC must be given a superloop and shelf reference on the Call Server (see Table 12).

**Table 12**  
**MGC superloop configuration**

Loop	Shelf	IPMG #
000	0	1
000	1	2
004	0	3
004	1	4
008	0	5
...	...	...
096	0	49
096	1	50

## Configuring the IPMG zone and IP address

This section describes the process involved in configuring the IPMG zone and IP address in LD 97 on the Call Server.

### Procedure 7 Configuring the MGC on the Call Server

*Note:* This procedure may be performed through Element Manager following the installation of the Signaling Server.

- 1 Log into LD 97 to configure the MGC that will register to the call server:

```
>LD 97
SCSYS000
MEM AVAIL: (U/P): 103979814    USED U P: 230475 59531
TOT: 104269820
REQ prt
TYPE supl
SUPL
SUPL  SUPT  SLOT  XPEC0    XPEC1    IPMG    ZONE0/1  IPR0/1
```

```

000  IPMG  ----  - - - -  - - - -  001  ---  -----
                                002  ---  -----
004  IPMG  ----  - - - -  - - - -  003  ---  -----
                                004  ---  -----
008  IPMG  ----  - - - -  - - - -  005  ---  -----
                                006  ---  -----
096  ----  ----  VIRTUAL  - - - -  ---  ---  ---  -----
100  ----  ----  VIRTUAL  - - - -  ---  ---  ---  -----
104  ----  ----  VIRTUAL  - - - -  ---  ---  ---  -----
112  ----  ----  VIRTUAL  - - - -  ---  ---  ---  -----

```

```

REQ  chg
TYPE  supl
SUPL  0
SLOT
SUPT  ipmg
IPR0  < IP address for shelf  0>
IPMG_TYP0  mgc
ZONE0  1
**** ALL VWG CHANNELS MUST BE OUTED AND RECONFIGURED AFTER
IPMG ZONE CHANGE
DES0
-CE
:
:
IPR1  <IP address for shelf 1>
IPMG_TYP1  mgc
ZONE1  1
**** ALL VWG CHANNELS MUST BE OUTED AND RECONFIGURED AFTER
IPMG ZONE CHANGE
DES1
-CE
:
:

```

## Configuring the MGC

Use Procedure 8 to configure the MGC through CLI.

### Procedure 8 Configuring the MGC through CLI

**Note:** Initial configuration of the MGC is command line ONLY.

The MGC is shipped with “gold” software in onboard flash memory. If centralized software upgrade is enabled on the Call Server, the MGC is upgraded automatically (or it can be upgraded manually through LD 143). If no IP information exists on the MGC, it will boot directly into the setup menu.

The MGC Shells can be accessed using the following commands:

- <CTRL>+OAM, (provide OAM username and password to access OAM shell)
- <CTRL>+LDB, (provide LDB username and password to access LDB)

**Note:** The default password is **admin1** and **0000**. Once this card has synchronized with the call server, this password changes to the call server default password.

**1** Enter network IP information at the MGC setup menu:

```
ELAN IP : 192.168.3.33
ELAN subnet mask : 255.255.255.0
ELAN gateway IP : 192.168.3.1
Primary CS IP : 192.168.3.32
```

**Note:** Depending on the date of manufacture, the Gold image may prompt for TLAN and/or secondary call server information. If these prompts appear they can be ignored. This information is configured through EM and is retrieved by the MGC at registration. The new image after upgrade will not have these prompts.

**2** Enter port and security parameters, if required:

**Note:** This step is only necessary if you are using advanced security features.

```
Change MGC advanced parameters? (y/[n]) : y
TLAN is set to auto negotiate, change? (y/[n]) : y
```

Note: Turning off auto negotiate on the TLAN  
: will default it to 100Mbps full duplex.

```
Set TLAN to auto negotiate? ([y]/n) : y
ELAN is set to auto negotiate, change? (y/[n]) : y
```

Note: Turning off auto negotiate on the ELAN  
: will default it to 100Mbps full duplex.

```
Set ELAN to auto negotiate? ([y]/n) : y
ELAN security Disabled, change? (y/[n]) : n
```

**IMPORTANT!**

Nortel recommends that security be disabled during the initial installation of the MGC. See *Security Management (NN43001-604)* for more details on installing ELAN security.

- 3 Review the network information and enter “y” to confirm (see Figure 22 on [page 86](#)).

**Figure 22**  
**Network information**

```
You have entered the following parameters for this MG 1

Hostname           : IPMG0-0
ELAN IP            : 192.168.3.33
ELAN subnet mask   : 255.255.255.0
ELAN gateway IP    : 192.168.3.1
Primary CS IP      : 192.168.3.32
TLAN set to auto negotiate.
ELAN set to auto negotiate.
ELAN security Disabled

Is this correct? (y/n/[a]bort) : y
```

- 4 IP changes require a reboot. Enter “y” at the prompt.

```
Do you want to continue? (y/n/[a]bort) : y
reboot(-1) has been called...
```

Following the reboot, the MGC connects to the CS and downloads the remaining configuration information.

If centralized software upgrade has been enabled, the MGC will upgrade its loadware by downloading it from the CS.

Once the MGC has registered, the LED display will show the superloop and shelf (for example: 4 0) of the IPMG. Otherwise, it will show "UNRG."

## Rebooting the MGC

The MGC reboots and registers with the Call Server.

```
Found device : INTEL 82365SL
```

```
Engcode:NTDW60BA REL 08  
ELAN mac address is:00:13:65:ff:ee:ed  
TLAN mac address is:00:13:65:ff:ee:ec  
RESET reason: Hard Reset.  
Daughter board 1:NTDW62AA R02    00:13:65:ff:f8:fd.  
Daughter board 2:NOT INS
```

```
VxWorks System Boot
```

```
Copyright 1984-2005 Wind River Systems, Inc.  
CPU: Chagall  
Version: VxWorks5.5.1  
Bootcode version: MGCBA20
```

```
auto-booting...
```

```
Loading MSP from CF...1375736  
Booting ARM0 (MSP) at 0x00000100 ...  
Loading CSP from CF...6643712 + 5849088  
Booting ARM1 (CSP) at 0x80010000 ...
```

```
Found device : INTEL 82365SL
```

```
Loading symbol table from /p/mainos.sym ...done
```

## Loadware upgrade

If the MGC loadware is out of date (compared to the loadware on the Call Server), an upgrade of the loadware occurs based on the Centralized Upgrade setting defined during the software install and the values set in LD 143. The

default values are set so that the upgrade starts automatically once registration is achieved with the Call Server.

There are six pieces of loadware that are updated on the MGC. These updates are downloaded from the Call Server.

```
-> Received an upgrade request. Preparing MGC for upgrade.  
Auto commit option has been enabled.  
Upgrade of CSP loadware initiated.  
OMM: IP link is UP between Primary Call Server and MGC 1
```

```
Upgrade of MSP loadware initiated.  
Upgrade of APP loadware initiated.  
Upgrade of FPGA loadware initiated.  
Upgrade of DBL1 initiated.
```

```
-> 0x86f8bc30 (tMGCInst):
```

```
Upgrading FPGA Loadware...
```

```
logTask: 1 log messages lost.  
0x86f8bc30 (tMGCInst): Programming FPGA ...  
0x86f8bc30 (tMGCInst): FPGA Upgrade completed.  
0x86f8bc30 (tMGCInst): Upgrading Application Loadware ...  
0x86f8bc30 (tMGCInst): Gold CSP image upgraded  
0x86f8bc30 (tMGCInst): mgcBootLineFix:fixing the bootline  
0x86f8bc30 (tMGCInst): Upgrade Application Loadware  
completed  
0x86f8bc30 (tMGCInst): Rebooting MGC to take the upgrade  
in effect.
```

At this point the IPMGs synchronize with the Call Server.

---

**End of Procedure**

---

---

# Upgrading CP PII Call Servers to CP PIV

---

## Contents

This section contains information on the following topics:

Introduction . . . . .	89
Preparing for the upgrade . . . . .	89
Performing the upgrade . . . . .	99
Upgrading Call Server 1 . . . . .	103

## Introduction

This chapter provides instructions for performing a hardware upgrade from a CS 1000E CP PII source platform to a CS 1000E CP PIV target platform.

## Preparing for the upgrade

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).

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

This 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 13 below:

**Table 13**  
**Prepare for upgrade steps**

<b>Procedure Step</b>	<b>Page</b>
Planning	<a href="#">90</a>
Upgrade Checklists	<a href="#">91</a>
Preparing	<a href="#">91</a>
Connecting a terminal	<a href="#">92</a>
Printing site data	<a href="#">93</a>
Performing a template audit	<a href="#">96</a>
Backing up the database (data dump)	<a href="#">97</a>

## Planning

Planning for an upgrade involves the following tasks:

- Read and understand the current release Product Bulletin.
- 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.
- Identify all applications (CallPilot, SCCS, IP, etc.) 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.
- Download a copy of the CP PIV customer database media converter tool. This tool is used to transfer the customer database from floppy disk to CF card.
- 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.

## Upgrade Checklists

Upgrade checklists can be found in the “Upgrade checklists” chapter on [page 141](#). Engineers may print this section in order to facilitate the upgrade.

## Preparing

**IMPORTANT!**

In a Campus configuration, as both cores may be physically separate, it is important to plan for required attendance at both core sites at some point in the upgrade.

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.
- 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 (Call Server, Voice Gateway Media Cards, Signaling Servers and so on).
- Determine the required patches or DEP lists installed on all applications (CallPilot, Symposium Call Center Server, TM, and so on).
- 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.

## Connecting a terminal

### **Procedure 9** **Connecting a terminal**

A maintenance terminal is required to access the Call Servers during the upgrade procedure.

- 1 Connect a terminal to the COM 1 port on the faceplate of CP PII card of the *inactive* Call Server.
- 2 The settings for the terminal are:
  - a. Terminal type: VT100
  - b. 9600 Baud
  - c. Data bits: 7

- d. Parity: odd
- e. Stop bits: 1
- f. Flow control: none

**Note:** If the telnet session is set to 7 odd 1 versus 8 none 1, the system messages generate before the INI prints, otherwise a portion of the database conversion reference of lost TN's does not appear.

---

**End of Procedure**

---

## Printing site data

Print site data to preserve a record of the system configuration (Table 14 on [page 93](#)). 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 14**  
**Print site data (Part 1 of 4)**

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>

**Table 14**  
**Print site data (Part 2 of 4)**

Site data	Print command	
*Customer data block for all customers	LD 21 REQ TYPE CUST	LD 21 PRT CDB <cr>
Route data block for all customers	LD 21 REQ TYPE CUST ROUT ACOD	PRT RDB Customer number <cr> <cr>
*Configuration Record	LD 22 REQ TYPE	PRT CFN
*Software packages	LD 22 REQ TYPE	PRT PKG
*Software issue, ROM and tape ID	LD 22 REQ REQ REQ	ISS ROM TID
* Peripheral software versions	LD 22 REQ TYPE	PRT PSWV

**Table 14**  
**Print site data (Part 3 of 4)**

Site data	Print command	
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
Print the configured host information	LD 117	PRT HOST (provides system IP addresses)

**Table 14**  
**Print site data (Part 4 of 4)**

Site data	Print command
Superloops and XPEs	LD 97  REQ                    CHG TYPE                  SUPL 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  xxx = 96-112 in multiples of four for MG 1000T (See Table 29)
<p><b>Note:</b> Items marked with asterisks (*) are required printout for conversion. Other items are recommended for a total system status.</p>	

## 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

#### 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 CHECKSUM  
HIGH 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)**

To back up system data, perform a data dump to save all system memory to the hard disk.

### **Procedure 10 Performing a data dump**

- 1** Log into the system.
- 2** Insert a floppy disk into the active Core/Net floppy drive to back up the database.

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

**LD 43** Load program

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

\*\*\*\* Exit program

6 Remove and label the floppy disk.



**IMPORTANT!**

Database backup information should be preserved for a minimum of 5 days.

---

**End of Procedure**

---

## Performing the upgrade

### Reviewing upgrade requirements

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

Before the upgrade, check that items on the order form are also on the packing slip. Check that all items have been received. If any items are missing, contact your supplier for replacements before you begin the upgrade.



#### **WARNING**

##### **Service Interruption**

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

### Checking required hardware

Table 15 lists the hardware required for the upgrade.

**Table 15**  
**Hardware requirements for CS 1000E upgrade**

Order number	Description	Quantity per system
NT4N39	Call Processor Pentium IV	2
NTDU68AA	Drive Carrier Card blank faceplate replacement	2

Figure 23 on [page 100](#) shows the CP PIV processor card side view. Figure 24 on [page 101](#) shows the CP PIV processor card front view. Figure 25 on [page 102](#) shows the CP PIV Drive Carrier Card blank faceplate replacement.

Figure 23  
CP PIV card (side)

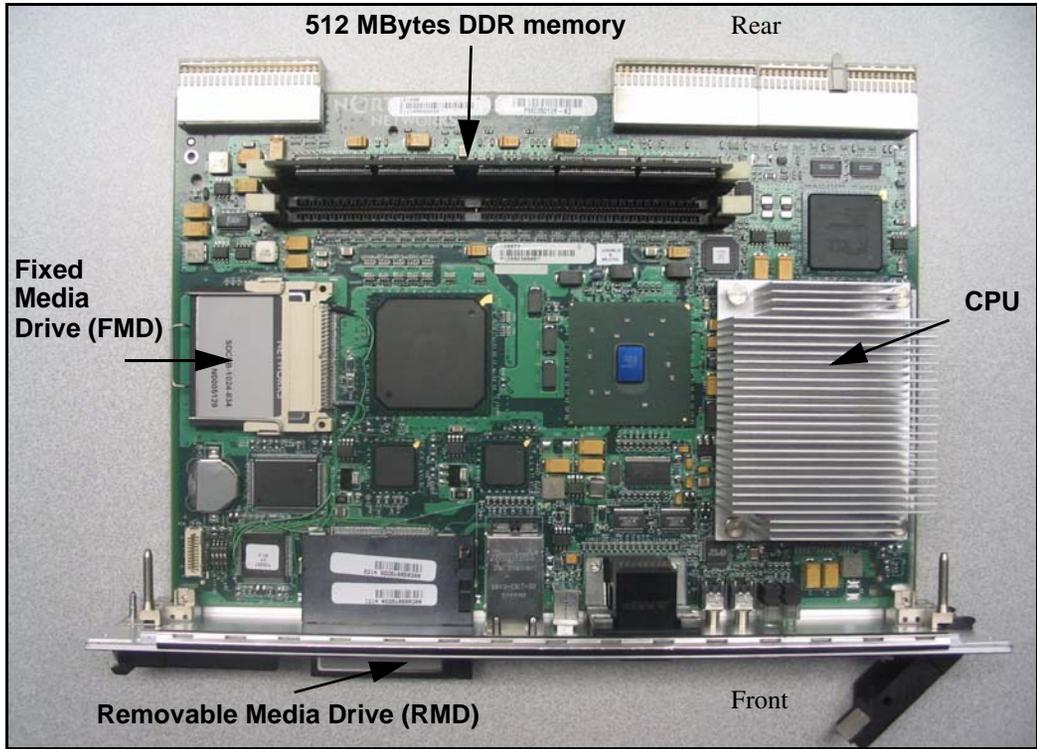
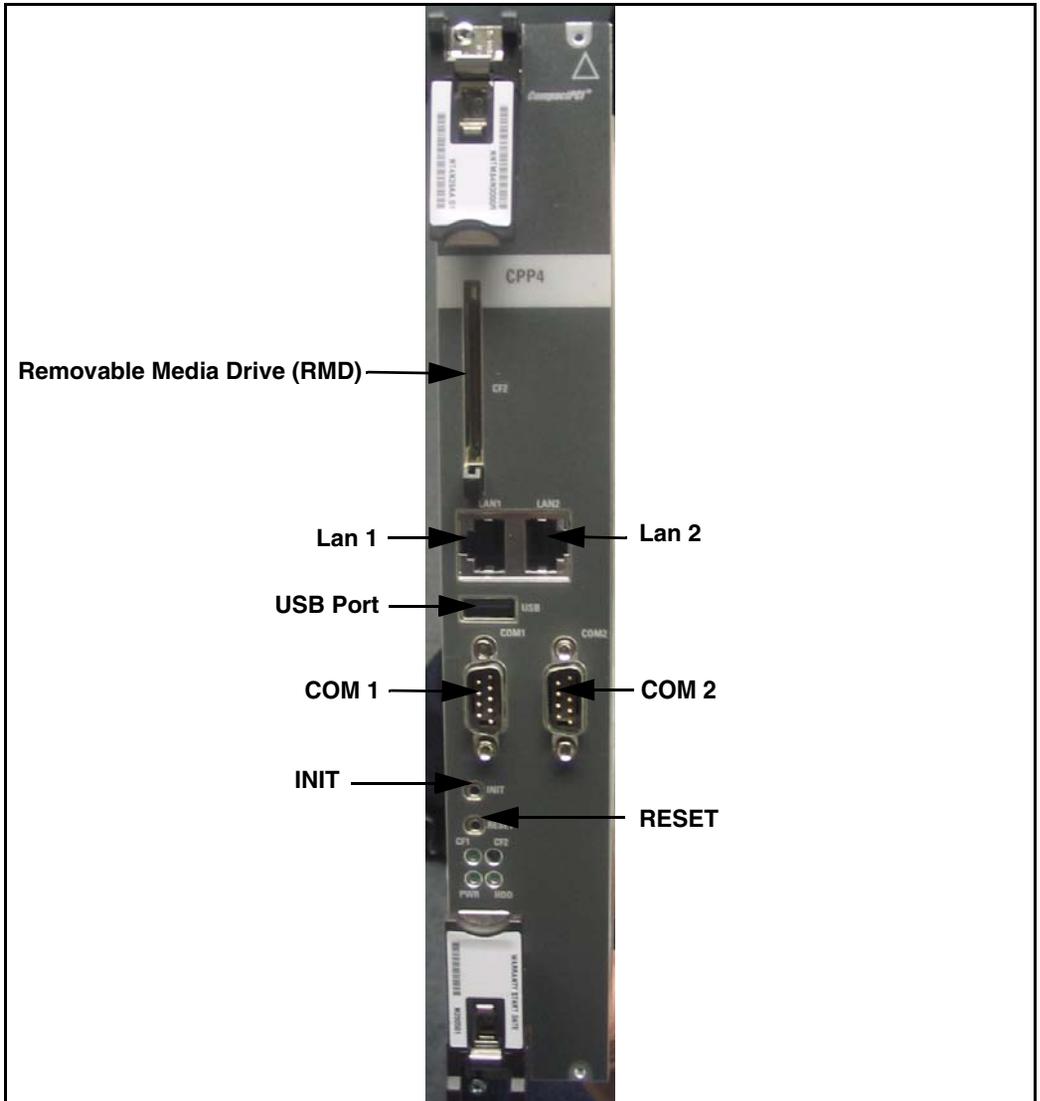


Figure 24  
CP PIV card (front)



**Figure 25**  
**CS 1000E CP PIV Drive Carrier Card blank faceplate replacement**



## Verifying CP PIV hardware

### Verifying CP PIV card location

The NT4N39 CP PIV card is located in the CP slot (see [Figure 24 on page 101](#)).

The NTDU68AA blank faceplate is located at the slot next to the CP PIV card.

## Upgrading Call Server 1

### Procedure 11

#### Checking that Call Server 0 is active

To upgrade Call Server 1, verify that Call Server 0 is the active side performing call processing:

- 1 Verify that Call Server 0 is active.

**LD 135**      Load program

**STAT CPU**    Get the status of the CPUs

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

**SCPU**      Switch to Call Server 0 (if necessary)

**\*\*\*\***      Exit program

---

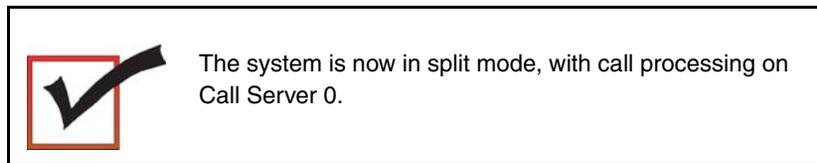
**End of Procedure**

---

**Procedure 12**  
**Splitting the Call Servers**

- 1 In Call Server 0, enter the SPLIT command from LD 135.

<b>LD 135</b>	Load program
<b>SPLIT</b>	Split the Call Servers
<b>****</b>	Exit program



---

**End of Procedure**

---

## Removing Call Server 1 CP PII card and Drive Carrier Card

**Procedure 13**  
**Removing the Call Server 1 CP PII Processor and Drive Carrier Card**

- 1 Disconnect and label the LAN1 and LAN 2 cables from the Call Server 1 CP PII card faceplate. See Figure 26 on [page 106](#).
- 2 Disconnect and label the COM 1 and COM 2 cables from the Call Server 1 CP PII card faceplate. See Figure 26 on [page 106](#).
- 3 Unscrew and unlatch the Call Server 1 CP PII card. See Figure 26 on [page 106](#).
- 4 Remove the Call Server 1 CP PII card from its slot.

- 5 Unscrew, unlatch and remove the Drive Carrier Card from its slot. Retain the Drive Carrier Card (and database backup) in a safe and secure location until the successful completion of this upgrade.



**IMPORTANT!**

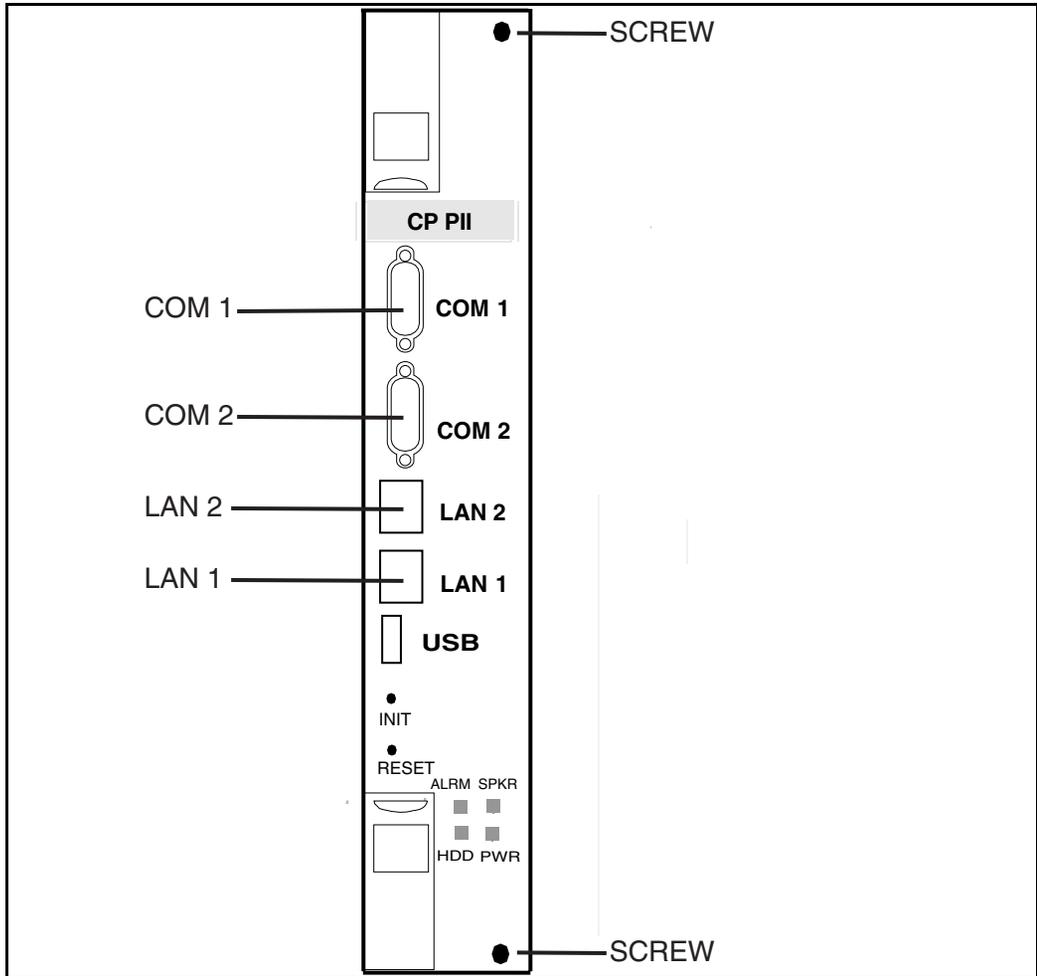
Database backup information, the Drive Carrier Card and original CP PII card should be preserved for a minimum of 5 days.

---

**End of Procedure**

---

**Figure 26**  
**CP PII faceplate connections**



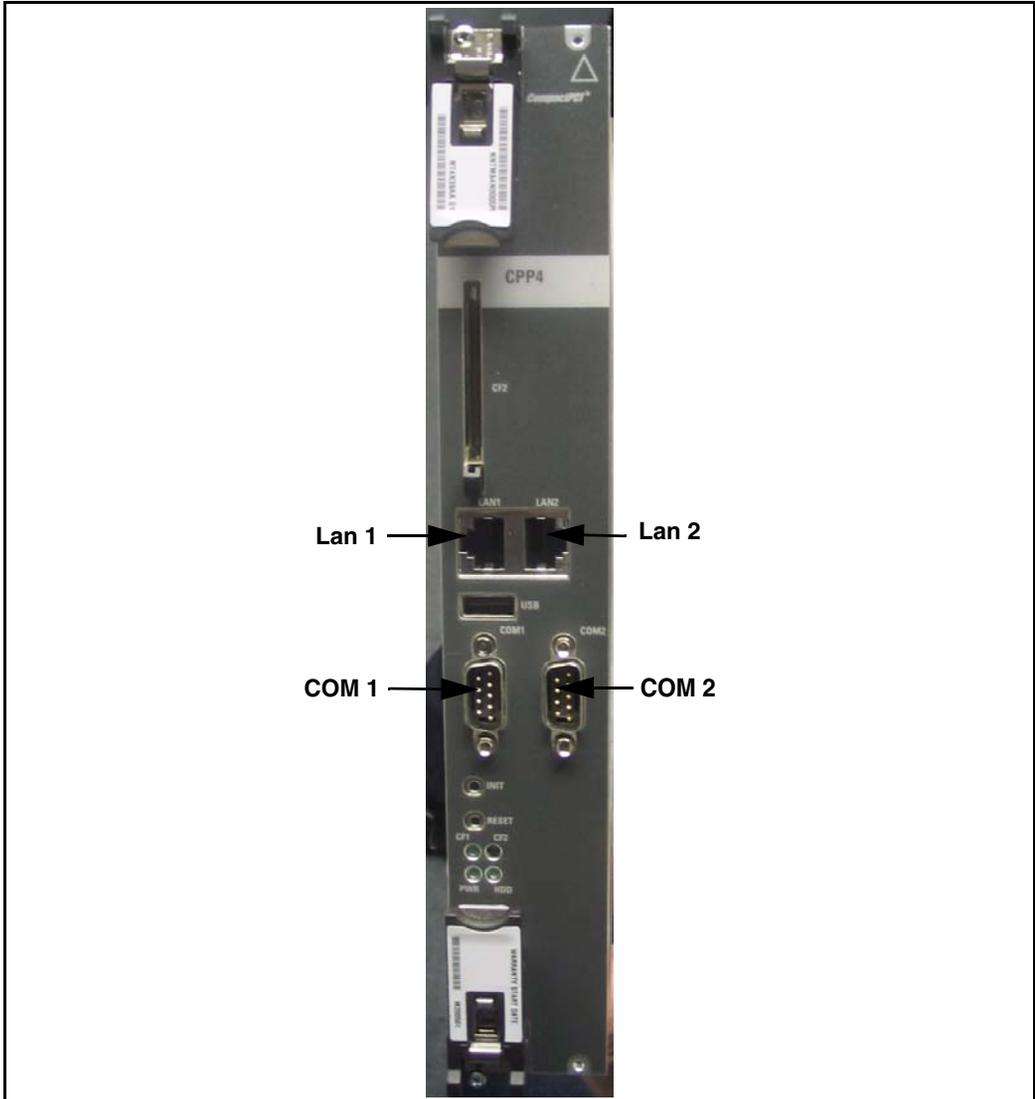
## Installing Call Server 1 CP PIV card and blank faceplate

### Procedure 14

#### Installing Call Server 1 CP PIV Processor and blank faceplate

- 1 Insert the CS 1000E CP PIV Drive Carrier Card blank faceplate replacement into the empty Drive Carrier Card slot using the supplied screws.
- 2 Insert the CP PIV card into the empty CP slot in Call Server 1. Seat the card and secure the latches and screws.
- 3 Attach the COM 1 and COM 2 cables to the CP PIV card faceplate. See Figure 27 on [page 108](#).

**Figure 27**  
**CP PIV faceplate connections**



- 4 Attach the LAN 1 and LAN 2 cables to the CP PIV card faceplate at this point in the upgrade.

---

**End of Procedure**

---

At this point, the hardware upgrade is complete for Call Server 1. To perform the software upgrade, or to upgrade to a High Availability system (which requires a second Call Server) refer to *Communication Server 1000E Software Upgrades* (NN43041-458). To install the hardware required for Call Server 0, repeat Procedure 9 through Procedure 14.



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# Installing or upgrading the Signaling Server

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## Contents

This section contains information on the following topics:

Introduction . . . . .	112
Readiness checklist . . . . .	113
Installing the CP PM Signaling Server hardware . . . . .	114
Connections . . . . .	116
Upgrading the RAM on a Nortel ISP1100 Signaling Server . . . . .	126

## Introduction

This chapter contains general instructions on how to:

- Install a Nortel CP PM server (see “Installing the CP PM Signaling Server hardware” on [page 114](#))
- Upgrade the RAM memory of their legacy Nortel ISP1100 Signaling Server before upgrading the Signaling Server software to CS 1000 Release 5.0 (see “Upgrading the RAM on a Nortel ISP1100 Signaling Server” on [page 126](#))

**Note:** This chapter contains no instructions to install an IBM X306m or HP DL320-G4 COTS 1U server. Please see the *IBM xSeries 306m Types 8848 and 8491 User Guide* or the *HP ProLiant DL320 Generation 4 Server User Guide* shipped with the COTS servers for detailed installation instructions. Of particular note, the IBM X306m and HP DL320-G4 servers require four-post rack mounting, as opposed to two-post rack mounting for the Nortel ISP1100 server. Rack mounting procedures are not included in this NTP.

### **IMPORTANT!**

Instructions to install an IBM X306m or HP DL320-G4 COTS 1U server are not included in this chapter. Detailed hardware installation instructions can be found in the *IBM xSeries 306m Types 8848 and 8491 User Guide* or the *HP ProLiant DL320 Generation 4 Server User Guide* shipped with the server.

## Readiness checklist

Before installing a Signaling Server in a CS 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 the Signaling Server is installed and used. Be sure to replace the cord with the correct type.

**Table 16**  
**Readiness checklist (Part 1 of 2)**

<b>Have you:</b>	
Read all safety instructions in <i>Communication Server 1000E: Installation and Commissioning</i> (NN43041-310) or <i>Communication Server 1000M and Meridian 1 Large System Installation and Configuration</i> (NN43021-310), as appropriate for your CS 1000 system?	
Received all equipment and peripherals?  <b>For a CS 1000E Nortel CP PM Signaling Server (NTDW61BAE5):</b> <ul style="list-style-type: none"> <li>• NTDW6102E5 - CP PM Signaling Server Hard Drive kit</li> <li>• N0118766 - CP PM Signaling Server Hard Drive Installation instructions</li> <li>• NTAK19ECE6 - CP PM Signaling Server 2 port SDI Cable assembly kit</li> <li>• NTDU0606E6 - CP PM Signaling Server 25cm RJ45 Ethernet Cable kit</li> <li>• a DTE-DTE null modem cable (supplied)</li> </ul> <p><b>Note 1:</b> Upgrade kits only include one null modem adapter per system upgrade and not one per Signaling Server ordered.</p> <p><b>Note 2:</b> Save the packaging container and packing materials in case you must ship the product.</p>	
Made sure the area meets all environmental requirements?	

**Table 16**  
**Readiness checklist (Part 2 of 2)**

<b>Have you:</b>	
Checked for all power requirements?	
Checked for correct grounding facilities?	
<p>Obtained the following:</p> <ul style="list-style-type: none"> <li>• screwdrivers</li> <li>• appropriate cable terminating tools</li> <li>• a computer (maintenance terminal) to connect directly to the Signaling Server, with: <ul style="list-style-type: none"> <li>— teletype terminal (VT-100 emulation, serial port, 9600 bps)</li> <li>— 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)</li> </ul> </li> </ul>	
Prepared the network data as suggested in <i>Converging the Data Network with VoIP</i> (NN43001-260), <i>Communication Server 1000E: Planning and Engineering</i> (NN43041-220) or <i>Communication Server 1000M and Meridian 1 Large System Planning and Engineering</i> (NN43021-220), as appropriate for your CS 1000 system?	
Read all safety instructions in <i>Communication Server 1000E: Installation and Commissioning</i> (NN43041-310) or <i>Communication Server 1000M and Meridian 1 Large System Installation and Configuration</i> (NN43021-310), as appropriate for your CS 1000 system?	

## Installing the CP PM Signaling Server hardware

The Nortel CP PM server is a circuit card, and thus is not mounted in a rack.

This section contains general instructions for installing the CP PM Signaling Server circuit cards in CS 1000E and CS 1000M systems. For more detailed installation instructions, refer to *Circuit Card: Description and Installation*

(NN43001-311) and *Signaling Server: Installation and Commissioning* (NN43001-312).

**IMPORTANT!**

If the CP PM circuit card is being used as a Signaling Server, switch S5 must be set to position 2 to support the internal hard drive.

## Installation in a CS 1000E system

The NTDW61BAE5 Nortel CP PM server is designed for use in a CS 1000E system. The first task that must be performed is to install the hard drive shipped with the server. For instructions, see "Install the hard drive on a Nortel CP PM Signaling Server" in *Signaling Server: Installation and Commissioning* (NN43001-312).

CP PM cards cannot use slot 4 on older chassis (slot 4 is allocated for the 48 port DLC only on older chassis).



**CAUTION — Equipment Damage**

Do not insert the NTDW61BAE5 model of the Nortel CP PM server into any slot of a CS 1000M Universal Equipment Module (UEM). Doing so can cause electrical shorts on adjacent circuit cards.

## Connections

### 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!**

Nortel CP PM servers are powered through the backplane of the Media Gateway, Universal Equipment Module or 11C cabinet into which they are installed and thus require no power cord.

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

**Table 17**  
**Connections checklist**

<b>Have you:</b>	
Obtained a serial cable (DTE-DTE null modem cable) to connect the server to a maintenance terminal?	
Obtained the NTA19EC cable (if you are connecting a Nortel CP PM server)? 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.	
Obtained the CAT5 cables (or better) to connect the server to the ELAN and TLAN subnets?	

### Connecting a Nortel CP PM Signaling Server

This section contains instructions for connecting the NTDW61BAE5 CP PM Signaling Server to the ELAN and TLAN subnets of a CS 1000E system. It

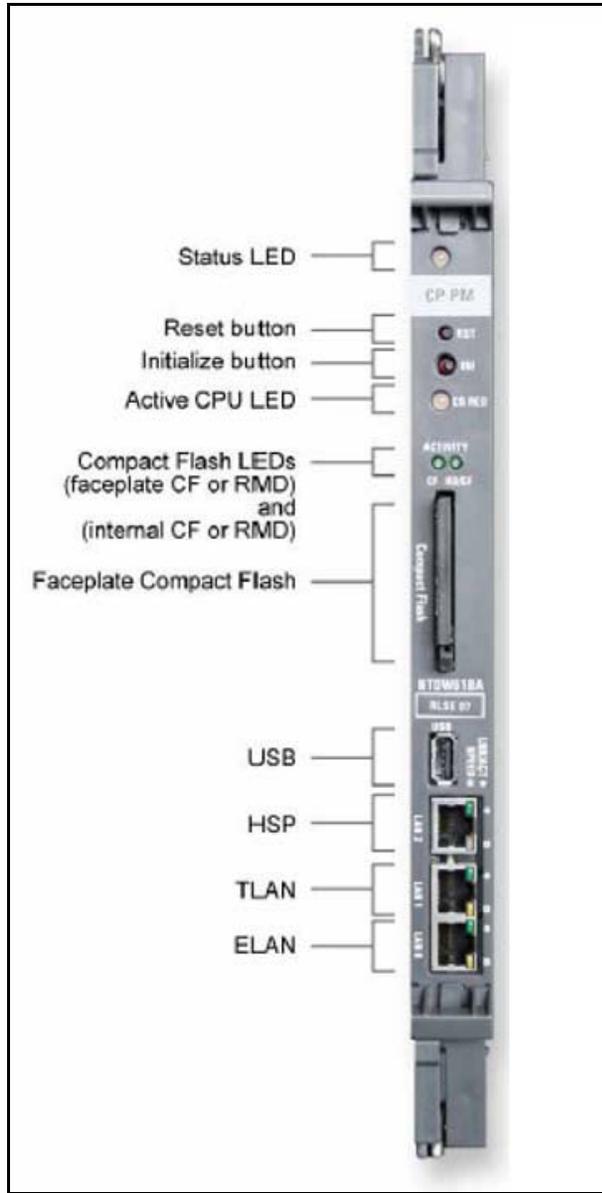
also contains instructions for connecting a maintenance terminal to the Nortel CP PM Signaling Server.

The NTDW61BAE5 model of the Nortel CP PM Signaling Server was designed for use in a CS 1000E system. As such, it is inserted into a slot of the Media Gateway (MG 1000E or MG 1000B). The Media Gateway also hosts the Media Gateway Controller (MGC) that has Ethernet ports for connecting to the ELAN and TLAN subnets of your CS 1000 system.

However, it is common in a CS 1000E system for the Call Server to be connected to the MGC through these ELAN Ethernet ports. If the Call Server is not connected to the MGC through these Ethernet ports, the NTDW61BAE5 model of the CP PM Signaling Server uses them to connect to the ELAN and TLAN subnets of the CS 1000E system. If the Call Server is using the MGC ELAN and TLAN Ethernet ports, the Nortel CP PM Signaling Server is connected directly to the ELAN and TLAN Ethernet switches from the faceplate ELAN and TLAN Ethernet ports.

Figure 28 shows the faceplate of the Nortel CP PM Signaling Server used in the CS 1000E with labeling for all components.

**Figure 28**  
**Faceplates of the Nortel CP PM server**



**Procedure 15**  
**Connecting a Nortel CP PM Signaling Server**

**Note:** Refer to Figure 28 when performing the following procedure.

- 1** Establish a maintenance terminal connection at the back of the shelf of the IPMG. The com (SDI) port of the CP PM circuit card Signaling Server is routed through the backplane of the shelf to the 50 pin MDF connector on the back of the shelf. A special cable is shipped with the CP PM signaling server that adapts the 50 pin MDF connector to a 25 pin DB connector (NTAK19EC).
  - a.** Connect the NTAK19EC cable (shipped with the CP PM Signaling Server) to the 50 pin MDF connector on the back of the desired shelf of the IPMG.
  - b.** Connect a 25 pin to 9 pin straight through serial cable to the 25 pin DB connector at the end of the NTAK19EC cable (a female to female gender changer may be required). These are customer provided.
  - c.** Connect the other end of the 25 pin to 9 pin straight through serial cable to the serial port on the maintenance terminal. These are customer provided.
- 2** Insert the Signaling Server circuit card into an appropriate slot on the shelf of the IPMG. The CP PM Signaling Server is hot-pluggable so it may be inserted without powering off the system. The maintenance terminal now has access to the CP PM Signaling Server through the 50-pin MDF connector associated with the card slot that the CP PM Signaling Server is inserted into on the IPMG.
- 3** Connect the Signaling Server to the TLAN subnet. Insert the RJ-45 CAT5 (or better) cable into the TLAN port (TLAN network interface) on the front of the Signaling Server. The TLAN port is the middle one of the three network interfaces.
- 4** Connect the Signaling Server to the ELAN subnet. Insert the RJ-45 CAT5 (or better) cable into the ELAN port (ELAN network interface) on the front of the Signaling Server. The ELAN port is the bottom one of the three network interfaces.

5 Set the COM port on the maintenance terminal as follows:

- Terminal type: VT100
- Speed: 9 600
- Data bits: 8
- Parity: none
- Stop bits: 1
- Flow control: none

**Note:** The CP PM Signaling Server is shipped with the Admin Serial port set to 9600 Bit/s. Other available speeds are 19 200, 38 400, and 115 200 Bits. You can change the port speed using the maintenance terminal. To verify or change the baud rate on a Nortel CP PM Signaling Server, see *Signaling Server: Installation and Commissioning* (NN43001-312).

6 Configure the Signaling Server maintenance terminal. Refer to *Signaling Server: Installation and Commissioning* (NN43001-312).

---

**End of Procedure**

---

Complete Procedure 16 to connect a Nortel CP PM Signaling Server (model NTDW61BAE5) to the ELAN and TLAN subnets of a CS 1000E system.

**Procedure 16**

**Connecting a CP PM Signaling Server to the ELAN and TLAN subnets of a CS 1000E system**

1 Connect the Signaling Server to the ELAN subnet.

- if the Call Server is not connected to the Media Gateway Controller (MGC) CE port
  - Insert the end of one of the 25-cm RJ-45 CAT5 Ethernet cable (NTDU0606E6) shipped with the server into the ELAN network interface port (ELAN port) on the faceplate of the server
  - insert the other end of the 25-cm RJ-45 CAT5 Ethernet cable into the MGC ELAN Ethernet port
- if the Call Server is connected to the CE port

- Insert the end of a longer RJ-45 CAT5 Ethernet cable (not supplied) into the ELAN network interface port (ELAN port) on the faceplate of the server
  - Insert the other end of the RJ-45 CAT5 Ethernet cable into an Ethernet port on the ELAN Ethernet switch
- 2** Connect the Signaling Server to the TLAN subnet.
- if the Call Server is not connected to the Media Gateway Controller (MGC)
    - Insert the end of one of the 25-cm RJ-45 CAT5 Ethernet cables shipped with the server (NTDU0606E6) into the TLAN network interface port (TLAN port) on the faceplate of the server
    - Insert the other end of the 25-cm RJ-45 CAT5 Ethernet cable into the MGC TLAN Ethernet port
  - if the Call Server is connected to the MGC
    - Insert the end of a longer RJ-45 CAT5 Ethernet cable (not supplied) into the TLAN network interface port (TLAN port) on the faceplate of the server
    - Insert the other end of the RJ-45 CAT5 Ethernet cable into an Ethernet port on the TLAN Ethernet switch

**Note:** When connecting using this method, data packet captures cannot be captured from the device without causing a service disruption.

---

**End of Procedure**

---

**Note:** If the Call Server is connected to the Media Gateway Controller, you cannot use the 25-cm CAT5 Ethernet cables (NTDU0606E6) shipped with the Signaling Server. You must obtain CAT5 Ethernet cables that are long enough to connect the Signaling Server directly to the ELAN and TLAN Ethernet switches from the faceplate ELAN and TLAN Ethernet ports.

### **Verify or change the baud rate**

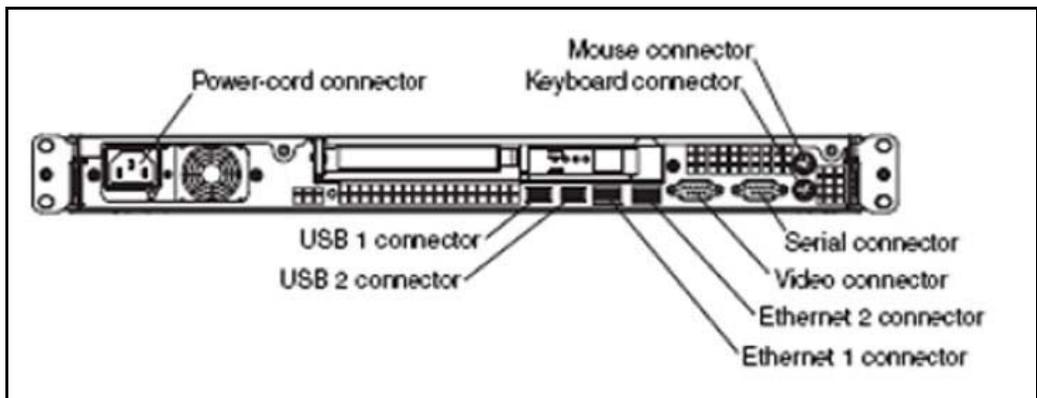
To verify or change the baud rate on a Nortel CP PM Signaling Server, see *Signaling Server: Installation and Commissioning* (NN43001-312).

## Connecting an IBM X306m Signaling Server

In geographic regions that are susceptible to electrical storms, Nortel recommends that you plug the IBM X306m Signaling Server into an AC surge suppressor.

Figure 29 shows the rear view of the IBM X306m Signaling Server.

**Figure 29**  
**IBM X306m Signaling Server (rear view)**



*Note:* Refer to Figure 29 when performing the following procedure.

### **Procedure 17** **Connecting an IBM X306m Signaling Server**

- 1 Connect the Signaling Server to the TLAN subnet. Insert the RJ-45 CAT5 (or better) cable into the Ethernet 1 connector (TLAN network interface) on the back of the Signaling Server. Port 1 is the right-most of the two network interfaces.
- 2 Connect the Signaling Server to the ELAN subnet. Insert the RJ-45 CAT5 (or better) cable into the Ethernet 2 connector (ELAN network interface) on the back of the Signaling Server. Port 2 is the left-most of the two network interfaces.
- 3 Connect a DTE–DTE null modem serial cable from the serial port on the back of the Signaling Server to the serial port on a maintenance terminal.

*Note:* This cable is not provided by Nortel

- 4 Connect the Signaling Server power cord.
  - a. Check that the power cord is the type required in the region where the Signaling Server is used. 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 left side of the Signaling Server's 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 Signaling Server to 9 600 b/ps. See *Signaling Server: Installation and Commissioning* (NN43001-312).

**Note:** The IBM X306m Signaling Server ships with the serial port set to 9600 b/ps.
- 6 Configure the connected maintenance terminal. See *Signaling Server: Installation and Commissioning* (NN43001-312).
- 7 Press the Power switch. A small thin blunt object (like a small screwdriver) is required to press the power switch on the IMB x306m server. The power switch is a white button on the front left side of the server.

**Note:** Refer to the Signaling Server Product Guide on the CD-ROM shipped with the IBM X306m Signaling Server for additional operating information.

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**End of Procedure**

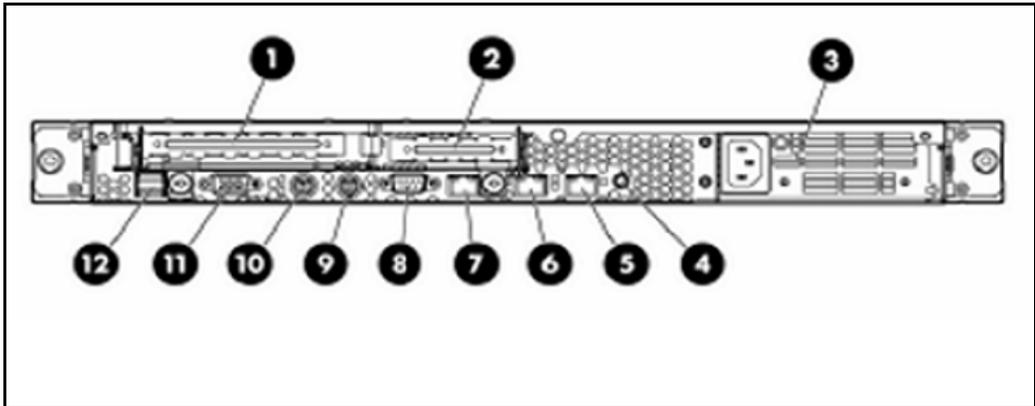
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## Connecting an HP DL320-G4 Signaling Server

In geographic regions that are susceptible to electrical storms, Nortel recommends that you plug the HP DL320-G4 Signaling Server into an AC surge suppressor.

Figure 30 shows the rear view of the HP DL320-G4 Signaling Server.

**Figure 30**  
**HP DL320-G4 Signaling Server (rear view)**



The following list describes the back panel components of the HP DL320-G4 server (there are no markings on the back of the server):

- 1 PCI-X expansion slot 2, full-length (optional PCI Express slot 1)
- 2 PCI Express expansion slot 1, low-profile, half-length
- 3 Power supply
- 4 UID button/LED
- 5 10/100/1000 NIC 2 (used to connect the server to an ELAN Layer 2 ethernet switch port)
- 6 10/100/1000 NIC 1 (used to connect the server to a TLAN Layer 2 Ethernet switch port)
- 7 iLO 2 management port
- 8 Serial connector (used to connect the server to a maintenance and administration terminal (PC))
- 9 Keyboard connector
- 10 Mouse connector
- 11 Video connector

- 12** USB connectors (2). Either of these connectors can be used as the Removable Media Device (RMS).

*Note:* The RMD is used to back up IP configuration data from the Signaling Server.

**Procedure 18**

**Connecting an HP DL320-G4 Signaling Server**

- 1** Connect the Signaling Server to the TLAN subnet. Insert the RJ-45 CAT5 (or better) cable labeled with the number 5 into the port (TLAN network interface) on the back of the Signaling Server.
- 2** Connect the Signaling Server to the ELAN subnet. Insert the RJ-45 CAT5 (or better) cable labeled with the number 6 into the port (ELAN network interface) on the back of the Signaling Server.
- 3** Connect a DTE–DTE null modem serial cable from the Serial Port on the back of the Signaling Server to a maintenance terminal.
- 4** Connect the Signaling Server power cord.
  - a.** Check that the power cord is the type required in the region where the Signaling Server is used. 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 Signaling Server's 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. Set the COM 1 baud rate for the serial port on the Signaling Server to 9 600 b/ps. See *Signaling Server: Installation and Commissioning* (NN43001-312).
- 6** Configure the connected maintenance terminal. See *Signaling Server: Installation and Commissioning* (NN43001-312).
- 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 *Signaling Server: Installation and Commissioning* (NN43001-312).

## Upgrading the RAM on a Nortel ISP1100 Signaling Server

CS 1000 Release 5.0 and later requires a Signaling Server to have at least 1 GB of RAM memory configured. Some Nortel customers may need to upgrade the RAM memory of their legacy Nortel ISP1100 Signaling Server before upgrading the Signaling Server software to CS 1000 Release 5.0 or later.

### **IMPORTANT!**

Prior to any Signaling Server upgrade, be sure to back up the NRS database (if present) and download it to your local PC.

## Introduction

To run CS 1000 Release 5.5 software, a Nortel ISP1100 Signaling Server (NTDU27AA) must be equipped with 1 GB of memory. To enable customers to reconfigure their existing Nortel ISP1100 Signaling Servers for operation in a CS 1000 Release 5.5 environment, a RAM Upgrade Kit (NTDU80CA) is available. A Nortel NTDU80CA Ram Upgrade Kit consists of 2 x 256 Mb DIMM (RAM memory) boards.

The Nortel ISP1100 Signaling Server accommodates up to four DIMM boards. In earlier releases of the CS 1000 system software (Succession 2.0, Succession 3.0), only 256 Mb of RAM was required to support your Signaling Server. This requirement was satisfied with two 128 Mb DIMM boards. In later releases of the CS 1000 system software (CS 1000 Rel. 4.0, CS 1000 Rel. 4.5), a minimum of 512 Mb of RAM was required to support your Signaling Server.

This requirement was satisfied with four 128 Mb DIMM boards, or two 256 Mb DIMM boards. If your CS 1000 Rel. 4.0 or CS 1000 Rel. 4.5 Signaling Server had to support more than 382 virtual trunks, support more than 10,000

IP Phones, or host an IP Phones Application Server (IP Phone Directory services), then 1 Gb of RAM was required to support the associated operational requirement. This requirement was satisfied with four 256 Mb DIMM boards (two Nortel NTDU80CA RAM Upgrade kits. If your Nortel ISP1100 Signaling Server is currently running Succession 2.0 or Succession 3.0 software (256 Mb of RAM configured), you must remove the two 128 Mb DIMM boards, and replace them with four 256 Mb DIMM boards (two Nortel NTDU80CA RAM Upgrade kits) to configure 1 Gb of RAM.

If your Nortel ISP1100 Signaling Server is currently running CS 1000 Rel. 4.0 or CS 1000 Rel. 4.5, your Signaling Server could have 512 Mb of RAM configured using four 128 Mb DIMM boards, or two 256 Mb DIMM boards. If your Signaling Server has 512 Mb of RAM configured using four 128 Mb DIMM boards, you must remove and replace them with four 256 Mb DIMM boards (two NTDU80CA RAM Upgrade kits) to configure 1 Gb of RAM. If your Signaling Server has 512 Mb of RAM configured using two 256 Mb DIMM boards, you only need to add two more 256 Mb DIMM boards (one Nortel NTDU80CA RAM Upgrade kit) to configure 1 Gb of RAM. If you already have 1 Gb of RAM configured on your Nortel ISP1100 Signaling Server for operational reasons (see above), you do not need to upgrade your RAM.

Depending on your existing RAM configuration, you need either none, one or two Nortel NTDU80CA RAM Upgrade Kits to upgrade your legacy Nortel ISP1100 Signaling Server to 1 Gb of RAM.

This section explains how to upgrade the RAM on a Nortel ISP1100 Signaling Server using the Nortel NTDU80CA RAM Upgrade Kit.

**Note:** If you are in possession of a PCI Riser Board kit (NTDU27AE), you should install it while you have the cover of the Nortel ISP1100 Signaling Server removed, during the RAM upgrade. For more information, refer to *Signaling Server: Installation and Commissioning* (NN43001-312).

## Preparing for the upgrade

Read the following warnings carefully before beginning the RAM upgrade process.



### **DANGER**

**SYSTEM POWER ON/OFF:** The Power button on the front panel of the Nortel ISP1100 Signaling Server **DOES NOT** remove AC power to the Nortel ISP1100 Signaling Server system. Some circuitry in the Nortel ISP1100 Signaling Server can continue to operate even through the front panel Power button is off. Always disconnect the power cord from the AC power source or wall outlet before performing any of the procedures in this section. Failure to do so can result in personal injury or equipment damage.



### **DANGER**

**HAZARDOUS CONDITIONS, POWER SUPPLY:** Hazardous voltage, current, and energy levels are present inside the power supply. There are no-user-serviceable parts inside the power supply; servicing must be done by technically qualified personnel.



### **DANGER**

**HAZARDOUS CONDITIONS, DEVICES, AND CABLES:** Hazardous electrical conditions can be present on power, telephone, and communication cables. Press the Power button to turn off the Signaling Server, and disconnect the power cord from the AC power source, telecommunications systems, networks, and modems attached to the Signaling Server before removing the cover. Failure to do so can result in personal injury or equipment damage.

**CAUTION**

**ELECTROSTATIC DISCHARGE (ESD) AND ESD PROTECTION:** Because the Nortel ISP1100 Signaling Server can be extremely sensitive to ESD, perform the procedures in this section only at an ESD workstation. If an ESD station is not available, you can reduce the risk of ESD damage by:

- Wearing the antistatic wrist strap provided and attach it to a metal part of the Nortel ISP1100 Signaling Server.
- Touch the metal on the Nortel ISP1100 Signaling Server before touching the other components.
- Keep part of your body in contact with the metal Nortel ISP1100 Signaling Server to dissipate the static charge while handling the components.
- Avoid moving around unnecessarily.
- Hold the Nortel ISP1100 Signaling Server components (especially boards) only by the edges.
- Place the Nortel ISP1100 Signaling Server components on a grounded, static-free surface. Use a conductive foam pad if available, but NOT the component wrapper.
- Do not slide the components over any surface.

**CAUTION****Service interruption**

**COOLING AND AIRFLOW:** For proper cooling and airflow, always install the Nortel ISP1100 Signaling Server access cover before turning on the system. Operating the system without the cover in place can cause overheating and damage to system parts.

## Performing the RAM upgrade

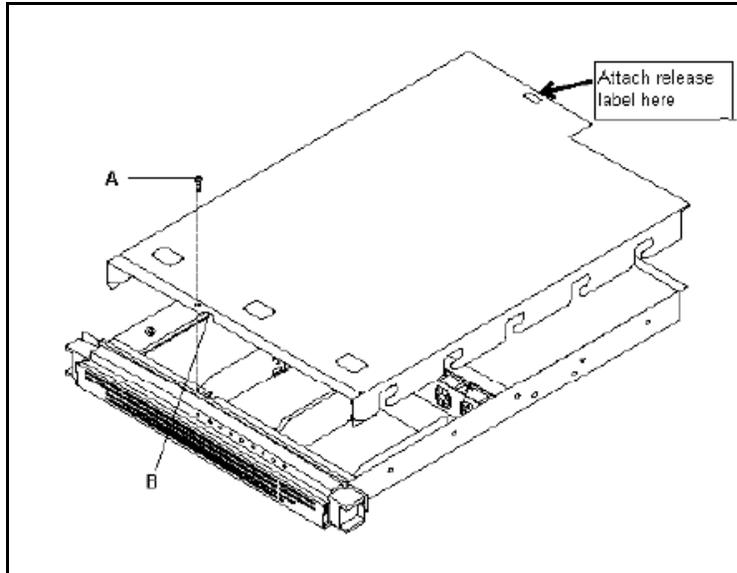
Use the following procedure to upgrade the RAM on a Nortel ISP1100 Signaling Server.

*Note:* These instructions are intended for qualified technical personnel with experience installing and configuring servers.

### Procedure 19 Upgrading the RAM of a Nortel ISP1100 server

- 1 Remove the cover from the Nortel ISP1100 Signaling Server.

**Figure 31**  
Removing/replacing the cover

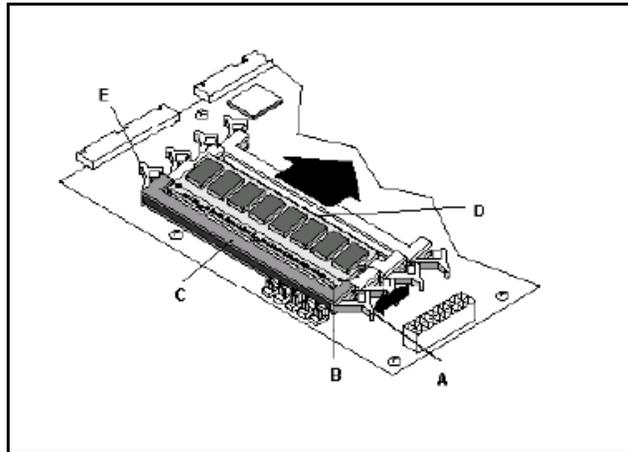


- c. Use a Phillips screwdriver to remove the screw (A) from the front edge of the cover.

- d. Grasp the back edge of the cover. Simultaneously, pull from the back edge and push near the front edge until the cover slides out from under the edge of the Nortel ISP1100 Signaling Server front panel.
- e. Grasp the notch (B) in the front center of the cover and lift up to remove the cover.

2 Remove the existing 128 Mb DIMM boards (if necessary).

**Figure 32**  
**Remove DIMM board**



- a. Grasp the ejector lever (A) on one end of the DIMM board and push down on the lever until the edge of the board connector (B) just lifts out of the socket (C).



**CAUTION**

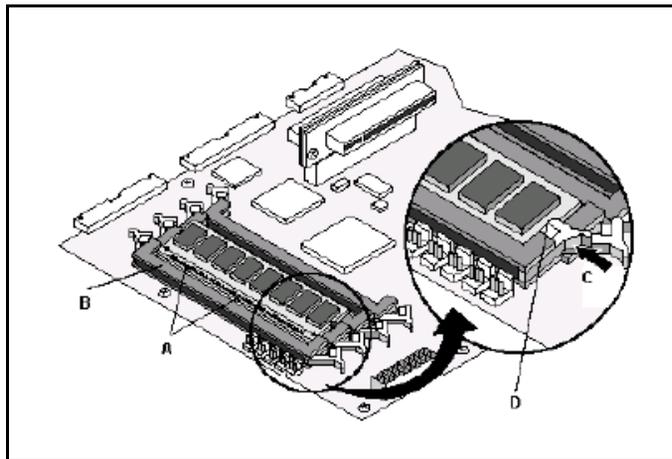
Hold the tips of your fingers lightly on the back edge (D) of the DIMM board to prevent the board from suddenly ejecting from the socket (C). The DIMM board or other components on the Nortel ISP1100 Signaling Server board can be damaged if the DIMM board is allowed to suddenly eject from the socket.

- b. Grasp the ejector lever (E) on the other end of the DIMM board and carefully push down on the lever until the DIMM board is loose from the socket.

- 3 Install the new 256 Mb DIMM boards (two or four, as required).

**Note:** Use only DIMM boards contained in the NTDU80CA Nortel ISP1100 Signaling Server RAM Upgrade Kit. Nortel does not recommend the use of other memory modules.

**Figure 33**  
**Install DIMM board**



- a. Align the key slots (A) in the edge of the DIMM board with the corresponding slots in the mating board socket (B).

The connectors are keyed to mate in one direction only.

**CAUTION**

Use extreme care when installing a DIMM board. Applying too much pressure or mis-aligning the board in the socket can damage the sockets or DIMM board edge connectors. DIMM board edge connectors are keyed and can be inserted only one way.

To reduce the risk of damaging a connector, install the DIMM boards starting with the back socket on the Nortel ISP1100 Signaling Server board and move toward the front of the board.

- b. Firmly press the DIMM board straight down and all the way into the Signaling Server board socket.
  - c. Ensure the DIMM board is locked in by pressing the levers (C) on each end of the Signaling Server board socket into the mating notches (D) on each edge of the DIMM board.
- 4 Replace the cover on the Nortel ISP1100 Signaling Server. Refer to Figure 31 on [page 130](#).
- a. Position the cover on the Nortel ISP1100 Signaling Server with the notched edge (B) facing the front and the slotted sides of the cover inside the frame.
  - b. Grasp the back edge of the cover. Simultaneously, push from the back and top until the cover slides all the way under the edge of the Nortel ISP1100 Signaling Server front panel.
  - c. Use a Phillips screwdriver and the screw (A) removed in step 1 to securely attach the cover to the Nortel ISP1100 Signaling Server.
  - d. Attach the memory label (reading "1 GB" or "1024 MB") to the back edge of the cover.

---

**End of Procedure**

---

## Verifying the RAM upgrade

Use the following procedure to ensure that the RAM upgrade was successful.

### Procedure 20

#### Verifying the RAM upgrade on a Nortel ISP1100 server

**Note:** When upgrading to 1 GByte, the system responses indicate "1 GB" instead of "512 MB".

- 1 Connect the Signaling Server cable to the maintenance terminal and to the serial port on the back (not the front) of the Nortel ISP1100 Signaling Server.
- 2 Using a terminal software program, such as Microsoft Windows HyperTerminal, configure the terminal type of the maintenance terminal serial port to "auto detect" terminal type.
- 3 Connect the power cable to the Nortel ISP1100 Signaling Server.
- 4 Press the power switch, the left-most button on the front of the Nortel ISP1100 Signaling Server.

The following system messages appear on the maintenance terminal screen:

```
AMIBIOS (C)2001 American Megatrends Inc.  
Copyright 1996-2001 Intel Corporation  
TR440BXA.86B.0042.P15.0107200951  
Intel(R) Pentium(R)III processor, 700MHz  
1 GB OK  
Hit <F2> if you want to run SETUP
```

- 5 **<Optional>** To perform a more detailed RAM test:
  - a. Press the F2 button.
  - b. Navigate to the "Boot" menu.
  - c. Disable the Quickstart option.
  - d. Exit, saving the changes.

Do not change any other settings. The Nortel ISP1100 Signaling Server reboots and performs a more detailed RAM test at boot time.

If "1 GB OK" appears on the screen, the RAM upgrade was successful. If not, the RAM upgrade failed.

---

**End of Procedure**

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# Appendix A: Upgrading to a High Availability system

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## Campus Redundancy (High Availability) Package Support

The CP PM CS project introduces a package for enabling and disabling the Campus Redundancy or High Availability (HA) feature. The software performs a check to determine whether the HA package is present in the keycode. If the package is present, then the CP PM call server behaves in the same manner as the Release 4.5 or later CP II or CP IV (for example, it uses the HSP to try to detect the presence of the other core). If the other core is detected, then both cores negotiate to determine which is the active core and which core is the standby core.

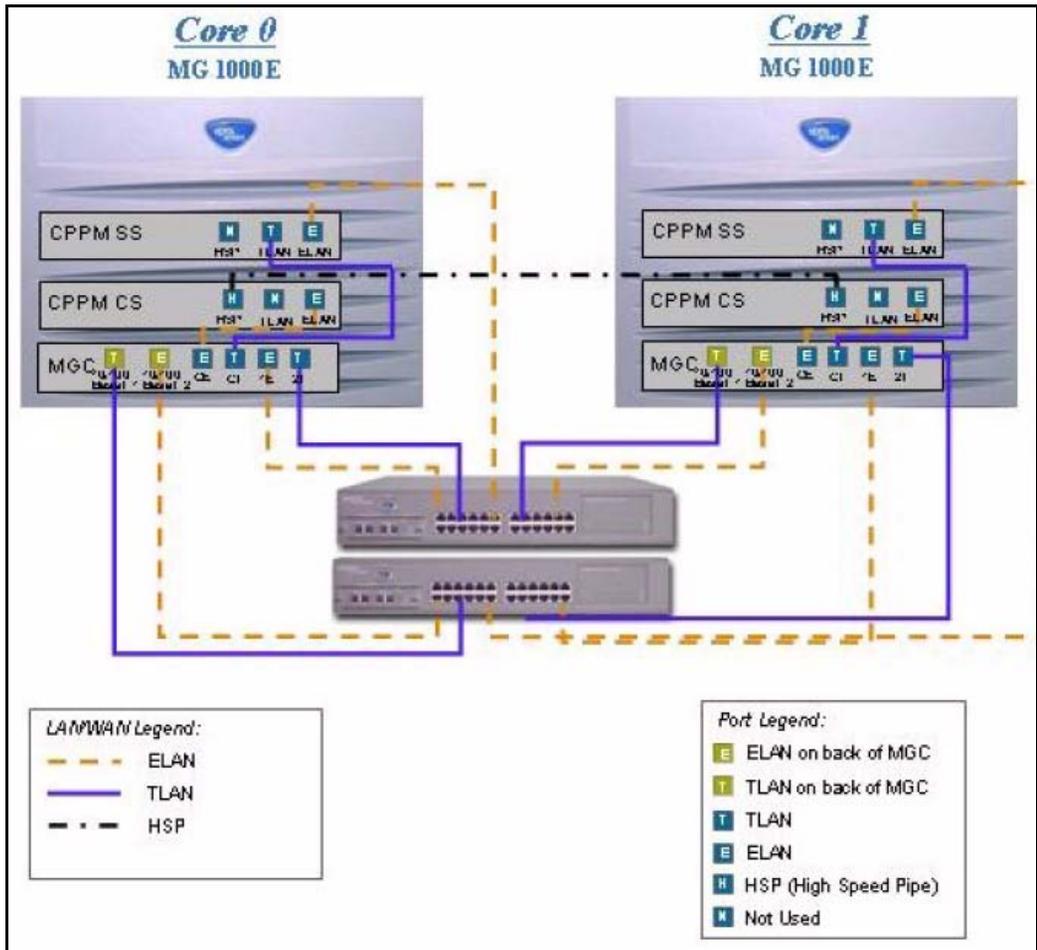
If the CP PM call server is not able to detect the other core, then it comes up as a single core system. If the HA package is not present in the keycode, then the existing call server software is modified to block the HSP connection so that the CP PM call server does not attempt to detect the presence of the core. In the absence of the HA package, the CP PM call server runs as a single core system even in a system with two cores and the HSP ports on both cores are connected.

## Campus Redundancy with co-located Call Servers

Figure 34 on [page 138](#) depicts the configuration of the CS 1000E CP PM system with co-located call servers. Utilizing the dual homing feature of the MGC, the ELAN of the CP PM call server/MGC and the TLAN of the Signaling Server/MGC is dual homed to the Baystack switches. If one of the LAN links to the switches fails, or the switch is out of service then the dual homing feature allows the CS 1000E CP PM system to continue to function

normally. The HSP is connected directly from one CP PM call server to the other CP PM call server and allows for redundancy between call servers.

**Figure 34**  
**Campus Redundancy with CP PM call servers co-located**



As the main cabinet has already been built in previous chapters, the steps required to upgrade to an HA system are:

- 1 Pick an empty card slot and insert CP PM card into that slot
- 2 Set the ID of the new call server to core 1
- 3 Install software (as performed in *Communication Server 1000E Software Upgrades* (NN43041-458))
- 4 Run LD 137 on the active call server
- 5 Perform HSP tests and connect the two call servers.

For more information on upgrading to High Availability, refer to the following NTPs:

- *Communication Server 1000E: Overview* (NN43041-110)
- *Communication Server 1000E: Planning and Engineering* (NN43041-220)
- *Communication Server 1000E: Installation and Commissioning* (NN43041-310)
- *Communication Server 1000E Software Upgrades* (NN43041-458)

## Network check

### Checking the status of the HSP ports

Use the LD 137 STAT HSP command to check the status of the HSP. The following is a sample output of the STAT HSP command.

```
LD 137
.stat hsp
HSP LINK CARRIER: OK
Auto Negotiation: Enabled
Auto Negotiation Completed: YES
Actual Line Speed: 1000 Mbps
Actual Duplex Mode: Full Duplex
LCS HSP STATE is UP
Ethernet (gei unit number 1):
```

Internet address: 127.2.0.2  
Broadcast address: 127.255.255.255  
Ethernet address: 00:c0:8b:07:a5:9f  
Netmask: 0xff000000; Subnetmask: 0xff000000  
39698 packets received; 80156 packets sent  
0 input errors; 0 output errors  
0 collisions

---

# Appendix B: Upgrade checklists

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## Contents

This section contains information on the following topics:

Introduction . . . . .	141
Site details . . . . .	142
Upgrade details . . . . .	142
Pre-upgrade checklists . . . . .	143
Pre-conversion steps . . . . .	145
Post-conversion checks . . . . .	146

## Introduction

The following section provides 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 18**  
**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 19**  
**Upgrade details**

Current Software - Generic	
Target Software - Generic	
Hardware being added	
Feature Upgrade	
License Upgrade	

## Pre-upgrade checklists

### Software Upgrade

#### Software audit

**Table 20**  
**Software audit**

<b>Software Audit</b>		
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 21**  
**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		

## Hardware Upgrade

### Hardware audit

**Table 22**  
**Hardware audit**

<b>Hardware Audit</b>		
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		

## Pre-conversion steps

**Table 23**  
**Pre-conversion steps (Part 1 of 2)**

<b>Pre Conversion Steps</b>
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 48 STAT AML
LD 32 STAT
LD 60 STAT
LD 30 LDIS (Verify what is disabled if any)

**Table 23**  
**Pre-conversion steps (Part 2 of 2)**

Get Software Information from LD 22
ISSP - Patches in service - Future Reference if required
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

## Post-conversion checks

**Table 24**  
**Post-conversion checks**

<b>Post Conversion Checks</b>
Perform these checks after a successful INI.
Test for dial tone
Ensure that all AUX applications are working
LD 30 LDIS (Verify that output is the same prior to upgrade)

---

## Appendix C: Technical Assistance service

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### Contents

This section contains information on the following topics:

<a href="#">Services available</a> .....	142
<a href="#">Requesting assistance</a> .....	145

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. *Signaling Server: Installation and Commissioning* (NN43001-312)

If you purchased a Nortel service program, contact one of the following Nortel Technical Solutions Centers.classes of service

**Table 25**  
**Customer Technical Services (Part 1 of 3)**

Location	Contact
Nortel Global Enterprise Technical Support (GETS) PO Box 833858 2370 Performance Drive Richardson, TX 75083 USA	North America  Telephone: 1 800 4NORTEL

**Table 25**  
**Customer Technical Services (Part 2 of 3)**

Location	Contact
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 25**  
**Customer Technical Services (Part 3 of 3)**

Location	Contact
Network Technical Support (NTS)	<p>Asia Pacific  Telephone: +61 28 870 8800</p> <p>Australia  Telephone: 1800NORTEL (1800 667835) or  +61 2 8870 8800  E-mail: asia_support@nortel.com</p> <p>People's Republic of China  Telephone: 800 810 5000  E-mail: chinatsc@nortel.com</p> <p>Japan  Telephone: 010 6510 7770  E-mail: supportj@nortel.com</p> <p>Hong Kong  Telephone: 800 96 4199  E-mail: chinatsc@nortel.com</p> <p>Taiwan  Telephone: 0800 810 500  E-mail: chinatsc@nortel.com</p> <p>Indonesia  Telephone: 0018 036 1004</p> <p>Malaysia  Telephone: 1 800 805 380</p> <p>New Zealand  Telephone: 0 800 449 716</p> <p>Philippines  Telephone: 1 800 1611 0063 or 632 917 4420</p> <p>Singapore  Telephone: 800 616 2004</p> <p>South Korea  Telephone: 0079 8611 2001</p> <p>Thailand:  Telephone: 001 800 611 3007</p>

**Table 26**  
**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	_____
Description of assistance required	_____
	_____
	_____

---

## Appendix D: Supported cabling options

---

Although Nortel recommends using direct connections from the faceplate ethernet connectors of the MGC and CP PM cards to a Layer 2 switch, they also support the cabling configurations shown in this appendix.

The MGC can use the features of the Media Gateway (MG) by using two short cables to connect from the card faceplate ethernet connectors to the two front bulkhead ethernet connectors that are internally wired to the 100BaseT ethernet connectors on the rear of the MG. In addition the MGC backplane connector provides both an ELAN and TLAN connection to the 10/100BaseT ethernet connectors on the rear of the MG. Figure 35 on [page 153](#) shows both options.

**Note 1:** Connecting to the 1E and 2T ethernet connectors cause the 10/100BaseT LEDs to function on the rear of the MG.

**Note 2:** If the NTDW67 MGC Reference ROHS cable is used the LED on the back of the MG will not function. Only the faceplate LEDs will function.

**Note 3:** The CE and CT faceplate ethernet ports can be used as local ethernet maintenance ports.

CS 1000E dual-homing is supported in accordance with the following cabinets and chassis:

**Table 27**  
**Supported Cabinets and MG Chassis**

Product Number	Product Name	Vintage	Release 5.0	Dual Homing Supported
NTDU14	Media Gateway Chassis	AA	Supported	No
		CA	Supported	Yes
		DA, DAE5	Supported	Yes
NTDU15	Media Gateway Expansion Chassis	AA	Supported	N/A
		DA	Supported	N/A
		DAE5	Supported	N/A
NTDK91	Chassis System Main Chassis	BBE5	Supported	No
NTDK92	Chassis System Chassis Expander	BB	Supported	N/A
NTAK11	Main/Expansion Cabinet	BD	Supported	Yes

**Figure 35**  
**MGC cabling in a MG**

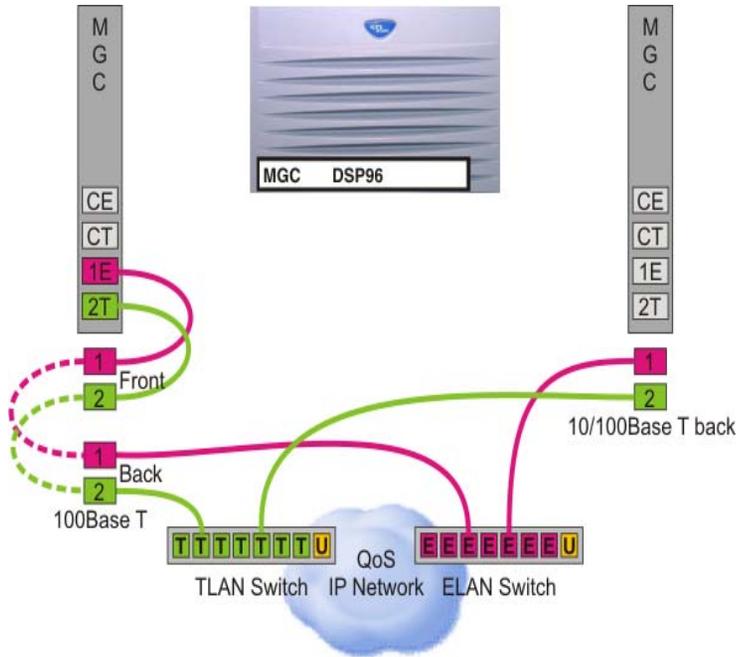


Figure 36 on page 154 demonstrates the MGC cabling in a dual-homed configuration.

**Figure 36**  
**MGC Dual-homed in a MG**

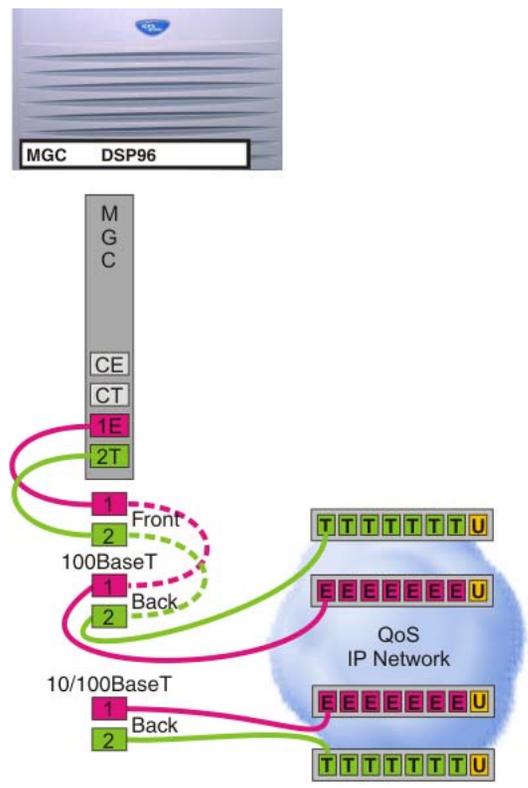
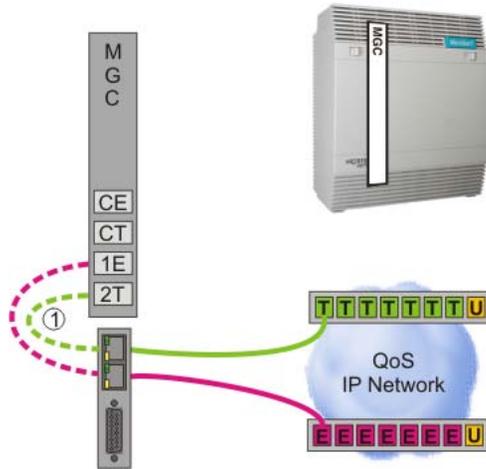


Figure 37 on [page 155](#) shows the MGC cabling from the backplane connector to the MGC 100BT connector Cabinet.

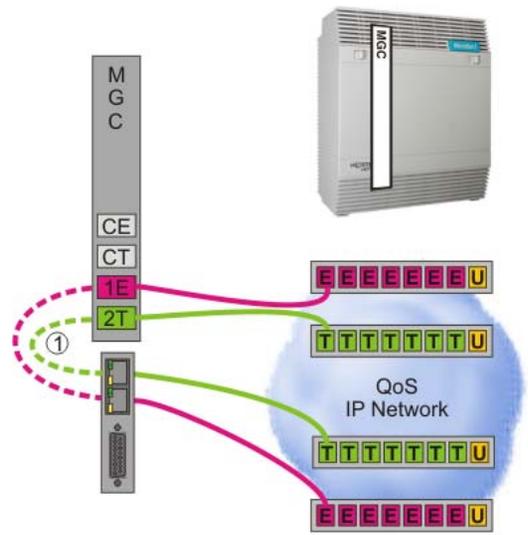
**Figure 37**  
**MGC using MGC 100BT in a Cabinet**



Note 1: Internal backplane to MGC 100BT Adapter (NTDW63)

Figure 38 on page 156 shows the MGC in a dual-homed configuration in a Cabinet.

**Figure 38**  
**MGC Dual-homed in a Cabinet**



Note 1: Internal backplane to MGC 100BT Adapter (NTDW63)

Figure 39 on [page 157](#) shows the MGC and CP as a SA Call Server in a MG.

**Figure 39**  
**SA Call Server in a MG**

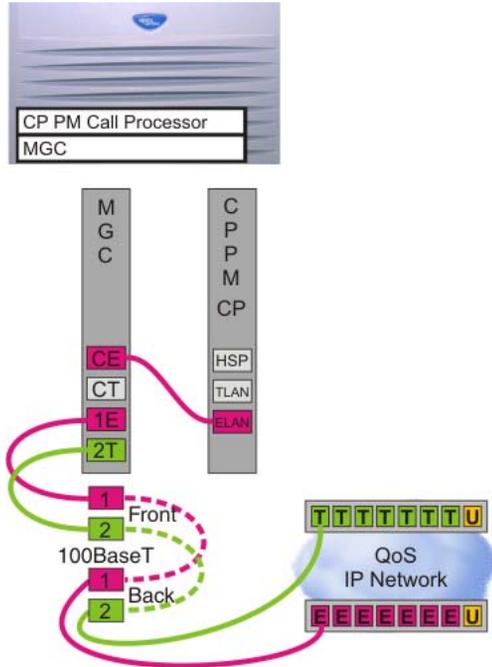
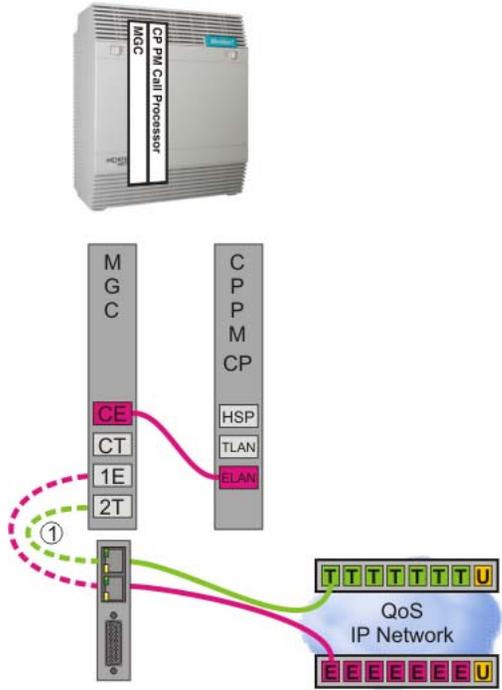


Figure 40 on page 158 shows the MGC and CP as a SA Call Server in a Cabinet.

**Figure 40**  
**SA Call Server in a Cabinet**



Note 1: Internal from backplane to MGC 100BT

Figure 41 on [page 159](#) shows a SA Call Server with a Signaling Server in a MG.

**Figure 41**  
**SA Call Server with SS in a MG**

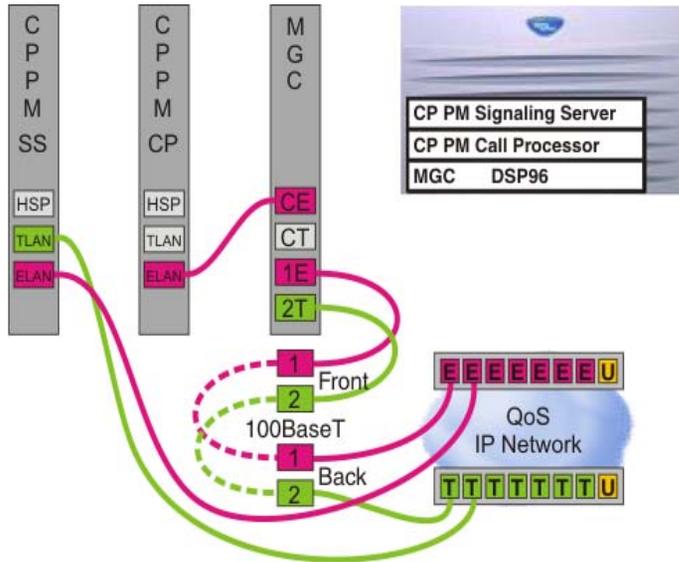
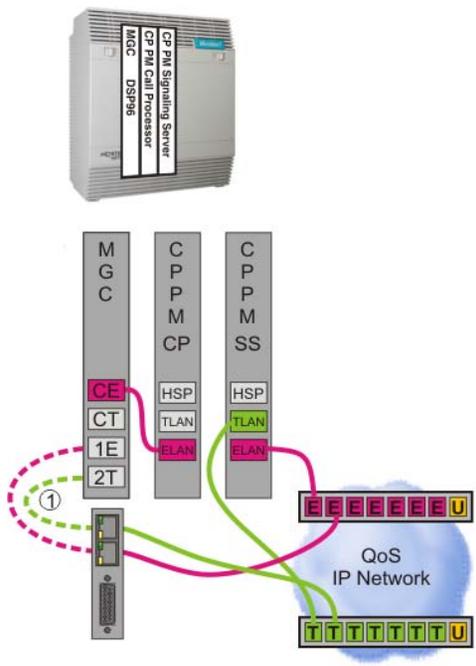


Figure 42 on page 160 shows a SA Call server with a Signaling Server in a Cabinet.

**Figure 42**  
**SA Call Server with SS in a Cabinet**



Note 1: Internal backplane to MGC 100BT Adapter (NTDW63)

Figure 43 on [page 161](#) shows a Dual-homed HA Call Server with the HSP in Media Gateways.

**Figure 43**  
Dual-homed HA Call Server with HSP in MG

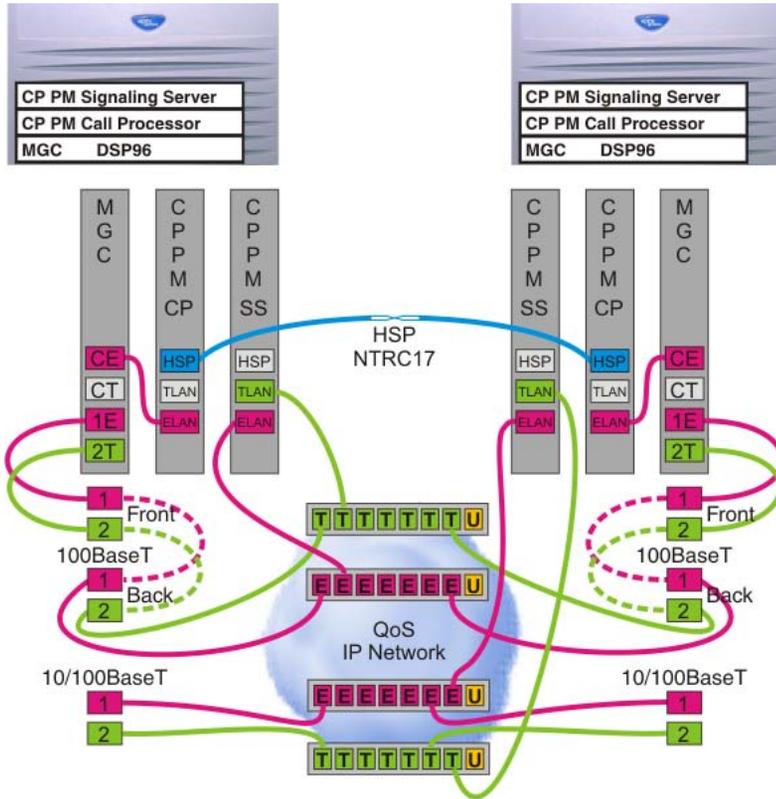
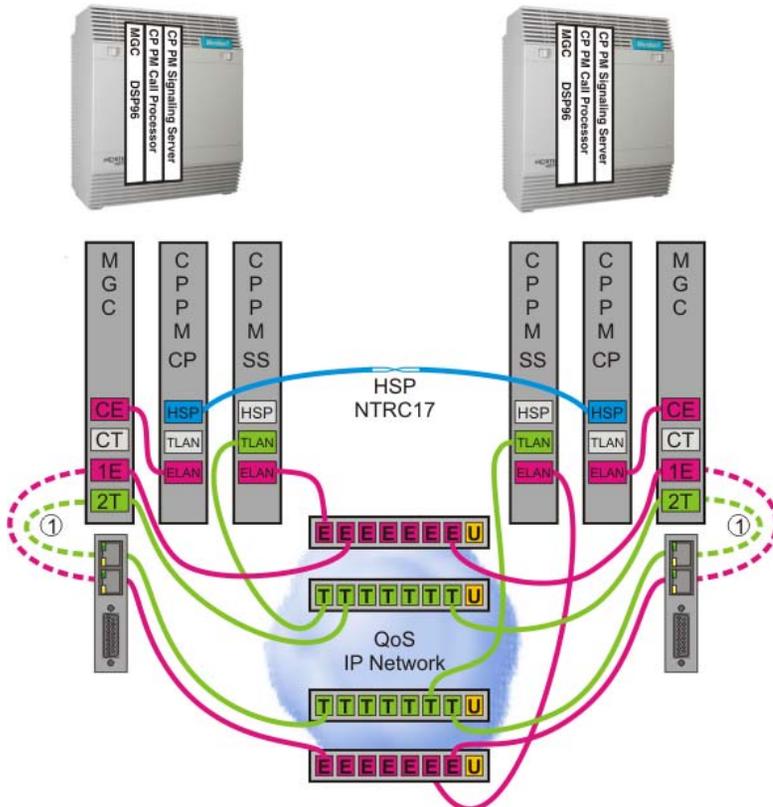


Figure 44 on page 162 shows a Dual-homed HA Call Server with the HSP in Cabinets.

**Figure 44**  
Dual-homed HA Call Server with HSP in Cabinets



Note 1: Internal backplane to MGC 100BT Adapter (NTDW63)

Figure 45 on [page 163](#) shows a Dual-homed HA Call Server with a dual-homed HSP in Media Gateways.

*Note:* This configuration does not support DSP daughterboards on the MGC.

**Figure 45**  
Dual-homed HA Call Server with a dual-homed HSP

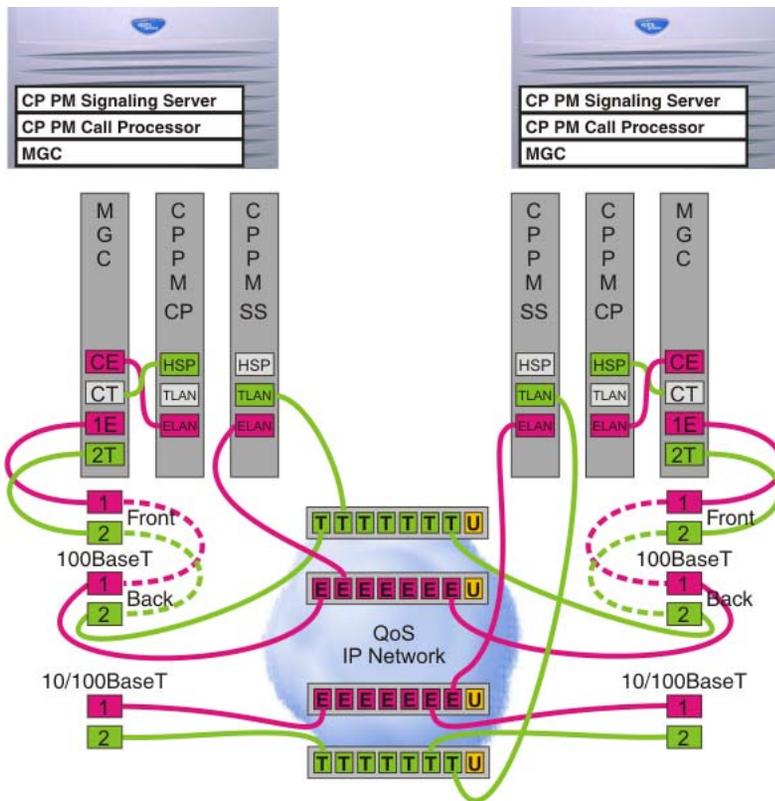
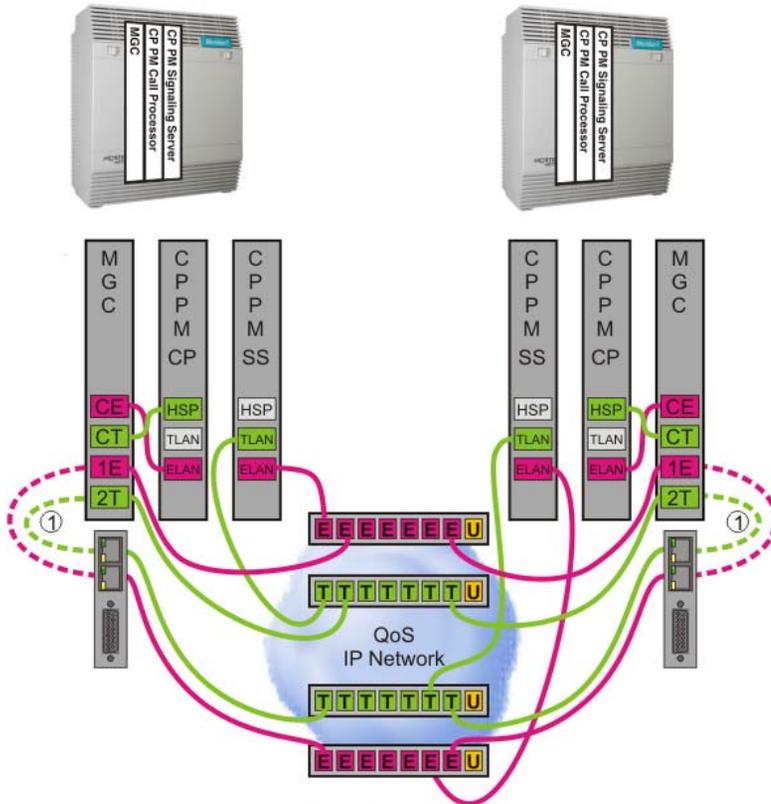


Figure 46 on [page 164](#) shows a Dual-homed HA Call Server with a dual-homed HSP in Cabinets.

*Note:* This configuration does not support DSP daughterboards on the MGC.

**Figure 46**  
Dual-homed HA Call Server with dual-homed HSP



Note 1: Internal backplane to MGC 100BT Adapter (NTDW63)



Nortel Communication Server 1000

## **Communication Server 1000E**

### **Upgrade**

#### Hardware Upgrade Procedures

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